Sixes - 17100306

8-Digit Hydrologic Unit Profile

FINAL

SWCD	Acres
Curry	256,016
Coos	43,549

Introduction

The Sixes 8-Digit Hydrologic Unit Code (HUC) subbasin is comprised of approximately 300,000 acres. Eighty-five percent of the subbasin is in Curry County, and the remainder is in Coos County. There are 251 farms in the subbasin. Approximately one-half of the farms are less than 50 acres in size.

The Sixes subbasin, in southwestern Oregon, is dominantly forest land (91 percent), the majority of which is under private ownership. The remaining land is used for pasture, rangeland, and some orchards and vineyards. The majority of the population lives in towns along the Pacific Coast.

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

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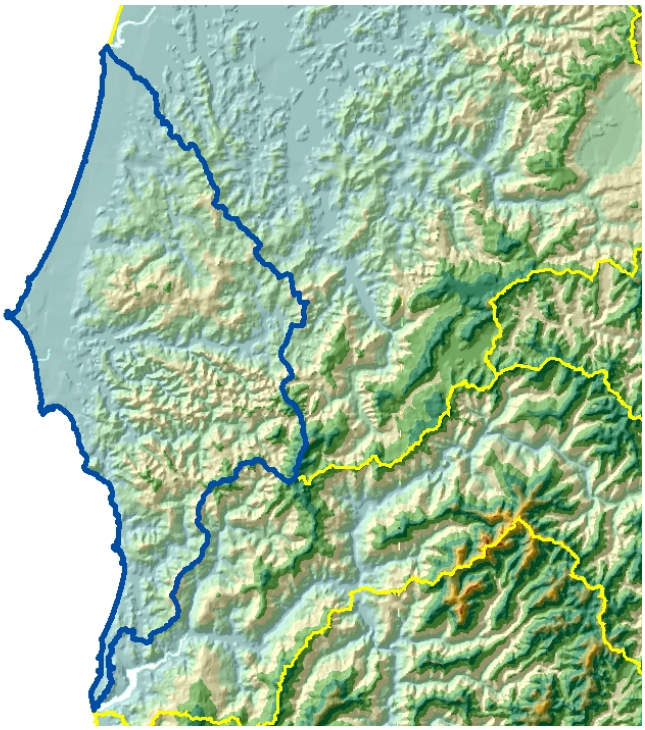

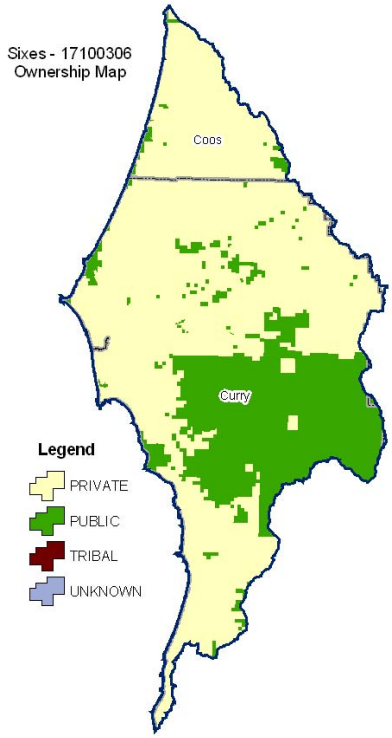

Produced by the Water Resources Planning Team Portland, OR

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Physical Description

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Land Cover/Land Use (NLCD[12])	Ownership - (2003 Draft BLM Surface Map Set[11])							
	Public		Private		Tribal		Totals	%
	Acres	%	Acres	%	Acres	%		
Forest	83,000	28%	187,900	63%	0	0%	271,000	91%
Grain Crops	0	0%	0	0%	0	0%	0	0%
Conservation Reserve Program Land [a]	0	0%	*	---	0	0%	*	---
Grass/Pasture/Hay	*	---	19,900	7%	0	0%	21,000	7%
Orchards/Vineyards/Berries	*	---	*	---	0	0%	*	---
Row Crops	0	0%	0	0%	0	0%	0	0%
Shrub/Rangelands	*	---	*	---	0	0%	*	---
Water/Wetlands/Developed/Barren	*	---	4,200	1%	0	0%	5,900	2%
Oregon HUC Totals [b]	**84,900**	**28%**	**213,600**	**71%**	**0**	**0%**	**299,600**	**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:

- Approximately 900 acres of cranberries (orchard/vineyard/berry crops) are grown in the hydrologic unit (field office estimate).
- Pasture and hay is grown on land used for dairy and beef operations as well as on small farms.
- Thirty-nine percent of the private forest land is under industrial ownership and management, and sixty-one percent is under non-industrial ownership.
- As of December 2004, 301 acres of streamside pasture have been enrolled in the Conservation Reserve Enhancement Program (CREP).

