Report

The 2007 Survey of Oregon Lakes: Individual Lake Summaries

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Background

This report provides a summary of data collected as part of the USEPA funded 2007 National Lakes Assessment. As a partnering agency, Oregon Department of Environmental Quality (ODEQ) surveyed 30 randomly selected sites across the state to assess the ecological conditions of Oregon's lakes. Biological, water quality, and physical habitat indicators were used to identify the percent of lakes surveyed in various condition classes. A summary of these results are available in:

The 2007 Survey of Oregon Lakes
(10-LAB-012; http://www.deq.state.or.us/lab/techrpts/bioreports.htm)

Only selected parameters are included in this report. All data collected as part of this study are available for download from the USEPA National Lakes Assessment website:
http://www.epa.gov/owow/LAKES/lakessurvey/web_data.html

Background information on the National Lakes Survey can be found at the following website:
http://www.epa.gov/owow/lakes/lakessurvey/

WATERSHED CHARACTERISTICS

- Area - Determined with GIS
- Population Density - 2000 Census
- Annual Precipitation - the Daymet website -Values represent average annual precipitation calculated from an 18 year dataset (http://daymet.org/)
- Dominant Geology - USGS 1:500,000 GIS coverage (http://gis.oregon.gov/DAS/EISPD/GEO/alphalist.shtml#G)

LAND USE

- Land use percentages were calculated from a GIS layer created by merging the layers list below:
  1. "Oregon Zoning" from the Oregon Department of Land Conservation and Development from Oregon GIS center
  2. "Public Ownership" from the Oregon GIS Service Center
  3. National Land Cover Dataset 2001 Land Cover from US Geological Service
  4. DRAFT Land Ownership/Allocation 2009 from the Resources Planning Program at the Oregon Department of Forestry

WATER QUALITY PARAMETERS

- An integrated grab sample was taken from the top 2 meters at the index site (deepest point found by field crews).

TROPHIC STATUS

- Defined by fixed thresholds based on accepted values from the literature. These are values were used nation wide to define trophic status.

	Oligotrophic	*Mesotrophic*	*Eutrophic*	*Hypereutrophic*
Secchi	> 4 meters	2.1 to 4 meters	0.7 to 2.1 meters	≤ 0.7 meters
Chlorophyll-a	≤ 2 µg/L	>2 to 7 µg/L	> 7 to 30 µg/L	> 30 µg/L
Total Nitrogen	≤ 0.35 mg/L	> 0.35 to 0.75 mg/L	> 0.75 to 1.4 mg/L	> 1.4 mg/L
Total Phosphorus	≤ 0.01 mg/L	> 0.01 to 0.025 mg/L	> 0.025 to 0.050 mg/L	> 0.050 mg/L

LAKE CONDITION

- Condition classes are based on the range of values a seen in reference lake data for a particular indicator. "Good" implies that a lake had similar values to reference lakes, "fair" is given to sites that are on the borderline of reference, and "poor" designated lakes which are notably different from reference condition.

Biological indicators - Condition was determined by an observed over expected (O/E) taxa loss model applied to phytoplankton and zooplankton data. The threshold values represent percent of expected taxa remaining when compared to western states reference sites.

	Good	*Fair*	*Poor*
Plankton O/E	≥ 0.88	0.88 to 0.69	≤ 0.68

Physical Habitat - Condition was defined by an observed over expected (O/E) model based on reference sites thresholds. These threshold values were determined by western states reference sites.

-Shoreline Human Disturbance - Metric calculated from field data that expresses the lakeshore and near-shore human land use and disturbances.

-Riparian Veg Cover - Metric calculated from field data to express the riparian vegetation structure and cover depth .

-Littoral Cover - Metric calculated from field data to express the littoral fish cover and aquatic macrophytes .

-Littoral Cover and Riparian Cover - Metric calculated from field data to express the combination of the littoral and riparian plots.

	Good	*Fair*	*Poor*
Shoreline Human Disturbance	≤ 0.20	> 0.20 to ≤ 0.75	> 0.75
Riparian Veg Cover	> 0.86	0.86 to 0.57	< 0.57
Littoral Cover	> 0.59	0.59 to 0.27	< 0.27
Littoral Cover and Riparian Cover	> 0.86	0.86 to 0.58	< 0.58

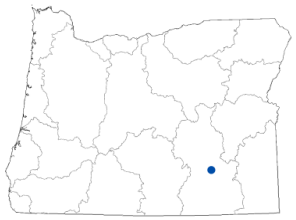
Water Quality Indicators - Condition was assessed by comparing values from each to site those found at reference lakes. The thresholds were defined by reference lakes in the mountains and xeric level two ecoregions (Omernik, 2000).

WQ Threshold- Mountains

	Good	*Fair*	*Poor*
Total Nitrogen	≤ 0.278 mg/L	> 0.278 to 0.380 mg/L	> 0.380 mg/L
Total Phosphorus	≤ 0.015mg/L	> 0.015 to 0.019 mg/L	> 0.019 mg/L
Conductivity	≤ 493 uS/cm @ 25 C	> 493 to 990 uS/cm @ 25 C	> 990 uS/cm @ 25 C
Chlorophyll-a	≤ 1.81 µg/L	> 1.81 µg/L to 2.74µg/L	> 2.74 µg/L
Turbidity	≤ 1.44 NTU	> 1.44 to 5.47 NTU	> 5.47 NTU

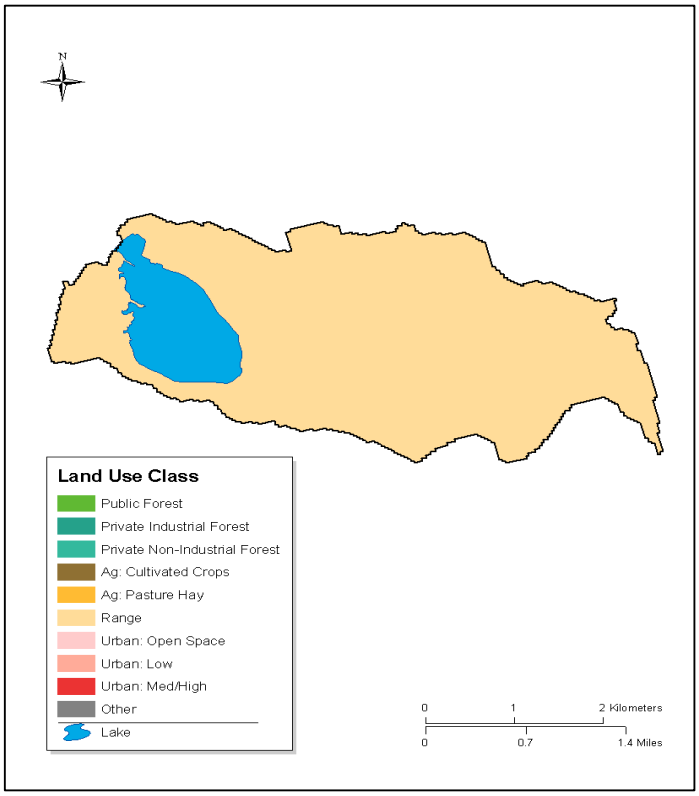
WQ Threshold - Xeric

	Good	*Fair*	*Poor*
Total Nitrogen	≤ 0.514 mg/L	> 0.514 to 2.286 mg/L	> 2.289 mg/L
Total Phosphorus	≤ 0.048 mg/L	> 0.048 to 0.130 mg/L	> 0.130 mg/L
Conductivity	≤ 493 uS/cm @ 25 C	> 493 to 990 uS/cm @ 25 C	> 990 uS/cm @ 25 C
Chlorophyll-a	≤ 7.79 µg/L	> 7.79 µg/L to 29.5 µg/L	> 29.5 µg/L
Turbidity	≤ 3.69 NTU	> 3.69 to 24.9 NTU	> 24.9 NTU



Baca Lake

Harney County – Malheur Lake Basin
Lake Origin: Man-Made
Elevation: 4150 ft (1265 meters)
Location: N 42.91835, W -118.85217



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
1,431 HA	0 peop/mi^2	34 cm	Felsic Pyroclastic

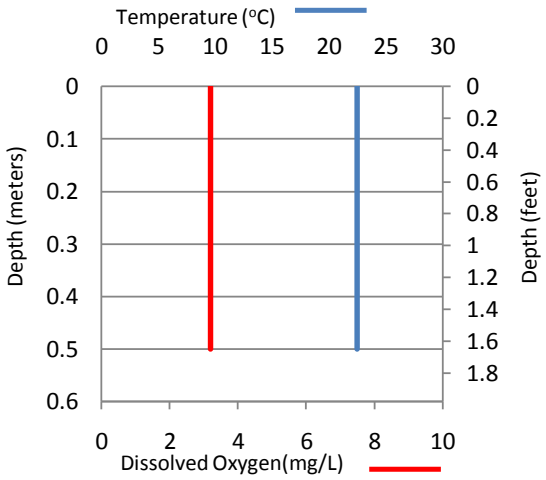
LAND USE

Forest	Agriculture	Range	Urban	Other
0%	0%	100%	0%	0%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
157 HA	1.0 meters	Federal

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	7/18/2007	Turbidity (NTU)	11
pH	7.8	Chlorophyll-a (µg/L)	16.67
Conductivity (µmhos/cm)	447	Secchi (meters)	0.76
ANC (µeq/L)	4473	Total Phosphorus (mg/L)	2.67
Calcium Ion (mg/L)	35.36	Total Nitrogen (mg/L)	5.00

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Poor

Physical Habitat

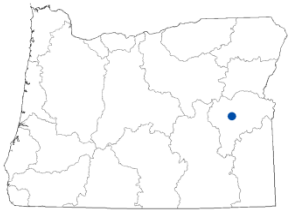
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Fair	*Poor*	*Fair*	*Poor*

Water Quality Indicatiors

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Poor	*Poor*	*Fair*	*Fair*

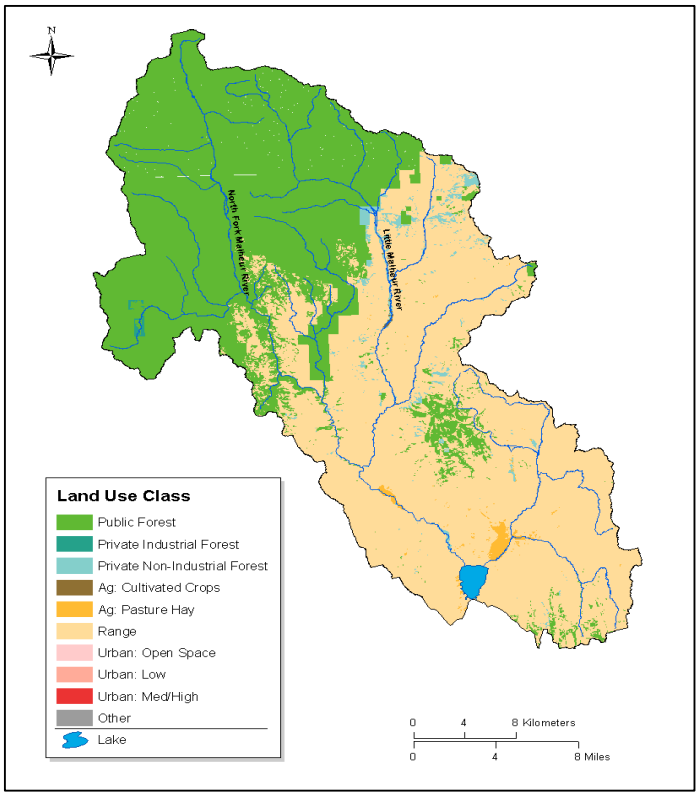
TROPHIC STATUS

Secchi	Chlorophyll-a
Eutrophic	*Eutrophic*
Total Phospourus	Total Nitrogen
Hypereutrophic	*Hypereutrophic*



Beulah Reservoir

Malheur County - Malheur River Basin
Lake Origin: Reservoir
Elevation: 3340 ft (1018 meters)
Location: N 43.92406, W-118.15899



WATERSHED CHARACTERISTICS

Area	Population Desity	Annual Precipitation	Dominate Geology
115,607 HA	0 peopl/mi^2	64 cm	Mafic Volcanic Flow

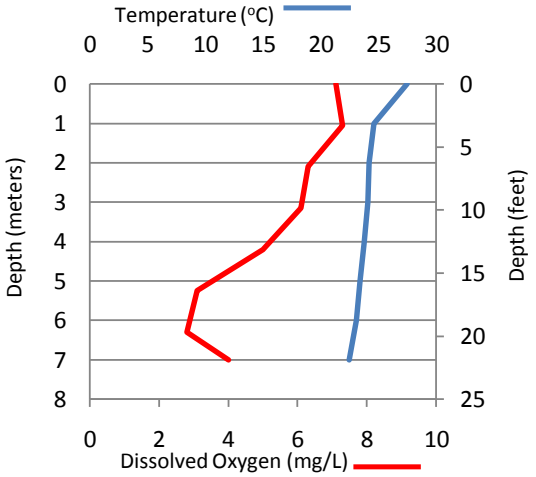
LAND USE

Forest	Agriculture	Range	Urban	Other
46%	1%	53%	0%	0%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
482 HA	7.3 meters	State/Federal

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	7/13/2007	Turbidity (NTU)	16
pH	8.5	Chlorophyll-a (µg/L)	8.16
Conductivity (µmhos/cm)	141	Secchi (meters)	1.04
ANC (µeq/L)	1222	Total Phosphorus (mg/L)	0.136
Calcium Ion (mg/L)	11.02	Total Nitrogen (mg/L)	0. 775

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Good

Physical Habitat

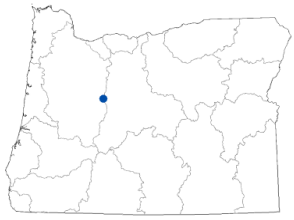
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Fair	*Poor*	*Poor*	*Poor*

Water Quality Indicators

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Poor	*Poor*	*Poor*	*Poor*

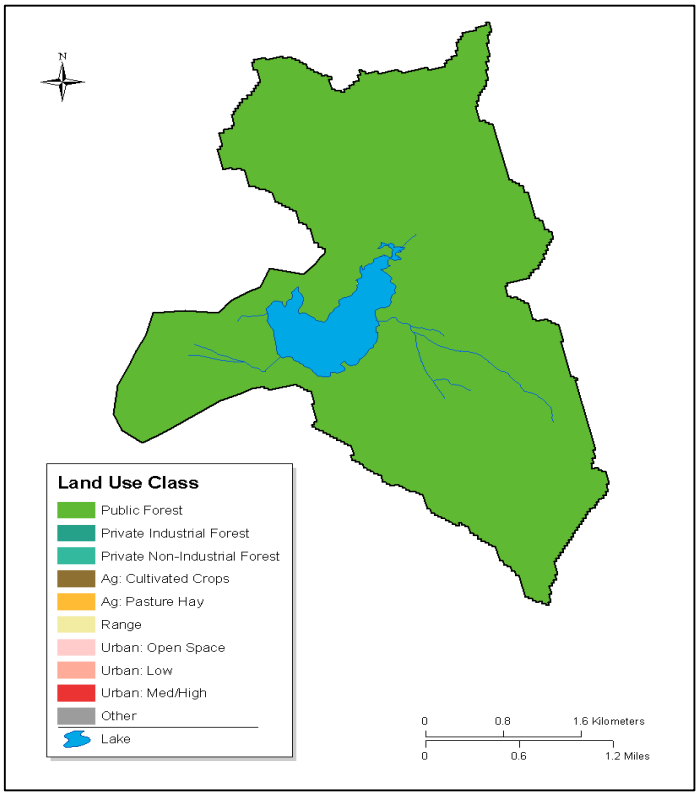
TROPHIC STATUS

Secchi	Chlorophyll-a
Eutrophic	*Eutrophic*
Total Phospourus	Total Nitrogen
Hypereutrophic	*Eutrophic*



