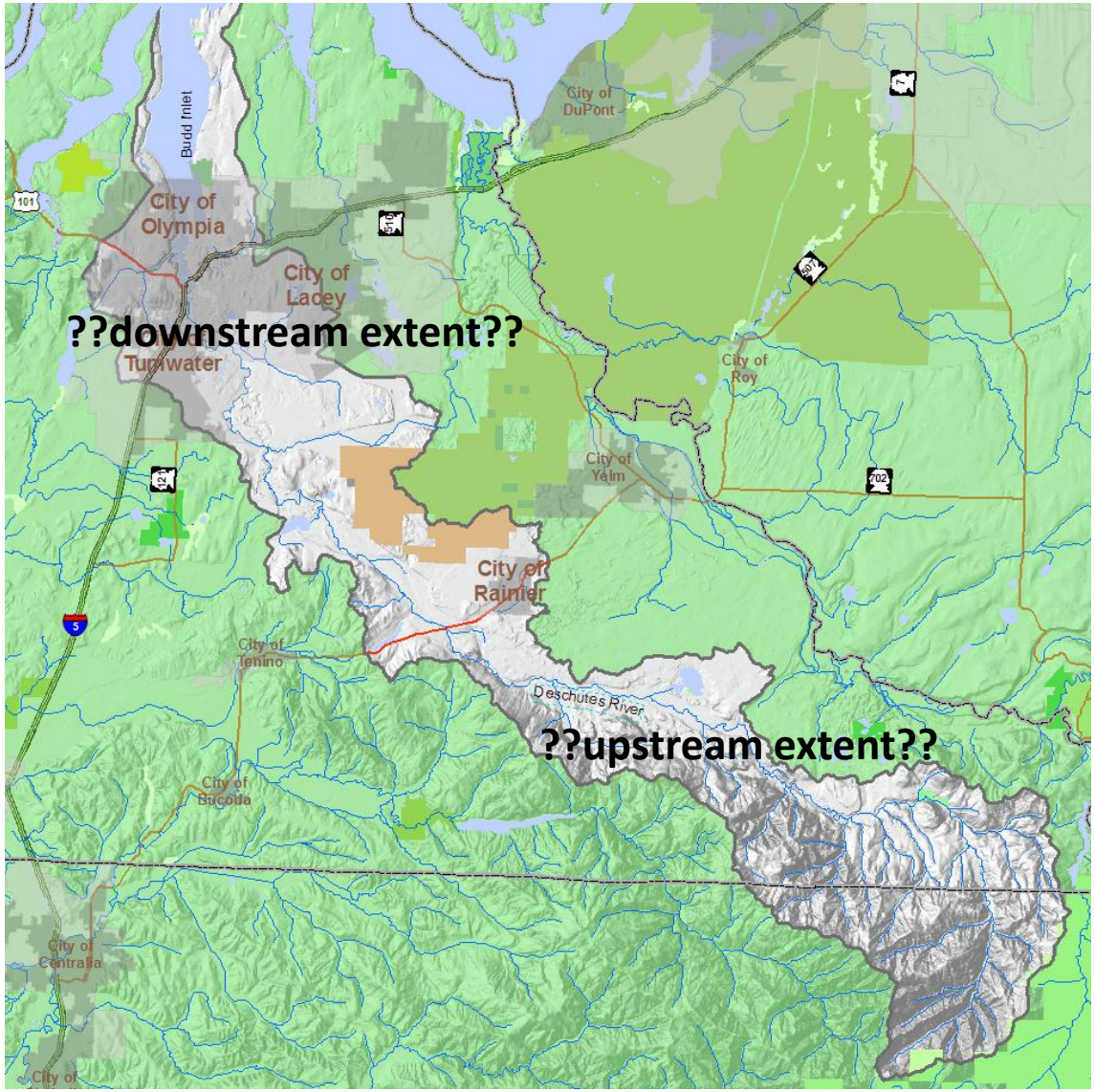
Technical findings in the middle Deschutes River watershed

