

Inland Rogue Agricultural Water Quality Management Area Plan

Developed by

**THE INLAND ROGUE BASIN
LOCAL ADVISORY
COMMITTEE**

and

The Oregon Department of Agriculture

with assistance from

the Jackson Soil and Water Conservation District

**Adopted May 10, 2001
Revised February 17, 2005
Revised May 2010**

Local Advisory Committee Members

Keith Corp	Tom Dover	Keith Emerson
Jim Hill (deceased)	Paul Kay, Chair	Ron Meyer
Bob Niedermeyer	Keith Nelsen	Ed Vaughn
Greg Walch		

Blank

Table of Contents

Acronyms	iii
Foreword and Applicability	v
History of the Federal Clean Water Act and Oregon’s Agricultural Water Quality Act	1
Geographic and Programmatic Scope	2
ODA Legislative Authority	2
Definitions	3
Geographic Uniqueness within the Rogue Basin	3
Upper Rogue Subbasin	4
Applegate River Subbasin	4
Illinois River Subbasin	5
Middle Rogue Subbasin	5
Bear Creek	6
Rogue Basin Agricultural Production	6
Water Quality Issues of Concern	6
Table 1: Gross Farm and Ranch Sales 2008:	7
Beneficial Uses in the Rogue Basin	7
Table 2. Beneficial Uses Rogue River	8
Agricultural Impacts to Water Quality	8
Other Contributing Factors	8
Water Quality Impairments in the Rogue Basin	9
Table 3: TMDLs in the Inland Rogue Basin - Parameters and Adoption Dates	10
TMDL Standards	10
Temperature	10
Bacteria	11
Dissolved Oxygen	11
pH	11
Sedimentation	11
How the AgWQM Area Plan Addresses the Temperature Standard	12
How the AgWQM Area Plan Addresses the Bacteria Standard	13
Goal, Objectives, Responsibility and Intent	13
General Goal	13
Intent of the Rogue Basin Agricultural Water Quality Local Advisory Committee	15
Strategies for Implementation	15
Technical and Financial Assistance	16
Menu of Better Management Practices	16
Table 4 Drainage and Runoff Management Problems and Possible Solutions	17
Table 5 Vegetation Management Problems and Possible Solutions	18
Table 6 Livestock Management Problems and Possible Solutions	19
Table 7 Irrigation Management Problems and Possible Solutions	20
Table 8 Cropland Management Problems and Possible Solutions	21
Table 9 Farm Storage Problems and Possible Solutions	22
Prohibited Conditions	22
Prohibited Condition #1- Soil Loss	22
Prohibited Condition #2-Riparian Vegetation Destruction	24
Prohibited Condition #3-Irrigation Management Problems	24
Prohibited Condition #4-Crop Nutrient and Animal Waste Management Problems	26
Administrative Roles and Responsibilities	27
Designated Management Agency/Local Management Agency	27
Monitoring and Evaluation of the Plan’s Effectiveness	27
Complaints and Inspections	28
Compliance Procedures	28
Review Period	29
Appendices	30
Appendix A - Inland Rogue Basin Area Water Quality Plan Glossary	31
Appendix B - Inland Rogue AgWQM Area	33
Appendix C - Inland Rogue AgWQM Area Ownership	34
Appendix D - Inland Rogue AgWQM Area Soil and Water Conservation District Boundaries	35
Appendix E - Fish Use Designations	36
Appendix F - Watershed Council, SWCD, and Financial Assistance Contact Information	38
Appendix G - Compliance Procedures Flow Chart	41
Appendix H - Coastal Zone Management Act Measures	43

Blank

Acronyms

AgWQM	Agricultural Water Quality Management
Area Plan	Inland Rogue Agricultural Water Quality Management Area Plan
Area Rules	Inland Rogue Agricultural Water Quality Management Area Rules
CAFO	Confined Animal Feeding Operation
CP	Civil Penalty
DEQ	Oregon Department of Environmental Quality
EPA	Environmental Protection Agency
EQC	Environmental Quality Commission
FOTG	Field Office Technical Guide
IPM	Integrated Pest Management
LAC	Local Advisory Committee
LMA	Local Management Agency
LOC	Letter of Compliance
LOW	Letter of Warning
NON	Notice of Noncompliance
NRCS	Natural Resource Conservation Service
OAR	Oregon Administrative Rule
ODA	Oregon Department of Agriculture
ORS	Oregon Revised Statutes
OSU	Oregon State University
RUSLE	Revised Universal Soil Loss Equation
SB	Senate Bill
SWCD	Soil and Water Conservation District
TMDL	Total Maximum Daily Load
USLE	Universal Soil Loss Equation
VOC	Volatile Organic Chemical
WQA	Water Quality Advisory

Blank

Foreword and Applicability

This Agricultural Water Quality Management Area Plan (Area Plan) provides guidance for addressing agricultural water quality issues in the Inland Rogue Agricultural Water Quality Management Area (Management 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, by themselves, establish legal requirements or prohibitions. The Oregon Department of Agriculture (ODA) will exercise its enforcement authority for the prevention and control of water pollution from agricultural activities under administrative rules for the Inland Rogue and Oregon Administrative Rules (OAR) 603-090-0000 through 603-090-0120.

The administrative rules for the Inland Rogue set forth the requirements and/or prohibitions that will be used by ODA in exercising its enforcement authority for the prevention and control of water pollution from agricultural activities. In addition, OAR 603-090-0060 through 603-090-0120 describes the enforcement actions that may be triggered upon the finding of a violation by ODA.

As provided in Oregon Revised Statutes (ORS) 568.912(1), the Inland Rogue Agricultural Water Quality Management Area Rules constitute the only enforceable aspect of the Inland Rogue Agricultural Water Quality Management Area Plan. In 2007, the Bear Creek and Inland Rogue Local Advisory Committees (LAC) held joint meetings and voted to merge the two management areas into a single Inland Rogue Agricultural Water Quality Management Area.

The two LACs met jointly to complete biennial reviews of the two management areas in the spring of 2007. In the spring of 2010, the Inland Rogue LAC recommended changes to both the Rule language and Plan language for the periodic update of the Rules and the Plan and to accommodate the integration of the Bear Creek sub-basin into the Inland Rogue Management Area.

Blank



History of the Federal Clean Water Act and Oregon's Agricultural Water Quality Act

In 1972, President Nixon signed into law the Clean Water Act. This was a time in our history when rivers were catching on fire (the Cuyahoga in Ohio), large lakes were unable to support fish (Lake Erie), and there were massive estuarine die-offs (Chesapeake Bay). Point source discharges from factories and treatment plants were targeted for clean up, and Total Maximum Daily Loads (TMDLs) were established for contaminants that threatened the well being of our population and our natural resources. Today, Lake Erie and the Chesapeake Bay have a thriving fishery while the Cuyahoga River has people swimming and boating its waters. The problem is that there are still large amounts of pollutants entering waterways with no discrete source. This type of pollution is called non-point source pollution.

In Oregon, these non-point sources were the focal point of a suit filed in 1986 charging that Oregon was not enforcing the Clean Water Act standards, thus harming both fish and human populations. The court agreed and charged the Oregon Department of Environmental Quality (DEQ) with cataloging the waters of the state that were impaired as characterized by the beneficial uses they supported. The list became known as the 303(d) list for the section of the Clean Water Act that requires it. Oregon's 303(d) list may be accessed at <http://www.deq.state.or.us/wq/assessment/rpt0406.htm> or the local DEQ office (541) 776-6010. Subsequent to the 303(d) listing, DEQ developed TMDLs to address water quality impairments by defining maximum pollutant loads and apportioning them to various land uses.

In an effort to ensure that the agricultural industry's unique concerns and constraints were addressed under state and federal water quality drivers, industry representatives lobbied the state legislature for a possible solution. The 1993 Oregon legislature, in passing the Agricultural Water Quality Management Act (previously referred to as Senate Bill (SB) 1010), assigned the ODA to be the lead state agency to address water pollution coming from private agriculture land. Under the law, the 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.

TMDL development in a basin encompasses all the potential nonpoint pollution sources of which the local agricultural water quality management plan is but one part (see below).



Geographic and Programmatic Scope

The Rogue Basin agricultural water quality planning process allows the Rogue Basin agricultural industry to take the leadership in development of a plan that contributes to the attainment of water quality standards. The areas affected by this water quality planning process are the private rural lands in Josephine and Jackson counties. (Please see the glossary for the definition of agricultural use.) By law, this Plan is limited to areas and activities that are covered by ODA regulations. Federal lands and private commercial forestlands have their own water quality regulations, though agricultural activities and soil erosion not covered by the Forest Practices Act conducted on private forestland still fall under this basin Plan.

The Inland Rogue Management Area includes multiple subbasins that bear only slight resemblance to one another hydrologically, climatically, geomorphically, economically, and even culturally. Refer to Appendix B for ODA's divisions of the subbasins. The Upper Rogue, Applegate, Illinois Valley, Bear Creek, and the Middle Rogue portions within Josephine and Jackson counties are the subbasins of concern for this Plan. Those areas downstream of the Josephine county border will be planned for, and operate under, the conditions of the Curry Agricultural Water Quality Management (AgWQM) Area planning process. While this Plan is written for the Inland Rogue Basin, subbasin descriptions and subbasin agricultural characteristics are described because it is recognized that some of the possible solutions to problem conditions that are recommended in one subbasin may be more or less effective in another.

ODA Legislative Authority

In 1995, the Oregon legislature reviewed the water quality authorities assigned to ODA and DEQ. While the Agricultural Water Quality Management Act (ORS 568.900 – 598.933) gave ODA the authority to address agricultural water quality issues, DEQ, under ORS 468B, still had authority to regulate any water quality problems. The legislature approved SB 502, codified as ORS 561.191, to clarify its intent that ODA has primary responsibility for regulating water quality activities impacting water quality.

ORS 468B.025 is the existing statute that was developed to address water pollution caused by activities that allow wastes to escape into waters of the state by any means. To implement the legislature's intent that ODA regulate agricultural activities impacting water quality (ORS 561.191) ODA incorporates ORS 468B.025 and 468B.050 into all of the AgWQM area rules in the state. ORS 468B.025 and 468B.050 have been incorporated for the purposes of this Plan by including the following language (in the boxed text) in the Rules that effectuate this Plan.

Effective upon adoption, no person subject to these rules shall violate any provision of ORS 468B.025 or ORS 468B.050.
--

ORS 468B.025(1) states:

...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 (EQC).

ORS 468B.050 identifies the conditions when a permit may be 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 four months on prepared surfaces or in buildings, have wastewater treatment works, discharge any wastes into waters of the state, or meet the federal definition of a Concentrated Animal Feeding Operation (40 CFR § 122.23). Permitted facilities are inspected at least annually by ODA.

Definitions

“Pollution” has the meaning given in ORS 468B.005(3) which states: such alteration of the physical, chemical or biological properties of any waters of the state, including change in temperature, taste, color, turbidity, silt or odor of the waters, or such discharge of any liquid, gaseous, solid, radioactive, or other substance into any waters of the state, which will or tends to, either by itself or in connection with any other substance, create a public nuisance or which will or tends to render such waters harmful, detrimental or injurious to public health, safety or welfare, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses or to livestock, wildlife, fish, or other aquatic life or the habitat thereof.

