

# BITTERROOT RIVER NUTRIENT PROTECTION PLAN

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# ROAD MAP

- What is a Protection Plan?
- Why the Bitterroot?
- What's in a Protection Plan?
  - Identify high quality-ness
  - Identify risks to condition, aka "sources"
  - Activities to resist impairment
  - Measures of success
  - Planned responses

**OK but wait!**



Your ideas,  
please!

# WHAT IS A PROTECTION PLAN?

- Clean Water Act aims to “restore and **maintain** the chemical, physical, and biological integrity of the Nation's waters”
- Protection avoids costs of lost revenue, expanding restoration, regulation
- Goal: minimize or avoid water quality degradation from stressors that threaten the current condition



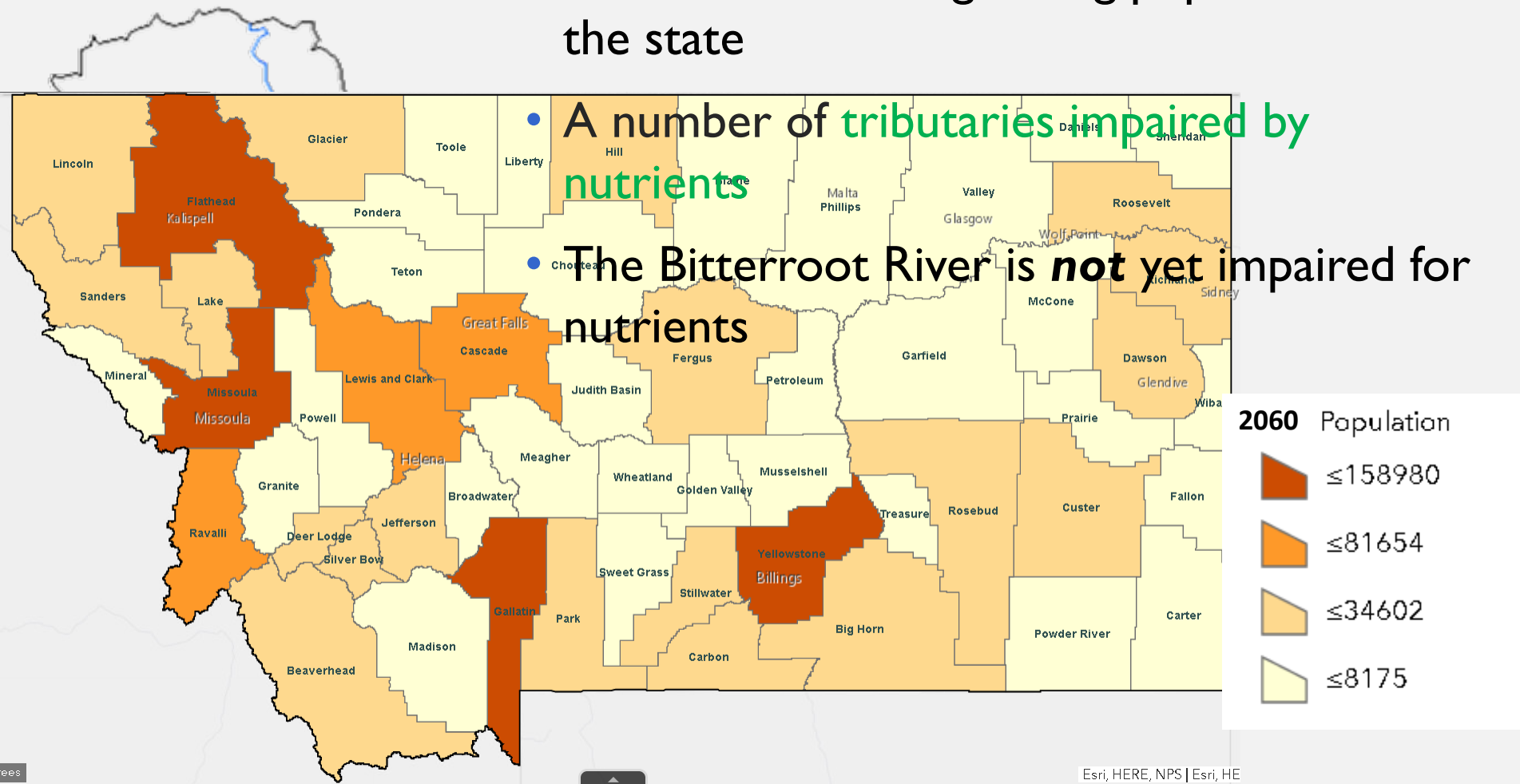


# WHY THE BITTERROOT?

- One of the fastest growing populations in the state

- A number of tributaries impaired by nutrients

- The Bitterroot River is **not yet** impaired for nutrients



# WHERE DOES NUTRIENT POLLUTION COME FROM?





# WHY THE BITTERROOT?/ WHY DO WE CARE ABOUT NUTRIENTS?

Highly valued for

- Recreation
  - Routinely ranked top 5 in the state
  - Almost 50% driven by out of state
- Aesthetics
- Agriculture