Mindy Roberts

May 20, 2010

Implementation Advisory Group

Middle Deschutes Watershed

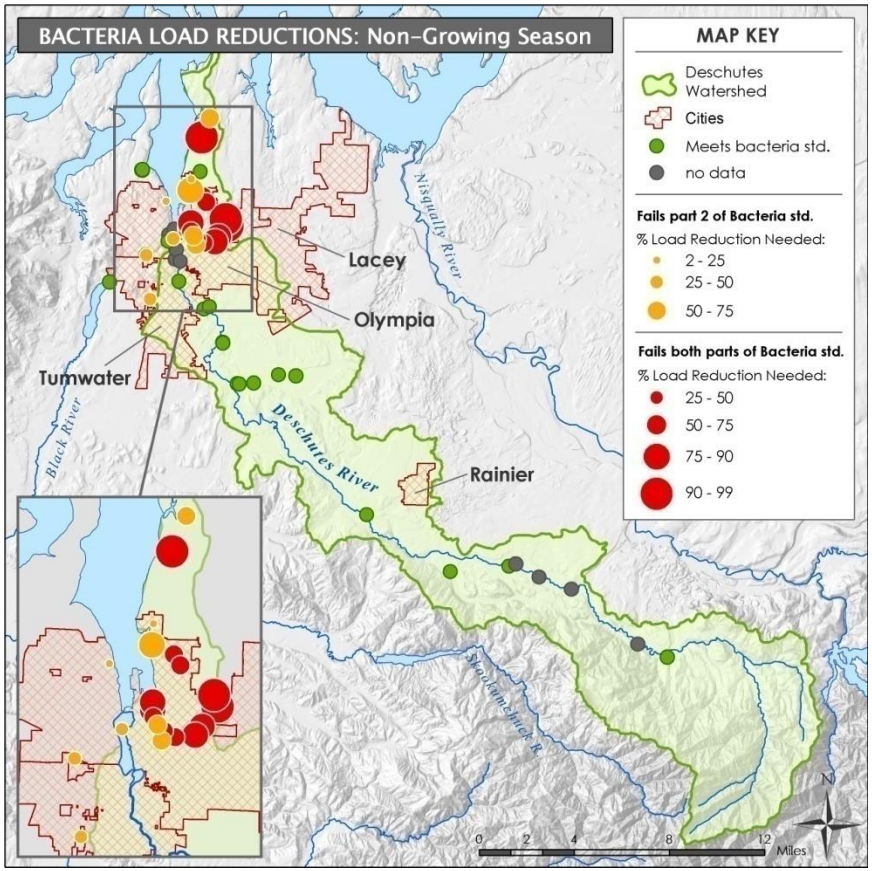


Water quality parameters

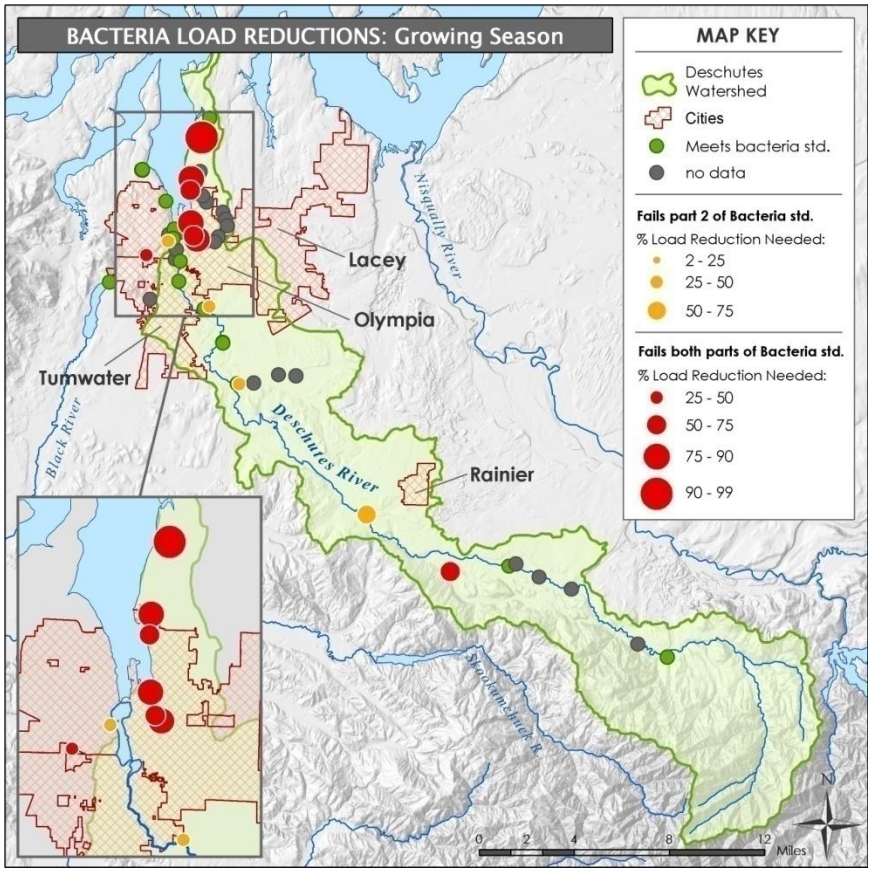
- Bacteria
- Temperature
- Dissolved oxygen (and pH)
- Fine sediment
- Feedback loops among parameters

