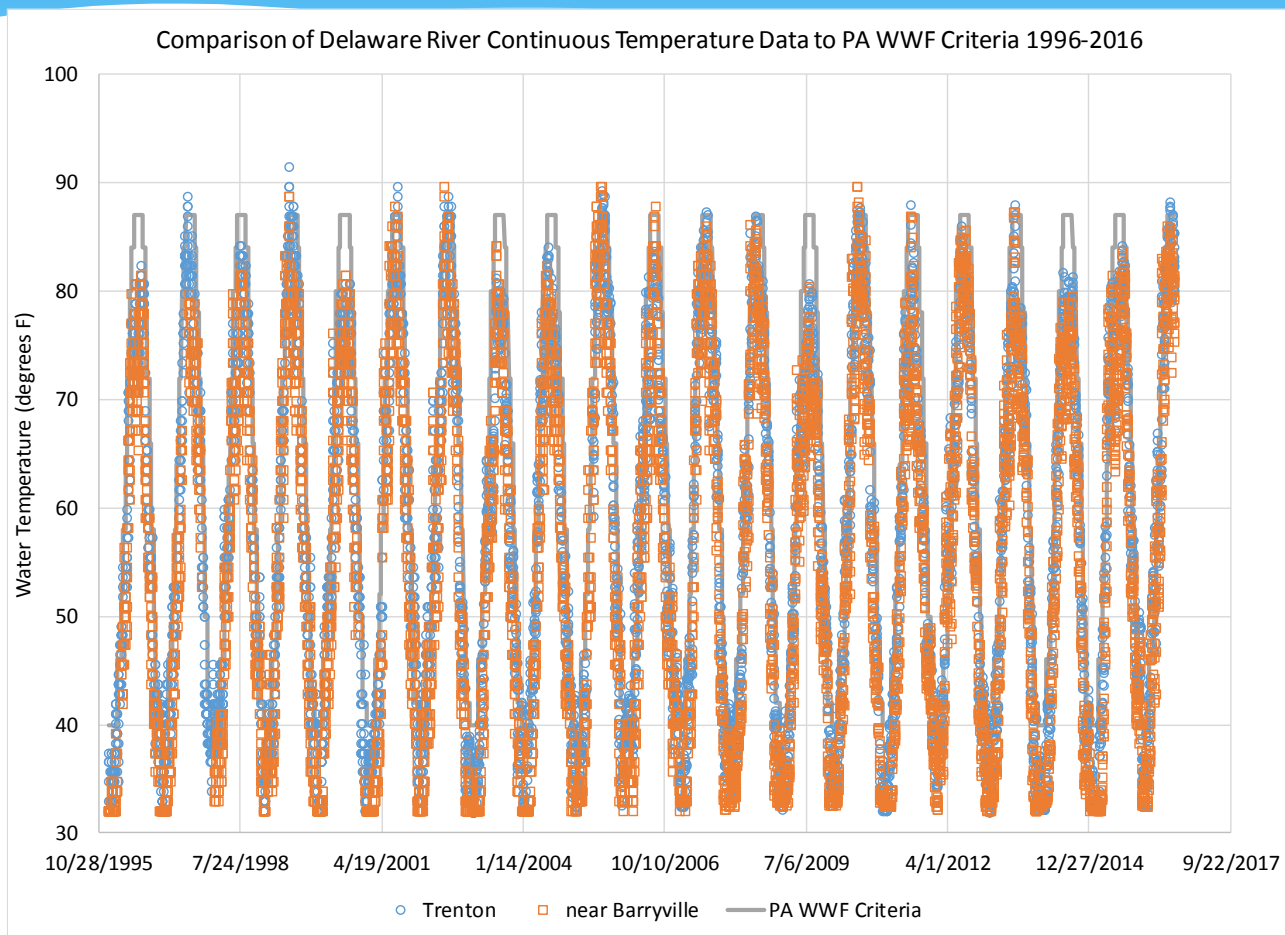


# Feedback from July 28, 2016

- \* Extend period of record for data comparison – last 5 years may not be representative;
- \* NJ 7-day rolling mean criteria should be compared to rolling mean of daily max (not mean);
- \* More work needed in identifying potential thermal loads;
- \* More work needed to determine if WWF is protective in Zone 1B;
- \* More work needed to determine if cold water criteria should be recommended in Zone 1A.