Irrigated Lands (1997 NRI[13] Estimates for Non-Federal Lands Only)	Type of Land	ACRES	% of Irrigated Lands	% of HUC
	Cultivated Cropland	0	0%	0%
	Uncultivated Cropland	3,800	58%	1%
	Pastureland	2,700	42%	1%
	Total Irrigated Lands	**6,500**	**100%**	**2%**

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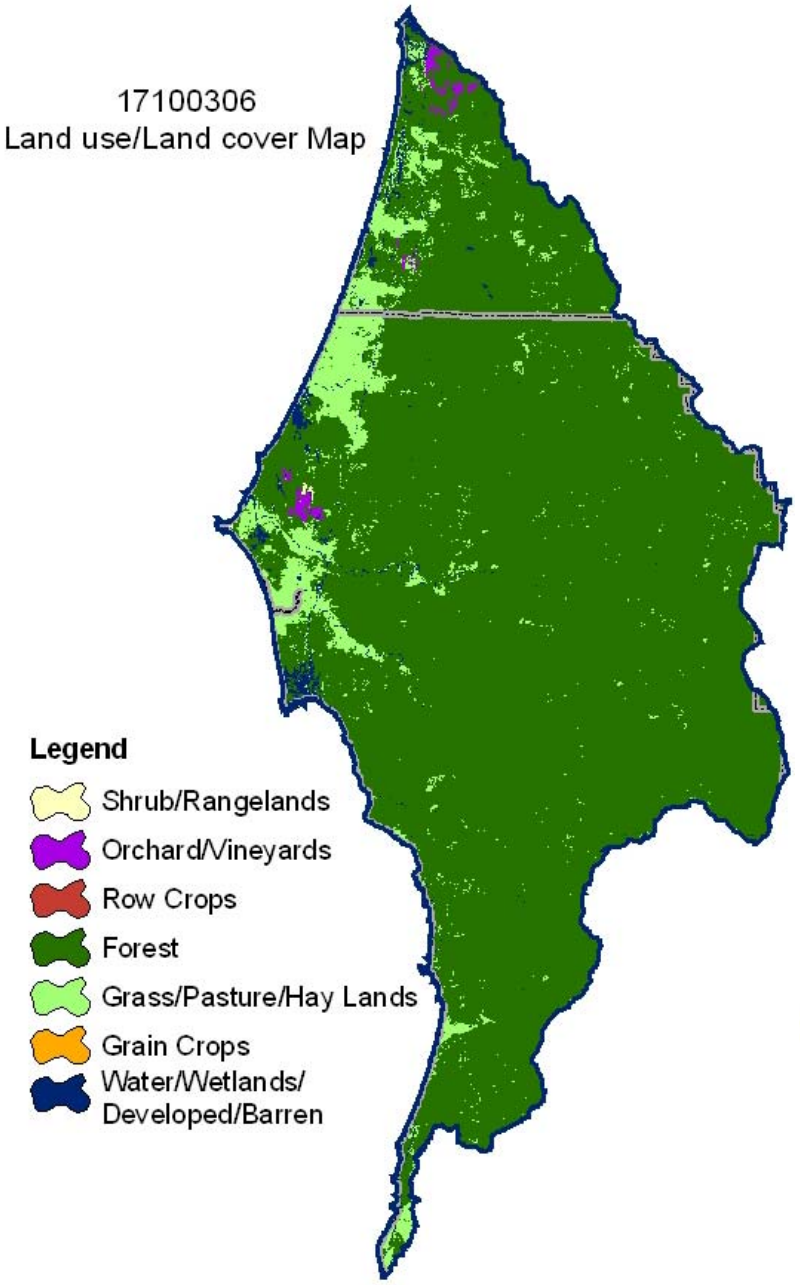