Big Lake

Linn County – Willamette River Basin
Lake Origin: Natural
Elevation: 4646 ft (1416 meters)
Location: N 44.37178, W -121.87321



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
1,636 HA	0 pep/mi^2	216 cm	Calc-Alkaline Volcanoclastic

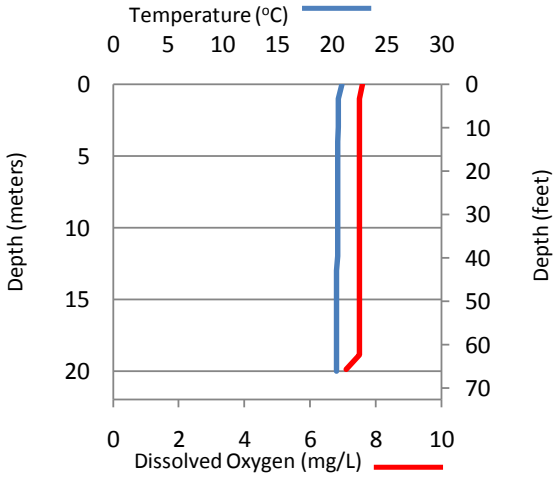
LAND USE

Forest	Agriculture	Range	Urban	Other
100%	0%	0%	0%	0%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
93 HA	21.3 meters	Federal

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	8/6/2007	Turbidity (NTU)	<2
pH	6.3	Chlorophyll-a (µg/L)	0.23
Conductivity (µmhos/cm)	5	Secchi (meters)	15.13
ANC (µeq/L)	29	Total Phosphorus (mg/L)	0.006
Calcium Ion (mg/L)	0.26	Total Nitrogen (mg/L)	0. 050

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Good

Physical Habitat

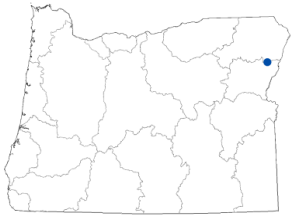
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Fair	*Good*	*Good*	*Good*

Water Quality Indicators

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Good	*Good*	*Good*	*Good*

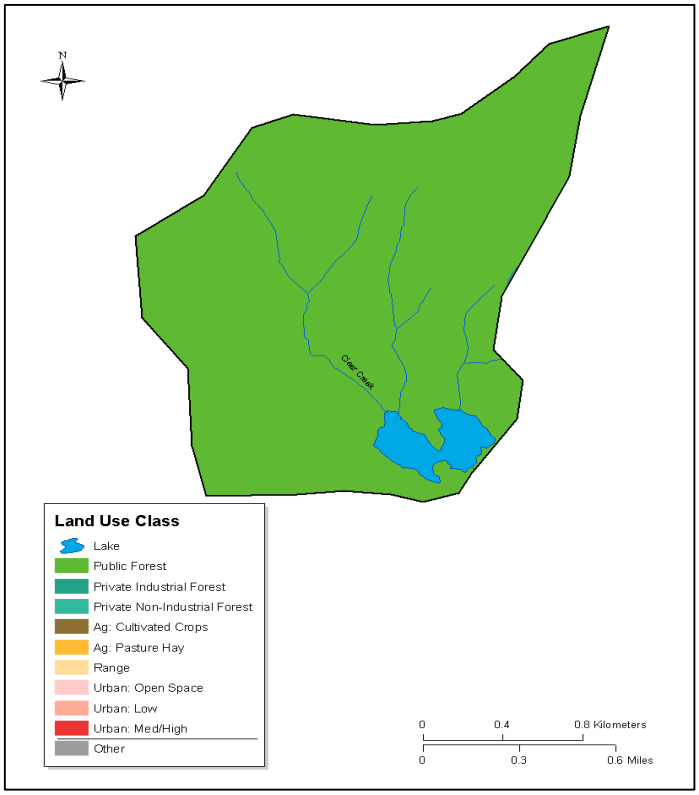
TROPHIC STATUS

Secchi	Chlorophyll-a
Oligotrophic	*Oligotrophic*
Total Phospourus	Total Nitrogen
Oligotrophic	*Oligotrophic*



Clear Creek Reservoir

Baker County – Powder River Basin
Lake Origin: Man Made
Elevation: 6913 ft (2107 meters)
Location: N 45.06233, W -117.15336



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
384 HA	0 pep/mi^2	119 cm	Mafic Volcanic Flow

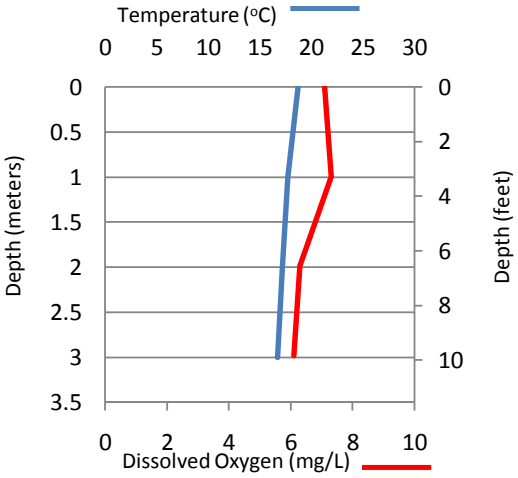
LAND USE

Forest	Agriculture	Range	Urban	Other
100%	0%	0%	0%	0%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
14 HA	3.7 meters	Federal

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	8/15/2007	Turbidity (NTU)	<2
pH	8.2	Chlorophyll-a (µg/L)	1.14
Conductivity (µmhos/cm)	92	Secchi (meters)	2.53
ANC (µeq/L)	829	Total Phosphorus (mg/L)	0.015
Calcium Ion (mg/L)	15.78	Total Nitrogen (mg/L)	0. 256

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Good

Physical Habitat

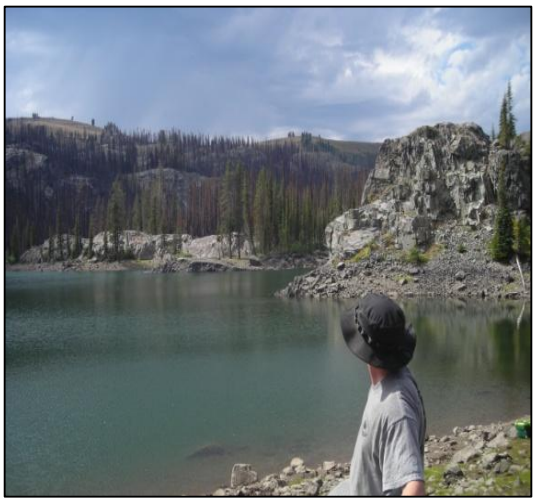
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Poor	*Poor*	*Fair*	*Poor*

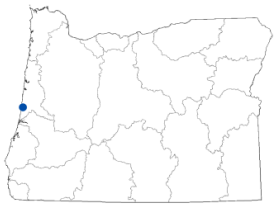
Water Quality Indicatiors

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Good	*Good*	*Fair*	*Good*

TROPHIC STATUS

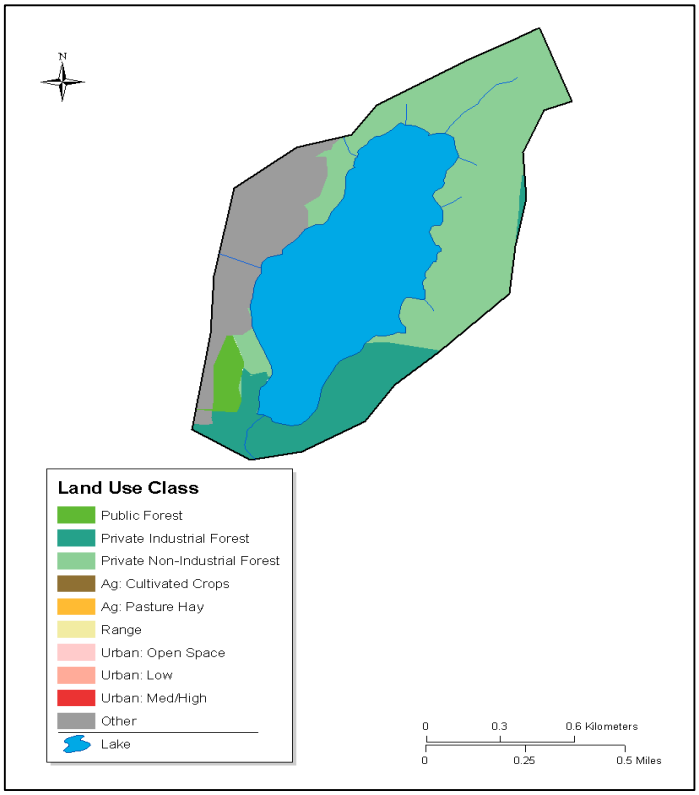
Secchi	Chlorophyll-a
Mesotrophic	*Oligotrophic*
Total Phospourus	Total Nitrogen
Mesotrophic	*Oligotrophic*





Clear Lake

Lane County – Mid Coast Basin
Lake Origin: Natural
Elevation: 95 ft (29 meters)
Location: N 44.02384, W-124.07961



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
169 HA	27 peop/mi^2	192 cm	Sandstone

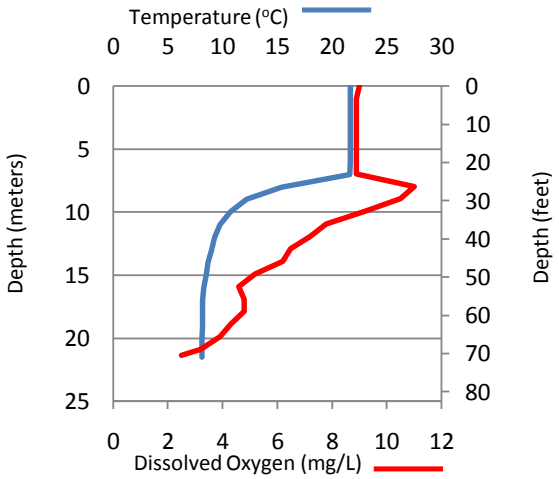
LAND USE

Forest	Agriculture	Range	Urban	Other
76%	0%	0%	3%	21%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
60 HA	22.2 meters	Water District

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	7/26/2007	Turbidity (NTU)	<2
pH	7.3	Chlorophyll-a (µg/L)	1.12
Conductivity (µmhos/cm)	59	Secchi (meters)	6.65
ANC (µeq/L)	218	Total Phosphorus (mg/L)	0.005
Calcium Ion (mg/L)	1.99	Total Nitrogen (mg/L)	0. 110

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Good

Physical Habitat

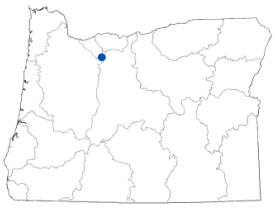
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Fair	*Good*	*Good*	*Good*

Water Quality Indicators

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Good	*Good*	*Good*	*Good*

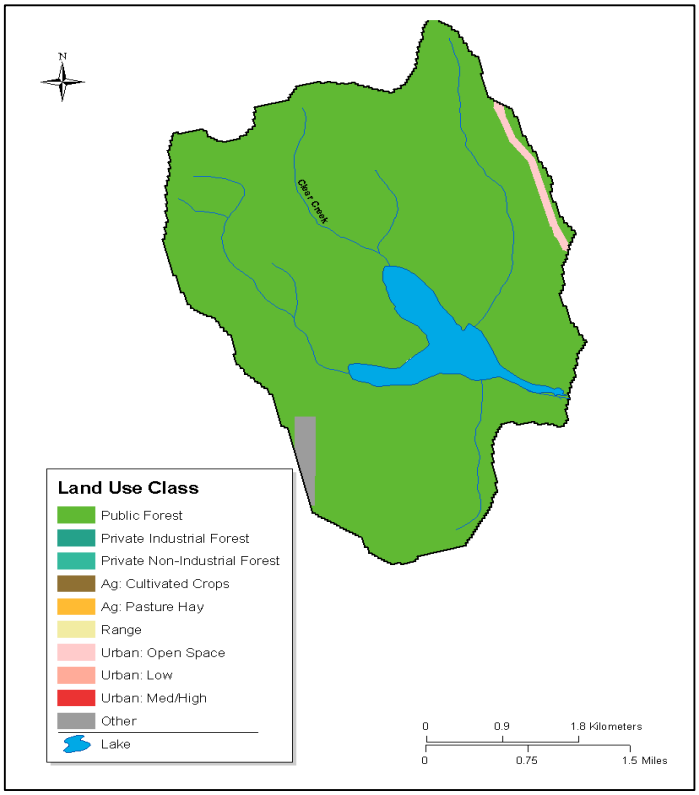
TROPHIC STATUS

Secchi	Chlorophyll-a
Oligotrophic	*Oligotrophic*
Total Phospourus	Total Nitrogen
Oligotrophic	*Oligotrophic*



Clear Lake

Wasco County – Deschutes Basin
Lake Origin: Natural
Elevation: 3,517 ft (1,065 meters)
Location: N 45.18038, W-121.70443



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
2268 HA	0 peop/mi^2	177 cm	Glacial Drift

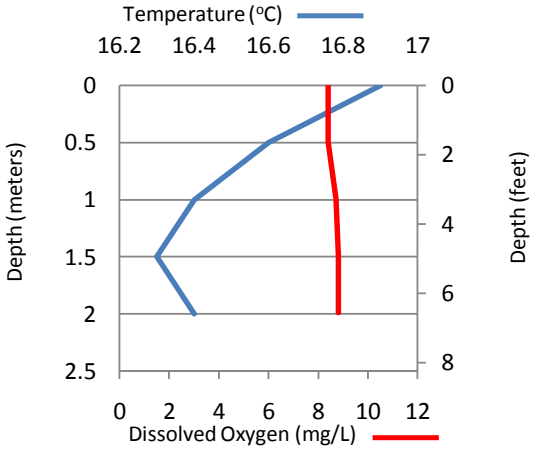
LAND USE

Forest	Agriculture	Range	Urban	Other
98%	0%	0%	1%	1%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
125 HA	2.5 meters	Federal

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	8/21/2007	Turbidity (NTU)	<2
pH	7.2	Chlorophyll-a (µg/L)	1.23
Conductivity (µmhos/cm)	23	Secchi (meters)	NR
ANC (µeq/L)	203	Total Phosphorus (mg/L)	< 0.004
Calcium Ion (mg/L)	1.75	Total Nitrogen (mg/L)	0. 172

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Good

Physical Habitat

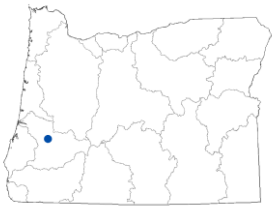
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Fair	*Poor*	*Good*	*Poor*

