Regional Bacteria Monitoring Program Data Update

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CDM Smith

Outline

- Data Summary
- Revisions to RBMP for Priority 3 waters
- Cucamonga Creek anti-deg target
- MSAR TMDL data analysis

RMP Implementation

Sample Locations

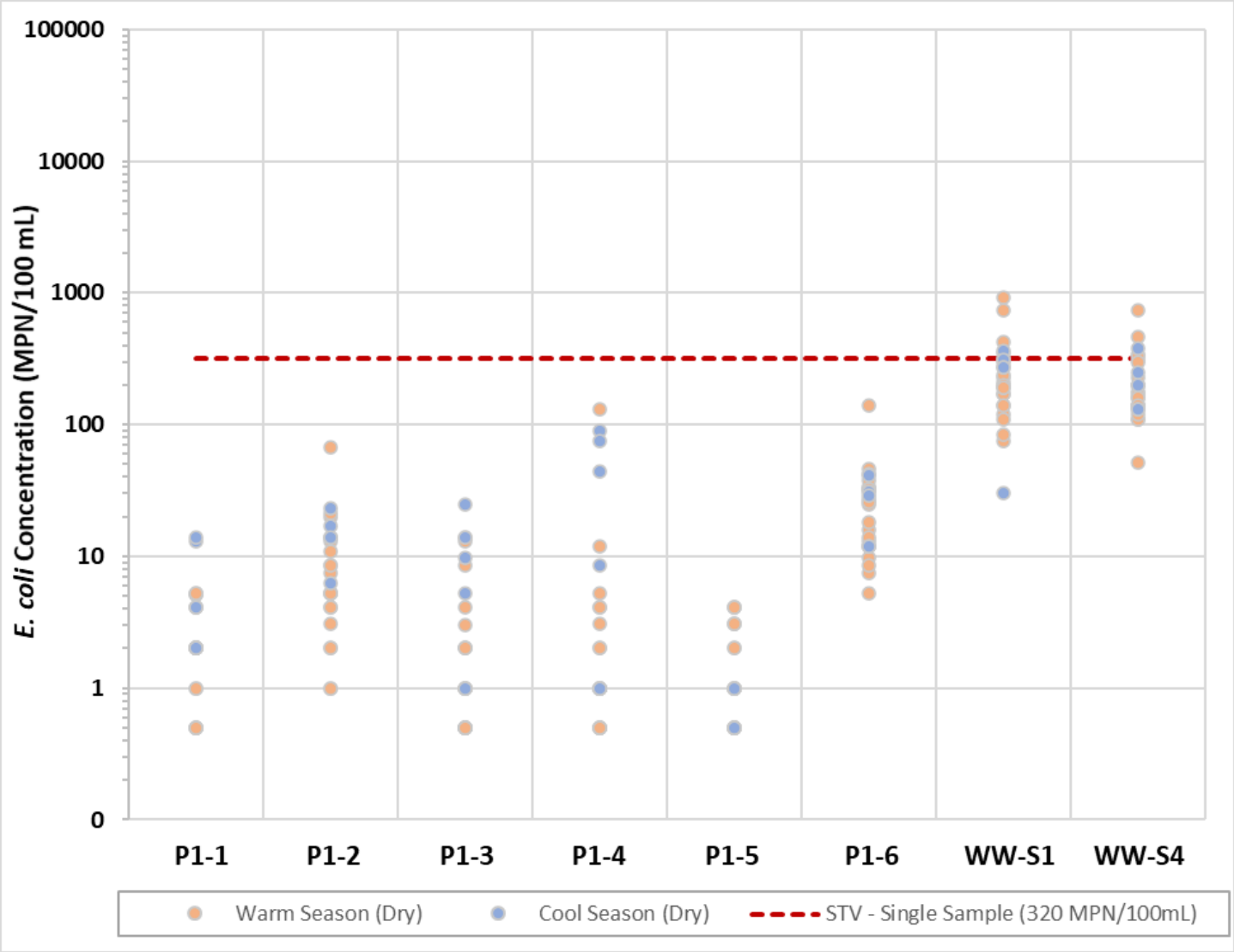
Sample Collection

- Increased frequency of sampling at Cucamonga Creek at Hellman (P4-SBC1) and Santa Ana River Reach 4 (P3-SBC1)
- Addition of MSAR station at Mission Avenue
- 2020-2021 RMP sampling inventory

Priority	Planned/Collected	Dry Weather	Wet Weather
Priority 1	Planned	200	0
	Collected	197	0
Priority 2	Planned	150	20
	Collected	150	20
Priority 3	Planned	95	0
	Collected	66	0
Priority 4	Planned	16	0
	Collected	19	0

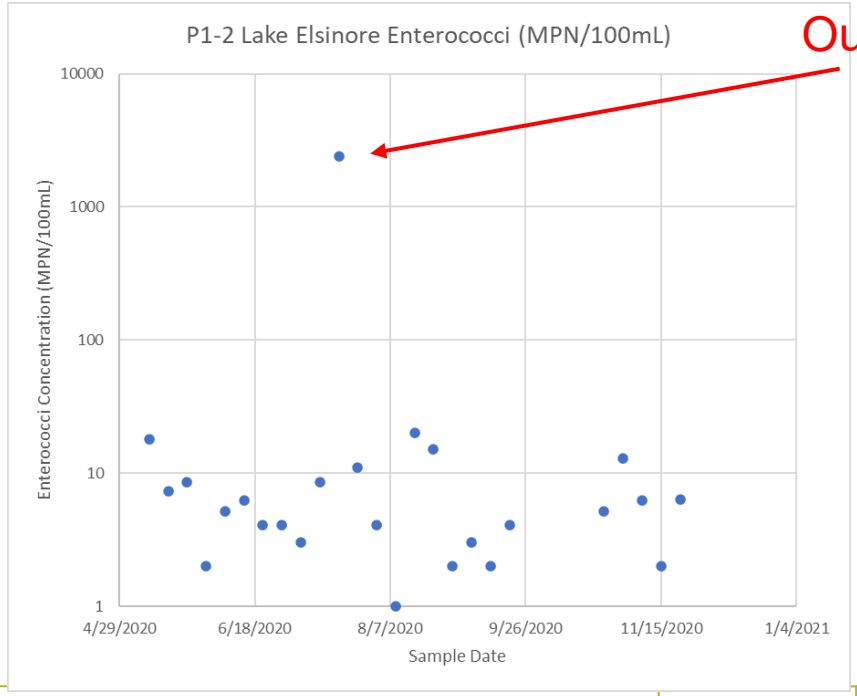
Priority 1 Waters

Priority 1 Sites – Frequent recreational use



Priority 1

- 2,400 Enterococci mpn/100mL at Lake Elsinore
- Very low *E. coli* in same sampling event for Lake Elsinore
- Sample site will be moved to Elm Grove beach and data will be shared with the city of Lake Elsinore to assist with the protection of swimmers



