

### Introduction



Hells Canyon 8-Digit Hydrologic Unit Code (HUC) watershed is 348,179 acres. One-third of it is in the extreme Northeast Oregon, the remainder is in Idaho. The entire Oregon portion of the watershed is publicly owned. There are no known farms or ranches present on privately owned land. Some public land is leased for grazing.

The Snake Basin has four USDA-NRCS Service Centers and seven Soil and Water Conservation Districts (SWCD).

Trees, grass, or shrubs cover ninety-nine percent of the in the Oregon part of the Hells Canyon watershed. The Snake River bisects of the watershed. Hells Canyon National Recreation and Wilderness areas are the dominant feature in the area. The management policies of these areas dictate landuse in Hells Canyon.

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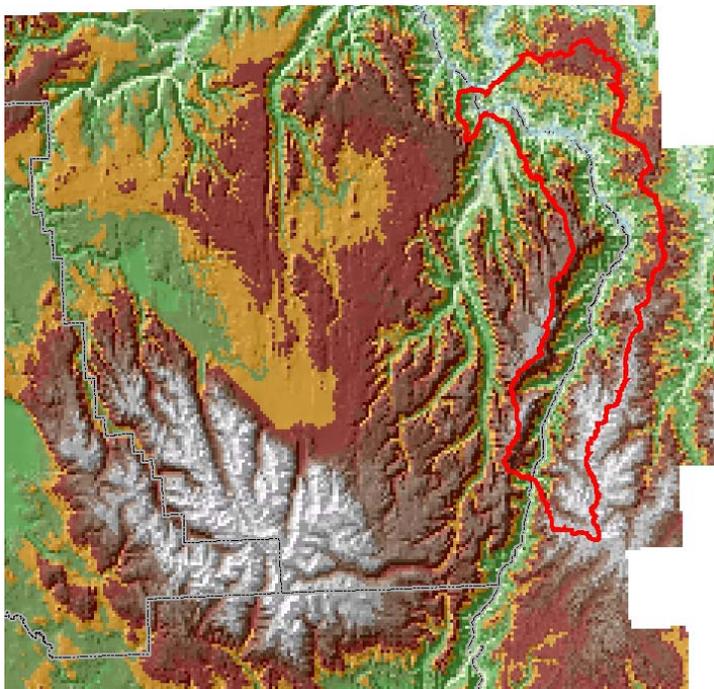
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### Relief Map



### Physical Description

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**ALL NUMBERS WITHIN THIS PROFILE ARE FOR OREGON ONLY**

Land Cover/Land Use (NLCD <sup>2</sup> )	Ownership - (2003 Draft BLM Surface Map Set <sup>1</sup> )						Totals	%
	Public		Private		Tribal			
	Acres	%	Acres	%	Acres	%		
Forest	32,100	26%	*	--	0	0%	32,300	26%
Grain Crops	*	--	0	0%	0	0%	*	--
Conservation Reserve Program Land <sup>a</sup>	0	0%	0	0%	0	0%	*	--
Grass/Pasture/Hay Lands	57,600	46%	*	--	0	0%	59,700	48%
Orchards/Vineyards	*	--	0	0%	0	0%	0	0%
Row Crops	*	--	0	0%	0	0%	0	0%
Shrub/Rangelands	31,200	25%	*	--	0	0%	32,100	26%
Water/Wetlands/Developed/Barren	*	--	*	--	0	0%	*	--
<b>Oregon HUC Totals <sup>b</sup></b>	<b>121,700</b>	<b>97%</b>	<b>*</b>	<b>--</b>	<b>0</b>	<b>0%</b>	<b>125,000</b>	<b>100%</b>

\*: Too few acres to report.

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

b: Totals may not add due to rounding and small unknown acreages.

#### **Special Considerations for this 8 Digit HUC:**

- ~ The Oregon portion of the Hells Canyon hydrologic unit includes only a very small, unaccountable amount of private land.
- ~ The private land in Oregon portion consists primarily of small in-holdings in the Hells Canyon National Recreational Area.
- ~ No known farms or ranches are present. However, some ranchers do have grazing allotments on public lands.