Suplee et al 2009

## WHAT'S IN A PROTECTION PLAN?

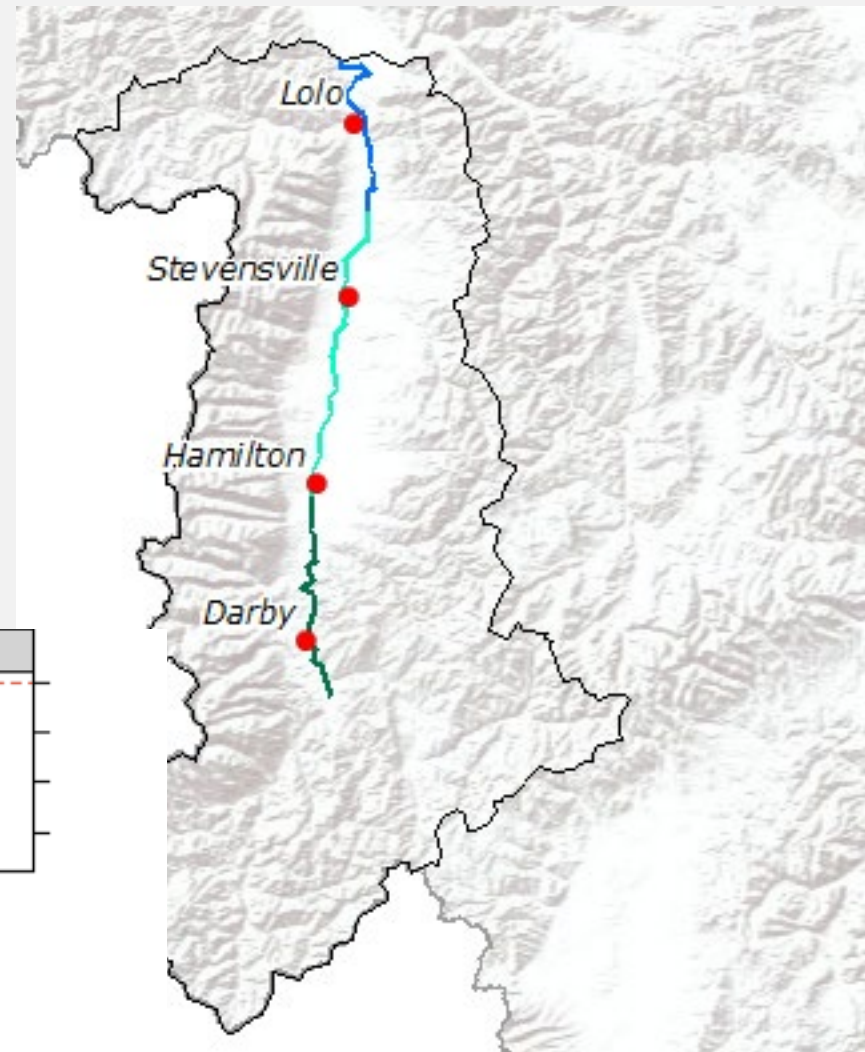
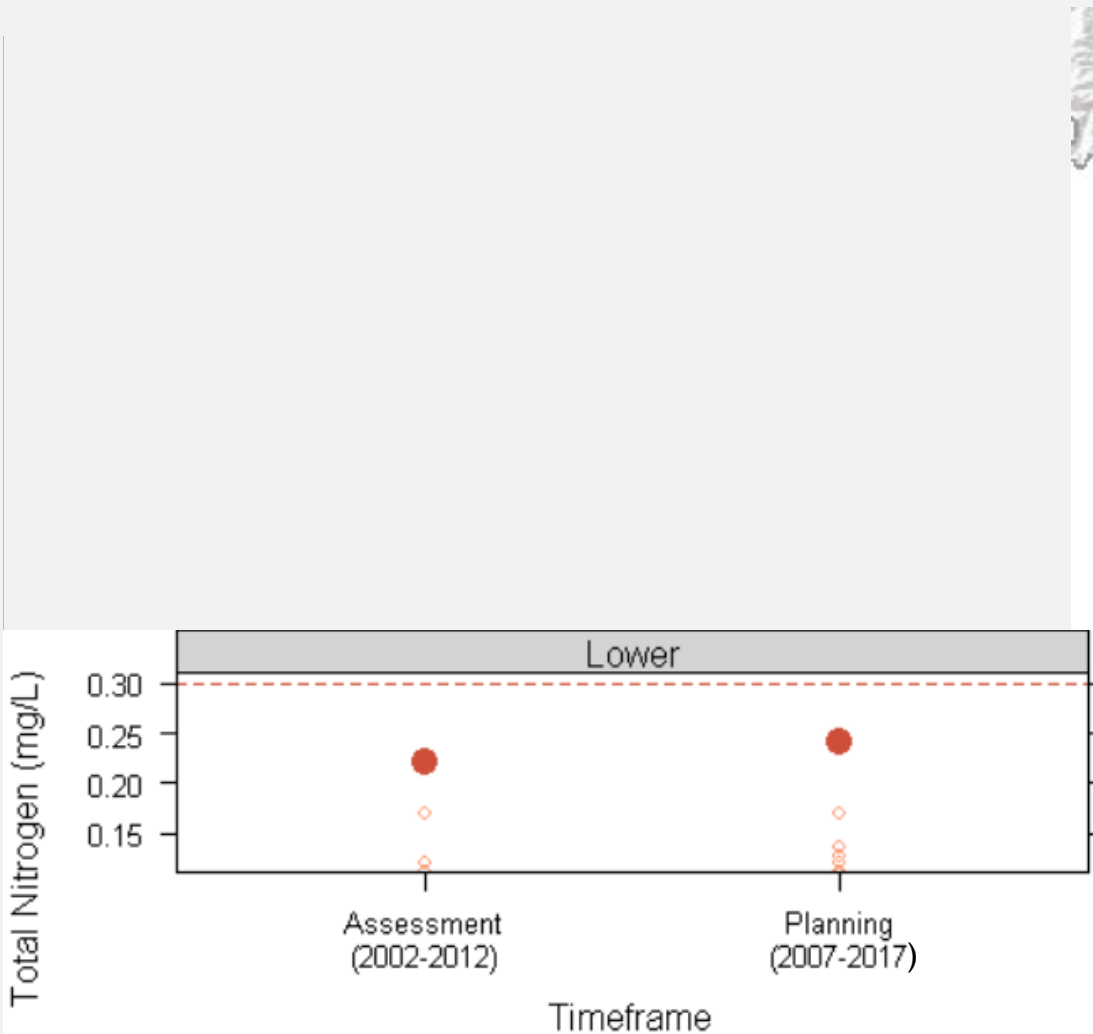
- **Identification of** specific high quality waters and **risks** to their condition
- **Time frames** over which a *protection target* condition is expected to be attained and maintained
- **Activities** proposed and/or implemented that are expected **to resist degradation** or impairment of these waters
- **Measures of success** and **planned responses** to observed changes in risks or condition
- What do YOU want in a Protection Plan?

## IDENTIFY HIGH QUALITY WATER

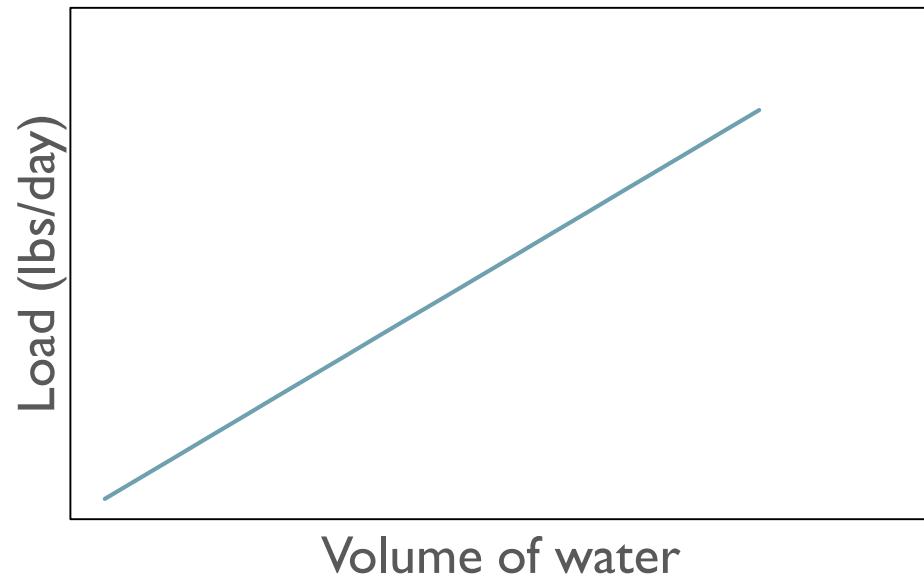
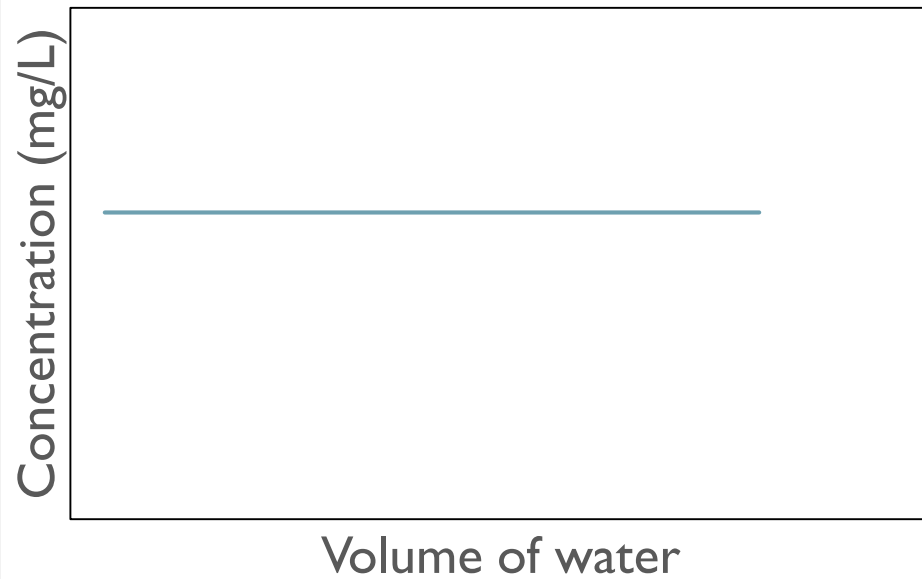
- Data are below nutrient standards
  - Especially for phosphorus
  - Especially for the upper Bitterroot
  - Exceedances are allowed
- There is no significant trend in 80<sup>th</sup> percentile nutrient concentrations between the two timeframes