Fecal Coliform Bacteria Reduction Targets

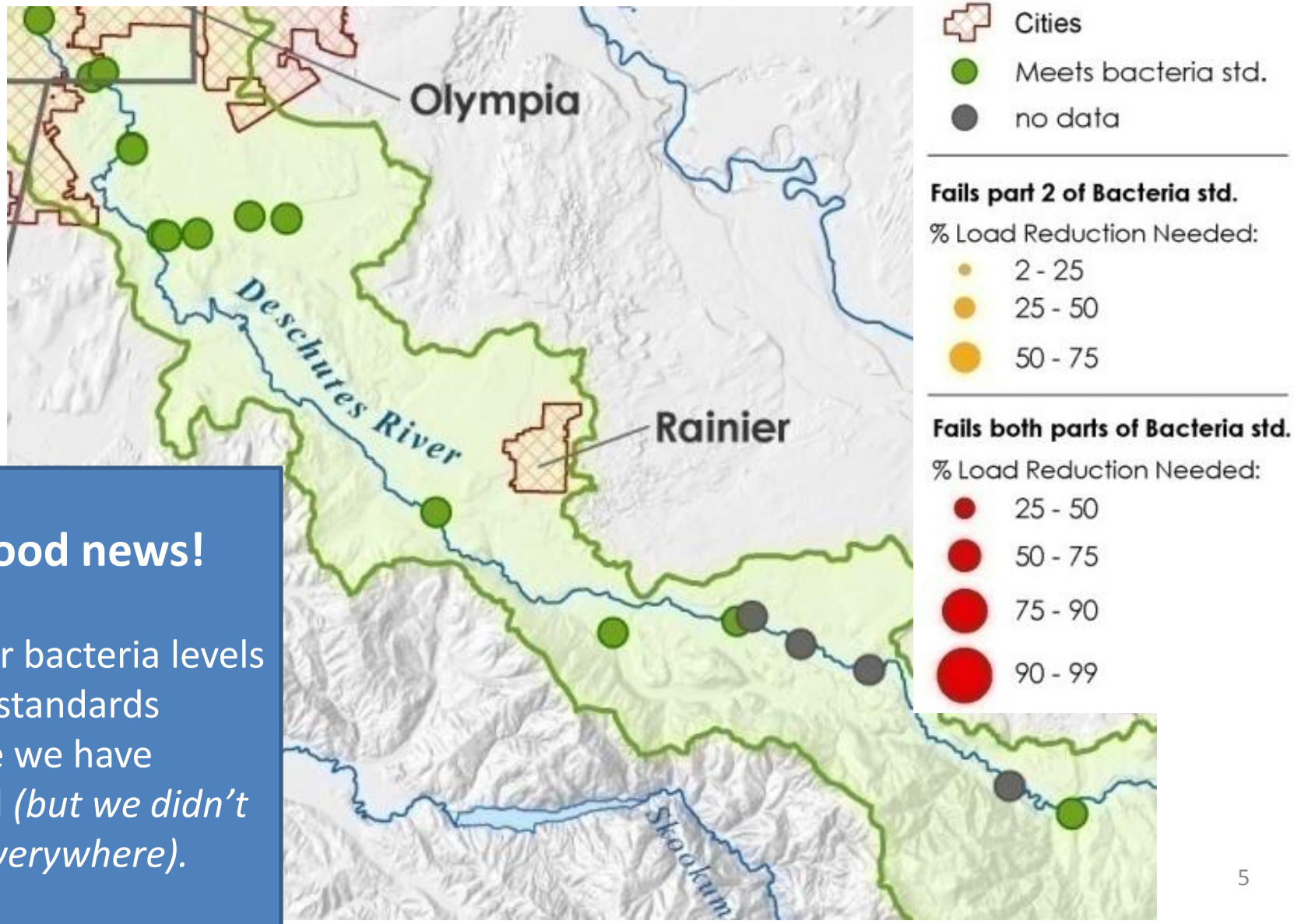
Winter



Summer



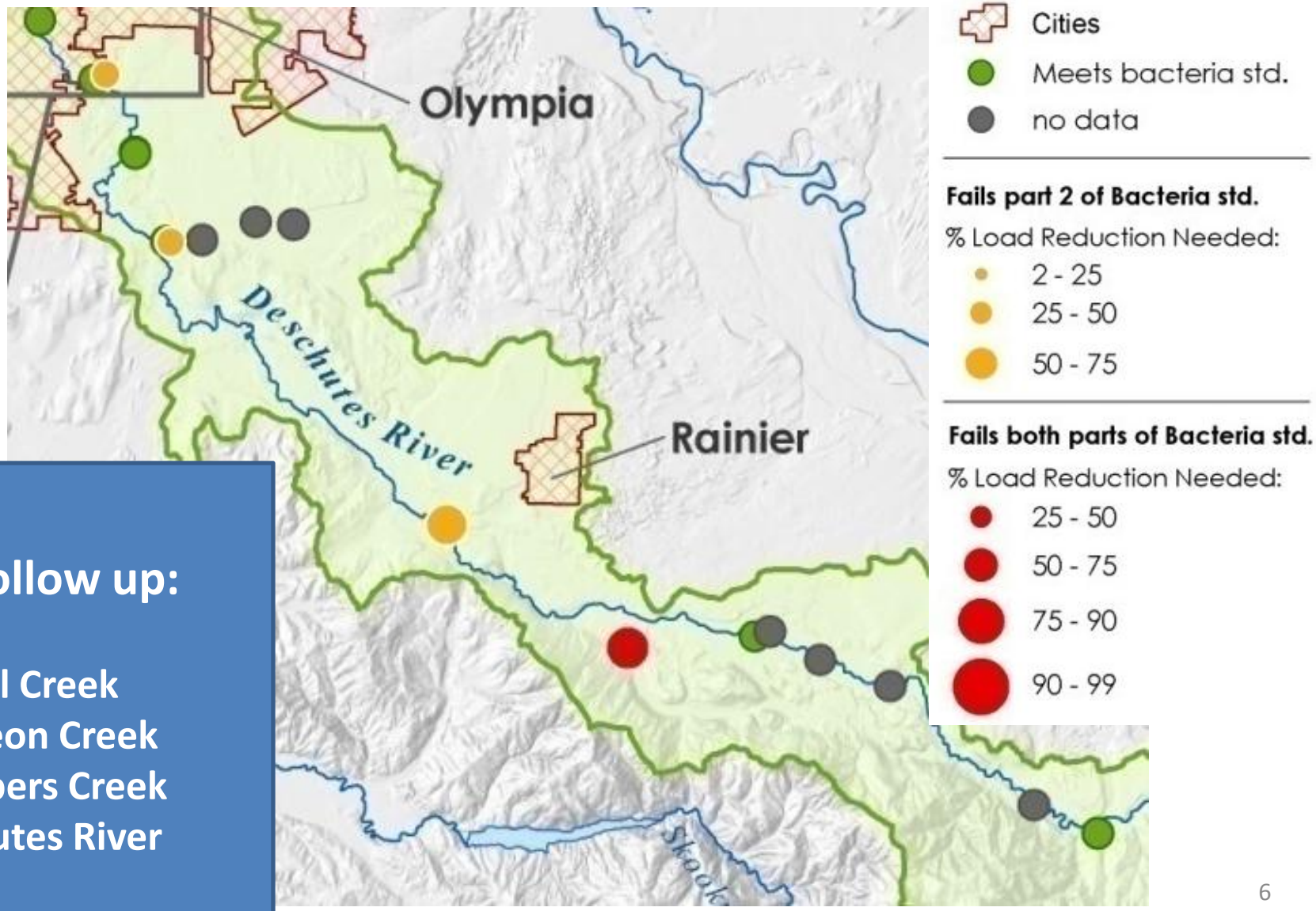
Winter bacteria



Good news!

Winter bacteria levels meet standards where we have tested *(but we didn't test everywhere).*

