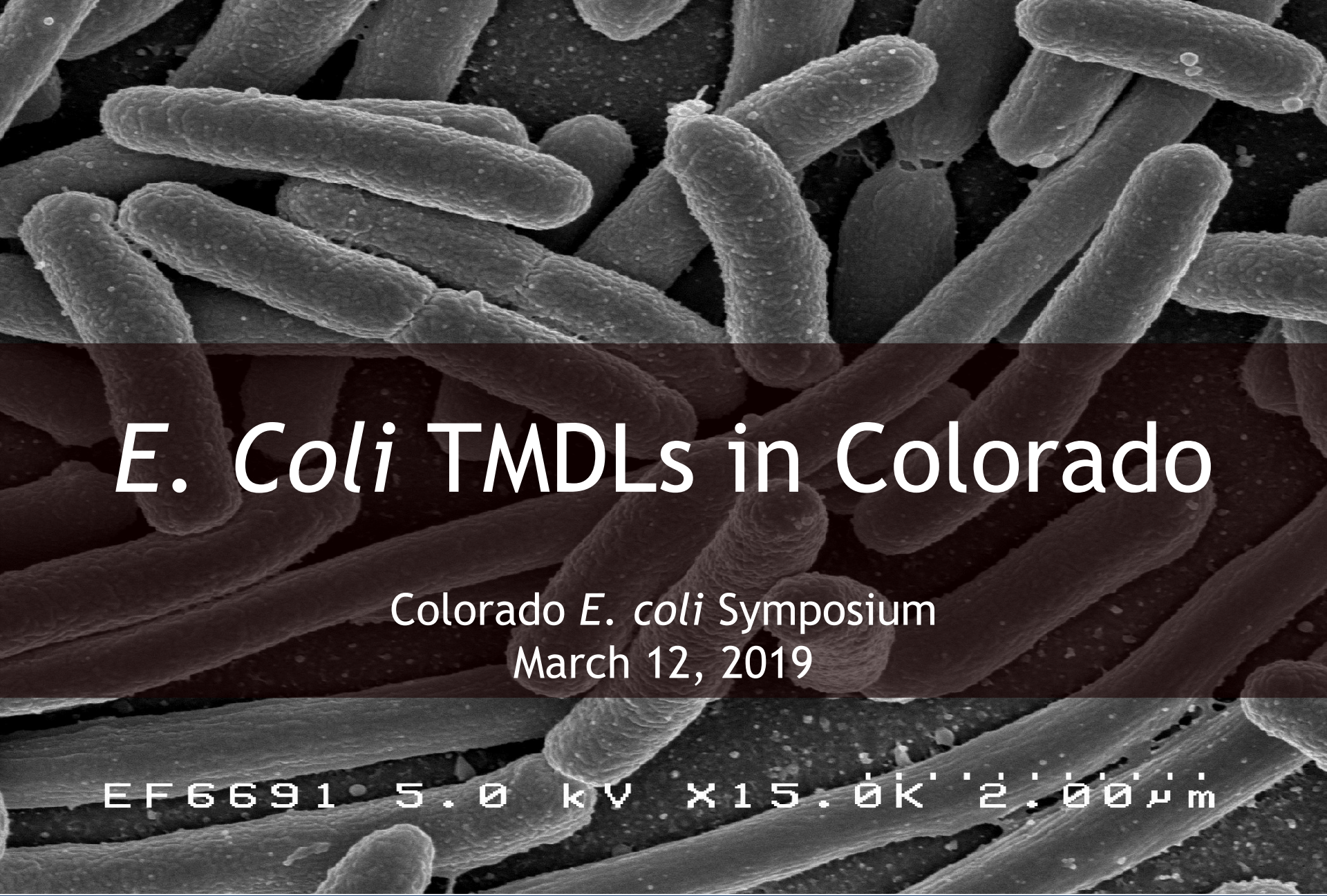

E. Coli TMDLs in Colorado

Colorado *E. coli* Symposium
March 12, 2019

COLORADO
Department of Public Health & Environment

Overview

- Introductions
- Total Maximum Daily Load (TMDL) basics
- TMDL prioritization strategy
- *E. coli* TMDLs past, present and future