# IDENTIFY HIGH QUALITY WATER

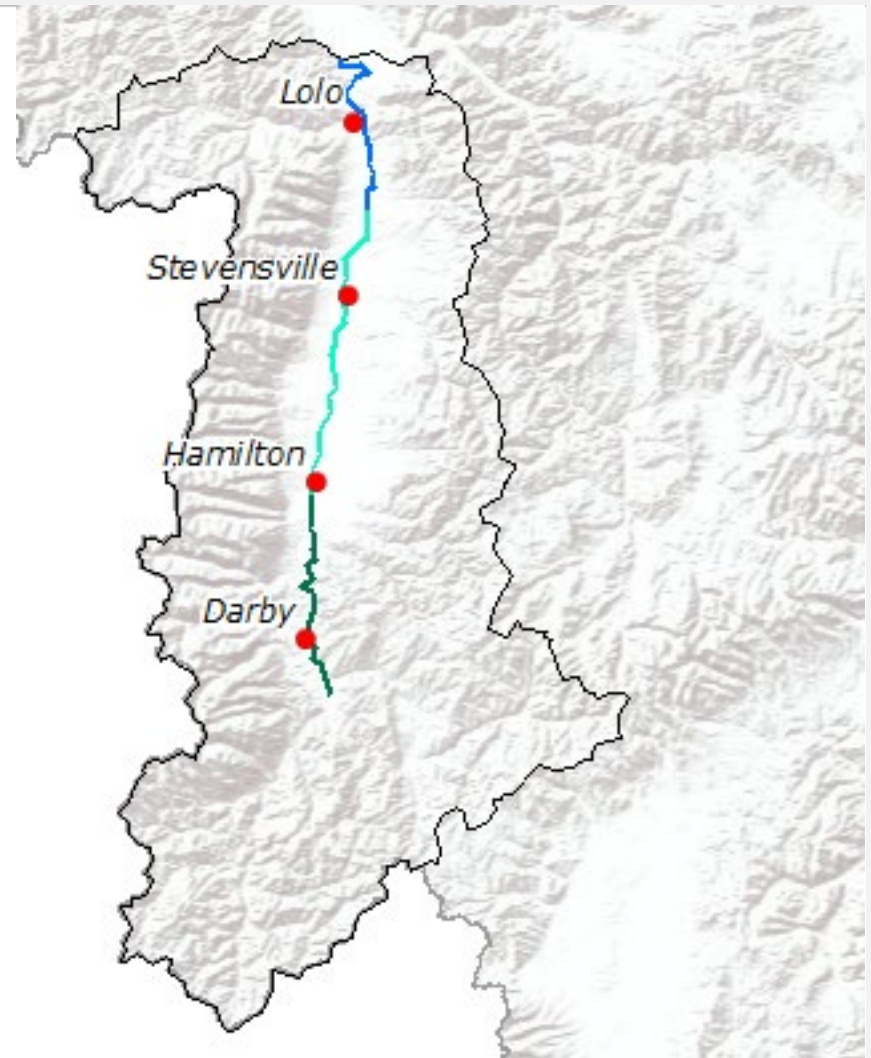
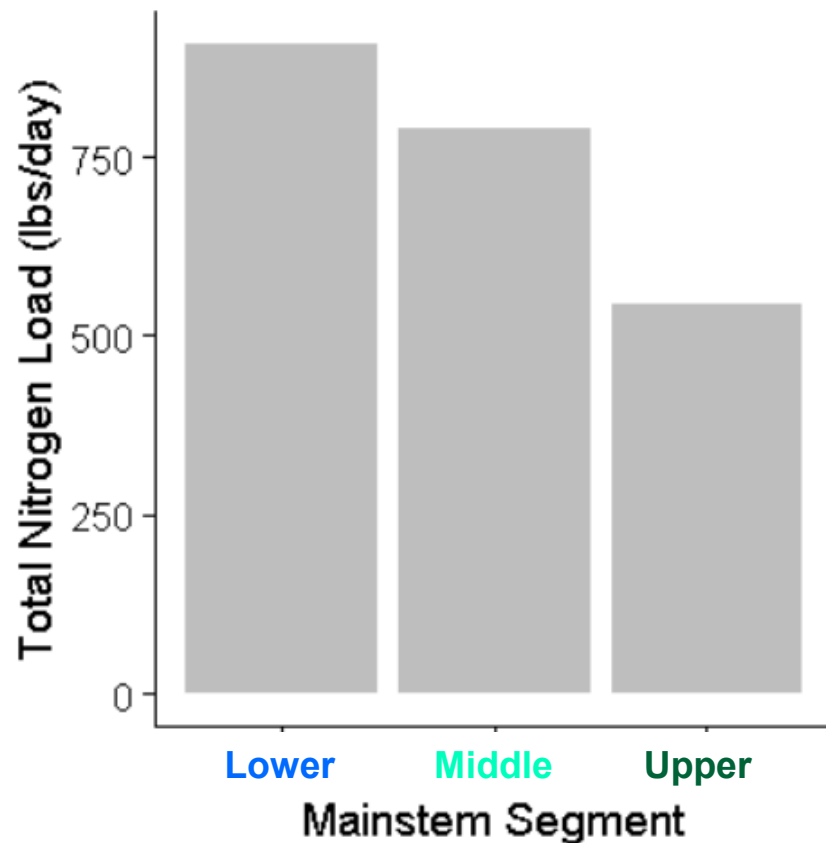


## INTERLUDE: CONCENTRATION VERSUS LOAD



# IDENTIFY HIGH QUALITY WATER

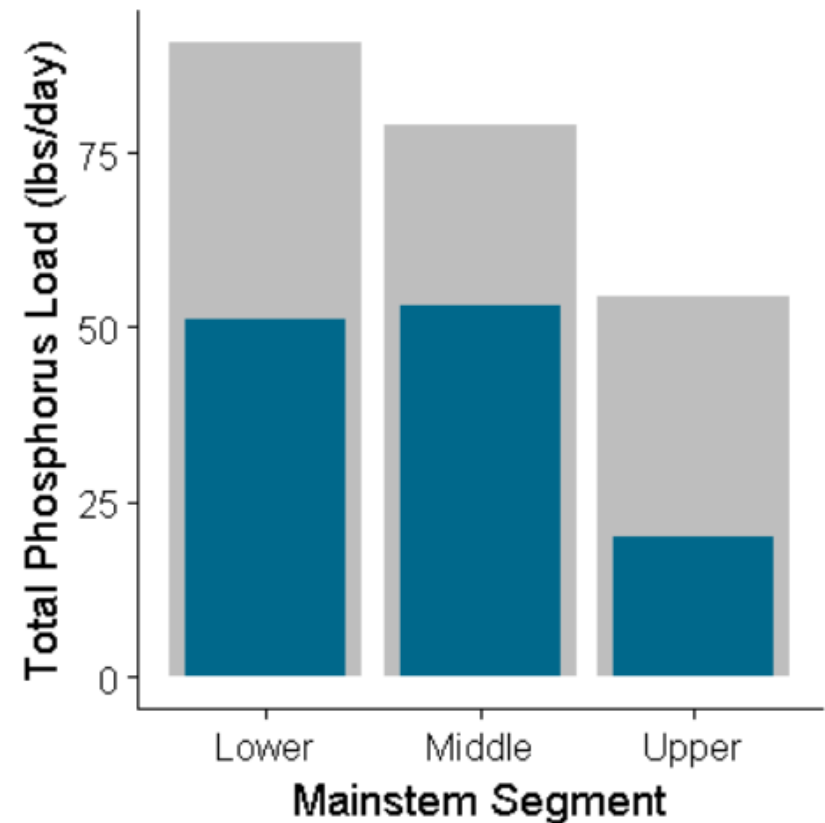
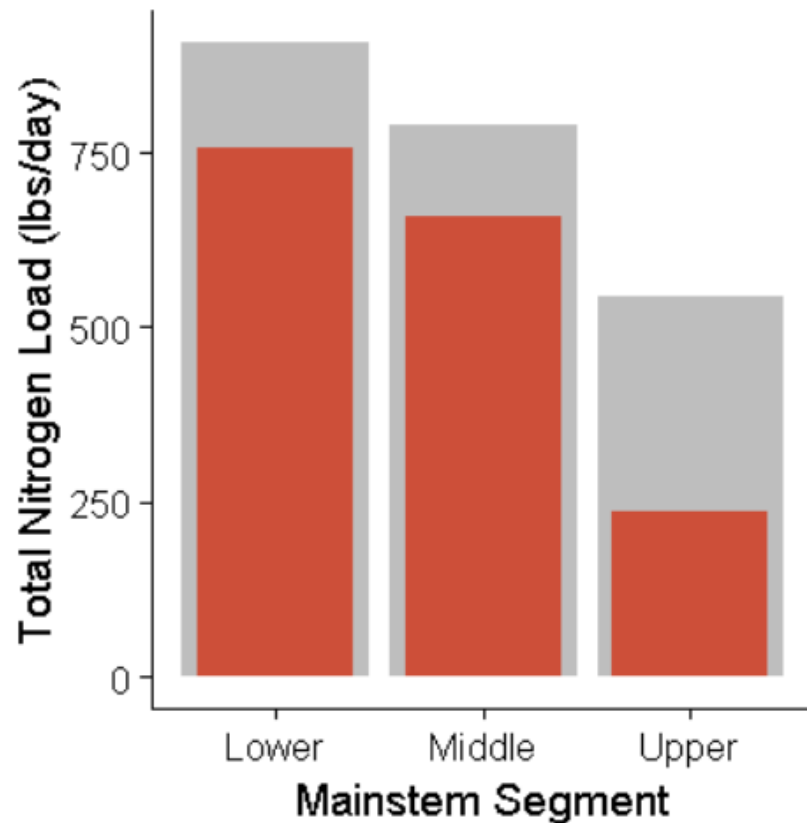
Load  
Allowable