Irrigated Lands (1997 NRI <sup>3</sup> Estimates for Non-Federal Lands Only)	Type of Land	ACRES	% of Irrigated Lands	% of HUC
	Cultivated Cropland	0	--	--
	Non-Cultivated Cropland	0	--	--
	Pastureland	0	--	--
	<b>Total Irrigated Lands</b>	<b>0</b>	<b>--</b>	<b>--</b>

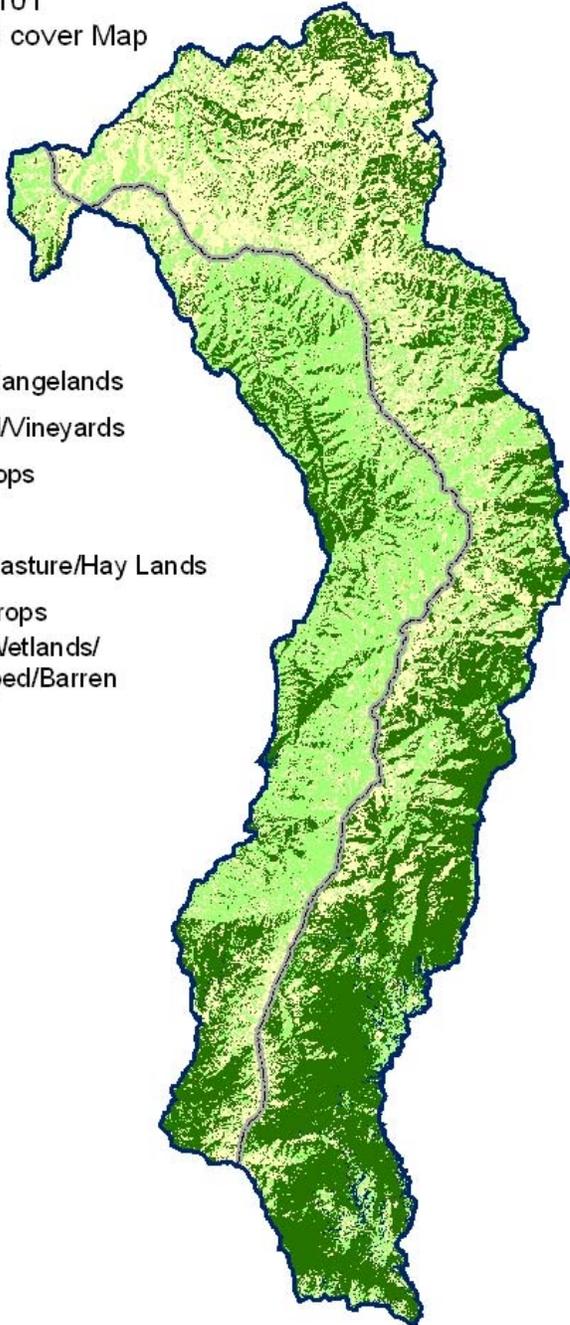
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17060101  
Land use/Land cover Map

