Upper Grande Ronde River TMDLs

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Oregon Department of Environmental Quality

Upper Grande Ronde River TMDLs

- The federal Clean Water Act requires states to restore and maintain the chemical, physical, and biological integrity of the nation's waters and to adopt water quality standards necessary to protect fish, shellfish, and wildlife while providing for recreation in and on the waters whenever possible.

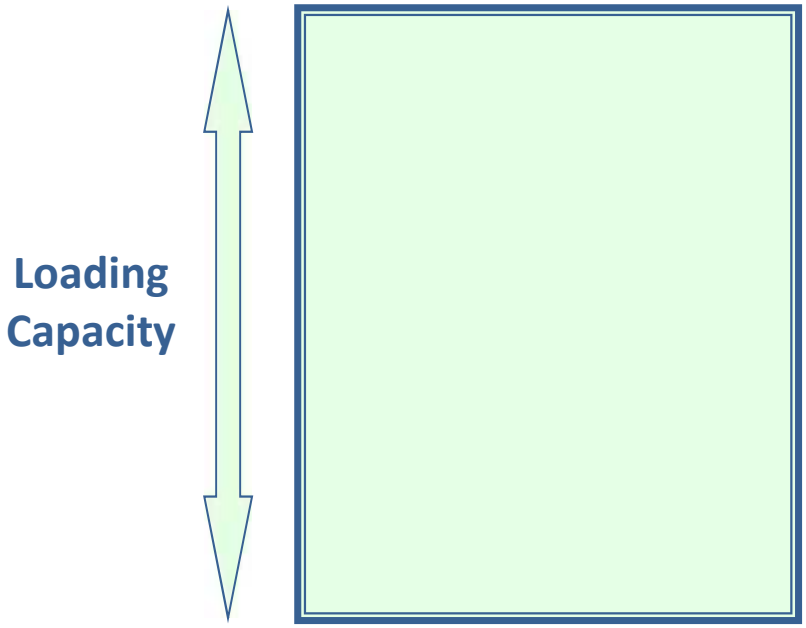
- Listing of impaired water bodies every 2 years
  – 303(d) list

- Oregon must develop a water quality improvement plan (TMDL), for those water bodies not meeting water quality standards.

What is a TMDL?

(Total Maximum Daily Load)

Every water body can accept a certain amount of pollutants and still meet water quality standards.



What is a TMDL?

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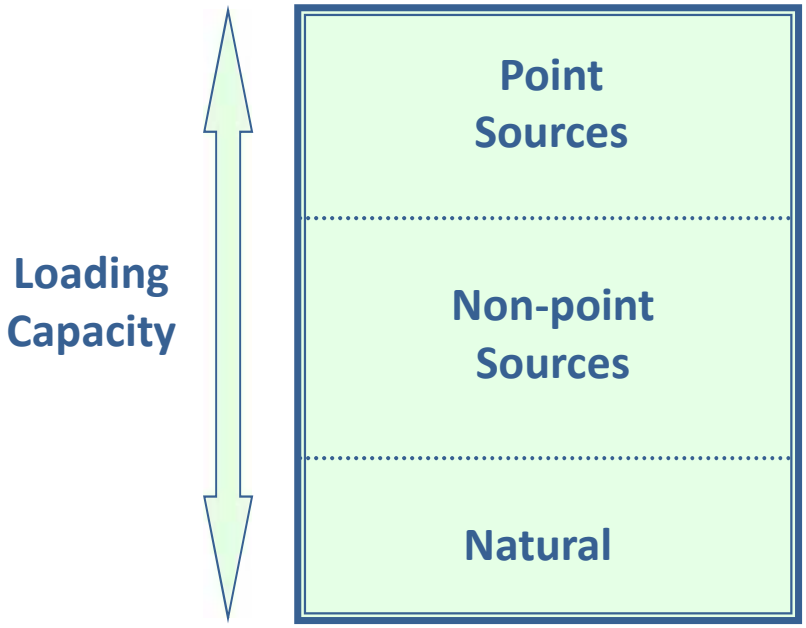
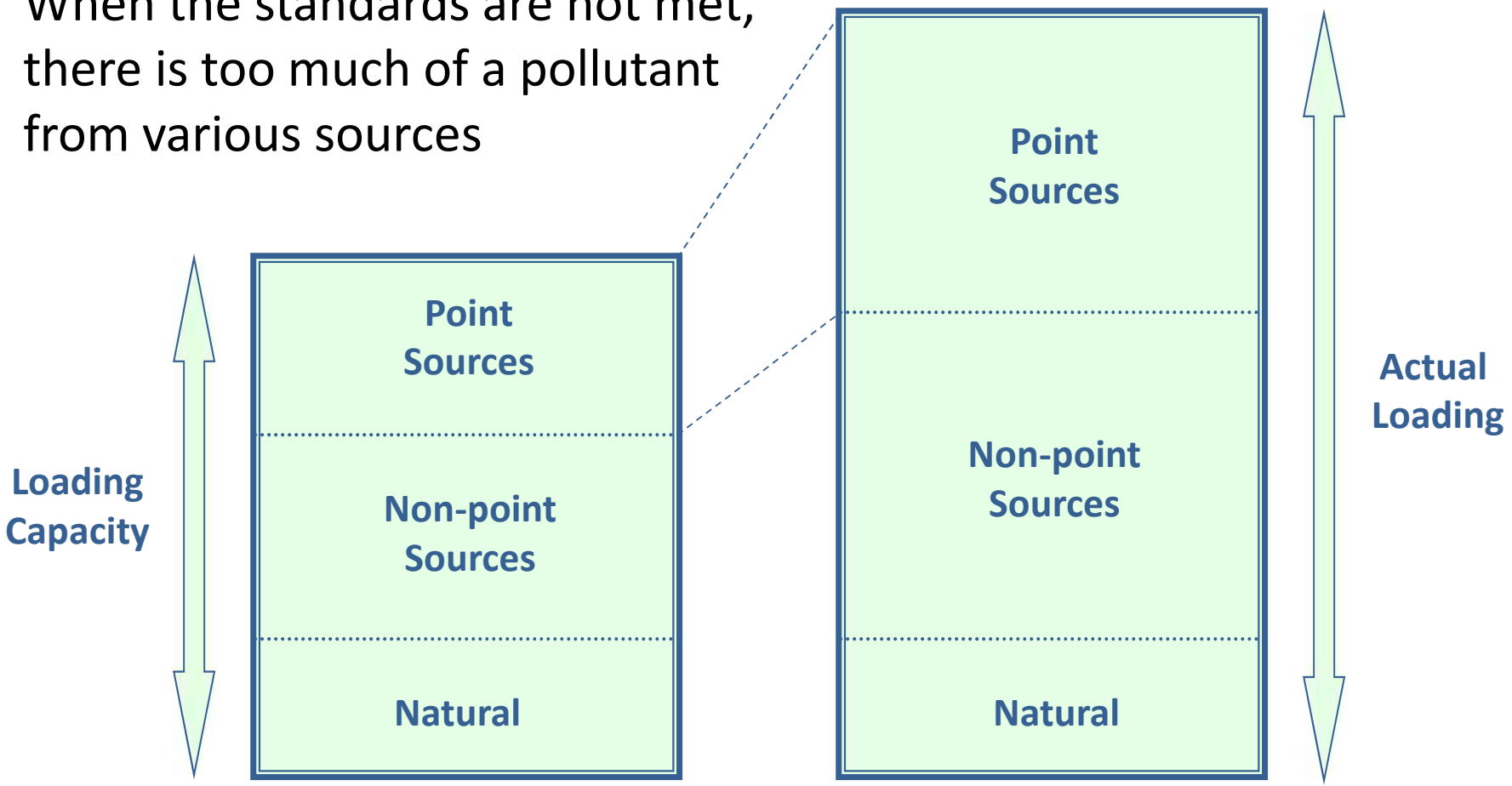


Natural sources

What is a TMDL?

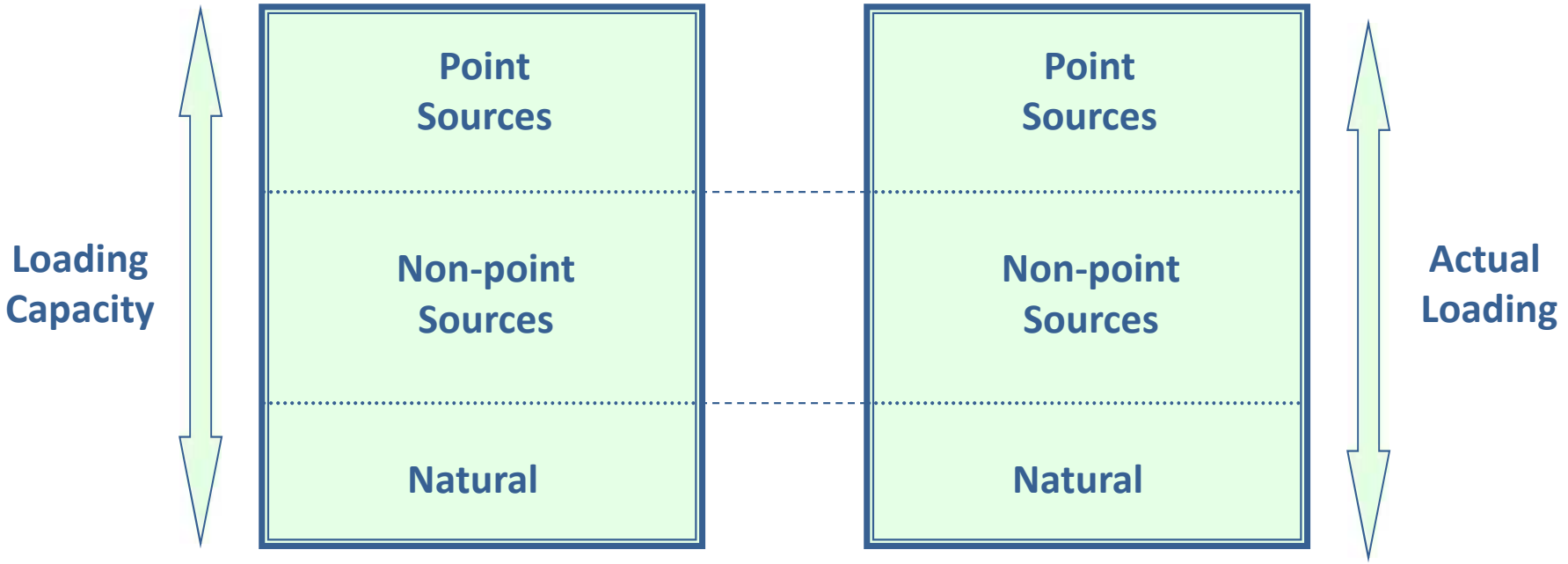
When the standards are not met, there is too much of a pollutant from various sources

