



The Bear River Basin

*Point and non-point sources of
Nitrogen loading in
the surface water*

Jonna van Opstal

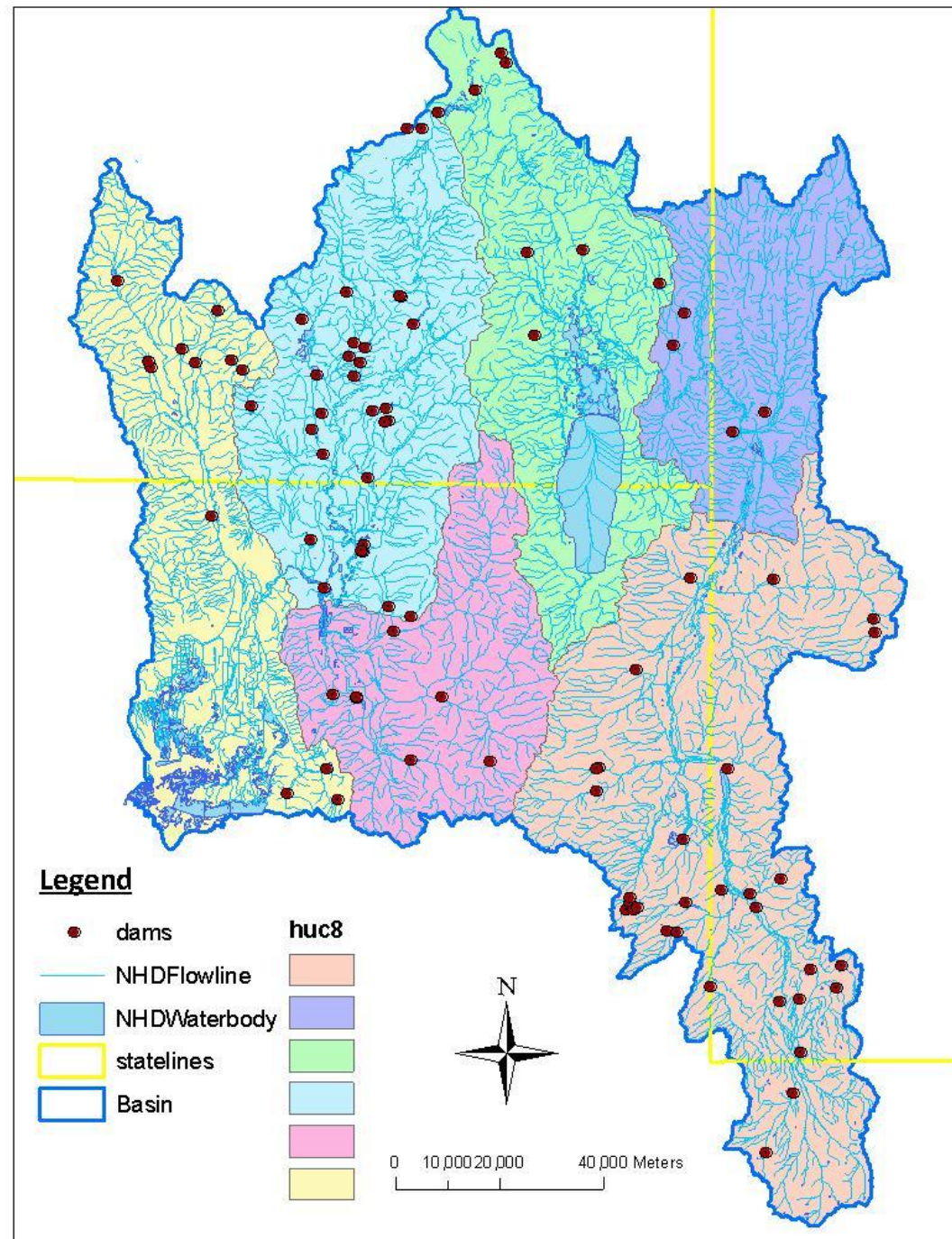
Introduction



Introduction

- 3 states
- 6 HUC-8's
- 491 miles

Uinta mtns >
Great Salt Lake



Objectives

1. Holistic dataset on water quality issues
2. Determine point and non-point sources of N loading in the Bear River

e.g. industries (point source) and agricultural runoff (non-point source)