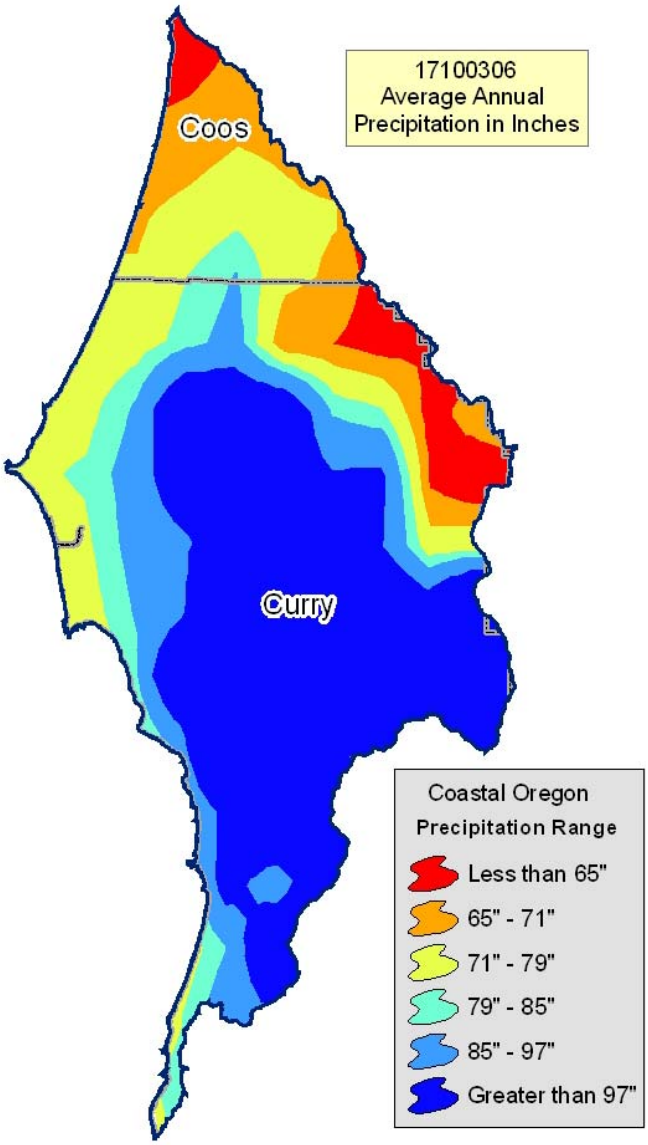

Common Resource Area Map

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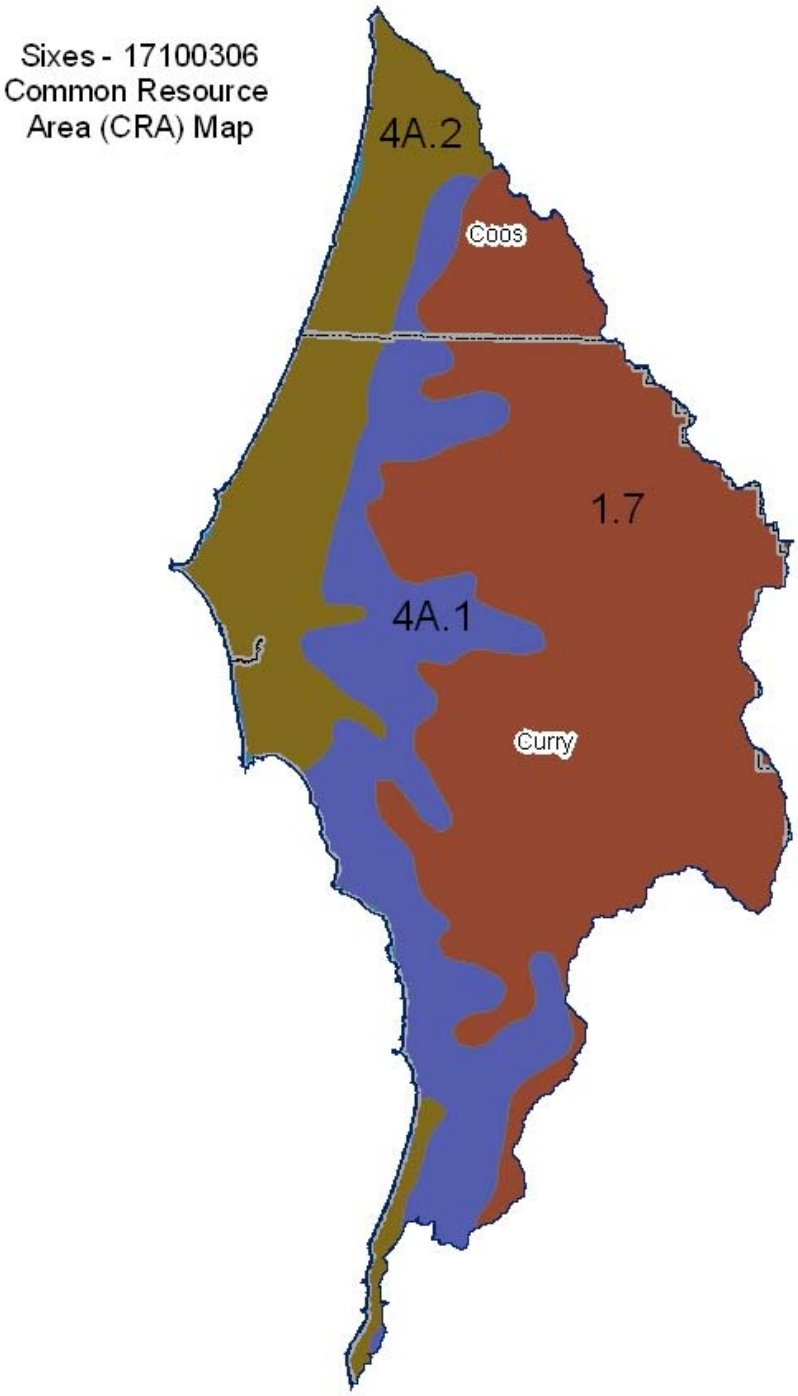
Only the major units are described below - for descriptions of all units within the HUC, go to: http://ice.or.nrcs.usda.gov/website/cra/viewer.htm



