

WALLOWA AGRICULTURAL WATER QUALITY MANAGEMENT AREA PLAN

Developed by the

**WALLOWA
LOCAL ADVISORY COMMITTEE**

with assistance from

**OREGON DEPARTMENT OF AGRICULTURE
and
WALLOWA SOIL AND WATER CONSERVATION DISTRICT**

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ACRONYMS and ABBREVIATIONS

AgWQM	Agricultural Water Quality Management
Area Plan	Wallowa Agricultural Water Quality Management Area Plan
Area Rules	Oregon Administrative Rules 603-095-1800 through 603-095-1860
DEQ	Oregon Department of Environmental Quality
NRCS	Natural Resources Conservation Service
OAR	Oregon Administrative Rule
ODA	Oregon Department of Agriculture
ORS	Oregon Revised Statute
SWCD	Soil and Water Conservation District

FOREWORD

This Agricultural Water Quality Management (AgWQM) Area Plan provides guidance for addressing agricultural water quality issues in the Wallowa Agricultural Water Quality 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 AgWQM Area Plan do not establish legal requirements or prohibitions.

ODA will exercise its enforcement authority for the prevention and control of water pollution from agricultural activities under administrative rules for the Wallowa AgWQM Area, and Oregon Administrative Rules (OARs) 603-090-0060 through 603-090-0120.

APPLICABILITY

This Area Plan applies specifically to agricultural activities on all agricultural, rural, and forest lands within the Wallowa Agricultural Water Quality Management Area that are not owned by the federal government or are not Tribal Trust Lands. The Wallowa River subbasin is one of the three subbasins this Area Plan covers. The other two are the Lower Grande Ronde River subbasin and the Imnaha River subbasin. The Area Plan applies to agricultural lands in current use, those lying idle or on which management has been deferred, and lands (like private roads) not strictly in agricultural use but that support agricultural activities.

Activities governed by the Forest Practices Act are outside the jurisdiction of this Area Plan and the associated Rules. Pesticide use is governed by the Pesticide Control Act (Oregon Revised Statutes 634); those laws are administered by ODA Pesticides Division.

INTRODUCTION

In 1993 the Oregon State Legislature passed the Oregon Agricultural Water Quality Management Act, which is also known as Senate Bill 1010, in response to a number of federal and state water quality mandates. This law requires the Oregon Department of Agriculture (ODA) to work with local groups to develop Agricultural Water Quality Management Area Plans. The purpose of these Area Plans is to prevent and control water pollution from agricultural activities through a combination of educational programs, suggested land treatments, management activities, and monitoring. However, should a landowner repeatedly choose not to deal with a documented water quality problem on their property, ODA can require the problem to be fixed or assess civil penalties.

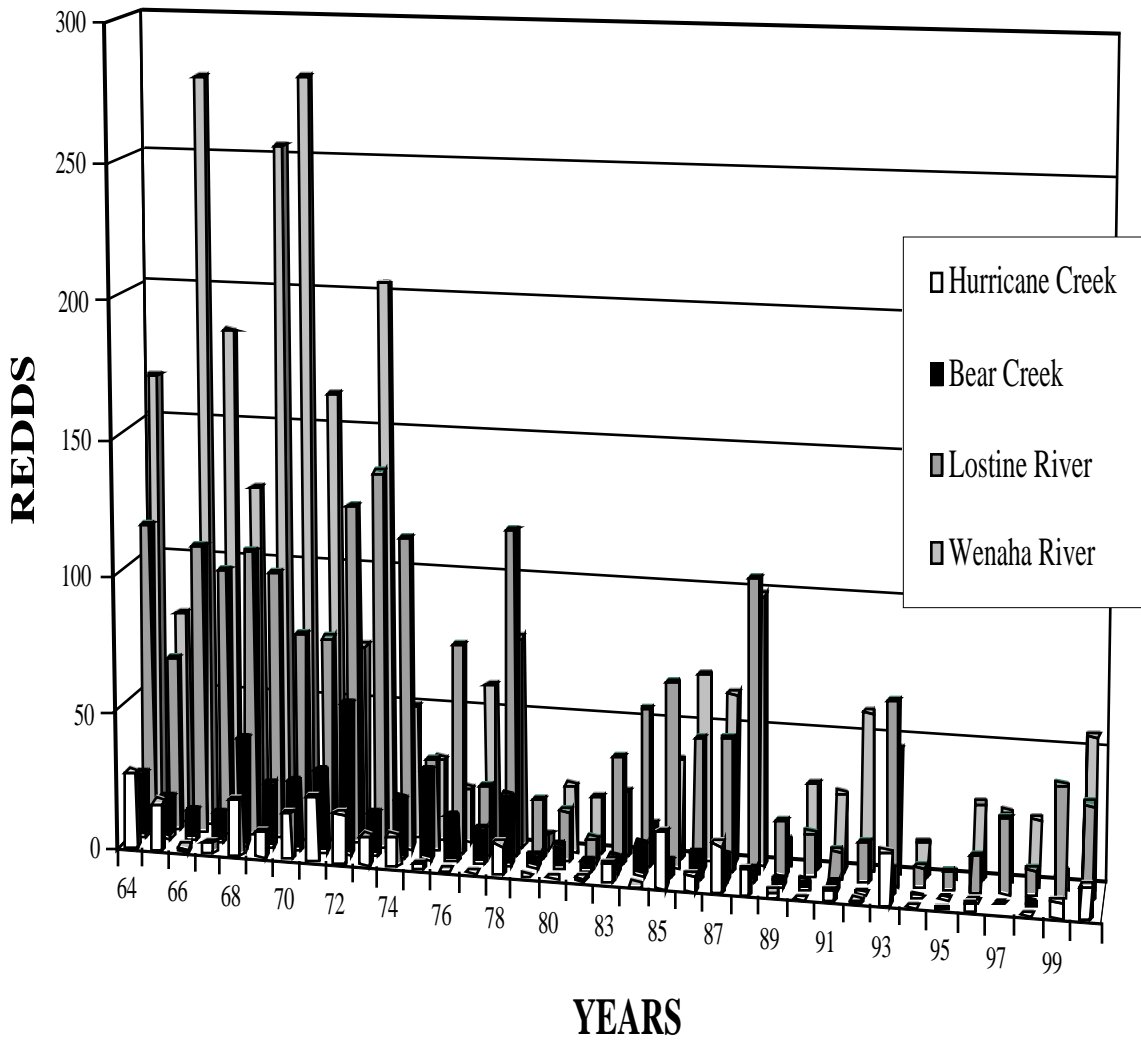
The Administrative Rules associated with this Area Plan describe these regulatory measures. The Area Plan and ODA do not emphasize enforcement action as the primary method for assuring success. ODA believes that a voluntary program, in which landowners are given every chance to address the problem and are offered technical assistance if needed, will ensure that the area-wide plan will achieve its goals. This Area Plan outlines this program.

