

# Spokane Dissolved Oxygen TMDL Advisory Group Meeting

September 20, 2016

IEP Tour: 9:00 – 10:00 am

Meeting: 10:00 am - 12:00 pm



# Hangman Creek Watershed Video

<http://spokanriver.net/hangman-creek-restoration/>

# NPDES Permit Update

- ❖ **Liberty Lake Sewer & Water District**
- ❖ **Kaiser Aluminum**
- ❖ **City of Spokane**

- Public comment period ended Sept. 13, 2016
- Ecology is working to address comments now
  - Response to comments will be in the Fact Sheet
- Goal is to issue the permits as soon as possible

- ❖ **Spokane County**
- ❖ **Inland Empire Paper**

- Factual review in process
- Goal is to re-issue by the end of 2016
- Spokane River Forum will advertise upcoming open house & hearing dates and times



# 2015-2016 Biennial Report

What information do we want to repeat, update & add?

# 2010-2014 Table of Contents

1. Introduction (background & goals from TMDL)
2. Tributary TMDLs
3. Regional Activities
4. Nonpoint Source Activities
5. Permit Holder Activities
6. Avista
7. Monitoring\*
8. Funding
9. Progress Report\*
10. Future Outlook\*

\* We will discuss these in more depth



# Monitoring

- ▶ Monitoring Activities
  - ▶ Entities performing the monitoring\*
  - ▶ Monitoring locations\*
- ▶ Temperature, Precipitation, and Flow Data
- ▶ Data\* Observations
  - ▶ Lake Coeur d'Alene
  - ▶ Spokane River (ID & WA)
  - ▶ Tributaries
  - ▶ Riverine Assessment Point
  - ▶ Lake Spokane
  - ▶ Groundwater
- ▶ Monitoring Recommendations

\* More information on following slides



# Groups Monitoring Water Quality

- IDEQ
- Coeur d'Alene Tribe
- City of Coeur d'Alene
- USGS
- Hayden Area Regional Sewer Board
- City of Post Falls
- Ecology
- Liberty Lake Sewer & Water District
- Kaiser Aluminum
- Inland Empire Paper
- Spokane County
- City of Spokane
- Avista

# 2010-2014 Monitoring Locations

- ▶ Lake Coeur d'Alene
- ▶ Spokane River
  - ▶ Downstream of Lake Coeur d'Alene outlet
  - ▶ Near Post Falls
  - ▶ Stateline Bridge
  - ▶ Sullivan Road
  - ▶ Plante's Ferry Park
  - ▶ Sandifer Bridge
  - ▶ Fort Wright Bridge
  - ▶ Riverside State Park
  - ▶ Nine Mile Bridge
  - ▶ @ Lake Spokane
- ▶ CSO
  - ▶ Basin 6
  - ▶ Basin 34
- ▶ Stormwater:
  - ▶ Cochran Basin
  - ▶ Washington Basin
- ▶ Lake Spokane (6 stations)
- ▶ Tributaries
  - ▶ Little Spokane River near mouth
  - ▶ Hangman Creek @ mouth
  - ▶ Deep Creek @ Garfield Rd Bridge
  - ▶ Coulee Creek @ N Brooks Rd
- ▶ Groundwater
  - ▶ City of Spokane wells
  - ▶ Spokane County wells



# Monitoring Data Observations

## Spokane River

- Total phosphorus
- Ortho phosphorus

## Lake Spokane

- Dissolved Oxygen
  - Volume-weighted hypolimnetic concentrations
  - Mean epilimnetic concentrations
- epilimnion Total Phosphorus
- Chlorophyll-a