1.7 - Northern Pacific Coast Range, Foothills, and Valleys - Southern Oregon Coastal Mountains: This unit is comprised of mountains that typically have sedimentary bedrock and are outside of the "fogbelt." The temperature regime is mesic, and the moisture regime is udic. Sitka spruce is absent. The dominant vegetation is Douglas-fir, western hemlock, and tanoak. The presence of tanoak separates this unit from unit 1.6, and the presence of western hemlock separates this unit from unit 5.29.

4A.1 - Sitka Spruce Belt - Coastal Sedimentary Uplands: This unit is comprised of mountains that have sedimentary bedrock and are in the "fogbelt." The temperature regime is isomesic, and the moisture regime is udic. Sitka spruce is present, and it separates this unit from unit 1.1.

4A.2 - Sitka Spruce Belt - Coastal Lowlands: This unit is comprised of marine terraces, diked and undiked flood plains, and estuaries. The temperature regime is isomesic, and the moisture regime is udic.

Physical Description – Continued

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		ACRES	ACRE-FEET
Irrigated Adjudicated Water Rights *(OWRD[4])*	Surface	6,255	17,423
	Well	468	1,303
	Total Irrigated Adjudicated Water Rights	6,722	18,726
Stream Flow Data	USGS 14327150 SIXES RIVER, AT SIXES, OR	**Total Avg. Yield**	500,518
		May – Sept. Yield	26,189
		MILES	**PERCENT**
Stream Data[5] **Percent of Total Miles of Streams in HUC*	Total Miles – Major (100K Hydro GIS Layer)	536	---
	303d/TMDL Listed Streams (DEQ)	127	24%
	Anadramous Fish Presence (StreamNet)	86	16%
	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	9,918	80%
	Grain Crops	0	0%
	Grass/Pasture/Hay	1,133	9%
	Orchards/Vineyards	33	0%
	Row Crops	0	0%
	Shrub/Rangelands – Includes CRP Lands	39	0%
	Water/Wetlands/Developed/Barren	1,247	10%
	Total Acres of 100-foot Stream Buffers	**12,370**	**---**
Land Capability Class *(Croplands & Pasturelands Only)* *(1997 NRI[3] Estimates for Non-Federal Lands Only)*	**1** – slight limitations	0	0%
	2 – moderate limitations	2,000	4%
	3 – severe limitations	26,700	50%
	4 – very severe limitations	7,600	14%
	5 – no erosion hazard, but other limitations	0	0%
	6 – severe limitations; unsuitable for cultivation; limited to pasture, range, forest	11,700	22%
	7 – very severe limitations; unsuitable for cultivation; limited to grazing, forest, wildlife habitat	5,000	9%
	8 – miscellaneous areas; limited to recreation, wildlife habitat, water supply	0	0%
	Total Croplands & Pasturelands	**53,000**	**---**

Confined Animal Feeding Operations – Oregon CAFO Permit – 12/2004

Animal Type	Dairy	Feedlot	Poultry	Swine	Mink	Other
No. of Permitted Farms	2	0	0	0	0	1
No. of Permitted Animals	174	0	0	0	0	10,500

