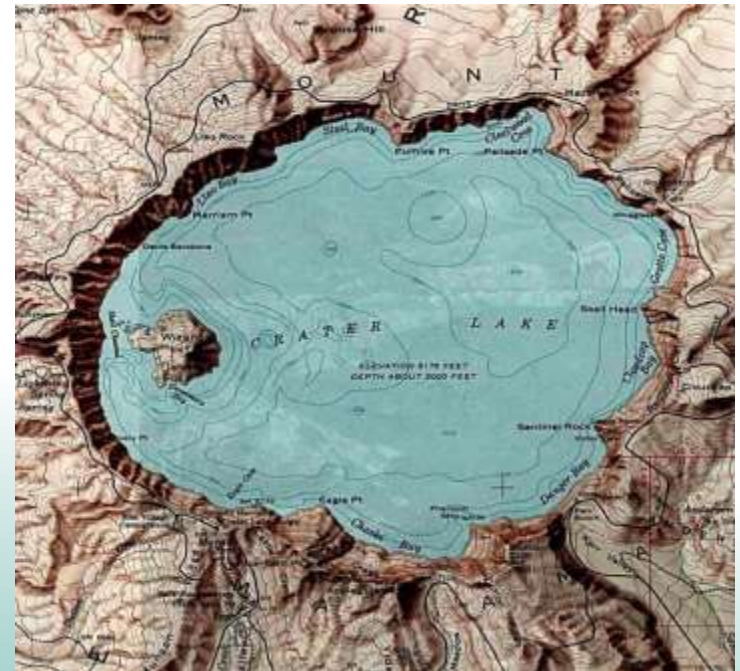


## Using Available Technologies to Access Environmental Data

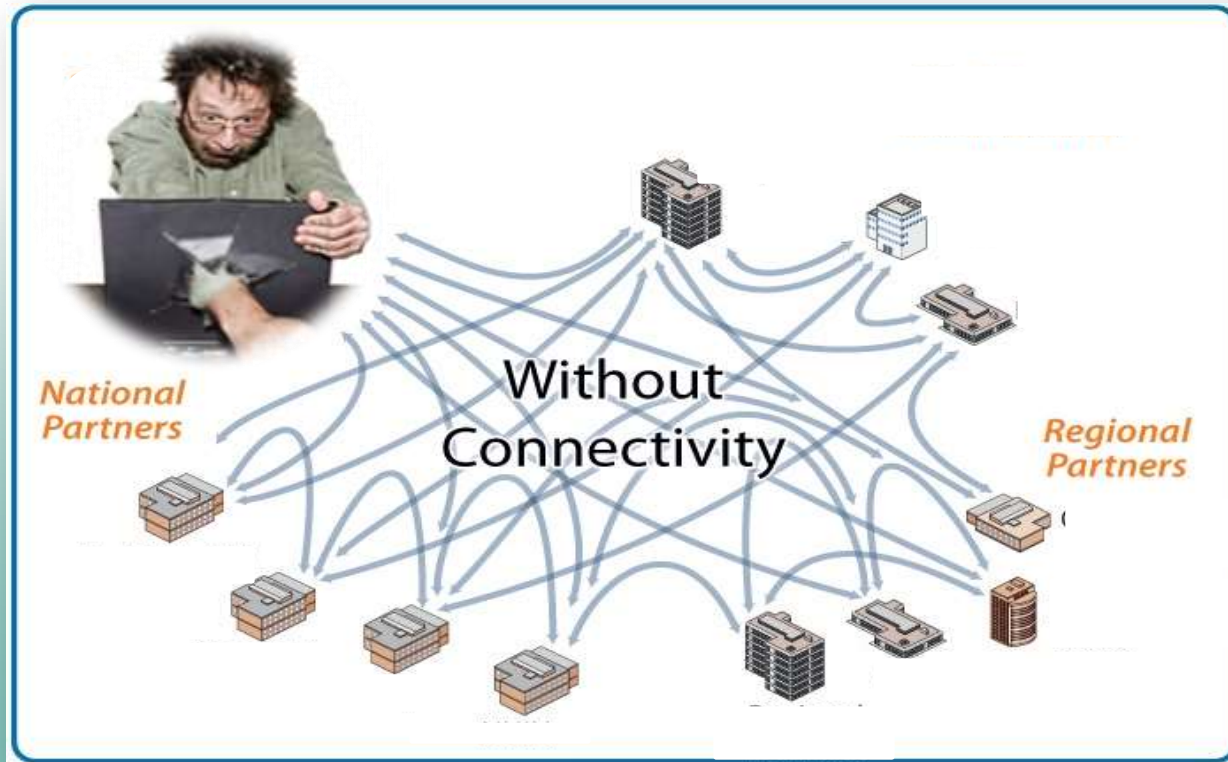


Dr. Mark Systma <sup>1</sup>, Dr. Richard Lycan <sup>1</sup>, Rich Miller <sup>1</sup>, Won Kim <sup>2</sup>

1. Introduction
2. Pacific Northwest WQ Exchange (PNWWQX)
3. Atlas of Oregon Lakes (AOL)
4. PNW meets AOL
5. Conclusion/Questions

## Introduction

- Reason we're here:



## Introduction

- Reasons to collaborate and utilize new technologies:



PNWWQX

Data Exchange  
Template

EPA R10 States

Internet

EN



```
graph TD; A[Data Exchange Template] --> C((EN)); B[EPA R10 States] --> C; D[Internet] --> C; E[PNWWQX] --- A;
```

The diagram illustrates a data exchange process. At the top right, a light green box labeled 'PNWWQX' is connected to a central blue box labeled 'Data Exchange Template'. From this template box, a large blue arrow points down to a central blue circle labeled 'EN'. To the left of the 'EN' circle, a blue box labeled 'EPA R10 States' has a blue arrow pointing towards the circle. To the right of the 'EN' circle, a blue box labeled 'Internet' has a blue arrow pointing towards the circle.

PNWWQX

Search - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Search

http://deq11.deq.state.or.us/pnwqpx/Search.aspx

## Pacific Northwest Water Quality Exchange

Home [Online Help](#)

Please select at least one data source. All other search fields are optional. For further assistance, click on the search field titles, see the Online Help available in the upper right of any screen, or use Email Support available in the lower left of any screen.

**Projects**

Data Source:

- Alaska (Ready)
- Inlet DB (Ready)
- Oregon (Ready)
- Skagumiah
- Washington (Ready)

Data Provider:  contains

Project Name:  contains

Project Organization:  contains


Project Date Range: After:  Before:

**Locations**

Responsible Organization:  contains

Station Name:  contains

Station Type: Estuary, Groundwater, Intertidal, Lake or Pond

Station Location: 

## PNWWQX

Please select at least one data source. All other search fields are optional. For further assistance, click on the search field titles, see the Online Help available in the upper right of any screen, or use Email Support available in the lower left of any screen.

### Projects

Data Source:

- Alaska (Ready)
- Host DB (Ready)
- Oregon (Ready)
- Stillaguamish
- Washington (Ready)

Data Provider:

 contains 

Project Name:

 contains 

Project Organization:

 contains 

Project Date Range:

After:   Before:   


