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## **I. Purpose**

The Clackamas Subbasin Local Advisory Committee (LAC) is submitting this report to the Board of Agriculture to summarize implementation of the Clackamas Subbasin Agricultural Water Quality Management Area Plan (Area Plan) and Rules, as provided for in Oregon Administrative Rule (OAR) 603-090-0020 (4).

## **II. Introduction**

The Clackamas Subbasin is in western Oregon with most of the subbasin located in Clackamas County and a small southern portion in Marion County.

In 2005, the LAC, working with the Department of Agriculture (ODA) and the Clackamas County Soil and Water Conservation District (SWCD), completed the first biennial review of the Clackamas Subbasin Area Plan and Rules. The LAC reviewed the effectiveness of the Area Plan in achieving applicable water quality standards and improving water quality in the Clackamas Subbasin. Through updates from staff and agency personnel, the LAC determined that progress was being made to address the Clackamas Subbasin's water quality issues. The LAC determined that the current rules were adequate to address the subbasin's parameters of concern.

The Oregon Department of Environmental Quality (DEQ) is required to submit a list of waterbodies that are water quality limited to the US Environmental Protection Agency every two years under section 303(d) of the Federal Clean Water Act. A number of waterbodies within the Clackamas Subbasin are water quality limited for one or more parameters, including temperature and bacteria. Once a waterbody is listed, DEQ is responsible for developing Total Maximum Daily Loads (TMDLs) for each water quality limited parameter. Since the adoption of the Area Plan and Rules, DEQ

completed Clackamas Subbasin TMDLs for temperature and bacteria.

## **III. Implementing the Area Plan and Rules, Year 2004-Present**

When developing the current Area Plan, the LAC identified several objectives that, if achieved, would significantly improve water quality in the Clackamas Subbasin Management Area. The LAC also developed rules that were designed to prevent pollution as close to the source as possible.

The Area Rules include the following:

- Allow establishment, growth, and/or maintenance of native or non-native riparian vegetation appropriate to 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 as required in OAR 603-095-1240.
- Not violate any provision of ORS 468B.025 or ORS 468B.050.

Since the last biennial review, the Clackamas County SWCD, along with various other partner agencies and organizations, have continued to work with local landowners to implement water quality improvement projects. Staff developed conservation plans with landowners to address water quality issues and conservation goals, and helped landowners access conservation funding programs to make improvements.

Table 1 includes more detailed information about the goals identified in the Clackamas Subbasin Area Plan and highlights of local activities to achieve these goals.

#### **IV. Compliance Investigations**

During the period since the last biennial review, ODA investigated 17 new compliance cases in the Clackamas Subbasin. The majority of the complaints were related to manure and/or pasture management, while others were runoff and erosion concerns as well as animal access to waterways. Several were not related to agriculture and were referred to other agencies or had no water quality concern.

The first civil penalty issued by ODA was for a livestock operation in the Clackamas Subbasin. This landowner has worked with the Clackamas SWCD and ODA to improve conditions on his farm.

#### **V. Monitoring and Evaluation**

Evaluation of the Area Plan's success may involve several types of monitoring. These are:

- Baseline condition monitoring
- Implementation monitoring
- Trend monitoring
- Effectiveness monitoring

##### ***Baseline – What are the current conditions?***

Baseline condition monitoring provides a starting point for assessing water quality trends and land conditions. To evaluate the effects of the Area Plan and Rules, implementation partners must collect a picture of conditions prior to implementation.

To assess existing water quality conditions, ODA's water quality staff review water quality data from DEQ's Laboratory Analytical Storage and Retrieval (LASAR) database. In many cases, monitoring sites included in this database are adequate to

characterize and track conditions in agriculturally influenced watersheds. In other cases, ODA staff may recommend additional monitoring sites that would be useful for tracking agriculture's effects on water quality.