Resource Concerns

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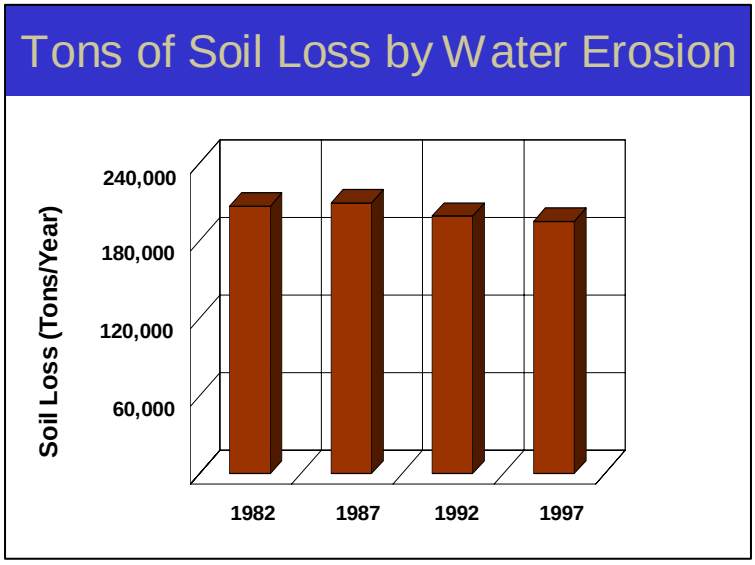
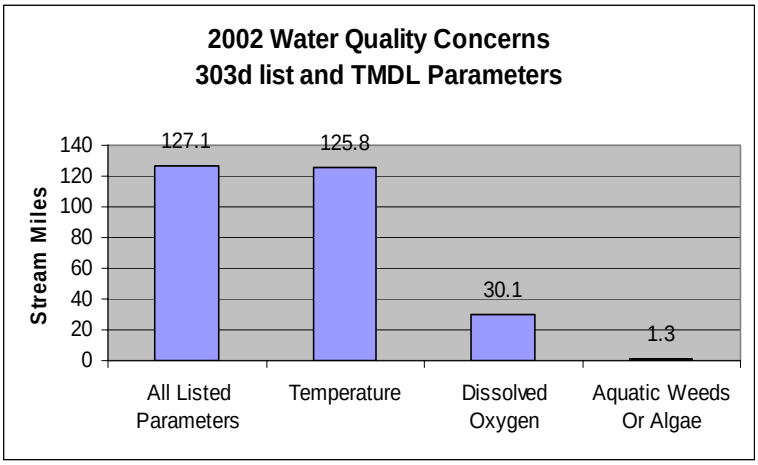


- Sheet and rill erosion by water on croplands and pasturelands has been reduced by nearly 12,000 tons of soil per year from 1982 to 1997.
- NRI estimates indicate that 8,700 acres of the agricultural lands had water erosion rates above a sustainable level in 1997.
- Controlling erosion not only sustains the long-term productivity of the land, but it 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 croplands and pasturelands fell 10 percent, from 4.1 tons/acre/year to 3.7 tons/acre/year, from 1982 to 1997.



- Almost all the listed stream miles exceed State water quality standards for temperature. Elevated stream temperatures may be due to inadequate riparian shade, stream channel widening, warm irrigation return flows, and other anthropogenic or natural causes.
- Conservation practices that can be used to address these water quality issues include 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
Garrison Lake	EPA Approved – 1995	Coos-Coquille Curry	Completed Completed

OWEB Watershed Councils[10]	Watershed Council Assessments[11]	NWPCC Subbasin Plans & Assessments[18]
South Coast Coordinating, Elk/Sixes River, Euchre Creek, Floras Creek/New River, and Port Orford Watershed Councils	Elk River, Euchre Creek, Floras Creek, Port Orford, and Sixes River Watershed Assessments	Not Applicable