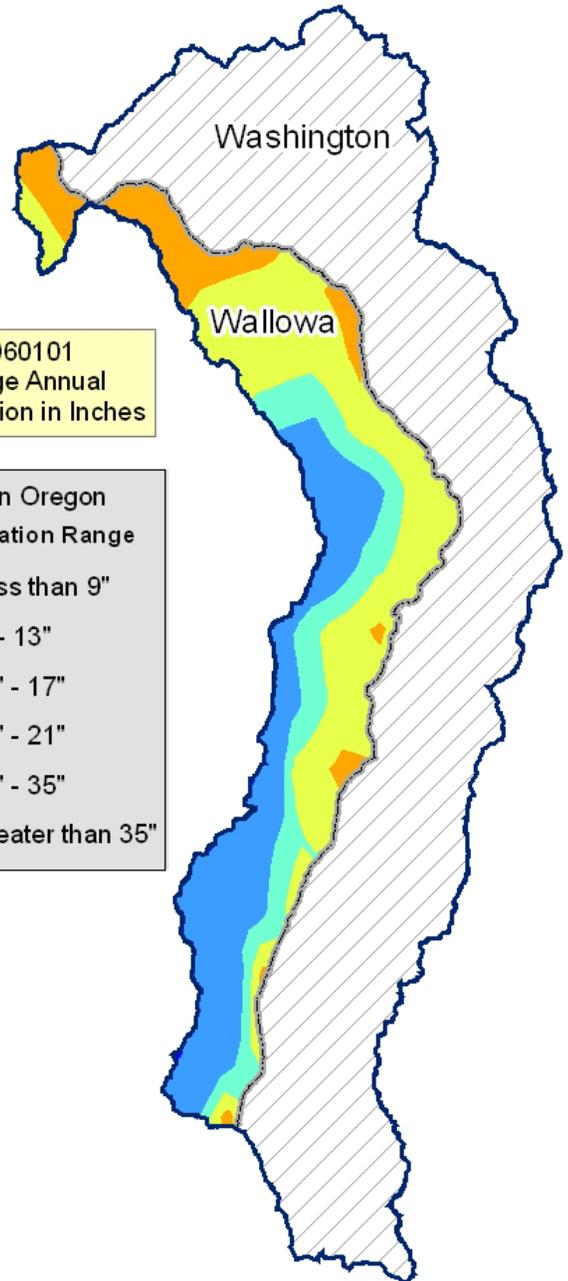
**Legend**

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



17060101  
Average Annual  
Precipitation in Inches

- Eastern Oregon  
Precipitation Range**
-  Less than 9"
  -  9" - 13"
  -  13" - 17"
  -  17" - 21"
  -  21" - 35"
  -  Greater than 35"

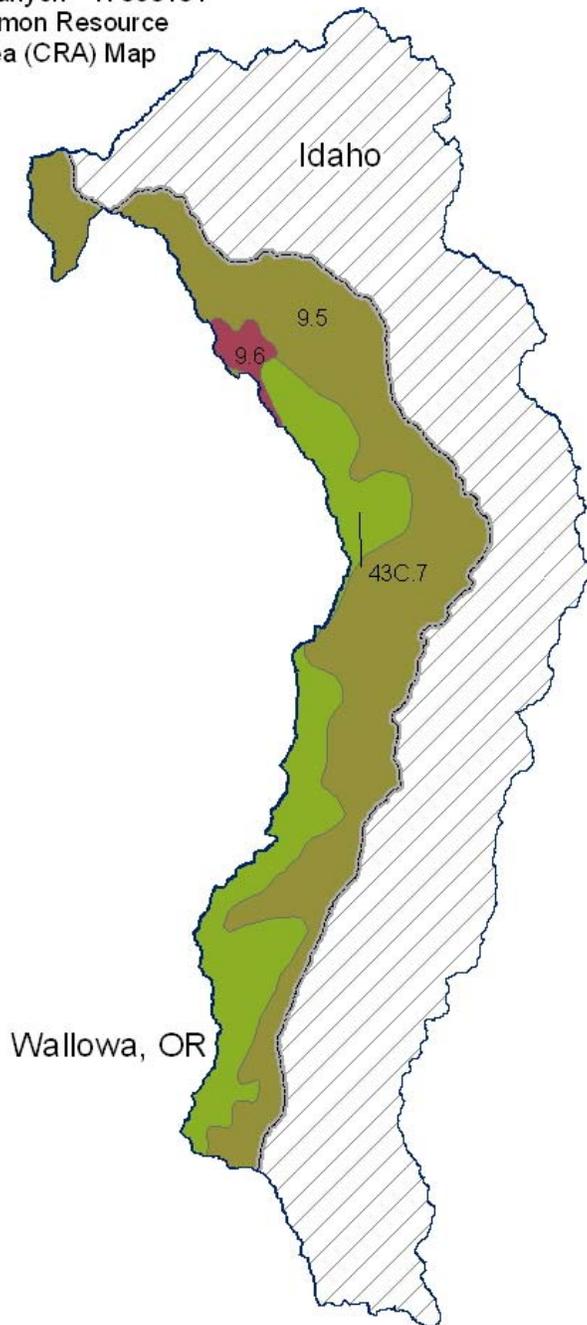


Common Resource Area Map

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CRA Map - areas with a majority are listed below - for descriptions of every class within the HUC, go to: <http://ice.or.nrcs.usda.gov/website/cra/viewer.htm>

Hells Canyon - 17060101  
Common Resource  
Area (CRA) Map



**9.5 - Palouse and Nez Perce Prairies - Warm Canyons and Dissected Uplands:** This unit is characterized by deep river canyons that divide the Blue Mountains from the Rocky Mountains. The Snake, Salmon, and Grande Ronde Rivers and their tributaries have cut the Columbia Plateau to depths of 2,000 to 5,000 feet through metasedimentary and metavolcanic rock. Canyon depth and the exposed metamorphic rocks result in stony soils on canyon slopes that retain little moisture. The dominant soils are Dixiejett and Licksillet soil series. Temperature regime is mesic and the moisture regime is xeric and aridic. Mean annual precipitation is 12 to 16 inches. Bluebunch wheatgrass, Sandberg's bluegrass, and spiny greenbush are adapted to these hot, dry conditions. Land use includes grazing and recreation on National Forest lands and in the Hells Canyon National Recreation Area.

