

Clackamas Subbasin Agricultural Water Quality Management Area Plan

Guidance Document

Developed by
The Clackamas Subbasin Local Advisory Committee

with assistance from

**The Oregon Department of Agriculture
and
The Clackamas County Soil and Water Conservation District**

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ACRONYMS AND ABBREVIATIONS

AgWQM	Agricultural Water Quality Management
Area Plan	Clackamas Subbasin AgWQM Area Plan
Area Rules	Clackamas Subbasin AgWQMArea Rules
CREP	Conservation Reserve Enhancement Program
DEQ	Department of Environmental Quality
FOIA	Freedom of Information Act
IPM	Integrated Pest Management
LAC	Local Advisory Committee
LMA	Local Management Agency
NRCS	Natural Resources Conservation Service
OAR	Oregon Administrative Rules
ODA	Oregon Department of Agriculture
ORS	Oregon Revised Statutes
OWRD	Oregon Water Resources Department
SWCD	Soil and Water Conservation District
TMDL	Total Maximum Daily Load
USDA	United States Department of Agriculture
Voluntary Plan	Voluntary Water Quality Farm Plan

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FOREWORD

This agricultural water quality management Area Plan (Ag WQM Area Plan) provides guidance for addressing agricultural water quality issues in the Clackamas Subbasin AgWQM area. The purpose of this Area Plan is to identify strategies to reduce water pollution from agricultural lands through a combination of educational programs, suggested land treatments, management activities, and monitoring.

The provisions of this Area Plan do not establish legal requirements or prohibitions.

The ODA will exercise its enforcement authority for the prevention and control of water pollution from agricultural activities under administrative rules for the Clackamas Subbasin management area, OAR 603-095-1200 through 603-095-1280, and ODA's general agricultural water quality management program rules found in OAR 603-090-0000 through 603-090-0120.

INTRODUCTION

This document is a plan to enhance, minimize and control factors affecting water quality from agricultural activities in the Clackamas Subbasin and other tributaries. The plan was created through the joint efforts of a Local Advisory Committee consisting predominantly of affected landowners/operators residing within the subbasin, ODA and the Clackamas County Soil and Water Conservation District (SWCD). This plan applies to all land currently in agricultural use, regardless of size, within the Clackamas Subbasin management area. For example, the plan applies equally to large commercial production lands and to small rural land grazing a few animals. It also applies to all agricultural lands which lay idle or on which management has been deferred. However, urban areas and land subject to the Forest Practices Act, which are not involved with agricultural activities, are not subject to this plan.

The 1993 Oregon Legislature passed Senate Bill 1010, providing for the Oregon Department of Agriculture (ODA) to be the lead state agency to work with agriculture to address water pollution. The bill is codified at ORS 568.900 – 568.933 and is referred to as the Agricultural Water Quality Management Act. Under the law, ODA is authorized to develop and carry out an AgWQM Area Plan for any agricultural or rural lands. This plan has been developed pursuant to the Agricultural Water Quality Management Act.

In 1995, the Oregon Legislature passed SB 502, now codified at ORS 561.191, authorizing ODA to develop and implement any program or rules that directly regulate farming practices for the purpose of protecting water quality and that are applicable to areas of the state designated as exclusive farm use zones or other agricultural lands. Under these statutes, ODA is the agency responsible for regulating agricultural activities in Oregon as they affect water quality.

In 1997, Oregonians began the implementation of the Oregon Plan for Salmon and Watersheds (Oregon Plan). The Oregon Plan's mission is to restore native fish populations – and the aquatic

systems that support them – to productive and sustainable levels that will provide substantial environmental, cultural, and economic benefits. Senate Bill 1010 has been incorporated into the Oregon Plan for Salmon and Watersheds to be agriculture’s response to water quality issues associated with the salmon decline.

The ODA is the “Designated Management Agency” for water pollution control activities on agricultural and rural lands in the Clackamas Subbasin Management Area. Through a Memorandum of Agreement, ODA designated the Clackamas County SWCD as its Local Management Agency for implementation of the agricultural and rural water quality program in the management area and other tributaries that have been included for management purposes.

Soil and Water Conservation Districts have a long standing record of effectively identifying conservation concerns, developing action plans to address problems, and facilitating assistance to agricultural operators who voluntarily participate in conservation programs. Districts work cooperatively with many groups including the United States Department of Agriculture (USDA), USDA Natural Resources Conservation Service, the USDA Farm Service Agency, and the Oregon State University Cooperative Extension, Clackamas County Stockman’s Association, Northwest Dairy Goat Association, Clackamas County Farm Forest Association, and local businesses. These groups provide technical, financial, and educational assistance to individual agricultural operators for the installation of conservation and pollution control measures. Districts also play an important role in the development of partnerships between local agencies, volunteer organizations, and private landowners/operators to address natural resource and conservation issues.

A Local Advisory Committee was formed in December 1998 to assist ODA with the development of the Clackamas Subbasin AgWQM Area Plan and rules, and to recommend strategies to achieve the water quality goals and objectives of the plan. The committee is comprised predominantly of agricultural producers who live within the Clackamas Subbasin. The members are involved in a wide variety of operations including dairy, row crops, nursery, livestock, Christmas trees, equestrian, and berries. The Clackamas River Basin Council, Clackamas County Water Environment Services, and the Clackamas County SWCD are also represented on this committee.

STRATEGY FOR PUBLIC PARTICIPATION

The original Clackamas Subbasin AgWQM Area Plan was developed by the Clackamas Subbasin Local Advisory Committee (LAC) and ODA, with aid from the Clackamas County SWCD, and was presented to the State Board of Agriculture for their review and consultation.

With the State Board of Agriculture’s approval, the draft plan and the associated rules were presented to the public through two informational meetings and one formal public hearing within the agricultural and rural portions of the Clackamas Subbasin management area. The ODA reviewed testimony presented at public hearings and during the public comment period. With assistance from the LAC, the ODA modified the Area Plan and Area Rules as necessary to

address those issues. Recommended modifications were presented to the Board of Agriculture and the director of the ODA for their review.

Final acceptance and adoption of the Area Plan and Area Rules resulting from this review is the responsibility of the Director of the ODA in consultation with the State Board of Agriculture.

