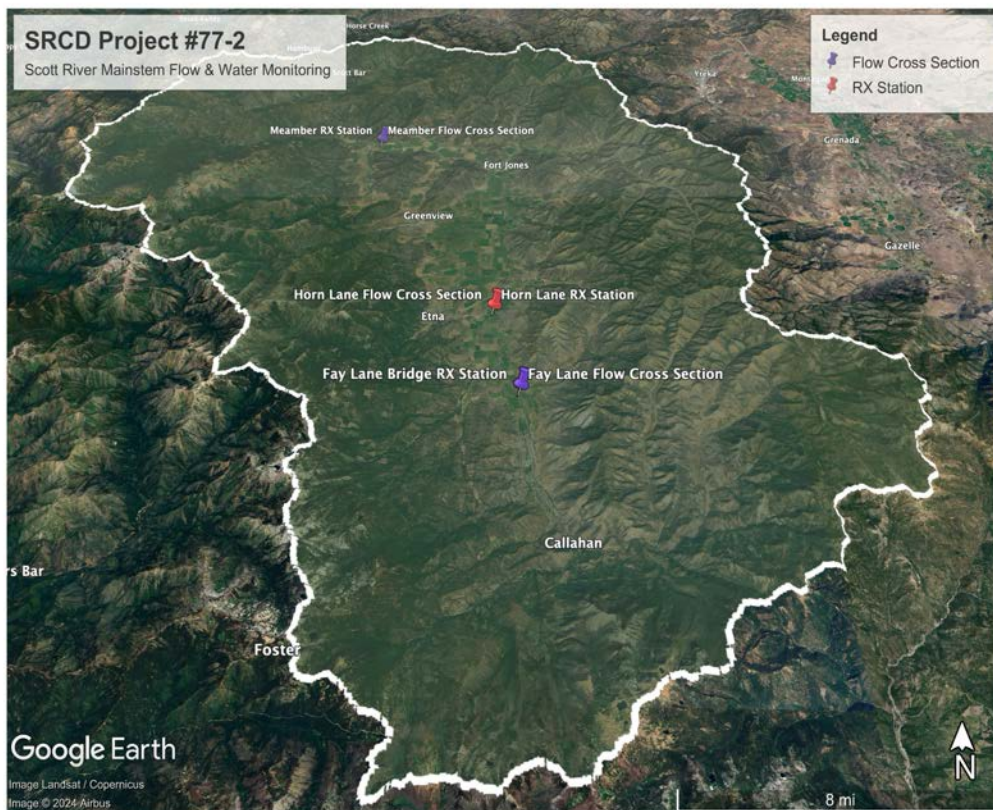


# *Scott River Main-stem Flow and Water Quality Monitoring Project (2023–2025)*

## 2024 Annual Report



*Prepared for: Siskiyou RCD. Prepared by: Evan Senf. Funding Provided by: California Department of Fish and Wildlife (CDFW) & Siskiyou Resource Conservation District (SRCD) (\$309,281.09).*

*450 Main Street Etna, CA 96027*

# Table of Contents

<b>PROJECT OVERVIEW .....</b>	<b>3</b>
DETAILED SITE DESCRIPTIONS: .....	4
<b>METHODS:.....</b>	<b>13</b>
<b>RESULTS: .....</b>	<b>24</b>
NEAR QUARTZ VALLEY: .....	24
NEAR ETNA: .....	27
NEAR CALLAHAN: .....	30
<b>CONCLUSION .....</b>	<b>33</b>
FIELDWORK SUMMARY .....	34
RECOMMENDATIONS .....	35
<b>CITATIONS: .....</b>	<b>36</b>
<b>APPENDICES:.....</b>	<b>37</b>
<i>A. Field Notes.....</i>	<i>37</i>
<i>b. Data Tables .....</i>	<i>52</i>

**OTHER:**

MAP 1: MEAMBER SITE .....6

MAP 2: HORN SITE.....9

MAP 3: FAY SITE .....12

PHOTO 1: 'STATIC' IN-STREAM STAFF GAGE INSTALLATION, RIVER-LEFT, MEAMBER BRIDGE SITE (SRCD, 9/24/24). ...4

PHOTO 2: MEAMBER SITE FLOW-MEASUREMENT CROSS-SECTION, LOOKING UPSTREAM. (SRCD, 8/16/2024). .....5

PHOTO 3: HORN SITE STATIC STAFF GAGE 1. (SRCD, 2024).....8

PHOTO 4: SRCD FIELD TECH. NATHAN HOWINGTON, MEAMBER SITE FLOW MEASUREMENT (SRCD, 8/2/2024: 11:20  
AM PST). .....20

PHOTO 5: HORN SITE FLOW-MEASUREMENT CROSS SECTION. ....21

PHOTO 6: (LEFT, LOOKING DOWNSTREAM) LOW-WATER FLOW MEASUREMENT AT FAY LANE SITE (9/12/2024).....22

PHOTO 7: WWW.SISKIYOURCD.COM/STREAMFLOWDATA SCREENSHOT. ....23

FIGURE 1: SCOTT RIVER MAIN STEM - MEAMBER SITE GROUNDWATER MONITORING WELL 1: GROUND WATER  
SURFACE ELEVATION (GWSE), GROUND WATER TEMPERATURE (F) WY2024. ....24

FIGURE 2: FLOW STATION: SCOTT RIVER MAINSTEM NR QUARTZ VALLEY CALIFORNIA. WATER TEMPERATURE (F),  
WATER DISCHARGE (CUBIC FEET PER SECOND) HYDROGRAPH. ....25

FIGURE 3: RATING CURVE FOR MEAMBER SITE WY2024 (SR NR QUARTZ VALLEY CA) .....26

FIGURE 4: SCOTT RIVER MAIN STEM NEAR ETNA (HORN SITE) MONITORING WELL 1: WY2024. ....27

FIGURE 5: HORN SITE STAFF GAGE WY2024 DISCHARGE AND SURFACE-WATER TEMPERATURE COMPARISON  
HYDROGRAPH.....28

FIGURE 6: HORN LANE FLOW RATING CURVE 2024 (SR NR ETNA CA).....29

FIGURE 7: SCOTT RIVER MAIN STEM NEAR CALLAHAN (FAY SITE) MONITORING WELL 1: WY2024. ....30

FIGURE 8: FAY SITE STAFF GAGE WY2024 DISCHARGE AND SURFACE-WATER TEMPERATURE COMPARISON  
HYDROGRAPH.....31

FIGURE 9: RATING CURVE FOR FAY SITE WY2024 (SR NR CALLAHAN CA). ....32

## Project Overview

The Scott River Main-stem Flow and Water Quality Monitoring project (SRCD Project 77-2) is a multi-year effort to assess hydrological and water quality conditions along key monitoring locations on the Scott River. Initiated in October 2023, the project supports flow management and water quality improvement efforts through systematic data collection. This report summarizes field activities and findings for Water Year 2024 (October 1, 2023 – September 30, 2024). This is the second annual report for this project.

