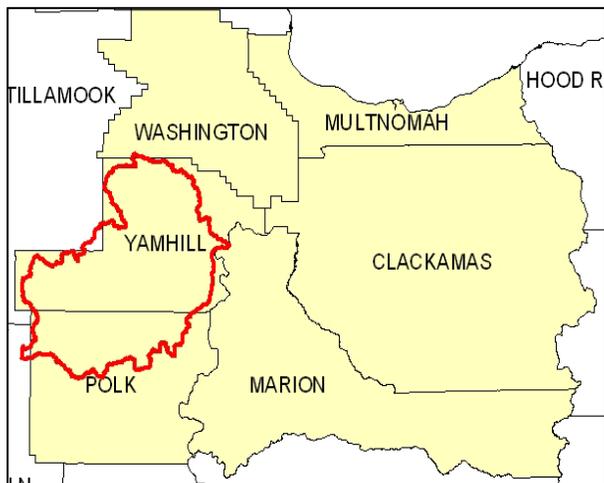


SWCD	Acres	SWCD	Acres
Yamhill	344,652	Lincoln	1,581
Polk	141,583	Washington	386
Tillamook	5,459		

Introduction



The Yamhill 8-Digit Hydrologic Unit Code (HUC) watershed is comprised of 493,469 acres in northwest Oregon. Ninety-nine percent of the watershed is in Yamhill and Polk Counties. The watershed has 1,679 farms, of which 65 percent are less than 50 acres in size.

Eighty-six percent of the watershed is under private ownership. The watershed is 58 percent forest land, 29 percent grass seed pasture and hayland, and the remainder is mostly grain crops, nurseries, vineyards, and row crops.

Conservation assistance is provided by six NRCS service centers, one resource conservation and development (RC&D) office, one soil survey office, and seven soil and water conservation districts.

Profile Contents

[Introduction](#)

[Physical Description](#)

[Land Use Map & Precipitation Map](#)

[Common Resource Area](#)

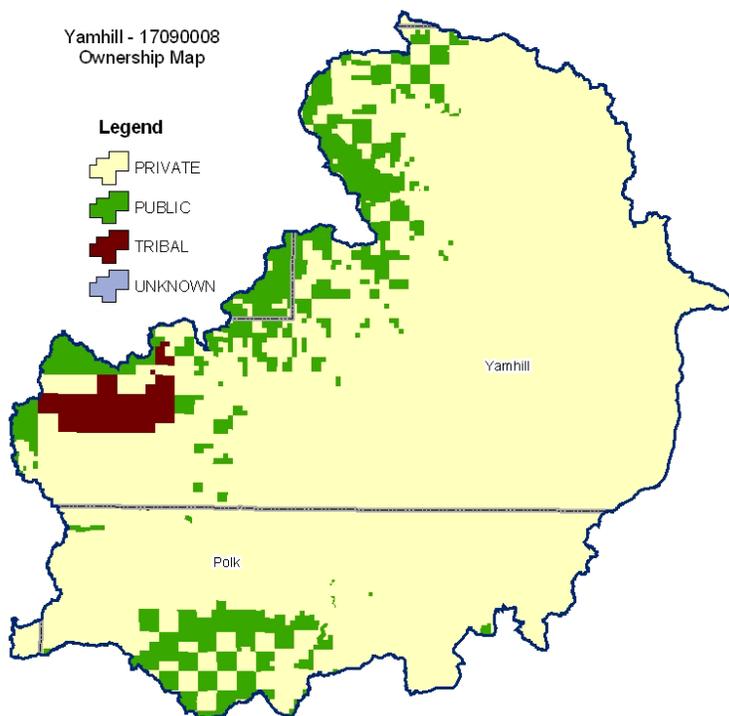
[Resource Concerns](#)

[Census and Social Data](#)

[Progress/Status](#)

[Footnotes/Bibliography](#)

Relief Map



Physical Description

[Back to Contents](#)

Land Cover/Land Use (NLCD ²)	Ownership - (2003 Draft BLM Surface Map Set ¹)						Totals ^b	%
	Public		Private		Tribal			
	Acres	%	Acres	%	Acres	%		
Forest	56,800	12%	214,700	44%	9,400	2%	280,900	58%
Grain Crops	*	0%	28,600	6%	0	0%	28,600	6%
Conservation Reserve Program Land ^a	0	0%	*	---	0	0%	*	---
Grass Seed/Pasture/Hay	*	---	142,700	29%	*	---	144,100	29%
Orchards/Vineyards/Berries/Other Perennial Crops	0	0%	15,100	3%	0	0%	15,100	3%
Row Crops	*	---	14,800	3%	0	0%	14,800	3%
Shrub/Rangelands	*	---	*	---	0	0%	*	---
Water/Wetlands/Developed/Barren	*	---	7,700	1%	0	0%	7,700	1%
Oregon HUC Totals ^b	57,600	12%	425,900	86%	10,000	2%	493,469	100%

*: Less than one percent of total acres. See below for special considerations.

a: Estimate from Farm Service Agency records and includes CRP/CREP.

b: Totals are approximate due to rounding and small unknown acreages.