### Locations

Responsible

# PNW - AOL

AK

+

WA

+

OR

+

SG

+

Host



PNW

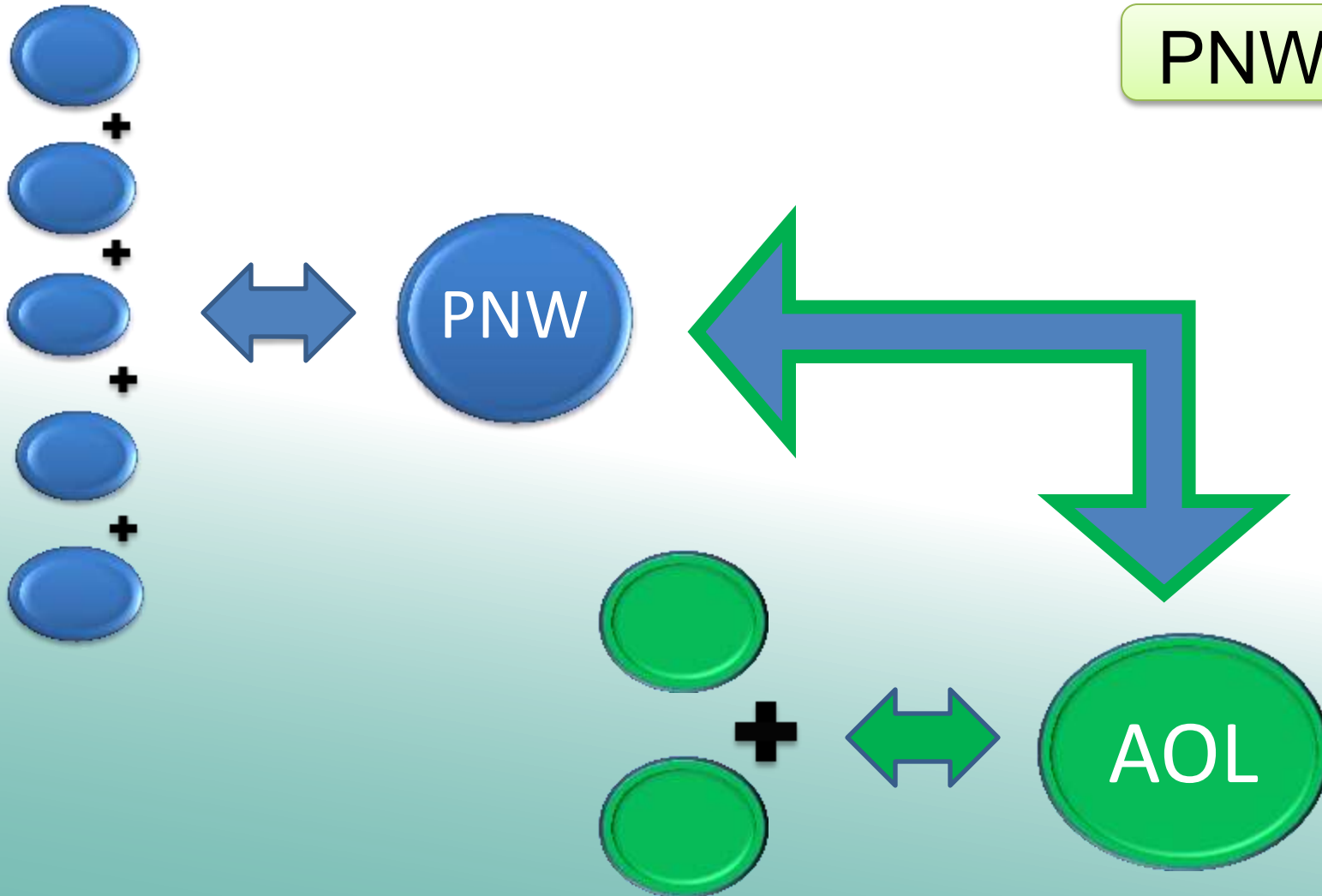


PNWWQX

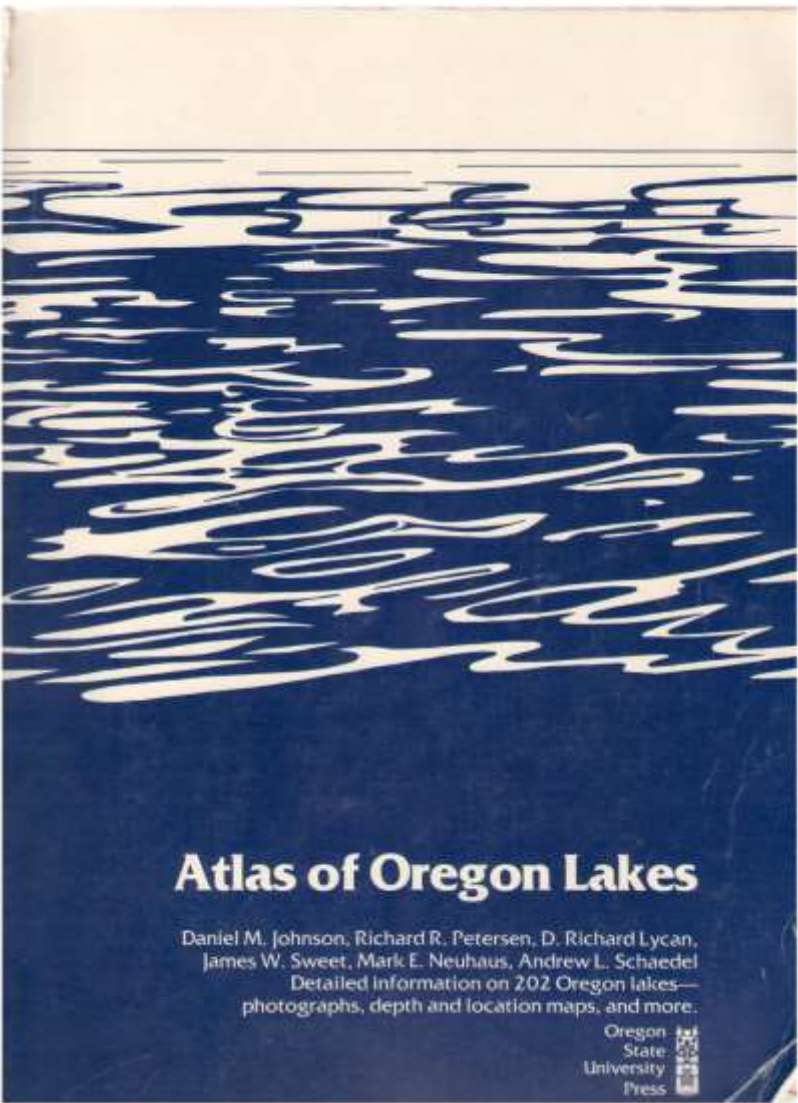


# PNW - AOL

PNWWQX



## AOL



The cover of the 'Atlas of Oregon Lakes' features a dark blue background with a pattern of white, wavy, abstract shapes that resemble water ripples or reflections. The title 'Atlas of Oregon Lakes' is printed in a bold, white, sans-serif font at the bottom left. Below the title, the authors' names and a brief description of the book's content are listed in a smaller white font. The Oregon State University Press logo is located at the bottom right of the cover.

### Atlas of Oregon Lakes

Daniel M. Johnson, Richard R. Petersen, D. Richard Lycan,  
James W. Sweet, Mark E. Neuhaus, Andrew L. Schaedel  
Detailed information on 202 Oregon lakes—  
photographs, depth and location maps, and more.

Oregon  
State  
University  
Press

- Johnson, D.M., R.R. Petersen, D.R. Lycan, J.W. Sweet, M.E. Neuhaus, and A.L. Schaedel.
- Published in 1985

## AOL

**Woahnik Lake**  
Lane County  
Mid Coast Basin

**LOCATION**

Area: 20,344 (2014-2015)	Perimeter: 207 (11.8 mi)
Peak: 1620 (500')	Max. Inlet/Outlet:
Location: 2 1/2 MI. EAST OF HAINES AND 1/2 MI. WEST 101	
Adjacent: 1000' (300') W. OF HWY 101	
USGS Quad: 420504 (200), 420503 (200)	
Coordinates: 42° 22' 55" N, 124° 09' 50" W	
COMPLET: 2014/04/15, 10/16/2015	



Source: Oregon National Guard, 1997-98, from looking north.