“Wastes” has the meaning given in ORS 468B.005(7) which states: 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. Other substances that will or may cause pollution include commercial fertilizers, soil amendments, composts, animal wastes, and vegetative materials.

Geographic Uniqueness within the Rogue Basin

The Rogue Basin is formed by the Rogue River, which flows 215 miles from its headwaters on the western slope of the Cascades near Crater Lake National Park to its mouth on the Pacific Ocean at Gold Beach. Because of the unique geology and climate variations of southwest Oregon, the Rogue River runs through an extremely diverse landscape. The Rogue River finds its way through the Cascade, Klamath, and Coastal mountains. Four climate zones meet in southwest Oregon, northern temperate, southern Mediterranean, eastern high desert, and western coastal. Local weather conditions are highly variable and, combined with geologic conditions, produce widely differentiated ecology.

From the federally managed headwater areas of over 9,000 feet elevation, to the privately held, historically significant, agricultural and urbanized lowlands in Josephine and Jackson counties, the Inland Rogue River is an extremely diverse watercourse. Most of the area is steep and rugged but the broad valley bottoms have deep soils suited to agriculture. The LAC reminds agencies and individuals that the rugged landscape can isolate unusual weather events in one part of the basin, which may or may not have any impact on other parts of the basin. Appendix C contains geographic information system maps of the private and public land base as well as land use types in the watershed.

Upper Rogue Subbasin

The Upper Rogue Subbasin has its lowest elevation with the emptying of Little Butte Creek into the Rogue River at river mile 132 and extends up to river mile 215. It contains about one-fourth of the land area in the Rogue Basin. The US Forest Service, the Bureau of Land Management, and private timber companies manage most of the 72 percent of the forested land in the subbasin.

Douglas fir, white fir, western hemlock, cedar, and Ponderosa pine are native to the subbasin higher elevations. Oak savannahs, which include white oak, alder, poison oak, madrone, manzanita, and big leaf maple, grow in the lower parts of the subbasin and provide a diversity of habitat for many species of wildlife.

Agriculture and logging have been the historical bases for the economy in the Upper Rogue. Logging has greatly diminished in recent years. The higher elevations are attractive year-round to tourists and recreationists. Seasonal hunting and cattle grazing occur throughout the subbasin. Lost Creek Lake, a multi-purpose reservoir, provides cool water for fish, vital flood control for basin residents, irrigation storage, and a year-round tourist destination.

Irrigated agriculture and livestock grazing dominate the lower portion of the system. Considerable water is transferred out of the Upper Rogue system to the Bear Creek watershed. Four irrigation districts – Talent Irrigation District, Medford Irrigation District, Rogue River Valley Irrigation District, and Eagle Point Irrigation District – obtain water from Upper Rogue streams and impoundments.

As in all the other subbasins, the lower elevations have small towns surrounded by ranches and small farms.

Applegate River Subbasin

The Applegate River Subbasin is located in both Jackson and Josephine counties. Much of the publicly owned upland area is managed by the US Forest Service and the Bureau of Land Management. Those two agencies manage over 70 percent of the 493,000-acre watershed. Timber companies and private landowners own the remainder of the forested lands.

Various stages of conifer and hardwood timber provide diverse wildlife habitat. The valley floor contains grassland, oak savannahs, chaparral, and riparian vegetation. Agriculture and private forestland are the predominant land uses on the valley floor. Wine grape acreage is increasing annually.

The dam at the head of the Applegate system near the California border was completed in 1980. The dam has modified natural flow regimes relative to the creation and maintenance of fish habitat. Regulated water releases have modified the cleansing effects of flood flows on spawning gravels, riparian vegetation, and debris-filled off-channel fish protection sites. While cutting off some historical fish habitat, the dam has several beneficial impacts on both the human and salmonid populations. The dam controls flood flows, cools summer water temperatures, assures flow during normally low flow years, and is a boon for human recreation and agriculture.

Water withdrawals are used for hay and pasture irrigation, livestock watering, and watering of gardens and lawns. In earlier days, extensive mining was done in the Applegate. Today most of the suction dredge mining is recreational.

Illinois River Subbasin

The Illinois Valley encompasses over 628,000 acres of heavily forested and geologically unique land. About 83 percent of this land is publicly owned, with the majority being managed by the U.S. Forest Service. There are also several large tracts of privately held timberland. The private agricultural land in the Illinois Valley is primarily confined to the broad valley bottoms and deep alluvial soils of Deer, Sucker, and Althouse creeks, and the Illinois River. Only 4 percent of the Illinois Valley land area is under some form of agricultural management practice and only 2 percent (about 14,000 acres) is irrigated.

The climate of the Illinois Valley is considered Mediterranean, with cool, wet winters and hot, dry summers. Water is plentiful during the winter but is severely limited in the summer growing season. The unique soils and geology of the subbasin are major factors in the hydrologic character of the area. The underlying metamorphic geology in the headwaters is relatively non-porous, leading to quick saturation of the shallow, poorly developed soil, and rapid runoff of the approximately 100 inches of annual precipitation that falls in the upper reaches of the watershed. In contrast, the alluvial fans where nearly all of the agricultural and residential development has taken place may have a soil depth of over 180 feet.

Agriculture continues to be an important part of the subbasin economy, although the tourist and service sectors are growing rapidly. Agricultural production on private land is centered on livestock, hay, and forage production. There is, however, a growing trend toward using agricultural lands to grow wine grapes, Christmas trees, and ornamental bulbs. There are no permitted CAFOs, including dairies, in the Illinois Valley Subbasin.

Middle Rogue Subbasin

The Middle Rogue includes the area from the confluence with the Rogue and the mainstem of Little Butte Creek to the Grants Pass area. Cattle ranching is a major agricultural activity, with smaller farms producing a diversity of crops from Sam's Valley to Grants Pass. About 12,000 acres are under irrigation. Approximately 60-70 percent of the land in the Middle Rogue is privately owned.

Soil types in the subbasin range from clayey Pearsoll and Jerome series, to shallow, gravelly Josephine and Beekman series. All soil layers sit on granitic or metamorphic parent rock material. In many places, hardpan is near the surface and reduces infiltration. Water runoff is high in the wet winter and low in summer when there is little precipitation. The area has a history of periodic flooding with resulting landscape and channel changes. Annual precipitation ranges from 18 inches in the lower portions to more than 60 inches in the surrounding mountains. Less than one inch falls during the summer months. Snow accounts for very little of the available moisture in the lower elevations. Valleys have deeper soils and are able to support a wider diversity of agricultural activities.

Traditionally, timber production and grazing were the primary natural resource industries within the subbasin. Livestock production is currently the predominant form of agriculture. During the past decade, however, over 400 acres of vineyards have been established while specialty crops such as cut flowers, herbs, and organic fruits and vegetables are also being produced.

Bear Creek

The Bear Creek subbasin is located around Medford, Oregon and is entirely within Jackson County. The Bear Creek Subbasin produces approximately \$60 million worth of agricultural products annually, with crops (primarily pears) contributing most of this value. Total gross farm sales have shown a steady increase since 1985 due in part to better commodity prices and increased production.

Crop production in the Bear Creek area is economically feasible only because of the availability of water for irrigation. The growing season rainfall provides only a minor portion of crop water requirements. Most of the irrigation water used in Bear Creek comes from several reservoirs and diversions from both within and outside of the watershed. Approximately 5,000 acres in the watershed receive “private” irrigation water rights from natural stream flow from Bear Creek and its tributaries and these private rights total about 105 cubic feet per second. The three irrigation districts in the watershed also hold water rights to divert natural stream flow from Bear Creek which totals approximately 100 cubic feet per second for their clients, but these (less senior) rights typically expire, or are not satisfied by the end of June. In addition, the districts deliver water from storage to nearly 39,000 acres in the watershed. The Rogue River Valley Irrigation District, lowest in the Bear Creek system, serves approximately 9,000 acres, the Medford Irrigation District serves nearly 12,300 acres, and the Talent Irrigation District, the uppermost in the system, provides water to 16,400 acres.

Rogue Basin Agricultural Production

Table 1 on Page 7 provides a snapshot of agriculture production in Jackson and Josephine counties. Data are taken from the 2009 Oregon Agricultural Statistics Report. Agricultural land use continues to decline in the Inland Rogue Basin.

Water Quality Issues of Concern

Nonpoint pollution is characterized by the difficulty in identifying its source. While it is possible to monitor nonpoint source accumulations, it is generally economically unfeasible to identify its origin on anything larger than the tributary scale in the watershed. The intent of this Area Plan is to help landowners identify and reduce potential pollution due to current agricultural land conditions.

Fish habitat in the Rogue Basin has been degraded, in part, due to a reduction in stream water quality. Some of the reduction in water quality is attributed to certain agricultural land conditions. This Area Plan directly addresses the water quality component of fish habitat by controlling potential pollution sources, thus fulfilling its role in the larger Oregon Plan. It also indirectly addresses physical fish habitat in that properly functioning riparian areas enhance many of the stream channel features that create more desirable fish habitat. Each Prohibited

Condition has a corresponding list of possible solutions designed to control or prevent one or more potential pollution pathways.

Table 1: Gross Farm and Ranch Sales 2008:

	All Crops	All Animals	Total
Jackson County	\$55,921,000	\$21,508,000	\$77,429,000
Josephine County	\$13,485,000	\$8,348,000	\$21,833,000
Total	\$69,406,000	\$29,856,000	\$99,262,000

Acres of Crops Under Cultivation 2007:

	Wheat	All Hay	Nurseries and Greenhouses	Wine Grapes	Orchards (2006 data)	Total
Jackson County	Data not	22,100	125	1,306	Data not	-
Josephine County	by county	6,400	200	605	by county	-
Total	900	28,500	325	1,911	5,980	38,571

Livestock Inventory 2008-2009:

	All Cattle & Calves	All Sheep & Lambs
Jackson County	23,700	4,500
Josephine County	4,500	700
Total	28,200	5,200

Beneficial Uses in the Rogue Basin

Beneficial uses in Oregon’s waters are addressed according to the sensitivity of each of those uses. In the Rogue Basin, the most sensitive beneficial uses are drinking water, cold-water aquatic life, and contact recreation. Agriculture can enhance these beneficial uses by decreasing its contribution to elevated water temperatures, sediment, nutrients, pathogens, degraded streambank and riparian function, and reduced stream flows.

The Oregon Environmental Quality Commission (EQC) has adopted numeric and narrative water quality standards to protect designated *beneficial uses*. In practice, water quality standards have been set at a level to protect the most sensitive beneficial uses. Seasonal standards may be applied for uses that do not occur year-round. Cold-water aquatic life such as salmon and trout are the most sensitive *beneficial uses* occurring in the Rogue Basin (DEQ, 1995). The specific beneficial uses that apply to the Analysis Area are presented in Table 2(OAR 340–041–0362).