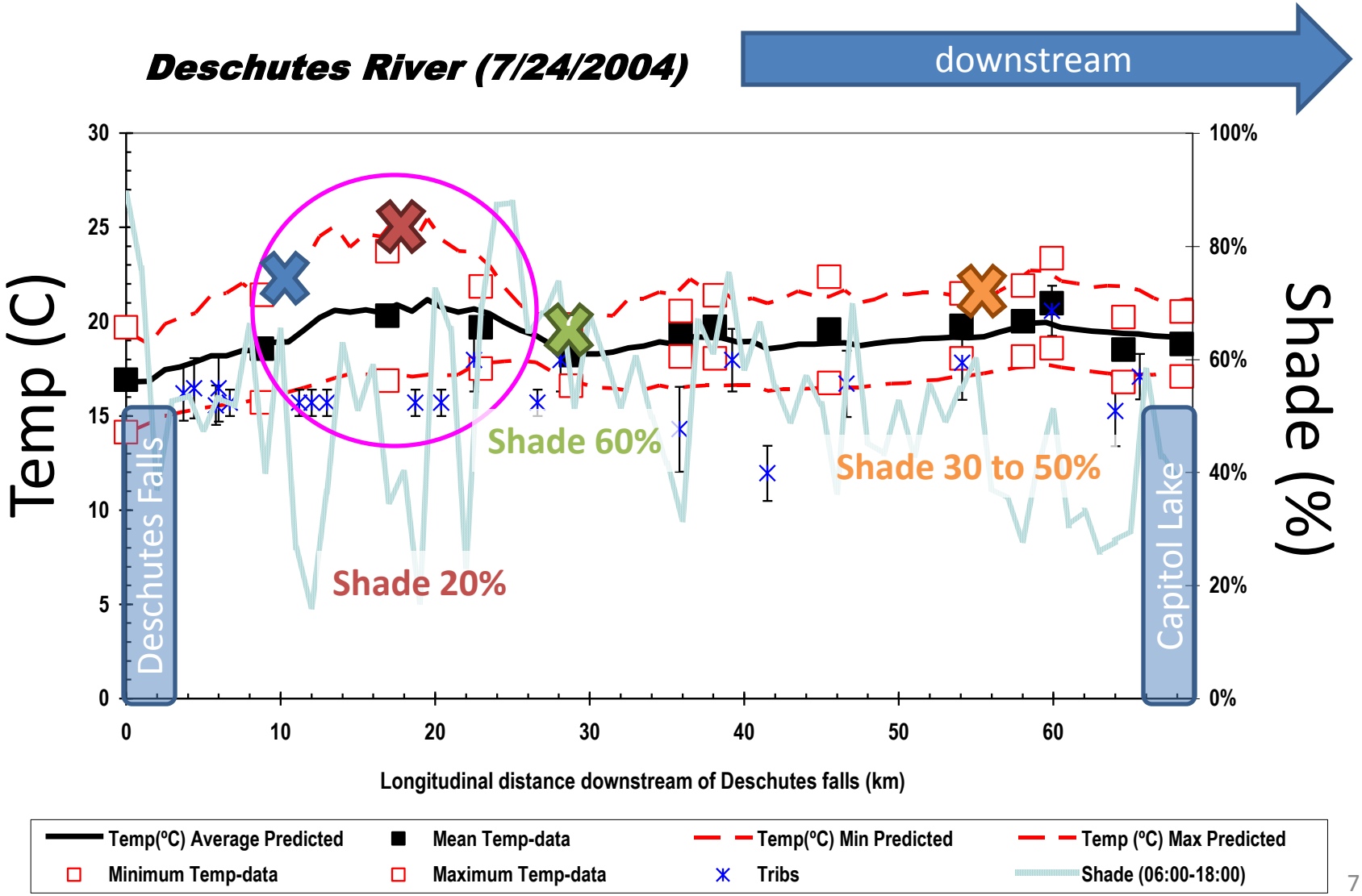
Summer bacteria

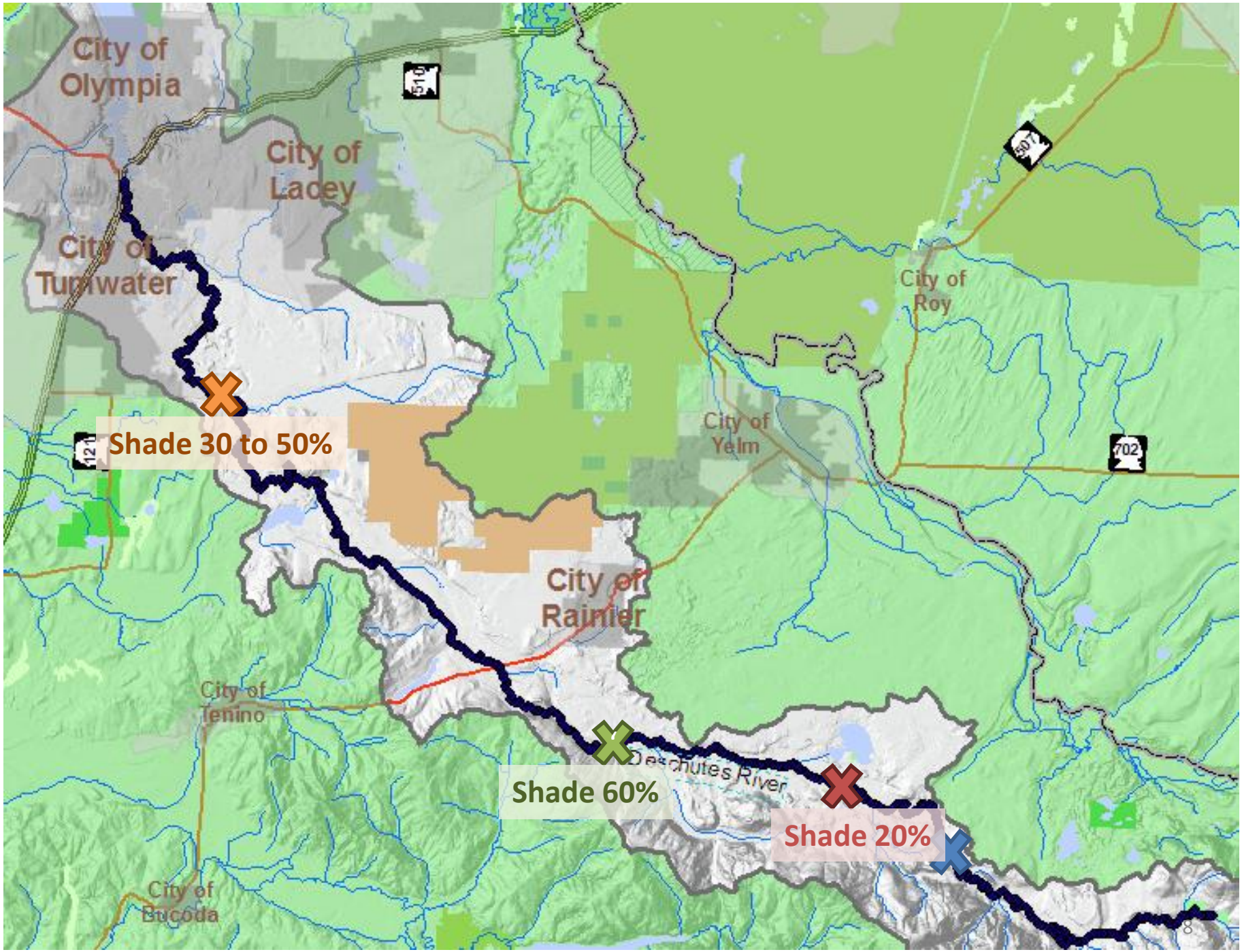


Follow up:

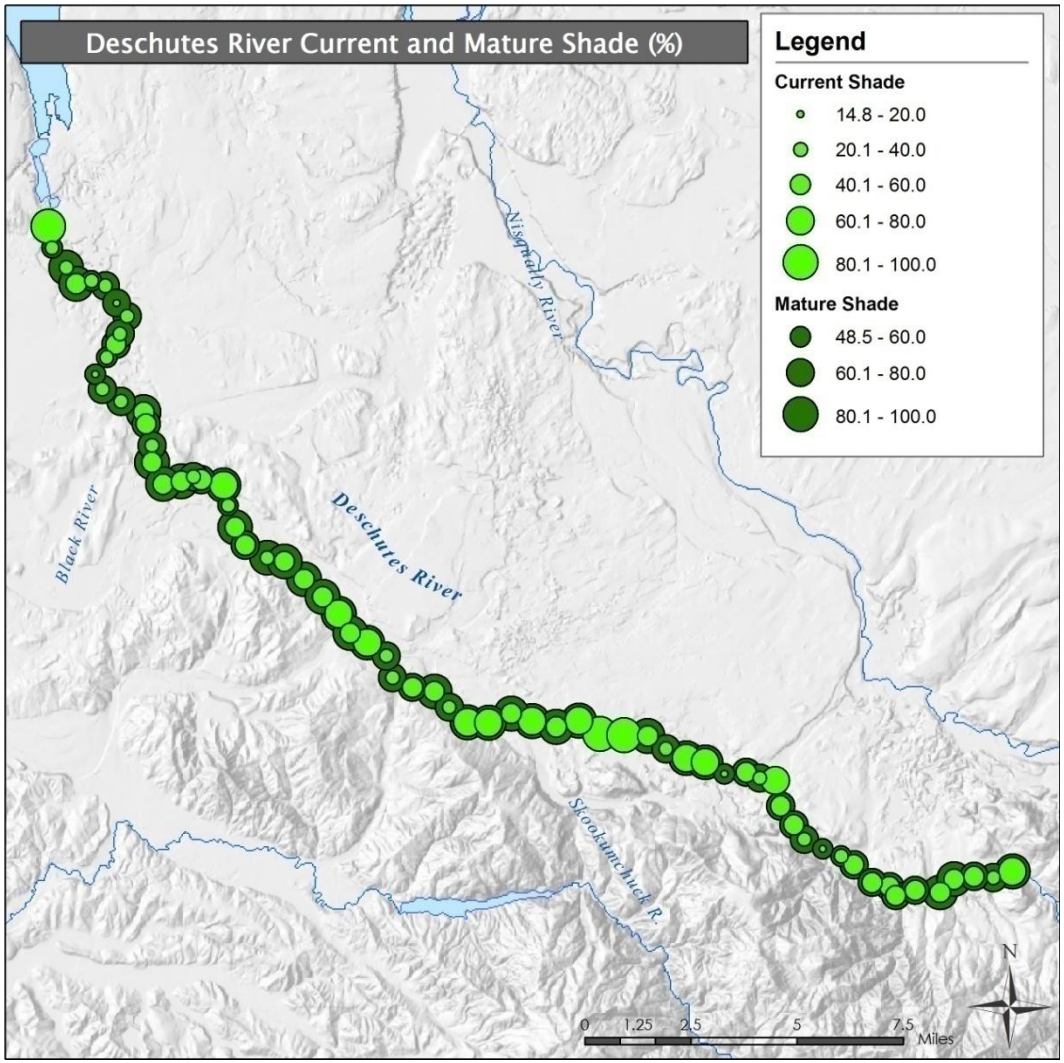
Reichel Creek
Spurgeon Creek
Chambers Creek
Deschutes River

