

Generating Graph Data

Overview & Purpose

The purpose of the Generate Graph Data functions is to accept the response object from `TDPAlg.calc()` and turn it into data that is usable by Google Graphs.

Specifics

The implementation is located in `/public/generateGraphData.js`. It contains three exported functions that are used in `/public/graph.js`. Each of the three functions is for a specific graph and they are all named accordingly. In order to understand how these functions work it is important that you understand the data structure that `TDPAlg.calc()` returns. Keep in mind when reading through these functions that `BypassFlowVol` and `StorageDeficitVol` are both cumulative values while `PondWaterDepth` is a single measurement that represents the average day for a single month.

Graph 1 Specs: The function `allYearsAveraged` corresponds to the first graph. What this function needs to accomplish is to go through all the years and average values up at each increment (pond volume). One detail that may seem odd is the value we set to a variable called “k”. This represents the very last month within a given year that has data. The reason this is done is because we are keeping cumulative values for both `BypassFlowVol` and `StorageDeficitVol`. This means that in a typical year where each month contains valid data that the last month’s values represent that years cumulative values as a whole.

Graph 2 Specs: Graph 2 data is generated using the `allYearsByPondVolume` function. This is very similar to the first graph, but we remove the loop that goes through each increment since an increment has been specified by the user. In graph 2 and 3 we add a new line to the graph that represents `PondWaterDepth`. It is important to know that the value of `PondWaterDepth` inside each `monthlyData` object is a summation of `PondWaterDepth` for each day in that month. What we want to display for `PondWaterDepth` is the average `PondWaterDepth` for a day over the course of the specific month it is stored in. This is why there is a call to a function called `monthlyAvg` which returns the number of days in the given month.

Graph 3 Specs: The allMonthsByYear function is fairly self explanatory after reading through the functions listed above. The user has passed in a year and pond volume so the purpose of this function is to simply loop through all months in the specified year and add them to the output array.

