



Middle Santa Ana River Watershed Bacteria TMDL Task Force

Program Update

October 26, 2010

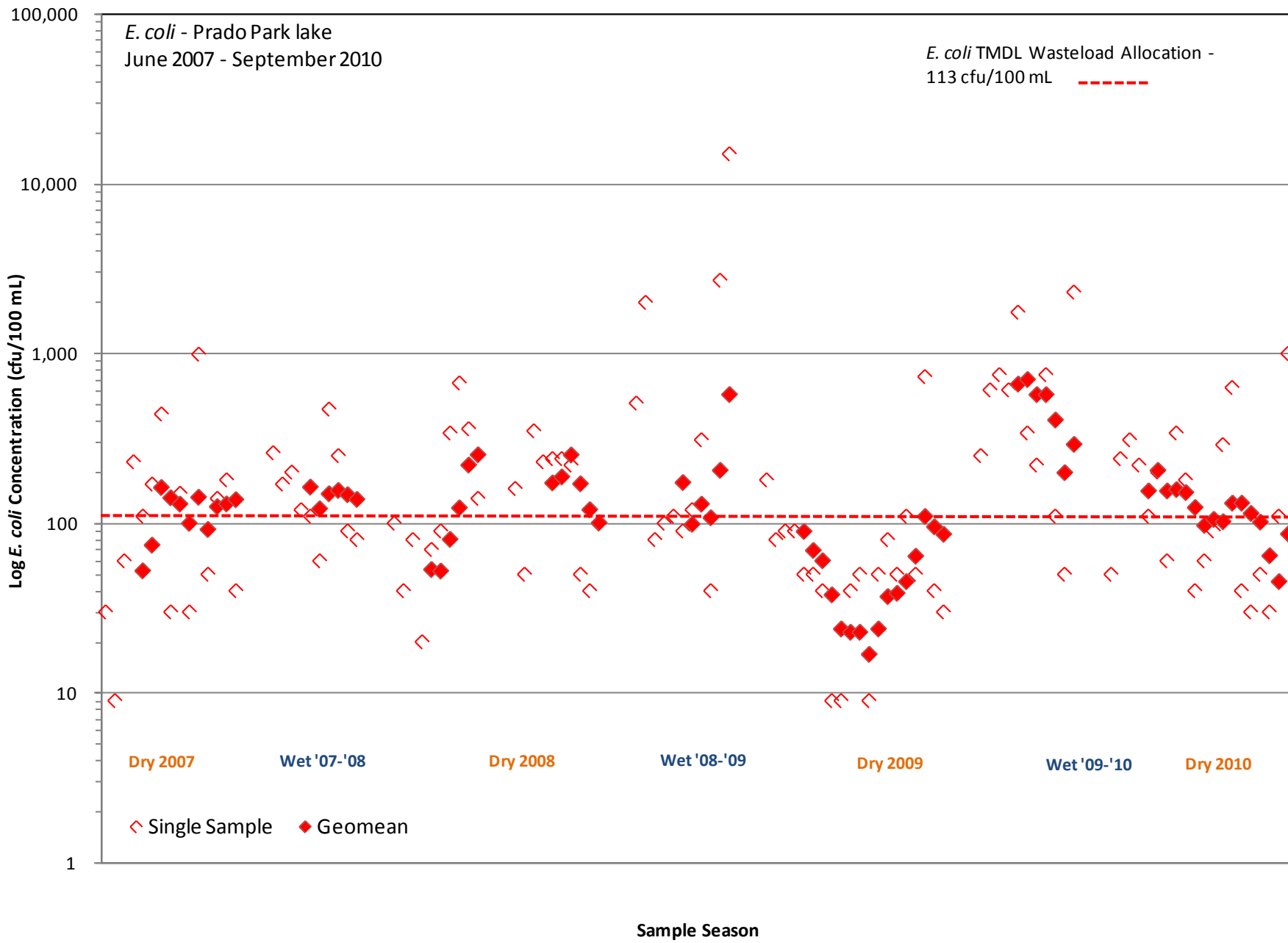
Watershed-Wide Compliance Monitoring Program

