Annual Implementation Report (AIR)

Prepared by NOAA's National Marine Fisheries Service

June 30, 2024

For Report information and copies, please contact:

Jim Simondet

Klamath Branch Supervisor

California Coastal Area Office, West Coast Region

National Marine Fisheries Service

1655 Heindon Road Arcata, California 95521

(707) 825-5171

TABLE OF CONTENTS

Summary Report for the Shasta River Template Safe Harbor Agreement Implementation in 2023

Per Section 6.6.4 of the Shasta River Template Safe Harbor Agreement (SHA), each year NOAA's National Marine Fisheries Service (NMFS) will review reports provided by Permittees and the Shasta Watershed Conservation Group (SWCG), and prepare a public Annual Implementation Report (AIR), documenting implementation of the Site Plan Agreements and actions taken toward achievement of Net Conservation Benefit. Appendix A of this report are data submitted by permittees from Effectiveness Monitoring stations; and Appendix B includes diversion monitoring data submitted by permittees. Major Beneficial Management Activities (BMAs) accomplished (by Entity) during this reporting year as reported by SWCG include:

Permit # 23287 Montague Water Conservation District (MWCD)

MWCD received funding for and entered into a contract to line approximately 6,000' of the main canal with shotcrete. The project is part of the MWCD's water conservation commitment that will provide water for in-stream benefit. Additional funding was obtained through the Natural Resource Conservation Service's (NRCS) Regional Conservation Partnership Program through the National Federation of Fish and Wildlife (NFWF) to line an additional 6,000' of canal. A funding request for fish passage options was granted in support of investigation into fish passage options around Dwinnell Dam. Problems experienced during this reporting period include the need to find alternative permitting pathways for restoration projects as a result of the SHA California Environmental Quality Act (CEQA) document and biological opinion (BIOP) being determined inadequate, finding funding opportunities to support ongoing monitoring requirements, and SWRCB curtailment demands continue to conflict with approved Flow Management Strategies for the SHA.

Contact Person: Gary Black

Permit # 23290 Emmerson Investments Inc. (Seldom Seen Ranch)

Emmerson Investments Inc. presented the same requirements and actions that are reported for Hole-in-the-Ground Ranch.

Contact Person: Len Lindstrand

Permit # 23285 Hidden Valley Ranch (HVR)

HVR, having completed all its major projects in the previous two years, focused on required maintenance and monitoring activities associated with the BMAs in the site plan. Of note was the continued delay in obtaining the desired 1707 designation which would be necessary for implementation of the exchange program with MWCD. This may have been

attributed to the abundant spring water production from the HVR Upper Springs, returning to flows as a consequence of a near normal winter rainy season. Other important items include the increase in the number of natural beaver dams, continued success in tailwater reduction to near zero through monitored and measured spring releases, and continued monitoring by SVRCD and SSWMD. Pasture conditions exceeded expectations for the irrigation season negating a need for riparian grazing for this reporting season. All other requirements met with little adverse impact to ranch operations.

Contact Person: Jack Roggenbuck

Permit # 23286 Emmerson Investments Inc.-Hole-in-the-Ground-Ranch (EII-HIG)

EII –HIG collaborated with USFWS partners program to prepare a grant proposal to install the balance of riparian fencing along Parks Creek and along Hole-in-the-Ground Creek, a total of 13+ miles of fencing. A cost share grant was awarded with project planning and design on-going. Expected project implementation is for 2024. Additional collaboration occurred with MWCD, Cal-Trout, and the NCRWQCB to obtain a grant to implement the Diversion Combination Project which has been awarded allowing final design and implementation to go forward. A draft Beaver Management Plan has been completed, and is currently under review for adoption and implementation. Lastly, HIG participated with Cal-Trout for the Mid-Shasta River Habitat Improvement Project proposal, which includes Lower Parks Creek. The grant was awarded allowing for project assessments to be initiated.

Contact Person: Len Lindstrand

Permit # 23278 Cardoza Ranch (CR)

Activities performed during the reporting period were in support of completed projects either to provide added protection to the infrastructure or to enhance capability. These actions include such things as installation of solar panels for monitoring devices, triangle cages to protect water meters from cattle and vehicles, installation of temporary electric and permanent fencing to enhance pasture management capability. All other activities were in support of continued routine agricultural activities as described in the site plan. Problems faced during the reporting period include finding funding for continued monitoring requirements as well as funding opportunities to support large scale repairs to pipeline infrastructure damage caused by cattle and vehicular traffic.

Contact Person: Frank Cardoza

Permit # 23280 Grenada Irrigation District (GID)

GID continued to cooperate with CalTrout toward identification of habitat improvement projects with other permit holders in the Mid-Shasta Reach. Curtailment orders presented unprecedented restrictions and ability to meet contractual obligations to its clients but such

was met with cooperation with the Shasta Scott Watermaster District (SSWD) assistance on a daily basis to monitor compliance with those orders. GID continued to seek funding through grants for its major project, pipeline infrastructure, but has found little support to date. Efforts to pursue funding will continue.

Contact Person: Rod Dowse

Permit # 23271 Outpost North Annex (Belcampo) (Withdrawn 11-03-2023)

This Permit has been vacated due to the sale of the property with the new owners choosing not to participate in this effort. The permit holder has submitted its annual report in compliance of the permit to the Agency.

Contact Person: James Rickert

Permit # 23284 Novy Ranches

Novy Rice Zenkus (NRZ) Efficiency and Fish Passage Project: All permits for project have been extended for another five years. WCB is reviewing the contract budget amendments. A call with NFWF occurred at end of February to finalize the budget between SVRCD/NRWF and NRCS. Attorney reviews and signatures to occur afterwards. Working with CDFW to coordinate a current 1600 permit for the NRZ Diversion, which will incorporate the operation and maintenance of the new diversion. A12 Release Valve within NRZ current infrastructure used January 9-13, 2023 and March 09-12, 2023 to manage flooding. Constant communication occurred with NCRWQCB and other necessary individuals. Cal-Trout - Mid-Shasta Habitat Improvement Project for the Mid-Shasta Reach: Initial grant funding has been awarded via CADFW Restoration. A walk-through to identify points of improvements within Novy Ranches – Grenada occurred September, 2023 with additional walkthrough to occur in 2024. TAC meetings have begun. Main Pump: The requested August 31, 2020 extension of the CADFW 1600 permit was acknowledged and signed December 18, 2023 by Michael Harris. Working with Provost and Pritchard to complete efficiency study summer of 2024. This information will be used to request grants to fund pipeline infrastructure to assist with irrigation efficiency. Soil Moisture Sensors: Awaiting recommendations via U.C. Davis Extension. Irrigation: Cooperatively worked with SSWD by withholding irrigation/water usage throughout summer to assist other ranches and districts to irrigate beyond SHA commitments.

All other efforts performed during the reporting year were directed toward maintenance activities required in AMMs. There is great concern regarding the inability to secure grant funding approval as a result of monitoring requests tied to the grant funding request.

Contact Person: Judy Novy-Holmes

Permit # 23289 Rice Livestock (RL)

RL received a second grant for funding of design and implementation for improvements to the Huseman Ditch. Along with this was a Preliminary Alternative Analysis produced by the NRCS for the Huseman Ditch to help identify the project in total for future funding requests and alternative design concepts as needed. RL continued collaboration with Cal-Trout toward the Habitat Improvement Project in cooperation with other permits in the Mid-Shasta Reach. Funding was awarded from the CADFW Restoration Grant Program allowing the effort to move forward to consider project priorities for implementation.

Contact Person: Brian Rice

Permit # 23434 NB Ranches (NBR)

NBR is continuing to work with Cal-Trout in the Habitat Restoration and Improvement Project and have had onsite meetings to evaluate potential projects for funding within the Project parameters. NBR also is continuing to work with the SVRCD for planning and design for the improvements to the Huseman Ditch in cooperation with Rice Livestock. All other activities were performed as required in the site plan.

Contact Person: Bill Nicoletti

Permit # 23279 Edson Foulke (EF)

While not having officially received an active permit, EF continued to perform required diversion maintenance on the diversion structure and fish screen on Parks Creek and participated in the Upper Parks Creek Flow Management Strategy (UPCFMS) with Parks Creek Ranch and MWCD. EF continued to find funding of grant proposals to implement its project proposals difficult and non-existent, had difficulty navigating the EYASCO web site for data entry, as did its data collector SVRCD, toward assuring minimum flows for the UPCFMS are being maintained, and had problems in coordination with the reach participants of the UPCFMS implementing the effort.

Contact Person: Tim Neilson

Permit # 23288 Parks Creek Ranch (Bel Campo)

Bel Campo has actively pursued sale of its properties under permit during this reporting period and has a tentative purchase agreement with The Nature Conservancy in place to assume the permit. While this process was underway, the permittee completed off stream riparian fencing and has worked with the SVRCD to secure funding to complete riparian plantings in the “Soda Springs” areas of Parks Creek.

Contact Person: James Rickert

Permit # 23291 Emmerson Investments Inc. (EII) (Shasta Springs Ranch)

See above as the permits for EII presented the same requirements and actions and are reported as such.

Contact Person: Len Lindstrand

Most of the effectiveness stations have been installed and are operational. The last stations, SRabvPC and HVR-DS will be installed with project implementation on Hole-in-the-Ground Ranch in 2024/2025. The SWCG had a monitoring contract with the Shasta Valley Resource Conservation District, to rate and maintain stations during the 2023 reporting period.

2023 Status of Beneficial Management Activities for Shasta River Template Safe Harbor

The following sections contain summaries, by permittee, of the accomplishments and status reported on the 2023 Annual Reports received by NMFS in April 2024.

1. Montague Water Conservation District

Montague Water Conservation District (MWCD/District) is a public irrigation district that owns and operates Dwinnell Reservoir located in the southern portion of Shasta Valley, and provides irrigation water to users within the district boundary, located in the northern portion of Shasta Valley with diversions on both the Shasta River and Parks Creek. MWCD owns Dwinnell Reservoir, the property under the high-water mark of Dwinnell Reservoir and the property along the Shasta River immediately below Dwinnell Reservoir where much of the water operations for the irrigation district occurs. The Site Plan Agreement (SPA) incorporates and extends MWCD's Conservation Habitat Enhancement and Restoration Project (CHERP) as well as additional measures proposed in the Safe Harbor Agreement. CHERP is a package of restoration projects MWCD has committed to and is currently implementing and will also be reported annually as SHA actions. CHERP actions are described in the SHA as baseline conditions.

For the purposes of this report, activities on MWCD Property have the potential to influence all sub-reaches identified in the Template Safe Harbor Agreement. See Table below for MWCD reported progress on SHA commitments.

Project Name	Project Description	Current Status	Description of Progress
Parks Creek Bypass Flows	Maintain bypass flows and additional bypass: 10/1-2/28 - 6.0 cfs 3/1 -9/31 - 16.00 cfs	**In progress**	Sought grant funding to implement project, so new flow commitments could be implemented. Reporting is available but rating curve at PME is incomplete. MWCD uses PCE to assess base flow conditions. MWCD uses stage values to provide appropriate by-pass.

Project Name	Project Description	Current Status	Description of Progress
Flow Releases	Continue to release flows for enviro purposes per CHERP BiOp	**In progress**	MWCD interim commitments to Shasta River were conducted. The water year was considered normal with maximum storage of 30,500 on about June 1. MWCD provided over 4,437 af for instream benefit to the Shasta River and provided agreed upon by-pass at Parks Creek. MWCD met curtailment measures through 7/31 2023 and provided additional water after 8/1 to meet local water user commitment to maintain canyon flows.
Gage operations	Operate, maintain and keep the following gage locations: MPD, PME. DRE, SRX, SRD, DSW, DFB. Maintain and Operate flow and temperature gauges to measure and verify prior rights, environmental water, Flying L pumps and seeps	**In progress**	SVRCD collected additional flow measurements in an effort to evaluate and develop rating curves at numerous sites. MWCD is not aware of SVRCD's conclusion about rating curve accuracy at the MWCD Parks Creek but feel the flow data on the verification station on Shasta River is dependable.

Project Name	Project Description	Current Status	Description of Progress
Flying L	Connecting the Flying L pumps to the Shasta River to release up to 5.5 cfs of water with temperatures under 13.2 C when water released from Dwinnell exceed 18 C during the summer months	**Completed and Maintained**	Reporting is available. MWCD switched to using a McCrometer 3000 flow meter in 2022, which provides more consistent and accurate flow data. MWCD now starts the Flying L Pumps when water temps on Shasta verification gage exceed 16°C
Petition	Change petition for municipal and environmental water	**In progress**	Waiting for SWRCB process to continue. MWCD is part of Batch 1707. MWCD, TNC and others have spent countless dollars and hours trying to secure SWRCB approval to release flows for instream benefit. MWCD has lost hope that this process will ever complete and that the conclusions of the order will match the objectives of the petition
Main Canal Lining	Line and maintain up to 8.4 miles of MWCD's Main Canal where delivery loss is highest. Provide 515 (value determined through loss investigations) af per mile of canal lined for instream benefit for life of Agreement	**In progress**	1.3 miles of canal lining were installed in 2023. Additional reaches were funded. MWCD hopes to line the canal reaches needed to meet the lining objective in 2027.
Reach wide Diversion Management	Cold water substitutions with HVR and HIG ranches.	**In progress**	HVR infrastructure is ready for exchange if SWRCB approval is ever gained. Hole-in-the-Ground Ranch hopes to install its conservation project in 2024 that will allow exchanges to be more beneficial to over summering objectives.

Project Name	Project Description	Current Status	Description of Progress
Flying L Groundwater Contributions	Complete, operate, and maintain “Flying L” Groundwater contributions for prior rights and/or instream flow releases, providing up to5.5 cfs of water with temperatures under 13.2 C when water released from Dwinnell exceed18 C during the summer months	**Maintained**	MWCD added alarms from Eyasco that would warn staff when pump discharge changed by more than 1.0 cfs. This allowed excellent notification when pump conditions changed AND when water temps were elevating. MWCD's ability to react to system errors was much improved in 2023. The 3.0 cfs baseline was not an issue this year.
Cold Water Habitat	Permittee will construct a lateral cold water habitat near the base of Dwinnell Reservoir at the confluence of MWCDs Cross Canal and the Shasta River to ensure cold water refugia.	**Completed and Maintained**	Structure is completed and functioning well. Aquatic vegetation covers much of the habitat during the summer and riparian trees planted in 2020 are 4-12' tall with high survival rates still exceeding 50%. MWCD is seeking technical input to maximize production in Cold Water Habitat from UC Davis watershed sciences. Numerous salmonids were observed in the cold-water habitat in 2023 over a significant duration of the summer.
Cross Canal Enlargement	Enlarge the cross canal to allow for larger volumes of water to be released to the Upper Shasta for flushing flows	**Completed**	Work Completed. Reconstructed channel is functioning well and re-vegetation efforts were successful. Highest released flows were 30 cfs to date. NCRWQCB is requesting a higher pulsed flow event in 2023-2024.

Project Name	Project Description	Current Status	Description of Progress
Flow and Temperature gages	Maintain and Operate flow and temperature gauges to measure and verify prior rights, environmental water, Flying L pumps and seeps	**Maintained**	Coarse work is completed but refinement and maintenance continues. When MWCD uses Flying L water and releases from Dwinnell Reservoir to provide releases to Dwinnell, it must use the cumulative flow at Seldom Seen and apportion flows per intended use from the sum of total flow.
1707 Process	Continue to work with SWRCB to obtain approval of submitted Change Petition to add Fish and Wildlife and Municipal uses as additional beneficial uses of water and protect Provide update on petitions status water released for fish and wildlife purposes through Water Code 1707. Petition also proposes to add a point of re-diversion for irrigation purposes (9.4 cfs) near the City of Montague that will also aid water quality and quantity objectives.	**In progress**	Petition approval continues but progress is slow. MWCD is anxious to begin the process to design, and acquire permit approvals for re-diversion development as a water quality and conservation project.
Upper Parks Flow Strategy	Participate in and play leading role in implementing a reach-wide flow strategy.	**In progress**	Strategy is developed and assessment and design work has been accomplished. MWCD submitted an implementation grant for MWCD's Parks Creek diversion in 2021, 2022 and again in 2023. Partial funding was awarded. By-pass volumes of 6.0 cfs and 16.0+ cfs are being provided.

Project Name	Project Description	Current Status	Description of Progress
			MWCD will continue to seek funding for this important fish passage, fish screening and increased by-pass project. This is a flow enhancement project where increased by-passes will be realized when the project is constructed. MWCD is assisting Parks Creek Ranch and Edson-Foulke with commitments and re-assessing scope. Parks Creek Ranch remains for sale which makes long term planning difficult.
Shasta River Flow Strategy	Participate in and play a leading role in a reach wide flow strategy.	**In progress**	Strategy is developed and implementation projects are getting installed that support the flow strategy. Monitoring is improving. MWCD is assisting HIG Ranch with HIG diversion combine design and implementation project that may be installed by the spring of 2025, allowing more of the flow strategy to occur and be verified.
	Implement additional summer flow release of 2 cfs in Very dry year when prior rights are not released	**Maintained**	MWCD is aware of this requirement but it was not required last year because prior rights continued into late September as they called for prior rights volumes late due to higher flows allowing them to exercise their riparian rights

Project Name	Project Description	Current Status	Description of Progress
Add new Point of Diversion	Assess and if feasible, construct, operate, and maintain new Point of Diversion (POD) in lower Shasta River to allow 9.4 cfs to remain instream to seasonally enhance flows in Upper Shasta River.	**No Progress**	This project is on hold until SWRCB is closer to approving MWCD's petition that includes releases of flows from Dwinnell for re-diversion during the spring. MWCD would like to submit assessment and design proposals for re-diversion soon as it is a good measure to increase spring flows for flushing and out-migration. MWCD would likely add releases from Parks Creek for re-diversion as well.
Add new Point of Diversion	Assess and if feasible, construct, operate, and maintain new Point of Diversion (POD) in lower Shasta River to allow up to 10 cfs to remain instream to seasonally enhance flows in Upper Parks Creek.	**No Progress**	This project is on hold until MWCD's point of diversion is retrofitted and a determination is made about the validity of WC 1701-1707 in this scenario. MWCD would like to increase the volume of water released from Parks Creek for re-diversion to 20 cfs instead of 10 cfs to provide increased flows in Parks Creek in the Spring. MWCD would benefit from using re-diversion rather than storing water in some scenarios.
Trash Rack and Emergency Spill	Investigate and if feasible, implement, operate, and maintain retrofit of trash racks and gate adjustment on spill gate of emergency tower to allow for larger releases of flow to Shasta River on wet and very wet years	**No Progress**	MWCD sought funds for initial design in 2023 to retrofit the spill tower to provide large flow events that flush the channel and provide sediment transport. Those funds have not been secured to date. However, some initial work may be allowed by the NCRWQCB who will use

Project Name	Project Description	Current Status	Description of Progress
			Caltrans funds to investigate alternative routes to deliver prior rights compared to the releasing flows to the Shasta River when water temp parameters are not met.
Exchange Agreements	Work with agency and NGO partners and to gain approvals to implement water exchanges to provide 3.0 cfs of cold water with downstream Permittees during the summer	**In progress**	Petition process ongoing. HVR infrastructure is completed. MWCD is working with Hole-in-the-Ground Ranch (HIG) to complete design and permit project so implementation can occur. Implementation funds have been secured by Cat Trout for Hole-in-the-Ground implementation project. When implemented, HIG would have infrastructure to conduct the exchange.
Provide fish passage on Parks Creek	Continue to seek funding for Parks Creek screening and passage project. Implement, operate, and maintain fish passage and fish screening facility at the Parks Creek diversion. Provide by-pass flows to PCE as MWCD agreed upon in Upper Parks Creek Flow Plan when constructed.	**No Progress**	Grants were written and submitted, partial funding was secured in 2023.
Seldom Seen	Provide access and continue to work with partners to ensure completion of Seldom Seen legacy diversion structure to provide fish passage on Shasta River on MWCD property.	**Completed**	This project is completed. However, NCRWQCB is interested in determining the feasibility of delivering prior rights via pipeline(s). If awarded, some attention will be given to piping from pre-existing Seldom Seen prior rights diversion.

Project Name	Project Description	Current Status	Description of Progress
Fish Passage	Continue to evaluate alternatives and constraints for future fish passage above Dwinnell Reservoir	**In Progress**	MWCD has submitted and was awarded a fish passage assessment grant from CDFW. MWCD contracted with biologist Mike Podlech and consulting firm Cbec to conduct assessment. Project is in initial phases
Habitat Improvements	Install LWD and spawning gravel on MWCD property below the Dam	**Completed**	This work was completed in 2020. MWCD will accept more tree planting. The work conducted in 2020 is overgrown by vegetation
Exclude Livestock	Work with neighbors to exclude livestock on Shasta River ownership below Dwinnell Reservoir	**No Progress**	MWCD has new neighbors below Dwinnell who do not graze the riparian area. MWCD will work with new neighbors to address long term riparian fencing solution. MWCD did not advance this measure in 2023
Planting	Plant and maintain riparian habitat enhancement associated with cold water habitat on the MWCD owned reach of Shasta River	**In progress**	This work was completed in 2021 but more planting could occur based on positive results.
Riparian source	Develop a Riparian cutting and seed source for over story riparian species on MWCD property below Dwinnell Reservoir. Maintain and enhance riparian habitat along Cross Canal, cold-water habitat and Shasta River within MWCD ownership	**In progress**	Riparian establishment is occurring along cross canal, Shasta River and Cold Water habitat

Project Name	Project Description	Current Status	Description of Progress
Spawning Gravels	Operate and maintain periodic flow releases (using "Block water") from Wet and Very Wet Water years year determinations to release increased spring flows to Upper Shasta River as coordinated with NMFS and CDFW with intention of enhancement spawning substrate. If results are not determined sufficient, MWCD will deliver up to100 cubic yards of spawning gravel substrate to at least 3 sites in the Upper Shasta River reach every 5 years.	**No Progress**	No progress on this item as 2023 was a normal year. Gravels were placed in 2020 in several areas. MWCD has experienced three critically dry years and block water has not been available for recruitment. Gravel is scheduled to be provided in 2025.
Sediment Transport	Cooperate in hydrologic/geomorphic assessment of sediment transport and channel maintenance flow needs("Assessments/ Studies" below)and implement channel periodic maintenance flows as coordinated with Permittees, NMFS, and CDFW for Wet and Very Wet flow release schedules	**No Progress**	Diversion, stream release, by-pass flow monitoring and Cross Canal monitoring are continuing. The hydrologic/geomorphic assessment project was included on a project need list in 2022 and again submitted in 2023. Water quality monitoring was awarded funding and some overlap will occur that can inform initial links to flow regime, water quality and the needs/benefits of fine sediment transport.
Diversion Monitoring	Continue monitoring of diversion volumes and release or by-pass volumes at Parks Creek and Below Dwinnell Reservoir (including Flying L)-6 gage sites.	**In progress**	MWCD continues to refine tracking of released water from varied sources for varied purposes.

Project Name	Project Description	Current Status	Description of Progress
Temperature Monitoring	Continue temperature monitoring of cross canal.	**In progress**	MWCD is collecting temperature and flow data from cross canal.
Other studies		**In progress**	Adult Salmon survey -CDFW Working with SWRCB and NCRWQCB to develop an expanded water quality monitoring proposal for the upper Shasta River.

2. Seldom Seen Ranch

The Seldom Seen Ranch is located north of Lake Shastina and west of Big Springs Road. The Property shares an eastern and northeastern boundary with the Shadow Hills subdivision. To the north lie the Hidden Valley Ranch and Hole-in-the-Ground Ranch and to the west, the Shasta Springs Ranch.

The Property is used primarily for beef cattle production and is currently managed as an integrated unit with three other ranches owned and managed by the Permittee. The three contiguous properties, Hole-in-the-Ground Ranch, Shasta Springs Ranch, and Seldom Seen Property, are managed for pasture for beef cattle, while the Hay Ranch is mainly hay production for winter feed to support the three cattle ranches. Using hay from the Hay Ranch during the winter minimizes the amount of grazing necessary to maintain the cattle at the other sites, which allows the pasture grasses to be maintained at very high levels of ground cover. The high level of ground cover minimizes surface erosion and fine sediment contribution to the sensitive aquatic systems on the Enrolled Property, and inhibits the establishment of noxious weeds.

The Shasta River flows through the Property. The Seldom Seen Spring is a hydrologically unique feature of the landscape of the Enrolled Property. It is not accessible to fish. It is an unreliable spring that emerges in some years in the vicinity of 122.389W, 41.544N, under wet hydrologic conditions. The spring drains north to the Shasta River, flowing in a channel for approximately 500-feet, across a gentle slope before dropping into the river, 10± vertical feet in 75± feet linear distance, through heavy riparian vegetation. In years when it flows, it appears as a small seep in February through April, but relatively quickly can increase to more than two cfs, sometimes to as much as nine cfs. Usually in June, if not sooner, the flow just as quickly diminishes to zero. This water is not used for irrigation on the Property.

For the purposes of this report, activities on the Seldom Seen have the potential to influence the Upper Shasta River sub-reach identified in the Template Safe Harbor Agreement. See Table below for Seldom Seen reported progress on SHA commitments.

Project Name	Description	Current Status	Description of Progress
Prior Rights Management	Continue to irrigate with groundwater, utilizing the stored "Prior Rights" downstream, per current Upper Shasta River Flow Management Strategy	**Maintained**	See HIG monitoring data
HVR project	Agree to continue cooperation in project to upgrade HVR diversion system adjusting stocking to reflect loss of pasture productivity	**Completed**	Full project to improve HVR diversion system was completed in 2021, with the pipeline across EII completed in 2018 or 2019. Conveyance across EII Seldom Seen Ranch between the POD in Shasta River and HVR south property line is now in pipe, replacing former earthen ditch conveyance. In addition to conceding the potential loss of pasture productivity from ditch-loss sub irrigation, EII provided access for construction activities, staging of materials and equipment, and pre- and post-project monitoring and site review.
Soil Moisture Sensors	Agree to include Enrolled Property pastures in Project Area for testing effectiveness of soil moisture sensor technology, or other appropriate technology, to increase irrigation efficiency, implement routine use where appropriate, and adjust water management accordingly	**In progress**	Continuing coordination with U.C. Cooperative Extension. Summary provided to NMFS for review as ShSp Soil Moisture Pilot Progress_2022

Project Name	Description	Current Status	Description of Progress
Re-plumb wheel lines	Agree to re- plumb supply for wheel lines eliminating drain water entering channel as warmed surface water	**Completed**	EII re-plumbed supply lines and created a berm for the wheel-lines to eliminate drain water from entering the stream channel as warmed surface flow in 2022.
Fish Passage	Agree to eliminate Covered Species passage barrier at Diversion 156 (Seldom Seen)	**Completed**	Project to construct a roughened channel at site of POD 156 in Shasta River was implemented and completed in 2019 and 2020.
Beaver Management	Agree to develop and implement beaver management plan to alter or provide access around potential migration barriers at dams	**Completed**	EII completed and submitted a Beaver Management Plan with 2023 Annual Report. See Attachments.
LWD and Spawning Gravel	Install 23 LWD structures	**In progress**	Project that added five LWD structures was completed in 2020.
Riparian Habitat Enhancement	Permittee agrees to work collaboratively with NMFS and CDFW to seek funding and implement riparian planting projects where existing riparian habitat is less than site- potential; at various locations in sub-reach from Riverside Road to property line	**In progress**	Project that planted 460+/- trees of riparian species; completed in 2020;
Wet Crossings	Two vehicle/livestock crossings/ watering access lanes will be maintained as rocked fords.	**No progress**	No maintenance activities needed in 2021

Project Name	Description	Current Status	Description of Progress
CMP Crossing	One vehicle crossing will be maintained in appropriately-sized CMP	**No progress**	No maintenance activities needed 2021
Spawning Gravel Enhancement	Agree to provide access to implement spawning gravel enhancement, up to 11 sites	**No progress in 2022**	Project that added two riffle habitats (67' total length), corresponding gravel beds (49' total length), and a stockpile of 60 yd3 of spawning gravels was completed in 2020.
Assessments	Assessment of survival of riparian planting complete in 2020	**Completed**	EII Ranches Riparian Planting Summary_2022 submitted to NMFS for review
	Riparian habitat site potential analysis completed	**Completed**	Shasta Springs Ranches Riparian Site Potential Analysis-5Jan2023 Submitted to NMFS for review
	Spawning surveys conducted on Shasta River	**Completed**	2023-2024 EII Spawning Surveys memo Final submitted with 2023 Annual Report
	Spawning Habitat Inventory	**Completed**	2023 Spawning Habitat Inventory submitted with 2023 Annual Report

3. Hidden Valley Ranch

Hidden Valley Ranch (HVR) is owned and operated by Hidden Valley Ranch LLC. The HVR is located within the Covered Area along Big Springs Road in central Siskiyou County (41'34'57" N latitude, 122'26'18"W longitude). The HVR includes a total of 431± acres, with 150 ± acres under irrigation at the time of this agreement. The HVR is generally a cow/calf operation with a small segment of the operation producing sheep. Approximately 1.5 miles of the Shasta River is adjacent to the HVR, for the purposes of this report, activities on HVR have the potential to influence the Upper Shasta River sub-reach identified in the Template Safe Harbor Agreement. See Table below for HVR reported progress on SHA commitments.

Project Name	Project Description	Current Status	Description of Progress
Bunk house and West 40 Pipeline Maintenance	Maintain existing pipeline infrastructure as described in E.1. and continue irrigation practices to reduce tailwater temperature impacts	**Maintained**	Performed as required. Irrigation was turned off to west forty March 13-April 10- for pipeline repair. Early season cleaning of valve heads.
Cold Water Exchange with HVR, including spring connection	Efficiency projects on HVR to allow for exchange of MWCD water and keep cold spring water instream- exchange of water no net increase of instream flow= Provide a maximum of 3 cfs spring water for instream contribution from June 1 –September 15	**1707 Petition submitted -Completed**	Spring waters were released directly to river throughout irrigation season in excess of 3 cfs (Data provided in Appendix). SWB have not approved petitions, so exchange was not executed in 2023.
Fall Spring Contribution	Continue to release spring water into the river at the end of the irrigation season (November1-March 1)	**Maintained**	Spring water produced in excess of irrigation needs was released to river (Data provided in Appendix).
Additional Spring Water Contributions	Additional spring water will be released to Shasta when spring source produces over 2.25 cfs- tracked via real-time meter	**Maintained**	Performed throughout 2023 (Data included in attachments)
Tailwater Re-use	Collect tailwater in open ditches and reuse on HVR	**Maintained**	Ongoing practice
Diversion Management	Participate in a reach-wide diversion management strategy	**Maintained**	Continue to participate as required and directed through curtailment orders and directives.

Project Name	Project Description	Current Status	Description of Progress
Tailwater Berms	Build berms along a 2 key pastures to reduce the chances of tailwater from re-entering the river and allowing for percolation and subsurface return	**Completed/ maintained**	Completed and used as intended.
Prior Rights Pipeline	Pipe Prior Rights ditch in exchange for 0.5 cfs spring water released to the river	**Completed/ Maintained**	Project completed and performed as required (Data included in Appendix)
Fish Passage	Maintain unimpeded fish passage conditions at the HVR diversion and agrees to yearly inspection	**Completed/ Maintained**	Project completed in Dec 2021. No impediment observed during 2023. NOAA note- New fish screen changed channel - no annual inspection necessary, as not a passage issues
Fish Screen	Relocate the fish screen to channel, construct a pipeline from new fish screen location to existing pipeline	**Completed/ Maintained**	Completed December 2021. Performed as designed in 2023.
Beaver BMP		**Maintained**	4 beaver dams now exist on HVR reach, 2 in riparian zone 2 and 2 in riparian zone 1, none pose any risk to HVR operations or infrastructure
Leave woody debris	Leave wood debris from existing trees	**Maintained**	Complied, no effort to remove down woody debris or other habitat infrastructure from stream bed or riparian zones.

