

Tillamook County
Soil & Water Conservation District



March, 2010

EXECUTIVE SUMMARY

The Tillamook County Soil and Water Conservation District (SWCD), formerly the Tillamook Soil and Water Conservation District, is a grass-roots locally led organization that inventories, plans and implements programs to conserve our counties renewable resources on private lands. These resources included, soil, water, air, plants and animals and important farm lands. While implementing this county voluntary conservation program, human and social concerns are considered.

The District is composed of a seven person Board of Directors. The Directors are elected at the Oregon general election. They operate under Oregon Revised Statutes (ORS) 568.21- through 568.890. The district also has associated directors that have been appointed by the board of directors to carry out our mission. Federal, state, and local resource agencies serves as advisors to the Soil and Water Conservation District to assist with identifying resource concerns, recommendations for solving the resource related problems, and providing input into the District's Long Range Plan and Annual Work Plans.

In 1940 Tillamook SWCD was the first district formed in Oregon under the legislation that was passed in 1939. The Soil Conservation District was organized by south county landowners' to provide technical assistance in controlling stream bank erosion, shifting sands, and improving pasture drainage and production.

The Tillamook County SWCD has identified the following resource concerns:

- Adequate Soil and Water Conservation District Technical Staff
- Stream Bank Erosion
- Flood Mitigation
- Agricultural Surface Runoff and Potential Ground Water Degradation
- Air Quality
- Aquatic Habitat Degradation (Riparian Zone)
- Agricultural Land Preservation
- Forage Producing Lands Plant Condition and Productivity
- Noxious Weed Control
- Energy Sustainability
- Storm Water Runoff

As new environmental laws were enacted, adequate SWCD staffing became an issue. Such regulatory acts as the Federal Clean Water Act, National Environmental Protection Act, and the Threatened and Endangered Species Act requires more time in providing the technical assistance to the County's private landowners requesting assistance with implementing practice that are required to meet these mandatory acts. Most structural practices that are planned require County, State, and/or Federal permits before practice can be implemented. Currently the SWCD staff is not stable. Grants are the primary source of SWCD funding. However, funding grants are not only decreasing, but there is greater competition among Oregon State organizations for the available funds.

PURPOSE OF THE BUSINESS PLAN

The six year Tillamook County Soil and Water Conservation District Business Plan is the primary management tool used in guiding the District operations. The plan outlines the history of the District, how districts operates, what is expected of the elected district directors, priority resource concerns, existing resource conditions and desirable resource condition.

The Business Plan sets goals and objective that are used in developing the District's Annual Work Plans. The Annual Work Plans are intended to keep the district on tract towards it vision and mission in managing District resources and operation while meeting the obligations as a Soil and Water Conservation District.

A. General Overview and Purpose

The Tillamook County Soil and Water Conservation District (SWCD) is a grass-roots subdivision of state government. However, districts function as local units led by locally-elected board of directors who serve without pay. District Directors are your neighbors who understand the ecological relationships of soil, water, plants, animals and humans. By statute, the District is under the administrative oversight authority of the Natural Resource Division of Oregon Department of Agriculture.

In 1935 President Franklin D. Roosevelt addressed the need to conserve soil and other resources. This need was brought to the nation's attention by the Dust Bowl years. President Roosevelt addressed the erosion problem by enacting the Soil Conservation Act. This act established the Soil Conservation Service (SCS). The name in 1994 was change to the Natural Resource Conservation Service (NRCS).

SCS needed the assistance local leadership to coordinate efforts of conservation agencies and tie SCS programs to the local conditions and priorities. It was recognized that local farmers and other land managers were needed to put together and operate an effective conservation program in the states. In 1937, President Roosevelt requested all state governors to promote state legislation to allow the formation of soil and water conservation districts.

The Oregon State legislature passed legislation in 1939 that established conservation districts in Oregon. The primary statutes relating to formation and governance of Oregon Soil and Water Conservation Districts are contained in Oregon Revised Statutes (ORS) 568.210 through 568.890. The Tillamook SWCD was the first Oregon District organized by south county landowners in 1940 for the purpose of controlling stream bank erosion, shifting sand, and improving pasture drainage. The first board of supervisors were: E.E. Allen, K.D. Dick, V.J. Love, M.D. Sandidge, and Ray E. Cooper. The first operating budget was as follows:

Revenues		\$ 150.00
Expenses		
	Mileage: 2,000 miles @0.04 per mile	\$ 80.00
	Office Supplies	10.00
	Telephone	15.00
	Record Book	5.00
	Stamps	10.00
	Reserve	30.00
	TOTAL	\$ 150.00

The North Tillamook Soil Conservation District was formed in 1948. The first board of supervisors were: Glen Johnston, Lloyd Jones, Karl Zweifel, Casper Huber and C.F. Knight

The Tillamook County Soil and Water Conservation District was formed January 12, 1965 by the consolidation of both the North Tillamook and South Tillamook Soil and Water Conservation Districts. The first board of Directors for the Tillamook County Soil and Water Conservation District were: Carl Bosch, George Porter, Robert Rulifson, Peter Betschard, Dale Anderson, Ernest Josi and John Yates.

Districts are now governed by a board of seven directors. The directors are locally elected officials who know the local resource problems and serve without pay by the eligible voters in the district as a nonpartisan ballot at the general election, for four year, staggered terms. Directors' positions are elected in staggered terms to provide continuity on the board and maintain operation consistency. Directors must reside within the boundaries of the district. The district is divided into 5 zones (See Figure 1 in the Appendices) from which a director, who manages ten acres or more land, is elected. Two positions are at large and are elected from the residents of the county. A copy of Tillamook County SWCD Zone Boundaries Map is located in the Appendices of this document.

The 2009-2010 Tillamook County Soil and Water District Directors are: Rudy Fenk, Barbara Busch-Seaholm, Walt Porter, Bryan Measor, Bill Hagerty, Clarence Boquist, and Larry Zweifel.

Tillamook County Soil and Water Conservation District Statement of Revenues, Expenditures, and Changes in Fund Net/Statement for the year ending June 30, 2009 are as follows:

	<u>Statement of Revenues</u>
Revenues	
Grants:	
Federal	\$ 58,000
State	-
County	25,000
Program fees	28,662
Loan interest (MEAD)	5,227
Contributed income	<u>2,035</u>
Total revenues	<u>118,924</u>
Expenditures / Expenses	
PERSONAL SERVICES	
Wages & salaries	71,184
Payroll taxes	5,790
Benefits	8,307
Health insurance	1,553
Retirement	<u>10,894</u>
Total personal services	<u>97,728</u>

MATERIAL & SERVICES	
Advertising	204
Audit & accounting	6,550
Contracted work	1,600
Liability insurance	4,503
Materials & services	7,593
Meeting expenses	1,505
Mileage	2,228
Office Expense	664
Postage delivery	285
Professional fees	5,501
Rent	350
Repairs	1,068
Supplies	501
Telephone	842
Utilities	110
Bad Debt	<u>20,372</u>
Total material & service	<u>53,876</u>
Total expenditures / expenses	<u>151,604</u>
Changes in fund balance/net assets	(32,680)
FUND BALANCES / NET ASSETS	
Beginning of year	<u>168,609</u>
End of year	<u>135,929</u>

Tillamook County Soil and Water Conservation District monthly meetings are held the third Thursday of each month in the USDA Service Center at 6415 Signal Street in Tillamook, Oregon from 11:00 a.m. to 3:00 p.m.

The Soil and Water Conservation District Supervisor's Job Description is as follows:

Description: Soil and Water Conservation District officials serves on a multi member board that establishes and implements programs to protect and conserve soil, water, prime and unique farmland, rangeland, woodland, wildlife, energy and other renewable resources on local, non-federal lands.

Duties:

- Identify local conservation needs, and develop, implement, and evaluate programs to meet the identified needs.
- Educate and inform landowners and operators, general public, and local, state and federal legislators on conservation issues and programs.
- Supervises other volunteers and paid staff working with the district and coordinate with other cooperating agency personnel.

- Administer the district by delegating tasks through a structure of board officers and members, committees, and others ; raise and budget district funds and report on activities to the public.
- Coordinate assistance and funding from federal, state, local government, district associations, and private groups.
- Comply with legal requirements relating to the SWCD business includes but not limited to:

Public meeting and records law
 Safe work environment
 Fiscal management and municipal audit law
 Civil Rights and Sexual Harassment

Qualifications:

- Interest and background in conserving renewable natural resources
- Communication skills

Benefits:

- Satisfaction in seeing conservation practices applied
- Interaction with others interested in natural resource conservation
- Input into local, state, and federal conservation programs
- Training through the state conservation agency

Time Required:

- The attendance at 12 regularly scheduled board meetings, as well as committee, special meetings, and events. This averages approximately 30 days per year.

ORS 568.550 outlines the general statutory powers granted to conservation district boards. An individual director has power only when acting as part of the district board. Individual board members may be given authority or power to act on behalf of the board in specific, limited tasks. The authority or power is granted through board action (resolution, motion or policy) and must be recorded in the minutes. Each board member is expected to participate in the business of the SWCD business and is charged with meeting the identified expectations to deliver an effective local conservation program and serve as responsible local government official. The district executive committee consists of a Chair, Vice Chair, Secretary and Treasure. Some of the authorities include but not limited to:

- Provide technical assistance to private land owners and managers.
- Assist land owners control water erosion on construction sites, farms and public lands
- Plant trees and other land cover to hold soil in place, provide wildlife food and cover.
- Help protect streams and rivers through education outreach and on-the-ground projects
- Assists with flood control and drought management programs.
- Protect farmlands to assure an ample supply of high quality food.
- Assists land owners and managers draft and implement conservation plans.
- Conduct resource inventories and assessments.
- Facilitate strategic planning, resource management planning and project efforts in watersheds.

The Tillamook County SWCD expands its capabilities through the selection and appointment of associate directors. Associates directors do not vote on board decisions but augment the board's knowledge and experience level and assists with district programs and activities. Associate directors are officially appointed by the board as advisors and program participants. Associate directors, once appointed by the board, are provided the same Tort liability insurance as the directors. As of March 30, 2010 the Tillamook SWCD had 4 associate directors.

Relationships

Tillamook County SWCD also uses local, state, and federal advisors to assist them in identifying resource concern, recommendation for solving resource concerns, developing long range resource and annual work plans, and funding sources. These advisors include:

Tillamook County Commissioners
 Tillamook County Department of Community Development
 Tillamook Bay Watershed Council
 Lower Nehalem Watershed Council
 Nestucca-Neskowin Watershed Council
 Oregon Department of Forestry
 Oregon Department of Fish and Wildlife
 Oregon Department of Agriculture
 Oregon State University Extension Service

Northwest Oregon Resource & Conservation Development Council
USDA Natural Resources Conservation Service
USDA Farm Service Agency

The District has entered into an agreement with the Tillamook County Commissioners to be the weed control advisory committee. (Examples: 5 & 6 Appendices)The Tillamook County SWCD receives funding to implement the weed control program. A county commissioner attends the monthly board meeting.

Tillamook Bay Watershed Council has completed watershed assessments for the basin watersheds. These assessments are used by the District to identify resource concerns and provide technical and financial assistant in solving the resource related problems. A district supervisor serves on the watershed council.

The Nestucca-Neskowin Watershed Council has completed a watershed assessment and has developed an action plan. These documents assist the District to identify resource concerns and provide technical assistance in solving the resource related problems. The council has assisted the SWCD obtain grant dollars to implement riparian restoration projects.

Tillamook County Soil and water Conservation District has entered into various agreements and/or memorandums of understanding through the years with various federal, state, and local agencies. These working documents identifies what the Tillamook County Soil and Water Conservation District and what the various agencies responsibilities are in achieving common natural resource conservation goals and objectives.

The partnership with United States Department of Agriculture, State of Oregon and the Tillamook County Soil and Water Conservation District is through a Mutual Agreement signed by the Secretary of Agriculture, Governor or Designee of the State of Oregon and the Chairperson of the Tillamook County Soil and Water Conservation District (Example 1 Appendices). This Mutual Agreement was effective 7, 1996

The Tillamook County Soil and Water Conservation District has also entered into a Cooperative Working Agreement between the Natural Resources Conservation Service United States Department of Agriculture, Oregon State Department of Agriculture and the North Coast Basin Soil and Water Conservation Districts (Example:2 Appendices).This agreement became effective April 17, 1997

A Contribution Agreement Agreement between The U.S. Department of Agriculture Natural Resources Conservation Service and the Tillamook County Soil and Water Conservation District (Example: 3 Appendices) was entered into on July, 2009.

A Memorandum of Agreement Between the Tillamook County Soil and Water Conservation District and the Oregon Department of Agriculture (ODA) was signed January 2000. (Example 4 Appendices)

During September 1999, the Tillamook County Soil and Water Conservation District entered into a Mediated Agreement for the Decision-Making Process for Extracting Gravel Tillamook County Rivers. (Example: 5 Appendices) This Agreement was between: Coast Wide Ready Mix, Tillamook County Board of Commissioners, Economic Development Council of Tillamook County, Tillamook County Soil and Water Conservation District, Oregon Concrete and Aggregate Producers Association, Oregon Department of Fish and Wildlife, Oregon Department of Land Conservation and Development, and Oregon Division of State Lands.

On April 19, 1978, the Tillamook Soil and Water Conservation District and Tillamook Board of County Commissioners entered into a Memorandum of Understanding. A copy of this Memorandum of Understanding is located in the Appendices of this document.

Guiding Principles

The SWCD is guided by a set of principles. Those guiding principles are:

- We respect the land rights of private landowners.
- We recognize the important contributions made by stewards of Tillamook County's privately owned lands to the County's economy and quality of life.
- We believe that the majority of private land users make responsible resource management decisions when equipped with appropriate data, technical assistance, and incentives.
- We have confidence that a locally led, watershed-based, voluntary approach to resource management on private lands is key to sustainable resources and healthy watersheds.
- We value our relations with federal, state and local resource agencies with whom common objectives are shared, though our mission may differ.

Vision

Maintaining a quality of life by our people working together to enhance our County's most valued natural resources for the generations that follow through promoting local economic growth through wise use of our county's natural resources.

Mission

Provide Leadership in Coordinated Resource Management Planning to Ensure and Promote the Conservation and Wise Use of Our Natural Resources.

The Tillamook County SWCD has identified these County resource concerns:

- Adequate Soil and Water Conservation District Technical Staff
- Stream Bank Erosion
- Flood Mitigation
- Agricultural Surface Runoff and Potential Ground Water Degradation
- Air Quality
- Aquatic Habitat Degradation (Riparian Zone)
- Agricultural Land Preservation
- Forage Producing Lands Plant Condition and Productivity
- Noxious Weed Control
- Energy Sustainability
- Storm Water Runoff

HISTORY

Key events in the evolution of the Tillamook County Soil and Water Conservation District are as follows:

1935	The Soil Conservation Service was created under the new Soil Conservation Act.
1937	The United States Congress passed a model Conservation District Act for states to consider that would provide the coordination of conservation agencies with local entities.
1939	The Oregon Legislature passed a Soil Conservation District law that created a State Soil Conservation Committee. The committee was established on August 5, 1939. This Committee began forming conservation districts that year. The State Soil Conservation Committee eventually became the Soil and Water Conservation Commission.
February 10, 1940	South Tillamook Soil Conservation District (SCD) Formed
April 23, 1940	First Regular Meeting of the South Tillamook Soil Conservation District held in Cloverdale.
August 20, 1940	First Memorandum of Understanding between the South Tillamook Conservation District and the United States Department of Agriculture signed.
	South Tillamook Soil Conservation District acquired equipment to assist landowners with drainage and pasture improvement projects.

February 25, 1943	First Annual Meeting of the South Tillamook Soil Conservation District held in the High School.
January 28, 1943	South Tillamook County recognized the need to install more liquid manure tanks.
February 24, 1948	North Tillamook Soil Conservation District formed.
November 1948	The State Soil Conservation Committee formed the Oregon Association of Soil Conservation Districts.
1955	Oregon Legislature changed conservation district law to require Soil Conservation District Directors be elected instead of being appointed.
February 1957	SWCD Boards became 7 member boards.
1963	Water was added to the Districts Title.
January 12, 1965	South Tillamook County consolidated into the Tillamook County Soil and Water Conservation District (SWCD).
1969	Soil and Water Conservation Committee's name was changed to the State Soil and Water Conservation Commission
1972	Implemented an Emergency Program for stabilizing County's Rivers.
September 1973	North Coast RC&D formed. Tillamook SWCD a Sponsor.
1974	Sponsored an Emergency Watershed Protection Project (216) for stabilizing County's Rivers.
September 1975	Little Nestucca Drainage District RC&D Flood Prevention and Recreation Measure Plan.
1976	Sponsored Emergency Watershed Protection Project (216) for stabilizing County's Rivers.