**Drainage Basin Characteristics**

Area / Flow (1000 ft <sup>2</sup> )	Watershed	Watershed	Watershed	Watershed	Watershed	Watershed	Watershed
Area: 20,344	Forest	Forest	Forest	Forest	Forest	Forest	Forest
Area: 20,344	Forest	Forest	Forest	Forest	Forest	Forest	Forest

**Water Quality**

Watershed: 100%

Watershed: 100%

Watershed: 100%

Watershed: 100%

Watershed: 100%

Watershed: 100%

Watershed: 100%

Watershed: 100%

Watershed: 100%

Watershed: 100%

**Hydrological Services**

**WATERSHED**

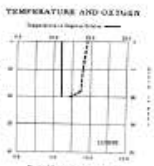
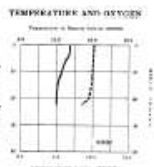
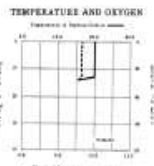
Area	Flow	Flow
Area: 20,344	Flow: 100	Flow: 100
Area: 20,344	Flow: 100	Flow: 100

**WATERSHED**

Area	Flow	Flow
Area: 20,344	Flow: 100	Flow: 100
Area: 20,344	Flow: 100	Flow: 100

**WATERSHED**

Area	Flow	Flow
Area: 20,344	Flow: 100	Flow: 100
Area: 20,344	Flow: 100	Flow: 100



1. Woahnik Lake
2. Shoshone Lake
3. Chastain Lake
4. US Highway 101



www.aol.research.pdx.edu

AOL

## Atlas of Oregon Lakes

Home | About | Interactive Map | Individual Lakes Pages

A B C D E F G H I J K L M N O P  
R S T U V W

### Woahink Lake (Lane County)

#### Introduction

Woahink Lake is a large, deep, clear lake located about three miles inland from the central Oregon coast, directly south of the city of Florence. The lake is popular for boating, swimming and fishing. Fish species include yellow perch, largemouth bass, rainbow trout, cutthroat trout, kokanee, and coho salmon. Woahink Lake's primary recreational access is through Jessie C. Honeyman State Park. This 522-acre park covers about 15 percent of the lake's shoreline and contains developed recreational areas and natural areas. An endangered species of pitcher plant (*Darlingtonia californica*) grows in the bog areas within the park. Much of the remainder consists of private lakeside residences.

The lake basin owes its origin to the periods of submergence and emergence of the coastal zone that accompanied the latter stages of the Pleistocene Epoch (Cooper 1958). During periods of submergence, coastal streams were inundated by the higher sea level. Subsequent migration of sand dunes across the mouths of the streams as ocean levels decreased created impoundments. The current water surface of Woahink Lake is 38 feet above mean sea level, and the bottom at its deepest point is 74 feet deep, or about 36 feet below sea level, the lowest of any of the sand-dune dammed lakes on the Oregon coast. Tributaries feed three large arms from the north and east; the longest of the three is only about three miles in length. The lake empties southward into adjacent Siltcoos Lake via Woahink Creek.

#### Watershed Characteristics

Woahink Lake's watershed is 1784 hectares with 16.8 percent covered by the lake itself. More than half of the watershed is covered with conifer and hardwood forests. The eastern shoreline of the lake abuts the forested foothills of the Coast Range. The remainder consists of residential

Maps Summary Statistics Water Quality Photos



Click to go to the interactive map.

Lakebasin

www.aol.research.pdx.edu

AOL

## Atlas of Oregon Lakes

[Home](#) | [Interactive Map](#) | [Lake Pages](#)

### Woahink Lake (Lane County, Douglas County)(Lane County)

Area: 745.98 acres  
Shoreline Length: 13.76 mi  
[Atlas Page](#)  
[Data Plots](#)  
[Supplementary Downloads](#)  
[Download Data](#)

[Location](#) [About](#)

[+](#) [Layers](#)

[+](#) [Legend](#)

[-](#) [Lake List](#)