### *Objectives and Next Steps:*

1. Evaluate flow dynamics across multiple Scott River main-stem monitoring stations, capturing seasonal variability and event-driven changes in discharge.
2. Track hydrological parameters, including water temperature, flow rates, groundwater elevation, and groundwater temperature, establishing a water quality monitoring network to provide a comprehensive picture of river conditions.
3. Process provisional water surface elevation (WSE) data to establish precise stage-discharge relationships and enhance flow modeling accuracy.
4. Survey and adjust elevations of groundwater monitoring wells and surface-water staff gages to improve data consistency and reliability.
5. Install permanent surface-water (stage) gages to withstand high-flow events and reduce data interruptions.
6. Provide actionable data to inform resource management, including flow restoration projects and ecological monitoring.
7. Continue site monitoring and expand analyses to incorporate correlations between flow dynamics, water quality, and ecological impacts.

## Detailed Site Descriptions:

### *Meamber Bridge Site (SR NR Quartz Valley CA): Site Context:*

The Meamber Bridge flow station, located along the Scott River main stem, near Quartz Valley, California, is the furthest downstream monitoring location on the Scott River maintained by the SRCD. This site encompasses the widest monitored river channel, exceeding 135 feet across at medium flow stage (6 feet). This site's stage to discharge rating curve chart extends to 9.99'.



*Photo 1: 'Static' In-stream Staff Gage Installation, River-left, Meamber Bridge Site (SRCD, 9/24/24).*



*Photo 2: Meamber site flow-measurement cross-section, looking upstream. (SRCD, 8/16/2024).*



ELEVATIONS ARE NAVD88 BASED ON  
NGS BENCHMARK MX0434 (N838)

*Wade DeDobbeleer*  
WADE DEDOBBLER L.S. 9458

**SISKIYOU**  
**LAND SURVEYING**  
SISKIYOUSURVEYING@GMAIL.COM

EXHIBIT  
FOR  
SISKIYOU RESOURCE CONSERVATION DISTRICT

FILE: 01224  
DATE: 9-27-2024  
SHEET 1 OF 3

Map 1: Meamber Site

*Horn Lane Bridge Site (SR NR Etna CA): Site Context*

The Horn Lane Bridge station (Horn site), located near Etna, California, is a middle river-flow monitoring site on the Scott River main stem maintained by the SRCD. Positioned approximately 1.4 miles downstream of the Scott Valley Irrigation District (SVID) diversion (the largest diversion point on the Scott River) this station's data often exhibits higher water-flows (measured in CFS) compared to downstream or upstream stations, contrary to expectations. This anomaly is attributed to localized hydrological and geological factors, such as groundwater-surface water interactions and contributions from flows escaping off-channel further upstream of monitoring stations previously installed within or around Youngs Dam, and or SVID (Scott Valley Irrigation District) (SRCD, Young's Dam).



*Photo 3: Horn site flow-measurement cross-section, looking upstream. (SRCD, 8/30/2024).*





*Photo 3: Horn Site Static Staff Gage 1. (SRCD, 2024)*



ELEVATIONS ARE NAVD88 BASED ON  
NGS BENCHMARK MX0263 (W867)

*Wade DeDobbeleer*  
WADE DEDOBBLER L.S. 9458

**SISKIYOU**  
**LAND SURVEYING**  
SISKIYOUSURVEYING@GMAIL.COM

EXHIBIT  
FOR  
SISKIYOU RESOURCE CONSERVATION DISTRICT

FILE:01224  
DATE:9-27-2024  
SHEET 2 OF 3

Map 2: Horn Site

*Fay Lane Bridge (SR NR Callahan CA): Site Context*

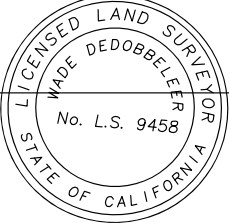
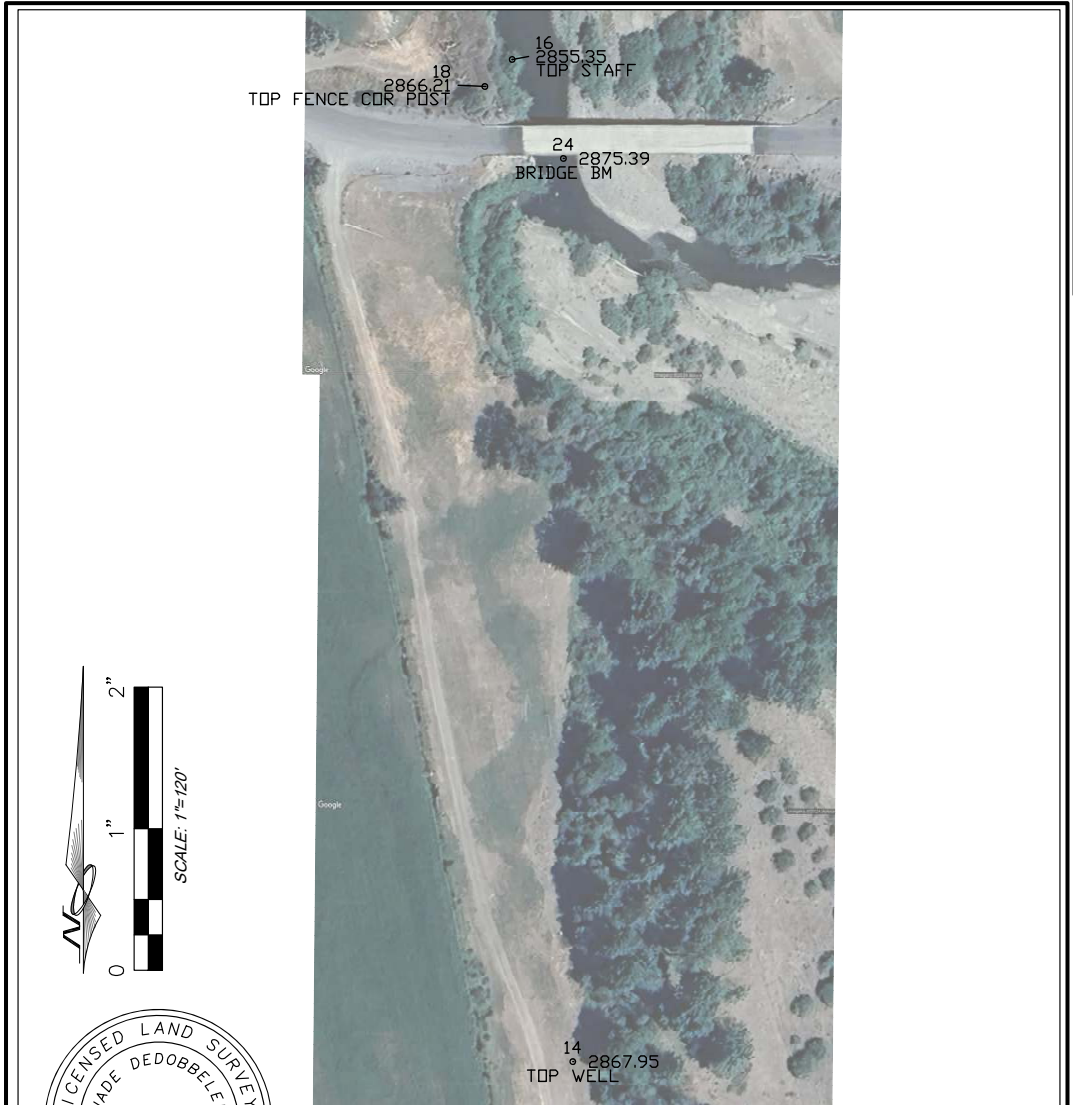
The Fay Lane monitoring site is located near Callahan, California, upstream of major diversions and downstream of the historical mining tailing's region (Scott River Reach 15 and upstream). Historical mining activities have significantly altered the riverbed and hydrology in this area, influencing flow patterns and sediment transport.