Special Considerations for This 8-Digit HUC:

- Fifty-five percent of private forest land is under industrial forest ownership (OSU, Forestry Sciences Laboratory).
- Grain commonly is grown in rotation with grass seed and other crops.
- As of December 2004, there are 2,165 acres applied to CRP and 195 acres applied to CREP (FSA).
- Other Perennial Crops includes hops, nursery stock, and Christmas trees.
- Grass/Pasture/Hay includes approximately:
 - ~ 48,000 acres of grass seed (field office estimate)
 - ~ 40,500 acres of pasture (Pacific Northwest Ecosystem Research Consortium)
 - ~ 32,500 acres of hay (Pacific Northwest Ecosystem Research Consortium)
- Pasture includes that of commercial dairy and beef operations as well as small farms and ranches.
- Row crops primarily consist of corn, beans, and cole crops grown for cannery processing.

Irrigated Lands (1997 NRI ³ Estimates for Non-Federal Lands Only)	Type of Land	ACRES	% of Irrigated Lands	% of HUC
	Cultivated Cropland	12,300	86%	2%
	Uncultivated Cropland	2,000	14%	<1%
	Pastureland	0	0%	0%
	Total Irrigated Lands	14,300	100%	3%

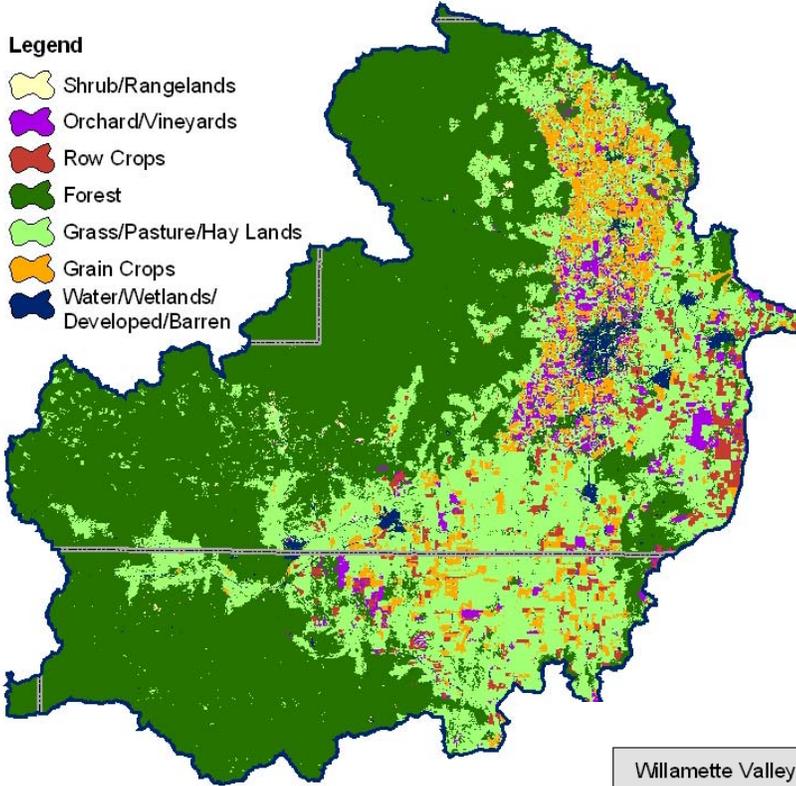
(Continued on following pages)

[Back to Contents](#)

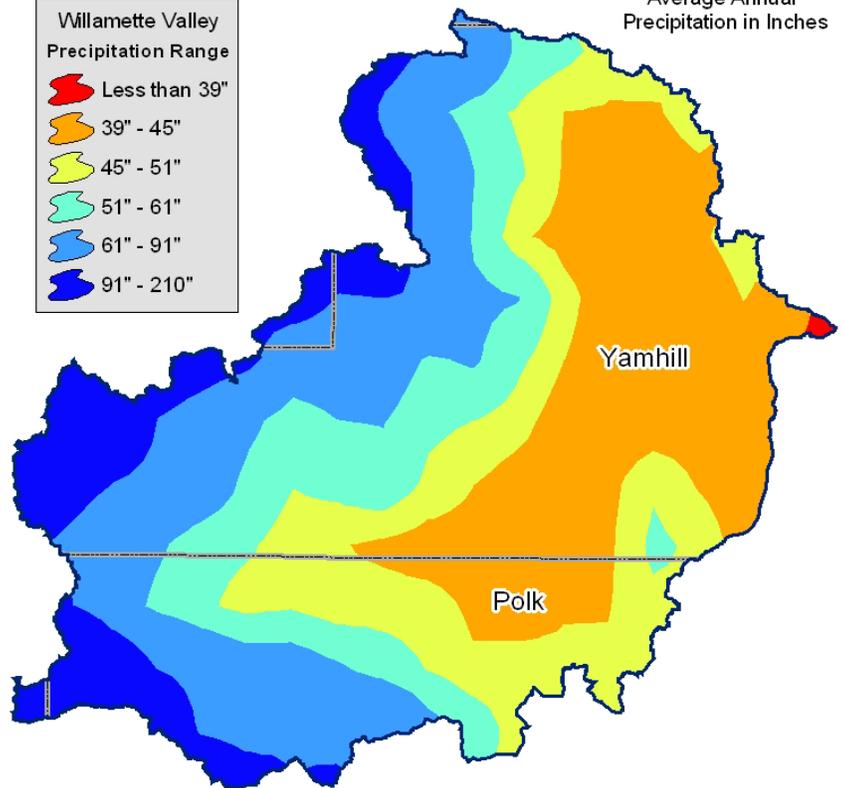
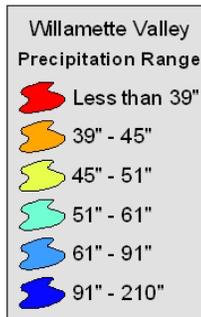
17090008
Land use/Land cover Map