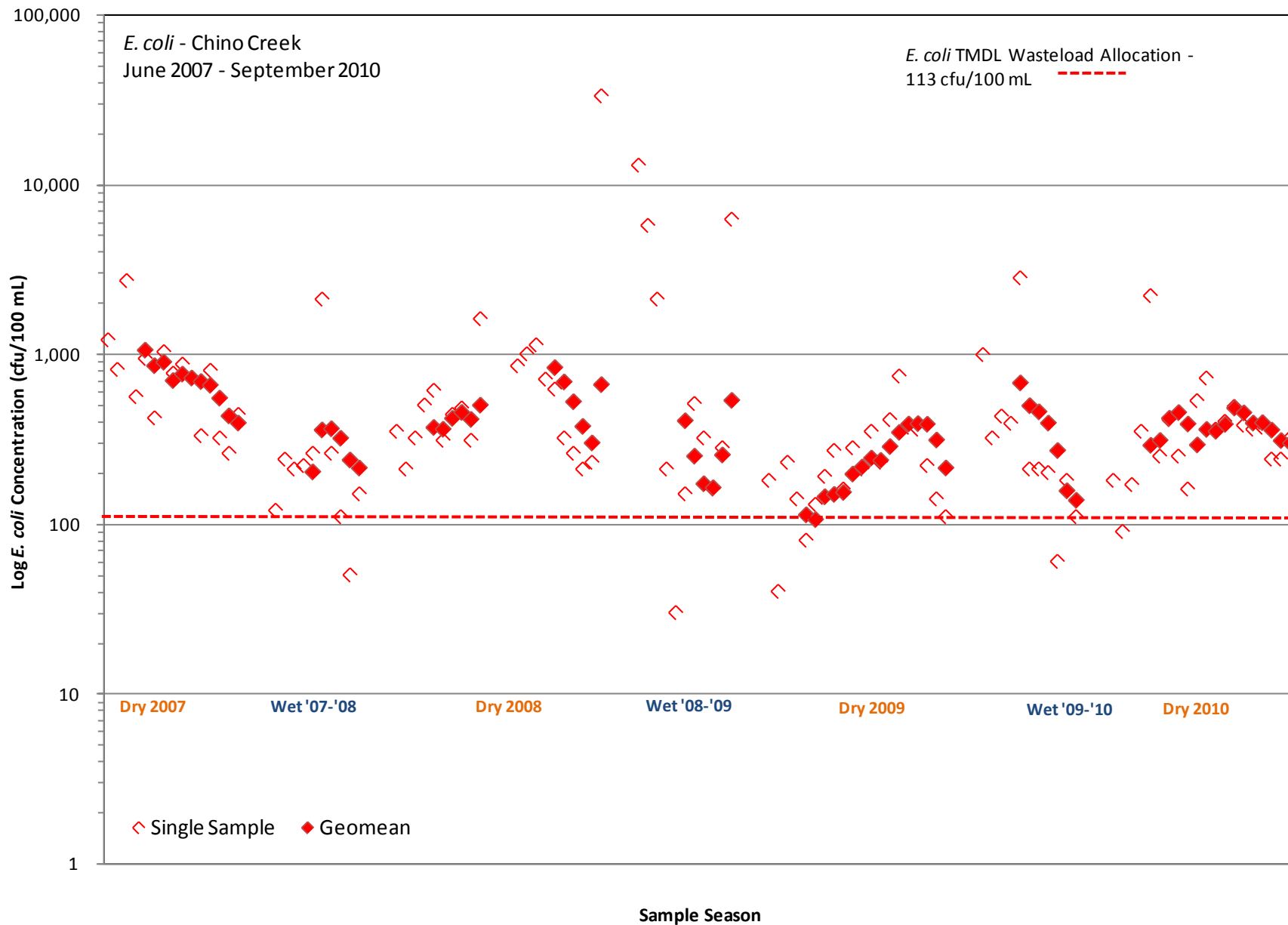
■ Monitoring

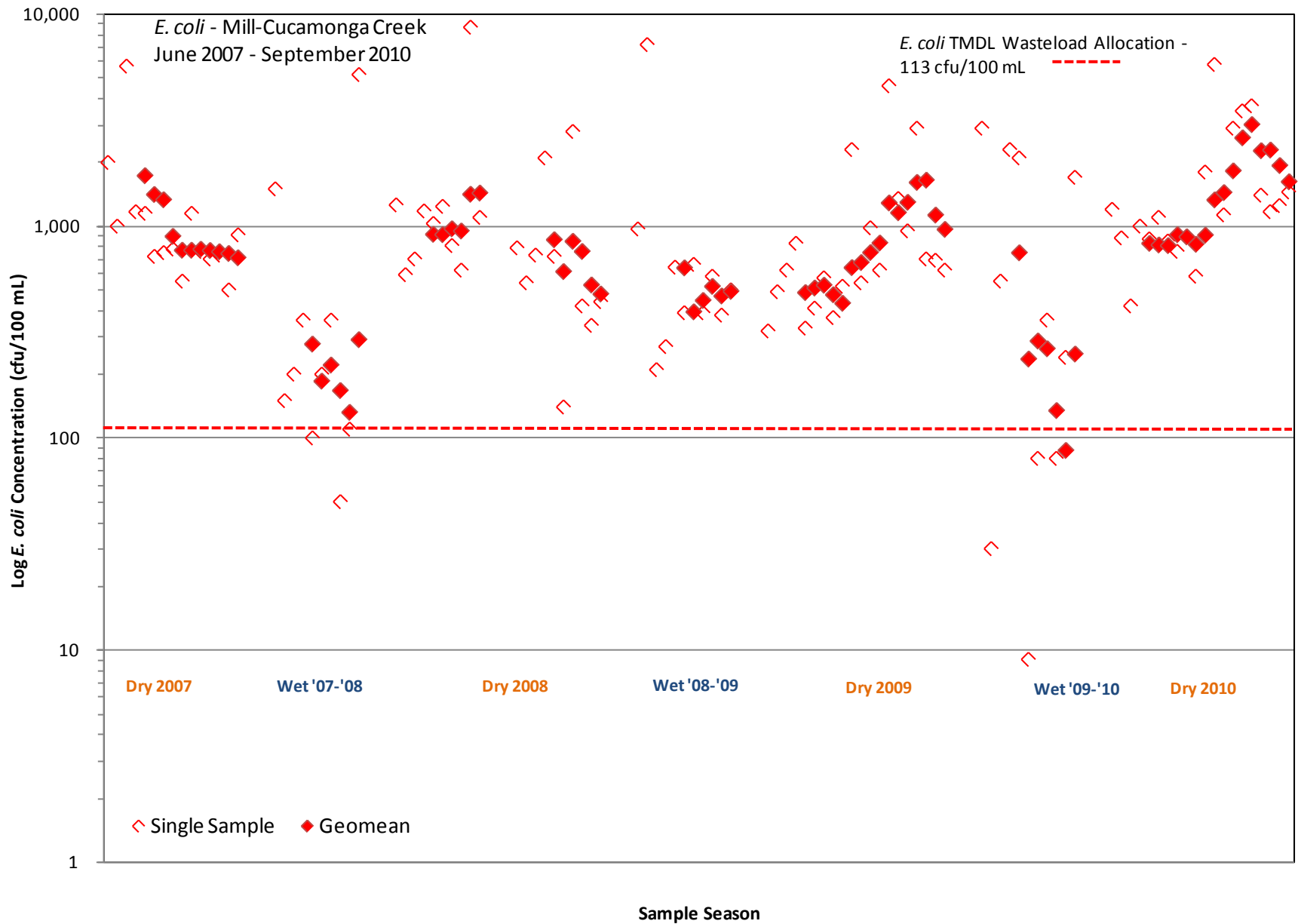
- Dry season monitoring ended the last week of September
- No problems to report for entire season
- Wet season monitoring kicks off week of December 20th