1978	Sponsor of “Tillamook Bay Drainage Basin Erosion and Sediment Study”.
1978-1981	Assisted Tillamook County Planning Department develop the agricultural lands component of Tillamook Counties Comprehensive Plan.
April 3, 1978	Tillamook SWCD became the Weed Advisory Board to the Tillamook County Board of Commissioners
January 1981	Developed a 208 “Tillamook Bay Drainage Basin Agricultural Non-Point Source Pollution Abatement Plan.
June 5, 1981	The 10 year Tillamook Bay Rural Clean Water Project was authorized by Secretary of Agriculture, John Block.
July 1981 SWCD.	District name changed to Tillamook County
July 1, 1981	The Oregon Legislature merged the Soil and Water Conservation Commission with the Oregon Department of Agriculture. The Department formed a Soil and Water Conservation Division, which was then the new administrative oversight entity for the Soil and Water Conservation Districts.
February 1986	Northwest Oregon RC& D authorized by Secretary of Agriculture.
April 1986	ODA, Soil and Water Conservation Division approved the :Moss Creek Extended Streambank Erosion Control Project”.
1988	National Water Quality Special Project – Nehalem Bay Drainage Basin.
March 29, 1988	Moss Creek Project was approved for Governor’s Watershed Enhancement Board implementation funding.
1989	National Water Quality Special Project Little Nestucca River Basin.

1989	Water The Oregon legislature changed the name of The Conservation Division to the Natural Resources Division, which it is at present.
September 1990	Memorandum of Understanding with Soil Conservation Service to making a Soil Survey for Tillamook County.
February 1991	Sponsor of the Methane Energy & Agricultural & Development (MEAD).
October 1992	Development Project Feasibility Study Party to the “Mediated Agreement for Extraction of Gravel from Tillamook County Rivers”.
October 10, 1992	Sponsor of the Nestucca River Water Quality Study
1994	The name of the Soil Conservation Service was changed to the Natural Resources Conservation Service.
February 1996	Sponsored the 1996 Emergency Watershed Protection Project.
February 18, 1999	Local Management Agency for the North Coast Basin Agricultural Water Quality Management Area Plan.
June 2001	Sponsored the Lower Tillamook Bay Watershed PL-566 Watershed Plan.
July 31, 2002	Intergovernmental Agreement to managed Wetland Acquisition Project agricultural property along the Wilson River.
December 2002	Memorandum of Understanding among Resource Agencies to establish the Tillamook Native Plant Cooperative.

**Tillamook County Soil and Water Conservation District
Land Use Inventory**

A. Inventory

Private & County Land	226,405 ac.	
Pasture & Hay land		33,000 ac.
Woodland		159,576
Wildlife land (Upland & Wetland)		15,868
Recreation Land		12,203
Urban Land		5,758
 State Land	 336,000 ac	
Federal Land	142,126	
Forest Service		92,321
Bureau of Land Management		49,473
BPA, NCS, USF&W, ACDE		333
Water Area	15,616	
Total Land & Water	720,147	

B. WorkLoad Analysis (Next 10 Years)

Needs

Conservation Systems Applied on Hayland	8,110 ac.
 Key Practices	
Forage Harvest Management	
Waste Utilization	
Nutrient Management	
Filter Strip	
 Conservation Systems Applied on Pastureland	 16,600 ac.
 Key Practices	
Prescribed Grazing	
Waste Utilization	
Nutrient Management	
Filter Strip	
 Conservation Systems Applied on Private Forestland	 36,000 ac
 Key Practices	
Tree Establishment	
Forest Stand Improvement	
Structures for Water Control	
Critical Area Planting	
Access Road	

Forest Harvest Trails & Landings	
Conservation Systems Applied on Wildlife	8,500 ac
Key Practices	
Tree/Shrub Establishment	
Riparian Herbaceous Cover	
Riparian Forest Buffer	
Stream Habitat Improvement and Management	
Fence	
Pipeline	
Watering Facility	
Use Exclusion	
Waste Storage Systems to Install	90 No.
Key Practices	
Waste Storage Facility	
Manure Transfer	
Roof	
Gutters, downspouts, and outlets	
Buried Manure Mainline	
Manure Gun Traveler	
Waste & Nutrient Management Implemented	16,600 ac.
Key Practices	
Waste Utilization	
Nutrient Management	
Long Term Contracts to Develop	60 no.
Comprehensive Nutrient Management Plans Developed	120 no.
Stream bank Stabilization Projects (High Priority)	80,000 ft.
Key Practices	
Stream bank Protection	
Tree/Shrub Establishment	
Channel Vegetation	
Restored Riparian Zones	110,600 ft.
Key Practices	
Tree/Shrub Establishment	
Riparian Forested Buffer	
Livestock Exclusion	
Fencing	
Conservation Education	250 no.

RESOURCE CONCERNS

I. Aquatic Habitat Degradation (Riparian Zone)

Riparian areas are important because they have several unique functions and values and provide some of the most biological diverse habitats in the world. It is estimated that 80 percent of all wildlife species use riparian zones during some stage of their life cycle. The riparian zones provide the shade needed to keep stream temperatures stable for aquatic life, enhance flood control, reduce streambank erosion, and function as a buffer or filter strip to improve water quality.

Riparian zones are one of the most adversely impacted landscapes in Tillamook County. Livestock grazing, streambank erosion, agricultural conversion, and transportation corridors are some of the factors that these ecosystems have been severely impacted. Many of these areas are difficult to restore due to accelerated streambank erosion, disrupted hydrologic patterns, and accelerated runoff. The invasion of noxious weeds and other non-native plants into the riparian zone has made the recovery very difficult.

In 1997, the Oregon Plan for Salmon and watersheds was finalized. This plan provided the direction for undertaking an ambitious challenge in developing and implementing innovative solutions supporting salmon recovery, water quality improvements, and restoration of watersheds that support the economy and quality of life in Oregon.

EXISTING RESOURCE CONDITION

Degraded riparian streambank conditions do not allow the natural and managed regeneration and growth of riparian vegetation such as trees, shrubs, and sedges along our county's natural water courses. The condition results in unstable stream banks, widening of streams, increased stream temperatures, and excessive downstream sedimentation.

There are approximately 100 miles of stream segments within the Tillamook Bay Watershed on the 1998 303(d) lists for exceeding numeric temperature criteria (64.0 degrees Fahrenheit for migration and rearing or 55 degrees Fahrenheit for spawning in the summer).

In the Nestucca Bay Watershed there are 41.5 miles of surface waters listed as water quality limited for temperatures. There are 51.3 miles within the Nehalem River Drainage Basin of Tillamook County that is listed under section 303(d) of the Clean Water Act that is water quality limited due to temperature.

The following streams segments are temperature limited water bodies:

**Nestucca River (Mouth to Powder Creek)
Powder Creek (Mouth to Headwaters)
Niagara River (Mouth to Headwaters)
Kilchis River (Mouth to headwaters)
Miami River (Mouth to Moss Creek)
Tillamook River (Mouth to Yellow Fir)
Trask River (Mouth to S.F. Trask River)
Wilson River (Mouth to headwaters)
Coal Creek (Mouth to headwaters)
Fawcett Creek (Mouth to headwaters)
Mill Creek (Mouth to headwaters)
Murphy Creek (Mouth to headwaters)
Myrtle Creek (Mouth to headwaters)
Trask River, North Fork (Mouth to Bark Shanty Creek)
Trask River, North Fork of North Fork (Mouth to headwaters)
Cook Creek (0 to 9.3 river miles)
Cronin Creek (0 to 1.8 river miles)
Foley Creek (0 to 3.7 river miles)
Gods Valley Creek (0 to 4.8 miles)
Nehalem River` (0 to 14.7 miles)
Nehalem River (14.7 to 24.7 miles)
Salmonberry River (0 to 5 miles)
Wolf Creek (0 to 2 miles)**

In the Nestucca Bay the loading capacity of the stream is allocated to the natural sources. In the Tillamook Bay Watershed, permitted discharges and/or Future Growth and development have pollution allocations. There is none allocated to agriculture, Forestry or urban land uses in either watershed.

From 1991 thru December 2009, the Tillamook County SWCD Stream Enhance crew has fenced 160 miles of open watercourses on 196 land owners' property. There were over 910,000 native trees and shrubs

planted on 106 lands' property. This represents 400 acres of riparian restoration and enhancement.

During 1991 thru December 2009, there were 22 miles of water lines and 200 livestock watering facilities installed to exclude the livestock from riparian areas. In addition, 8 livestock crossings were installed to prevent livestock from crossing through the streams.

DESIRABLE RESOURCE CONDITION

Healthy riparian stream banks have natural and/or managed regenerated growth of native tree and shrub riparian vegetation. Healthy riparian areas stabilize stream banks, decrease stream widths, deepen stream channels, reduced sedimentation, and decreased stream temperatures.

GOAL: Support the Oregon Plan for Salmon and Watersheds by improving 30 miles of degraded stream riparian zones each year.

Objective 1. Assist 30 landowners plan and establish native trees and shrubs within identified degraded riparian areas on private lands.

Objective 2. Assist 10 landowners install 5 miles of fences along open water courses to restrict livestock access.

Objective 3. Stabilize 8 south side stream gravel bars to increase the riparian zone, reduce downstream sedimentation, increase channel depth, decrease stream width, and decrease stream temperatures.

Objective 4: Install Pipelines and Livestock Watering Facilities on 10 livestock operation to exclude livestock from watercourse.

Objective 5: Identify 3 fish passage projects and seek funding to restore fish passage.

Objective 6: Implement a riparian maintenance and monitoring project.

Objective 7: Promote the establishment of a Stream Corridor Management Crew to manage the riparian zones that keeps these fragile areas healthy and reduces the potential for stream bank erosion.

Objective 8: Promote Upper Watershed Surveys to identify small areas that can be used to store water during November thru March to released during lows flows during June, July, and August to increase stream flows and decrease stream temperatures

Figure 1 Aquatic Habitat Degradation (Riparian Zone)



Stream corridors that are wide and shallow have high water temperatures that do not meet the TMDL criteria for migrating and rearing salmonids and summer spawning salmonids. These stream reaches have large gravel deposition that transfers heat to the water in these shallow stream sections. Wide stream channels lack adequate shade to mitigate temperatures.

Figure 2 Aquatic Habitat Degradation (Riparian Zone)



Wide and shallow stream channel, caused by stream bank erosion, increases stream temperature above the 64.0 degrees Fahrenheit TMDL criteria for migrating and rearing salmonid and the 55 degrees Fahrenheit criteria for summer spawning salmonid. Excessive non vegetative gravel bars increases stream temperatures during the summer low stream flows.

Figure 3 Aquatic Habitat Restoration



A key practice to stabilize gravel bars and prevent migration of gravels into the lower gradient stream reaches is to plant willow post into the gravel bars. This practice not only stabilizes the gravel bars, but also traps sediment, decreases the channel width and causes channels to scour deeper. This results in decreased stream temperatures and reduces downstream sediment accumulations that increases flooding frequency and durations

Figure 4 Aquatic Habitat Restoration



A key practice to reduce temperature in wide and shallow channels is planting willow post on south side gravel bars to reduce the stream channel width and increase the depth by encourage deposition that fills the wide channels and causes stream scouring that deepens the channel. As the filling occurs conifers and/or hardwoods can be inter-planted to improve stream shading.

Figure 5 Aquatic Habitat Restoration



By planting willow posts at right angles to the gravel bar, sediment can be trapped. Width of stream channel will be reduced and channel will deepen. Once deposition occurs, conifers and hardwoods can be planted to improve the shading and prevent further downstream migration of gravels. Decrease stream temperatures are expected.

Figure 6 Riparian Enhancement



Planting tree/shrubs adjacent to open watercourses is a key conservation practice to shade streams. Livestock are excluded from the riparian zone by fencing the stream. From 1991 to September 2003, the Tillamook County SWCD Stream Enhancement Crew has restored 282 riparian acres for 96 landowners.

Figure 7 Riparian Restoration



Two strand smooth electric fence installed to keep livestock out of the stream and the riparian area. Fencing is a key conservation practice to achieve fecal coliform reduction, decrease the stream temperatures, and improve aquatic habitat within a stream reach. Between 1991 and September 2003, the Tillamook County SWCD Stream Enhancement crew has fenced 116 miles of open watercourses.

Figure 8 Aquatic Habitat Restoration



Excluding livestock from open watercourses not only requires fencing but also water pipeline to convey livestock water to troughs. During 1991 through September 2003, Tillamook County SWCD installed 15 miles of livestock water lines.

Figure 9 Aquatic Habitat Restoration



One to 2 inch pipe line was installed by the Tillamook County SWCD to provide water to the off stream watering facilities.

Figure 10 Aquatic Habitat Restoration



A livestock watering facility like this nose pump will improve riparian conditions by providing off stream watering. It will also reduce bacteria loading from pastures where streams are the source of livestock water for the unit.

Figure 11 Aquatic Habitat Restoration



Constructing a livestock crossing over a stream improves in-stream fish habitat by excluding the livestock from the critical stream channel. Also replacing culverts with bridges improves fish passage and has less impact on the in-stream fish habitat. Between 1991 and September 2003, Tillamook County Soil and Water Conservation District has installed 8 livestock crossing.

II. Forage Lands Plant Condition and Productivity

The grazing lands of Tillamook County's river valleys provide the tourist with a coastal panoramic view seconded to none in Oregon. The grazing lands include primarily grazed pastures and hay land. The forage from these lands produces much of the basin's food and fiber while providing an economic base for Tillamook County, one of Oregon's leading dairy counties.

The health of grazing and forage producing lands directly impacts the quality and quantity of stream water that flows within our county's watersheds. The rivers and tributaries are a water source for agriculture, domestic, and municipal uses. The waters also provide habitat for many species of fish and wildlife as well as outdoor recreational opportunities.

Low forage yields on our county's grazing and forage lands impacts the county's surface and groundwater quality. There is a potential for nitrates to leach into groundwater and surface waters when large amounts of manure is applied to the forage producing lands when the soil and climatic conditions are not favorable for manure application. Manure and fecal coliform bacteria runoff into surface water is more likely to occur on lower yielding forage fields than on the higher producing fields. Total Maximum Daily Loads (TMDLs) have been established by the Oregon Department of Environmental Quality (DEQ) for the Tillamook County Drainage Basins.

EXISTING RESOURCE CONDITION

Low forage producing pastures and hayland fields (Less than 4 tons of dry matter yield per acre per year) resulting in low uptake of nitrogen and a potential source of ground water degradation and manure and fecal coliform bacteria runoff into surface water from livestock operations.

DESIRABLE RESOURCE CONDITION

High forage producing pastures and hay land fields (6 tons or greater of dry matter yield per acre per year) resulting in high nitrogen uptake

that prevents ground water degradation and fecal coliform bacteria runoff degradation from livestock operations.

GOAL: Improve forage production on 2,500 pasture and/or hay land acres.

Objective 1: Promote the use of high forage producing grass species through demonstration tours, news articles, and conservation planning efforts.

Objective 2: Promote forage testing and yield data collection on 100 livestock operations to document increased forage production trends and higher nitrogen uptakes.

Objective 3: Promote improved grazing management techniques to improved the forage production, nitrogen uptake and distribution.

Objective 4: Assists 50 landowners plan and implement prescribed grazing and forage harvest management on 2,500 acres.

Objective 5: Promote the use of the District's no-till grass drill by the livestock producers in the County.

Objective 6: Encourage agricultural producers that have water rights to maintain the water rights.

Objective 7: Promote the retention of agricultural irrigation water rights by the Oregon State Water Resources Department rather than allocate the water right to in stream fishery uses.

Figure 12 Plant Condition, Agricultural Runoff, and Leaching



Manure application at agronomic rates prevents ground water degradation. Pastures producing at least 6 tons of dry matter per acre per year result in higher nutrient uptake rates than those with lower yields. A high nutrient uptake rate reduces surface and/or ground water degradation associated with manure application to forage producing fields. From October 1, 2001 to September 30, 2003, there have been 41 comprehensive nutrient management plans developed on 3,490 acres.

III. Adequate Soil & Water Conservation District Staff

From the formation of the Tillamook County Soil and Water Conservation District (SWCD) the primary technical staff was the former USDA Soil Conservation (SCS) staff. In the early years, the SCS staff was adequate to provide the technical assistance needed to assist landowners plan and apply simple conservation practices such as pasture seeding, open ditches, and dune stabilization.

The District has identified 16 Core Work Products (CWP) to meet the needs of today's country resource decision makers.

Those Core Work Products are;

- Conservation System Planning on Pasture & Hay land**
- Conservation System Application on Pasture and Hay land**
- Conservation System Planning on Wildlife Land**
- Conservation System Application on Wildlife Land**
- Waste Management System Planning and Application**
- Program Eligibility Determinations**
- Developing and Administration of Long-Term Contracts**
- Conservation Education and Information**
- Direct Customer Assistance**
- Technical Assistance to Groups and Units of Government**
- Federal, State and Local Permit Assistance**
- State Conservation Programs**
- Conservation Products and Services**
- Resource Assessments**
- Watershed Plans**
- Funding Proposals**

As new environmental laws were enacted, adequate SWCD staffing became a resource issue. How would the Tillamook County SWCD continue to provide landowners timely technical conservation assistance under such regulatory acts such as the Federal Clean Water Act, National Environmental Protection Act, and the Threatened and Endangered Species Act?