Table 2. Beneficial Uses Rogue River

<i>Beneficial Uses</i>	<i>Rogue River Main Stem from Estuary to Lost Creek Dam</i>	<i>All Other Tributaries to Rogue River and Bear Creek</i>
Public Domestic Water Supply ¹	✓	✓
Private Domestic Water Supply ¹	✓	✓
Industrial Water Supply	✓	✓
Irrigation	✓	✓
Livestock Watering	✓	✓
Anadromous Fish Passage	✓	✓
Salmonid Fish Rearing	✓	✓
Salmonid Fish Spawning	✓	✓
Resident Fish and Aquatic Life	✓	✓
Wildlife and Hunting	✓	✓
Fishing	✓	✓
Boating	✓	✓
Water Contact Recreation	✓	✓
Aesthetic Quality	✓	✓
Hydro Power	✓	✓
Commercial Navigation & Transportation	✓	
¹ With adequate pretreatment (filtration and disinfection) and natural quality to meet drinking water standards.		

Agricultural Impacts to Water Quality

The Inland Rogue Basin Agricultural Water Quality LAC identified the following broad categories as potential sources of agricultural pollution in this area:

- drainage and runoff
- livestock management
- vegetation management
- irrigation
- croplands
- on-farm storage

See the menu of Better Management Practices and Prohibited Conditions sections for discussions on how to reduce the impacts of these agricultural activities.

Other Contributing Factors

There are background water quality problems that are not due to human activities. Harmful bacteria reside in streamside soils and wildlife feces. Air temperatures and direct sunlight can warm water temperature. Sediment and bank erosion are part of the natural hydrologic and geologic system. Nutrients, such as phosphorus, can be dissolved from parent rock material. Background sources of pollutants can be very hard and costly to identify and distinguish from management related sources, especially in an area as populated as the Rogue Basin.

Population increases and resulting environmental impacts have changed the face of several Rogue Basin systems over the past fifty years. Changes in fire frequency, the severity of peak

and low stream flows, waste inputs, flood plain encroachment, degraded riparian areas, and airborne pollutants are all consequences of human population expansion into aquatic and terrestrial habitat. These are consequences that can be buffered but never eliminated.

Impacts to water quality can sometimes be attributed to a single, definable act or land use activity. More often than not, however, the cumulative effects within the entire watershed put the burden on all of the inhabitants of the watershed to live on the land in a manner consistent with the ideals of conservation and stewardship. The residents of the basin can address cumulative effects. The contributions to water pollution of a single inhabitant may not seem significant, but the cumulative effects of all the inhabitants do have a significant impact. Residents of the watershed should adapt their resource use and impact in such a way as to lessen even minor contributions, as there is no substitute for the stewardship of committed individuals.

Another significant contributor to impaired water quality is the lack of financial resources and incentives to accomplish the education and land use management changes necessary to address the economic realities of the landowners in the basin. The public can petition for legislation to establish incentives for landowners in the form of grants, tax breaks, low interest loans, and/or community volunteer labor. Incentives must be commensurate with reduction of production value for land or water conserved in order to be effective. It is equally important to quickly and reasonably address perceived disincentives in current water rights law and county tax code.

The following narrative, tables, and lists focus on the mandate of agricultural water quality legislation. Agriculture activities are only a small part of the land use in this basin. The conditions identified by the farmers and ranchers of the LAC will meet the stewardship and conservation needs on private agriculture lands to help alleviate the cumulative effects of our human impacts in the Rogue Basin.

Water Quality Impairments in the Rogue Basin

Many water bodies in Oregon do not meet water quality standards for various pollutants at certain times of the year. In the Rogue Basin, bacteria, temperature, sedimentation, pH, and dissolved oxygen have been identified as water quality impairments. The TMDL for each pollutant is determined by scientific data collection and analysis to determine how much of a pollutant a water body can receive and still meet water quality standards. Water quality standards are intended to protect the most sensitive beneficial uses in a water body.

Water bodies that do not meet water quality standards are placed on a state list of impaired water bodies. Rivers, streams or lakes that are on the list require the development of a TMDL. In the Rogue basin, the TMDL process began in 1992 with the development of the Bear Creek TMDL. Since that time, TMDLs have been developed for Upper and Lower Sucker Creek (1999, 2001), the Lobster Creek Watershed (2002), the Applegate Subbasin (2004), additional parameters in the Bear Creek Watershed (2007) and the remainder of the Rogue Basin (2009) (See Table 3).

Table 3: TMDLs in the Inland Rogue Basin - Parameters and Adoption Dates

Basin	Temperature	Bacteria	Sedimentation	Phosphorous and Dissolved Oxygen & pH	EPA Approval Date
Applegate Subbasin	X		X		2/11/2004
Bear Creek Watershed				X	1992
Bear Creek Watershed	X	X	X		10/2/2007
Illinois Subbasin – Upper Sucker Creek	X				5/4/1999
Illinois Subbasin - Lower Sucker Creek	X				5/30/2002
Lower Rogue - Lobster Creek Watershed	X				6/13/2002
Rogue Basin	X	X			12/29/2008

TMDL Standards

Temperature

The temperature standard that applies to the Inland-Rogue Agricultural Water Quality area protects salmon and trout throughout their life histories: spawning, rearing, and migration. DEQ has designated fish-bearing streams as either core cold-water habitat or rearing and migration habitat (See map in Appendix E). Spawning areas and times have been determined for streams in the basin as well (See map in Appendix E). A simplified summary of the temperature standard would state that temperatures are not permitted to exceed 60.8°F (16°C) in cold water areas, 64.4°F (18°C) in salmon and trout rearing areas and 55.4°F (13°C) when fish are spawning. As part of the TMDL process, when temperature modeling is completed, specific temperature standards may be developed for individual streams that are higher than those temperatures listed above.

In many areas, of the Rogue Basin a major source of stream warming is the removal of near-stream vegetation leading to increased solar radiation reaching the water. Removal of near-stream vegetation has resulted from various agricultural practices, logging, and urban/rural development. Other activities that contribute to the warming of surface waters include heated wastewater discharges, channel modification, reservoirs, water withdrawals, and irrigation return flows.

Dramatic improvements in stream temperatures are expected when all sources meet their thermal pollution limits. DEQ predicts an average 12.6°F (7°C) temperature decrease to peak summer temperatures on smaller streams in the management area. Currently, operations of Lost Creek Reservoir lead to lower than natural summer peak temperatures in the Rogue River. However,

during the early fall, up to a 3.6°F (2°C) improvement is expected in the Rogue River. Cooler stream temperatures will protect salmon and trout throughout the Rogue River Basin.

Bacteria

The bacteria standard protects human health during recreation in streams, rivers, and lakes by setting safe levels for exposure to bacteria. In Oregon, *E. coli* bacteria are used as an indicator of fecal contamination. *E. coli* is found in the feces of humans and other warm-blooded animals. These bacteria can enter waterways through wildlife, livestock waste, failing residential septic systems, wastewater treatment plant malfunctions, rural residential runoff, and urban runoff.

Not all *E. coli* bacteria are pathogenic. Pathogenic organisms include bacteria, viruses, and parasites that cause diseases and illnesses. In infected individuals, pathogenic organisms are found along with *E. coli* bacteria. If *E. coli* bacteria counts are high in a river, there is a greater chance that pathogenic organisms are also present. A person swimming in or otherwise in contact with waters with high counts of fecal bacteria has a greater chance of getting sick from disease causing organisms or pathogens.

E. coli bacteria standards are expressed as a 30-day log mean of 126 *E. coli* organisms per 100 ml, based on a minimum of five samples, with no single sample exceeding 406 *E. coli* organisms per 100 ml. A water body is considered water quality limited if more than 10 percent of the samples exceed 406 organisms per 100 ml or the 30-day log mean is greater than 126 organisms per 100 ml.

Within the management area, reductions in fecal pollution from 5 percent up to 97 percent have been identified in order to meet water quality standards and ensure that streams, rivers, and lakes are safe for water contact recreation.

Dissolved Oxygen

DEQ has identified ten small tributary streams in the Rogue River Basin that are impaired due to dissolved oxygen levels that do not meet standards. Dissolved oxygen levels are related to water temperature, and other processes that impact oxygen levels. There are currently insufficient data to develop a TMDL for dissolved oxygen, but DEQ does expect some improvements in dissolved oxygen levels due to the implementation of the temperature TMDL. In simple terms, colder water can hold more dissolved oxygen, and aquatic organisms demand less oxygen at lower temperatures.

pH

North Fork Little Butte Creek and Fish Lake have experienced pH exceedances. pH refers to the level of acidity or alkalinity of the water. Fluctuations can be caused by several factors, and are an indicator of imbalances in biological activity. There is currently not enough data to develop a TMDL for pH.

Sedimentation

There are six small tributary streams in the Rogue River Basin that are impaired due to excess sediment. Increased sedimentation can directly affect fish and other aquatic organisms. DEQ is in the process of developing a numeric sedimentation standard.

How the AgWQM Area Plan Addresses the Temperature Standard

The intent of the Area Plan's riparian zone recommendations is to draw attention to the multiple beneficial functions of healthy and diverse riparian zones. The riparian zone is the streambank and top-of-bank and the vegetation on it. The riparian zone represents the area where vegetation gradually changes from water loving to upland vegetation. A variety of activities can take place within riparian zones if those activities are carefully managed to protect the beneficial functions of the vegetation and soil structure. The Area Plan describes options to restore and protect riparian zones in the sections called Menu of Better Management Practices and Prohibited Conditions.

Six main factors influence surface water temperature: exposure to solar radiation, channel shape, volume of flow, turbidity, groundwater inflow and air temperature. The undesirable conditions and possible solutions in Tables 4 through 9 of this Plan are designed to address four of these physical factors.

Exposure to Solar Radiation - The two major agriculturally related conditions that contribute heat to surface waters are inadequate shading from riparian vegetation and inflows of warmed irrigation surface returns. Agricultural activities that eliminate the possibility of natural regeneration of trees and shrubs along waterways are not allowed. By limiting near-stream riparian management to seasons and practices that enhance growth of grasses, shrubs, and trees canopy, vegetation is encouraged. The increased shade reduces direct solar exposure of stream water and irrigation return flows through the riparian area. Irrigation surface return flowing through a properly sized and functioning riparian area has a greater opportunity for infiltration and sub-surface return to the stream. The conditions described in this Area Plan are designed to encourage appropriate management of riparian areas to facilitate healthy riparian structure and function.

Volume of Flow - While agricultural water rights are regulated and monitored by the Oregon Water Resources Department, irrigation efficiency, uniformity, and application rates are factors controlled by individual irrigators. Perceived disincentives in current water law discourage irrigation management changes, but there are simple management activities that can both reduce overuse of irrigation water and decrease the detrimental impacts of surface return flows. The conditions described in this Area Plan are designed to encourage appropriate application of irrigation waters and water conservation by the landowners.

Properly functioning riparian areas act as sponges with the capacity to store water from high flow events and release it slowly back to the stream during low flow times. Riparian management focuses on seasons and practices that reduce consumption and trampling of grasses, shrubs, and trees and will enhance the function of the riparian area to capture, store, and release cool groundwater in the summer.

Channel Shape - Some channel morphology processes that are not within the control of the land manager are high flow events, bed material composition, and off-property upland/upstream condition. However, some channel morphology factors are within the control of the land manager. Riparian buffers act as sediment traps from adjacent lands and for stream suspended sediments during high water. In this way, the banks rebuild themselves causing deepening and narrowing of the channel. These rebuilt banks are generally hydrologically well connected to the

stream. A well-managed riparian area, whether excluded or properly grazed, will enhance streambank stability and will contribute to improve overall riparian condition. The conditions outlined in this Area Plan describe riparian conditions known to increase age, species, and structural diversity of the riparian vegetation for the purposes of limiting bank loss, adding large woody debris, encouraging a narrower and deeper channel profile, and connecting to a flood plain to dissipate energy associated with high flows.