Project Name	Project Description	Current Status	Description of Progress
Habitat Improvements	Implement large woody debris (up to 24 sites) projects on the ranch and build spring alcove	**Partially completed**	Complied as part of spawning beds improvement project of 2020.
Riparian maintenance	Perform yearly maintenance on existing riparian fencing	**Maintained**	Performed continuously during routine fence inspections, usually weekly. Work typically limited to reconnection of wire strand to fence post with clips or broken wire spliced back together.
Crossings	Maintain crossings and stock water	**Maintained**	Wet crossings required no work. Electric fence material replaced with new Sept. 2022 at both crossings. Crossing not used in 2023.
Fencing	Replace up to 50% of riparian fencing if needed due to flood damage as stipulated	**Maintained**	No action required
Habitat Improvements	Enhance existing alcoves where spring water will re-enter channel	**Completed**	Alcove enhancement was completed in 2021
Spawning Gravel Enhancement	Place gravels within the reach at 5 locations	**Partially completed**	Beds completed in 2020 and currently impacted by the development of two low beaver dams. Photos in attachment report.
Riparian Planting	Plant riparian trees	**Maintained**	No projects identified in this reporting period. Previous planting in riparian zone 1 is showing strong success.

Project Name	Project Description	Current Status	Description of Progress
Riparian Grazing Plan	Implement the riparian grazing plan as described in Section E.3.d and outlined in Appendix X.	**Maintained**	Riparian zone 2 only riparian zone grazed during reporting period (June 1-19).
Pasture management	Will cross fence to better manage stubble height	**Maintained**	Herd size reduced in numbers and moved off ranch to other leased properties.
Assessment/ Studies	Allow access for studies	**Maintained**	Continue to participate as required for reviews by Agency personnel with notice.
Effectiveness Monitoring Program and Reporting Dashboard	Maintain existing network, install three needed real-time stage/flow/ temperature stations, further develop dashboard to house all EM stations and POD stations, as well as annual reporting and do data analysis for performance measures - **HVR US** and **HVR DS**.	**In progress**	HVR US was installed as part of the efficiency pipeline project and is reported on Eyasco for agency review- along with POD monitoring stations- included in attachment of this report.
1707 Completions	Work with SWB to finish existing 1707 petitions to get real water instream and develop others for Parks	**In progress**	Petitions submitted to SWB- order progressing.

4. Hole-in-the-Ground Ranch

The Hole-in-the-Ground Ranch is located north of Lake Shastina, and west of Big Springs Road. The Property shares a western and southwestern boundary with the Shasta Springs and Seldom Seen ranches, also owners by the Permittee. The south fence line is also common with the Hidden Valley Ranch (HVR). To the north lie the Cardoza Ranch and the Big Springs Ranch Wildlife Area. On the northeast and east are other small private landowners.

The Property is used primarily for beef cattle production and is currently managed as an integrated unit with other ranches owned by the Permittee. Three contiguous properties, including the Hole-in-the-Ground are managed for pasture for beef cattle, while the Hay Ranch is managed for hay for

winter feed to support the three cattle ranches. Using hay from the Hay Ranch during the winter minimizes the amount of grazing necessary to maintain the cattle at the other sites, which allows the pasture grasses to be maintained at very high levels of ground cover. The high level of ground cover minimizes surface erosion and fine sediment contribution to the sensitive aquatic systems on the other three ranches, and inhibits the establishment of noxious weeds. Maintaining the cattle locally, year-round, helps control the introduction of non-endemic species, e.g. invasive plants. Streams flowing through the Enrolled Property include the Shasta River, Parks Creek, and Hole-in-the-Ground Creek. The confluences of the creeks with the Shasta River are off the property.

For the purposes of this report, activities on the Property have the potential to influence the Upper Shasta River and Lower Parks Creek sub-reaches as identified in the Template Agreement. See Table below for Hole-in-the-Ground Ranch reported progress on SHA commitments.

Project Name	Project Description	Current Status	Description of Progress
Cattle Access	Cattle access to the channel will be excluded or restricted to crossings, watering access points, and/or limited season/stocking/duration that conserves water quality	**Completed**	No Changes in 2023
Tailwater berms	Agree to continue maintenance of tailwater berms	**Completed**	No Changes in 2023
Maintain concrete ditches	Agree to maintain concrete ditch lining on Pump Diversion distribution system	**Completed**	No Changes in 2023
Diversion Combine/ Cold Water Exchange	Agree to redesigning and rebuilding Gravity Diversion and pump diversion in order to facilitate Upper Shasta River Diversion Management Plan	**In progress**	Project design underway-anticipated implementation in 2024.

Project Name	Project Description	Current Status	Description of Progress
Soil Moisture testing	Agree to include Enrolled Property pastures in testing effectiveness of soil moisture sensor technology to increase diversion efficiency, implement routine use where appropriate, and adjust water management accordingly	**In progress**	Continued participation in pilot project with U.C. Extension.
Tailwater Reduction	Hole-in-the-Ground Creek tailwater reduction	**Completed**	2022 SHA Annual Report has details of project.
Fish Passage	Agree to maintain fish passage through the roughened channel at the POD for the two HIG diversions on the Shasta River	**Maintained**	No instream work needed during reporting period
Cardoza Diversion	Allow for new crossing at Cardoza diversion	**Completed**	Project Completed in 2021.
Beaver Management Plan	Agree to develop and implement beaver management plan to alter or provide access around potential migration barriers at dams	**Completed/ Maintained**	Beaver Management Plan was submitted and is attached to landowner report.

Project Name	Project Description	Current Status	Description of Progress
Riparian fencing	Fencing along HIG creek	**In progress**	Grant awarded and implementation schedule for 2024.
Riparian Exclusion Maintenance	Agree to maintain riparian exclusion fencing or, if modified, riparian pasture fencing with associated grazing plan. Will replace at least 20% of riparian fencing if needed due to high flow damage	**Maintained**	No maintenance required in 2023.
Riparian fencing	Fence 40% of remaining Parks Creek	**In progress**	Implementation to begin in 2024. Will fence along remaining portions of Parks Creek.
Riparian Grazing Planning	UCCE riparian grazing planning for Parks Creek and Rattlesnake fields, around Cardoza	**Maintained**	Project planning has been initiated and grant applications are in preparation
Riparian Grazing Planning	UCCE riparian grazing planning for HIG creek	**Maintained**	Situation not applicable in 2023.
Cattle Management for Parks Overflow	HIG will add, as appropriate, measures for cattle management to safeguard water quality including fencing the Parks Creek overflow channel. Such measures include temporary or permanent fencing depending on the need indicated by water quality in the area.	**In progress**	Initial monitoring event was completed in 2022. The old channel was walked and inspected for evidence of recent flowing water conditions (e.g., sediment transport and deposition, vegetation changes). There were no observations of flow conditions that would transport nutrients to the historic channel and hence to the fish bearing waters in the lowest

Project Name	Project Description	Current Status	Description of Progress
			subreach at the confluence with the Shasta River. The monitoring is limited to the extent on EII property, the boundary of which is more than one-half mile linear distance (not channel distance) upstream from the Shasta River, separated by lands controlled by two other property owners. Additional monitoring under a variety of hydrologic conditions is planned.
Livestock crossings	Seven livestock/vehicle crossings will be maintained as rocked fords	**No Progress**	No crossing repairs were completed in 2023.
Studies and supplementation	Agree to participate in studies to refine Upper Shasta River Flow Management Strategy, including role of Seldom Seen Spring	**In progress**	Diversion data submitted for Hole-in-the-Ground is included in this report. Completed spawning surveys conducted on reaches of Parks Creek and the Shasta River for the 2023-2024 spawning season (Included as attachment). Completed Spawning Habitat Inventory in 2023. (Included as attachment)

5. Shasta Big Spring Wildlife Area

The California Department of Fish and Wildlife (CDFW) purchased the Big Springs Ranch Wildlife Area (BSRWA) from The Nature Conservancy (TNC) in 2019. CDFW will operate the property as a State Wildlife Area for the purposes of protecting and enhancing natural habitats for fish and wildlife, and providing public use opportunities that are compatible with the long-term

conservation needs of fish and wildlife populations and their habitats. Permittee may consider the use of cattle as a management tool for wildlife habitat benefits based on an adaptive management approach.

BSRWA includes two ranches covering a total of 6,000± acres. Approximately five miles of the Shasta River and 1.5 miles of Big Springs Creek are included within the BSRWA property boundaries. The ranch lies within what has been designated as the **Mid Shasta Reach and the Big Spring Creek Reach** in the Template Agreement. See Table below for BSRWA reported progress on SHA commitments.

Project Name	Project Description	Current Status	Description of Progress
1707 Dedications	Maintain diversions and 1707 dedications	**Maintained**	Dedications were managed in cooperation with our neighbor to the east, the water master and the state water board.
Tailwater Management	Continue to manage tailwater returns	**Maintained**	
Diversion Management Plan	Continue acceptable diversion management plan	**Maintained**	Two of the three culverts on Little Springs have been removed. The third culvert is kept clear for fish passage while alternatives are being explored.
Real-time Monitoring Stations	Operate real time monitoring at stations to track improvements on the Enrolled Property	**In progress**	Flow and temp monitoring stations were installed on 243 and 247/248. The meter on 241 needed to be repaired. There's a contract in the works to accomplish this. Flow and temp stations are in the process of being installed on Big Springs and Little springs creeks by DWR.
Big Springs Lake outfall culvert	Clear Big Springs Lake outfall culvert and add a monitoring device to outfall	**In progress**	Flow and temperature stations are in the process of being installed by DWR.

Project Name	Project Description	Current Status	Description of Progress
Cardoza Easement	Provide easement for the proposed Cardoza pump station	**Completed**	Project completed in early 2021- see Cardoza reporting
Stockwater	Continue to maintain off-channel stock water troughs	**Maintained**	Damaged plumbing was repaired.
Nelson Fish Screen	Nelson Fish Screen Evaluation and replacement	**Maintained**	Flow meter was installed. Data included in Appendix.
Little Springs Culverts	Until culverts are removed Permittee agrees to clean clogged culverts along Little Springs Creek	**Maintained**	Two of the three culverts have been removed on Little Springs creek. The third is continually maintained to keep it clear and fish passage alternatives are being explored.
Little Springs Passage	Remove the two culverts and provided unimpeded fish passage at the third upstream of the County road on Little Springs Creek for fish passage and water quality	**In progress**	Two of the three culverts have been removed. The Fisheries Technical team will explore fish passage solutions for the remaining culvert.
Beaver Management	Implement beaver management	**Maintained**	Debris was removed daily from the remaining Little Springs culvert. Beaver dam was left in place just below site where the second culvert was removed from.
Woody debris	Continue to leave woody debris from existing trees	**Maintained**	
LWD	Implement large wood enhancement on the BSC and Shasta River as specified on Habitat Improvement Map	**In progress**	Fisheries Technical team and CalTrout are investigating the best approach for the pilot project.

Project Name	Project Description	Current Status	Description of Progress
Alcoves and off channel	Enhance up to four spring alcoves along the Shasta River and build off-channel habitat along the Shasta River as specified on Habitat Improvement map	**In progress**	Fisheries Technical team and CalTrout are investigating the best approach.
Riparian fencing	Will continue to perform yearly maintenance as needed on existing riparian fencing	**Maintained**	Fencing maintained
Riparian	Implement riparian restoration projects on Little Spring Creek and Big Springs Creek	**In Progress**	Fisheries Technical team and CalTrout are investigating the best approach.
Riparian Grazing	If riparian grazing occurs, Permittee will implement the riparian grazing plan	**In progress**	No riparian grazing occurred.
Spawning Gravel Enhancement	Implement spawning gravel enhancement if deemed appropriate on the Shasta River portion of BSRWA as specified on Habitat Improvement Map	**In progress**	Fisheries Technical team and CalTrout are investigating the best approach.
Pasture Management	Permittee will require lessee to rotate cattle through the pastures as part of Permittee's pasture management	**In progress**	Cattle were rotated during reporting year.
Public outreach	Spawning tours, etc.	**In progress**	

Project Name	Project Description	Current Status	Description of Progress
Assessments/ Studies/Supplementation	Allow the Parties to use data from existing studies on the ranch to further understand Covered Species habitat use on the Enrolled Property	**In progress**	Fisheries Technical team will develop an approach. The Karuk tribe has started an RSI project on BSC during reporting period.
Studies	Allow access for studies	**In progress**	Flow and temp monitoring stations were installed on 243 and 247/248. The meter on 241 needed to be repaired. There's a contract in the works to accomplish this. Flow and temp stations are in the process of being installed on Big Springs and Little springs creeks by DWR.
Effectiveness Monitoring Program and Reporting Dashboard	Maintain existing network, install needed real-time stage/flow/temperature stations, further develop dashboard to house all EM stations and POD stations, as well as annual reporting and do data analysis for performance measures	**Maintained**	Flow and temp monitoring devices were installed during the reporting period and posted on Eyasco Grabdata. Data is included in attachments.

6. Cardoza Ranch

The Cardoza Ranch is located along Louie Road in central Siskiyou County (41°35'00'' N latitude, 122°26'49" W longitude). The ranch operation influences both the Lower Parks and Mid Shasta reaches as designated within the Agreement, however, the river corridor is not directly adjacent to the property. The Parks Creek overflow, a small tributary to the Shasta River, runs through the Ranch. The Cardoza Ranch includes a total of 497± acres, with 165 ± acres under irrigation. See Table below for Cardoza's reported progress on SHA commitments.

Project Name	Project Description	Current Status	Description of Progress
Efficiency Pipeline	Construct pipeline infrastructure to increase efficiency and reduce tailwater production	**Completed**	Spring 2021
Cardoza new POD, Fish Screen and Pipeline Project	Construct, properly manage and maintain a new point of diversion on the Shasta River at the Louie Road bridge and abandon existing flashboard diversion structure on Parks Creek	**Completed**	2023 diversion data attached
Interim flow management on Parks	Interim flow management efforts to improve water quality, timing and duration until the diversion is moved to the Shasta and Implement an interim strategy to improve passage until new point of diversion is constructed	**Completed**	Diversion was moved - interim management not necessary
Tailwater collection and re-use	Collect tailwater in open ditches and reuse as described in Section E.3.a.	**Completed**	
Pasture Grazing Management	Add cross fencing to manage pasture grazing to keep grass between 4 to 6 inches.	**In progress**	Electric fencing is being used as a substituted while plans are completed.

Project Name	Project Description	Current Status	Description of Progress
Stock water	Permittee agrees to installation of a stock water system in conjunction with the proposed efficiency piping project.	**Completed**	Spring 2021- maintained in 2023
Soil Moisture Sensing program	Install several soil moisture sensor stations to help inform irrigators when to start irrigation rotations, could help reduce water use by informing LO's of reduced ET during Spring and Fall and between rotations to keep water instream- quantified benefit is unknown	**Completed**	Installed Spring 2021 – soil moisture sensor data attached. Protective fencing was installed around sensors to protect from cattle.
Effectiveness Monitoring	Monitoring report from POD move Access to maintain existing pit tag array and trap and tag fish	**In progress** **In progress**	UCD is still monitoring project benefits until end of 2023- will submit when completed. UCD is maintaining pit tag at old POD until November 2023.
1707 Completions	Work with SWB to finish existing 1707 petitions to get real water instream and develop others for Parks	**In progress**	SWB drafted supplemental decree orders- is going through superior court process to be part of decree.

7. Grenada Irrigation District

Grenada Irrigation District (GID), a Special District of Siskiyou County, is located in Siskiyou County (41°38'11.56'' N latitude, 122°29'22.88"W longitude). GID owns four parcels including a small reach of the Shasta River, as well as provides irrigation water to the GID comprising approximately 1477 irrigated acres. Only two parcels located on or near the Shasta River that include intake and pumping infrastructure are included within the Agreement. Approximately 300-feet of the Shasta River is within GID ownership, designated to be in the Mid Shasta Reach in the Agreement. See Table below for GID's reported progress on SHA commitments.

Project Name	Project Description	Current Status	Description of Progress
Upgraded POD	Maintain upgraded diversion facility	**Maintained**	Regular maintenance was performed at the upgraded diversion site.
GID Efficiency Improvement	Implement conveyance pipeline to reduce transmission loss. Conserved water will be provided for instream benefit when the project is implemented. Estimated 1,136 acre-feet will be conserved on an average year	**In progress**	GID has a completed set of plans and CEQA document for the pipeline project. We are seeking appropriate funding sources that would consider such a project. We feel as soon as we make progress towards the 1707 application we will have a higher likelihood of securing funding. With curtailment impacting the Shasta in 2023 we made no further progress towards the initial pipeline conveyance project. The board has this on our priority list of projects for 2024.
1707 Petition	Conserved water will be provided for instream benefit through SWRCB Change Petition and Water Code 1707	**In progress**	GID has been actively engaged in the TNC project to file 1707 related to SHA. We have communicated regularly with the SWB and supplied responses to protestants to the GID 1707 application. TNC grant to help facilitate this process has expired in 2023. The GID application seemed to be put on hold at the SWB level. GID may have to find other sources to help push this over the finish line

Project Name	Project Description	Current Status	Description of Progress
Stream Gaging	Work with agencies and SWCG to use streamflow gage at GID riffle to reduce flow variability resulting from GID diversion and curtailment	**In Progress**	GID diverted much of the irrigation season in 2023 even with curtailment as the water year was more normal and we collaborated with diverters within and outside of the Mid Shasta Reach. We worked with the SSWMD and utilized the SPU gauge as well as gauges at A12, Montague and Yreka to monitor flows to reduce variability. The logging of GID pump volumes was not recorded at the flow meter but recoded manually in our daily pump log. We worked with Les Grade at DWR to remove and get repairs for the flow meter. The repair and recalibration of the meter took much longer than expected and we are working around our professionals schedule for installation. The repaired flow meter will be reinstalled prior to the 2024 irrigation season. This will also allow our flow volumes to be recorded on CDEC again.
Diversion management	Participate in a reach-wide diversion management strategy	**In progress**	Worked with the SSWMD and other water users on the Shasta to coordinate a diversion strategy that met the curtailment requirements and minimized impact on the reach. We have been working regularly with Mid Shasta diverters for many years collaboratively. In 2023 we also engaged in a regular (daily and weekly) communication and coordination effort to manage efforts with other lower priority diverters.

Project Name	Project Description	Current Status	Description of Progress
Passage/Screening	Maintain unimpeded fish passage conditions at the GID diversion. Maintain self-cleaning fish screen at the GID diversion point.	**Maintained**	Monitored and maintained the GID self-cleaning screen through the year. The Fish screen worked well the entire year.
Habitat Complexity	Will maintain the instream barb structures opposite of the Fish Screen	**Maintained**	Monitored Barbs to insure they were working as designed and that they were not impacted by higher flow volumes in the river.
Habitat Complexity	Provide access for implementation of large wood enhancement on GID riparian property if deemed applicable.	**In Progress**	GID is working with CalTrout to be included in the habitat improvement project. We will continue to work with CalTrout in 2024 to help expedite the project implementation.
Riparian Fencing	Perform yearly maintenance on existing riparian fencing	**Completed**	Riparian fencing has been monitored and repaired as needed.
Effectiveness Monitoring Program and Reporting Dashboard	Maintain existing network, Install three needed real-time stage/flow/temperature stations, further develop dashboard to house all EM stations and POD stations, as well as annual reporting and do data analysis for performance measures	**Maintained**	SPU is working properly. GID supports the implementation of a pit tag array within the Shasta. It would be very beneficial to determine fish movement throughout the year.

8. Belcampo-North Annex

Belcampo-North Annex Property (North Annex) was owned and operated by Outpost M-R LLC (Permittee), then sold to new owner that opted out of the agreement during the 2023 reporting year. North Annex is located within the Covered Area between Interstate 5 and the Shasta River in central Siskiyou County (41°37'58.93" N latitude, 122°29'35.62"W longitude). Belcampo includes a total of 4167± acres, with 1503 ± acres under irrigation. Approximately four miles of the Shasta River is adjacent to the North Annex, within what has been designated as the **Mid Shasta Reach** in the Agreement.

Project Name	Project Description	Current Status	Description of Progress
Existing Pipeline	Maintain existing pipeline infrastructure	**Maintained**	All existing pipelines (irrigation and stockwater) were maintained and repaired as needed
Gaging	Allow stream gaging at GID riffle to reduce flow variability resulting from GID diversion	**Maintained**	GID maintains this flow gage and reports data.
GID project	Work with GID to develop an easement and install pipeline to increase efficiency	**Maintained**	Work with GID as needed
Tailwater	Continue irrigation practices to capture, reuse and reduce tailwater impacts	**Maintained**	All tailwater was captured and returned to irrigation system via return pump

Project Name	Project Description	Current Status	Description of Progress
Stockwater	Continue to maintain stock water systems	**Maintained**	
Habitat Complexity	LWD enhancement, reconnect oxbows and spawning gravel enhancement	**In progress**	Worked with CalTrout to seek funding for the Shasta River SHA Habitat Improvement Design and Implementation project. The project was selected to be funded. The property was sold prior to implementation of the grant.
Riparian Grazing	Will continue to maintain riparian areas by managing livestock grazing within the riparian area	**Maintained**	Photos included in report
Pasture Grazing	Will continue to holistically and intensively manage livestock grazing on the Enrolled Property	**Maintained**	Cattle were rotationally grazed on the property, following the principles of holistic management

Project Name	Project Description	Current Status	Description of Progress
Grazing	Permittee produces many livestock species and management is more intensive than cattle production. The riparian grazing plan will require additional consideration and input from UC Extension Service. Permittee agrees to work with UC Extension Service to develop a riparian grazing plan by the end of the first year of agreement	**Maintained**	Change: Beef cattle are the only species produced by or managed on the property as of October, 2020. For all of 2021 and moving forward, only cattle with be incorporated in the grazing/pasture management.

9. Grenada Novy Ranches

The Grenada Novy Ranches is owned by Lowell L. Novy in sole proprietorship, DBA Novy Ranches. The Grenada Ranch is located along Highway A-12, approximately three miles east of Interstate 5, in Siskiyou County (41°38'11.56'' N latitude, 122°29'22.88"W longitude). The Grenada Ranch includes a total of ±1085 acres, with ±586 acres under irrigation based on GIS coverage. Novy Ranches has, and for the term of the Permit, will continue to lease pasture commonly referred to the Zenkus Property. The Zenkus Property is 73 irrigated acres and is contiguous to and surrounded by either the Novy or Rice property. The Grenada Novy Ranches reporting is inclusive of the Zenkus Property hereinafter. Inclusive of the Zenkus Property, the Grenada Novy Ranches is managing 659 acres under the Agreement.

Grenada Novy Ranches is located within the lower part of the Mid-Shasta Reach and is adjacent to the Rice Livestock Company, Inc. Ranch. The Enrolled Property is adjacent to approximately 12,400 feet of the Shasta River. See Table below for Novy's reported progress on SHA commitments.

Project Name	Project Description	Current Status	Description of Progress
Tailwater Reduction	Continue irrigation practices to ensure there are no tailwater impacts	**Maintained**	Evaluate berms regularly as part of pasture management.
Novy Pump Maintenance	Installed Novy Pump in 2007 to replace usage of the Huseman Ditch, thus leaving at least 5.5 cfs in stream for additional 3.5 miles. Continue to maintain pump to standards	**Maintained**	Main Novy Pump is visually inspected 1-2 times per day, when pumping.
Tailwater Berms	Installed 6 tailwater berms throughout Novy Ranches from 2009 to 2013 to reduce tailwater inputs and water quality impacts. Continue to monitor and repair tailwater berms as needed	**Maintained**	Evaluate berms regularly throughout the year.
Novy Pump	Implement efficiency project on Novy pump	**In progress**	Upon finalization and determination of water rights NOV, work will continue. At this time, the determination is stalling this project.

Project Name	Project Description	Current Status	Description of Progress
Novy Rice Zenkus-Novy Commitment	Implementation of efficiency project on the Novy, Rice, Zenkus Riparian Diversion conserving up to 5 cfs conveyance and Novy Riparian Pump Efficiency Project.	**In progress**	Utilizing new headgate and flow measuring device which was installed at POD 08/12/2021. All permits for project were extended another 5 years. WCB is reviewing contract budget amendments. RCD has secured additional funding to cover inflation and additional piping for non-contested ground in hayfield pasture.
Soil Moisture Sensing program	Work with U.C. Extension to further understand soil moisture and further optimize irrigation efficiency	**In progress**	Novy Ranches continues to use hand-held moisture sensors throughout the ranch. Once pilot moisture meter pilot on HIG is finalized and recommendations are given, Novy Ranches will implement the ideal Moisture Sensors, following advisement and instruction via U.C. Extension/ RCD.
Reach wide flow strategy	Participate in a reach-wide diversion management strategy	**In progress**	Abided by SHA Flow Management System. Closely worked with SSWD to assist with other pulse flows and assist with other adjudicated irrigation rotations outside of SHA.
Fish Passage	Maintain unimpeded fish passage conditions at the Novy Pump diversion	**Maintained**	Maintained fish cone screen daily, confirming it worked each day the pump was in use.

Project Name	Project Description	Current Status	Description of Progress
NRZ Interim Measures	Manage and adjust flashboards and by- pass volume at Novy, Rice, Zenkus diversion structure based on fish passage objectives	**Maintained**	Maintained a 4' or more opening at all times at flashboard dam. This has been a practice since 1976.
NRZ Passage/Screening	Seeking funding for the redesign and implementation of NRZ to meet criteria.	**In progress**	Finalizing budget with funding sources. Begin implementing project once contracts are fully reviewed and signed- Fall 2024.
Instream Habitat Complexity	Seek funding and implementation of habitat enhancement projects	**In progress**	CalTrout has secured initial funding for Shasta Mid Reach coordinated project with several other ranches. Initial walk through of Novy Ranches - Grenada occurred in September, 2023. TAC group will begin meeting in January, 2024.
Riparian Grazing	Continue to minimize the potential impacts of grazing in riparian areas by limiting the season of use and by maintaining an approximate 6” stubble heights for herbaceous vegetation	**Maintained**	Cattle grazed after 07/06/23 through November, depending which riparian section and how many cattle within sections. Closed riparian gates when grass got to 4’ in height.

Project Name	Project Description	Current Status	Description of Progress
Riparian fencing	Continue to perform yearly maintenance on existing riparian fencing	**Maintained**	Fencing is a never-ending job and we have kept good fence throughout this year.
Riparian Planting	Maintain the few remaining trees/shrubs from four test plots along the Shasta River that were planted in 2015.	**Maintained**	Trees planted as part of test plots did not survive. However, willow trees in Riparian section#1 naturally recruited.
Substrate Quality	Participate in riparian planting to stabilize banks.	**No progress**	RCD has been looking for potential reach-wide funding for new plantings, i.e. canary grass, for further bank stabilization.
Pasture Management	Continue to utilize pasture rotation to avoid overgrazing	**Maintained**	Novy Ranches continued to cull a number of cattle, working towards the optimum number during a drought year. Given 2023 was a "good" water year, we were able to properly manage grazing fields such that Spring 2024 should have a good grass start due to no overgrazing of land.

Project Name	Project Description	Current Status	Description of Progress
Assessments	Continued participation in temperature monitoring at ingress, middle and egress and DO monitoring at the ingress of the Grenada Novy Ranches Shasta Reach via RCD	**Maintained**	Ethan Brown on-site every 3 weeks to download DO and temp info, while maintaining equipment and batteries for continuous reporting. This year Novy's have asked Ethan to keep equipment in the water year round to actively collect data.
Assessments	Participate in developing design, seeking funding and installation of Alternative stock watering systems on fields irrigated by NRZ riparian		Alternative Stock Watering Systems are part of the NRZ WCB Proposal.
Assessments	Allow access for studies that support objectives of the Agreement and as approved under the Agreement.	**Maintained**	SVRCD has continued to collect DO and temperature readings. Graphs attached

10. Rice Livestock Company, Inc.

Rice Livestock Company, Inc. (Rice) is located along Highway A-12, approximately three miles east of Interstate 5, in Siskiyou County (41°38'11.56'' N latitude, 122°29'22.88"W longitude). Rice includes a total of 2,100 acres, with approximately 379 acres under irrigation. Approximately 1.8 river miles of the Shasta River is within ownership of Rice, within what has been designated the **Mid-Shasta Reach** in the Agreement. See Table below for Rice's reported progress on SHA commitments.

Project Name	Project Description	Current Status	Description of Progress
Maintain Huseman POD and Screen	Maintain the Huseman Ditch diversion and fish screen. Continue diversion reduction realized through the Huseman Ditch efficiency project of 2011. Maintain pipeline infrastructure provided with the Huseman Ditch efficiency project of 2011. Continue remote control of Huseman Pump which allows users to turn off pump remotely reducing tail water.	**In progress**	Previously installed new flow meter did not work. Was sent for repair and was gone all summer. Got it back in the Fall of 2023 and it is still not working. Remote control of Huseman pump no longer working but hope to get new system in with Huseman pipeline project. Sought funding for design and implementation of Huseman Ditch project. Planning & design funds were secured by SVRCD for Huseman Ditch efficiency project.
Tailwater Management	Huseman Fields 1 and 2: Improve berm and develop catch ditch to deliver and re-distribute excess tail-water water to under irrigated property.	**Maintained**	Berms remained in good shape throughout 2023.
Tailwater Management	Huseman Field 3: Improve catch and redistribution ditches. Use remote pump operation for Huseman Ditch so pump can be remotely turned off to reduce run-off.	**No progress**	Catch and redistribution ditches need to be improved based on pipeline design (now funded) for all fields.

Project Name	Project Description	Current Status	Description of Progress
Tailwater management	Field and Field 4: Use remote activated pump operation so pump can be remotely turned off when soil moisture probe notifies Permittee.	**No progress**	Needs to be incorporated into pipeline project.
Tailwater Management	Novy-Zenkus- Rice Riparian -Gravel Pit Field. Improve berm at Shasta River.	**Maintained**	We plan to incorporate berm improvement project with NRZ pipeline project. Continued maintenance and plan to improve.
NRZ Efficiency Pipeline	Implementation of efficiency project including piping to increase delivery efficiency on the Novy-Rice-Zenkus conveyance and provide irrigation efficiency through flood valves and piping of irrigation laterals	**In progress**	Project was awarded funding and continuing to resolve neighbor's water right dispute with funding source. WCB implementation funding is currently being contracted with RCD.
Huseman-Rice/Nicoletti Commitment	Change NRCS design, Permit and Plan (CEQA) Pipeline and Implement efficiency project to reduce diversion from 11.9 cfs to 9 cfs	**In progress**	SVRCD submitted proposal for design funding for Huseman Ditch. Flow meter data was unable to be downloaded by 3rd party. Flow meter sent to McCrometer to repair and download. Flow meter is still under warranty and has still not been repaired and was not working all summer.