Temperature Profile

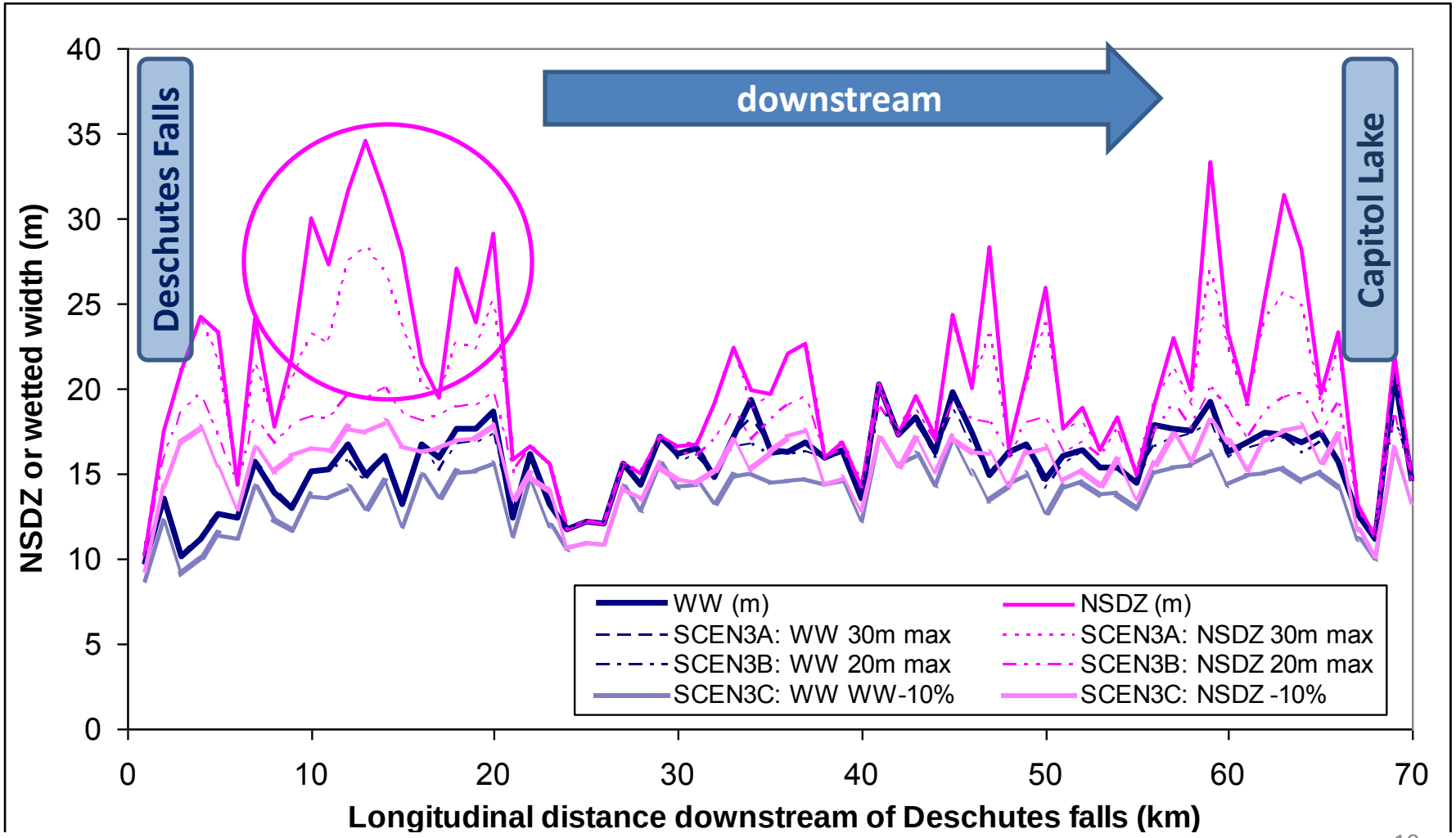



City of Olympia
City of Lacey
City of Tumwater
City of Roy
City of Yelm
City of Rainier
City of Tenino
City of Bucoda
Deschutes River
Shade 30 to 50%
Shade 60%
Shade 20%