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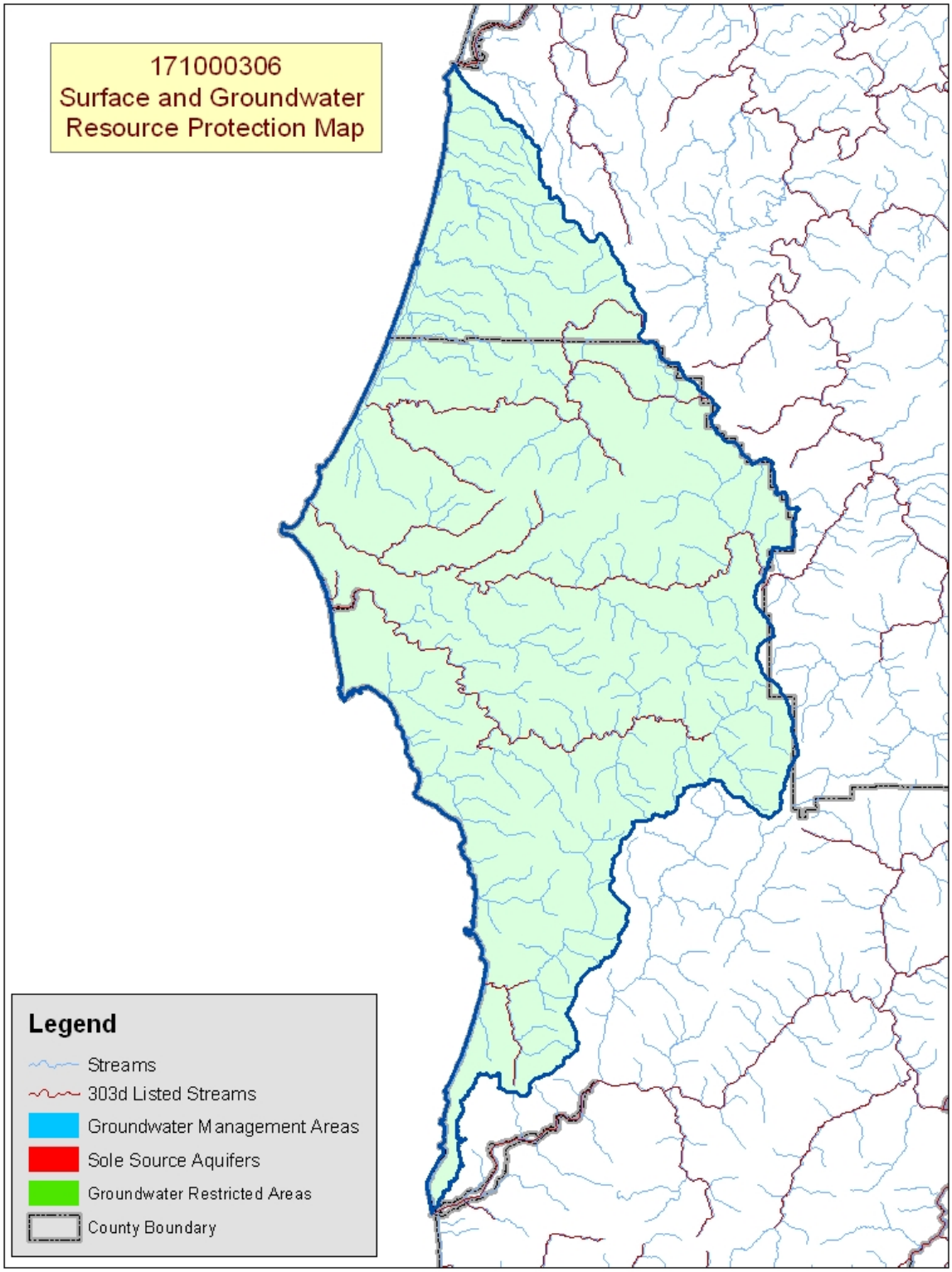

Map Footnote [17]

Resource Concerns – Continued

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Resource Concerns / Issues by Land Use							
SWAPA +H Concerns	**Specific Resource Concern / Issue**	**Pasture \ Hay**	**Grain Crops**	**Row Crops**	**Orchards / Vnyrd**	**Shrub / Range**	**Forest**
Soil Erosion	Concentrated Flow or Gully						X
	Streambank	X					
	Soil Mass Movement	X					
Water Quantity	Water Management For Irrigated Land				X		
Water Quality, Surface	Nutrients and Organics				X		
	Suspended Sediments and Turbidity						X
	Temperature	X					
Plant Condition	Productivity, Health, and Vigor	X			X		
Plant Management	Establishment, Growth, and Harvest						X
Human, Economics	High Risk & Uncertainty						X
	High Capital/Financial Cost				X		X
	High Management Level Required	X					
	Low or Unreliable Profitability				X		

Grass / Pasture / Hay

- Erosion (streambanks) and water quality (temperature) are concerns commonly because of a lack of riparian buffers.
- Insufficient forage and grazing management contributes to low-producing pastures.
- The level of management needed for high-quality pastures commonly is not an objective of small operators.

Cranberries (Orchards / Vineyards / Berries)

- The primary resource concerns are adequate water for the cranberry bogs and runoff of nutrients.
- In recent years, complex management and low profit have impeded the adoption of conservation systems and practices among cranberry growers.