# Compare Observations to PA WWF



Comparison incorporates longer time series 1996-2016

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# Revised Likelihood of Exceedance based on 1996-2016

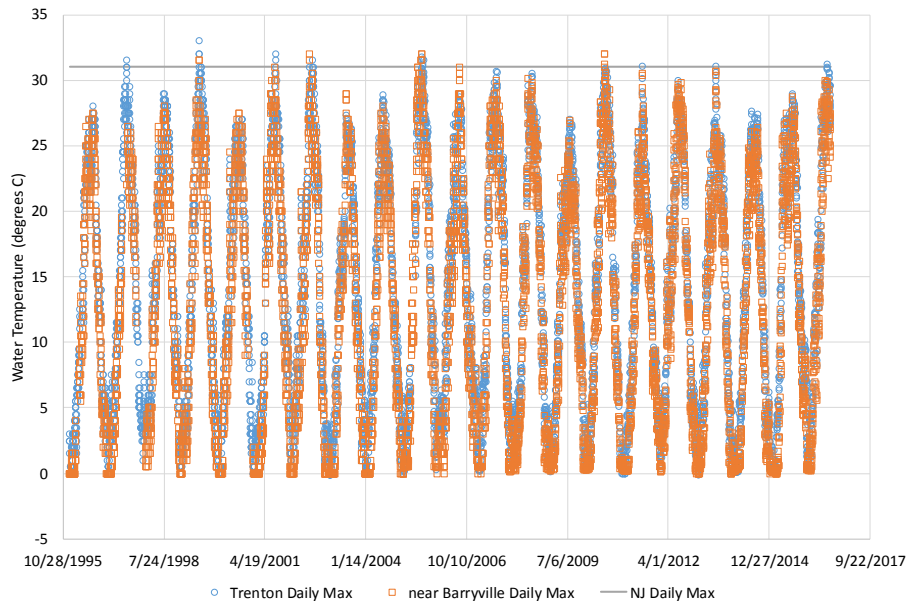
Month	Trenton	near Barryville
Jan	14%	3%
Feb	19%	4%
Mar	22%	12%
Apr	34%	20%
May	24%	22%
Jun	7%	8%
Jul	4%	2%
Aug	2%	0%
Sep	1%	0%
Oct	2%	0%
Nov	6%	1%
Dec	26%	12%

- \* 14.3% > PA WWF at Trenton
- \* 7.4% > PA WWF near Barryville
- \* If adopted, exceedances most likely in spring and in December

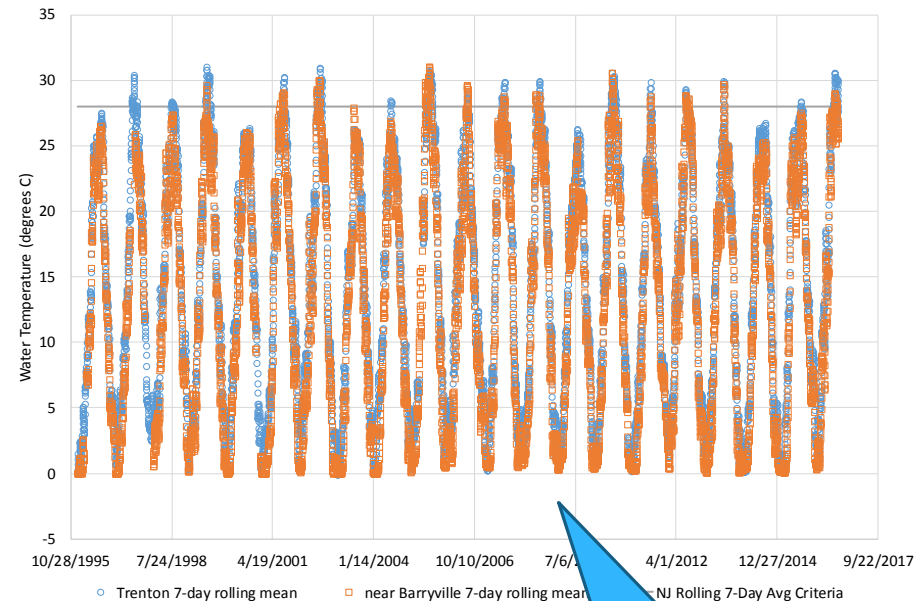
- \* Percent of the total potential exceedances at each site by month

# Compare Observations to NJ FW2-NT 1996-2016

Comparison of USGS Continuous Temperature Observations to NJ-FW2-NT Daily Max Criteria, 1996-2016