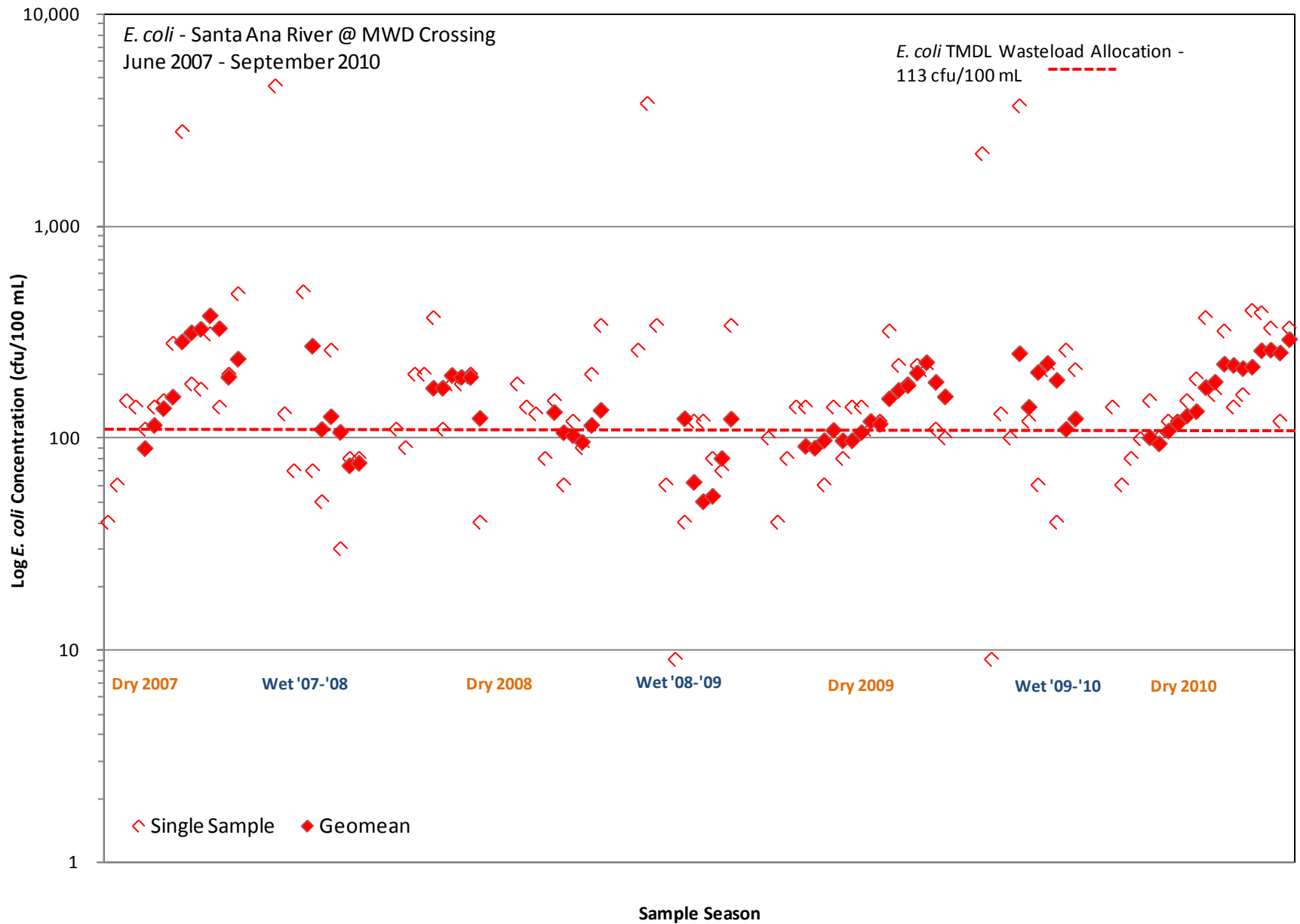
■ Reporting

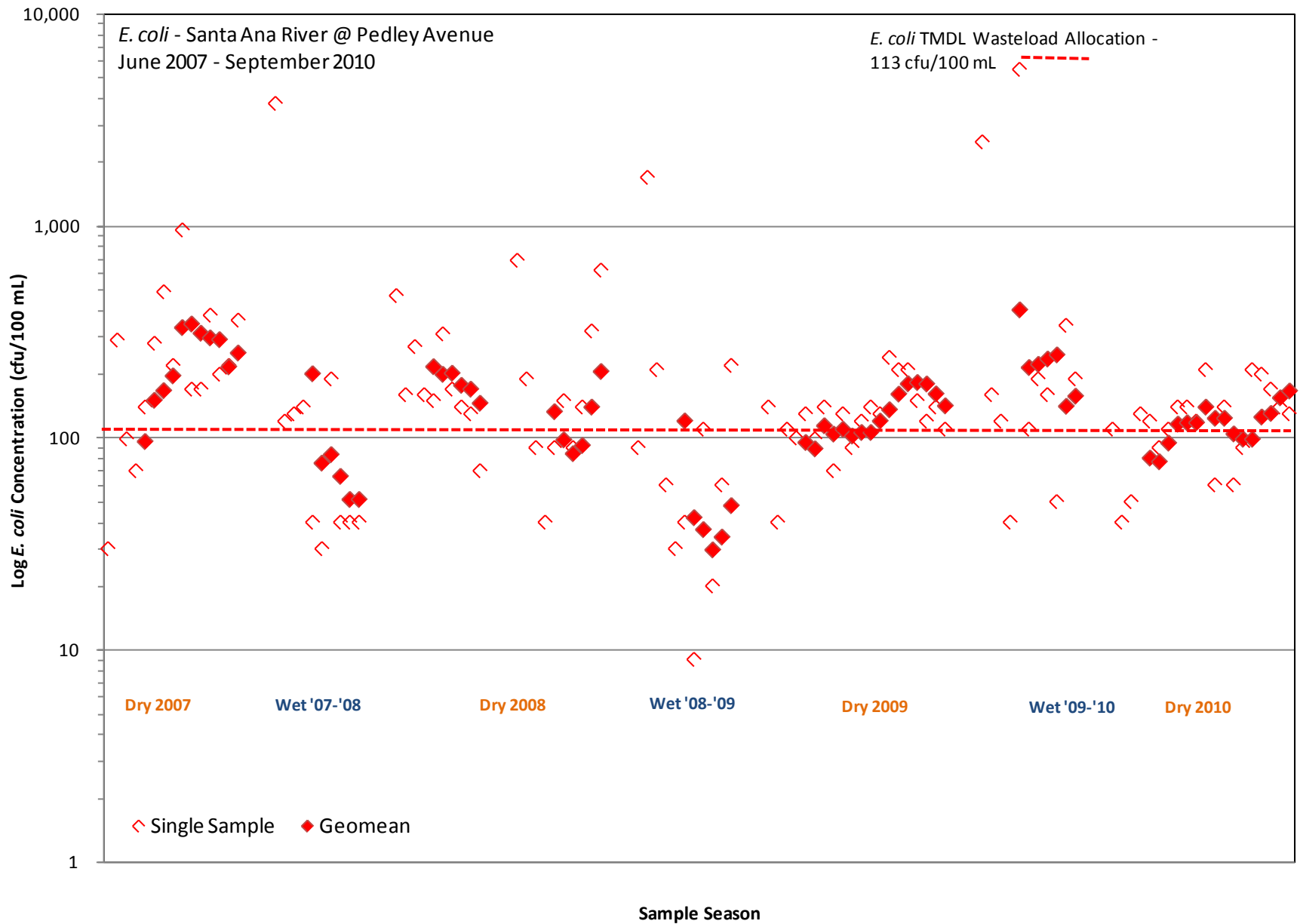
- Draft 2010 dry season report due November 30th; final due December 31st











October 18, 2010

Kurt V. Berchtold
Santa Ana Regional Water Quality Control Board
3737 Main St., Ste. 500
Riverside, CA 92501-3348

RE: Response to Regional Board's Request for Additional Information Related to the MSAR Bacterial Indicator TMDL Urban Source Evaluation Program for FY2010-11.