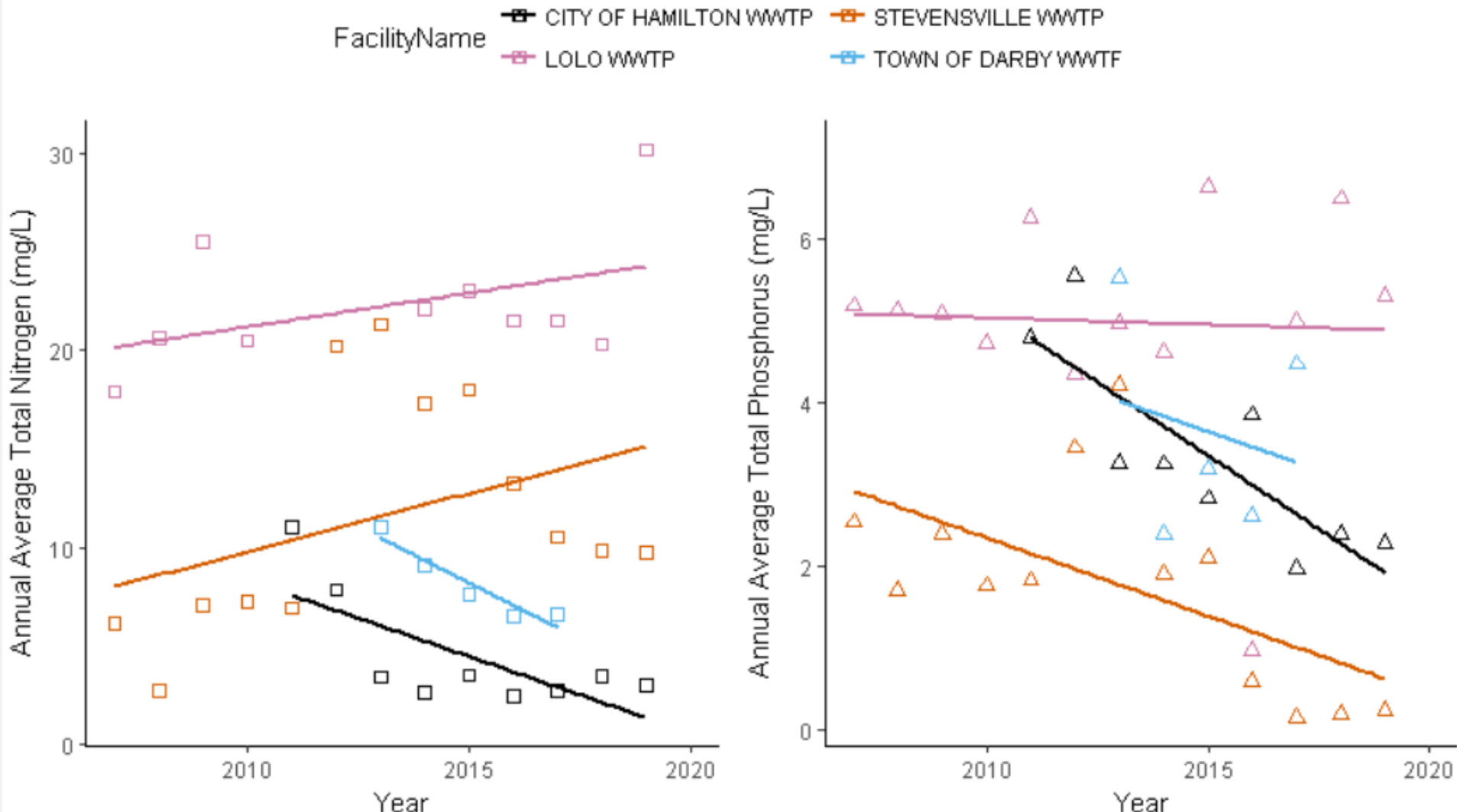
# IDENTIFY HIGH QUALITY WATER

**Load**  
Allowable  
Current



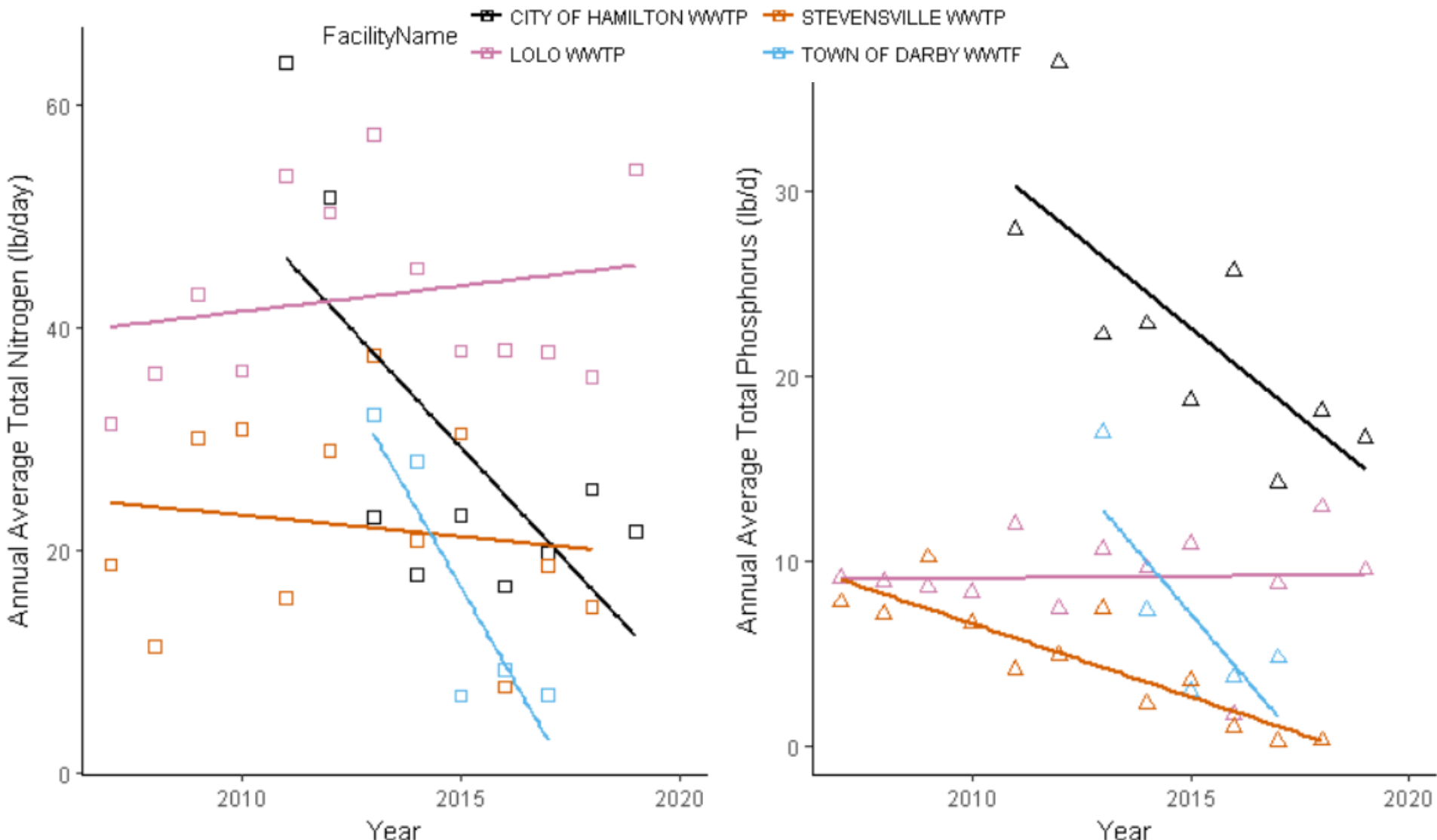
# NUTRIENT SOURCES: WWTPS

## Nutrient