Project Name	Project Description	Current Status	Description of Progress
Soil Moisture Sensors	Install soil moisture sensors throughout the Enrolled Property to improve water efficiency as a component of Huseman piping project	**In progress**	RCD has been submitting grant proposals for soil moisture sensing.
Reach wide flow strategy	Participate in a reach-wide flow strategy as outlined in the Mid-Shasta Flow Strategy	**In progress**	Provided bypass flows as identified in Mid-Shasta flow strategy for both NRZ and Huseman ditches. The real-time data was submitted and RCD has access to real-time data.
Fish passage and screening	Maintain unimpeded fish passage conditions at the Huseman Diversion and Maintain Huseman Ditch Fish Screen	**Maintained**	Checked regularly for proper water flow by fish screen.
NRZ fish passage	Maintain flashboards at Novy- Zenkus-Rice diversion in consideration of fish passage until fish passage and screening project is implemented. Participate in assessment leading to design and implementation of a fish screening and passage facility meeting NMFS and CDFW criteria.	**Maintained**	Checked regularly for proper fish passage and board placement.

Project Name	Project Description	Current Status	Description of Progress
NRZ fish passage	Participate in current design and permitting process to improve fish passage and protection at Novy Zenkus Rice Riparian Diversion. Upon completion of approved design, seek funding and aid in construction of a new diversion structure at the Novy-Zenkus- Rice Diversion that is passable for all life stages.	**In progress**	WCB is contracting with SVRCD to fund NRZ implementation project.
Beavers	Implement beaver Best Management Practices	**Maintained**	We check for signs of beaver activity regularly but there are no beaver problems on our stretch of the river.
Instream Habitat Complexity	Participate in seeking funding and implementation of habitat enhancement projects (LWD for bank stabilization)as shown on the attached Habitat Improvement Map	**In progress**	October & December 2023 meeting & walk through with CalTrout and Jay Stallman with Stillwater Sciences for possible funding opportunities to reconnect oxbows along river and bank stabilization projects. Alterations to existing cattle crossing may be considered.

Project Name	Project Description	Current Status	Description of Progress
Riparian fencing	Maintain existing cattle exclusion fencing to protect riparian areas. Continue to perform yearly maintenance on existing riparian fencing, crossing and existing alternative stock watering systems	**Maintained**	Maintain fences throughout the year and monitor alternative stock water troughs to be sure they are producing adequate water.
Pasture Management	Continue to utilize pasture rotation to avoid overgrazing	**Maintained**	Cattle are rotated on a continuous basis to avoid overgrazing.
Pasture Management	Maintain soil moisture probe in Field #4.	**In progress**	Part of Huseman Ditch implementation project.
Pasture Management	Maintain Alternative Stock Watering systems	**Maintained**	Stock water systems are maintained and functioning.
Pasture Management	Participate in developing design, seeking funding and installation of Alternative stock watering systems on fields irrigated by NRZ riparian diversion.	**In progress**	Funding part of pending NRZ implementation project

Project Name	Project Description	Current Status	Description of Progress
Effectiveness Monitoring	Diversion monitoring station will be maintained and operated as designed. Provide yearly data	**Maintained**	NRZ diversion monitoring systems are maintained and monitored for proper collection of data. Huseman flow meter had malfunctioned and was replace fall 2023.

11. NB Ranches, Inc.

NB Ranches, Inc. (Nicoletti) is located along DeSoza Lane, approximately three miles east of Interstate 5 near Grenada, in Siskiyou County (41°38'11.56'' N latitude, 122°29'22.88"W longitude). The NB Ranches is located on the Shasta River, within the Mid-Shasta Reach and includes a total of 357.2 acres, with approximately 257.4 acres under irrigation based on GIS coverage. Approximately 1.2 river miles of the Shasta River is within the ownership of NB Ranches. See Table below for Nicoletti's reported progress on SHA commitments.

Project Name	Project Description	Current Status	Description of Progress
Maintain 2nd POD	Maintain the existing Huseman second point of diversion that conserves an estimate 240 af compared to previous point of diversion	**Maintained**	The POD was maintained in 2023
Hayfield lateral	Install lateral to reduce tailwater impacts	**In progress**	Working with Gary Black on finding funding for this project.

Project Name	Project Description	Current Status	Description of Progress
Diversion reduction	Design and Implement Huseman Ditch project to reduce diversion volume.	**In progress**	Flowmeter installed at the pumping station and functioning. RCD is in the process of developing a Scope of Work and Budget for the alternatives analysis and 100% design of preferred alternatives with Davids Engineering. Partial funding for implementation has been secured.
SWRA tailwater re-use	Manage fields to reduce tailwater returns from outside sources to reduce diversion	**Maintained**	SWRA tailwater is collected in long sump and reused on pastures.
Fish Passage	Maintain unimpeded fish passage conditions at the Huseman Diversion	**Maintained**	Huseman fish screen is functioning.
Habitat Improvement	Implement LWD and oxbow reconnection and riparian planting	**In progress**	May be included in CalTrout habitat improvement project-onsite inspection was done during reporting year.
Riparian fencing	Continue to perform yearly maintenance on existing riparian fencing	**Maintained**	Fence is regularly checked and maintained as needed.
Watering lanes	Maintain existing watering lanes for stock water	**Maintained**	Application submitted with Caltrout. They have completed field visit of proposed projects, waiting for project update.

Project Name	Project Description	Current Status	Description of Progress
Grazing Management Plan	Participate in the development of and implementation of a UC Extension guided riparian grazing plan	**Completed**	Grazing Plan prepared and submitted in 2023.
Rotation grazing	Continue to utilize pasture rotation to avoid over grazing	**Maintained**	Riparian area was not grazed in 2022
Huseman-Rice/Nicoletti Commitment	Participate in design and implement Nicoletti component of Huseman Ditch piping to reduce diversion volume	**In progress**	Flowmeter installed has been fixed and malfunctioned again in 2023.
Soil Moisture Sensing program	Install several soil moisture sensor stations to help inform irrigators when to start irrigation rotations, could help reduce water use by informing LO's of reduced ET during Spring and Fall and between rotations to keep water instream-quantified benefit is unknown	**In progress**	Priced watermark sensors

Project Name	Project Description	Current Status	Description of Progress
Effectiveness Monitoring	Diversion monitoring station will be maintained and operated as designed. Provide yearly data	**Maintained**	Diversion monitoring station on Huseman - flowmeter readings were downloaded and attached. Real-time station installed at SBG in 2023, SVRCD collected data for 2022, which is attached.

12. Edson Foulke Ditch Company

Edson Foulke Yreka Ditch Company (Edson-Foulke), an association consisting of six individual members that divert water through a single delivery system commonly known as the Edson-Foulke or China Ditch. The water diverted through Edson-Foulke ditch is a combination of multiple shared water rights. Edson Foulke, owns no real property and operates it's diversion through an easement on Parks Creek Ranch.

The furthest point of use is 15.45 ditch miles north of Parks Creek diversion point. The location of Edson Foulke diversion is within the **Upper Parks Creek Reach** of the Agreement. See Table below for Edson-Foulke's reported progress on SHA commitments.

Project Name	Project Description	Current Status	Description of Progress
Maintain POD	Maintain diversion facility and diversion operation	**Maintained**	Routine maintenance/cleaning occurred for headgate, fish screen and canal
Water Conservation	Assess, design, permit and implement a water conservation project on Edson-Foulke Ditch that conserves 3.0 cfs when the ditch is operating at 60% capacity or greater. By-pass the 3.0 cfs of conserved water prior to diverting for irrigation or stock watering purposes.	**In progress**	Conservation project has been designed and engineered. Now seeking grant funding to implement project. Several grants have been applied for but none have been approved.

Project Name	Project Description	Current Status	Description of Progress
Edson-Foulke and Parks Creek Ranch diversion #1 &2 Delivery Efficiency Project	To implement Upper Parks Creek Flow Plan, design and construct a diversion facility which includes: programmable, automated head gate and flow gage for the diverted volume. Facility will also include streamflow gage facility located above or below diversion, based on feasibility and design	**In progress**	Concept of a shared point of diversion with Parks Creek ranch has been conceptually designed. Need additional funding to complete designs and implement.
Fish Passage	Maintain unimpeded fish passage at EF Parks Creek diversion except when surface flows cease	**In progress**	Maintained a clear channel in stream at the point of diversion for fish passage
Fish Screen Maintenance	Maintain Edson - Foulke Fish Screen and by-pass	**Maintained**	Routine maintenance occurred on the fish screen while diversion was operating and flows were maintained through the bypass
Fish Screen	Improve/replace existing fish screen based on screening criteria evaluation results, incorporate fish screen into new facility	**No Progress**	Evaluation of fish screen will be performed with the design of automated diversion facility

13. Parks Creek Ranch

Parks Creek Ranch (PCR) is owned by Outpost M R, LLC and operated by Belcampo Farms. PCR is located within the Covered Area along Old Highway 99 and Stewart Springs Road in central Siskiyou County (41°26'54.26" N latitude, 122°27'46.39"W longitude). PCR includes a total of 3,970± acres, with 1,480 ± acres under irrigation from Parks Creek and Spring Creek. Approximately 6.5 miles of Parks Creek flows through PCR within the reach designated as the Upper Parks Creek Reach of the Covered Area. See Table below for PCR's reported progress on SHA commitments.

Project Name	Project Description	Current Status	Description of Progress
Edson-Foulke and Parks Creek Ranch diversion #1 &2 Delivery Efficiency Project	Participate in diversion facilities assessment, design and implementation to combine operate and maintain diversions #1, #2 and the Parks Creek Ranch Edson-Foulke right. Delivery efficiency and irrigation efficiency improvements to conserve water and meet the objectives of the Upper Parks Creek Flow Strategy. Site may also include Edson-Foulke Ditch Parks Creek Diversion. 2.8 cfs (1.2 cfs 1st priority, 1.6 cfs 23rd priority) would be provided for instream benefit prior to diverting.	**In progress**	PCR is working with Gary Black and Edson Foulke to update diversion facilities on the ranch. We have included TNC in these discussions as they will be hopefully buying the ranch soon. We are doing whatever we can as the current ownership to facilitate communication between the parties to make this happen. We have a monthly call scheduled with EF & TNC to keep the discussions moving ahead prior to the sale of the property.

Project Name	Project Description	Current Status	Description of Progress
Edson-Foulke and Parks Creek Ranch diversion #3, #4, #5 & 6 Delivery Efficiency Project	Participate in diversion facilities assessment, design and implementation to combine, operate, and maintain diversions #3, #4, #5 and potentially #6 to improve irrigation delivery efficiency and irrigation efficiency to conserve water and meet the objectives	**No progress**	Since we will be selling the property to TNC and the ranch is lightly stocked with livestock, we did not use these diversions.
Tailwater	Tail-water collection and re-use project #1 will be constructed and maintained, to reduce re-entering near the northern end of the property above diversion #6. Collected tail-water will be used in lieu of diverting stream flow at site #6. Project will eliminate up to 0.85 cfs of tail-water re-entry.	**In progress**	PCR agreed to have the SVRCD seek funding to construct a whole ranch water accounting model. There was no funding available to create this model. We hope that this is completed after the sale of the property to TNC.
Maintain crossing and lanes	Continue to maintain crossings and stock watering lanes	**Not Necessary**	Full exclusion fencing complete. Stockwatering lanes not used, unless emergency. Crossings maintained.

Project Name	Project Description	Current Status	Description of Progress
Fish Passage	Maintain unimpeded fish passage conditions at all Enrolled Property diversions	**Maintained**	
Fish Screen	Operate and maintain the existing panel fish screens at all of the PODs	**Maintained**	
Riparian Fencing	Continue to perform yearly maintenance on existing 2.5 miles of riparian fencing	**Maintained**	Fence checked and maintained- in excellent condition.
Riparian Fencing	Continue to seek funding and implement riparian fencing along the west side of Parks Creek for approx. 2.9 miles of Parks Creek that does not have riparian fencing.	**Complete**	All riparian fencing has been completed.

Project Name	Project Description	Current Status	Description of Progress
Riparian Planting	Seek funding, provide materials and assist with riparian planting from Old Hwy 99 to I-5	**In progress**	Plantings done by SVRCD. Replanting some areas with low success rate to occur in early 2024.
Riparian Grazing Plan	Work to develop and Implement the riparian grazing plan with UC Extension service	**Maintained**	Very limited riparian grazing in 2023. Only a two week period with very light grazing.
Alternative Stock Water	Assess, design and implement efficient alternative livestock watering system to aid adult migration and spawning by reducing diversion volume to 1.2 cfs.E.3.a5	**In progress**	Stockwater system has been installed and is complete.
Effectiveness Monitoring Program	Maintain existing network, Install three needed real-time stage/flow/temperature stations, further develop dashboard to house all EM stations and POD stations, as well as annual reporting and do data analysis for performance measures	**In progress**	UPC and PCE are maintained by SVRCD and graphs are attached

14. Shasta Springs Ranch

Shasta Springs Ranch is located north of Edgewood, California, and east of Interstate 5. The headquarters are accessed from Slough Road, which roughly approximates the west boundary, though the easement is not exclusively on or associated with the property line. The Permittee's other properties, the Hole-in-the-Ground and Seldom Seen ranches, share boundaries to the north and northeast. One other private landowner borders the Ranch to the east, south, and west.

Parks Creek and Kettle Springs Creek flow through the Enrolled Property. Significant springs, two of which are sometimes referred to as Black Meadow and Bridge Field, emerge at the west margin of the ridge between Lake Shastina and the Ranch. The water from these and other unnamed springs is collected in manmade and natural channels, eventually flowing into Parks Creek, approximately 4.5 miles upstream of the confluence with the Shasta River.

For the purposes of this Report, activities on the Ranch have the potential to influence the mid- and Lower Parks Creek sub-reaches. See Table below for Shasta Spring's reported progress on SHA commitments.

Project Name	Project Description	Current Status	Description of Progress
Cattle Access	Cattle access to the channel will be excluded or restricted to crossings, watering access points, and/or limited season/stocking/ duration that conserves water quality.	**Maintained**	Photos were submitted with Annual Report
Maintain Tailwater Berms	Agree to continue maintenance of tailwater berms	**No Progress**	No maintenance required
Minimize Tailwater	Continue irrigation practices to minimize/eliminate tailwater	**Completed**	

Project Name	Project Description	Current Status	Description of Progress
Kettle Springs Project	Continue to operate and maintain new (2017) Kettle Springs spring source management structure, as designed	**Maintained**	Maintenance in 2023 included: battery replacement in meter, removing and replacing structure boards as applicable, clearing as much as possible blockages in irrigation delivery valves/pipes, and routine clearing of algae and debris from within structure. Kettle Spring diversion was reported in Acre-feet/month.
Soil Moisture Sensing	Collaborating with UCCE in research testing applicability of soil moisture monitoring technology to improve irrigation efficiency	**In progress**	EII in progress of the soil moisture monitoring pilot project with Siskiyou County UCCE.
Water Quality	Agree to conduct evaluation of water quality conditions in and in the vicinity of the road crossing over Kettle Springs Creek and implement projects to diminish/eliminate impacts from irrigation or pasture management	**Completed**	Water quality evaluation completed and reported on in 2022.
Bypass Upper Parks Flow	Participate in, including bypassing flow from Upper reach, Parks Creek Flow Strategy	**Maintained**	Bypass flow plan by upstream diverters have not been initiated.

Project Name	Project Description	Current Status	Description of Progress
Mid Parks Evaluation	Agree to further evaluation to determine feasibility of getting spring water on east margins of fields east of the Mid-Parks Creek to alcoves or reconfigured Mid-Parks reach (Mid-Parks Creek Project)	**In progress**	EII developed a project team and submitted a proposal to NFWF seeking funding to initiate the Mid-Parks Creek and Spring Channels Renovation and Evaluation Project during 2023. The grant funding review committee made the determination not to request a full proposal nor award. EII is continuing to seek appropriate funding.
Parks 1 and Parks 4 Diversion Combine	Combine EII Parks 1 and 4 diversions, would leave Parks 1 water (2 cfs) instream at times during spring season (March 1- June 1) to extend migration through reach and add efficiency and management flexibility in combination with Bridgefield and Blackmeadow work- probably a SHRP and CatX.	**In progress**	EII developed a project team and submitted a proposal to NFWF seeking funding to initiate the Mid-Parks Creek and Spring Channels Renovation and Evaluation Project during 2023. The grant funding review committee made the determination not to request a full proposal nor award. EII is continuing to seek appropriate funding sources. This process is on-going.
Parks #5 operation	Continue to maintain and operate Parks#5 improved POD infrastructure, complying with current CDFW requirements for passage, bypass flows, and screening	**Maintained**	Photo monitoring of the condition of Parks #5 fish screen and bypass were submitted with Annual Report.

Project Name	Project Description	Current Status	Description of Progress
Kettle Springs Tailwater	Agree to construct enhanced tailwater berm if applied irrigation is found to still be creating tailwater returning to Kettle Springs Creek as surface water	**Completed**	No construction of additional berms necessary. See 2022 SHA Shasta Springs report for details on water quality investigation.
Bridgefield and North Slough Water Quality Eval	Agree to conduct water quality investigation of Bridge Field Springs Creek and the North Slough	**In progress**	Supplemental report was performed and submitted for review in 2022.
Redd/spawner survey	Continue to conduct redd/spawner surveys	**Maintained**	2023-2024 Spawning Survey_tech_memo_FINAL was submitted with Annual Report.
I-5 Passage Improvement	Agree to continue cooperation in project to eliminate potential salmon migration barrier on upstream landowner (Parks Cr under I-5)	**Completed**	Completed
Beaver Management Plan	Agree to develop and implement beaver management plan to alter or provide access around potential migration barriers at dams	**In progress**	EII Beaver Management Plan_31Jan2024.pdf was submitted with 2023 Annual Report.

Project Name	Project Description	Current Status	Description of Progress
Riparian Grazing Management Plan	In the sub-reaches of Parks Creek without exclusion fencing, Cattle access to the channel and riparian zone will be restricted to crossings and/or limited season/stocking/ duration that conserves habitat quality, consistent with recommendations of UCCE Range Conservation Specialists (Attachment Tate & Rivers, 2016)	**Maintained**	Grazing was conducted in accordance with the recommendations of UCCE Range Conservation Specialists. See 'Shasta SHA Annual Report Attachments Shasta Springs_2023.pdf' for riparian grazing photos.
Wheat Field Fencing	Shasta Springs Ranch will temporarily or permanently fence the Wheat Field pasture, if necessary, to achieve the stated management goals.	**In progress**	Cost share grant was awarded and project planning is ongoing. Implementation scheduled for 2024.
Riparian Fencing	Agree to maintain existing riparian exclusion fencing or, if modified, riparian pasture fencing with associated grazing plan developed in consultation with UCCE Range Conservation Specialists	**Maintained**	No maintenance required.

Project Name	Project Description	Current Status	Description of Progress
Riparian Fencing	Will replace, out-of-pocket, up to 20% of riparian fencing damaged by high flow events and seek additional funding if necessary to complete repairs	**No progress**	No maintenance required.
Riparian Planting	Permittee agrees to monitor survival of riparian plantings at Parks#5 and replace damaged beaver enclosures until cuttings are established	**Completed**	See 2022 SHA Shasta Springs report for documents on riparian planting survival monitoring.
Cattle Access/crossings	Seven livestock/vehicle crossings/watering access lanes will be maintained as rocked fords (Section E.1.d.) One instream stock water only access point will be maintained with rock and panels, minimizing erosion potential to bank	**No Progress**	No crossing maintenance required. One in-stream stock watering access point used in 2023 adjacent to the Felix Field, see 'Shasta SHA Annual Report Attachments Shasta Springs_2023.pdf' for photo.
Riparian Grazing	In the subreaches of Parks Cr. without exclusion fencing, Cattle access to the channel and riparian zone will be restricted to crossings and/or limited season/stocking/duration that conserves habitat quality, consistent with recommendations of UCCE Range Conservation Specialists	**In progress**	Grazing was conducted in co-ordinance with the recommendations of UCCE Range Conservation Specialists. See 'Shasta SHA Annual Report Attachments Shasta Springs_2023.pdf' for riparian grazing photos.

Project Name	Project Description	Current Status	Description of Progress
Substrate Quality	Seven livestock/vehicle crossings/watering access lanes will be maintained as rocked fords. One instream stockwater only access point will be maintained with rock and panels, minimizing erosion potential to bank		Utilized one stock watering point with panels, see 'Shasta SHA Annual Report Attachments Shasta Springs_2023.pdf' for photo.
Effectiveness Monitoring Program	Reasonable access for monitoring salmonid use of created/restored habitat at Kettle Springs and Mid Park, East side Pastures and Spring Channel Renovation Projects.	**In progress**	Spawning surveys were performed in 2022- supplemental report was submitted
Monitoring	Allow for PCI, PCM and KSC effectiveness Monitoring stations to be maintained and rate	**In Progress**	PCI was maintained and reported by SVRCD and PCM and KSC were maintained and reported by UCD (as part of Cardoza Implementation Project).

Appendix A - Effectiveness Monitoring Data

The effectiveness monitoring station installation is in process and the third party monitoring scope of work and contract was initiated during the 2022 reporting year. The following graphs are data reports that were included in the 2022 Annual Reports or the data was downloaded from the real-time stations on CDEC or from the Eyasco Grabdata site that is established for SHA monitoring. All raw data was also submitted as part of the annual reports and will be used for the 5-year analysis that is part of the SHA.

MWCD Data: Upper Shasta

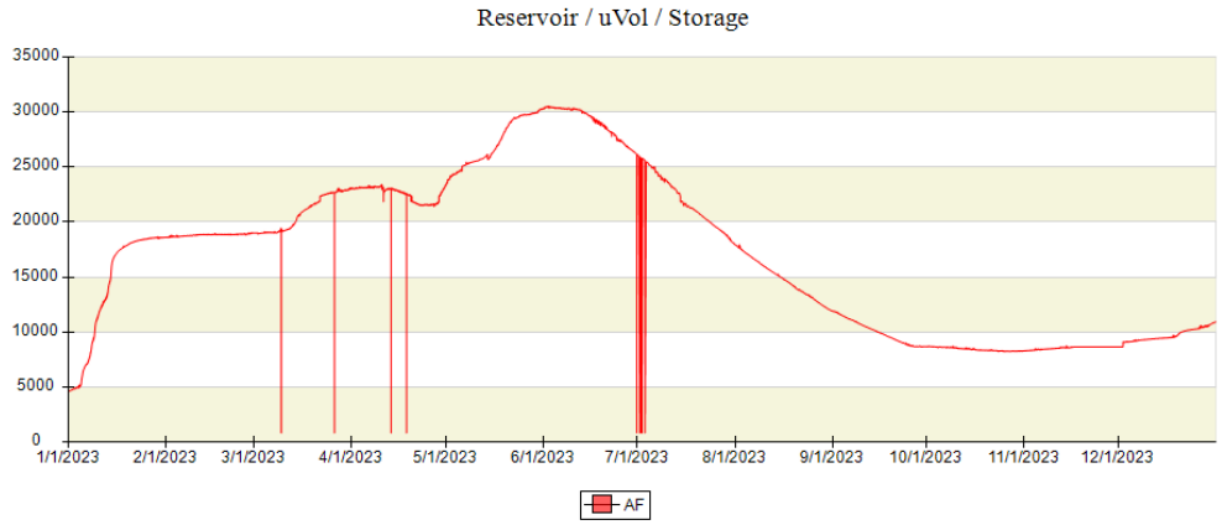

Figure 1- Dwinnell Reservoir Storage for 2023, shows a maximum storage of 30000 ac-feet around June 1st and dropping to around 8000 ac-feet in November.

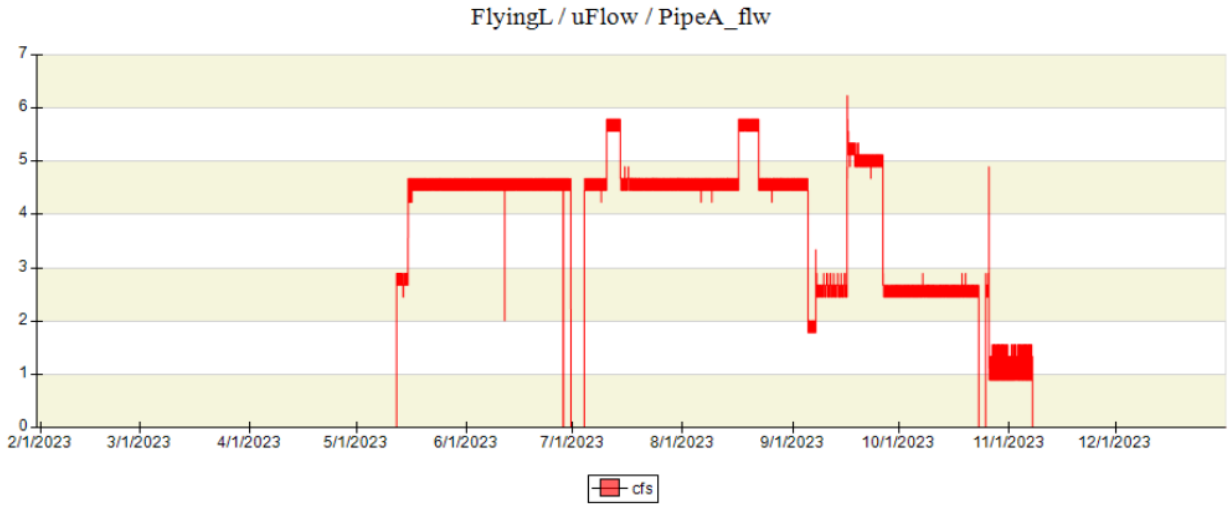

Figure 2- Flying L Groundwater Contribution for 2023 in cfs, shows pumping rates below 5 cfs between min May to September, with some variation between September and November.

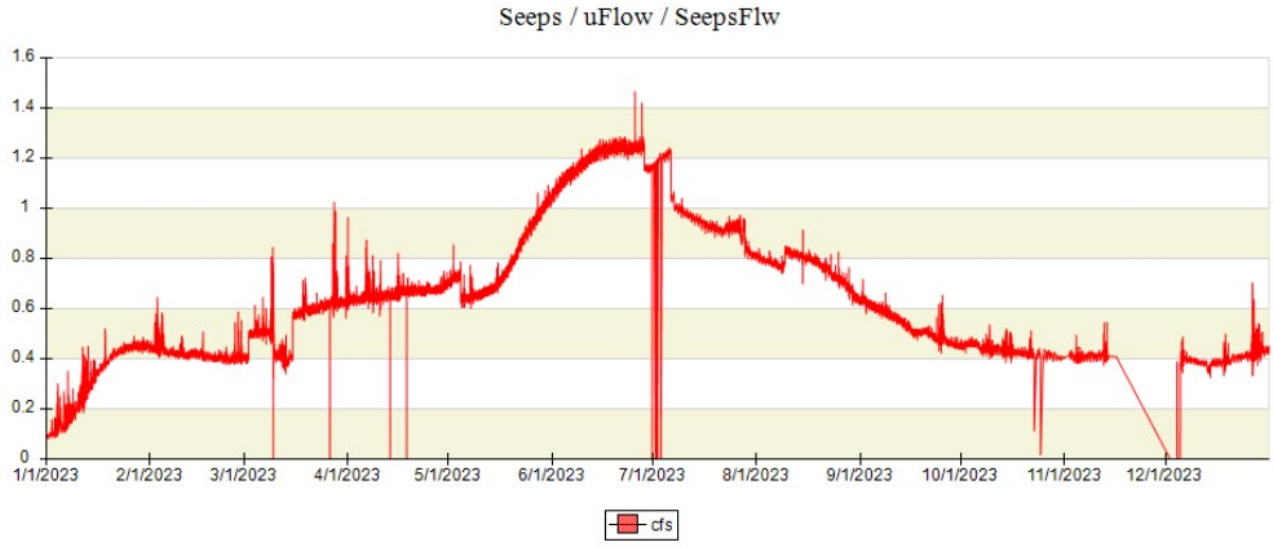

Figure 3- Seep Flow below dam into cold-water habitat showing between 0.1 cfs up to a maximum of 1.25 cfs in Mid-June, dropping off to approximately 0.4 cfs.

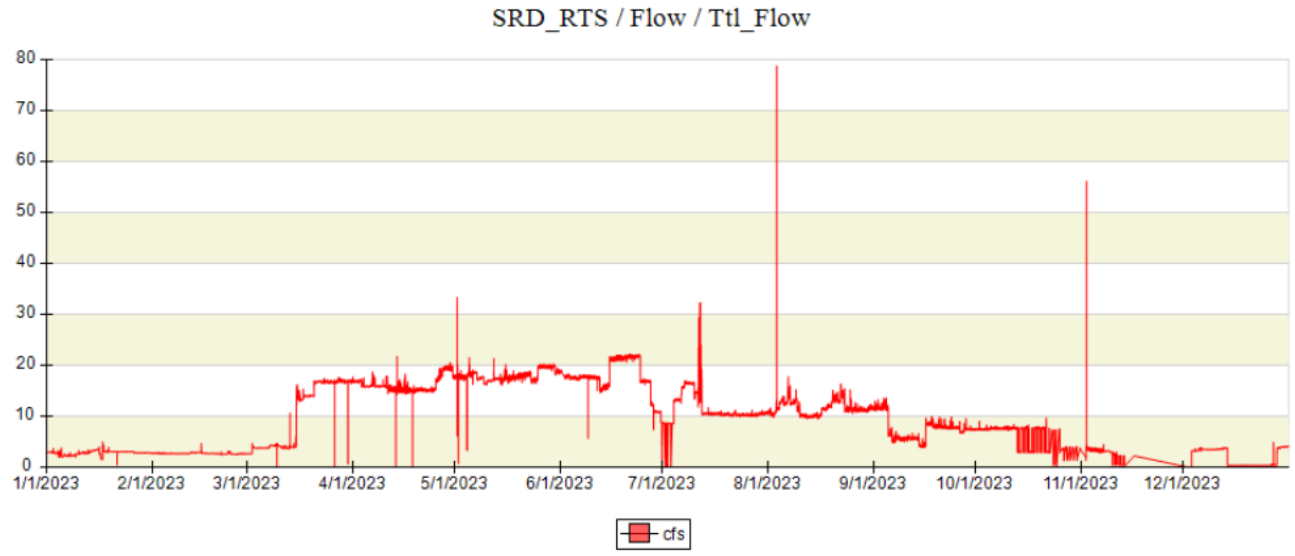

Figure 4- SRD is the total flow leaving MWCD property in (cfs). Showing discharge amounts between 3 cfs to a maximum of 20 cfs in Mid-June.

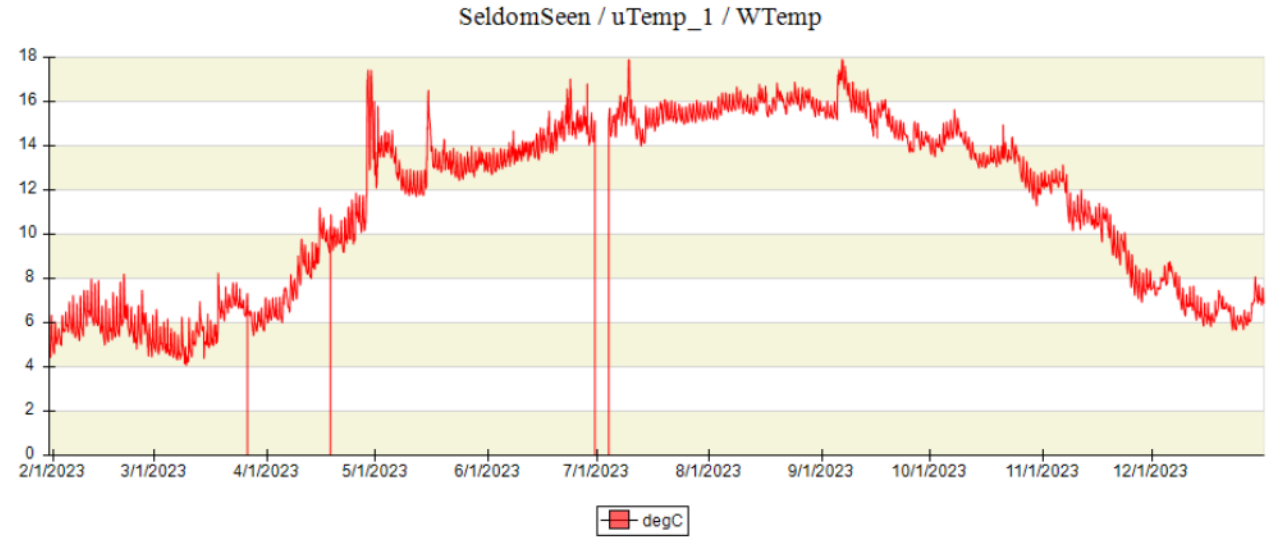

Figure 5- Seldom Seen monitors the temperature of water leaving MWCD at SRD in degrees C. Temperatures were as low as 4 degrees C in March and as high as 18 degrees in July.

