Stormwater Monitoring Coalition
Phase 2 Toxicity Intercalibration Proposal

The SMC has a primary goal of sharing data, and chief amongst the concerns for sharing data is comparability. The SMC is comprised of different organizations, each with their own laboratories. Thus, the potential for incomparability exists. The SMC has invested in three comparability assessments for chemical analysis. Although all laboratories were previously certified by the State of California, early chemistry intercalibrations illustrated dramatic differences in chemistry results among the 11 participating laboratories using well-homogenized stormwater samples delivered blind to each lab. After refining comparability, including standardization of some methods for stormwater matrix, comparability improved and has remained similar amongst laboratories in subsequent intercalibrations.

Because of the successes in chemistry intercalibrations, the SMC invested in comparability assessments for stormwater toxicity testing. This intercalibration has occurred once, completed in 2016. The intercalibration illustrated that many toxicity tests were either highly comparable or, after standardization, became highly comparable for the nine participating laboratories testing a runoff matrix. However, there was one toxicity test – *Ceriodaphnia dubia* reproduction – that remained only moderately comparable. What makes this comparability assessment most disconcerting is that *Ceriodaphnia* reproduction is the most commonly used test among SMC organizations.

A recommendation from the toxicity testing intercalibration study was that additional intercalibration testing for runoff samples was necessary. A limitation to the original toxicity testing intercalibration was a relatively small sample size; a total of eight samples were tested of which only two were runoff samples (other samples included blanks, spikes and duplicates). The recommendation of the participating laboratories was to test runoff samples from different locations with different mixes and combinations of toxicants that can generate a range of responses with *Ceriodaphnia* reproduction.

The goal of this project is to conduct a second phase of toxicity intercalibration testing. The second phase will focus exclusively on *Ceriodaphnia* reproduction and include many more runoff samples. Test samples will include dry weather and wet weather runoff from multiple locations throughout southern California, including sites with previously observed toxicity and sites previously shown to be non-toxic. Duplicate samples will also be included. All samples will be delivered blind to each of the participating laboratories; up to nine laboratories have already said they would like to participate including all of the labs that currently conduct SMC member agency monitoring. Testing will also require negative and positive controls to ensure ongoing quality assurance/ quality control.

This project will require 16 months to complete, depending upon rainfall. Total cost for this project will be approximately $148,000. SCCWRP will be responsible for securing laboratories, creating the study workplan and data evaluation procedures, collecting and distributing well-homogenized samples to participating laboratories, collating results and conducting data analysis, and writing the final report evaluating the comparability of toxicity testing within and between laboratories for *Ceriodaphnia* reproduction.