Dear Mr. Berchtold:

We received and reviewed your letter of September 2nd wherein you requested more detailed descriptions of our proposed Urban Source Evaluation Program activities for the MSAR Bacterial Indicator TMDL in the current fiscal year. This letter is intended to provide the information you requested.

1) Survey of Dry Weather Flow from MS4 Outfalls to Major Tributaries

The Regional Board staff asks how the additional information and characterization of dry weather flows from MS4 outfalls will help achieve compliance and attain water quality standards.

When the Regional Board adopted the Middle Santa Ana Bacterial Indicator TMDL (Res. No. R8-2005-0001), it specified two different compliance dates. Instream targets must be attained during dry weather conditions no later than December 31, 2015. And, instream targets must be attained during wet weather conditions no later than December 31, 2025.

In addition, the Regional Board recently renewed the Area-wide Urban Storm Water permits for San Bernardino County¹ and Riverside County.² Both NPDES permits requires the local storm water agencies to achieve compliance with the waste load allocation for bacterial indicators, during dry weather conditions, no later than December 31, 2015.³ The permits also specify that these agencies must achieve

¹ Order No. R8-2010-0036 (NPDES No. CAS618036) adopted January 29, 2010.

² Order No. R8-2010-0033 (NPDES No. CAS618033) adopted January 29, 2010.

³ See, for example, Section V-D-2-a on page 52 of 125, in Order No. R8-2010-0036 (San Bernardino MS4 Permit).

compliance with the waste load allocation for bacterial indicators, during wet weather conditions, no later than December 31, 2025.⁴

Since the more proximate deadline requires compliance during dry weather, the MS4 permittees believe it is prudent to focus the next round of Urban Source Evaluation studies on these conditions. In order to know which urban outfalls may be causing or contributing to an exceedance of water quality standards, we must first determine which outfalls are actually discharging to local streams despite the absence of measurable precipitation in the area.

The primary purpose of this characterization effort is to narrow the focus of the investigation to only those urban outfalls where there are sufficient dry weather flows to significantly influence compliance in the receiving channel. This approach is consistent with the risk-based prioritization system previously employed by the MSAR TMDL Task Force to guide previous Urban Source Evaluation Studies. The risk-based system seeks to allocate available resources in a manner which provides the highest likelihood of detecting and mitigating the most significant bacteria sources first.

The Area-wide Urban Storm Water Permits currently prohibit non-storm water discharges from public agency activities into waters of the U.S.⁵ Thus, a comprehensive survey of dry weather flows will assist the permittees in identifying and eliminating illegal discharges that may be causing or contributing to a condition of bacterial pollution.

2) Calculate Mass Balance for Dry Weather Conditions

The Regional Board staff asks how quantifying the mass balance of fecal indicator bacteria will help achieve compliance and attain water quality standards.

The TMDL for bacterial indicators in the Middle Santa Ana River is subdivided into Waste Load Allocations (WLA) for point sources such as urban storm water discharges and discharges from Confined Animal Feeding Operations (CAFOs), and Load Allocations (LA) for non-point sources such as agricultural runoff and other natural background sources. The recently adopted MS4 permits require the counties and municipalities to meet the assigned WLA but exempt these agencies from any obligation to control sources beyond their jurisdiction or legal authority.⁶

The Mass Balance Analysis is intended to determine the degree to which the various point sources and non-point sources are contributing bacterial loads to the lakes and

⁴ See, for example, Section V-D-3 on page 54 of 125, in Order No. R8-2010-0036 (San Bernardino MS4 Permit).

⁵ See, for example, Section V-C and V-E on page 57 of 117 in Order No. R8-2010-0033 (Riverside Co. MS4 Permit)

⁶ See, for example, Section II-A-9 on page 9 of 117 in Order No. R8-2010-0033 (Riverside Co. MS4 Permit)

streams identified in the MSAR TMDL. This determination will help the MS4 agencies focus the on-going investigation on those areas where urban sources may be causing or contributing to exceedance of the bacterial indicator standards.