**9.6 - Palouse and Nez Perce Prairies - Cool Canyons and Dissected Highlands:** This unit is characterized by deeply dissected cool, moist canyon side slopes of the Snake River drainage. This unit is at higher elevation but adjacent to unit 9.5 and also adjacent to forestland above the unit. The soils are typically moderately deep and shallow to bedrock. The dominant soil is Snell. Temperature regime is frigid; moisture regime is xeric. Precipitation is about 14 to 25 inches. Most areas are used for livestock grazing with Idaho fescue dominant.

**43C.7 - Blue and Seven Devils Mountains - Low Elevation Blue Mountain Forersts:** This unit is a forested, uplifted basalt plateau. This unit is characterized by forested plateaus and highly dissected canyons having frigid temperatures. Slopes are nearly level to rolling except very steep in the canyons. Moisture regime is xeric and udic. Vegetation is dominated by grand fir, Douglas-fir and ponderosa pine. The soils in this unit typically have an ash mantle up to 20 to 30 inches thick.

### Physical Description – Continued

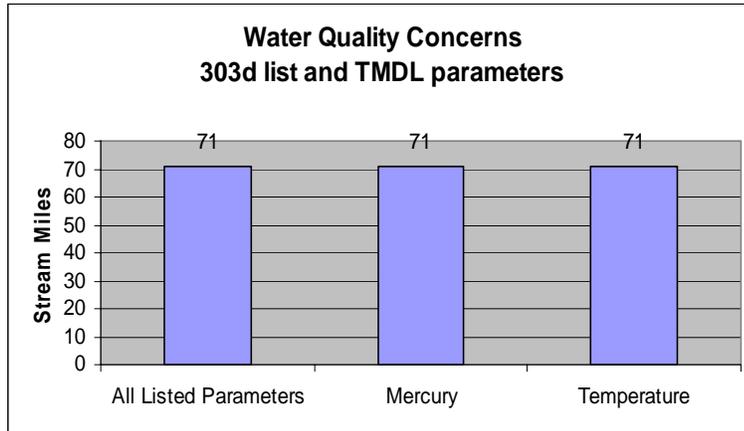
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		ACRES	ACRE-FEET			
<b>Irrigated Adjudicated Water Rights</b> (OWRD <sup>4</sup> )	Surface	7	22			
	Well	0	0			
	<b>Total Irrigated Adjudicated Water Rights</b>	7	22			
Stream Flow Data	USGS 14120000 HOOD RIVER AT TUCKER BRIDGE, NEAR HOOD RIVER, OR	<b>Total Avg. Yield</b>	14,627,068			
		<b>May - Sept Yield</b>	5,496,694			
		MILES	PERCENT			
<b>Stream Data</b> <sup>5</sup>  <i>*Percent of Total Miles of streams in HUC</i>	Total Miles – Major (100K Hydro GIS Layer)	425	--			
	303d (DEQ Water Quality Limited Streams)	71	17%			
	Anadromous Fish Presence (Streamnet)	26	6%			
	Bull Trout Presence (Streamnet)	59	14%			
		ACRES	PERCENT			
<b>Land Cover/Use</b> <sup>2</sup> based on a 100 ft. stretch on both sides of all streams in the 100K Hydro Layer	Forest	3,299	32%			
	Grain Crops	10	0%			
	Grass/Pasture/Hay Lands	3,315	32%			
	Orchards/Vineyards	8	0			
	Row Crops	3	0			
	Shrub/Rangelands – Includes CRP Lands	3,128	30%			
	Water/Wetlands/Developed/Barren	545	0%			
	<b>Total Acres of 100 ft stream buffers</b>	<b>10,309</b>	<b>--</b>			
<b>Land Capability Class</b> (Croplands & Pasturelands Only)  (1997 NRI <sup>3</sup> Estimates for Non-Federal Lands Only)	<b>I</b> – slight limitations					
	<b>II</b> – moderate limitations					
	<b>III</b> – severe limitations					
	<b>IV</b> – very severe limitations					
	<b>V</b> – no erosion hazard, but other limitations					
	<b>VI</b> – severe limitations, unsuited for cultivation, limited to pasture, range, forest					
	<b>VII</b> – very severe limitations, unsuited for cultivation, limited to grazing, forest, wildlife					
	<b>VIII</b> – misc areas have limitations, limited to recreation, wildlife, and water supply					
	<b>Total Crop &amp; Pasture Lands</b>					
<b>Confined Animal Feeding Operations – Oregon CAFO Permit – 12/2004</b>						
<b>Animal Type</b>	<b>Dairy</b>	<b>Feed Lot (Cattle)</b>	<b>Poultry</b>	<b>Swine</b>	<b>Mink</b>	<b>Other</b>
<b>No. of Permitted Farms</b>	0	0	0	0	0	0
<b>No. of Permitted Animals</b>	0	0	0	0	0	0