*Photo 5: Fay Site Static Staff Gage 1. (2024)*



*Photo 6: Fay site flow-measurement cross-section. (SRCD, 6/17/2024).*



ELEVATIONS ARE NAVD88 BASED ON  
NGS BENCHMARK MX0250 (12C)

*Wade Dedobbeleer*  
WADE DEDOBBLER L.S. 9458

**SISKIYOU**  
LAND SURVEYING  
SISKIYOUSURVEYING@GMAIL.COM

EXHIBIT  
FOR  
SISKIYOU RESOURCE CONSERVATION DISTRICT

FILE:01224  
DATE:9-27-2024  
SHEET 3 OF 3

Map 3: Fay Site

## Methods:

### *Definitions:*

**CFS:** *abbreviation;* cubic feet per second.

**Chart:** A sheet giving information in tabular form.

**Cross-section:** A cutting or piece of something cut off at right angles to an axis.

**Discharge:** a rate of flow.  
(*e.g.*) *Controlling the discharge of water.*

**Gage:** An instrument for or a means of measuring or testing.  
(*e.g.*) *Scale or dial for measuring or indicating quantity.*

**Groundwater:** Groundwater is water that exists underground in saturated zones beneath the land surface.

**Groundwater level** (*abbreviation:* GWE): the depth or elevation above or below sea level at which the surface of groundwater stands.

**Hydrograph:** A mechanism for recording on a chart the changing level of water.  
(*e.g.*) *In a well, reservoir, stream a hydrograph is used to measure the discharge.*

**Hyporheic Zone:** Hyporheic zones include the saturated portions of streambeds, banks, and floodplain containing water that originates from a stream and returns to the channel.

**North American Vertical Datum of 1988** (*abbreviation:* NAVD 88): The vertical control datum established in 1991 by the minimum-constraint adjustment of the Canadian Mexican-United States leveling observations.

**Reference Point** (*abbreviation:* RP): a basis or standard for evaluation, assessment, or comparison; a criterion. In this instance the reference points are elevations measured at the tops of the stilling wells.

**Refugium:** An area in which a population of organisms can survive through a period of unfavorable conditions, especially glaciation.

**River left** (*abbreviation:* RL): River left refers to the left side of a river when viewed looking downstream.

**River right** (*abbreviation:* RR): River right refers to the right side of a river when viewed looking downstream.

**Salmonid:** Any of a family (salmonidae) of elongate bony fishes.  
(*e.g.*) *Pacific chinook and coho salmon, steelhead or native trout) that have the last three vertebrae upturned.*

**Sensor:** A device that responds to a physical stimulus (such as heat, light, sound, pressure, magnetism, or a particular motion) and transmits a resulting impulse (as for measurement or operating a control).

*(e.g.) Pressure transducer devices are used to measure the difference in barometric pressure of a given station to measure depth and elevation.*

**Sounding:** Measurement of depth especially with a sounding line or reference point.

**Stage:** One of a series of positions or stations one above the other.

*(e.g.) Sensor depth in the river.*

**Stilling well, monitoring well:** A pipe, chamber, or compartment with comparatively small inlets connected with a main body of water or flow channel. The purpose of a stilling well is to dampen waves or surges while permitting the water level in the well to rise and fall with the major fluctuations of the main body of water or flow channel.

**Surface water:** Surface water is any body of water above ground, including streams, rivers, lakes, wetlands, reservoirs, and creeks.

**Table:** A systematic arrangement of data usually in rows and columns for ready reference.

**Tributary:** A stream feeding a larger stream, river or a lake.

**Watershed:** A region or area bounded peripherally by a divide and draining ultimately to a particular watercourse or body of water.

**Water Quality:** A quantification of the ability of a water source to meet the chemical, biological, and physical requirements of a specific water use.

**Water Year:** The term U.S. Geological Survey "water year" in reports that deal with surface-water supply is defined as the 12-month period October 1, for any given year through September 30, of the following year

*(e.g.) The date starting 10/1/2023, and ending 9/1/2024, is called the "2024" water year.*

*Elevation Surveys:*



*Photo 7: SRCD Field Technician Christina J. (left) surveys the in-stream staff gage elevation at the Horn Lane Site. This is completed in coordination with Siskiyou Surveyors (Wade D. center) and overseen by SRCD Project Coordinator Evan and son Alex S. (right). (9/26/2024).*



Surveyed Sites SRCD Project 77-2			Elevation	
1	2417391.48	6315860.58	2929.6	HPGN CA 02 07
2	2396666.9	6328260.87	2850	HPGN DH6574
3	2479561.362	6301862.704	2705.95	CUT X ON TELPED
4	2415248.68	6328279.684	2781.76	STILLING WELL
6	2415166.94	6328139.821	2778.16	TOP POST
7	2415151.485	6328131.984	2771.7	TOP STAFF GUAGE
9	2415355.913	6327986.567	2792.94	BRIDGE BM
11	2414522.023	6322237.506	2845.14	FD BM W867
14	2392145.26	6332991.309	2867.95	TOP WELL
16	2392994.632	6332939.939	2855.35	TOP STAFF
18	2392971.712	6332916.812	2866.21	TOP FENCE COR POST
20	2374489.388	6336318.048	3111.44	FD BM 12C
24	2392910.694	6332983.346	2875.39	BRIDGE BM
26	2478246.235	6299913.267	2668.63	TOP WELL
28	2478237.805	6299960.832	2661.92	TOP STAFF
30	2478176.073	6300059.349	2685.41	BRIDGE BM
32	2482937.321	6308497.398	2736.03	FD BM N838

Table 1: Surveyed sites for SRCD Project 77-2 (NAVD 88 format).