Comparison of USGS Continuous Temperature Observations to NJ-FW2-NT Rolling 7-Day Average Criteria, 1996-2016



Above Criteria	Daily Max	7 Day Average
Trenton	0.2%	4.3%
Near Barryville	0.2%	2.2%

Rolling 7-day mean of daily max temperature

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# Potential Thermal Loads

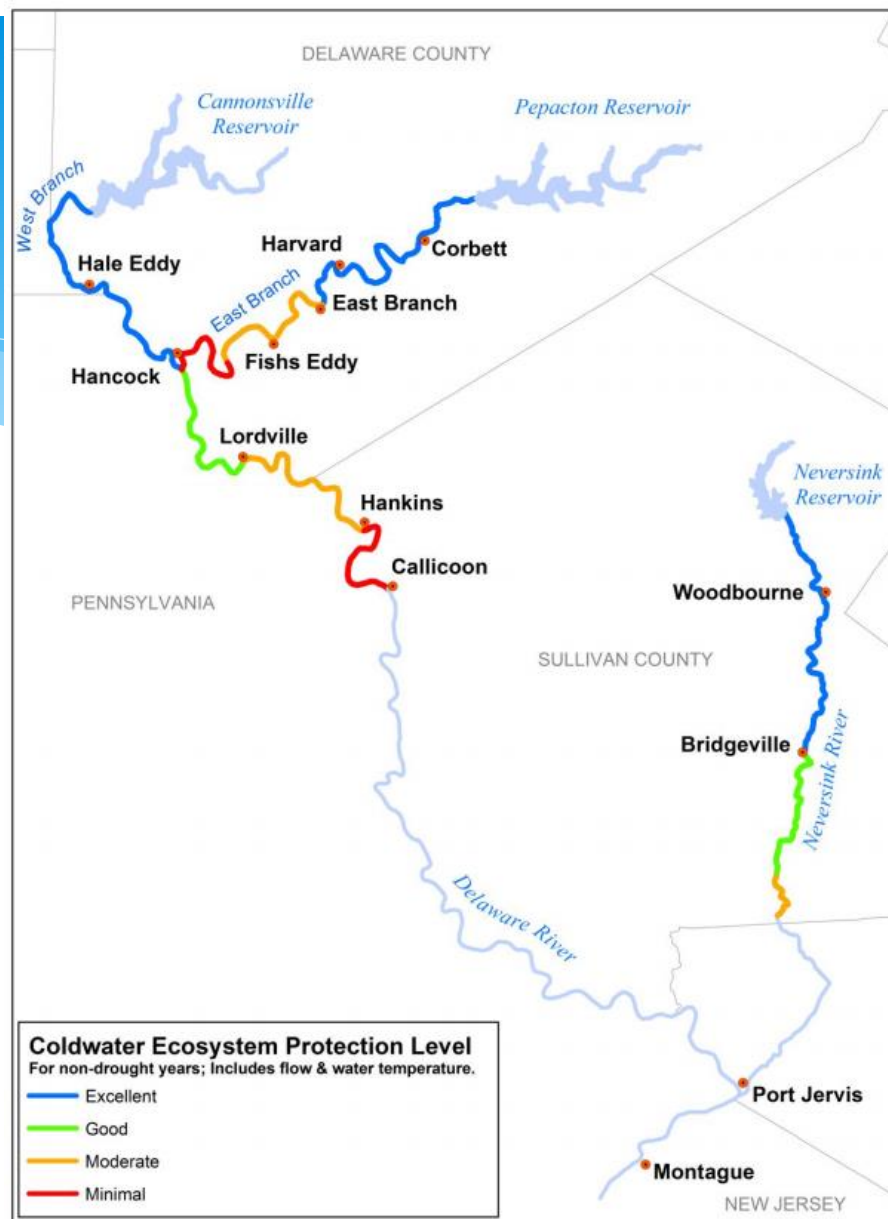
- \* Point discharges and power generation facilities in drainage to the non-tidal Delaware River