Concentrations in Wastewater Effluent



# NUTRIENT SOURCES: WWTPS

## Nutrient Loads in Wastewater Effluent

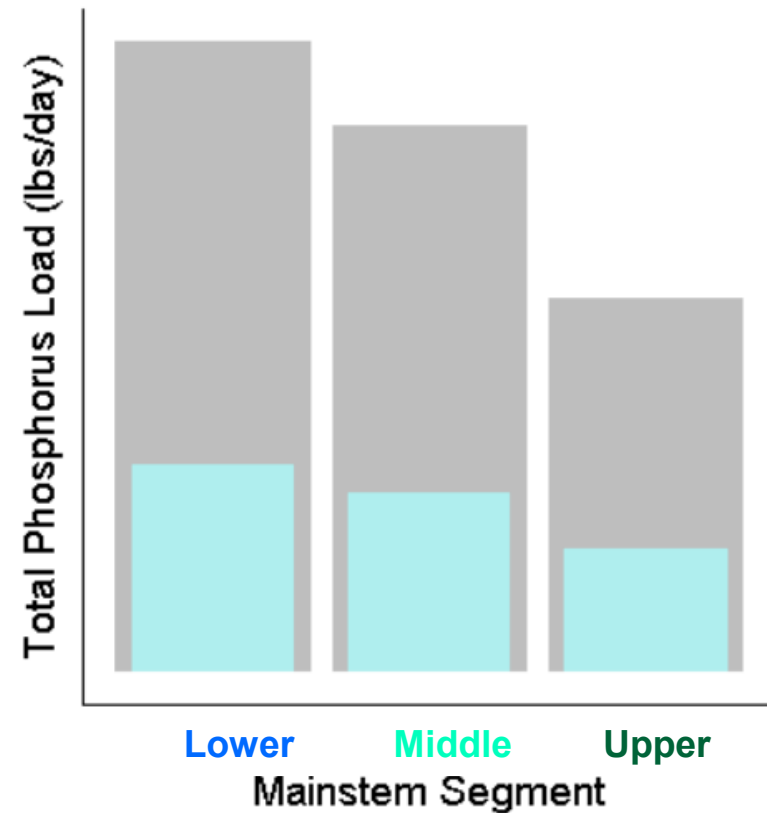
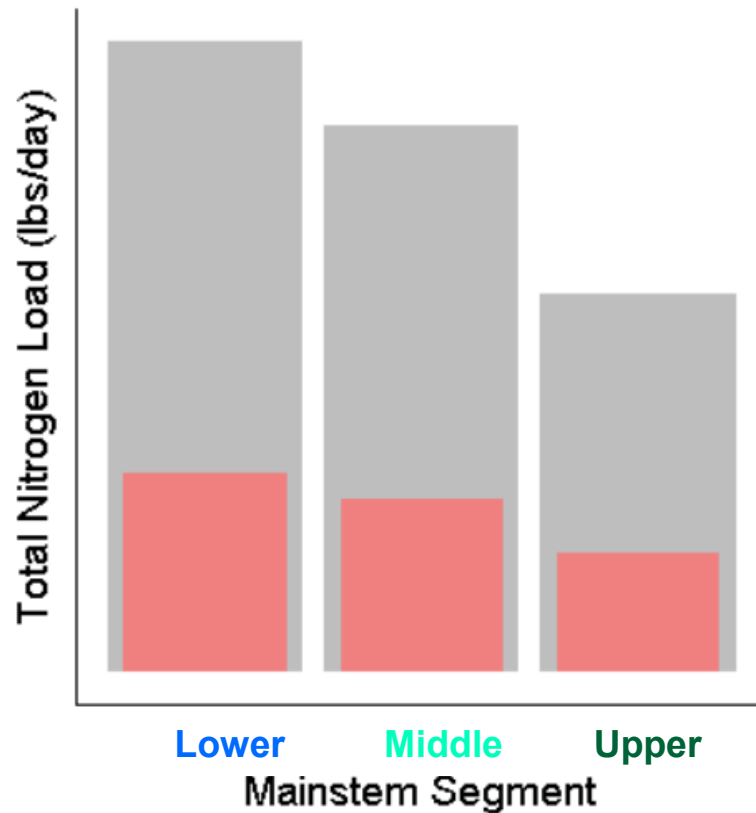