BACKGROUND

Geographical and Physical Setting

The Clackamas Subbasin is in western Oregon with most of the subbasin located in Clackamas County and a small southern portion in Marion County. The Clackamas River drains 940 square miles or 600,700 acres which eventually flows into the Willamette River in the Gladstone / Oregon City area. For management purposes, this plan also encompasses several other drainages that flow directly into the Willamette River. The Abernathy Creek and Beaver Creek / Parrot Creek drainage flow into the Willamette from the east, entering at Oregon City. The remaining drainages are located west of the Willamette River in the Wilsonville area. Some of the creeks in this area are Newland Creek, Boeckman Creek, Seely Ditch, Coffee Lake Creek, and Corral Creek. There are fourteen creeks total, constituting 136 square miles. Because of this addition, the Clackamas Subbasin AgWQM area is a total of 1,076 square miles or 688,351 acres (Figure 1).

Elevation in the Clackamas Subbasin ranges from 12 feet at the Willamette River to 6,000 feet in the Cascade Range. The amount of rainfall ranges from 46.5 inches in the valley to an average of about 51.3 inches at Clackamas Lake (3,400 feet). Annual snowfall averages about 13.5 inches. The ratio for snowfall is ten inches of snow per one inch of rain (Fox, 1999).

The Clackamas Subbasin has an average road density of 3.5 miles of road for every square mile of land. The highest road densities occur in the Lower Clackamas River watershed with 5.6 miles of road per square mile, followed by Richardson Creek watershed, 5.0 miles of road per square mile, and Rock Creek watershed, 4.7 miles of road per square mile (Metro, 1997). The Clackamas Subbasin also contains an estimated 13.1 road-stream crossings per square mile of land (Metro, 1997).

The estimated percent of impervious area in the Clackamas Subbasin is approximately 4 percent. Impervious surfaces include paved areas, building roofs, compacted soils, or any other impervious surface that would allow water to run off to nearby storm drains or streams. The highest figures for impervious area range from 20 to 22 percent and occur in the more urbanized watersheds (Metro, 1997).

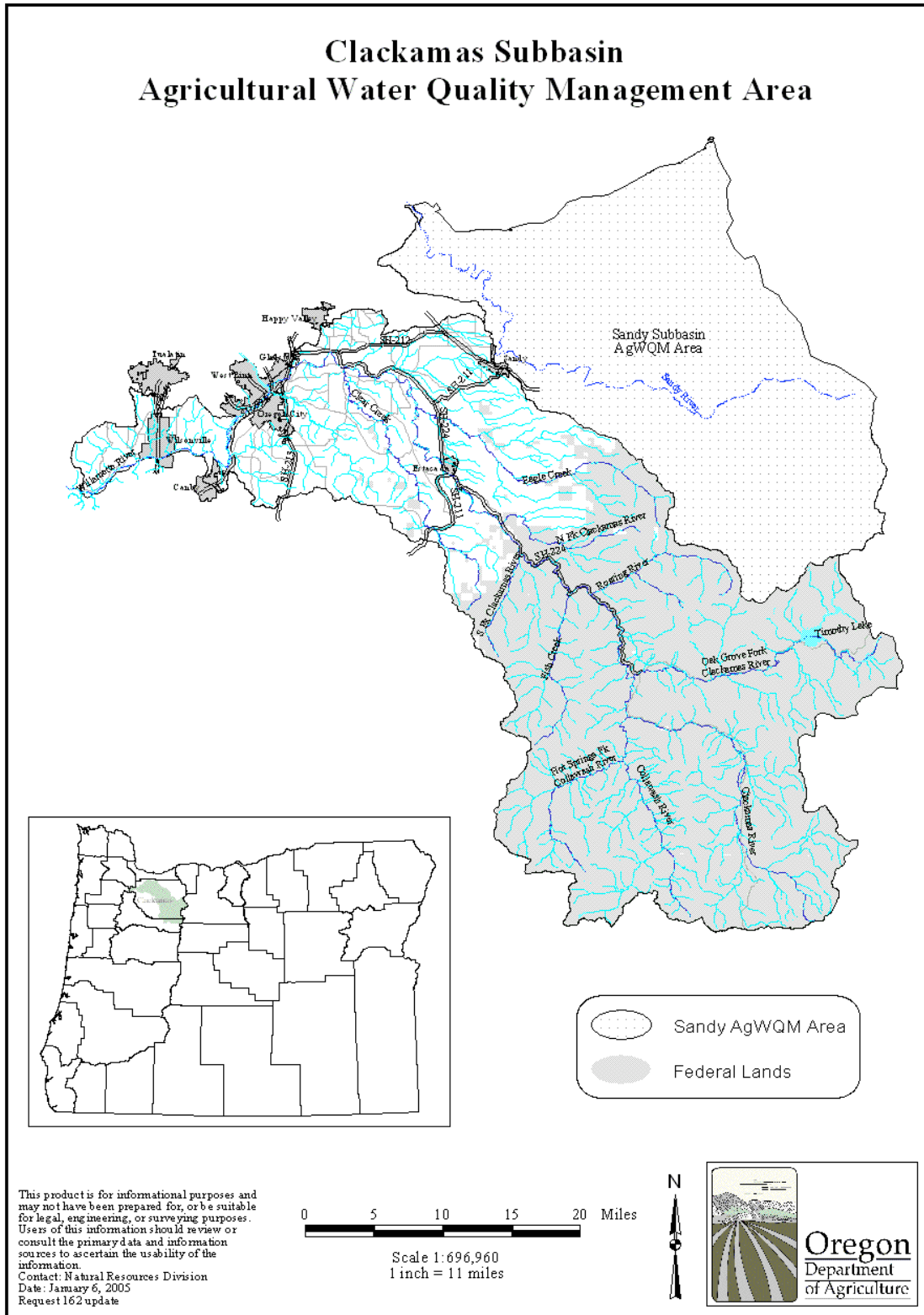
Approximately 13 percent of land in the Clackamas Subbasin management area has a high susceptibility to landslide activity. The highest percentages of land susceptible to landslides

occur in the watersheds located on lands managed by the United States Forest Service (Metro, 1997).

The Clackamas Subbasin includes a number of hot springs. Austin Hot Springs is located along the Upper Clackamas River. Numerous hot springs, including Bagby Hot Springs, are located along the Hot Springs Fork of the Collawash River.

Portland General Electric operates five hydroelectric facilities in the Management Area. Three facilities are on the mainstem. Rivermill powerhouse is located at river mile 23, Casaderio diversion and the Faraday powerhouse are located at river mile 26 and the North Fork powerhouse is located at river mile 30. The other two facilities, Harriet Lake Dam and Timothy Lake Dam, help to form Harriet and Timothy Lakes. The Timothy Lake facility, on the Oak Grove Fork, is the only large storage facility.