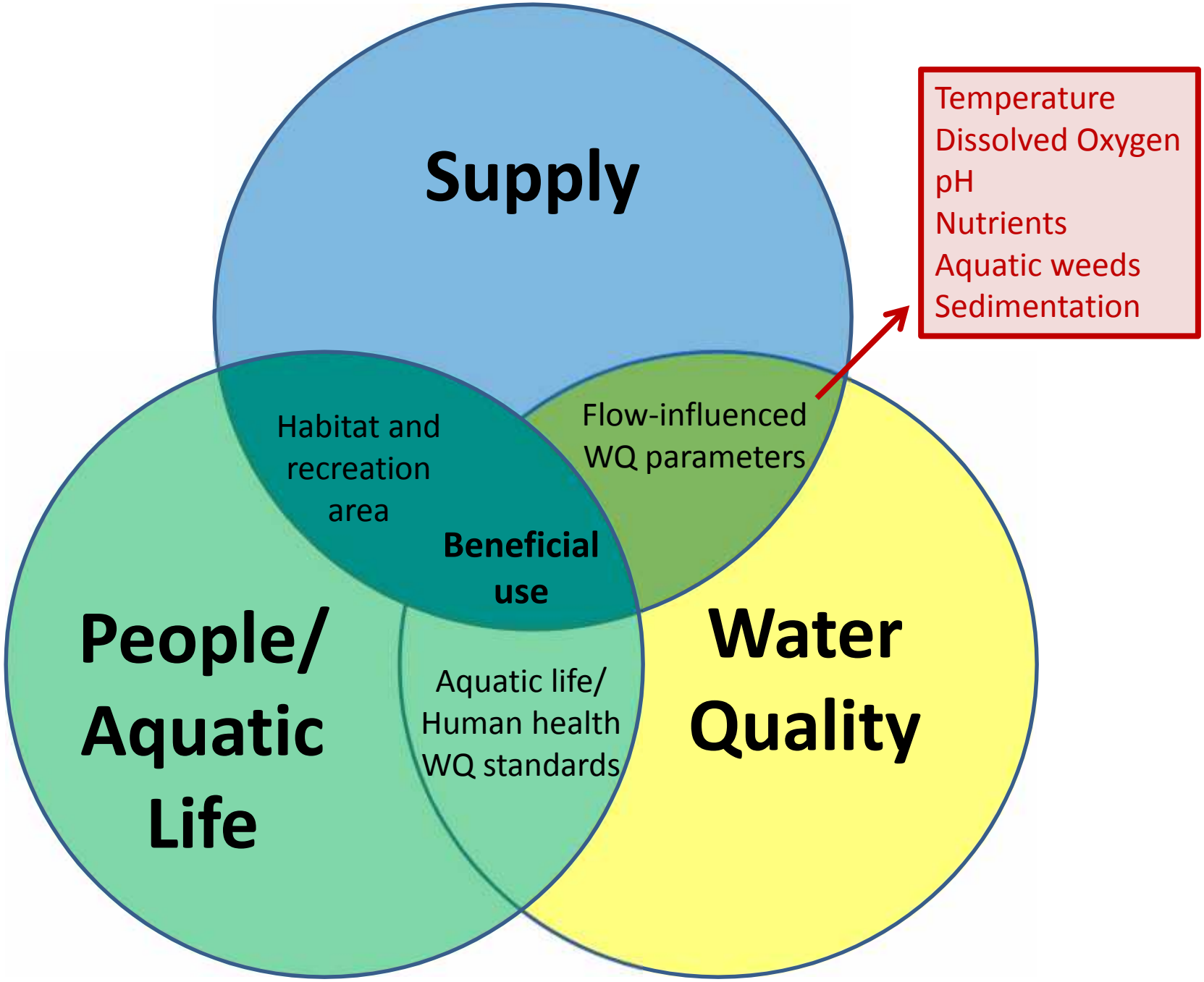


What is a TMDL?

A TMDL develops a pollution budget so that the two boxes become equal; it represents the amount of pollution the waterbody can receive and still meet water quality standards.

The total permissible pollutant load is allocated to the different sources

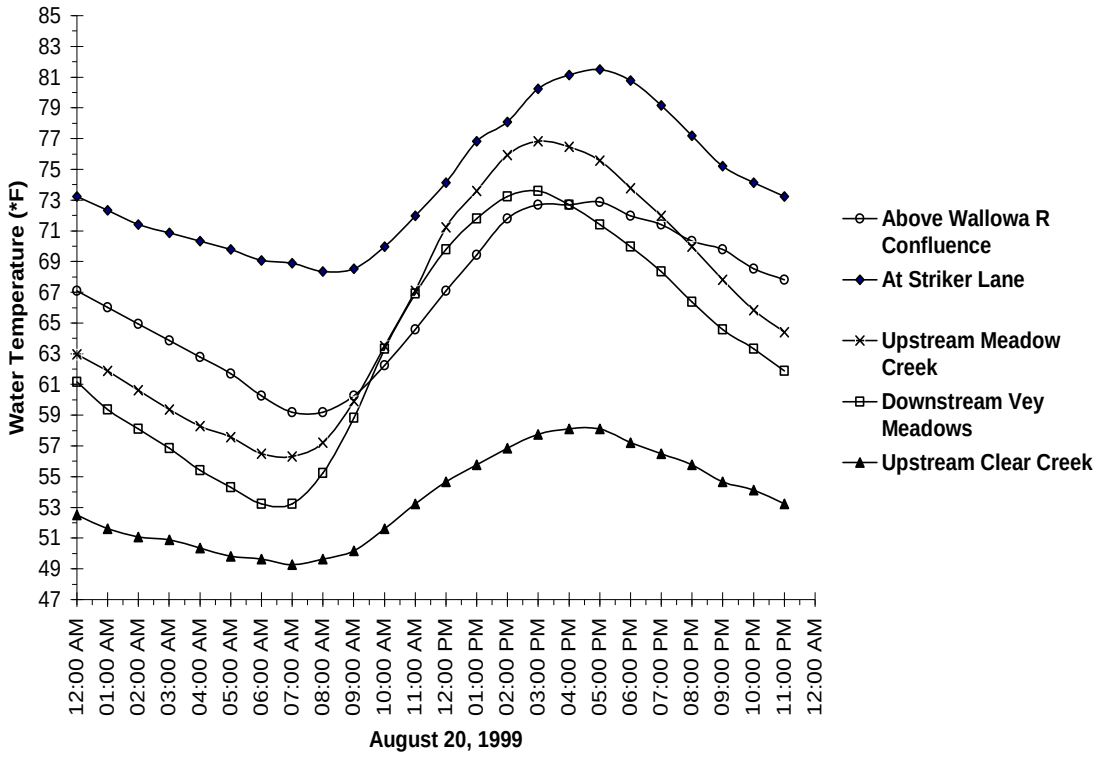



Supply
People/ Aquatic Life
Water Quality
Habitat and recreation area
Flow-influenced WQ parameters
Beneficial use
Aquatic life/ Human health WQ standards
Temperature
Dissolved Oxygen
pH
Nutrients
Aquatic weeds
Sedimentation

Designated Beneficial Uses – Upper Grande Ronde Basin from OAR 340-041-0151, Table 151A

- Public Domestic Water Supply*
- Private Domestic Water Supply*
- Industrial Water Supply
- Irrigation
- Livestock Watering
- Fish & Aquatic Life
  - Bull trout (12°C 53.6°F)
  - Core Cold Water (16°C 60.8°F)
  - Salmon and Trout (rearing and migration, 18°C 64.4°F)
  - Salmon and Steelhead (migration corridors, 20°C 68°F)
- Wildlife and Hunting
- Fishing
- Boating
- Water Contact Recreation
- Aesthetic Quality
- Hydropower
- Commercial Navigation & Transportation

* With adequate pretreatment (filtration & disinfection) and natural quality to meet drinking water standards.