Turbidity - Diverse, healthy riparian zones are able to function as sediment filters. The riparian conditions outlined in this Plan are designed to protect appropriate riparian grasses so as to eliminate the possibility of sediment-laden overland flow reaching the stream or drainage. Close attention must be paid to management strategies when allowing access for watering and grazing in riparian areas. Soil disturbance due to agricultural activities in riparian areas without employing appropriate erosion control methods should be avoided whenever possible.

How the AgWQM Area Plan Addresses the Bacteria Standard

Bacteria (*E.coli*) from agricultural sources may enter the surface waters of the state through the introduction of animal waste into the stream or from nearby sources through shallow groundwater flow and surface runoff. Prohibited conditions related to the bacteria standard are designed to reduce unrestricted direct deposition of manure and movement of waste by surface water from the uplands.

Direct Deposition - Livestock that loaf in riparian areas are likely to defecate directly into the waterway or onto adjacent riparian areas. By encouraging practices that move livestock through riparian pastures quickly, direct animal introduction of manure will be minimized. Manure spreading designed to distribute feedlot and dairy manure should never be done near waters of the state. Disposing of dry manure directly into waters of the state, or placing it where it is likely to enter there, is already prohibited under ORS 468B.

Indirect Deposition - Bacteria can remain viable in a manure pile for over two years. Improper storage of livestock manure can be an agricultural source of *E.coli* bacteria in the water. Precipitation on a manure pile or surface flows contacting the manure can carry bacteria into a waterway. Overland flows can transport animal wastes from upland or overstocked areas, especially if the slope is poorly vegetated or highly erodible. Filter strips or flow controls can effectively prevent bacteria from reaching waterways. Streamside areas planted to dense grass and properly functioning riparian areas can act as filters preventing contaminated surface flows from reaching vulnerable waterways.

Goal, Objectives, Responsibility and Intent

General Goal

To describe reasonable methods and practices, all people engaged in agricultural activities may use to maintain and improve water quality while preserving and enhancing economic viability in the Rogue Basin.

Objectives:

- 1) Strive to attain water quality standards that serve the beneficial uses designated for the Rogue Basin OAR 340-41-0271.
 - Public Domestic Water Supply
 - Private Domestic Water Supply
 - Industrial Water Supply
 - Irrigation
 - Livestock Watering
 - Anadromous Fish Passage
 - Salmonid Fish Rearing
 - Salmonid Fish Spawning
 - Resident Fish and Aquatic Life
 - Wildlife and Hunting
 - Fishing
 - Boating
 - Water Contact Recreation
 - Aesthetic Quality
 - Hydro Power
 - Commercial Navigation & Transportation
- 2) Create a high level of awareness of agricultural water quality issues and problems in the watershed.
- 3) Support funding necessary to achieve plan education and implementation.

Responsibility of the Committee:

OAR 603-090-0003 - Create an agricultural water quality management area plan that comprehensively outlines measures that will be taken to prevent and control pollution from agricultural activities...

- OAR 603-090-0024(b) - Recommend strategies necessary to achieve water quality goals and objectives...
- OAR 603-090-0030 - Describe a program to achieve water quality goals and standards necessary to protect beneficial uses related to water quality, as required by state and federal law. An area plan shall include, but not be limited to the following:
 - description of the geographic area to which the area plan applies,
 - a listing of water quality issues of concern,
 - a listing of current beneficial uses being adversely affected,
 - a statement that the goal is to prevent and control water pollution from agricultural activities and to achieve water quality standards,
 - a statement of water quality objectives of the Area Plan,
 - a description of the pollution prevention and control measures deemed necessary to achieve the goal,
 - a schedule for implementation adequate to meet dates described by law,
 - guidelines for public participation,
 - implementation and enforcement strategies.

Intent of the Rogue Basin Agricultural Water Quality Local Advisory Committee

The intent of the Local Advisory Committee is that the Area Plan:

- be based on scientifically defensible data,
- protect water quality in agricultural settings,
- protect the economic viability of the agriculture industry in the Rogue Basin,
- help set priorities so that resources are distributed where they will be of the most benefit to help the industry meet its long-term water quality objectives,
- address each subbasin as a unique entity,
- develop desirable agricultural condition requirements that are not prescriptive and provide for a wide variety of agricultural practices to alleviate potential problems,
- develop condition descriptions that allow for the unique character of specific sites.

Strategies for Implementation

Education and Outreach

We believe that the vast majority of landowners want to do the things that will benefit land and water quality, as well as crop and livestock production. A great deal of effort and resources should be used to inform landowners of management strategies that improve both their land and the quality of their water.

Mass mailings - While the LAC agreed in 2001 that random mailings may help public awareness, timing and funding for random mailings has been discouraged. Instead, identified audiences will receive water quality management plan mailings. These should be focused on water quality activities, seasonal or special circumstance notices (such as pasture management in drought or wet season manure handling), and proposed changes to the plan and rules that may affect the particular audience.

Demonstration projects/workshops - In conjunction with the Oregon State University (OSU) Cooperative Extension, local Soil and Water Conservation Districts (SWCDs), watershed councils and cooperating landowners, the local management agency (LMA) should coordinate a basin-wide series of demonstration projects related to improving water quality by restoring riparian health, implementing prudent irrigation water management and protecting soil productivity. Workshops intended for irrigation district patrons should include irrigation scheduling and efficiency assessments.

Tours - Visiting other agricultural operations is a valuable tool for consolidating a shared vision of how farming activities can work in conjunction with water quality protection. With the cooperation of the above groups, the LMA staff should schedule topic-specific agricultural water quality tours, as educational funds are available.

Neighborhood meetings/educational reviews - ODA's regional water quality specialist, along with the LMA staff, should organize local presentations with commodity groups, service clubs, schools, and individual landowners.

Technical and Financial Assistance

Watershed Councils and SWCDs should be primary resources for technical and financial assistance. (Appendix F)

Menu of Better Management Practices

This Area Plan is designed to maintain as much flexibility in farming and ranching as possible to achieve water quality goals and objectives. The Inland Rogue LAC encourages custom-made solutions to fit the unique needs of individual landowners. The “possible solutions” listed below are intended to increase awareness, provide information, and educate the general public and the agricultural community about management methods that can be individually tailored to reduce or eliminate agricultural contributions to water pollution. ODA recommends any effective combination of these practices to prevent and control water pollution. While protecting water quality is required, the individual practices are not intended to be mandates to land managers.

Agricultural management for the Inland Rogue Basin should consist of those management practices that are generally accepted as effective, economical, and practical for the area and that address water quality issues. These activities should also maintain the economic viability of agriculture in the basin. Appropriate management for individual farms and ranches may vary with the specific cropping, topographical, environmental, and economic conditions existing at a given site. Because of these variables, it is not possible to recommend uniform Better Management Practices for every farm or ranch in the Rogue Basin. The US Department of Agriculture Natural Resources Conservation Service’s (NRCS) Field Office Technical Guide (FOTG) contains extensive lists of Conservation/Management Practices.

Another important reference for conservation methods is found in the 1990 Coastal Zone Reauthorization Amendments, section 6217 (Appendix H). The Rogue Basin falls under these guidelines. This Inland Rogue Area Plan, along with other ODA water quality protection rules (i.e. Pesticide applications, CAFO, is the implementation program for those Environmental Protection Agency (EPA) recommendations in this part of the state of Oregon.

What follows is a summary of some of the practices that the ODA, the SWCD, and the LAC will encourage landowners to adopt, if they haven’t already. Widespread adoption of these practices should reduce or eliminate agricultural inputs to streams in the Rogue Basin.

Table 4 Drainage and Runoff Management Problems and Possible Solutions

Problems	Impacted water quality parameter	Possible Solutions Include
Nutrient Inputs from Over-Application of Fertilizers	pH Chlorophyll a	-Test soil to know when application rate and timing matches agronomic need -Follow instructions and label application procedures -Adopt precision agriculture management options
Concentrated Manure	Sediment pH Chlorophyll a Bacteria	-Store organic material in such a way as to prevent water from precipitation or surface flows from moving through the pile and into waters of the state -Store silage and compost well away from water/drainage ways
Under annual cropping, erosion more than tolerable for the specific soil (T)*	Sediment	-Maintain vegetated filter strips -Recover tailwater for recirculation or infiltration -Use cover crops and break up effective slope length
Overwatering	Temperature Sediment Flow Modification	-Use set duration and nozzle size based on agronomic need and soil moisture holding/infiltration capacity -Use retention ponds to collect and re-use surface returns -Measure soil moisture with tensiometers, gypsum blocks, etc.
Pooling and Stagnation	Temperature	-Level field where appropriate -Clean distribution ditches and channels -Install pipe where feasible

*T - is defined as the tolerable soil loss level. This is a number given in the NRCS Soil Survey, which is dependent on climate, parent material, topography, and biotic factors. In OAR 603-095-0010(44) "T" means maximum average annual amount of soil loss from erosion, as estimated by the Universal Soil Loss Equation (USLE) or the Revised Universal Soil Loss Equation (RUSLE), and expressed in tons per acre per year, that is allowable on a particular soil. This represents the tons of soil (related to the specific soil series), which can be lost through erosion annually without causing significant degradation of the soil or potential for crop production.

Table 5 Vegetation Management Problems and Possible Solutions

Problems	Impacted water quality parameter	Possible Solutions
Overgrazing* the riparian area	Temperature Bacteria Flow Modification	-Fence where appropriate -Plant native species to enhance riparian function. Appropriate and legal non-native species may help too -Manage grazing to restore riparian function -Install off-channel livestock watering facilities -Provide animals with shade away from the riparian area
Overgrazing the uplands	Sediment Flow Modification	-Salt, water and feed on hardened area -Match stocking rate to forage production capacity of the pasture -Account for slope and soil type for management -Rotate pastures: use the 8” and 4”** Rule to turn in and out
Tillage in riparian areas and exposed soils during or right before the rainy season	Sediment	-Use settling basins consisting of depressions at the bottom of the field -Construct curtain drains at the bottom of the field -Put straw bales in unconstructed drainage ways -Plant grass filter strips designed for slope and sediment yield potential
Allowing noxious and invasive weeds to dominate riparian sites	Temperature Flow Modification	-Interrupt seeding cycle -Control root reproducers -Control weed populations systematically -Plant competitive species

*Overgrazing is described as a condition when stocking rate on a pasture is greater than the forage production capability of the pasture species, due to time of year, soil type and water availability.

**8” and 4” Rule - Turn animals into a pasture when forage averages 8 inches tall then take them out to allow re-growth when the forage has been utilized down to an average 4 inches of stubble height. Irrigated only.

