

ES Interns Project Showcase

For Metropolitan Council Environmental Committee



September 2026

ES Interns Showcase 2026



Overview of Summer 2026 Cohorts

- Summer Cohort run in collaboration with the Workforce Development Team
- 17 ES interns
- 8 ES interns extended for 6 months to a year
- 6 ES interns presenting theirs showcase today

ES Interns Showcase 2026

List of Projects Led by ES Interns:

- Standard Operational Procedures (SOPs) generation over Clinisys (CLS).
- Requirements gathering for laboratory procedures and reporting.
- Test generation in CLS platform
- Vactor and Restoration of of Sewer Systems
- Designing Apps in Experience Builder
- Creating new Interceptor Data and Maps
- Automating ArcGIS Pro Workflows
- Mapping Metro Plant Road Conditions
- Researching City Water and Storm Water Information
- Combining Pipe and Road information
- Seneca cyanide inhibition of nitrification
- Eagle's Point low DO
- Metro chlorine/bisulfite analyzer

ES Interns Showcase 2026

Presenters Today:

- Lucia Zuvela – Surface Water Planning Intern
- Sabrina Thompson and Damien Blake – Technical Writer Interns
- Katie Polik – Surface Water Data Analyst Intern
- Lunetta Osterhaus – Water Supply Planning Intern
- Shayle Magdziarz – Facility Intern, East Business Unit

Surface Water Planning Intern

Water Resources, Environmental Services



September 2026

Lucia Zuvela

lucia.zuvela@metc.state.mn.us

Introduction



Introduction: Lucia Zuvela

Education: B.A. Environmental Studies, Minors in Biology and Dance @ Macalester College

- Thesis: Urban water bodies cooling effect aiding heat and its relationship to the *redlining* historical practice in the Twin Cities.

Interests: Transdisciplinary socio-ecological research, applied ecology, environmental justice and urban planning. But also love to recreate in water, biking, yoga and dance...



Context



Water Equity Policy Desired Outcomes



All residents **have access to safe and affordable water for drinking, recreation, cultural, social, spiritual, or communal uses.**



The public and ecosystem health benefits of **clean, safe surface and drinking waters** are **fully achieved in all communities in the region.**



Water utility and ecosystem services gaps are prioritized and addressed in **overburdened communities.**



Historically marginalized and overburdened populations are centered in water planning and management conversations and decisions.



Improvements to the regional wastewater conveyance and treatment **systems enhance regional aesthetics and amenities as directed by communities.**

Overburdened Communities

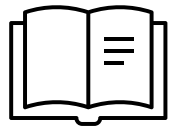
Defined by the MPCA as:

“...areas or populations that face a disproportionate impact from environmental pollution or hazards due to various factors, such as socioeconomic status, race, ethnicity, or other demographic characteristics. These communities often experience a higher concentration of environmental risks, pollution sources, or adverse health effects compared to other areas, leading to increased vulnerability and disparities in exposure to environmental hazards.”

Water Equity Mapping Tool



Project Objective: Develop a tool that can inform the region to support water equity's policy desired outcomes



Research Question:

How can we spatially identify priority areas for equitable water planning in the region?

1. Where are water-related challenges concentrated?
2. Where are communities experiencing greater vulnerability?
3. Where do these overlap and then highlight potential priority areas for intervention?

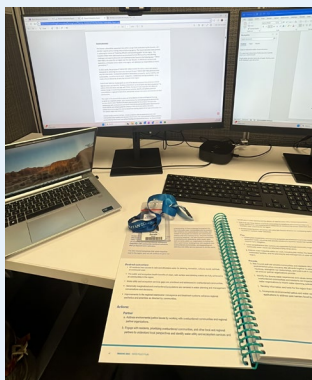


My Role: Researcher, groundwork, and foundations on the project.

Project Foundations

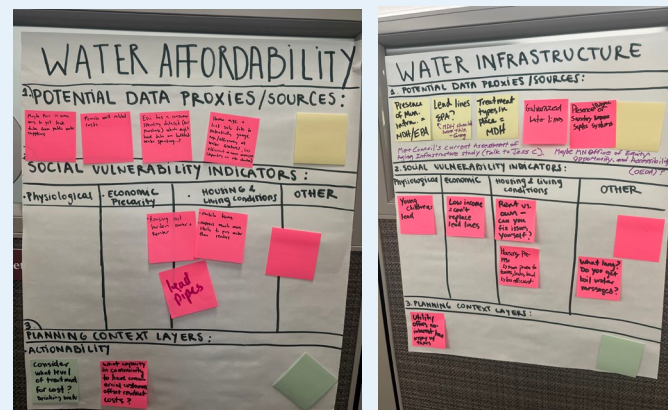
#1 Research

- Reading articles
- Exploring previous mapping tools
- Connecting with different agencies and people for advice/ data



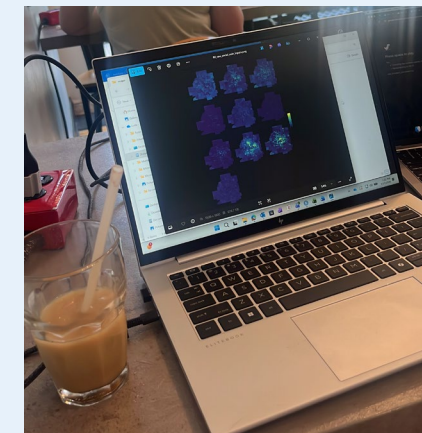
#2 Presentation & Feedback

- Presented on department meetings and received input and feedback on framework/ feasibility



#3 Developing Tool

- Data Inventory Spreadsheet
- Running code in R and trying to map some of these variables together



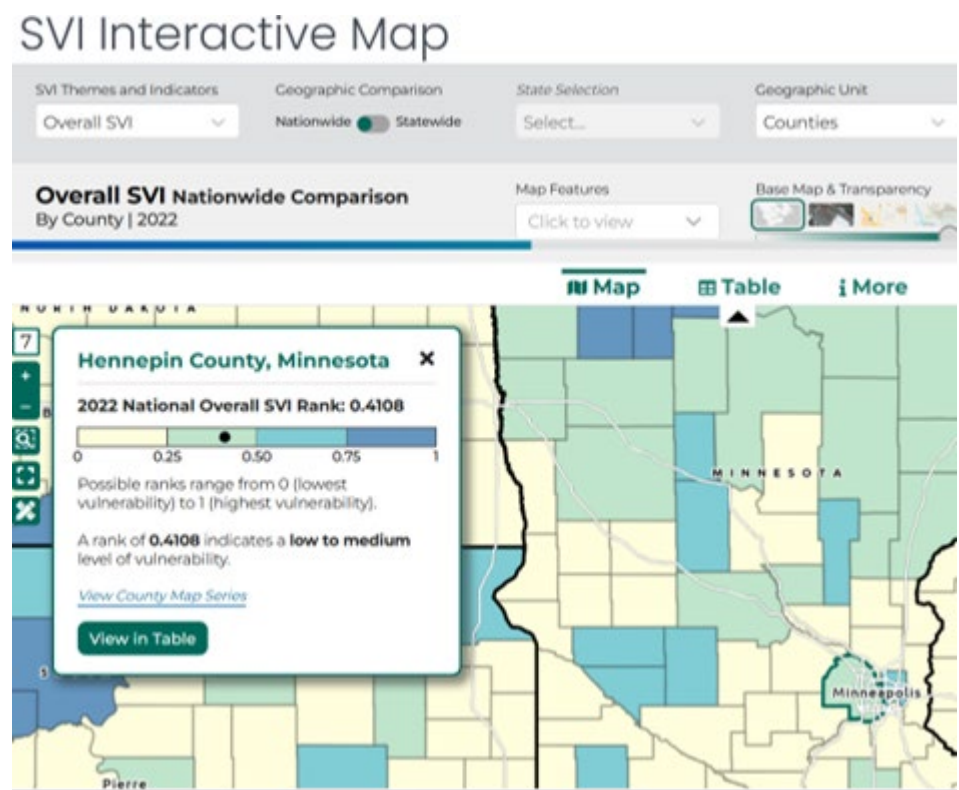
Deliverables: Technical Presentation, Methodology Report & Data Repository

Composite Index

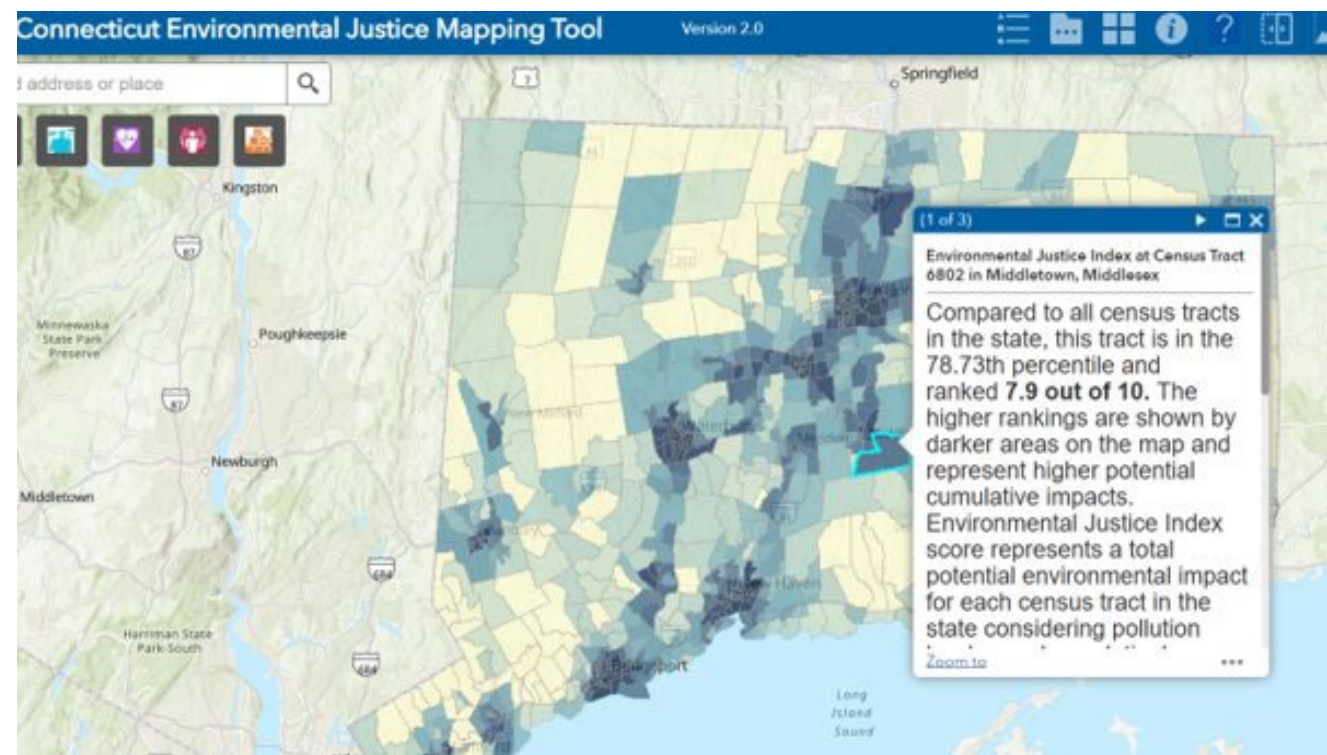
What is it?

“A measure that combines multiple indicators to provide an overall assessment of a particular area or population, often **summarizing underlying information via a single value or ranking**” (Price et al., 2024)

CDC SVI (Social Vulnerability Index)

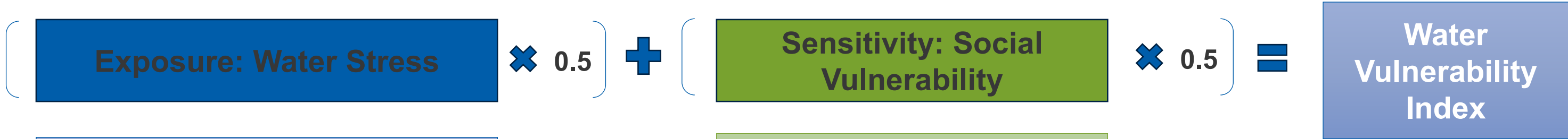


CT EJSCREEN TOOL



Potential Model

GOAL: Identify census tracts facing water-related burdens while considering social vulnerability and equity layers across the metro region.



Affordability
Quality
Access
Recreation & Benefits
Infrastructure

*** Align with water equity opportunity brief

Where are the areas that currently face major water related challenges?

Physiological Risk
Economic Precarity
Housing and Living Conditions

*** Taken from CCVA sub-index

Where do communities face disadvantages that reduce their ability to cope or make them more exposed to water related stressors?

Relative Score (0-1)

Where do these overlap?

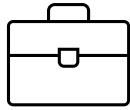
Composite Index Output

	Social Vulnerability - - >					
Water Stress v		Very Low	Low	Moderate	High	Very High
	Very Low	Very Low	Very Low	Low	Low	Moderate
	Low	Very Low	Low	Low	Moderate	Moderate
	Moderate	Low	Low	Moderate	Moderate	High
	High	Low	Moderate	Moderate	High	Very High
	Very High	Moderate	Moderate	High	Very High	Very High

QR Code to
technical
presentation:

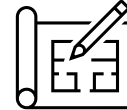


Learning and Development



#1 Professional

- **Collaboration:**
 - Meeting and Sharing Culture
- **Prioritization of tasks:**
 - Timekeeping and workflow
- **Public Speaking:**
Small/ big presentations with different audiences at different stages of project



#2 Technical

- **Composite Indexes:**
 - R
 - ArcGIS
- **Data Accessibility:**
 - Data Request Processes
 - Indicator Selection Criteria

#3 Water Industry



- Water Challenges
- Current Programs

#4 Personal



- Networking
- Exploration of Interests
- Workspace Values

Tours/ Outside Experiences



★ U.S. Water Alliance Conference

★ Blue Line Light Rail Metro Tour

★ Water Sampling Day on the Mississippi
(Ian & Tyler)

★ State Fair: Oh Poop! Exhibit



Questions?

Lucia Zuvela

Surface Water Planning Intern

Lucia.Zuvela@metc.state.mn.us



Technical Writer Interns

Environmental Services

Lead: Thomas Weber

Manager: Roderic Southall



August 2026

Sabrina Thompson & Damien Blake

metcouncil.org

Agenda

- Introductions
- Background: What is a Technical Writer?
- ES Org Chart
- Internship Goals
- Projects and Assignments
 1. SOP Audit & Edit
 2. SOP Writing Projects
 3. Video Editing & Creative Projects
- Learning & Development
- Takeaways
- Questions

Introduction: Sabrina Thompson

Introduction

- University of St. Thomas, May 2026
English (technical writing + editing),
public policy, journalism
- Technical Writer Intern (ES)
Using writing skills for a cause



Introduction: Damien Blake



A little bit about a Tall Man

- Metro State University
 - Technical Communication & Professional Writing BA.
- Technical Writer Intern in the Training and Program Support department (TPS) of Workforce & Equity in E.S
- Use my skills to benefit the Twin Cities communities.
 - Audience awareness.

