

Data to Action

Atlantic Water Network

Workshop Goals

At the end of this workshop, I want you all to:

1. See where analysis fits in with your monitoring program
2. Be comfortable with DataStream
3. Be able to make simple plots on your own
4. Be able to interpret plots made with your data
5. Communicate your analysis results

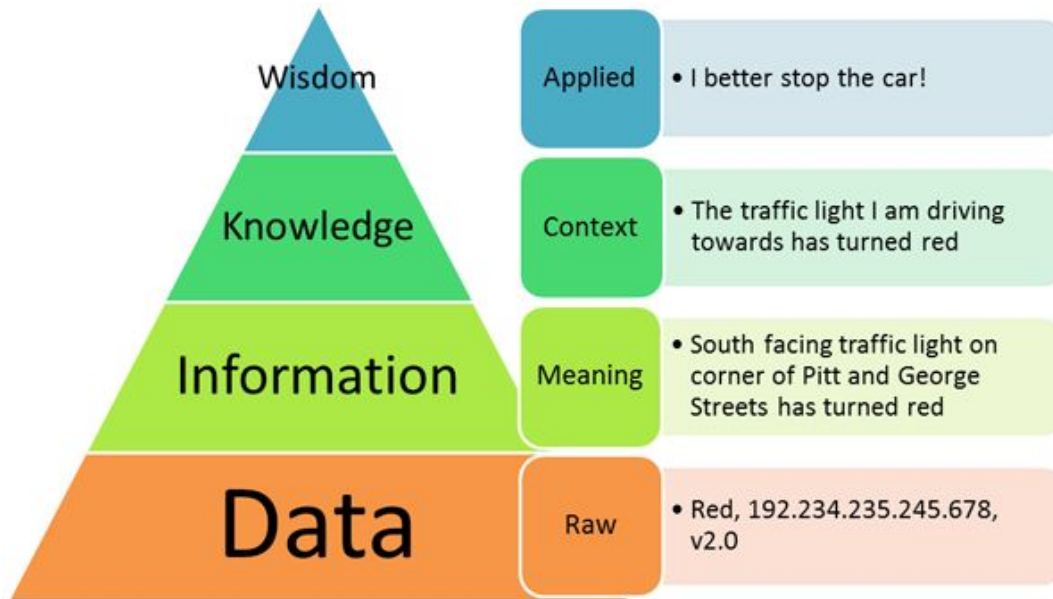
Workshop Overview

1. Intro to Data Analysis: We've collected data.... Now what?
2. DataStream Review
 - DataStream updates
 - Uploading, downloading, data exploration
3. Excel Analysis
4. Deep dive into WQI (& other R tools)
 - How to use R code to help you
5. Presenting your results
 - Reports, stories, action!

Workshop Rules

1. Ask questions at any time!
2. Collaboration encouraged!
 - Help each other out!
3. Special requests encouraged!
 - How can I help you get what you want out of this workshop?





Asking the right (and specific) questions

Discussion: What do you use your data for? What could you use your data for?
What questions can you look to your data for answers to?

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Asking the right (and specific) questions