**None identified in NRI Data**

### Resource Concerns

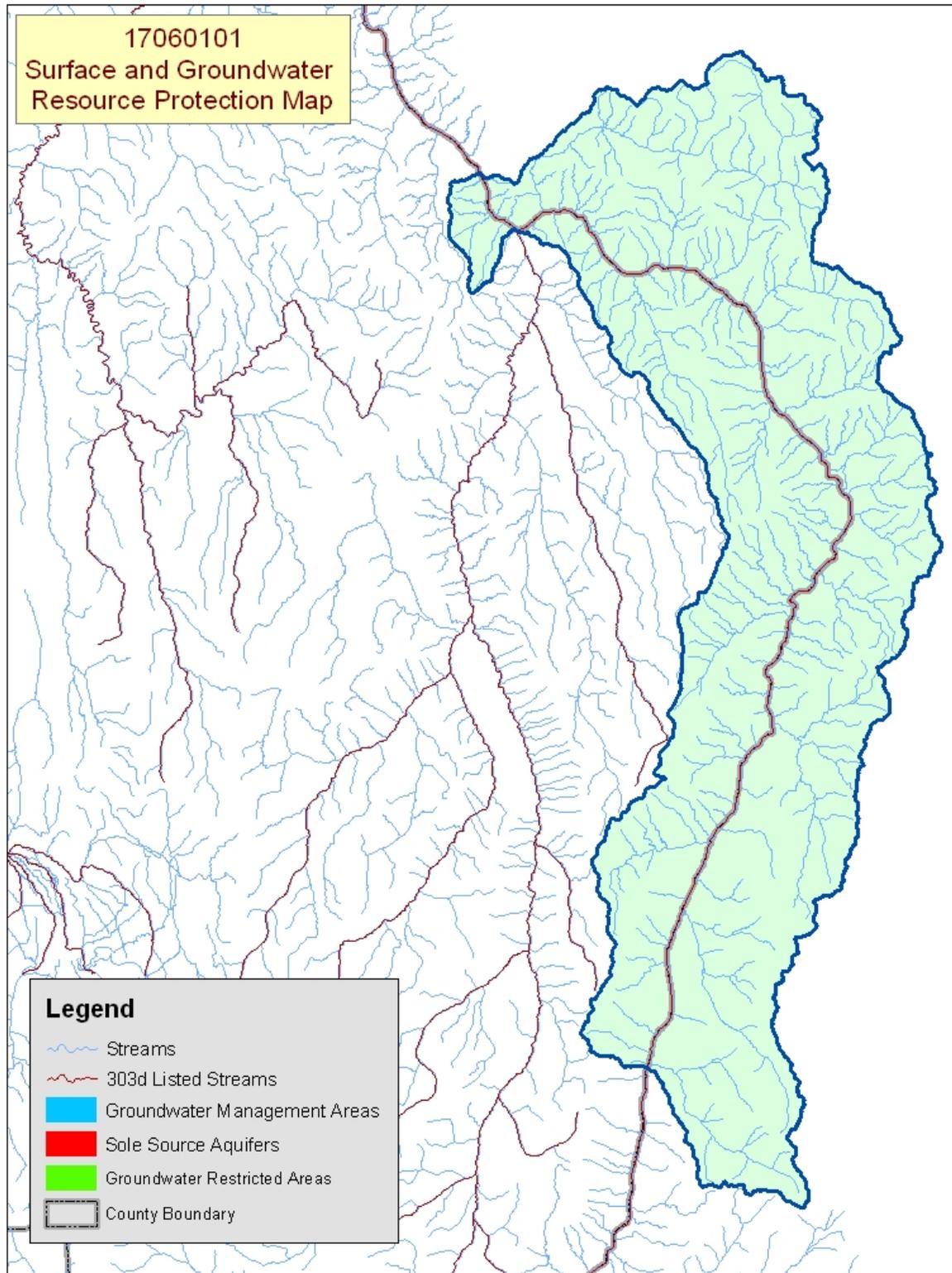
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❖ Almost all listed stream miles exceed state water quality standards for stream temperatures. Elevated stream temperatures may be due to inadequate riparian shade, stream channel widening, warm irrigation return flows, and other anthropogenic or natural sources.