Interested in:

- Professional writing
- User experience
- Medical writing
- Product design/management
- Research/Information studies

Background



What do Technical Writers do?

Technical writers break down **complex** tasks into **plain, readable** content for a wide variety of audiences,

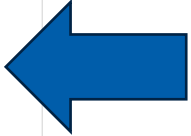
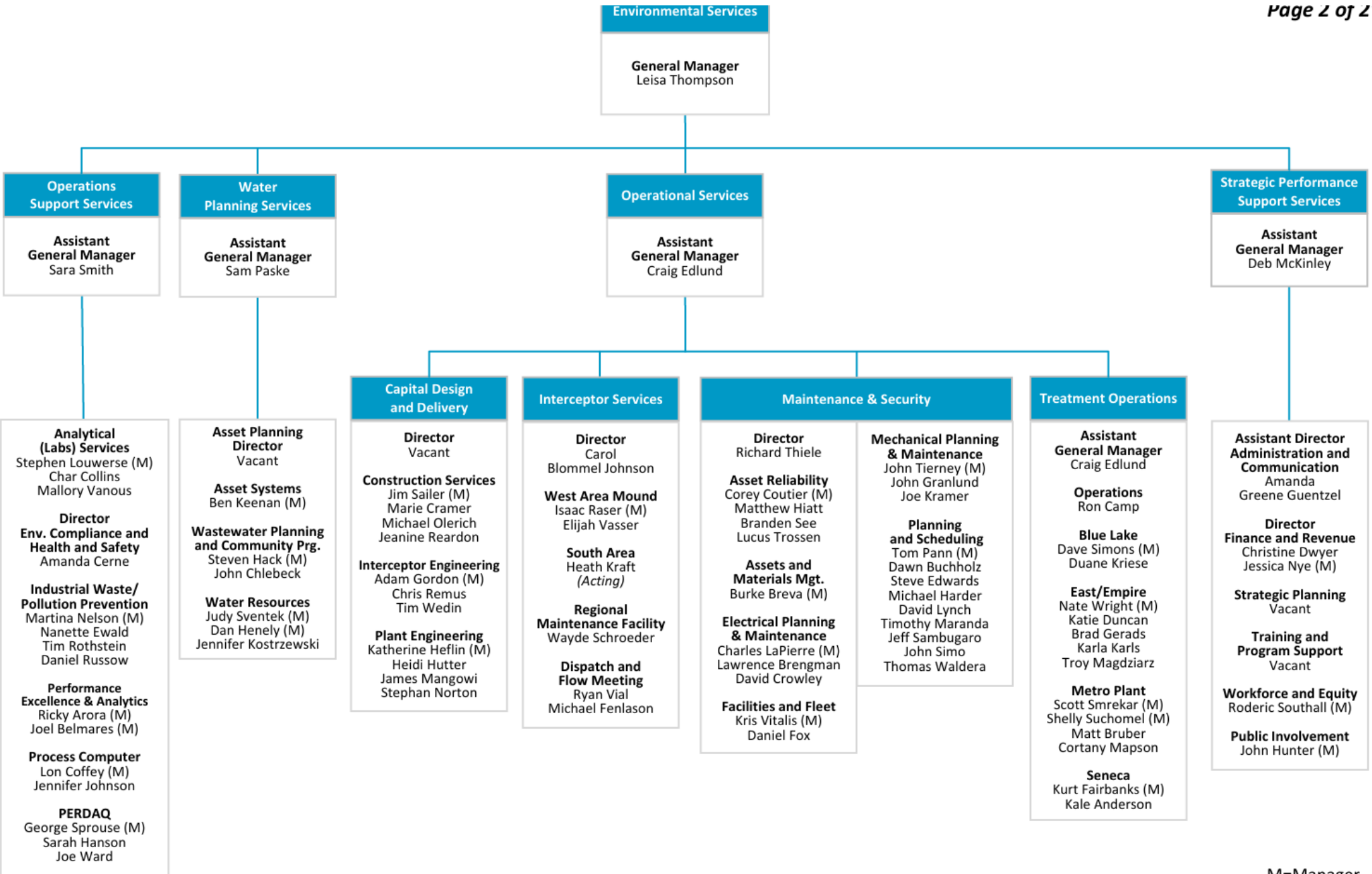
- especially considering **accessibility** and **inclusivity**.

We translate content between Subject Matter Experts (SMEs) and users to make the final product:

1. **Accurate** and informative
2. **Clear** to inexperienced users

Technical Writers in ES: Where Do We Fit in the Org Chart?

Page 2 of 2



Internship Goals

Goal #1:

Audit and Edit
Real SOPs

Goal #2:

Learn XML/DITA
Language

Goal #3:

Practice Design &
Video Editing

Bonus Goal:
Professional
Development

Projects & Responsibilities

1. SOP Audit & Edit Project
2. SOP Writing Assignments
3. Video Editing & Other Creative Projects

1. SOP Audit/Edit Project

Standard Operating Procedures (SOPs)

About

- Spreadsheets of ~800 SOPs for the ES locations
- Wastewater processes, emergency planning

Goals + Skills

- Find and track any edits that would improve SOP clarity

SOP LEVELS OF ERRORS



1. SOP Audit/Edit Project

What we audit for:

- Broken images
- Broken links
- Empty note boxes
- Duplicate 'Important' or 'Caution' tags
- Empty or missing steps/stray bullet points
- Images too big (takes up more than half the page)
- Images too small (can't read text or see required parts)
- Contact Info that's out-of-date

Screenshots of SOPs with formatting issues.

The first screenshot shows a list of steps with a 'CAUTION' tag. The text is: 'b. 30 seconds after Effluent Pump motor starts, magnetic drive will start at minimum speed of 240 RPM.' followed by a yellow 'CAUTION' box. Below it are three bullet points: '• If minimum drive speed is less than 240 RPM, reverse rotation of the pump impeller may occur as noted above in Step 4.a.', '• Manually shut discharge valve as described in Step 4.a.', and '• Determine and rectify cause of failure'. This is followed by steps 'c. After Effluent Pump discharge valve opens, simulated wet well elevation and automatic...' and 'd. Effluent Pump output can now be tested up to level setpoint.' Another yellow 'CAUTION' box is at the bottom.

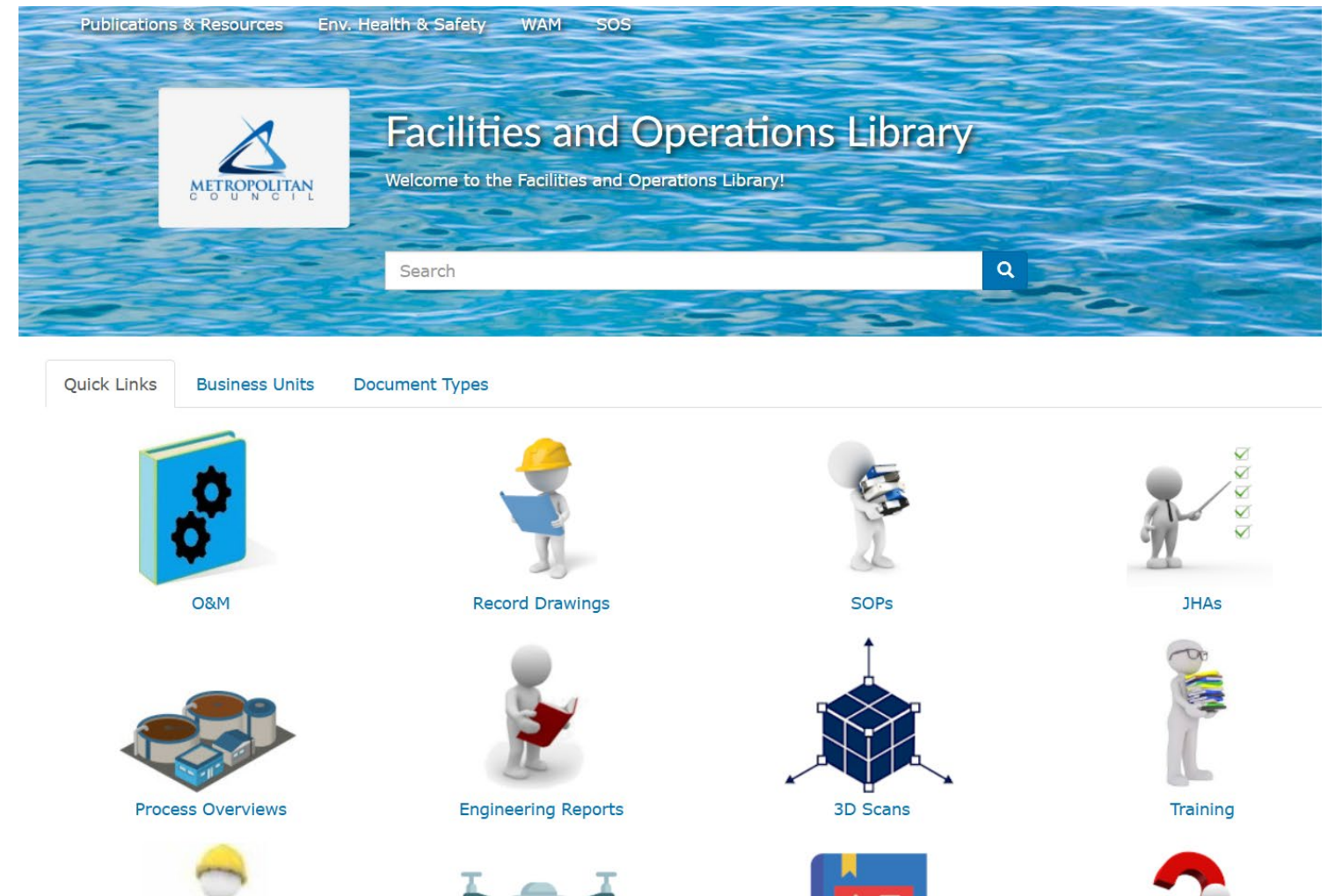
The second screenshot shows a step 'b. ES-LABSAMPLEPROCESSING@metc.state.mn.us' followed by '7. Enter a note in the elog that the samples were collected.' Below this is a step '1. a.'.

The third screenshot shows a step 'i.' followed by a large, colorful bar chart with yellow, green, red, and blue bars. To the right of the chart is a small diagram of a wet well with a level indicator showing '0.0'. Below the chart is a blue 'NOTE' box with the text: 'NOTE You will note that priority 1 el... lower than primary wet well level at usual... large a difference to use computer/autor...'.

1. SOP Audit/Edit Project

SOP Analysis & Categorization

- To distinguish TPS and Asset Reliability's roles in maintaining SOPs, we categorized a third of them according to our working definitions of the two groups.
- (For reference, we used the [draft SOP Authorship Criteria](#))
- Using data from our **SOP Audit Project**, we reviewed approximately 300 SOPs across three plants—Empire, Seneca, and Blue Lake—and sorted them, according to their subject matter, into one of three categories: **TPS**, **AR**, or **Unclear**.



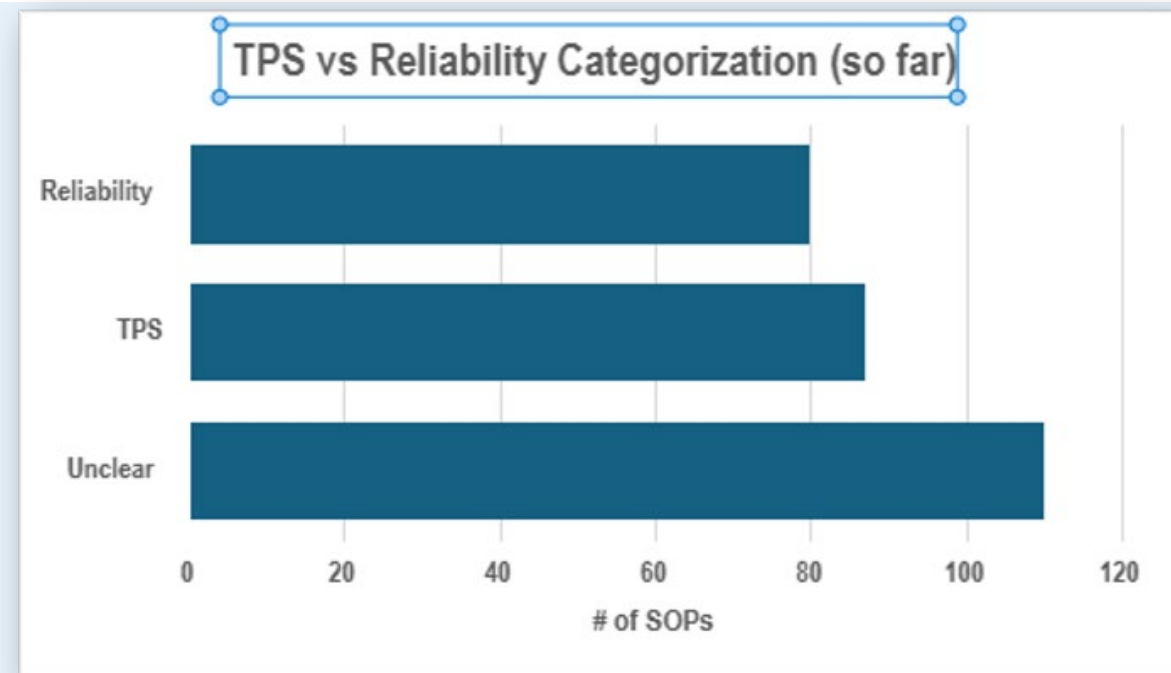
TPS vs Reliability Categorization

TPS

- Routine processes, **operations**
- Management-related SOPs
- Administrative, organizational procedures
- General emergency and safety procedures

Asset Reliability

- Maintenance/inspection SOPs
- Contingency planning



Gray Area

- Maintenance tasks are often "routine"
 - Safety vs contingency?
- **Regular operations**—who is responsible?

