# DIDSON and Tower Visualization and Compare

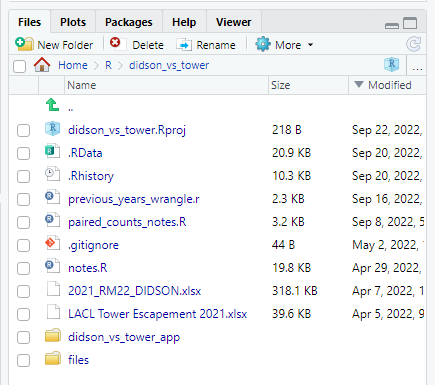
Location:

Purpose:

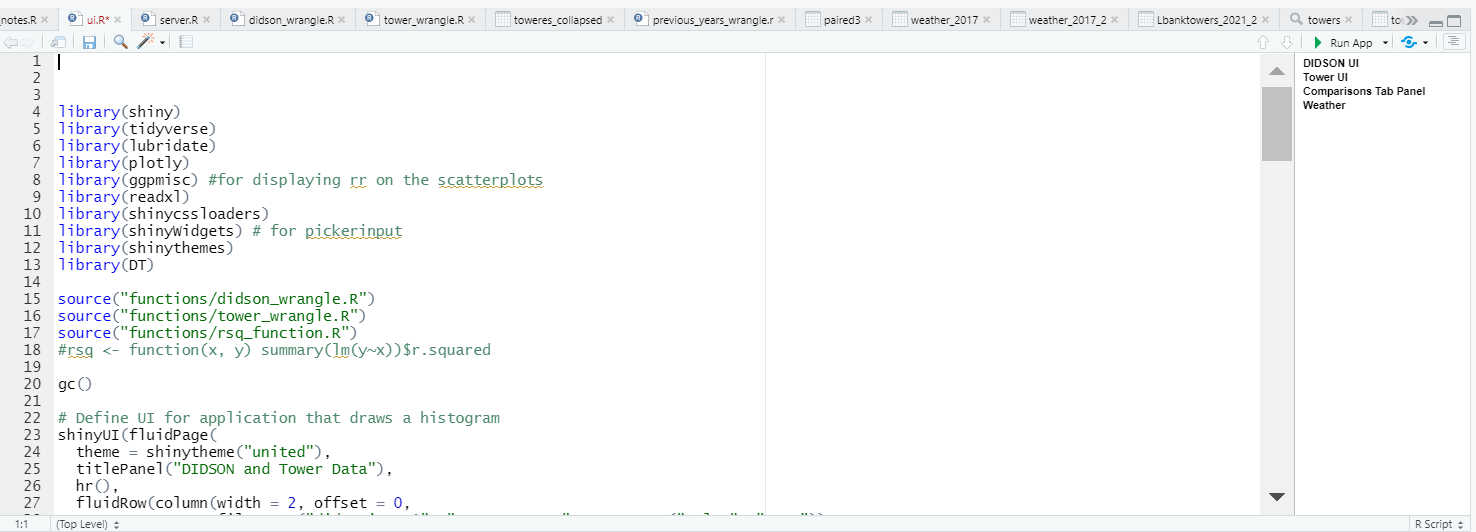
* Visualization of observed daily and hourly salmon counts from all read DIDSON files and tower counts
* Comparison of paired counts between DIDSON and Tower and observation of outliers in conjunction with qualitative weather observations
* Yearly weather visualizations