Table 6 Livestock Management Problems and Possible Solutions

Problems	Impacted water quality parameter	Possible Solution
Visible gully erosion on more than 10% of livestock trails, paths, stream banks, and pastures	Sediment	-Use hardened crossings -Use culvert crossings or bridge streams and ditches -Install gates and rotate pasture use -Use drainage appropriate to site: i.e. drain tile, curtain drains, etc.
Riparian pastures managed in such a way as to degrade the shade density capability of near-stream areas (The result is inadequate vegetation cover.)	Temperature Sediment Bacteria	-Attract livestock to upland areas with off-stream shade, water and salt-fence off riparian areas to facilitate proper management (permanent or temporary) -Use a short rotation schedule for riparian areas
Pastures managed in such a way as to reduce forage basal area coverage to less than 50%	Temperature Bacteria	-Rotate pastures: use the 8” and 4” rule *to turn in and out -Use electric fences for flexibility in rotation schedule -Balance livestock numbers with regrowth potential
Accumulation of manure within 50 feet of a drainage way where it has opportunity to enter waters of the state	Bacteria Nutrients	-Store in covered, dry area away from surface water -Spread manure when runoff potential is minimal -Balance livestock numbers with area available
Grazing animals during irrigations in such a way as to lead to compacted soils, as indicated by ponded water and poor vegetation production	Sediment Bacteria	-Rotate animals off of pastures during and right after irrigation sets -Construct buffer and filter strips
In-stream livestock watering in such a way as to degrade bank stability, increase sediment yield, and increase introduction of bacteria into waters of the state	Sediment Bacteria Flow Modification	-Use water gaps along fenced streams -Provide off-stream watering -Create visual barriers on far side of stream -Harden stream crossings

Table 7 Irrigation Management Problems and Possible Solutions

Problems	Impacted water quality parameter	Possible Solutions
Overuse of water (indicators include growth of “wetland species” in pastures (i.e. Baltic rush, sedges, horsetail))	Temperature Flow Modification	<ul style="list-style-type: none"> -Improve scheduling, timing, and set changes -Improve knowledge of crop needs, i.e. specific crop water requirements -Improve distribution methods, i.e. upgrade from flood to sprinkler where feasible, or upgrade ditch and lateral system -Schedule irrigation with soil moisture measurements using gypsum blocks or other simple moisture monitoring devices -Improve diversion techniques and maintenance i.e. location of diversion -Consider leasing unneeded water rights to Water Resources Department or The Freshwater Trust
Excessive runoff/tailwater	Temperature Nutrients Sediment	<ul style="list-style-type: none"> -Improve timing and integrate with livestock rotations to prevent compaction of pasture soils (OSU Extension recommends 4-5 days after irrigation before animals are allowed back on.) -Consider collection and redistribution of tailwater -Facilitate percolation of tailwater on vegetated area with well-drained soils -See scheduling requirements above

Table 8 Cropland Management Problems and Possible Solutions

Problems	Impacted water quality parameter	Possible Solutions
Exposed slopes without effective cover going into the rainy season	Sediment	-Plant cover crops -Leave stubble from harvest -Spread crop residue in vulnerable areas -Use other effective erosion control methods
Movement/loss of soil into waters of the state beyond the tolerable NRCS soil loss limits as defined by soil type and position	Sediment	-Use sediment retention structures -Plant filter strips -Construct straw bale filters appropriately spaced in drainages -Use other effective erosion control methods
Excess fertilizer applications beyond agronomic need. (An excellent indicator of excess nutrient is a heavy blooms of aquatic weeds and algae in receiving waters.)	Chlorophyll a	-Mix in “Least Likely Third”* area -Test soil regularly -Time fertilizer applications to avoid periods of heavy precipitation or excess irrigation to prevent leaching and runoff
Over application of irrigation water beyond replacement of soil water holding capacity and reasonable leaching factors	Temperature Sediment Flow Modification	-Use soil moisture measurement to schedule irrigation application -Match application rate with infiltration rate of the soil
Inadequate distribution ditch maintenance causing excessive leakage and/or forcing excess flow to compensate for ditch loss	Temperature Flow Modification	-Clean and repair ditches on regular schedule to facilitate flow -Line ditches -Install pipe where applicable

*Least Likely Third: Siting strategy for potentially hazardous materials. When locating storage and staging areas on a property, select the third of the property that is least likely to allow contaminants from a spill or leak to runoff directly into waters of the state.

Table 9 Farm Storage Problems and Possible Solutions

“Least Likely Third” rule is recommended for all conditions below.

Problems	Impacted water quality parameter	Possible Solutions
Machinery and chemical storage within 50’ of water/drainage ways	No streams are currently designated as water quality limited for toxins or Volatile Organic Chemical (VOCs)	-Follow label rules for chemical and petroleum storage -Avoid storing equipment in floodplains even temporarily -Meet DEQ requirements for fuel storage and refueling
Drains from storage areas hydraulically connected to water/drainage ways	No streams are currently designated as for toxins or VOCs	-Secure storage areas from leakage into water/drainage ways -Keep a Haz-Mat control kit nearby
Storage areas without containment barriers	No streams are currently designated as for toxins or VOCs	-Construct an appropriately sized containment barrier around storage areas
Chemicals not in properly labeled and sealed containers	No streams are currently designated as for toxins or VOCs	-Label and seal all containers -Store money instead of chemicals. Buy chemicals as needed
Silage and compost piles stored in such a way as to allow water to move through them and enter water/drainage ways	-Chlorophyll a	-Disperse runoff from drainages and gutters away from silage and compost piles and through appropriately sized filter strips or other equally effective pollution control mechanism

*Least Likely Third: Siting strategy for potentially hazardous materials. When locating storage and staging areas on a property, select the third of the property that is least likely to allow contaminants from a spill or leak to runoff directly into waters of the state.

Prohibited Conditions

The following prohibited conditions have been identified by the LAC as those being so blatant and injurious to the land and water resources that they constitute a violation of the Rogue Basin Agricultural Water Quality Area Plan Administrative Rules and are subject to the compliance procedures outlined in the rules.

The official rule language is in the box within each of the condition explanations.

Prohibited Condition #1- Soil Loss

(Addressing Drainage and Runoff Problems)

Issue/Intent

Soil erosion is a natural process but agricultural practices can accelerate or slow it down. Unrestrained erosion deposits sediment at the bottom of slopes and can then enter the waters of the state. The intent of this LAC is not to penalize agriculture for a natural process but to

encourage thoughtful, well-planned management of this most basic and essential agricultural resource.

Four groups of management measures and structures are commonly used to control erosion and sediment yield from an agricultural site: 1) surface protection such as mulches and vegetation; 2) mechanical treatment such as deep ripping and land surface manipulation; 3) diversion structures such as terraces and straw bales; and 4) detention structures such as artificial wetlands in upland areas that do not receive natural water flow (so as to not be governed by wetland regulations and protections), settling basins and curtain drains. Riparian setbacks are not only the most effective filtering component to keep sediments from the waters of the state but also contain multiple erosion control benefits.

Retention of soil should be the farmer's first goal. Switching from conventional tillage to no till, planting a cover or residue producing crop, and deep ripping a field, when appropriate, to improve water infiltration are some of the practices that reduce erosion. Properly designed and maintained sediment control measures such as strip cropping, catch basins, grassed waterways, cover crops, straw bales, and several other methods can be effective in preventing and retaining sediment movement.

Excessive Soil Erosion
OAR 603-095-1440(2)

(a) There shall be no visible evidence of erosion resulting from agricultural management in a location where erosion has contributed or will contribute sediment to waters of the state. Visible evidence of erosion may consist of the following features:

- (A) Sheet wash, noted by visible pedestalling, surface undulations, and/or flute marks on bare or sparsely-vegetated ground;
- (B) Visibly active gullies, as defined by OAR 603-095-0010(1);
- (C) Multiple rills, which have the form of gullies, but are smaller in cross-sectional area than one square foot.

Pedestalling, referred to in the above rule language, is described as differential erosion of soil due to sheet-wash which leaves less erodible units such as grass roots or stones elevated above the eroded, sparsely-vegetated surrounding material.

Water quality parameters which may be affected: Sediment

The following terms are specifically defined in OAR 603-095-0010(1)(14)(15). As used generally, they have the following meanings.

- Sheet Erosion: soil particles that are detached and transported in water moving as a “sheet” across an exposed soil surface. Continued flow of this type will eventually differentiate itself into definable channels, rills, and gullies.
- Rill Erosion: a series of small channels less than one square foot in cross-sectional area. It often begins as sheet erosion across an unprotected soil surface. If left unprotected, rills usually converge to become gullies.
- Visibly Active Gully Erosion: a channel equal to or greater than one square foot in cross-sectional area. Gullies, if left unprotected, may carry large amounts of suspended sediment and become a physical hazard to humans and livestock.

- "Water" or "the waters of the state" include 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 or within its jurisdiction. (ORS 468B.005(8))

Prohibited Condition #2-Riparian Vegetation Destruction

(Addressing Vegetation Management and Grazing Lands Problems)

Issue/Intent

Properly functioning riparian areas have so many positive benefits for the agricultural landowner that it is imperative these areas be managed well. Riparian exclusion is one effective option but areas that have been previously managed may need continued management to prevent invasion and dominance of weedy or exotic plant species. This LAC does not intend to exclude riparian areas from sound/sustainable management. Farmers and ranchers must be able to provide livestock with access to adequate pasture and water. The intent is to ensure access to these resources while minimizing negative impacts on riparian vegetation, maintaining stable stream banks and protecting water quality. Consult the OSU Extension, the SWCDs and the ODA for ideas and assistance on rotational grazing, off-stream watering, and riparian pasture management.

Riparian Vegetation Destruction

OAR 603-095-1440(3)

(a) Agricultural management of riparian areas shall not impede the development and maintenance of adequate riparian vegetation to control water pollution, provide stream channel stability, moderate solar heating, and filter nutrients and sediment from runoff.

(b) This condition is not intended to prohibit riparian grazing where it can be done while managing for riparian vegetation required in OAR 603-095-1440(3)(a)

(b) Constructed ditches that carry only irrigation delivery and drainage water are exempt from conditions described in OAR 603-095-1440(3).

Water quality parameters which may be affected: Temperature, Sediment, Bacteria, Nutrients

Prohibited Condition #3-Irrigation Management Problems

Issue/Intent

The intent is to discourage wasteful water management practices, which are not necessary to irrigate effectively and beneficially. However, the intent of this LAC is not to prescribe a type of irrigation, nor is the intent to eliminate all surface returns. Some drainage following an irrigation set may be unavoidable. Flooding, sprinkling, and dripping have their specific applications in particular sites and situations. How the water is managed and its efficiency of management is the factors that determine a particular distribution method.

The goal is to encourage efficient use of water and to mitigate the detrimental results of excessive surface runoff. One factor is maintenance of delivery systems and another is the use of delivered water. In the Rogue Basin, irrigation water is applied by surface or subsurface dripping, flood irrigating, overhead sprinkling, or a combination of methods, depending on the crops and water distribution capability. Slope of the land and type of soil have a great bearing on the efficient management of water. System type, design, and management should be consistent with the needs of the land, the crops, and the operator.

Beneficial use of delivered water is of absolute importance. While irrigation district and association patrons often have little control over the timing of their water delivery, they are encouraged to make as efficient use of it as possible. Those who pump directly from the source must be sure that the water is used when needed and not wasted. Different crops have different requirements and effort should be made to determine those needs so as to plan a schedule and supply system that conforms to those needs. Too much water at the wrong time or too little can lead to inhibited plant production. Livestock owners should make every effort to rotate livestock in such a way as to allow the water to do its work without contributing to water quality degradation. Overuse of water can lead to the deterioration of the land and crop over which it is being applied.