## Groundwater

- Nitrate
- Total Phosphorus



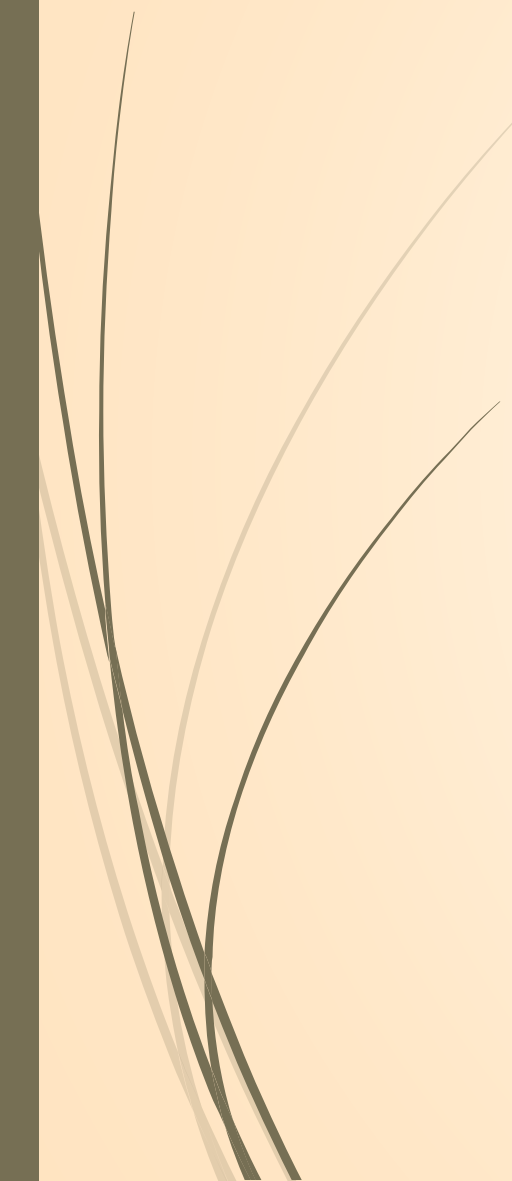
# Progress Report



1. Water Quality of the Spokane River and Lake Spokane
  - summary of data observation section
2. TMDL Allocations
  - Compliance with wasteload allocations
  - Compliance with load allocations
3. TMDL Goals and Objectives
  - Comparisons with 5- 10- and 15- year goals
4. Nonpoint Source Phosphorus Reduction Plan
5. Summary of Progress



# Future Outlook

- ▶ Nonpoint Sources
  - ▶ Point Sources
  - ▶ Adaptive Management
    - ▶ Used Language from the TMDL
  - ▶ Ten Year Assessment
    - ▶ Used Language from the TMDL
  - ▶ 2020 TMDL Goals
    - ▶ Discussion of where we are in relation to these goals
- 



# Wrap-up

- ▶ Schedule:
  - ▶ Start compiling information in January
- ▶ Send me your ideas & recommendations anytime
- ▶ Ideas for Next Steps:
  - ▶ Hold a separate meeting?
  - ▶ Work on a SharePoint site?
  - ▶ Include topic with other workgroup meeting?
- ▶ Final feedback?

# Ten Year Assessment - Schedule

2018-  
2021

- WA dischargers install tertiary treatment, fine-tune technology and implement tool box options

2021

- End of Greater Spokane RCPP
- WA NPDES permits re-issued with TMDL wasteload allocations
- Earliest date for 10-Year Assessment to begin

2022

- ID dischargers complete construction of next level of treatment

# Literature Search

- ▶ Ways other states, etc. measure compliance with dissolved oxygen standard
  - ▶ mean and mean minimum DO concentrations over 7 to 30 days
- ▶ Indicators of improving conditions
  - ▶ zoo- to phytoplankton ratios, etc.
  - ▶ habitat
- ▶ How long is it before improvements are observed in reservoirs

# Monitoring Workgroup

Possible agenda items:

- Go over current monitoring efforts:
  - Where
  - When
  - What
- Coordinate sample collection to get a synoptic data set of the entire basin?
- Identify data gaps
- Begin work for next biennial report

Other monitoring topics???

When do you want to meet?