## How to Open through RStudio

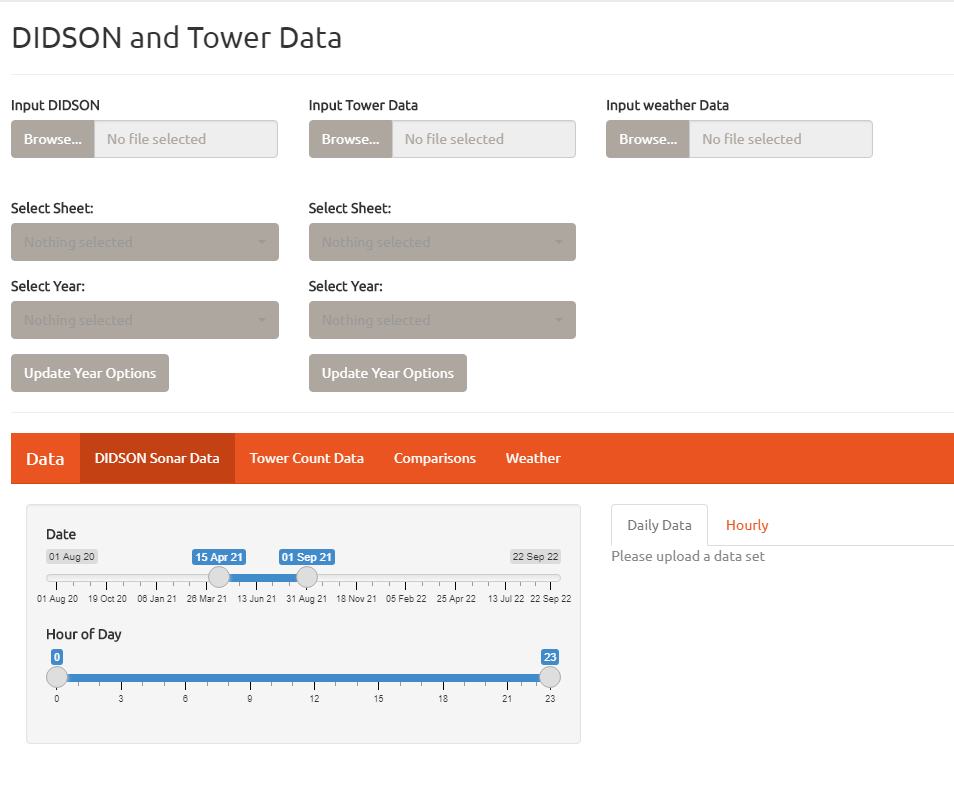
1. Navigate to path specified above and open “didson\_vs\_tower.Rproj”
2. Open didson\_vs\_tower\_app folder from the “files” pane in the lower righthand of RStudio and open either the ui.r or server.r file, if they’re not already open



1. Click “Run app”. There may need to be some packages/dependencies installed.

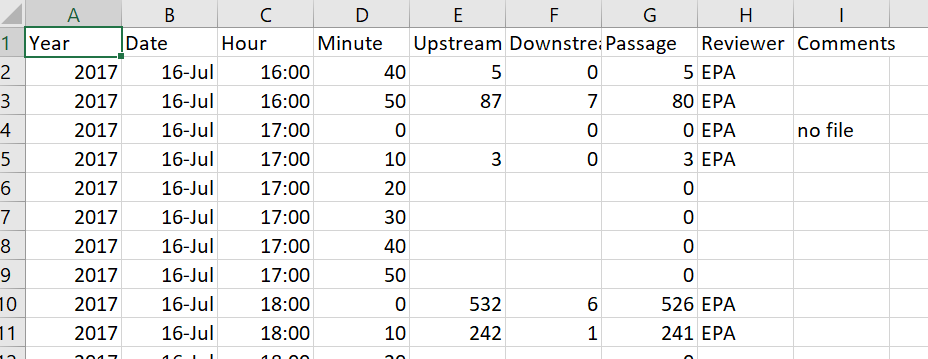


1. You should see this interface

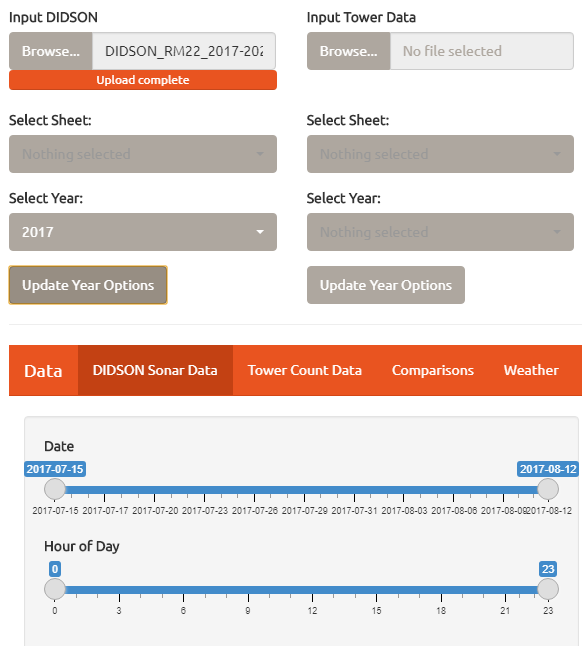


## Interacting with the App

### DIDSON Tab

The Input file options both work with .xlsx and .csv files, but they work best for .csv files. For the DIDSON file upload, I will generally use DIDSON\_RM22\_2017-2021.csv, which contains all Sonar data since 2017. Note that not all files are read, and some hours have some counts read more than others.