Tailwater resulting from too rapid application should be avoided. Every possible effort should be made to collect irrigation tailwater in order to divert it to better draining soils for percolation or to distribute it where it may be applied beneficially. Steep slopes are difficult to irrigate without being terraced or at least ditched in a way that breaks the slope length and slows the water down to allow for infiltration. The diverted water is beneficially used only when it has an opportunity to percolate into the soil and supply the transpiration needs of plants or drinking requirements of livestock. It is also indirectly beneficial to stream temperatures as the water is cooled to the soil temperature before it re-enters surface waters. Unmanaged surface runoff is wasteful and ultimately of no benefit, or even harmful, to the irrigator and the resource. Surface returns could be described as surface irrigation drainage re-entering waters of the state after the soil to which it is being applied is saturated. They are considered unmanaged if the source is unregulated by the operator after the soil is saturated.

Serial conveyances are special cases, and are artifacts of infrastructure that require irrigation water to be passed by gravity flow through ditches and other surface features to one or more water users in series. While these special cases add complexity to management for all in a conveyance series, and obscure responsibility for potential runoff from the user last in line preceding waters of the state, each water user is responsible to not degrade water quality so that re-conveyed water would be of lesser quality than that received.

With respect to the special case of serial conveyances, the Inland Rogue Basin LAC advises the development of an inventory of affected acreage, quantification and documentation of the magnitude of the problem through voluntary monitoring, and development of solutions. Potential solutions identified include, but are not limited to, subsidized infrastructure modernization and development of specially adapted on-farm management practices, such as those described in the “Menu of Better Management Practices,” but do not preempt cropping agriculturally productive land.

Irrigation scheduling decisions should be based on specific factors having to do with weather, soil conditions, fertilizer, and chemical applications. As our most limiting agricultural resource, water must be managed and not just used.

Surface Irrigation Return Flows
OAR 603-095-1440(4)

Runoff of surface irrigation that enters waters of the state shall not exceed water quality standards or cause pollution of the receiving water.

Water quality parameters which may be affected: Temperature, Sediment

Prohibited Condition #4-Crop Nutrient and Animal Waste Management Problems

Issue/Intent

It is not the intent of this LAC to eliminate the application of crop nutrients. This condition should encourage management of nutrients and animal waste to do the most benefit for the intended production goals. Application of crop nutrients, or fertilizer of any kind, can be a necessary and beneficial agricultural practice. Improper application of fertilizer, however, can be costly to the grower and harmful to the environment. Growers are encouraged to use regular soil testing to determine the nutrient needs of their crops. Using a pre-set amount of fertilizer year after year may limit crop yields and cause nutrients to run off into waters of the state. Excess nutrients in water can cause unnatural algae growth, increased pH, and lead to a decrease in dissolved oxygen.

To prevent water from carrying concentrated animal waste, silage and compost leachates (nutrients) to streams, they should be stored in such a way that water cannot move through the pile into waters of the state. With the small land areas that are the dominant agricultural land use in the basin, close attention must be paid to where nutrient laden materials are stored. Even if it is impossible to store materials far away from the waters of the state, the material can be covered and protected from surface flow and precipitation. ORS 468(b) applies to this condition. The statute requires that wastes be stored, managed, and disposed in such a way that they do not pollute waters of the state.

Waste
OAR 603-095-1440(5)

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

Water quality parameters which may be affected: Bacteria, Sediment, Nutrients, Dissolved oxygen, pH, chlorophyll a

Nutrients are usually described as any material spread on the soil to enhance plant growth, microbial activity, soil tilth, and infiltration capacity. Animal manure, milk waste effluent,

chemical fertilizers, compost, and spoiled silage are a few examples of materials with high nutrient content.

Administrative Roles and Responsibilities

Designated Management Agency/Local Management Agency

The ODA is the “Designated Management Agency” for nonpoint source pollution control activities on agricultural and rural lands in the Rogue Basin. In turn, through Memoranda of Agreement, ODA has designated the Jackson, Josephine, and Illinois Valley SWCDs as its LMAs to assist with the development and implementation of the water quality management area plan and projects in the Rogue Basin. Implementation priorities will be established on a periodic basis through annual work plans developed jointly by the SWCDs and ODA, depending on available funding.

The Director of ODA appointed a Rogue Basin LAC representing local agricultural producers, local landowners, local environmental interests, and the SWCDs for the purpose of assisting with the development of this Area Plan and the associated OARs to implement core elements of the Plan. The draft Area Plan and Rules, resulting from the LAC’s and ODA’s efforts, will be presented to the Director and the Oregon Board of Agriculture for their review and consultation prior to adoption by ODA.

The draft Area Plan and the proposed OARs were presented in public information meetings and public hearings within the agricultural and rural portions of the Rogue Basin. Testimony presented at public hearings and during the public comment period was reviewed by ODA and the LAC. Recommended modifications were presented to the Oregon Board of Agriculture and the Director of ODA for their review. The director of ODA will adopt the final OARs resulting from this review through the Administrative Rules process.

The LMA and the LAC will participate in biennial review of plan implementation progress. Any future amendments to the administrative rules will be subject to the public participation process outlined in Oregon law.

Monitoring and Evaluation of the Plan’s Effectiveness

The progress and success of implementation efforts will be assessed through determination of changes in land management systems and the measurement of water quality improvement over time. The number of private and public groups doing water quality trend monitoring will ensure the LAC’s awareness of water quality trends throughout the basin. ODA plans to conduct land condition assessments and outreach evaluations but will likely leave water quality monitoring to those who are funded for that task.

ODA, with the cooperation and assistance of the Jackson, Josephine, and Illinois Valley SWCDs, the LAC, and DEQ, will assess the progress of Plan implementation toward achieving the Area Plan’s goals and objectives. These assessments may include:

1. An accounting of the number of operations with approved farm plans that address water quality concerns, the number of requests for farm plans, and the acreage they cover.

2. An estimate of the amount of pollution prevented based on number of farm plans implemented and their acreage.
3. Identification of additional agricultural sources of sediment, nutrients, and other contributors to streams not addressed in the original plan.
4. An evaluation of the effectiveness of outreach and education programs designed to provide public awareness and understanding of water quality issues.
5. A review of projects, demonstrations, and tours used to showcase successful management practices and systems.
6. An evaluation of the effectiveness of the sources for technical and financial assistance that is available to the agricultural community.
7. Review of load allocations as found in Rogue Basin TMDLs and the effectiveness of this plan in meeting agricultural load allocations.

Reports of the biennial reviews may be found at the ODA web site:
http://oregon.gov/ODA/NRD/water_agplans.shtml

Complaints and Inspections

Complaints against operators or landowners alleged to be out of compliance with the Rules associated with this Area Plan may be investigated by ODA. In order to be carefully considered for investigation, a complaint must be formal. The complaint from the public must relate to a specific site with specific information related to the undesirable condition, must be submitted in writing, must be signed by the complainant, must be filed with ODA, and upon request, will be made available to the party alleged to be in violation. Informal, unsigned complaints from the public may not be investigated. ODA will determine if a condition violation exists. Based on this determination, appropriate action will be implemented to remedy the condition as indicated by the appropriate rules.

Compliance Procedures

It is the policy of ODA to direct the landowner to available assistance through state and federal partners so as to achieve a resolution rather than an enforcement action. The operator and/or landowner may be given assistance to create and implement a farm plan. A farm plan, however, is not necessary to be in compliance with the Rules. Authority for any enforcement action rests with ODA.

Opportunities for remedies are built into the existing compliance process through a Water Quality Advisory or Letter of Warning. However, when a Notice of Noncompliance is issued for an Area Rule violation, the landowner/operator will be directed by ODA to remedy the condition under provisions in OAR 603-090-0060 through 603-090-0120.

A flow chart of procedures to resolve written complaints is outlined in Appendix G. Details are can be found in OAR 603-090-0060 to 603-090-0090.

The LAC strongly recommends that a landowner appeals board be established in the Rogue Basin consisting of at least four members of the LAC and duly elected SWCD members. The purpose of this citizen board would be to act as a check on the interpretation of the Area Rules between ODA and the intent of the LAC. While no authority would rest with this board, it could

recommend a review of the evidence if an appeal was justified. At this time, under current statute, rules and ODA policy there is no provision for a landowner appeals board.

It is the intent of this Plan that ODA consider severe weather conditions when evaluating compliance with unacceptable conditions adopted in the Rules. ODA recognizes that every farm and situation is different and will take into account each individual situation when evaluating compliance with unacceptable conditions listed in the Rules.

Review Period

The ODA, Jackson, Josephine, and Illinois Valley SWCDs, the LAC, and the Oregon Board of Agriculture will consider making appropriate modifications to the basin Plan and/or the associated OARs on a biennial basis.

The Inland Rogue LAC has committed to reconvening every two years after adoption of this Plan. The purpose of reconvening is to address the implementation, language, or newly listed 303(d) parameters of concern to agriculture in the basin.

It is anticipated that ODA, along with the SWCDs, will conduct a random survey of a statistically significant number of anonymous agricultural holdings in the Inland Rogue Basin. This survey will establish a baseline of compliance with OAR 603-95-1440 upon which the LAC can reconvene to set benchmark compliance goals. The benchmarks will not have any regulatory impact. They are only to be used as guidelines for prioritizing educational activities and incentives.

Appendices

A – Glossary

B - Map - Inland Rogue AgWQM Area

C - Map - Inland Rogue AgWQM Area Ownership

D – Map – Inland Rogue AgWQM Area Soil and Water Conservation District Boundaries

E – Map – Fish Use Designations

F - Watershed Council and Soil and Water Conservation District Contact Information

G - Compliance Procedures Flow Chart

H - Coastal Zone Reauthorization Amendment agricultural management measures

Appendix A - Inland Rogue Basin Area Water Quality Plan Glossary

Agricultural Use - means the use of land for the raising or production of livestock or livestock products, poultry or poultry products, milk or milk products, fur-bearing animals; or for the growing of crops such as, but not limited to, grains, small grains, fruit, vegetables, forage grains, nursery stock, Christmas trees; or any other agricultural or horticultural use or animal husbandry or any combination thereof. Wetlands, pasture, and woodlands accompanying land in agricultural use are also defined as in agricultural use. (OAR 603-095-0010(4)).

Channel Morphology - shape of the stream channel. (Example: wide and shallow vs. narrow and deep).

Cold Water Aquatic Life - organisms that require cold water as part of their physiological requirements.

Contact Recreation - recreational activities that put humans in direct contact with the water, i.e. swimming, boating, etc.

Field Office Technical Guide - means the localized document currently used by the soil and water conservation district and developed by the U S Department of Agriculture, Natural Resources Conservation Service which provides:

- soil descriptions
- sound land use alternatives
- adequate conservation treatment alternatives
- standards and specifications of conservation practices
- conservation cost-return information
- practice maintenance requirements
- soil erosion prediction procedures and
- a listing of local natural resource related laws and regulations

Formal Complaint - means a complaint against a landowner or operator alleging a violation of a requirement of any Agricultural Water Quality Management Area Plan adopted pursuant to ORS 568.900 through 568.933 at a specific site. The complaint shall be submitted in writing stating the nature and location of the violation and shall be filed with ODA. (OAR 603-095-0010(19)).