2. SOP Writing Projects

Updating SOPs by collaborating with SMEs

About

- Make comprehensive edits to an SOP based on feedback from SME
- Camera Stabilizer SOP

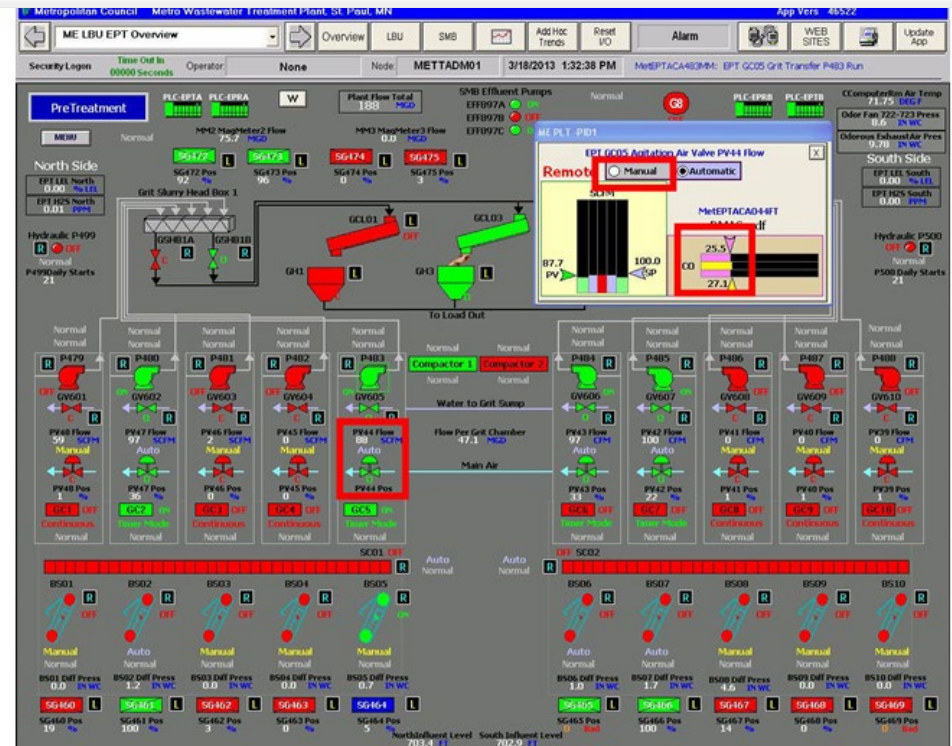
Goals + Skills

- SOP creation
- Writing and editing step-by-step instructions in XML



Grit Chamber

get rid of highlighted section above picture or copy/paste from prev. descriptions



1. Set to **Manual**.
2. Set the CO to **30%** to open valve.
3. Wait for the air to ramp up, then set to 200 SCFM in automatic.
6. Once GC is **mostly filled**, use Wonderware to start up the grit transfer pump for the GC. **Click on the grit transfer pump for the GC, then click on START.**
7. Using Wonderware, starts up the grit collector for the GC. Click on the grit collector for the GC, then click on **START**
8. **When GC is mostly filled and ready to be put in service, slightly opens, manually,**

get rid of step 8, info repeated in

Grit Chamber - Dewatering

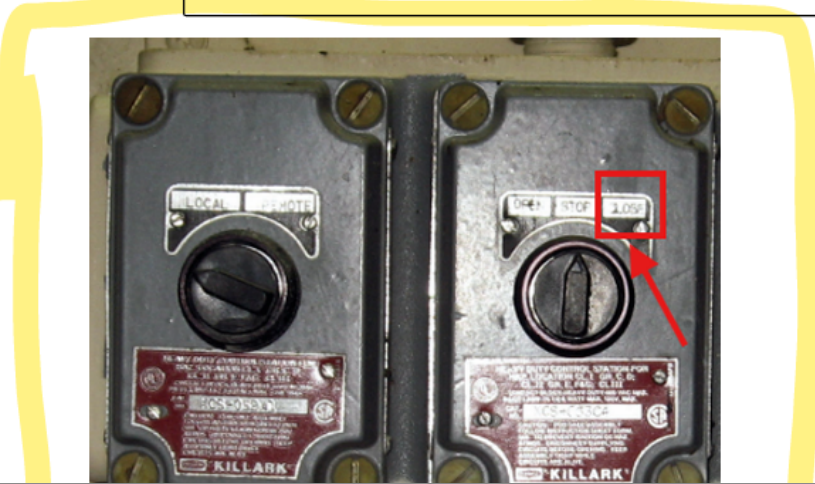
use this section

1. Prepare for removing the GC from service.
 - a. LBU EPT plant operator **picks up the** required PPE and materials needed for dewatering the GC.
2. Remove the grit chamber from service.

IMPORTANT The LBU EPT plant operator must **make sure that** each lock out and tag out performed in this SOP is **logged on the Pre-Populated Energy Control Sheet.**

- a. LBU EPT **plant operator**:
 1. On the gate operator controls, **press CLOSE** to manually close the influent gate to the GC. **Gate actuator must be set to REMOTE .**

Operator must **visually confirm the closing of the influent gate** to ensure the **limit switch closes it properly.**



adjusted image here to refer to the actual gate "close" switch.

2. SOP Writing Projects Cont.



1.1 Using the DJI RSC 2 Camera Stabilizer

1.2 Button Functions



- As needed



- Camera, compatible with the stabilizer
- Stabilizer



- N/A.

References:

DJI RSC 2 Camera Compatibility List www.dji.com/rsc-2
DJI RSC 2 Quick Start Guide v1.0 Physical Copy
[SOP: How to calibrate the Camera Stabilizer...](#)

Power on and use

Context:

You must calibrate and balance the stabilizer before using it. Ensure every material you will need, like a microphone attachment or camera screen, is set up and positioned exactly how it will be when you record before calibrating. If you add attachments after calibrating, the stabilizer will be unbalanced and you will have to restart.

NOTE Calibrate and balance the stabilizer before using it.

After balancing, verify that the three axes are unlocked, then power on.

- Turn on the camera.
- Press and hold the power button to turn on the stabilizer.

Using the DJI RSC 2 Camera Stabilizer

Title will appear in the header of the SOP. Titles can't contain any of the following characters: #, %, &, <, >, *, @, \$, %, /, \, and ?.

Damien's SOP: DJI RSC 2 Camera Stabilizer Setup SOP

3. Video Editing & Other Creative Projects

Goals + Skills



Recording and editing instructional video



Creative design and communication

3. Video Editing & Other Creative Projects

CONGRATULATIONS WATER AWARD 2026 Recipient!

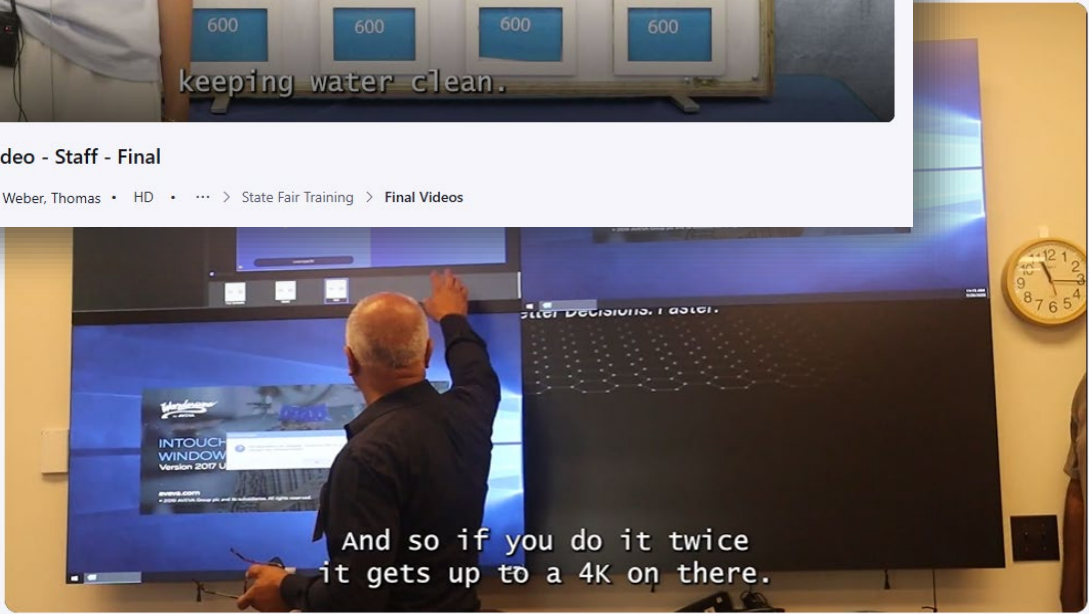


Wastewater Trivia!

keeping water clean.

State Fair Training Video - Staff - Final

August 4, 2026 • 0 views • Weber, Thomas • HD • ... > State Fair Training > Final Videos



And so if you do it twice it gets up to a 4K on there.



New Interceptor Operator Apprenticeship Program

Join the **Met Council** as an Apprentice in the Environmental Services division!

What You'll Do

Interceptor Operators maintain pipes and infrastructure that convey wastewater to regional treatment plants.

Complete this **brand new** 18-month job training program to be **eligible for full-time employment** as an Interceptor Operator.

Who You Are

- ✓ Excited to learn
- ✓ Mechanical aptitude
- ✓ High school diploma or equivalent
- ✓ English-language proficient

What to Expect

**Hours**

6 am - 2:30 pm, Monday - Friday

**Wage**

\$52,000+ / year, 18-month program

**When**

The first cohort begins Q4 2026

Union

AFSCME represented

**Interest Form**

Use the camera app on your phone to scan the QR code.

Partner logo here



Learning and Development

Embracing our Role

- Technical writing and editing with in-use documentation.
- Faster auditing practices.

Biggest Challenge:

- Unfamiliar systems and coding language.
- Unfamiliar processes.

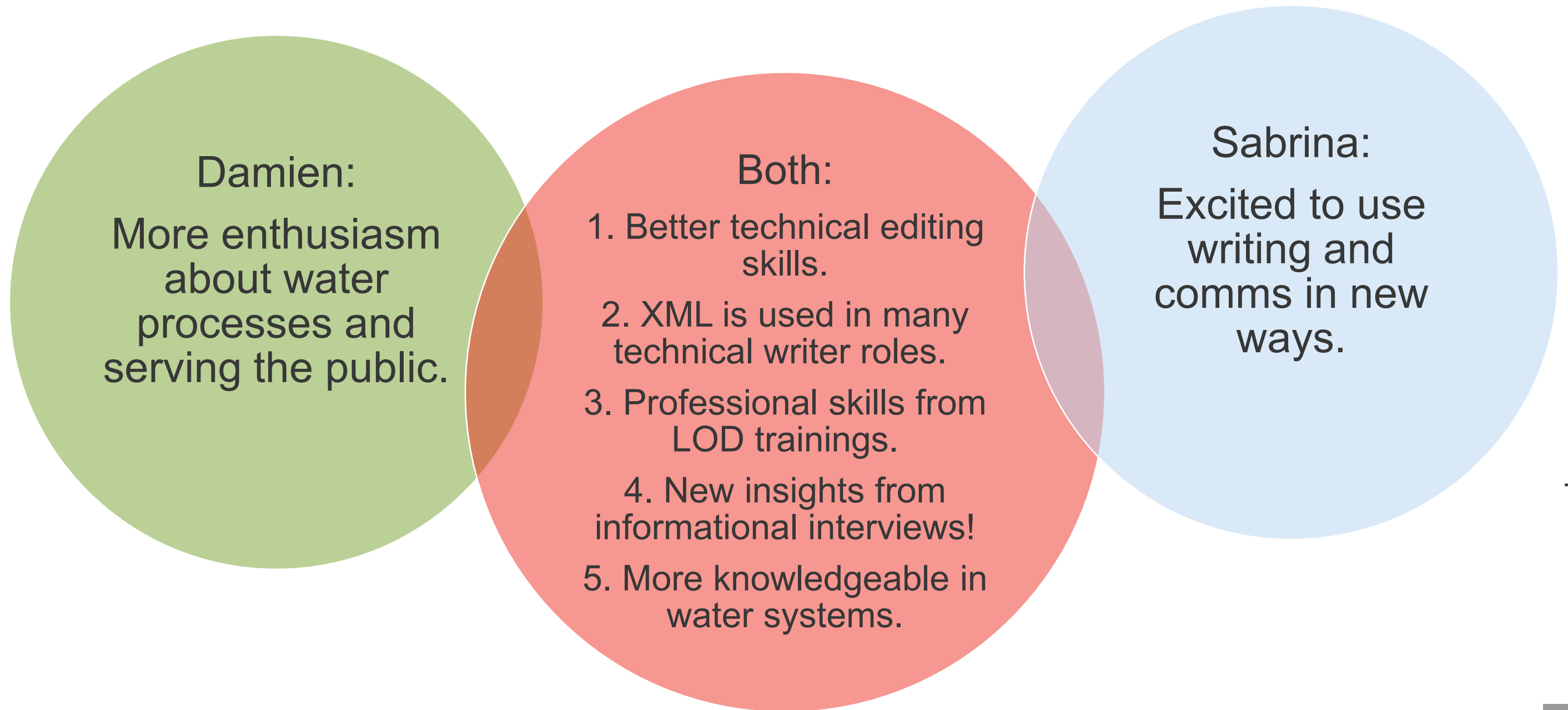
Collaboration

- SME communications.
- Workshopping our own SOPs.
- Team Lead demos.
- Learning from software specialists.
- Informational Interviews.
- LEARN library virtual training.

Software

- XML/DITA language in PTC arbor text.
- Video editing in Adobe Premiere Pro.
- Deeper understanding of content management systems (SharePoint, Titania, Windchill).

Takeaways



Questions?

Sabrina Thompson

Technical Writer Intern, ES

sabrina.thompson@metc.state.mn.us

Damien Blake

Technical Writer Intern, ES

damien.blake@metc.state.mn.us



Surface Water Data Analyst

Katie Polik



Water Resources, ES August 2026

Hello!



About Me

- 5th year PhD student at UMN
- **Ecology**, Evolution, and Behavior
- How does lake management that changes lake water chemistry effect the whole ecosystem (plants, algae, etc.)?

