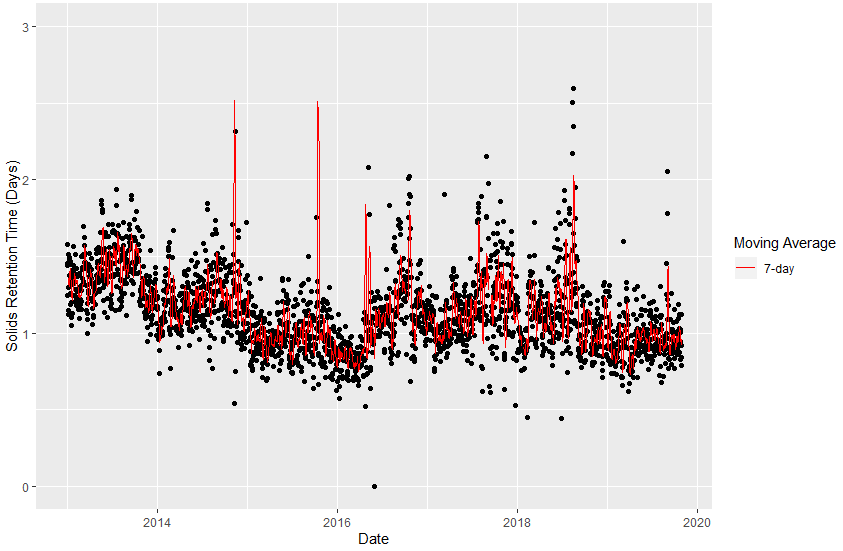
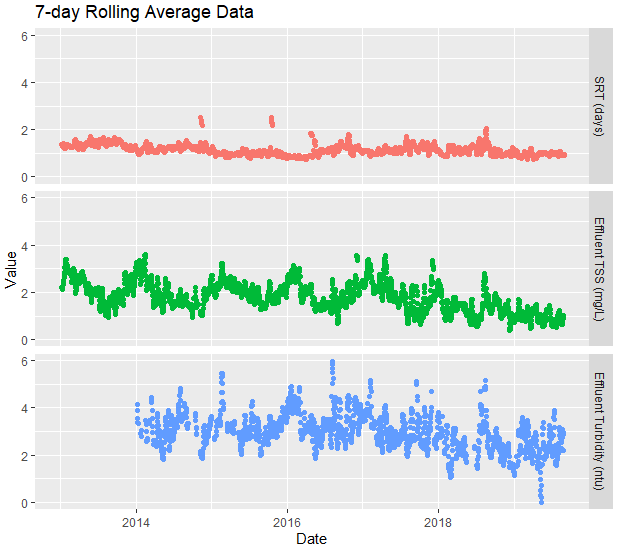
Relationship between SRT, TSS, and Turbidity for Loxahatchee

These plots were produced from the following scripts located in this directory: C:\Users\wraseman\Hazen and Sawyer\Stanford, Benjamin - Loxahatchee DBF Evaluation\Data Analysis - Billy\R

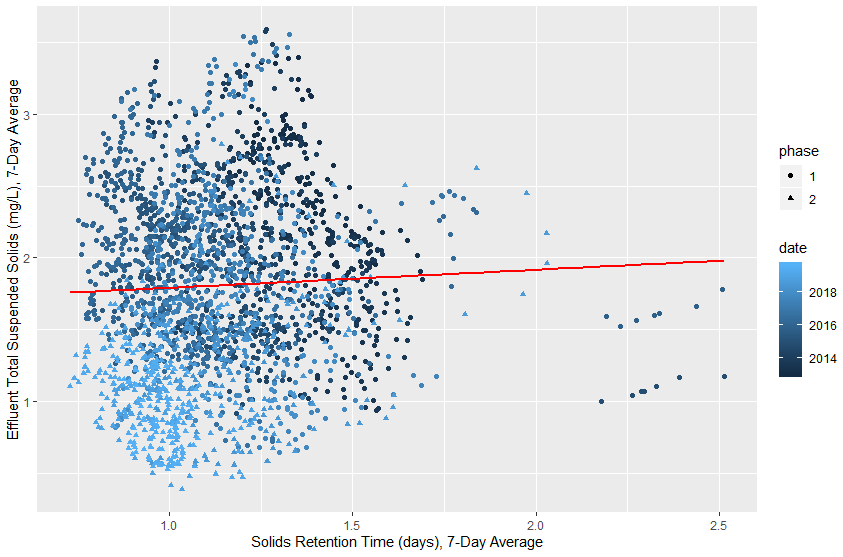
* 08\_read\_viz\_SRT.R
* 09\_viz\_SRT-corr.R



There is no clear trend in solids retention time (SRT), overall. SRT steadily decreases from 2013 to 2016 before increasing until the end of 2016. After 2016, SRT was basically flat over time.



Comparing SRT to effluent TSS and turbidity, we observe positive correlation between TSS and turbidity but no obvious relationship between TSS and SRT or turbidity and SRT. To look at correlation more explicitly, we use scatterplots in subsequent visualizations.