The Local Advisory Committee and ODA want to support and assist existing conservation efforts such as the Wallowa County/Nez Perce Tribe Salmon Habitat Recovery Plan and Multispecies Strategy and existing Natural Resource Conservation Service (NRCS) farm plans. Farmers and ranchers in the area have been practicing good land stewardship in conjunction with these programs and on their own for many years.

The Local Advisory Committee and ODA want to emphasize to readers that solving water quality problems in Wallowa County will not by itself recover the federally listed bull trout, salmon and steelhead stocks. It will no doubt help a great deal, but many factors are responsible for the decline of these species. Some of these factors, such as ocean conditions and natural predation, are beyond the control of landowners in Wallowa County. Figure 1 documents the dramatic decline in redd counts over the last 37 years. Wilderness streams (e.g. the Wenaha River) show the same dramatic declines as streams that have been more heavily managed. This lends credence to the concept that out of basin issues (e.g. eight mainstem dams, a changed estuary, ocean harvest) are having a far more deleterious effect than in-basin issues (Don Bryson, personal communication).

FIGURE 1 - Spring Chinook Redd Counts

Figure 1. Spring chinook redd counts within index areas of selected streams in the Wallowa Planning Area (1964-2000)



PURPOSE

Maintain the economic viability of the agricultural community while maintaining or enhancing sound production practices and water quality.

GOALS

1. To prevent and control water pollution from agricultural activities and soil erosion and to achieve applicable water quality standards.
2. Use the media and other educational methods to increase awareness of agriculture's efforts to maintain and improve water quality.
3. Write an Agricultural Water Quality Management Area Plan that works within the guidelines of the Wallowa County/Nez Perce Tribe Salmon Habitat Recovery Plan and MultiSpecies Strategy.
4. Minimize conditions on agricultural lands that might contribute to a reduction in water quality.
5. Educate not regulate.

GEOGRAPHIC SETTING

Wallowa County is in the northeast corner of Oregon and covers 3,153 square miles. In the southern part of the county the Wallowa Mountains reach a height of 10,000 feet, and it is in these mountains that the Wallowa River originates. This headwater area contains perennial snow, steep slopes and many small lakes. The largest lake in the county, Wallowa Lake, is located at the foot of the Wallowa Mountains. This lake, which has a surface area of 1,600 acres, captures the flow from the West and East Forks of the Wallowa River. The main stem of the Wallowa River drains the lake in a northwesterly direction. Major tributaries such as the Lostine River, the Minam River, Bear Creek and Hurricane Creek all originate in the Wallowa Mountains, flow mostly north and west and enter the main stem at its south bank.

The Wallowa River subbasin is one of the three subbasins this AgWQM Area Plan covers. The other two are the Lower Grande Ronde River subbasin and the Imnaha River subbasin.

The Grande Ronde River flows along the northwestern fringe of the county, and its subbasin covers the northern third of the county. The river enters the Snake River in Washington State. Joseph Creek and the Wenaha River are the main tributaries to the Grande Ronde River in this area.

The Imnaha River subbasin is in the eastern part of the county. This river originates in the Wallowa Mountains, runs nearly 80 miles until it empties directly into the Snake River. Big Sheep Creek is its largest tributary.