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- Water Resources Team
- Monitoring and Assessment (mgr: Dan Henely)
- Lake, river, and stream water quality trends (lead: Steve Kloiber)

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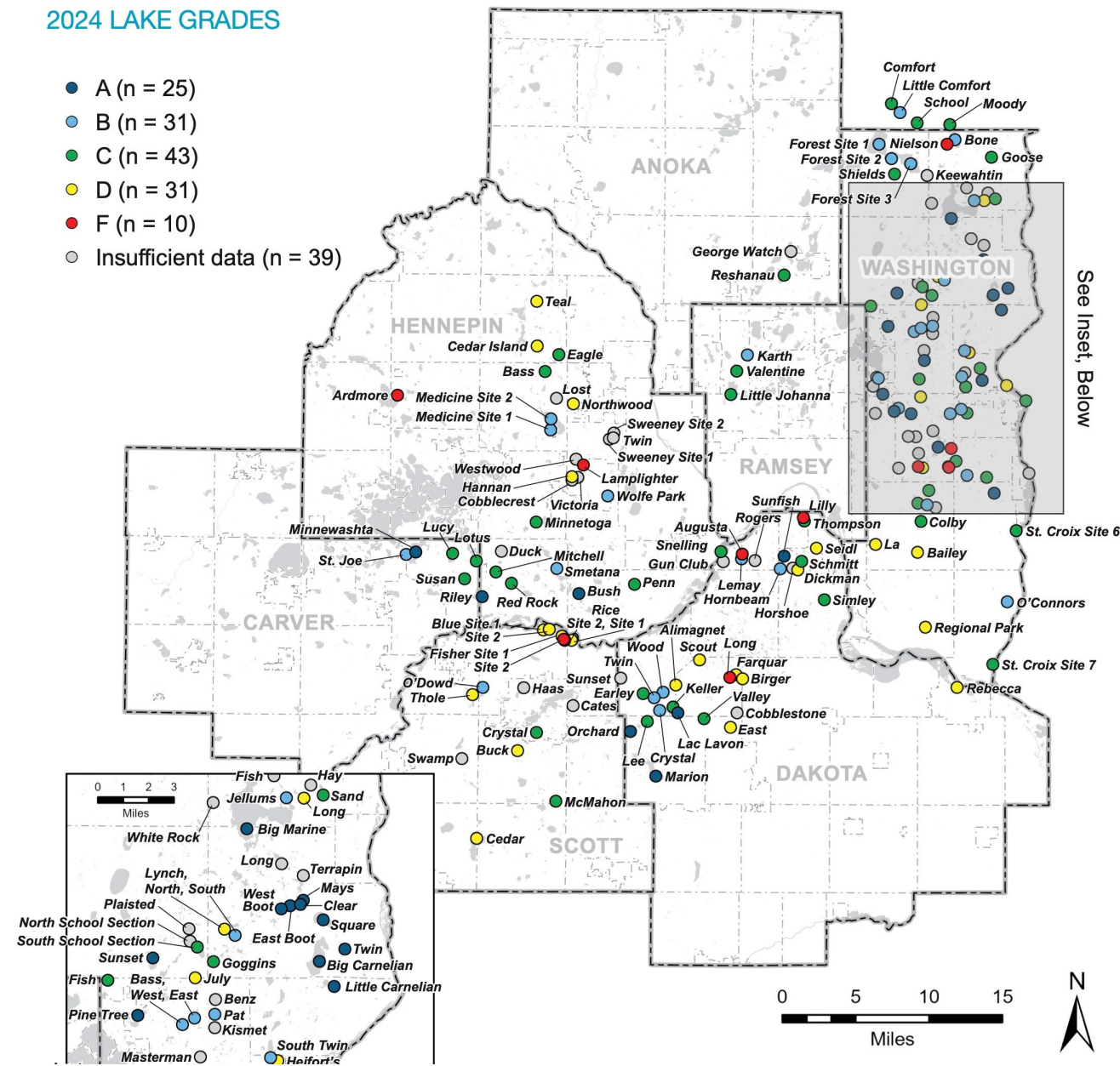
- Water Resources Team
- Monitoring and Assessment (mgr: Dan Henely)
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MCES Lake Monitoring

150+ Lakes!

2024 LAKE GRADES

- A (n = 25)
- B (n = 31)
- C (n = 43)
- D (n = 31)
- F (n = 10)
- Insufficient data (n = 39)



MCES Lake Monitoring

Eutrophication

Nutrients
(phosphorus)



