CAMBRIA WATER RECLAMATION FACILITY ADAPTIVE MANAGEMENT PLAN

QUARTERLY BASELINE MONITORING

Summer and Fall 2024

Prepared for:

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1.0 INTRODUCTION

Kevin Merk Associates, LLC (KMA) conducted surface water and habitat monitoring for the Cambria Water Reclamation Facility (WRF) Project (formerly called the Cambria Sustainable Water Facility Project), as detailed in the project's Adaptive Management Plan (AMP; Michael Baker International [MIB] 2017a). The study area is located in the lower San Simeon and Van Gordon creeks as shown on exhibits included in the AMP. It is located to the south and east of Cambria Community Services District's (CCSD's) WRF and water infrastructure, and north and east of Hearst San Simeon State Park. The site is approximately 2.0 miles southeast of San Simeon, in San Luis Obispo County, California. For further site location information, please refer to maps provided in the AMP. This report presents the results of summer and fall quarterly monitoring for 2024.

2.0 BACKGROUND

The WRF is designed to pump groundwater from an existing well near the confluence of San Simeon and Van Gordon creeks, treat it, and reinject it back into the groundwater aquifer via a recharge infiltration well located near three wells used by the CCSD for Cambria's potable water supply. The source water from Well 9P7 consists of brackish groundwater, percolated treated wastewater from the CCSD's adjacent wastewater ponds, and possibly creek underflow. Injection would slow the flow of groundwater to the ocean and would protect the potable well field from saltwater and percolated treated wastewater intrusion. Additionally, treated wastewater effluent would be discharged into the San Simeon Creek Lagoon to maintain water levels. The WRF at the San Simeon Creek Road location was constructed in 2014 under an emergency Coastal Development Permit (CDP) that allows it to operate only during water shortages that meet defined thresholds. The CCSD is proposing that the WRF be authorized for long-term use to provide a reliable water supply during future water shortages.

Operation of the WRF could have the potential to influence surface flows in San Simeon and Van Gordon creeks, which in turn could adversely affect several special-status animal species that inhabit this area. Reduced flows resulting from WRF operation could directly impact aquatic species, and in combination with decreased groundwater levels, could negatively affect riparian habitat through reduced soil moisture. Implementation of the AMP was required in the project's Revised Final Subsequent Environmental Impact Report (RFSEIR) under Mitigation Measure BIO-7 (MIB 2017b) and is a condition of the CDP. The AMP describes methods to assess changes in groundwater and surface water; to determine the interaction of groundwater and surface water with instream and riparian habitat; and, special-status species monitoring (MIB 2017a). Once baseline levels are established, specific thresholds shall be determined that trigger adaptive management (MIB 2017a). Additionally, the *San Simeon Creek Instream Flows Assessment* provided an independent evaluation of WRF effects on surface flows as they relate to special-status species habitat, and established thresholds for management of the habitat (Stillwater Sciences 2024).

The WRF has not been in operation since 2015, and baseline data per the AMP guidelines have been conducted from January 2015 through May 2023 by other investigators. This period of baseline data collection has shown considerable variation in many of the variables measured under the AMP due to natural fluctuations in surface water levels and availability in this intermittent stream system, as well as annual variability in special-status species populations (Cleveland Biological, LLC 2022). Currently, KMA is working with the CCSD to refine the methods and parameters monitored under the AMP to more efficiently accomplish plan goals under a quarterly monitoring program until the WRF is in operation. This report summarizes the initial KMA monitoring effort, which addresses a subset of the habitat variables described in the AMP. Additional aspects of the AMP will be implemented during monitoring for the next quarter.