# ALLOWABLE LOAD & NATURAL SOURCES



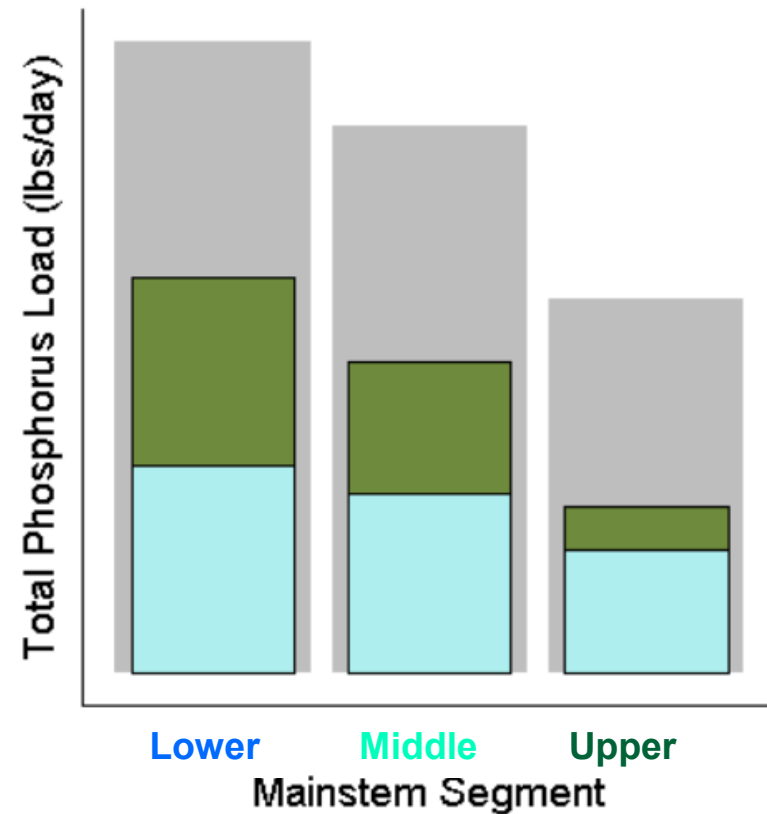
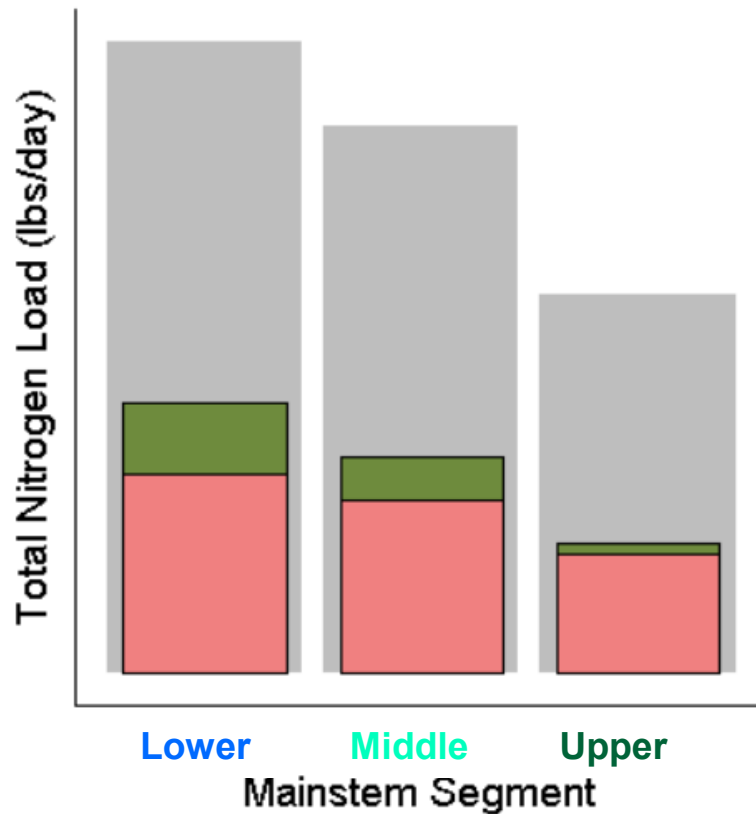
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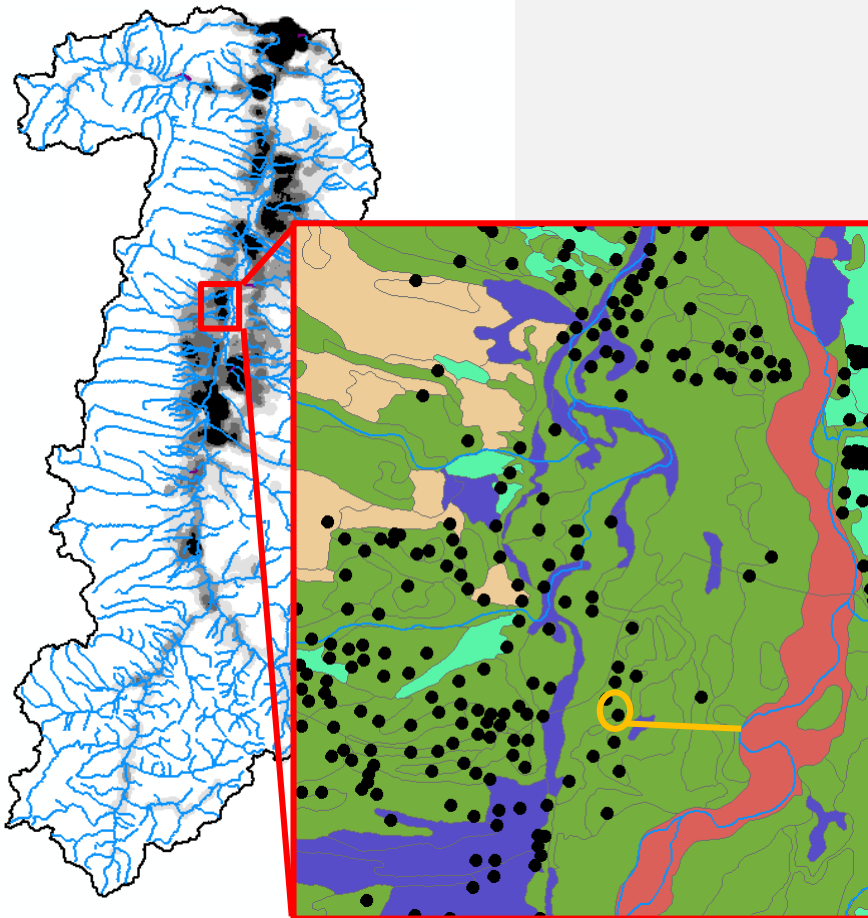
# NUTRIENT SOURCES: WWTPS



## Load



# NUTRIENT SOURCES: SEPTIC SYSTEMS



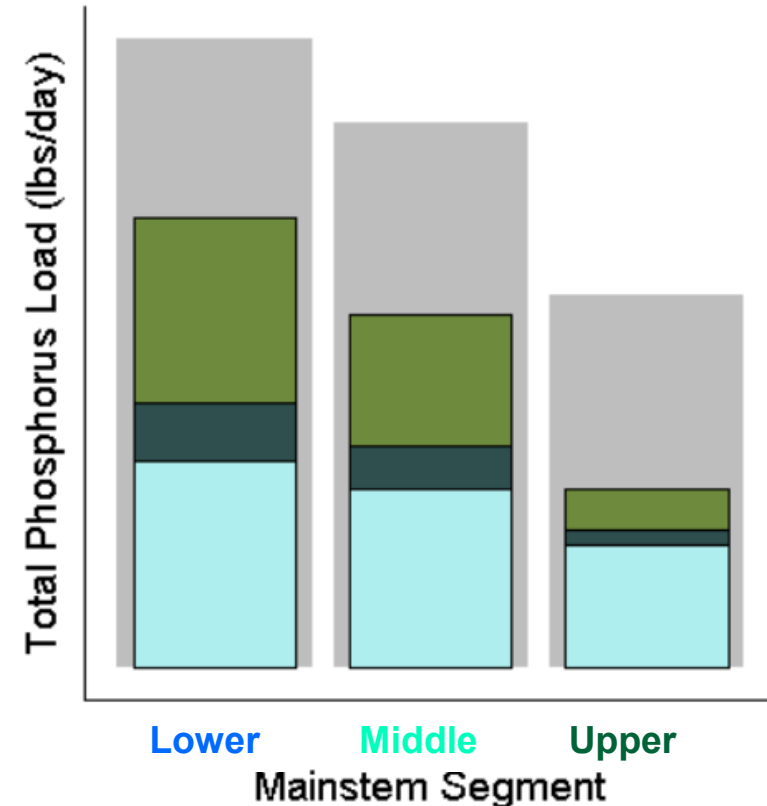
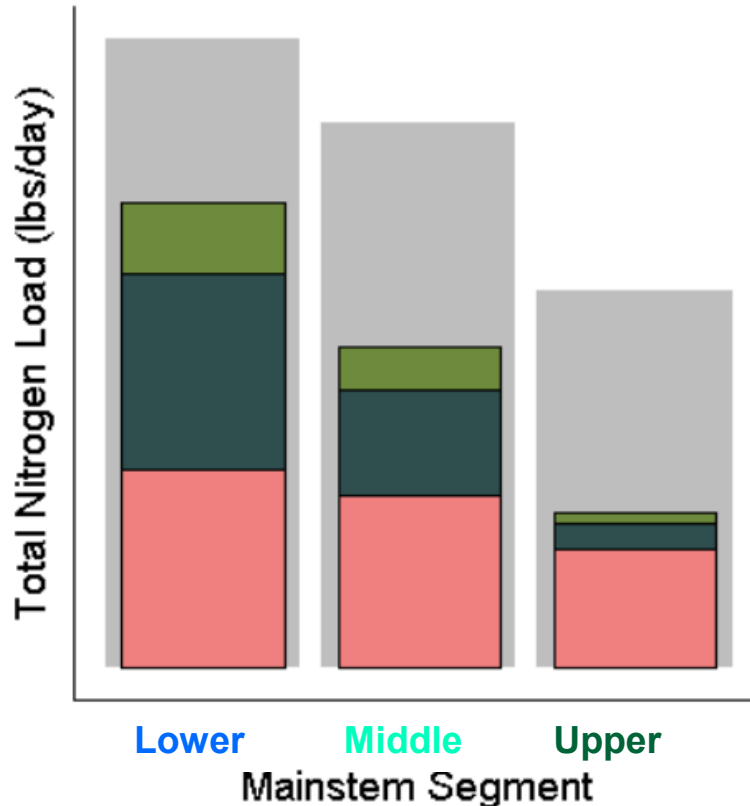
- Method for Estimating Attenuation of Nutrients from Septic Systems (MEANSS)
- Assumes that all septic systems release nutrients at a given rate.
- The amount that reaches surface water is based on a function of:
  - Soil properties
  - Distance to water