Methodology

Step 1
Acquiring data

Step 2
Displaying
holistic datasets

Step 3
Water quality
measurements

Step 4
Analysis data

Bearriverinfo.org

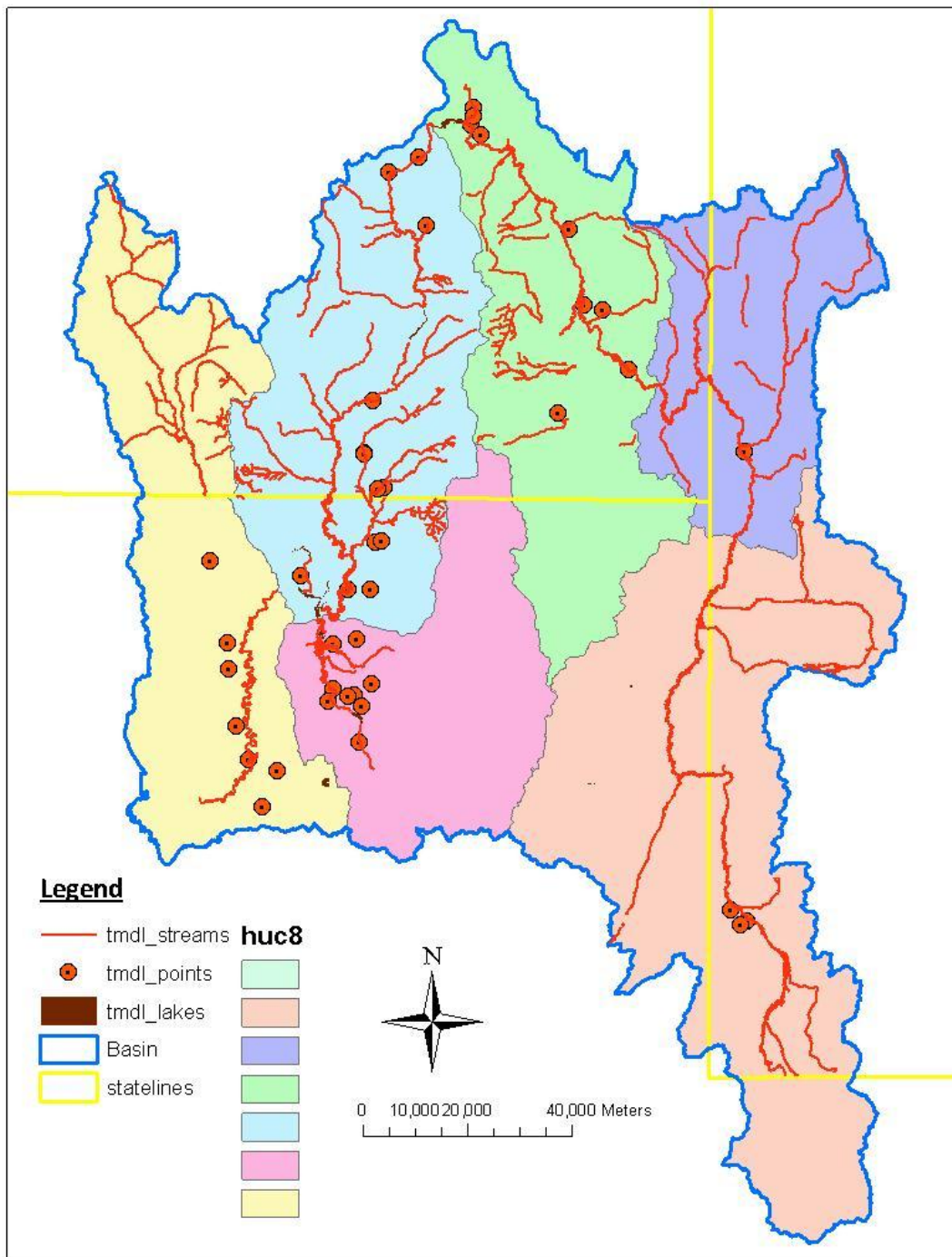
*Tools:
clip, dissolve*

*Waterdata.usgs.gov
Tools: selection by
attributes, editing*

*Landcover
vs
Water quality*

Impaired rivers

- Exceeding TMDL
- Utah water quality standard
 - $\text{NO}_3\text{-N}$ 4 mg/L
 - P 0.05 mg/L



USGS water quality stations

USGS Water Data for the Na x

waterdata.usgs.gov/nwis/

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National Water Information System: Web Interface

USGS Water Resources

Data Category: Home Geographic Area: United States GO

News updated July, 2011

USGS Water Data for the Nation

Data Category

- Real-time data** **Current-conditions** data transmitted from selected surface-water, groundwater, and water-quality sites.
- Site information** Descriptive site information for all sites with links to all available water data for individual sites.