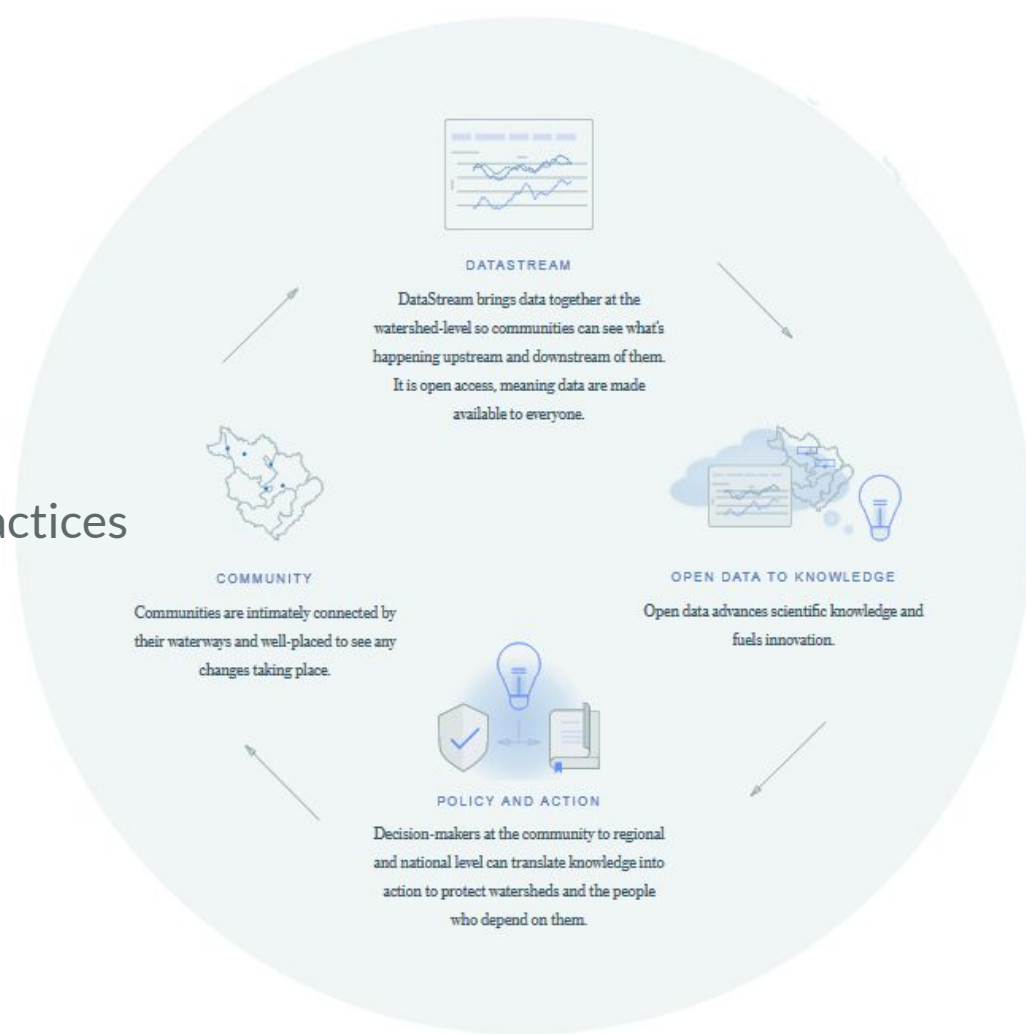
Discussion: What do you use your data for? What could you use your data for?
What questions can you look to your data for answers to?

- How to prioritize site choice for mitigation?
- Determine the effect of an environmental event? Magnitude of disruption?
- Determining the effectiveness of an infrastructure change?
- How do lakes and rivers change over time?