Watershed Projects, Plans, Studies and Assessments					
NRCS Watershed Projects <sup>6</sup>		NRCS Watershed Plans, Studies & Assessments <sup>7</sup>			
Name	Status	Name	Status		
None		None			
ODEQ TMDL's <sup>8</sup>		ODA Agricultural Water Quality Management Plans <sup>9</sup>			
Name	Status	Name	Status		
Snake River-Hells Canyon Reach	EPA Approved - 2004	None			
OWEB Watershed Council <sup>10</sup>		Watershed Council Assessments <sup>11</sup>		NWPCC Subbasin Plans & Assessments <sup>18</sup>	
Grande Ronde Model Watershed	To Be Completed Later			Snake Hells Canyon	

FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES <sup>12</sup>	
Threatened Species	Candidate Species
<b>Marine</b> - None	<b>Fish</b> - None
<b>Mammals</b> – Canada lynx	<b>Birds</b> – Yellow-billed cuckoo
<b>Birds</b> - Bald eagle	<b>Amphibians and Reptiles</b> – Columbia spotted frog
<b>Fish</b> - Steelhead (Snake River Basin), Chinook salmon, Bull Trout (Columbia River population)	<b>Plants</b> – Slender moonwort
<b>Invertebrates</b> – None	<b>PROPOSED SPECIES</b> None
<b>Plants</b> – McFarlane's four o'clock, Spalding's Catchfly, Howell's spectacular thelypody	
<b>ESSENTIAL FISH HABITAT</b> <sup>13</sup> - Chinook	



Map Footnote [17](#)

### Census and Social Data<sup>/14</sup>

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There is no census or social data available for the Hells Canyon watershed because no one owns land in the Oregon part of the Hells Canyon watershed.

**Number of Farms:** 0

**Number of Operators:** 0

- Full-Time Operators: 0
- Part-Time Operators: 0

**Estimated Level of Willingness and Ability to Participate in Conservation<sup>/15</sup>:** n/a

**Evaluation of Social Capital<sup>/16</sup>:** n/a

### Progress/Status

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PRMS Data	FY99	FY00	FY01	FY02	FY03	Avg/Year	Total
Total Conservation Systems Planned (Acres)	0	0	0	0	0	0	0
Total Conservation Systems Applied (Acres)	0	0	0	0	0	0	0
Conservation Treatment Acres							
Waste Management (number)	0	0	0	0	0	0	0
Riparian Forest Buffers (acres)	0	0	0	0	0	0	0
Erosion Control (acres)	0	0	0	0	0	0	0
Irrigation Water Management (acres)	0	0	0	0	0	0	0
Nutrient Management (acres)	0	0	0	0	0	0	0
Pest Management (acres)	0	0	0	0	0	0	0
Prescribed Grazing (acres)	0	0	0	0	0	0	0
Trees & Shrubs (acres)	0	0	0	0	0	0	0
Conservation Tillage (acres)	0	0	0	0	0	0	0
Wildlife Habitat (acres)	0	0	0	0	0	0	0
Wetlands (acres)	0	0	0	0	0	0	0

### Lands Removed from Production through Farm Bill Programs

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

### Footnotes/Bibliography

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All data is provided "as is". There are no warranties, express or implied, including 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, Federal, Tribal, State, and Local. This will be a seamless, statewide Oregon Public Ownership vector layer composed of fee ownership of lands by Federal, State, Tribal, County, and City agencies. The layer will be comprised of the best available data compiled at 1:24,000 scale or better and linework will match 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 or 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, Publication\_Information: Publication\_Place: Sioux Falls, SD USA, Publisher: U.S. Geological Survey, Online\_Linkage: <http://edcwww.cr.usgs.gov/programs/lccp/nationallandcover.html>, Description: 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 due to 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 Resource Conservation Service, Watershed Projects Planned and Authorized, <http://www.nrcs.usda.gov/programs/watershed/Purpose>.
7. Natural Resource Conservation Service, Watershed Plans, Studies and Assessments completed, [http://www.nrcs.usda.gov/programs/watershed/Surveys\\_Plng.html#Watershed%20Surveys%20and%20Plan](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](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](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 degree of social capital helps a community to be physically healthy, socially progressive, and economically vigorous. Low amounts of social capital typically result in community conflict, lack of trust and respect, and unsuccessful attempts to solve problems. The evaluation used 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](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>.