Rules and regulations have been implemented by federal, state and local agencies that requires permits to install many of the conservation practices that the SWCD were beginning to plan and implement with

the land owners to protect and conserve soil and water resources. For example the US Army Corps of Engineers, the Oregon Division of State Lands, and Tillamook County requires Fill/Removal Permits to install stream bank protection projects. Installation of new ditches or maintenance of open ditches also required permits.

EXISTING CONDITION:

The SWCD funding for technical assistance is not stable. Grants are the primary source of SWCD Funding. Oregon Department of Agriculture dollars are used to fund 75% of a Watershed Planner's position. The watershed planner not only assists in grant development but also developing plans for individual landowners that address the improvement of a resource condition. These state funds are competitive. Not all districts receive grants.

Oregon Watershed Enhancement Board (OWEB) and Oregon Department of Environmental Quality (DEQ) 319 grants are used to fund three Ecosystem Restoration positions. They provide technical assistance in the design and lay-out of fences, livestock watering facilities, livestock crossings, and tree/shrub establishment in the riparian areas. Since these are projects are grants based, retaining the positions depend on receiving annual grants such as OWEB and/or DEQ 319 grants.

In the past the SWCD has hired a secretary that provides telephone answering service, takes SWCD Board minutes, prepares agendas, develops planning maps for the SWCD and NRCS planners, provides grant writing assistance and general resource information available at the office. Funding for the secretary position is from Tillamook County and grant funding. Financial support from Tillamook County to the SWCD has been gradually reduced over the years. Therefore, more funding is required from grants to fund a full time secretary position, or other positions identified as import.

An accountant firm is also hired by the SWCD to administer the grants, keep SWCD financial records, develop and submit grant reports and assist with legal audits that are required. Funds for this position is grant dependent.

A two member streamside fencing crew is employed by the SWCD to provide assists to landowners install fencing along stream sections, plant

riparian tree/shrub vegetation, install water pipelines and watering facilities for livestock that have been excluded from the riparian zone. These positions are all financed by grants. The Tillamook County Creamery Association provides the materials for those projects that are on Association member's property.

DESIRABLE CONDITION

A stable, high performing staff to provide the technical resources is required to assists private landowners plan and implement resource projects. This is essential to improve the county economic resource base and assist private landowners are in compliance with all the environmental regulations and laws. The base line staff would include at least a district manager, secretary, bookkeeper, engineer, and a soil conservation technician.

GOAL: A stable Tillamook County SWCD staff that has the capabilities and expertise to manage, plan, implement, and be accountable for resource dollars to assists private land owners voluntarily implement resource conservation projects that benefit the county's economy and are in compliance with all the environmental regulations and laws.

Objective 1: Promote SWCD activities with federal and state legislators, county commissioners, local groups and organizations that demonstrate the SWCD's abilities to manage, plan, implement and account for resource dollars for projects that improves the County's economy, and are support by local landowners.

Objective 2: Identify SWCD deficiencies that are hindering public support and financial assistance for SWCD staffing needs.

Objective 3: Develop and implement strong SWCD capacity building program to correct the identified deficiencies that builds strong public support and financial assistance that results in a stable and adequate SWCD staff.

Objective 4: Identify ways to generate revenues to support SWCD programs.

Objective 5: Implement at least 2 identified revenue raising projects that support SWCD staffing needs.

Objective 6: Implement a joint NRCS/SWCD informational and educational Web page and GIS informational database.

IV. Agricultural Surface Runoff and Potential Ground Water Degradation

The rivers, streams and bays of Tillamook are important because they provide recreational opportunities for many residents as well as our recreational tourism economy. Our Bays produce oysters, clams, bottom fish and various varieties of salmonids. The rivers also have a variety of salmonids that attract tourist to our County.

The quality of the water in Tillamook County has been negatively impacted by both point and non-point source of pollutants. The pollutants include, but not limited to, fecal coliform, sediment, thermal, flow modifications, and dissolved oxygen.

There are 163 confined feeding operations (CAFOs) in the county. There are an estimated 250 plus small hobby farms that have horses, beef cattle, sheep, etc.

Since 1977, The Tillamook County SWCD has partnered with USDA Agencies as the Natural Resource Conservation Service (NRCS) and the Farm Service Agency (FSA) to develop and implement Agricultural Pollution Abatement Programs. These programs included the Tillamook Bay Rural Clean Water Program, National Water Quality Special Project such as the Little Nestucca River, the Nehalem River Drainage Basin Pollution Abatement Projects, the Lower Tillamook Bay Watershed PL-566 Project and the USDA Farm Bill Programs such as the Environmental Quality Incentives Program (EQIP).

Two Geographic Priority Areas (GPAs) were funded under the EQIP. These were for the Tillamook Bay and Nehalem River geographic areas. Federal cost share dollars have been used in the planning and implementation of waste management systems and/or riparian habitat improvement projects on 40 livestock operations.

In 1997, Tillamook County Soil and Water Conservation District entered into a grant agreement with the Environmental Protection Agency (EPA) in the development of a methane anaerobic digester. When the project did not lead to an immediate plant construction, the remaining project dollars were authorized by EPA to use for a revolving

loan fund that provides low interest money to agricultural landowners to implement water quality improvement projects.

Since the revolving loan fund implementation in 1998, \$410,000 has been loaned to 13 agricultural landowners for the installation of water quality projects ranging from waste storage facilities to dairy animal confinement building drainage systems. This revolving loan fund continues to provide Tillamook County agricultural producers low rate cost-share opportunities to install water quality projects that assist them comply with animal confinement rules, regulations and/or permit conditions.

In July 2000, The North Coast Basin Agricultural Water Quality Management Area Plan was developed by a Local Advisory Committee with assistance from the Oregon Department of Agriculture. The North Coast Basin includes, Tillamook, Clatsop, and Columbia Counties and Sauvie Island.

The purpose of the Plan is to identify strategies to reduce water pollution from agricultural lands through the combination of educational programs, suggested land treatments, management activities, and monitoring. The rules outline requirements for landowners in the North Coast Basin for the prevention and control of water pollution from agricultural activities and soil erosion. Oregon Department of Agriculture exercises its enforcement authority for the prevention and water quality control from agricultural activities under administrative rules for the North Coast Basin Management Area (OAR 603-095-0800 through 603-095-0860), and Oregon Administrative Rules 603-090-0120 through 603-090-0180.

On February 18, 1999 the Tillamook County Soil and Water Conservation District signed a Memorandum of Agreement with Oregon Department of Agriculture to be the Local Management Agency (LMA) for the North Coast Basin Agricultural Water Quality Management Area Plan. A copy of the most recent Memorandum of Agreement is included in the Appendices of this Business Plan.

EXISTING CONDITION

The primary water quality parameter that affects our county's rivers and streams are bacteria and temperature. Of the ten river systems, seven have EPA approved TMDLs (Total Maximum Daily Loads) for bacteria runoff from land uses. Agricultural lands, pastures, and animal confinement buildings have load allocations. Since farm buildings, animal confinement buildings and manure storage facilities are not allowed to discharge under conditions of Confined Animal Feeding Operations (CAFOs), there is a zero allocation for these uses.

Table 19 illustrates bacteria load allocations for agricultural pastures for each stream included.

Table 19. Allocations for bacteria in runoff from various land uses¹ in rivers of the Tillamook Bay Watershed. All flow scenarios are based on events that caused the indicated flow in the Wilson River².

Miami River		Target Runoff Allocations by Land Use (FC cts/100 ml)				
Miami River Flow (cfs)²	<i>Instream Target</i>	Ag	Urban	Rural Resid.	Rural Industrial	Percent Decrease
1042	38	800	280	360	60	96
623	40	1000	350	450	75	95
93	42	15400	5390	6930	1155	23

Kilchis River		Target Runoff Allocations by Land Use (FC cts/100 ml)				
Kilchis River Flow (cfs)²	<i>Instream Target</i>	Ag	Urban	Rural Resid.	Rural Industrial	Percent Decrease
2826	41	3000	1050	1350	225	85
1678	42	3600	1260	1680	270	82
224	21.7	20000	7000	9000	1500	0

Wilson River		Target Runoff Allocations by Land Use (FC cts/100 ml)				
Wilson River Flow (cfs)²	<i>Instream Target</i>	Ag	Urban	Rural Resid.	Rural Industrial	Percent Decrease
6548	40	1200	420	540	90	94
3820	42	1400	490	630	105	93
366	42	5600	1960	2520	420	72

Trask River		Target Runoff Allocations by Land Use (FC cts/100 ml)				
Trask River Flow (cfs)²	<i>Instream Target</i>	Ag	Urban	Rural Resid.	Rural Industrial	Percent Decrease
5389	39	600	210	270	45	97
3187	40	800	280	360	60	96
398	41	4600	1610	2070	345	77

Tillamook River		Target Runoff Allocations by Land Use (FC cts/100 ml)				
Tillamook River Flow (cfs)²	<i>Instream Target</i>	Ag	Urban	Rural Resid.	Rural Industrial	Percent Decrease
1061	36	200	70	90	15	99
623	34	200	70	90	15	99
68	37	1200	420	540	90	94

Table 20. Allocations for bacteria in runoff from various land uses¹ in the Nestucca and Little Nestucca Rivers. Concentrations are incipient runoff prior to mixing with surface waters. Numbers in **(parentheses)** are current condition runoff concentrations.

Nestucca River		Target Runoff Allocations by Landuse¹ (E. coli counts/100 mL)				
Season⁴	River Flow Rate (cfs)	Forest	Commercial	Pasture	CAFOs	Urban and Residential
		(10)	(1400)	(4000)	(10000)	(1400)
Winter	4023	10	1100	2300	0	1100
October-May	1370	10	1100	2300	0	1100
Summer	643	10	1100	4000 ³	0	1100
June-September	183	10	1100	4000 ³	0	1100

Little Nestucca River		Target Runoff Allocations by Landuse¹ (E. coli counts/100 mL)				
Season⁴	River Flow Rate (cfs)²	Forest	Commercial	Pasture	CAFOs	Urban and Residential
		(10)	(1400)	(4000)	(10000)	(1400)
Winter	1321	10	1400	700	0	1400
October-May	451	10	1400	540	0	1400
Summer	211	10	1400	540	0	1400
June-September	61	10	1400	740	0	1400

1 = Forest bacterial concentrations were considered at a natural minimum, so were not given allocations. Farm Buildings, and Ag/Farm Buildings are not allowed to discharge under conditions of CAFO permits and were given a zero allocation; failing septic systems are not allowed under state law, so were not given allocations.

2 = Flow and precipitation in the Nestucca River subbasin were used to model flows in the Little Nestucca River, and all modeling was based on these relationships.

3 = Modeled concentrations were higher than the current condition. Antidegradation policy does not allow unnecessary degradation from point and nonpoint sources of pollution.

4 = Within each season, lower flow rate runoff allocations are in effect until flow exceeds higher rate. At higher flow rate and above, corresponding runoff allocation is in effect.

Load allocations are separated in the Nehalem Subbasin into upper and lower watershed allocations. Bacterial decay in the upper basin results in diminished concentrations that have no significant effect on concentrations in the Bay. Lower watershed allocations reflect the importance of local landuse on bacterial concentrations in the Bay. Allocations are presented by land use and geographic area (**Table 27**).

Table 27. Nehalem watershed storm runoff concentrations

Source – Storm Runoff	Present <i>E. coli</i> (cts / 100 ml)	Reduced <i>E. Coli.</i> (cts / 100 ml)	Reduction (%)
CAFOs	10,000	0	100
Low Pasture	10,000	500	95
Upper Pasture	10,000	4500	55
Low Urban	1400	500	65
Upper Urban	1400	630	55
Non Anthropogenic	60	60	0

Critical areas are those confined feeding operation within 100 feet of an open water course where manure runoff occurs, pastures within floodplain, or within tidal influenced areas. Manure runoff is very likely to occur during wet weather conditions in these areas. Operations are critical if there is less than 30 days storage. Inadequate waste storage, results in manure applications when soil and climatic conditions are not favorable. Those operations located within the 100-year flood event or have more than 50 percent of their manure application area identified as poorly drained soils are also critical areas.

Since June 1981, 83 large liquid waste storage facilities have been installed in Tillamook County. This amounts to 48.3 million gallons of waste storage.

From October 1, 2001 to September 30, 2003, there have been 41 comprehensive nutrient management plans developed on 3,490 acres. The Environmental Incentives Program (EQIP) has committed \$ 2,592,348.00 to 49 projects since 1997.

DESIRABLE RESOURCE CONDITION

No discharge from animal confinement feeding operation buildings, milking facilities, silage storage facilities, and waste storage facilities. Runoff, from agricultural lands, approaching the target runoff allocations approved by Environmental Protection Agency (EPA) for the rivers in Tillamook County. All CAFOs have comprehensive management plans developed and the operators are actively implementing the plans. Very few Tillamook Bay shell fish harvesting closures attributed to agricultural operations.

GOAL: Reduce agricultural related bacteria loading to Tillamook County's Rivers 80% by 2010.

Objective 1: Develop and implement 100 comprehensive nutrient management plans on critical operations.

Objective 2: Install 58 additional wastes storage facilities to provide an additional 33.5 million gallons of storage that allows operators the flexibility to apply manure when soil and climatic conditions are favorable.

Objective 3: All CAFO operators in the county are routinely taking soil, manure, and forage tests.

Objective 4: Grass filter strips adjacent to open water courses are used on 85 CAFO operations.

Objective 5: All manure is applied evenly on 2,500 acres of pasture and/or hay land acres to prevent the risk of nitrate leaching.

Objective 6: Support and promote the use of community methane digesters and composite facilities for manure treatment.

Objective 7: Continue to serve on the Local Farm Bill Committee to assure that available cost-share dollars are adequately addressing the resource concerns and the priority practices are available to solve the resource concern.

Objective 8: Promote the Lower Tillamook Bay Watershed PL-566 Project with Tillamook County congressional delegation to gain their funding support.

Objective 9: Serve as the Local Management Agency for Tillamook County for the North Coast Basin Agricultural Water Quality Management Area Plan.

Objective 10. Continue to use the Revolving Loan Program to assist livestock producers to implement water quality related projects that assists with keeping in compliance with federal, state and local rules, regulations and permit conditions

Figure 13 Agricultural Surface Runoff



Total Maximum Daily Loads (TMDL) have been established for bacteria runoff from Tillamook County pasturelands. Constructing a 100' x 16' above ground liquid waste storage tank will increase liquid waste storage to allow the flexibility to apply manure to pastures when the soil and climatic conditions are favorable. The flexibility will decrease the manure runoff that occurs when manure is applied when soil and climatic conditions are not favorable. Since 1981, there have been 83 large manure storage facilities installed under various USDA cost-shared programs.

Figure 14 Agricultural Surface Runoff



Waste transfer pipe is a component conservation practice required to transfer manure from a below ground liquid waste tank to the primary storage facility such as an above ground liquid waste tank. The light blue pipe is a 5 inch PVC pipe that transfers liquid waste from the below ground to the above ground liquid waste tank. The white pipe is a 12 inch PVC pipe to gravity feed the liquid wastes back to the below ground liquid waste storage tank where the liquid wastes is transferred to the pastures by a pump and buried manure mainline and applied with a manure gun traveler.

Figure 15 Agricultural Surface Runoff



Bacteria runoff occurs from pasturelands and storage areas. Under the TMDLs, there are no allocations established for manure storage areas since no discharge is allowed under the CAFO permits. The construction of large roof, guttered and downspouted solid manure storage facilities allows the flexibility to store solid manure until soil and climatic conditions are favorable for manure application

Figure 16 Agriculture Surface Runoff and Potential Groundwater Degradation



Compost facilities can be used to export manure off farm from agriculture operations that have a high phosphorus levels in the soils. This practice will reduce nutrient loading on agricultural lands that have excessive manure produced than lands available for manure application.

Figure 17 Agriculture Surface Runoff



Methane plants can be used not only produce electricity from manure; but to reduce fecal coliform runoff and odor associated with manure application to pastures. The farm returned nutrient is much more consistent and can be applied to pastures more evenly.

Figure 18 Agricultural Surface Runoff-



Total Maximum Daily Loads (TMDLs) have been established for bacteria runoff from pasture uses. A livestock crossing is a key practice for reducing bacterial loading to watercourses in Tillamook County. This practice, along with fencing, prevents livestock access to watercourses.

Figure 19 Desirable Condition to Reduce Manure Runoff from Fields Where Manure is Applied



Establishing a 35 foot grass filter buffer between a watercourse and the pasture unit where no manure is applied. The grass filter will prevent manure from entering the open water course.

V. STREAM BANK EROSION

Severe stream bank erosion is a resource concern in Tillamook County. This type of erosion not only causes loss of valuable agricultural lands but adds sediment to the stream systems that fills the lower stream and bays. This sediment causes downstream damage to salmonid spawning areas. Stream bank erosion also results in the loss of critical riparian forest buffers.

Continued stream bank erosion results in wider and shallow stream channels, a decrease in deep cooler pools, and increased flooding frequencies in the lower watersheds. As a result, the net affect is increase stream temperatures that exceed the temperature criteria of 64.0 degrees Fahrenheit for migration and rearing salmonids and the 55 degrees Fahrenheit for summer salmonid spawning.