3.0 METHODS

Eight habitat monitoring sites were established in the AMP (MIB 2017a) and the locations were generally adopted by Cleveland Biological, LLC (2022), except that the latter repositioned three of the sites. KMA utilized the six San Simeon Creek sites identified in Cleveland Biological, LLC (2022) in order to assess trends in the parameters. However, high flows in winter 2023/2024 had reconfigured the channel morphology and substrate conditions, and it was not possible to precisely replicate physical conditions described by Cleveland Biological, LLC. Additionally, each of the eight sites monitored by Cleveland Biological, LLC (2023) were riffles or runs, which naturally dry down faster than pools as seasonal flows decline. In addition, riffles and runs are expected to have a lower chance of being influenced by groundwater level fluctuation when the WRF is operational. Therefore, KMA selected persistent pools as close to the previously identified monitoring sites as possible. The two monitoring sites on Van Gordon Creek were inaccessible due to dense brush and fallen trees within the channel. Habitat conditions for Site 7 were assessed from the farthest upstream point that could be accessed by walking upstream from the confluence with San Simeon Creek, and Site 8 was closer to Hab-8 identified in the AMP and was evaluated from the San Simeon-Monterey Creek Road crossing. The goal of KMA monitoring going forward will be to establish eight permanent monitoring sites at pools that can be accessed from outside of the stream channels during periods with high flows.

Monitoring for the summer quarter was conducted by KMA's Principal Biologist Kevin B. Merk and Senior Biologist Susan V. Christopher, Ph.D., on August 21, 2024 from 1115 to 1315 hours. The air temperature was around 66 degrees Fahrenheit (°F), with winds off the ocean less than 5 miles per hour and clear conditions with good visibility. The beach berm across the lagoon was closed and flows were backed up from the lagoon to upstream of the Van Gordon Creek Road bridge, where the stream channel was accessed. The observers walked in the channel going upstream and recorded data at each of the monitoring locations. The data collected at each site included:

- Maximum width of surface water;
- Maximum depth;
- Channel width at the ordinary high water mark (OHWM);
- Qualitative description of flow;
- Substrate type; and,
- Presence and type of algae.

Water depth was measured using a stadia rod. Surface water and channel width at the OHWM were visually estimated. Photographs were taken to document conditions at each of the monitoring sites, and are included in Appendix A Photo Plate. Animal species seen incidentally during the survey were also recorded.

Monitoring for the fall quarter was again conducted by Kevin B. Merk and Susan V. Christopher, Ph.D., on October 24, 2024 from 1400 to 1645 hours. The air temperature was around 70 °F, with calm winds and clear conditions with good visibility. The beach berm across the San Simeon Creek lagoon was closed and flows were backed up from the lagoon to upstream of the confluence with Van Gordon Creek. The tide cycle was low at 1118 hours and high at 1639 hours. Water temperature was approximately 62 °F and appeared to be relatively consistent throughout the survey area. The observers walked in the channel going upstream from the Van Gordon Road bridge and recorded data at each of the monitoring locations. The data collected at each site included:

- Maximum width of surface water;
- Maximum depth;
- Qualitative description of flow;
- Presence and type of algae; and,
- Aquatic species observed.

Water depth was measured using a stadia rod and surface water width was visually estimated. Four photographs were taken at each site to document habitat conditions, and are included in Appendix A Photo Plate. Animal species seen incidentally during the survey were recorded. Additionally, focused visual surveys were conducted for aquatic species throughout the survey area along with a reference visit to the slough adjacent to the Washburn Day Use Area. Target species searched for were tidewater goby (*Eucyclogobius newberryi*), south-central California coast Distinct Population Segment steelhead (*Oncorhynchus mykiss irideus* pop. 9), southwestern (=western) pond turtle (*Actinemys pallida*), California red-legged frog (*Rana draytonii*), and two-striped gartersnake (*Thamnophis hammondii*). Binoculars were used to scan areas ahead within the surveys area. The focused survey for aquatic species is consistent with Mitigation Measure BIO-7 in the RFSEIR for biannual surveys for these species, and will be repeated next spring. Additionally, a night-time survey for the California red-legged frog will be conducted in February/March 2025 during optimal survey periods. Except for the area near the bridge that had water backed up from the lagoon, the water was too shallow for adult California red-legged frogs and it was determined to be too late in the year to reliably conduct a night survey given low water level and colder night temperatures.