- Surface water** Water flow and levels in streams, lakes, and springs.
- Groundwater** Water levels in wells.
- Water quality** Chemical and physical data for streams, lakes, springs, and wells.
- Mapper** Map of all sites with links to all available water data for individual sites.

Introduction

These pages provide access to water-resources data collected at approximately 1.5 million sites in all 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, American Samoa and the Commonwealth of the Northern Mariana Islands. Online access to this data is organized around the categories listed to the left.

The USGS investigates the occurrence, quantity, quality, distribution, and movement of surface and underground waters and disseminates the data to the public, State and local governments, public and private utilities, and other Federal agencies involved with managing our water resources.

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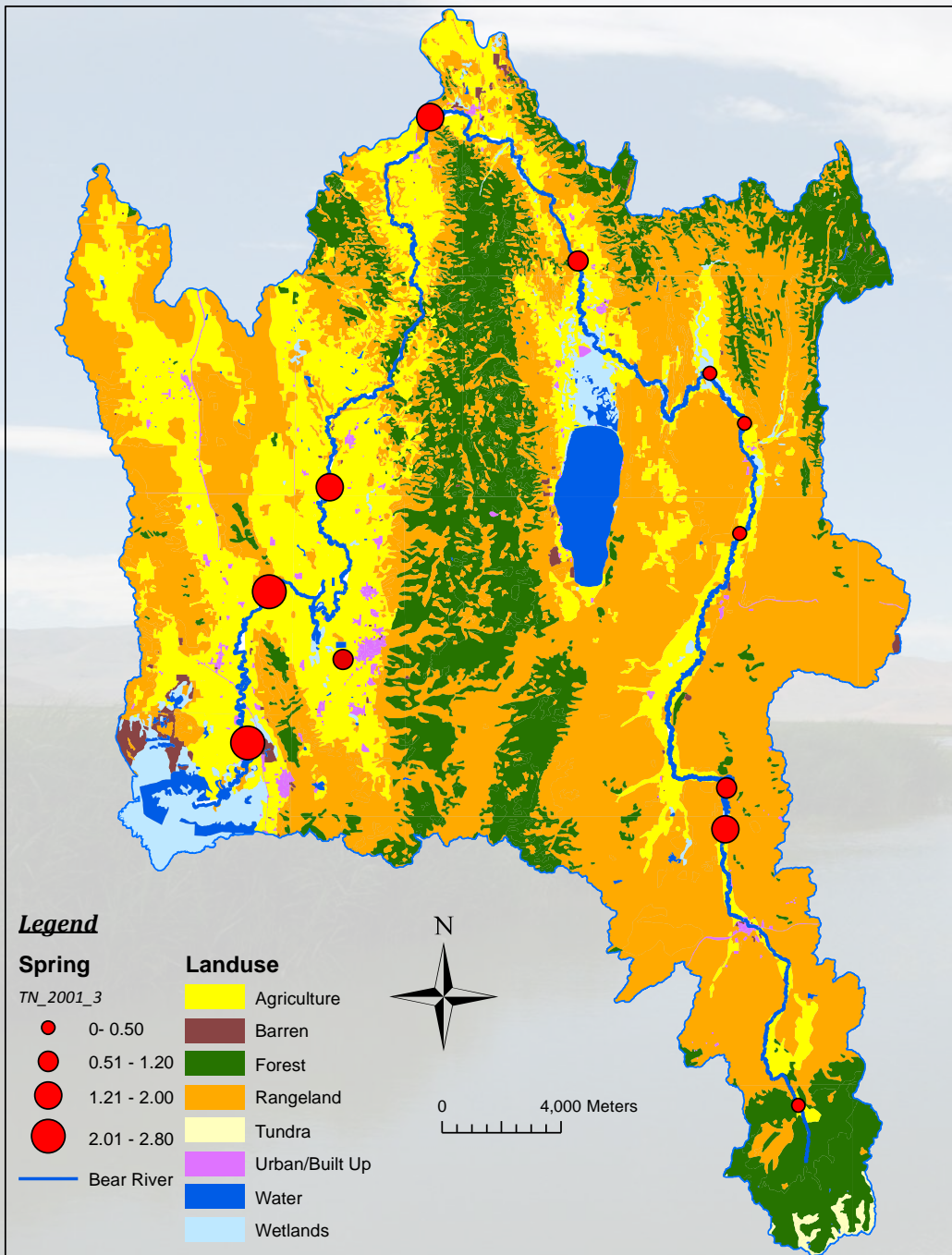
U.S. Department of the Interior | U.S. Geological Survey