Geomorphic - the shape or surface configuration of the earth.

Hydraulically Connected - groundwater and surface waters influenced by each other's condition.

Farm Plan - (same as voluntary conservation plan) is developed to facilitate daily and seasonal management decisions which impact production and resource quality. While not required, they are still a good operational idea and strongly encouraged.

Least Likely Third - siting strategy for potentially hazardous materials. When locating storage and staging areas on a property, select the third of the property that is least likely to allow contaminants from a spill or leak to runoff directly into waters of the state.

Parent Material - the underlying rock from which surface soils are formed. (Example: Serpentine rock formations give rise to serpentinitic soils).

Riparian Vegetation - plants and plant communities dependent upon or tolerant of saturated soil near the soil surface for at least part of the year. (Example: Willows, sedges, and rushes can grow in saturated soils). Riparian areas are commonly described as the area from the average high water level up to the area no longer influenced by the stream as defined by changes in soils and plant communities.

Riparian Setback - the purposefully designated or protected area away from the stream's normal flow mark back to a point where riparian functions for that site will not be adversely affected by land management practices.

Soil loss tolerance factor or "T" - means maximum average annual amount of soil loss from erosion, as estimated by the Universal Soil Loss Equation (USLE) or the Revised Universal Soil Loss Equation (RUSLE), and expressed in tons per acre per year, that is allowable on a particular soil. This represents the tons of soil (related to the specific soil series) that can be lost through erosion annually without causing significant degradation of the soil or potential for crop production. (OAR 603-095-0010(45)).

Streambank - means the boundary of protected waters and wetlands, or the land abutting a channel at an elevation delineating the highest water level which has been maintained for a sufficient period of time to leave evidence upon the landscape; commonly that point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial. For perennial streams or rivers, the streambank shall be at the ordinary high-water mark. (OAR 603-095-0010(46)).

Waters of the state - "Water" or "the waters of the state" include 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 or within its jurisdiction. (ORS 468B.005(8))

Appendix E - Fish Use Designations

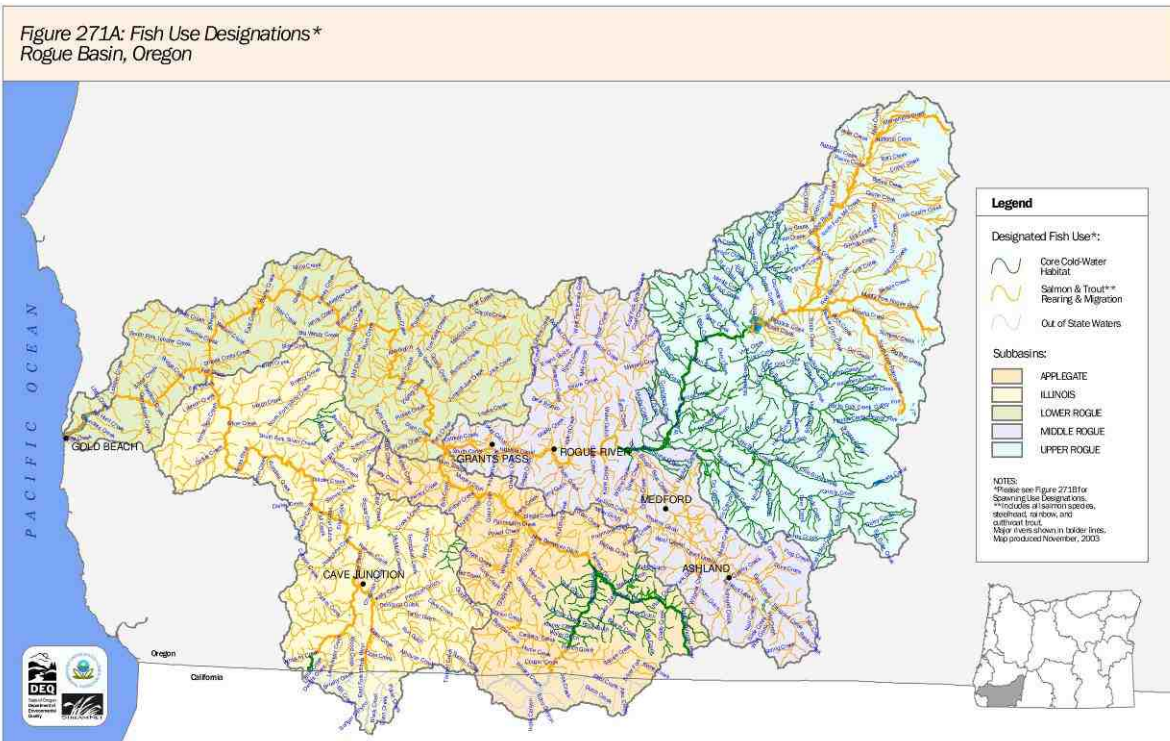
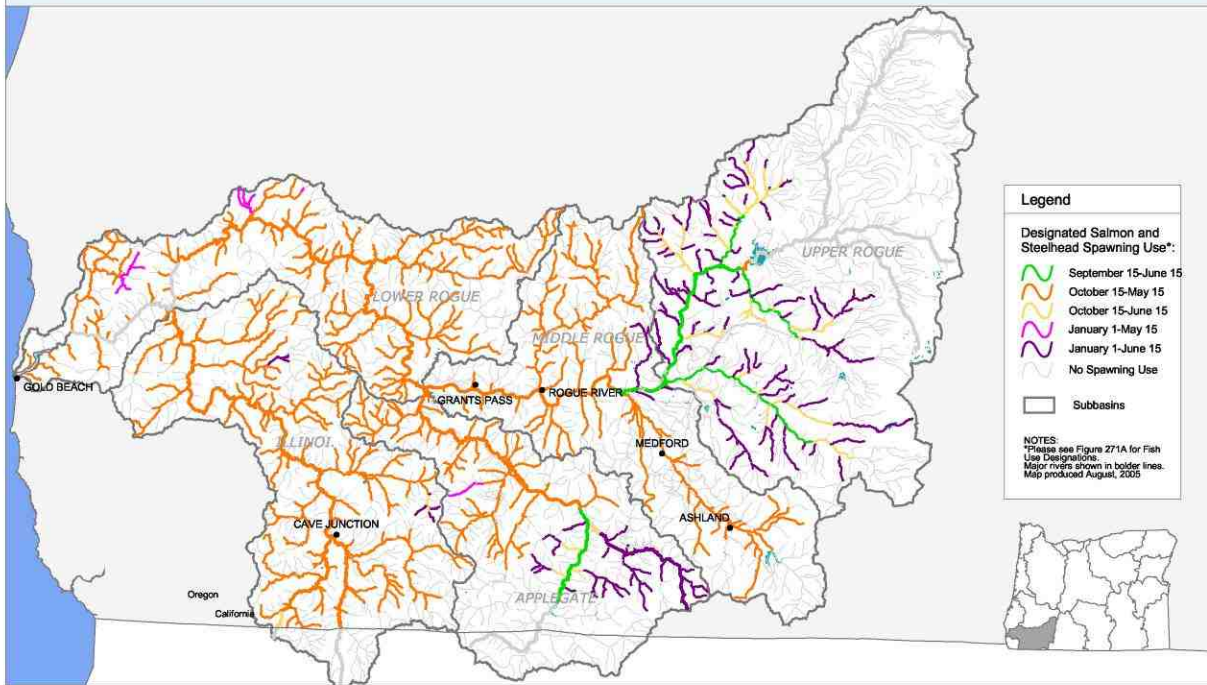


Figure 271B: Salmon and Steelhead Spawning Use Designations*
Rogue Basin, Oregon



Appendix F - Watershed Council, SWCD, and Financial Assistance Contact Information

Watershed Councils

Upper Rogue Watershed Association, PO Box 1128, Shady Cove, OR 97539. Tel. (541) 878-7404 email: urwatershed@yahoo.com

Applegate Partnership Watershed Council, PO Box 899, Jacksonville, OR 97530. Tel. (541) 899-9982
email: director@arwc.org

Bear Creek Watershed Council, P.O. Box 1548, Medford, OR 97501. Tel. (541) 840-1810
email: coordinator@bearcreek-watershed.org

Illinois Valley Watershed Council, PO Box 352, Cave Junction, OR 97523. Tel. (541) 592-3731
email: ivwc@cavenet.com

Little Butte Creek Watershed Council, PO Box 89, Eagle Point, OR 97524. Tel. (541) 646-1684
email: tndweaver@snowcrest.net

Williams Creek Watershed Council, PO Box 94, Williams, OR 97544. Tel. (541) 846-9175
email: wcbc.arthur@oigp.net

Stream Restoration Alliance, 576 NE. E St., Grants Pass, OR 97526. Tel. (541) 474-6799
email: mrwc@charterinternet.com

Seven Basins Watershed Council, P.O. Box 909, Gold Hill, OR 97525, Tel. (541) 261-7796
email: contact@sevenbasins.org

Soil and Water Conservation Districts

Jackson Soil and Water Conservation District
573 Parson's Dr. Suite 102
Medford, Oregon 97501
(541) 776-4270
randy@jswcd.org

Josephine Soil and Water Conservation District
1440 Parkdale Dr.
Grants Pass, Oregon 97527
(541) 474-6840
email: joswcd@outreachinternet.com

Illinois Valley Soil and Water Conservation District
PO Box 352, Cave Junction, OR 97523
(541) 592-3770
email: ivoffice@cavenet.com