Algae



**Water
Clarity**

Assessment

Status

A

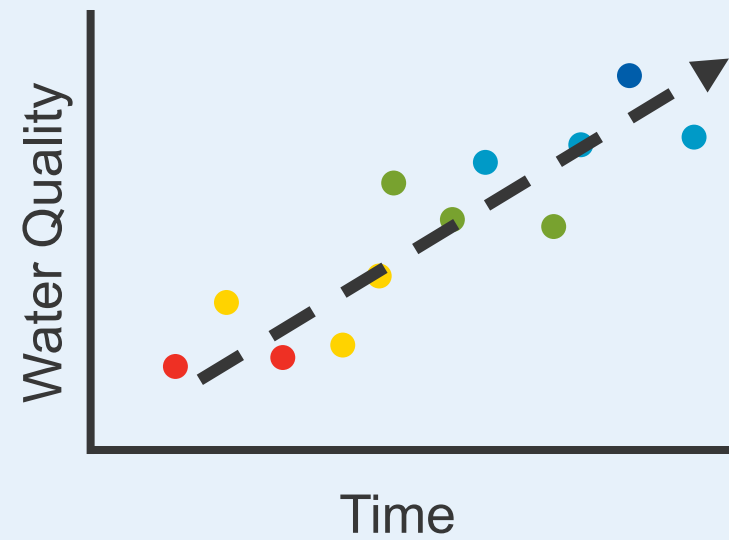
B

C

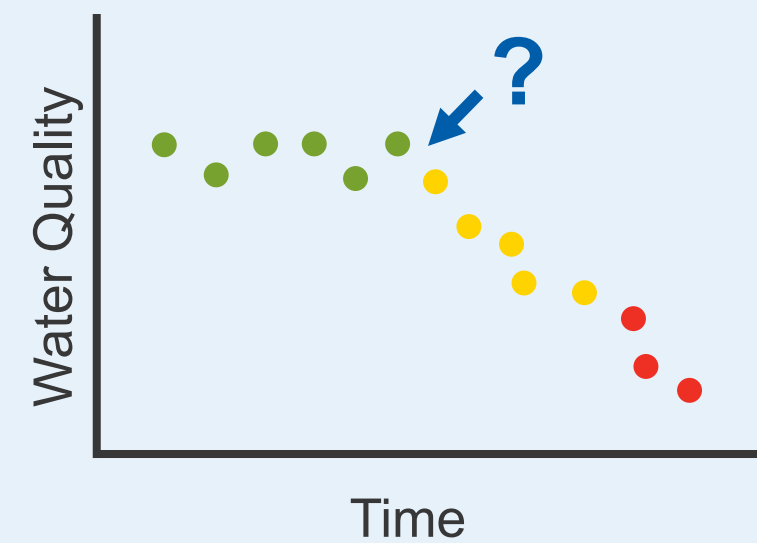
D

F

Trends



Drivers



Assessment

Status

A

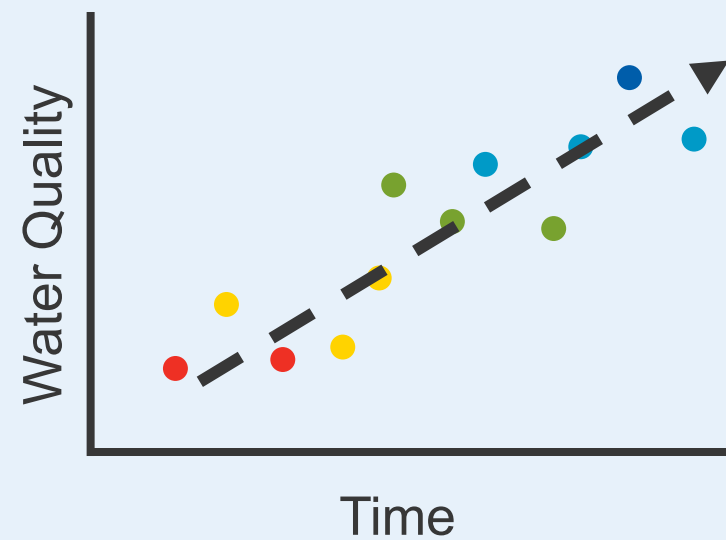
B

C

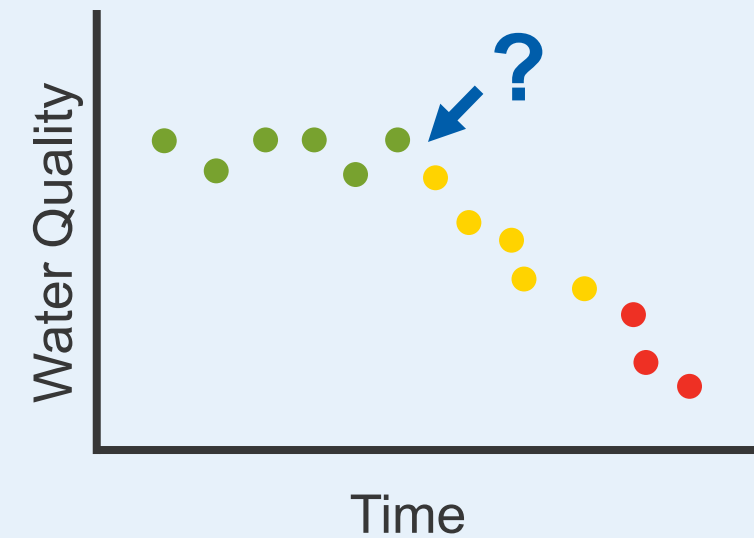
D

F

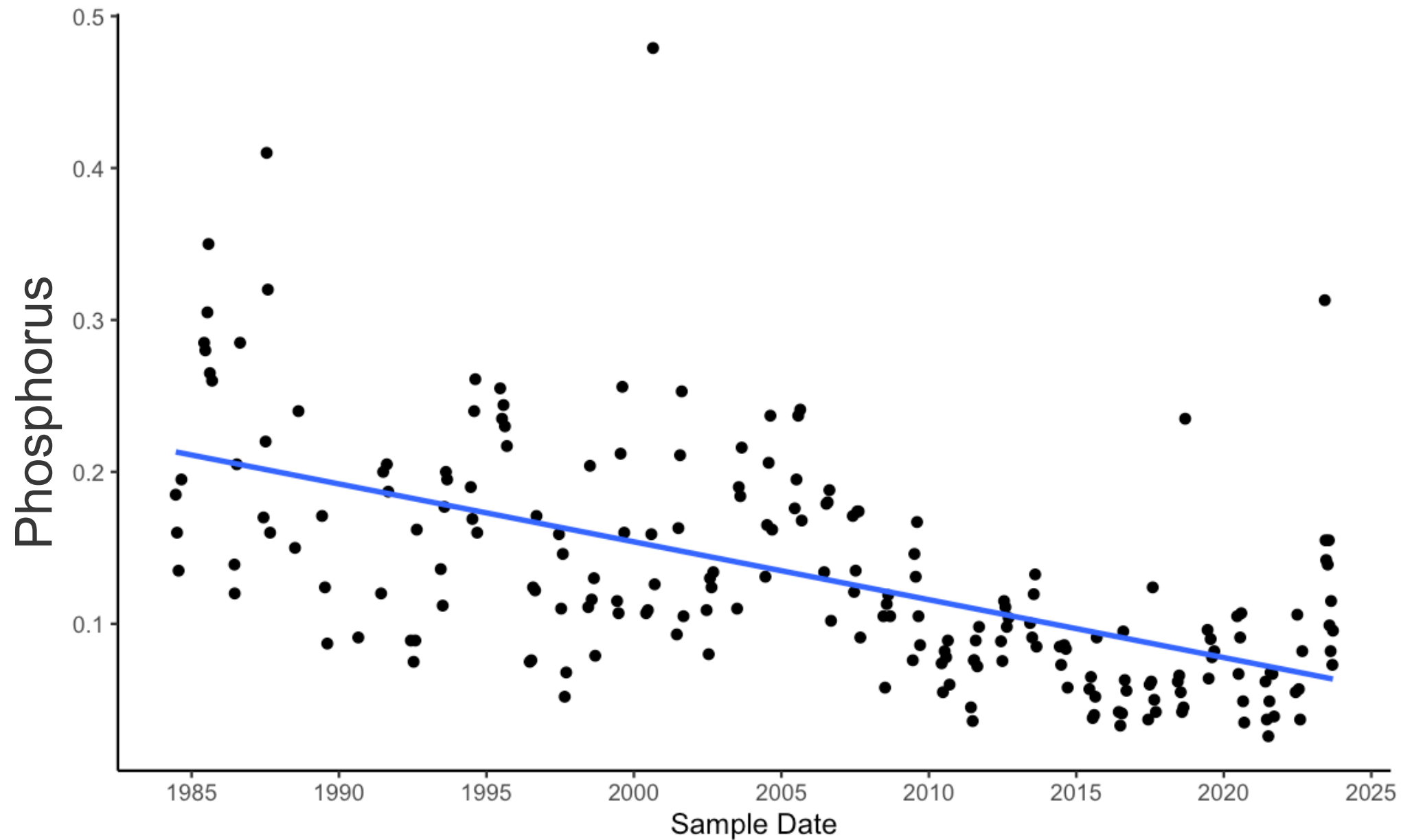
Trends



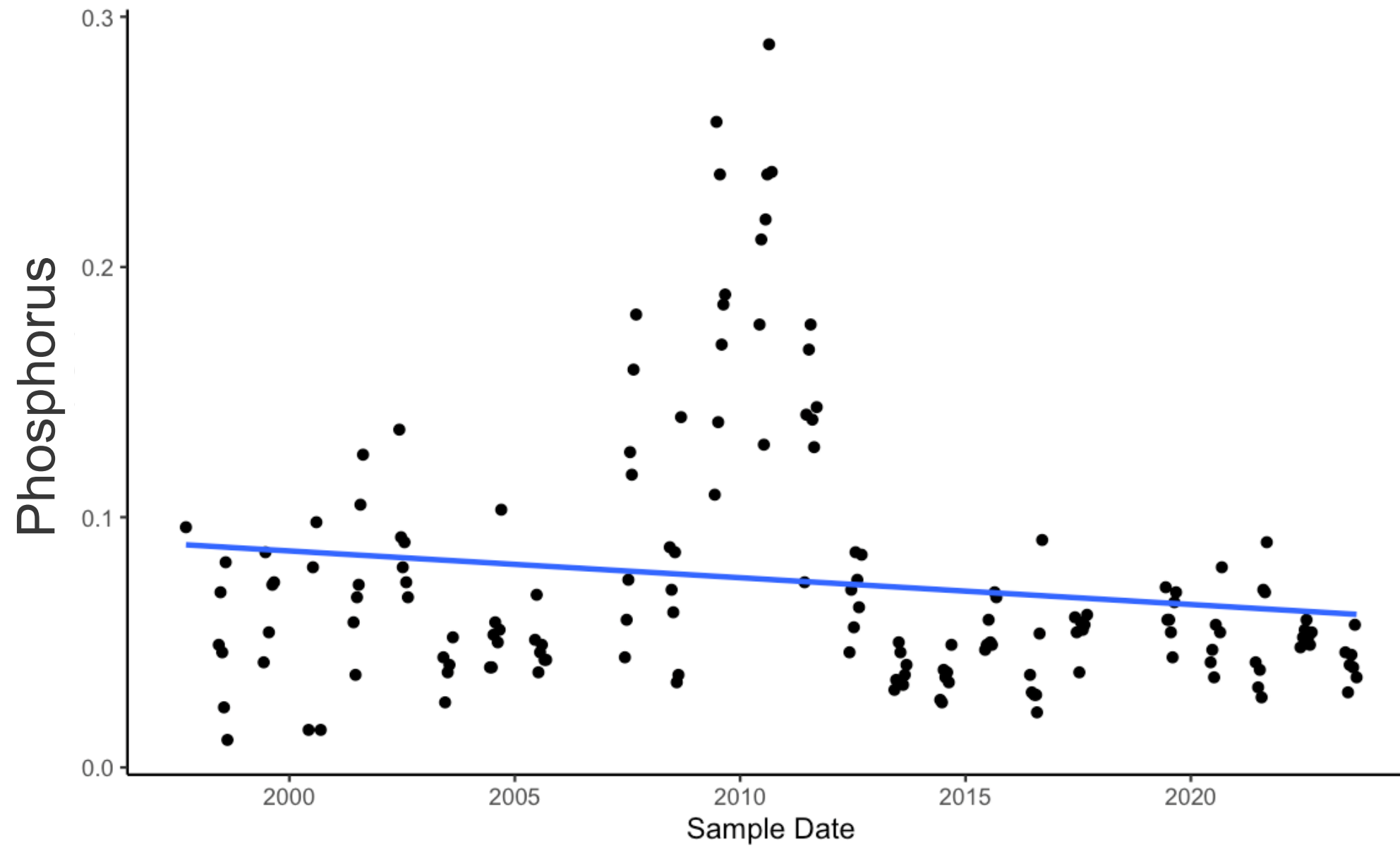
Drivers



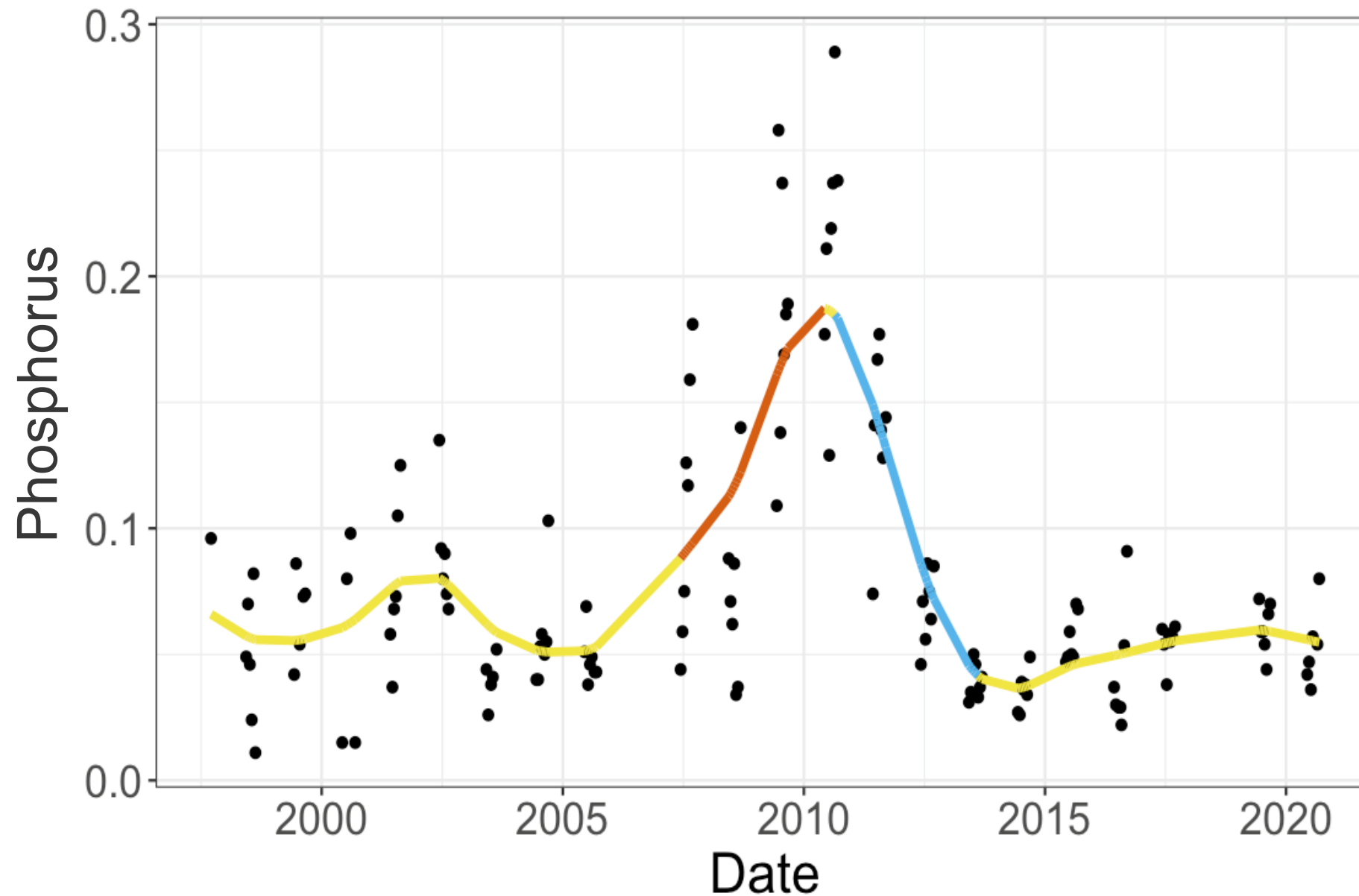
Water Quality Trends



Water Quality Trends



Water Quality Trends



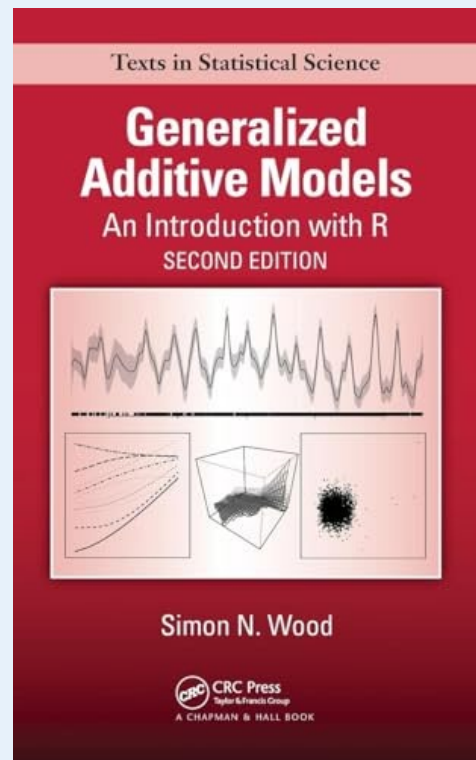
Generalized

Additive

Models

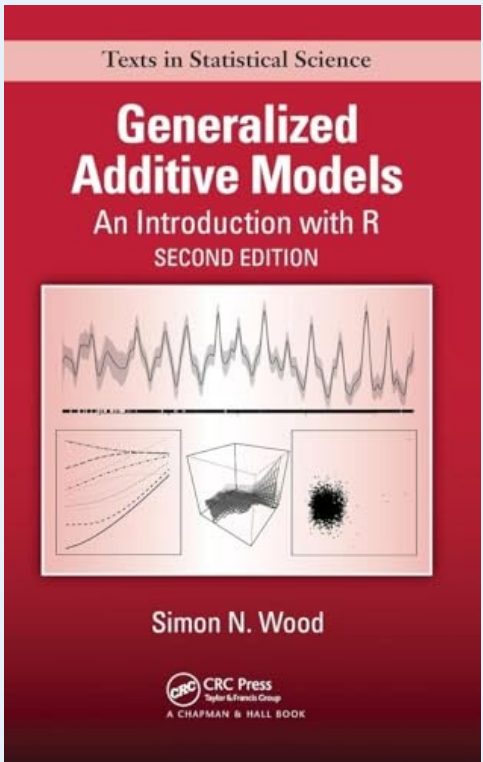
Workflow

Learn a lot



Workflow

Learn a lot

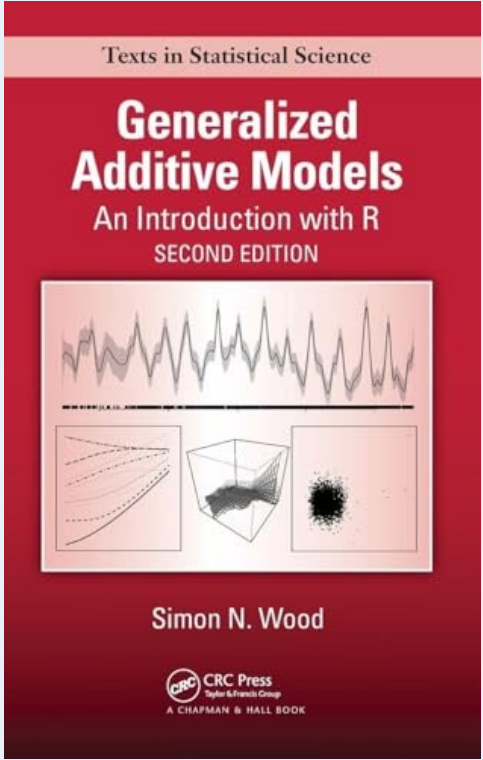


Code

```
ES-WR-LakeTrends - RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function
Lake_Trends_GAM_batch.R Preliminary_Models_GAM.Rmd test trendInputDF1 Multiparameter_GAM_test.Rmd
Knit on Save Knit Run Publish
Source Visual Outline
76 if (GAM_config_file[i,4] %in% "SKIP") {next}
77 #####
78
79 # Filter data
80 trendInputDF <- lake_data_surface %>%
81   filter(STATION_ID == id & gamparam == parameter) %>%
82   {
83     if (is.na(GAM_config_file[i,4])) .
84     else filter(., Year >= GAM_config_file[i,4]) #trim to start year specified by analyst
85   } %>%
86   {
87     if (is.na(GAM_config_file[i,5])) .
88     else filter_out(., Year %in% GAM_config_file[i,ncol(GAM_config_file)]) #only use years
89     where data was collected in at least 4 of 5 summer months
90   } %>%
91   filter(Month %in% (5:9)) %>% #use same data that's used for lake grade calculation, in the
92     future could use all data April - October
93   arrange(START_DATE_TIME) #Order data so that the autocorrelation test is accurate
94
95 # set how wiggly the annual trend is based on the length of the time series
96 y <- ceiling((max(trendInputDF$Year) - min(trendInputDF$Year) + 1)/3)
97
98 # Fit mod
99 mod_prelim[[i]] <- gam(REsULT ~ s(DecimalDate, k=y) +
100   s(TimeOfYear, by = FacYear, id = 1, bs = "cr"),
101   family = Gamma(link = "log"),
102   data = trendInputDF,
103   method = "REML")
104
```

Workflow

Learn a lot



Code

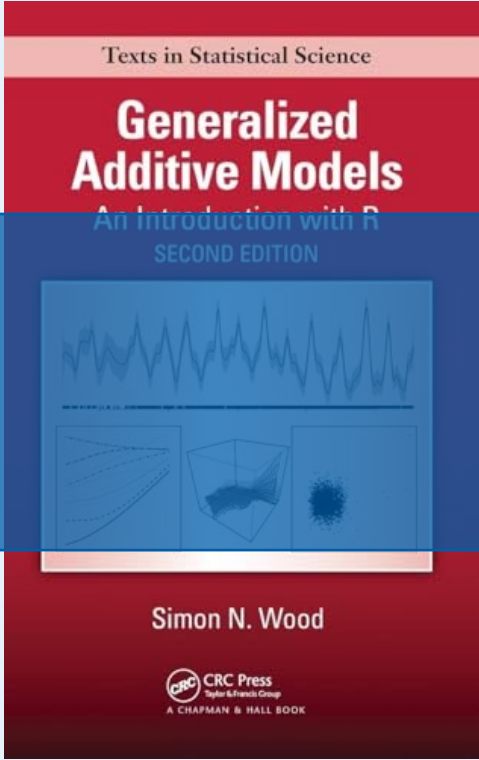
```
ES-WR-LakeTrends - RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Lake_Trends_GAM_batch.R x Preliminary_Models_GAM.Rmd x test x trendInputDF1 x Multiparameter_GAM_test.Rmd x V x
Knit on Save Knit Run Publish
Source Visual Outline
76 if (GAM_config_file[i,4] %in% "SKIP") {next}
77 #####
78 # Filter data
79 trendInputDF <- lake_data_surface %>%
80 filter(STATION_ID == id & gamparam == parameter) %>%
81 {
82 if (is.na(GAM_config_file[i,4])) .
83 else filter(., Year >= GAM_config_file[i,4]) #trim to start year specified by analyst
84 } %>%
85 {
86 if (is.na(GAM_config_file[i,5])) .
87 else filter_out(., Year %in% GAM_config_file[i,ncol(GAM_config_file)]) #only use years
88 where data was collected in at least 4 of 5 summer months
89 } %>%
90 filter(Month %in% (5:9)) %>% #use same data that's used for lake grade calculation, in the
91 future could use all data April - October
92 arrange(START_DATE_TIME) #Order data so that the autocorrelation test is accurate
93
94 # set how wiggly the annual trend is based on the length of the time series
95 y <- ceiling((max(trendInputDF$Year) - min(trendInputDF$Year) + 1)/3)
96
97 # Fit mod
98 mod_prelim[[i]] <- gam(REsULT ~ s(DecimalDate, k=y) +
99 s(TimeOfYear, by = FacYear, id = 1, bs = "cr"),
100 family = Gamma(link = "log"),
101 data = trendInputDF,
102 method = "REML")
103
104
```

Talk to Steve



Workflow

Learn a lot



Code

The image is a screenshot of the RStudio interface. The title bar says 'ES-WR-LakeTrends - RStudio'. The menu bar includes File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, and Help. The toolbar has icons for file operations, running, and saving. The source editor shows R code for processing lake data. The code includes comments and functions for filtering data, setting the wiggly trend, and fitting a generalized additive model (GAM) using the REML method. The code is as follows:

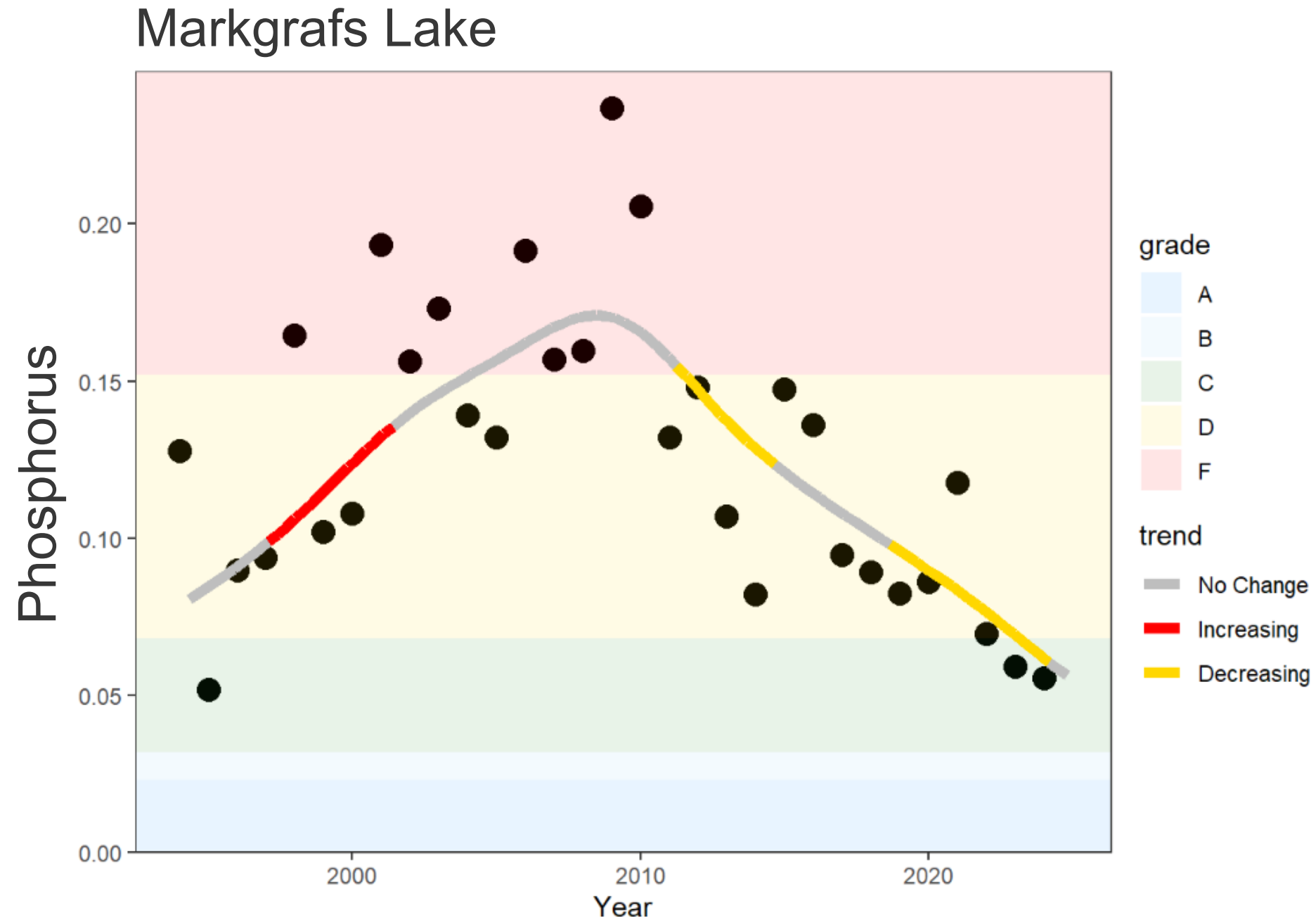
```
76 if (GAM_config_file[i,4] %in% "SKIP") {next}  
77  
78  
79 # Filter data  
80 trendInputDF <- lake_data_surface %>%  
81   filter(STATION_ID == id & gamparam == parameter) %>%  
82   filter(!is.na(GAM_config_file[i,4]))  
83   else filter(!is.na(Year)) %>% filter(!is.na(Year)) #try to keep year specific data  
84   else filter(!is.na(Year)) %>% filter(!is.na(Year)) #try to keep year specific data  
85   else filter(!is.na(Year)) %>% filter(!is.na(Year)) #try to keep year specific data  
86   else filter(!is.na(Year)) %>% filter(!is.na(Year)) #try to keep year specific data  
87   else filter(!is.na(Year)) %>% filter(!is.na(Year)) #try to keep year specific data  
88   else filter(!is.na(Year)) %>% filter(!is.na(Year)) #try to keep year specific data  
89   else filter(!is.na(Year)) %>% filter(!is.na(Year)) #try to keep year specific data  
90   filter(Month %in% (3:9)) %>% #use the data that's used for lake grade calculation, in the  
91     arrange(START_DATE_TIME) #order data so that the autocorrelation test is accurate  
92  
93  
94 # set how wiggly the annual trend is based on the length of the time series  
95 y <- ceiling((max(trendInputDF$Year) - min(trendInputDF$Year) + 1)/3)  
96  
97 # Fit mod  
98 mod_prelim[[i]] <- gam(REsULT ~ s(DecimalDate, k=y) +  
99   s(TimeOfYear, by = FacYear, id = 1, bs = "cr"),  
100   family = Gamma(link = "log"),  
101   data = trendInputDF,  
102   method = "REML")  
103  
104
```

Repeat

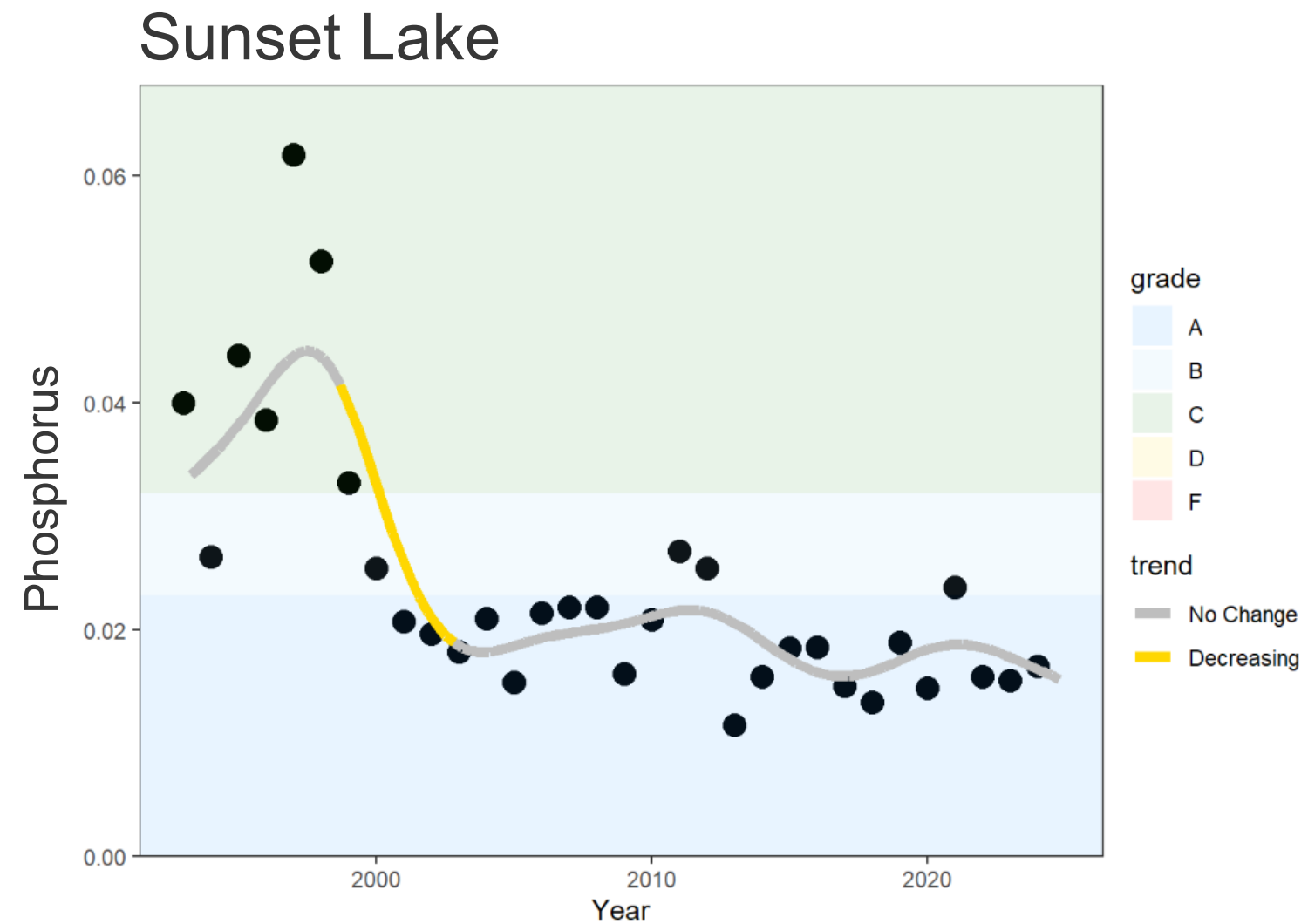
Talk to Steve



Output: Wiggly Lake Trends!



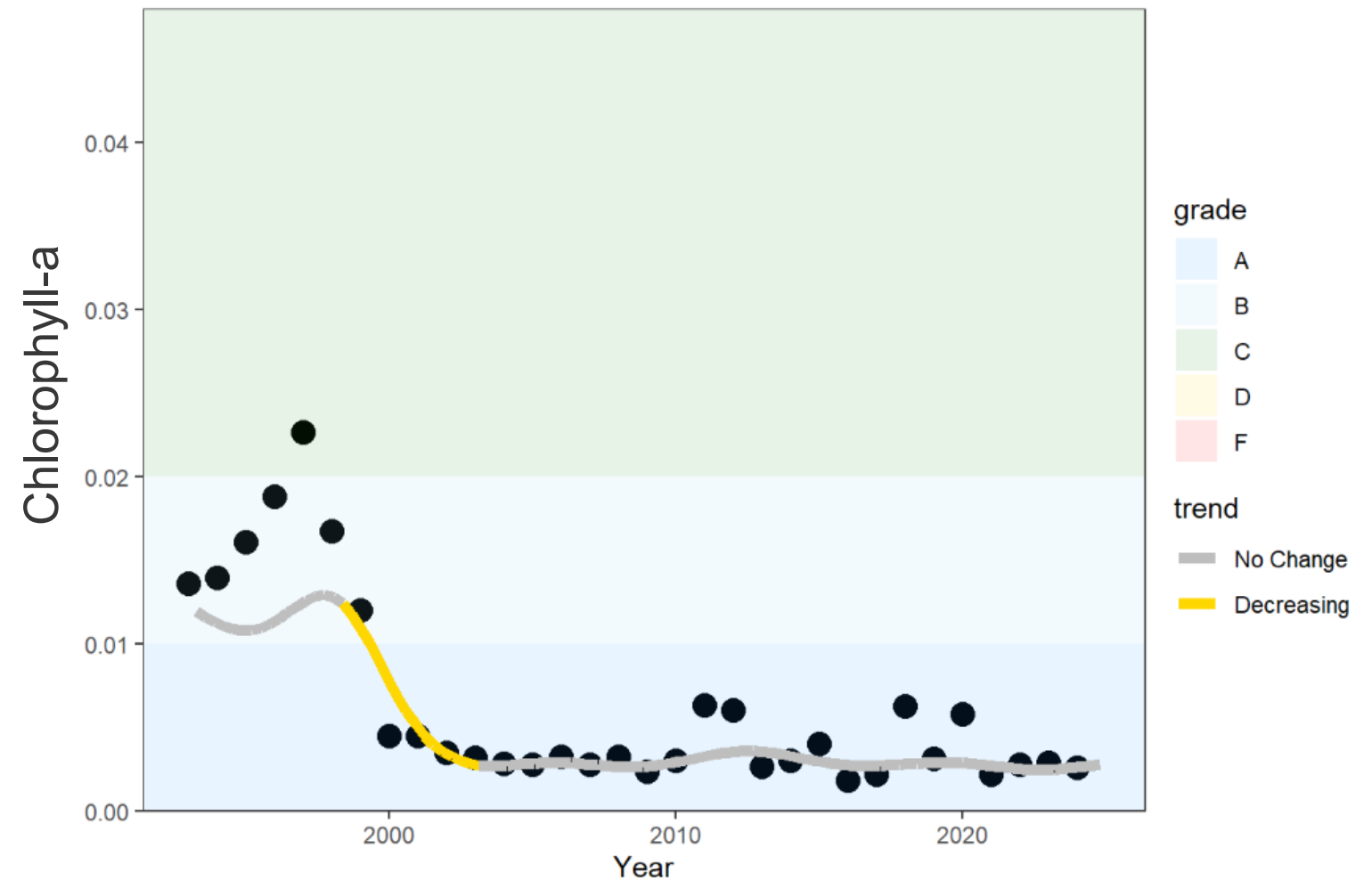
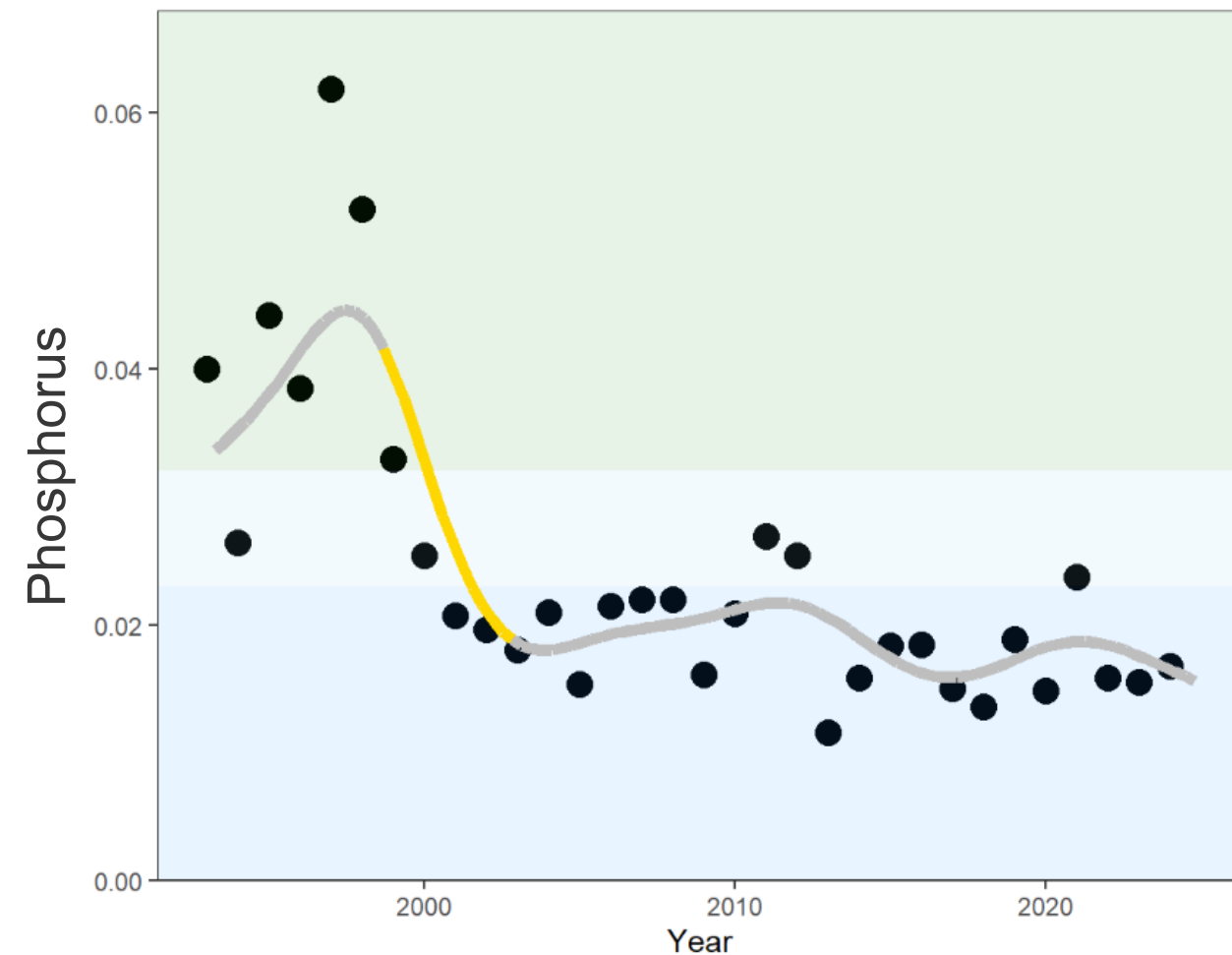
Output: Wiggly Lake Trends!