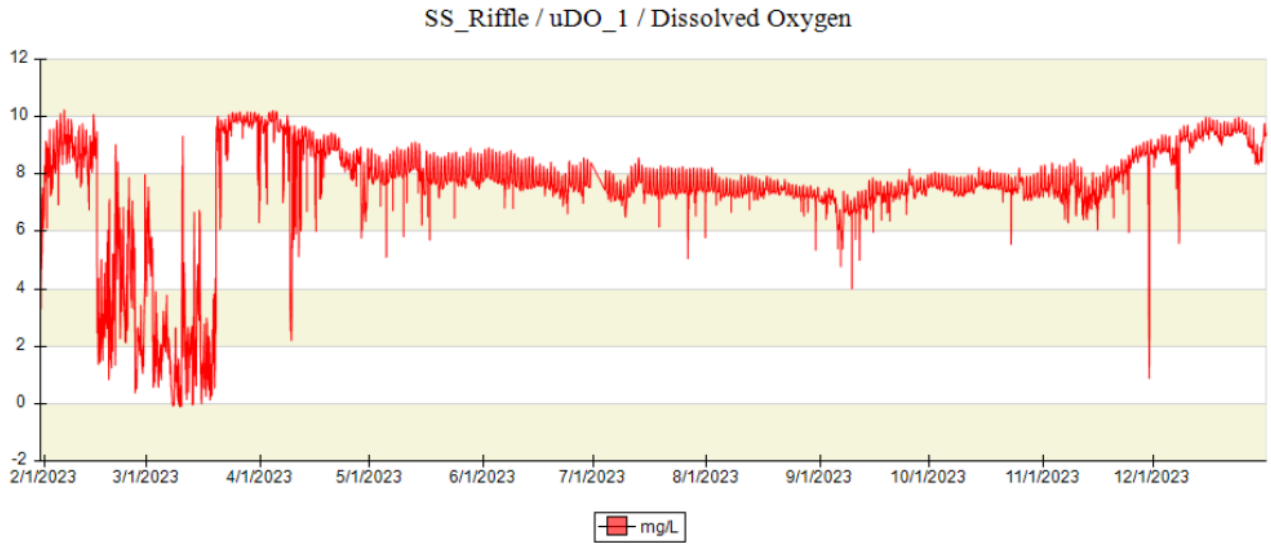

Figure 6- Dissolved Oxygen below MWCD at SRD in mg/l, showing DO levels as low as zero in March, mostly staying around 8 mg/l throughout the season with some diurnal fluctuation.

Hidden Valley Data

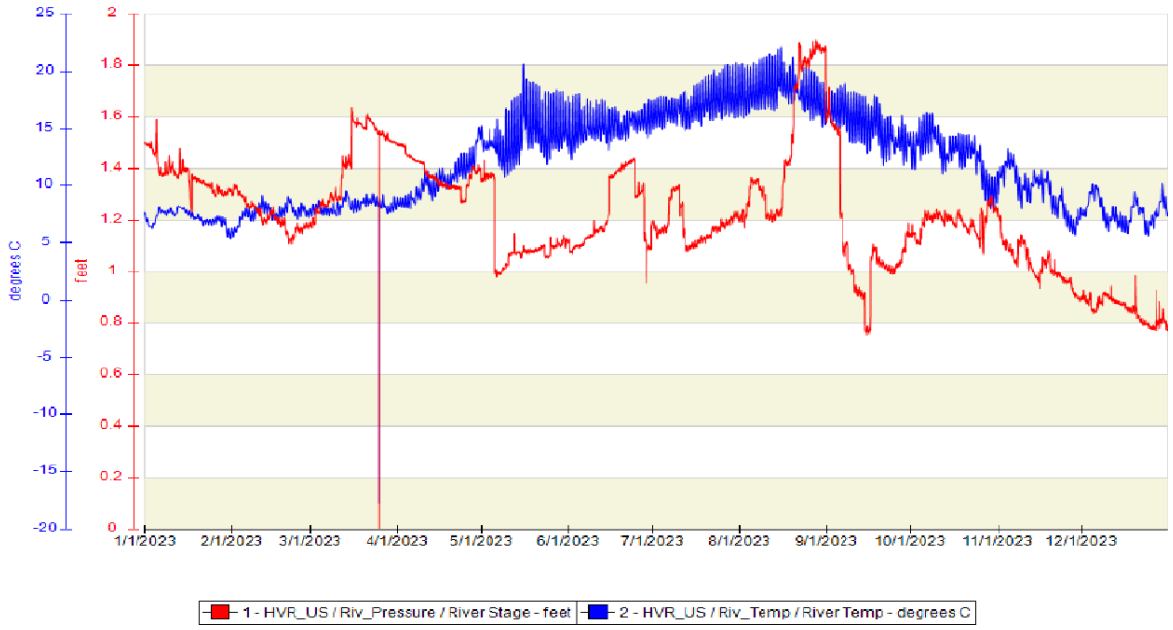

Figure 7- Temperature in degrees C and Stage in feet at HVR-US, reporting temperatures at this location reaching above 20 degrees C in early August.

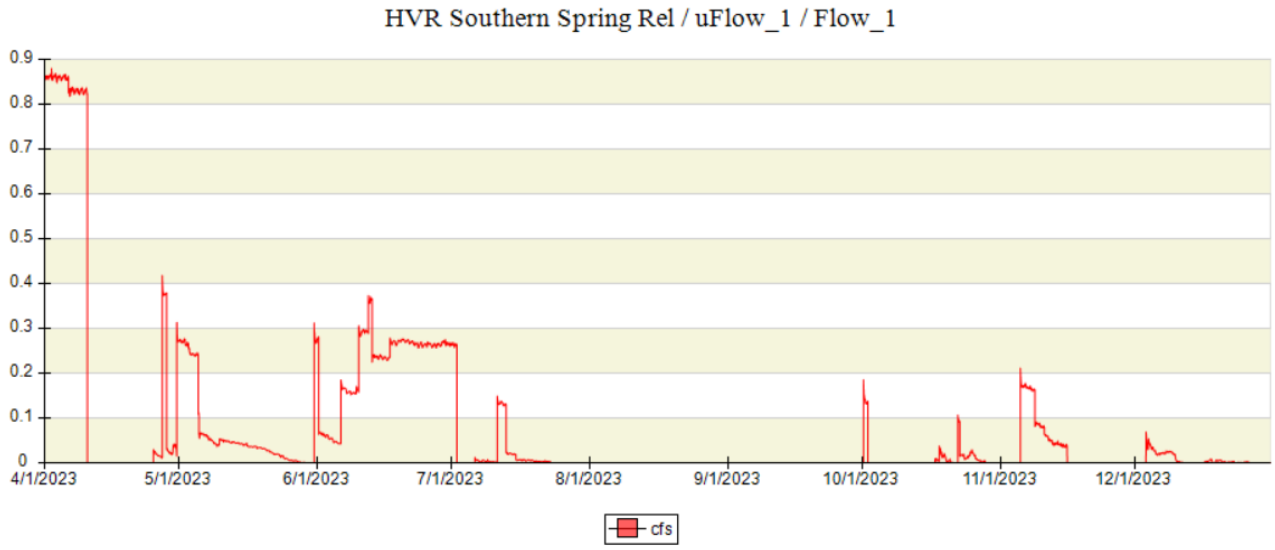

Figure 8- HVR spring Water Released to Shasta River from Southern Spring in cfs, reported to fluctuate throughout the season.

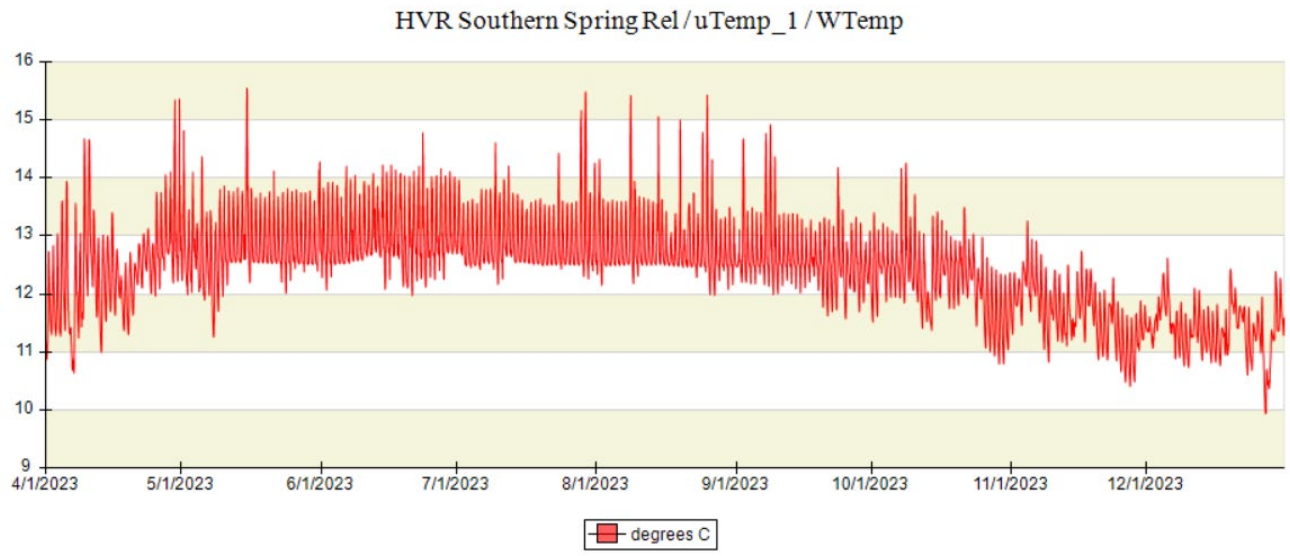

Figure 9- HVR Spring Water Released at Southern Spring in degrees C, reporting temperatures of water released to be generally below 15 degrees C.

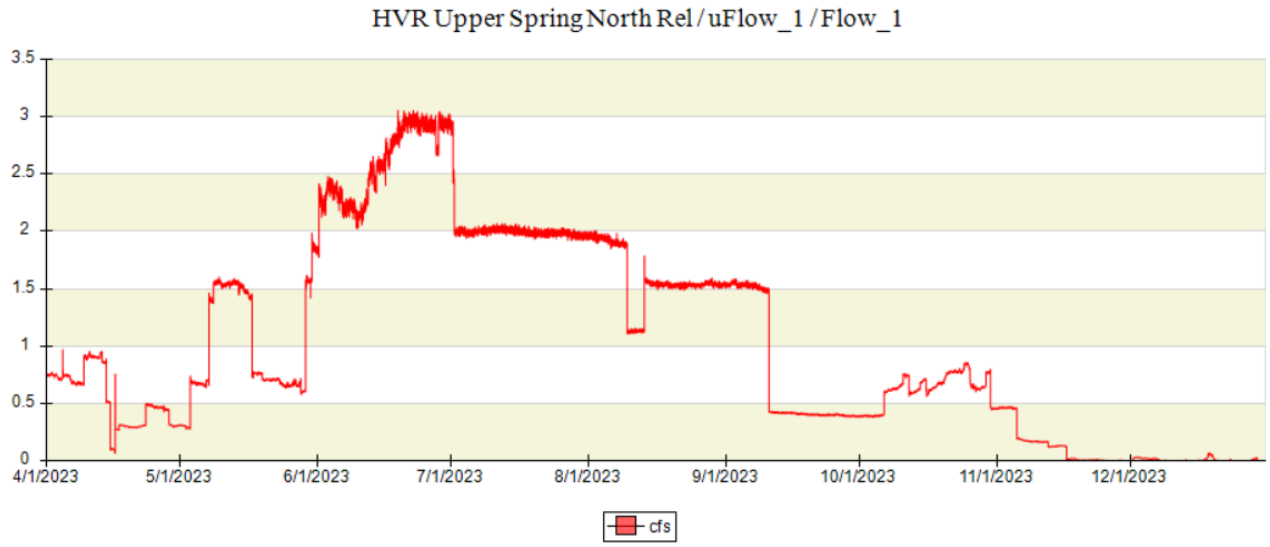

Figure 10- HVR Spring Water Released from Upper Spring to the Shasta River at Northern Weir in cfs, reporting spring water was released consistently throughout the irrigation season, with a maximum of 3 cfs being delivered in late June.

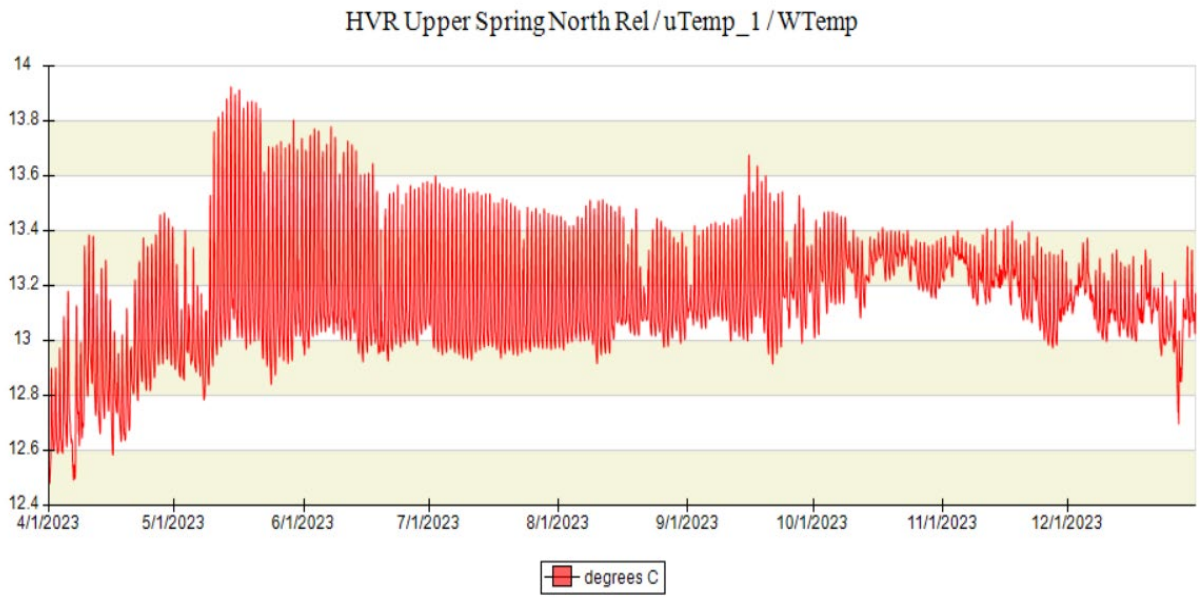

Figure 11- Temperature of HVR Spring Water Released from Upper Spring to the Shasta River at Northern Weir in Degrees C. A maximum temperature of water released from the upper Spring was 13.9 degrees C.

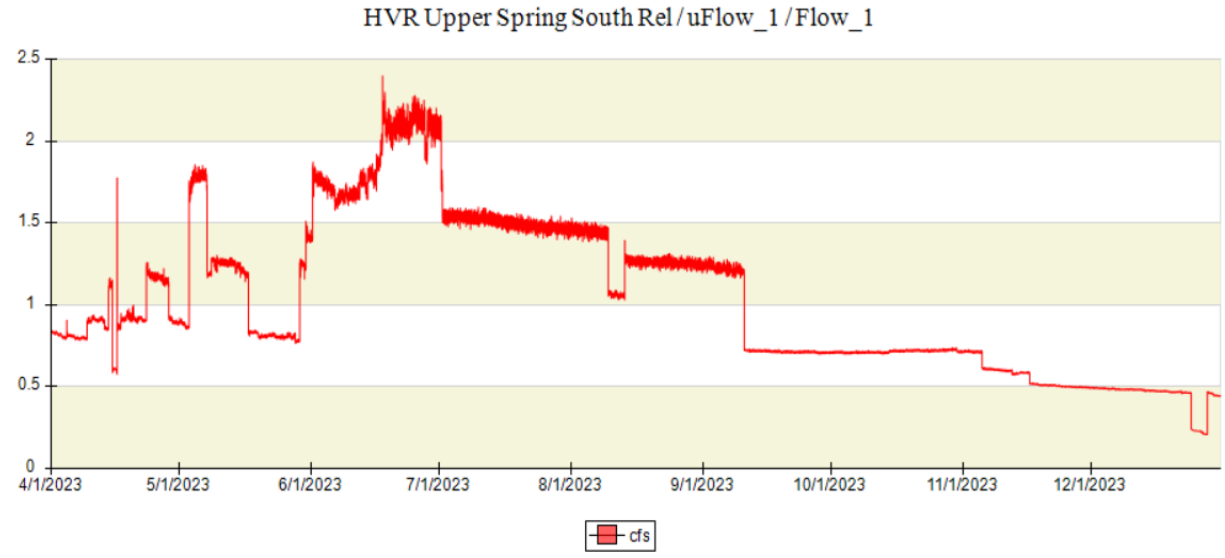

Figure 12- HVR Spring Water Released from Upper Spring to the Shasta River at Southern Weir in cfs, reporting spring water was released consistently throughout the irrigation season, with a maximum of 2.25 cfs being delivered in late June.

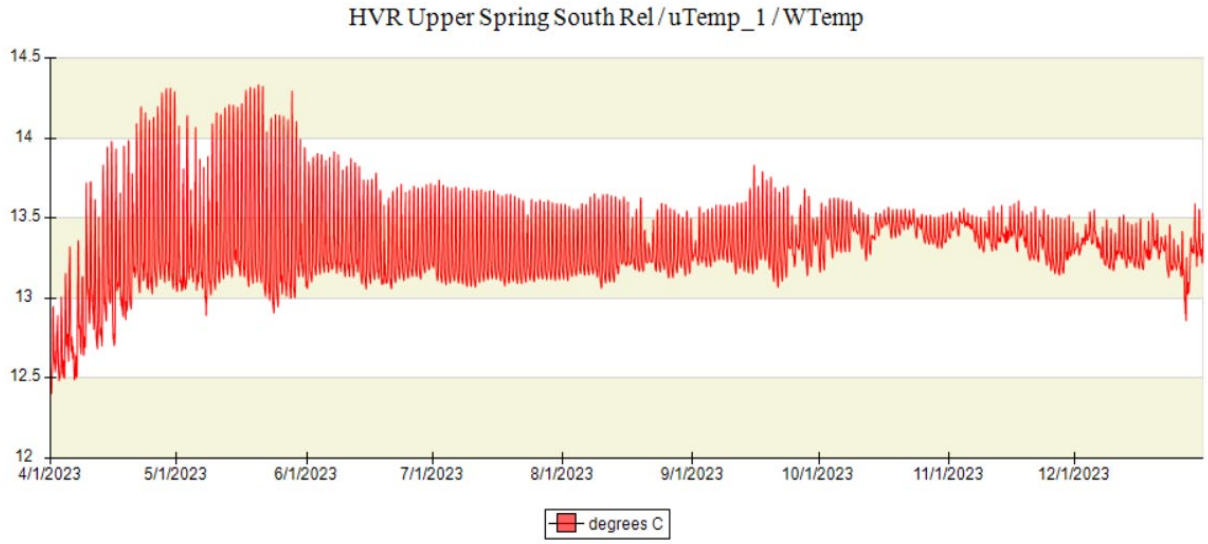

Figure 13- Temperature HVR Spring Water Released from Upper Spring to the Shasta River at Southern Weir in Degrees C was reported to be between 12.5- and 14.25-degrees C.

Hole-in-the-Ground Data

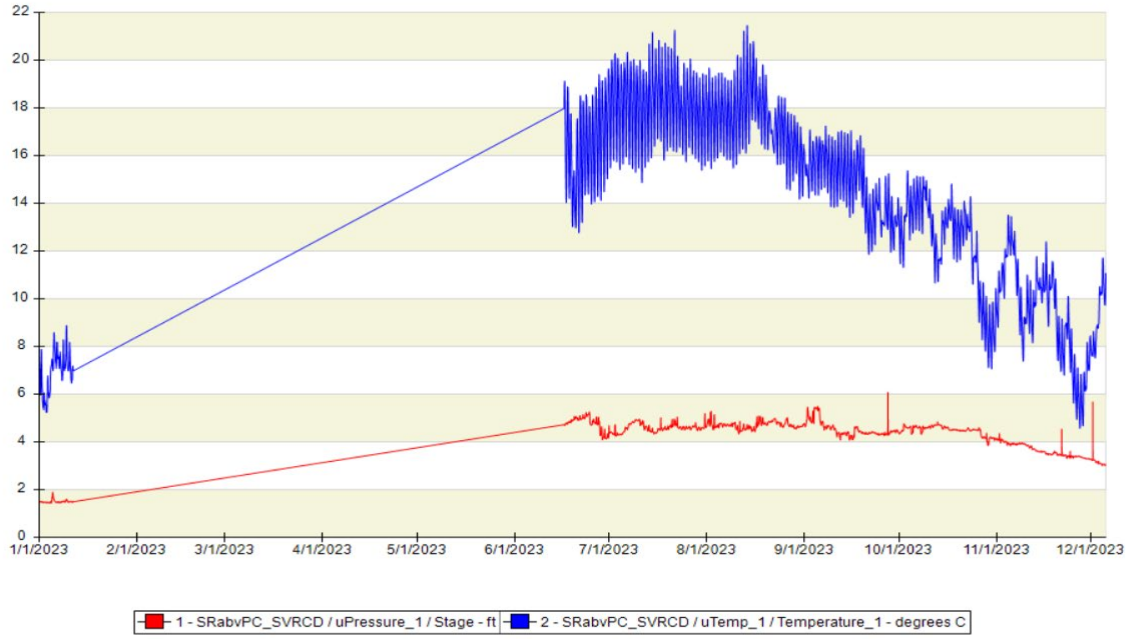

Figure 14- Shasta River above Parks Creek (SRabvPC)- Temperature and stage. It appears this station was not accurately reporting data from January to late June, with temperatures reaching a maximum of 21 degrees C.

Big Spring Wildlife Area

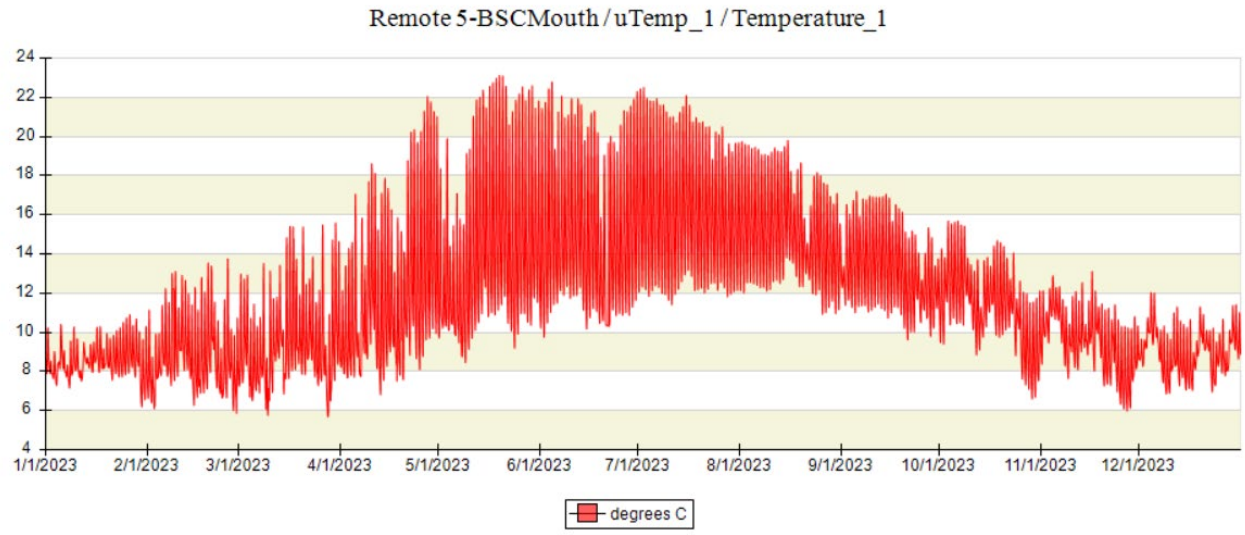

Figure 15- Big Springs Creek Mouth Temperature in degrees C reported temperatures leaving Big Springs Creek were between 6- and 23-degrees C.

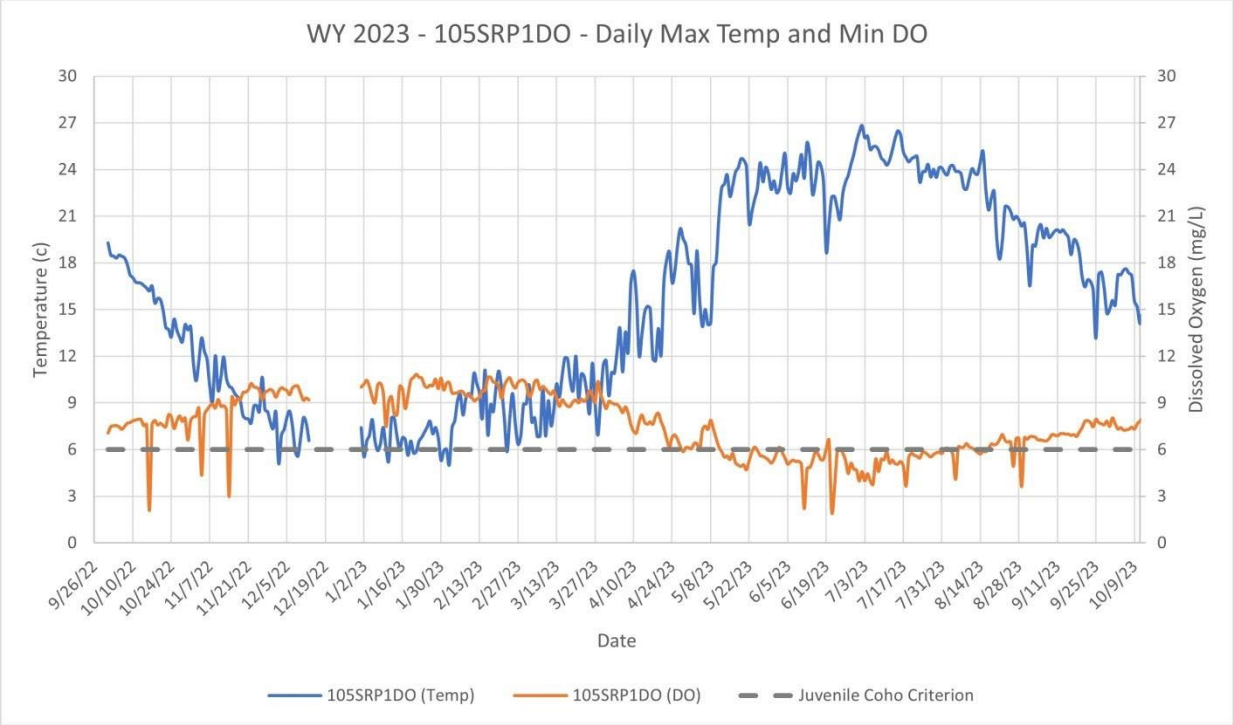

Figure 16- Shasta River Temperatures at Big Spring Wildlife Area South Property line in degrees C reported temperatures were as high as 27 degrees C during July 2023 and Dissolved Oxygen fluctuated between 2.5 and 11 mg/l throughout the season with 6 mg/l the reported juvenile criterion for DO.

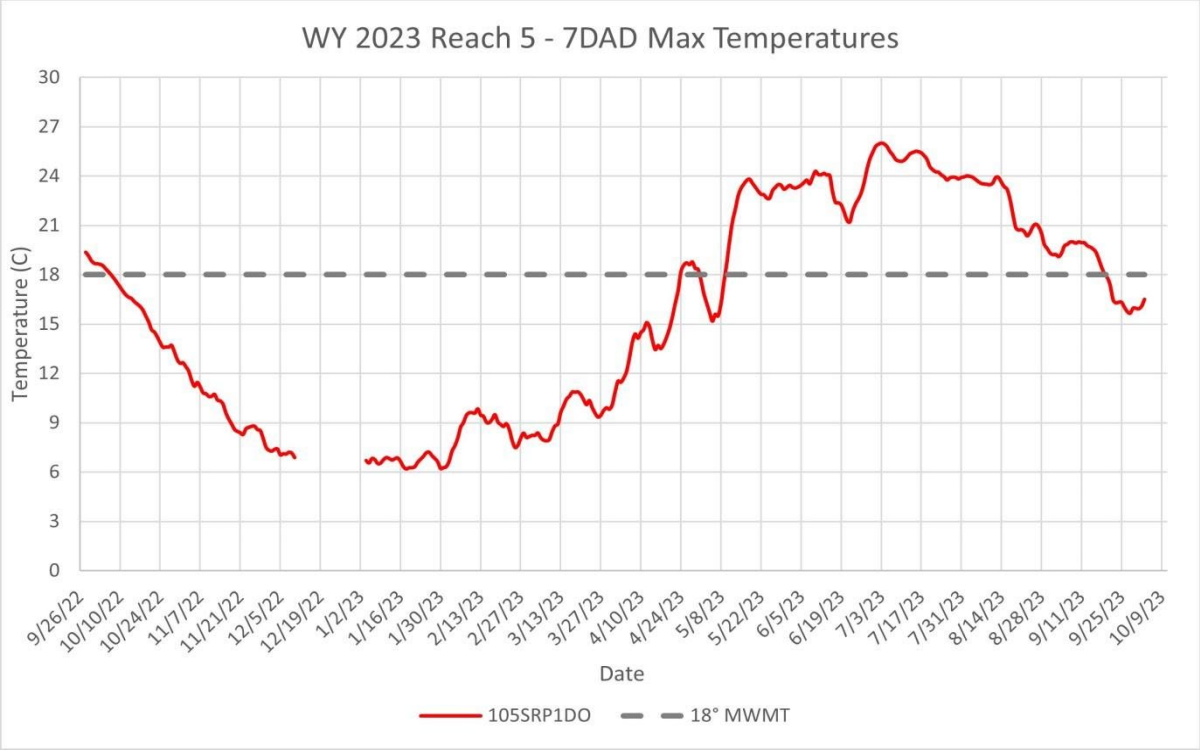

Figure 17- Shasta River 7-day Maximum Temperatures at Big Spring Wildlife Area South Property line in degrees C were as high as 26 degrees C and as low as 6 degrees C for the reporting period.