Figure 1. Clackamas Subbasin



The predominant land use in the management area is timber, most of it occurring on federal lands in the eastern part of the subbasin. Fifty-four percent of land in the subbasin is US Forest Service National Forest Land (Table 1). In the Willamette Valley portion of the subbasin, the dominant land use is rural and agriculture, with the urban areas quickly expanding. In 2006 the population of Clackamas County was estimated to be 374,230. (<http://quickfacts.census.gov/qfd/states/41/41005.html>)

Clackamas County's agricultural industry is ranked second in the state in all farm sales with \$400 million in annual revenue. The County is ranked first in Oregon for the sale of nursery crops and Christmas trees, the number of farms (3,700), the number of farms in certified organic production (63), and the number of horses (9,300), a \$32 million industry that is ranked 9th nationally. Most Clackamas County farms are small - 50 percent are less than 10 acres, and only 25 percent are larger than 21 acres. (<http://web4.co.clackamas.or.us/mrm/3110.html>)ⁱ

Most of the farmland is located in the western portion of the subbasin starting around the cities of Oregon City and Wilsonville and going east through the valley into Sandy and Estacada. The majority of agricultural lands are located on rolling hills and high terraces with somewhat to well-drained soils. A portion of the agricultural land is artificially drained. The slopes of most of the cultivated land ranges from zero to eight percent with some cultivated areas having slopes ranging from seven to thirty percent (Gerig, 1982). The different types of agriculture include caneberries, nursery stock, orchards, row crops, dairy farms, grasses, irrigated hay and pasture, livestock, dry-land farm crops (e.g., cereal grains) and specialty crops. The total agricultural sales in Clackamas County in 2005 was \$354,870,000 (Table 2), and in 2006 was \$394,556,000.

The types of crops grown in the management area have shifted during this century. In the mid-1800's farming was based on subsistence so it was common for people to have small dairies. In the late 1800's Italian prune orchards were common, especially in the Springwater area. Around 1900 a railroad reaching Estacada was built and dams on the Clackamas River were constructed. This helped change the focus of agriculture to grain, berries and filberts. In the 1920's and 30's more people started specializing in dairies, potatoes and converting grain to grass seed, especially fine fescue. Many of these crops have been converted to Christmas trees and nursery stock with berries still common in the Sandy/Damascus area.

Farming practices have also undergone changes in the Clackamas Subbasin Management Area. Cover cropping and field buffer strips are an example of some of the methods being used to minimize erosion. The improvement of equipment has allowed for fewer trips over a field, resulting in decreased compaction of soil. Sub-soiling has also helped to reduce runoff and compaction.

The slow release of snowmelt from the Cascades helps keep stream temperatures cool and maintain the summer flows. However, changes in natural cover or land uses can affect flow. Natural cover increases infiltration and allows a slow release of water. This in turn helps maintain summer flows and low stream temperatures. With the removal of natural cover, runoff

ⁱ Added during the 2008 Biennial Review

rates increase and stream discharge peaks rise faster and higher with storm events, resulting in higher and sharper peak flows.

Table 1. Land Ownership in the Clackamas Subbasin

Landowner	Acres	Percent
Federal - USFS National Forest	414,419	50.1%
Private - Agriculture	233,261	28.2%
Private - Non-Agriculture	149,001	18.0%
Indian Reservation	17,227	2.1%
Federal - BLM	13,755	1.7%
State Lands	86	< 0.1%
Acreage Totals	827,749	100%

BLM - U.S. Bureau of Land Management

USFS - U.S. Forest Service

Source: Oregon Geospatial Data Clearinghouse, 1992-1993

USGS & USEPA, 1999

Table 2. Agricultural Production in Clackamas County, 2006

Commodity	Value of Sales (000)
All Crops	\$305,778
All Livestock	\$49,101
Total Agricultural Production	\$354,870

Source: 2005-2006 Oregon Agriculture & Fisheries Statistics

Water Resources

Appropriated water in the Clackamas Subbasin management area is diverted primarily for municipal, fish, industrial, hydropower and irrigation use. The primary consumptive use for which water rights are issued in the Clackamas Subbasin is municipal. The amount of water appropriated in the Clackamas Subbasin is 716 cubic feet per second (cfs) and 30 cfs from the Willamette for the Wilsonville area. Fifty-eight cfs are allocated for irrigation in the Clackamas Subbasin. An estimated 26,927 acres were irrigated in the Clackamas Subbasin in 2002 (USDA NASS).ⁱ Of this, 67 percent was irrigated with surface water. By 2010, irrigated acreage is expected to increase to 9,000 acres, with 70 percent of this acreage being irrigated with surface water (Oregon Water Resources Department, 1992).

Stream flow in the Clackamas Subbasin varies throughout the year and the high and low flows have different impacts on the landscape and resources. Stream flows vary widely between summer and winter. At its confluence with the Willamette River, the Clackamas River discharges a mean peak rate of 8,139 cfs in February. The mean low occurs in August with 1,276 cfs (Oregon Water Resources Department, 1992). During the winter high stream flows, a

ⁱ Added during the 2008 Biennial Review

prominent resource concern is soil erosion. Higher stream temperatures associated with low flow in the summertime are a major factor affecting aquatic life. Additionally, flows on some of the tributaries, such as Clear Creek, Deep Creek, and the Roaring River do not support all instream and out-of-stream uses year round.

Biological Resources

The diversity and acreage of natural wildlife habitats in the subbasin has been reduced as land has been converted from natural forest and grasslands to managed forests, pasture, cropland, homesteads, and urban areas. As a result of the changes in land use, some of the ecological functions of wetlands and riparian areas have been impaired. These areas filter contaminants, trap sediment, and provide wildlife habitat. Wetland and riparian vegetation also regulates hydrologic fluctuations by retaining water during high flows. This water is then a source for replenishing groundwater and regulating instream flows during summertime drought.

The Clackamas Subbasin hosts a number of vertebrate species that depend on aquatic habitats. Native, non-game fish species include various sculpins (*Cottid spp.*), red-side shiner (*Richardsonius balteatus*), northern pikeminnow (*Ptychocheilus oregonensis*), suckers and the Pacific lamprey (*Lampetra tridentata*), which is considered a sensitive species by the Oregon Department of Fish and Wildlife. Game species such as steelhead (*Oncorhynchus mykiss*) are presently listed as threatened under the Endangered Species Act for the Lower Columbia River and the Upper Willamette. Lower Columbia and Upper Willamette River chinook salmon (*Oncorhynchus tshawytscha*) are listed as threatened under the Endangered Species Act. Southwestern Washington/Columbia River sea-run cutthroat trout (*Oncorhynchus clarki clarki*) are proposed for listing as threatened. The Lower Columbia River coho salmon (*Oncorhynchus kisutch*) are candidate species for listing (US Fish and Wildlife Service, 2000). The above species cannot be found in all streams within the Clackamas Subbasin.