- What changes must be made for this lake to support a thriving ecosystem?

Asking the right questions for your watershed will guide your analysis!

Why Data Analysis?

- To influence policy change
- To educate communities
- To aid funding opportunities
- To inform best management practices
- To guide the next field season



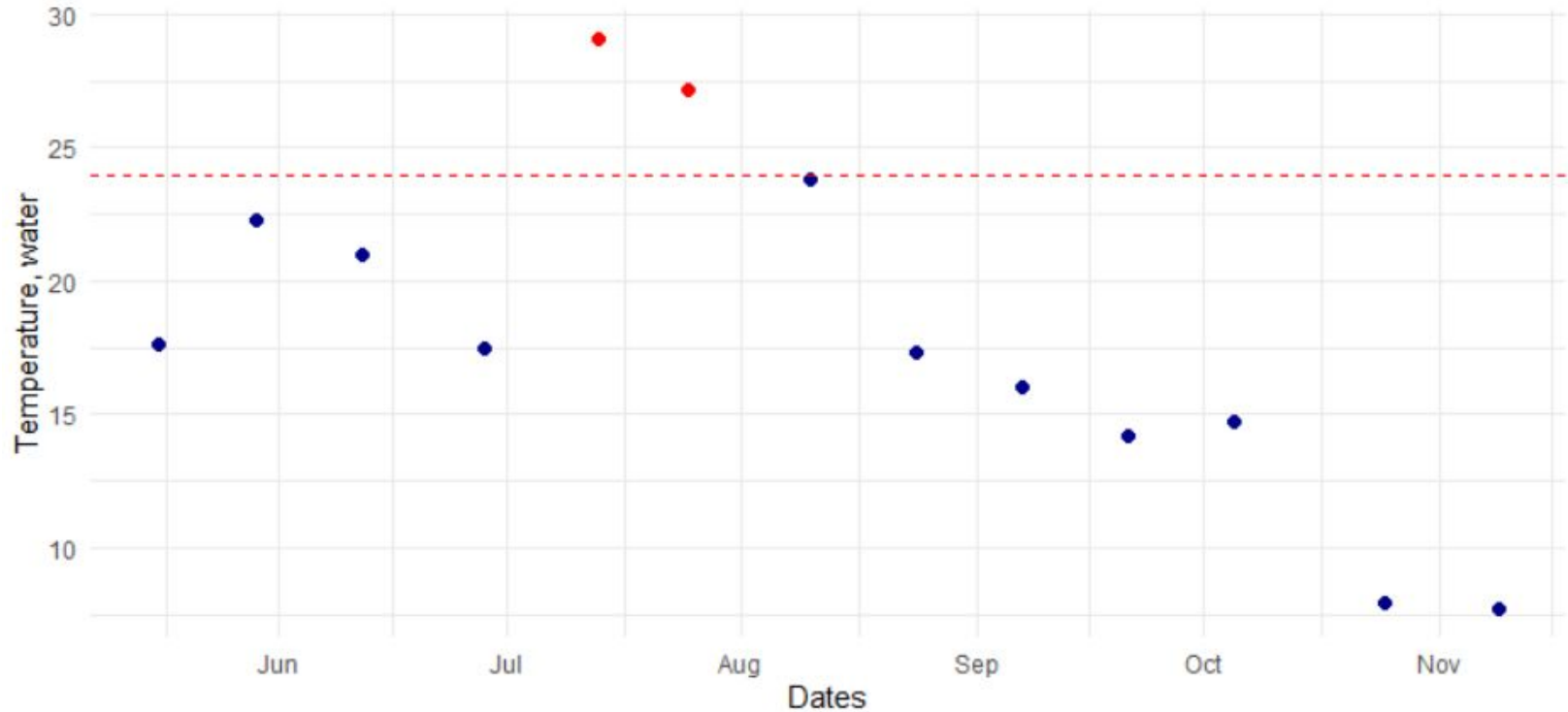
No “one-size-fits-all” analysis solution