Water Quality Indicatiors

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Good	*Good*	*Good*	*Good*

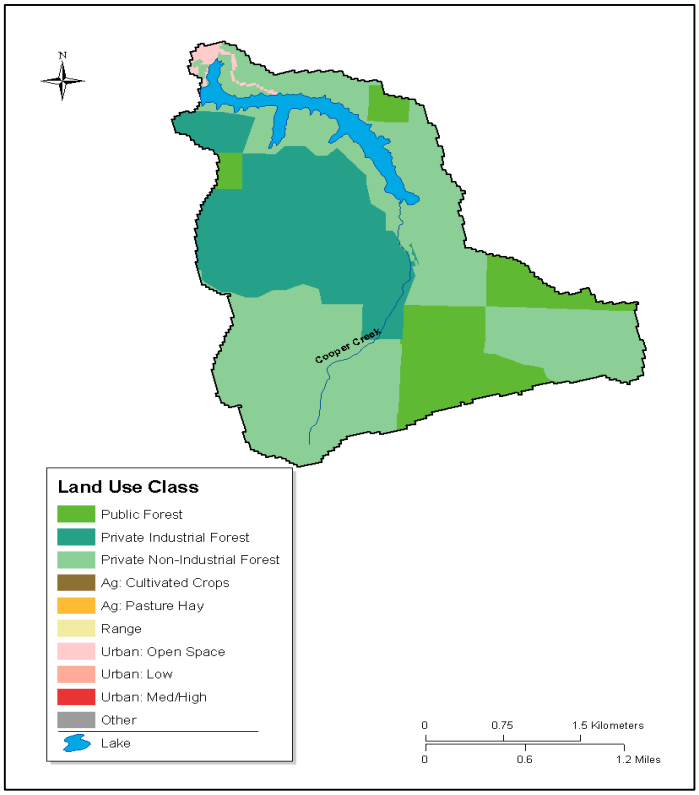
TROPHIC STATUS

Secchi	Chlorophyll-a
NR	*Oligotrophic*
Total Phospourus	Total Nitrogen
Oligotrophic	*Oligotrophic*



Cooper Creek Reservoir

Douglas County - Umpqua River Basin
Lake Origin: Man Made
Elevation: 669 ft (204 meters)
Location: N 43.37864, W-123.26597



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
1,174 HA	5 peop/mi	152 cm	Sandstone

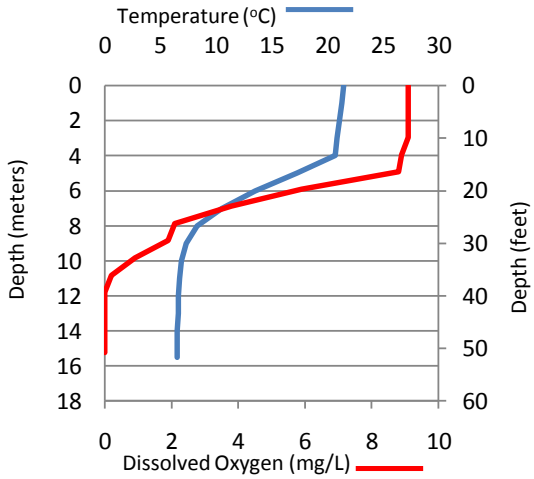
LAND USE

Forest	Agriculture	Range	Urban	Other
99%	1%	0%	1%	0%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
52 HA	16.0 meters	State/Federal

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	6/27/2007	Turbidity (NTU)	<2
pH	8.6	Chlorophyll-a (µg/L)	1.22
Conductivity (µmhos/cm)	219	Secchi (meters)	4.97
ANC (µeq/L)	706	Total Phosphorus (mg/L)	0.008
Calcium Ion (mg/L)	13.65	Total Nitrogen (mg/L)	0. 259

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Good

Physical Habitat

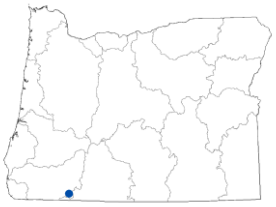
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Fair	*Good*	*Good*	*Good*

Water Quality Indicators

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Good	*Good*	*Good*	*Good*

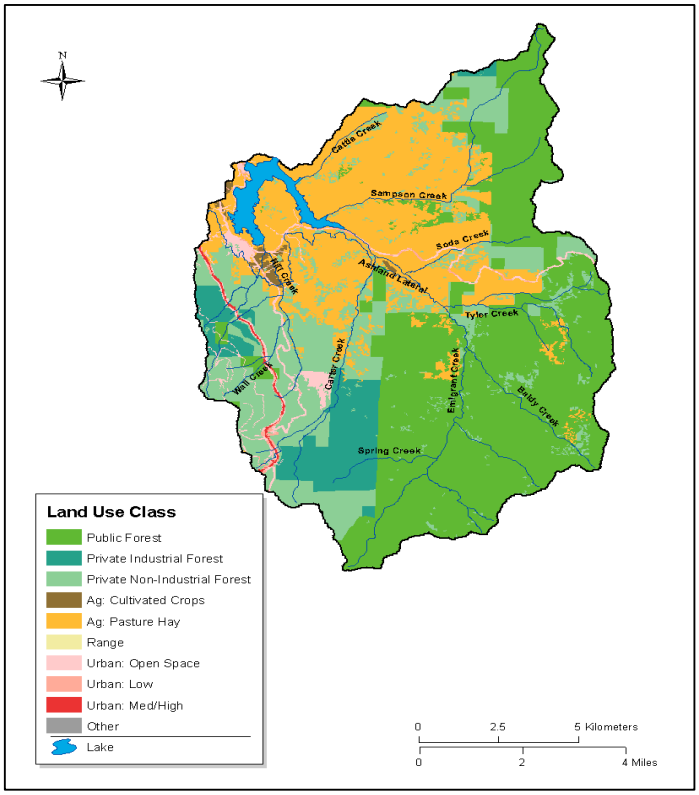
TROPHIC STATUS

Secchi	Chlorophyll-a
Oligotrophic	*Oligotrophic*
Total Phospourus	Total Nitrogen
Oligotrophic	*Oligotrophic*



Emigrant Lake

Jackson County - Rogue River Basin
Lake Origin: Man Made
Elevation: 2241 ft (679 meters)
Location: N 45.15365, W-122.61187



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
16,624 HA	4 peop/mi	81 cm	Mafic Volcanic Flow

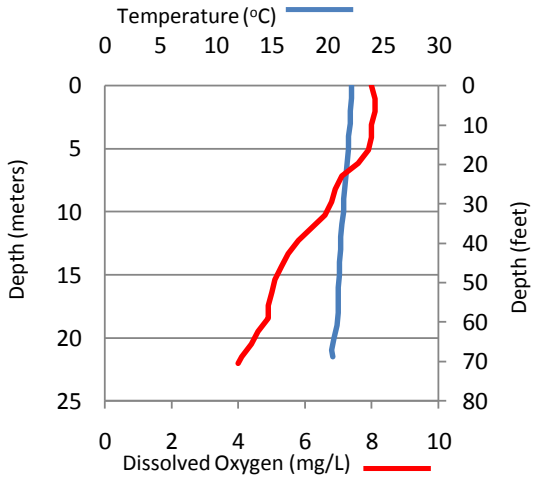
LAND USE

Forest	Agriculture	Range	Urban	Other
70%	27%	0%	3%	0%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
283 HA	21.8 meters	State/Federal

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	9/4/2007	Turbidity (NTU)	3
pH	7.9	Chlorophyll-a (µg/L)	3.57
Conductivity (µmhos/cm)	118	Secchi (meters)	2.10
ANC (µeq/L)	1070	Total Phosphorus (mg/L)	0.017
Calcium Ion (mg/L)	12.78	Total Nitrogen (mg/L)	0. 496

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Good

Physical Habitat

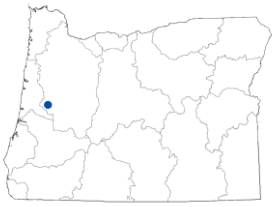
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Fair	*Poor*	*Fair*	*Poor*

Water Quality Indicators

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Fair	*Poor*	*Fair*	*Poor*

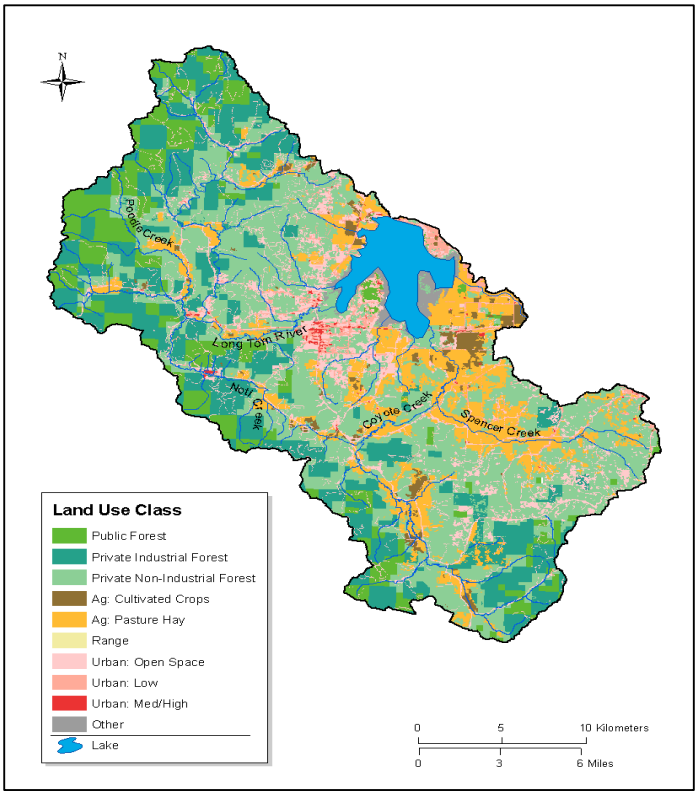
TROPHIC STATUS

Secchi	Chlorophyll-a
Eutrophic	*Mesotrophic*
Total Phospourus	Total Nitrogen
Mesotrophic	*Mesotrophic*



Fern Ridge Lake

Lane County - Willamette River Basin
Lake Origin: Man Made
Elevation: 374 ft (113 meters)
Location: N 44.09042, W-123.30274



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
66,596 HA	111 peop/mi	159 cm	Sandstone

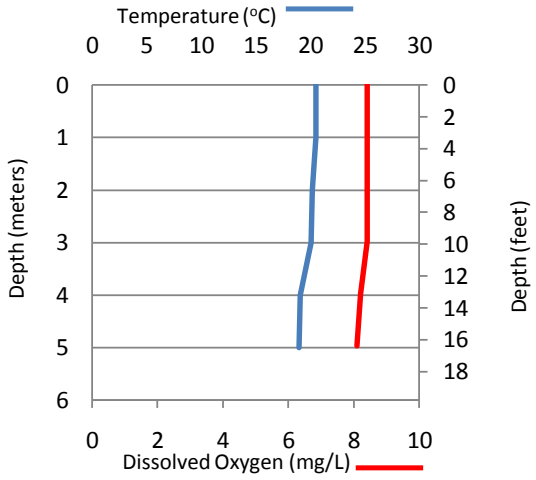
LAND USE

Forest	Agriculture	Range	Urban	Other
71%	15%	0%	13%	1%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
2587 HA	5.3 meters	State/Federal

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	6/25/2007	Turbidity (NTU)	13
pH	7.5	Chlorophyll-a (µg/L)	6.18
Conductivity (µmhos/cm)	62	Secchi (meters)	0.85
ANC (µeq/L)	404	Total Phosphorus (mg/L)	<0.004
Calcium Ion (mg/L)	4.55	Total Nitrogen (mg/L)	0. 096

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Fair

Physical Habitat

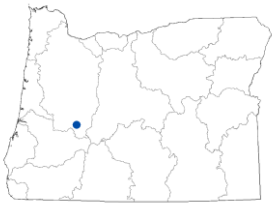
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Fair	*Fair*	*Fair*	*Fair*

Water Quality Indicators

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Good	*Good*	*Poor*	*Poor*

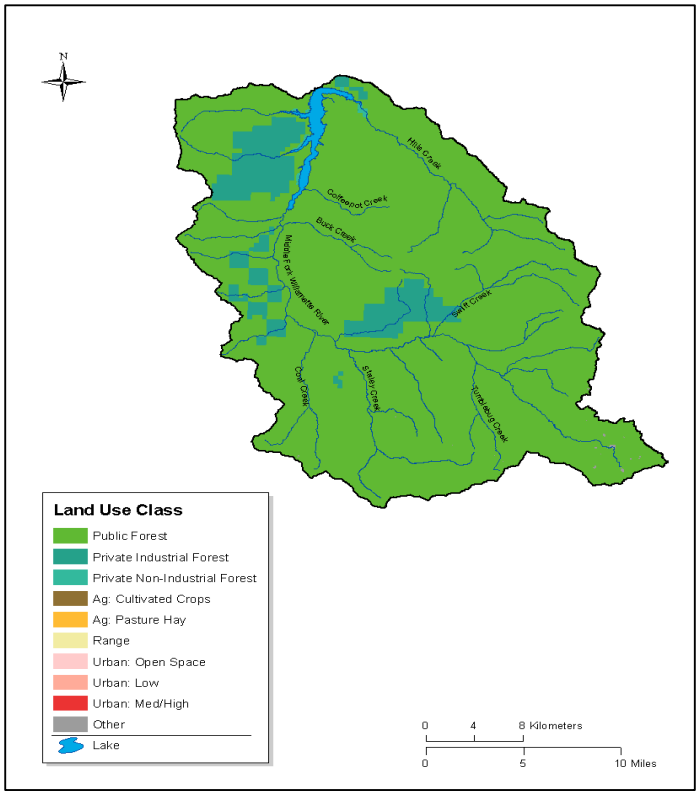
TROPHIC STATUS

Secchi	Chlorophyll-a
Eutrophic	*Mesotrophic*
Total Phospourus	Total Nitrogen
Oligotrophic	*Oligotrophic*



Hills Creek Reservoir

Lane County - Willamette River Basin
Lake Origin: Man Made
Elevation: 1542 ft (467 meters)
Location: N 43.66955, W-122.42415



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
100,911 HA	0 peop/mi	168 cm	Calc-Alkaline Volcanoclastic

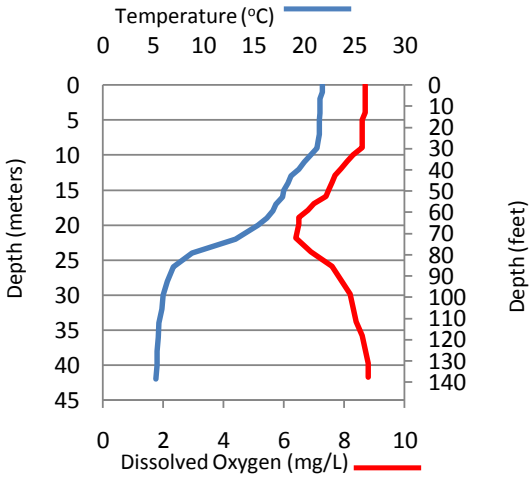
LAND USE

Forest	Agriculture	Range	Urban	Other
100%	0%	0%	0%	0%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
1086 HA	43.8 meters	State/Federal

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	8/27/2007	Turbidity (NTU)	<2
pH	7.9	Chlorophyll-a (µg/L)	0.67
Conductivity (µmhos/cm)	54	Secchi (meters)	4.63
ANC (µeq/L)	500	Total Phosphorus (mg/L)	0.010
Calcium Ion (mg/L)	5.02	Total Nitrogen (mg/L)	<0.020

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Good

Physical Habitat

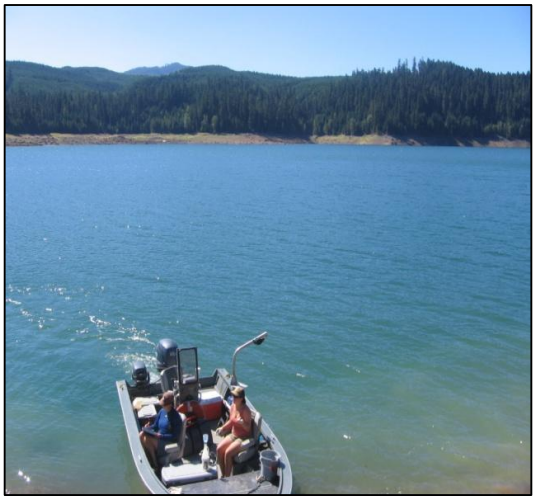
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Fair	*Poor*	*Good*	*Poor*