Climate

Average annual precipitation varies greatly, ranging from 8 to 60 inches, within the county. The Wallowa Valley, where much of the agricultural activity takes place, typically has 13 to 17 inches of precipitation per year. The length of the growing season varies with elevation. At Joseph,

elevation 4,235 feet, it is 108 days, and in Wallowa, elevation 2,923, it is 130 days. Frosts can occur at any time.

Temperatures are generally high in the late spring and summer throughout the planning area. Daytime highs can reach the upper 90s. The Imnaha area tends to be much warmer than the Wallowa Valley. In August, average temperatures are 8 degrees higher in the Imnaha area than in Enterprise.

Floods can be frequent and devastating throughout the county. Particularly bad floods occur when a cold spell freezes the ground, a storm drops several inches of snow, and then a warm front moves in carrying rain. These rain-on-snow events can lead to large amounts of sediment being delivered to rivers, banks being heavily eroded and riparian vegetation being severely damaged. Normal yearly peak flows can cause large amounts of erosion as well.

Under the right conditions ice jams can form in the rivers and creeks in Wallowa County. Often the ice first forms on the bottom of the stream channel and gradually forms large blocks of ice. As the ice moves down a channel it can gouge banks, move stream bed gravel and large rocks, ravage riparian vegetation, uproot entire trees and cause rivers to go outside their channel. The ice can dig swaths several hundred yards outside the normal streambank. Significant amounts of sediment are delivered into the river systems as a direct result of the ice and indirectly because of the unstable banks left by the ice event. This kind of damage to riparian areas can take years to be repaired. Casual observers may be misled as to the cause of the damage if they are not aware of any recent ice flow events occurring in the area. These ice jams can occur several times within any ten year period.

Violent hail and rainstorms can occur in the plan area. These storms, combined with steep topography and shallow soils, lead to significant landslides. Landslides often occur where soils overlay an impenetrable clay layer. When these soils become saturated, such as after a long wet period, they tend to slide easily. An example of this type of event occurred recently near Highway 3 on the way to Lewiston, Idaho. Slumps occurred near Hurricane and Lightning Creeks as well.

Land Use

Timber and agriculture are the dominant uses of the land in Wallowa County. Forests cover about 48 percent of the land base. Forestry activities take place on all these acres except in the three designated wilderness areas within the county. Readers should note that nearly all of the major waterways originate in wilderness areas. In many cases agriculture and timber uses occur on the same acre because livestock seasonally graze on many of the forested areas. The public owns approximately 66 percent of the land base in the county. The majority of the 34 percent in private ownership is used for agriculture.

According to 1997 data from the U.S. Census Bureau, 50 percent of the jobs in the county were in agricultural services and forestry related fields. Clearly natural resources, particularly agriculture, remains the basis for the economy in Wallowa County. Nationally, agriculture remains a vital part of the economy and civilization itself. Despite being less than two percent of the population, farmers and ranchers provide abundant food and fiber for a growing population.

Because of the hot and dry summers irrigation is a vital component of the agricultural industry. Crops such as hay could not be economically grown here without irrigation. Dryland farming, that is growing crops such as winter wheat without supplemental water, is limited to only certain parts of the county because of short growing seasons and the susceptibility to frosts.

A complex system of diversions and irrigation canals supply water to the fields. A large percentage of farmers and ranchers in the area use sprinklers to water a number of these fields. However, flood irrigation remains an economical method used to deliver water to crops.

Irrigation has many benefits besides improving crop yields. It can charge shallow groundwater aquifers, and this groundwater can return to streams cooler, cleaner, and later in the summer. Another benefit is that riparian vegetation communities have developed along irrigation ditches. This vegetation provides habitat for a variety of wildlife, and protects and enhances water quality. A third benefit is the improved crop yield associated with irrigation. This can reduce soil erosion because of the enhanced ground cover. A high level of vegetative ground cover also increases the infiltration of precipitation into the soil, which reduces runoff.

Environmental Benefits of Agricultural Production

Natural resources (e.g. soil, water, air, plants, and animals) are the backbone of agriculture. To be successful, farmers and ranchers must conserve these resources, and when they do, they provide an abundance of benefits to the general public.

Some examples of agricultural environmental benefits include:

- open space
- recreation
- wildlife habitat
- atmospheric carbon dioxide removal
- improved water quality

With good management, agriculture can improve soil quality through such practices as crop rotation and residue management. With improved soil conditions water quality will improve as well because rain and snow will infiltrate the ground better, and the water will enter streams cleaner and cooler.

Proper range management through grazing has environmental benefits because it will lead to grasslands with diverse and healthy plant communities. Healthy vegetation is a key component to maintaining and improving water quality.

WATER QUALITY ISSUES

The Clean Water Act requires that each state designate beneficial uses, decide which parameters to measure to determine whether beneficial uses are being met, and to set standards for those parameters. Section 303(d) of the Clean Water Act directs states to develop a list of water quality limited streams, which are streams that violate water quality standards and do not support their beneficial uses.