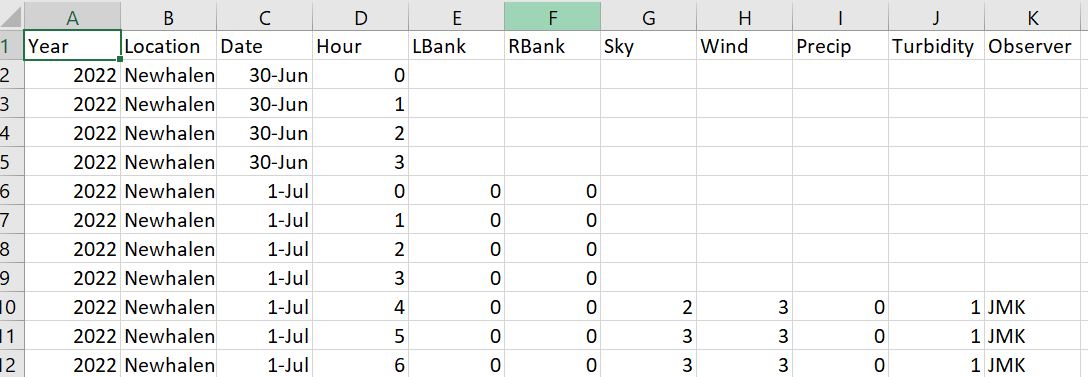
Once you upload a file, select the desired sheet if you uploaded a .xlsx file. If you uploaded a .csv, click “update year options” to get different year options.



Once a year is selected, the Date slider will automatically update, and so will the displayed plot.

On this tab, the raw counts from each hour/day are filtered. Since some hours are read more than others, the summarized counts will be greater for certain hours. In the future, a filter for this could be implemented.

