### Release Addendum: FWC-EMC Calculator ShinyApp

The purpose of this addendum is to document the updates to the flow-weighted compositing and event mean concentration (FWC-EMC) calculator developed at SCCWRP from the initial QA process through the beta reviewer improvements and initial release. Updates to the application following the release are documented through the "Issues" tab on Github.

Authors: Nicholas Lombardo (Biogeochemistry), Edward Tiernan (Engineering)

Application URL: <a href="https://sccwrp.shinyapps.io/FWC\_EMC\_Calculator/">https://sccwrp.shinyapps.io/FWC\_EMC\_Calculator/</a>

Github Source: https://github.com/SCCWRP/FWCCalculator

QA date: 02/14/2023

Release date: SCCWRP Symposium 05/24/2023

#### **Beta Reviewers**

A Microsoft survey was used to elicit feedback from a handful of expert reviewers.

#### Survey Link:

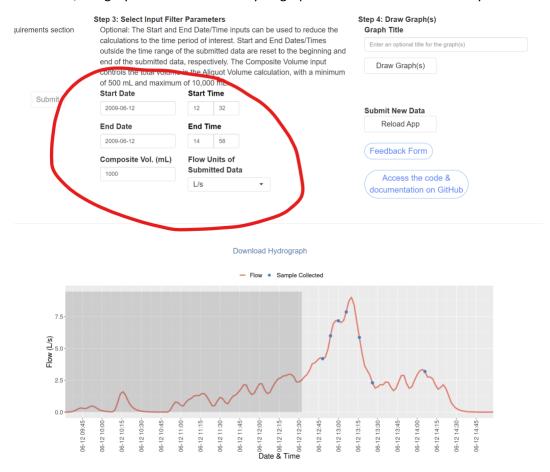
https://forms.office.com/Pages/DesignPageV2.aspx?origin=NeoPortalPage&subpage=design&id=PfKopOEaHEuZAuqhUwKBkNb1vpfauiZNit2g-l MjnRUNVJWVFIFRzdLOVVPODIYMllLNjE3RU44Vy4u

Reviewers: Joshua Steele (SCCWRP), Bridget Wadzuk (Villanova), Jon Hathaway (University of Tennessee), Ryan Winston (Ohio State), Karine Borne (NIWA, New Zealand), Isabella Colpo (San Diego County, Public Works), Rachel Biller (Los Angeles County, Public Works)

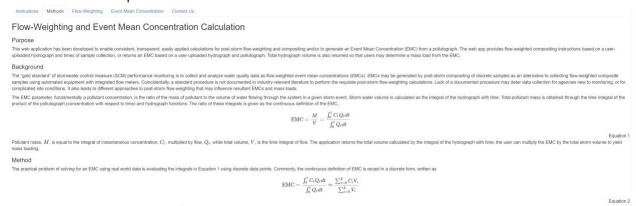
### Major Changes:

- Added user control over Start-End Time in date/time format. User can specify the start and end date/times for the flow-weighted compositing or event mean concentration analysis. Times must be within the total time boundary of the submitted input file.
- Added Methodology Documentation. A narrative tab was created that describes the mathematical approach of the FWC-EMC calculator.
- Doubled-down on single storm analysis. Despite requests from beta reviewers, the scope of the calculator is to analyze one (1) storm event. Instructions on the application were amended to emphasize that the input data out to be from a single storm event. A data check was developed to ensure that the flow datetime stamps from the input file are consistent (e.g., all in 5-minute resolution).

# Start-End Time Control – red circled area is where the user specifies the start and end datetimes, the greyed-out area on the hydrograph is NOT included in the analysis.



## Methods Tab – purpose, background, calculation methodology, and supplemental documentation are provided.



### Single Storm Resolution Checker – ensures that the input file doesn't have multiple storms worth of data by searching for breakpoints in the flowrate datetime stamps.