Beneficial Uses

Beneficial uses in the AgWQM Area include drinking water, irrigation, livestock watering, aquatic life, boating and fishing, water contact recreation, and aesthetics. Uses related to federally listed species and other resident fish and aquatic life are the most sensitive. Chinook salmon, steelhead and bull trout have been listed as threatened under the Endangered Species Act.

303(d) Listed Streams

Those stream segments in the AgWQM Area that have been declared water quality limited by the Department of Environmental Quality under Section 303(d) of the Clean Water Act are listed in

Attachment A. The majority of listings are for temperature, sedimentation and bacteria. Other parameters waterbodies are listed for include pH, dissolved oxygen, flow modification and habitat modification.

Stream Temperatures

Of the 26 stream segments on the 303(d) list in Wallowa County, 21 do not meet the temperature criteria. Clearly, stream temperature is an important issue in this planning area.

Water temperature is important because it affects most aspects of an aquatic environment, and many factors influence stream temperatures. Natural factors such as climate, air temperature, topography, and stream hydrology have a large influence. Humans have no, or at best a modest, ability to change these parameters. Human influence is limited to activities that affect:

- volume of water flowing in the stream
- width-to-depth ratio of the stream
- groundwater recharge
- shade

Vegetation affects all these factors, and humans have, depending on the site, a direct influence on vegetation. Riparian vegetation can help narrow and deepen stream channels, which protects water from heating by exposing less stream surface area to the surrounding environment.

Healthy vegetation in both the uplands and in the riparian area will improve soil conditions and that will improve water infiltration. This helps to capture, store and safely release water later in the season. Releasing water later in the summer will reduce temperatures in two ways. The first way is that a higher volume of water requires more energy to heat it. Secondly, infusion of groundwater, usually between 45 and 55 degrees F, can help hold down stream temperatures.

Shade, provided by tall vegetation, blocks solar radiation. Solar radiation is the single most important energy source for heating streams during daytime conditions. Thus, streamside vegetation, via the shade it produces, moderates summertime stream temperatures. Shade does not cool water, it merely reduces the rate at which water temperature increases. Another benefit from shade is that summer air temperatures under a dense canopy can be cooler, thus further reducing the rate of increase in stream temperature. In winter, the vegetation can act as an insulator helping maintain the steady temperatures which are important for fish.

Given the general trend that streams are cool at the headwaters and temperatures gradually increase as the water progresses to the mouth, attempts to reduce the rate of heating should focus on the small streams high in the watershed. Humans have much more influence on these types of streams than on larger rivers. It is important to note that the majority of stream miles in this and other watersheds are represented by the small streams human management can affect. This is not to say that reaches lower in the system should be ignored.

Clearly, developing healthy, functioning riparian vegetation communities and stabilizing streambanks in Wallowa County will improve critical aquatic and riparian habitat. However, because of the natural factors listed above and the technical and biological challenges (e.g. site capability, and beaver, ungulate and rodent damage) of developing riparian vegetation it is unlikely that portions of most stream segments will meet the temperature criteria. But the numerical criteria is only part of the temperature standard. The standard itself focuses on limiting human-caused warming of surface waters to the extent it is feasible.

Industries, agencies, cities and other groups including agriculture are required to write and implement a basin-wide management plan, such as this Agricultural Water Quality Management Area Plan, that describes how these groups will attempt to control stream temperatures if a stream in the basin exceeds the temperature criterion. It is important to note that the standard says any source, including individual landowners and land managers, in compliance with the required management plan shall not be deemed to be causing or contributing to a violation of the numeric criterion even if their stream's temperature exceeds the criterion (OAR 340-041-0026(3)(a)(D)).

The climate and topography of Wallowa County also have a profound influence on stream temperatures. Because eastern Oregon's climate is hot and dry, water temperatures are naturally high and flows are low late in the summer. One way of correcting low late season flows is to build multipurpose reservoirs or some other method of upstream storage.

An innovative storage method, which requires much more study than has been done to date, is underground injection of spring runoff water. This water would be stored as groundwater and then pumped out later in the season when needed to augment flows for fish, water quality and irrigation. As stated earlier, a higher volume of water requires more energy to heat. Increased flows could help decrease stream temperatures.

Another aspect that storage could help would be in controlling excessively high spring runoff. Many areas have high runoff frequently in the spring, and some areas experience extensive damage to streambanks. This damage contributes to sedimentation problems, and excessive streambank instability can destroy existing riparian vegetation and impede the establishment of new vegetation.

Noxious Weeds

Another example of challenges to establishing riparian vegetation is the presence of noxious weeds. These weeds can harm water quality in many ways. Some examples are:

- reduced ground cover resulting in increased erosion
- reduced infiltration of precipitation into the soil
- crowding out of vegetation appropriate to each site

If noxious weeds are present in large enough numbers to be a serious problem along all segments of the Wallowa River and its tributaries, water quality, fish, and wildlife habitat will suffer. Landowners and public land managers need to be vigilant in their weed control efforts.