Supporting data from 1991 to 1998

TMDL-specific monitoring from 1999

- FLIR August 20-26, 1999

DEQ modeling and analysis 1999

Upper Grande Ronde River TMDLs

- Temperature (summer)
  - Reduced solar heating and increased effective shade

- Dissolved Oxygen/Phosphorus (summer)
  Aquatic weeds and algae (summer)
  pH (summer)
  - Nutrient reductions (20-60%)
  - Temperature TMDL measures

Upper Grande Ronde River TMDLs

- Bacteria (meeting criteria)
  - Temperature TMDL measures
  - Continued monitoring

- Sedimentation
  - Temperature TMDL measures

Upper Grande Ronde River TMDLs

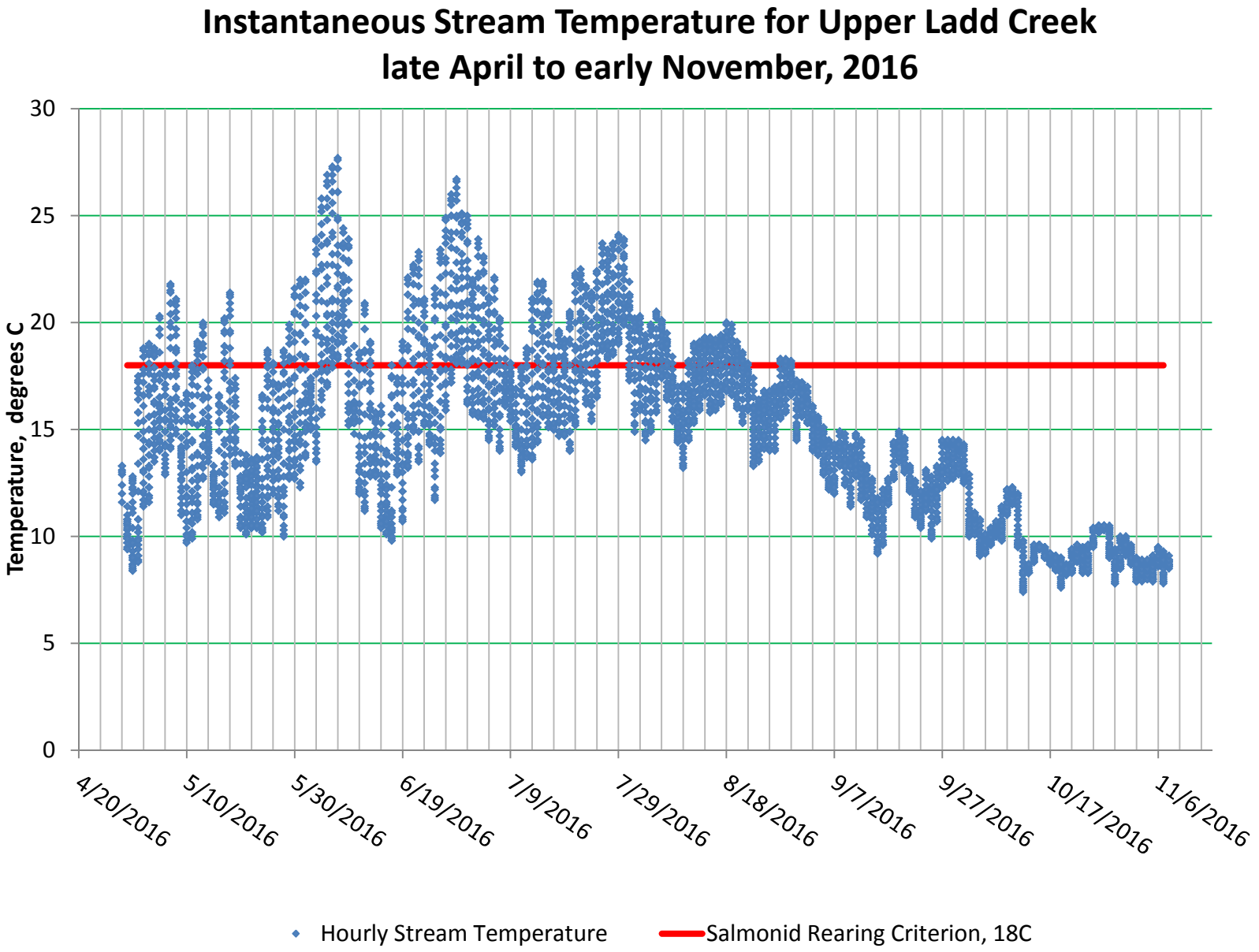
- Designated Management Agencies (DMAs)
  - Federal Agencies (USFS, BLM)
  - State Agencies (ODA, ODFW, ODF, DOGMI, DSL, ODOT, State Parks)
  - Cities (Union, Cove, Elgin, Island City, Summerville, Imbler, La Grande)
  - Counties (Wallowa, Union, Umatilla)

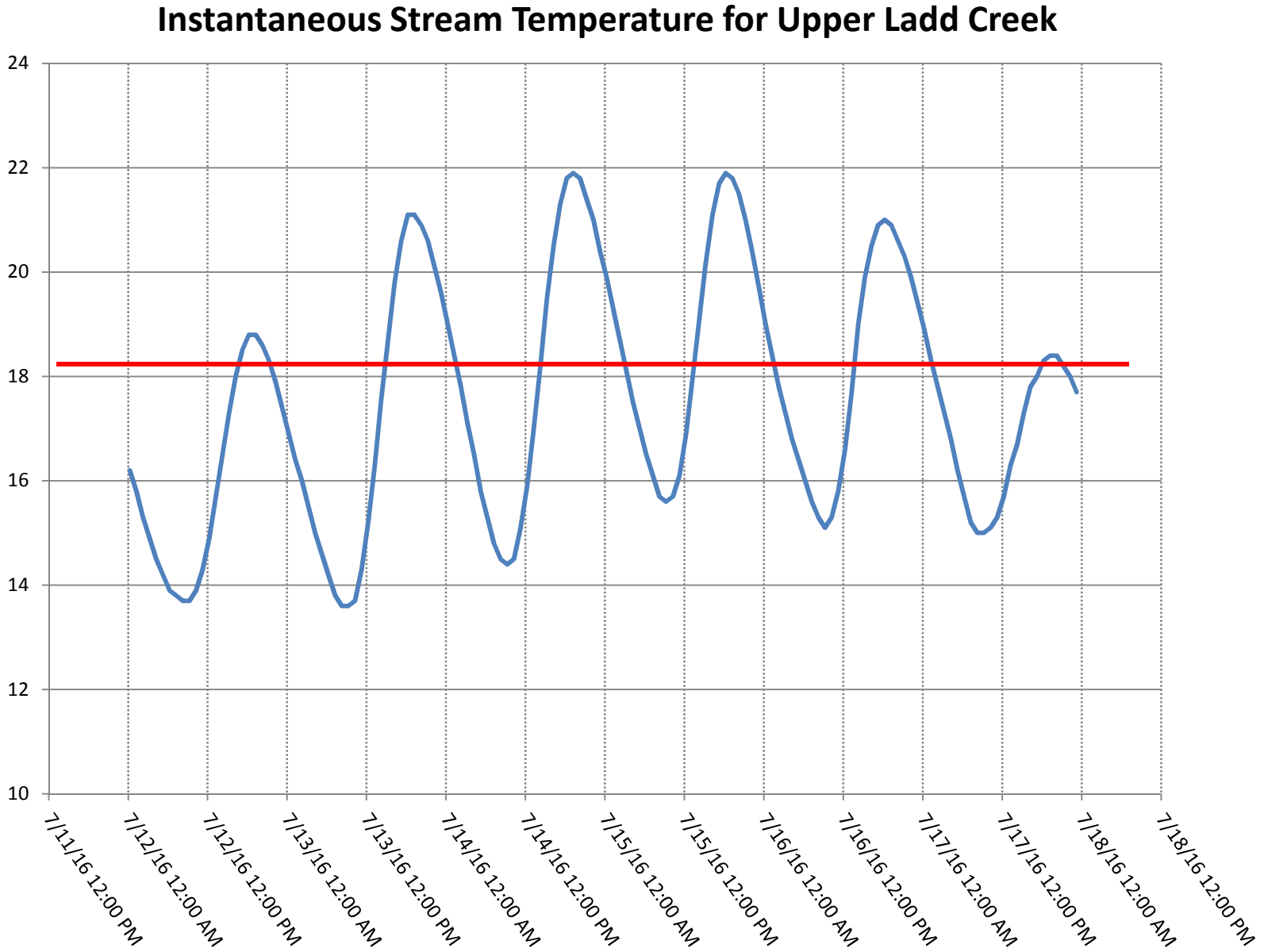
Upper Grande Ronde River TMDLs

- Point Sources (NPDES)
  - Elgin STP
  - La Grande STP
  - Union STP
  - Boise Cascade
  - Island City Particleboard