- Different groups collect different types of data
- Regional differences in baseline/guidelines
- How can different watersheds conduct consistent analysis while still accounting for these differences??

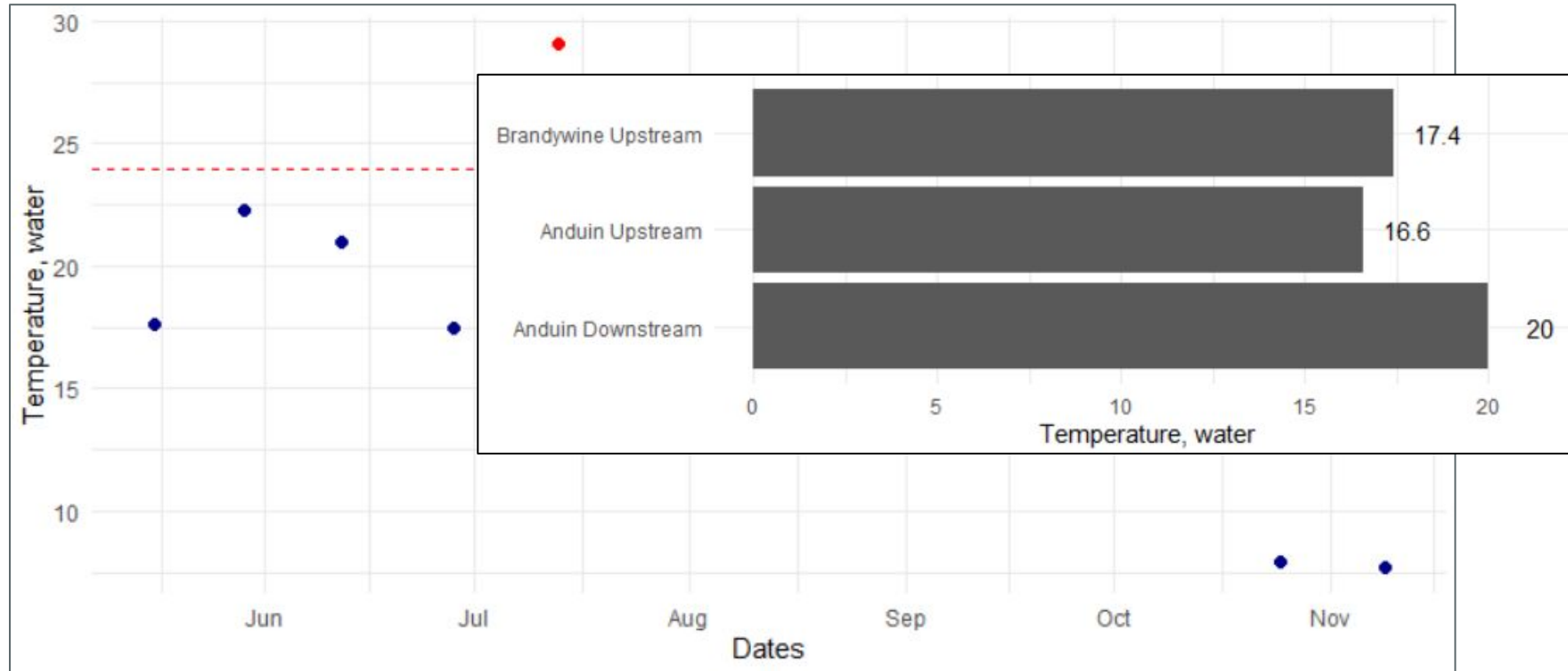
Ways to analyze data

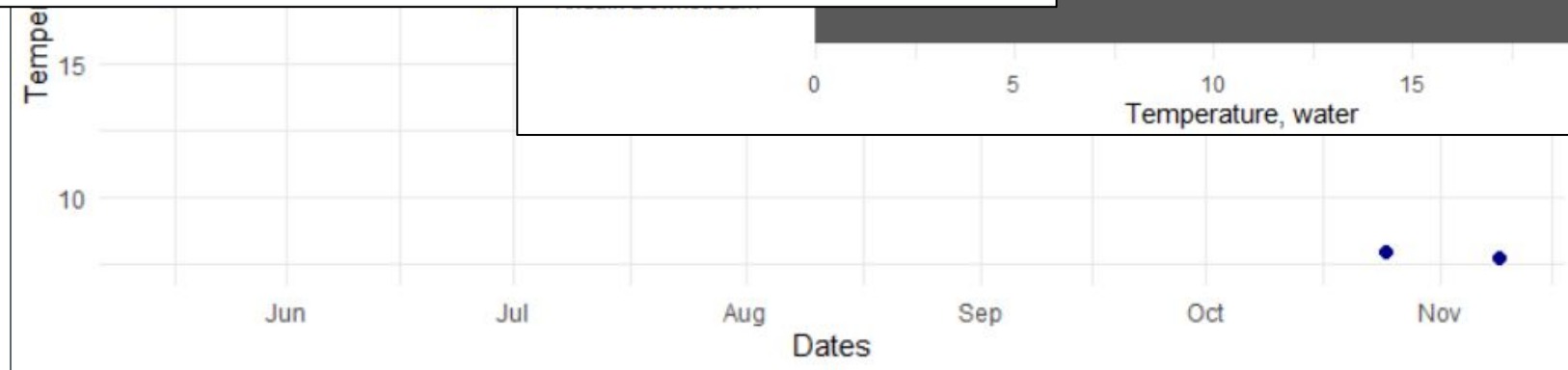