Available Technical and Financial Assistance

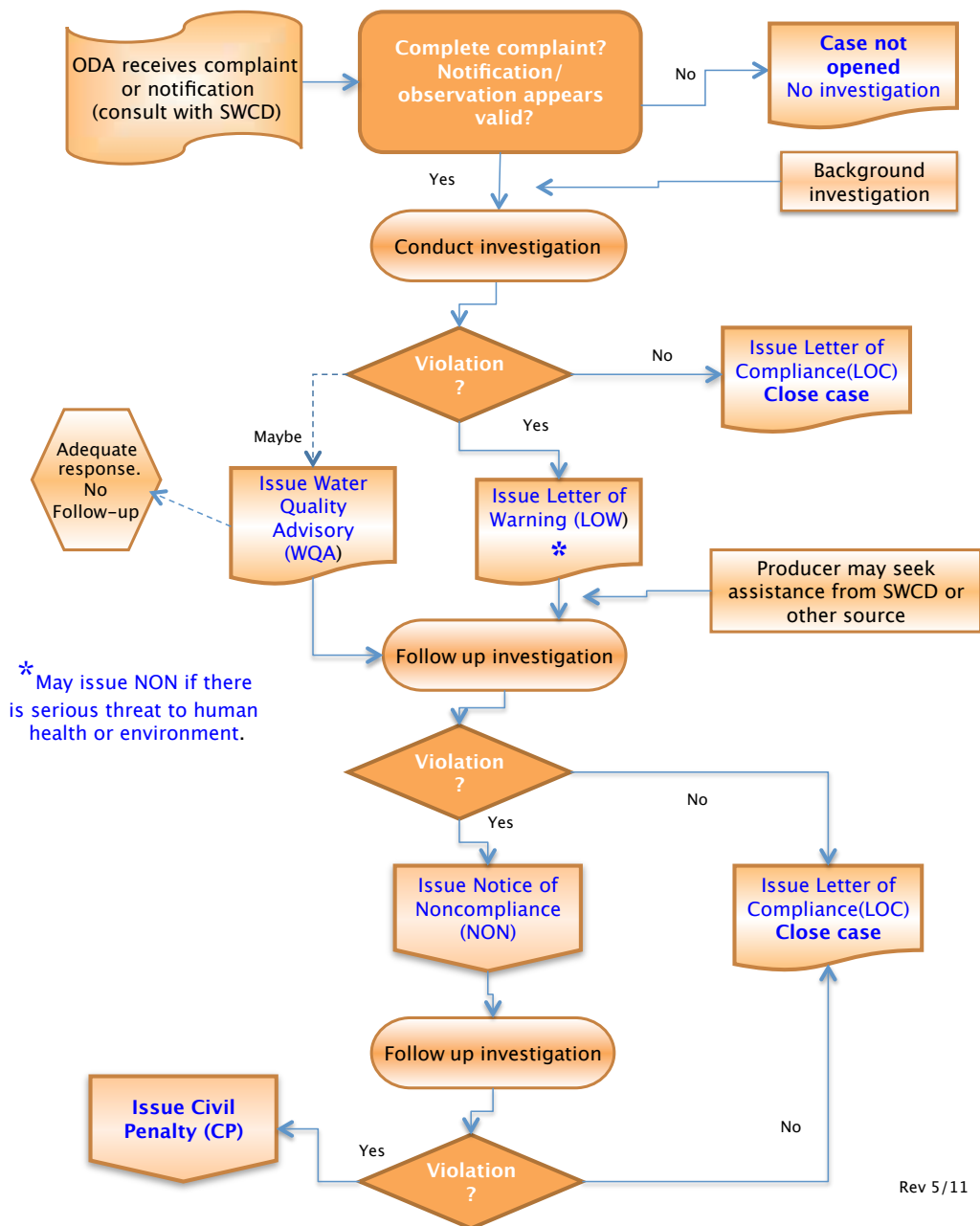
Since most agricultural landowners are unable to make a living directly from their land-based enterprise, financial incentives are required to encourage basin-wide adoption of sound and sustainable management practices. While recordkeeping of various aspects of the operation may be required for various government incentives (for example, the Conservation Security Program requires two years of records to be kept before you can apply for Best Management Practice payments), VOLUNTARY, PRIVATE recordkeeping is encouraged as a tool for operational and strategic decision-making. Some government programs do NOT require recordkeeping.

- **CREP** - Conservation Reserve Enhancement Program (541-734-3143 or 541-476-5856) makes available money to pay rent to landowners who set aside areas immediately adjacent to anadromous fish-bearing streams. It is intended to protect water quality and enhance spawning, rearing, and habitat quality.
- **OWEB** - Oregon Watershed Enhancement Board (541-471-2886) provides funding for watershed enhancement projects under the general categories of education/public awareness, monitoring, management, and assessment/action planning.
- **EQIP** - Environmental Quality Incentives Program (541-476-5856 and 541-592-3731 in Josephine County) pays landowners a majority cost-share for on-farm projects that protect natural resources and improve wildlife (including fish) habitat. EQIP information can also be obtained from the Farm Service Agency in Medford (541-734-3143).
- **EPA 319** - Environmental Protection Agency administers the 1972 Clean Water Act section 319 grants through DEQ (541-776-6010) to help meet their water quality mandates. The projects EPA likes to fund are those with directly measurable benefits for water quality and endangered species. Check out EPA's Ag Info Center: <http://www.epa.gov/agriculture/index.html> and Oregon DEQ's 319 program: <http://www.deq.state.or.us/wq/nonpoint/grants.htm>.
- **NRCS** - Natural Resources Conservation Service (541-476-5856) can provide technical assistance and administers a number of cost-share programs for on-farm projects that improve farm production while protecting natural resources and improving wildlife (including fish) habitat. In Medford call (541-776-4267).
- The Freshwater Trust (503-222-9091 in Portland) offers lease and buy-out options for abandoned or unused water rights. This market-based approach to increasing stream flow may also be used to fund irrigation system changes in watersheds identified as priorities for The Freshwater Trust.
- OSU Cooperative Extension (541-476-6613 in Josephine County and 541-772-5165 in Jackson County) offers a wide variety of levels of technical assistance and planning help. OSU has been instrumental in the Oregon Cattlemen's extremely successful Watershed Ecosystem Education Program workshops help ranchers and farmers understand their watersheds and stream function better through assessments and monitoring.

Blank

Appendix G - Compliance Procedures Flow Chart

Oregon Department of Agriculture WQ Program Compliance Protocol



Rev 5/11

Letter of Compliance - A Letter of Compliance (LOC) tells the owner/operator that at the time of the inspector's site visit, the property was in compliance with all Area Rules and there were no conditions observed during the investigation; such as, manure piles near drainages or heavily grazed areas, that are likely to cause a water quality problem in the near future.1

Water Quality Advisory - A Water Quality Advisory (WQA) means the owner/operator is in compliance because there were no violations of Area Rules documented at the time of the inspector's visit, but the conditions on the property have the potential to violate the Area Rules in the future. Examples: a riparian area is in poor condition, and if management changes are not made, conditions will not improve; there is manure in a corral that could be transported to surface water in a rain event; there is build up of sediment in a sediment basin. 1

A WQA letter includes a description of the conditions that have the potential to violate the Area Rules, the statute or rule that may be violated and recommended corrective actions. The letter may also refer the landowner to other sources of technical assistance, and summarize other issues discussed during the investigation. The inspector will usually follow up to see if the changes effectively reduced the potential for a water quality problem.

Letter of Warning - A Letter of Warning (LOW) means the inspector found a violation of Area Rules during the investigation, but the pollution-causing activity was not egregious and was not done intentionally to cause water pollution. The (LOW) is an official warning (not defined in Administrative Rule) that gives the landowner or operator at least one opportunity to correct the problem before he/she receives a Notice of Noncompliance. Although an LOW is a formal action by ODA, it is not an enforcement action.

A LOW includes a description of the conditions that violate the Area Rules, the statute or rule that is violated, and recommended corrective actions. The letter may also refer the landowner to other sources of technical assistance, and summarize other issues discussed during the investigation. Although the landowner has the flexibility to choose the recommended actions or other practices best suited to correct the problem on the operation, the operator must achieve compliance, and the inspector will follow up to see if the violation has been addressed.

Notice of Noncompliance/Plan of Correction - A Notice of Noncompliance (NON) means the inspector found a violation of Area Rules during the investigation, and the violation was either (1) egregious or done to intentionally cause water pollution, or (2) a second violation after being issued a LOW. A NON includes a description of the conditions that violate the Area Rules, the statute or rule that is violated, consequences of current documented violations, and a schedule of required corrective actions. The letter may also refer the landowner to other sources of technical assistance, and summarize other issues discussed during the investigation. A Plan of Correction usually accompanies a NON if the corrective actions require more than 30 days and directs the landowner to take specific steps to correct the problem. An inspector will follow up to confirm the landowner completed the required corrective actions and effectively addressed the violation.

Civil Penalty - A Civil Penalty is a fine that is assessed to a landowner whose agricultural activities caused either a willful and intentional violation of Area Rules, or who repeatedly failed to take steps to correct a violation. ODA's Division 90 rules include a matrix for calculating the value of civil penalties for the Water Quality Program.

Appendix H - Coastal Zone Management Act Measures

In 1990, the Federal Coastal Zone Reauthorization Amendments were enacted. This law mandated that all states and territories with approved coastal zone management programs develop and implement coastal nonpoint pollution control programs. Listed below are the Coastal Zone Management measures that were developed for use in Oregon for coastal basins such as the Rogue.

The following section contains the approved management measures for coastal nonpoint pollution in Oregon as developed for the Coastal Zone Reauthorization Amendments.

Sedimentation

- Apply the erosion component of a Resource Management System as defined in the Field Office Technical Guide of the U.S. Department of Agriculture, Natural Resources Conservation Service to minimize the delivery of sediment to surface waters.
- Design and install a combination of management and physical practices to settle the settleable solids and associated pollutants in runoff delivered from the contributing area for storms of up to and including a 10-year, 24-hour frequency.

Nutrients

- Develop, implement, and periodically update a nutrient management plan to: (1) apply nutrients at rates necessary to achieve realistic crop yields, (2) improve the timing of nutrient application, and (3) use agronomic crop production technology to increase nutrient use efficiency. When the source of the nutrients is other than commercial fertilizer, determine the nutrient value and the rate of availability of the nutrients. Determine and credit the nitrogen contribution of any legume crop. Soil and plant tissue testing should be used routinely.

Pesticides

- Evaluate the pest problems, previous pest management practices, and cropping history.
- Evaluate the soil and physical characteristics of the site, including mixing, loading and storage areas for potential of leaching or runoff of pesticides. If leaching or runoff is found, steps should be taken to prevent further contamination.
- Use integrated pest management (IPM) strategies that:
 - Apply pesticides only when an economic benefit to the producer will be achieved (i.e. application based on economic thresholds).
 - Apply pesticides efficiently and at times when runoff losses are unlikely.
 - When pesticide applications are necessary and a choice of registered materials exists, consider the persistence, toxicity, runoff potential, and leaching potential of products being used.
 - Periodically calibrate pesticide-spraying equipment.
 - Use anti-backflow devices on hoses used for filling tank mixtures.

Riparian Areas

- Exclude livestock from riparian areas that are susceptible to overgrazing and when there is no other practical way to protect the riparian area when grazing uplands.
- Provide stream crossings and hardened access areas for watering.

- Provide alternative drinking water locations.
- Locate salt and shade away from sensitive riparian locations.
- Include riparian areas in separate pastures with separate management objectives and strategies.
- Fence, or where appropriate, herd livestock out of areas for as long as necessary to allow vegetation and streambanks to recover.
- Control the timing of grazing to: (1) keep livestock off streambanks where they are most vulnerable to damage, and (2) coincide with the physiological needs of target plant species.

Irrigation

- Operate the irrigation system so that the timing and amount of water match crop water needs. This will require, at a minimum: (a) the accurate measure of soil water depletion and the volume of irrigation applied, and (b) uniform application of water.
- When chemigation is used, include anti-backflow devices for wells, minimize the harmful amounts of chemigated waters from the field, and control deep percolation.
- In cases where chemigation is performed with furrow irrigation systems, a tailwater management system may be needed.
- In some locations, irrigation return flows are subject to other water rights or are required to maintain stream flow(s). In these special cases, on-site use could be precluded and would not be considered part of the management measures for such locations.
- In some locations, leaching is necessary to control salt in the soil profile. Leaching for salt control should be limited to the leaching requirement for the root zone.
- Where leakage from delivery systems or return flows support wetlands or wildlife refuges, it may be preferable to modify the system to achieve a high level of efficiency and then divert the “saved water” to the wetland or wildlife refuge. This will improve the quality of water delivered to wetlands or wildlife refuges by preventing the introduction of pollutants from irrigated lands to such diverted water.
- In some locations, sprinkler irrigation is used for frost or freeze protection, or for crop cooling. In these special cases, applications should be limited to the amount necessary for crop protection, and applied water should remain on site.