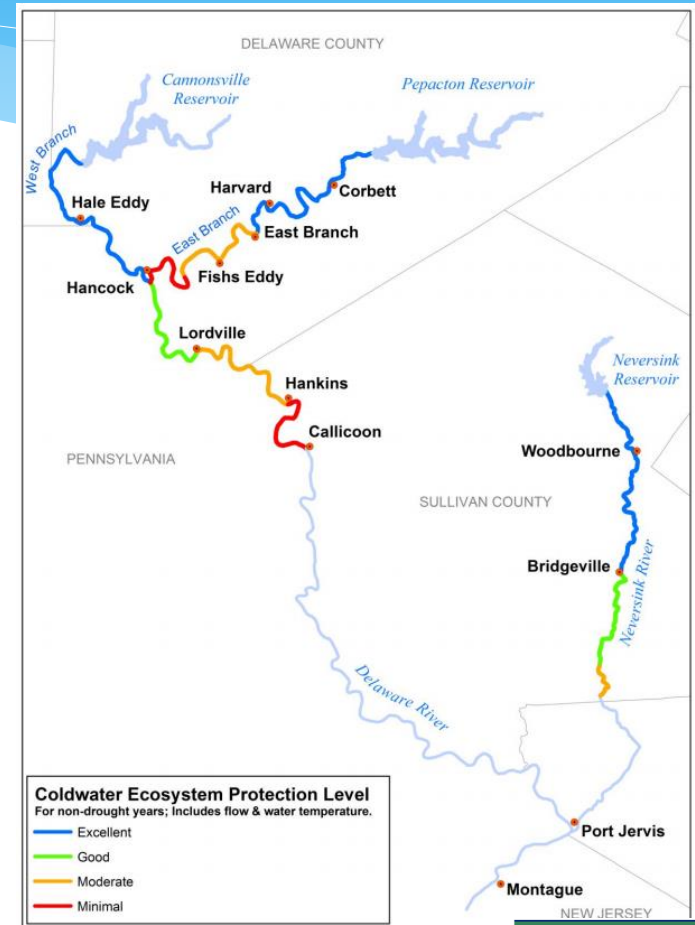
# Is WWF protective in Zone 1B?

- \* Coldwater ecosystem protection recommendations from PA Fish & Boat and NY DEC, January 2010.
- \* Proposed management objectives from Delaware River tailwaters.
- \* Callicoon in Zone 1A (RM 303.7);
- \* Upstream limit of 1B at RM 289.9 (13.8 miles downstream);
- \* **WWF protection in 1B and downstream would be consistent with PAF&B and NYDEC recommendations.**