The LASAR database includes only one site meeting the criteria described above. This site is on the Clackamas River at McIver Park. This location only shows influence from a moderately small agricultural area. No apparent water quality problems were noted at this site. The Clackamas County SWCD has been making attempts to fund monitoring at additional locations in the basin. The SWCD has identified different areas to monitor for baseline and water quality trends. As of 2007 they have not been successful in securing funding for additional monitoring stations.

Review of the data in October 2007 did not show the emergence of any water quality problems in the Clackamas at McIver Park. The Oregon Watershed Enhancement Board's (OWEB) monitoring database did not have any reports on file that contained additional water quality data for this basin.

##### ***Implementation monitoring – What is being accomplished?***

Implementation monitoring tracks the conservation practices that have been implemented to benefit water quality. The local SWCDs and the US Department of Agriculture Natural Resources Conservation Service (NRCS) track practices that have been implemented through quarterly reports to ODA and through a NRCS database. In addition, projects that have received funding from OWEB are tracked in OWEB's restoration database.

It is more difficult to track beneficial practices that landowners have implemented

on their own without funding or outside technical assistance.

Table 1 outlines the implementation accomplishments in the Clackamas Subbasin Area since the last biennial review, organized according to the goals of the Area Plan.

***Trend – Are current conditions changing?***

Trend monitoring evaluates long-term changes in landscape conditions and water quality. In general, trend monitoring activities are a continuation of baseline monitoring activities. Currently, ODA is focusing land condition monitoring efforts on riparian areas because these areas have such an influence over water quality. Riparian land conditions are evaluated every five years for the Clackamas management area by analyzing aerial photographs of about 5% of the riparian agricultural land. Staff examine riparian ground cover at specific points in 90-foot bands along the stream from the aerial photos and assign each sample stream reach a score based on ground cover. Staff can then compare that score with the score when photos are taken again in 5 years to track changes in riparian conditions over time. Because site conditions vary across the state, there is no one correct riparian index score. Rather, the index is a means to evaluate change over time on individual reaches.

Four streams in this subbasin were analyzed—Clear Creek, Currin Creek, North Fork Deep Creek and Parrot Creek. Of these, Parrot Creek had the greatest amount of trees, with all bands having greater than 80%. This stream had almost no bare ground. With the exception of Parrot Creek, all the streams had significant amounts of infrastructure as land cover, reflecting increasing urbanization of the watersheds. Currin and North Fork Deep Creeks were both observed

to have been channelized for part of their length. About 60% of the observed reach of Currin Creek was in a ditch, and about 30% of North Fork Deep Creek was also in a ditch. This latter stream also had many small dams and impoundments. Parrot Creek also had many dammed and ponded areas, and about 5% of the reach observed showed eroding streambanks.

Riparian index scores for the Clackamas will be added to this section and discussed after the second round of land condition monitoring, expected in 2009.

***Effectiveness monitoring – Are efforts protecting and improving water quality?***

Effectiveness monitoring occurs at two scales. At the larger Management Area scale, land condition data are compared against water quality data over time to determine if changes in land conditions are improving water quality. At the smaller farm scale, ODA and local partners have initiated several projects to evaluate the effects of several management practices on water quality.

In December 2005 the Clackamas SWCD partnered with the East Multnomah SWCD to implement a Clean Water Act Section 319 grant awarded from DEQ to address non-point source water pollution originating from nurseries and equine operations. The goal of the grant was to provide landowners access to technical assistance to develop site-specific conservation plans and install conservation practices that assist in the implementation of TMDLs and the local Area Plan and Rules. The project ended in May 2007. The final report submitted to DEQ showed construction and use of roofed manure storage facilities resulted in estimated sediment and nutrient load reductions of at least 5%.

This type of effectiveness monitoring is helpful in determining the correlation between a conservation practice and the watershed benefit.