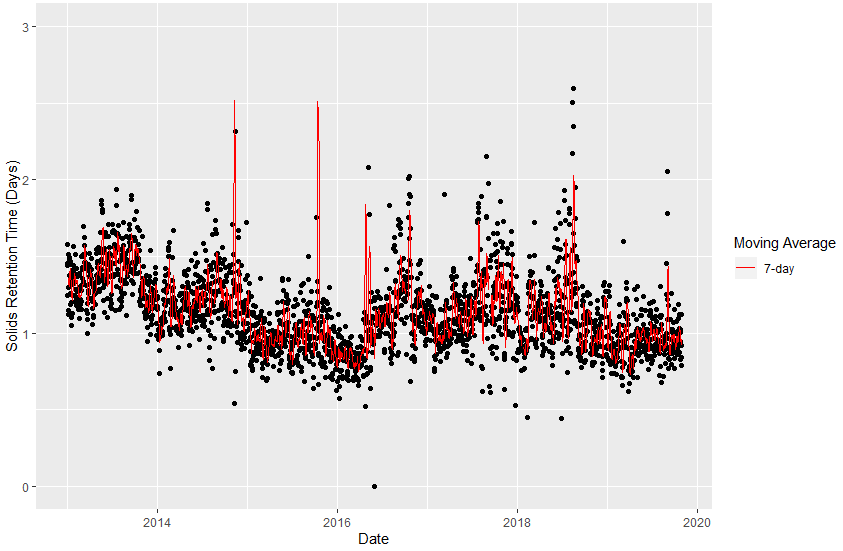
Overall, there is roughly no correlation between effluent TSS and SRT. However, by investigating the color on the plot, which denotes the date—lighter colors refer to more recent observations, the relationship between TSS and SRT evolves over time. For this reason, it is important to investigate whether the relationships between TSS and SRT is a function of filter type.



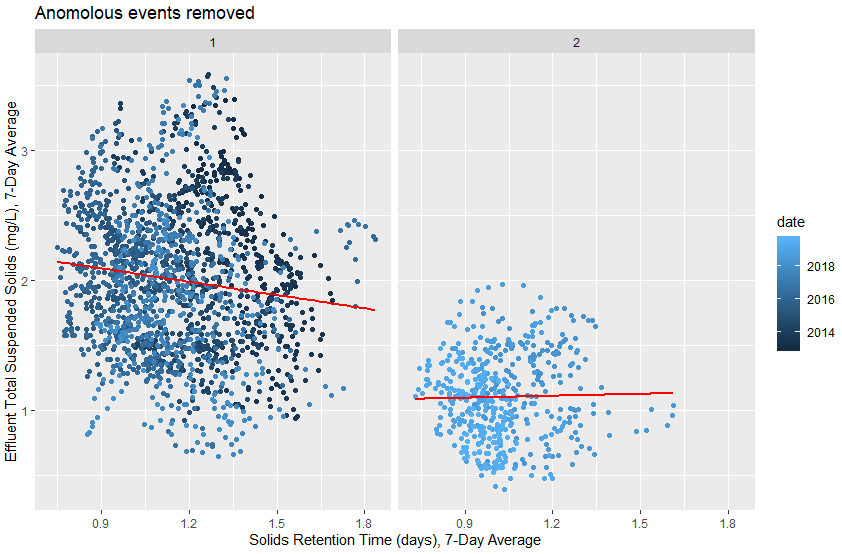
**Event #2**

**Event #1**

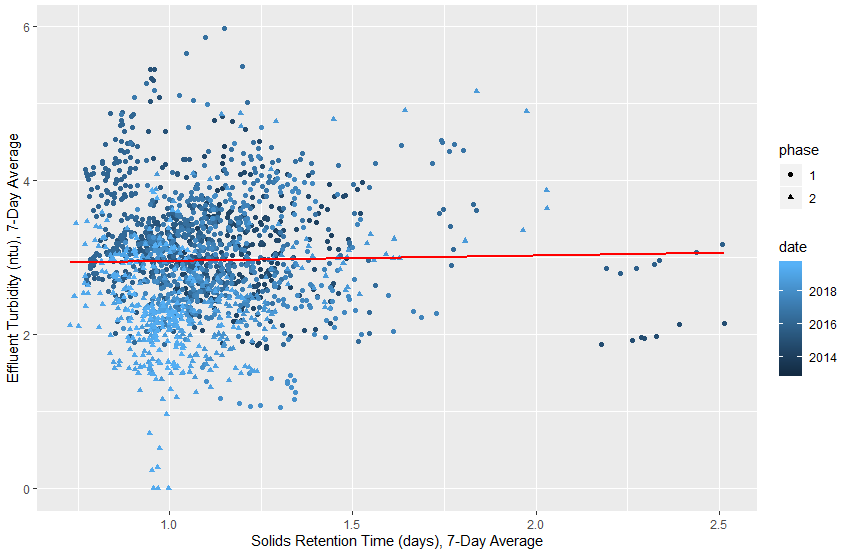
**Event #3**



Looking at the filter types individually, we see conflicting results related to the relationship between TSS and SRT. For Phase 1 (synthetic media and traveling bed filters, shown on the left), it suggests that there is a slight negative relationship between TSS and SRT, meaning that when SRT increases, TSS decreases. The opposite is true for Phase 2 (deep bed filtration).



After removing Events #1-3 above, there appears to be no correlation between effluent TSS and SRT in Phase 2. There still appears to be a slight negative correlation between SRT and TSS in Phase 1.



Since TSS and turbidity are highly correlated, the above narrative about effluent TSS and SRT is nearly identical to that of effluent turbidity and SRT.