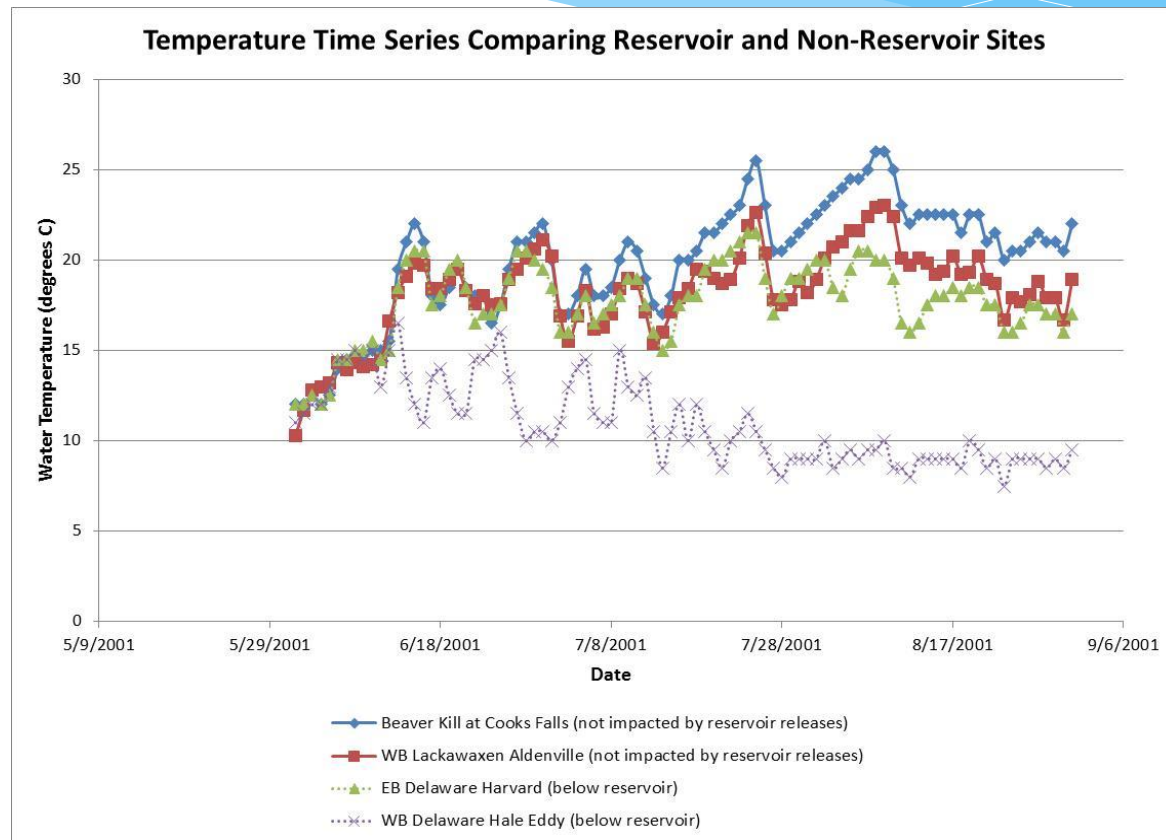


# Should CWF Criteria be recommended for Zone 1A?

- \* Our expectation is that cold water is a byproduct of reservoir operation;
- \* Expect temperature regimes above the reservoirs to be higher than below;
- \* PA F&B and NY DEC had limited recommendations for cold water protection in 1A;
- \* Recommend a separate track for this effort to allow continued progress for Zones 1B through 1E.



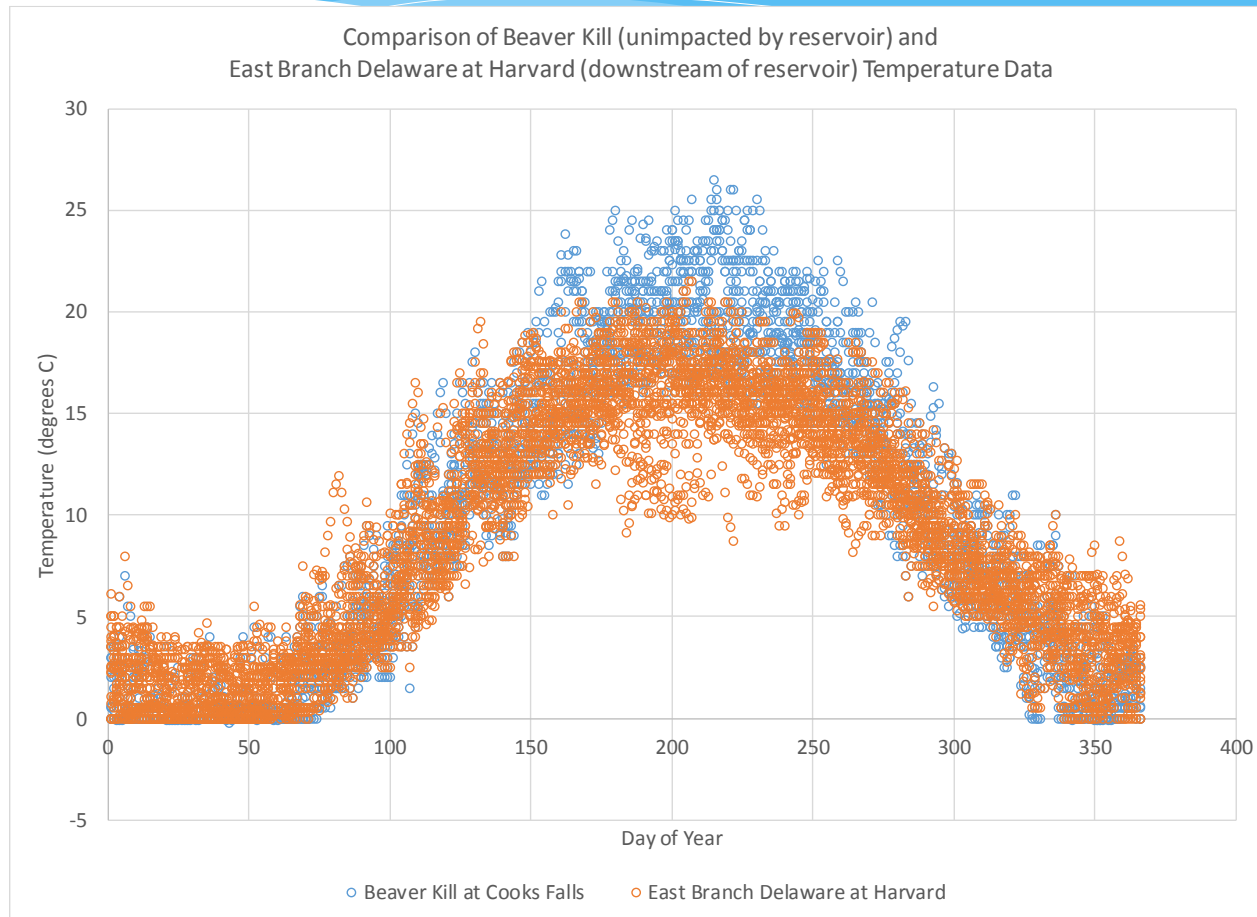
# Old Comparison of reservoir impact on temperature