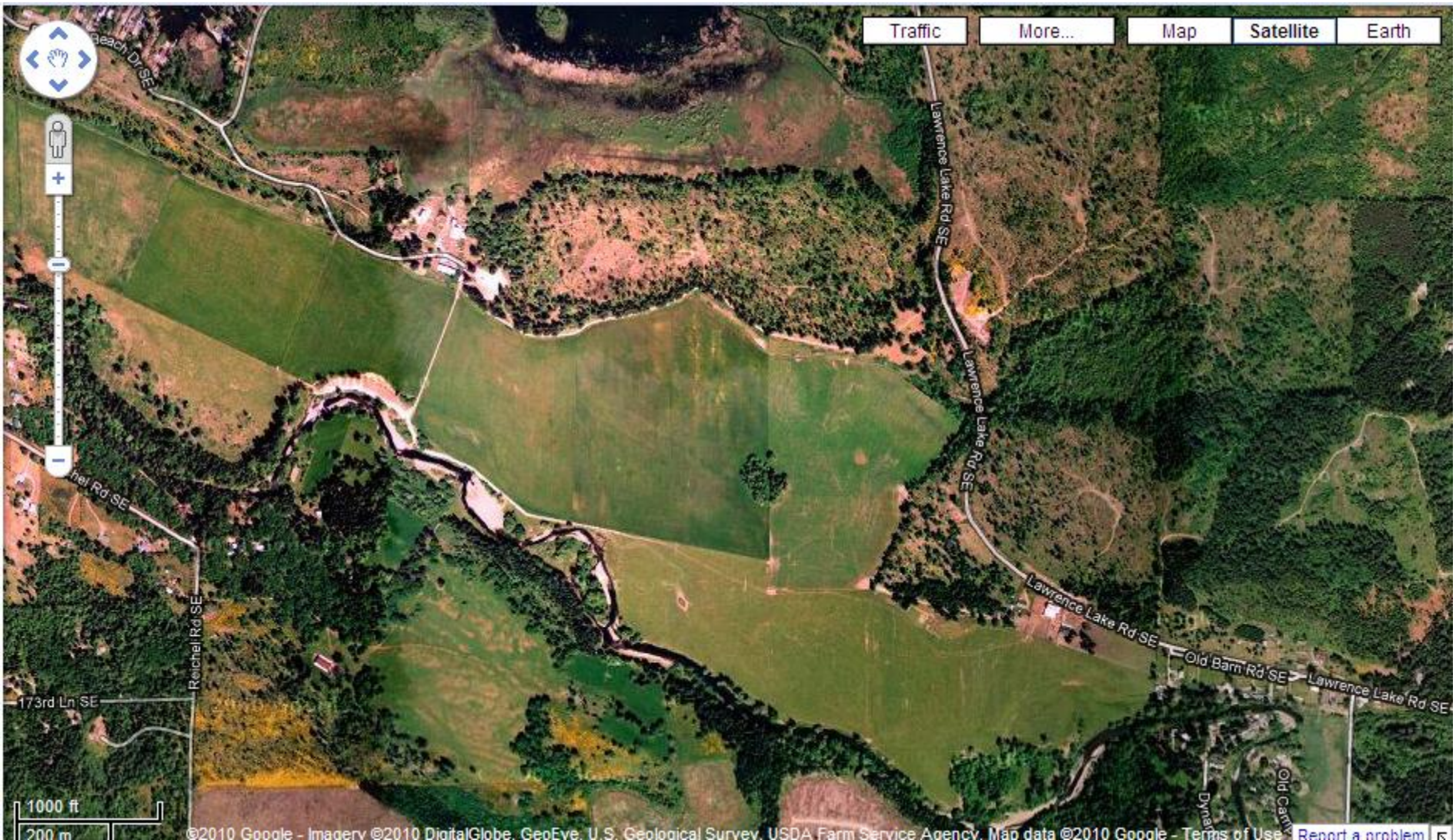
Deschutes River Shade Improvements



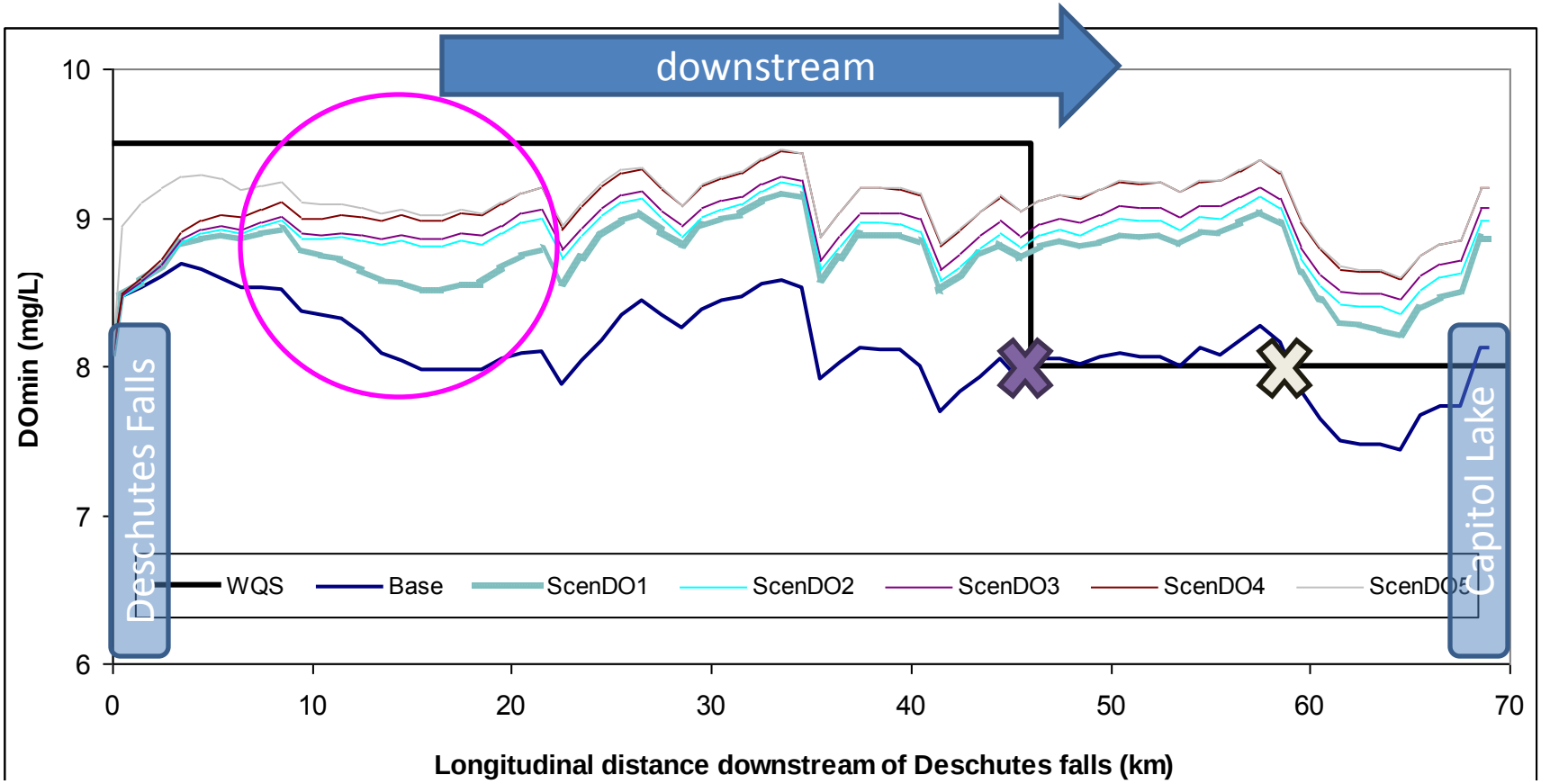
Deschutes River is too wide

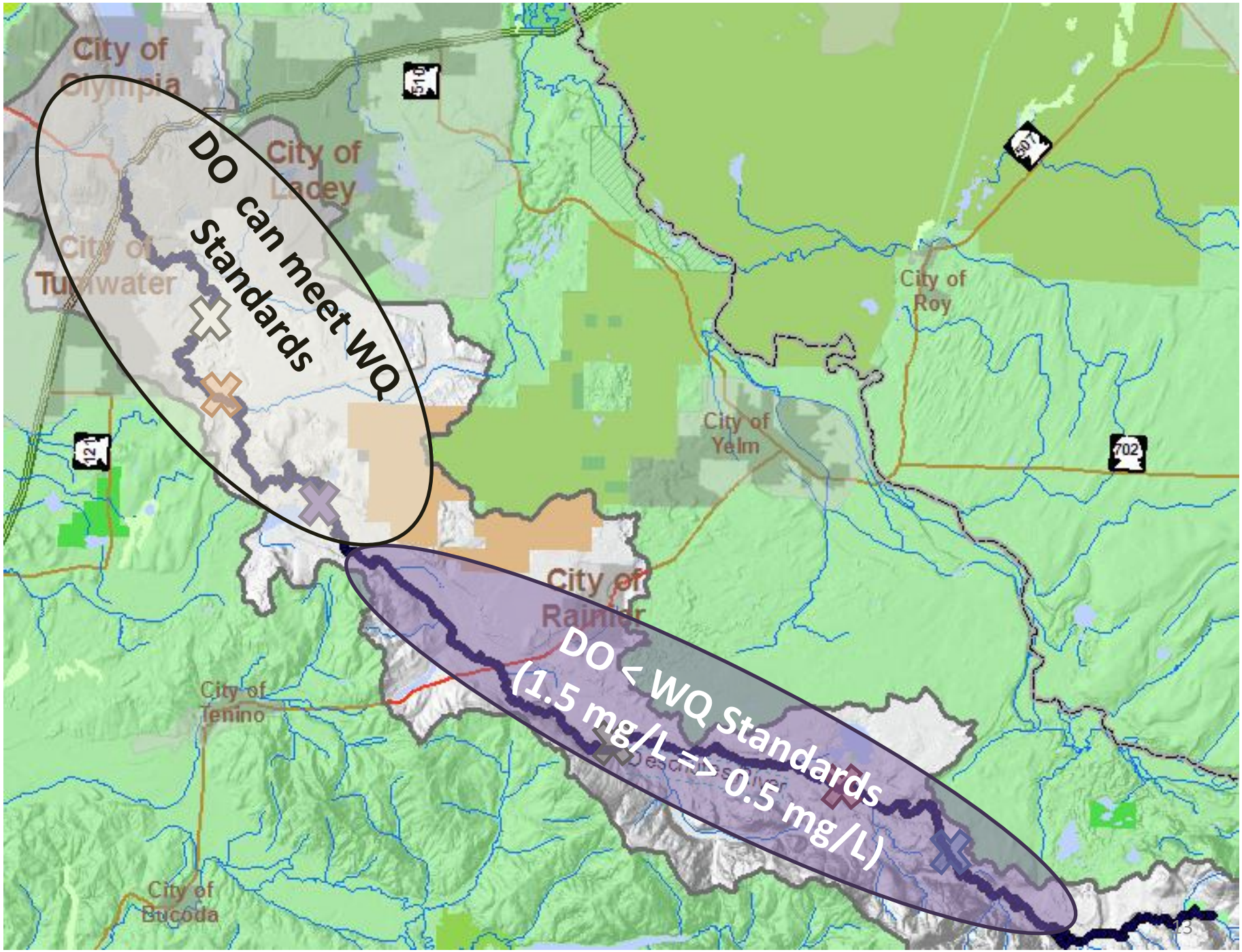


Widest zone coincides with sediment accumulation and low shade

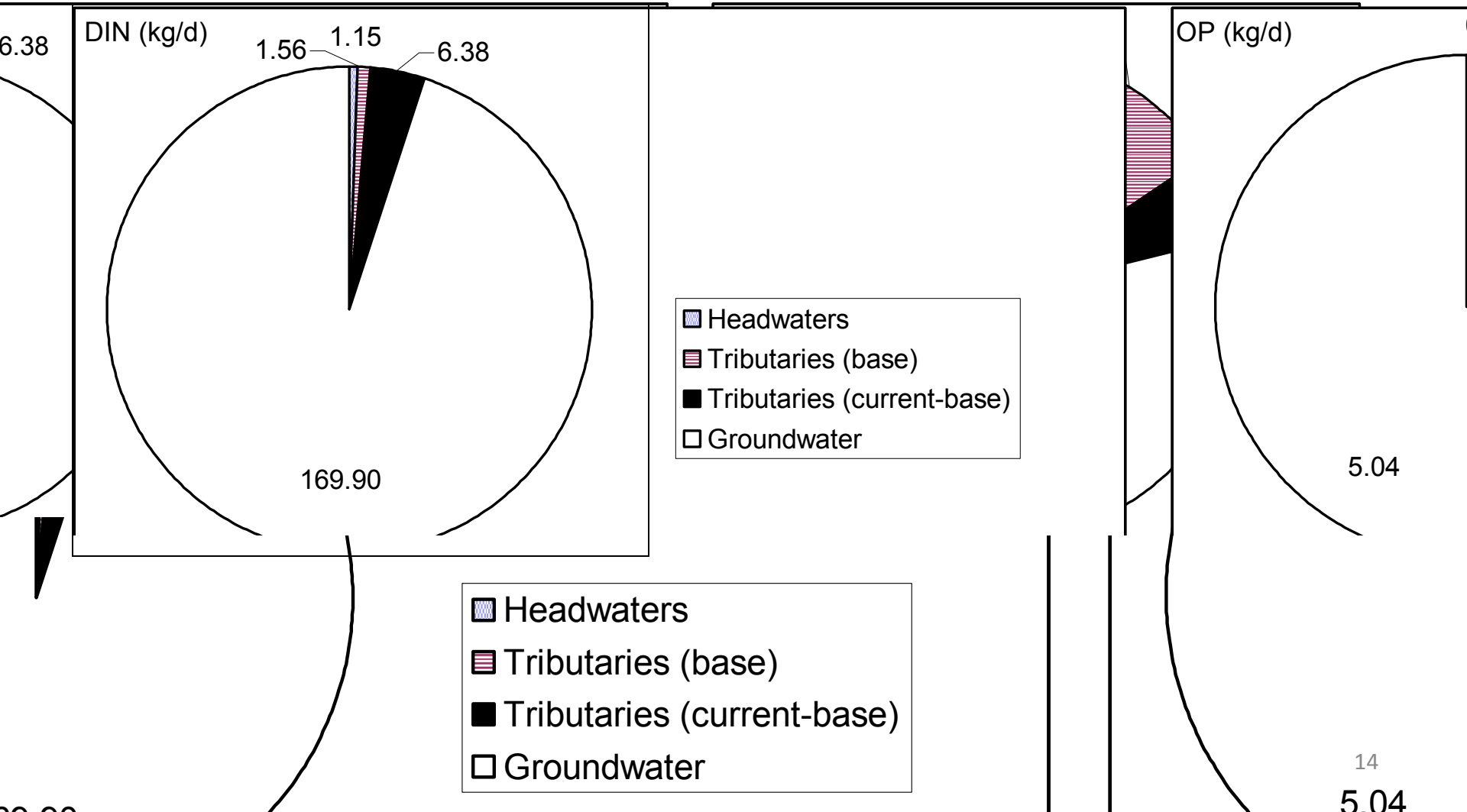