Priority 3 Waters - Impaired no existing TMDL

Priority 3 – Impaired no existing TMDL

- Summary of data flow and fecal bacteria data 2016-2020

Freshwaters on 2018 303(d) List with Bacteria Impairment [1]	Existing Site	Range of Conductivity (us/cm)	Estimate Range of Flow (cfs)	Fecal Bacteria Indicator	Geometric Mean of Sampling (mpn/100mL) [2]				
					2016	2017	2018	2019	2020
Bolsa Chica	P3-OC1	1358 - 2900	0.1 - 1.5	*E. coli*	51	534	31	60	439
				Enterococcus					
Borrego Creek	P3-OC2	NA	NA	*E. coli*	Dry	Dry	Dry	Dry	Dry
Buck Gully	P3-OC3	3987 - 6884	ND - 0.9	*E. coli*	74	89	20	351	NA
				Enterococcus	NA	NA	29 [3]	544	NA
Goldenstar Creek	P3-RC1	1901 - 2272	0.4 – 8	*E. coli*	242	417	118	360	177
Los Trancos Creek	P3-OC5	1000 - 7933	0 - 1.1	*E. coli*	457	658	Dry	Dry	Dry
Morning Canyon Creek	P3-OC6	240 - 21446	0 – 1.0	*E. coli*	633	212	858	170	NA
				Enterococcus			526 [3]	1067	NA
Peters Canyon Channel	P3-OC7	1787 - 2760	0.9 - 9.7	*E. coli*	198	201	562	540	203
				Enterococcus					
San Diego Creek Reach 1	P3-OC8	2108 - 3742	0.2 - 9.4	*E. coli*	329	116	176	184	55
San Diego Creek Reach 2	P3-OC9	766 - 2735	0.1 - 0.8	*E. coli*	202	373	155	43	146
San Timoteo Creek Reach 1A	P3-SBC2	402 - 523	0.3 – 1.9	*E. coli*	NA	NA	NA	NA	40
San Timoteo Creek Reach 2	P3-SBC3	802 - 842	ND – 1.3	*E. coli*	NA	NA	NA	NA	607 [5]
San Timoteo Creek Reach 3	P3-RC3 [4]			*E. coli*					
Santa Ana River Reach 4	P3-SBC1	240 - 892	2.6 - 70.6	*E. coli*	48	70	74	25-112	16 - 247
Serrano Creek	P3-OC11	717 - 2092	0.01 - 1.4	*E. coli*	166	1080	221	864	1572
Warm Creek	P3-SBC4	772 - 942	0.3 – 0.8	*E. coli*	NA	NA	NA	NA	176 [5]

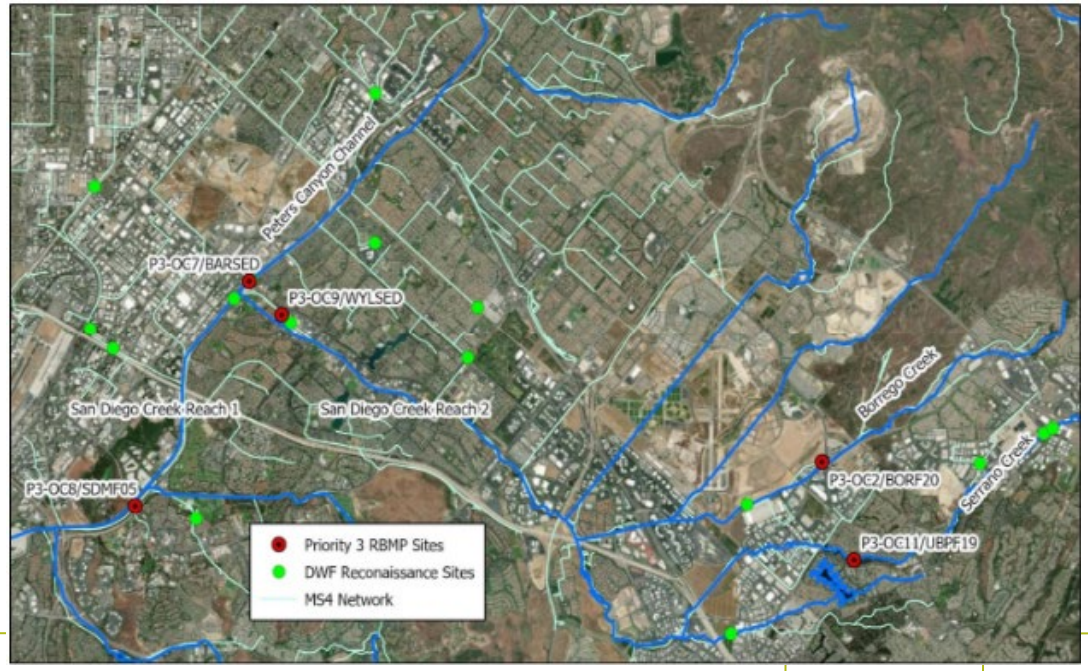
Summary of Future Recommendations

- Continue monitoring
- Transition to source identification
- No new delisting candidates

Waterbody	Existing Site	Recommended Action	Source Investigation Status
Bolsa Chica	P3-OC1	Transition to source investigation	OCPW developing new bottom-up sampling scheme for 2021 dry season
Borrego Creek	P3-OC2	Verify persistence of dry condition	N/A
Buck Gully	P3-OC3	Transition to source investigation	Regional Board coordinating with City of Newport Beach
Goldenstar Creek	P3-RC1	Transition to source investigation	RCFC&WCD coordinating with Southern CA Monitoring Coalition on Causal Assessment
Los Trancos Creek	P3-OC5	Verify persistence of dry condition	N/A
Morning Canyon Creek	P3-OC6	Transition to source investigation	Regional Board coordinating with City of Newport Beach
Peters Canyon Channel	P3-OC7	Transition to source investigation	Newport Bay Watershed Source Investigation expected to kick off 2021 dry season
San Diego Creek Reach 1	P3-OC8	Transition to source investigation	Newport Bay Watershed Source Investigation expected to kick off 2021 dry season
San Diego Creek Reach 2	P3-OC9	Transition to source investigation	Newport Bay Watershed Source Investigation expected to kick off 2021 dry season
San Timoteo Creek Reach 1A	P3-SBC2	Continue monitoring at five samples/yr	N/A
San Timoteo Creek Reach 2	P3-SBC3	Continue monitoring at five samples/yr	N/A
San Timoteo Creek Reach 3	P3-RC3	Continue monitoring at five samples/yr	N/A
Santa Ana River Reach 4	P3-SBC1	Transition to source investigation	Mainstem sampling through MSAR TMDL Task Force, SAWPA Homeless Encampments Impacts Study
Serrano Creek	P3-OC11	Transition to source investigation	Newport Bay Watershed Source Investigation expected to kick off 2021 dry season
Warm Creek	P3-SBC4	Continue monitoring at five samples/yr	N/A

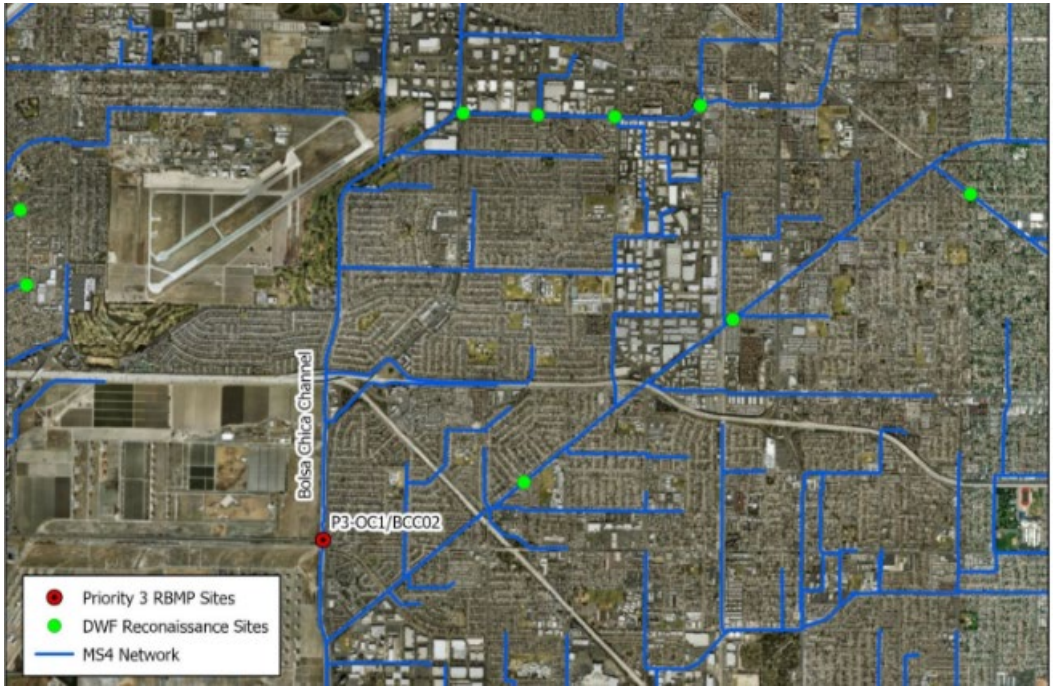
Newport Bay Watershed Streams

- Five inland streams discharging to Upper Newport Bay via San Diego Creek
- Long-term and spatially distributed OCPW reconnaissance sampling data within upstream DAs
- Newport Bay Watershed Source Investigation in 2021