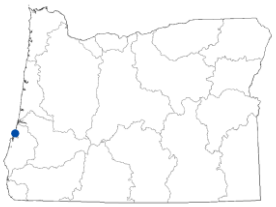
Water Quality Indicators

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Good	*Good*	*Good*	*Good*

TROPHIC STATUS

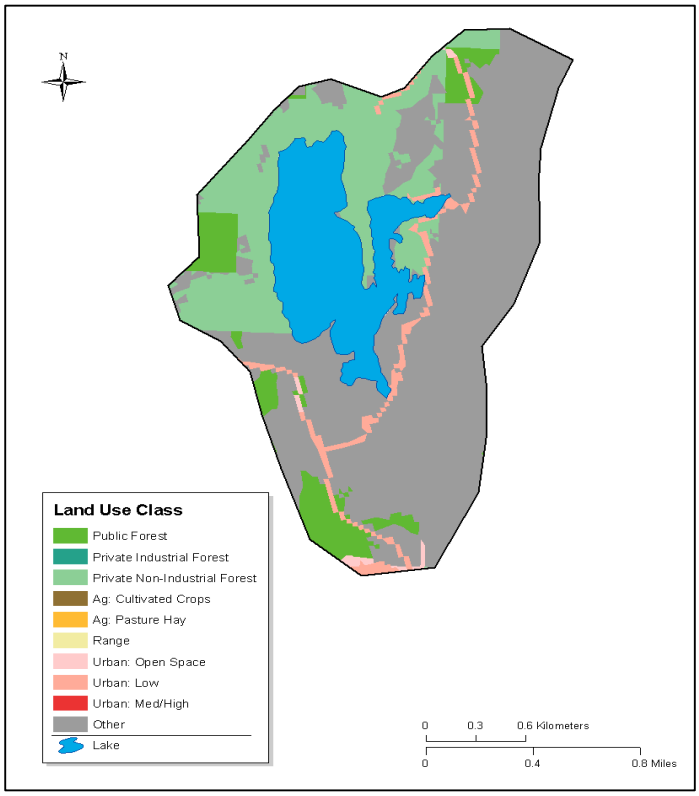
Secchi	Chlorophyll-a
Oligotrophic	*Oligotrophic*
Total Phospourus	Total Nitrogen
Oligotrophic	*Oligotrophic*





Horsfall Lake

Coos County – South Coast Basin
Lake Origin: Natural
Elevation: 20 ft (6 meters)
Location: N 43.45221, W-124.24601



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
544 HA	1 peop/mi	169 cm	Dune Sand

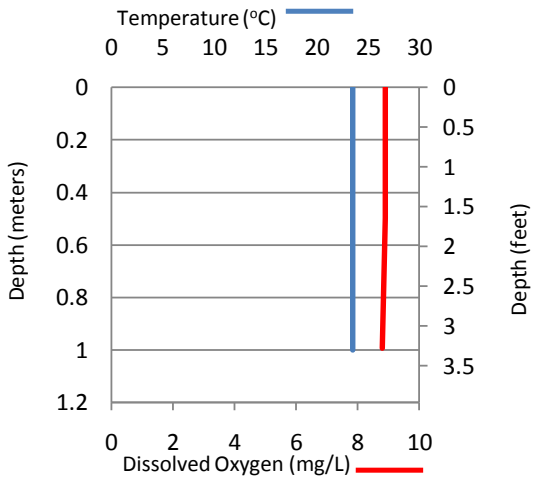
LAND USE

Forest	Agriculture	Range	Urban	Other
42%	0%	0%	5%	53%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
90 HA	1.4 meters	State/Federal

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	7/23/2007	Turbidity (NTU)	<2
pH	6.4	Chlorophyll-a (µg/L)	12.37
Conductivity (µmhos/cm)	64	Secchi (meters)	1.15
ANC (µeq/L)	70	Total Phosphorus (mg/L)	0.035
Calcium Ion (mg/L)	1.01	Total Nitrogen (mg/L)	0.557

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Poor

Physical Habitat

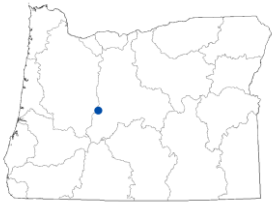
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Fair	*Fair*	*Good*	*Good*

Water Quality Indicators

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Poor	*Poor*	*Fair*	*Poor*

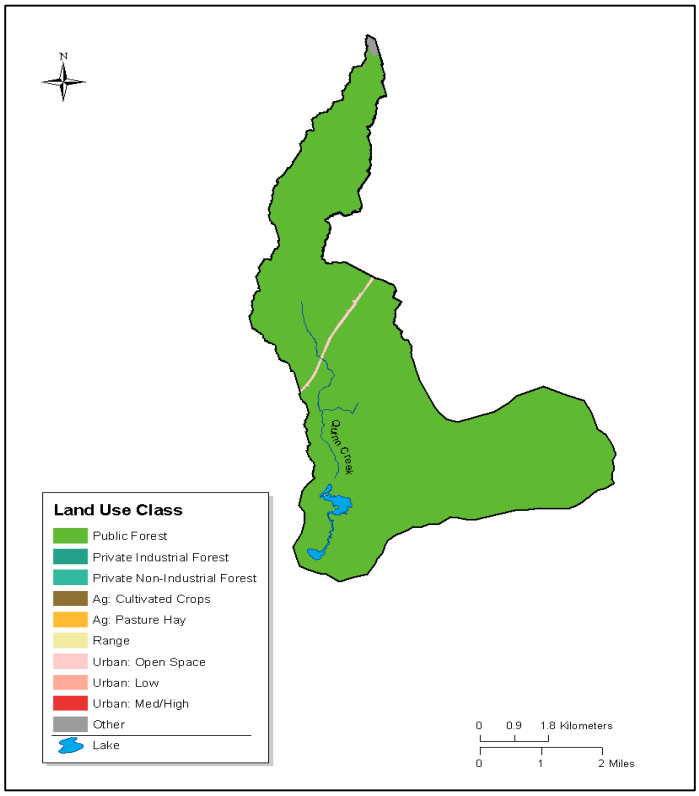
TROPHIC STATUS

Secchi	Chlorophyll-a
Eutrophic	*Eutrophic*
Total Phospourus	Total Nitrogen
Eutrophic	*Mesotrophic*



Hosmer Lake

Deschutes County – Deschutes River Basin
Lake Origin: Natural
Elevation: 4967 ft (1505 meters)
Location: N 43.95705, W-121.78426



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
5428 HA	0 peop/mi	161 cm	Mafic Volcanic Flow

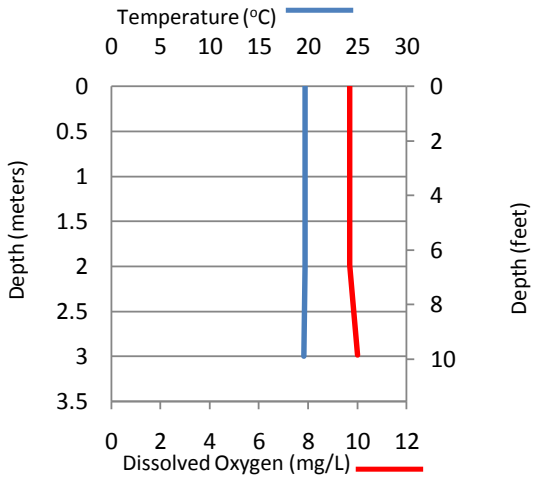
LAND USE

Forest	Agriculture	Range	Urban	Other
99%	0%	0%	1%	0%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
41 HA	3.1 meters	State/Federal

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	8/7/2007	Turbidity (NTU)	3
pH	8.8	Chlorophyll-a (µg/L)	8.27
Conductivity (µmhos/cm)	40	Secchi (meters)	To Bottom
ANC (µeq/L)	345	Total Phosphorus (mg/L)	0.052
Calcium Ion (mg/L)	1.32	Total Nitrogen (mg/L)	0.462

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Fair

Physical Habitat

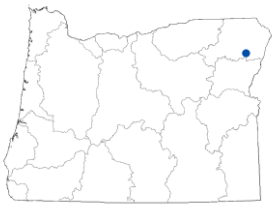
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Good	*Good*	*Good*	*Good*

Water Quality Indicators

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Poor	*Poor*	*Fair*	*Poor*

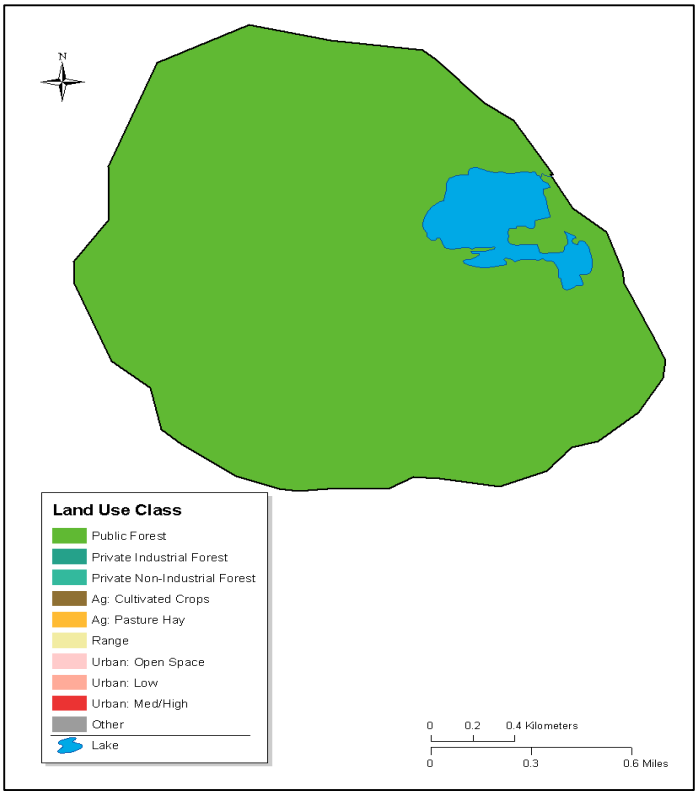
TROPHIC STATUS

Secchi	Chlorophyll-a
Clear to Bottom	*Eutrophic*
Total Phospourus	Total Nitrogen
Eutrophic	*Mesotrophic*



Ice Lake

Wallowa County – Grande Ronde River Basin
Lake Origin: Natural
Elevation: 7848 ft (2378 meters)
Location: N 45.22936, W-117.27237



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
524 HA	1 peop/mi	127 cm	Shale and Mudstone

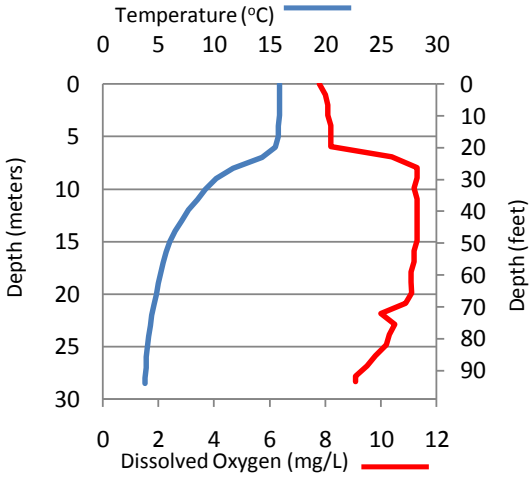
LAND USE

Forest	Agriculture	Range	Urban	Other
100%	0%	0%	0%	0%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
26 HA	29.0 meters	State/Federal

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	8/13/2007	Turbidity (NTU)	<2
pH	8.2	Chlorophyll-a (µg/L)	0.34
Conductivity (µmhos/cm)	59	Secchi (meters)	10.3
ANC (µeq/L)	504	Total Phosphorus (mg/L)	<0.004
Calcium Ion (mg/L)	10.72	Total Nitrogen (mg/L)	0.068

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Fair

Physical Habitat

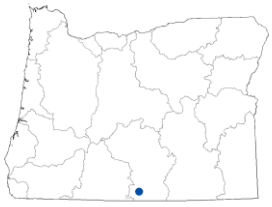
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Good	*Fair*	*Good*	*Good*

Water Quality Indicators

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Good	*Good*	*Good*	*Good*

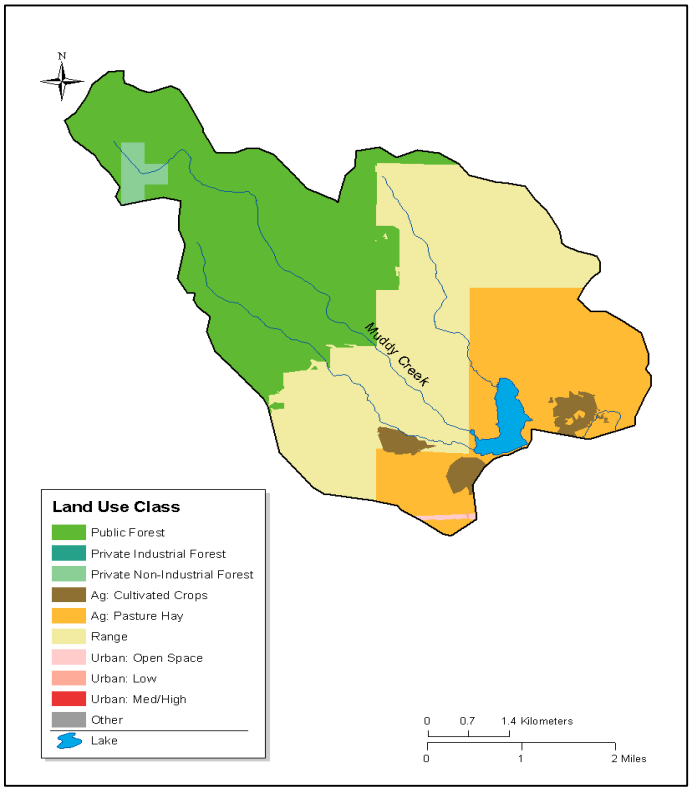
TROPHIC STATUS

Secchi	Chlorophyll-a
Oligotrophic	*Oligotrophic*
Total Phospourus	Total Nitrogen
Oligotrophic	*Oligotrophic*



Junipers Reservoir – Repeat Site

Lake County – Summer and Goose Lakes Basin
Lake Origin: Man Made
Elevation: 4869 ft (1475 meters)
Location: N 42.19868, W-120.52393



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
4390 HA	0 peop/mi	59 cm	Mafic Volcanic Flow/Lake Sediment

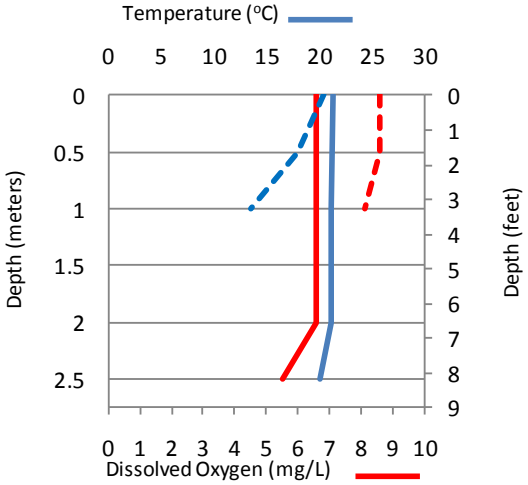
LAND USE

Forest	Agriculture	Range	Urban	Other
55%	23%	21%	0%	0%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
69 HA	2.4 meters	Private

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	7/11 & 9/11/07	Turbidity (NTU)	47, 194
pH	8.0 , 8.1	Chlorophyll-a (µg/L)	4.30, 15.6
Conductivity (µmhos/cm)	142, 184	Secchi (meters)	0.45, 0.1
ANC (µeq/L)	1404, 1787	Total Phosphorus (mg/L)	0.178, 0.629
Calcium Ion (mg/L)	12.19, 14.84	Total Nitrogen (mg/L)	0.273, 1.231