# Spokane CE-QUAL-W2

Question & Answer



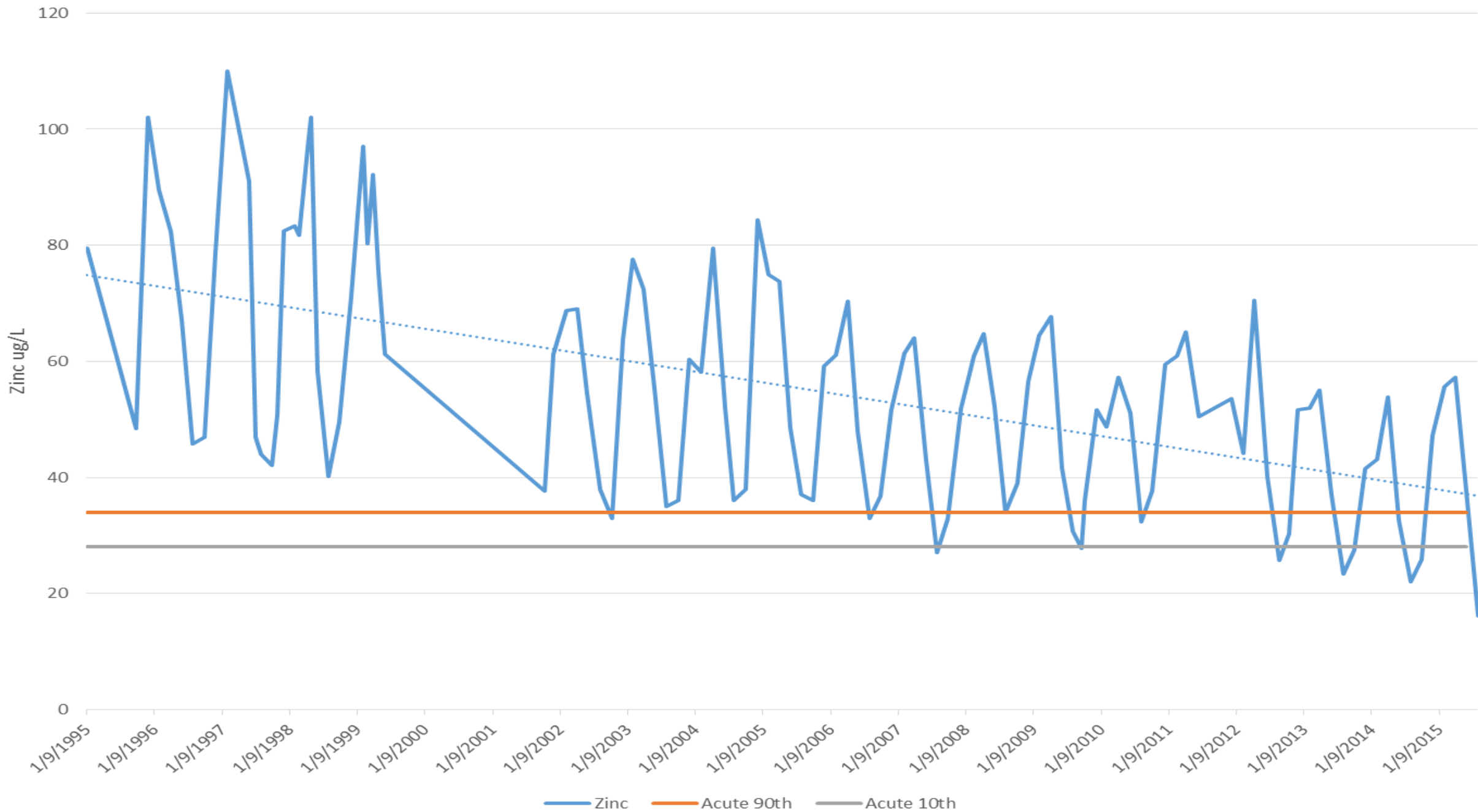
A decorative graphic on the left side of the slide. It features a solid red arrow pointing to the right, positioned horizontally. Behind the arrow and extending upwards and to the right are several thin, curved lines in shades of grey and brown, creating a sense of movement or a stylized background element.