WATER QUALITY OBJECTIVES

The Local Advisory Committee and ODA establish the following water quality related objectives for agricultural land in the plan area:

1. Sheet and rill erosion will be within applicable soil loss tolerance factors.
2. Active streambank erosion will not exceed acceptable levels for the reaches' riparian capability. Capability in this instance is defined as the highest ecological status an area can attain given political, social, or economic constraints, (e.g. the presence of Highway 82) which are often referred to as limiting factors. Capability does not apply to uses such as grazing, farming, recreation and timber practices, which can be changed. While these uses can affect the condition of a riparian area, they do not prevent it from achieving capability. Capability only applies to constraints that the land manager cannot eliminate or change through a management action.

3. Placement, delivery or sloughing of suspended solids to rivers and streams will be minimized. Suspended solids means any material, manure, dirt particles or other organic matter that remains suspended in the water column.
4. Irrigation surface water return flows will be managed to minimize contributions to water quality problems.
5. Location and condition of waste with respect to waters of the state will be managed according to existing state law.
6. Stream channel modification caused by short-term erosion will be minimal.
7. Riparian vegetation will be able to respond and function within the site's capabilities.
8. Gully formation will be addressed to the extent that it is economically and practically feasible.
9. Secure adequate funding for administration and implementation to achieve this plan's mission, goals, and objectives.

PROHIBITED CONDITIONS

Voluntary efforts are the focus of the ODA, the Willowa Soil and Water Conservation District (SWCD) and the Local Advisory Committee. However, situations may arise when a particular landowner refuses to correct the conditions on his or her property. In this case, the Oregon Department of Agriculture must have a regulatory backstop to ensure pollution control. At the same time, the ODA does not want to mandate or prohibit any specific agricultural activity. To maintain this flexibility, this plan and its associated administrative rules describe Prohibited Conditions.

Readers should note that this AgWQM Area Plan is only a guidance document. By itself it is not regulatory. However, it does refer to administrative rules that set requirements for landowners. To help distinguish between this Area Plan and its associated rules, all rule language is separated from the rest of the text by a border of solid lines.

The Prohibited Conditions relate to the water quality parameters that some of the rivers and streams in Willowa County do not meet. The primary factors are as follows:

- sediment
- temperature
- bacteria

Less widespread problems are as follows:

- dissolved oxygen
- pH

Flow and habitat modification are not directly addressed in the Area Rules. The Oregon Water Resources Department regulates the use of water for irrigation. The Oregon Department of Agriculture, the Willowa SWCD and other local entities are actively encouraging landowners to conserve water through a variety of voluntary measures. Maintaining and improving riparian areas will help address habitat issues.

Prohibited Conditions - OAR 603-095-1840

(1) Limitations

A landowner shall be responsible for only those conditions caused by activities conducted on land managed by the landowner. Criteria do not apply to conditions resulting from unusual weather events or other exceptional circumstances which could not have been reasonably anticipated.

Excessive Sheet and Rill Erosion

Sheet and rill erosion on all cropland, not just land designated as Highly Erodible Land, will be reduced as set forth below. Reduction of soil erosion will be calculated by the Revised Universal Soil Loss Equation, with supporting data from the NRCS Field Office Technical Guide and similar data from other credible sources. The Prohibited Conditions are as follows:

(2) Excessive Sheet and Rill Erosion

(a) By January 1, 2006, soil erosion will be reduced to the "Soil Loss Tolerance Factor" or "T".

(b) For croplands which the department determines cannot practically or economically achieve "T," soil erosion will be reduced to 5 tons per acre per year averaged over the length of the rotation.

(c) Reduction of soil erosion will be calculated by the Revised Universal Soil Loss Equation (RUSLE), with supporting data from the Natural Resource Conservation Service Field Office Technical Guide and similar data from other credible sources.

"T" means maximum average annual amount of soil loss from erosion, 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.

(3) Excessive Gully Erosion

(a) By January 1, 2006, no person shall cause conditions on the land that contribute to gully erosion delivering sediment directly to the waters of the state. Gullies are defined as channels which at the largest dimension have a cross sectional area of at least one square foot and which occur at the same location for two or more consecutive years.

(b) No violation of this condition will be deemed to have occurred if the affected landowner has established and maintained a department or local Designated Management Agency approved effective management program. An effective management program shall provide assurance that reasonable steps have been taken to lessen and manage gully formation.

(4) Pollution Control and Waste Management

Effective on rule adoption: No person subject to these rules shall violate any provision of ORS 468B.025 or ORS 468B.050.¹

(5) Streamside Conditions

By January 1, 2006, no person may contribute to conditions that preclude establishment and development of adequate riparian vegetation for streambank stability and shading, consistent with site capability.

¹ ORS 468B.025 Prohibited Activities.

(1) Except as provided in ORS 468B.050 or 468B.053, no person shall:

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

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

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

(3) Violation of subsection (1) or (2) of this section is a public nuisance.

ORS 468B.050 When permit required.

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

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

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

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

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

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

(2) As used in this section, "confined animal feeding operation" has the meaning given in ORS 468B.205.

(6) Irrigation Return Flow

(a) By January 1, 2006, no person may cause bacteria² levels in irrigation tailwater to exceed state water quality standards. When the irrigation water at the point of initial application already exceeds the bacteria standard, then the bacteria level in the tailwater cannot be higher than the level in the irrigation water at the point of initial application.