Other aquatic vertebrates in the subbasin include the Pacific giant salamander (*Dicamptodon ensatus*). The Oregon spotted frog (*Rana pretiosa*) is a candidate species for listing under the Endangered Species Act. Other sensitive amphibian species in Clackamas County include the tailed frog (*Ascaphus truei*), northwestern pond turtle (*Clemmys marmorata marmorata*), northern red-legged frog (*Rana aurora aurora*) and the cascades frog (*rana cascadae*). Beavers (*Castor canadensis*), muskrats (*Ondatra zibethica*), and river otters (*Lutris canadensis*) are also common in Clackamas County. Several types of geese, ducks and other bird species also live and feed in the subbasin's aquatic habitats.

WATER QUALITY ISSUES

Parameters of Concern

A number of waterbodies within the Clackamas Subbasin are water quality limited for one or more parameters. Oregon DEQ is required to submit a list of these waterbodies to the US Environmental Protection Agency (USEPA) every two years under section 303(d) of the Federal Clean Water Act. Parameters of concern in the Clackamas Subbasin are temperature and *E.coli*. The following table reflects the 2002, 2004 and 2006 changes to the 303(d) list.

Stream	Parameter	Comments
Bargfeld Creek	<i>E. Coli</i>	Added in 2002
Bear Creek	Temperature	Added in 2004/2006
Clackamas River	<i>E. Coli</i> and Temperature	Added in 2002
Collowash Creek	Temperature	Added in 2004/2006
Cow Creek	<i>E. Coli</i>	Added in 2002
Deep Creek	<i>E. Coli</i>	Added in 2002
Eagle Creek	Temperature	Added in 2002
Fish Creek	Temperature	Added in 2004/2006
Nohorn Creeek	Temperature	Added in 2004/2006
North Fork Deep Creek	<i>E. Coli</i>	Added in 2002
North Fork Eagle Creek	Temperature	Added in 2004/2006
Rock Creek	<i>E. Coli</i>	Added in 2002
Sieben Drainage Ditch	<i>E. Coli</i>	Added in 2002
Tickle Creek	<i>E. Coli</i>	Added in 2002

In response to these listings, the Oregon Department of Environmental Quality has developed Total Maximum Daily Loads (TMDLs) for these parameters that apply to the entire Clackamas Subbasin. In general, TMDLs describe loading allocations for these parameters and have been developed for each subbasin. You may view the Clackamas Subbasin TMDL at <http://www.deq.state.or.us/wq/assessment/rpt0406/search.asp#db> .

Many of the pollution sources cited here and in the Geographical and Physical Setting affect water quality but are beyond the scope and influence of agricultural landowners and occupiers. These landowners and occupiers are not responsible for mitigating or dealing with those factors beyond their control. These factors include but are not limited to:

- Hot springs on the Clackamas River and other bodies of water in the subbasin.
- Septic systems and public sewage disposal.
- Public roadways or rights of way or easements next to streams, rivers or other bodies of water.
- Public culverts, roadside ditches, drainage and shoulders.
- Dams, hydroelectric plants, impoundments.
- Housing and other development in agricultural land areas.
- Any other factor which occurs on public or private lands outside the direct control of the landowner/operator.

There are two fundamental types of water pollution in the Management Area. Point source pollution emanates from clearly identifiable discharge points such as wastewater plants. Potential agricultural sources include livestock operations where waste is accumulated, collected,

and stored. Non-point source pollution originates from the general landscape and is difficult to trace to a single point. Pollutants from non-point sources are carried to the surface water or groundwater through the action of rainfall, snowmelt, irrigation runoff, and seepage. Non-point sources of pollution in the subbasin include erosion from development in urban areas, agricultural and forest lands, streambanks, and roadsides; contaminated runoff from livestock and other agricultural operations, contaminated runoff from established urban areas, septic systems, and natural sources.

The Estacada wastewater treatment plant discharges approximately 600,000 gallons per day directly into the Clackamas River. Other plants within the Clackamas Subbasin are the Sandy plant, which discharges approximately 1.5 million gallons per day into Tickle Creek, and the Boring plant, which discharges approximately 20,000 gallons per day into Deep Creek. The Mt. Hood National Forest manages the Timberlake/Ripplebrook Wastewater Treatment Plant. The plant averages a discharge of 33,000 gal per day with most of it being collected into onsite ponds. During high rain periods, the pond gates are opened allowing the treated water to enter the Clackamas River.

The source of water for the City of Sandy originates from the Sandy Subbasin and is discharged into the Clackamas Subbasin. The City of Sandy has started a program of diverting its discharge water to a nursery in Boring to be used for irrigation between May 1st and October 30th.ⁱ

The urban sector of the Clackamas Subbasin management area has additional point and non-point water quality issues to address. A large effort has been focused on stormwater and surface water runoff. Numerous programs, cooperative projects, and regulations are in place to address surface water issues. Efforts include proper septic disposal, erosion control, regulations for new development, public education, maintenance, water quality monitoring, disposal of vector waste, and treatment of runoff from impervious surfaces.

Effects on Beneficial Uses

Good water quality is a benefit to many different uses. Beneficial uses of water in the Clackamas Subbasin include production agriculture; fishing; swimming; boating; habitat for aquatic organisms and wildlife; native species enhancement; irrigation; domestic, municipal, and industrial water supplies; hydropower; and aesthetics. While there may not be severe impacts on water quality from a single source or activity, the combined effects from all sources contribute to the impairment of beneficial uses of the subbasin's water. Most of the beneficial use impairments occur during the summer, low flow periods.

MISSION

The mission of this plan is to identify and address water quality limiting factors on agricultural and rural lands within a framework of economic profitability and agricultural viability. The plan is designed to achieve applicable state water quality standards.

ⁱ Edited during the 2008 Biennial Review

GOALS AND OBJECTIVES

1. Reduce, minimize and control water pollution and soil erosion from agricultural activities to achieve applicable water quality standards. This involves controlling pollution as close to the source as possible.