Forest Land (Private, Non-industrial)

- The primary resource concern is the impact on fish and wildlife of erosion from concentrated flows on roads and landings.
- Conservation on private, non-industrial forest land is limited as a result of:
  - Short growth cycle (40 to 60 years) for harvestable timber.
  - High capital cost to establish and manage timber.
  - Various market risks.
  - Environmental uncertainties.

FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES[12]	
THREATENED SPECIES	**CANDIDATE SPECIES**
Birds - Marbled murrelet, Western snowy plover (coastal), Bald eagle, Brown pelican, Short-tailed albatross, Northern spotted owl **Fish -** Coho salmon (Oregon Coast), Coho salmon (S. Oregon/N. Calif. Coast)	**Fish** - Steelhead (Oregon Coast), Steelhead (Klamath Mountains Province)
Plants - Western lily, McDonald's rockcress, Gentner's fritillary, Cook's lomatium	**PROPOSED SPECIES** None
ESSENTIAL FISH HABITAT[13] - Coho, Chinook	

Census and Social Data[14]

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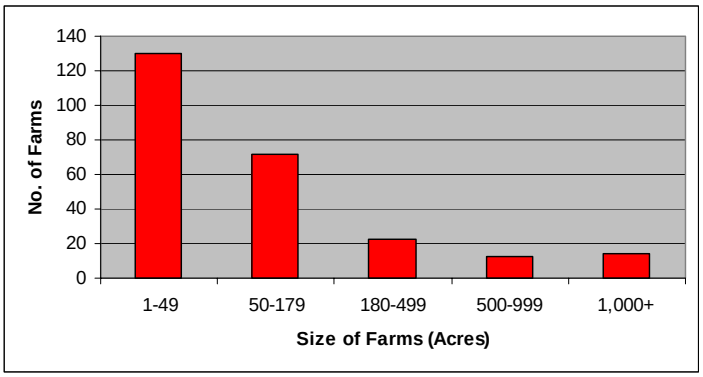
Number of Farms: 251

Number of Operators: 437

- Full-Time Operators: **156**
- Part-Time Operators: **281**

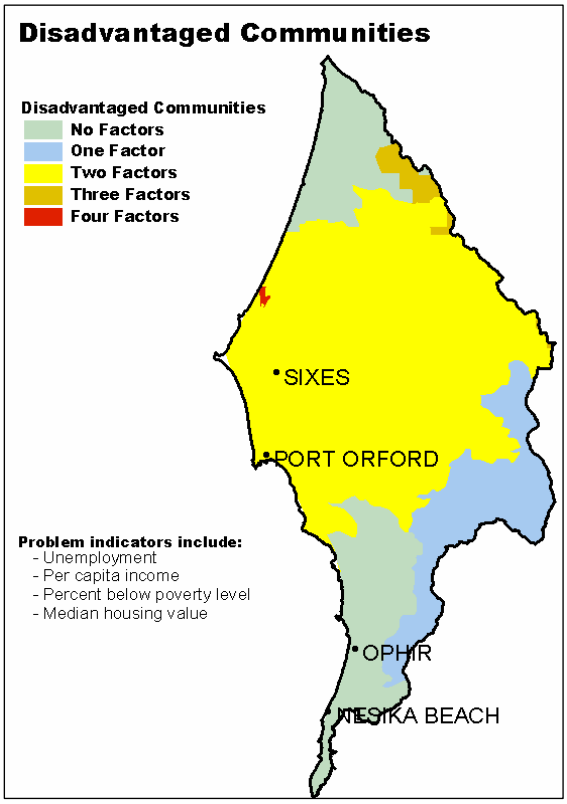


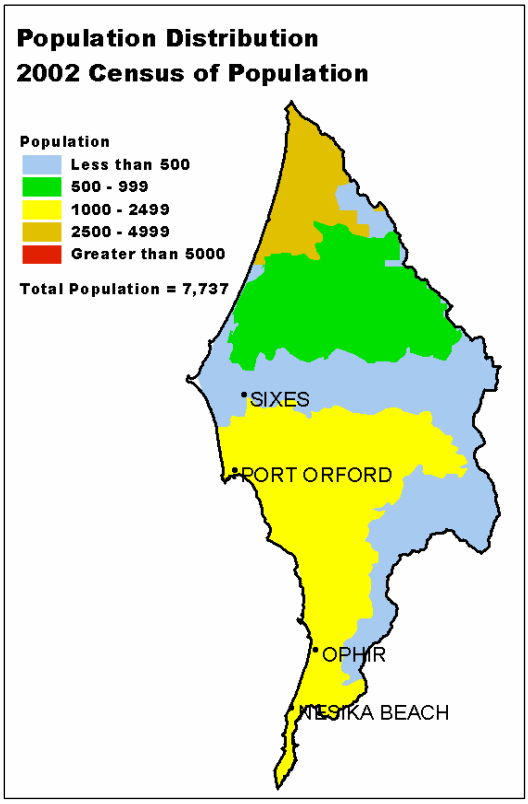
Estimated Level of Willingness and Ability to Participate in Conservation[15]: High