Bolsa Chica Channel

- Large tributary in Anaheim-Huntington Harbor watershed
- Long-term and spatially distributed OCPW reconnaissance sampling data within upstream DAs
- New source identification effort recommended



Newport Coastal Streams

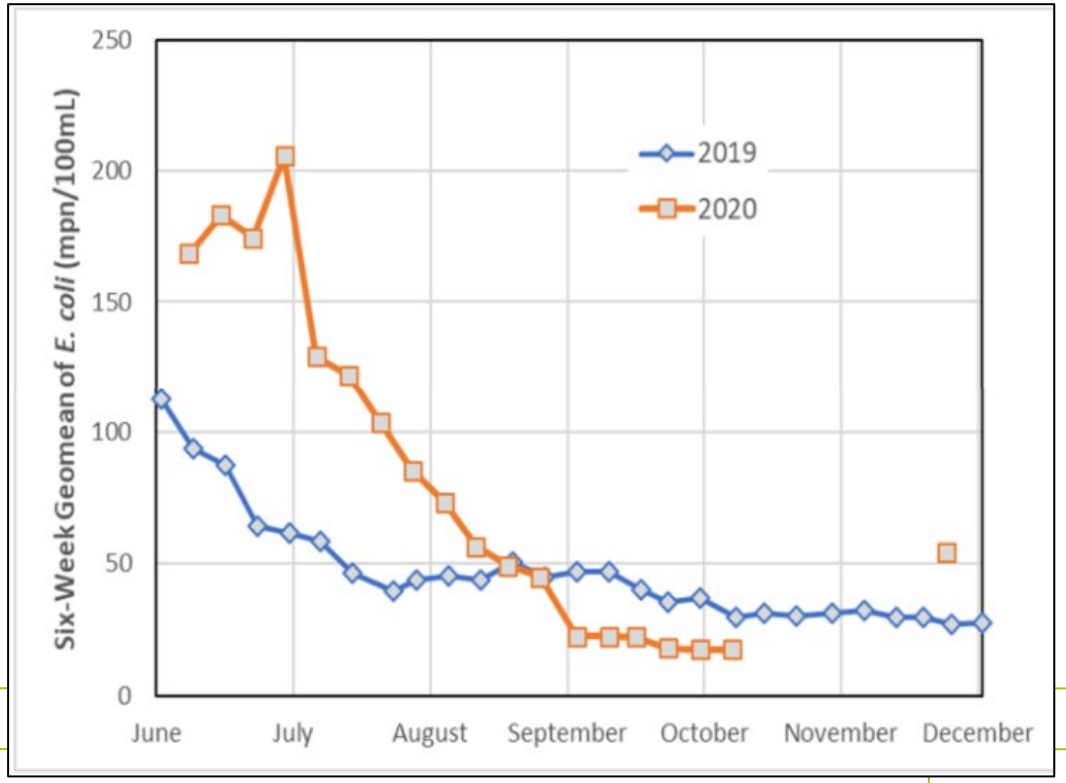
- Three inland streams discharging to ocean across beaches
- Dry weather diversion for Los Trancos
- Historical source tracking studies
- New source identification effort recommended

Goldenstar Creek

- Headwaters of MSAR watershed near Woodcrest in Riverside County
- Coordination with Southern California Monitoring Coalition on causal assessment

Santa Ana River Reach 4

- No longer delisting candidate based on weekly monitoring in 2019, 2020
- P3-SBC1 site at Riverside Dr is upstream of Mission Avenue
- SAWPA study along mainstem will provide key source identification information



Priority 4 – REC2 Only Update

Greenville Banning Channel in Tidal Prism

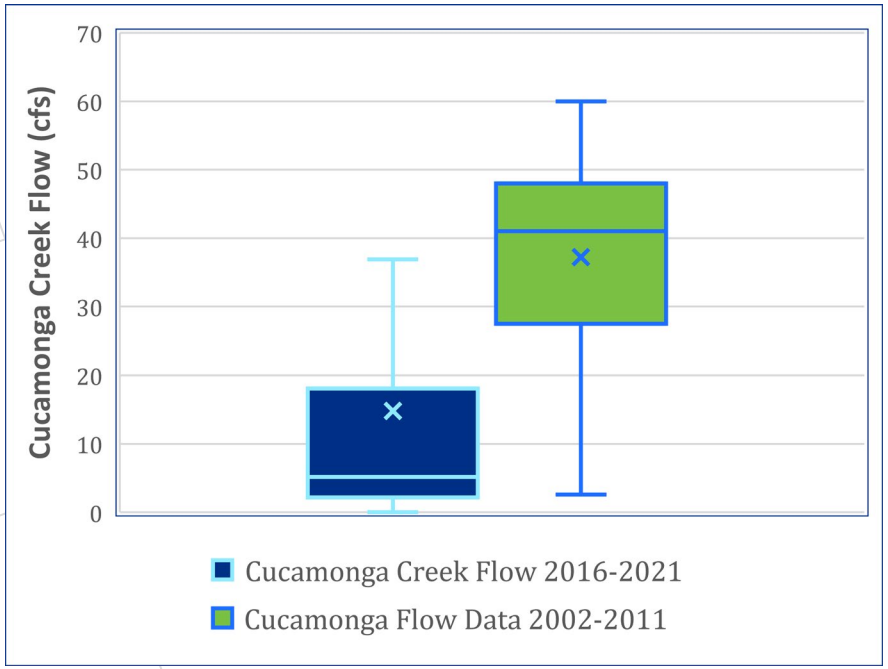
- 2020 – exceedance of 64 MPN/100mL Enterococci target (75th percentile)
- Follow-up monitoring triggered
- Results indicating compliance with statistical threshold anti-deg target

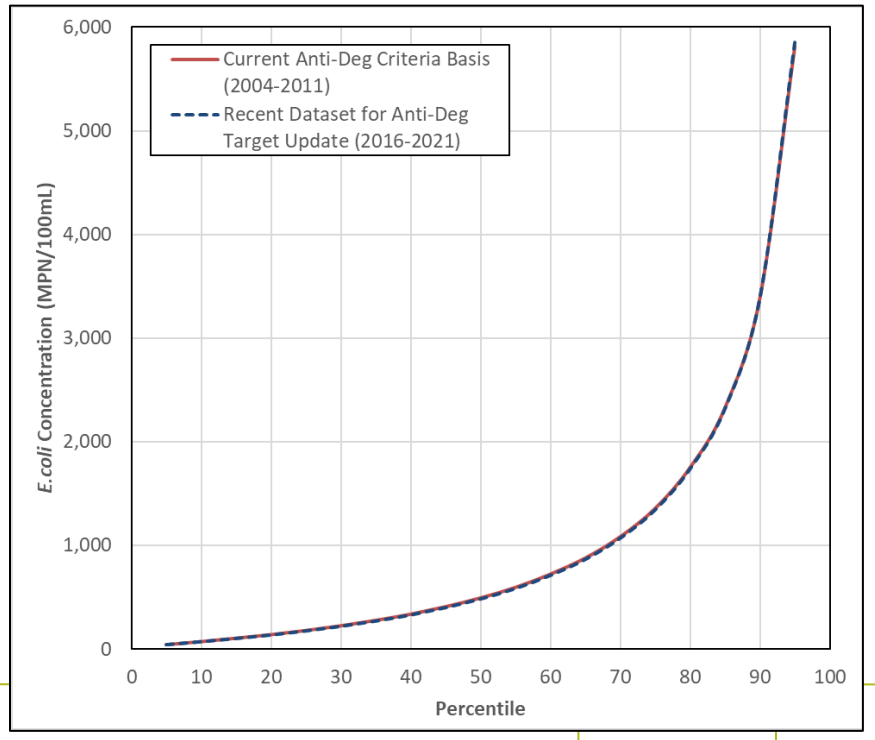
Sample Requirement	Sample Date	Enterococcus Concentration (MPN/100mL)
Original Annual Sample	9/14/2020	255
Required Monthly Follow-up Samples	10/28/2020	ND
	11/24/2020	63
	12/16/2020	20

