

# **Stormwater Monitoring Coalition Toxicity Intercalibration Study**

# The SMC

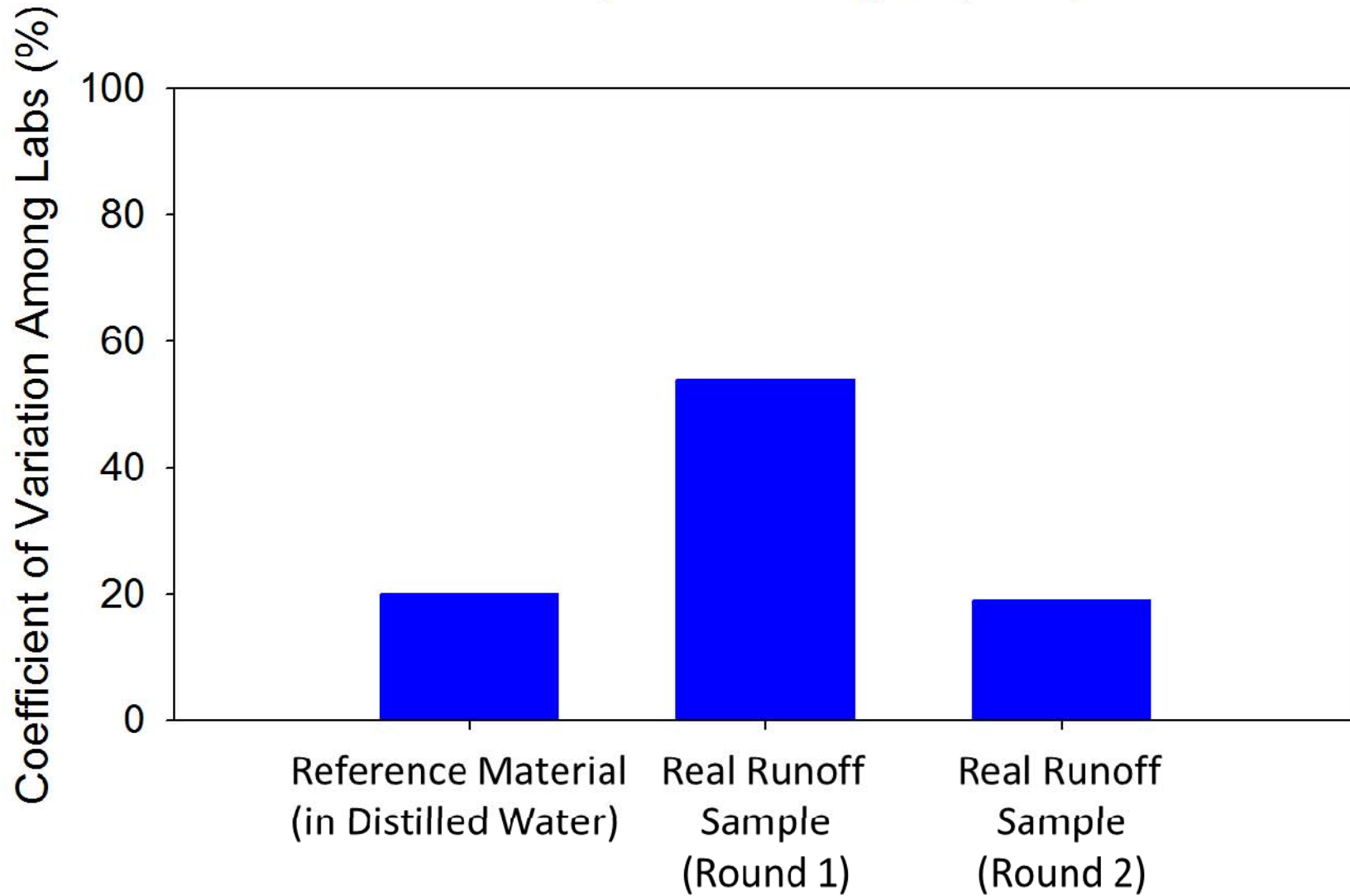
- **15 member agencies**
  - 8 Municipal stormwater agencies
  - Caltrans
  - 3 RWQCBs
  - SWRCB
  - EPA Office of Research and Development
  - SCCWRP
- **Mission is to conduct the science to help support Stormwater Management**
- **Initiated in 2001 and just signed a new Master Agreement for another 4 years**

# Why Focus on Laboratory Intercalibrations?

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- **SMC has a goal of sharing data, but use numerous laboratories**
- **Get more than variability assessments**
  - **Guidance Manual, Pre-screen contractors**
- **Value realized when intercalibrating chemistry**
  - **11 largest contractor laboratories, all ELAP certified**