(b) A landowner shall be responsible for only those conditions caused by activities conducted on land managed by the landowner. Criteria do not apply to conditions resulting from unusual weather events, natural background levels of bacteria or other exceptional circumstances which could not have been reasonably anticipated.

IMPLEMENTATION STRATEGY

Education

Education is the key to the success of this AgWQM Area Plan. The local county, state, and federal agencies will work together to provide farmers and ranchers in the plan area with information about the goals, objectives and requirements of this Area Plan. Where individual farmers need assistance to determine what can be done to meet the goals and objectives of the Area Plan they may contact the county, state, and federal agencies.

Some specific guidance about the requirements of this Area Plan are as follows:

Sheet and Rill Erosion

A ton of soil per acre per year may seem like a large amount of soil to lose, but the reality is that it is not. Note the following facts:

- 1 ton/acre/year = loss of about the thickness of a piece of paper across the entire field
- 5 tons/acre/year = loss of about the thickness of a dime across the entire field

The NRCS and other organizations have developed many combinations of tillage systems, conservation practices and cropping rotations that will help reduce sheet and rill erosion to acceptable levels. Landowners can contact the local agencies if they need guidance in choosing a system that will work for them.

The focus of this discussion of “T” is on soil loss, but soil is being formed at a site-specific rate. In fact the definition of “T” is the rate of soil loss that will prevent long term soil degradation and to economically and indefinitely sustain the potential level of productivity. Thus, if a field is eroding at a rate of “T” or less, the amount of soil loss will still permit a high level of crop production to be sustainable economically. In fact, certain cropping sequences or maintaining land in pasture will not only prevent erosion, but will help build soil.

Excessive Gully Erosion

Gully erosion occurs frequently in Wallowa County, and in most cases it is not a result of human activity. The majority of landowners in the area strive to prevent gully formation and work to

² This Prohibited Condition is attempting to address the water quality standard for bacteria (OAR 340-041-0725). This standard states “(f) Bacterial pollution or other conditions deleterious to waters used for domestic purposes, livestock watering, irrigation, bathing, or otherwise injurious to public health shall not be allowed.” Thus, any bacteria that causes harm and is in the water as the result of human activity is not allowed.

rehabilitate them when they do occur. If landowners are having trouble preventing or rehabilitating gully erosion they can seek technical assistance from the local county, state, and federal agencies.

Streamside Conditions

Vegetation, both in the uplands and in the riparian area, plays a critical role in water quality.

Generally, healthy plant communities:

- hold soil in place
- protect streambanks
- capture, store and safely release precipitation
- filter nutrients from both the groundwater and surface runoff
- provide shade to moderate water temperatures

In addition to the water quality benefits, healthy terrestrial vegetation improves fish habitat. Riparian vegetation protects spawning, rearing and holding areas by trapping sediment that could smother eggs. Vegetation improves the recruitment of large woody debris. This debris helps to create pools for fish to rest in, provides hiding cover and habitat diversity. Vegetation provides organic debris to feed aquatic insects, which are an essential element in the diets of many fish.

Healthy riparian vegetation benefits farmers and ranchers too. Some benefits include increased forage production, less streambank erosion, increased late season flows, and stable stream channels. Techniques that improve riparian area management can lead to economic benefits as well. One example is Bear Creek on the Bureau of Land Management's Prineville District. Prior to 1976 the area was a single pasture permitted for 72 animal unit months. Riparian vegetation and stream channel conditions were poor. After the Bureau of Land Management and the permittee changed their management (season of use, grazing intensity and livestock distribution), animal unit months are now almost 360 and the permittee is spending less money on his annual hay bill. Riparian vegetation has recovered, streambank erosion has decreased, and the quality and quantity of the flow has improved to the point that trout are again using the area (Leonard et al., 1997).

Riparian vegetation, consistent with site capability, is a cost effective means of reducing streambank erosion and heating from solar radiation. It is important to note that research and practical examples have shown that land managers can maintain riparian health and conduct agricultural activities as well.

In recent years the state and federal governments have developed several cost-share programs to aid landowners in improving their management of riparian areas. These programs will help pay for fencing to establish riparian pastures, pay an annual rental fee for planting woody vegetation along streams, assist in developing off-stream watering sources that will help keep cattle out of the riparian area, and many other options. Some of the programs available include:

- Continous Conservation Reserve Program (CRP)
- Conservation Reserve Enhancement Program (CREP)
- Oregon Watershed Enhancement Board (OWEB)
- Environmental Quality Incentives Program (EQIP)
- Grande Ronde Model Watershed Program

Irrigation Tailwater

With irrigation it is difficult to avoid some overland flow returning to creeks and rivers especially when fields are uneven. Landowners can avoid contributing to water quality problems by implementing a variety of management practices. Assistance is available by contacting local natural resource agencies.