Cucamonga Creek Reach 1

- Nearly same distribution of concentration and anti-degradation target indicates reduction in loads to downstream TMDL waterbody (Mill-Cucamonga Creek)

Dry weather flow on sampled dates





Cucamonga Creek Reach 1

- Net impacts of CBRP implementation, water recycling, increased hydraulic residence time

Urban dry weather flow

Dilution from POTW effluent

In-stream decay over residence time

Shedding from naturalized colonies

Downstream *E. coli* concentration

Next Steps

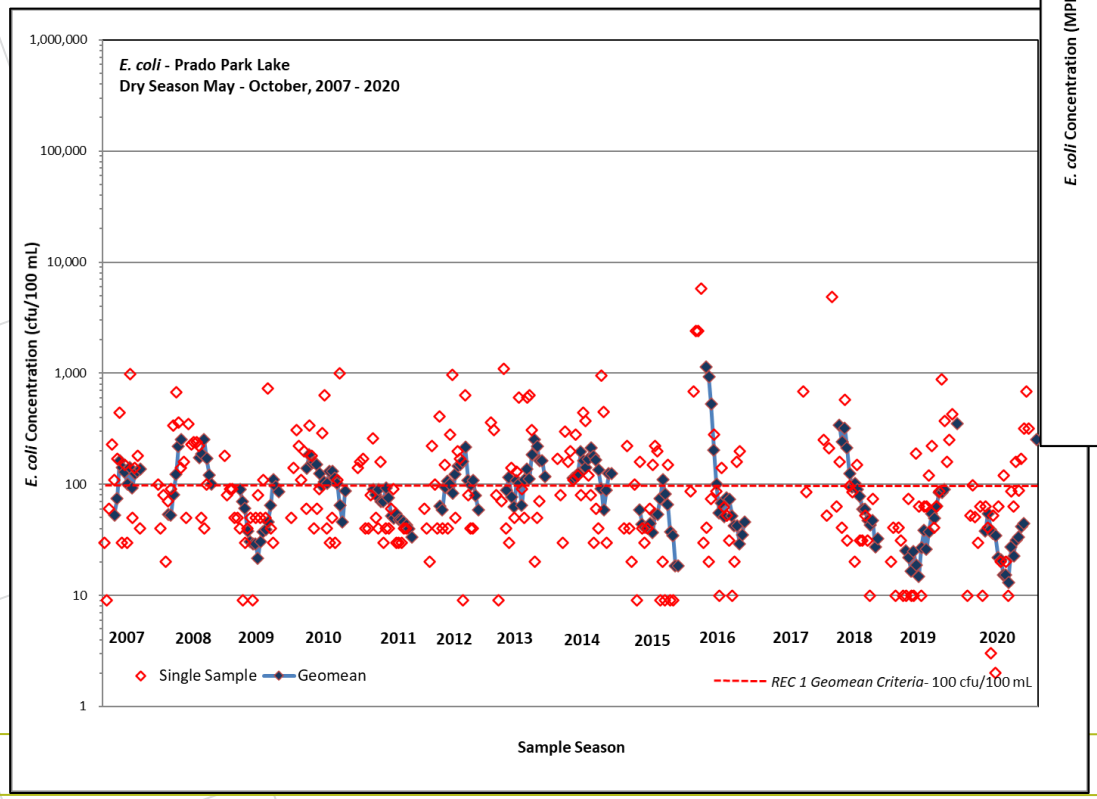
Coming Next Reporting Year

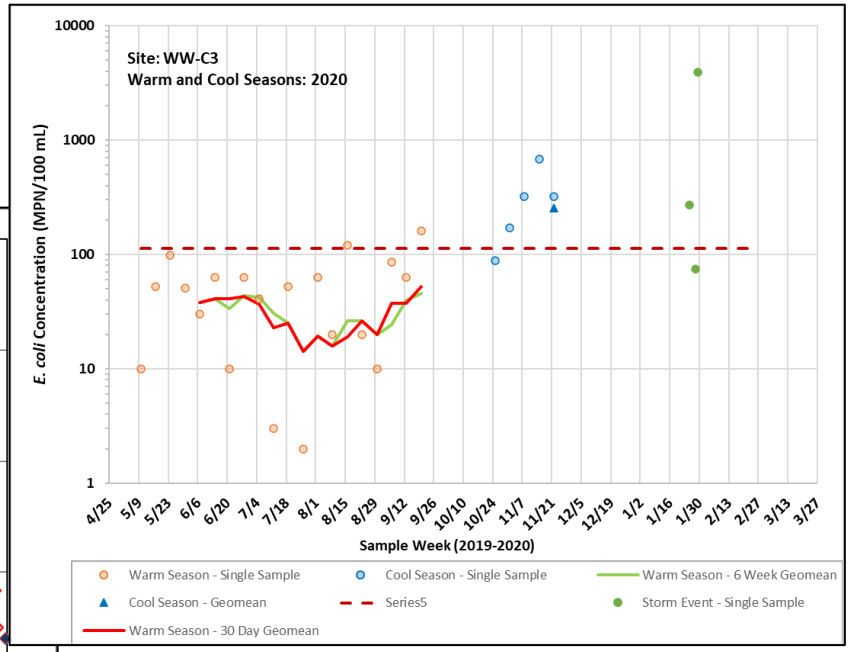
- Coordination of source identification activities in multiple waters
- Continue to collect data in Santa Ana River non-MS4 segment at Mission Avenue, SAWPA special study
- Develop data dashboard if supported by Task Force as alternative to quarterly reporting

Priority 2 MSAR TMDL Waters

Prado Park Lake

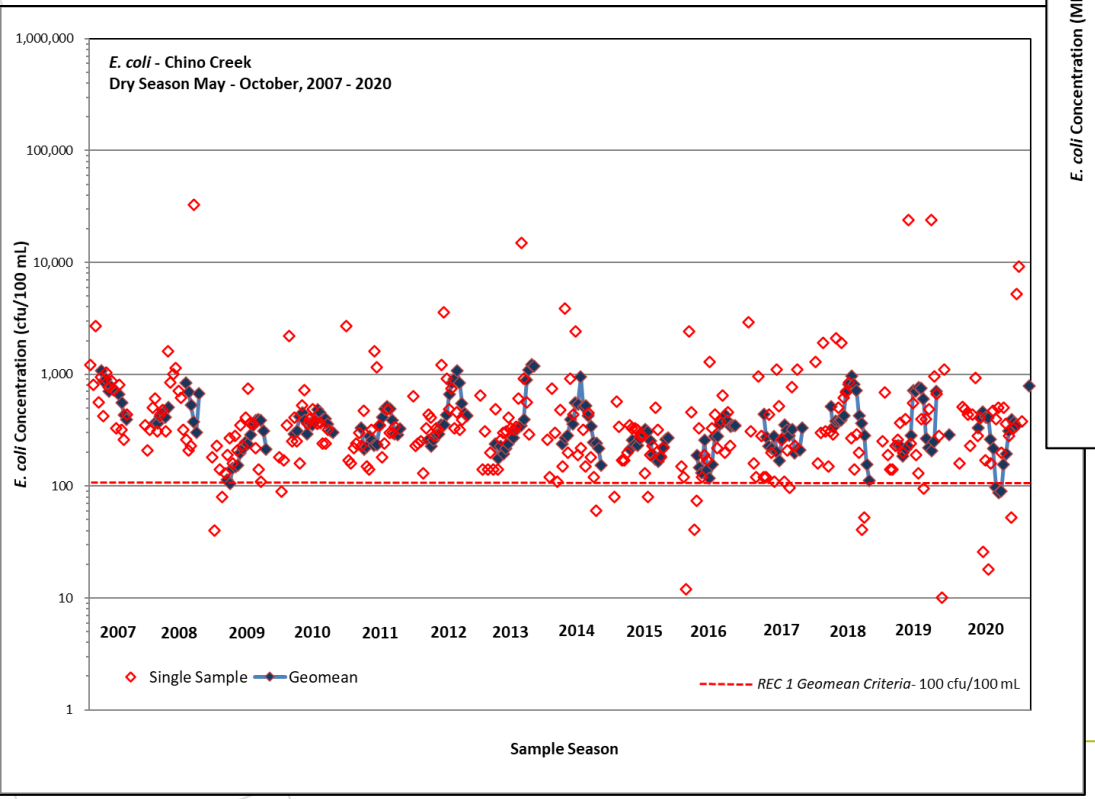
- Historical *E. coli* concentrations and geomeans