The Mass Balance Analysis will also establish a "profile" that helps the MS4s know what sort of source to look for. For example, during dry weather conditions 90-95% of the flow in the Santa Ana River and its major tributaries comes from waste water treatment plants that consistently discharge effluent with bacterial concentrations more than two orders of magnitude lower than the TMDL targets. Nevertheless, instream sampling reveals that ambient bacteria levels in the receiving waters often exceed the applicable water quality standard. This suggests that nearly all of the bacteria that is causing the exceedance is associated with a very small proportion (<10%) of the total flow. And this, in turn, implies that the concentration of bacteria must be extraordinarily high in flows that originate somewhere other than POTW discharges. The Mass Balance Analysis will tell us whether we should be looking for a source as large as a broken sewer main or a source as small as a single homeless encampment.

3) Calculate Site-Specific Log Standard Deviation at Monitoring Sites

The Regional Board staff asks how preparing such calculations will help achieve compliance and attain water quality standards.

The TMDL targets, Waste Load Allocations and Load Allocations for E. coli are expressed as the geometric mean of at least 5 samples collected over a 30-day period. However, on occasion, there are insufficient data to calculate a geometric mean as specified. In such instances, EPA guidance recommends using a statistical technique to estimate compliance using a single sample.⁷ In order to apply the technique correctly, it is necessary to know the level of background variability in the sampling data.

Developing an appropriate SSM based on site-specific data provides a reasonably accurate assessment of compliance while avoiding the need to collect at least 5 samples every 30 days at each stream location. This, in turn, allows us to use the available resources to investigate more locations more quickly than we otherwise could if the sole measure of compliance was based strictly on geometric means.

We believe the SSMs can be calculated using the bacteria data that has been collected by CDM on behalf of the MSAR Task Force as part of the routine TMDL compliance monitoring program and the Urban Source Evaluation program. Where insufficient site-specific data are available, we will determine whether additional sampling is needed to develop an appropriate SSM.

⁷ U.S. EPA. Ambient Water Quality Criteria for Bacteria. EPA440/5-84-002. January, 1986. Pg. 15-16.

4) **USEP Activity Schedule**

Regional Board staff requests a generalized schedule for tasks related to the 2010-11 Urban Source Evaluation Program.

USEP Task 2.1: Box Springs Study

- Collect 5 weekly samples; week of April 4 through week of May 2, 2011
- Draft report submitted to SAWPA within 2 weeks of receipt of final lab data
- Final report submitted within 2 weeks of receipt of comments from Task Force

USEP Task 2.2: Preliminary Characterization of Bacteria Loads from Pomona/Claremont

- On hold until Task Force agreement issues addressed
- If agreement reached by February 1, 2011:
 - * Identify sample locations; submit addendum to Monitoring Plan and QAPP to Regional Board staff by February 28
 - * Collect 10 weekly samples: Week of April 4 through week of June 6, 2011
 - * Draft report submitted to SAWPA within 3 weeks of receipt of final laboratory data
 - * Final report submitted within 2 weeks of Task Force comments

USEP Task 2.3: Survey of Dry Weather Flows from MS4 Outfalls to Major Tributaries

- Identify 10 potential site locations by February 1, 2011
- Finalize list with Task Force by March 15, 2011
- Collect 10 weekly samples: Week of April 4 through week of June 6, 2011
- Draft report submitted to SAWPA within 4 weeks of collection of final data
- Final report submitted within 2 weeks of receipt of Task Force comments

USEP Task 2.4: Calculate Mass Balance for Dry Weather Conditions

- Task implemented after data collection completed for Tasks 2.1, 2.2, 2.3
- Draft report submitted to SAWPA within 3 weeks of collection of data for Tasks 2.1, 2.2 & 2.3
- Final report submitted within 2 weeks of receipt of Task Force comments