EXISTING RESOURCE CONDITION

It is estimated that there is 87 miles of severe stream bank erosion occurring in Tillamook County. Following is those miles by rivers and creeks:

Miami River	8
Kilchis	7
Wilson	8
Trask	10
Tillamook	12
Killiam Creek	2
Nestucca	18
Beaver Creek	8
N. Fork Beaver Creek	2
Three Rivers	5
Little Nestucca	4
Neskowin Creek	3
Total	87

All stream bank protection projects require three permits. Those include U.S. Army Corps of Engineers and Division of State Lands

Fill/Removal Permits and Tillamook County Development Permits. The permitting process is very complicated for landowners to file with the appropriate agency. The listing of Coho salmon under the Threaten and Endanger Species Act and or Designated Critical Habitat under the Magnuson-Stevens Act applies to all Tillamook County Rivers and streams. These acts along with the high costs for installing stream bank protection projects and obtaining permits has decreased the amount of stream banks that have been treated in Tillamook County since 1978.

Most of the stream bank erosion occurring since the 1980's in the lower stream section is attributed to gravel bar accumulation. Gravel bars diverts stream flows into fragile stream banks and accelerates the normal rate of stream bank erosion.

DESIRABLE RESOURCE CONDITION

River systems are moving toward equilibrium. The stream systems are stabilizing. The gravel bars have vegetation that reduces gravel movement into the low gradient stream reaches. Occasionally, riparian vegetation is lost as a result of stream bank erosion. Only limited erosion occurs during a 25 year-24 hour storm event. Excessive gravel recruit from the upper watershed into the lower stream reaches occurs only during extreme flow conditions.

Highest priority stream bank stabilization projects are those where erosion threatens structures in the lower stream reaches. This includes but not limit to houses, bridges, animal confinement buildings, and existing stream bank protection structures. High priority stream bank protection projects are those in the lower agriculture areas that are contributing significant sediment to key salmonid spawning areas. This includes but not limit to Chum Salmon. Medium priority stream reaches are those where stream bank erosion is creating wide and shallow channels.

GOAL: Stabilize and restore riparian vegetation along 10 miles of severely eroding stream banks where erosion is threatening structures or is creating wider and shallower channels and excessive sediment in key salmonid spawning areas.

Objective 1: 25 landowners are provided assistance with the installation of stream bank protection projects and riparian restoration.

Objective 2: Identify two key stream sections where gravel is removed, as needed, to prevent excessive gravel migration into the lower stream reaches. Install gravel traps at those sites.

Objective 3: Inventory the severe erosion sites on two high sediment producing streams.

Objective 4: Identify 4 gravels bars in wide and shallow stream reaches and plant willow posts to accumulate deposition that will narrow and deepen the stream channel in the stream section

Objective 5: Identify 5 severely eroding stream bank sites and submit grant application for funding the projects.

Figure 2 Stream Bank Erosion



There are 87 miles of severely eroding stream banks in Tillamook County. Sediment from these sites enters the rivers and stream from these sites and deposit in downstream salmonid spawning gravels and/or rearing areas. Agriculture lands and woody riparian areas are being lost. Streams are becoming wider and shallower. The river summer temperatures are increasing.

Figure 3: Bank Erosion



This 15 foot high by 250 feet long eroding stream bank is contributing 675 tons of sediment a year that deposits sediment in downstream salmonid spawning areas.

Figure 22 Stream Bank Erosion Control



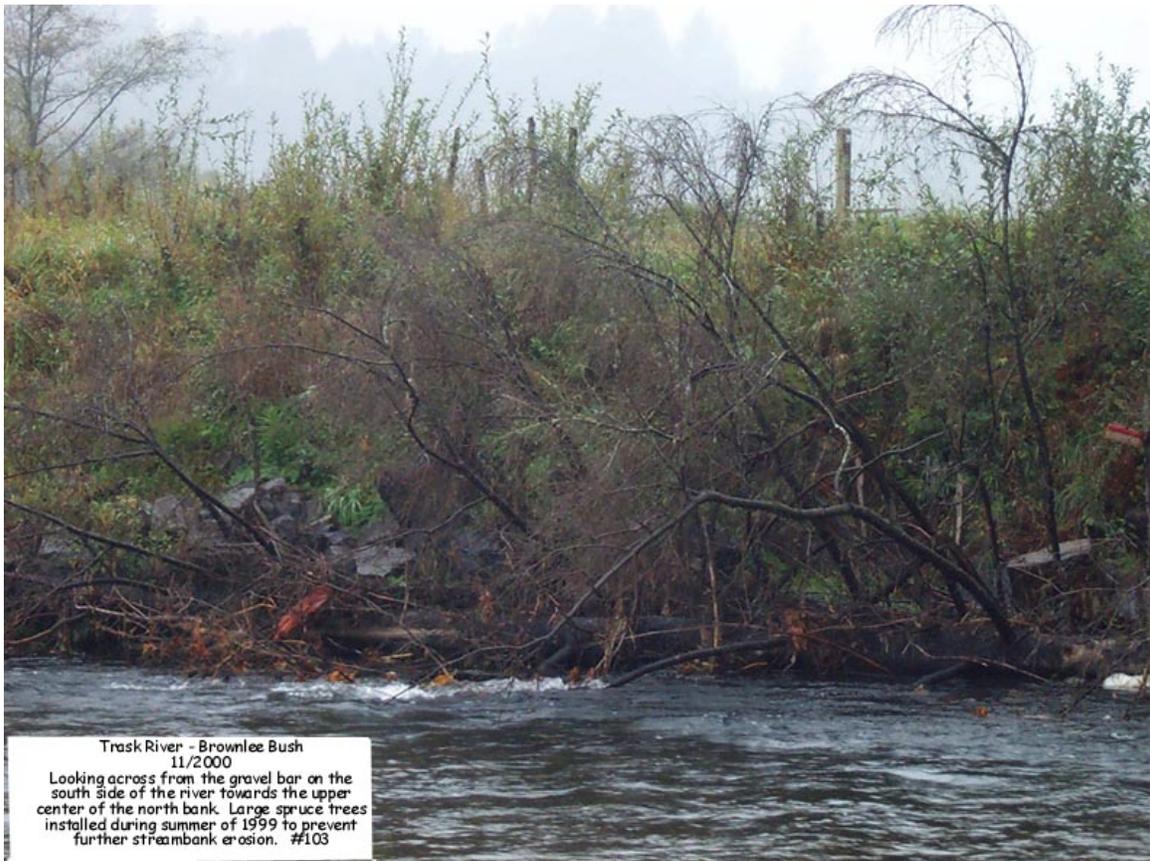
The installation of two or more rock barbs in an eroding stream bank section is a key practice to stabilizing eroding stream banks and preventing further downstream sedimentation of salmonid spawning or rearing areas.

Figure 23 Stream Bank Erosion Control



The planting of native willows in rock barbs that were installed to stabilize an eroding stream bank is a key practice to not only prevent further stream bank erosion, but improve stream channel vegetation for aquatic habitat restoration.

Figure 24 Stream Bank Erosion Control



Placement of large spruce trees adjacent to the eroding bank and securing is a key practice to stabilizing eroding stream banks. Once sediment collects in the structure, native willow are planted in the sediment to further secure the structure and provide stream channel vegetation.

I. Agricultural Land Preservation

Tillamook County's farmlands are important to the county's economy. Conversion of Tillamook County's dairy lands could destroy one of Oregon's leading dairy producing counties economy and the Tillamook County Creamery Association, the producer of the world famous Tillamook Cheese. The Tillamook County Creamery (Farmer owned cooperative) attracts over 650, 000 tourist annually to their facility.

Urban and rural residents depend upon high quality natural resources for their livelihood, recreation, cultural needs and other needs. As populations increase around urban areas, there is intense pressure to develop land for residences, businesses, and industry. These pressures can be political, economic, and personally motivated. This development results in development in, through and around exclusive agriculture. As conversion of agriculture lands occurs, conflicts between the agricultural producer and the urban community results. Conflicts over manure and pesticide applications, noise, flies, and property values are just a few.

Existing Resource Condition

There are 33,000 acres of finite pasture and hay land. These lands produce the forage for the dairy livestock. The land base is also needed to apply the manure that is generated from over 180,000 animals in the county. As agricultural lands are converted to wetlands and rural residential, the number of livestock the county can support dwindles. If dairy cattle numbers decrease, the amount of cheese that is produced at the creamery could also decrease. As agriculture lands decrease, the waste management problems also intensify. These types of pressures affects the sustainability of the dairy industry.

The Tillamook County Soil and Water Conservation have and are involved with protecting the county's resource land. The District was an advisor to the County in the development of the agriculture section of the Comprehensive Land Use Plan. Any applications for the conversion of agriculture land are reviewed with the district for their comments and recommendations. Tillamook County's Land Use Regulations has slowed the conversion of agriculture lands.

DESIRABLE RESOURCE CONDITION

Tillamook County SWCD values a sustainable Tillamook County agriculture economy. We encourage and support concept of no net loss of Exclusive Farm Use Zoned lands. We encourage and support development that complements agricultural uses to occur on marginal agricultural land rather than the important farm lands.

The urban communities understand the economic and environmental issues facing the agricultural community. The younger generation is aware of the importance of rural agriculture to Tillamook County's economy and way of life.

GOAL: A prosperous, sustainable, and environmentally sound agricultural economy that is not losing important county farm lands to rural developments or conversion of the county's diked farmlands to wetlands

Objective 1: Support development of agriculture related projects.

Objective 2: Continue to provide input into County Land Use decisions that affects important agricultural land conversion to other uses by providing technical assistance and information on natural resources and environmental issues that is needed to guide balance growth.

Objective 3: Promote protection of important farm lands through USDA Farm Bill Programs as the Farm and Ranch Lands Protection Program, the Grassland Reserve Program and Flood Plain Easements.

Objective 4: Promote and support the participation of dairy operators, adjacent to urban growth boundaries or rural subdivision, in the Port of Tillamook's methane digester program.

Objective 5: Implement a school outreach program that promotes the importance of agriculture to Tillamook's economy and the way of life.

Objective 6: Promote RC&D measures that facilitate agriculture

marketing and agricultural related businesses.

Figure 25 Agricultural Land Preservation



There 33,000 acres of pasture and/or hay land in Tillamook County. This resource land supports 143 dairy operations. Conversion of this resource land would adversely affect Tillamook County's economy. One of Oregon's leading dairy producing counties is Tillamook. The Tillamook County Creamery, the producer of the world famous Tillamook Cheese, is a farmer cooperative that attracts over 650,000 tourist annually.

IX. Noxious Weed Control

Tillamook County's farmlands are important to the county's economy. Vigorous weeds compete with our county's forage species for water, nutrients, light, and space. This competition decreases the forage production and thus the county's agricultural economy.

These exotic plants flourish in the absence of insects and diseases that normally are present in their native habitats. In most states noxious weeds comprise between 8 to 47 percent of the total plants in the state. Noxious weeds not only invade forage plant communities but destroy wildlife habitat, and increase erosion. Some noxious weeds are poisonous to livestock.

Some noxious weed seed can last for decades in the soil. Also one weed may produce over 100,000 seeds. Therefore, one noxious weed is one weed too many.

Weed seed can be transferred from one field to another by equipment. Livestock can spread noxious weed seed through their manure. Birds also spread weed seed from one area to another. Weed seed can float in on water especially during flood events.

Existing Resource Condition

There are 33, 000 acres of pasture and hay land in Tillamook County. These acres are subject to noxious weeds if not controlled. Those pasture and hay lands that flood generally have the most serious noxious weed infestation. The primary noxious weeds in Tillamook County are:

**Tansy ragwort
Canada thistle
Bull thistle
Purple loosestrife
Scotch broom**

These noxious weeds have caused thousands of dollars of economic loss in Tillamook County.

Once noxious weeds are established they are expensive and difficult to eradicate. A combination of mechanical, biological, and chemical control have been tactics that have been successful to control noxious weeds in Tillamook County

Tillamook County Soil and Water Conservation District is the weed control advisory to Tillamook County Board of directors. They receive \$ 20,000 per year to implement a weed control program in Tillamook County. The limited program funding, results in a complaint driven program. Once a weed complaint is received, a district employee follows up on the complaint. If complaint is valid a certified letter is sent to the property owner informing them of the weed control ordinance and requesting that the weeds be destroyed by a specific date.

The District partnered with Oregon Department of Agriculture in the early 1980's to collect and distributing biological control agent for tansy ragwort and Scotch Broom control. This included the cinnabar bar moth larvae, the flea beetles, and the Scotch Broom seed weevil.

DESIRABLE RESOURCE CONDITION

High yielding pasture and hay lands that provide high quality forage for the dairy industry. Noxious weeds are being controlled and have little to no impact on forage production.

Rural and/or absentee landowners are aware of the county's noxious weeds and actively control their weeds to help maintain a productive and healthy agricultural resource land base.

GOAL: Pest Management being implemented on all lands to improve the productive of Tillamook County's agricultural resource lands.

Objective 1: Develop an insert for the County Tax Statements that informs Tillamook County Property owners about the County's Noxious Weed Control Ordinance.

Objective 2: Implement a highly visible educational weed control program early in the year prior to noxious weed seed development.

Objective 3: Identify and inform absentee land owners how they can get assistance with weed control.

Objective 4: Promote an integrated pest management approach to weed control.

Figure 26 Noxious Weed Control



Tansy ragwort is a biennial plant that has a taproot. This European native arrived in seaports in the early 1900s. It was first reported in Oregon in 1922. One plant may produce up to 150,000 seeds which remain viable for up to 15 years. Tansy ragwort is toxic to cattle and horses. The alkaloids, which it produces, causes irreversible liver damage in cattle and horses and is lethal in very large doses.

Figure 27 Noxious Weed Control



Canada thistle is a perennial plant that is rhizomatous. This Southeast Europe native was introduced to North America in early 1600. The plant is a prolific seed producer. An individual plant can produce 5,000 seeds which can remain viable for 20 years. Canada thistle displaces native vegetation and reduces crop yield. Canada thistle can be a host for agricultural pests as insects and disease.

Figure 28 Noxious Weed Control



Bull thistle is a biennial that has a deep tap root and produces millions of wind-disperse seed. Infestation persists for years in pastures. Bull thistle is a native of Eurasia. The weed competes with forage plants for water, nutrients and space. This weed can spread through pastures and impact forage yields.

Figure 29 Noxious Weed Control



Purple Loosestrife is a rhizomatous perennial weed. This noxious weed is an introduced European ornamental plant. Infestation of water bodies can become severe. It will have a very adverse impact on wildlife uses of water bodies.

Figure 30 Noxious Weed Control



Scotch Broom is a perennial shrub which has evaded much of Tillamook County's open areas such as the dune area. Scotch Broom seed can remain dormant for years. The very tough seed coat on the seeds is easily carried for miles in ditches and streams. This highly invasive weed endangers our rains shadow flora occupying forest edges and roadsides. The plant blooms in April and May. Some people are highly allergic to this noxious weed.

Figure 31 Tansy Ragwort Control



Tansy can be managed by pulling, cutting, and sheep grazing. However, biological control has been successful in Tillamook County. Caterpillars reduce Tansy ragwort seed production by consuming leaves and flowers, and when they occur in sufficient numbers, can totally defoliate the plant. The generally have pupated by the end of March.

Figure 32 Tansy Ragwort Control



The adult Cinnabar moth is black and crimson. It is about 20 mm long. They are not very active fliers. The cinnabar moth was introduced into New Zealand in 1929. The adult moth emerges from October onward. The most common month is December. Eggs are laid from November to February. Each female can lay up to 300 eggs.

Figure 33 Tansy Ragwort Control



The flea beetle larvae attack the roots of tansy ragwort while the adult flea beetle feeds on the leaves. Like the other biological control agents, the ragwort flea beetles are constantly fluctuating depending upon the availability of the plant and weather conditions.

V. AIR QUALITY

Agricultural odors are a mixture of gases that can cause a wide range of emotional and physical responses when encountered by the sense of smell. The offensive smell is caused by volatile organic compounds (VOCs), ammonia, or the odorous sulfur compounds. High concentrations of odorous compounds may cause health problems.

Animal confinement operations (CAFOs) can create and/or impact odors in a variety of ways:

Biological organisms (including livestock) emit VOCs naturally.

The biological materials such as manure, feed, or livestock mortalities decomposition. The decomposition is typically under anaerobic conditions.

Land application of manure produce emissions of ammonia and VOCs.

EXISTING RESOURCE CONDITIONS.

In Tillamook County, agricultural related odors are local issues in areas with a rural/urban interface. The areas are near the cities of Tillamook (see Figure), Cloverdale, Nehalem and rural subdivisions adjacent to dairy operations. The impact of odor is greater the closer the livestock operation is to the urban interface.

Operations located southwest or east of the urban areas have a great potential for odors to drift into the urban areas. The prevailing southwest and easterly winds carry manure odors and particulate particles from these operations towards the urban areas.

The size of the operation and the method of manure storage and application impact air quality. There are large above ground concrete tanks adjacent to urban areas. Liquid manure storage facilities generally have more odors associated with them than the solid manure storage facilities. The liquid manure tanks that have anaerobic

conditions (absence of oxygen) generate more odors than those that have aerobic conditions.

