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Project No: 25-18126

Bryan Bondy, PG, CHG
Executive Director
Upper Ventura River Groundwater Agency
Via email: bbondy@uvrgroundwater.org

**Subject: Proposed Amendments to the Foster Park Aquatic Habitat Area Aquatic Groundwater Dependent Ecosystems Monitoring Workplan**

Dear Mr. Bondy:

Per our discussion, this letter documents formerly incorporated and newly proposed amendments to the Foster Park Aquatic Habitat Area Aquatic Groundwater Dependent Ecosystem (Aquatic GDE) Monitoring Workplan (Workplan). Following guidance provided in Section 5.8 of the Groundwater Sustainability Plan (GSP), Upper Ventura River Groundwater Agency (UVRGA) adopted the Workplan on August 11, 2022, to assess performance of the interconnected surface water (ISW) depletion sustainable management criteria (SMC) included in the GSP for the Foster Park Aquatic GDE. The Workplan's monitoring elements were specifically crafted to assess conditions during periods of low surface water flow during which significant and unreasonable effects to the Aquatic GDE could potentially occur. Following initial implementation of the Workplan, the first round of Workplan amendments were approved by the UVRGA Board of Directors on June 13, 2024. This document presents a second round of Workplan amendment based on additional information gained since spring 2024.

## Summary 2024 Workplan Amendments

As a result of two consecutive high rainfall seasons in Water Years 2023 and 2024, elevated flows occurred in the Aquatic GDE and throughout the Ventura River. The Workplan established anticipated schedules for snorkel and habitat suitability surveys, continuous water quality and flow data collection without regard to flows. While the purpose of the Workplan was to assess habitat suitability conditions at lower flows, it did not specify flow ranges or targets to trigger monitoring activities. In light of the elevated flow conditions and the need for more specificity, Workplan amendments were proposed on March 31, 2024 and ultimately approved on June 13, 2024, which clarify the monitoring schedule and establishes flow- and condition-based triggers for monitoring components. The goal of these amendments was to focus monitoring efforts during periods of lower flows that are most relevant to the GSP sustainability criteria.

The implemented modifications include:

- Continue to conduct one snorkel and habitat survey in the winter, timing dependent upon safe flow conditions for river access.
- Continue to conduct at least one snorkel and habitat survey in the summer/fall.
- Do not conduct additional summer/fall snorkel and habitat surveys if flows do not recede below 12.7 cubic feet per second (cfs) at Casitas Vista Road Bridge (location of the USGS Stream Site 11118500).[1]

[1] This flow threshold is based on the current measurable objective included in the GSP

- Deploy continuous data loggers and conduct stream gaging activities once receding baseflow conditions allow for safe access to the river, flow is confined to a primary/main channel, and instantaneous discharge measurements can be safely collected.
    - This will require discretion based on professional judgement, and appropriate conditions are anticipated to occur around 40 - 50 cfs, measured at Casitas Vista Road Bridge.

# Proposed Additional Workplan Amendments

Additional workplan amendments are proposed based on field observations made between spring 2024 and spring 2025. The proposed amendments are as follows:

- Thresholds for summer/fall snorkel and habitat surveys, which includes a trigger for the initial summer survey to occur after flows recede to 12.7 cfs, and additional thresholds that trigger surveys between 5.0 to 7.0 cfs and another between 3.0 to 5.0 cfs. These targeted surveys at the established flow thresholds provide data for specific flow ranges that are currently missing from the monitoring program's dataset. Few surveys have been completed at or below 7cfs, and no surveys have been conducted below 5 cfs. The 5.0 to 7.0 cfs flow range is important for data collection as flows recede and change the habitat suitability conditions and flows below 5.0 cfs are when many riffles and runs are expected to dry and pool isolation is likely to occur. Together, data collected within these flow thresholds will support habitat suitability assessment.
- In addition to continued snorkel and habitat surveys, a new monitoring component is proposed for targeted continuous water quality monitoring in areas of habitat refuge (e.g., pools) of the Aquatic GDE during low flow conditions. This targeted monitoring effort is called "Refuge Water Quality Monitoring" and more details are provided below and in Appendix A.
- Updates to the Monitoring Program Components Overview table from the workplan to present monitoring component updates, such as the "As Needed Habitat Mapping Reset" component, as well as the addition of other details. These updates are provided in Appendix A.