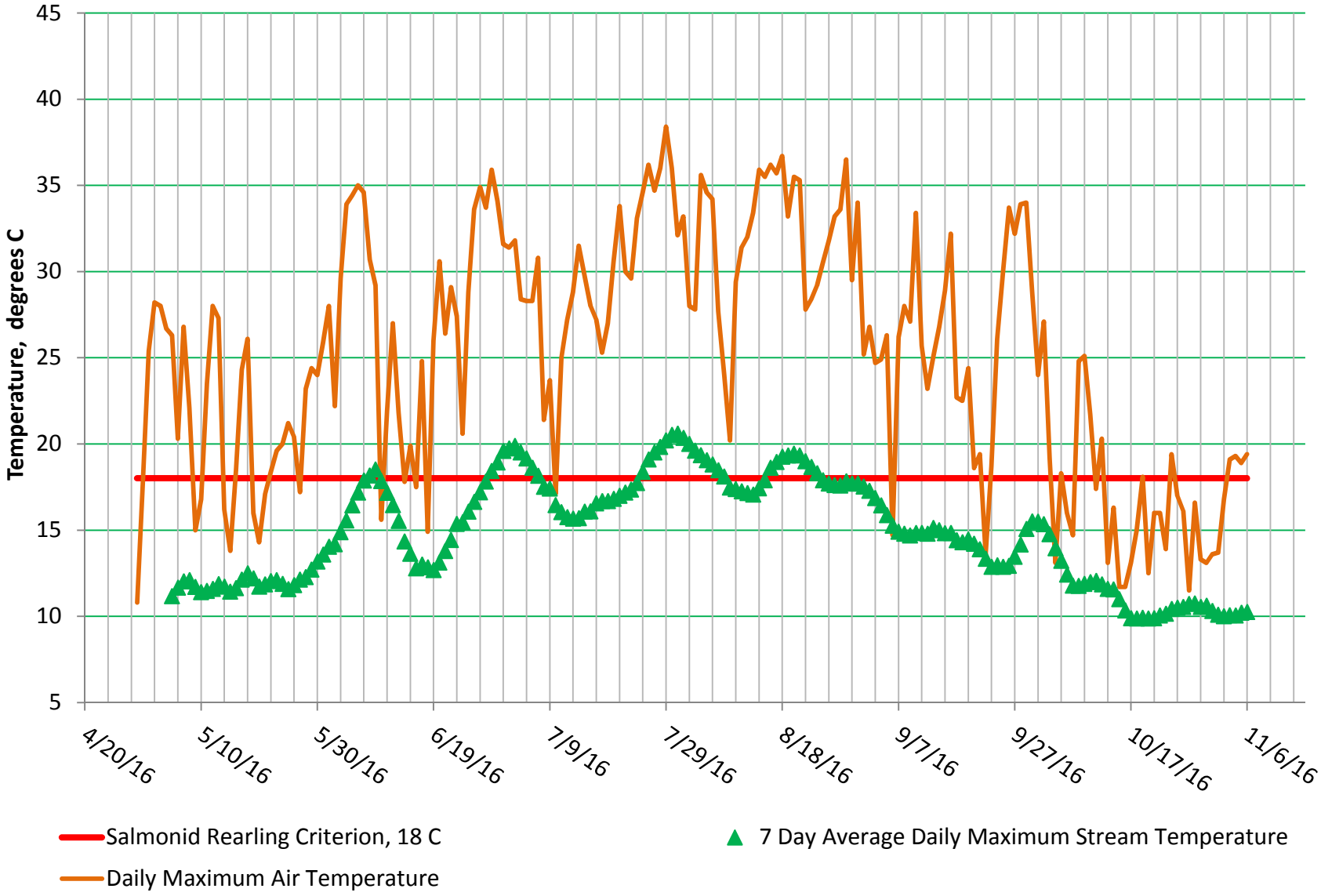
Upper Grande Ronde River TMDLs

- Working with Designated Management Agencies (DMAs)
  - USFS
  - ODA
  - Cities and Counties


Instantaneous Stream Temperature for Upper Ladd Creek
late April to early November, 2016
Temperature, degrees C
30
25
20
15
10
5
0
4/20/2016
5/10/2016
5/30/2016
6/19/2016
7/9/2016
7/29/2016
8/18/2016
9/7/2016
9/27/2016
10/17/2016
11/6/2016
Hourly Stream Temperature
Salmonid Rearing Criterion, 18C

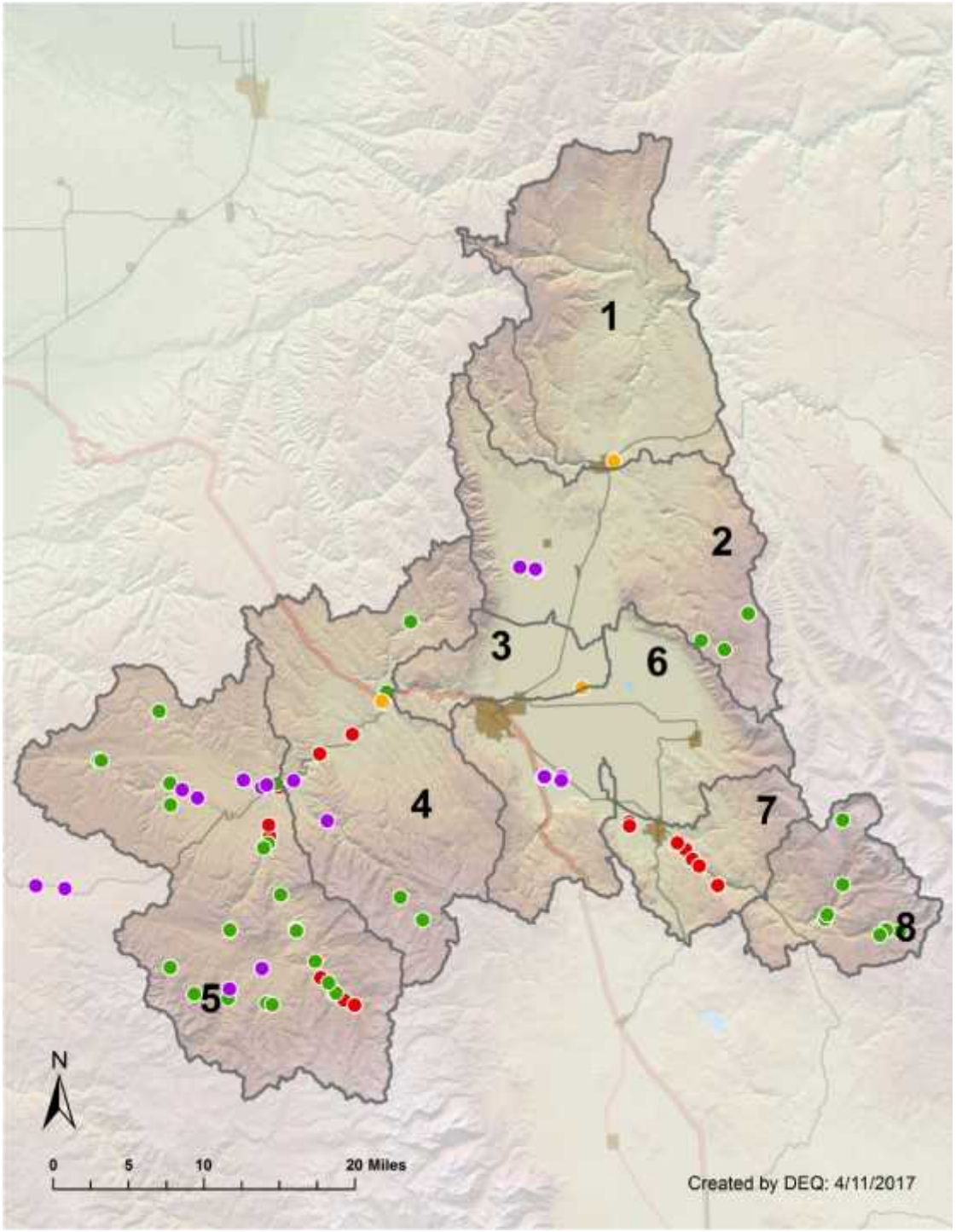

Instantaneous Stream Temperature for Upper Ladd Creek
24
22
20
18
16
14
12
10
7/11/16 12:00 PM
7/12/16 12:00 AM
7/12/16 12:00 PM
7/13/16 12:00 AM
7/13/16 12:00 PM
7/14/16 12:00 AM
7/14/16 12:00 PM
7/15/16 12:00 AM
7/15/16 12:00 PM
7/16/16 12:00 AM
7/16/16 12:00 PM
7/17/16 12:00 AM
7/17/16 12:00 PM
7/18/16 12:00 AM
7/18/16 12:00 PM

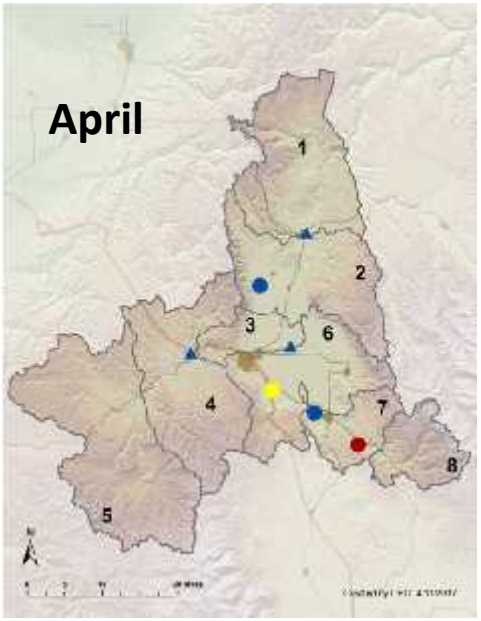
Seven-Day Average Maximum Stream Temperature for Upper Ladd Creek late April to early November, 2016