Legend

-  Shrub/Rangelands
-  Orchard/Vineyards
-  Row Crops
-  Forest
-  Grass/Pasture/Hay Lands
-  Grain Crops
-  Water/Wetlands/
Developed/Barren



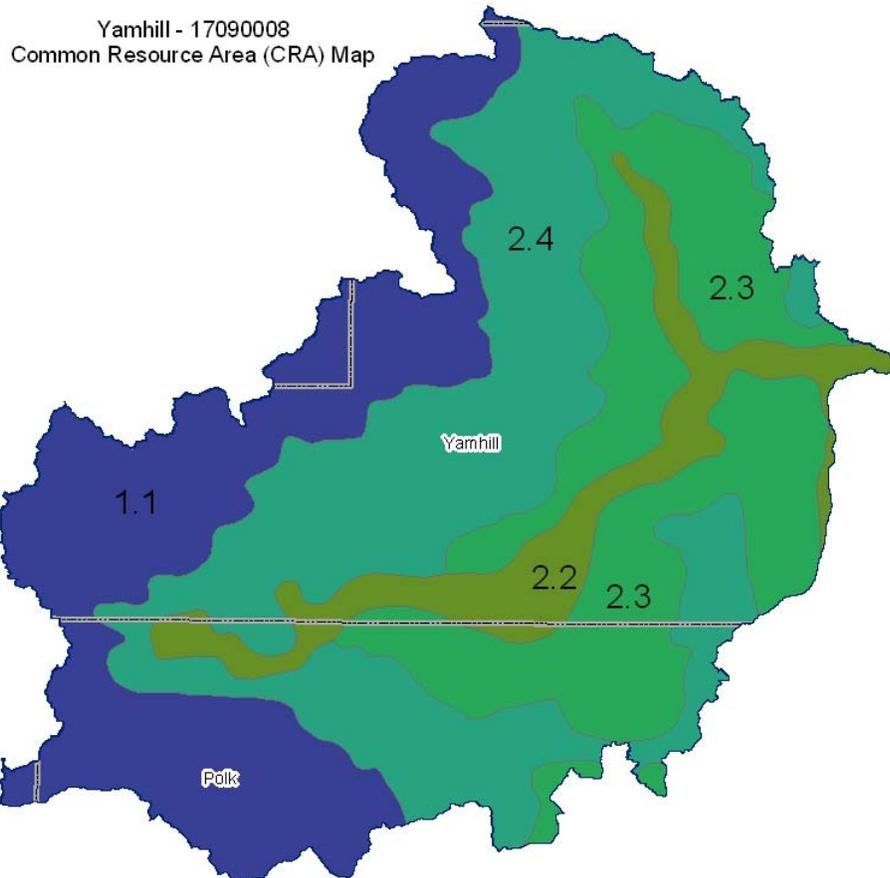
17090008
Average Annual
Precipitation in Inches



Common Resource Area Map

[Back to Contents](#)

Only the major units are described below - for descriptions of all units within the HUC, go to: <http://ice.or.nrcs.usda.gov/website/cra/viewer.htm>



1.1 - Northern Pacific Coast Range, Foothills, and Valleys - Volcanics: This unit is comprised of mountains that have basalt bedrock and are outside of the "fogbelt." The temperature regime is mesic and frigid with a small area that is cryic, and the moisture regime is udic. The vegetation is Douglas-fir and western hemlock.

2.2 - Willamette and Puget Valleys - Willamette River Flood Plains and Tributaries: This unit is comprised of the flood plain of the Willamette River and its major tributaries. It includes historic riparian areas and areas of intensively grown row crops. The temperature regime is mesic, and the moisture regime is xeric.

2.3 - Willamette and Puget Valleys - Prairie Terraces: This unit is comprised of the terraces in the Willamette Valley. The soils range from well drained to poorly drained. The land use is variable. The temperature regime is mesic, and the moisture regime is xeric. The unit has numerous ponded, seasonal wetlands.

2.4 - Willamette and Puget Valleys - Valley Foothills: This unit is comprised of the foothills of the Willamette Valley. The soils are underlain by basalt and sedimentary rock and typically are red and clayey. The vegetation is Douglas-fir and Oregon white oak. The temperature regime is mesic, and the moisture regime is xeric. This unit does not support western hemlock, which is characteristic of the adjacent units in the Coast and Cascade MLRA's.

Physical Description – Continued

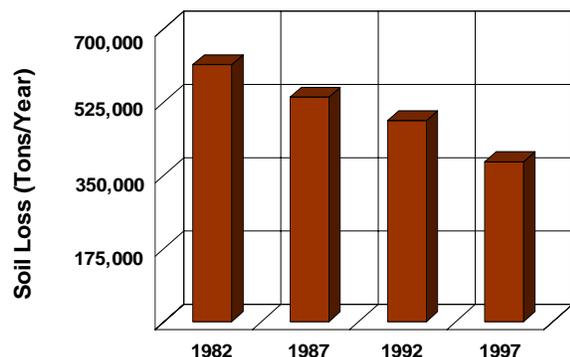
[Back to Contents](#)