The primary method of liquid manure application is by a manure gun traveler. This application method atomizes the liquid manure particles, resulting in manure volatilization and odor. Prevailing winds then transports the odor off farm into surrounding urban areas.

DESIRABLE RESOURCE CONDITION

Agricultural related objectionable odors originating from agricultural operations within 3.5 miles of urban/subdivisions are minimized or reduced to levels there is no continuing complaints from urban/subdivision residence.

GOAL: Reduce agricultural related air quality complaints from urban residence by 75% by 2015.

- Objective 1: Participate in the NRCS's Local Work Group meeting to identify priority areas for air quality improvement. Assist with identifying conservation measures for consideration for cost-sharing dollars. Recommend that a cost-share funding pool be established for air quality projects.**
- Objective 2: Promote the use of manure application equipment that does not contribute to atomization of liquid manure particles to reduce the volatilization and movement of odors off farm such as manure injection and low pressure sprinkler bars**
- Objective 3: Promote the conversion of anaerobic condition liquid manure storage tanks to aerobic condition through the use of amendments in agricultural waste such as enzyme/bacteria biological catalysts**
- Objective 4: Promote a more frequent agitation of the liquid waste storage tanks to increase the oxygen and maintain an aerobic condition in the liquid manure tanks.**

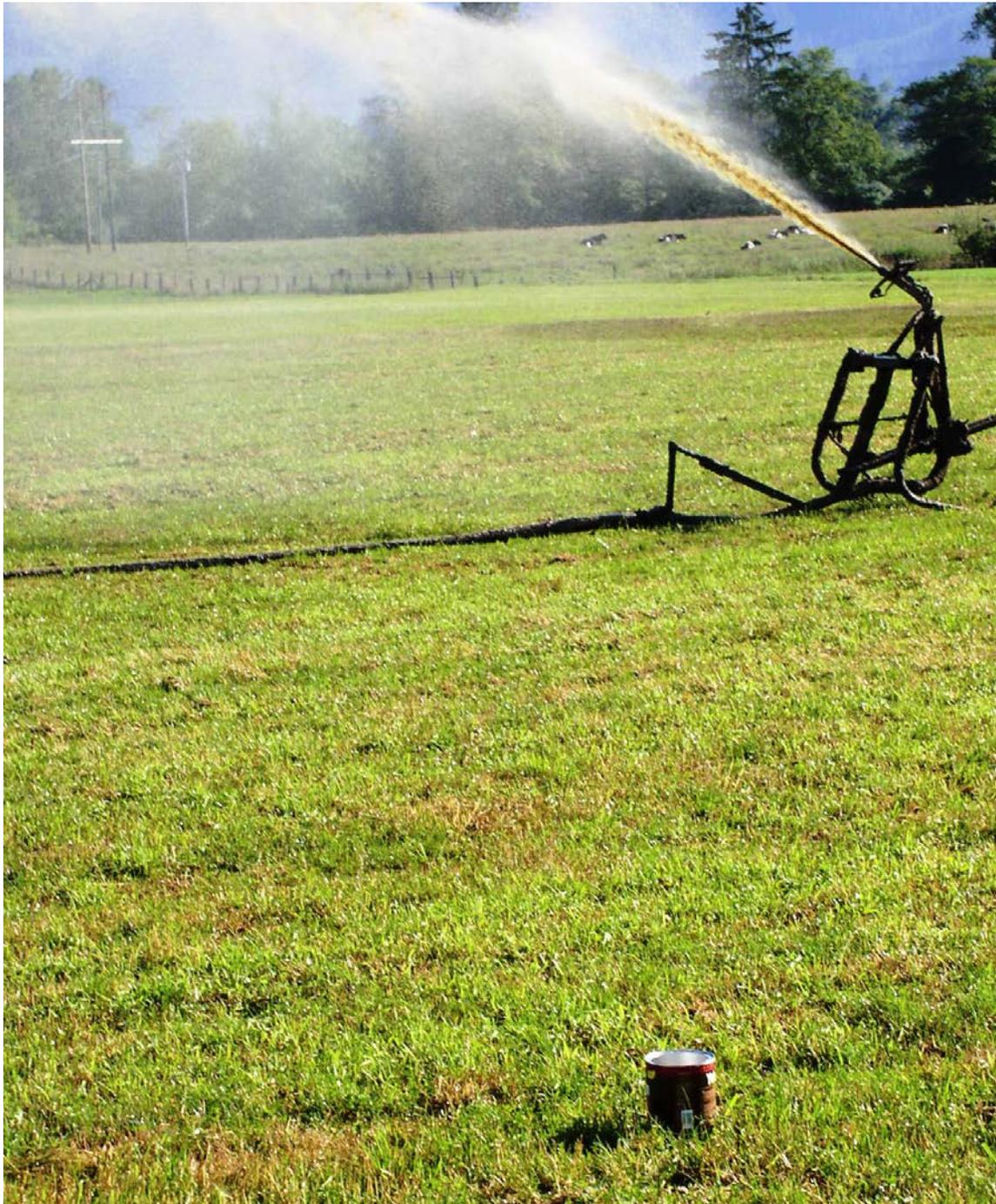
Objective 5: Promote feed management or the use of feed additives to reduce the volatile nitrogen and sulfur compounds.

Objective 6: Promote further use of methane digesters.

Objective 7. Promote the establishment of windbreaks that reduces the prevailing wind from transporting objectionable odors off farm.

Objective 8. Promote the application of manure when there is less chance for drift or toward urban areas.

Figure 34 Manure Gun Traveler



In Tillamook, one primary method of liquid manure application is with a manure gun traveler. This application method atomizes the liquid manure particles, resulting in ammonia volatilization that creates odor.

Figure 35 Odor Control



A low pressure sprinkler bar application method reduces manure odors. The manure is placed on the ground rather than shooting the manure into the air. Atomization of liquid manure particles is reduced. Volatilization of the liquid manure is greatly reduced. Air quality is improved.



A good feed management program will reduce the amount of nutrients, especially nitrogen and phosphorus, in the manure generate by the livestock. Fewer nutrients produced, decreases the amount of land required for the manure application. The program also supplies the required nutrients for livestock maintenance, milk production and reproduction. Implementing a feed management program can reduce manure odor associated with livestock operations.

X. ENERGY SUSTAINABILITY

There is an increasing demand for a reliable source, affordable, and sustainability energy. Energy usage is expected to increase by 30 percent over the next 20 years. There is a trend that current and projected declines in domestic oil production, high energy prices and national security concerns create a long-term requirement for energy conservation and the development of alternative energy sources. Rising energy costs play a major role in whether some farmers are able to stay in business. Public awareness is also increasing on the environmental impacts that manure and fossil fuels have on our environment.

EXISTING RESOURCE CONDITION

In Tillamook County, much of the winter feed supply (hay and grain) must be hauled in from outside sources. The cost of importing the feed stock has drastically increased in the last 2 years because of fuel costs, grain production costs, and the competition for grain, such as corn, for bio-fuels. Electricity costs have also increased.

Milk prices, however, have decreased over the same period. This trend has resulted in some dairy farmers going out of business or reducing their herd sizes. The dairy economy is a major source of revenue for Tillamook County.

Tillamook County does have a methane digester, for processing manure from 7 dairies, into electricity. Electric pumps are used for manure transfer and handling manure on the farms. Pumps are also used by a drainage district to remove excessive surface water from the fields. Electricity is also used to run the vacuum pumps to cool the milk. Most all livestock barns and milking parlors use electric lighting. Tractors are used at the dairy operation for clipping and seeding pastures and hay lands, transporting bedding to the livestock stalls, pumping manure to fields, scraping manure from alley ways, loading manure into manure spreaders for transporting manure and applying to the fields, and harvesting forage from the fields.

DESIRABLE RESOURCE CONDITION

Affordable environmentally sustainable, efficient, renewable energy supplies for Tillamook farm operations

GOAL: Reduce Tillamook County's dependence on fossil and foreign energy supplies by 20% by the year 2015.

- Objective 1: Encourage that farm operation conduct an energy audit.**
- Objective 2: Encourage the use of methane, solar, and or wind energy to power pumps for livestock water, drainage systems, and manure handling systems.**
- Objective 3. Support new technology to use on farm liquid manure systems to produce methane for use in powering gas or diesel farm equipment.**
- Objective 4: Support and encourage the Port of Tillamook to expand the existing methane digester facility to increase the number of dairy operation shipping manure to the facility**
- Objective 5: Encourage the use of manure separators that recycle manure for use for bedding instead of importing lives bedding from outside the county that uses petroleum based fuels to transport the material into the county.**
- Objective 6: Increase the quality and quantity of locally grown forage crops to reduce hauling costs associated with high costs for foreign energy source for importing hay and grain.**
- Objective 7: Establish a partnership committee to explore on farm energy conservation projects that could have broad support. Committee would be composed of but not limited to: Tillamook PUD, Oregon Department of Agricultural, Oregon Department of Energy, NW Oregon RC&D, OSU Cooperative Extension**

Service, NRCS, Rural Development, and FSA.

- Objective 8: Encourage NRCS to use the Farm Bill Program to fund high priority energy conservation projects.**
- Objective 9: Encourage agricultural producers to convert to using ethanol and/or bio-diesel to decrease the reliance on foreign energy supplies.**
- Objective 10: Encourage agricultural producers to use a no-till Drill system for the establishment of forage crops.**
- Objective 11: Promote and encourage the establishment of windbreaks to reduce heating and cooling costs associated with farmsteads.**
- Objective 12: Encourage the use of low pressure sprinkler systems that reduces energy requirements.**
- Objective 13: Encourage producers to change electric lighting from incandescent lights to fluorescent or to high pressure sodium lamps.**
- Objective 14: Encourage producers to use heat exchangers on their milk tank plate cooler to heat water for milking equipment, wash down of cattle, or milking parlors.**

Figure: Energy Sustainability



Energy usage is expected to increase by 30% within the next 20 years. High energy cost, decline in domestic oil production, and nation security concerns will increase the demand for other energy sources.

Figure: Energy Consumption



Gas or diesel powered farm tractors are used to apply liquid manure to the fields in Tillamook County. Imported petroleum is expensive and creates an agriculture reliance on foreign sources of energy

Figure: Energy Conversion



Develop new and effective technology to utilize the methane stored in liquid waste storage tanks to power farm equipment or increase ethanol and bio-diesel usage.

Figure: Renewable Energy



Promote the development and technology that uses wind, solar, hydropower, or methane to power pumps used for manure management, irrigation, drainage, and livestock watering

Figure: Energy Conservation



Reducing pasture renovation tillage operations by implementing a no till system will save fuel costs and reduce the use of reliance on foreign source of energy.

Figure: Tillamook Biogas Facility



The methane digester that was installed at the Port of Tillamook. It serves about 7 dairy operations. Encourage sponsors to expand the facility to additional dairy producers. Recommend economic studies to evaluate the cost to establish similar facility in the Nehalem and Cloverdale areas or the development of economic and efficient small scale farm systems.

Figure: Energy Conservation



Installing a low pressure sprinkler system will save energy and improve the irrigation efficiency and use on pasture and hay land fields.

VI. FLOOD MITIGATION

Flooding is a resource concern in Tillamook County. Flooding causes property damage, livestock losses, excessive sedimentations, filling in of drainage ditches, livestock feed losses, damaged homes, road closures, school closures, and stream bank erosion to name a few. Associated with flooding is economic recovery: restoring pasture and hay lands, cleaning out drainage ditches, purchasing additional livestock feed, repairing damaged homes, and repairing roads. Although flooding can not be controlled, the losses associated with flooding can be mitigated by reducing the risks associated with flooding.

EXISTING RESOURCE CONDITION.

Tillamook County has a marine climate. The average annual rainfall is over 93 inches. Most of the rainfall occurs between October and May. Tillamook County flooding usually occurs from October to April. Flooding is frequent in the county. Generally, most rivers rise to flood stage or above at least once each winter. Major riverine flooding occurred in 1916, 1921, 1931, 1934, 1949, 1964, 1965, 1972, 1974, and 1975. Major coastal flooding occurred in 1939, 1967, and 1976. The most recent major flood event was in 1996. The average temperature is 50 degrees F. Snow falls frequently at the higher elevations. It is not unusual to have rainfall events of 4 to 6 inches in a 24 hour period. There were two rainfall events of 14 inches in a 48 hour period recorded at Lee's Camp (2006 and 2007). Flooding is generally caused by a combination of snow melt and heavy rainfall. High tides and strong southwestern winds can increase the flooding. High winds can increase the flood levels by as much as 2 feet.

Past logging practices, several forest fires between 1933 and 1945, excessive amounts of sediment and debris from the upper watersheds, and eroding stream banks have caused sediment deposition in the lower stream reaches and the bays. The sediment deposition has resulted in sediment wedges developing at the mouth of the rivers. These sediment plugs are expected to grow and move upstream causing additional damages to existing structures, continued restriction of channel flows, stream bank erosion. Some of the lower river elevations are higher than

the surrounding farmland because of diking. The sediment plugs are restricting flood flows from entering the ocean.

DESIRABLE RESOURCE CONDITION

Reduce or mitigate flooding risks and impacts such as economic losses such as: livestock and feed losses, pasture and hay field damages. A decrease in the length of time of the flooding events, flood elevation are not increasing, and reducing stream outlet flow capacity to the bays and ocean. Prevent further development of sediment plugs in the mouths of the rivers and their movement upstream. A decrease in stream bank erosion, which results in agricultural land losses.

GOAL: Mitigate the Frequent Yearly Flood Event Damages.

Objective 1: Promote the construction of elevated cow pads for use by livestock located within the floodplain to establish an area above the flood stage to reduce livestock losses associated with flood events.

Objective 2: Promote the establishment of riparian zones to reduce the woody debris deposited on agricultural land during flood events.

Objective 3: Encourage landowners to maintain their drainage systems and dikes.

Objective 4: Encourage the retention of floodplain lands in agriculture uses rather than conversion to other uses that require filling for development.

Objective 5: Be an active participant in the Gravel Mediation Agreement Committee. Work to establish more gravel bar sites for harvesting gravel to improve the channel flow and prevent further increases in the upstream movement of the sediment plugs at the river mouths.

Objective 6: Encourage periodic updates of the floodplain studies and maps to monitor any changes in the floodplain elevations and boundaries.

Objective 7: Encourage the purchase of floodplain easements to protect the floodway areas and prevent the reduction of the cross-sectional floodplain areas.

Objective 8: Promote the removal of gravel deposition in lower stream reaches.

Objective 9: Promote the establishment of sediment traps for frequent sediment removal in Tillamook County's lower stream reaches to reduce excessive sediment deposition that contributes to increased flooding frequency, duration, and elevation. to prevent excessive sediment transport

Objective 10: Encourage and support the Dougherty Slough Flood Control Project as a high priority flood control project in Tillamook County.

Objective 11: Promote the removal of sediment, in channel vegetation, and excessive debris in the sloughs so they will reconnect with the main stem river channels.

Objective 12: Participate and provide technical assistance to federal agencies in securing emergency funding to restore agricultural lands damaged by flood events.

Objective 13: Encourage formation of a County-wide flood control district that extends from the mountain tops to the ocean.

Objective 14: Promote upstream high flow water detention structures and or methods that provide temporary storage.

Figure Lower River Sediment Plugs



Most of the lower river systems are developing sediment plugs that restrict flood flows from entering the ocean in a timely matter. It is expected that the plugs will grow and move upstream and further reduce channel flows, increase stream bank erosion, and additional filling in of the rivers and bays.

Figure Sediment Damage



Flooding causes sediment deposition on hay and pasture fields. The damage fields need to be reestablished. Annual flooding creates economic situation that places a financial burden on agricultural producers.

Figure Woody Debris



Woody debris that is deposited on pasture fields impacts the costs associated with the economic recovery associated with flooding events.

Figure: Road Closures



Flooding closes roads. This can restrict emergency vehicles access at a critical time. If milk trucks can not reach the farms, there could be an economic loss due to milk not being picked up and delivered to the processing plant in a timely manner. Road damage may occur that requires expensive road repairs.

Figure Dike



Most of the lower watershed tidal influenced agricultural lands have been diked. Sediment continues to be deposited in the lower river sections creating sediment plugs. The plugs are restricting channel flow and creating a situation where the river beds are now higher than the surrounding lands. This condition has resulted in property damages even during minor flooding events.

Figure Cow Pad



In Tillamook County, the lower watershed agricultural lands are subject to frequent flooding. The installation of elevated cow pad flood structures will prevent livestock losses associated with a flood event. Cows are moved to these areas when an eminent flood event is forecasted.

Figure Riparian Zone



The establishment and maintenance of a good woody riparian zones along rivers will prevent woody debris from depositing on pasture and hay land fields.

Figure Open Ditch



Drainage ditches can fill in during flood events. To reduce flood related damages, sediment needs to be removed periodically to maintain the flow capacity so flood waters are removed from the pasture and hay fields in a timely matter.