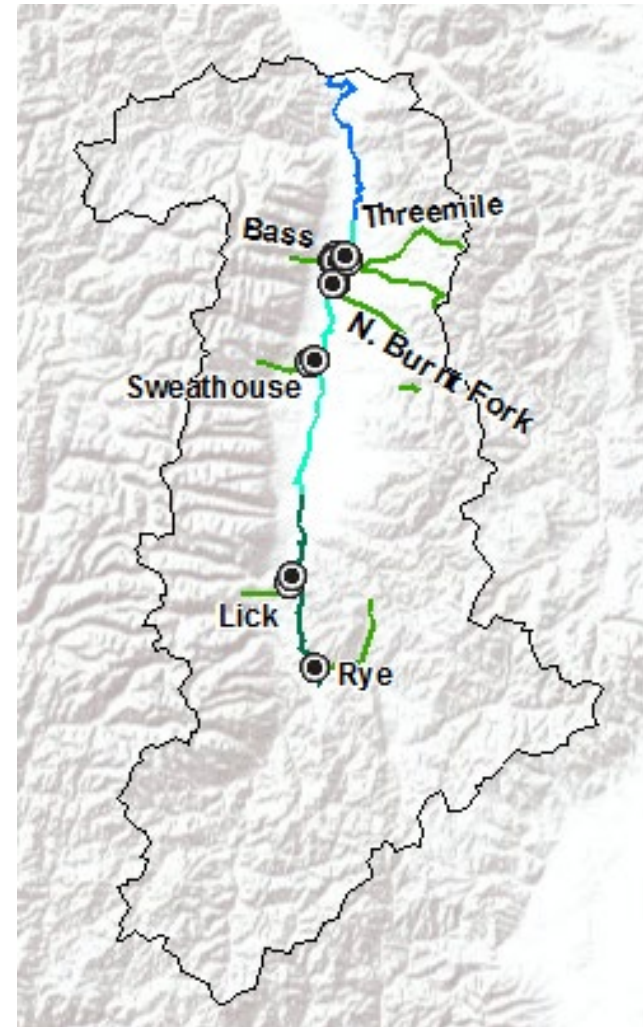
# NUTRIENT SOURCES: SEPTIC SYSTEMS



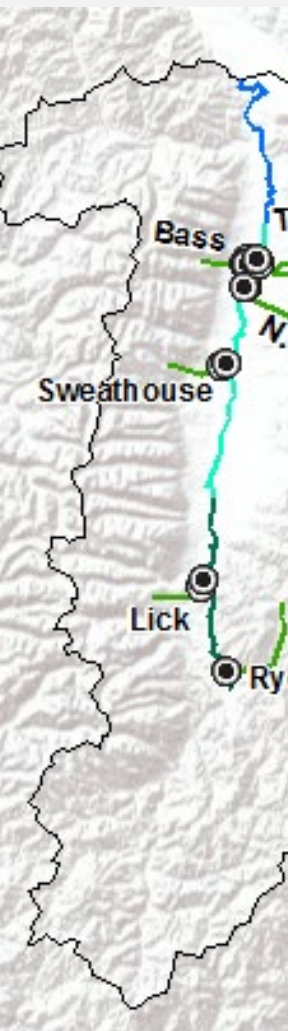
## Load



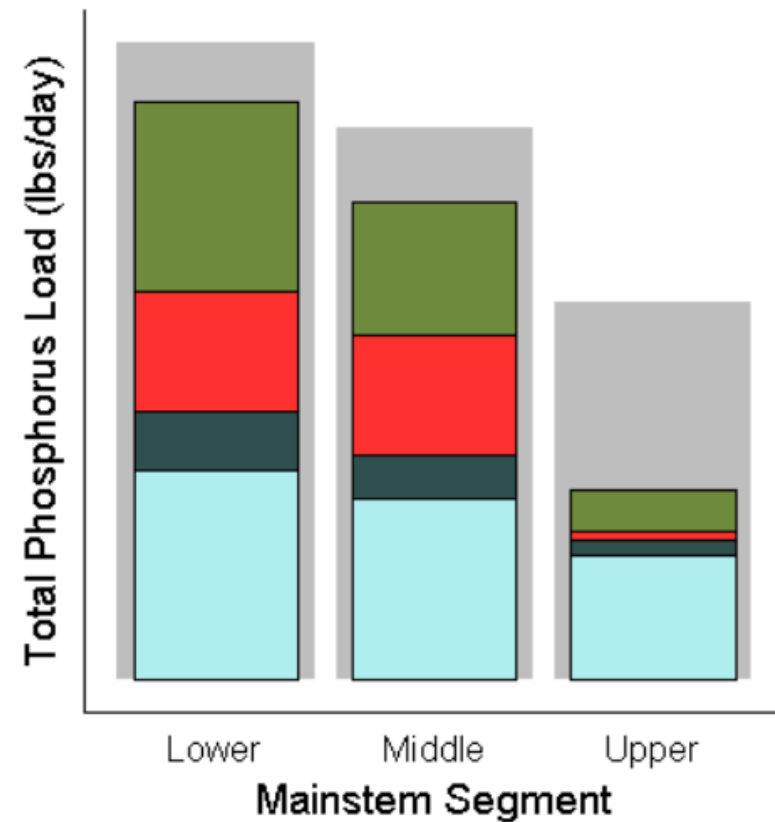
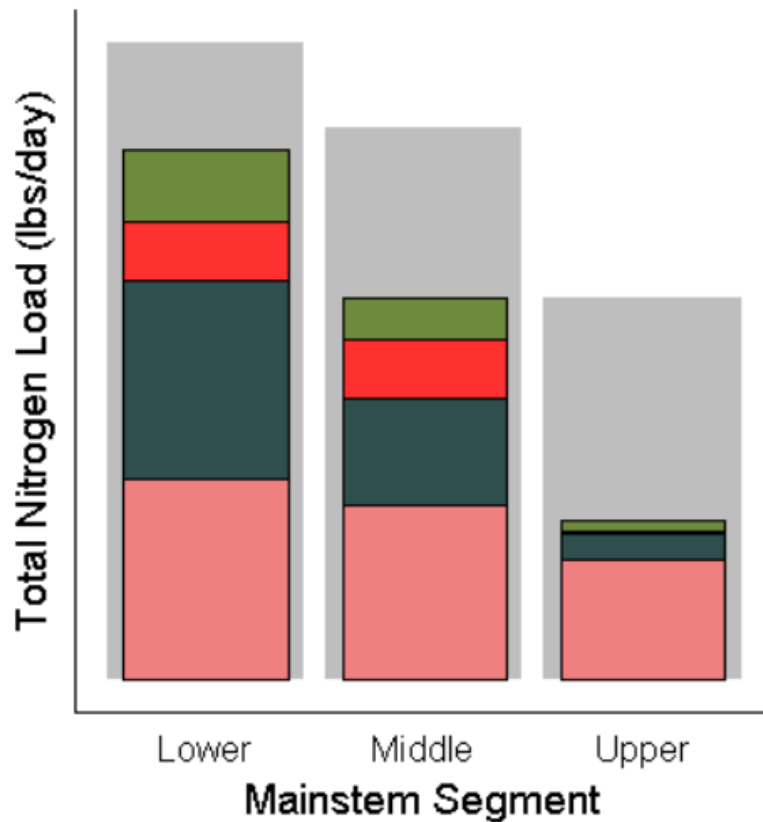
NUTRIENT  
SOURCES:  
IMPAIRED  
TRIBUTARIES