		ACRES	ACRE-FEET			
Irrigated Adjudicated Water Rights (OWRD ⁴)	Surface	49,263	124,096			
	Well	9,240	23,276			
	Total Irrigated Adjudicated Water Rights	58,503	147,372			
Stream Flow Data	USGS 14197000 NORTH YAMHILL AT PIKE, OR	Total Avg. Yield	175,012			
		May – Sept. Yield	12,470			
		MILES	PERCENT			
Stream Data ⁵	Total Miles – Major (100K Hydro GIS Layer)	847	---			
	303d/TMDL Listed Streams (DEQ)	440	52%			
	Anadromous Fish Presence (StreamNet)	101	12%			
	Bull Trout Presence (StreamNet)	0	0%			
		ACRES	PERCENT			
Land Cover/Use ² Based on a 100-foot stretch on both sides of all streams in the 100K Hydro GIS Layer	Forest	12,740	62%			
	Grain Crops	607	3%			
	Grass/Pasture/Hay	5,683	28%			
	Orchards/Vineyards	560	3%			
	Row Crops	117	1%			
	Shrub/Rangelands – Includes CRP Lands	168	1%			
	Water/Wetlands/Developed/Barren	598	3%			
	Total Acres of 100-foot Stream Buffers	20,474	---			
Land Capability Class (Croplands & Pasturelands Only) (1997 NRI ³ Estimates for Non-Federal Lands Only)	1 – slight limitations	3,800	2%			
	2 – moderate limitations	68,200	43%			
	3 – severe limitations	45,900	29%			
	4 – very severe limitations	20,300	13%			
	5 – no erosion hazard, but other limitations	0	0%			
	6 – severe limitations; unsuitable for cultivation; limited to pasture, range, forest	21,100	13%			
	7 – very severe limitations; unsuitable for cultivation; limited to grazing, forest, wildlife habitat	0	0%			
	8 – miscellaneous areas; limited to recreation, wildlife habitat, water supply	0	0%			
	Total Croplands & Pasturelands	159,300	---			
Confined Animal Feeding Operations – Oregon CAFO Permit – 12/2004						
Animal Type	Dairy	Feedlot (Cattle)	Poultry	Swine	Mink	Other
No. of Permitted Farms	14	2	6	1	0	1
No. of Permitted Animals	10,768	1,109	1,247,000	400	0	18

Resource Concerns

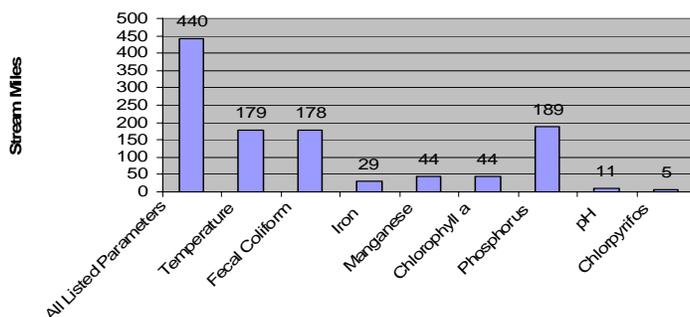
[Back to Contents](#)

Tons of Soil Loss by Water Erosion



- ❖ Sheet and rill erosion by water on the croplands and pasturelands has been reduced by more than 230,000 tons of soil per year from 1982 to 1997. Most of the reduction occurred on steep HEL croplands.
- ❖ NRI estimates indicate that 31,600 acres of agricultural lands still had water erosion rates above a sustainable level in 1997.
- ❖ Controlling erosion not only sustains the long-term productivity of the land, but also affects the amount of soil, pesticides, fertilizer, and other substances that move into the Nation's waters.
- ❖ Through NRCS programs, many farmers and ranchers have applied conservation practices to reduce the effects of erosion by water. As a result, erosion rates on cultivated cropland fell 33 percent, from 4.4 tons/acre/year to 2.9 tons/acre/year from 1982 to 1997.