*Staff Gage (stage) Installation:*



*Photo 8: 'Static' staff gage design (SRCD, 6/19/2024).*

SRCD staff installed staff gages at the Meamber, Horn, and Fay monitoring sites to capture water level fluctuations linked to flow-discharge cross sections during late WY2023. These locations were selected to best represent site-specific changes in water level and flow dynamics along the main-stem Scott River.

For monitoring during water year 2024 each staff gage was statically installed by driving a 1-inch diameter, 6-foot square iron rod into the ground for (*Photo 8*). The gages were mounted to posts using metal conduit hangers. A total of three staff gages, each measuring 3.33 feet tall, were used at each site to record stages up to 9.99 feet. This configuration captures most flow situations, except for the highest floods (e.g., 5-year event).

A depth sensor for remote stage monitoring was deployed near the staff gage at the river bottom. The sensor was housed in a protective PVC casing and mounted inside a stabilizing block to ensure stationary placement during high-water events (*Photo 9, 10*). The sensor's cable, running to the remote data receiver, was protected using plastic conduit and a high-abrasion-resistant soft wire sheathing.



*Photo 9: Static staff gage sensor deployment set-up, before wire protection application. (SRCD, 2025).*



*Photo 10: Static staff gage sensor deployment wire protection application connected to remote data transmitter (hard plastic conduit and abrasion resistant soft wire sheathing are used to cover any exposed wiring, in and out of the water). (SRCD, 2025).*

### *Ground Water Monitoring Wells:*

To assist in assessing water quality along the main stem Scott River a groundwater monitoring network was established (or reestablished) consisting of three new and several other already installed custom-designed stilling wells. The monitoring intended to capture groundwater elevation and groundwater temperature fluctuations in response to seasonal and hydrological changes.

Stilling well installation was completed with an excavator affixed with a vibrator plate to ensure accurate installation, structural stability, and to facilitate accurate WSE measurements. The wells are constructed from 2-inch diameter galvanized pipes, perforated along their lengths to allow water ingress from surrounding groundwater. The perforations provide a stable conduit for groundwater flow into the well while maintaining the well's integrity in rocky substrate.

### **Stilling Well Specifications:**

- Diameter: 2 inches
- Material: Galvanized steel with perforations along the length
- Installation Depth: Based on subsurface geology and groundwater accessibility, with depths sufficient to capture seasonal groundwater level fluctuations (typically 12'-18' well depths are necessary).

*Monitoring and Data Collection:*

**Member Site:**

- Flow station installation, monitoring, and first flow measurement occurred on August 25th, 2023.
- A total of fifteen (15) flow measurements were collected using a Sontek Flow Tracker 2 acoustic Doppler velocimeters for WY2024.
- Real-time data was sent via Onset RX stations (solar-powered, cellular connection) to a cloud-based application, which was calibrated with in-field flow-stage measurements. This real-time data was publicly displayed on SRCD's Streamflow Data webpage: ([www.sisjyourcd.com/streamflowdata](http://www.sisjyourcd.com/streamflowdata)).



*Photo 4: SRCD Field Technician Nathan Howington, Member Site Flow Measurement (SRCD, 8/2/2024: 11:20 AM PST).*

### **Horn Site:**

- Flow station installation, monitoring, and first flow measurement occurred on September 15th, 2023.
- Monitoring equipment was removed on November 28th, 2023, to prevent loss during high water.
- A damaged data cable prevented real-time monitoring; a replacement was purchased for WY2024.
- A total of fifteen (15) flow measurements were collected using a Sontek Flow Tracker 2 acoustic Doppler velocimeters.



*Photo 5: Horn Site Flow-measurement Cross Section.*

**Fay Site:**

- Flow station installation, monitoring, and first flow measurement occurred on August 24th, 2023.
- Monitoring equipment was removed on November 28th, 2023, to prevent loss during high water.
- A total of fifteen (15) flow measurements were collected using a Sontek Flow Tracker 2 acoustic Doppler velocimeters.



*Photo 6: (Left, looking downstream) Low-water flow measurement at Fay Lane site (SRCD, 9/12/2024).*

*Data Calibration and Accessibility:*

Staff gages were linked to Onset RX stations equipped with solar power and cellular connectivity. Staff gage data including surface water temperature, stage and flow have been hosted on the SRCD website since September 2023, except where equipment has been removed for recapture due to concern of equipment or data loss or unexpected failure.

Groundwater monitoring well data is currently only available through reporting, however new methods that allow real-time monitoring data are in the testing phases.

Data from the Meamber, Horn and Fay staff gage stations were automatically uploaded to a cloud-based application (hobolink) based on user-preference timing intervals (typically between 5-20 minutes each remote measurement per sensor), calibrated against field-measured flow-stage data, and used to calculate stage, discharge, WSE, GWT, and SWT.

Real-time surface-water flow, temperature and stage data for the Meamber, Horn and Fay sites were made publicly available on SRCD's Streamflow Data webpage, ensuring transparency and accessibility ([link: www.siskiyoucd.com/streamflowdata](http://www.siskiyoucd.com/streamflowdata)).



Photo 7: [www.siskiyoucd.com/streamflowdata](http://www.siskiyoucd.com/streamflowdata) screenshot.



## Results:

### Near Quartz Valley:

#### *Meamber Site Groundwater Monitoring Well 1 Summary:*

The Meamber Bridge monitoring well, located less than 75 feet from the typical low-water left riverbank, provides critical data on groundwater dynamics. Using surveyor-provided elevations: Top of Well Elevation (Reference Point) is 2668.63 feet above sea level (NAVD88). Meamber Bridge Elevation (Middle of Bridge, Upstream Side) is 2685.41 feet above sea level (NAVD88).

With less than 100 feet separating the well from the river, rapid responses in GWSE to river stage changes confirm strong connectivity. Seasonal divergence (e.g., open-ditch irrigation) is not indicative of localized aquifer depletion from agricultural withdrawals.

Groundwater temperatures remain buffered compared to surface water, with a peak of 67°F in late summer aligning with increased surface heating and reduced subsurface flow. The observed gradient indicates that during high river stages, the aquifer likely recharges, whereas during low stages, groundwater may supplement baseflow.