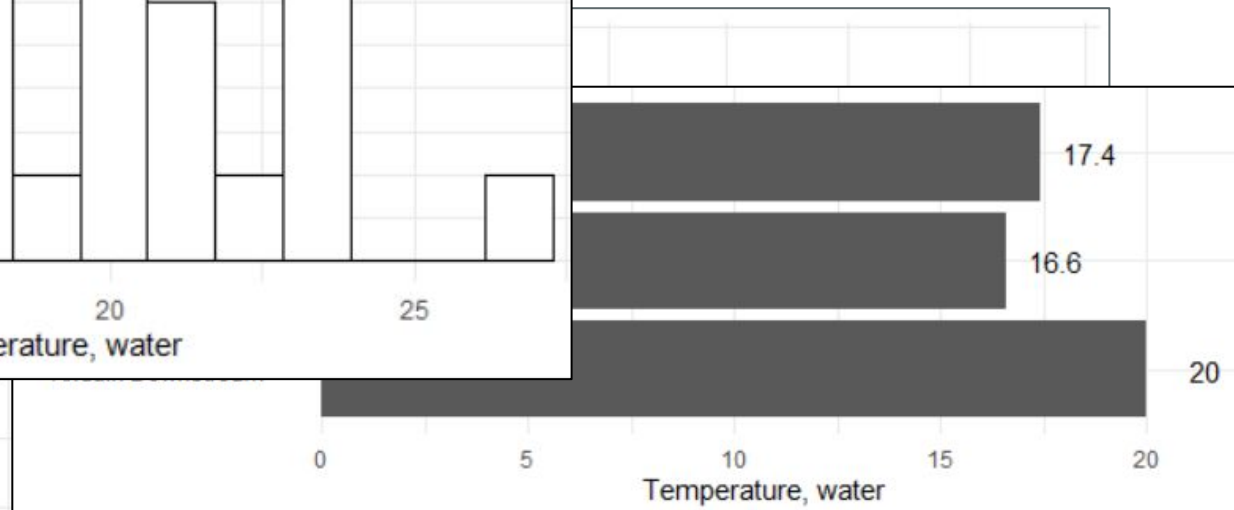
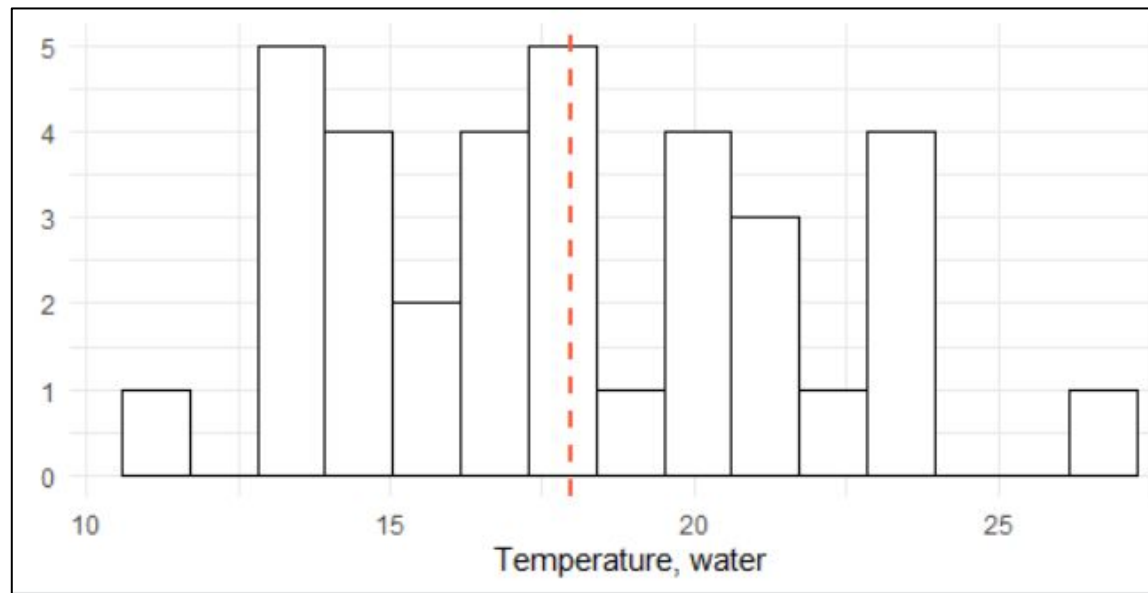
- Correlation between variables
- Probability/Statistics
- Compare different locations at the same time (spatial analysis)
- Compare the same location at different times (time series analysis)