Figure# Mean Annual Temperatures and Precipitation, Tillamook, OR.
1933-1994 (5-Year Smoothing)

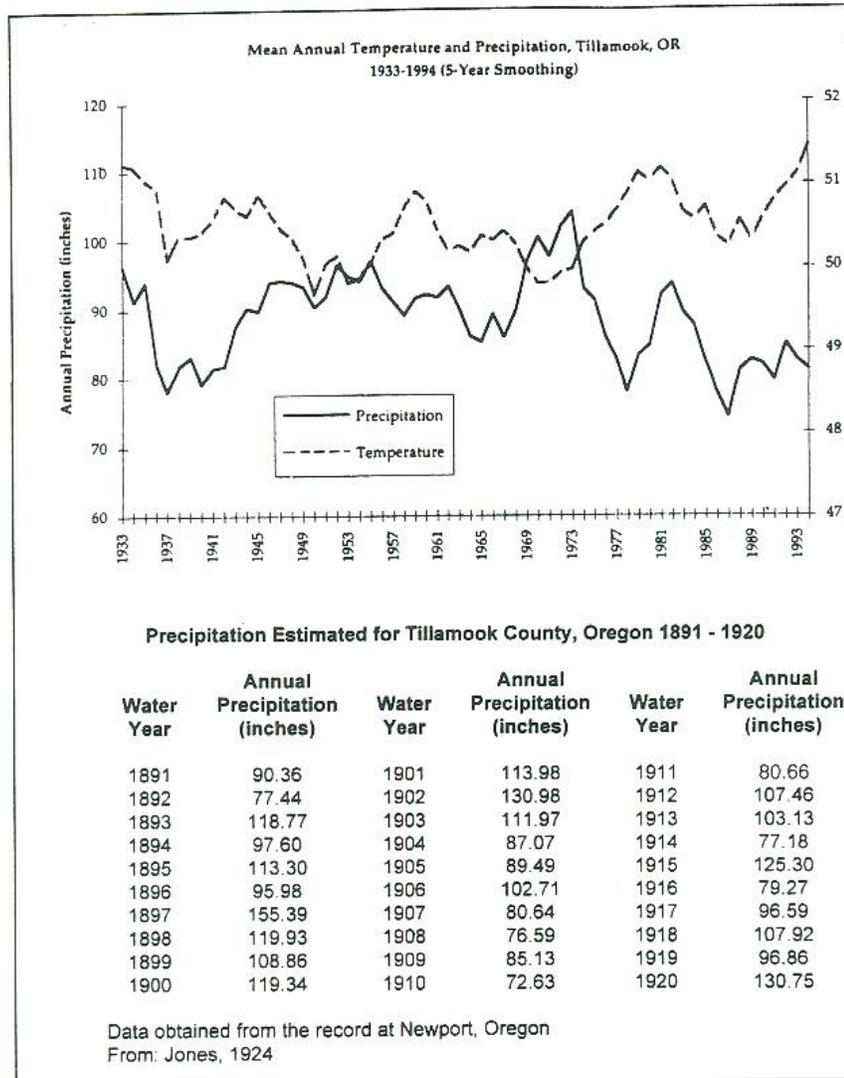
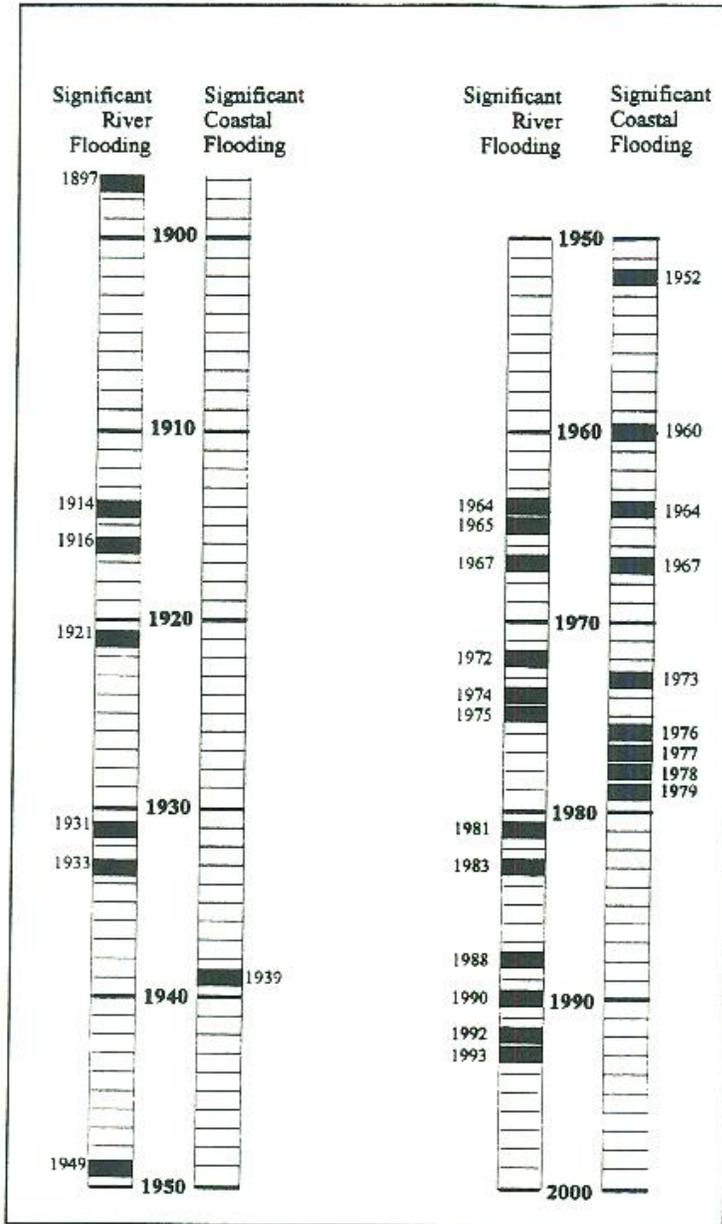


Figure 6-15. Historic rainfall and air temperature trends for Tillamook, OR.
Sources: 1891–1920 data obtained from the record at Newport, OR., as cited in Jones, B. 1924. Report on pot waterpower in Trask, Nestucca, and Smith River basins in Oregon, U.S. Geological Survey, Washington D.C. January.
1933–1994 data from Taylor, G. 1995. Personal communication with Kevin Coulton. Sept. 12.

Figure Tillamook Bay Flood History



Generalized flood history for the Tillamook Bay area.

Significant flooding is defined as flooding of enough significance to result in newspaper coverage or other documentation.

Source: Coulton, K., P. Williams, P. Benner, and M. Scott. 1996. An environmental history of the Tillamook Bay Estuary and Watershed, prepared for the Tillamook Bay National Estuary Project by Philip Williams and Associates, Portland, OR.

XI. STORM WATER RUNOFF

Rain and melting snow that does not soak into the soil and flows into an open water course is storm water runoff. The storm water runoff comes from roofs, sidewalks, driveways, paved area, bare soils, steep topography and sloping lawns. This runoff collects and transports soil, pet manure, droppings from wildlife such as ducks, geese, and seagulls, pesticides, fertilizer, oil, grease and other pollutants. It does not take a heavy rainfall event or flooding to have a runoff event. Storm water is unavoidable.

EXISTING RESOURCE CONDITION

Tillamook County has high rainfall events. Much of the rainfall does not soak into the ground. These events pick up pollutants and transport them to our streams and bays. The pollutants degrade our streams and bays water quality. Nutrients such as nitrogen and phosphorus promote the growth of algae. This decreases the oxygen supply and the space required by fish and water plants.

In the urban areas there are large paved parking lots, many rooftops, lawns, side walks, streets, roads, and driveways that contribute large volumes of surface water to storm water runoff. Toxic chemicals, such as antifreeze, oil and grease from cars, pesticides used in gardens and on lawns to control insects, and zinc from galvanized metal gutters and downspouts adversely affects the health of fish and other aquatic life. Bacteria and parasites from pet manure drain in nearby drainage ditches that outlet into rivers, stream and bays.

DESIRABLE RESOURCE CONDITION

A reduction in the amount of toxic pollutants associated with storm water runoff that enters Tillamook County's streams and bays.

GOAL: Promote an Educational Program with Communities to inform the residence of potential pollutant source and measure that will mitigate storm water runoff affects on water quality and aquatic live.

- Objective 1: Develop a storm water runoff brochure to educate and inform urban residence on storm water runoff sources and measures to reduce the affects.**
- Objective 2: Develop environmental storm water runoff practices for assisting urban residence to implement practices that reduce the water quality impacts associated with storm water runoff.**
- Objective 3: Support a county storm water runoff mitigation ordinance to improve water quality impacts associated with urban development.**
- Objective 4: Encourage developers to include natural filter strips in their subdivision plats or wetlands to remove toxic pollutants from storm water runoff.**
- Objective 5: Encourage developers to remove only the amount of existing natural vegetation from subdivision sites required for the construction of committed site projects.**
- Objective 6: Explore incentives that encourage urban landowners to install storm water runoff water quality improvement practices.**
- Objective 7: Coordinate projects with the cities and Tillamook County Planning Directors prior to project implementation.**
- Objective 8: Encourage storm water collection and storage for later beneficial uses.**

Figure Geese



Tillamook County has a significant number of geese that use the pastures for food. The manure can enter drainage ditches and eventually the bays. They contribute large quantities of fecal coliform to the Tillamook County's waters. Geese are a source of pollutants that causes water quality degradation.

Figure Seagulls



During high winds and rainfall events, many seagulls move inland from the ocean and bays to the valleys. Large amount of manure becomes available for entering the storm water system. This manure contributes to the water quality problem. Fecal coliform, nitrogen, and phosphorus are the primary pollutants.

Figure Storm Water Drainage Ditch



In Tillamook County, most rural housing developments have storm water drainage ditches. The ditches are a source of pollutants such as pet manure, fertilizer, pesticides, and zinc from galvanized metal gutters and downspouts. These ditches enter streams, rivers, and bays. The pollutants from the storm drainage ditches may harm the aquatic life in the streams, river and bays.

Figure Driveways



Drive ways can be a source of antifreeze, grease, oil, pet manure, and salt pollutants that may enter the rural housing storm drainage system. These toxic chemical pollutants can be harmful to aquatic life in our county's streams and bays.

Figure Roof



During heavy rainstorm events in Tillamook County, large runoff volumes enter storm drainage systems. If roofs are not adequately guttered, down spouted, and outletted in an area that is free of toxic pollutants, then the pollutants may end up in the streams and bays impacting the water quality and aquatic habitat.

Figure Parking Lot



In Tillamook County, during heavy rain fall events, large amounts of pollutants can enter the storm drainage system from these large paved parking lots. The primary pollutants are antifreeze, oil, gasoline or grease from parked vehicles. These pollutants are toxic. The toxic substance influences the aquatic habitat quality in our stream, sloughs, and bays.

Figure Storm Water Runoff Ditch



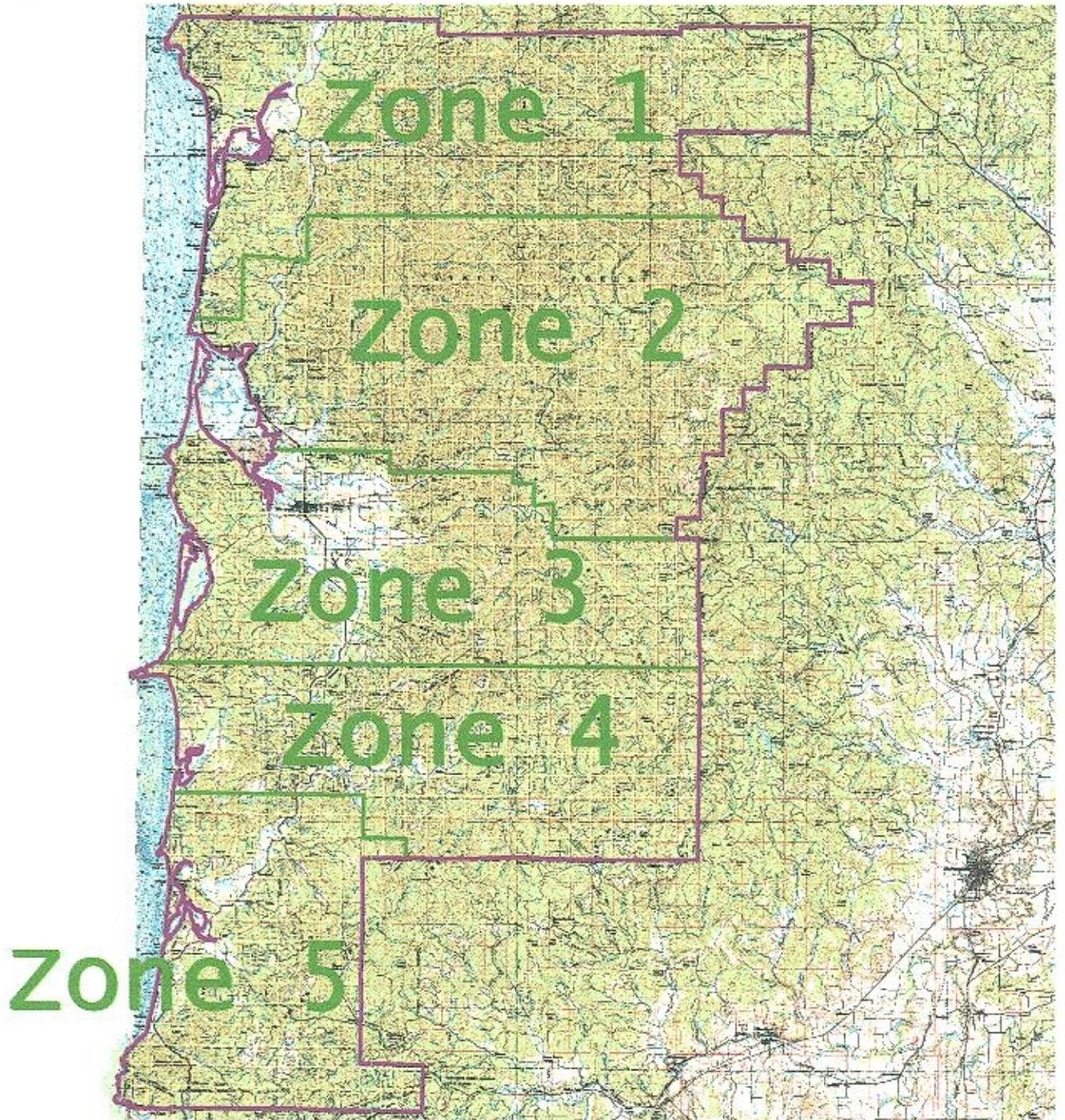
Storm water runoff ditches need to be maintained. The accumulation of grasses within in the ditches will retard the flow and collect sediments that may have large amounts of pollutants that impacts water quality in streams and bays. Proper placement of straw bales in the open ditch will reduce erosion within the ditches. The use of grass filters adjacent to the open ditch will filter sediments and other pollutants as oil, grease, gasoline, pet and bird manure, and metals associated with gutters and downspouts that may enter the ditch.

APPENDICES

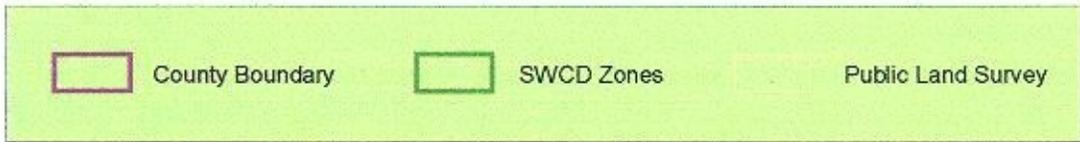
Tillamook County SWCD Zone Boundaries

10/29/2003

Tillamook, Oregon
USDA - NRCS



60000 0 60000 120000 180000 Feet



MUTUAL AGREEMENT
Between the
UNITED STATES DEPARTMENT OF AGRICULTURE
and the
STATE OF OREGON
and the
TILLAMOOK COUNTY SOIL AND WATER CONSERVATION
DISTRICT

For their Cooperation in the
Conservation of Natural Resources

THIS AGREEMENT is between the United States Department of Agriculture (USDA), the State of Oregon and the Tillamook County Soil and Water Conservation District.

The authority of USDA to enter into this agreement is the Soil Conservation and Domestic Allotment Act, 16. 590; the Department of Agriculture Reorganization Act of 1994, Public Law No. 103-354; and Secretary's Memorandum No. 1010-1, dated October 20, 1994. The State of Oregon authority is defined in Oregon statute. The Tillamook County Soil and Water Conservation District authority is defined in ORS 568.550.

STATEMENT OF PURPOSE

The parties have the common objective of assisting people in their efforts to utilize and manage natural resources in accordance with their capabilities and needs for protection and improvement. Each party is independent, has its respective responsibilities, yet recognizes the need to coordinate as a federal, state and local partnership for the successful delivery of conservation programs related to our soil, water, air, plant, animal, and human resources. Therefore, the parties will cooperate to implement their respective long-range natural resources conservation programs considering available resources, statutory authorities, and regulations. The parties will develop appropriate agreements to further define this relationship.

IT IS UNDERSTOOD THAT:

Broad based conservation programs delivered through the cooperation of the USDA, the Tillamook County Soil and Water Conservation District, and the State of Oregon are vital to the protection of the natural resources, economic stability and well-being of our Nation.