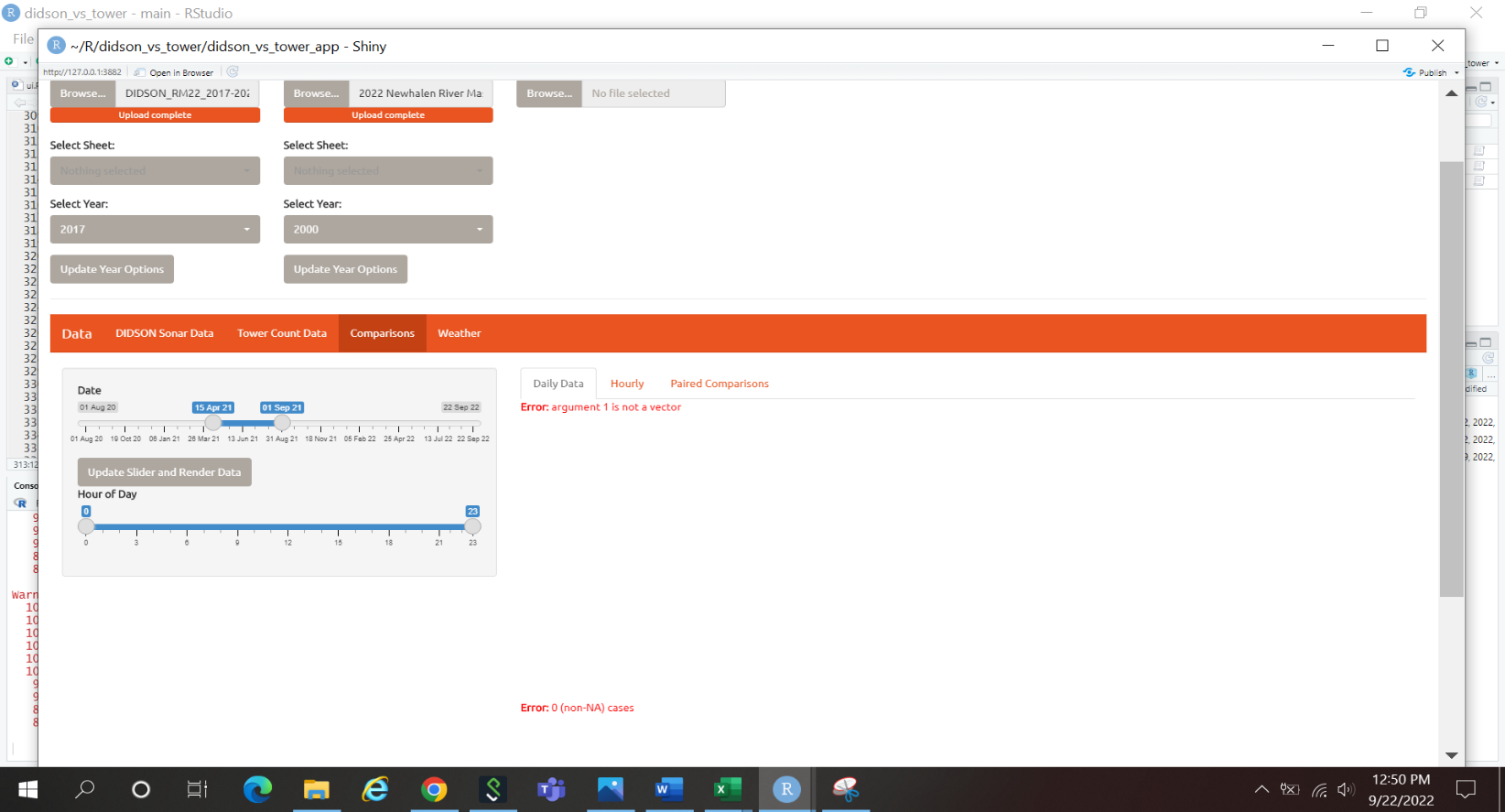
### Tower Tab

For the Tower file I will generally use 2022 Newhalen River Master Hourly counts.csv, containing all tower count and qualitative environmental data starting from 2000. Note that a lot of years don’t have this qualitative weather data

Just like the DIDSON file, you need to select the correct sheet if you uploaded a .xlsx file and click “update year options” to select a year and get the data to display.

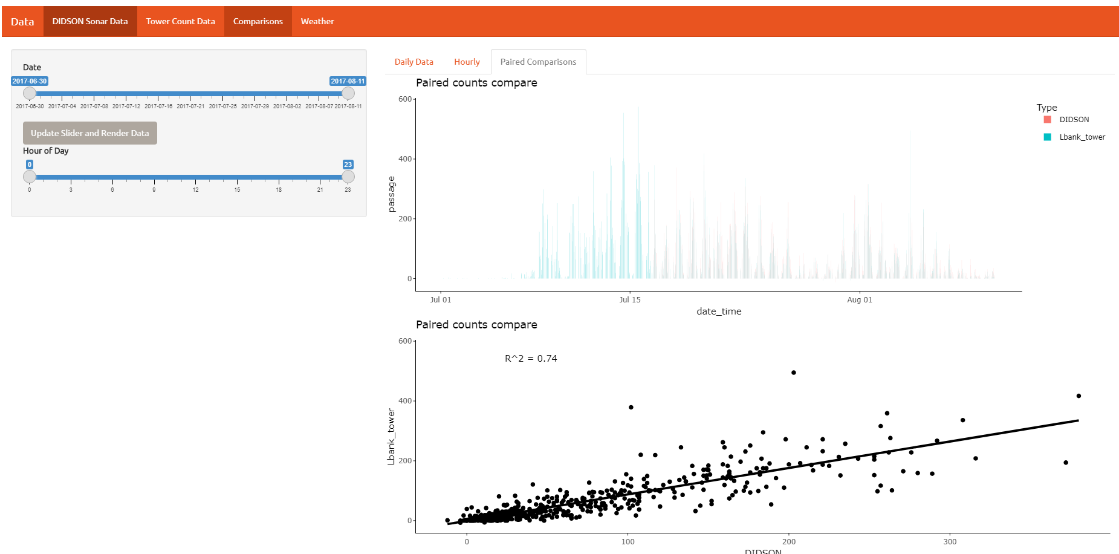
### Comparisons

To show comparisons between DIDSON and Tower Count Data, select the same year under the DIDSON and Tower dropdown menus and then click “Update Slider and Render Data”.