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Poor

Physical Habitat

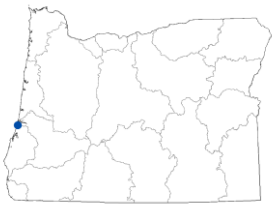
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Fair, Poor	*Poor, Poor*	*Poor, Poor*	*Poor, Poor*

Water Quality Indicators

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Poor, Poor	*Good, Poor*	*Poor, Poor*	*Poor, Poor*

TROPHIC STATUS

Secchi	Chlorophyll-a
Hypereutrophic (2)	*Meso/Eutrophic*
Total Phospourus	Total Nitrogen
Hypereutrophic (2)	*Oligo/Eutrophic*



Lake Edna

Douglas County – South Coast Basin
Lake Origin: Natural
Elevation: 220 ft (67 meters)
Location: N 43.63028, W-124.17854

WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
96 HA	2 peop/mi	186 cm	Sandstone

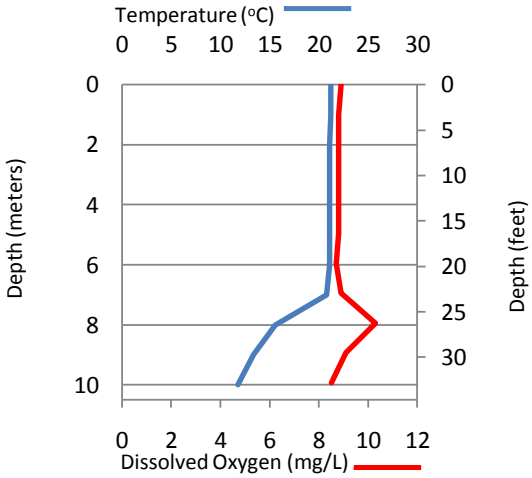
LAND USE

Forest	Agriculture	Range	Urban	Other
86%	0%	0%	14%	0%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
15 HA	10.5 meters	Private

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	7/24/2007	Turbidity (NTU)	<2
pH	7.2	Chlorophyll-a (µg/L)	0.90
Conductivity (µmhos/cm)	87	Secchi (meters)	7.48
ANC (µeq/L)	219	Total Phosphorus (mg/L)	<0.004
Calcium Ion (mg/L)	2.23	Total Nitrogen (mg/L)	0.148

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Good

Physical Habitat

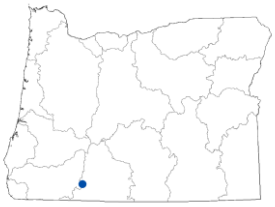
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Fair	*Good*	*Good*	*Good*

Water Quality Indicators

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Good	*Good*	*Good*	*Good*

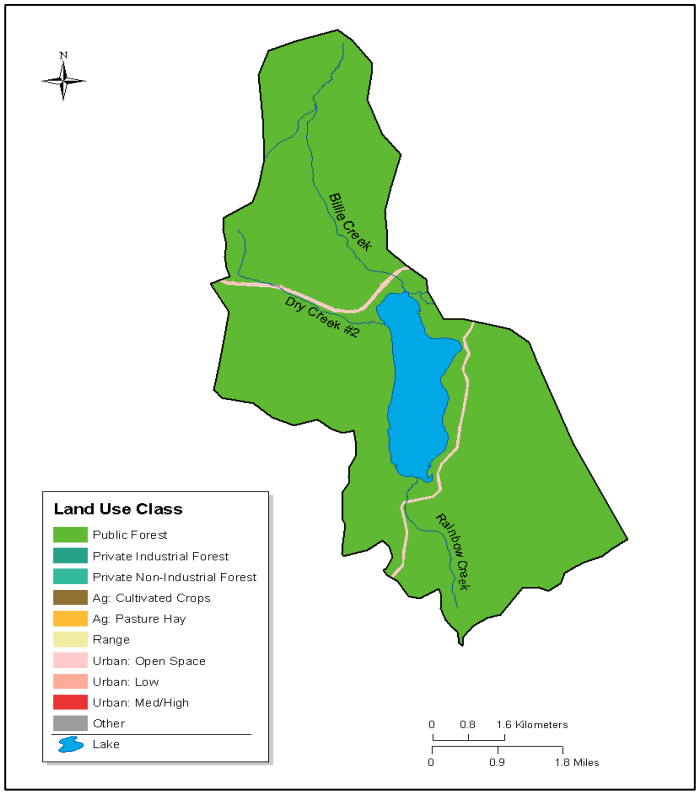
TROPHIC STATUS

Secchi	Chlorophyll-a
Oligotrophic	*Oligotrophic*
Total Phospourus	Total Nitrogen
Oligotrophic	*Oligotrophic*



Lake of the Woods

Klamath County – Klamath River Basin
Lake Origin: Natural
Elevation: 4954 ft (1501 meters)
Location: N 42.36492, W -122.21421



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
6,419 HA	0 peop/mi	133 cm	Mafic Volcanic Flow

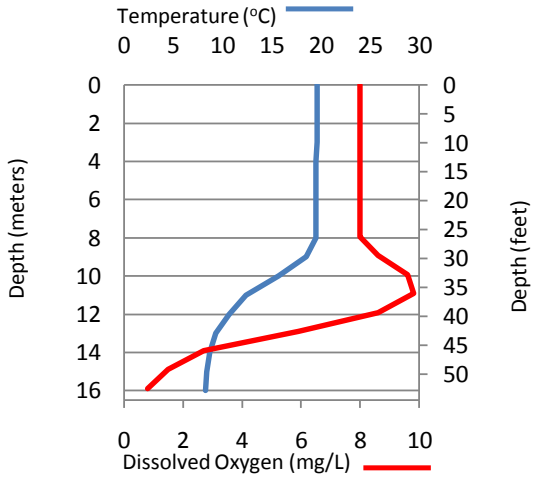
LAND USE

Forest	Agriculture	Range	Urban	Other
99%	0%	0%	1%	0%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
510 HA	16.4 meters	State/Federal

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	9/5/2007	Turbidity (NTU)	<2
pH	7.7	Chlorophyll-a (µg/L)	0.80
Conductivity (µmhos/cm)	31	Secchi (meters)	6.45
ANC (µeq/L)	289	Total Phosphorus (mg/L)	<0.004
Calcium Ion (mg/L)	2.67	Total Nitrogen (mg/L)	0.171

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Good

Physical Habitat

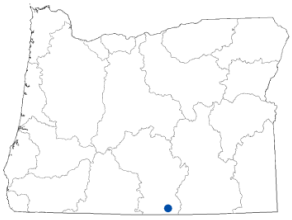
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Poor	*Good*	*Good*	*Good*

Water Quality Indicators

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Good	*Good*	*Good*	*Good*

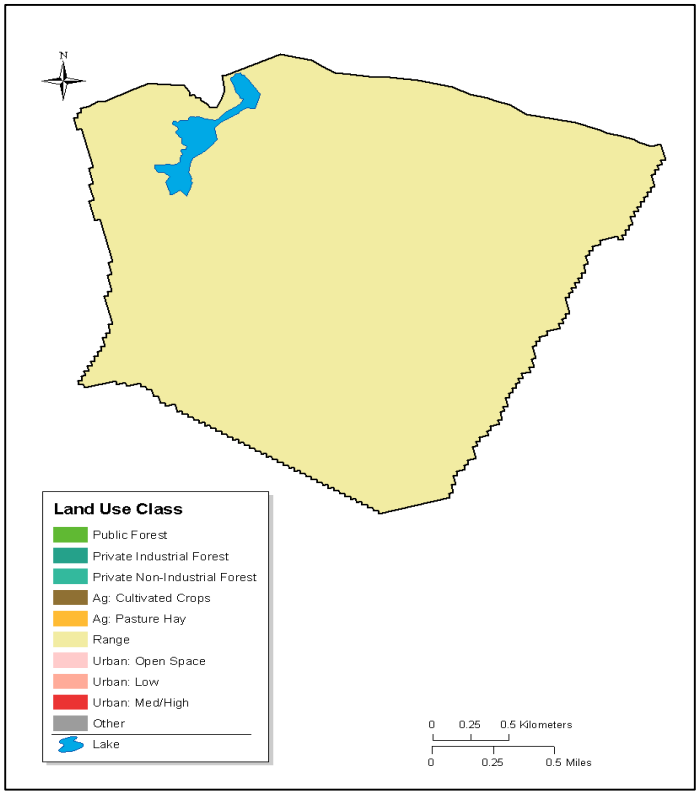
TROPHIC STATUS

Secchi	Chlorophyll-a
Oligotrophic	*Oligotrophic*
Total Phospourus	Total Nitrogen
Oligotrophic	*Oligotrophic*



Lucky Reservoir

Lake County – Klamath River Basin
Lake Origin: Man Made
Elevation: 5752 ft (1743 meters)
Location: N 42.12222, W -119.99494



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
867 HA	0 peop/mi	66 cm	Mafic Volcanic Flow

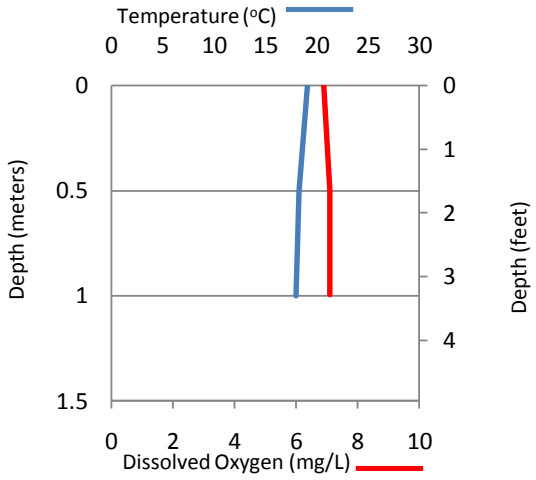
LAND USE

Forest	Agriculture	Range	Urban	Other
0%	0%	100%	0%	0%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
14 HA	1.5 meters	Private

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	7/12/2007	Turbidity (NTU)	574
pH	7.6	Chlorophyll-a (µg/L)	0.93
Conductivity (µmhos/cm)	141	Secchi (meters)	0.04
ANC (µeq/L)	1546	Total Phosphorus (mg/L)	0.933
Calcium Ion (mg/L)	6.97	Total Nitrogen (mg/L)	2.228

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Poor

Physical Habitat

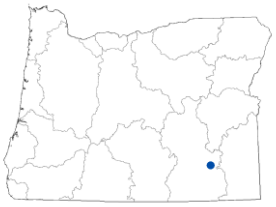
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Poor	*Poor*	*Poor*	*Poor*

Water Quality Indicatiors

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Poor	*Fair*	*Poor*	*Good*

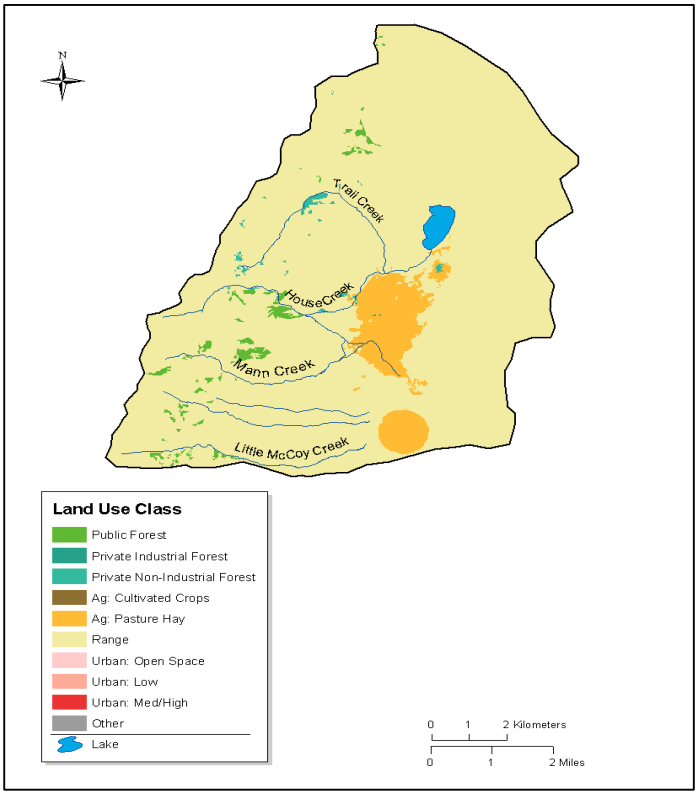
TROPHIC STATUS

Secchi	Chlorophyll-a
Hypereutrophic	*Oligotrophic*
Total Phospourus	Total Nitrogen
Hypereutrophic	*Hypereutrophic*



Mann Lake

Harney County – Malheur Lake Basin
Lake Origin: Natural
Elevation: 4170 ft (1263 meters)
Location: N 42.77150, W -118.44643



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
10,624 HA	0 peop/mi	46 cm	Mafic Volcanic Flow/ Lake Sediment

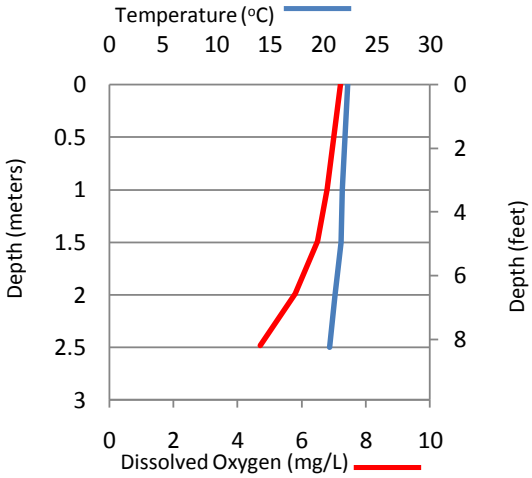
LAND USE

Forest	Agriculture	Range	Urban	Other
2%	4%	94%	0%	0%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
74 HA	3.2 meters	State/Federal

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	7/17/2007	Turbidity (NTU)	34
pH	9.0	Chlorophyll-a (µg/L)	25.72
Conductivity (µmhos/cm)	895	Secchi (meters)	0.48
ANC (µeq/L)	9844	Total Phosphorus (mg/L)	0.150
Calcium Ion (mg/L)	18	Total Nitrogen (mg/L)	1.864

LAKE CONDITION

Biological Indicators

Plankton (O/E)
NR

Physical Habitat

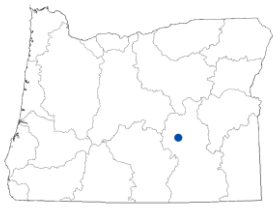
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Poor	*Poor*	*Poor*	*Poor*

Water Quality Indicatiors

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Poor	*Fair*	*Poor*	*Fair*

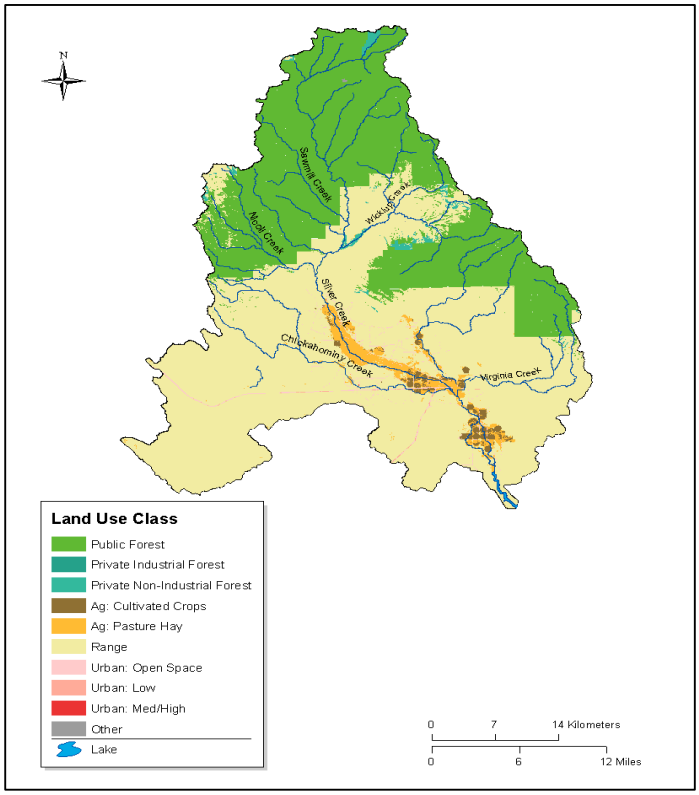
TROPHIC STATUS

Secchi	Chlorophyll-a
Hypereutrophic	*Eutrotrophic*
Total Phospourus	Total Nitrogen
Hypereutrophic	*Hypereutrophic*