Deschutes River DO_{min} improvements (temperature scenarios)



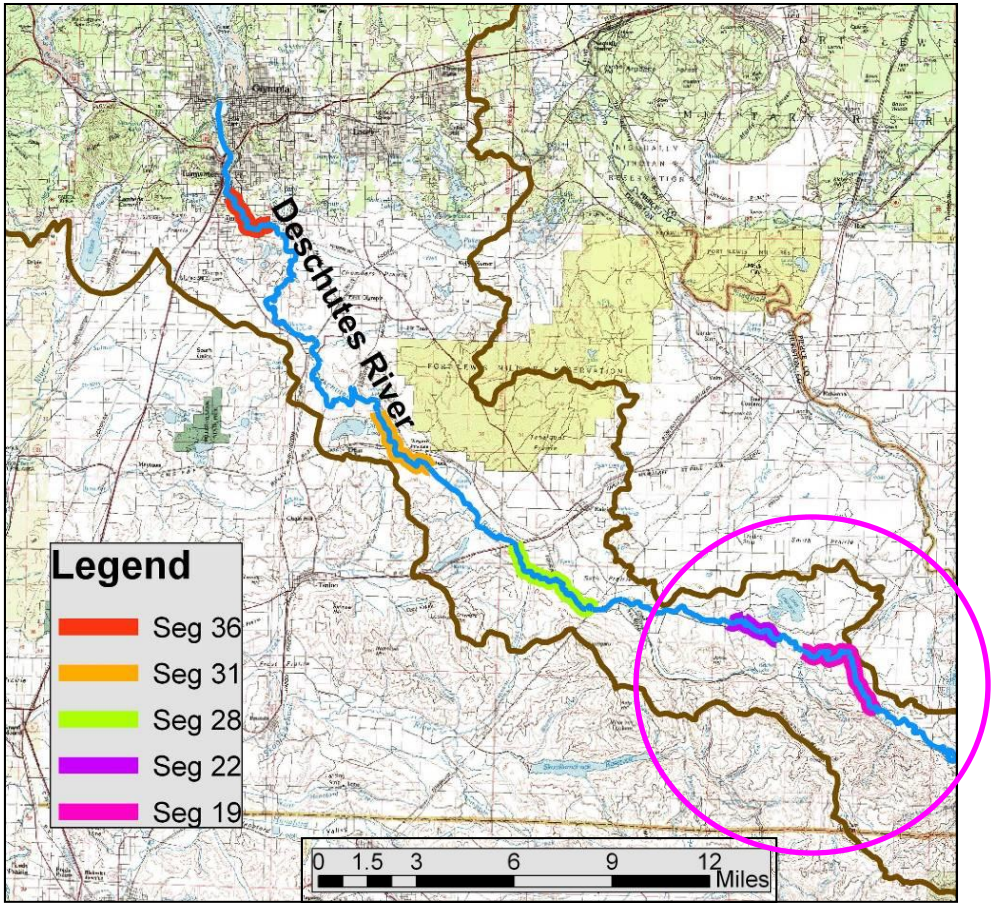

City of Olympia
City of Lacey
City of Tumwater
City of Roy
City of Yelm
City of Rainier
City of Tenino
City of Bucoda
DO can meet WQ Standards
DO < WQ Standards
(1.5 mg/L => 0.5 mg/L)