# Zinc Inhibition

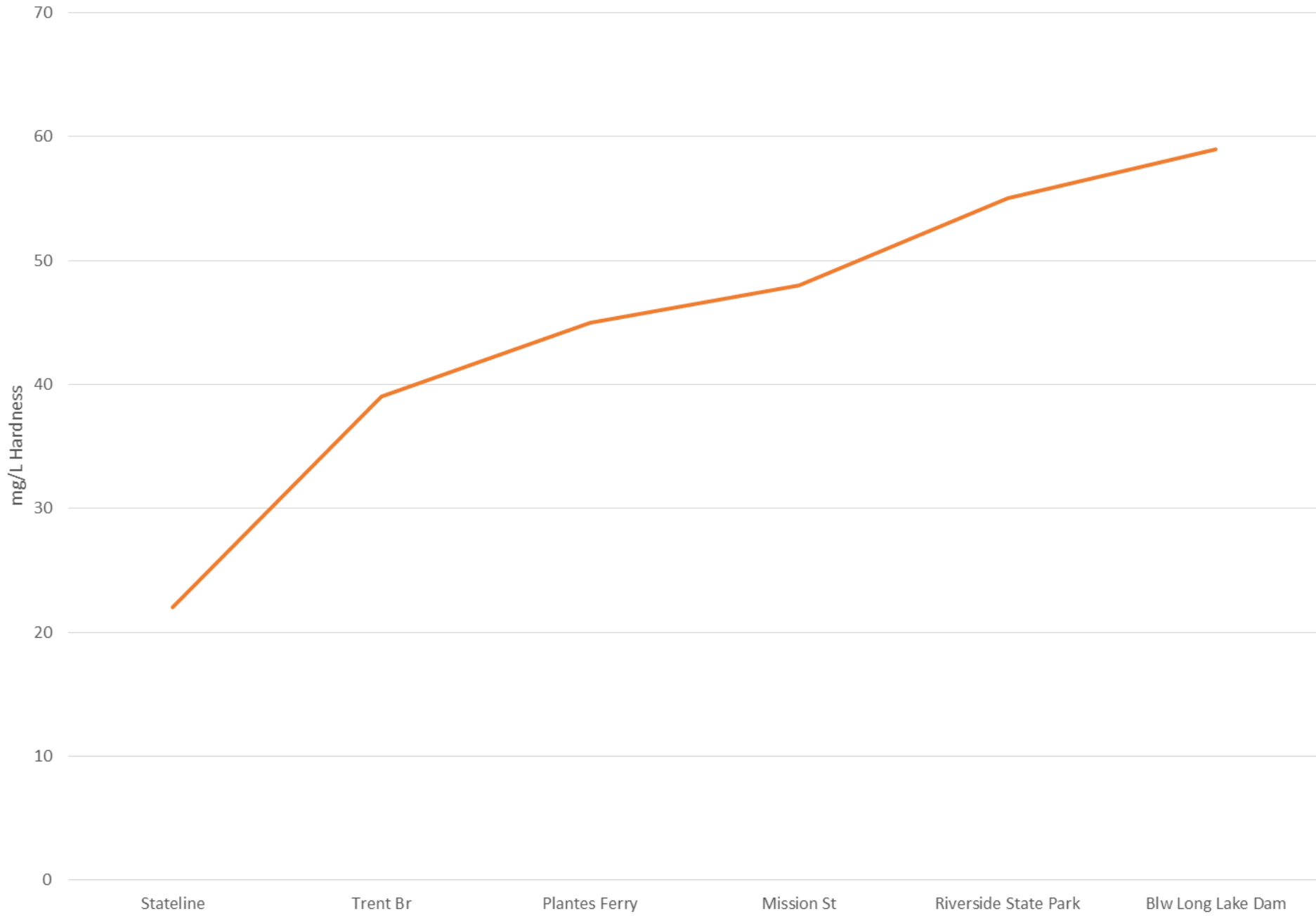
## Zinc freshwater criteria for Washington

Acute (CMC)	$0.978e^{0.8473[\ln(\text{hardness})]+0.8604}$	
Chronic (CCC)	$0.986e^{0.8473[\ln(\text{hardness})]+0.7614}$	