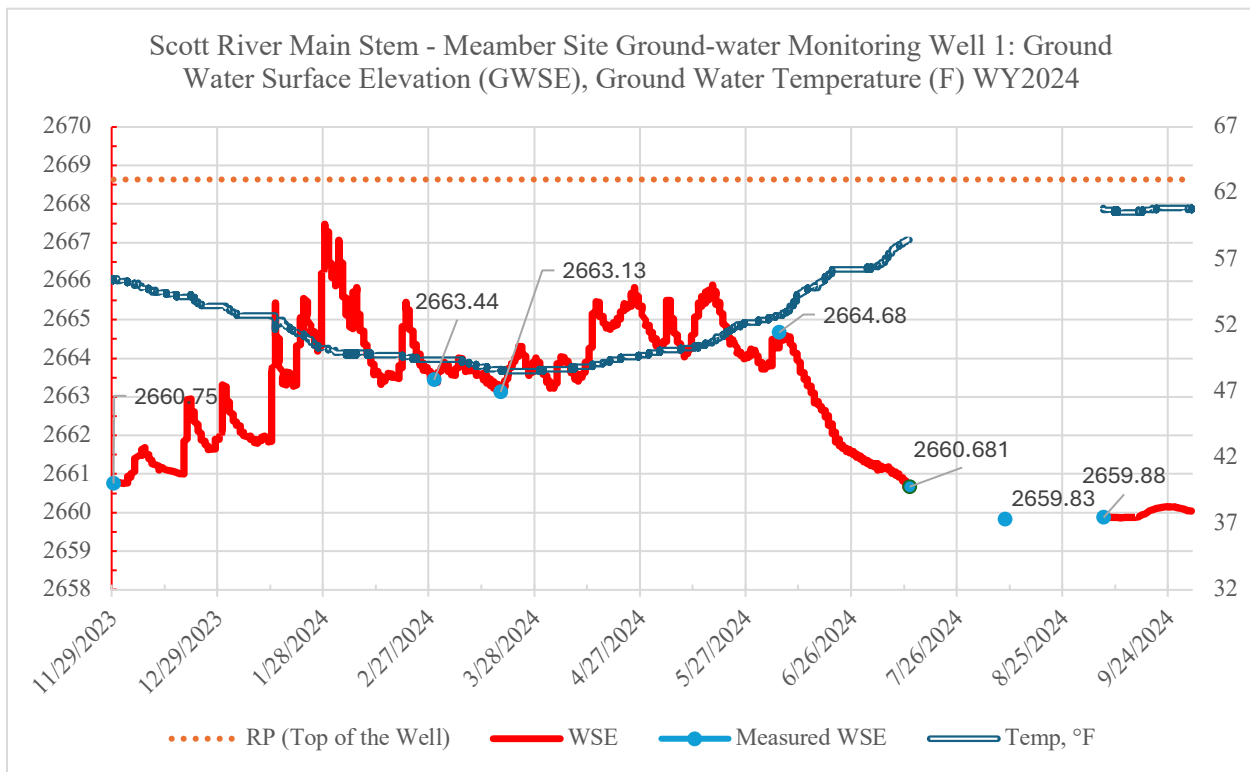


Figure 1: Scott River Main Stem - Meamber Site Groundwater Monitoring Well 1: Ground Water Surface Elevation (GWSE), Ground Water Temperature (f) WY2024.

*Meamber Site In-stream Flow Station Summary:*

The Meamber site, located furthest downstream in the Scott River monitoring network near Quartz Valley, California, captures a comprehensive hydrological profile of the Scott River, integrating flows from upstream mainstem inputs and tributary contributions. The following summarizes the key observations and trends based on the provided staff gage chart for Water Year 2024 (October 1, 2023, through September 30, 2024):

Elevated discharges were recorded during the spring snowmelt (April through June), with peak flows exceeding 800 cubic feet per second (cfs). These high flows highlight the significant contributions of tributary and snowmelt-fed inputs during the freshet. Flows declined dramatically during late summer (July through September), reaching values below 10 cfs. This sharp reduction reflects seasonal irrigation withdrawals, limited precipitation, and aquifer drawdown.

Surface-water temperatures ranged from just above freezing (32°F) during the winter to peaks above 76°F in the summer. This seasonal surface water temperature increase coincides with lower flows and warmer air temperatures. Elevated surface-water temperatures during low-flow periods in the late summer emphasize the potential for thermal stress on aquatic species, especially salmonids such as coho (Moyle, 1991).

Augmenting base flows during late summer could mitigate thermal stress and maintain aquatic habitat suitability. Monitoring and managing tributary inflows are essential to ensure sustained contributions to mainstem flows.