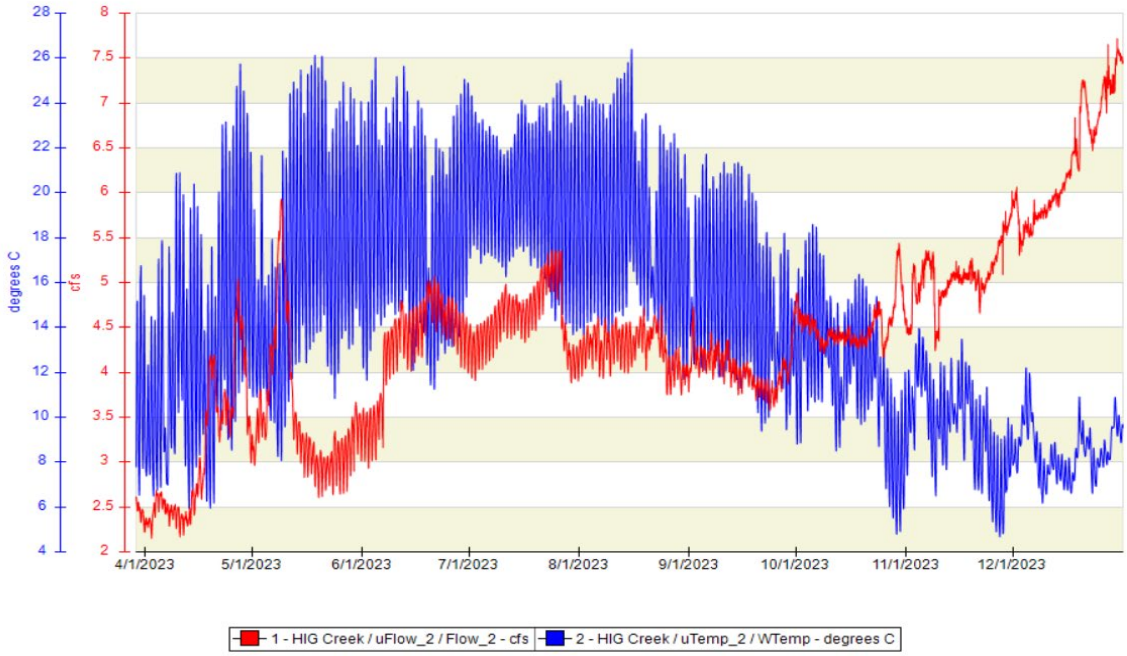

Figure 18- Hole-in-the-Ground Creek Temperature in degrees C and Flow in cfs. This station reported discharge to be as high as high as 7.5 cfs with temperatures reaching between 5- and 26-degrees C.

Grenada Irrigation District

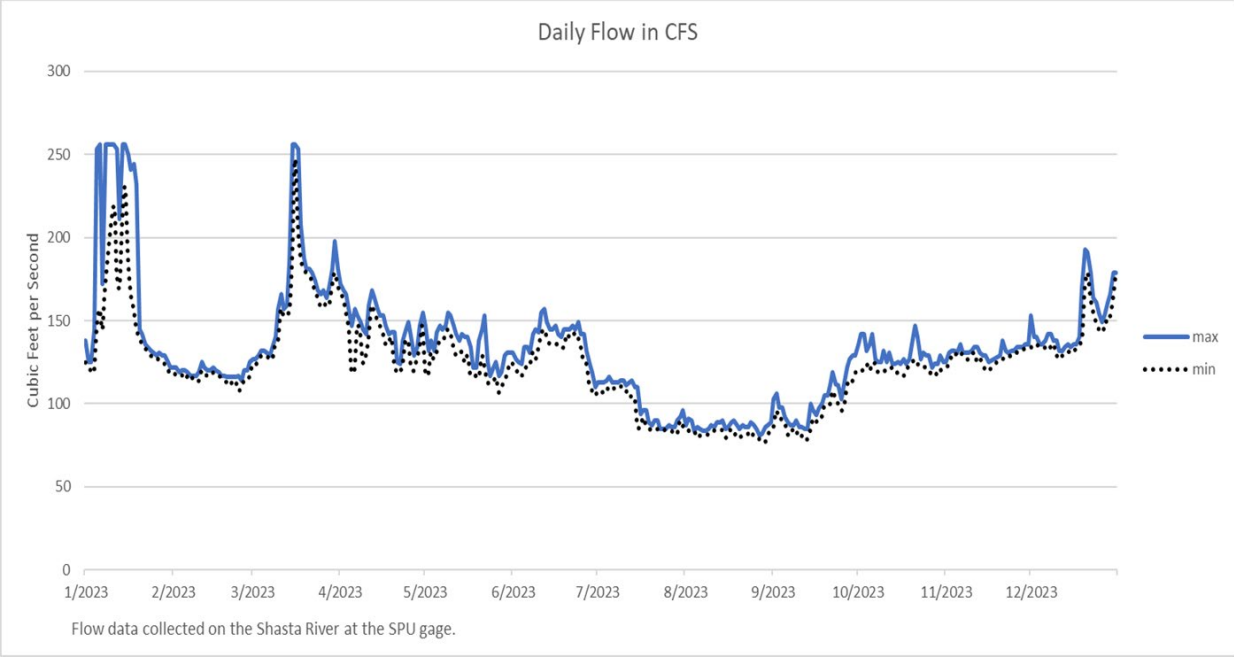

Figure 19- Daily Flow at GID Riffle (SPU) in cfs reported as minimums and maximums ranging from 80 cfs to over 250 cfs.

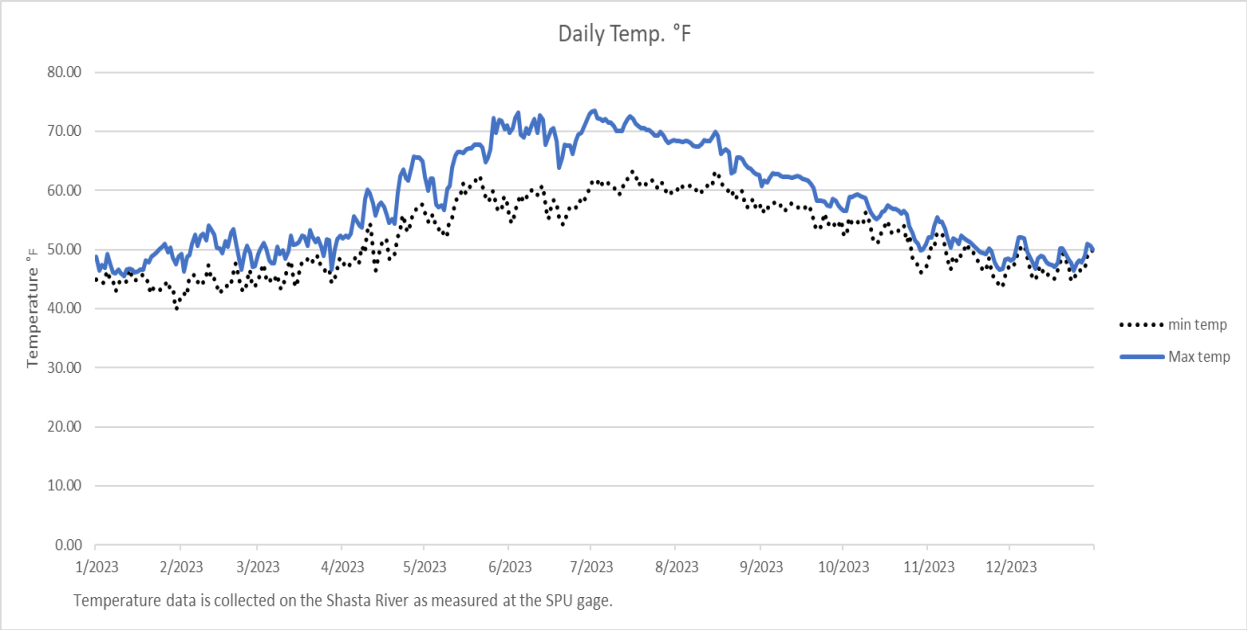

Figure 20- Daily Temperature at GID Riffle (SPU) in degrees F reported as minimums and maximums ranging from 40 to 73 degrees C.

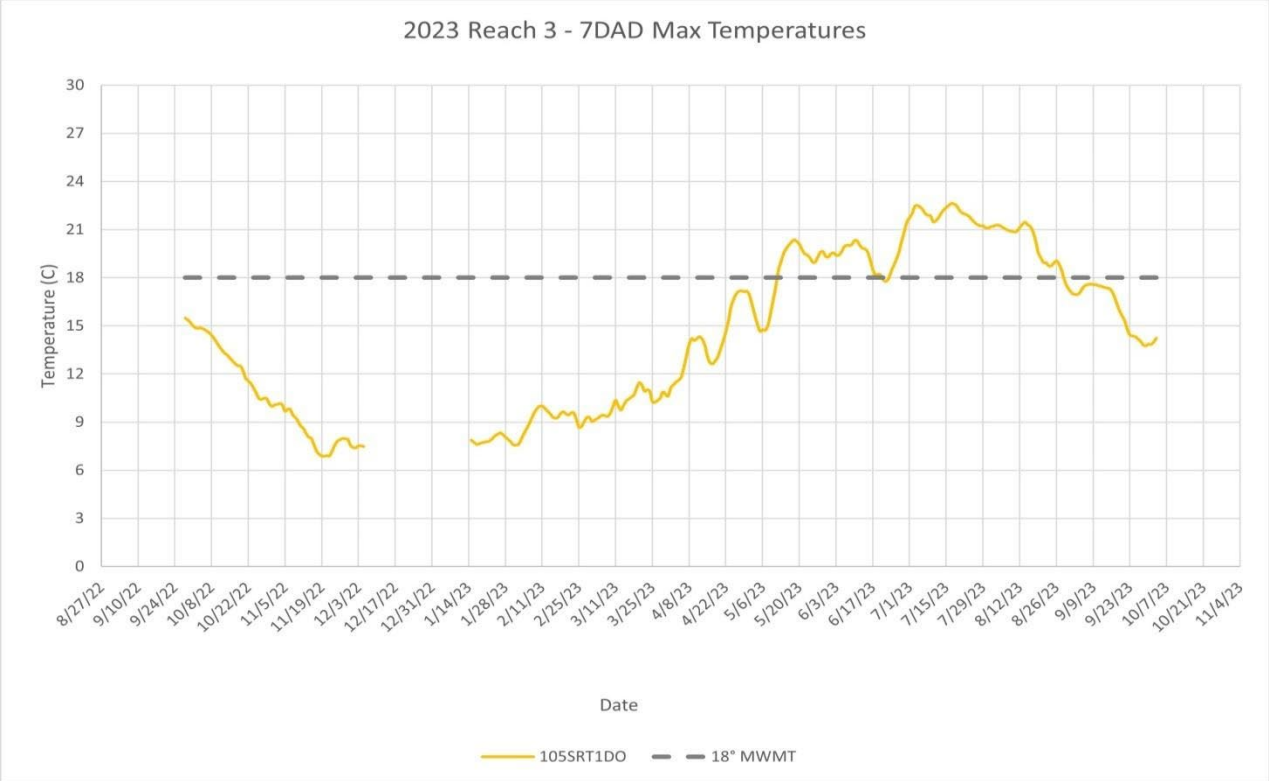

Figure 21- 7-Day Max Temperatures on Novy Ranch ranging from 7 to 22 degrees C.

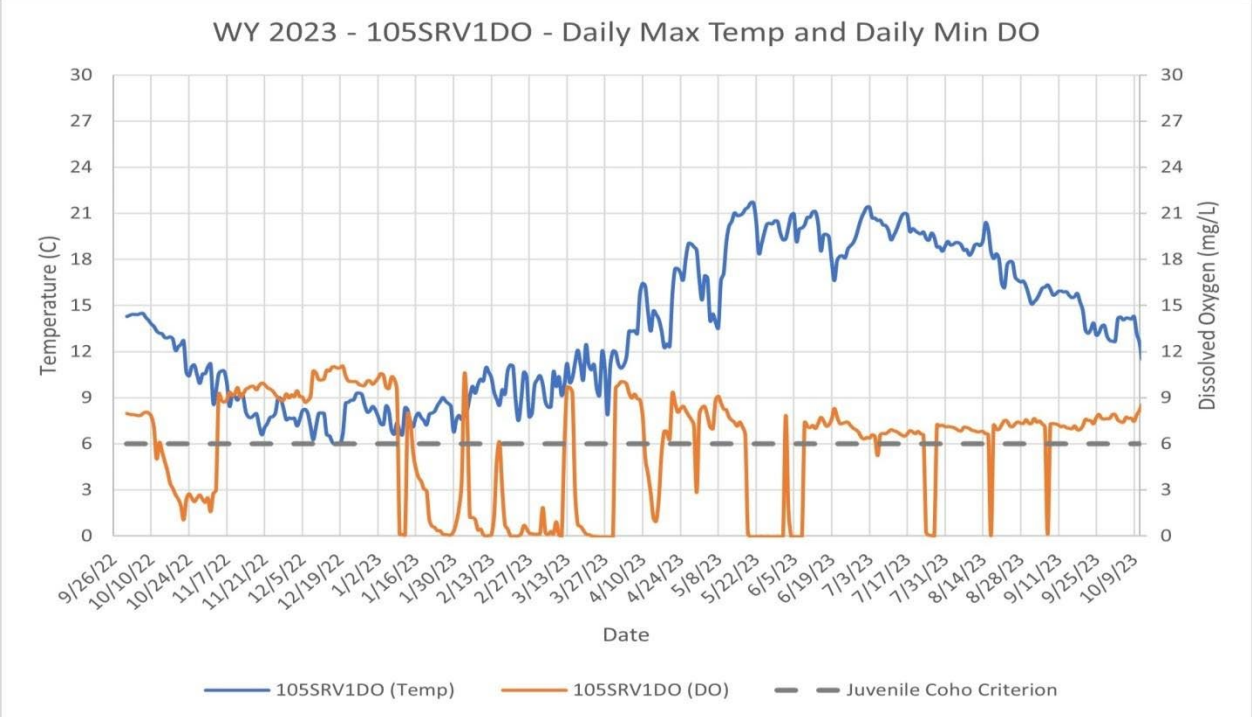

Figure 22- Daily Max Temperature in degrees C and Daily Minimum Dissolved Oxygen on Novy Ranch in mg/l, reporting DO levels fluctuating between 0 and 10 mg/l and daily maximum temperatures between 6and 22 degrees C.

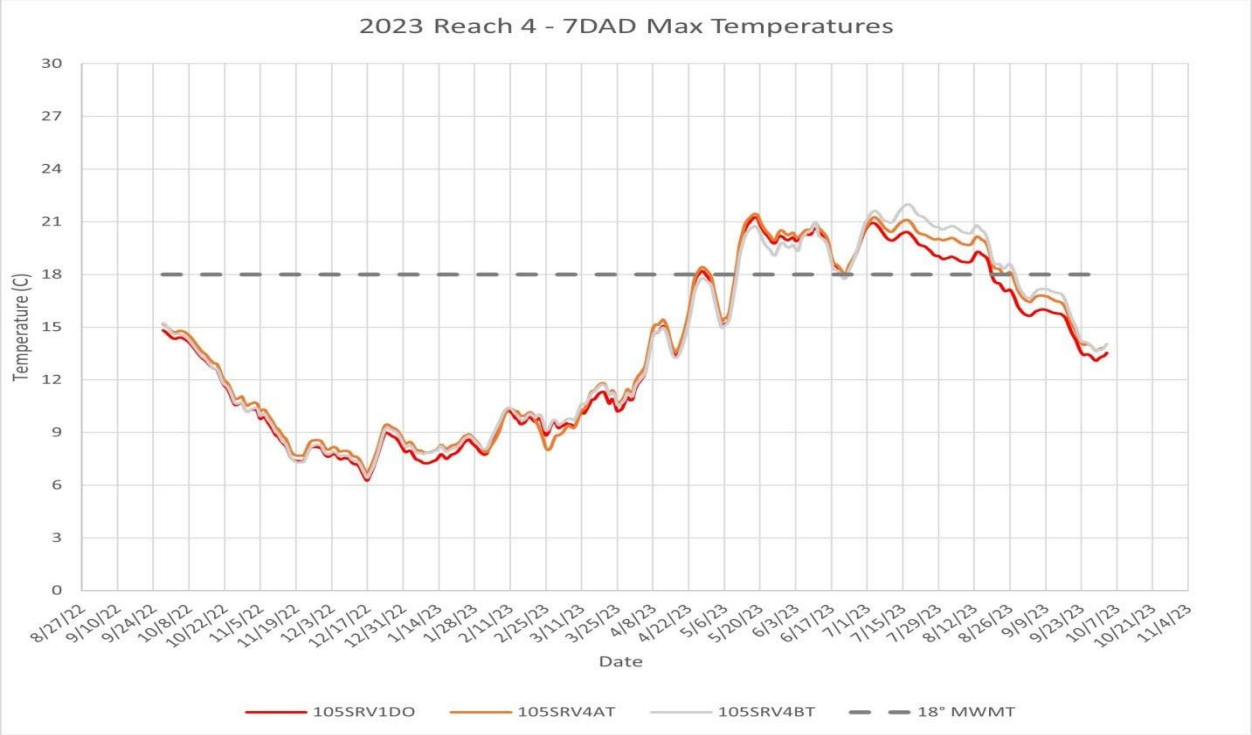

Figure 23- 7 DAD Max Temperature in degrees C on Novy Ranch reporting temperatures between 6 and 22 degrees.

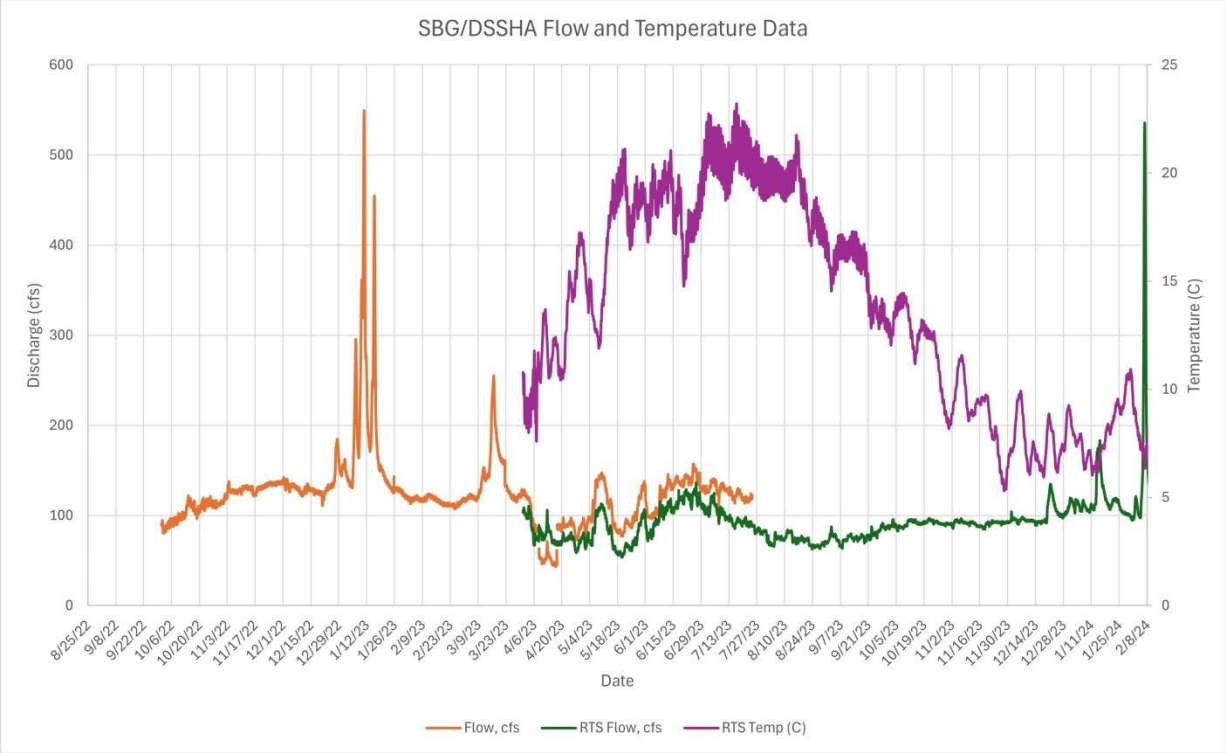

Figure 24- Temperature in degrees C and Discharge in cfs at Bottom of Agreement Area (SBG). Reported real-time flow was consistently around 100 cfs throughout monitoring period of April 1 to December 31, with temperature reported between 7- and 23-degrees C.

Upper Parks Creek Data

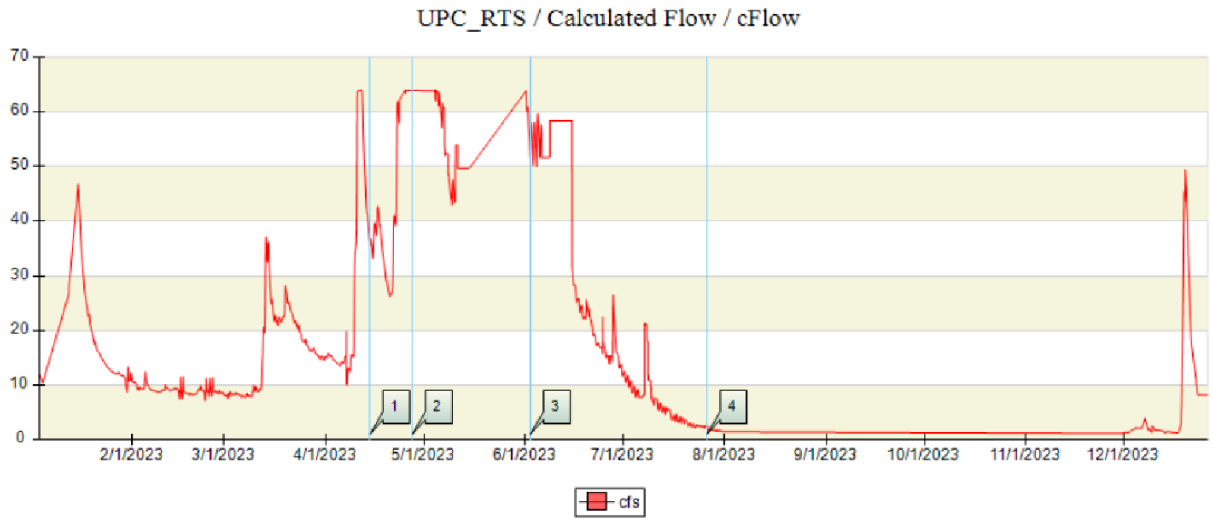

Figure 25- Discharge in cfs at Upper Parks Creek (UPC) upstream of SHA covered area reported flows up to 65 cfs- the rated flows are unknown at the time of reporting.

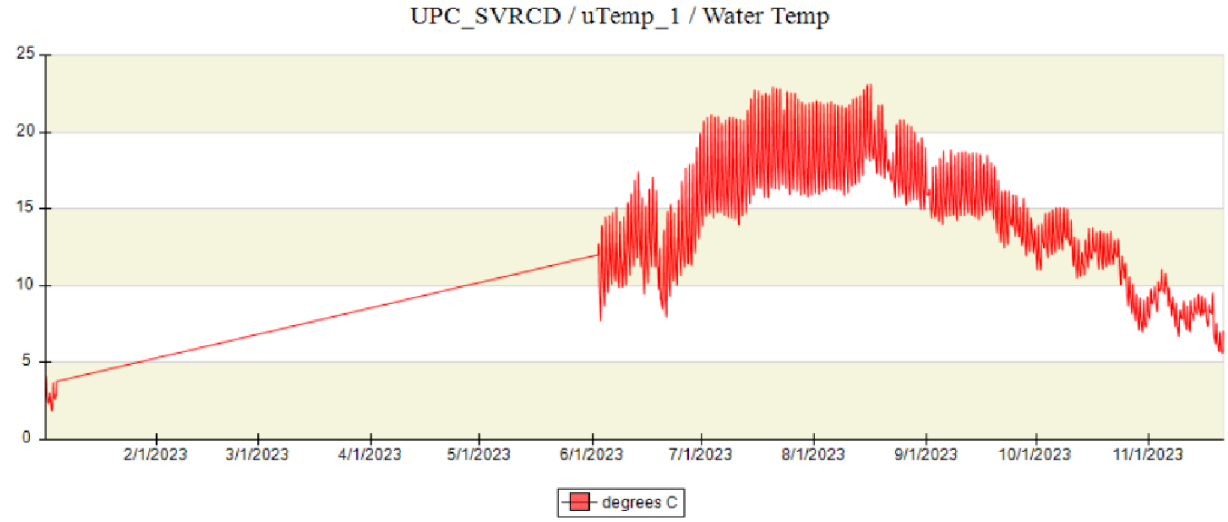

Figure 26- Temperature in degrees C at Upper Parks Creek (UPC) upstream of the SHA covered area reported temperatures between 4- and 23-degrees C.

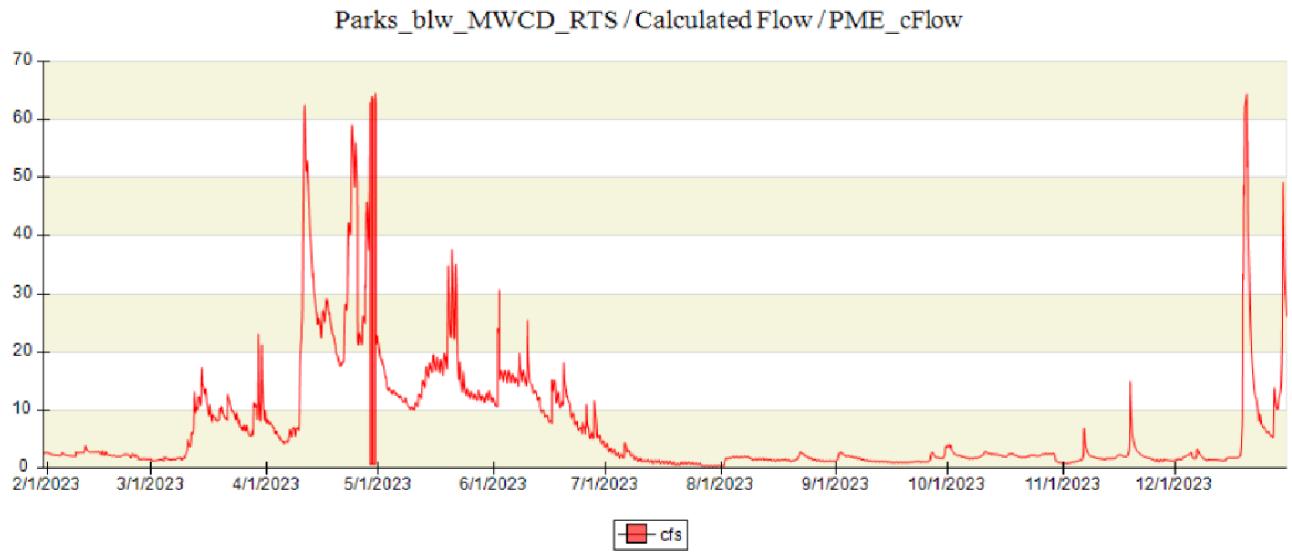

Figure 27- Flow reported in cfs at Parks Creek below MWCD Diversion (PME) bypassed flow by MWCD Parks Creek was as high as 63 cfs in late April.

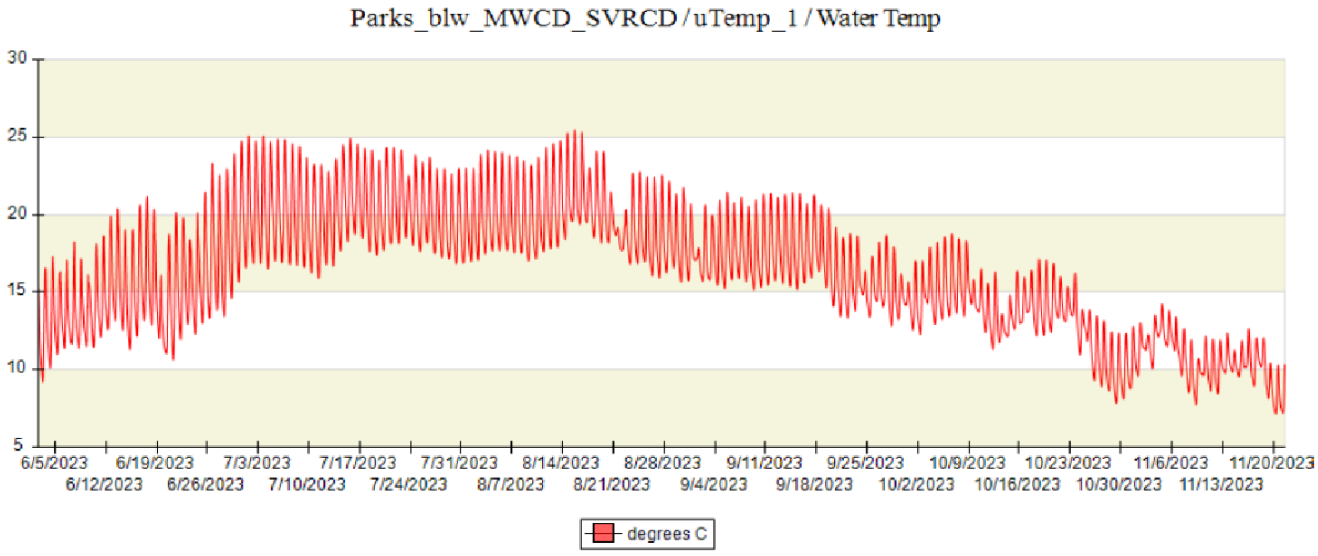

Figure 28- Temperature in degrees C at Parks Creek below MWCD POD (PME) reported to be as high as 25 cfs.

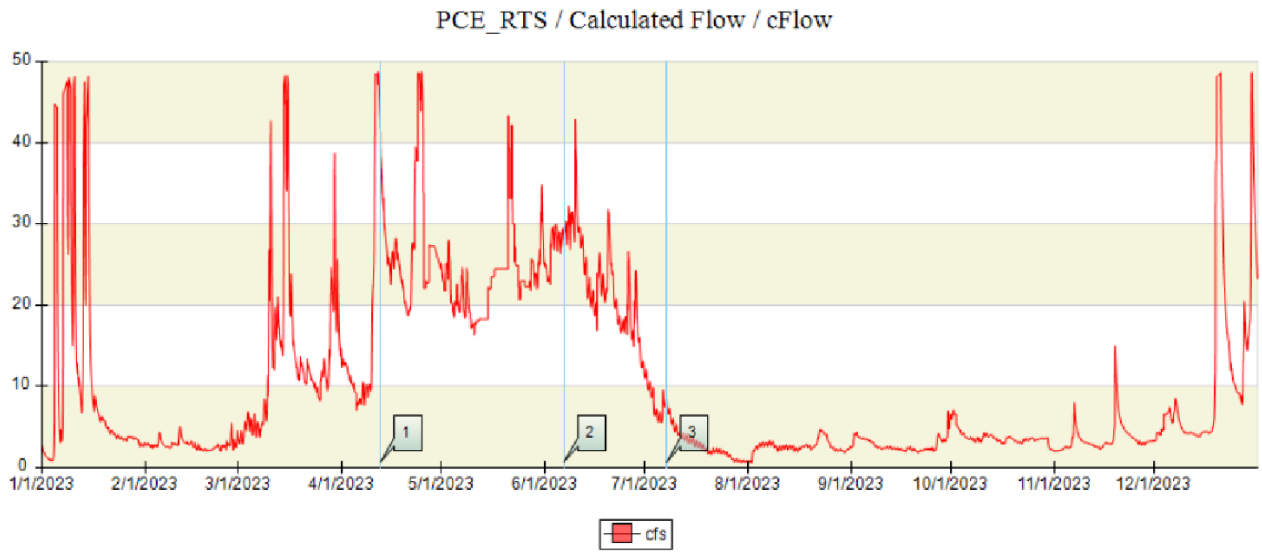

Figure 29- Flow in cfs at Parks Creek at I-5 (PCE) where flows were reported to be a maximum of 49 cfs and a minimum of 0.82 cfs.