Moon Reservoir

Harney County – Malheur Lake Basin
Lake Origin: Man Made
Elevation: 4170 ft (1263 meters)
Location: N 43.42061, W -119.41418



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
174,392 HA	0 peop/mi	40 cm	Felsic Pyroclastic

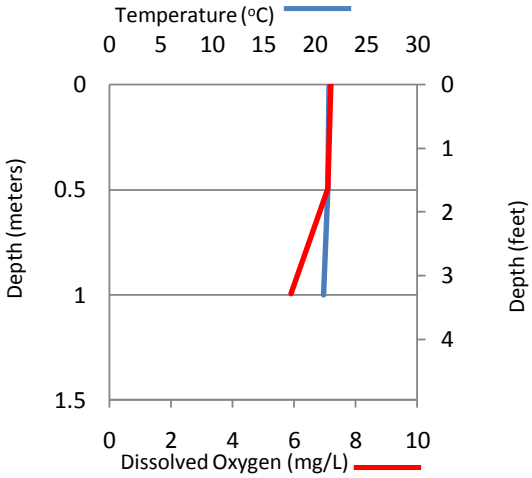
LAND USE

Forest	Agriculture	Range	Urban	Other
37%	4%	58%	1%	0%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
137 HA	1.5 meters	State/Federal

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	7/16/2007	Turbidity (NTU)	96
pH	8.3	Chlorophyll-a (µg/L)	38.73
Conductivity (µmhos/cm)	330	Secchi (meters)	0.15
ANC (µeq/L)	3432	Total Phosphorus (mg/L)	0.271
Calcium Ion (mg/L)	24.20	Total Nitrogen (mg/L)	1.525

LAKE CONDITION

Biological Indicators

Plankton (O/E)
NR

Physical Habitat

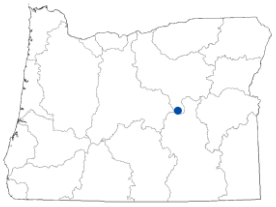
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Fair	*Poor*	*Fair*	*Poor*

Water Quality Indicators

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Poor	*Fair*	*Poor*	*Poor*

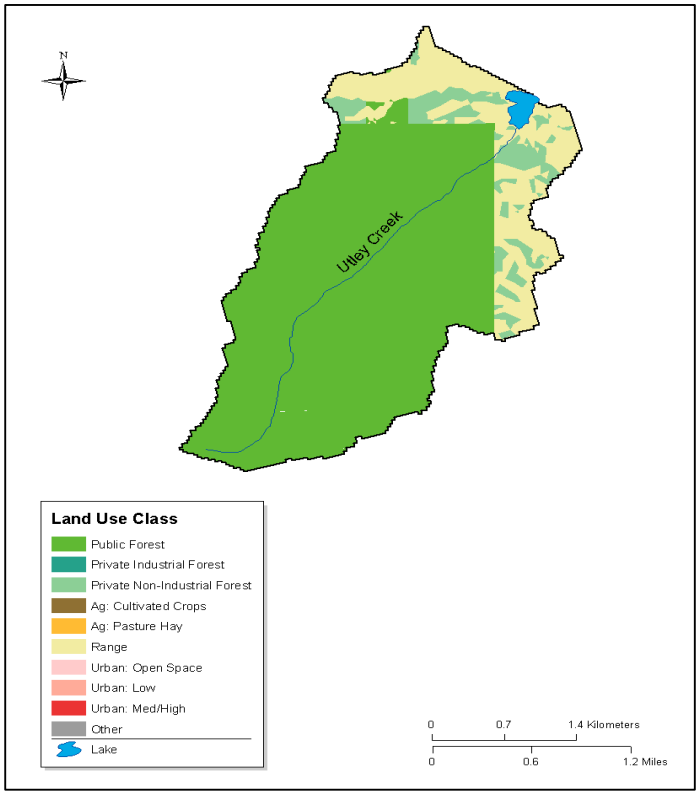
TROPHIC STATUS

Secchi	Chlorophyll-a
Hypereutrophic	*Hypereutrophic*
Total Phospourus	Total Nitrogen
Hypereutrophic	*Hypereutrophic*



Officers Reservoir

Grant County – John Day River Basin
Lake Origin: Man Made
Elevation: 4534 ft (1374 meters)
Location: N 43.98905, W -119.39465



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
1,030 HA	0 peop/mi	51 cm	Shale and Mudstone

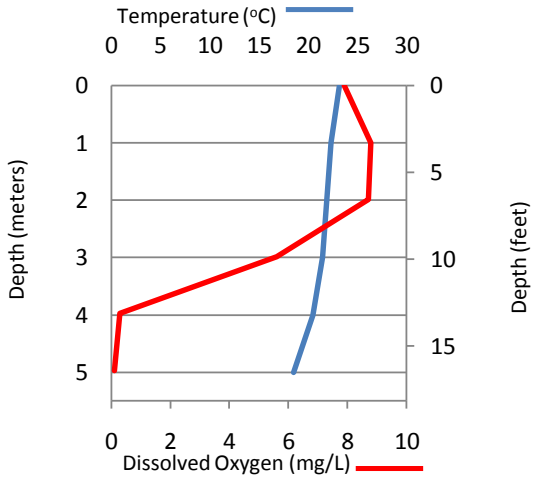
LAND USE

Forest	Agriculture	Range	Urban	Other
83%	0%	17%	0%	0%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
8 HA	5.6 meters	Private

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	8/1/2007	Turbidity (NTU)	9
pH	9.8	Chlorophyll-a (µg/L)	0.95
Conductivity (µmhos/cm)	216	Secchi (meters)	3.98
ANC (µeq/L)	2006	Total Phosphorus (mg/L)	0.036
Calcium Ion (mg/L)	13.24	Total Nitrogen (mg/L)	0.421

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Good

TROPHIC STATUS

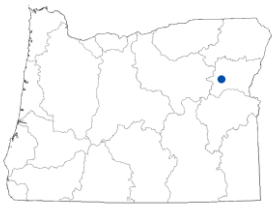
Secchi	Chlorophyll-a
Mesotrophic	*Oligotrophic*
Total Phospourus	Total Nitrogen
Eutrophic	*Mesotrophic*

Physical Habitat

Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Poor	*Poor*	*Fair*	*Poor*

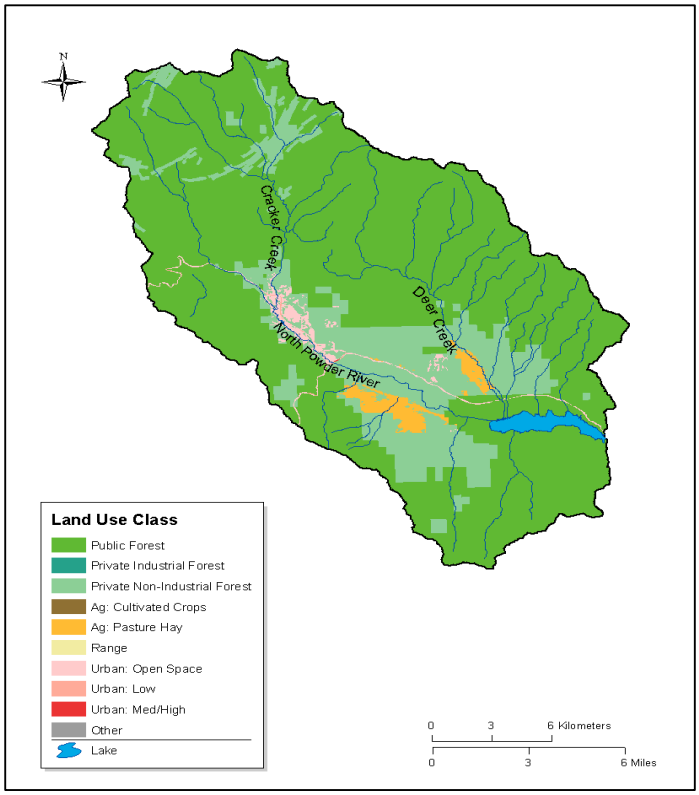
Water Quality Indicators

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Poor	*Poor*	*Poor*	*Good*



Phillips Reservoir

Baker County – Powder River Basin
Lake Origin: Man Made
Elevation: 4072 ft (1234 meters)
Location: N 42.06732, W -119.56076



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
42,693 HA	1 peop/mi	75 cm	Argillite and Slate

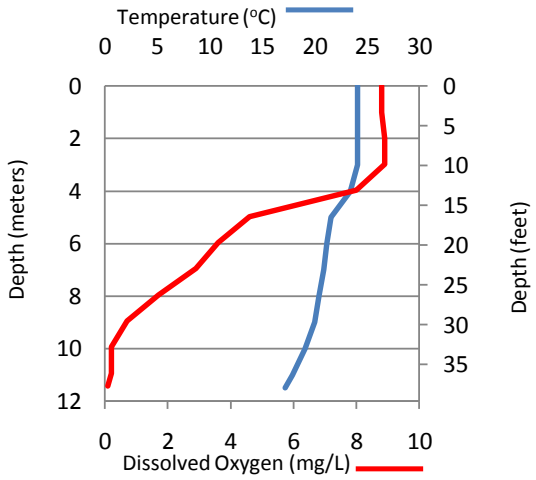
LAND USE

Forest	Agriculture	Range	Urban	Other
97 %	2%	0%	1%	0%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
434 HA	11.6 meters	State/Federal

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	7/30/2007	Turbidity (NTU)	4
pH	9.3	Chlorophyll-a (µg/L)	15.89
Conductivity (µmhos/cm)	106	Secchi (meters)	1.19
ANC (µeq/L)	878	Total Phosphorus (mg/L)	0.042
Calcium Ion (mg/L)	11.19	Total Nitrogen (mg/L)	0.531

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Fair

Physical Habitat

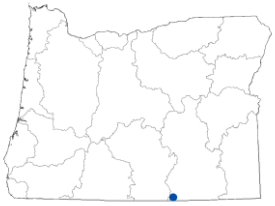
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Fair	*Poor*	*Poor*	*Poor*

Water Quality Indicators

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Poor	*Poor*	*Fair*	*Poor*

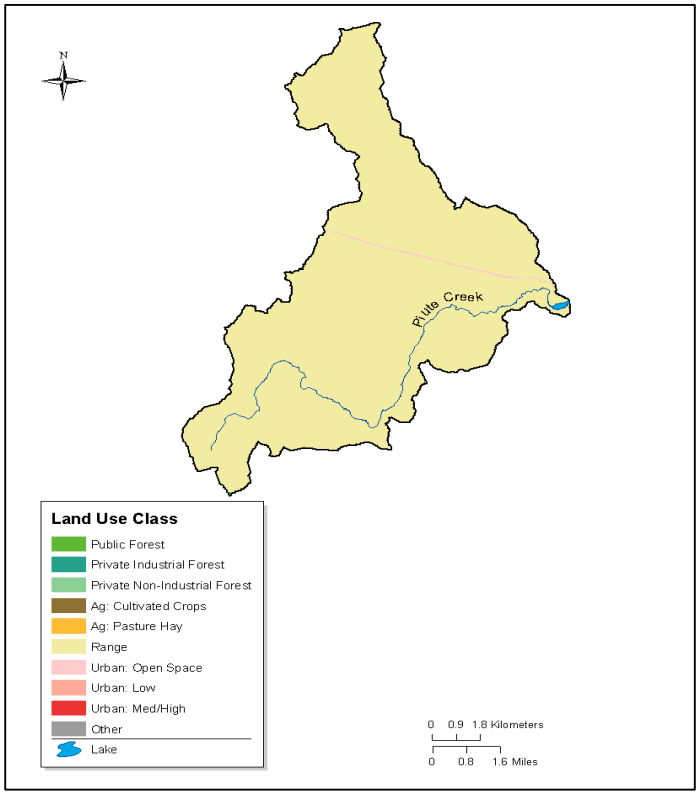
TROPHIC STATUS

Secchi	Chlorophyll-a
Eutrophic	*Eutrophic*
Total Phospourus	Total Nitrogen
Eutrophic	*Mesotrophic*



Piute Reservoir

Lake County – Malheur Lake Basin
Lake Origin: Man Made
Elevation: 5368 ft (1596 meters)
Location: N 44.68113, W -118.03660



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
11,609 HA	0 peop/mi	61 cm	Mafic Volcanic Flow

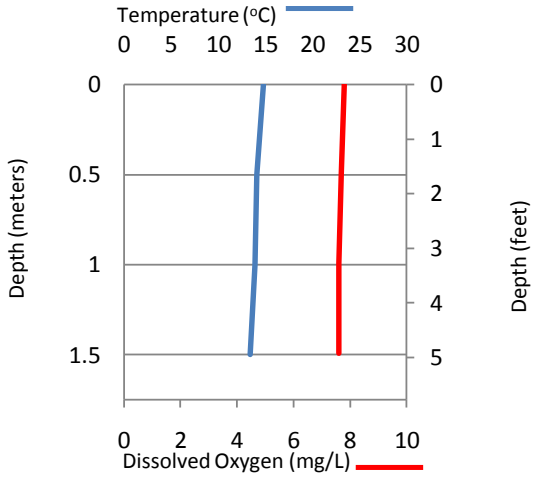
LAND USE

Forest	Agriculture	Range	Urban	Other
0%	0%	100%	0%	0%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
13 HA	1.7 meters	State/Federal

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	9/11/2007	Turbidity (NTU)	152
pH	7.7	Chlorophyll-a (µg/L)	4.64
Conductivity (µmhos/cm)	152	Secchi (meters)	0.11
ANC (µeq/L)	1511	Total Phosphorus (mg/L)	0.636
Calcium Ion (mg/L)	7.65	Total Nitrogen (mg/L)	1.674

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Poor

Physical Habitat

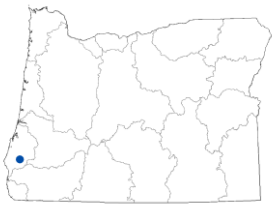
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Poor	*Poor*	*Poor*	*Poor*