The parties reaffirm the relationship between the USDA, the Tillamook County Soil and Water Conservation District, and the State of Oregon. The Secretary will continue, within the terms of various statutes administered by USDA, to carry out broad conservation programs of assistance encompassing technical, research, educational, and financial assistance to land owners and users through the Tillamook County Soil and Water Conservation District, and the State of Oregon.

The parties also recognize and encourage a continued commitment from the State of Oregon in aiding administration, coordination, financing, and the delivery of conservation programs through the Tillamook County Soil and Water Conservation District.

This Agreement establishes an enduring basis for cooperation and assistance between the parties to achieve common natural resources conservation goals and objectives. Authority to carry out specific projects or activities, such as the transfer of funds, acquisition of services, and property will be carried out under separate agreements. The parties will encourage other natural resource related agencies to develop similar agreements.

Example: 1

The signatories will be in compliance with the nondiscrimination provisions contained in Titles VI and VII of the Civil Rights Act of 1964, as amended, the Civil Rights Restoration Act of 1987 (Public Law 100-259) and other nondiscrimination statutes, namely, Section 504 of the Rehabilitation Act of 1973, Title IX of the Education Amendments of 1972, the Age Discrimination Act of 1975, Americans with Disabilities Act of 1990, and in accordance with regulations of the Secretary of Agriculture (7 CFR-15, Subparts A & B), which provide that no person in the United States shall, on the grounds of race, color, national origin, age, sex, religion, marital status, or disability be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity receiving Federal financial assistance from the Department of Agriculture or any Agency thereof.

This agreement can be modified or terminated at any time by mutual consent of all parties or can be terminated by any party by giving 60 days written notice to the others.

This agreement supersedes all previous Memorandums of Understanding.

UNITED STATES DEPARTMENT OF AGRICULTURE

By: _____

(Secretary of Agriculture)

Date: _____

STATE OF OREGON

By: _____

(Governor or Designee)

Date: _____

THE TILLAMOOK COUNTY SOIL AND WATER CONSERVATION DISTRICT

By: _____

(Chairperson)

Date: _____

Example: 6

MEMORANDUM OF UNDERSTANDING

Between

Tillamook SOIL AND WATER CONSERVATION DISTRICT

And

Tillamook BOARD OF COUNTY COMMISSIONERS

THIS MEMORANDUM OF UNDERSTANDING entered into on 4/19/78, between the Tillamook Soil and Water Conservation District (hereinafter referred to as the "District"), and the Tillamook Board of County Commissioners (hereinafter referred to as the "County"), and

WHEREAS, the County and the District desire to cooperate in a program of developing and exchanging information, services and facilities that would be mutually beneficial and would serve to achieve common objectives in the conservation and development of renewable natural resources.

WHEREAS, the County has been given responsibility for coordinating all planning activities affecting land uses within the County, including those of the County, cities, special districts and state agencies, to assure a coordinated comprehensive plan for the entire area of the County; and

WHEREAS, the District has been duly established under the authority of ORS 568.210 to 568.800 with responsibility for establishing and administering programs for the planning and management of renewable natural resources lying within its jurisdictional boundaries; and

WHEREAS, the District is required to develop both a long range program and an annual work plan pertaining to the conservation and development of renewable natural resources; and

WHEREAS, the District has entered into Memoranda of Understanding and agreements with many federal, state and local agencies, and works with private landowners and operators in establishing a cooperative working arrangement in carrying out a plan and program of conserving and improving the soil, water, wildlife, and related natural resources, and

WHEREAS, ORS 197.185 (2) requires counties and special districts to enter into cooperative agreements with one another in order to bring special district plans and programs into conformity with statewide goals, and to coordinate special district programs with other affected units of local government;

Example: 6

NOW, THEREFORE, for and in consideration of the premises herein contained, the parties hereto agree with each other as follows:

I. THE DISTRICT AGREES TO:

- A. Provide information and services related to guiding proper land use patterns consistent with the needs of soil, water, wildlife, related natural resources, and human resources.
- B. Assist and cooperate in sponsoring and coordinating educational programs.
- C. Advise with the County on planning and development programs dealing with soil, water, wildlife, related natural resources, and related land uses.
- D. Provide the County with information in regard to proposed watershed projects and other local works of improvement that affect land use planning, as the District becomes aware of such proposals.
- E. Provide planning jurisdictions within the District, a Natural Resource Conservation Program for inclusion as natural resource elements of their respective comprehensive plans.
- F. Each year provide planning jurisdictions within the District, an annual work plan to implement objectives and policies contained in the Natural Resource Conservation Program.
- G. Provide planning jurisdictions with an updated Natural Resource Conservation Program to serve as a basis for comprehensive plan revision, as changing circumstances may require.
- H. Conduct its activities in accordance with statewide planning goals.
- I. Support the planning coordination efforts of the County by providing local leadership for planning and management of renewable natural resources.
- J. Provide such other assistance as the District may be able within the limits of its technical and financial resources.

II. THE COUNTY AGREES TO:

- A. Assist with education and information programs designed to take the public aware of the need for the proper use and development of natural resources.
- B. Keep the District informed on planning and development proposals that affect conservation of soil, water, wildlife and related natural resources.

- C. Recognize the Districts' Natural Resource Conservation Program as official input to the comprehensive planning process, and to give appropriate consideration to the objectives and policies contained therein for inclusion in the County Comprehensive Plan.
- D. Recognize the District Annual Work Program as the implementing mechanism for appropriate Natural Resource Conservation Program objectives and policies which have been included in the Comprehensive Plan.
- E. Recognize the District as the local leader in matters pertaining to the planning and management of renewable natural resources.
- F. Consider, and as appropriate, provide fiscal resources to support District activities of benefit to the County.
- G. Consider, and as appropriate, provide fiscal and coordination support to assist the District to comply with requirements of statewide planning goals 1 and 2.

III. IT IS MUTUALLY AGREED:

- A. The District and the County will meet periodically and at least annually to review and coordinate their individual programs and activities for maximum mutual benefit.
- B. Either party using information from the other party in a publication shall credit the provider of the information and shall give the provider opportunity to review drafts of the publication.
- C. This memorandum may be amended or terminated at any time by mutual consent of the parties hereto or may be terminated by either party by giving sixty (60) days notice in writing to the other.
- D. Special Conditions -

Example: 6

IN WITNESS WHEREOF, the parties hereto have executed this agreement on the 8/19/77 day, month, and year first above written.

Williamson
SOIL AND WATER CONSERVATION COMMISSION

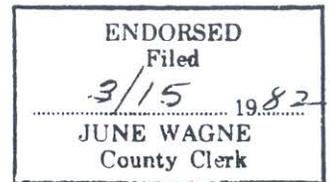
By: Peter Betschart
Chairman

Robert Page
Secretary

Williamson County
BOARD OF COUNTY COMMISSIONERS

By: Charles D. Bailey
Chairman

BEFORE THE BOARD OF COUNTY COMMISSIONERS
FOR TILLAMOOK COUNTY, OREGON



In the Matter of Appointing a)
Weed Inspector Pursuant to)
ORS 570.520)

O R D E R

This matter coming before the Board of Commissioners at their meeting of March 12, 1982, and it appearing to the Board that it is necessary to appoint a weed inspector to perform the duties of ORS 570.520 and to carry out on the behalf of Tillamook County the responsibilities of weed control in the Tillamook County Weed Control District,

IT FURTHER APPEARING that the Tillamook County Board of Commissioners, hereafter COUNTY, and the Tillamook County Soil and Water Conservation District, hereafter DISTRICT, have signed an agreement to cooperate to achieve the goal of controlling noxious weeds in Tillamook County,

IT FURTHER APPEARING that the COUNTY must appoint a weed inspector to carry out the duties of ORS 570.520,

IT FURTHER APPEARING that the DISTRICT has asked the BOARD to appoint James Close as Weed Inspector,

IT FURTHER APPEARING that James Close needs to attain his state certification to become qualified as weed inspector,

IT FURTHER APPEARING that James Close will, with the aid of the DISTRICT, attain his certification and become qualified to become the weed inspector for the COUNTY, IT FURTHER APPEARING that the COUNTY wishes to appoint James Close as Weed Inspector contingent upon his obtaining certification by the state,

NOW, THEREFORE, IT IS HEREBY ORDERED that the BOARD appoint James Close as Weed Inspector, contingent upon his obtaining his

Order - 2

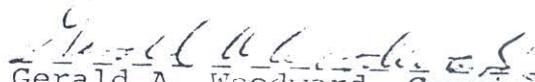
necessary certifications to the satisfaction of the DISTRICT. James Close is authorized to act as County Weed Inspector only when he has obtained and holds current certifications as necessary.

DATED this 12 day of March, 1982.

BOARD OF COUNTY COMMISSIONERS
FOR TILLAMOOK COUNTY, OREGON

F. E. Knight, Chairman

Carol Williams, Commissioner


Gerald A. Woodward, Commissioner

COOPERATIVE WORKING AGREEMENT
Between the
NATURAL RESOURCES CONSERVATION SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE
and
OREGON STATE DEPARTMENT OF AGRICULTURE
and
THE NORTH COAST BASIN SOIL AND WATER CONSERVATION
DISTRICTS

For their Cooperation in the
Conservation of Natural Resources

THIS AGREEMENT is between the Natural Resources Conservation Service (NRCS), an agency of the United States Department of Agriculture (USDA), and The Oregon Department of Agriculture, State of Oregon, and the Clatsop, Columbia, and Tillamook County Soil and Water Conservation Districts (known collectively as North Coast Basin Soil and Water Conservation Districts), collectively referred to as the parties, to define clearly the roles and responsibilities of the parties.

AUTHORITIES, STATUTES, LAWS

NRCS is authorized to cooperate and furnish assistance to the parties in the conservation of natural resources as referenced in the Soil Conservation and Domestic Allotment Act, 16 U.S.C. 590; The Department of Agriculture Reorganization Act of 1994, Public Law 103-354; and Secretary's Memorandum No. 1010-1, Reorganization of the Department of Agriculture, dated October 20, 1994.

The State of Oregon authority for participation is defined in ORS561.240.

The Soil and Water Conservation District Authority is defined in ORS190.420 and ORS568.225.

The purpose of this agreement is to supplement the Mutual Agreement between the United States Department of Agriculture and The State of Oregon, and the North Coast Basin Soil and Water Conservation Districts. This cooperative working agreement documents those areas of common interest of the state, federal and local partnership in natural resources conservation.

The customers of the parties to this agreement are individual landowners/land users, Federal and state land management agencies, groups, and units of government. The parties mutually agree to provide leadership in voluntary, incentive based resource conservation. To accomplish this we share a commitment to listen, anticipate and respond to our customers' needs; anticipate, identify, and address issues; advocate comprehensive resource management planning, maintain and improve our grass-roots assistance system; build new alliances to expand our partnership; foster economically viable environmental policies; improve the quality of life for future generations; and conserve and enhance our natural resources.

The parties pledge to work together by advancing and practicing teamwork; including input in the decision making process; communicating , coordinating, and cooperating; sharing training opportunities; promoting mutual respect, support, trust, and honesty; and sharing the leadership and ownership, the credit and the responsibility. A mutual goal is to improve our efficiency and effectiveness by putting quality first; empowering people to make decisions; demonstrating professionalism and dedication and striving for continuous improvement.

ROLES AND RESPONSIBILITIES:

PROGRAM PLANNING AND DEVELOPMENT

A Basin-wide Strategic Plan (long range or multi-year plan) will be utilized to guide the activities of the parties to this agreement. Tactical plans (annual work plans or plans of operation), will supplement the strategic plan as necessary to facilitate operation or administrative needs.

PERSONNEL

Each party is responsible for the hiring, management, supervision, development, and evaluation of its own personnel, including creating an environment that supports a diverse workforce.

TRAINING

The parties will provide appropriate leadership in administrative and technical training as determined by program needs. Training also includes the orientation of all employees and officials in organizational philosophies, programs, authorities, roles and responsibilities of the parties.

EMPLOYMENT

The parties will coordinate individual staffing plans to include necessary disciplines in order to implement the strategic plan.

TECHNICAL AND ADMINISTRATIVE ASSISTANCE

The parties will work together to determine the need and availability of technical and administrative assistance required for program delivery at each level. Such assistance may include contracts, agreements, procurement, personnel, engineering, and/or other assistance provided by the parties.

PROGRAM DELIVERY

The parties will coordinate with public and private resource groups, other resource agencies and interested parties in utilizing a comprehensive ecosystem based approach to the inventory, assessment and planning of the basins' watersheds.

INVENTORY

Science based technology will be utilized to inventory each watershed's natural resources, economic, social and cultural factors.

ASSESSMENT CRITERIA

Conservation Districts will guide the development of local criteria through the Coordinated Resource Management Planning (CRMP) process by calling together the local watershed planning group to develop the criteria used for assessing the health of their watershed. This group includes resource owners, managers, users, and specialists. Watershed Councils may serve this role where they exist. The criteria will reflect local desires within national goals.

ASSESSMENT INDEX

Local watershed planning groups will collaborate with resource agencies to assess the health of each watershed based on the criteria established above.

WATERSHED HEALTH PLANS

Conservation Districts will serve as the local sponsoring organization in the development and implementation of Watershed Health Plans. These plans will conform to NRCS planning procedures, standards, and specifications.

INDIVIDUAL CONSERVATION PLANS

Conservation Districts will coordinate the technical assistance for voluntary individual conservation plans that meet the objectives of the Watershed Health Plan.

TECHNICAL STANDARDS

The parties will adopt the NRCS Field Office Technical Guide (FOTG) and other science-based technical standards, as appropriate.

JOB APPROVAL

Each party will assign conservation practice (job approval) authority based on employee knowledge, skill and ability levels and within applicable laws and guidelines.

RECORDS, FACILITIES AND EQUIPMENT

WORKING SPACE

Within funding limits, operating guidelines, and authorities, NRCS will provide space at each NRCS office location for one District employee in exchange for technical or clerical support.

NRCS may provide space, equipment, and supplies for additional District and State employees as agreed on in an operational agreement.

EQUIPMENT

The parties will agree to share equipment for common use within established guidelines and procedures.

VEHICLES

NRCS agrees to share available vehicles with qualified District employees and persons working under a service contract with the District for official purposes. Guidelines are in the NRCS General Manual 360, part 420.140 and OR420.144.

RECORDS MANAGEMENT

All file materials located in an NRCS office are available to the public as defined by the Freedom of Information Act/Privacy Act or the Oregon Public Records Law as appropriate.

FUNDING

The parties will work together to maximize available resources and actively seek funding to accomplish natural resource priorities and programs.

TORT LIABILITY

The parties will each assume responsibility for the actions of their officials or employees acting within the scope of their employment to the extent provided by federal and state laws.

State of Oregon and District employees are guided by Oregon State Constitution OR568.550 (16) and ORS561.400(4) and the Oregon Tort Claims Act 30.260 to 30.300. NRCS employees are covered in the Federal Tort Claims Act.

SCOPE OF AGREEMENT

Authority to carry out specific projects or activities, such as transfer of funds, acquisition of services and property, will be established under separate agreement.

CIVIL RIGHTS

The parties will be in compliance with the nondiscrimination provisions contained in Titles VI and VII of the Civil Rights Act of 1964, as amended. The Civil Rights Restoration Act of 1987 (Public Law 100-259) and other nondiscrimination statutes, namely, Section 504 of the Rehabilitation Act of 1973, Title IX of the Education Amendments of 1972, the Age Discrimination Act of 1975, Americans with Disabilities Act of 1990, and in accordance with regulations of the Secretary of Agriculture (7CFR-15, Subparts A & B) which provide that no person in the United States shall, on the grounds of race, color, national origin, age, sex, religion, marital status, or disability be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity receiving Federal financial assistance from the Department of Agriculture or any agency thereof.

TERMINATION

This agreement can be modified or terminated at any time by mutual consent of all parties or any signator can terminate their involvement by giving 60 days written notice to the other parties.

This agreement supersedes the Supplemental Memorandum of Understanding.

ORÉGON DEPARTMENT OF
AGRICULTURE

By: [Signature]
Date: 2/25/97

UNITED STATES DEPARTMENT
OF AGRICULTURE
NATURAL RESOURCES
CONSERVATION SERVICE

By: [Signature]
Date: 2-20-97

CLATSOP SOIL AND WATER
CONSERVATION DISTRICT

By: [Signature]
Date: 3 Apr 97

COLUMBIA SOIL AND WATER
CONSERVATION DISTRICT

By: [Signature]
Date: 17 March 97

TILLAMOOK COUNTY SOIL AND WATER
CONSERVATION DISTRICT

By: [Signature]
Date: 4-17-97

RECEIVED
FEB 01 2000

MEMORANDUM OF AGREEMENT
BETWEEN THE
TILLAMOOK COUNTY SOIL AND WATER CONSERVATION DISTRICT
AND THE
OREGON ODA OF AGRICULTURE

PURPOSE

This Memorandum of Agreement is made and entered into by and between the Tillamook County Soil and Water Conservation District (District) and the Oregon Department of Agriculture (ODA). The purpose of the agreement is to designate the District as a Local Management Agency (LMA), to describe the roles and responsibilities of the District, and to provide ODA funds to the District for its services as the LMA.