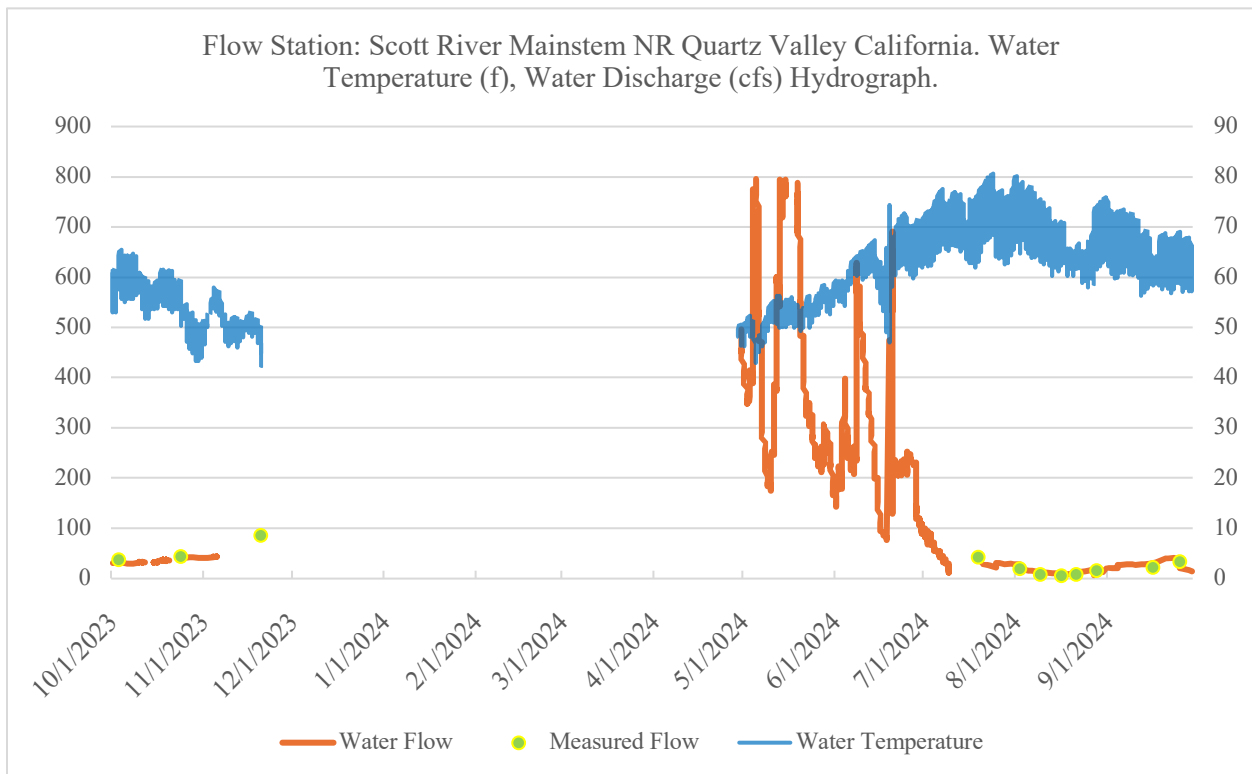


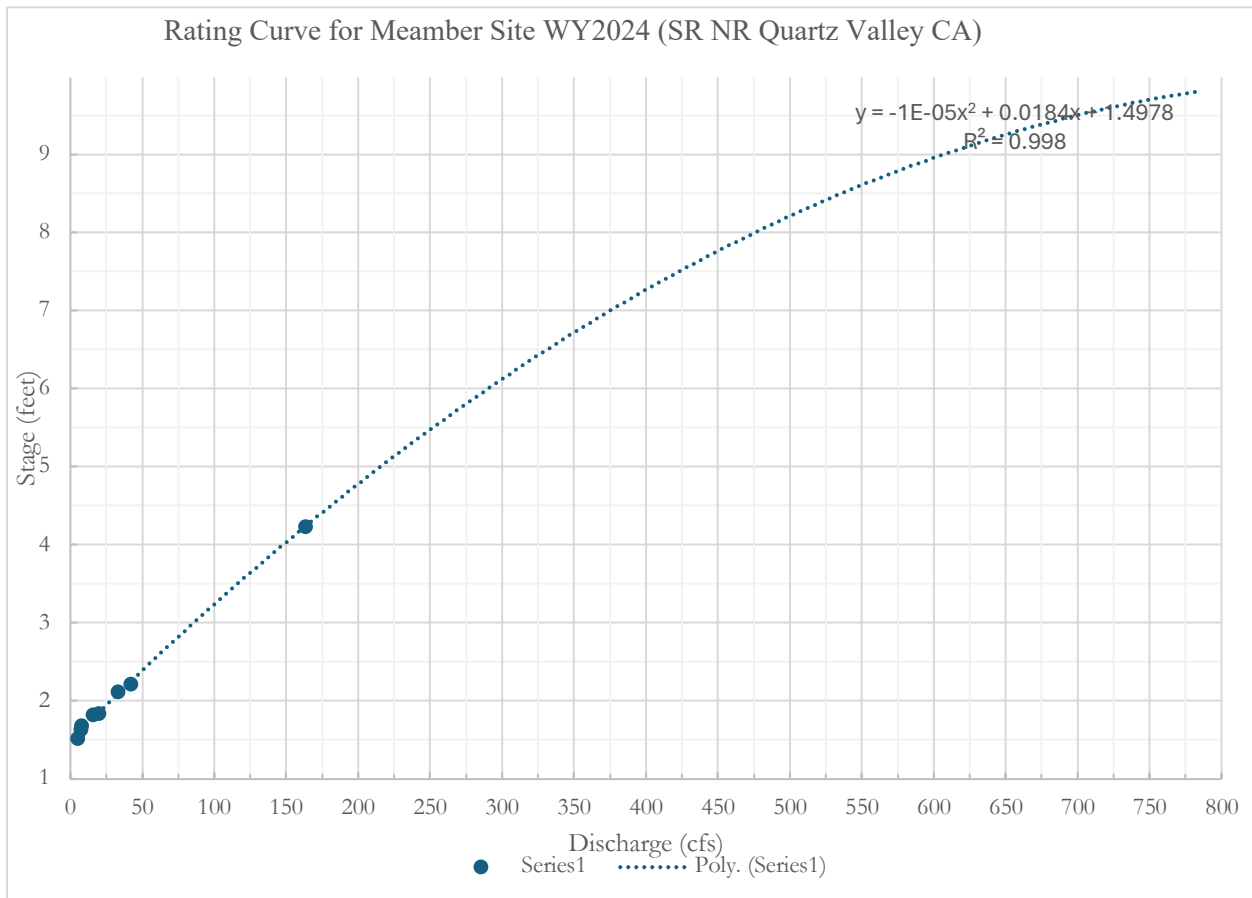
Figure 2: Flow Station: Scott River Mainstem NR Quartz Valley California. Water Temperature (F), Water Discharge (Cubic Feet Per Second) Hydrograph.

*Meamber Site Rating Curve Summary:*

The Meamber Bridge rating curve for Water Year 2024 demonstrates a polynomial relationship between stage and discharge. Representing the stage (in feet) and the discharge (in cfs) the curve exhibits an exceptional fit with an R value of **0.998**, indicating high reliability in the stage-discharge relationship. Stage values ranging from **1 to 9 feet**, corresponding to discharge rates from **0 to over 750 cfs**.

The channel's expansive width and depth create significant storage capacity during medium to high flows. This capacity influences how discharge scales with stage, as evidenced by the curve's non-linear behavior.

Flow at this site reflects cumulative inputs from upstream sources, including irrigation return flows, tributaries, and localized runoff. The significant width and storage effect suggest slower changes in stage compared to narrower sections upstream. The polynomial curve captures complexities introduced by the channel's geometry, which impacts flow velocity and depth distributions at varying discharges (*Figure 3*).



*Figure 3: Rating Curve for Meamber Site WY2024 (SR NR Quartz Valley CA)*

## Near Etna:

### *Horn Site Groundwater Monitoring Well 1 Summary:*

Data underscores the importance of groundwater contributions to maintaining flow, particularly during dry periods. Enhanced monitoring and modeling of groundwater inputs are critical for sustainable management. Monitoring return flows from the SVID diversion is vital to understand their role in mitigating downstream flow reductions. High flows at Horn Lane reinforce the need to preserve hydrological connectivity upstream and downstream to sustain ecological health.