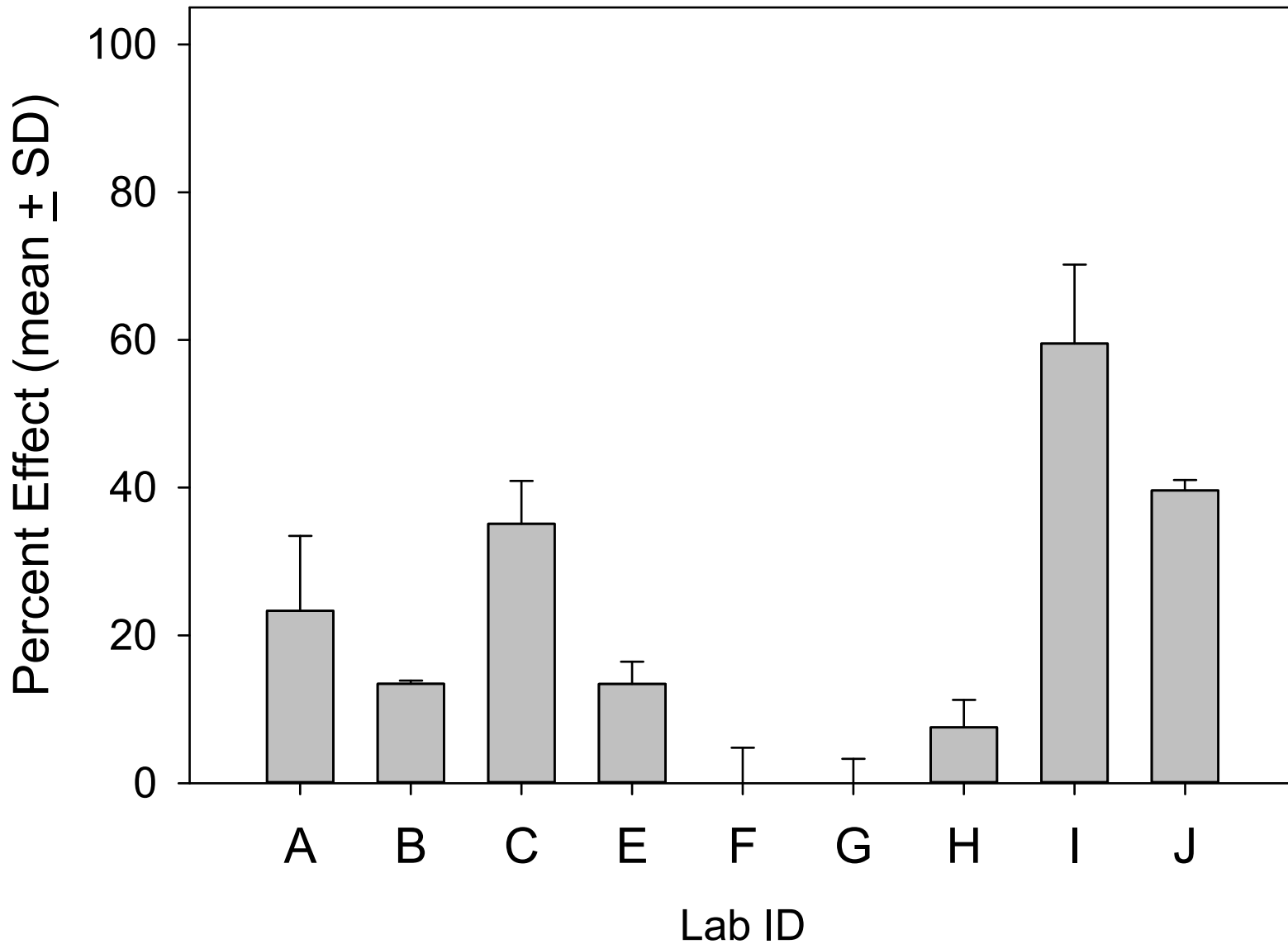
## Total Kjeldahl Nitrogen (TKN)



# Preliminary Toxicity Findings from your December Meeting

- **SCCWRP delivered split samples blind to nine labs**
  - Contract, Municipal, and Research labs
- **Scored comparability based on three factors**
  - Test acceptability, intra-laboratory precision, inter-laboratory precision
- **Reasonable comparability for two marine species**
- **Poor comparability for two freshwater species**
  - Large range of responses among labs
  - Toxicity observed with laboratory dilution water

# *Ceriodaphnia* Reproduction Round 1 - Lab Dilution Water



# Second Intercalibration Round

- **SCCWRP inventoried lab protocols to identify potential sources of variability**
  - Standardized these protocols
- **Freshwater amphipod *Hyalella***
  - No “official” protocol for water phase testing
  - Organism supplier and age
- **Water flea *Ceriodaphnia***
  - # of controls, replication
  - Feeding regime
  - Lab water hardness

# Summary of Comparability Scoring – *Hyalella*

Lab	Round 1	Round 2
A	Low	High
B	Low	High
C	Low	Very High
F	Low	Very High
I	Moderate	Very High
J	High	Very High