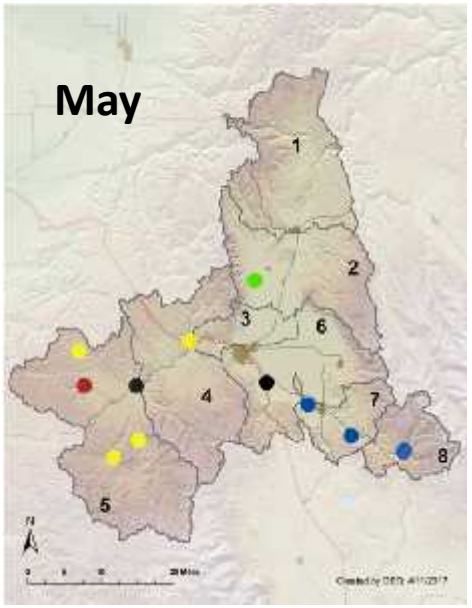


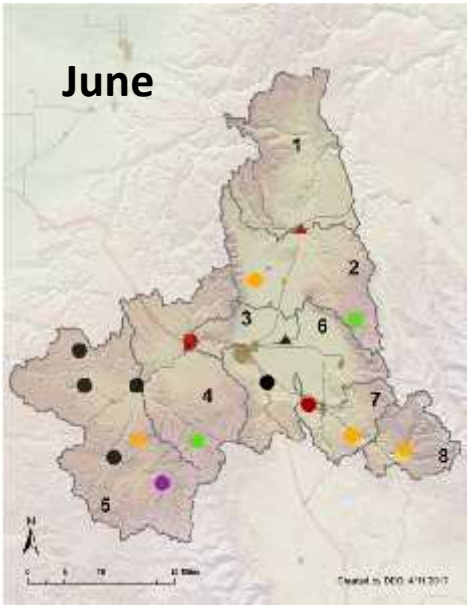
Temperature Data Collection Sites

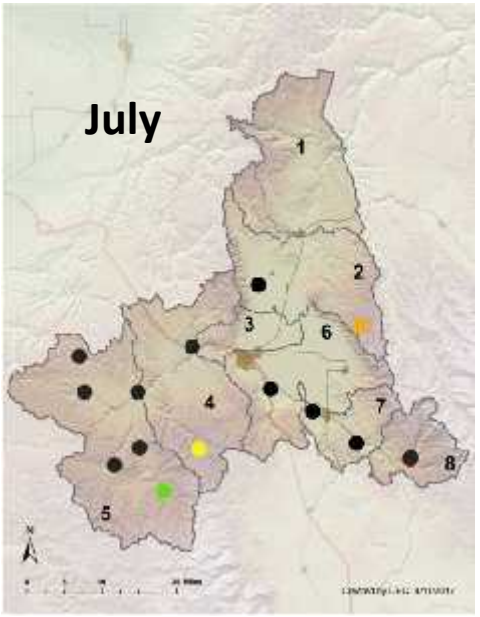
- DEQ
- USFS
- CTUIR
- ODFW



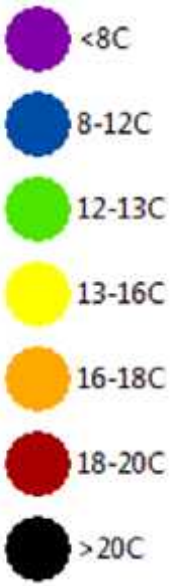


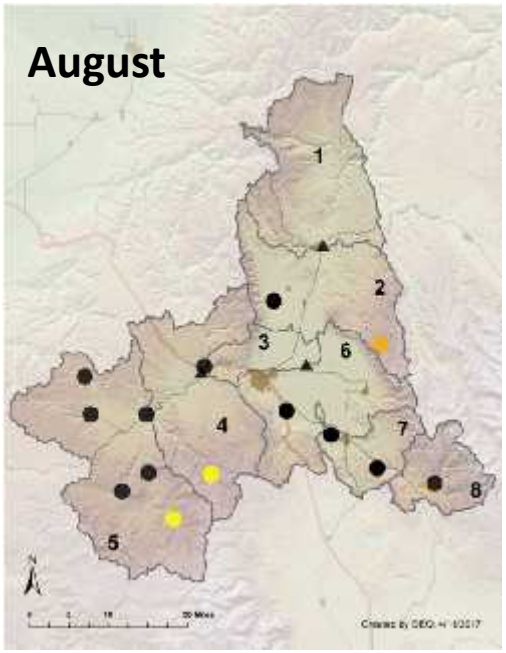


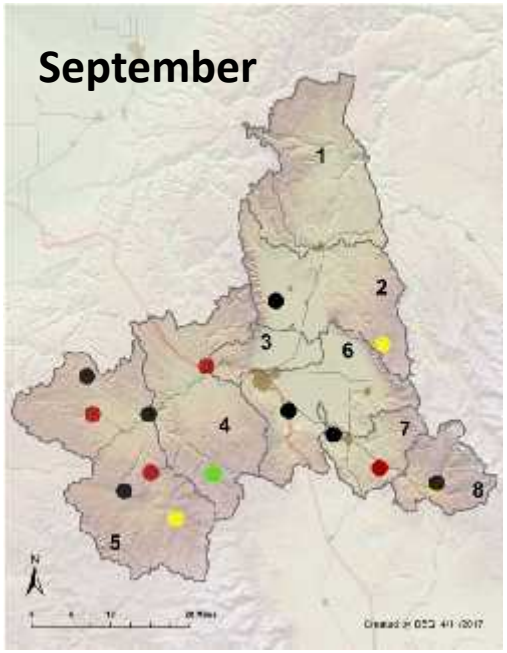


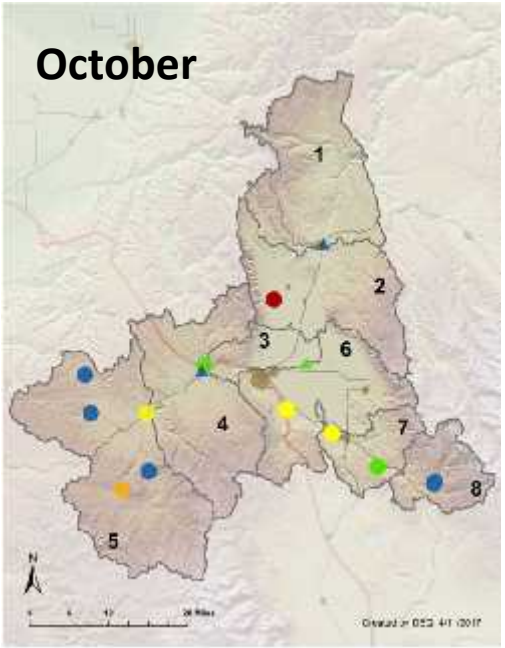


Current Temperature Data

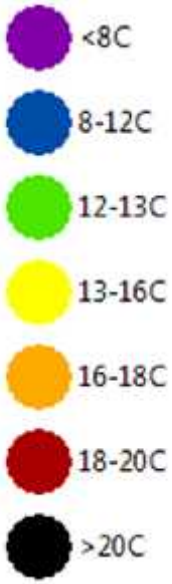


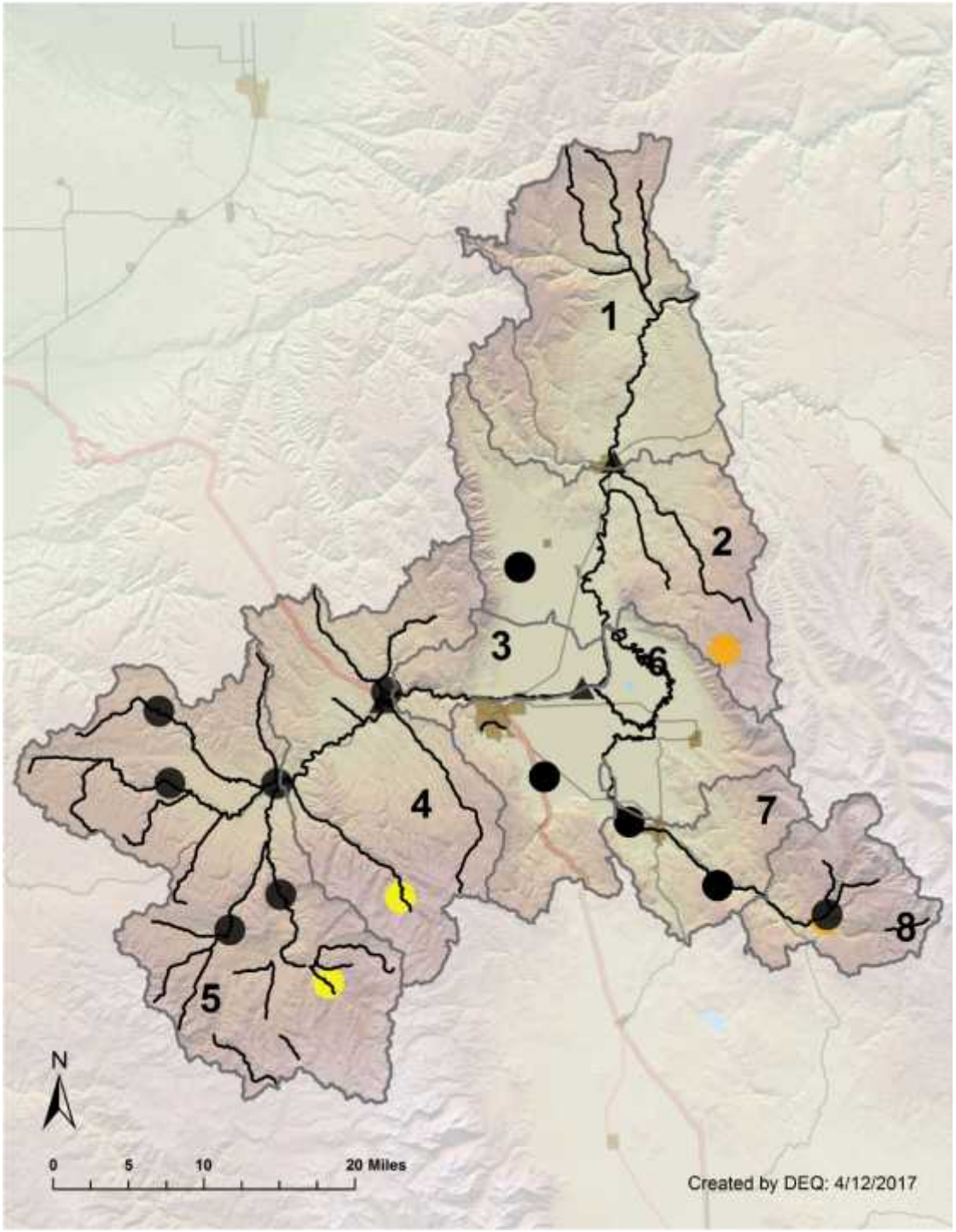






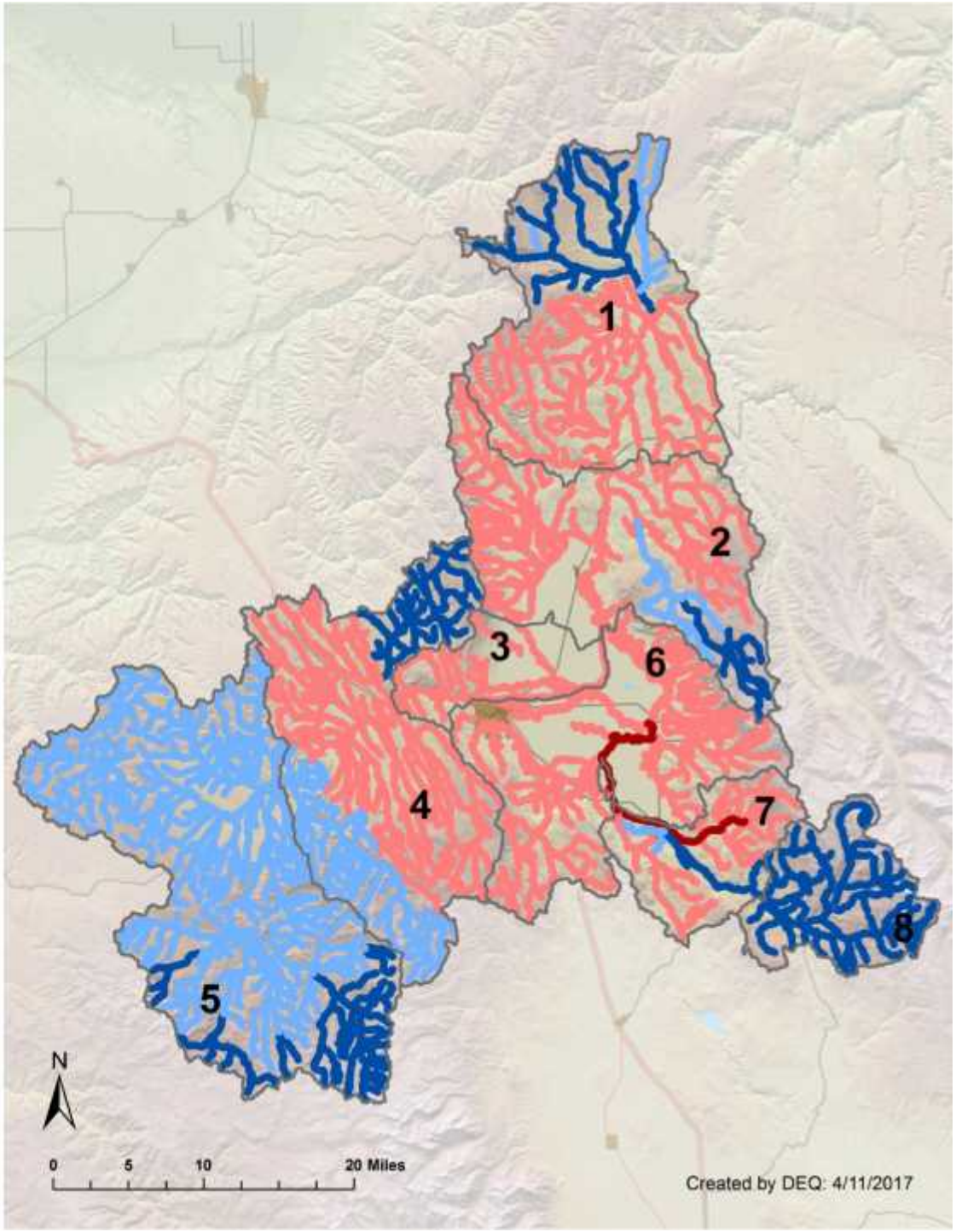
August Stream Temperatures and Temperature Impaired Streams





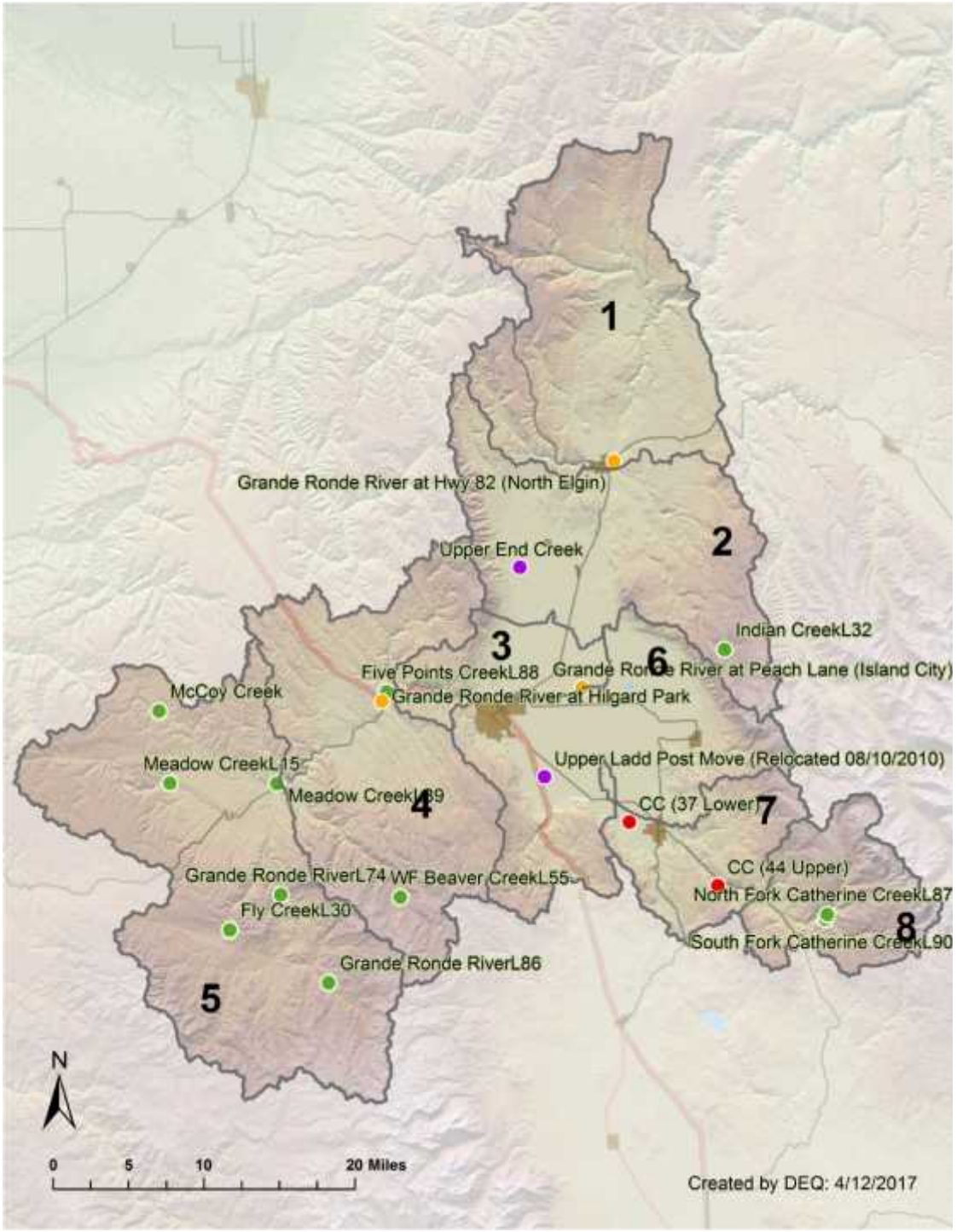
Non-spawning
Temperature Standards

- 12C (53.6F)-Bull Trout Spawning and Juvenile Rearing
- 16C (60.8F)-Core Cold-Water Habitat
- 18C (64.4F)-Salmon and Trout Rearing and Migration
- 20C (68F)-Salmon and Steelhead Migration Corridors
- 20C (68F)-Redband or Lahontan Cutthroat Trout



Temperature Sites used in Monthly Maps

- DEQ
- USFS
- CTUIR
- ODFW



Upper Grande Ronde River TMDLs

- Water quality data is collected every 2 months
- New listings are considered every 2 years
- 303(d) listings trigger TMDL development
- TMDLs set pollution limits for point sources
- TMDLs describe actions for non point sources
- TMDLs require Designated Management Agencies to develop implementation plans to address non point source pollution
- Recent data show that water quality standards are not being met and that the TMDL recommended actions are still not fully implemented
- Designated beneficial uses continue to not be fully supported