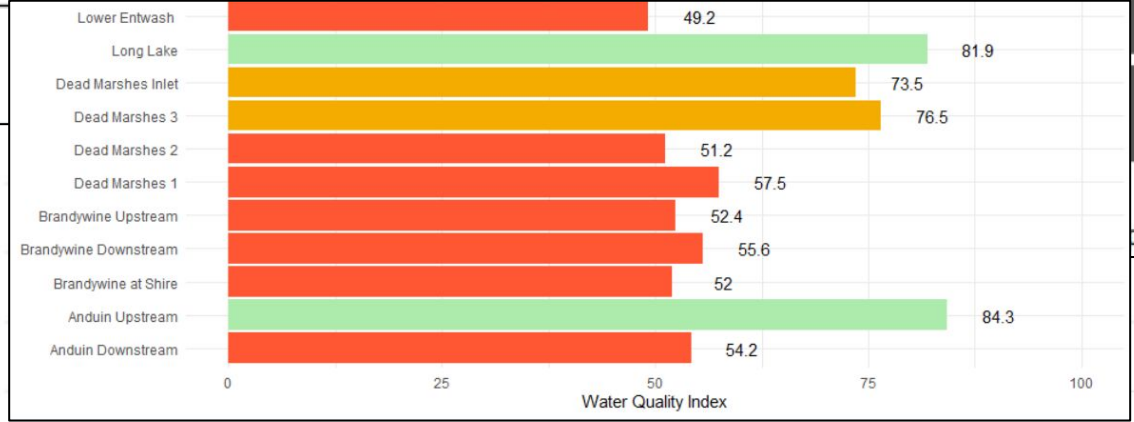
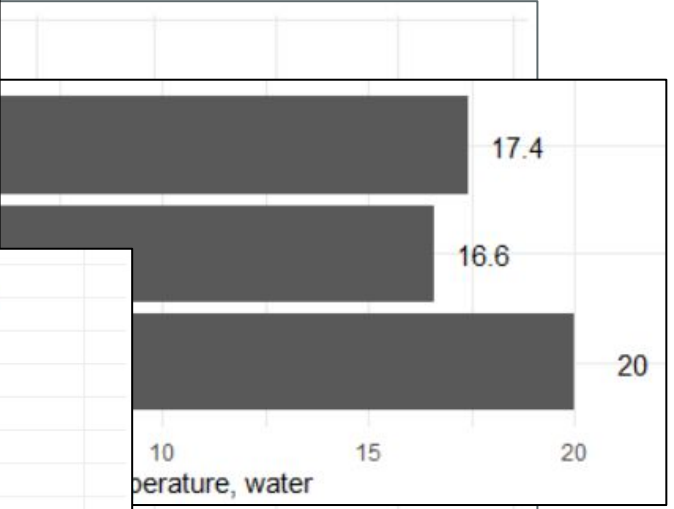
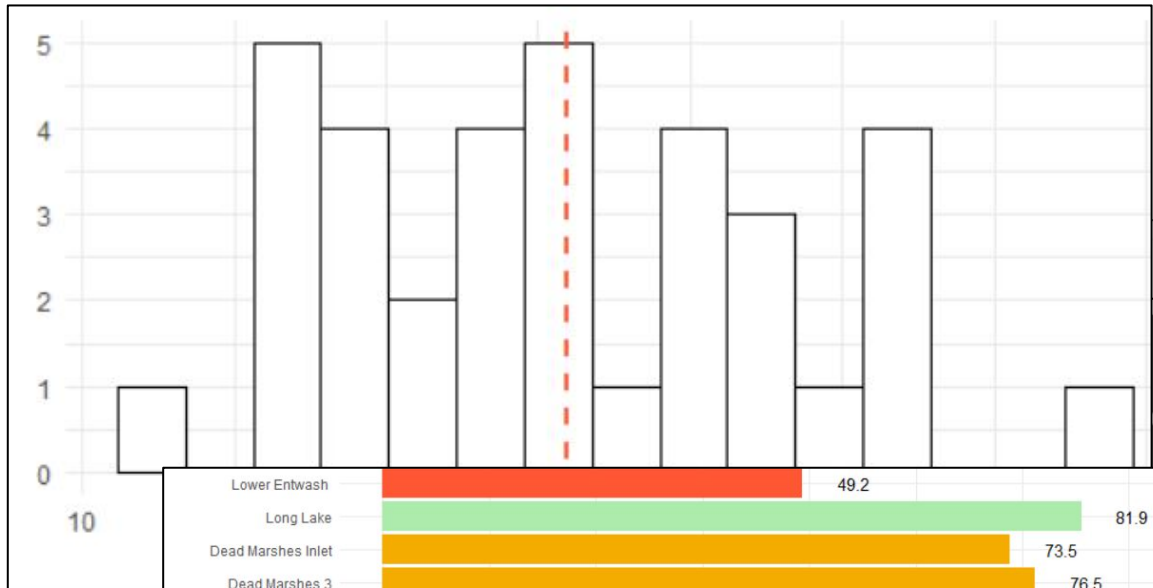
Ways to analyze data