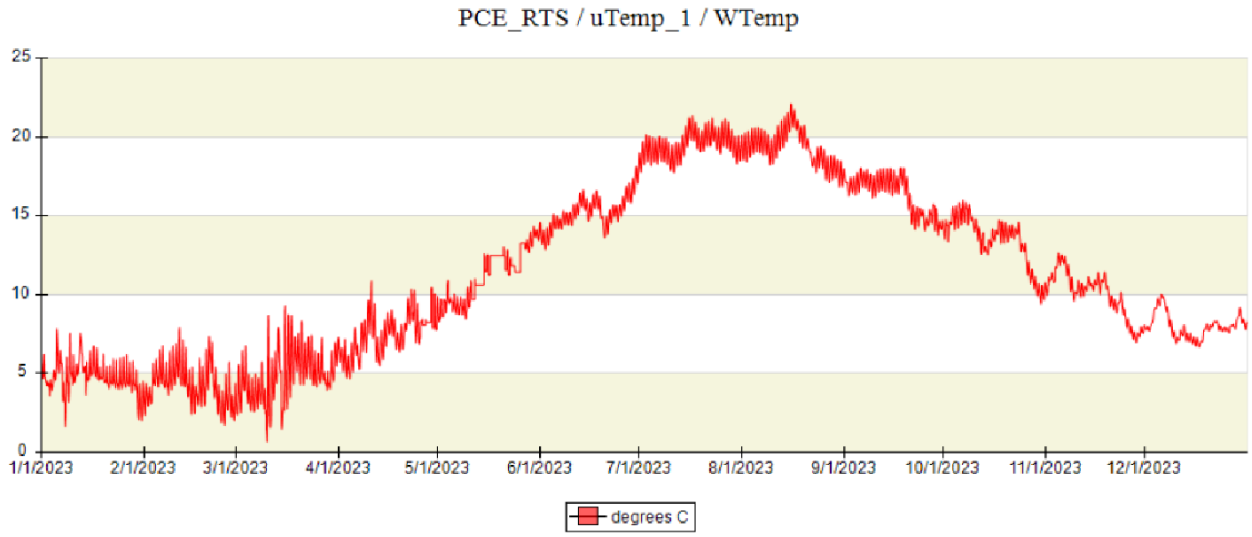

Figure 30- Temperature in degrees C at Parks Creek at I-5 (PCE) where maximum temperatures were recorded to be 23 degrees C in August.

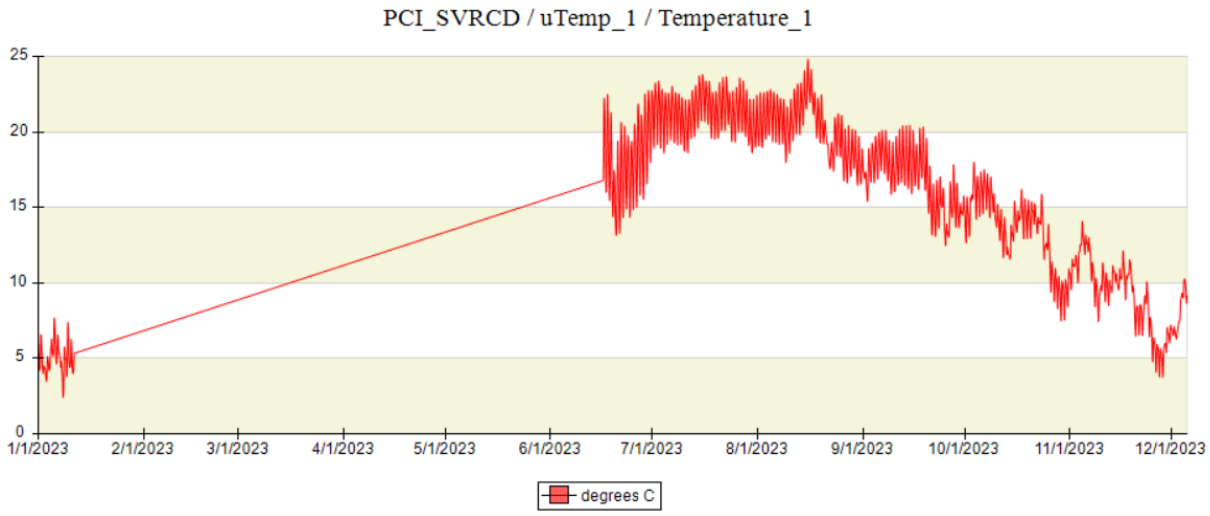

Figure 31- Temperature in degrees C- Mid Parks Creek downstream Shasta Springs Parks 4 POD (PCI).

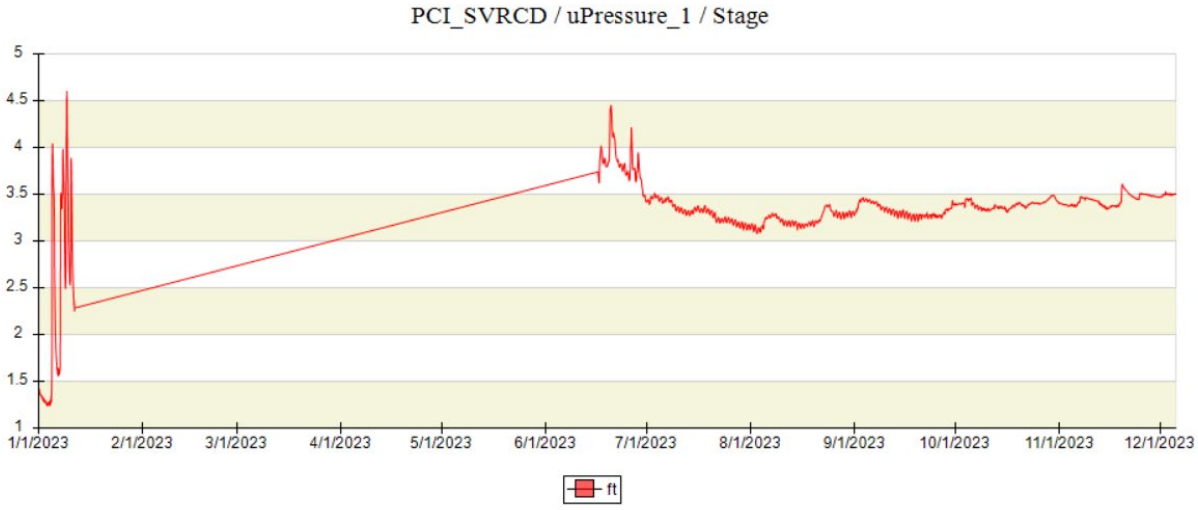

Figure 32- Stage in Feet- Mid Parks Creek downstream of Shasta Springs Parks 4 POD (PCI).

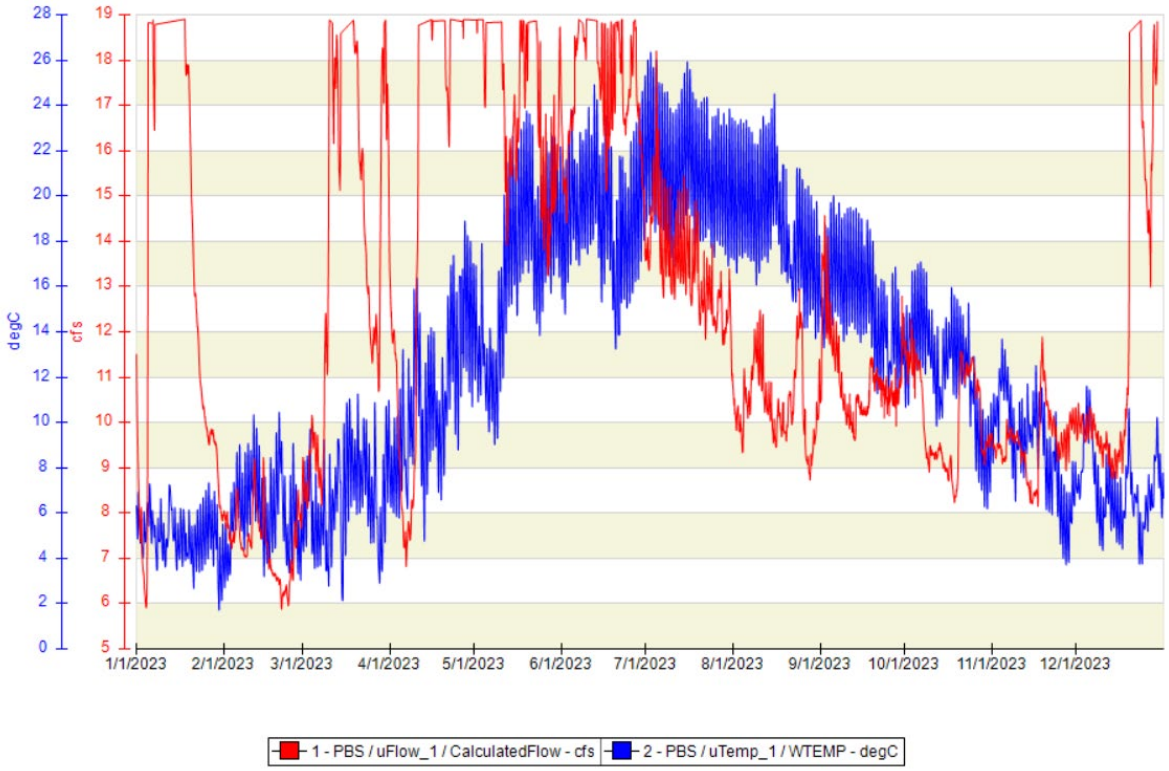

Figure 33- Temperature in degrees C and Flow in cfs at Lower Parks (PBS). Maximum flows were reported to be as high was 19 cfs and a minimum of 6 cfs. Maximum temperatures were as high as 26 degrees C in July 2023.

Appendix B - Diversion Monitoring Data

The diversion monitoring was to be commenced within three years of the Effective Date of the Agreement per Section A1 of the Avoidance and Minimization Measures of the Template SHA. The third-party monitoring scope of work and contract was initiated during the 2022 reporting year to assist permittees with reporting water use. The following graphs are data reports that were included in the 2023 Annual Reports or the data was downloaded from the real-time stations on the Eyasco Grabdata site that is established for SHA monitoring. All raw data was also submitted as part of the annual reports and will be used for the 5-year analysis that is part of the SHA.

Diversion Data for Edson Foulke and PCR 1

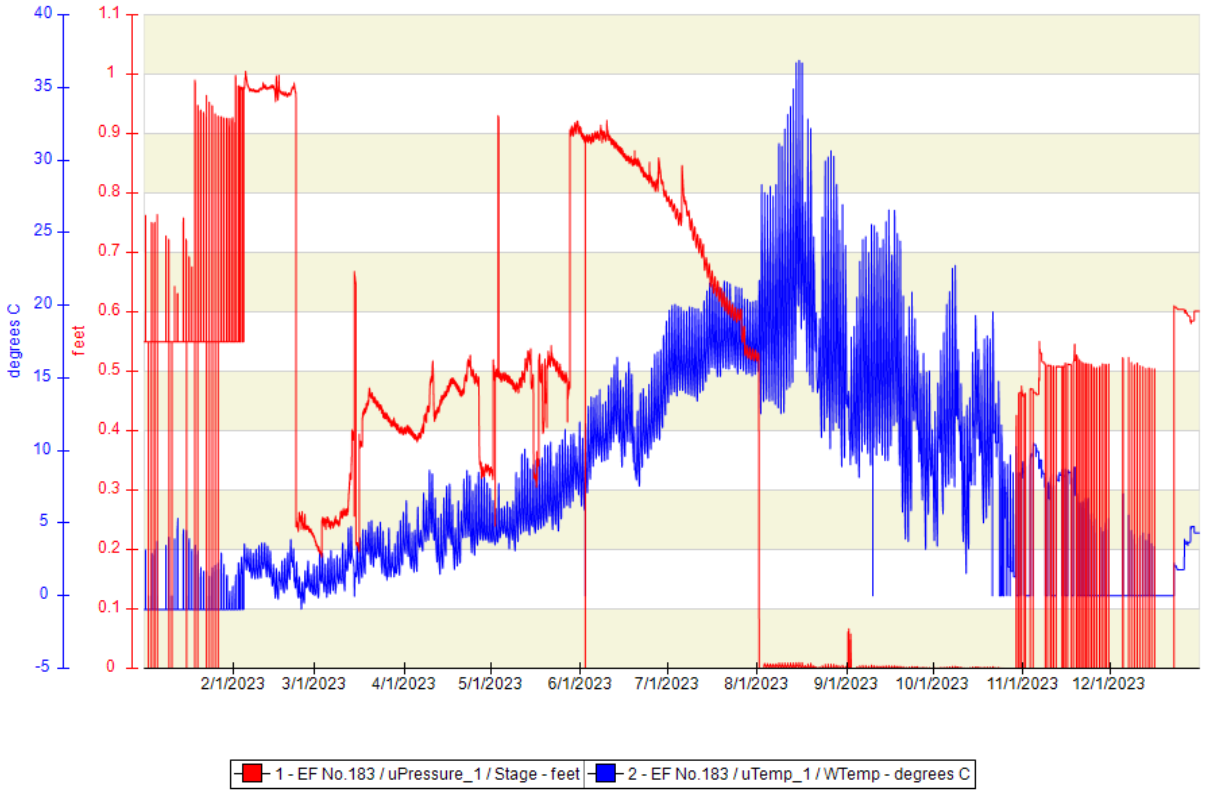

Figure 34- PCR and EF POD 183 Stage (feet) and Temperature (degrees C)

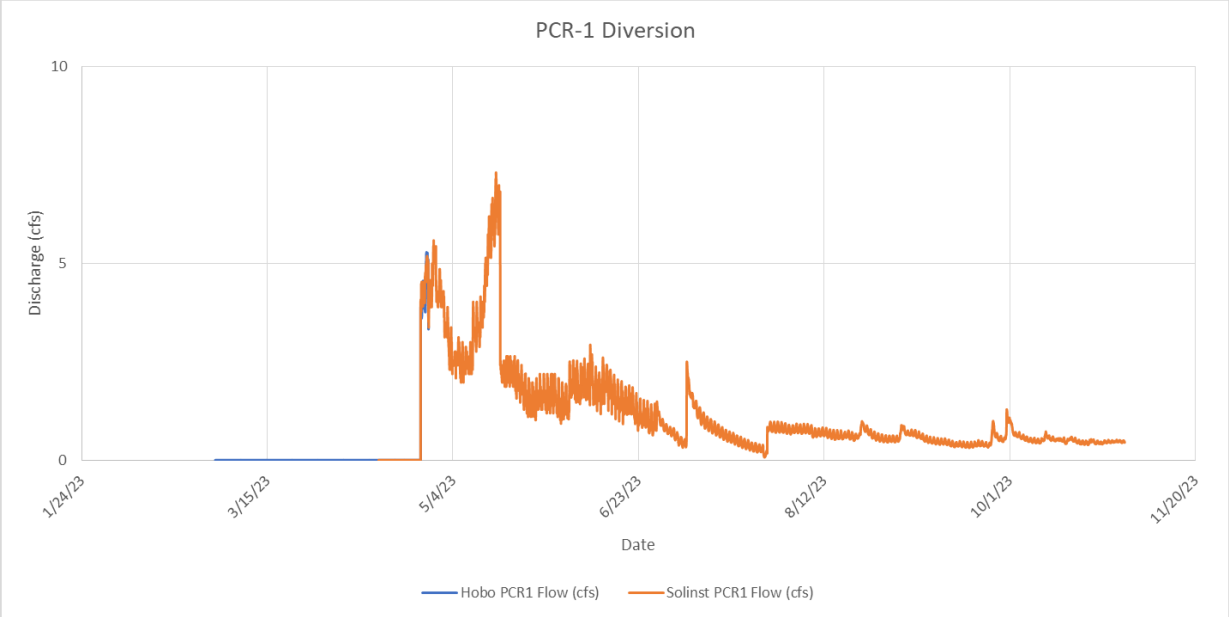

Figure 35- Parks Creek Ranch #1 Diversion Data

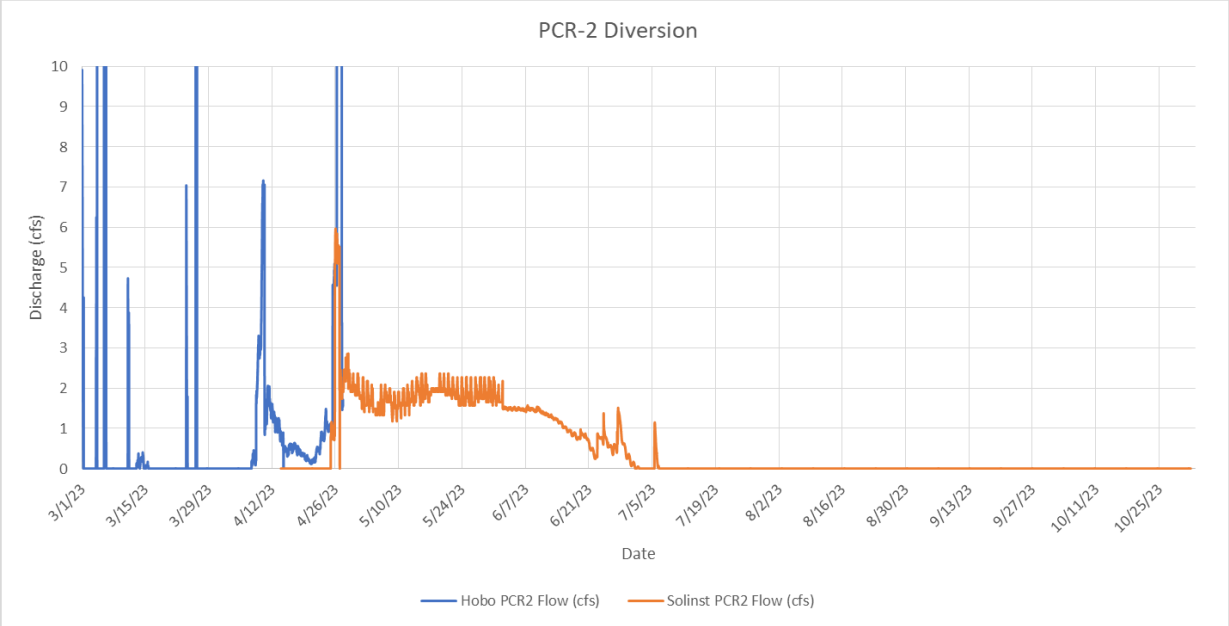

Figure 36- Parks Creek Ranch #2 Diversion Data. Note: Data reported in blue has not been corrected for pressure.

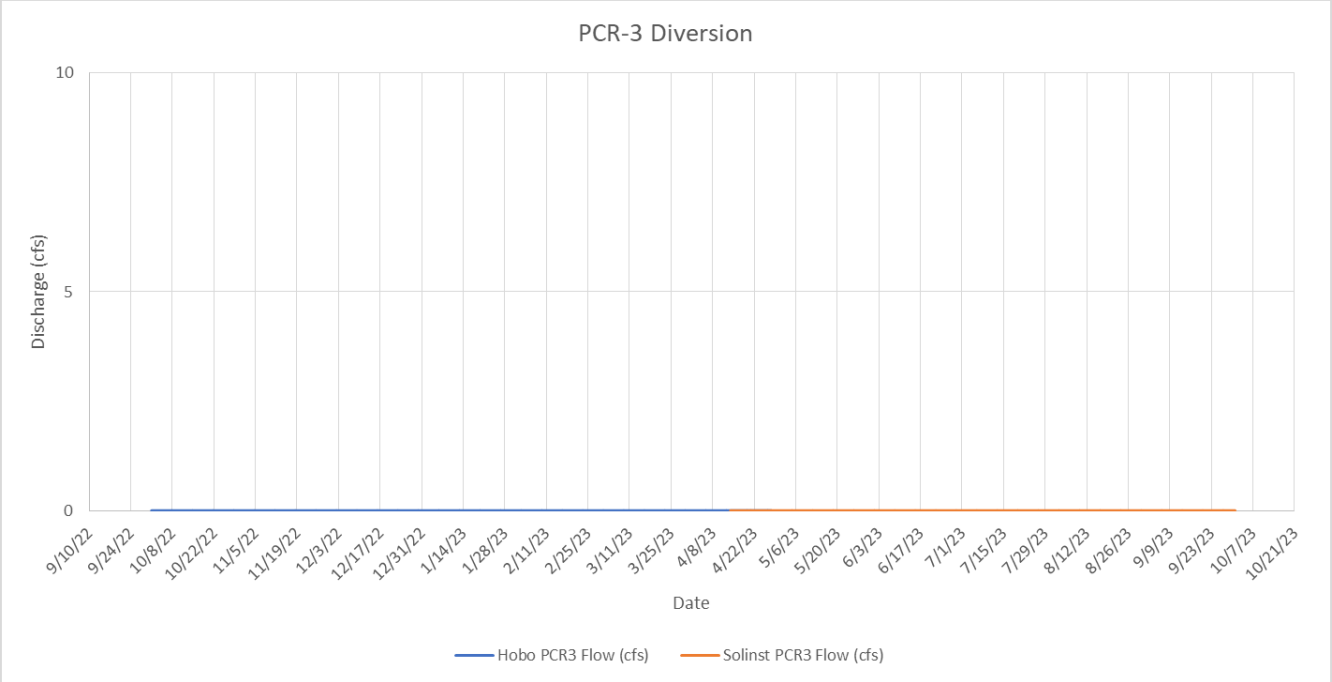

Figure 37- Parks Creek Ranch #3 Diversion Data. Note: Data reported in blue has not been corrected for pressure.

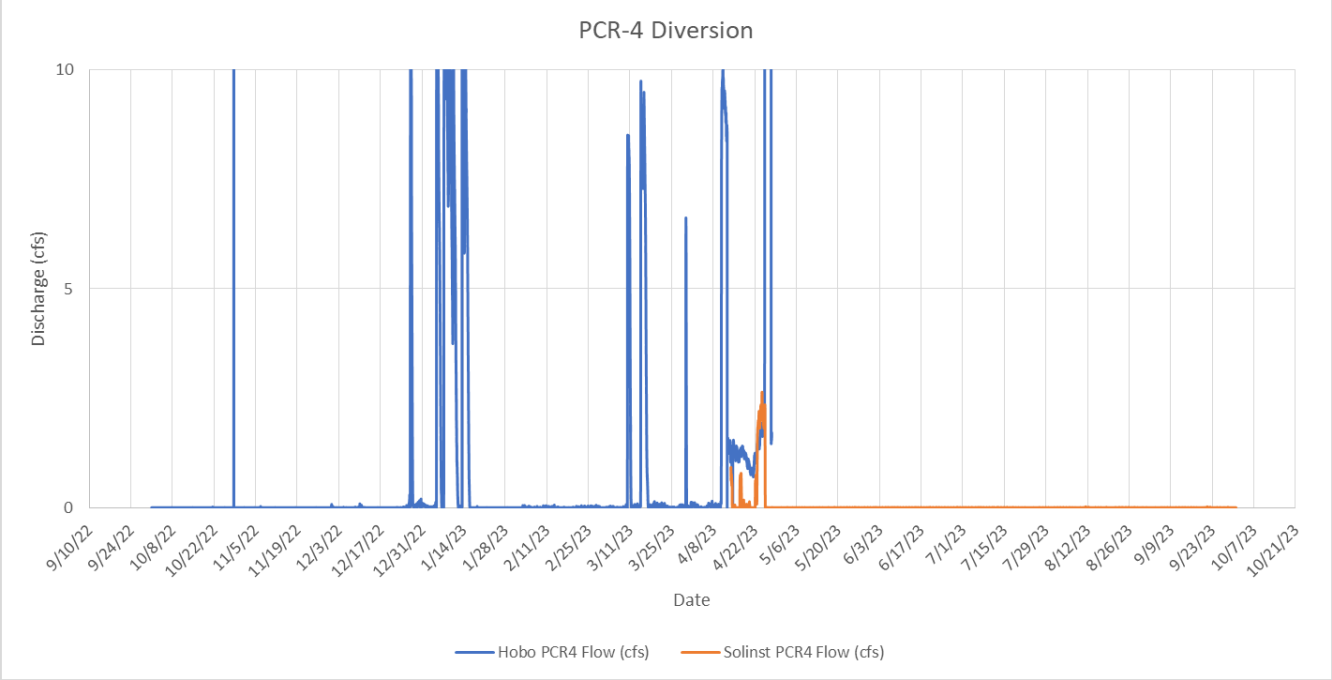

Figure 38- Parks Creek Ranch #4 Diversion Data. Note: Data reported in blue has not been corrected for pressure.

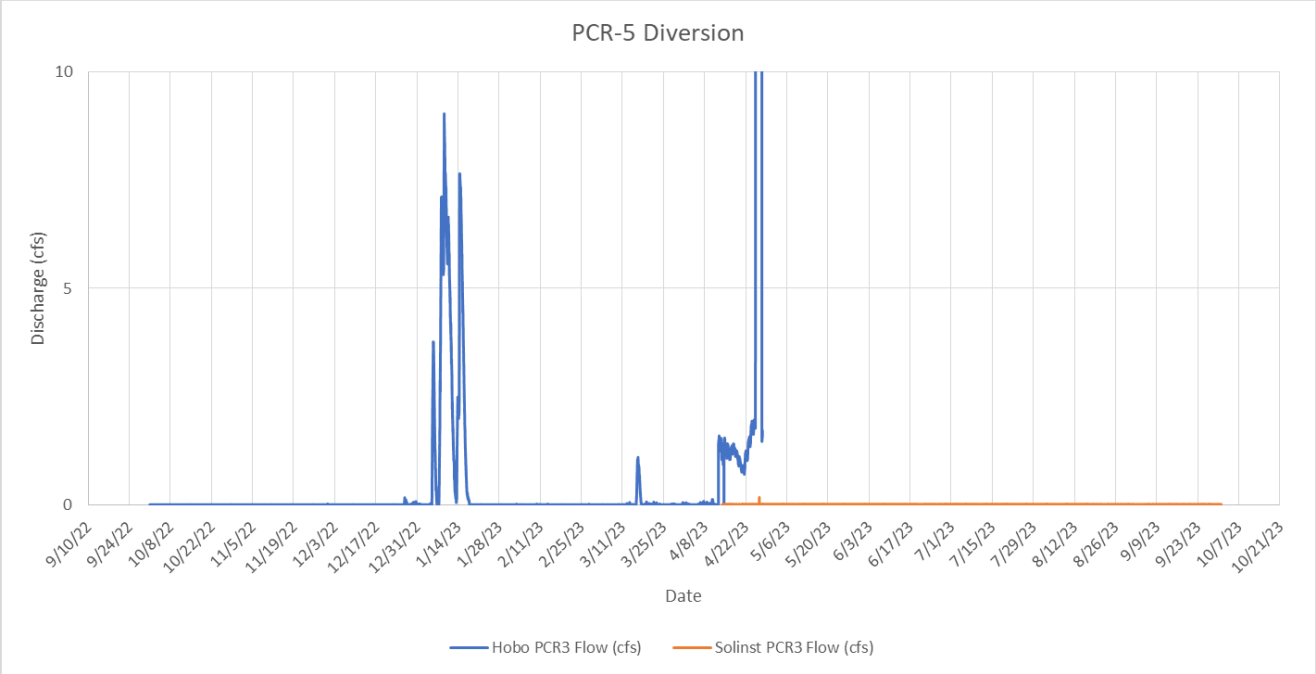

Figure 39- Parks Creek Ranch #5 Diversion Data. Note: Data reported in blue has not been corrected for pressure.

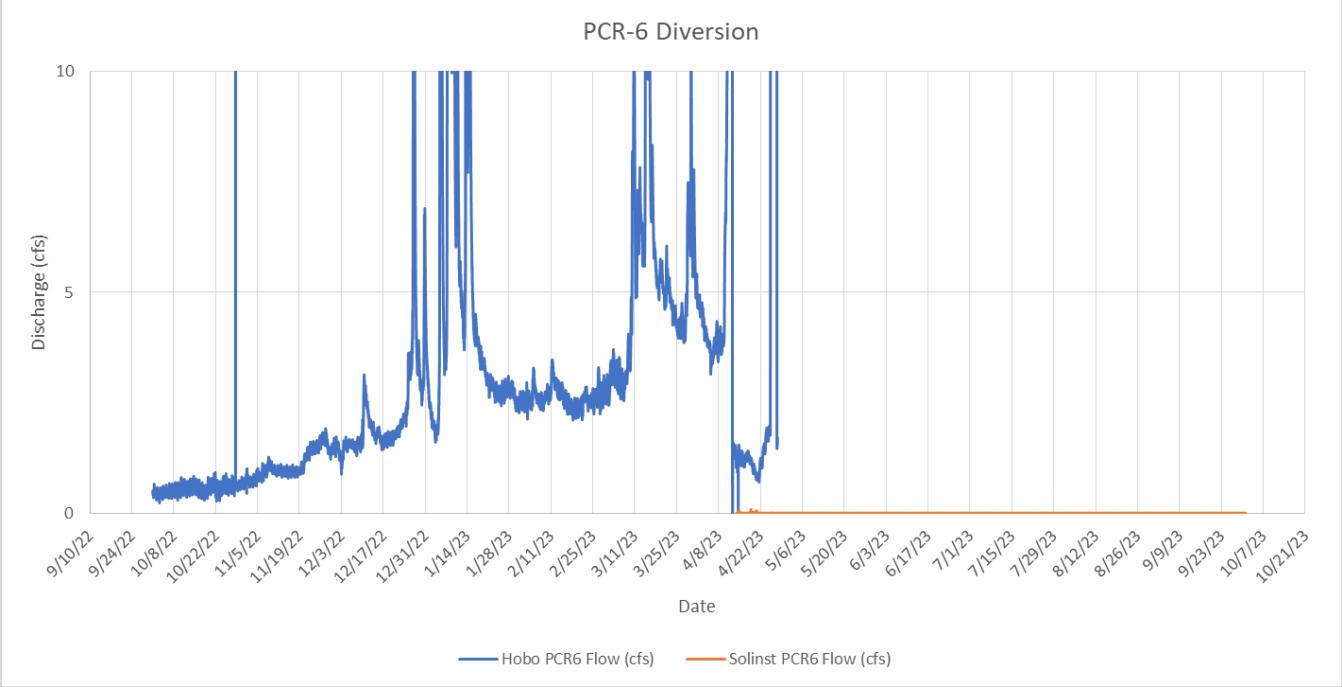

Figure 40- Parks Creek Ranch #6 Diversion Data. Note: Data reported in blue has not been corrected for pressure.