Animal Feeding Area Management

Management of animal waste from confined areas has become a local and national priority recently, and it is likely to remain so for the near future. The Local Advisory Committee discussed confined animal feeding areas several times, and while they did not recommend that ODA adopt new rules on this topic they encourage livestock operators to assess their feeding area management for any possible discharges of pollution to the waters of the state. Operators may contact local county, state, and federal agencies for technical assistance and evaluation.

When assessing their management, operators should consider the following:

- animal waste collection, storage, and disposal at agronomic rates
- excluding waters of the state from confinement areas
- control of surface runoff to and from the waste storage and confinement areas
- off-stream water development

The Local Advisory Committee proposed that the SWCD, NRCS, and ODA work together to develop demonstration projects in Wallowa County to assess pollution levels from confinement areas and to test the effectiveness of various practices to control pollution from these areas.

Salmon Habitat Recovery Plan

The Salmon Habitat Recovery Plan is an important educational tool for water quality and fish habitat recovery. This document is an assessment of the conditions in the county and provides extensive guidance for landowners to correct problems and to prevent them from occurring.

Conservation and Fish Habitat Projects

Wallowa County farmers and ranchers have been conserving the soil, air and water for a long time. Recently their efforts have intensified with the implementation of the Wallowa County/Nez Perce Tribe Salmon Habitat Recovery Plan and other programs. Funding for these projects has come from the Bonneville Power Administration, Oregon Watershed Enhancement Board, and the Bureau of Reclamation. Interested readers can contact the Wallowa SWCD or the Grande Ronde Model Watershed for a map and complete list of projects completed since 1985. Examples of projects include:

- developing off-stream water for livestock
- in-stream structures for bank stability and fish habitat
- riparian area planting
- cross-fencing for better livestock management
- economic incentives for direct seeding

In Wallowa County all government cost-share conservation projects and land use planning decisions that affect natural resources must be reviewed by the county appointed Technical Committee. This committee was set up as part of the Salmon Habitat Recovery Plan.

Individual Farm and Ranch Planning

Many farmers in the county have individual farm plans through the NRCS because of their enrollment in federal farm programs. As of 1985 farm plans became a requirement if operators had Highly Erodible Land on their property, where enrolled in the federal government's farm program and they were annually cropping that ground. The portion of farms in the county that have these plans is about 33 percent.

More and more farms and ranches are developing similar plans as a result of getting government assistance for project work. Individual farm and ranch plans are also a good business tool, and a

good method to document the positive effects land management has on water quality and fish habitat.

Effective Monitoring and Feedback

Readers should note that baseline water quality and project monitoring data is currently being collected by a coalition of all interested entities in Wallowa County. This coalition has agreed to use DEQ protocols for water quality monitoring. This coordination of monitoring in the county will minimize duplication of efforts, increase uniformity of data collection procedures and improve data sharing. Local agencies are developing a software program that will make sharing of temperature data easier. The coalition agreed that any data shared will be collected using the appropriate protocols. Over time, with more and better data Wallowa County will be able to assess the success of their conservation and habitat restoration efforts.

Adaptive Management

Adaptive management means making adjustments in management based on feedback from monitoring. This AgWQM Area Plan and its associated Administrative Rules will be assessed by ODA and the Local Advisory Committee every two years after adoption and adjustments will be made based on monitoring and other assessments.

SCHEDULE FOR IMPLEMENTATION

The following shall be the schedule for implementation to comply with the time frames established by this plan:

Plan Period

This Area Plan is intended to be put into full effect over a period of two years from the date of its adoption. The five year time frame associated with the Prohibited Conditions are needed to allow landowners time to modify cropping practices, if necessary, to meet the requirements. For example, sheet and rill erosion are currently calculated on Highly Erodible Lands, but not on other croplands. It will also take time to conduct the awareness campaign to let farmers and ranchers know about the elements of this AgWQM Area Plan and Rules.

Prohibited Conditions

The prohibited conditions contained in this Area Plan are to go into effect as of the date or time identified in each condition. Farmers and ranchers will benefit by addressing possible Prohibited Conditions on their property now. Technical assistance is available from the SWCD, NRCS, Oregon State University Extension, and ODA to help landowners assess their operations for possible contributions to water quality problems.

Adaptive Management

Adaptive management will be used to modify management practices, based on monitoring, to address Prohibited Conditions that may exist in the plan area. Adaptive management should begin immediately upon adoption of this AgWQM Area Plan.

Monitoring

The monitoring called for by this Area Plan will begin and continue according to the schedule set forth in the section on monitoring.

Amendment

This Area Plan will be reviewed every two years and amended as necessary.

PUBLIC PARTICIPATION

The Director of the Oregon Department of Agriculture appointed a Wallowa Local Advisory Committee to represent:

- local agricultural producers
- local landowners
- The Nez Perce Tribe
- local environmental interests
- local recreation interests
- Wallowa Soil and Water Conservation District

Their purpose was to help develop this AgWQM Area Plan and the associated Area Rules. Committee meetings were held over a two year period. All meetings of the Local Advisory Committee were public meetings, were advertised in advance, and opportunity was given at each meeting for public input. In addition, the department conducted a public hearing and had a comment period on the Administrative Rules early in 2001. The Local Advisory Committee met, discussed and incorporated appropriate public comments.