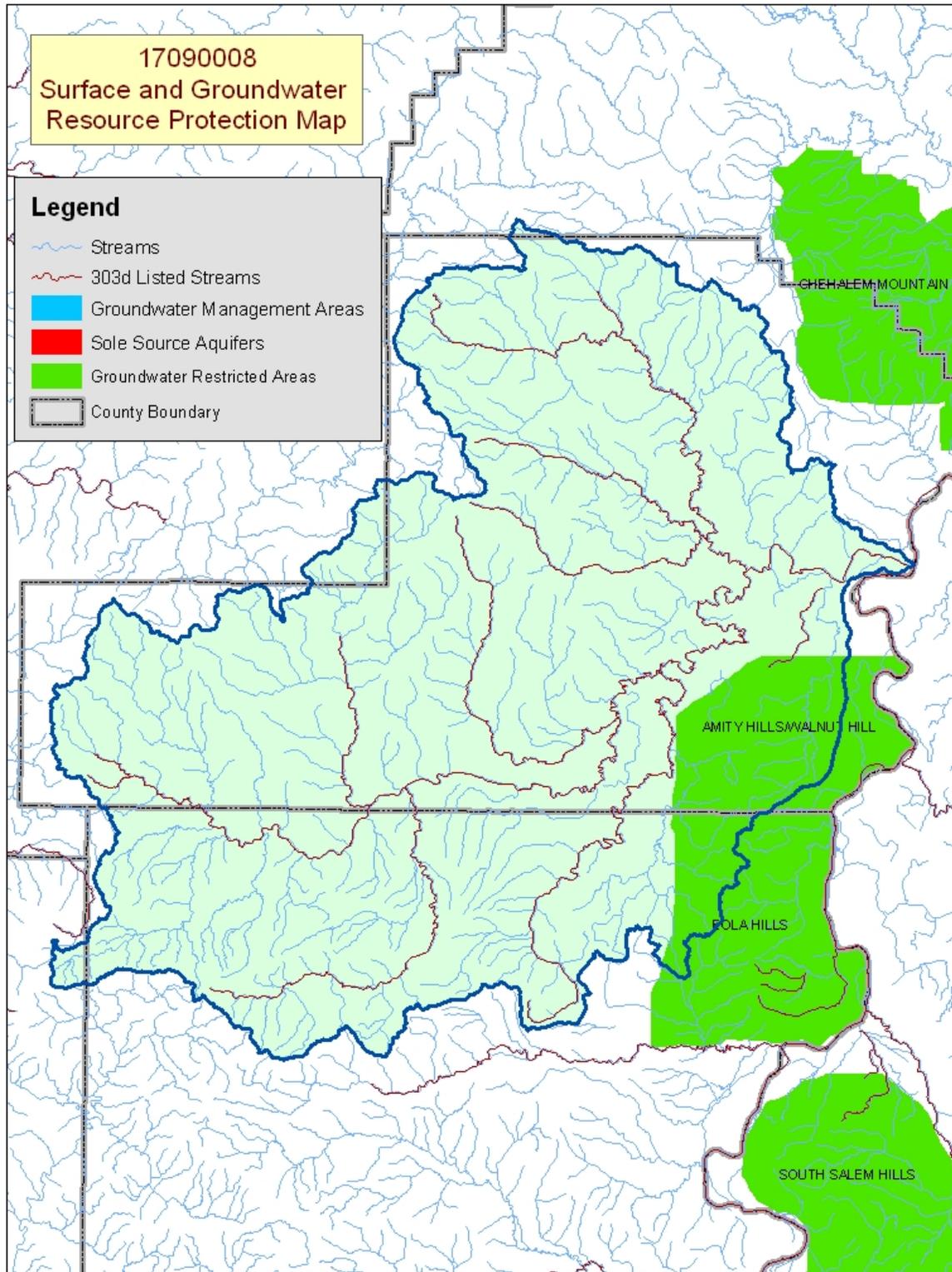
2002 Water Quality Concerns 303d list and TMDL Parameters



- ❖ Forty percent of the listed stream miles exceed State water quality standards for stream temperatures, fecal coliform, and phosphorus.
- ❖ The wide array of other listed water quality parameters are indicative of more intense agricultural uses as well as suburban, urban, and commercial land uses.
- ❖ Conservation practices that can be used to address these water quality issues on agricultural lands include erosion control, irrigation water management, nutrient and pest management, livestock waste management, grazing management, and use of riparian buffers.

Watershed Projects, Plans, Studies, and Assessments			
NRCS Watershed Projects ⁶		NRCS Watershed Plans, Studies, and Assessments ⁷	
Name	Status	Name	Status
None		None	
ODEQ TMDL's ⁸		ODA Agricultural Water Quality Management Plans ⁹	
Name	Status	Name	Status
Yamhill	EPA Approved - 1992	Yamhill	Completed
OWEB Watershed Councils ¹⁰		Watershed Council Assessments ¹¹	
Yamhill Basin Council		North Yamhill River, Chehalem Creek, Lower Yamhill River, Willamina Creek, Lower South Yamhill River/Deer Creek, Salt Creek, Upper South Yamhill River, and Mill Creek	
		NWPCC Subbasin Plans & Assessments ¹⁸	
		Willamette	

(Continued on page 8)



Map Footnote [417](#)

Resource Concerns - Continued

[Back to Contents](#)

Resource Concerns/Issues by Land Use							
SWAPA +H Concerns	Specific Resource Concern/Issue	Grass\Pasture\ Hay	Grain Crops	Row Crops	Perennial Crops (Orch/Vine/ Berries)	Shrub/Range	Forest
Soil Erosion	Sheet and Rill	X	X	X	X		
	Concentrated Flow or Gully (Related to Forest Roads)		X	X	X		
Soil Condition	Tilth, Crusting, Infiltration, Organic Matter	X	X	X			
	Soil Compaction	X	X	X	X		
Soil Contamination	Excess Animal Waste and Other Organic Nutrients	X	X				
	Excess Fertilizers and Pesticides			X	X		
Water Quantity	Ponding and Flooding	X		X			
	Water Management For Irrigated Land	X		X	X		
Water Quality, Groundwater	Pesticides			X			
	Nutrients and Organics	X	X	X	X		
	Pathogens	X					
Water Quality, Surface	Pesticides			X			
	Nutrients and Organics	X	X	X	X		
Plant Suitability	Site & Intended Use Suitability	X					X
Plant Condition	Productivity, Health, and Vigor						
	Noxious and Invasive Plants						X
Plant Management	Establishment, Growth, and Harvest						X
Human, Economics	High Capital/Financial Cost		X	X	X		X
	High Labor Cost or Availability				X		
	High Management Level Required			X	X		
	Low or Unreliable Profitability	X	X				X

Grass/Pasture/Hay

- Pastureland on small farms and ranches presents serious forage and grazing management issues.
- Proper waste management is needed for CAFO operations to avoid water quality problems associated with nutrients and pathogens.
- In suburban areas, odor associated with animal waste is increasingly becoming a contentious issue.
- Grass seed commonly is produced under contract. Nutrient management and erosion control are primary concerns during the years when the seed is being established.

Grain, Row, and Perennial Crops

- Residue, nutrient, and pest management and use of filter strips and buffers are needed to control erosion and protect water quality.