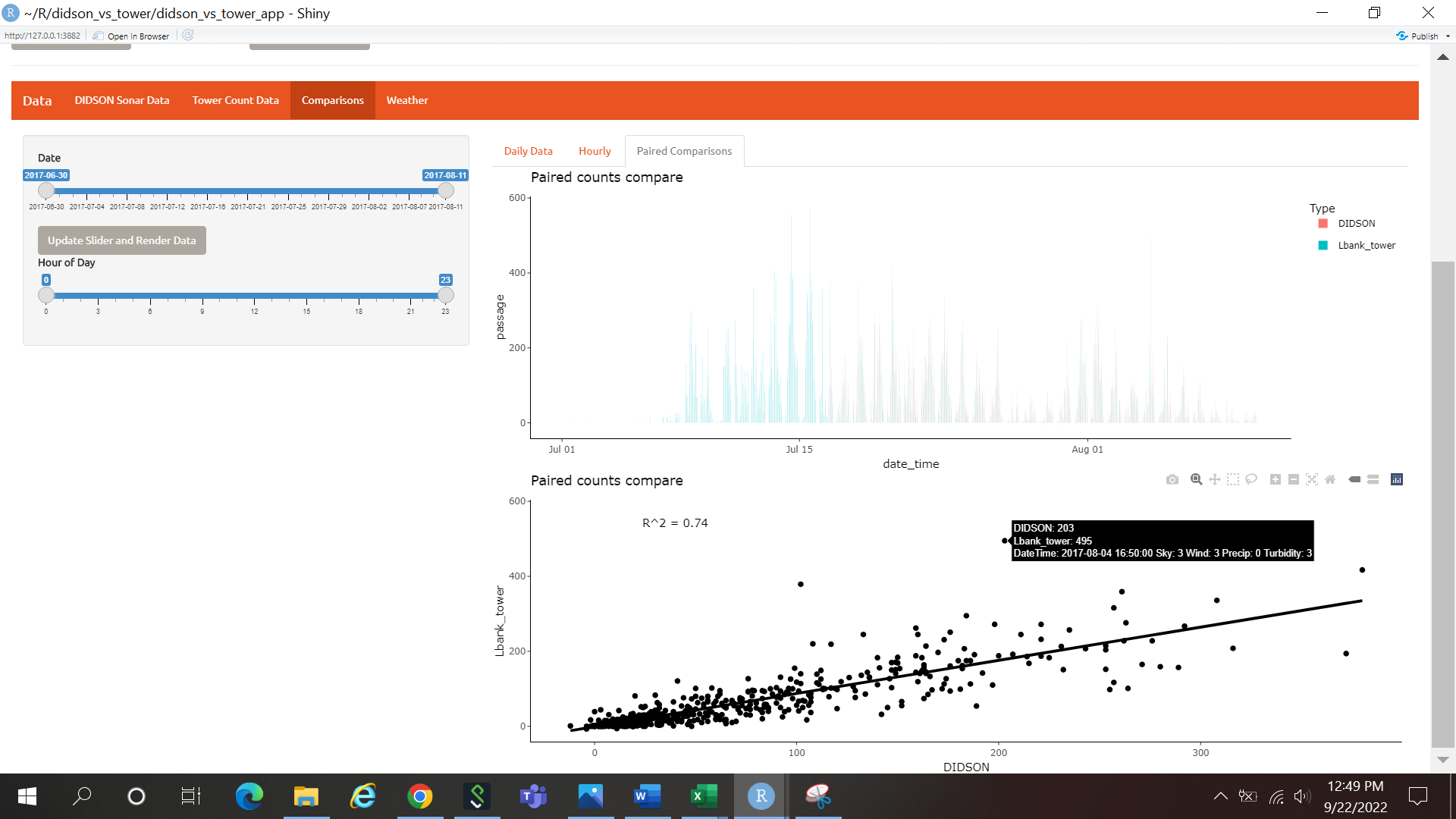


For the Daily Data and Hourly data comparisons, only the raw counts are compared. There are no corrections applied to the data.

Under the “Paired” Tab, Tower counts are filtered to only include Left Bank counts (counts that started on the 50-minute mark for even numbered hours aside from hours 0 and 2, and counts that started at minute 0 for odd numbered hours). DIDSON counts are filtered to only include counts starting at 50 minutes and 0 minutes.