## New Monitoring Component: Refuge Water Quality Monitoring

Over the course of the monitoring program, field biologists have observed areas of potential aquatic habitat refuge within pools in the Aquatic GDE. These pools are deeper than the surrounding habitat features and have been documented and mapped. A characteristic of these pools, that is important to aquatic species, is their cooler water temperatures when compared to the ambient, shallower surface water. While continuous water quality monitoring occurs at two established sites in the Aquatic GDE, targeted continuous water quality monitoring at these potential habitat refuge areas may support UVRGA's understanding the dynamic conditions of these refuge areas and whether potential significant and unreasonable effects might occur for steelhead and other special status species. The water quality conditions in these potential refuge areas is of particular importance when flows recede and/or when channel conditions are shallow across the Aquatic GDE (e.g., during braided or spread-out flows).

As surface water flows recede, field biologists will evaluate the appropriate location for targeted refuge water quality monitoring within the Aquatic GDE. Surveyors will assess each designated mesohabitat unit within the Foster Park Aquatic GDE to identify areas where steelhead and other sensitive species may be taking refuge. These detected locations will be georeferenced, and one location will be selected for the installation of continuous data loggers within the corresponding refuge area (e.g., pool). For these focused water quality monitoring locations, two continuous data loggers will be installed to record water quality parameters at an hourly interval, including water temperature, dissolved oxygen (DO), and pH. One logger will be deployed at a shallow depth to record the near surface water

conditions, and the second logger will be deployed near the riverbed to record water quality conditions at depth. The selected refuge area will be selected using data and observations from past mesohabitat mapping and snorkel and habitat suitability surveys. Specific attention to mesohabitat structures within the Aquatic GDE and previous observations of water quality conditions and species presence during surveys will inform pool selection. Through this selection process, Rincon's experienced lead field aquatic biologist will seek to ensure that the selected location represents an area that steelhead and/or other aquatic species would be likely to use as refuge during unfavorable ambient surface water conditions in the Aquatic GDE.

## Purpose of Refuge Water Quality Monitoring

The primary objective of this monitoring component is to characterize the different water quality conditions between the flowing water at or near the surface (ambient surface water) and the water that is within the pools that may provide aquatic habitat refuge. This effort may provide insight into groundwater-surface water interactions and the potential role ISW has in maintaining thermal refuge, DO availability, and water chemistry stability during varying hydrologic conditions, specifically during low surface water flows. These data may also support a detailed assessment of seasonal variability to inform management decisions regarding the persistence and ecological function of these key refuge areas related to potential significant and unreasonable effects.

A summary of the Foster Park monitoring program components, including data collected, purpose, schedule, locations, and references/protocols are provided in Appendix A.