Forest Land

- Invasive species and productivity are concerns on private, non-industrial forest land.
- On non-industrial forest land, landowner objectives commonly do not include actively managing the land for timber production. Land use constraints and a lack of economic incentives further discourage conservation.

FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES ¹²	
THREATENED SPECIES	CANDIDATE SPECIES
Marine – Not listed with the HUC Birds - Marbled murrelet, Bald eagle, Northern spotted owl Fish - Coho salmon (Oregon Coast), Steelhead (Upper Willamette River, Chinook salmon (Upper Willamette River) Invertebrates – Fender's blue butterfly, Oregon silverspot butterfly Plants – Golden Indian paintbrush, Willamette daisy, Howellaia, Bradshaw's lomatium, Kincaid's lupine, Nelson's checker-mallow	Fish - Steelhead (Oregon Coast) Birds – Yellow-billed cuckoo, Streaked horned lark Amphibians and Reptiles – Oregon spotted frog
	PROPOSED SPECIES None
ESSENTIAL FISH HABITAT ¹³ – Chinook	

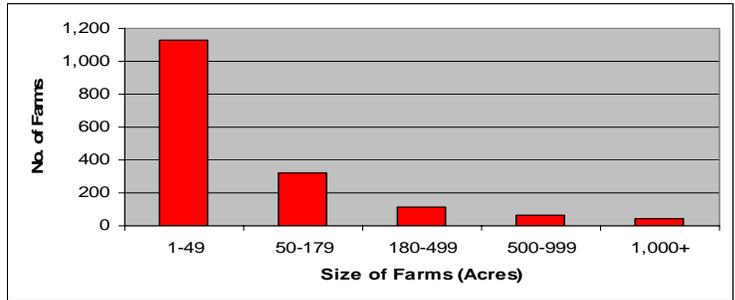
Census and Social Data^{/14}

[Back to Contents](#)

Number of Farms: 1,679

Number of Operators: 2,708

- Full-Time Operators: **840**
- Part-Time Operators: **1,868**



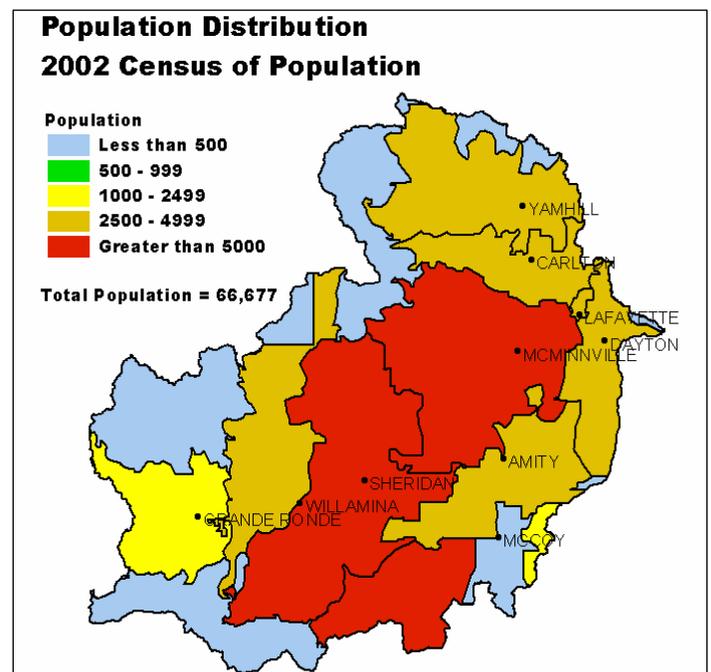
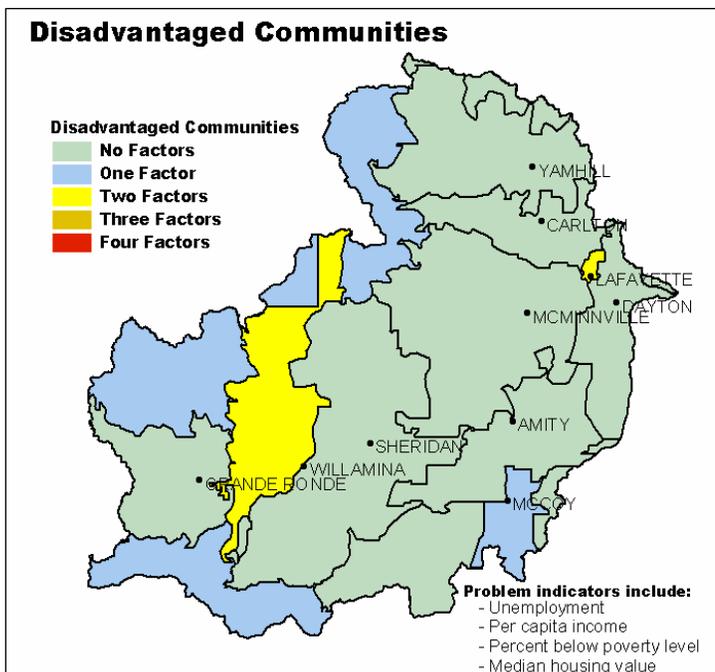
Estimated Level of Willingness and Ability to Participate in Conservation^{/15}:
GENERALLY HIGH

Part-time operators with farms of less than 50 acres, which includes the vast majority of the farmers, need the most time and technical assistance in order to adopt appropriate conservation practices and systems on their land. They need information about local resource problems and appropriate conservation practices or systems and the management skills to adopt conservation practices. This group generally is well educated, has a positive stewardship ethic, and has adequate financial resources.