Output: Wiggly Lake Trends!

When phosphorus decreases,
so does algal growth

Sunset Lake



Takeaways

Technical Writing



Takeaways

Technical Writing



Getting in the room



Takeaways

Technical Writing



Getting in the room



Great coworkers



Next Steps



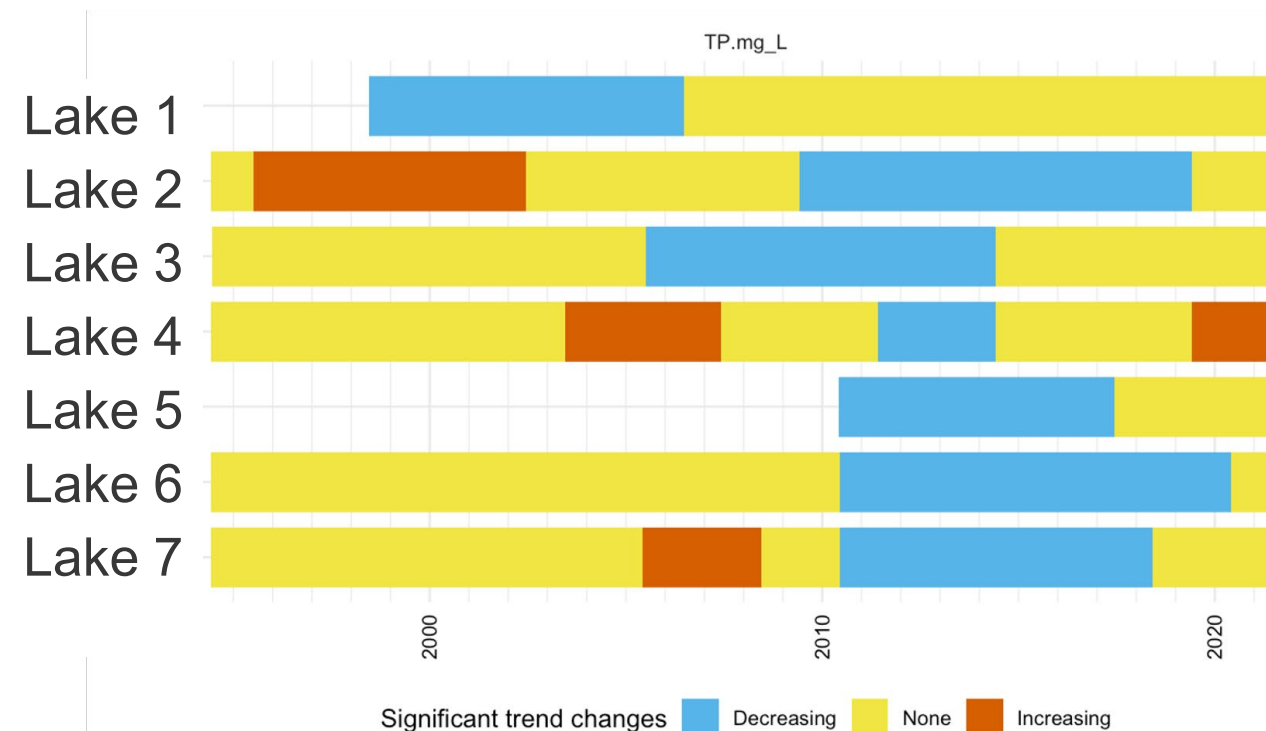
Continue expanding this work:

- Evaluate to more lakes and parameters
- Include trends on a lake water quality dashboard
- Compare trends across the region

Next Steps

Continue expanding this work:

- Evaluate to more lakes and parameters
- Include trends on a lake water quality dashboard
- Compare trends across the region



Questions?

Catherine “Katie” Polik

Catherine.Polik@metc.state.mn.us



Water Supply Planning Intern

Water Policy and Planning, Environmental Science



August 2026 | Lunetta Osterhaus | metro council.org

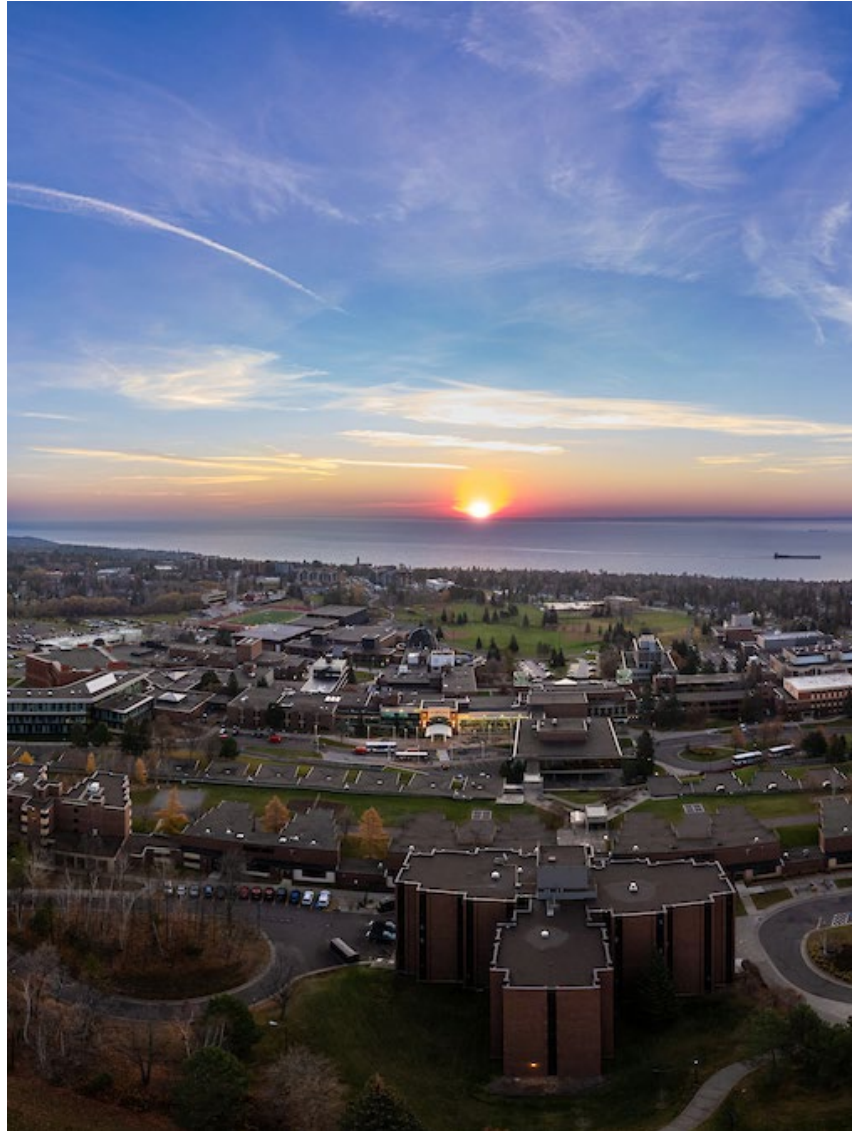


Facility Intern

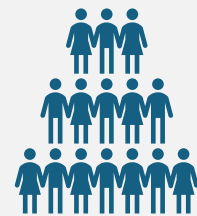
Environmental Services Planning and Scheduling, East Business Unit

📍 Empire Water Resource Recovery Facility

Introduction



University of Minnesota Duluth
Mechanical and Industrial Engineering
Vice President, Women in Engineering and Science



Planning and Scheduling: Coordinates maintenance, inspections, and projects by scheduling work and managing resources, which help minimize equipment downtime

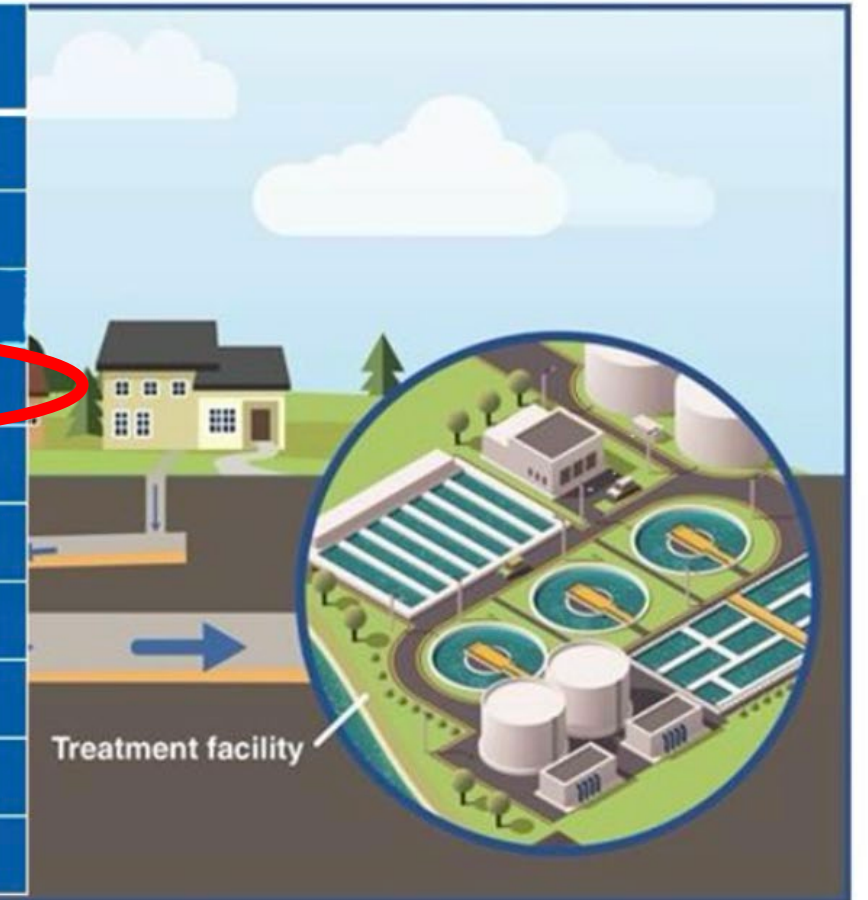
Empire WRRF



Empire/Farmington, Minnesota

- Built in 1979
- Treats 10-12 million gallons a day
 - Discharges 13 Miles Away to Mississippi River
- Communities Served:
 - Farmington
 - City of Empire
 - Elko New Market
 - Rosemount
 - Parts of: Lakeville & Apple Valley

Facility	Average Daily Flow (MGD)
Metro	181
Blue Lake	28
Seneca	22
Empire	10
Eagles Point	4.5
St. Croix Valley	3.0
Hastings	1.4
Rogers	1.0
East Bethel	0.06
TOTAL	251



Internship Goals

Gain real-real world experiences and develop professional skills

See how the concepts I've learned are applied to a real workplace setting

Discover what a career in wastewater would look like day to day



Projects & Responsibilities

Label Safety Equipment Asset and Components

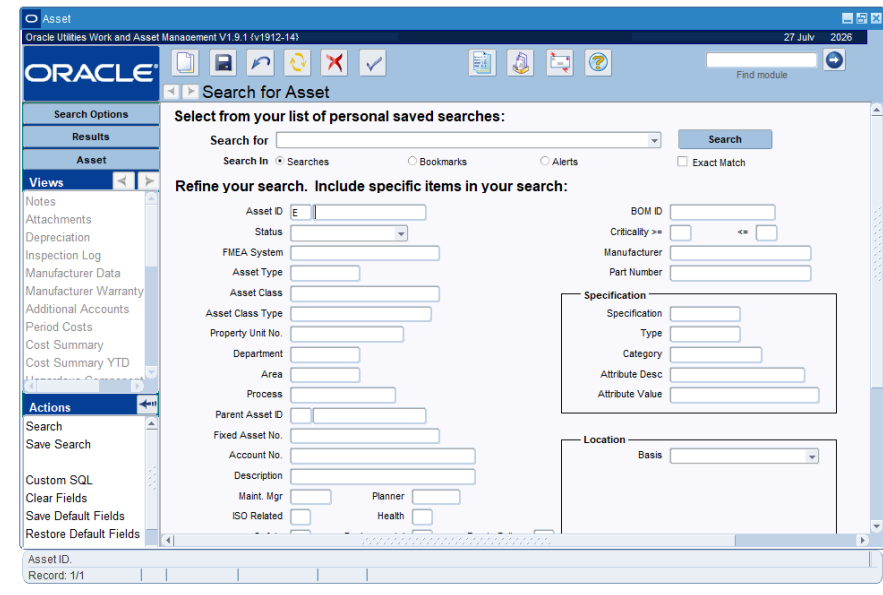
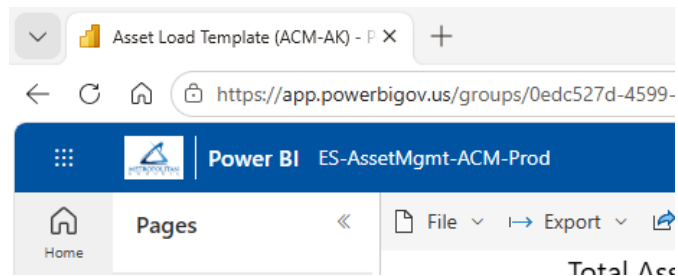
Organization of Maintenance Operation Routes