Objectives

- Minimize erosion and sediment from agricultural and rural lands.
 - Manage irrigation and tail water runoff to waters of the state.
 - Limit livestock access to streams, wetlands, and riparian areas and promote management of animal waste to minimize runoff to waters of the state.
 - Recognize the importance of riparian areas, and their role in positively affecting water temperature and turbidity, and encourage the maintenance, restoration, and enhancement of the capability of these areas.
2. Contribute to the improvement of water quality in the Clackamas Subbasin such that all streams in the subbasin can meet water quality standards.
 3. Create a high level of awareness and understanding of water quality issues among the producer and agribusiness community and the public through education and technical assistance activities from the point of view of the agricultural industry.

Objectives

- Conduct education programs to promote public awareness of water quality issues and their solutions.
 - Develop education programs to promote demonstration projects that showcase successful conservation management strategies and systems.
 - Produce and distribute an SWCD newsletter that includes water quality information.
 - Develop an ongoing media program to inform subbasin agricultural operators and the public of conservation issues and events.
 - Create and maintain a list of experienced agricultural operators willing to share their successes with other interested people by speaking, leading tours, and providing tour sites.
 - Build partnerships with agribusiness to promote conservation.
 - Sponsor workshops and tours.
 - Assist landowners and operators conducting agricultural management or land disturbing activities who chooses to develop and implement a Voluntary Water Quality Farm Plan.
 - Access ongoing research and effective solutions to water quality problems.
4. Monitor and evaluate the effectiveness of this Area Plan.

Objectives

- Work with the ODA and Department of Environmental Quality to establish ways to measure plan success.

- Cooperate with state agencies and organizations such as the Clackamas River Basin Council to inventory and assess watershed conditions and sources of pollution in the subbasin.
- Implement the Monitoring and Evaluation section of this Area Plan.

5. Secure adequate funding for administration and implementation of the program to achieve mission, goals, and objectives

Objectives

- Request the Clackamas County SWCD to include the Clackamas Subbasin AgWQM Area Plan in their annual and long range work plans.
- Ensure adequate administration of the Area Plan.
- Obtain funding for implementation of conservation planning assistance, conservation education and water quality monitoring.
- Submit grants applications to USDA, U.S. Environmental Protection Agency, Oregon Department of Environmental Quality, Oregon Department of Agriculture, Oregon Watershed Enhancement Board, and other funding agencies.
- Submit ongoing reports of successes to granting agencies.
- Form partnerships with the agribusiness sector and others for additional funding.

6. Base actions on sound conservation planning.

STRATEGIES TO ACHIEVE GOALS AND OBJECTIVES

Voluntary Approach

To the greatest degree possible, prevention and control of agricultural pollution will be encouraged in a cooperative spirit through the voluntary efforts of landowners, aided by information and technical and financial assistance from local, state, and federal agencies, and others.

Education is the key to the success of this Area Plan. The Clackamas County SWCD, NRCS, Oregon State University, and other groups and agencies will work together to provide agricultural landowners in the management area with information about the goals, objectives, and requirements of the Area Rules.

The following strategies will be employed at the local level by the Local Management Agency in cooperation with landowners, other agencies, and organizations.

1. Work to improve the quality of water in the management area through planning and implementation of technically sound and economically feasible conservation management strategies that contribute to meeting Area Plan objectives.

2. Create a high level of awareness and an understanding of water quality issues among the agricultural community and rural public, in a manner that minimizes conflict and encourages cooperative efforts, through education and technical assistance.
 - a. Incorporate Area Plan implementation as a priority element in the Clackamas County SWCD's Annual Work Plan and Long Range Plan, with support from partner organizations.
 - b. Promote cooperative on-the-ground projects in cooperation with partner organizations to solve critical problems identified by landowners and land managers.
 - c. Showcase successful management strategies and systems and conduct annual tours for landowners and media.
 - d. Recognize successful projects and management strategies through appropriate media and newsletters.
 - e. Conduct educational programs to promote public awareness of water quality issues and their solutions.
 - f. Proactively offer and provide site evaluations on any lands within the management area to assess conditions that may affect water quality.
 - g. Prioritize sub-watersheds within the management area for targeting implementation strategies.
3. Show progress in reduction of pollution from agricultural and rural lands through periodic surveys of stream reaches and associated lands.
4. Encourage adequate funding and administration of the program to achieve Area Plan goals and objectives by systematic, long-range planning and focusing of coordinated efforts on full-scale, watershed-based approaches; identifying needs; developing projects; actively seeking funding; and ensuring successful implementation of funded projects.

Regulatory Measures

Prevention and Control Measures

The emphasis of the Clackamas Subbasin AgWQM Area Plan is to promote voluntary actions by landowners or operators to control the factors affecting water quality in the Clackamas Subbasin Management Area. Prevention and control measures are a set of minimum standards that must be met on all lands in agricultural use, and are defined in the administrative rules for the Clackamas Subbasin (OAR 603-095-1240). The applicable rules are referenced here in the box within each prevention and control measure for education purposes only.

Criteria do not apply to conditions resulting from unusual weather events or other exceptional circumstances that could not have been reasonably anticipated, such as fire, natural disaster, or extreme weather conditions.

Producers who fail to address these prevention and control measures either with or without an individual conservation plan may be subject to enforcement procedures based upon the administrative rules. Enforcement procedures to be pursued by the ODA upon documentation of a violation are outlined in the Resolution of Complaints and Enforcement section of this plan.

For a description of the 303(d) list parameters that are impacted by these prevention and control measures, please refer to Appendix A.

Streamside Area Condition

OAR 603-095-1240

(2) Streamside Area Condition. Effective upon rule adoption.

(a) Streamside area conditions shall allow the establishment, growth, and/or maintenance of native or non-native riparian vegetation appropriate to the site capability, that is sufficient to encourage shade and to protect the streamside area during high stream flow events up to and including those expected to occur during or following a 25-year, 24 hour storm event.

Schedule

Effective upon rule adoption

Agricultural Waste

OAR 603-095-1240

(3) Agricultural Waste. Effective upon rule adoption.

(a) No person subject to these rules shall violate any provision of ORS 468B.025 or ORS 468B.050.

Schedule

Effective upon rule adoption

Definitions

Wastes – Sewage, industrial wastes, and all other liquid, gaseous, solid, radioactive, or other substances which will or may cause pollution or tend to cause pollution of any waters of the state. For the purposes of this plan, “wastes” include but are not limited to commercial fertilizers, soil amendments, composts, animal wastes, vegetative materials, or any other wastes. ORS 468B.005(7).

Waters of the State – Includes lakes, bays, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Pacific Ocean within the territorial limits of the State of Oregon and all other bodies of surface or underground waters, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters which do not combine or effect a junction with natural surface or underground waters), which are wholly or partially within or bordering the state of within its jurisdiction. ORS 468B.005(8).