Other farmers in the watershed are well aware of local resource concerns and, for the most part, know what to do about them. Their greatest need is more timely technical assistance and additional incentives to adopt conservation practices.

Evaluation of Social Capital^{/16}: **MODERATE**

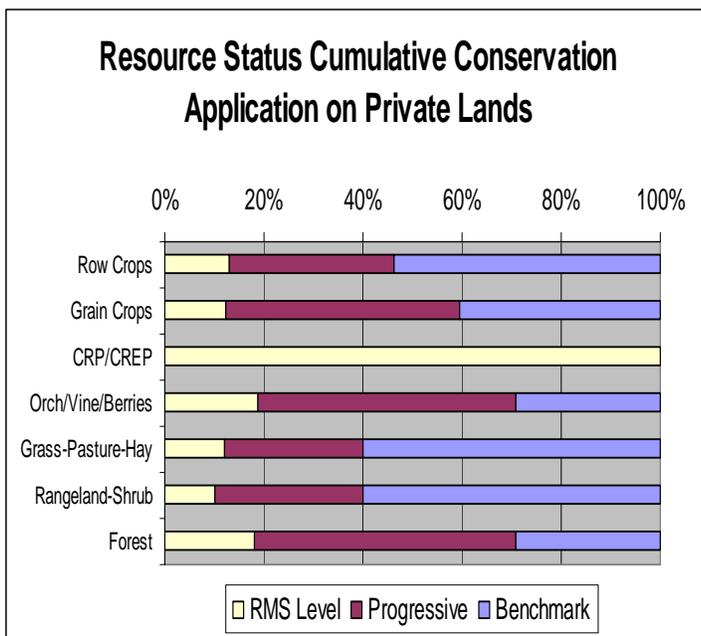
The communities in the watershed generally have adequate human resources (leadership, widespread volunteerism, access to information) to successfully promote conservation and assist landowners in adopting conservation practices and systems. The community and local organizations may be key to successfully motivating small landowners to adopt conservation practices.



Progress/Status

[Back to Contents](#)

PRMS Data	FY99	FY00	FY01	FY02	FY03	Avg/Year	Total
Total Conservation Systems Planned (Acres)	1,401	2,762	806	223	477	1,134	5,669
Total Conservation Systems Applied (Acres)	668	1,554	1,151	1,564	613	792	3,986
Conservation Treatment							
Waste Management (Number)	8	4	3	2	0	3	17
Buffers (Acres)	17	195	43	29	7	58	291
Erosion Control (Acres)	168	84	463	195	225	227	1,135
Irrigation Water Management (Acres)	52	107	117	4	26	61	306
Nutrient Management (Acres)	957	1,307	1,365	535	26	836	4,182
Pest Management (Acres)	1,111	734	459	260	35	520	2,599
Prescribed Grazing (Acres)	455	422	95	147	10	226	1,129
Trees and Shrubs (Acres)	439	126	228	183	26	200	1,002
Conservation Tillage (Acres)	300	429	1,409	0	35	435	2,173
Wildlife Habitat (Acres)	698	501	148	561	328	447	2,236
Wetlands (Acres)	79	24	148	229	55	107	535



(Estimates are based on information received from local conservationists.)

- ❖ Progress over the last five years has been focused on:
 - ~ Nutrient and pest management on CAFOs and cropland.
 - ~ Erosion control on cropland.
 - ~ Wildlife habitat management in riparian and wetland areas.
- ❖ Farmers producing row crops such as corn, beans, and cole crops commonly rely on cannery consultants and fertilizer dealers.
- ❖ Farmers producing perennial crops such as nursery stock and Christmas trees commonly do not seek assistance from NRCS or SWCDs.
- ❖ Much of the pasture that is at the benchmark level is located on small farms.
- ❖ Private industrial forest owners typically do not work with NRCS and SWCDs; however, their land commonly complies with State forest practice requirements.
- ❖ Much of the rangeland and forest land in the watershed is on farms less than 50 acres in size and is not managed for forage or timber. Frequently, this non-industrial private forest land does not comply with the State forest practice requirements.

Lands Removed from Production through Farm Bill Programs

- ❖ Conservation Reserve Program (CRP): **2,165 acres**
- ❖ Wetland Restoration Program (WRP): **850 acres**
- ❖ Conservation Reserve Enhancement Program (CREP): **195 acres**

Footnotes/Bibliography

[Back to Contents](#)

All data is provided "as is." There are no warranties, express or implied, including the warranty of fitness for a particular purpose, accompanying this document. Use for general planning purposes only.