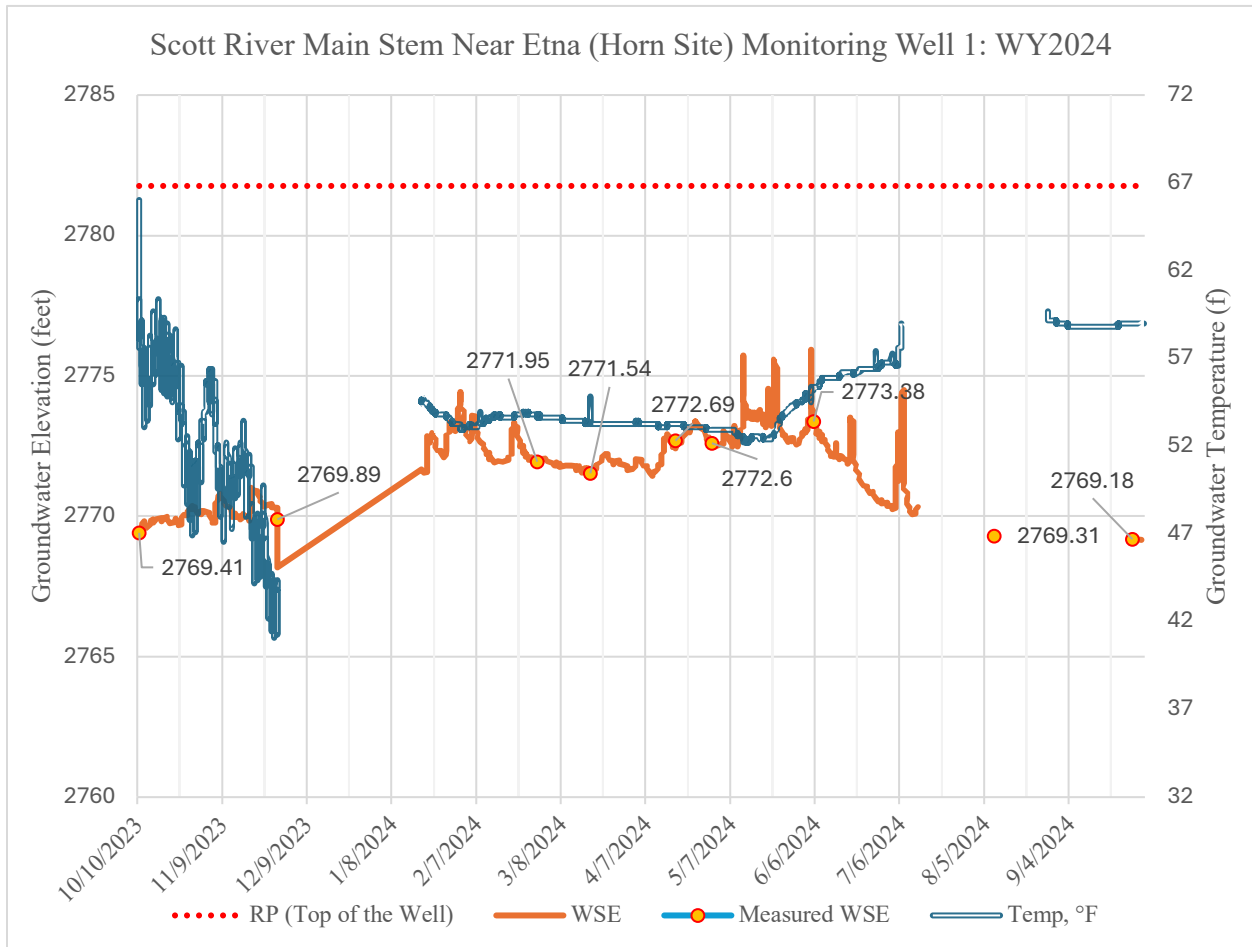


Figure 4: Scott River Main Stem Near Etna (Horn Site) Monitoring Well 1: WY2024.

*Horn Site In-stream Flow Station Summary:*

The hydrograph for the Horn Lane site near Etna, California, provides a detailed representation of water flow (discharge) and surface water temperature throughout Water Year 2024. This site is strategically positioned to capture mid-basin flow dynamics and the impacts of upstream diversions, including those by the Scott Valley Irrigation District (SVID).

Flow at the Horn site displayed notable seasonal variability, with peak measured discharges during spring snowmelt (March through May) reaching more than **100 cubic feet per second (cfs)**. In contrast, summer months (July through September) recorded the lowest flows, with measured discharges dropping below **15 cfs**, reflecting seasonal irrigation withdrawals and diminished tributary contributions. These low-flow periods coincide with elevated water temperatures, which peaked above **70.5°F**, emphasizing the heightened risk of thermal stress to aquatic ecosystems during late summer.

The hydrograph highlights the critical relationship between flow and temperature, with increased discharge in spring maintaining cooler water temperatures, while reduced flows in summer exacerbate warming trends. These findings underscore the importance of maintaining sufficient base flows during critical low-flow periods to support ecological health and ensure water quality. The Horn site data offers valuable insights for managing mid-basin water resources and addressing flow-temperature interactions under varying seasonal conditions.