Resolution of Complaints and Enforcement Actions

There are times when the Oregon Department of Agriculture (ODA) becomes aware of an apparent occurrence of agricultural pollution through a written complaint, its own observations, or through notification by another agency. In those instances, ODA may conduct an investigation and may take enforcement actions pursuant to OAR 603-090-0060 through 603-090-0120 when reasonable attempts at initiating voluntary landowner involvement have failed.

ODA may investigate complaints from individuals against operators or landowners who are alleged to be out of compliance with OARs for the Management Area. Individual complaints must relate to a specific property being managed under conditions resulting in a potential violation, and contain a thorough description of the problem. The complaint must be filed with the department in writing and be signed by the complainant.

If and where other governmental policies, programs, or regulations conflict with the management Area Rules, ODA will consult with the agency(ies) and attempt to resolve the conflict in a reasonable manner.

A landowner/operator with an approved Voluntary Water Quality Farm Plan (approved Voluntary Plan) may receive limited "safe harbor" from enforcement by ODA. This limited exemption may be applied if the approved Voluntary Plan has been developed and is being implemented in accordance with OARS 603-095-1260.

The LAC has expressed concern that the existence of a Voluntary Plan may increase the risk of a third party lawsuit or enforcement action from state or federal agencies. The basis for this concern is the belief that by identifying water quality problems within the context of a Voluntary Plan, landowners may be establishing the basis for being held responsible for addressing the identified problems. A further concern is that the department approved Voluntary Plan on file

with a state or federal agency could be subject to disclosure through the federal Freedom of Information Act or the Oregon Public Records Law.

ODA acknowledges the concern, but believes the benefits of Voluntary Plans outweigh the disadvantages, thus the department did not provide provisions for department review and approval of Voluntary Plans. The department recommends landowners develop farm plans on their own or through consultation with NRCS or the SWCD. This will allow them to improve management of resources and limit exposure to this perceived threat. ODA supports the development of "safe harbor" mechanisms that address the perceived liabilities associated with Voluntary Plans.

ODA recognizes that every farm and situation is different and will take into account each individual situation when conducting investigations and enforcing the OARs. A landowner or operator will be responsible for only those conditions caused by activities conducted on land managed by the landowner or operator. Criteria do not apply to conditions resulting from exceptional circumstances that could not have been reasonably anticipated, such as fire, natural disaster, or extreme weather conditions such as flooding.

ROLES AND RESPONSIBILITIES

Area Plan Development

ODA is the Designated Management Agency for controlling pollution from agricultural activities on agricultural, rural, and forestry lands in the Management Area. ODA is authorized to develop and carry out a water quality management plan for any agricultural or rural lands, where a water quality management plan is required by state or federal law.

Area Plan revisions will address Load Allocations assigned to agriculture in future TMDLs for this area.

The Clackamas County SWCD served as the Local Management Agency for development of the Area Plan. They assisted with meeting administration, outreach, and providing technical assistance to landowners.

The Director of ODA appointed the Clackamas Subbasin Local Advisory Committee (LAC) representing local agricultural producers, local landowners, local agencies, and the Clackamas County SWCD to assist with the development of this Area Plan and rules. The LAC will reconvene biennially to review the Area Plan and rules and amend them as necessary.

The public was encouraged to participate in the Area Plan development process. All LAC meetings were open to the public, announced in the *Oregonian*, and followed Oregon's Public Meeting Laws. In conjunction with ODA and with partial funding from the Oregon Watershed Enhancement Board, the Clackamas County SWCD held two public information meetings to review the draft Area Plan and Area Rules. In addition, ODA held a formal public comment period to review the draft Area Plan and Area Rules. The comment period included a public

hearing in the city of Sandy. Future amendments to the rules will also have public comment periods.

Area Plan Implementation

The day-to-day implementation of this plan will be accomplished through Memoranda of Agreement between the Local Management Agency and ODA. It is the intent of the ODA to negotiate yearly with the Clackamas County SWCD so that it may continue to serve as the LMA.

As resources allow, Clackamas County SWCD, USDA Natural Resources Conservation Service, private sector field staff, and Oregon State University staff are available to assist landowners in evaluating effective management strategies for reducing soil erosion and runoff. Personnel in these offices can also design and assist with implementation of management strategies, and assist in identifying any sources of cost-sharing funds for the construction and use of some of these strategies. Implementation priorities will be established on a periodic basis through annual work plans developed jointly by the Local Management Agencies and ODA with input from partner agencies.

ODA and the LMA will provide presentations to interested groups on an ongoing basis. They also will meet individually with landowners to explain the Area Plan and rules and to provide site-specific educational reviews of land conditions relative to water quality.

Any actions related to determination of noncompliance with the Area Rules or enforcement will be taken up directly by ODA, as outlined in OARs 603-090-0080 through 603-090-0120.

Water quality monitoring will be coordinated by representatives of the LAC, ODA, LMA, Clackamas River Basin Council, DEQ, and other state and federal agencies. Monitoring of land conditions is the responsibility of ODA and the LMA. Area Plan success will be evaluated by the LAC, ODA, and the LMA.

MONITORING AND EVALUATION OF AREA PLAN PROGRESS

The progress and success of implementation efforts in the Clackamas Subbasin is assessed, in part, through determination of changes in landscape conditions. The prevention and control measures are land condition-based and provide landowners a means of determining if their management is protective of water quality. To monitor the effectiveness of the prevention and control measures, ODA is evaluating landscape conditions, as funding allows, for long-term trends in riparian vegetation.

Water quality trends are also tracked. Water quality data collected by Clackamas County, DEQ, US Geological Survey, watershed councils, Soil and Water Conservation Districts and other partners is adequate to provide information regarding other parameters such as nutrients, bacteria, temperature and turbidity. During the biennial review process ODA will analyze the long term data collected by local groups and agencies and provide the LAC with an overview of

the water quality trends. Updates will be given on the riparian monitoring program and the conservation practices, voluntary conservation plans and outreach activities conducted since the last review. ODA and DEQ have reviewed the monitoring efforts in the Clackamas Basin and have determined that currently the monitoring conducted on land condition, water quality and outreach/implementation activities is believed to be sufficient to track plan implementation.

The Oregon Plan for Salmon and Watersheds' Water Quality Monitoring Technical Guide Book (July 1999) is the preferred reference manual for any group wishing to monitor area streams; however, other water quality monitoring protocols also are available. The DEQ is also willing to assist groups in developing Quality Assurance and Quality Control procedures for their monitoring program.