ATTACHMENT A-Waterbodies in Wallowa County on the 303(d) List

Wallowa Subbasin

Waterbody	Boundaries	Parameter
Bear Creek	Mouth to National Forest Boundary	Sedimentation
Bear Creek	Mouth to National Forest Boundary	Habitat Modification
Bear Creek	Mouth to National Forest Boundary	Flow Modification
Deer Cr (Big Canyon Cr)	Mouth to Sage Creek	Temperature
Hurricane Creek	Mouth to Consolidated/Moonshine Ditches Diversion	Habitat Modification
Hurricane Creek	Mouth to Consolidated/Moonshine Ditches Diversion	Sedimentation
Hurricane Creek	Mouth to Consolidated/Moonshine Ditches Diversion	Flow Modification
Little Bear Creek	Mouth to Headwaters	Temperature
Lostine River	Mouth to Westside Ditch	Habitat Modification
Lostine River	Mouth to Westside Ditch	Flow Modification
Lostine River	Mouth to Westside Ditch	Sedimentation
Minam River	Mouth to Trout Creek	Sedimentation
Minam River	Mouth to Trout Creek	Temperature
Prairie Creek	Mouth to West Fork	Sedimentation
Prairie Creek	Mouth to West Fork	Bacteria
Prairie Creek	Mouth to West Fork	Dissolved Oxygen (DO)
Prairie Creek	Mouth to West Fork	Habitat Modification
Spring Creek	Mouth to Alder Slope Ditch	Bacteria
Spring Creek	Mouth to Alder Slope Ditch	Dissolved Oxygen (DO)
Wallowa River	Mouth to Wallowa Lake	pH
Wallowa River	Mouth to Wallowa Lake	Habitat Modification
Wallowa River	Mouth to Wallowa Lake	Sedimentation
Wallowa River	Mouth to Wallowa Lake	Temperature
Wallowa River	Mouth to Wallowa Lake	Bacteria
Wallowa River	Mouth to Wallowa Lake	Bacteria
Wallowa River	Mouth to Wallowa Lake	Flow Modification

Imnaha Subbasin

Waterbody	Boundaries	Parameter
Big Sheep Creek	Mouth to Owl Cr	Habitat Modification
Big Sheep Creek	Mouth to Owl Cr	Temperature
Big Sheep Creek	Owl Cr to Wilderness Boundary	Temperature
Grouse Creek	Mouth to headwaters	Temperature
Gumboot Creek	Mouth to headwaters	Temperature
Imnaha River	Mouth to Summit Creek	Temperature
Imnaha River	Summit Cr to North/South Fork Confluence	Temperature
Lick Creek	Mouth to Mud Springs Creek	Temperature
Lightning Creek	Mouth to Headwaters	Temperature

Lower Grande Ronde Subbasin

Waterbody	Boundaries	Parameter
Chesnimnus Creek	Mouth to Headwaters	Sedimentation
Chesnimnus Creek	Mouth to Headwaters	Temperature
Chesnimnus Creek	Mouth to Headwaters	Habitat Modification
Crow Creek	Mouth to Headwaters	Temperature
Davis Creek	Mouth to Headwaters	Temperature
Elk Creek	Mouth to Headwaters	Sedimentation
Elk Creek	Mouth to Headwaters	Temperature
Elk Creek	Mouth to Headwaters	Habitat Modification
Grande Ronde River	State Line to Wallowa R	Sedimentation
Grande Ronde River	State Line to Wallowa R	Habitat Modification
Grande Ronde River	State Line to Wallowa R	Temperature
Joseph Creek	Washington Border to Crow/Elk Creek Confluence	Temperature
Peavine Creek	Mouth to East/West Fork Confluence	Habitat Modification
Peavine Creek	Mouth to East/West Fork Confluence	Temperature
Salmon Creek	Mouth to Headwaters	Temperature
Wenaha River	Mouth to Butte Creek	Temperature

DEFINITIONS

Gullies - (has the meaning given in OAR 603-095-0010(1))

means gullies or channels which at the largest dimension have a cross sectional area of at least one square foot and which occur at the same location for two or more consecutive years.

Site Capability

is the highest ecological status an area can attain given political, social, or economical constraints, which are often referred to as limiting factors. Capability does not apply to uses such as grazing, farming, recreation and timber practices, which can be changed. While these uses can affect the condition of a riparian area, they do not prevent it from achieving potential. Capability only applies to constraints that the land manager cannot eliminate or change through a management action.

“Soil Loss Tolerance Factor” or “T” - (OAR 603-095-0010(45))

means maximum average annual amount of soil loss from erosion, 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.

Water Pollution - (ORS 468B.005(3))

means such alteration of the physical, chemical or biological properties of any water 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 of the habitat thereof.

“Water” or “the waters of the State” - (ORS 468B.005(8))

includes lakes, bays, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Pacific Ocean within the territorial limits of the State of Oregon and all other bodies of surface or undergroundwaters, 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.

“Wastes” - (ORS 468B.005(7))

means 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.

Wallowa Agricultural Water Quality Management Area