Water Quality Indicators

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Poor	*Fair*	*Poor*	*Good*

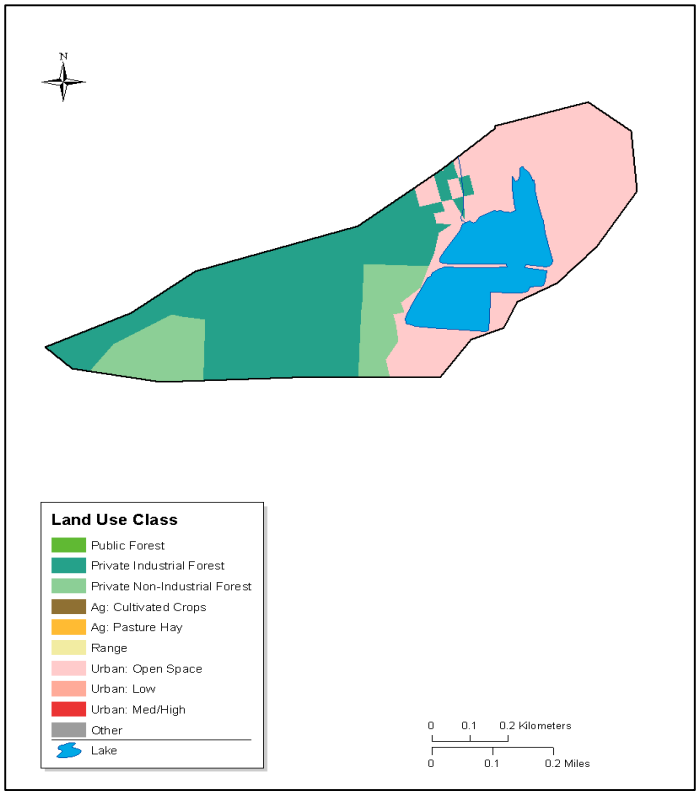
TROPHIC STATUS

Secchi	Chlorophyll-a
Hypereutrophic	*Mesotrophic*
Total Phospourus	Total Nitrogen
Hypereutrophic	*Hypereutrophic*



Powers Pond – Repeat Site

Coos County – South Coast Basin
Lake Origin: Man Made
Elevation: 279 ft (84 meters)
Location: N 42.89056, W -124.07641



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
62 HA	82 peop/mi	203 cm	Alluvium

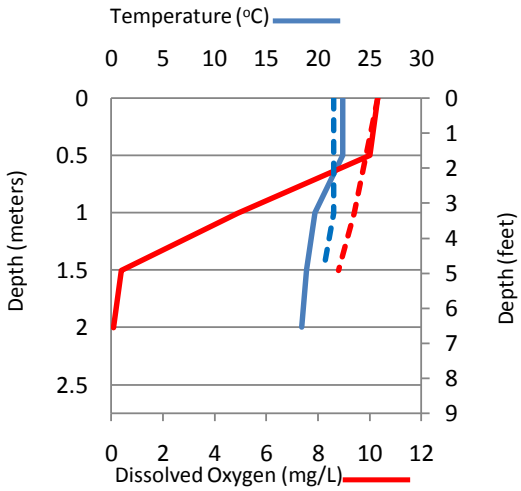
LAND USE

Forest	Agriculture	Range	Urban	Other
61%	2%	0%	37%	0%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
9 HA	2.2 meters	State/Federal

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	6/26 & 9/6/2007	Turbidity (NTU)	10, 14
pH	9.2, 9.5	Chlorophyll-a (µg/L)	73.73, 81.5
Conductivity (µmhos/cm)	101, 107	Secchi (meters)	0.82, 1.84
ANC (µeq/L)	830, 886	Total Phosphorus (mg/L)	0.176, 0.096
Calcium Ion (mg/L)	6.49, 7.79	Total Nitrogen (mg/L)	2.287, 1.027

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Poor

Physical Habitat

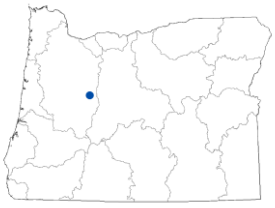
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Poor, Poor	*Poor, Poor*	*Good, Fair*	*Fair, Poor*

Water Quality Indicators

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Poor, Poor	*Poor, Poor*	*Poor, Poor*	*Poor, Poor*

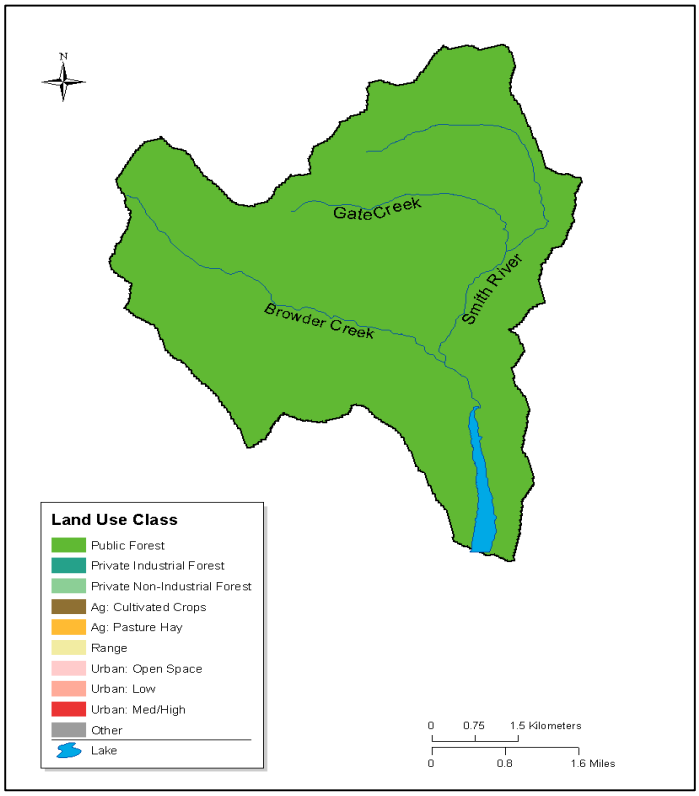
TROPHIC STATUS

Secchi	Chlorophyll-a
Eutrophic (2)	*Hypereutrophic (2)*
Total Phospourus	Total Nitrogen
Hyper/Eutrophic	*Hyper/Eutrophic*



Smith Reservoir

Linn County – Willamette River Basin
Lake Origin: Man Made
Elevation: 2605 ft (789 meters)
Location: N 44.31910, W -122.04590



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
4,564 HA	0 peop/mi	222 cm	Mafic Volcanic Flow

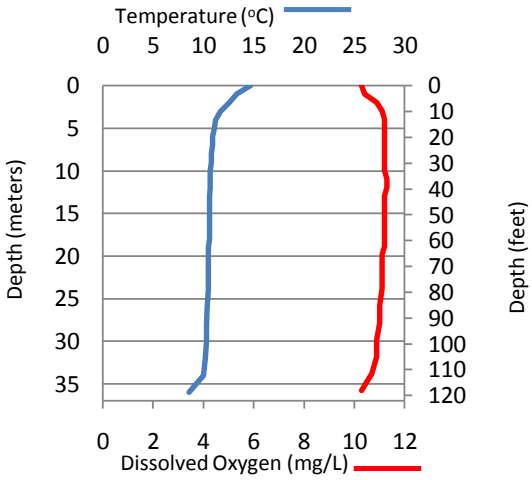
LAND USE

Forest	Agriculture	Range	Urban	Other
100%	0%	0%	0%	0%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
65 HA	42.4 meters	State/Federal

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	8/9/2007	Turbidity (NTU)	<2
pH	7.8	Chlorophyll-a (µg/L)	0.49
Conductivity (µmhos/cm)	56	Secchi (meters)	12.51
ANC (µeq/L)	497	Total Phosphorus (mg/L)	0.043
Calcium Ion (mg/L)	4.07	Total Nitrogen (mg/L)	0.087

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Fair

Physical Habitat

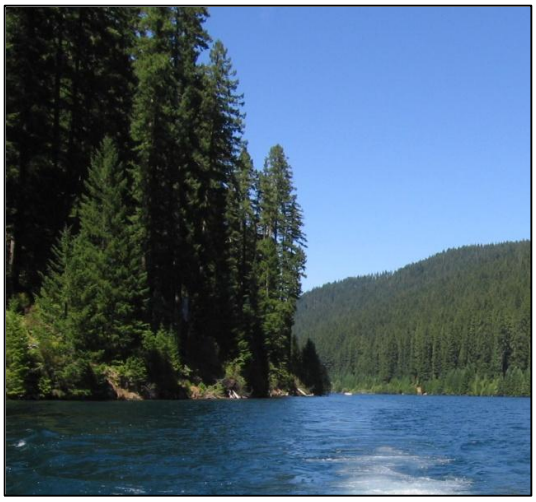
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Fair	*Good*	*Good*	*Good*

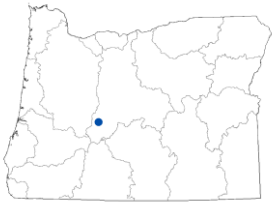
Water Quality Indicators

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Poor	*Good*	*Good*	*Good*

TROPHIC STATUS

Secchi	Chlorophyll-a
Oligotrophic	*Oligotrophic*
Total Phospourus	Total Nitrogen
Eutrophic	*Oligotrophic*





South Twin Lake

Deschutes County – Deschutes River Basin
Lake Origin: Natural
Elevation: 4334 ft (1313 meters)
Location: N 43.71219, W -121.76630

WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
131 HA	0 peop/mi	99 cm	Mafic Volcanic Flow

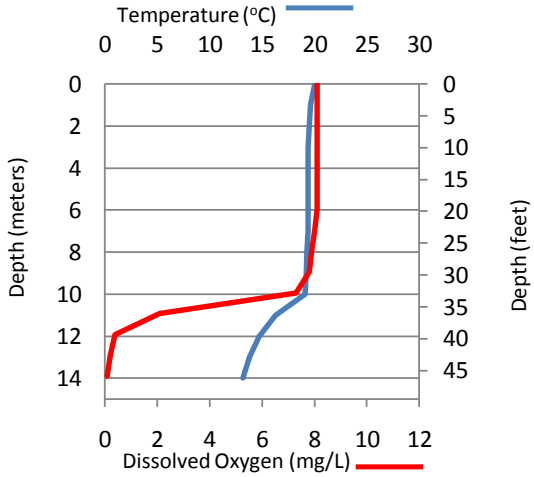
LAND USE

Forest	Agriculture	Range	Urban	Other
100%	0%	0%	0%	0%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
41 HA	15.2 meters	State/Federal

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	9/12/2007	Turbidity (NTU)	<2
pH	8.5	Chlorophyll-a (µg/L)	1.18
Conductivity (µmhos/cm)	152	Secchi (meters)	6.99
ANC (µeq/L)	1485	Total Phosphorus (mg/L)	0.005
Calcium Ion (mg/L)	8.60	Total Nitrogen (mg/L)	0.191

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Good

Physical Habitat

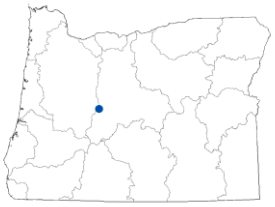
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Fair	*Good*	*Good*	*Good*

Water Quality Indicators

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Good	*Good*	*Good*	*Good*

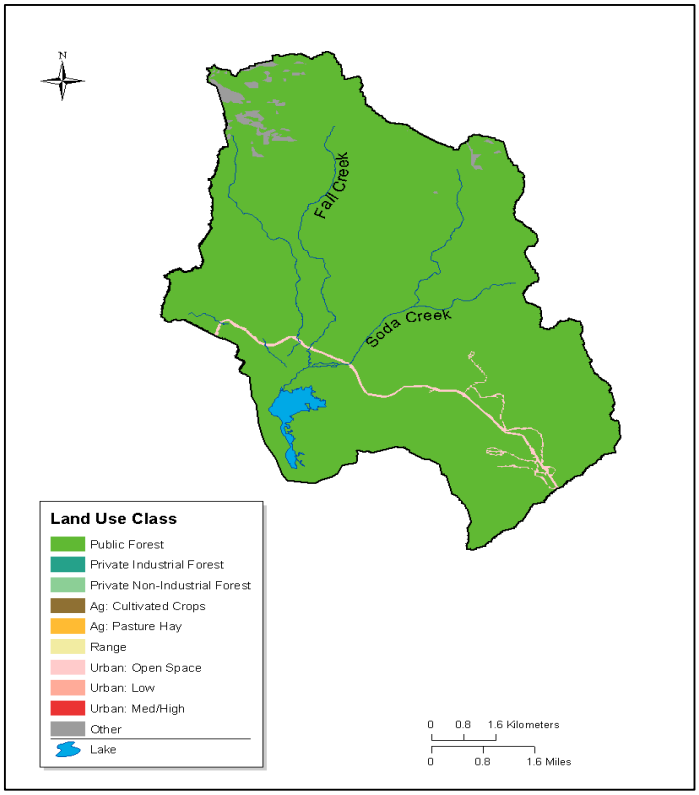
TROPHIC STATUS

Secchi	Chlorophyll-a
Oligotrophic	*Oligotrophic*
Total Phospourus	Total Nitrogen
Oligotrophic	*Oligotrophic*



Sparks Lake

Deschutes County – Deschutes River Basin
Lake Origin: Natural
Elevation: 5430 ft (1645 meters)
Location: N 43.99996, W -121.74327



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
9185 HA	0 peop/mi	171 cm	Mafic Volcanic Flow

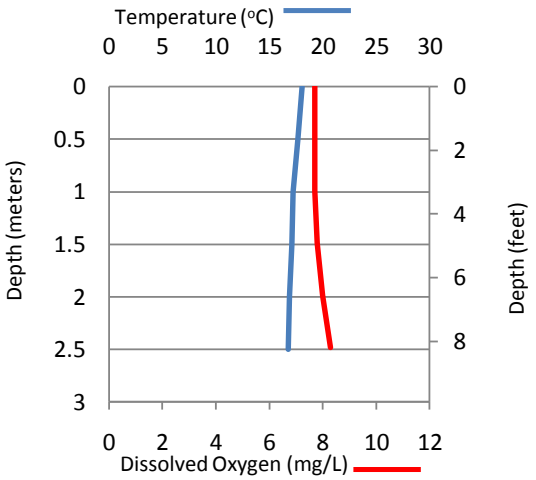
LAND USE

Forest	Agriculture	Range	Urban	Other
98%	0%	0%	0%	2%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
99 HA	3.0 meters	State/Federal

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	8/8/2007	Turbidity (NTU)	<2
pH	7.3	Chlorophyll-a (µg/L)	0.45
Conductivity (µmhos/cm)	25	Secchi (meters)	NR
ANC (µeq/L)	217	Total Phosphorus (mg/L)	0.036
Calcium Ion (mg/L)	1.42	Total Nitrogen (mg/L)	0.162

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Good

Physical Habitat

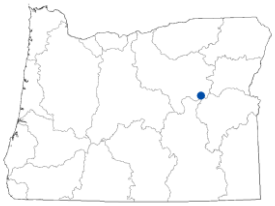
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Fair	*Good*	*Good*	*Good*

Water Quality Indicators

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Poor	*Good*	*Fair*	*Good*

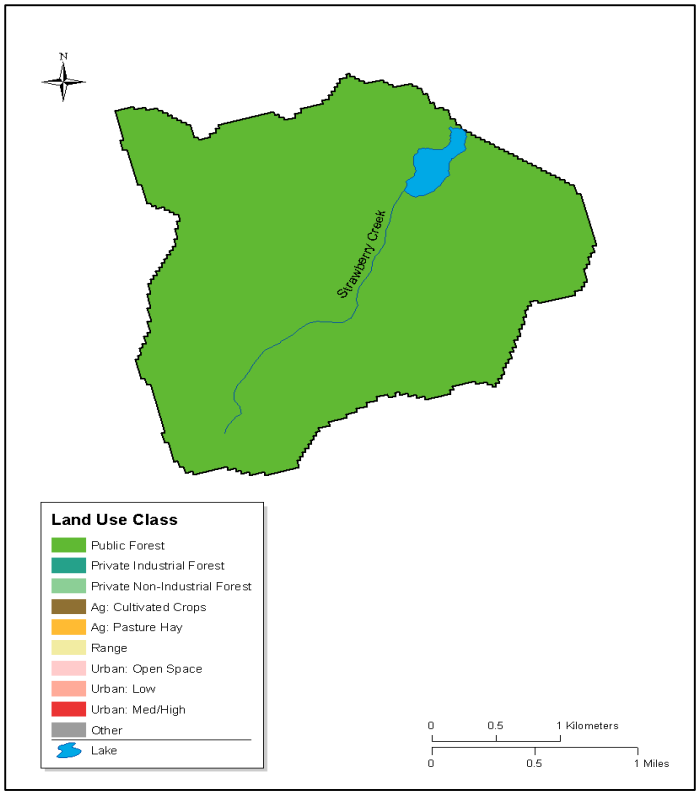
TROPHIC STATUS

Secchi	Chlorophyll-a
NR	*Oligotrophic*
Total Phospourus	Total Nitrogen
Eutrophic	*Oligotrophic*