ODA RESPONSIBILITIES

The ODA, under its authority to develop and implement agricultural programs to protect water quality, will make these grant funds available to support the District as it undertakes its duties as the designated LMA.

The ODA shall:

- Distribute to the District, ODA funds in the amount of \$24,000. Payments, other than the first advance, shall be made upon receipt and approval of required reports and related materials identified in the work plan (Attachment A), according to the following schedule:

Payment - Ten Days after signing.....	\$8,000	
Payment - January 1, 2000	\$7,000	
Payment - April 1, 2000	\$7,000	
<u>Payment - Upon receipt & approval of final report....</u>	<u>\$2,000</u>	
Total funds to be paid:		\$24,000

The final payment of \$2,000 shall be retained by the ODA until the District has submitted a satisfactory final report and detailed expenditure accounting. The ODA shall review and approve the final report within two weeks after receipt. An additional two weeks are required for processing and mailing payments.

- Inform the District as to the information required in the quarterly progress reports to be submitted to the ODA.
- Review, within two weeks, all progress and financial accounting reports submitted by the District.
- Advise the District at any time it is determined that the work completed under this agreement is not being conducted in a prescribed time and manner, and request if necessary, that funds be returned within 30 days. This notice shall be provided to the District by certified mail.

Accounting 7/1/00

JAN 10 1999
Example: 4

- Advise the District at any time it is determined that the ODA funds, and/or any required District matching funds in the amount of \$24,000 are not being accounted for in an appropriate manner, and request if necessary, that funds be returned within 30 days. This notice shall be provided to the District by certified mail.

DISTRICT RESPONSIBILITIES

The District has been awarded \$24,000 in funds from the ODA to support the Local Advisory Committees, coordinate public information and education, and provide technical assistance to private landowners to support the North Coast Basin Agricultural Water Quality Management Area Plan.

The District is fully accountable for all grant funds received from the ODA and shall use these funds in the prescribed manner and time frame approved by the ODA.

The District shall:

- Act as the ODA's LMA to develop and implement the North Coast Basin Agricultural Water Quality Management Area Plan.
- Assist the ODA in the development and facilitation of the activities and responsibilities of the Local Advisory Committee (LAC) as outlined in the Agriculture Water Quality Management Program, OAR 603-90.
- Coordinate ongoing water quality programs and projects in cooperation with all agencies, groups, and interested parties.
- Carry out the tasks associated with the project work plan as outlined in Attachment "A".
- Use all grant funds for the purposes approved by the ODA.
- Complete all activities related to the use of grant funds within 90 days following the end of the agreement period.
- Provide the ODA with progress reports. Progress reports will be quarterly and will contain information on the activities and tasks conducted by the District in accomplishing work items as indicated in Attachment "A", and detailed financial expenditure accounting. Quarterly reports are due to the ODA within 15 days of the following dates: January 1, 2000; April 1, 2000; and a final report on or before August 1, 2000. The final report shall consist of the final quarterly report, and a financial and text summary for the fiscal year.

TECHNICAL REPRESENTATIVES

ODA: Michael Powers
Oregon ODA of Agriculture
635 Capitol St. NE
Salem, OR 97310-0110
(503) 986-4707

District: Eric Mallery, District Manager
Tillamook County Soil and Water Conservation District
6415 Signal St.
Tillamook, OR 97141
(503) 842- 2240 extension 114

PROJECT OFFICER

ODA: Ray Jaendl
Oregon ODA of Agriculture
635 Capitol St. NE
Salem, OR 97310-0110
(503) 986-4713

District: Rudy Fenk, Chair
Tillamook County Soil and Water Conservation District
6415 Signal St.
Tillamook, OR 97141
(503) 842- 2240

FUNDS AVAILABLE AND AUTHORIZED

ODA certifies at the time the Memorandum is written that sufficient funds are available and authorized for expenditure to finance costs of this contract within the ODA's current appropriation or limitation. District understands and agrees that ODA's payment of amounts under this Memorandum attributable to work performed after June 30, 1999 is contingent on the ODA receiving from the Oregon Legislative Assembly sufficient appropriations or limitations under this Memorandum. In the event the Oregon Legislative Assembly fails to approve sufficient appropriations, limitations, or other expenditure authority, the ODA may terminate this Memorandum, effective upon the delivery of written notice to District, with no further liability to the ODA.

COMPLIANCE WITH APPLICABLE LAW

The District shall comply with all federal, state, and local laws and ordinances applicable to the work to be done under this memorandum of agreement.

NONDISCRIMINATION

The District agrees to comply with all applicable requirements of federal and state civil rights and rehabilitation statues, rules, and regulations.

AMENDMENTS

The terms of this memorandum of agreement shall not be waived, altered, modified, supplemented, or amended without a written amendment signed by the District and the ODA.

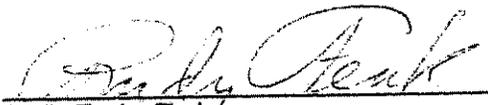
ACCESS TO RECORDS

The ODA, the Secretary of the State's Office of the State of Oregon, the Federal government and their duly authorized representatives shall have access to the books, documents, papers, and records of the District which are directly pertinent to this specific memorandum of agreement for the purpose of making audit examination, excerpts, and transcripts.

TERMINATION

This Memorandum may be terminated by mutual consent of both parties, or by either party upon 30 days notice, in writing and delivered by certified mail or in person.

This Memorandum of Agreement shall begin upon full execution and shall remain in force until the grant project has been completed on June 30, 2000, unless this agreement is discontinued prior to that time.



Rudy Fenk, Chair
Tillamook County Soil and Water Conservation District

11-18-99
Date



Phillip C. Ward, Director
Oregon ODA of Agriculture

1-24-00
Date

MEMORANDUM OF AGREEMENT
BETWEEN THE
TILLAMOOK COUNTY SOIL AND WATER CONSERVATION DISTRICT
AND THE
OREGON ODA OF AGRICULTURE

PURPOSE

This Memorandum of Agreement is made and entered into by and between the Tillamook County Soil and Water Conservation District (District) and the Oregon Department of Agriculture (ODA). The purpose of the agreement is to designate the District as a Local Management Agency (LMA), to describe the roles and responsibilities of the District, and to provide ODA funds to the District for its services as the LMA.

ODA RESPONSIBILITIES

The ODA, under its authority to develop and implement agricultural programs to protect water quality, will make these grant funds available to support the District as it undertakes its duties as the designated LMA.

The ODA shall:

- Distribute to the District, ODA funds in the amount of \$24,000. Payments, other than the first advance, shall be made upon receipt and approval of required reports and related materials identified in the work plan (Attachment A), according to the following schedule:

Payment - Ten Days after signing.....	\$8,000	
Payment - January 1, 2000	\$7,000	
Payment - April 1, 2000	\$7,000	
<u>Payment - Upon receipt & approval of final report....</u>	<u>\$2,000</u>	
Total funds to be paid:		\$24,000

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- Inform the District as to the information required in the quarterly progress reports to be submitted to the ODA.
- Review, within two weeks, all progress and financial accounting reports submitted by the District.
- Advise the District at any time it is determined that the work completed under this agreement is not being conducted in a prescribed time and manner, and request if necessary, that funds be returned within 30 days. This notice shall be provided to the District by certified mail.

Accounting 7/1/00

Example: 4

Advise the District at any time it is determined that the ODA funds, and/or any required District matching funds in the amount of \$24,000 are not being accounted for in an appropriate manner, and request if necessary, that funds be returned within 30 days. This notice shall be provided to the District by certified mail.

DISTRICT RESPONSIBILITIES

The District has been awarded \$24,000 in funds from the ODA to support the Local Advisory Committees, coordinate public information and education, and provide technical assistance to private landowners to support the North Coast Basin Agricultural Water Quality Management Area Plan.

The District is fully accountable for all grant funds received from the ODA and shall use these funds in the prescribed manner and time frame approved by the ODA.

The District shall:

- Act as the ODA's LMA to develop and implement the North Coast Basin Agricultural Water Quality Management Area Plan.
- Assist the ODA in the development and facilitation of the activities and responsibilities of the Local Advisory Committee (LAC) as outlined in the Agriculture Water Quality Management Program, OAR 603-90.
- Coordinate ongoing water quality programs and projects in cooperation with all agencies, groups, and interested parties.
- Carry out the tasks associated with the project work plan as outlined in Attachment "A".
- Use all grant funds for the purposes approved by the ODA.
- Complete all activities related to the use of grant funds within 90 days following the end of the agreement period.
- Provide the ODA with progress reports. Progress reports will be quarterly and will contain information on the activities and tasks conducted by the District in accomplishing work items as indicated in Attachment "A", and detailed financial expenditure accounting. Quarterly reports are due to the ODA within 15 days of the following dates: January 1, 2000; April 1, 2000; and a final report on or before August 1, 2000. The final report shall consist of the final quarterly report, and a financial and text summary for the fiscal year.

Example: 4

TECHNICAL REPRESENTATIVES

ODA: Michael Powers
Oregon ODA of Agriculture
635 Capitol St. NE
Salem, OR 97310-0110
(503) 986-4707

District: Eric Mallery, District Manager
Tillamook County Soil and Water Conservation District
6415 Signal St.
Tillamook, OR 97141
(503) 842- 2240 extension 114

PROJECT OFFICER

ODA: Ray Jandl
Oregon ODA of Agriculture
635 Capitol St. NE
Salem, OR 97310-0110
(503) 986-4713

District: Rudy Fenk, Chair
Tillamook County Soil and Water Conservation District
6415 Signal St.
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FUNDS AVAILABLE AND AUTHORIZED

ODA certifies at the time the Memorandum is written that sufficient funds are available and authorized for expenditure to finance costs of this contract within the ODA's current appropriation or limitation. District understands and agrees that ODA's payment of amounts under this Memorandum attributable to work performed after June 30, 1999 is contingent on the ODA receiving from the Oregon Legislative Assembly sufficient appropriations or limitations under this Memorandum. In the event the Oregon Legislative Assembly fails to approve sufficient appropriations, limitations, or other expenditure authority, the ODA may terminate this Memorandum, effective upon the delivery of written notice to District, with no further liability to the ODA.

COMPLIANCE WITH APPLICABLE LAW

The District shall comply with all federal, state, and local laws and ordinances applicable to the work to be done under this memorandum of agreement.

Example: 4

NONDISCRIMINATION

The District agrees to comply with all applicable requirements of federal and state civil rights and rehabilitation statues, rules, and regulations.

AMENDMENTS

The terms of this memorandum of agreement shall not be waived, altered, modified, supplemented, or amended without a written amendment signed by the District and the ODA.

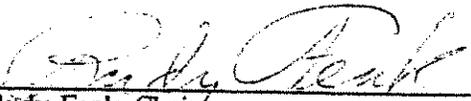
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Rudy Fenk, Chair
Tillamook County Soil and Water Conservation District

11-18-99
Date



Phillip C. Ward, Director
Oregon ODA of Agriculture

1-24-00
Date

PROJECT NAME: North Coast Basin Agricultural Water Quality Management Area Plan development and implementation.

TASKS: Depending on availability of grant funds and the schedule, tasks may be adjusted accordingly.

Task #01: Local Advisory Committee and Oregon ODA of Agriculture: Staff Assistance.

- 1.1 Provide clerical assistance to the LAC and the ODA staff in the development of North Coast Basin Agriculture Water Quality Management Area Plan. This includes:
 - 1.1.1 Preparing and distributing agendas for LAC meetings, including a copy to the ODA.
 - 1.1.2 Preparing and distributing minutes from LAC meetings in a timely manner, including a copy to the ODA.
 - 1.1.3 Maintaining a list of attendees for each LAC meeting, including members of the public.
- 1.2 Provide clerical assistance to ODA staff in writing and editing the drafts of the NCB AgWQMA Plan.
- 1.3 Provide clerical assistance during the NCB AGWQMA PLAN public review process in St. Helens, Astoria, and Tillamook.
- 1.4 Organize, obtain a location, and provide clerical assistance for meetings of the Tillamook NCB AgWQMA Plan Monitoring Technical Advisory Committee within six months of ODA adoption of the NCB AgWQMA Plan rules.

Date: Through June 30, 2000.

Description: Provide staffing to attend all meetings of the LAC and take minutes and help in meeting facilitation when needed. The LMA will also reserve meeting space, provide public notice of meetings as required, develop agendas with committee chair person and the ODA's Regional Water Quality Planner, notify LAC members of upcoming meetings, review draft minutes of committee meetings with the ODA's Regional Water Quality Planner prior to distribution, distribute minutes and agendas to committee members and interested parties for each meeting. An interested parties mailing list specifically related to LAC and NCB AgWQMA Plan business will be maintained and provided to the ODA on request for rule-making notice purposes.

Products: Draft and final NCB AgWQMA Plan
Minutes of LAC meetings
Agendas for LAC meetings
Interested parties mailing list

Task #02: Educational Outreach

- 2.1 Develop a quarterly newsletter providing overview of NCB AGWQMA PLAN for general public distribution.

Example: 4

ATTACHMENT "A"

- 2.2 Prepare and submit press releases for water quality program and/or portions of the program before each LAC meeting and public review assembly.
- 2.3 Give NCB AgWQMA Plan presentations in 6 meetings for target audiences on one or more of the following topics: nutrient and manure management, riparian enhancement, pasture/grazing management, and erosion control.
- 2.4 Develop detailed, one-page NCB fact sheets for erosion control, nutrient and waste management, livestock and grazing management, and riparian and streambank management as related to the NCB AgWQMA Plan.
- 2.5 Distribute fact sheets to target audiences.
- 2.6 Conduct one-on-one visits with landowners as appropriate to educate landowners or implement the NCB AgWQMA Plan.
- 2.7 Create and distribute a simple, one-page questionnaire to evaluate the effectiveness of LMA outreach efforts. Distribute this at fairs, workshops, etc. Report results in quarterly report. ODA will provide a sample questionnaire to the LMAs which they may customize to fit their needs. ODA will also be available to provide consultation and assistance.
- 2.8 Contribute at least one article or update per year to *The Oregon Conservationist* (OACD newsletter, produced by ODA).
- 2.9 Add to the TCSWCD tri-fold SB 1010 display board examples of the of riparian protection plan control measures and rules.

Date: Through June 30, 2000.

Description: Prepare information materials including press releases and presentations. Conduct group meetings and/or workshops to inform organization leaders, producers and land user groups of current agricultural and water quality area planning and the LAC activities, agricultural water pollution problems and solutions, and technical and financial assistance available to aid in the adoption of management practices to improve, protect and restore water quality. Use mass media and existing materials.

Products: Newsletters, press releases, presentations, inserts, meetings, fact sheets, and one-on-one visits with landowners.

Task #03: Program Evaluation/Tracking

- 3.1 Track educational outreach efforts.
 - 3.1.1 Record number of workshops and presentations conducted and number of participants.
 - 3.1.2 Track distribution of water quality fact sheets, publications, etc.
 - 3.1.3 Track media publication of water quality information.

Date: Quarterly through June 30, 2000.

Description: Document NCB AgWQMA Plan education and outreach activities.

Products: Record the number of presentations conducted and the number of participants. Maintain a record of media publications and distribution of informational material. Record number of landowner visits.

Task #04: Develop project proposals for other funding sources.

Date: Throughout project period

Description: In cooperation with the USDA, Oregon State University Extension Service, the Oregon ODA of Environmental Quality, the Oregon Department of Agriculture, the Governor's Watershed Enhancement Board, and other agencies, coordinate the development of project proposals to enhance ongoing water quality implementation efforts. Explore federal, state, local, and private funding sources.

Products: Additional financial and technical resources for implementing conservation. Fundable proposals will be developed in a timely manner for those funding sources identified as most promising for specific water quality projects.

Task #05: Submit reports.

Date: Quarterly through June 30, 2000.

Description: Progress reports.

Products: Quarterly reports on tasks 01- 04 project activities.

BUDGET:

Expense Category	ODA Funds
Personnel (wages & benefits)	\$17,000
Supplies/ materials	\$ 800
Outreach	\$ 3,050
Administrative Fee	\$ 3,150
Total	\$ 24,000.00

Example: 4

ATTACHMENT "A"

BUDGET EXPLANATION:

Personnel

Program Assistant	\$ 12,500	0.50 FTE per year @ \$12.50/hour
		40 hours/pay period x 12.50/hour x 25 pay periods/year
	\$ 4,500	taxes, FICA, insurance, PERS, Medicare (36%)

Subtotal
\$ 17,000

Supplies/materials

	\$ 800	Copier supplies/maintenance/consumables
--	--------	---

Subtotal
\$ 800

Outreach

Newsletter	\$ 1,550	
Travel	\$ 500	mileage, meals, lodging, seminar fees, etc.
	\$ 1,000	SB1010 information: pamphlets, brochures, mailings

Subtotal
\$ 3,050

TOTAL \$ 20,850

Administrative Fee	\$ 3,150	administration and bookkeeping (15%)
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FINAL TOTAL **\$24,000**