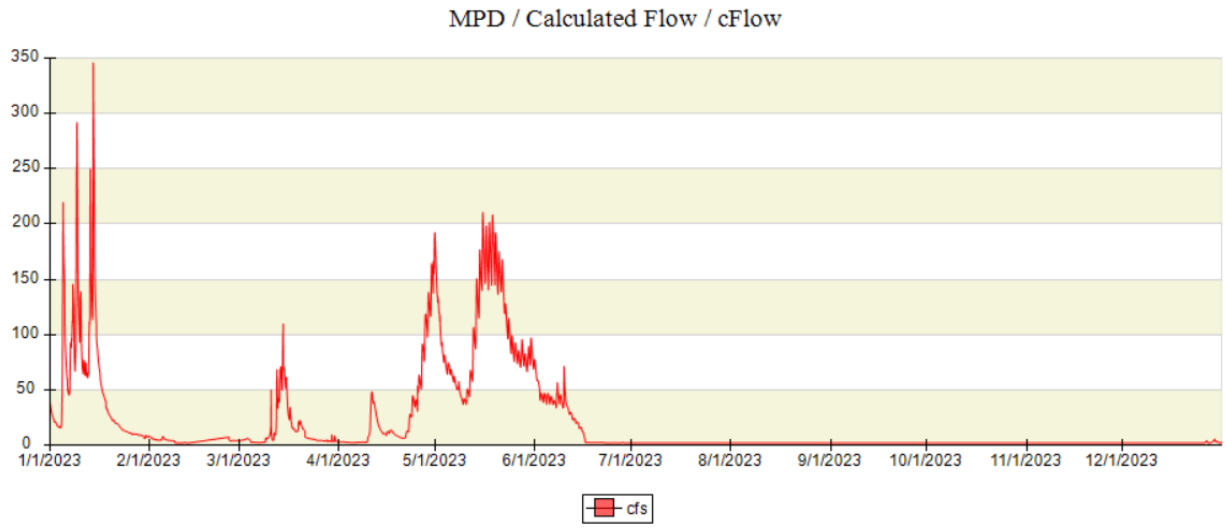

Figure 41- MWCD Diversion on Park Creek in cfs was reported as high as 340 cfs in January and the diversion was on until June 15th.

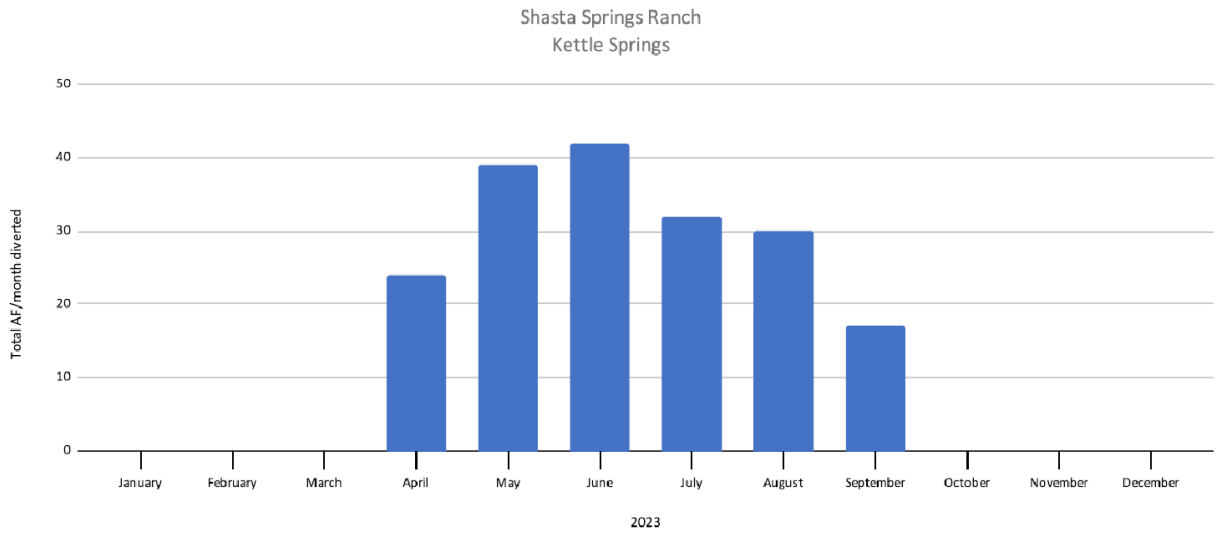

Figure 42- EII Kettle Spring Diversion (ac-ft/month)

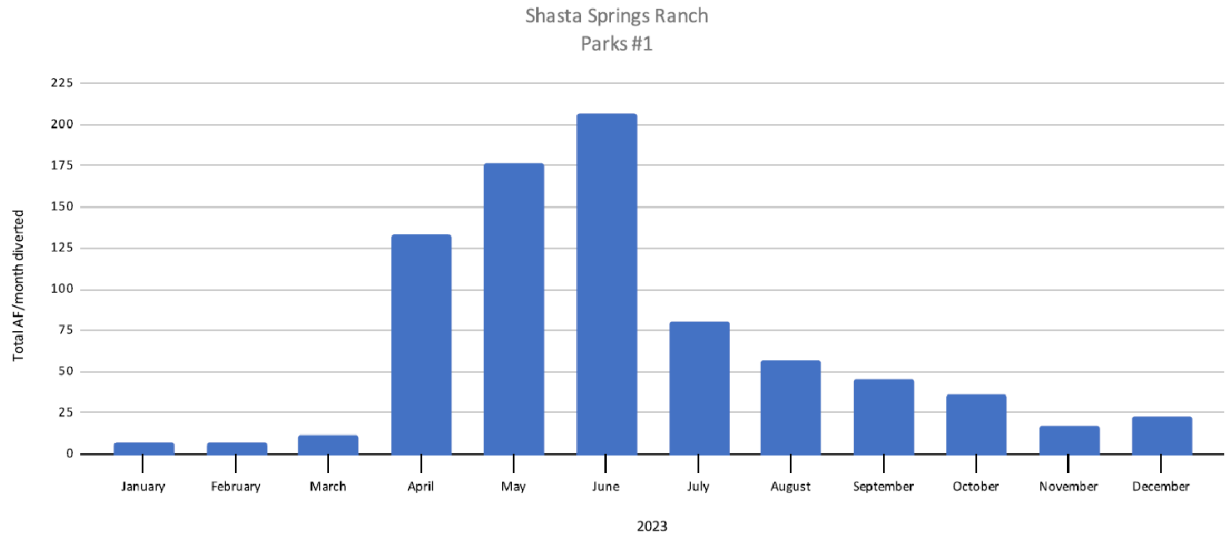

Figure 43- EII Parks #1 Diversion (ac-ft/month)

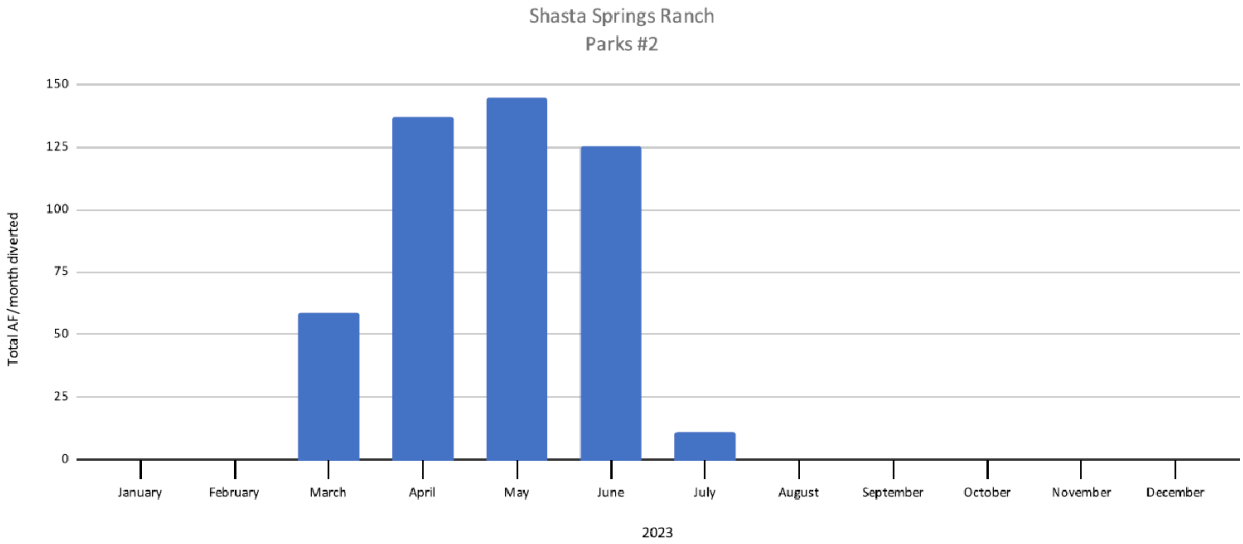

Figure 44- EII Parks #2 Diversion (ac-ft/month)

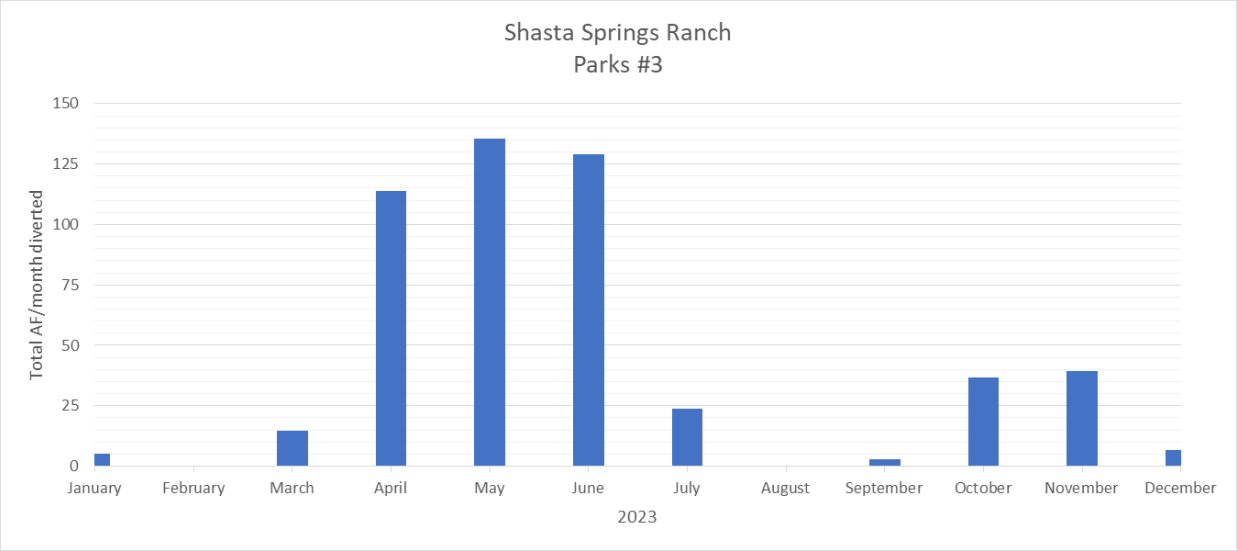

Figure 45- EII Parks #3 Diversion (ac-ft/month)

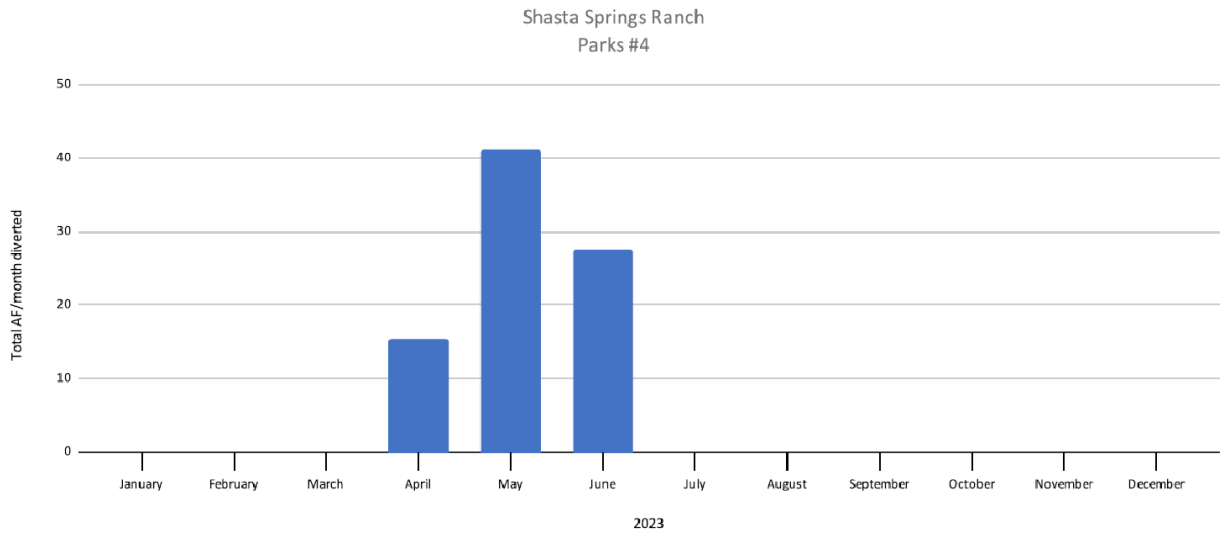

Figure 46- EII Parks #4 Diversion (ac-ft/month)

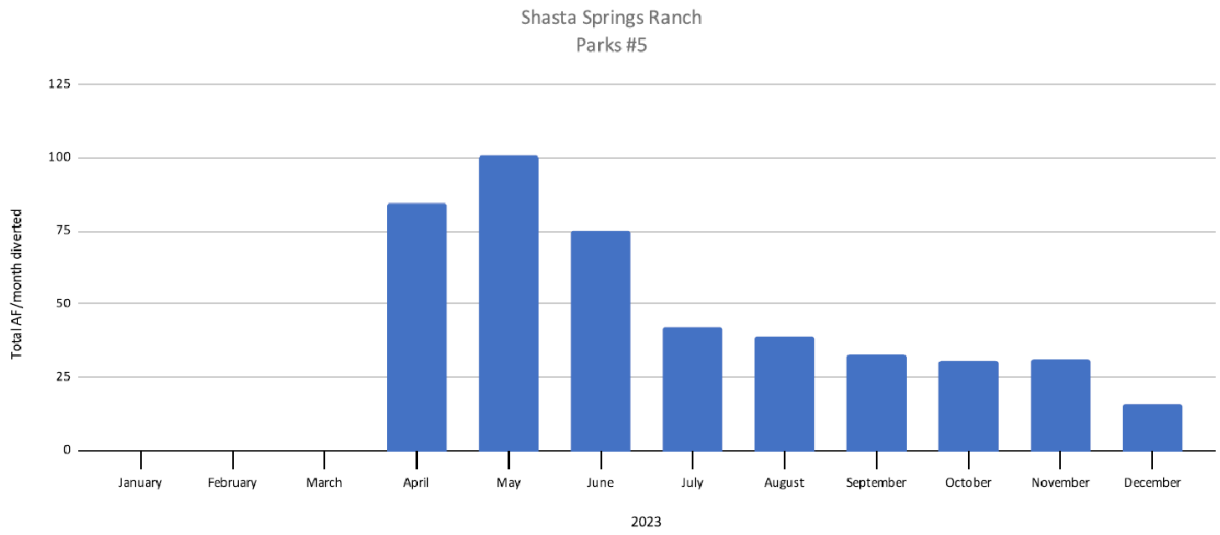

Figure 47- EII Parks #5 Diversion (ac-ft/month)

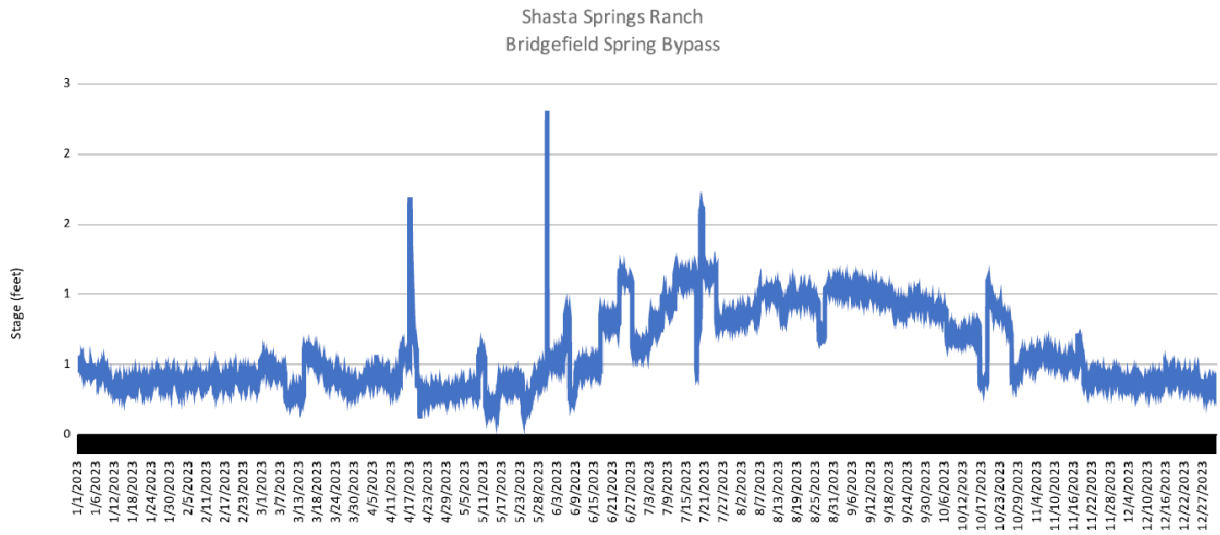

Figure 48- EII Bridgefield Spring Bypass stage (feet)

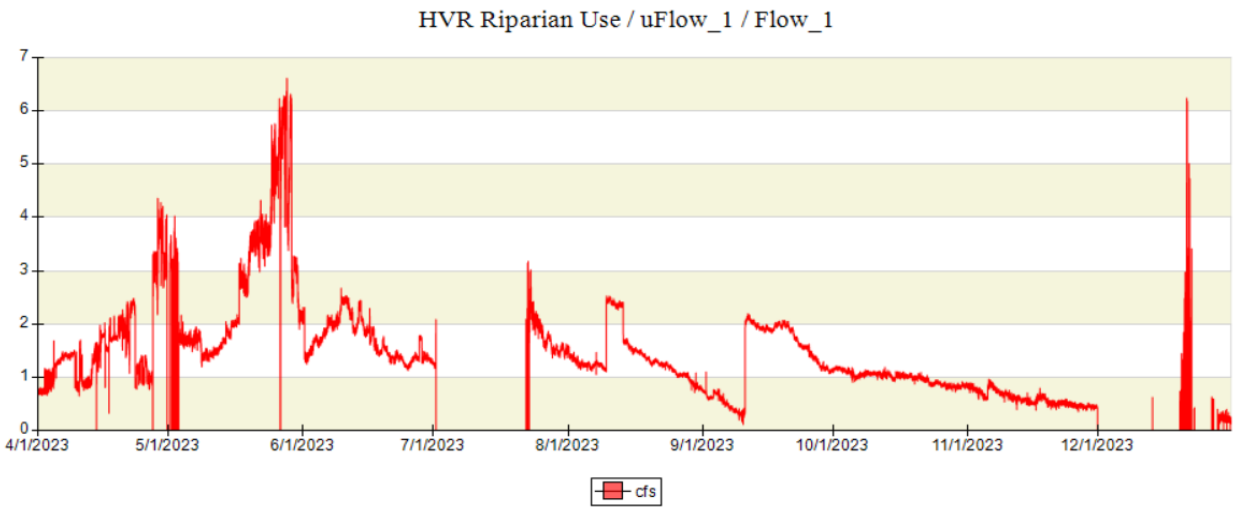

Figure 49- Hidden Valley Riparian Use of Upper Spring (cfs), reporting a maximum diversion of 6.5 cfs in May with regular diversion throughout the irrigation season.

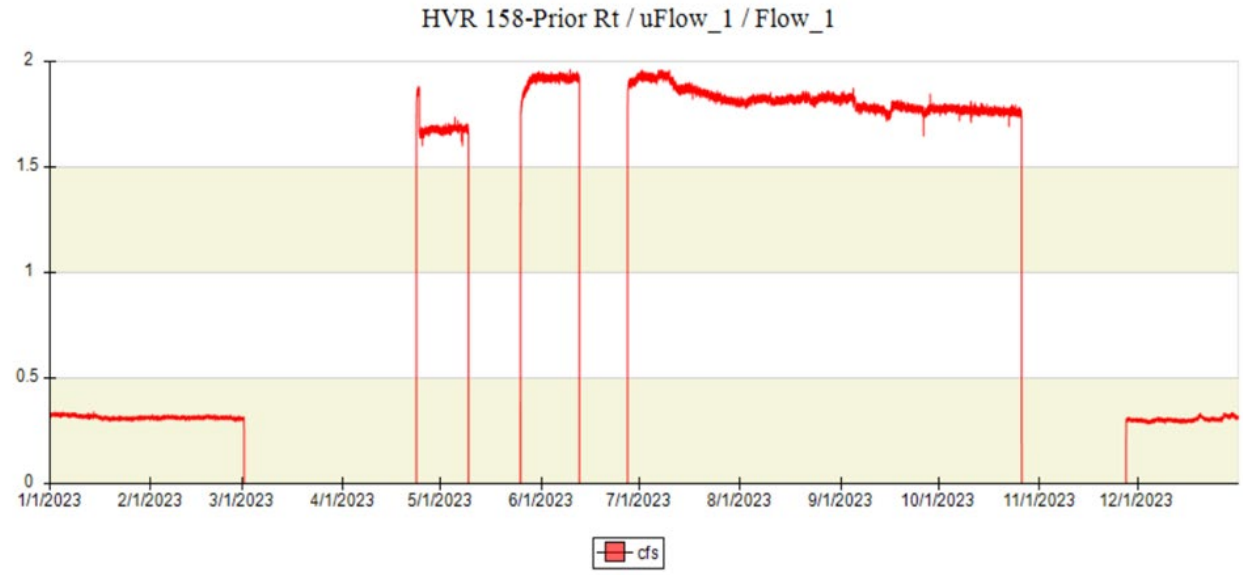

Figure 50- HVR Prior Right Diversion (cfs) as recorded at the Place of Use.

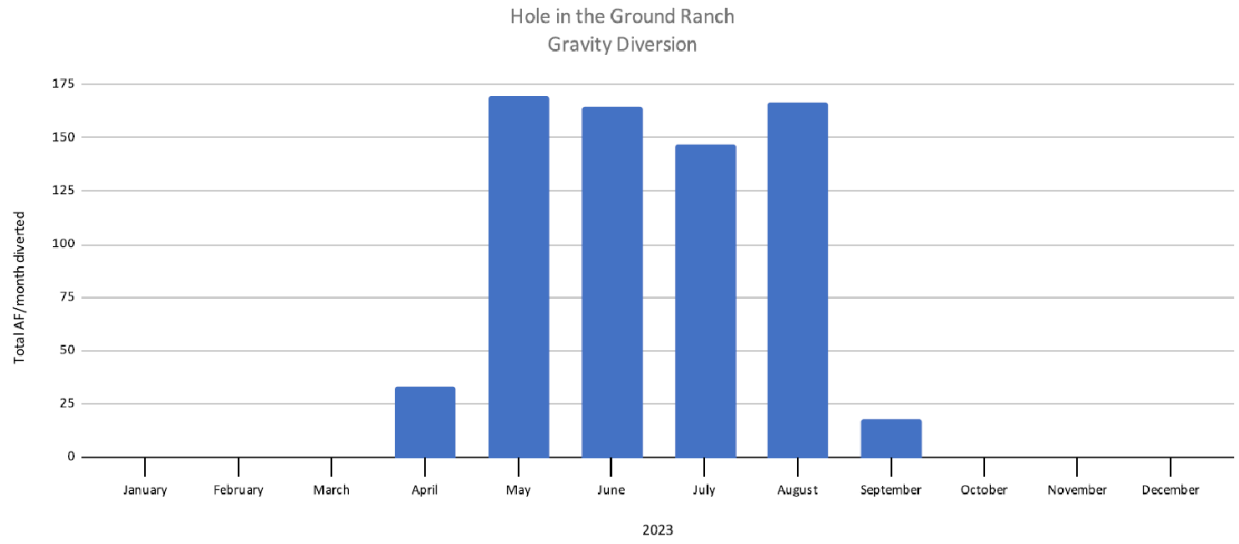

Figure 51- Hole-in-the-Ground Diversion (Acre-feet/month) at the gravity diversion.

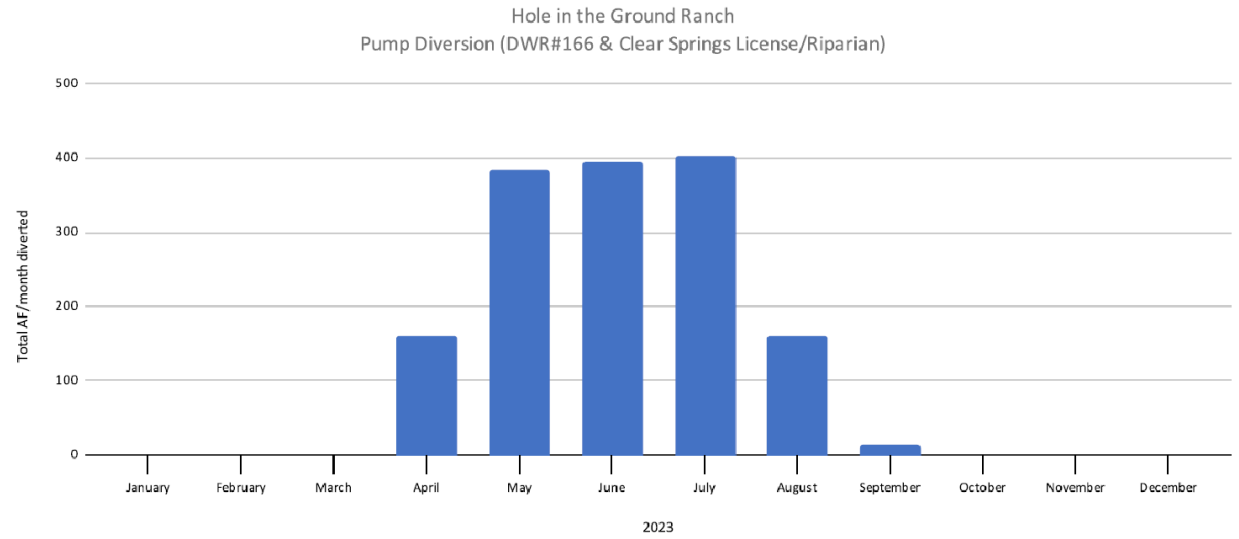

Figure 52- Hole-in-the-Ground Diversion (Acre-feet/month) at the pump diversion.

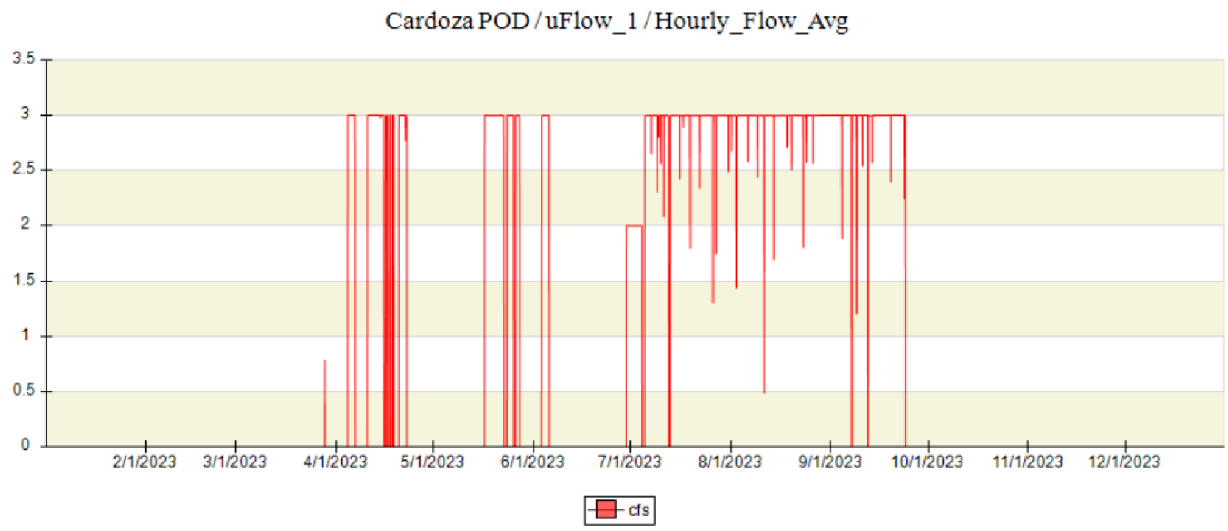

Figure 53- Cardoza Pump Diversion (cfs)

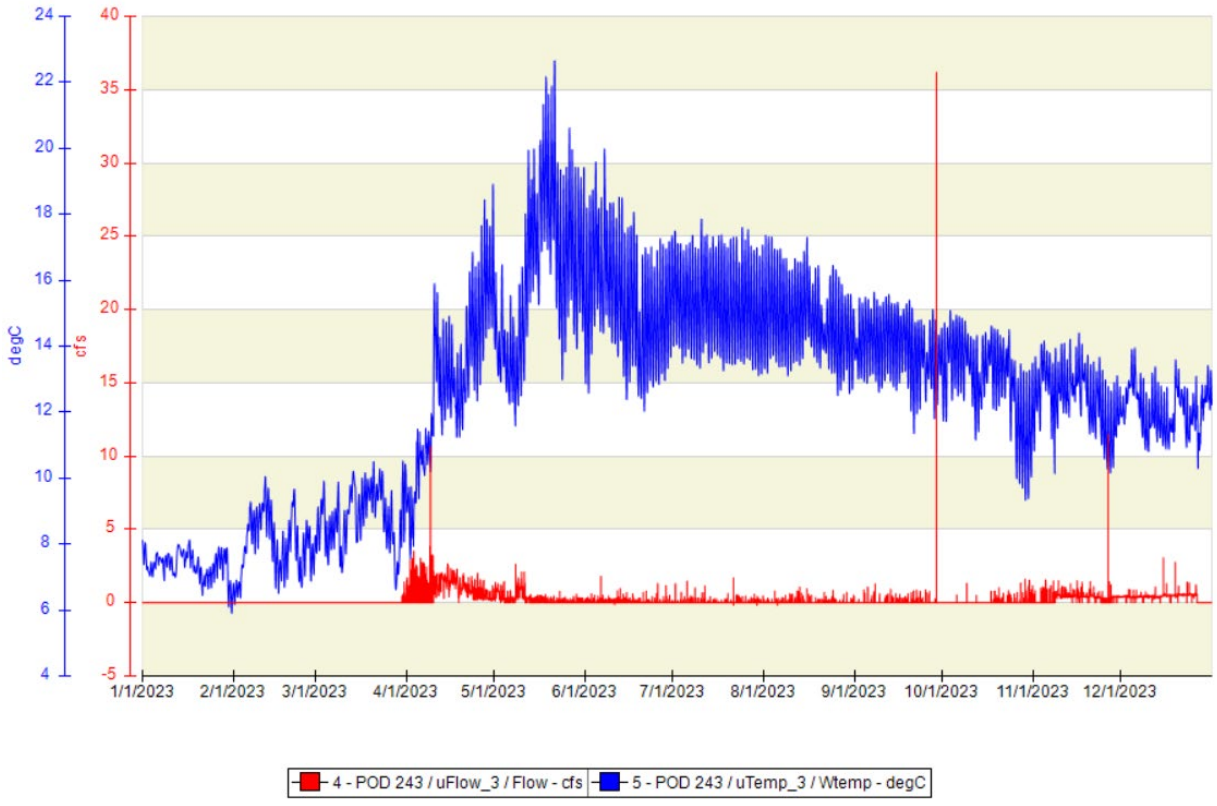

Figure 54- POD 243 on SBSWA measuring amount diverted (cfs) and temperature of water diverted in degrees C.