1. Ownership Layer – Source: The 1:24,000 scale public ownership layer is the land ownership/management for public entities, including Federal, Tribal, State, and local entities. This is a seamless, statewide Oregon Public Ownership vector layer composed of fee ownership of lands by Federal, State, Tribal, county, and city agencies. The layer is comprised of the best available data compiled at 1:24,000 scale or larger, and the line work matches GCDB boundary locations and ORMAP standards where possible. The layer is available from the State of Oregon GIS Service Center: <http://www.gis.state.or.us/data/alphalist.html>. For current ownership status, consult official records at appropriate Federal, State, and county offices. Ownership classes grouped to calculate Federal ownership vs. non-Federal ownership by the Water Resources Planning Team.
2. National Land Cover Dataset (NLCD) - Originator: U.S. Geological Survey (USGS); Publication date: 19990631; Title: Oregon Land Cover Data Set, Edition: 1; Geospatial data presentation form: Raster digital data; Publisher: U.S. Geological Survey, Sioux Falls, SD, USA; Online linkage: <http://edcwww.cr.usgs.gov/programs/lccp/nationallandcover.html>; Abstract: These data can be used in a geographic information system (GIS) for any number of purposes, such as assessing wildlife habitat, water quality, pesticide runoff, land use change, etc. The State data sets are provided with a 300-meter buffer beyond the State border to facilitate combining the State files into larger regions.
3. ESTIMATES FROM THE 1997 NRI DATABASE (REVISED DECEMBER 2000) REPLACE ALL PREVIOUS REPORTS AND ESTIMATES. Comparisons made using data published for the 1982, 1987, or 1992 NRI may produce erroneous results. This is because of changes in statistical estimation protocols and because all data collected prior to 1997 were simultaneously reviewed (edited) as 1997 NRI data were collected. All definitions are available in the glossary. In addition, this December 2000 revision of the 1997 NRI data updates information released in December 1999 and corrects a computer error discovered in March 2000. For more information: <http://www.nrcs.usda.gov/technical/NRI/>
4. Irrigated Adjudicated Water Rights – Water Rights Information System (WRIS), Oregon Water Resources Department, <http://www.wrd.state.or.us/maps/wlexport.shtml>
5. StreamNet is a cooperative venture of the Pacific Northwest's fish and wildlife agencies and tribes and is administered by the [Pacific States Marine Fisheries Commission](#). StreamNet provided data and data services in support of the region's fish and wildlife program and other efforts to manage and restore the region's aquatic resources. Official StreamNet website: <http://www.streamnet.org/>
6. Natural Resources Conservation Service, Watershed Projects Planned and Authorized, <http://www.nrcs.usda.gov/programs/watershed/Purpose>.
7. Natural Resources Conservation Service, Watershed Plans, Studies, and Assessments completed, http://www.nrcs.usda.gov/programs/watershed/Surveys_Plng.html#Watershed%20Surveys%20and%20Plan
8. Oregon Department of Environmental Quality Total Maximum Daily Loads, <http://www.deq.state.or.us/wq/TMDLs/TMDLs.htm>
9. Oregon Department of Agriculture, Agricultural Water Quality Management Plans, http://www.oregon.gov/ODA/NRD/water_agplans.shtml

Footnotes/Bibliography Continued

[Back to Contents](#)

All data is provided "as is." There are no warranties, express or implied, including the warranty of fitness for a particular purpose, accompanying this document. Use for general planning purposes only.

10. Oregon Watershed Enhancement Board, <http://oregon.gov/OWEB/WSHEDS/index.shtml>
11. Watershed Assessments completed by local watershed councils following the Oregon Watershed Assessment Manual, http://oregon.gov/OWEB/docs/pubs/ws_assess_manual.shtml.
12. NRCS Field Office Technical Guide, Section II, Threatened and Endangered List.
13. Magnuson-Stevens Fishery Conservation and Management Act, Public Law 94-265. As amended through October 11, 1996.
14. Data were taken from the 2002 Agricultural Census and adjusted by percent of HUC in the county or by percent of zip code area in the HUC, depending on the level of data available. Data were also taken from the U.S. Population Census, 2000.
15. Conservation participation was estimated using NRCS Social Sciences Technical Note 1801, [Guide for Estimating Participation in Conservation](#), 2004. Four categories of indicators were evaluated: Personal characteristics, farm structural characteristics, perceptions of conservation, and community context. Estimates are based on information received from local conservationists in the watershed.
16. Social capital is an indicator of the community's ability and willingness to work together to solve problems. A high amount of social capital helps a community to be physically healthy, socially progressive, and economically vigorous. A low amount of social capital typically results in community conflict, lack of trust and respect, and unsuccessful attempts to solve problems. The evaluation is based on NRCS Technical Report Release 4.1, March, 2002: [Adding Up Social Capital: An Investment in Communities](#). Local conservationists provided information to measure social capital. Scores range from 0 to 76.
17. [Surface and Groundwater Resource Protection Map](#)
 - a. 2002 303d Listed Streams designated by Oregon Department of Environmental Quality and approved by the Environmental Protection Agency, Section 303d Clean Water Act, <http://www.deq.state.or.us/wq/303dlist/303dpage.htm>
 - b. Groundwater Management Areas designated by the Oregon Department of Environmental Quality, Oregon Revised Statutes – Ground Water ORS 468B.150 to ORS 468B.190, <http://www.deq.state.or.us/wq/groundwa/wqgw.htm>
 - c. Groundwater Restricted Areas designated by Oregon Water Resources Commission, Oregon Department of Water Resources, http://egov.oregon.gov/OWRD/PUBS/aquabook_protections.shtml
 - d. The Sole Source Aquifer (SSA) Protection Program is authorized by Section 1424(e) of the Safe Drinking Water Act of 1974 (Public Law 93-523, 42 U.S.C. 300 et. seq), <http://www.epa.gov/safewater/ssanp.html>
18. Subbasin assessments and plans are developed by local groups (SWCDs, watershed councils, tribes, and others) as part of the Northwest Power and Conservation Council's fish and wildlife program in the Columbia River Basin. This program is funded and implemented by the Bonneville Power Administration. <http://www.nwcouncil.org/fw/subbasinplanning/Default.htm>.