

QAPP Amendment Form

PROGRAM: Delta Regional Monitoring Program (DRMP)
PROJECT: Mercury
PREVIOUS QAPP VERSION: Version 7.0
AMENDED QAPP VERSION: Version 7.1
PREPARED BY: MLJ Environmental
DATE SUBMITTED: July 7, 2022

Title: Amendment to add an Additional Mercury Monitoring Event

Section of QAPP affected:

The following sections of the QAPP are being updated to include an additional mercury monitoring collection event to occur in the fall of 2022:

- Section 6.4.1. Mercury Monitoring Design.
- Table 6.2. Monitoring stations for mercury in water and fish.
- Table 6.3. Sampling schedule for mercury.
- Table 6.4. Number of mercury samples by type and by fiscal year at core monitoring locations.

Reason for Changes:

It was agreed during the December 14, 2021 Steering Committee meeting that mercury monitoring should go into a long-term planning stage after the 21-22 fiscal year (FY), discontinuing all sampling planned for FY 22-23. However, though the mercury monitoring has previously been presented to the DRMP on a fiscal year basis to coincide with the budget cycle, the overarching study design was done in a way to connect the spring water collections to a fall fish monitoring event. Therefore, it was suggested that a single additional fish and water monitoring event be conducted in the fall of 2022 as part of the FY 21-22 monitoring.

The rationale for the additional fall event includes:

1. Completing the water dataset for 2022 (able to compare spring to fall mercury concentrations)
2. Completing the paired water:fish data set for 2022 (able to compare spring mercury concentrations to the fall fish mercury concentrations)
3. Evaluating the effect of this unusual water year
4. Value in annual sampling for evaluation drivers of interannual trends, especially with the potential for a lagged response
5. Further establishing bass baselines at restoration stations.

At the March 21, 2022 meeting the Steering Committee recommended the additional fall monitoring event be added to the FY 21-22 version of Delta RMP QAPP (version 7.0) even though the event will take place during FY 22-23. The fall 2022 monitoring will occur under a contract

between Moss Landing Marine Laboratories (MLML) and the State Board using Surface Water Ambient Monitoring Program (SWAMP) funds.

This amendment updates the sampling period for the Delta RMP QAPP to include the fall 2022 sampling under the study design and QAPP requirements of the previous FY monitoring.

Detail of Changes:

Changes have been made to Section 6.4.1 and Tables 6.2 - 6.4 as follows:

6.4.1. Mercury

In FY21-22, three monthly sampling events for water are planned – fall (August - October), early spring (February - March) and late spring / early summer (April - June) at seven stations (**Table 6.2**). The timing of the early spring and late spring/ early summer events may be adjusted (in consultation with the Mercury TAC) to capture the effect of floodplain inundation in the watershed during high flow years. Scientists at MLML-DFW will choose the exact dates for water sampling within the time frames described previously. Any changes to planned sample dates shall be communicated to the Mercury TAC and Regional Board staff in a timely manner.

In addition, a single fish and water collection event to occur during the fall of 2022 will be added to the schedule to be associated with the FY21-22 data and to be conducted under the requirements of this QAPP. The results from this event will be evaluated in connection with the spring water samples taken during FY21-22. Fish sampling in the fall of 2022 will only occur at the five core stations and four restoration stations at which samples were successfully collected in 2021. Water samples will be collected at all seven core stations to be consistent with previous datasets.

The overall sampling schedule is shown in **Table 6.2** through **Table 6.4**.

Table 6.2 Monitoring stations for mercury in water and fish (prey fish monitoring will not occur in FY21-22).

#	CEDEN Station Code	Station Name	Latitude	Longitude	Fall 2021 Sport Fish (Bass) Sampling	Spring Prey Fish (Silversides) sampling ²	Water Sampling,	Fall 2022 Sport Fish (Bass) Sampling
Core monitoring stations					(7 stations)		(7 stations)	(5 stations)
1	510ADVLIM	Cache Slough at Liberty Island Mouth ¹	38.24213	-121.68539	●		●	
2	544LILPSL	Little Potato Slough	38.09627	-121.49602	●		●	●
3	544MDRBH4	Middle R @ Borden Hwy (Hwy 4)	37.89083	-121.48833	●		●	●
4	544ADVLM6	Lower Mokelumne R 6	38.25542	-121.44006	●		●	●
5	510ST1317	Sacramento R @ Freeport	38.45556	-121.50189 ¹	●		●	●
6	541SJC501	San Joaquin R @ Vernalis/Airport Way	37.67556	-121.26417	●		●	●
7	510ST1666	Sherman Island ¹	38.0431	-121.8044	●			
8	207SRD10A	Sacramento River at Mallard Island	38.04288	-121.92011			●	
Wetland restoration monitoring stations					(5 stations)	(8 stations)		(4 stations)
9	544CUGRWL	Cougar Wetland	38.25644	-121.409	-	●	-	-
10	510DLTAMD	Delta Meadows	38.261875	-121.499355	-	●	-	-
11	544GZSLWC	Grizzly Slough - Westervelt - Cougar	38.25343	-121.40690	●	-	-	●
12	510LIBISL	Liberty Island	38.320525	-121.680263	-	●	-	-
13	510ST0787	Lindsey Slough	38.25843	-121.75801	●	●	-	●
14	511XSSLIB	Lookout Slough ¹	38.31038	-121.69304	●	-	-	-
15	544MCWILT	McCormack-Williamson Tract	38.22640	-121.49144	●	-	-	●
16	510STSTPM	Stairstep Marsh	38.32469	-121.6583	-	●	-	-
17	544WESTVR	Westervelt Restoration	38.246257	-121.425654	-	●	-	-
18	510WILDLM	Wildlands Mitigation	38.33344	-121.67098	-	●	-	-
19	510TDNLHT	Yolo Flyway Farms ¹	38.33842	-121.64953	●	●	-	●