### **Area Plan Review**

The Clackamas County SWCD reconvened the LAC on January 22, 2008 to evaluate the Area Plan and Rules since the last biennial review, held February 22, 2005. Members of the LAC that were present included: Gerry Willits, Jerry Harding, Jacqueline Tommas, Barry Bushue, Michael Weinberg, Bob Underwood, and Lydon Scheeff. Mike Dillard was recommended to become a new committee member and has since been appointed to the Clackamas LAC by ODA.

The Clackamas County SWCD staff gave a presentation highlighting the work of the district and the Clackamas River Basin Council (CRBC) since February 2005. In addition, ODA staff gave an update on the progress of the Water Quality Program. The primary areas of this program are focused on outreach and education, technical and financial assistance, biennial reviews, monitoring, and compliance.

The LAC discussion focused primarily on the need for more water quality monitoring. Questions were raised regarding the water quality data that gets submitted to DEQ for the 303(d) listing and de-listing process. These questions included:

- Where does the data set come from?
- Who makes sure the data collectors are following proper procedures for monitoring?
- How is the data set analyzed, especially when it comes to E. coli?
- How can the agricultural community demonstrate that they are doing their part if there are more 303(d) listings?

Manette Simpson, DEQ representative, explained that DEQ accepts data from all sources; however, there is a quality assurance and quality control (QA/QC) plan that all data submitted are required to fulfill before they are considered valid. She continued by explaining there is existing methodology that differentiates various bacterial sources through DNA ribotyping and that although she understands the importance of determining what the bacteria sources are, this technology is expensive and is not consistently used by DEQ.

The LAC suggested that the Clackamas County SWCD and the CRBC identify the monitoring information needed to help answer the question of whether or not the Area Plan and Rules are effective given new 303(d) listings, including developing a monitoring strategy complete with a QA/QC plan approved by DEQ. The LAC agreed to meet again once the monitoring strategy has been developed for discussion and approval.

There was also a lengthy discussion about the civil penalty case that is still pending in Clackamas County. Questions were asked about the status of compliance and comments were made regarding the enforcement decisions made by ODA. Some LAC members thought that not only did ODA allow this producer to violate the Area Rules for an inexcusable amount of time, but also that the fine ODA issued was too low.

ODA staff recommended minor edits to the Area Plan. The agricultural production in Clackamas County table was updated, the 303(d) list was updated to include five more stream reaches listed for temperature, and “SB 1010” was changed to “AgWQM” throughout the document, in addition to other minor housekeeping edits. The LAC made a final recommendation to include the

date as a footnote when edits/updates occur. This has been incorporated into the Area Plan.

Information regarding the data used for the 2004-2006 303(d) list for the Clackamas Subbasin, including monitoring locations and who collected the data has been added as an attachment in the Area Plan, adjacent to the 303(d) list. More information regarding DEQ's QA/QC procedures can be found at:

<http://www.deq.state.or.us/wq/assessment/docs/methodology0406.pdf>

### **Area Rules Review**

There were no recommended changes to the Area Rules at this time.

### **VI. Conclusions**

A lack of monitoring information is the biggest challenge to assess watershed health in the management area. The LAC strongly recommended that securing the resources necessary is imperative to implement the monitoring strategy that will be developed by the Clackamas County SWCD and the CRBC.