4.0 RESULTS

The data collected during the monitoring visits are presented in Tables 1 and 2. See Section 3.0 for a description of the parameters measured.

Table 1. Surface Water and Habitat Data from August 21, 2024

	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7
Width	15'	12'	15'	18'	36'	36'	0
Depth	27"	19"	18"	11"	6"	29"	0
OHWM	60'	47'	51'	61'	70'	70'	12'
Flow	Isolated pool	Dry upstream, ponded water downstream	Dry upstream, barely flowing out of pool	Dry upstream, flowing out of pool	Little flow	Backed up from lagoon	Dry
Substrate	Sand, silt, gravel in pool, cobble on bench	Scoured against bedrock	Loose sand	Cobble, gravel	Silty clay	Cobble, gravel	Cobble
Algae	None	Surface	Surface	Submergent	None	Surface, Submergent	N/A

At least one tidewater goby was seen incidentally during the survey. Sierran treefrog (*Pseudacris sierra*) metamorphs and threespine stickleback (*Gasterosteus aculeatus*) were also observed. Special-status avian species seen were great blue heron (*Ardea herodias*), great egret (*Ardea alba*), and three roosting snowy egrets (*Egretta thula*). Additional avian species that are not considered special-status were also observed.

Table 2. Surface Water and Habitat Data from October 24, 2024

	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Sites 7 & 8
Width	0	6'	14'	17'	36'	40'	0
Depth	0	15"	16"	13"	6"	36"	0
Flow	Dry	Isolated pool	Dry upstream, shallow standing water downstream	Standing water	Little flow	Backed up from lagoon	Dry
Algae	Dried	Surface	Low surface	Filamentous floating Substrate blue-green	Substrate blue-green	Low surface, Submergent filamentous	N/A
Animals	None	None	Stickleback	Stickleback	Giant water bug	Tidewater goby, water boatmen	N/A

Adult tidewater gobies were very common from the Van Gordon Road bridge upstream to the extent of water backed up from the lagoon. Density estimates were 10 to 30 individuals per square meter. Threespine stickleback were schooling in most pools, included isolated pools upstream that were drying up. No juvenile steelhead were observed. Sierran treefrog metamorphs were in the dry creek bed. One adult southwestern pond turtle was observed in the slough. Great blue heron, great egret, and roosting snowy egrets were seen in the survey area, as well as several avian species that are not considered special-status. One monarch butterfly (*Danaus plexippus plexippus*) was observed flying through the creek corridor.

The RFSEIR determined that because the evaporation pond within the CCSD facility could attract California red-legged frogs, it shall be surrounded by an appropriate frog-exclusion fence. An ERTEC E-fence was installed between 2014 and 2016. The condition of the pond and fence was assessed from outside of the perimeter fence for the facility. There was shallow ponded water collected on the pond liner, and the exclusion fence was weathering and would not effectively exclude frogs. Dense weeds were throughout the site.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The results of the summer and fall quarterly AMP monitoring surveys are provided in Tables 1 and 2 above. Overall, the stream was in excellent condition with the lower reach supporting pools and riffle/run complexes, and abundant wildlife. The riparian and seasonal wetland habitats supported a diverse suite of species that have been recorded during previous annual monitoring efforts. The variables designated for monitoring in the AMP are highly fluctuating between years based upon the amount of rainfall received, and within years as seasonal stream flows decline in this intermittent system. The AMP and past monitoring have not included a comparison of total annual rainfall received, or a comparison of precipitation patterns over the course of each year, in the analysis of the surface water monitoring. Precipitation has a direct effect on most of the variables selected for monitoring. In these systems, several successive years of normal precipitation can influence groundwater levels and surface water input from headwaters areas.