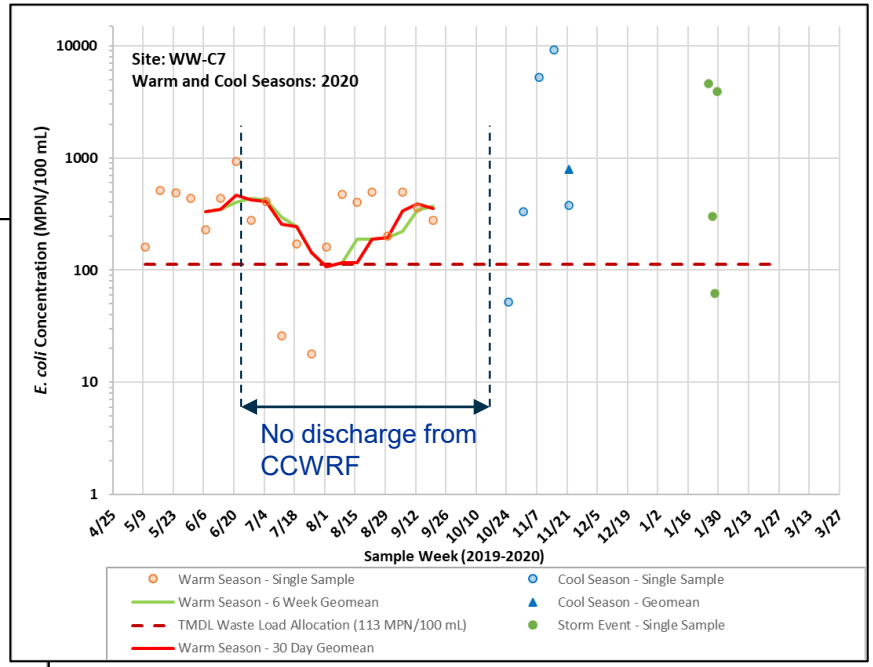




Chino Creek

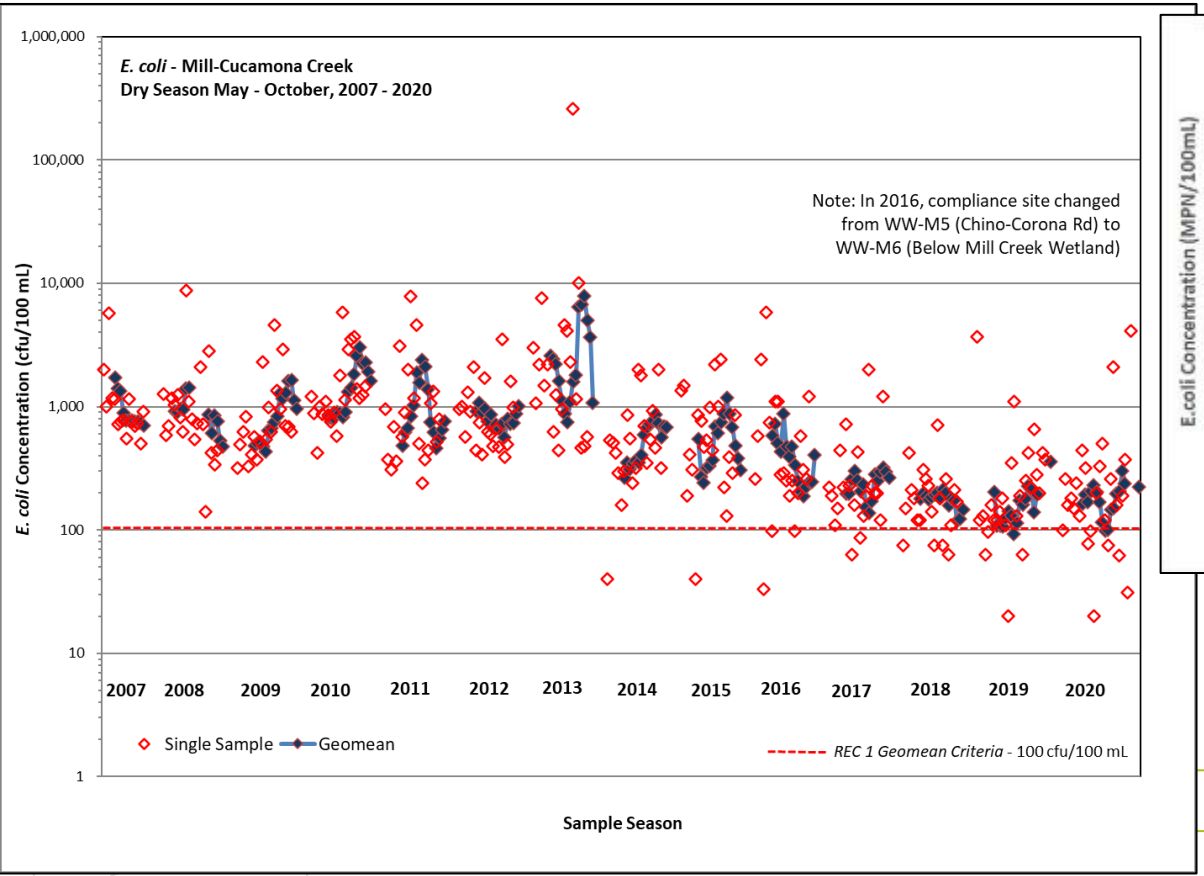
- *E. coli* concentrations and 6-week rolling geomeans