Title: USGS Water Data for USA
URL: <http://waterdata.usgs.gov/nwis/>

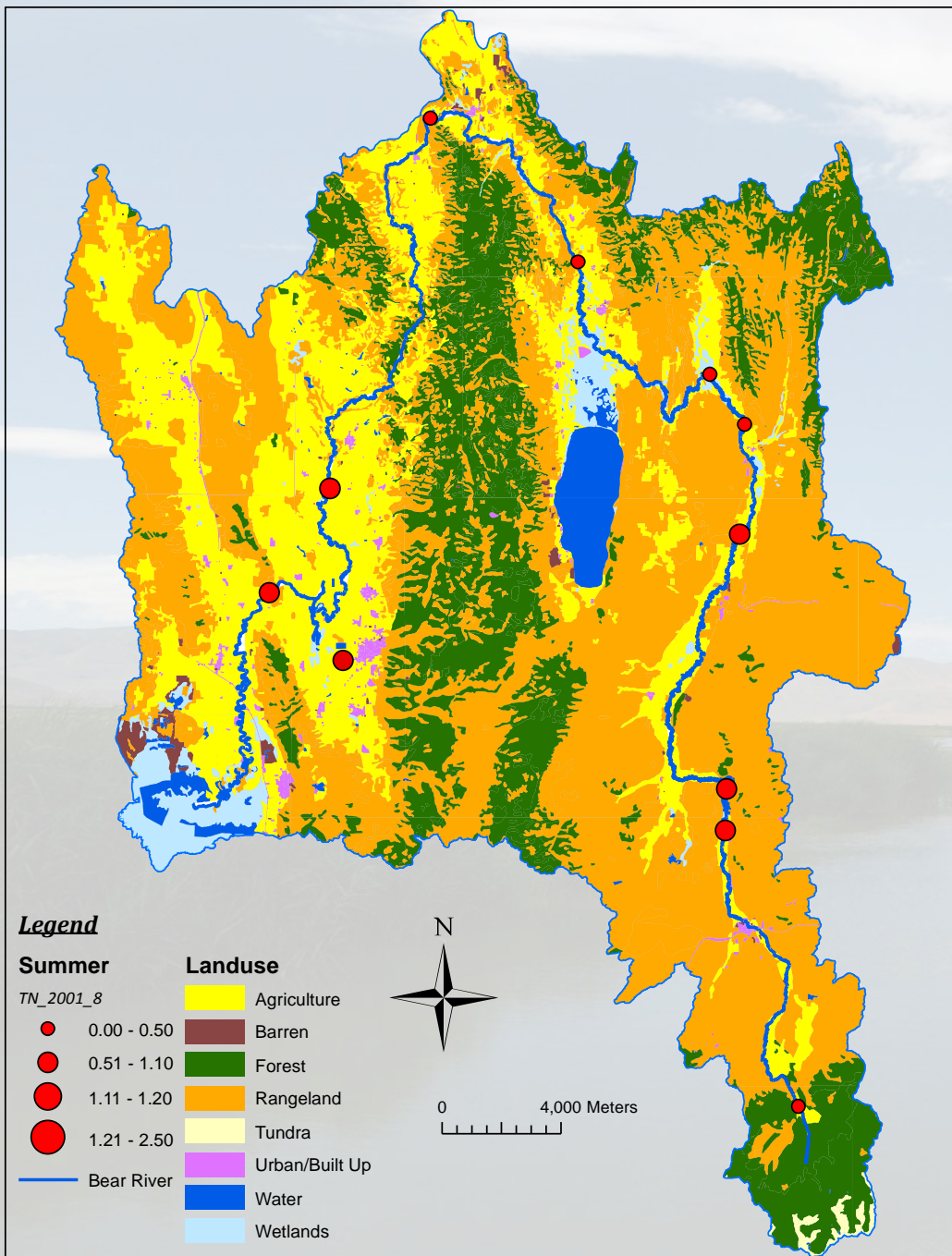
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