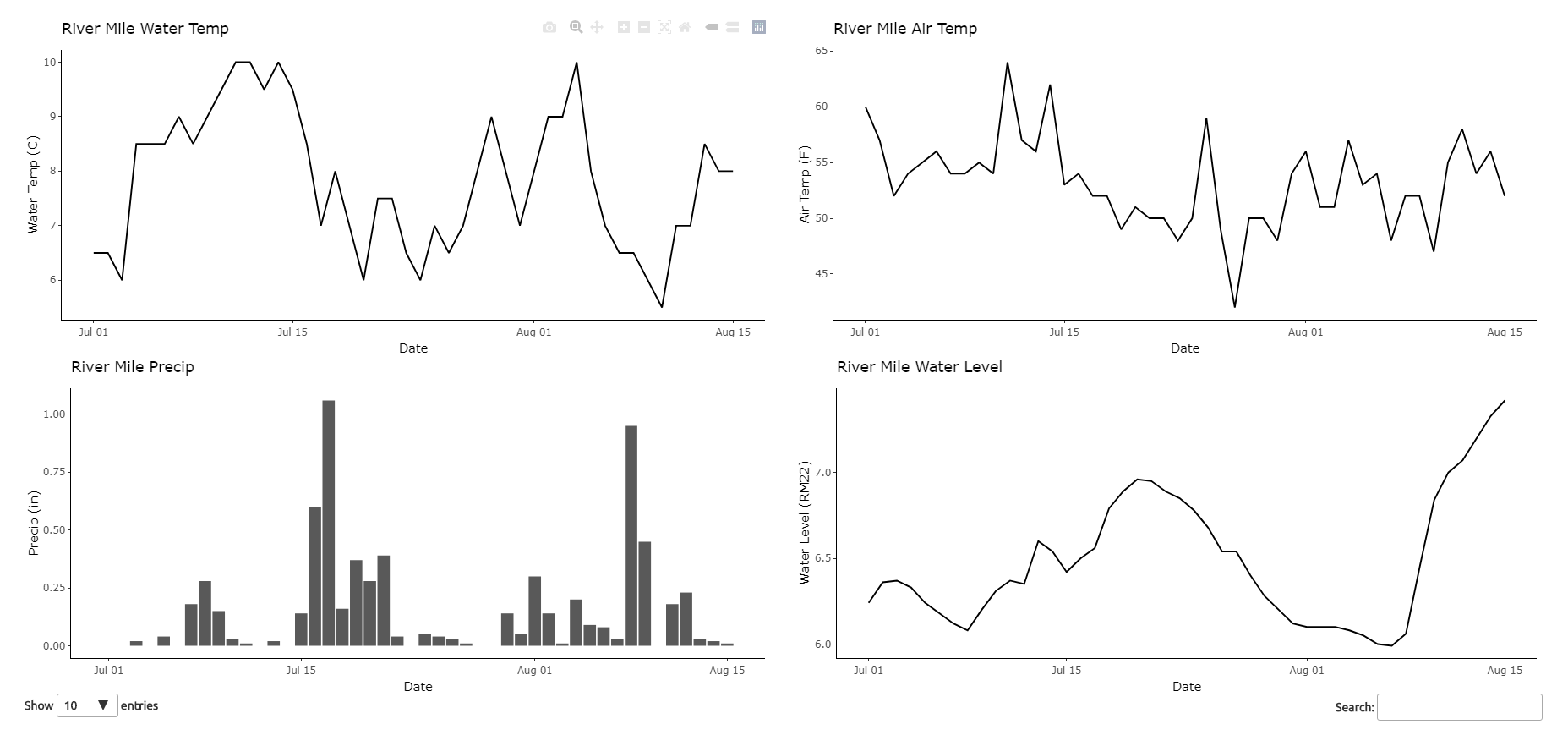


You can see qualitative weather data when hovering on a specific data point. The scatterplot is especially useful in seeing differences.



## Weather

You can upload quantitative weather .csv files from different years and view their interactive plots as well.



## Future Improvement

Add a filter in DIDSON tab to select sonar files from certain timeframes you want to view. For example, “use only sonar files from minute 0-10 on the hour”

Add in Temperature data from HOBOloggers once it is cleaned and entered in Aquarius.