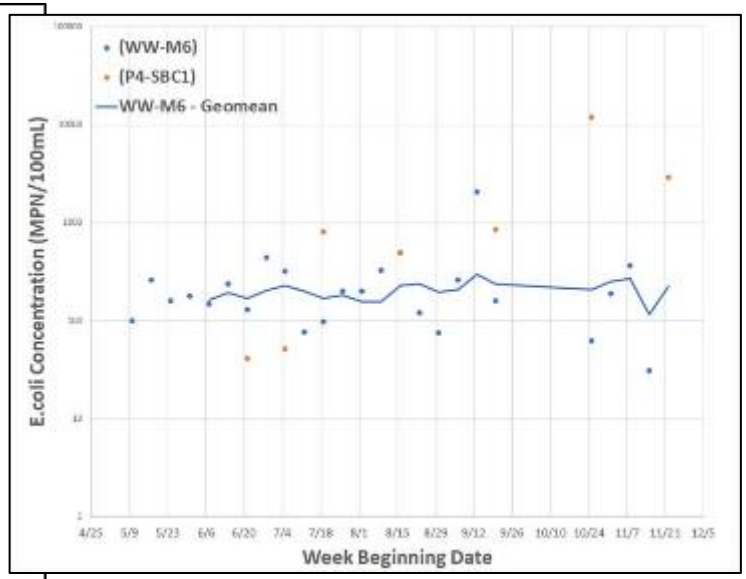




Mill-Cucamonga Creek

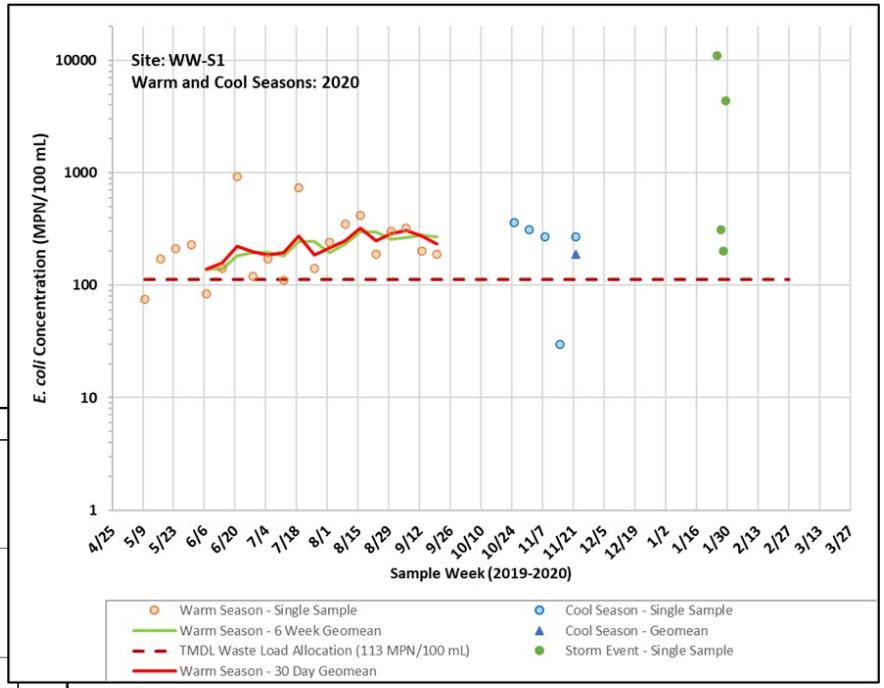
- Historical *E.coli* concentrations and geomeans
- Reduction in loads from Cucamonga Creek Reach 1
- Closer look at Mill Creek Wetlands in future plans

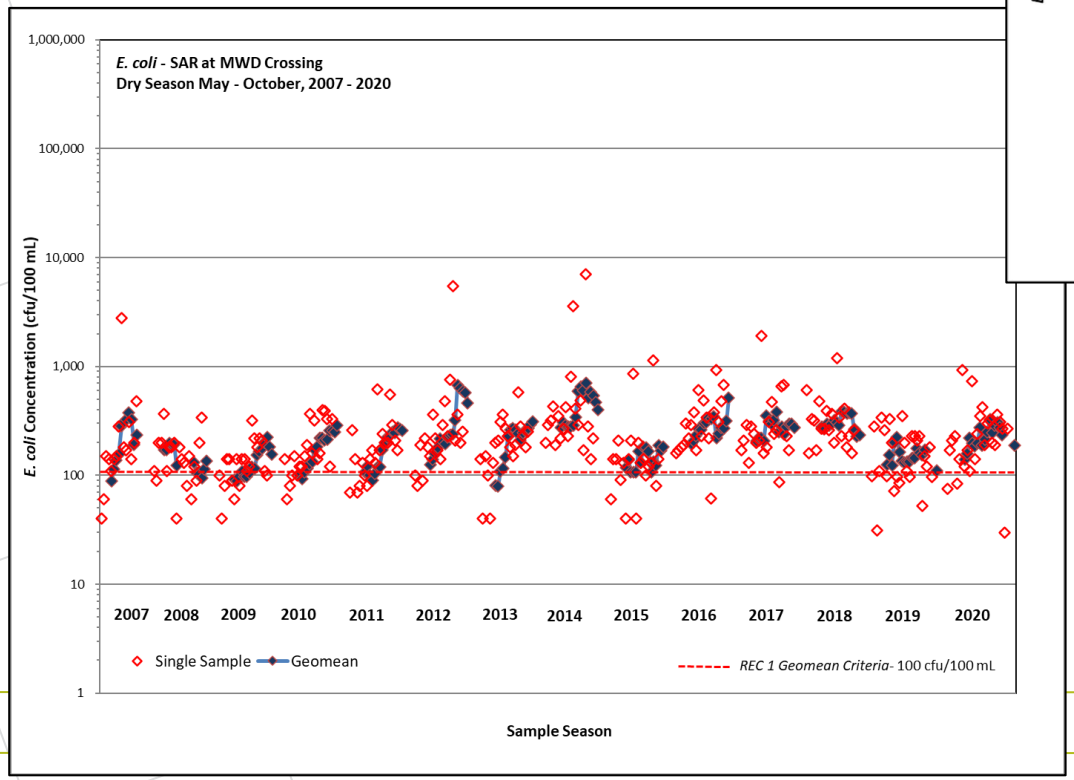




Santa Ana River at MWD Crossing

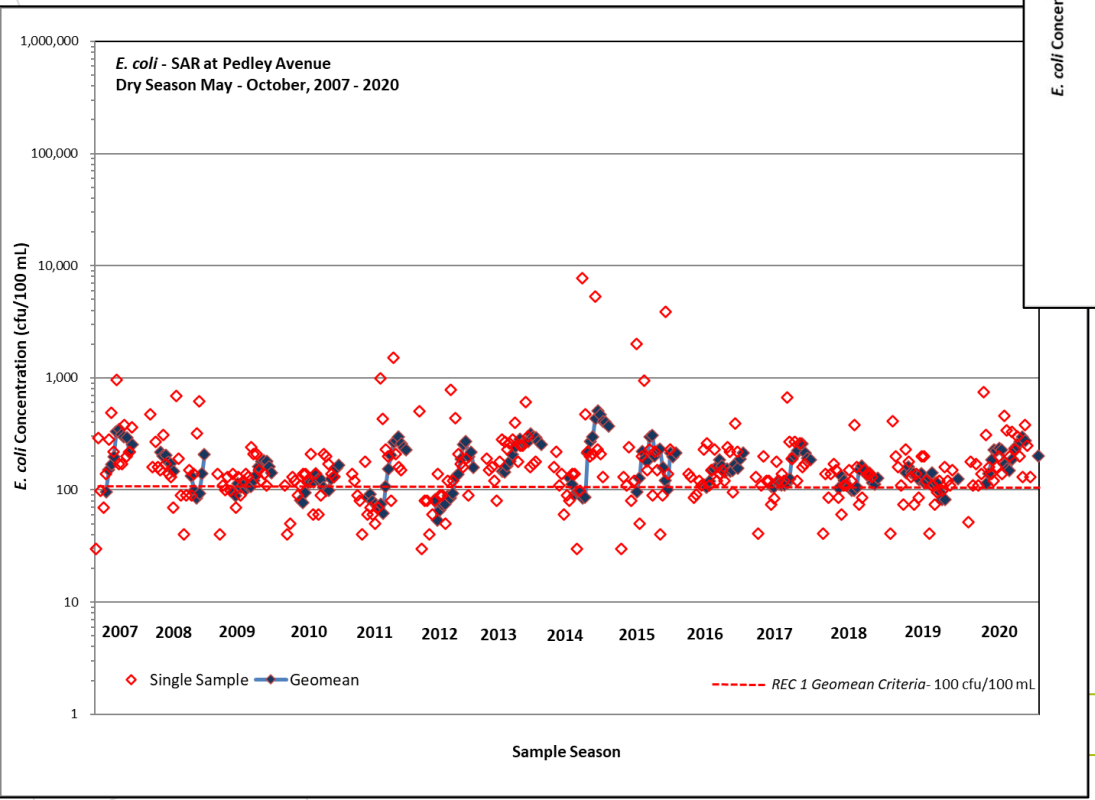
- Historical *E. coli* concentrations and geomeans