¹The existing permit does not allow for electrofishing at these locations; sampling crews will collect fish using hook and line sampling methods.

²Prey fish monitoring was originally planned for 8 wetland restoration monitoring stations; however, due to permit restrictions associated with Delta smelt critical habitat, prey fish monitoring will not occur in FY21-22.

Table 6.3. Sampling schedule for mercury. Due to permit restrictions associated with Delta smelt critical habitat, prey fish monitoring did not occur FY20/21 and will not occur in FY21/22

Year →	2016						2017						2018						2019						2020											
Fiscal Yr →	FY 16/17 (YEAR 1)						FY17/18 (YEAR 2)						FY18/19 (YEAR 3)						FY19/20 (YEAR 4)																	
Month →	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6
Monitoring element (# of sites sampled)																																				
Bass - Core		6																																		
Bass - Restoration																																				
Prey Fish - Restoration																																				
Water		5			5				5	5						6		8	8	8	8	8	8	8	8	8	8	8			8	8	8	8	8	8
Sediment																6		6			6															

Year →	2020						2021						2022						2023						2024											
Fiscal Yr →	FY 20/21 (YEAR 5)						FY 21/22 (YEAR 6)						YEAR 6 Extended						FY22/23 (YEAR 7)						FY23/24 (YEAR 8)											
Month →	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6
Monitoring element (# of sites sampled)																																				
Bass - Core			7 ¹										7 ¹																		7 ⁵					
Bass - Restoration			5 ¹										5 ¹																		5 ⁴					
Prey Fish - Restoration										8								8																		
Water			7 ¹						7	7					7 ¹								7	7							7					

Table 6.4. Number of mercury samples by type and by fiscal year at core monitoring locations. Prey fish samples were originally planned to be collected at 8 locations starting with FY20-21; due to permit restrictions, prey fish monitoring did not occur in FY20-21 and will not occur in FY21-22.

	Sport fish (bass)			Water			Sediment			Prey fish		
	Events	Stations	# Samples	Events	Stations	# Samples*	Events	Stations	# Samples*	Events	Stations	# Samples*
FY16-17	1	6	6	4	5	20	-	-	-	-	-	-
FY17-18	1	6	6	7	6-8	54	4	6	24	-	-	-
FY18-19	1	7	7	10	8	80	-	-	-	-	-	-
FY19-20	1	7	7	5	7-8	39	-	-	-	-	-	-
FY20-21	1	7	7	3	7	21	-	-	-	-	8	-
FY21-22	1	7	7	3	7	21	-	-	-	-	-	-
FY22-23 **	1	5	5	1	7	7	-	-	-	-	-	-

*Indicates the number of environmental samples. Additional field duplicates and field blanks are collected as specified in Table 14.2.

**A single additional sampling event will occur in fall of 2022 to be associated with the FY21-22 monitoring.

Approval:

The amendment(s) detailed within this document shall be effective upon signature completion of all parties listed below. By signing this amendment, all parties listed below acknowledge and accept these changes. A copy of this document shall be distributed to all parties within the QAPP distribution list and shall be included and/or attached to all distributed copies of the original QAPP.

DRMP Program Manager:	<p>DocuSigned by: <i>Melissa Turner</i> 9796DD915C44446... Melissa Turner</p>	Date: 7/14/2022
DRMP Quality Assurance Officer:	<p>DocuSigned by: <i>Will Hagan</i> A1D771E8E56040F... Will Hagan</p>	Date: 7/8/2022
Project Manager, MPSL-DFW:	<p>DocuSigned by: <i>Wes Heim</i> 84F7113F8ADA499... Wes Heim</p>	Date: 7/10/2022
SWAMP QA Officer, SWRCB:	<p>DocuSigned by: <i>Tessa Fojut</i> 7A88852197AE41E... Tessa Fojut</p>	Date: 7/13/2022
Quality Assurance Representative, CVRWQCB:	<p>DocuSigned by: <i>Selina Cole</i> F3102A0E248746B... Selina Cole</p>	Date: 7/12/2022
Quality Assurance Officer, SWRCB:	<p>DocuSigned by: <i>Andrew Hamilton</i> 7CBAC1E276074C6... Andrew Hamilton</p>	Date: 7/8/2022