Watershed Analysis and Implementation Support

- Restoration and Protection Unit in the Watershed Section of WQCD
- TMDL development and beyond

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Water Quality and *E. coli*

- *E. coli* is one of the most common causes of impairments in the 2018 listing cycle

  South Platte – second most common cause

  Arkansas – third most common cause

- Almost 1,700 river and stream miles affected
- Primary cause for non-attainment of the recreation classified use

TMDL Basics

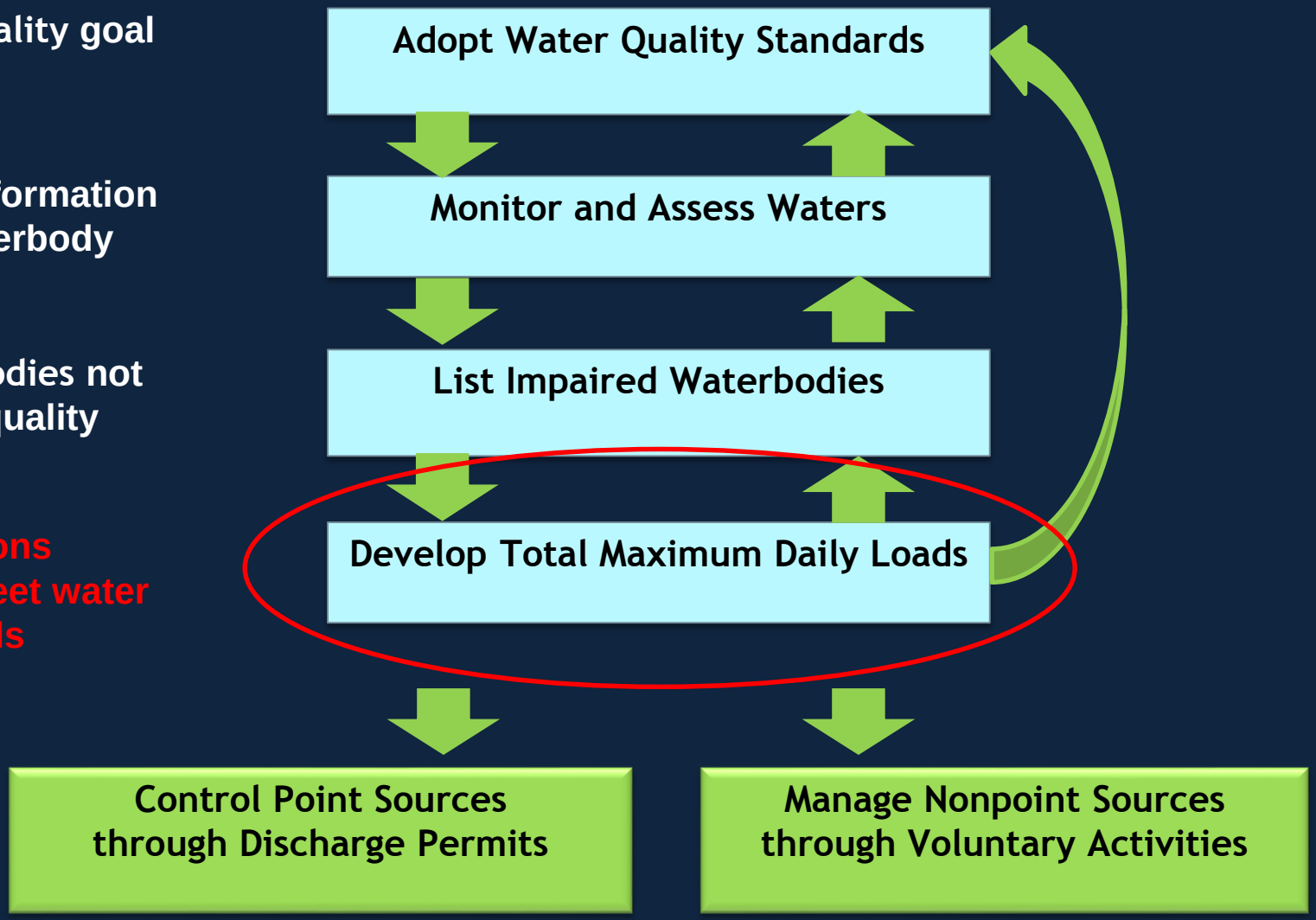
Water Quality Management Cycle

Define water quality goal

Compile data/information and assess waterbody condition

Identify waterbodies not meeting water quality standards

Identify reductions necessary to meet water quality standards



What is a Total Maximum Daily Load (TMDL)?

- The maximum amount of a pollutant that a waterbody can receive and still meet water quality standards