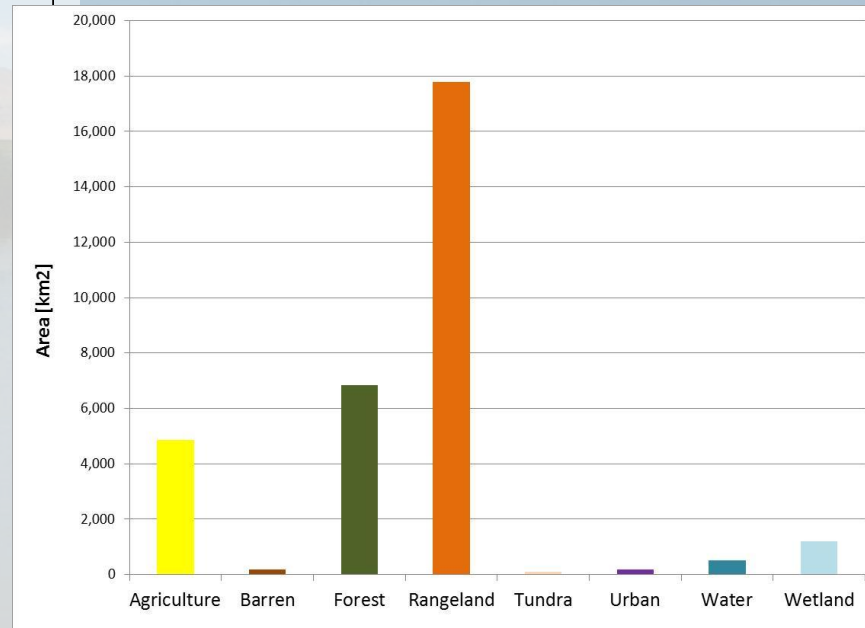
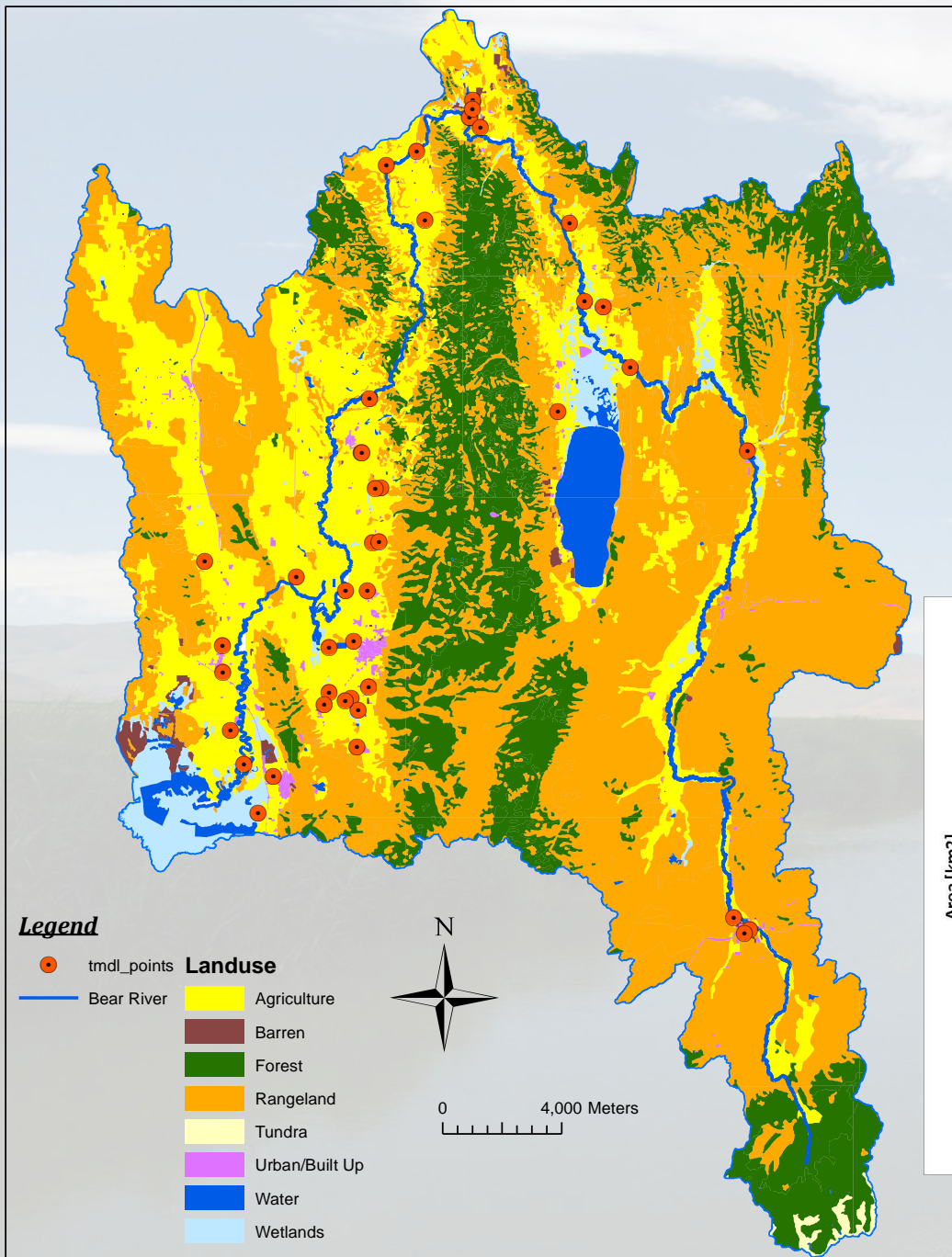
Total N Spring



Total N Summer



Point and non-point sources



Summary

- Holistic dataset
- Water quality measurements:
 - Samples, no real time data
 - Consistency
 - Concentrations [mg/L]
- Modeling with schematic processor



Thank you!