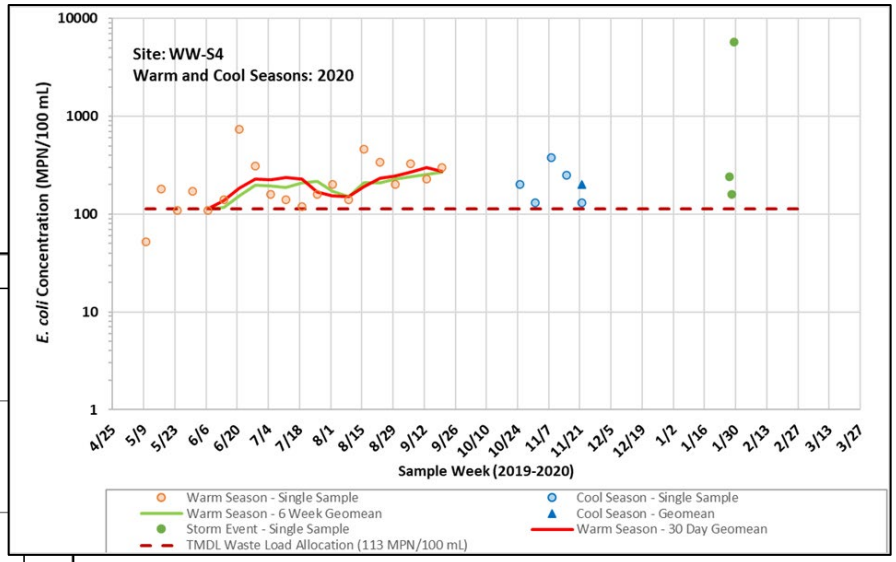




Santa Ana River at Pedley Ave

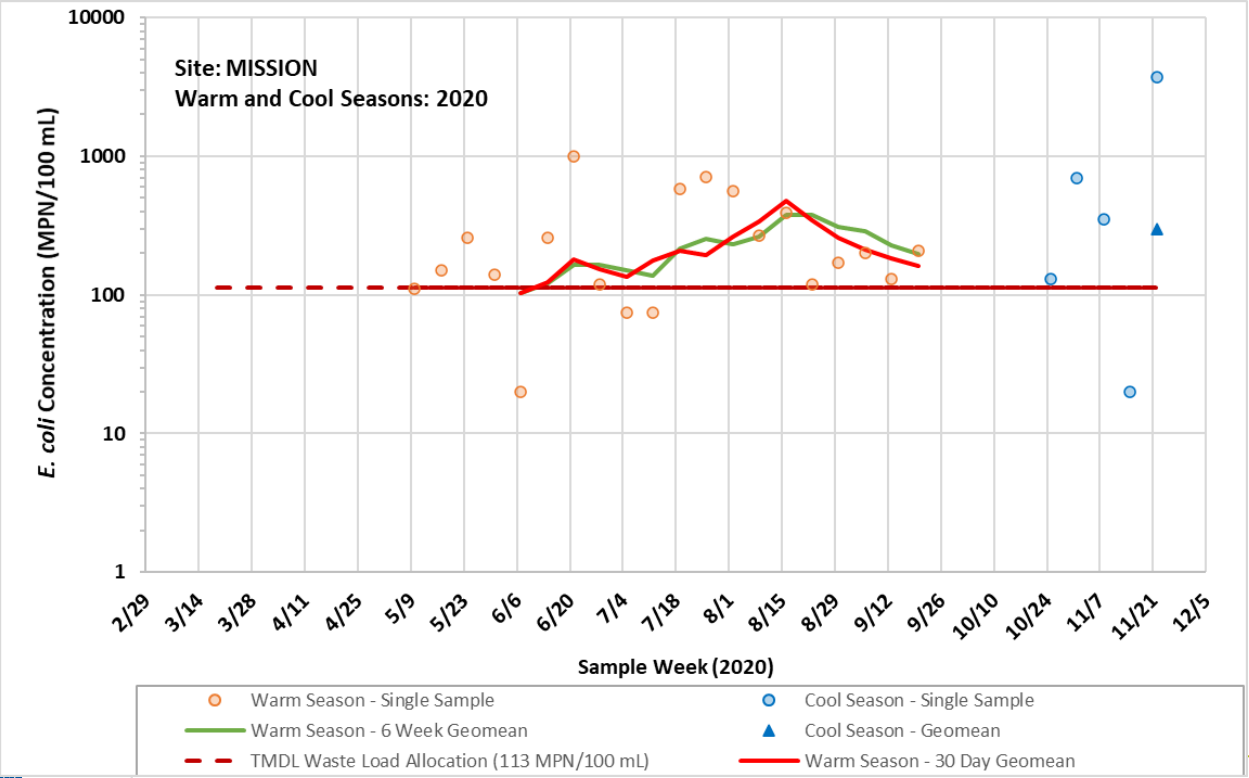
- Historical *E. coli* concentrations and geomeans