The goal of the AMP is to detect changes in the aquatic systems as a result of operation of the WRF by plotting time-series data of the parameters and examining trends before and after WRF

operation (Stillwater Sciences 2024). Determining "normal seasonal trends" is problematic because the variables selected for monitoring fluctuate due to numerous natural factors that are characteristic of intermittent streams in a Mediterranean climate. In addition, variables such as stream flow, dissolved oxygen, total dissolved solids, salinity, instream cover, substrate type, and substrate embeddedness vary annually and seasonally based upon the exact point in which these parameters are measured. Even where permanent sampling points are established, conditions will change annually based upon scouring flows that rearrange substrate and remove vegetation, deposit sediment, and supply from upstream areas. Trend data where zero values are obtained during dry conditions can also create challenges in interpretating parameter values over time. Studies using measurement of these types of variables are best suited for habitat typing (i.e., steelhead habitat suitability) comparisons between drainages at the landscape scale. Monitoring these variables within this intermittent drainage system over time may not truly provide the determination that the WRF operations are causing adverse impacts to instream pools and surface water flow. Causation cannot be established between the factor and the measured values when these values can be influenced by a number of other factors given the dynamic nature of the system.

While the creek is flowing continuously between upstream sources and the ocean, the influence of groundwater in the surrounding area on surface water levels is expected to be minimal. It is recommended that monitoring to determine the effects of WRF operations, when active, should be timed to occur when the creek starts to dry down with the formation of isolated pools. This is a dynamic process and is expected to change on an annual basis. The AMP monitoring can be tailored to focus on the correlation between the depth of the groundwater and surface water persistence in isolated pools to determine whether recharge into the system is compensating for groundwater pumping. The use of groundwater well monitoring in combination with direct observations of surface conditions within the riverine habitats will be critical to determine if WRF operations are adversely affecting instream pools supporting special status wildlife. The very nature of the AMP should be adaptive in the approach to monitoring data collection, including the amount of water withdrawals at the municipal potable water wells that can also be incorporated into the analysis.

6.0 REFERENCES

Cleveland Biological, LLC. 2022. Draft Cambria Community Services District Water Reclamation Facility Adaptive Management Plan Annual Report 2022. Prepared for Cambria Community Services District, Cambria, California.

Cleveland Biological, LLC. 2023 (May 20). Cambria Community Service District Adaptive Management Plan Biological Monthly Report. Prepared for Cambria Community Services District, Cambria, California.

Michael Baker International (MBI). 2017a (July 13). Cambria Sustainable Water Facility Project, San Luis Obispo County, California, Adaptive Management Plan (AMP). Prepared for Cambria Community Services District, Cambria, California.

Michael Baker International (MBI). 2017b (July 12; Revised Final). Cambria Sustainable Water Facility Project Subsequent Environmental Impact Report. SCH No. 2014061073. Prepared for Cambria Community Services District, Cambria, California.

Stillwater Sciences. 2024. San Simeon Creek Instream Flows Assessment. Final Report. Prepared for Cambria Community Services District, Cambria, California.