**Table 1. Summary of Area Plan goals and progress of Area Plan implementation.**

Goal	Progress
<p>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.</p> <p>2. Contribute to the improvement of water quality in the Clackamas Subbasin such that all streams in the Subbasin can be removed from the 303(d) list.</p> <p>6. Base actions on sound conservation planning.</p>	<p>Landowners usually have resource constraints that restrict their ability to utilize management strategies to best address conditions on the land to meet the goals of the Area Plan. To address these constraints, the Clackamas County SWCD helps landowners create conservation plans. Plans include aerial and site photos, soil maps, waterway locations and general site conditions, technical specifications and references to additional resources. Landowners are encouraged to address the greatest threat to water quality first. Forty-six Conservation Plans have been completed in the Subbasin, for the 2005-2007 biennium. Generally speaking, individual landowners through Conservation Plans typically implement a multitude of strategies. The Districts hired a structural engineer to work up designs and calculations that would meet the project design requirements of County regulators and the OWEB. One design was a heavy-use area to hold animals during wet and over grazed pasture conditions. The other was a manure composting building designed to elevations of 900 and 1400 feet. Forty-one of these designs have been distributed to livestock owners.</p> <p><b>List of Planned and Implemented On-the-Ground Strategies:</b></p> <ul style="list-style-type: none"> <li>o 450 Ft Access Road</li> <li>o 2950 Ft Animal Trails</li> <li>o 79 Ac Brush Management</li> <li>o 8.75 Ac Conservation Cover</li> <li>o 100 Ft Critical Area Planting</li> <li>o 1996 Ft Cross Fencing</li> <li>o 3 Ac Erosion Control</li> <li>o 14.5 Ac Forest Stand Imp.</li> <li>o 15 Ac Habitat Upland</li> <li>o 5.25 Ac Habitat Wetland</li> <li>o 33970 Sq ft Heavy Use Area</li> <li>o 56 Ac Irrigation Water Management</li> <li>o 15 Ac Livestock Use Exclusion</li> <li>o 1800 Cu ft Manure Dry Stack</li> <li>o 49.5 Ac Nutrient Management</li> <li>o 21 Ac Pest Management</li> <li>o 4 Ac Pruning</li> <li>o .5 Ac Riparian Herb Cover</li> <li>o 3500 Ft Roof Runoff</li> <li>o 7.5 Ac Stream Habitat</li> <li>o 600 Ft Stream bank Protection</li> <li>o 8.6 Ac Tree Establishment</li> <li>o 600 Ft Underground Outlet</li> <li>o 3 Ac Wetland Restoration</li> <li>o 3 # Watering Facilities</li> </ul> <p><b>Other Technical Assistance Provided to County Residents:</b></p> <ul style="list-style-type: none"> <li>o Landowners Contacted by Clackamas County SWCD Staff – 726 via telephone, walk-in or email</li> <li>o Technical assistance provided to 224 Landowners,</li> <li>o 100 site visits provided to address natural resource and water quality</li> </ul>

	concerns.
<p>3. Create a high level of awareness and understanding of water quality issues among the producer and agricultural community and the public through education and technical assistance activities from the point of view of the agricultural industry.</p>	<p><b>Clackamas County SWCD conducts water quality related workshops, tours and events to address urban and rural natural resource concerns. Topics affecting the Clackamas Subbasin area include:</b></p> <ul style="list-style-type: none"> <li>○ SWCD &amp; OSU Extension Service Christmas Tree Tour &amp; strategic Integrated Pest Management plan for the Christmas tree industry.</li> <li>○ Oregon Science and Technology Partnership Recreation Showcase</li> <li>○ Tri-county Farm Guide meeting – 62 attendees</li> <li>○ Sustainability Fair outreach table - Clackamas Community College</li> <li>○ Water-Wise Gardening, Clackamas Community College CCC– 65</li> <li>○ Earth day’s “Celebrating Water” 2 day CCC festival, focusing on water use, conservation, and education - 500 attendees</li> <li>○ Rainwater Harvesting Class – 12 attendees</li> <li>○ “Native Pollinators” Farm outreach tour</li> <li>○ Oregon Lavender Farm Harvest Festival outreach booth for sustainable agriculture in Clackamas County – 3000 visitors</li> <li>○ Clackamas County Fair Booths 2005 &amp; 2006 engaged in weed awareness and improving their drinking water quality and quantity</li> <li>○ 2 SWCD Annual District Meetings &amp; presentations - 200 attendees</li> <li>○ SWCD 2007 Open House, highlighting the conservation challenges of Clackamas County area and the services offered - 70 attended</li> <li>○ “Bean Survey” to identify their most pressing conservation concerns; priorities included: Protecting Fish &amp; Wildlife, Sustainable Forest &amp; Farms, County-wide Weed Program, Water Quality/Quantity BMP’s, and Protect &amp; Enhance Ground Water.</li> <li>○ Partnered with USFS/Mt. Hood and South Fork Water Board water quality and restoration tour - 25 people viewed examples of conservation practices implemented in the Clackamas River watershed.</li> <li>○ 2 NW Oregon Ag Show annual event booths w/NRCS &amp; EMSWCD.</li> <li>○ 2 Annual OSU Extension Tree School CCC booths &amp; sponsorship</li> </ul> <p><b>Newspaper Articles</b>  “A Nickel for Conservation” 10/30/06  18,000 Clackamas Review &amp; O.C. News  3,000 Estacada News  4,300 West Linn Tidings  172,000 readers: Sustainable Life, Portland Tribune, “Couple’s Permaculture Dream...”, 10/10/2006</p> <p><b>Multi-Media</b>  The Clackamas County Government Cable (CCGC) TV Channel videos include conservation practices that include riparian fencing, off stream livestock watering, rain water harvesting, and heavy use area utilization, pasture and manure management, CCGC broadcasted to over 30,000 viewers.  Water Environment Services (WES) Insert mailed with 2000 water bills  Production of a new Clackamas County SWCD Fact Sheet Series distribution including the fact sheet titled ‘The High Cost of Soil Loss’.</p>