Ways to analyze data

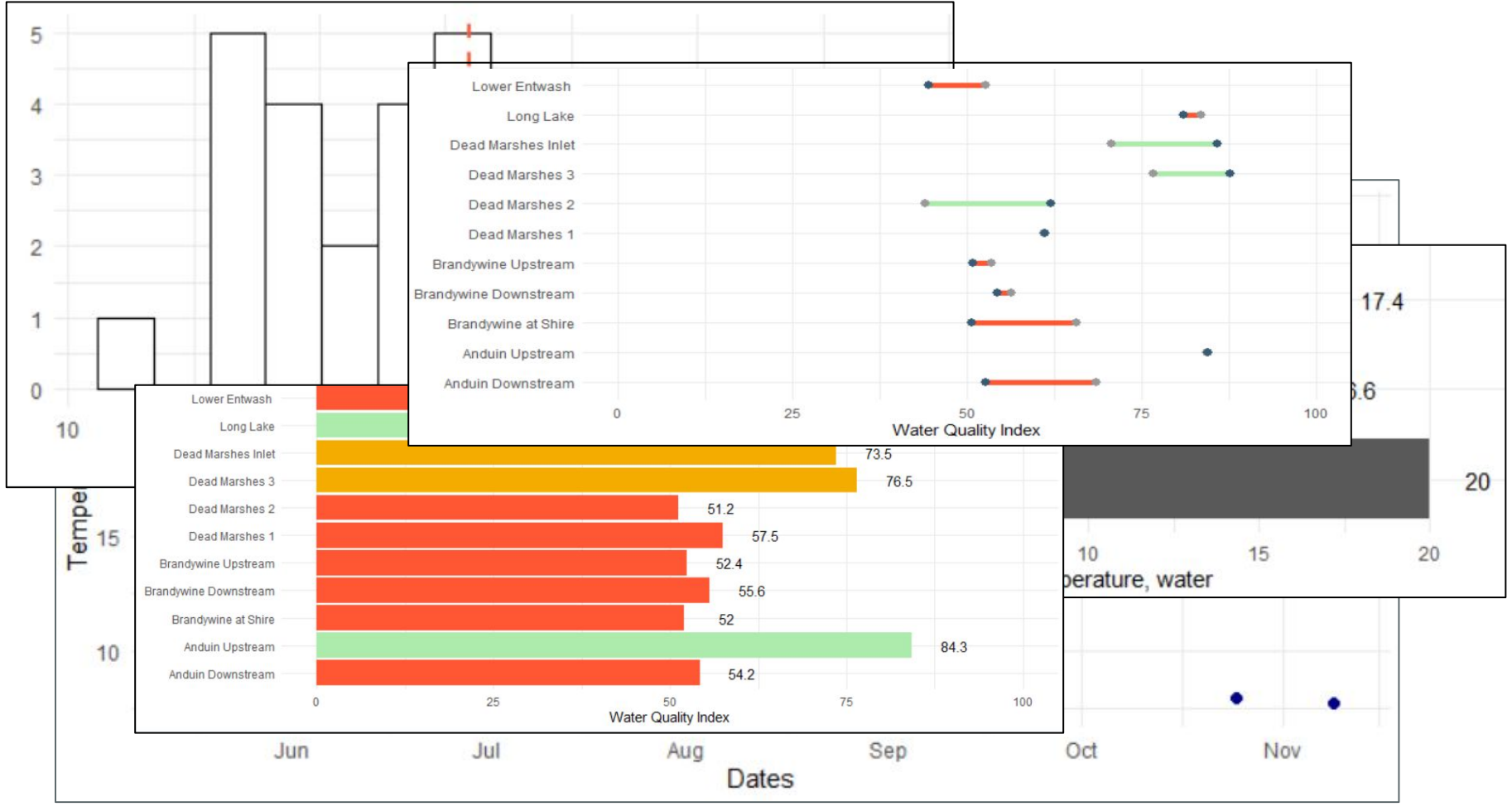


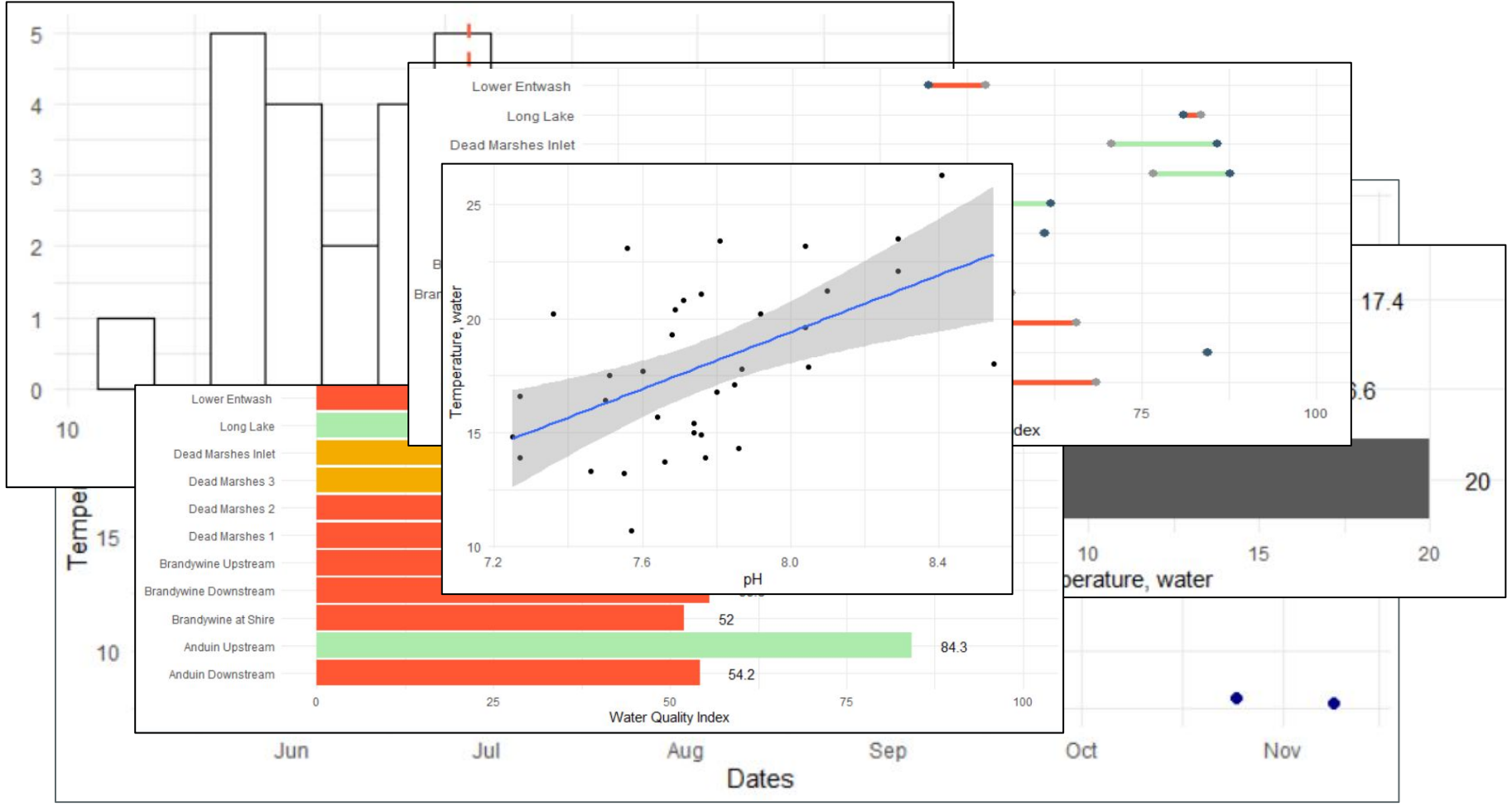




Tempe
10
15
20

Dates
Jun Jul Aug Sep Oct Nov





Temperature

Temperature, water

pH

Water Quality Index

Dates

Jun

Jul

Aug

Sep

Oct

Nov

- Lower Entwash
- Long Lake
- Dead Marshes Inlet
- Dead Marshes 3
- Dead Marshes 2
- Dead Marshes 1
- Brandywine Upstream
- Brandywine Downstream
- Brandywine at Shire
- Anduin Upstream
- Anduin Downstream

0 25 50 75 100

10

15

10

5

4

3

2

1

0

25

20

15

10

7.2

7.6

8.0

8.4

10

25

50

75

100

17.4

3.6

20

10

25

50

75

100

Temperature, water

10

20

52

84.3

54.2

Communicating your results

Discussion: How do you communicate your water quality data?
Who do you communicate with?

? ? ? ? ? ? ? ? ? ?

Communicating your results

Discussion: How do you communicate your water quality data? To who?

Who is your audience?

- Public/Landowners/Communities
- Policymakers
- Other Watershed groups

How?

- Reports - technical reports or accessible report cards?
- Stories!