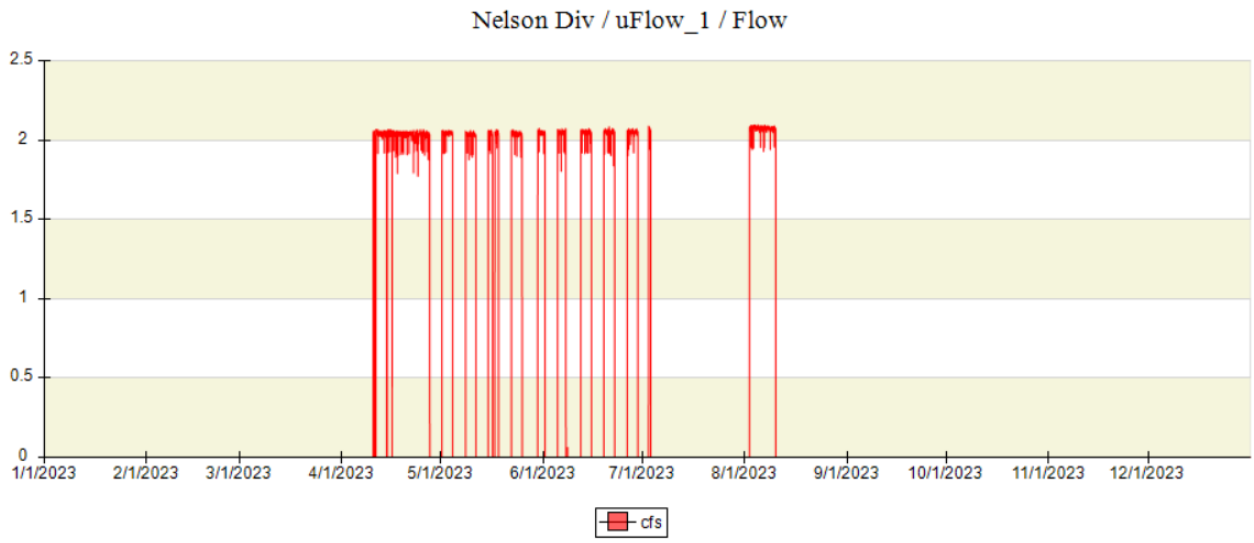

Figure 55- Nelson diversion on SBSWA measuring amount diverted (cfs).

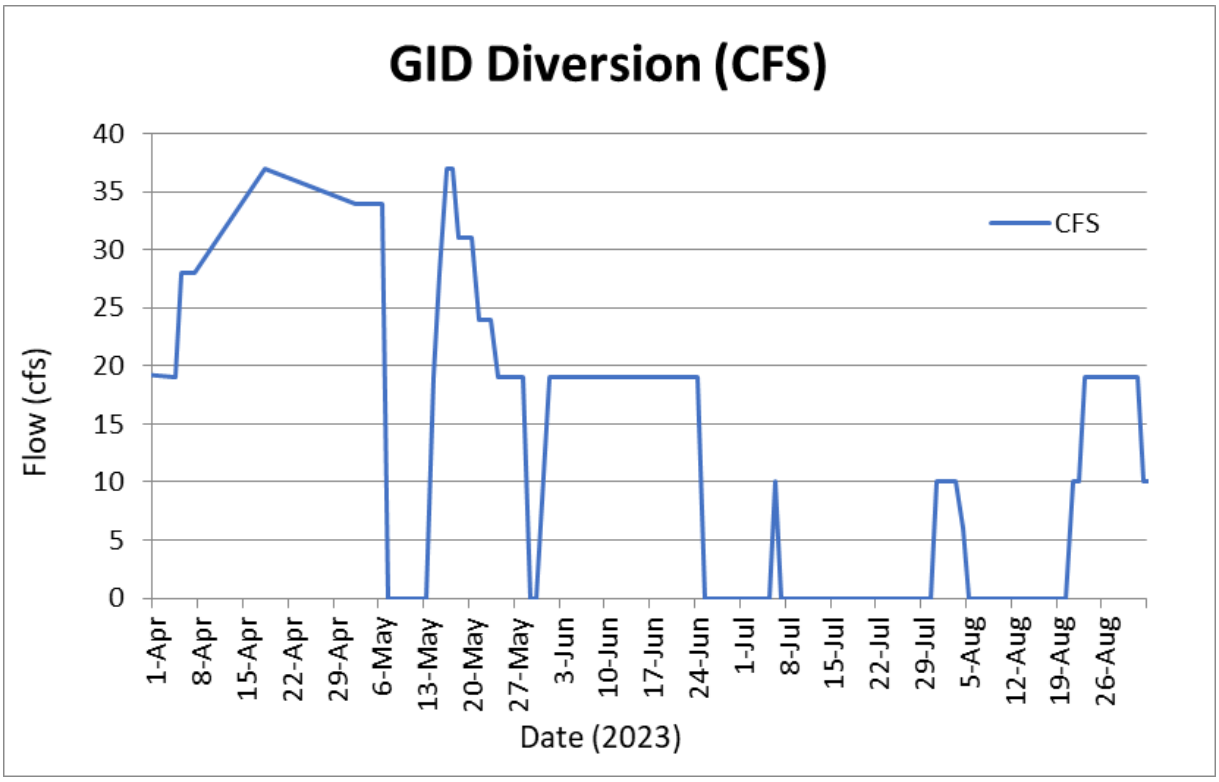

Figure 56- GID Daily Diversion (cfs)

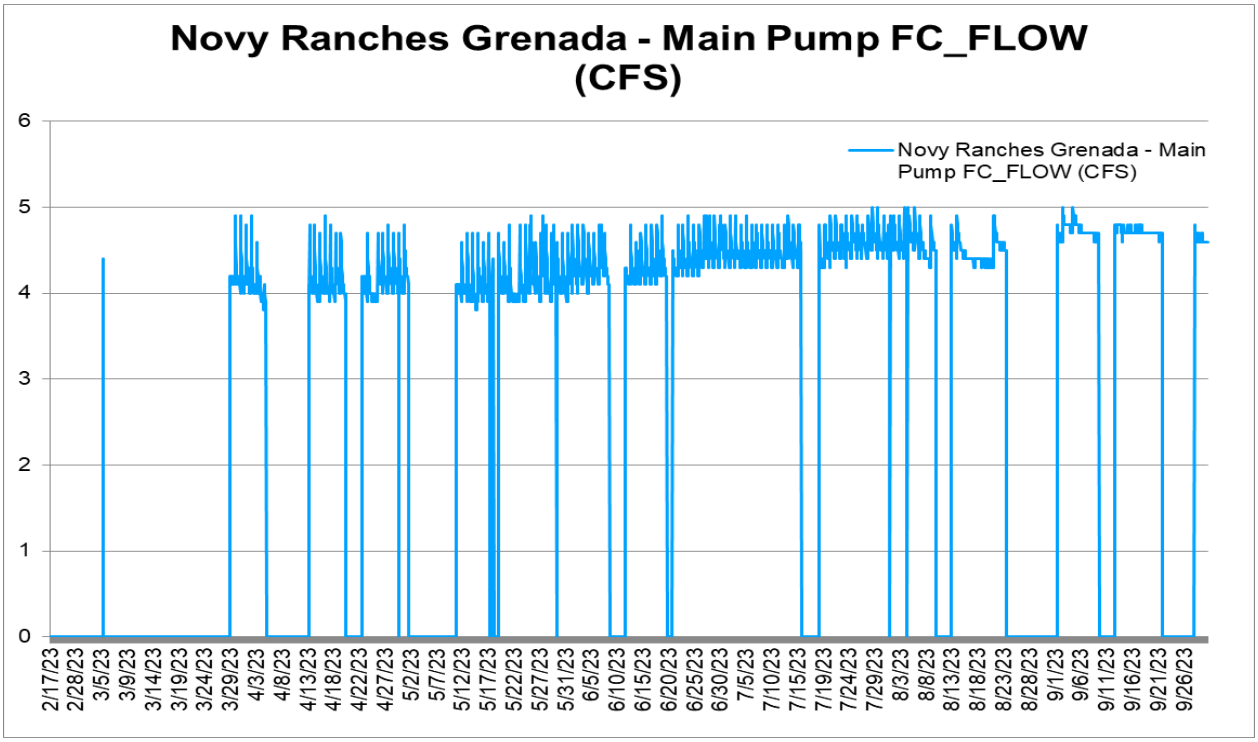

Figure 57- Novy Pump Diversion (cfs)

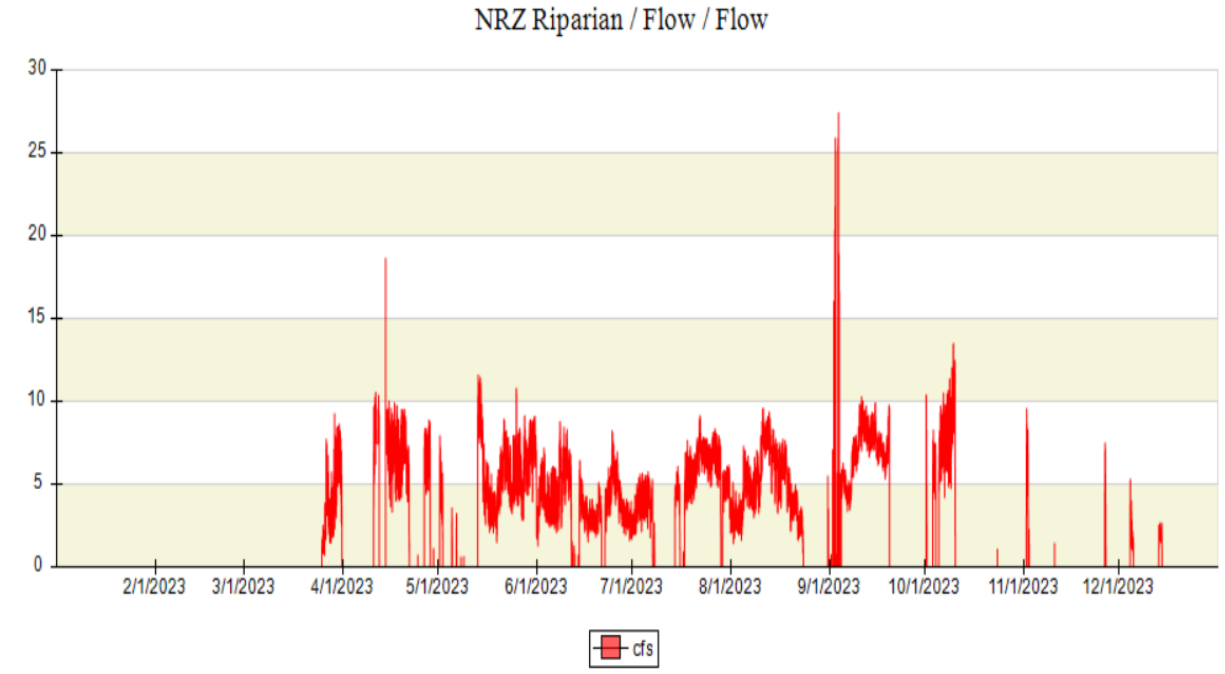

Figure 58- Novy- Rice- Zenkus Diversion (cfs)

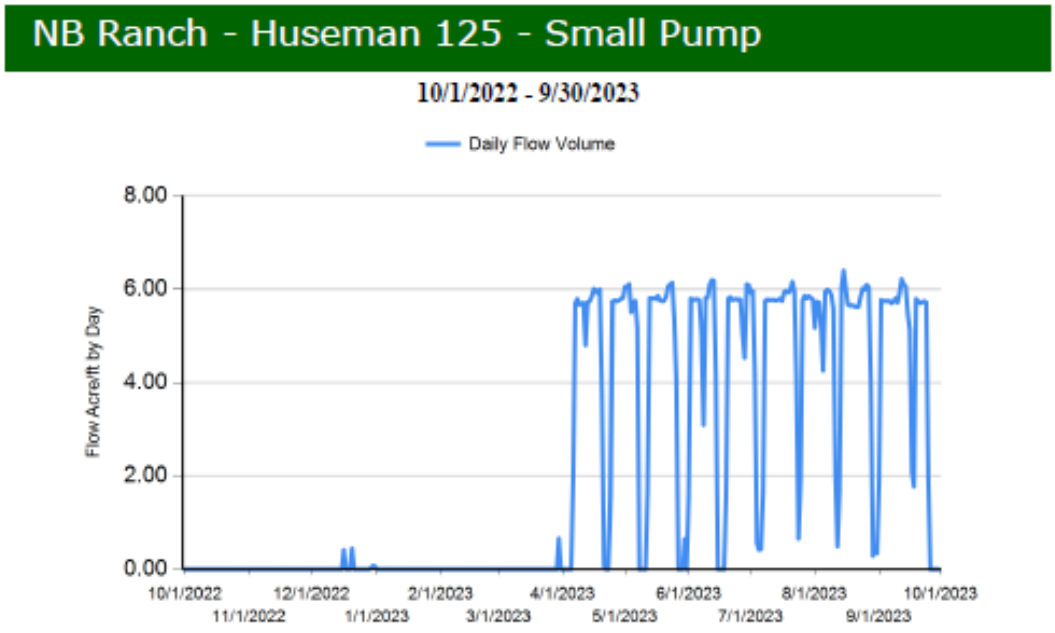

Figure 59- Huseman Diversion Small Pump Total (cfs)- Large pump meter was being repaired during 2023 irrigation season.

Appendix C - Cardoza Soil Moisture Sensor Data

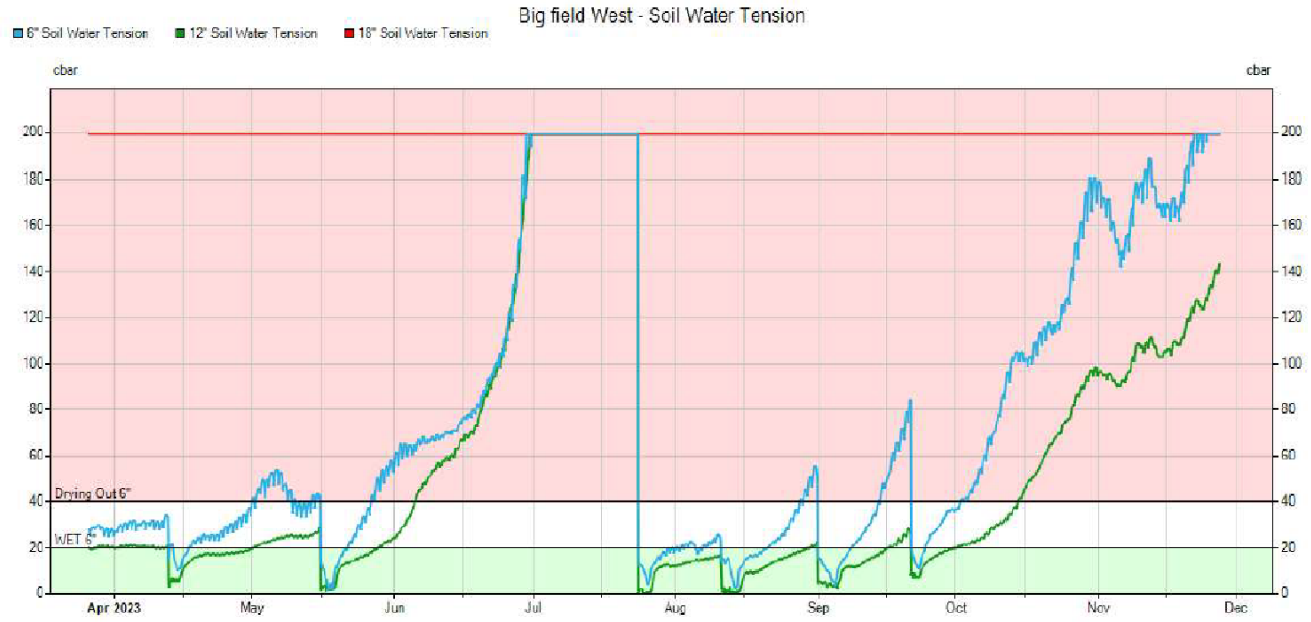

Figure 60- Cardoza Big Field West Soil Moisture Data

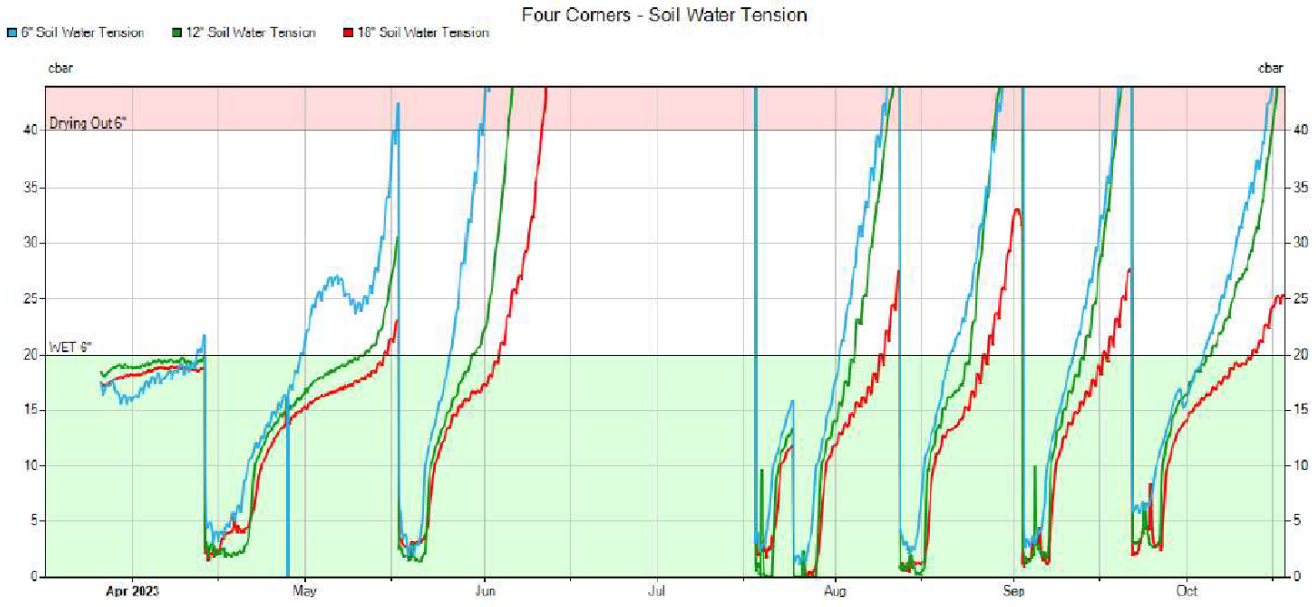

Figure 61- Cardoza Four Corners Soil Moisture Data

Figure 62- Cardoza Lake Pasture Soil Moisture Sensor Data

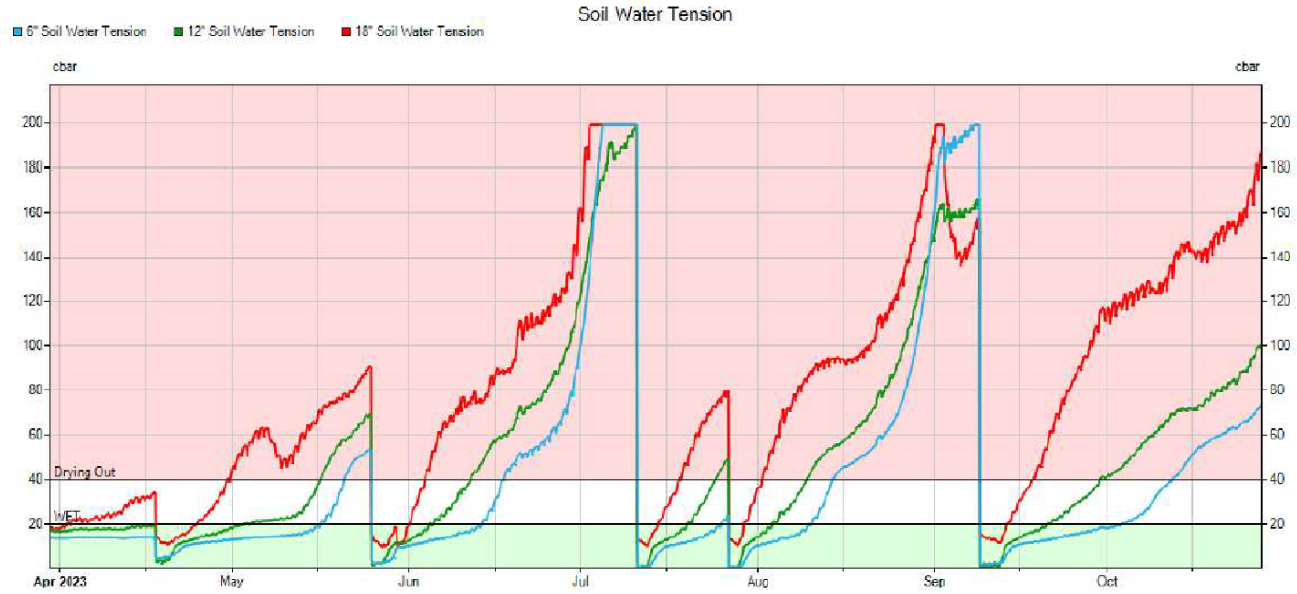

Figure 63- Cardoza Little Field Soil Moisture Data

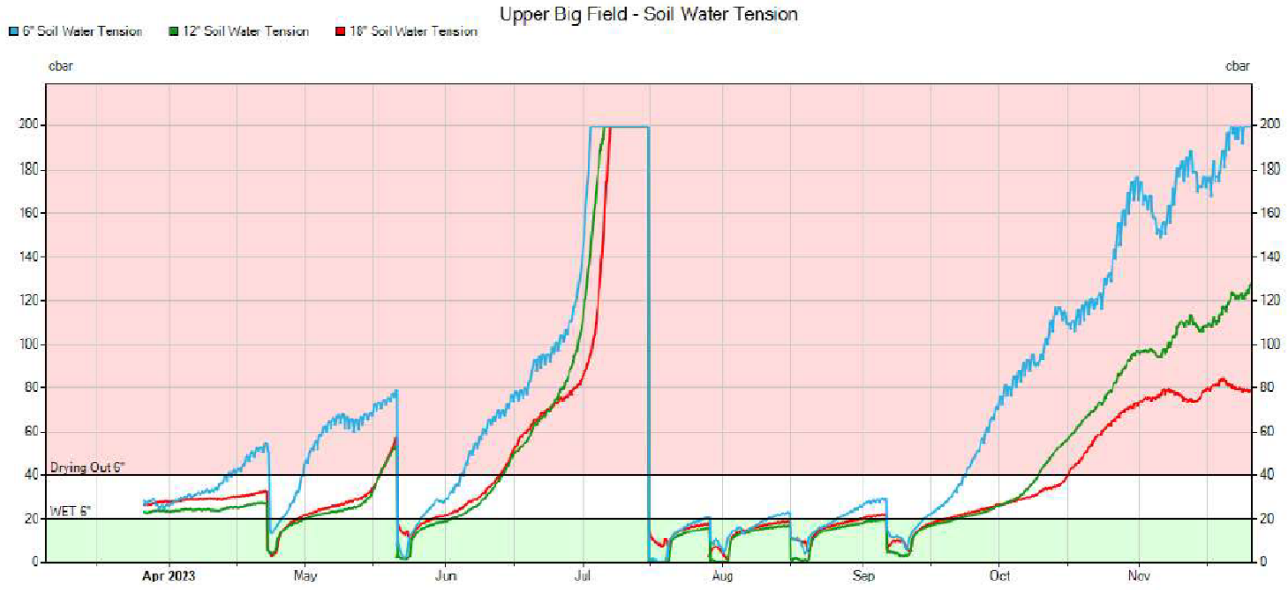

Figure 64- Cardoza Upper Big Field Soil Moisture Sensor Data

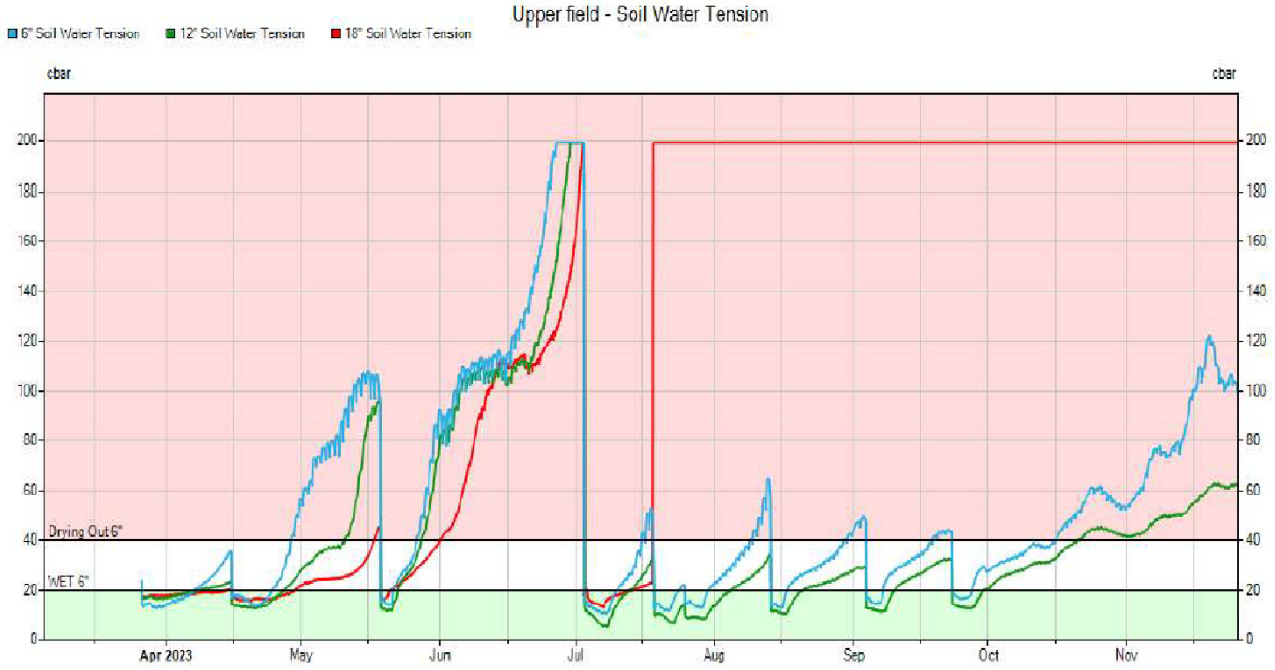

Figure 65- Cardoza Upper Field Soil Moisture Sensor Data

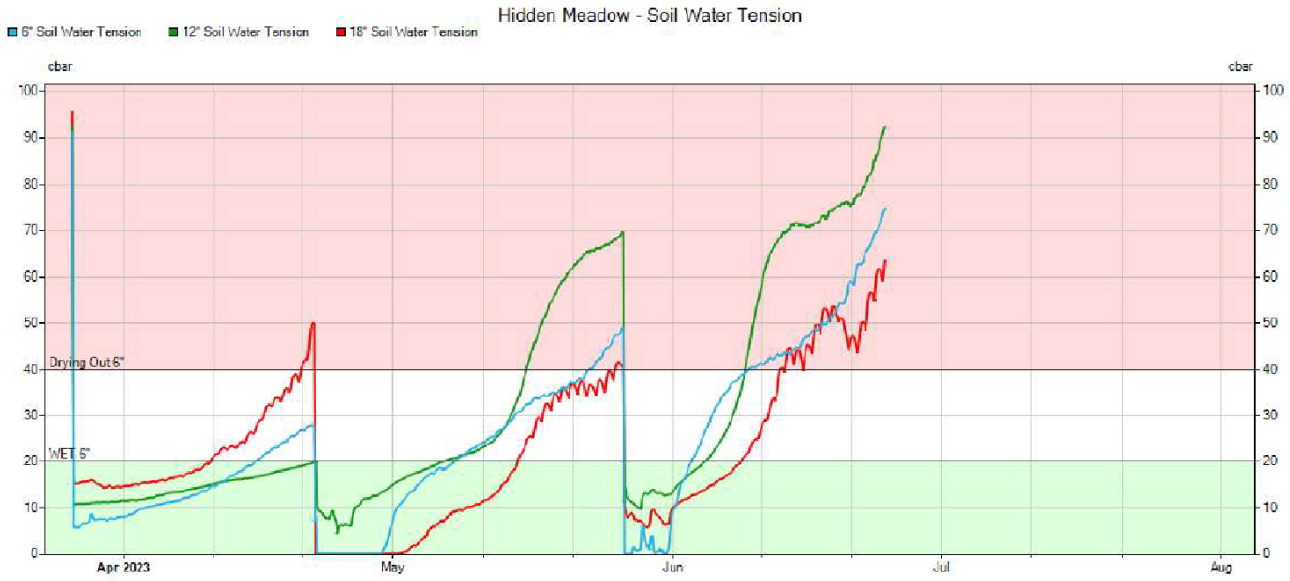

Figure 66- Cardoza Hidden Meadow Soil Moisture Sensor Data

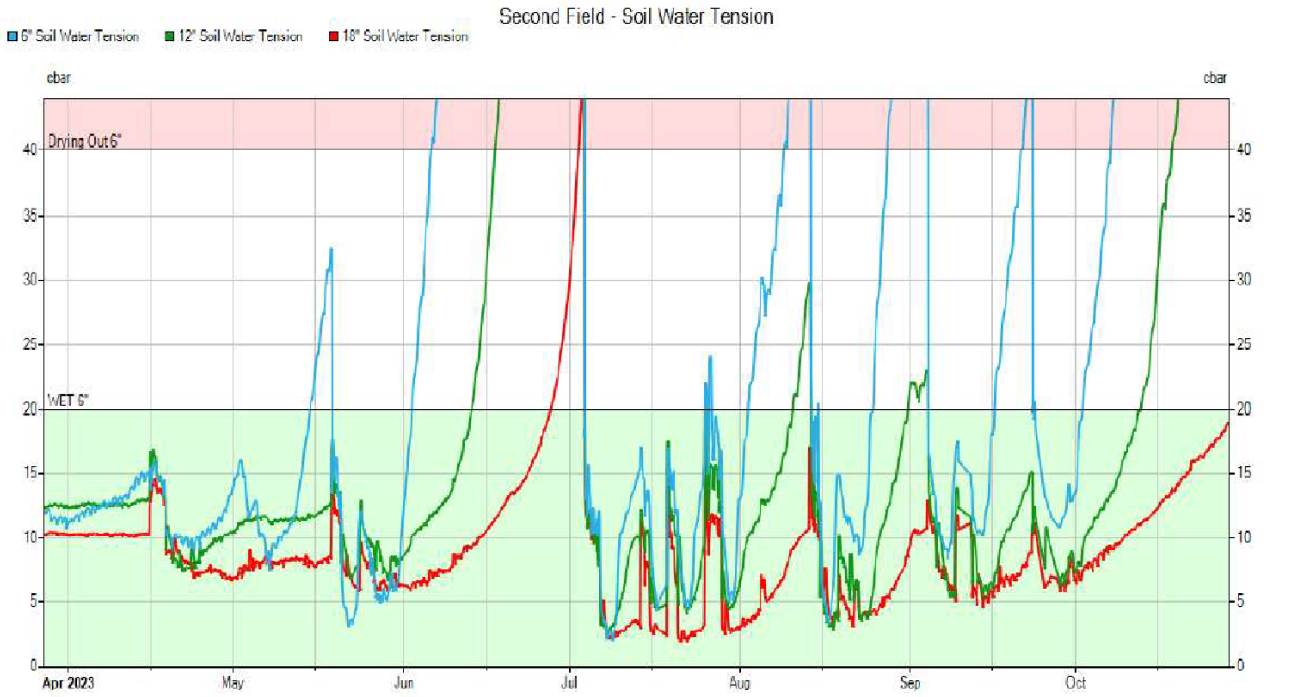

Figure 67- Cardoza Second Field Soil Moisture Sensor Data