<p>4. Monitor and evaluate the effectiveness of this Area Plan.</p>	<p>ODA evaluates DEQ and local partner water quality monitoring data to establish long-term trends in water quality.          ODA also evaluates landscape conditions, as funding allows, for long-term trends in riparian vegetation.</p> <p><b>17 formal complaints were received through the ODA Water Quality Program since July 2005.</b></p> <ul style="list-style-type: none"> <li>5 Complaints determined to be unfounded</li> <li>4 Letters of Compliance</li> <li>2 Water Quality Advisories</li> <li>1 Letter of Warning</li> <li>2 Notices of Noncompliance</li> <li>1 Civil Penalty</li> <li>2 Referred to other agencies</li> </ul>
<p>5. Secure adequate funding for administration and implementation of the program to achieve mission, goals, and objectives.</p>	<p><b>The following list is an example of funding successes for the Subbasin:</b></p> <ul style="list-style-type: none"> <li>○ 20 various OWEB Small Grant projects exist in the Small Grant Area totaling \$92,000</li> <li>○ OWEB CRBC Outreach and Education, \$5500</li> <li>○ OWEB Local Recovery Plan CRBC Assessment grant, \$5000</li> <li>○ OWEB Clackamas River Basin Council Support grant, \$104,000</li> <li>○ OWEB Clear Creek Riparian Enhancement CRBC \$92,000</li> <li>○ OWEB Clear Creek Barrier Removal Project CRBC \$133,600</li> <li>○ OWEB CRBC Upper Clear Creek Habitat Improvement Project Restoration Grant \$109,491</li> <li>○ OWEB Council Support Grant for a Greater Oregon City Watershed Council Coordinator, \$36,000</li> <li>○ DEQ/319 grant totaling \$85,000 to provide education, outreach and technical assistance to landowners leading to implementation of BMPs to address bacteria, nutrient and temperature TMDLs.</li> <li>○ Clackamas County SWCD received a tax base supporting \$1.7 million annually for program development and support, increasing staff capacity while undergoing strategic planning of future program areas.</li> <li>○ USDA/EQIP projects totaling \$54,000 in cost share assistance for agriculture and nursery landowners to implement BMPs benefiting upland water quality – mud, manure, nutrients and erosion</li> <li>○ Water Environmental Services WES totaling \$20,000</li> <li>○ Metro DEQ Realtor &amp; Developer Water Quality Education \$26,000 in partnership with Clackamas River Basin Council</li> <li>○ Clackamas County IGA supporting \$250,000 annually</li> </ul>