500 m  
2000 ft

Scale = 1 : 27K

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-124.07793, 43.93816




Lake Search

A B C D E F G H I J K L M N O P  
R S T U V W

## Woahink Lake (Lane County)

### Introduction

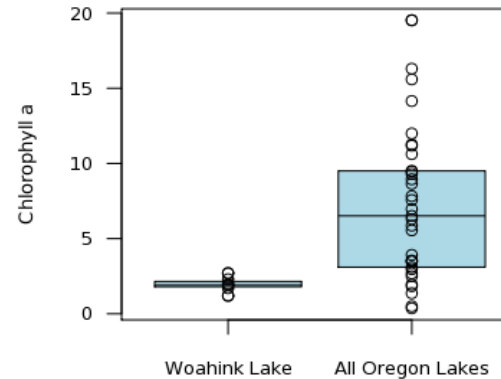
Woahink Lake is a large, deep, clear lake located about three miles inland from the central Oregon coast, directly south of the city of Florence. The lake is popular for boating, swimming and fishing. Fish species include yellow perch, largemouth bass, rainbow trout, cutthroat trout, kokanee, and coho salmon. Woahink Lake's primary recreational access is through Jessie C. Honeyman State Park. This 522-acre park covers about 15 percent of the lake's shoreline and contains developed recreational areas and natural areas. An endangered species of pitcher plant (*Darlingtonia californica*) grows in the bog areas within the park. Much of the remainder consists of private lakeside residences.

The lake basin owes its origin to the periods of submergence and emergence of the coastal zone that accompanied the latter stages of the Pleistocene Epoch (Cooper 1958). During periods of submergence, coastal streams were inundated by the higher sea level. Subsequent migration of sand dunes across the mouths of the streams as ocean levels decreased created impoundments. The current water surface of Woahink Lake is 38 feet above mean sea level, and the bottom at its deepest point is 74 feet deep, or about 36 feet below sea level, the lowest of any of the sand-dune dammed lakes on the Oregon coast. Tributaries feed three large arms from the north and east; the longest of the three is only about three miles in length. The lake empties southward into adjacent Siltcoos Lake via Woahink Creek.

### Watershed Characteristics

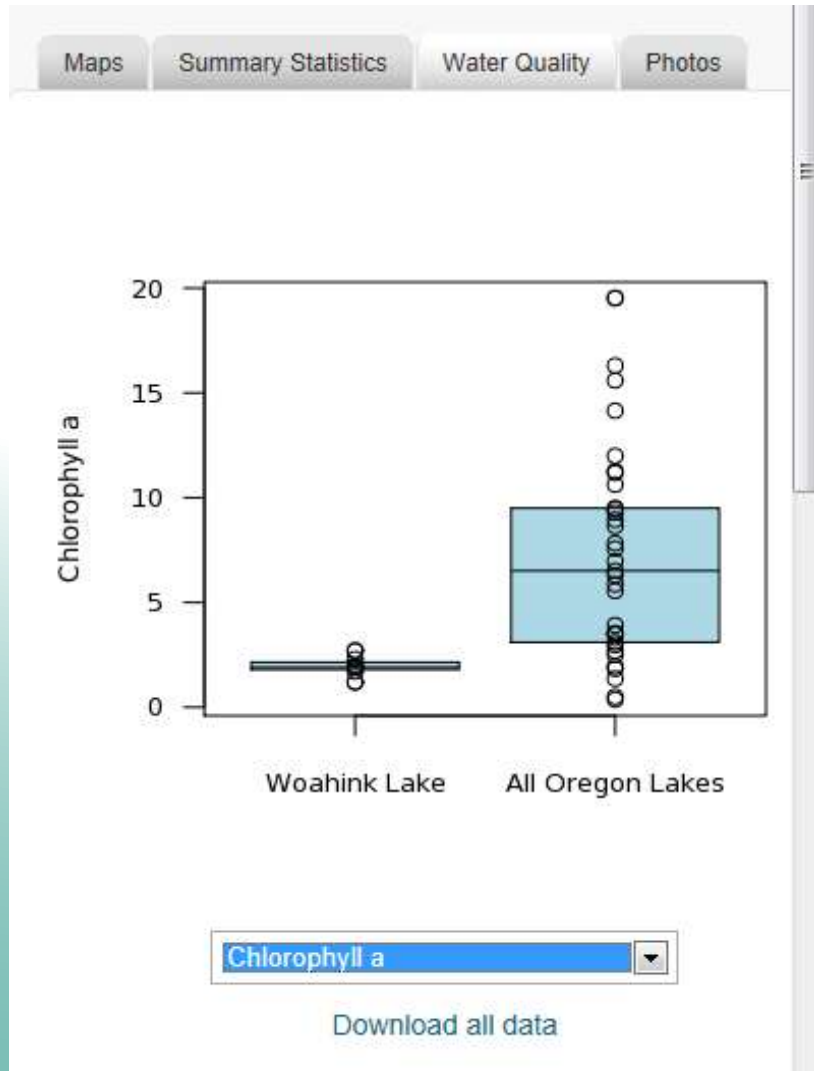
Woahink Lake's watershed is 4704 hectares with 46.8 percent covered by the lake itself. Most