- Defines a pollution budget that takes into account all potential sources of a pollutant
- Formula to express a TMDL:

$$TMDL = WLA + LA + MOS$$

- WLA = Wasteload Allocation = point source discharges and reserve capacity
- LA = Load Allocation = nonpoint source discharges and natural background
- MOS = Margin Of Safety = variability, seasonality, uncertainty

TMDL Process

TMDL Development Highlights

- Data, data, data
- Outreach beyond public notice process
- WLAs are based on facility design capacity and the water quality standards, as well as on land use coverages
- TMDLs are based on critical conditions
- An explicit MOS of 10% is usually applied
- Implementation plans are not included

How Are TMDLs Used?

- TMDLs inform implementation (not self-implementing)

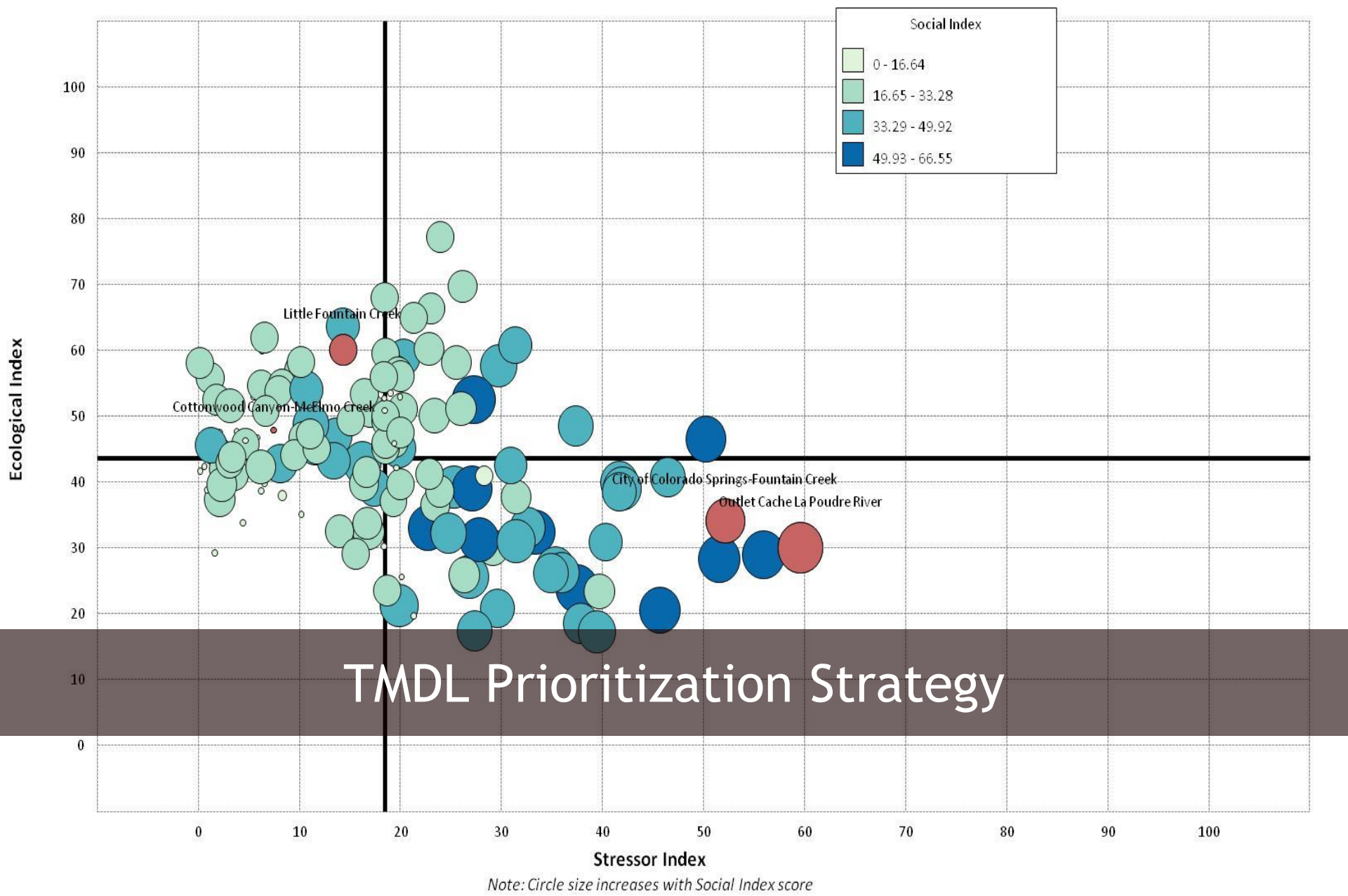
  WLAs are implemented through discharge permits