Strawberry Lake

Grant County – John Day River Basin
Lake Origin: Natural
Elevation: 6263 ft (1898 meters)
Location: N 44.30901, W -118.68305



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
875 HA	0 peop/mi	100 cm	Mafic Volcanic Flow

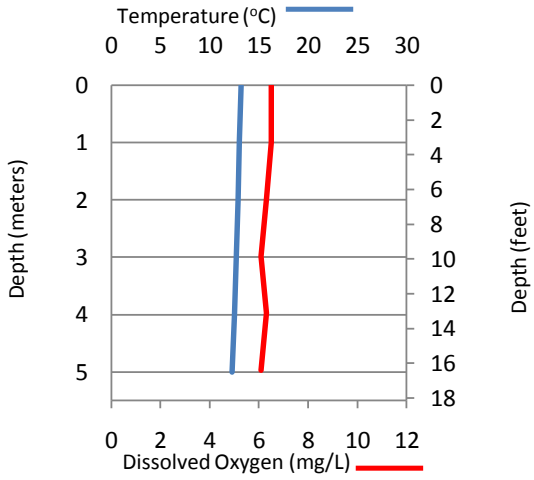
LAND USE

Forest	Agriculture	Range	Urban	Other
100%	0%	0%	0%	0%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
14 HA	6.0 meters	State/Federal

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	9/18/2007	Turbidity (NTU)	<2
pH	8.5	Chlorophyll-a (µg/L)	1.33
Conductivity (µmhos/cm)	45	Secchi (meters)	5.50
ANC (µeq/L)	408	Total Phosphorus (mg/L)	0.072
Calcium Ion (mg/L)	3.76	Total Nitrogen (mg/L)	0.423

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Poor

Physical Habitat

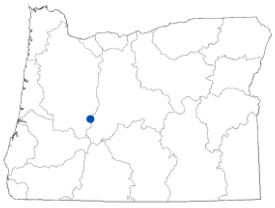
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Good	*Good*	*Fair*	*Good*

Water Quality Indicators

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Poor	*Poor*	*Good*	*Good*

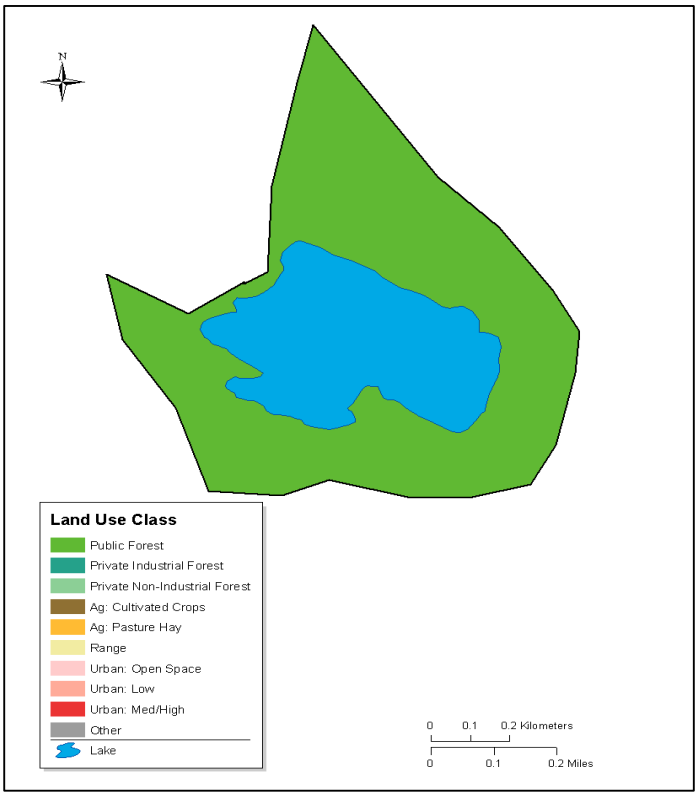
TROPHIC STATUS

Secchi	Chlorophyll-a
Oligotrophic	*Oligotrophic*
Total Phospourus	Total Nitrogen
Eutrophic	*Mesotrophic*



Torrey Lake

Lane County – Willamette River Basin
Lake Origin: Natural
Elevation: 5286 ft (1596 meters)
Location: N 43.79684, W -122.01880



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
90 HA	0 peop/mi	187 cm	Calc-Alkaline Volcanoclastic

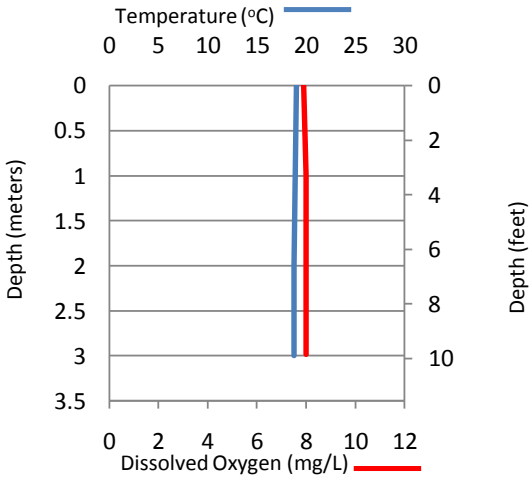
LAND USE

Forest	Agriculture	Range	Urban	Other
100%	0%	0%	0%	0%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
26 HA	3.6 meters	State/Federal

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	8/29/2007	Turbidity (NTU)	<2
pH	7.3	Chlorophyll-a (µg/L)	0.78
Conductivity (µmhos/cm)	11	Secchi (meters)	NR
ANC (µeq/L)	98	Total Phosphorus (mg/L)	<0.004
Calcium Ion (mg/L)	0.64	Total Nitrogen (mg/L)	0.228

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Good

Physical Habitat

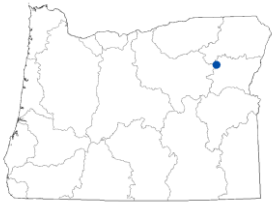
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Good	*Poor*	*Good*	*Fair*

Water Quality Indicators

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Good	*Good*	*Good*	*Good*

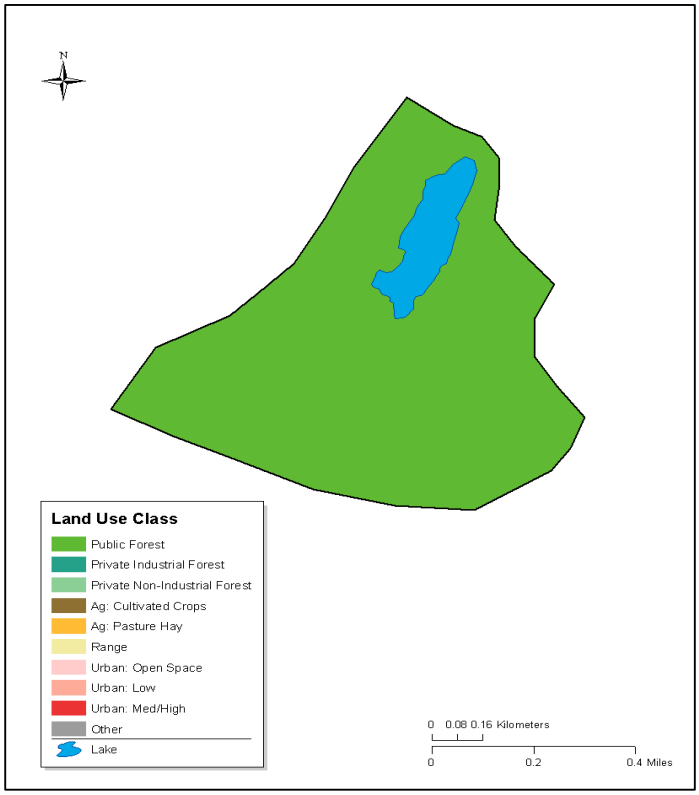
TROPHIC STATUS

Secchi	Chlorophyll-a
NR	*Oligotrophic*
Total Phospourus	Total Nitrogen
Oligotrophic	*Oligotrophic*



Van Patten Lake

Baker County – Powder River Basin
Lake Origin: Natural
Elevation: 7395 ft (2241 meters)
Location: N 44.95548, W -118.18523



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
120 HA	0 peop/mi	111 cm	Calc-Alkaline Intrusive

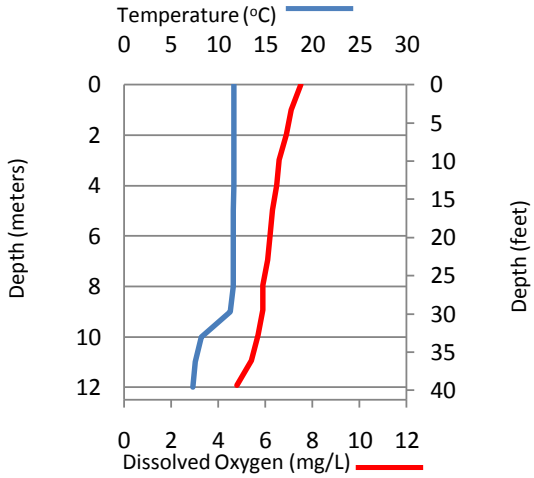
LAND USE

Forest	Agriculture	Range	Urban	Other
100%	0%	0%	0%	0%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
8 HA	12.9 meters	State/Federal

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	9/19/2007	Turbidity (NTU)	<2
pH	6.8	Chlorophyll-a (µg/L)	0.62
Conductivity (µmhos/cm)	22	Secchi (meters)	7.55
ANC (µeq/L)	159	Total Phosphorus (mg/L)	<0.004
Calcium Ion (mg/L)	2.22	Total Nitrogen (mg/L)	0.055

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Fair

Physical Habitat

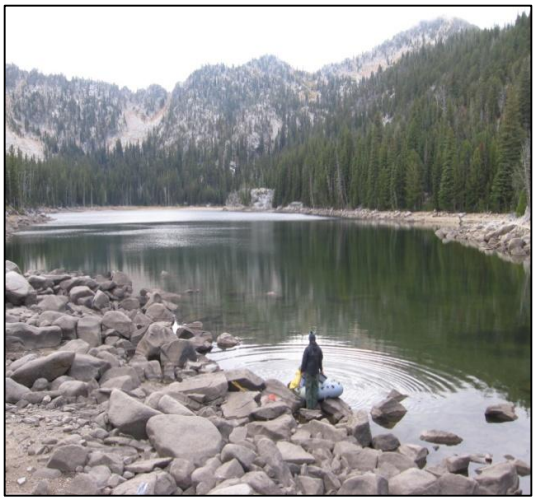
Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Good	*Fair*	*Fair*	*Poor*

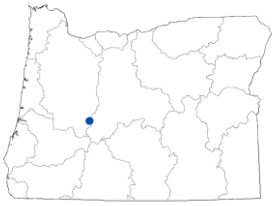
Water Quality Indicators

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Good	*Good*	*Good*	*Good*

TROPHIC STATUS

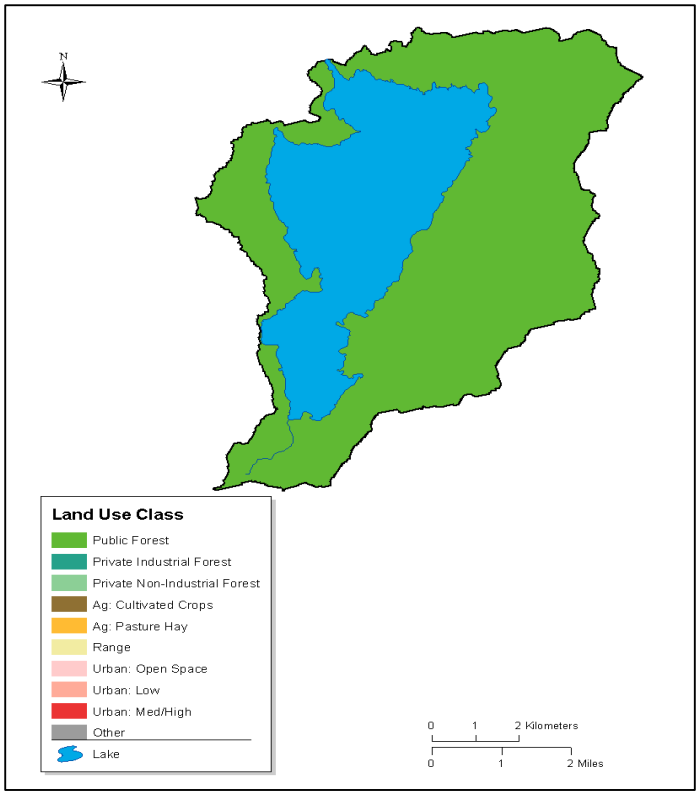
Secchi	Chlorophyll-a
Oligotrophic	*Oligotrophic*
Total Phospourus	Total Nitrogen
Oligotrophic	*Oligotrophic*





Waldo Lake

Lane County – Willamette River Basin
Lake Origin: Natural
Elevation: 5414 ft (1641 meters)
Location: N 43.74144, W -122.05994



WATERSHED CHARACTERISTICS

Area	Population Density	Annual Precipitation	Dominate Geology
7619 HA	0 peop/mi	188 cm	Calc-Alkaline Volcanoclastic

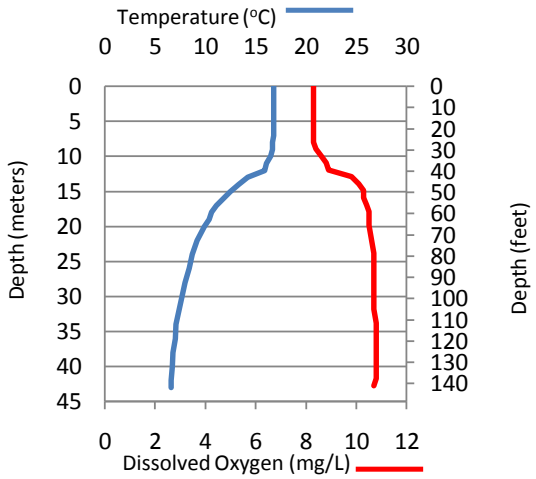
LAND USE

Forest	Agriculture	Range	Urban	Other
100%	0%	0%	0%	0%

LAKE CHARACTERISTICS

Lake Area	Maximum Depth	Manager
2423 HA	>45 meters	State/Federal

Temperature and Oxygen Profiles



WATER QUALITY PARAMETERS

Sample Date	8/28/2007	Turbidity (NTU)	<2
pH	6.6	Chlorophyll-a (µg/L)	0.07
Conductivity (µmhos/cm)	4.35	Secchi (meters)	36.71
ANC (µeq/L)	23	Total Phosphorus (mg/L)	<0.004
Calcium Ion (mg/L)	0.20	Total Nitrogen (mg/L)	<0.020

LAKE CONDITION

Biological Indicators

Plankton (O/E)
Good

Physical Habitat

Shoreline Human Disturbance	Riparian Veg Cover	Littoral Cover	Littoral and Riparian Cover
Good	*Good*	*Good*	*Good*

Water Quality Indicators

Total Phosphorus	Total Nitrogen	Turbidity	Chlorophyll-a
Good	*Good*	*Good*	*Good*

TROPHIC STATUS

Secchi	Chlorophyll-a
Oligotrophic	*Oligotrophic*
Total Phospourus	Total Nitrogen
Oligotrophic	*Oligotrophic*