Maps Summary Statistics Water Quality Photos



Chlorophyll a

Download all data




## PNW-AOL

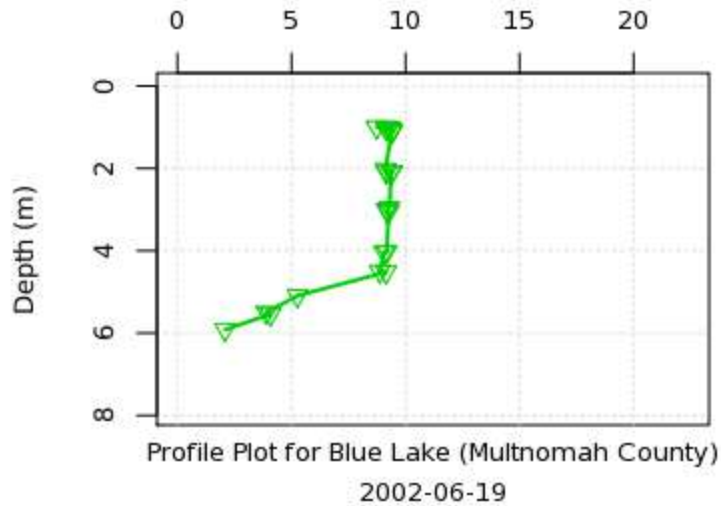
- Data call from PNW
- Real time data manipulation with PostgreSQL and plotting with PL/R
- Data call for each lake downloadable

Maps

Summary Statistics

Water Quality

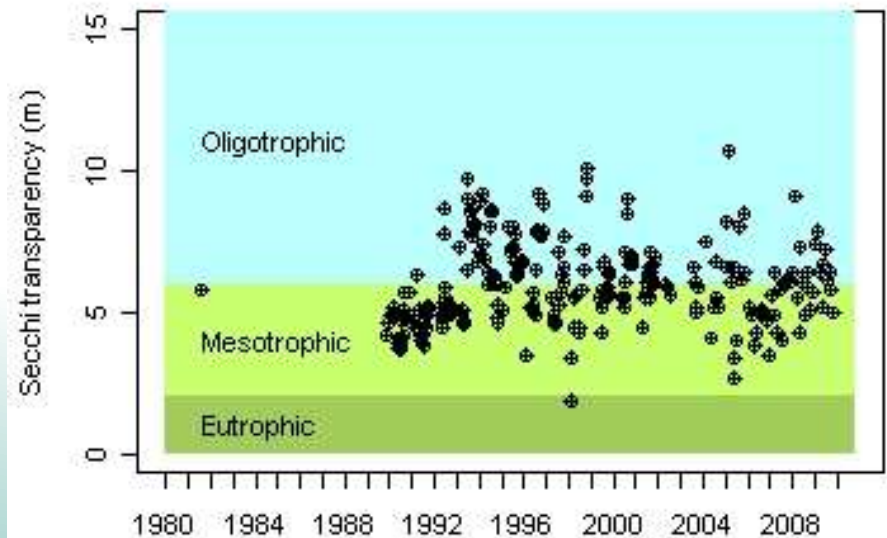
 Dissolved Oxygen (mg/l)



2002-06-19

[Download all data](#)

## PNW-AOL





## Conclusion

- Partnerships
- Data portals
- Data presentation
- Next steps: more data into PNW, consume other data sets, scope data user needs, add/improve plots and narratives.

Many thanks to:

Questions?

- PSU – Center for Lakes and Reservoirs
- Dr. Rich Lycan
- Curtis Cude (OHA)
- Academic Research and Computing (ARC)
- Exchange Network – Environmental Council of States (ECOS)
- US EPA
- Oregon DEQ