  LAs are implemented through voluntary, nonpoint source reduction activities

- TMDLs are not regulations and do not require compliance
- TMDLs are not water quality standards but can be used to inform site-specific standards development

How Can You Participate?

- Share your expertise with us about your watershed
  - Provide water quality data
  - Provide information about hydrology and potential sources
- Give feedback during stakeholder meetings
- Submit comments on draft TMDL reports during public notice



TMDL Prioritization Strategy

Note: Circle size increases with Social Index score

303(d) National Vision

- Focus on implementation
  - Adaptive management
  - Collaboration and leveraging limited resources
  - New tools – alternative approach plans
- Systematic prioritization at state-scale

Colorado's Prioritization Strategy

- Based on 2012 303(d) list and a planning horizon through 2022
- Listings with data, standards or source uncertainties screened out as low priorities
- Used EPA's Recovery Potential Screening Tool
- Outcome: metals, selenium and *E. coli* impairments identified as higher priorities

E. coli TMDLs Past, Present and Future

Approved *E. coli* TMDLs

- South Platte Segment 14 - 2007
- Boulder Creek - 2011
- South Platte Segment 15 – 2016
- Big Dry Creek – 2016
- Wildhorse Creek - 2018

Lessons Learned

- No one-size fits all approach
- Implementation challenges
    - Density-based approach
    - Load duration curves
- Source identification challenges
- Spectrum of approaches leading to implementation and innovation
- Effluent-dominated systems
- Land-use based approaches
- Small allocations are not necessarily a good thing

E. Coli TMDLs 2019 through 2022

Major Basin	Waterbody	Target Date
Lower Colorado	Adobe and Leach Creeks	2019
Arkansas	Fountain Creek	2020
South Platte	Lower Bear Creek	2020
South Platte	Poudre, Spring and Fossil Creeks	2021
South Platte	Sand, Westerly and Dry Creeks	2021
South Platte	Clear and Ralston Creeks	2021
South Platte	Middle South Platte	2022