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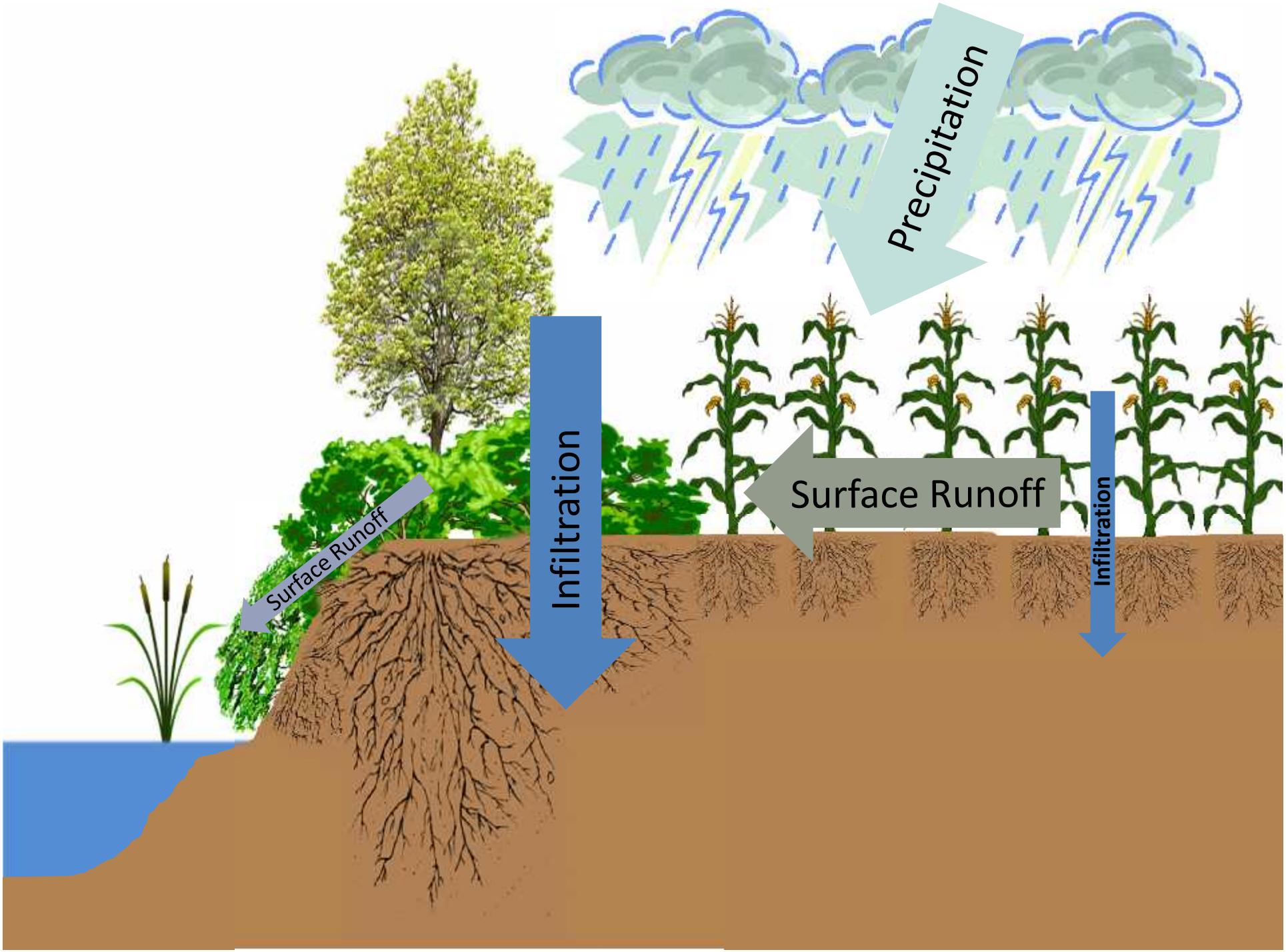
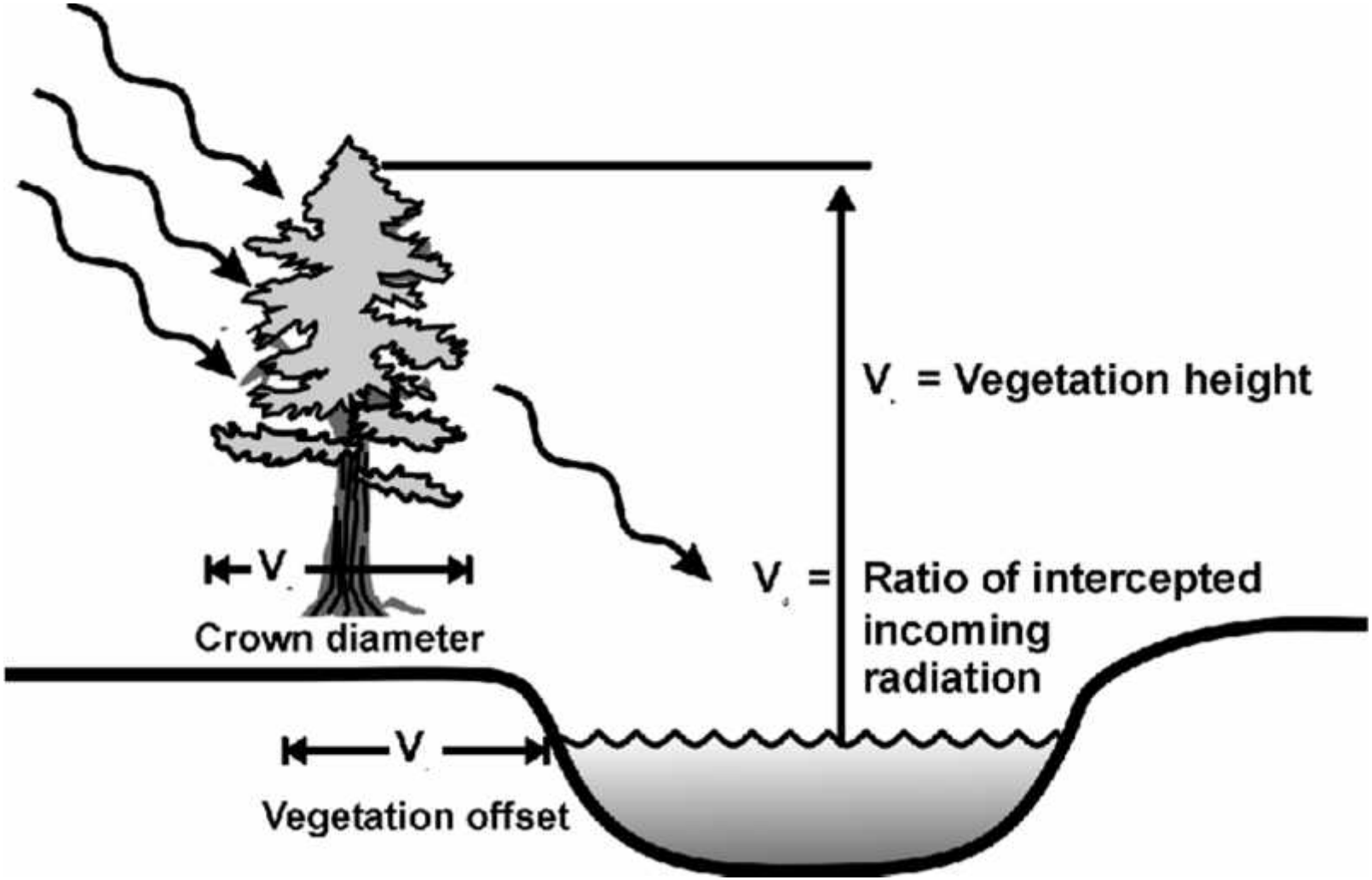
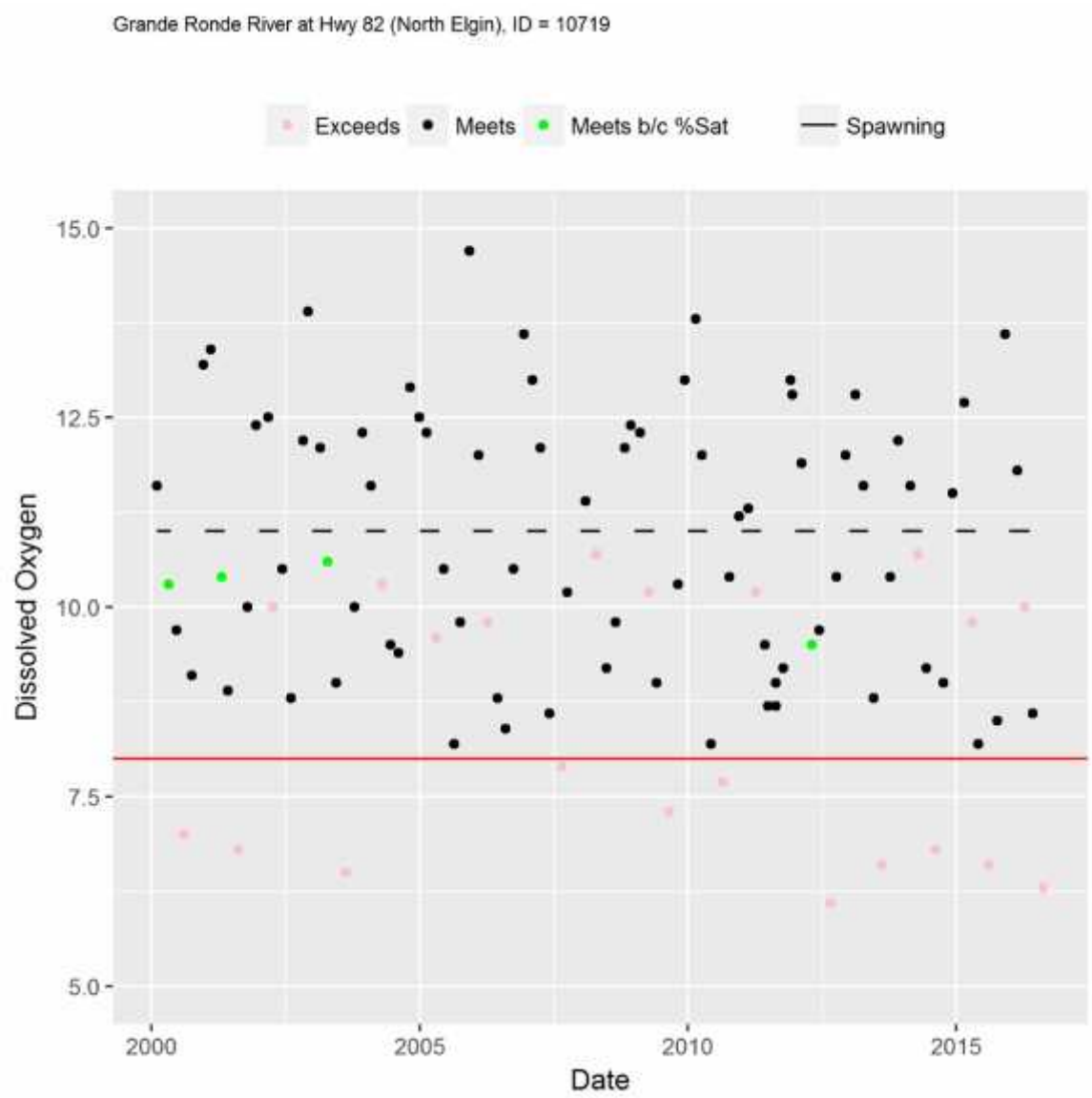
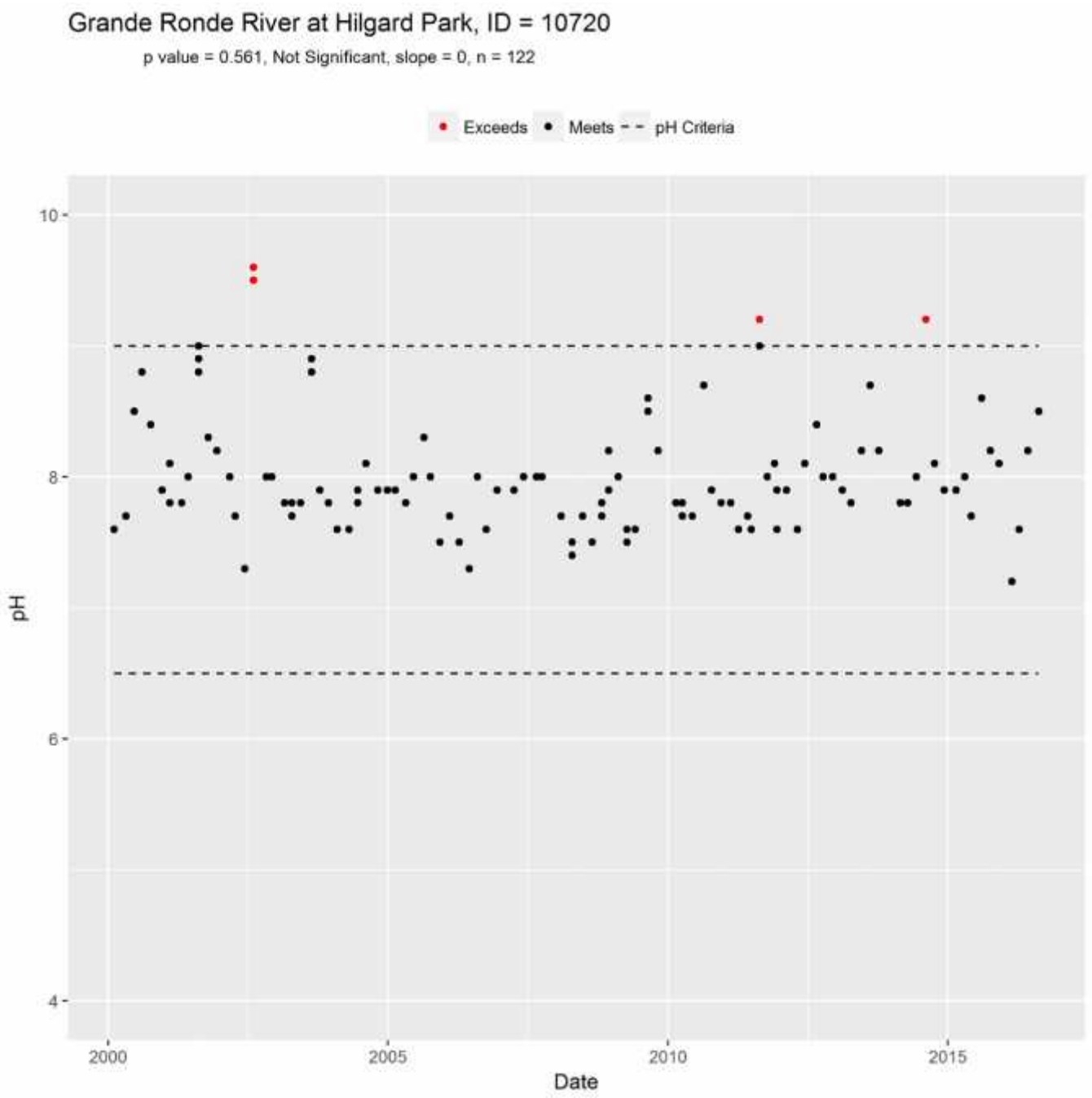
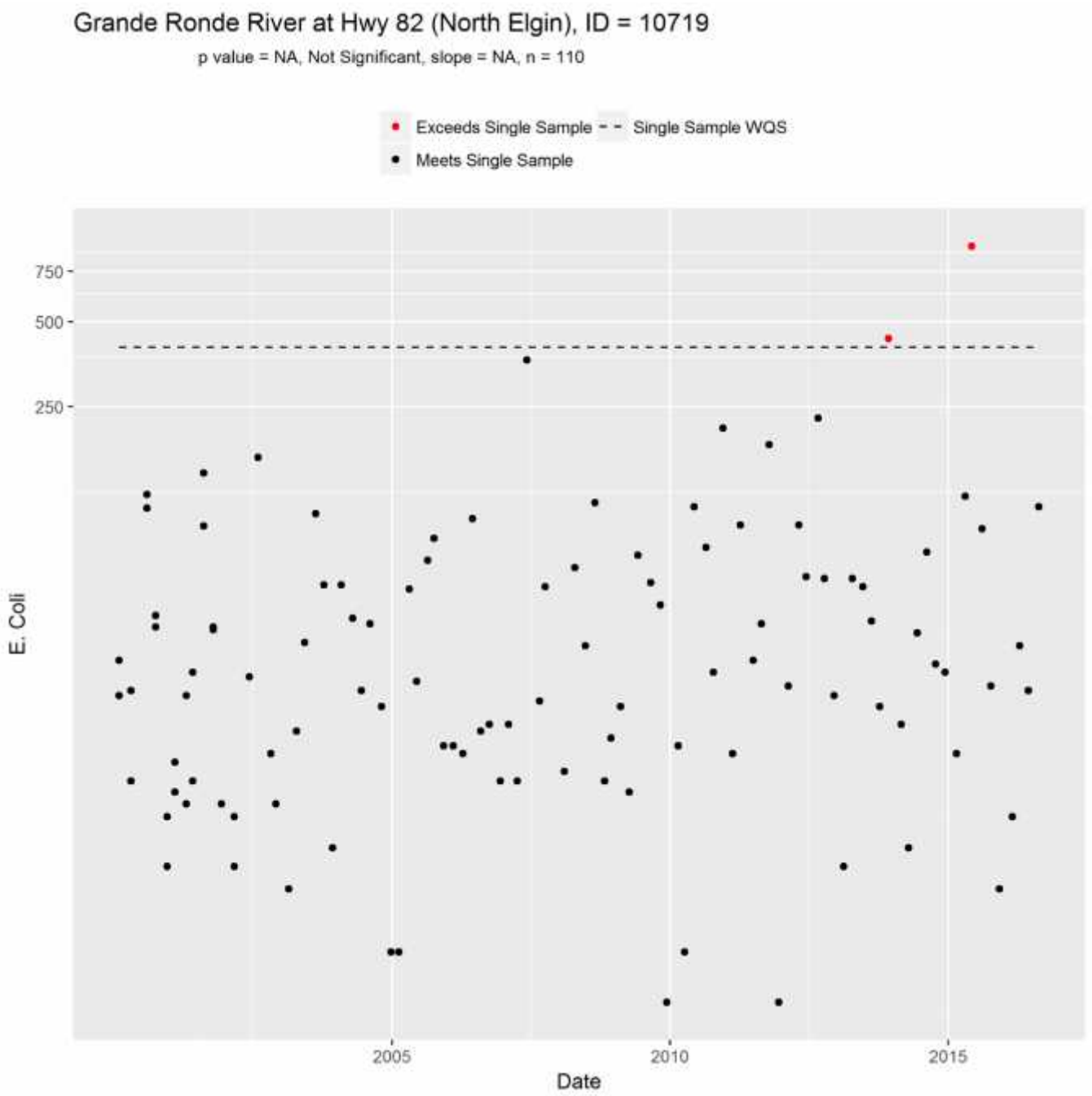

Precipitation
Infiltration
Surface Runoff
Surface Runoff
Infiltration

Upper Grande Ronde River TMDLs




Grande Ronde River at Hwy 82 (North Elgin), ID = 10719
Exceeds
Meets
Meets b/c %Sat
Spawning
15.0
12.5
10.0
7.5
5.0
Dissolved Oxygen
2000
2005
2010
2015
Date


Grande Ronde River at Hilgard Park, ID = 10720
p value = 0.561, Not Significant, slope = 0, n = 122
Exceeds
Meets
pH Criteria
10
8
6
4
pH
2000
2005
2010
2015
Date


Grande Ronde River at Hwy 82 (North Elgin), ID = 10719
p value = NA, Not Significant, slope = NA, n = 110
Exceeds Single Sample
Single Sample WQS
Meets Single Sample
750
500
250
E. Coli
2005
2010
2015
Date