APPENDIX A

Photo Plate

KMA

Appendix A. Photo Plate

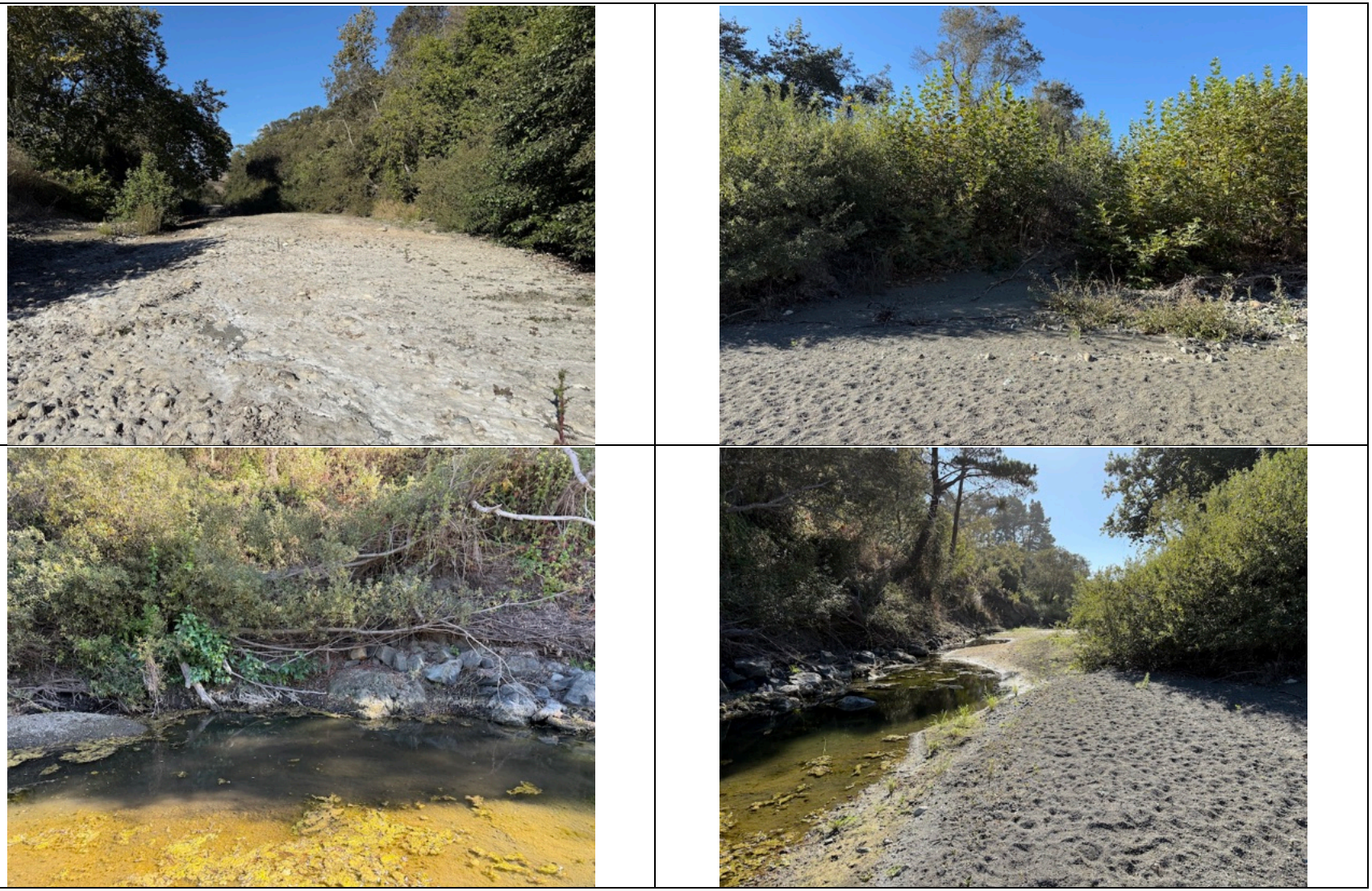
Site 1 on August 21, 2024

Site 1 on October 24, 2024

Site 2 on August 21, 2024

Site 2 on October 24, 2024

Site 3 on August 21, 2024



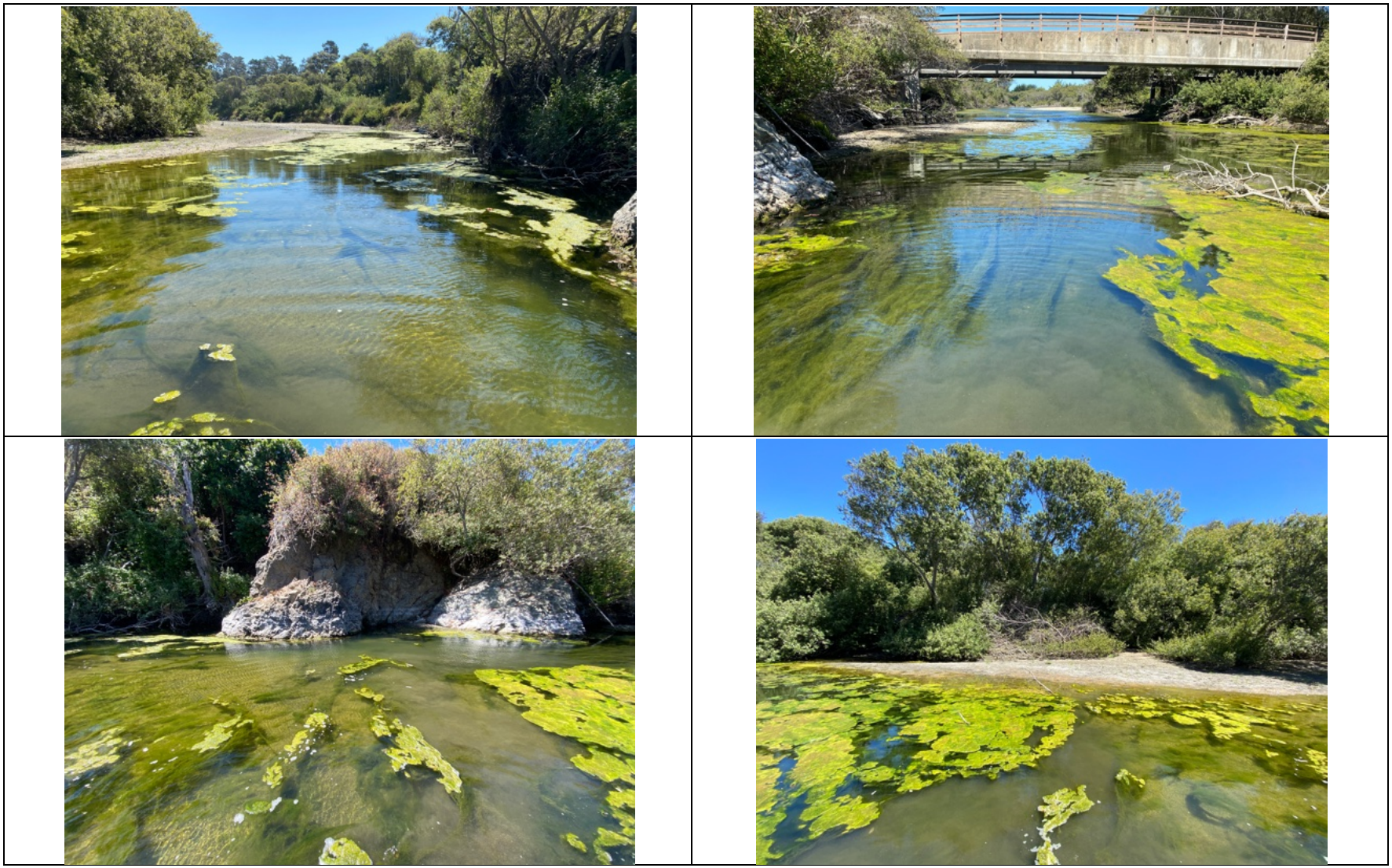
Site 3 on October 24, 2024

Site 4 on August 21, 2024

Site 4 on October 24, 2024

Site 5 on August 21, 2024

Site 5 on October 24, 2024



Site 6 on August 21, 2024

Site 6 on October 24, 2024

Site 7 on August 21, 2024

Site 8 at San Simeon-Monterey Creek Road, downstream (left) and upstream (right) on October 24, 2024

Lagoon at Highway 1, downstream (top) and upstream (bottom) on October 24, 2024

Lagoon Downstream from Van Gordon Creek Road Bridge on October 24, 2024