# NUTRIENT SOURCES: IMPAIRED TRIBUTARIES



## Load

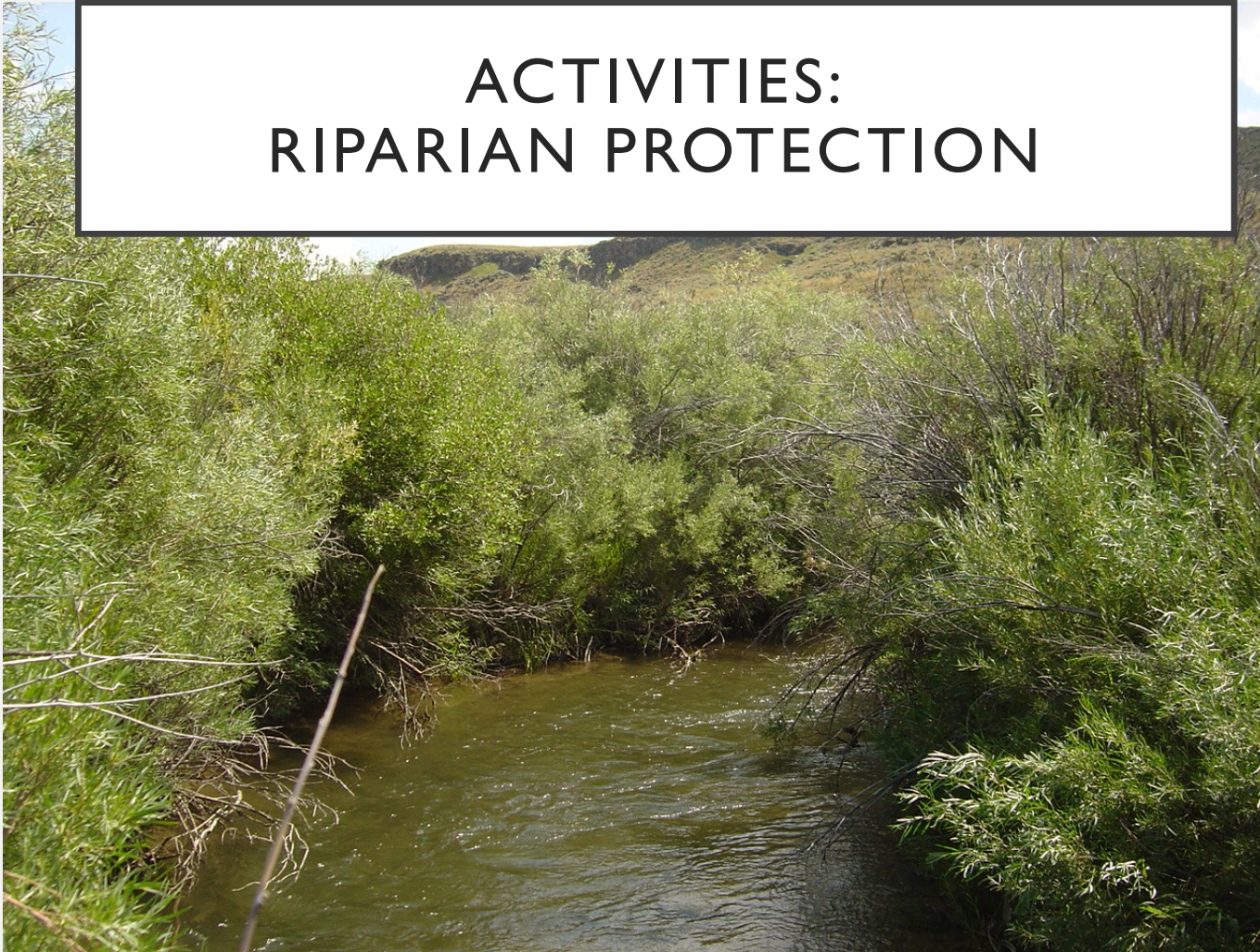


## NUTRIENT SOURCES: WHAT'S MISSING?

- Difficult to quantify everything ← The cumulative nature of nonpoint source pollution
  - Non-impaired tributaries
- Factor in nutrient uptake
- Scenario: population grows on septic systems or WWTP hook ups?



## ACTIVITIES: RIPARIAN PROTECTION



Added benefits associated with wetlands and wildlife habitat protection and improvements



# ACTIVITIES TO RESIST IMPAIRMENT

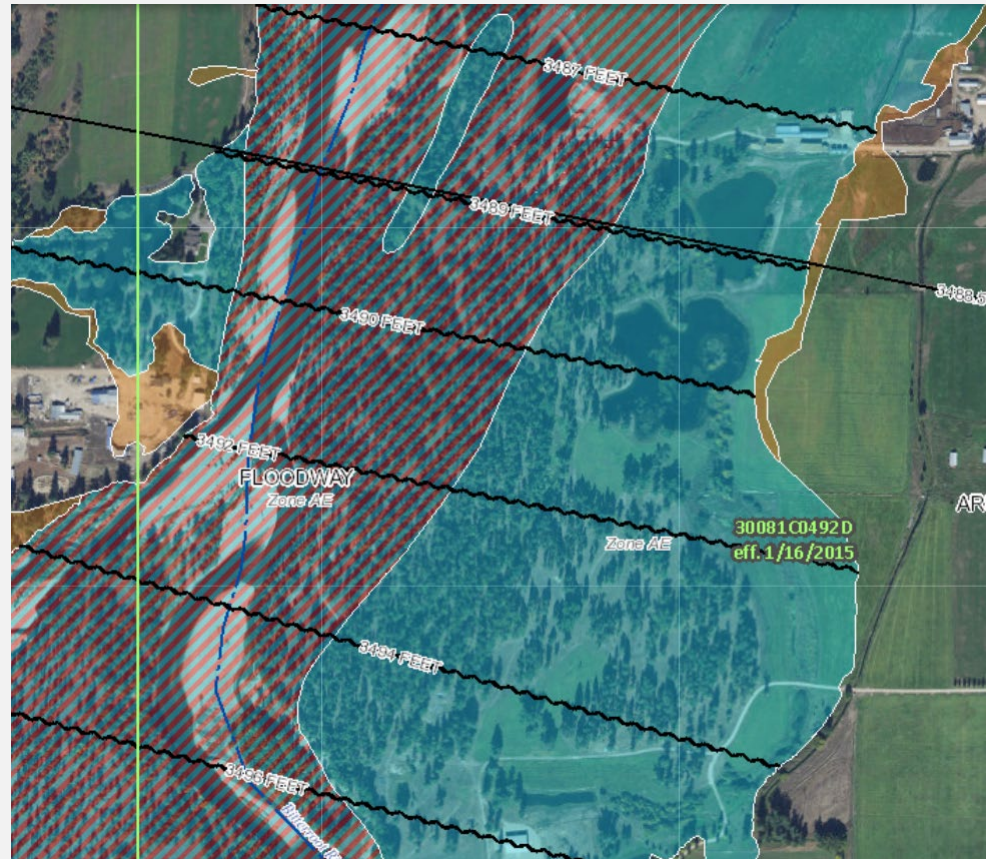


- Provide water quality protection information to landowners



# ACTIVITIES: RIPARIAN PROTECTION

- Try to protect the complete channel migration zone; particularly for the Bitterroot River



# WHAT DO **YOU** WANT IN THE PLAN?

## A TIMELINE FOR YOUR THOUGHTS

Today, May 2020

- Introduce concept, initial stakeholder input



Fall 2020

- Finish draft, distribute to stakeholders



Early 2021

- One-on-one discussion with stakeholders



Fall 2021

- Last 319 Call for application with Bitterroot designated Focus Watershed



Summer 2021

- Final Protection Plan published



Spring 2021

- Incorporate stakeholder comments



# WHAT DO **YOU** WANT IN THE PLAN?

Activities	Measures of Success	Planned Response
<ul style="list-style-type: none"><li>• Continue WWTP optimizations</li><li>• Riparian improvement</li><li>• City/County planning</li><li>• Septic programs or ordinances</li><li>• Development setbacks</li><li>• Expand upon voluntary drought management</li></ul>	<ul style="list-style-type: none"><li>• Maintain high quality mainstem/tributaries</li><li>• Increase in conservation easements</li><li>• # of years flows at Florence Bridge &gt;400 cfs</li><li>• Increase in riparian vegetation cover</li></ul>	<ul style="list-style-type: none"><li>• Trend monitoring and reporting</li><li>• Assistance implementing water quality improvement activities</li></ul>