Evaluation of Social Capital[16]: Moderate

Adoption of conservation systems by individual landowners in the Sixes watershed is estimated to be high. The landowners in the area tend to be full-time operators that intend to keep their land in the family, are aware of resource problems, have a positive stewardship attitude, and have a history of conservation. Increasing adoption of conservation practices may be possible by increasing financial assistance.

There are few communities in the watershed; however, the population has a history of coming together to solve local problems. When necessary, effective leaders have emerged and there is widespread public participation. The community may accelerate conservation in the watershed by expanding relationships with conservation-oriented groups, organizations, and government agencies.





Progress / Status

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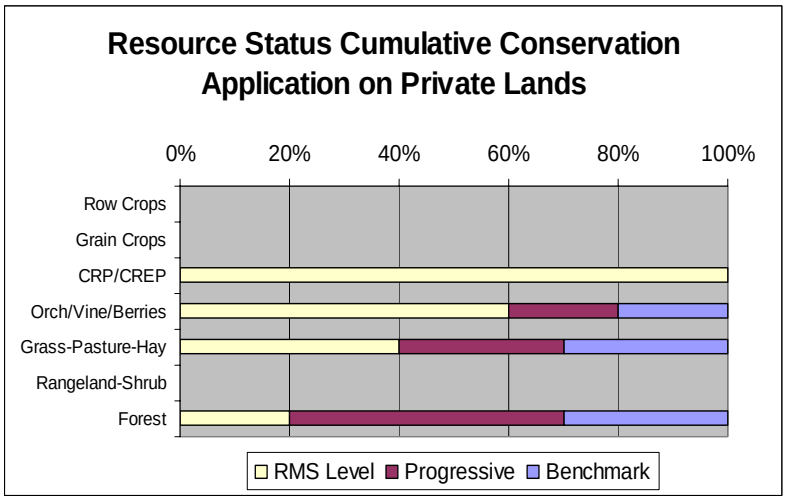
PRMS Data	FY99	FY00	FY01	FY02	FY03	Avg / Year	Total
Total Conservation Systems Planned (Acres)	1,241	3,604	1,357	1,284	1,358	1,769	8,844
Total Conservation Systems Applied (Acres)	494	104	128	486	429	328	1,641
Conservation Treatment							
Waste Management (Number)	0	0	0	0	0	0	0
Riparian Forest Buffers (Acres)	0	3	0	58	23	17	84
Erosion Control (Acres)	103	0	0	2	0	21	105
Irrigation Water Management (Acres)	0	0	165	0	0	33	165
Nutrient Management (Acres)	438	559	437	242	0	335	1,675
Pest Management (Acres)	0	165	165	0	0	66	330
Prescribed Grazing (Acres)	438	0	857	1093	429	563	2,817
Trees and Shrubs (Acres)	3	58	0	10	23	19	94
Conservation Tillage (Acres)	0	0	0	0	0	0	0
Wildlife Habitat (Acres)	52	137	0	775	71	207	1,035
Wetlands (Acres)	0	0	0	0	0	0	0



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

- Progress over the last five years has been focused on:
  - Nutrient management.
  - Prescribed grazing.
  - Wildlife habitat management.
- Additional conservation activity in areas of cranberries has been restricted in recent years by the high level of management needed and low profit.
- High risk and low profitability restrict use of additional conservation on small livestock farms.
- Private industrial forest landowners typically do not work with NRCS and SWCDs; however, their land commonly complies with State forest practice requirements.
- Some non-industrial private forest land does not comply with State forest practice requirements.

Lands Removed from Production through Farm Bill Programs

- Conservation Reserve Program (CRP): **none**
- Wetland Restoration Program (WRP): **none**
- Conservation Reserve Enhancement Program (CREP): **301 acres**

Footnotes/Bibliography

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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/wrexport.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

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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.