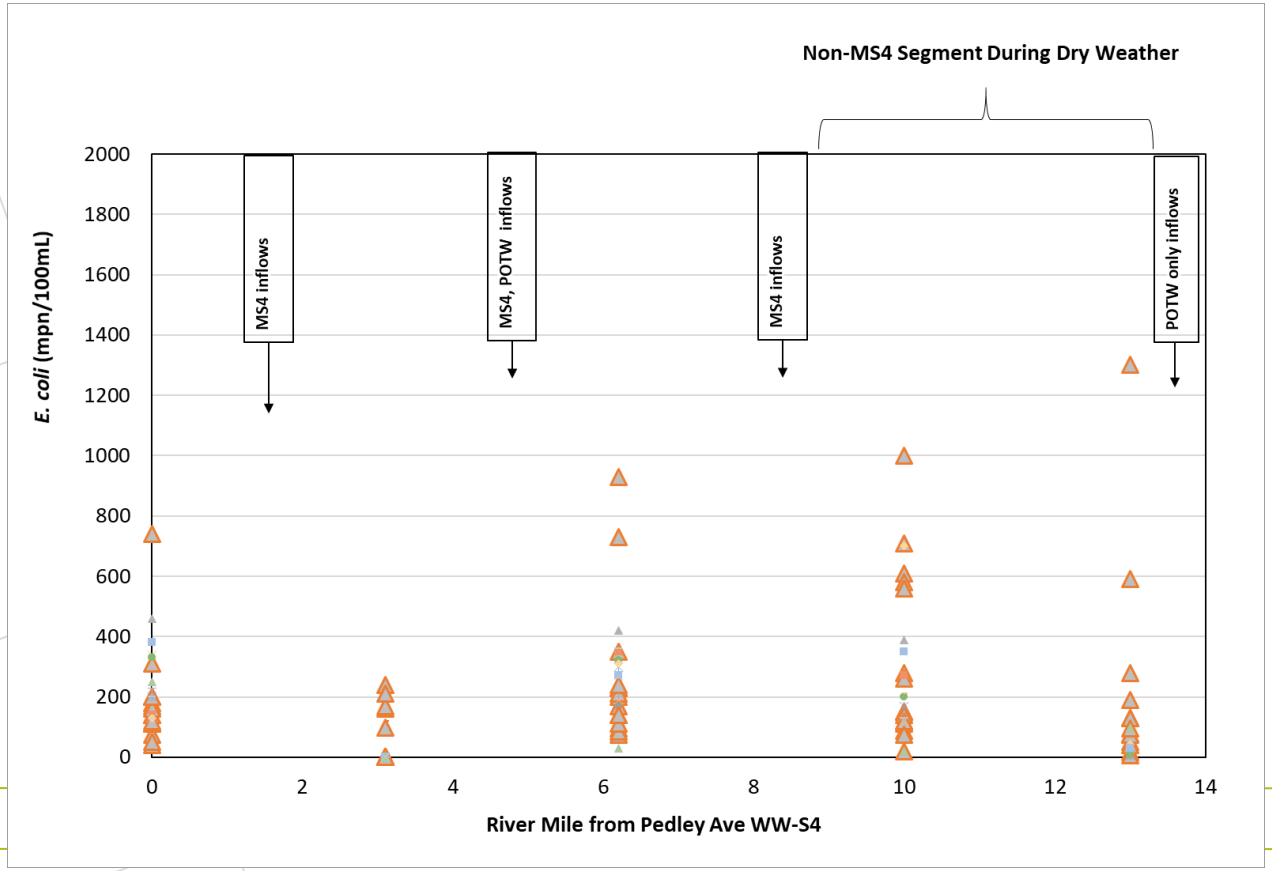
Santa Ana River at Mission

- Boundary of Reach 3 and 4 of the Santa Ana River
- Non-MS4 segment during dry weather routinely exceeds WQOs based on more frequent data collection in 2020



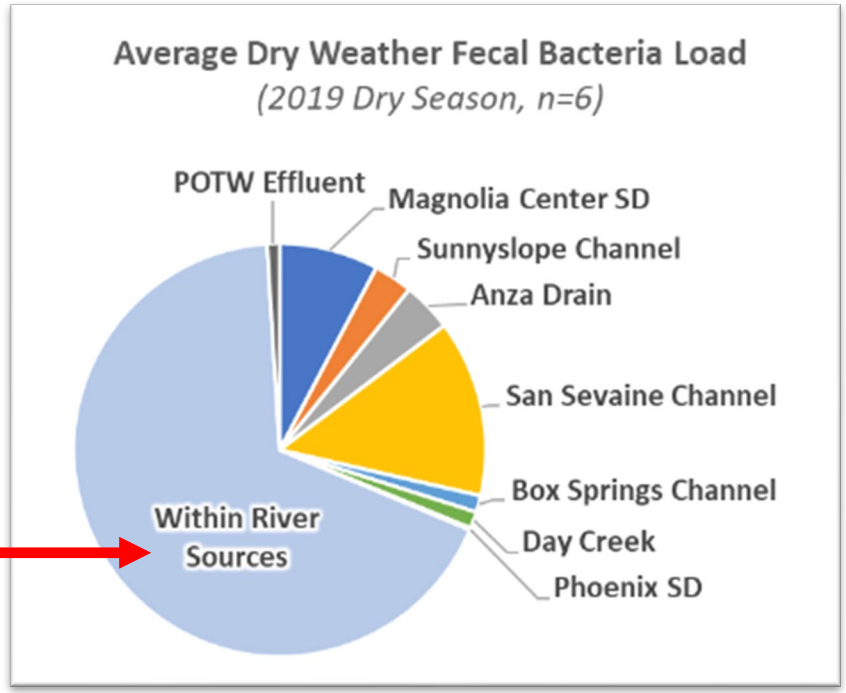
Santa Ana River at Mission

- *E. coli* load from non-MS4, non-POTW contribute about 300 billion MPN/day, which is enough to consume nearly 100% of the total allowable load for *E. coli* in the Santa Ana River



Santa Ana River at MISSION

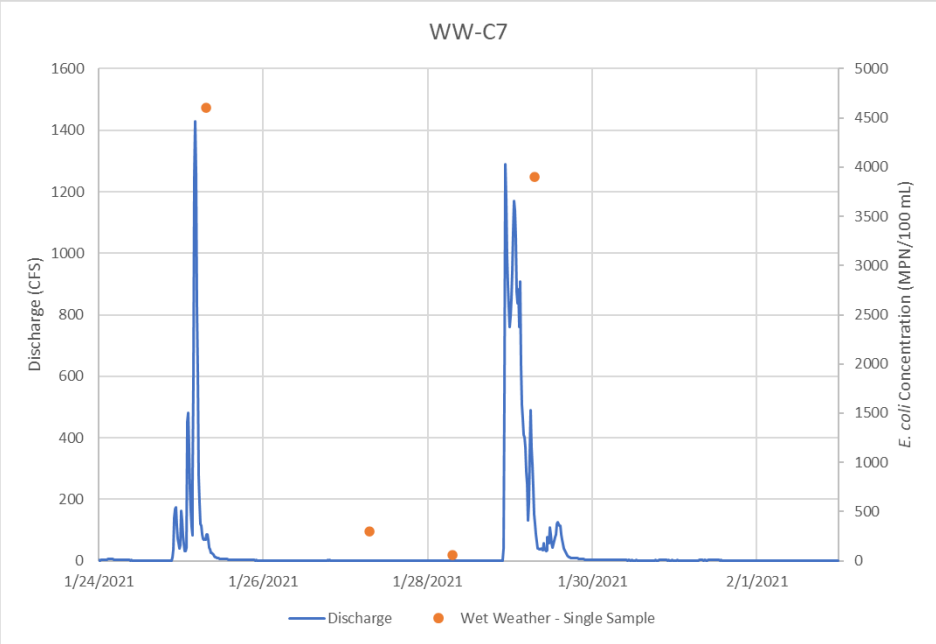
- Synoptic Study and ongoing sampling at Mission shows more than 2/3 of *E. coli* load in Santa Ana River comes from sources upstream of MS4 inflows
- Addressing within river sources critical to WQS attainment

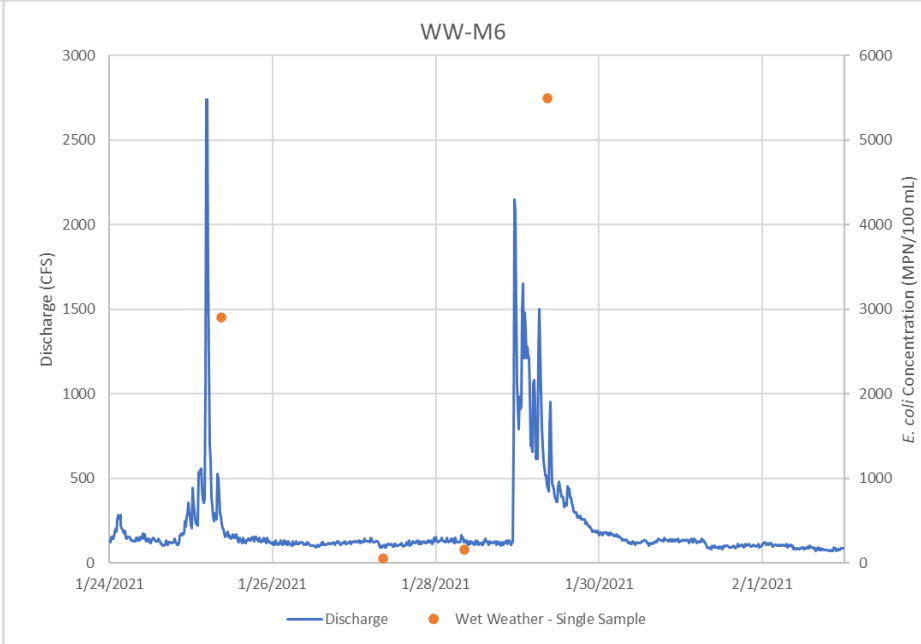


Zero MS4 or agricultural dry weather inflows upstream of Mission Avenue

Wet Weather Event

- One wet event sampled per year – one sample during storm, then ‘post-storm’ samples at 48, 72, 96 hours





Summary Presentation to Regional Board

- Task Force's iterative process (Prioritize, Investigate, Act)
- Demonstrable success in reducing bacteria loads