E. coli TMDLs beyond 2022

SOUTH PLATTE

Cherry Creek

Dry, Harvard, Lakewood Gulches

Coal, Boulder Creeks

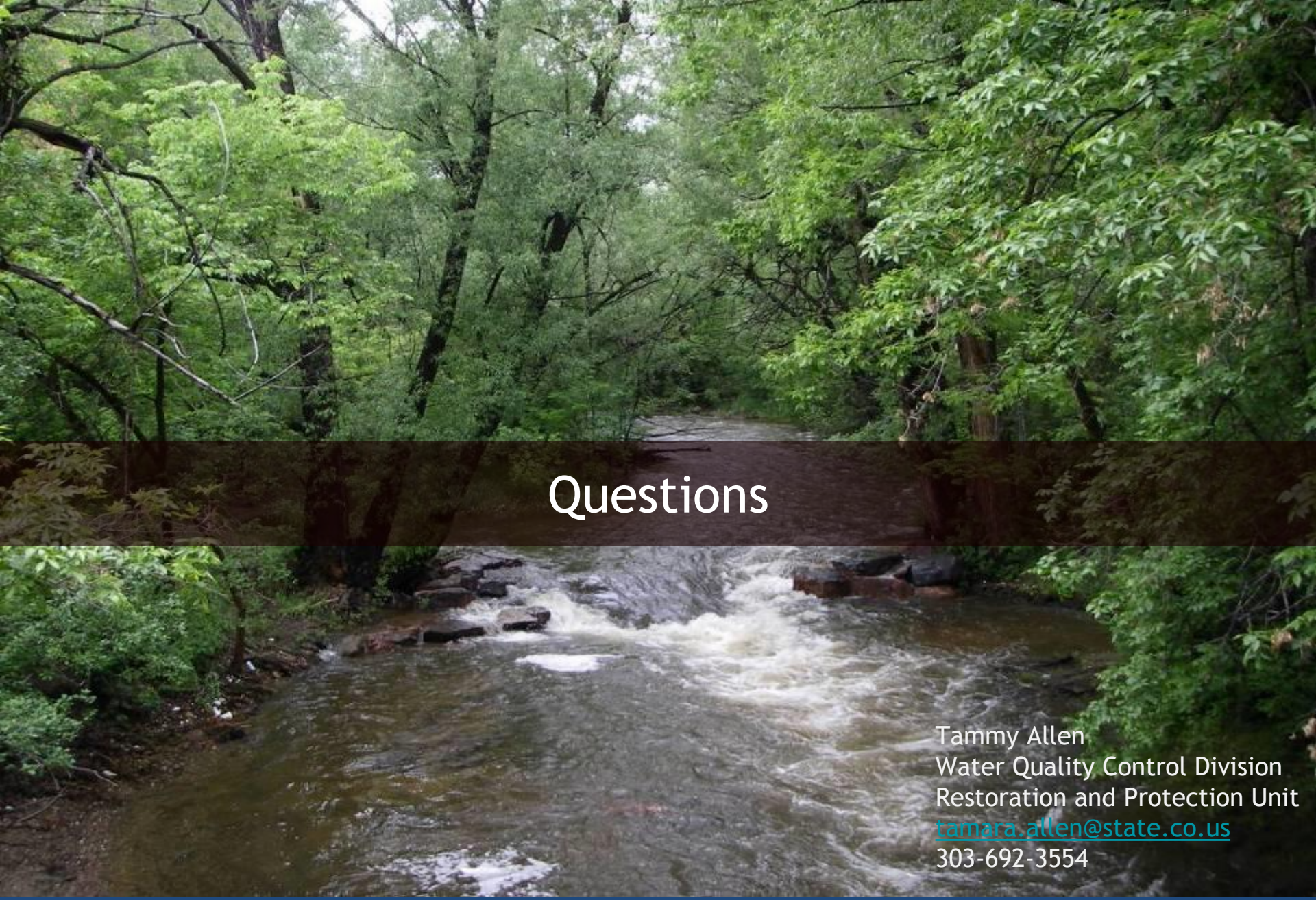
Little Thompson

GUNNISON

Gunnison River

Beyond *E. coli* TMDL Development

- Collaborating with WQCD Permits Section on implementation of *E. coli* TMDL WLAs
- Collecting *E. coli* data
- Outreach and lessons learned
- Improving TMDL reports and technical methodologies



Questions

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