Existing Conditions

Existing data are being reviewed by the Clackamas River Basin Council and summarized in watershed assessments for tributaries to the Clackamas River. DEQ monitors 3 sites as part of an ambient monitoring network. This data is available on the internet. Other groups conducting monitoring activities in the Clackamas River Subbasin include Clackamas, Estacada and Grant High School, the Clackamas River Basin Watershed Council, Clackamas County Water Environment Services and the Drinking Water Providers.

Area Plan Implementation

The Local Advisory Committee and ODA are responsible for determining progress toward Area Plan goals. The ODA will sign a Memorandum of Agreement that outlines the LMA's responsibilities for providing and tracking educational outreach and technical assistance. The Clackamas County SWCD may enter into the MOA with ODA to continue serving as the LMA. If the Clackamas County SWCD chooses not to continue serving as the LMA, another organization will be selected to serve in this role.

The Local Management Agency will coordinate with partners on a subbasin scale to:

- Identify potential sources of temperature increases
- Participate in developing and evaluating outreach and education programs designed to increase public awareness and understanding of water quality issues
- Conduct projects, demonstrations, and tours to promote successful management strategies and systems
- Evaluate the adequacy of technical and financial assistance sources available to the agricultural community to implement recommended management strategies, monitoring, and education.
 - Track outreach and education events, number of landowners assisted, number of practices installed with their assistance, and number of conservation plans developed.

DISCUSSION OF COSTS AND FINANCING

Costs of implementing this Area Plan are difficult to assess in the absence of detailed, site-specific inventories of resource problems. To implement this Area Plan, the LMA needs support and resources for staff to coordinate with management area partners to conduct the following:

- Educational programs (production and presentation)
- Identification of high priority areas for implementation
- Ongoing evaluation of Area Plan progress toward achieving water quality goals
- Planning and implementation activities with other agencies, organizations, and individuals working on similar goals
- Watershed assessments
- Water quality monitoring
- Meeting management and facilitation

Technical and cost-sharing assistance to landowners for the installation of certain management strategies may be available through current USDA conservation programs such as Environmental Quality Incentive Program (EQIP), the Environmental Protection Agency's nonpoint source implementation grants, state programs such as Oregon Watershed Enhancement Board (OWEB), or state/federal partnerships such as the Conservation Reserve Enhancement Program (CREP). Other agencies may also be available to provide technical assistance or financial assistance to private landowners.

The level of successful implementation of the Area Plan is directly tied to the level of funding available for this purpose.

The following is a list of financial assistance opportunities available at the time of this update. The reader is cautioned to inquire about the programs **prior** to implementing practices if interested in receiving financial assistance.

Conservation Reserve Enhancement Program (CREP)

This program, administered by Farm Service Agency (FSA), provides cost share money for the implementation of riparian fencing and planting on a specified buffer. A rental payment on the riparian buffer, based on the USDA soil rental rate, is dispersed annually for 10 to 15 years. Contact the Clackamas County Soil and Water Conservation District or Farm Services Agency for information.

Conservation Reserve Program (CRP)

This program, administered by the USDA and Farm Service Agency, provides rent and cost-share for landowners to remove environmentally sensitive lands from production. Rental payments are dispersed annually over a 10-15 year period. Contact the Farm Service Agency for information.

Conservation Security Program (CSP)

This program, administered by the USDA Natural Resources Conservation Service (NRCS) is a voluntary program that provides financial and technical assistance to promote the conservation and improvement of soil, water, air, energy, plant and animal life, and other conservation purposes on Tribal and private working lands. Working lands include cropland, grassland, prairie land, improved pasture, and range land, as well as forested land that is an incidental part of an agriculture operation. Contact the NRCS for information.

Environmental Quality Incentives Program (EQIP)

This program, administered by the USDA NRCS, provides assistance to farmers and ranchers in complying with Federal, State, and tribal environmental laws, and encourages environmental enhancement. Through this program a conservation plan that includes structural, vegetative, and land management practices on eligible land is implemented. Cost-share payments may be made to implement eligible structural or vegetative practices. Five- to ten-year contracts are made with eligible producers. Contact the NRCS for information.

Habitat Enhancement through Local Partnerships (HELP)

This program, administered by the Clackamas County Soil and Water Conservation District (SWCD), provide product discounts at Wilco Farm Stores, the Home Depot in Oregon City and Coastal Farm & Home Supply to local landowners that are implementing soil and water related projects developed with an approved conservation plan. Contact the Clackamas County SWCD for information.

Nonpoint Source Pollution 319 Grants

This program, administered by Oregon Department of Environmental Quality (ODEQ), provides grant funds available through Section 319 of the Water Quality Act of 1987. It is a critical element in turning Oregon's Nonpoint Source control program into water quality protection realities in watersheds throughout the state. Each year, DEQ identifies programmatic and geographic targets, solicits project proposals, assembles a proposal package for EPA's review, develops contracts and agreements for disbursement of grant funds, oversees program implementation, and evaluates program accomplishments. Contact ODEQ for information.

Wildlife Habitat Incentives Program (WHIP)

This program, administered by the USDA NRCS, provides financial incentives to develop habitat for fish and wildlife on private lands. Contact the Natural Resources Conservation Service for information.

Oregon Watershed Enhancement Board Small Grant Program

This program is administered jointly by the local Soil and Water Conservation District and Watershed Councils. Funds are available for specific practices. Landowners may be responsible for a certain percentage of the total cost. Contact Clackamas County Soil and Water Conservation District for details.

Oregon Riparian Tax Incentive Program

This program, administered by the Oregon Department of Fish and Wildlife (ODFW), offers a property tax incentive to property owners for improving or maintaining qualifying riparian lands. Under this program, property owners receive complete property tax exemption for their riparian property. This can include land up to 100 feet from a stream. For riparian land to qualify for this program, it must be outside adopted urban growth boundaries, and planned and zoned as forest or agricultural lands (including rangeland), or must have met these criteria as of July 1, 1997. If a riparian area is already in good shape it may also qualify for the program. For more information call the local ODFW office or their website (<http://www.dfw.state.or.us/ODFWhtml/InfoCntrHbt.html>).

Oregon Wildlife Habitat Conservation and Management Program

This program, administered by Oregon Department of Fish and Wildlife, is specifically for property zoned exclusive farm use or mixed farm and forest use that are managed for wildlife habitat. The landowner who qualifies and successfully completes the required steps will receive a tax benefit. For more information contact the local ODFW office or their website (<http://www.dfw.state.or.us/ODFWhtml/InfoCntrHbt.html>).