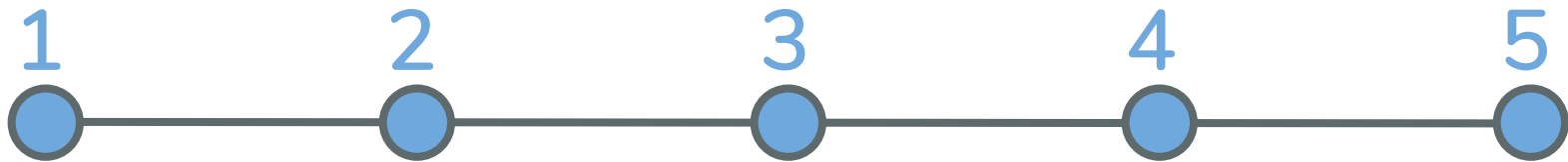
Theme: Data Literacy

- All about check-ins
 - Check in with the data to make sure the analysis you're doing makes sense
 - Not just “plug and chug” into analysis tools
 - Question me! Question what I'm doing!
- Example: should you be displaying the average value when you only have 1 or 2 data points? Should you be comparing winter temperatures to summer temperatures?

Theme: Data Accessibility

- Think about your audience & how they might perceive your analysis in different ways
 - How easy is your presentation to understand?
 - Do you consider different abilities?

Scale of 1 to 5: how comfortable are you with data/analysis?



1
“I tell people what to do with data, but never touch it myself”

3
“I’ve used DataStream but I haven’t done any analysis further than that”

5
“I’ve written my own analysis scripts in R, MATLAB, python, etc.”

“What’s data???”

2
“I collect it, but I don’t do anything with it”

4
“I have experience with data analysis in Excel”

“I love analysis so much dream about it at night”