Deschutes River Nutrient Loads



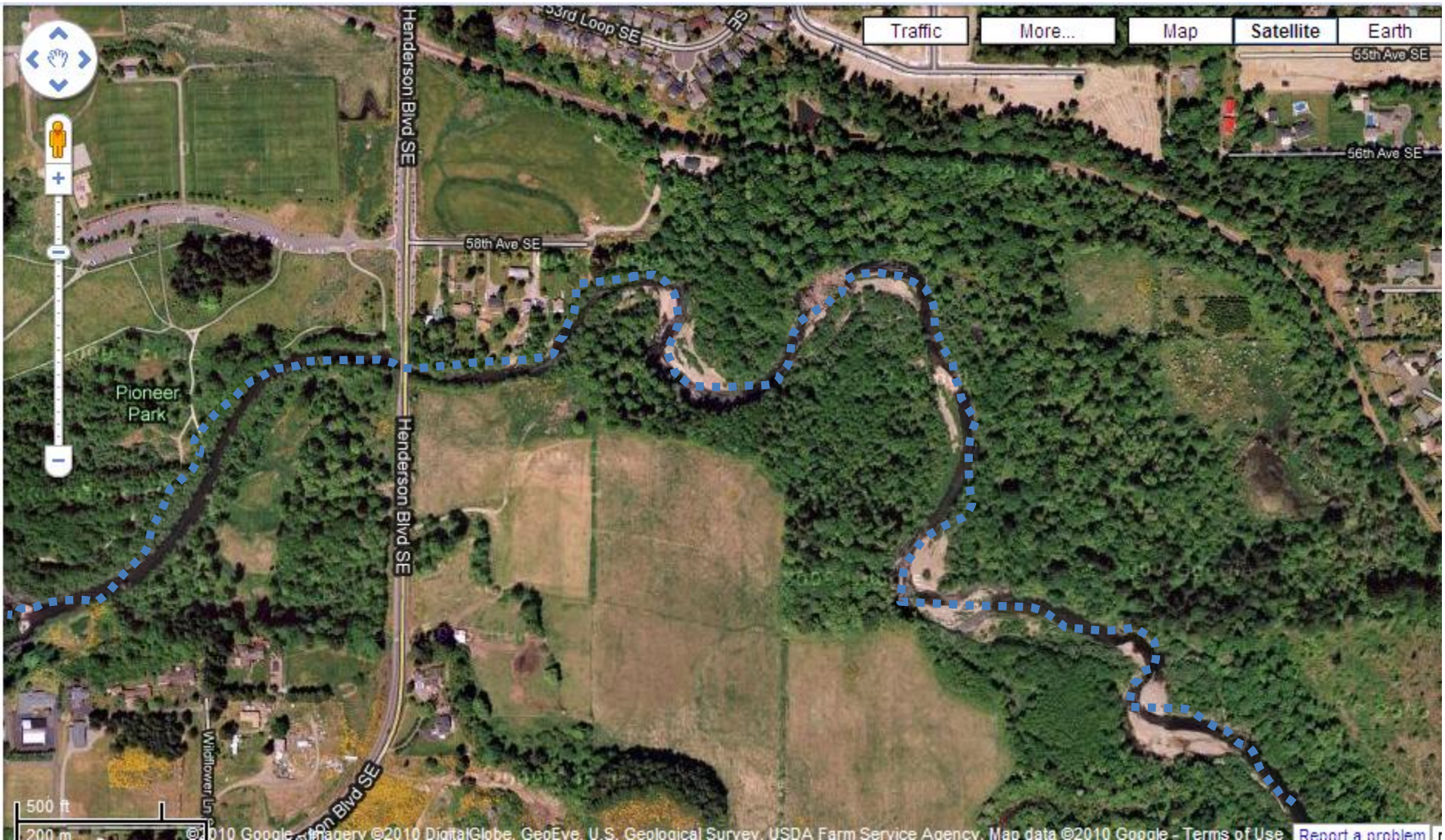
Fine Sediment

- Squaxin Island Tribe
- EPA $$
- QA Project Plan
- Re-occupy historical stations
- Gravel samples
- Percent fines (<0.85 mm)

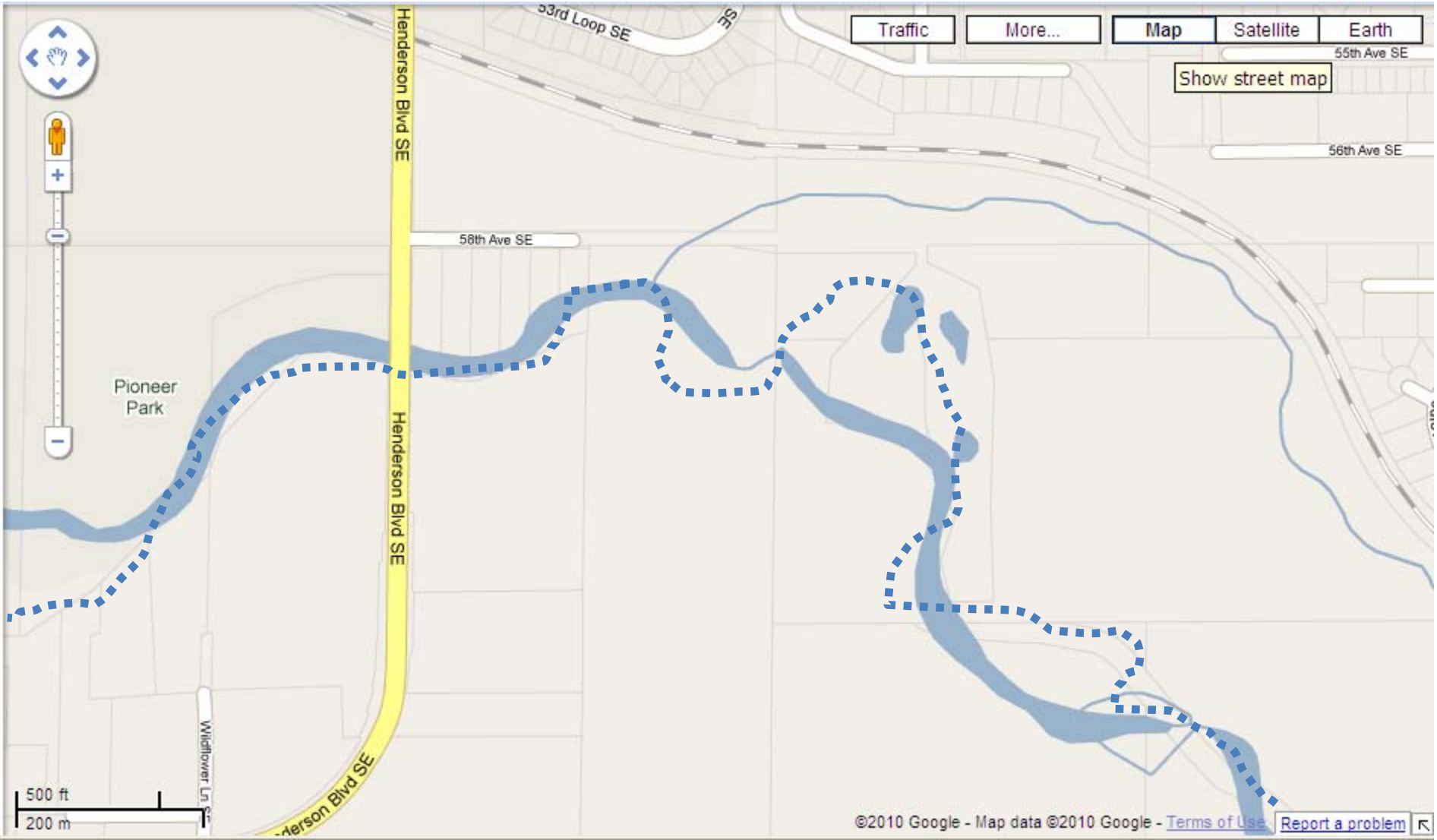


Source: Konovsky and Puhn, 2005

Feedback loops– shade, sediment



Rivers move over time….



2001-2002 Log Jam

Source: http://www.co.thurston.wa.us/em/LogJam/photos.htm

Source: http://www.co.thurston.wa.us/em/LogJam/photos.htm

Source: http://www.co.thurston.wa.us/em/LogJam/photos.htm

2002 log jam a *symptom* of too little wood in the system

Source: Thurston County Emergency Management

Today’s conditions

New Log Jam?

Traffic
More...
Map
Satellite
Earth
100 ft
50 m
©2010 Google - Imagery ©2010 DigitalGlobe, GeoEye, U.S. Geological Survey, Map data ©2010 Google - Terms of Use
Report a problem

Symptom of not enough wood in system….

Recommendations

- Continue to identify and reduce bacterial pollution
- Restore riparian shade
- Manage sediment
- Control nutrients
- Consider feedback loops
- Plan and act comprehensively