Sincerely,
**Rincon Consultants, Inc.**

Charleen Rode
Lead Aquatic Senior Biologist

Kiernan Brtalik
Director of Watershed Sciences

## Appendices

Appendix A Monitoring Program Components Overview

# Appendix A

Monitoring Program Components Overview

## Monitoring Program Components Overview

| Monitoring Component | Data Collected | Purpose | Schedule | Locations | References/Protocols |
|---|---|---|---|---|---|
| Initial Habitat Mapping | Map aquatic mesohabitats in the Foster Park Aquatic Habitat Area Aquatic GDE | Will provide in-depth information on existing habitats within the GDE and allow for identification of specific mesohabitats to monitor | Once at the beginning of the program (likely during Fall 2022) | Entire Foster Park Aquatic Habitat Area Aquatic GDE (approximately 1,590 linear feet) | California Salmonid Stream Habitat Restoration Manual (Flosi et al. 2010) |
| As-Needed Habitat Mapping Reset | In the event of a habitat resetting flood event, aquatic mesohabitats in Foster Park would be mapped. | Provides in-depth information on mesohabitats within Foster Park and allows for identification of specific mesohabitats to monitor. | Will only occur if a significant flooding event occurs and substantially changes the river channel and habitat structures (based on best professional judgement). | Entire Foster Park Aquatic GDE. | California Salmonid Stream Habitat Restoration Manual (Flosi et al. 2010). |
| Routine Habitat Suitability and Snorkel Surveys | Survey ~~HSI~~ habitat suitability parameters, including sediment type, riparian vegetation/cover, water depth, and various in-stream structure, as well as all species observed, within predetermined pools, riffles, and ~~glides~~runs. Steelhead presence/absence will be documented during snorkel surveys. Fish stranding/morality will also be documented. | ~~Will provide~~ Provides detailed information on existing conditions for assessment of habitat suitability for steelhead, CRLF, and other aquatic organisms. Conditions can be quantified and compared with streamflow, as well as climatic data, groundwater levels, and modeled ISW depletion. | ~~At least four times per year (once during winter and at least three times during summer/fall).~~ Up to four times during the Water Year, as follows:<br>Survey #1: Will occur during the winter season when streamflow conditions are safe and with good water visibility<br>*Survey #2: Occurs when flows decrease to ≤ 12.7 cfs*<br>*Survey #3: Occurs when flows are between 5.0 to 7.0 cfs using best professional judgement*<br>*Survey #4: Occurs when flows are between 3.0 to 5.0 cfs using best professional judgement* | Designated monitoring locations (e.g., pools, riffles, ~~glides~~runs) within the Foster Park Aquatic Habitat Area Aquatic GDE | SS HSI (Normandeau Associates, Inc. 2015, Padre Associates, Inc. 2013)<br>California Salmonid Stream Habitat Restoration Manual (Flosi et al. 2010).<br>Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog (USFWS 2005).<br>NWFS and CDFW Integration of Steelhead Viability Monitoring, Recovery Plans and Fisheries Management in the Southern Coastal Area (Boughton et al. 2022). |

| Monitoring Component | Data Collected | Purpose | Schedule | Locations | References/Protocols |
|---|---|---|---|---|---|
| Water Quality and Flow Monitoring | Continuous water level, DO, pH, temperature. | Provides continuous flow and water quality data that can then be correlated with streamflow, as well as climatic data, groundwater levels, and modeled ISW depletion. | Continuous data collection, data downloaded during each field visit. Initial deployment will occur when flow conditions are safe for river access (anticipated to occur around 40 - 50 cfs) | ~~One~~ Two designated locations within the Foster Park Aquatic Habitat Area Aquatic GDE[3] | LA RWQCB[1] Basin Plan (2014), USGS[2] standards for stream gauge installation, UVRGA Monitoring and Data Collection Protocols (2018) |
| Refuge Water Quality Monitoring | Continuous water quality monitoring at targeted refuge areas (e.g., pools) for water temperature, DO, and pH. | Provides localized data pertaining to areas of potential refuge. | During receding flows, based on best professional judgement | Two data loggers will be installed within the same designated refuge area. One shallow logger will be deployed to collect near surface water quality measurements, and another will be deployed deeper to measure water quality at depth near areas of suspected groundwater inflow. One set of data loggers will be installed within Foster Park. | UVRGA Monitoring and Data Collection Protocols (2018). |
| Aerial Photography | Aerial images. | ~~Will provide~~ Provides a visual time series of overall conditions within ~~the GDE~~Foster Park and allow for comparison of conditions over time and during different hydrologic and climatic conditions. | ~~At least~~Up to four times per year, concurrent with habitat suitability and snorkel surveys | Aerial photographs of the upper, middle, and lower portions of the Foster Park Aquatic Habitat Area Aquatic GDE. | General photography and FAA rules. |
| Repeat Ground Photography | Photographs of instream and riparian habitat from fixed locations | Will provide a visual time series for each monitoring location that will allow for comparison of habitat conditions over time and during different hydrologic and climatic conditions | ~~At least~~Up to four times per year, concurrent with habitat suitability and snorkel surveys | Photographs will be taken from fixed locations at each mesohabitat that is monitored during the habitat suitability and snorkel surveys. | General photography |

1. Los Angeles Regional Water Quality Control Board
2. U.S. Geological Survey
3. USGS stream gage (VENTURA – 11118500) satisfies the lower Foster Park flow monitoring location