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# Temperature influence of reservoirs

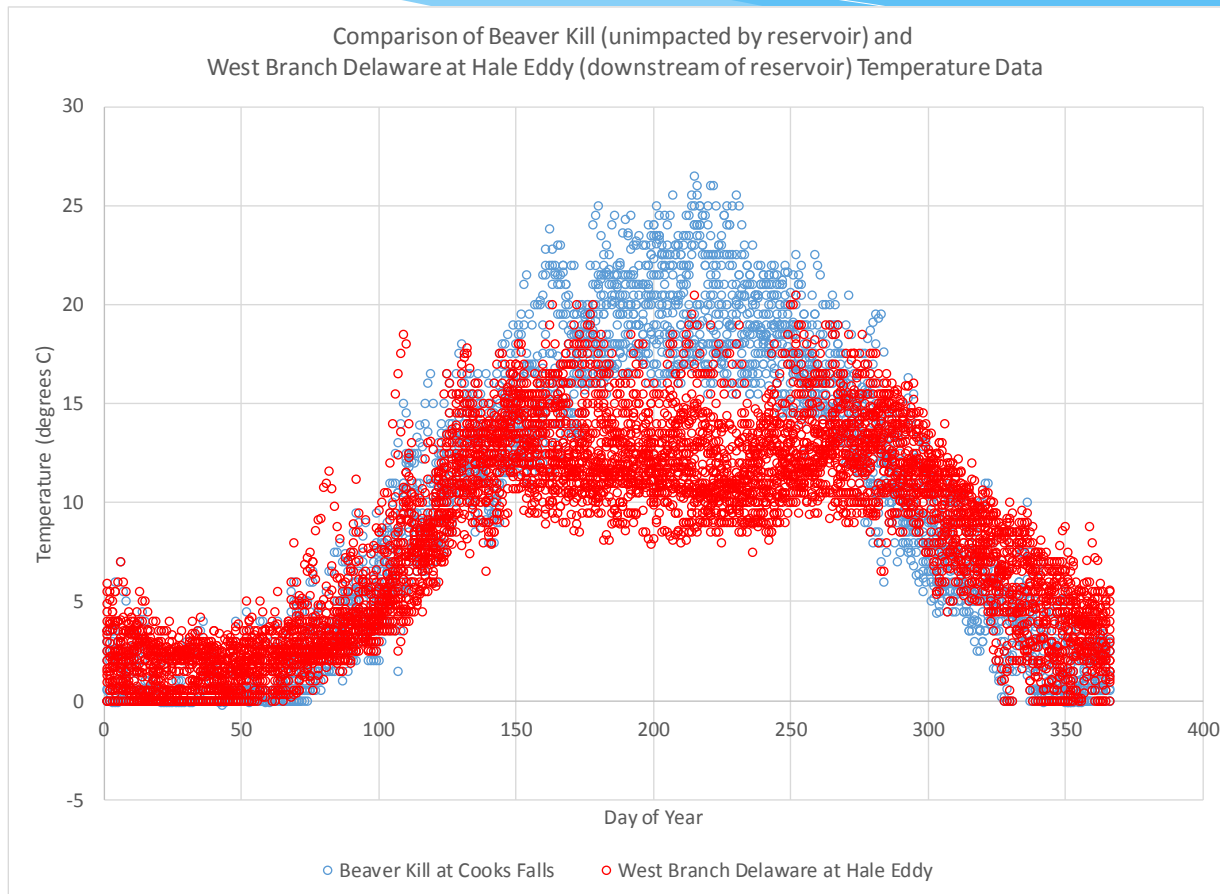


Daily mean  
temperatures

2000 through  
2016

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# Temperature influence of reservoirs continued



Daily mean  
temperatures

2000 through  
2016

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