- Assist in researching new maintenance systems

Asset Labeling and Identification

General Process

Alternate ID → Look up on WAM → Create and place Label → Update WAM Information



Power BI: Microsoft's data visualization platform that transform data into interactive reports, dashboards, and insights, allowing better decision-making

WAM: Allows companies to organize and track maintenance jobs, equipment, workers, and resources

Project/responsibility #1

Safety Equipment

Objective: Learn about industrial fall protection

Role: Assist in tracking and labeling components

Tools: WAM, Label Maker, Microsoft Word

Outcome: Better tracked and organized safety equipment



Project/responsibility #2

Maintenance Routes

Objective: Learn about industrial lubrication programs

Role: Provide feedback and edit how routes are categorized

- Research lubrication systems

Tools: WAM, Excel, PowerPoint

Outcome: Detailed operation procedure and easier stockroom ordering

- Better understanding of the systems our plant needs



Project/responsibility #3

Asset Labeling and Identification

Objective: Learn about asset tracking

Role: Assist in labeling and cataloging

Tools: Power BI, WAM, Label Maker

Outcome: Located and cataloged new plant construction



Learning and Development

Skill learned #1

Gained Technical Skills:

- ES Specific Tools: WAM and Power BI
- Workplace Processes: Asset Management and Plant Systems
- Safety Procedures: Confined Space Entry and Fall Protection

Skill learned #2

Improved Professional Skills:

- Communication: Collaborated with coworkers and supervisors
- Adaptability: Learned to work around unexpected challenges while completing tasks

Skill learned #3

Cross-Functional Awareness:

- Gained a better understanding of how different teams connect and impact each other to reach a bigger goal

Takeaways



Career Interest:

- Better understanding of the work that motivates me
 - “Clean Water For Future Generations”
- Interest in a future career within Wastewater

Continued Learning:

- Improve my ability to spot inefficiencies and suggest practical improvements

Going Forward:

- Continue applying the structured problem-solving approach developed during the internship to future engineering projects

Conclusion

Shaylie Magdziarz

Facility Intern
Planning and Scheduling

LinkedIn Profile:



Thank You!

Special Thanks to Nate Wright and John Simo
for their leadership and guidance.

Any Questions?

Introduction



Lunetta Osterhaus

Education: University of Minnesota, BA in Urban Studies, minor in Architecture, graduating in Spring 2027

Interests

- Sustainable design
- Music
- Travel

Internship Goals

GIS and Data
Visualization

Sustainability
in the Region

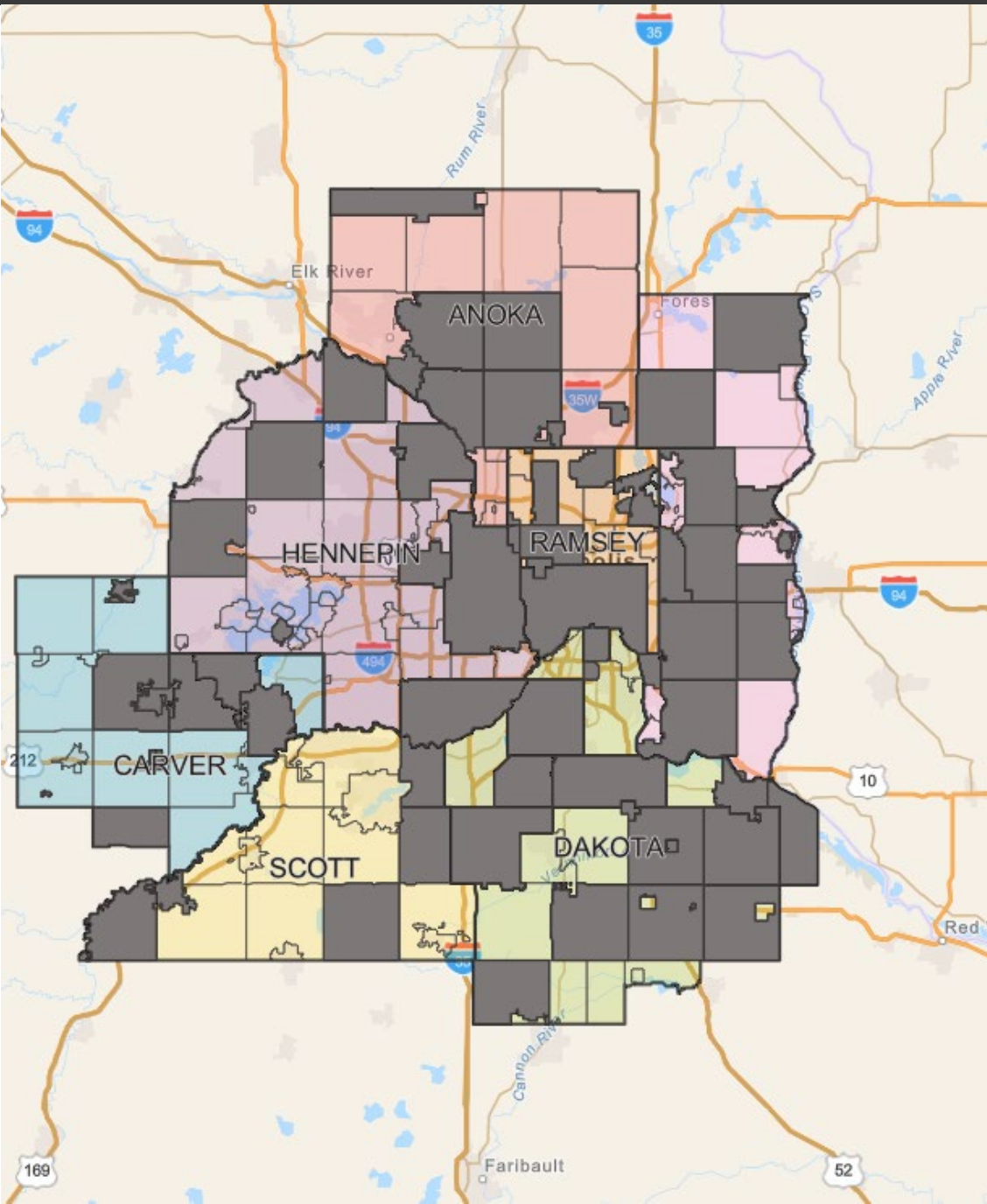
Real Estate
Development

Projects & Responsibilities

**Project 1: Local Officials
Controls Water Toolkit**

**Project 2: Indoor Water Use
Infographics**

Project 1: Local Official Controls Toolkit



Overview

The Official Controls Water Toolkit is a GIS Application that lets users explore a variety of official controls communities are already using that align with regional water policies in the 2050 Water Policy Plan.

Purpose

1. Help City Planners understand what current strategies communities are utilizing that go above the minimum requirements for water in comprehensive plan updates.
2. Improve collaborative water planning, management, and operations practice across the Metro Area
3. Respond to community need through community collaboration, real-world examples, and more visual data.

Project 1: Local Official Controls Toolkit

Toolkit Overview

- 7 unique filters
- Over 200 unique controls represented
- Over 60 communities represented
- Interactive web map allowing users to click on a community to see corresponding controls
- Exportable Data

The screenshot displays the 'Local Controls Water Toolkit' web application. On the left, a map of the Minneapolis-St. Paul area is shown with various communities highlighted in different colors. A red arrow labeled 'Filter' points to a dropdown menu with 7 unique filters: Regional Water Policy, Focus Area, Control Type, County, Community Designation, Star Rating, and Population is between. A red arrow labeled 'Map' points to the map itself. On the right, the 'Web Pages' section shows detailed information for Blaine, MN, including a star rating, population, and a list of controls. A red arrow labeled 'Control Information' points to the 'Control Information' section of the Blaine entry.

Local Controls Water Toolkit

Web Pages → Home Learn More Water Toolkit Community Highlights

Filter

Map

Control Information

Blaine ★★
Anoka County | 71,739 People | Suburban Edge | Non-Participant

Official Control
Partnered with Rice Creek Watershed District and Anoka Conservation District to reduce phosphorous by 11% in Golden Lake by retrofitting a stormwater treatment pond with an iron-enhanced sand filter bench along the perimeter of the lake. The Clean Water Fund supplied \$88,950 in funding to help support the project.

Impact
Reduced phosphorus by 11% in Golden Lake by installing an iron-enhanced sand filter, which, along with other actions, helped remove Golden Lake from the impaired waters list and inspired similar projects to occur downstream.

Focus Area
Surface Water

Control Type
Capital Improvement

Regional Water Policy
Integrated Water, Pollution Prevention

Implementation
Action

Learn More

Blaine ★★
Anoka County | 71,739 People | Suburban Edge | Non-Participant

Official Control
Implements seasonal watering restrictions across the city through odd-even lawn watering restrictions and time-of-day limit between 10am-6pm, May 15th through September 15th.

Impact
Reduces peak water demand during summer months by limiting outdoor water use on designated days, stabilizing system demand and conserve municipal water supplies.

Focus Area
Water Supply

Control Type
Ordinance

Regional Water Policy
Conservation and Sustainability

Implementation
Action

Learn More

Blaine ★★
Anoka County | 71,739 People | Suburban Edge | Non-Participant

Official Control
Provides online tutorial residents prevent clogs and reduce contamination.

Impact
Improves water quality by reducing efficiency, and reduces leaks by reducing water demand.

Focus Area
Water supply

Control Type
Other

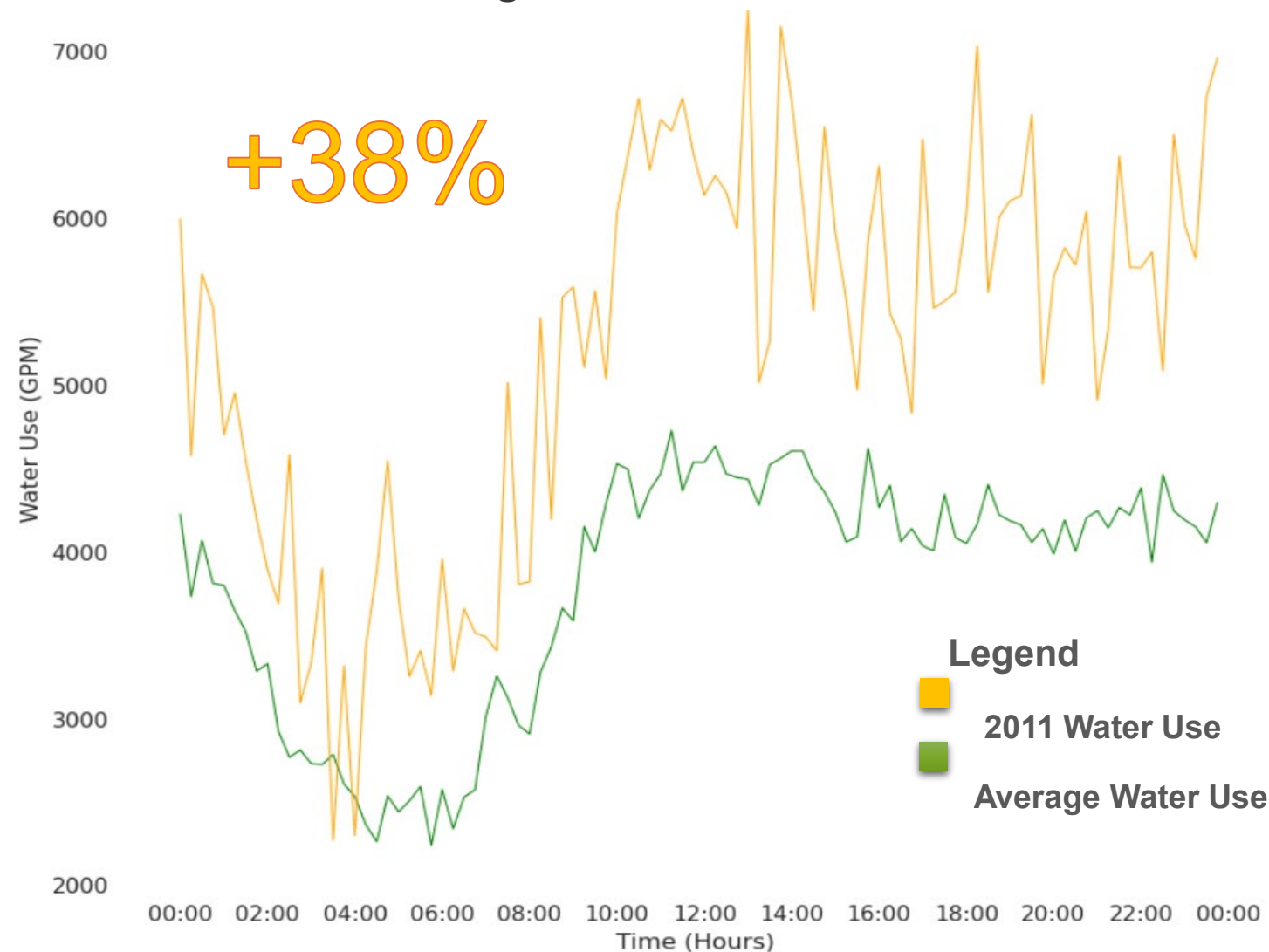
Regional Water Policy
Pollution Prevention

Implementation
Action

Learn More

Project 2: Indoor Water Use Infographics

Change in Minnetonka flow data on the hottest day
2011 vs the average between 2010-2026



Sewer Sociology Infographics

Using 15-min flow data from
select meter sheds can we
determine:

1. Do Super Hot days or Urban Heat Islands affect indoor water use?
2. Do water rebate programs affect the total municipal indoor water use?

Looking Ahead

Controls Toolkit

Update user interface and prepare toolkit to be published externally.

Indoor Water Use

Perform more data analysis to better understand the effects of heat and rebate programs on indoor water use.

Contamination Analysis

Geospatial analysis to estimate the number of potential contaminant records per acre by land use type in the metro.

Learning and Development

Web Development

Networking

Python Skills

Water Sampling

Data Visualization

**Real Estate
Development**

Urban Planning

Experience Builder

Comp Plan Review

Arc GIS Pro

Data Analysis

Research

Career Exploration

**Sustainable
Development**

Public Speaking

Questions?

Lunetta Osterhaus

Intern, Water Policy and Planning
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