# Zinc @ Stateline



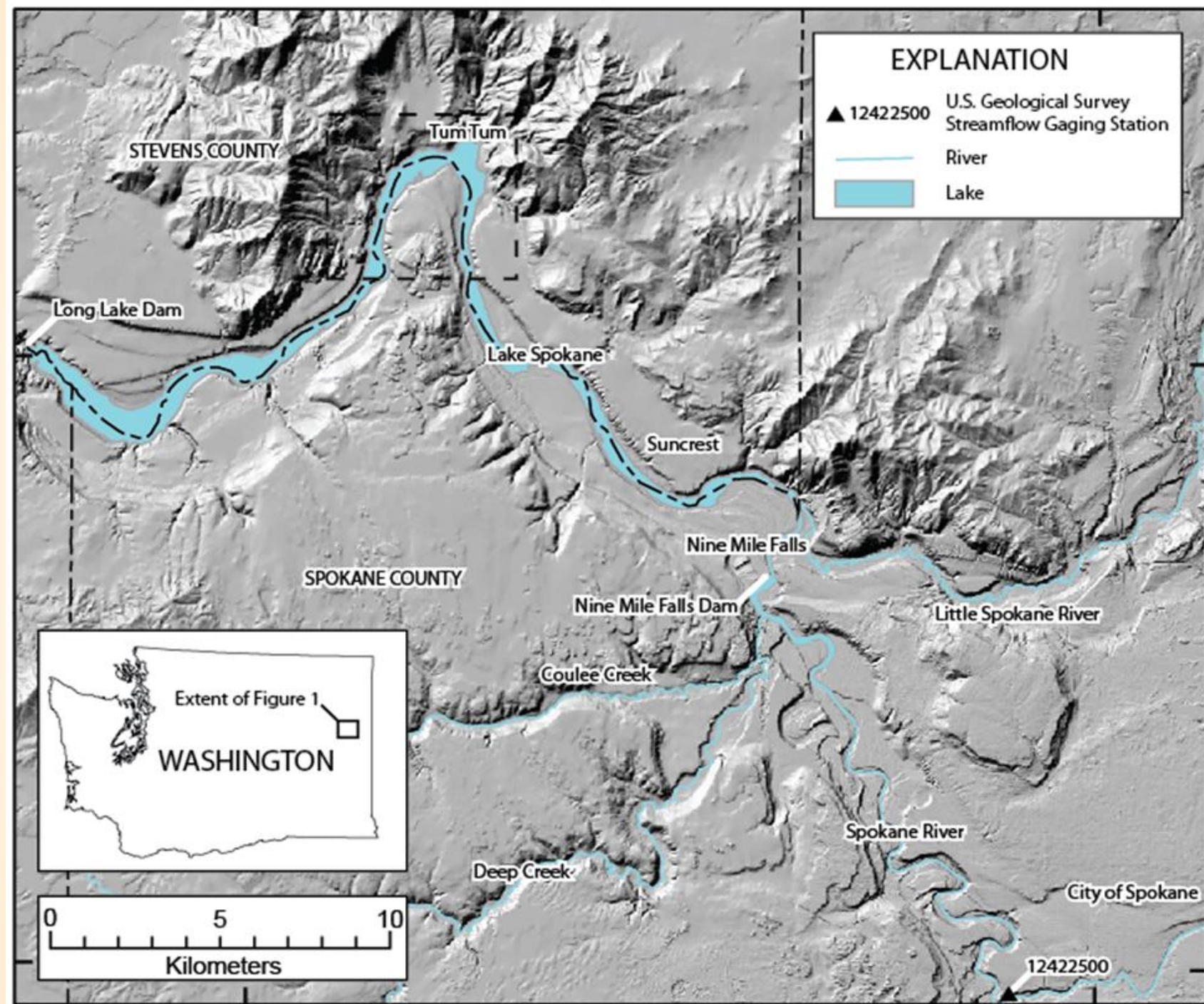
# Spokane River Average Hardness



## June 2010 conditions

Stateline			9 Mile		
Zinc	Hardness	Acute	Zinc	Hardness	Acute
47	21	31	45	35	47

# Lake Spokane Groundwater Study







Next Meeting:

December 6<sup>th</sup> @ 10:00 am

Agenda topics:

- Adaptive Management
- Others?