# Summary of Comparability Scoring – *Ceriodaphnia*

## Survival

Lab	Round 1	Round 2
A	Moderate	High
B	Very High	High
C	Low	High
E	High	-
F	Moderate	High
G	High	-
H	Low	-
I	High	Moderate
J	Low	High

## Reproduction

Lab	Round 1	Round 2
A	Very High	Low
B	Moderate	High
C	Low	High
E	Moderate	-
F	Moderate	Low
G	High	-
H	Low	-
I	High	Low
J	Low	Low

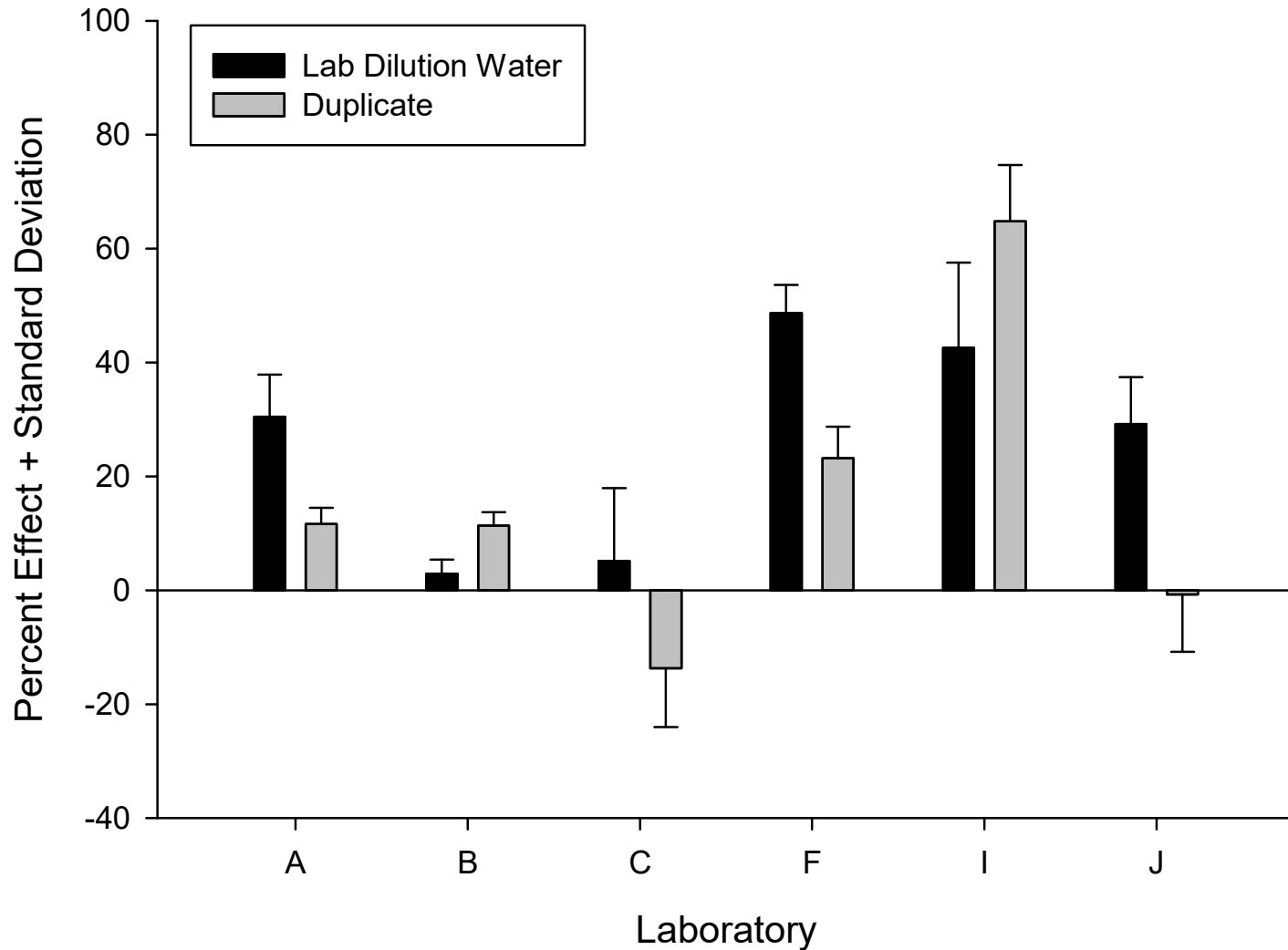
Ceriodaphnia Reproduction Runoff (100% Sample)

Ceriodaphnia Reproduction Cu Spike (100% Sample)

Ceriodaphnia Reproduction Blanks (100% Sample)

Percent Effect + Standard Deviation

Percent Effect + Standard Deviation



# Decisions Facing the SMC

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- **Three species were deemed comparable**
  - Review and approve Guidance Manual
- **Are additional intercalibrations for *Ceriodaphnia* necessary?**
  - SMC spends about \$900K per year on toxicity tests
- **What is needed to improve *Ceriodaphnia* testing?**
  - Laboratories are willing to do more work and have specific ideas