Nonpoint Source Pollution Control Facilities Tax Credit

This program, administered by the Oregon Department of Environmental Quality (DEQ), is intended to cover expenditures for “on-the-ground” management practices and improvements. Possible eligible practices must be consistent with the implementation of any of a number of state approved plans including the local AgWQM Area Plan and the total maximum daily load (TMDL) implementation plan. For more information contact the Portland DEQ office or their website (<http://www.deq.state.or.us>).

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APPENDICES

Appendix A: 2004-2006 303(d) List Parameters Impacted by the Prevention and Control Measures

Waterbody Name & Segment	303(d) List Parameter	Prevention and Control measure
Clackamas River Mouth to River Mill Dam RM 0 – 22.9	Temperature	Streamside Area Condition
Bargfeld Creek RM 0 – 2.3	E. Coli	Agricultural Waste
Bear Creek RM 0 – 4-8	Temperature	Streamside Area Condition
Clackamas River	E. Coli and Temperature	Streamside Area Condition and Agricultural Waste
Collawash Creek RM 0-12.22	Temperature	Streamside Area Condition
Cow Creek RM 0 – 2.6	E. Coli	Agricultural Waste
Cow Creek RM 0 – 2.6	Temperature	Streamside Area Condition
Deep Creek RM 1.9 – 14.1	E. Coli	Agricultural Waste
Eagle Creek RM 0 – 25.4	Temperature	Streamside Area Condition
Fish Creek RM 0 – 13.2	Temperature	Streamside Area Condition
Nohorn Creek RM 0 – 1.8	Temperature	Streamside Area Condition
North Fork Deep Creek RM 0 - 9	E. Coli	Agricultural Waste
North Fork Eagle Creek RM 0 – 13.1	Temperature	Streamside Area Condition
Rock Creek	E. Coli	Agricultural Waste
Sieben Drainage Ditch	E. Coli	Agricultural Waste
Tickle Creek	E. Coli	Agricultural Waste

Data Sources for the 2004-2006 listings

LOCATION	AGENCY
BACTERIA MONITORING SITES	
Clackamas River at High Rocks (Old Hwy 213)	DEQ
Clackamas River @ mouth	DEQ
Clackamas River D/S Of River Mill Dam	DEQ
Clackamas River at Mciver Pk. (Upper Boat Ramp)	DEQ
Clackamas River At Memaloose Road	DEQ
Clackamas River at Carver Bridge	DEQ
Clackamas River at Hwy 99E Bridge	DEQ
Cow Creek at SE Edgewater Road	Clackamas Co. SWCD
Cow Creek at SE Evelyn St	Clackamas Co. SWCD
Cow Creek at SE Last Road	Clackamas Co. SWCD
Cow Creek at SE 102nd Ave.	Clackamas Co. SWCD
Sieben Creek at Hwy 212	Clackamas Co. SWCD
Sieben Creek at SE Sunnyside Rd.	Clackamas Co. SWCD
Rock Creek near Hwy 212-224 Junction	Clackamas Co. SWCD
Rock Creek at Hwy 212-224	Clackamas Co. SWCD
Rock Creek at SE Sunnyside Road	Clackamas Co. SWCD
Rock Creek at Troge Rd.	Clackamas Co. SWCD
Bargfeld Cr. at Fishers Mill Rd (tributary to Clear Cr.)	Clackamas Co. SWCD
Delano Cr. at Delano Farms (trib to Clear Creek)	Clackamas Co. SWCD
Clear Creek at Carver Park	Clackamas Co. SWCD
Clear Creek at Fishers Mill Rd	Clackamas Co. SWCD
Clear Cr. at Metzler Park	Clackamas Co. SWCD
N. Fk. Deep Cr. at Camp Kuratli	Clackamas Co. SWCD
N. Fk. Deep Cr. at Hwy 26	Clackamas Co. SWCD
Tickle Cr. at Langensand Rd. (trib to Deep Cr.)	Clackamas Co. SWCD
Tickle Cr. at Tickle Cr. Rd. (trib to Deep Cr.)	Clackamas Co. SWCD
Deep Cr. at Camp Kuratli	Clackamas Co. SWCD
Deep Cr. at Hwy. 211	Clackamas Co. SWCD
N. Fk. Eagle Cr. at Eagle Fern Pk. (trib to Eagle)	Clackamas Co. SWCD
Eagle Cr. at Bonnie Lure Pk.	Clackamas Co. SWCD
Delph Cr. at Squaw Mt Rd. (Tributary to Eagle Cr.)	Clackamas Co. SWCD

Appendix B: ORS 468B.025 and 468B.050 - Oregon Water Pollution Control Law

486B.025 Prevention of Pollution

(1) Except as provided in ORS 468B.740, no person shall:

(a) Cause pollution of any waters of the state or place or cause to be placed any wastes in a location where such wastes are likely to escape or be carried into the waters of the state by any means.

(b) Discharge any wastes into the waters of the state if the discharge reduces the quality of such waters below the water quality standards established by rule for such waters by the Environmental Quality Commission.

(2) No person shall violate the conditions of any waste discharge permit issued under ORS 468B.050.

(3) Violation of subsection (1) or (2) of this section is a public nuisance. ORS 468B.050 identifies the conditions when a permit is required. In agriculture under state rules, these are referred to as Confined Animal Feeding Operations (CAFO) and are operations that confine animals for more than 4 months per year and have a waste water treatment facility. The 2001 State Legislature considered changes to the state definition of a CAFO during the approval of this plan. Please check the current CAFO definition if you are unsure.

468B.050 When permit required.

(1) Except as provided in ORS 468B.053 or 468B.215, without first obtaining a permit from the Director of the Department of Environmental Quality, which permit shall specify applicable effluent limitations, no person shall:

(a) Discharge any wastes into the waters of the state from any industrial or commercial establishment or activity or any disposal system.

(b) Construct, install, modify or operate any disposal system or part thereof or any extension or addition thereto.

(c) Increase in volume or strength any wastes in excess of the permissive discharges specified under an existing permit.

(d) Construct, install, operate or conduct any industrial, commercial, confined animal feeding operation or other establishment or activity or any extension or modification thereof or addition thereto, the operation or conduct of which would cause an increase in the discharge of wastes into the waters of the state or which would otherwise alter the physical, chemical or biological properties of any waters of the state in any manner not already lawfully authorized.

(e) Construct or use any new outlet for the discharge of any wastes into the waters of the state.

(2) As used in this section, "confined animal feeding operation" has the meaning given in ORS 468B.205. [Formerly 449.083 and then 468.740; 1997 c.286 s.6]