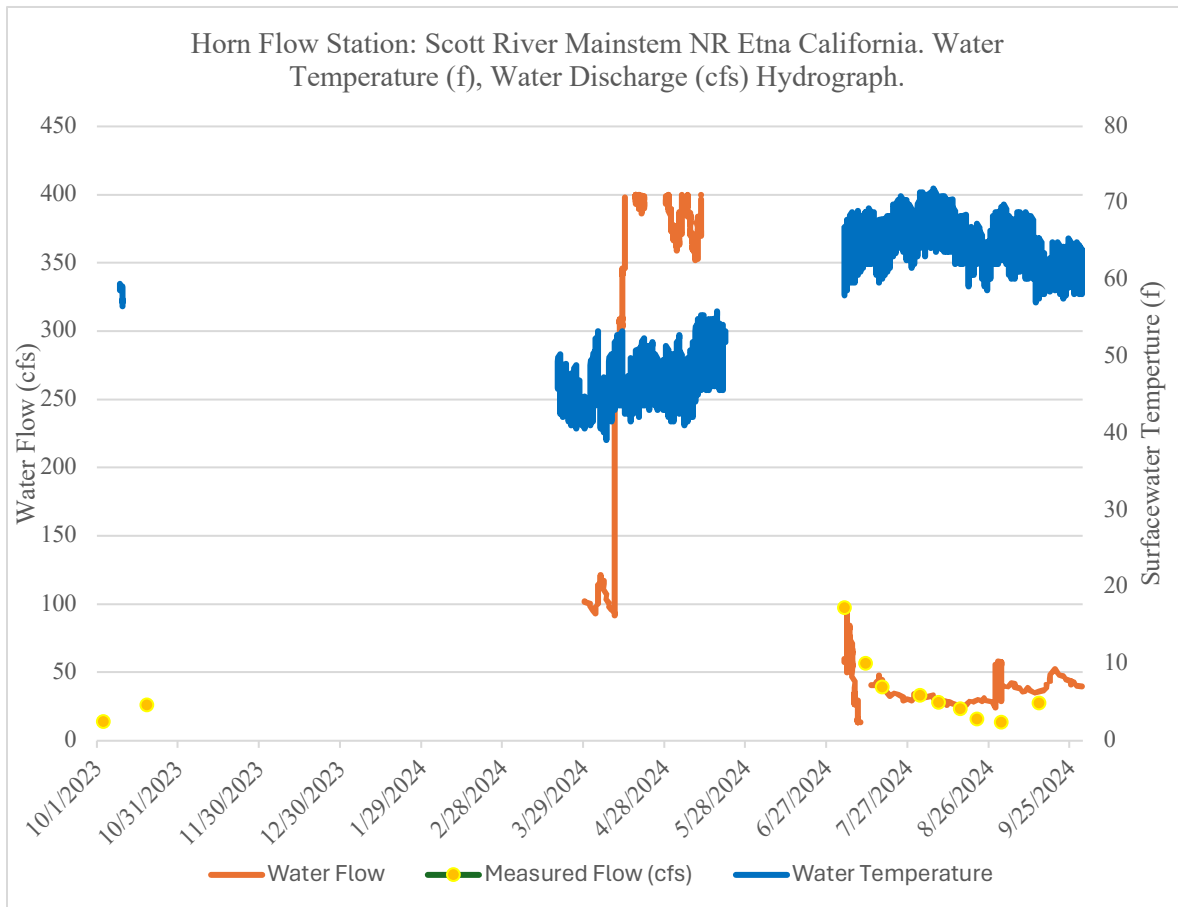


Figure 5: Horn Site Staff Gage WY2024 discharge and surface-water temperature comparison hydrograph.

*Horn Lane Rating Curve Summary:*

The flow rating curve for the Horn Lane monitoring site, located near Etna, California, demonstrates an exponential relationship between stage (in feet) and discharge (in cubic feet per second, cfs). This updated curve offers a more refined understanding of flow dynamics at this critical middle monitoring location along the Scott River mainstem.

The exponential relationship reflects the influence of the site's geomorphology, particularly its role in accommodating variable flows. At lower discharges, stage changes are gradual, indicating stable low-flow conditions. However, as discharge increases, the stage rises more sharply, signifying the site's capacity to handle high flows while maintaining channel stability. This dynamic is particularly evident during peak discharge events observed in the spring snowmelt period.

This curve is essential for understanding the hydrological impacts of upstream diversions, such as those by SVID maintaining accurate calibration to track seasonal variations and to inform water management practices. The refined rating curve will contribute to improved monitoring and analysis for future water years.

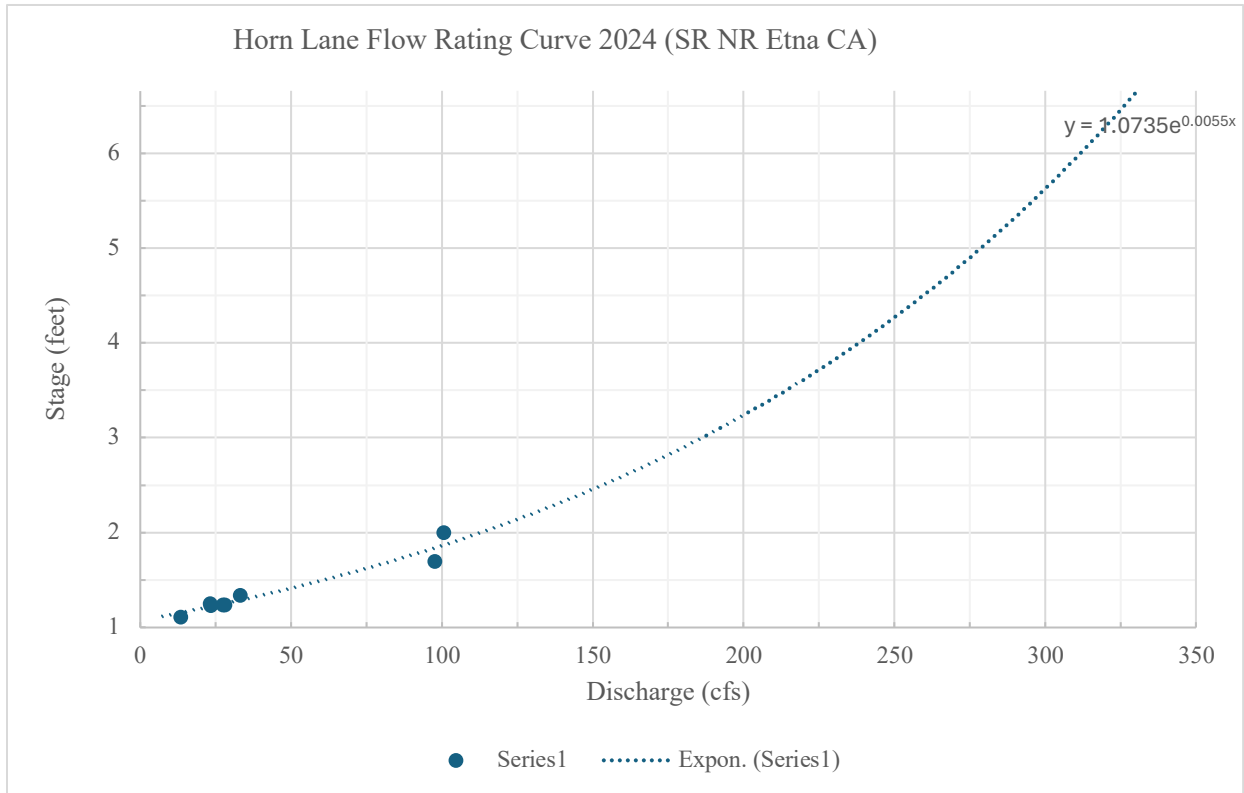


Figure 6: Horn Lane Flow Rating Curve 2024 (SR NR Etna CA).

## Near Callahan:

### *Fay Site Groundwater Monitoring Well 1 Summary:*

The Fay Lane monitoring well 1 is located near Callahan, California and positioned above the floodplain by less than 10 feet in elevation, more than 200 feet adjacent to the main stem of the Scott River, on river left. This well provides critical data on groundwater conditions in proximity to, but not directly within, the active floodplain.

Groundwater temperatures are stable during winter, gradually increasing with seasonal warming to a peak of <67F in late summer, driven by ambient air temperatures and potentially influenced by surface water interactions. The distance of over 200 feet from the Scott River reduces direct hydrological interactions, with GWSE trends more influenced by local precipitation and subsurface flow rather than immediate river-stage dynamics.

The well's separation from the river suggests that its groundwater levels are more indicative of broader aquifer conditions rather than direct river-aquifer exchanges. The summer drawdown emphasizes the need for sustainable aquifer management to support regional water availability during dry periods.

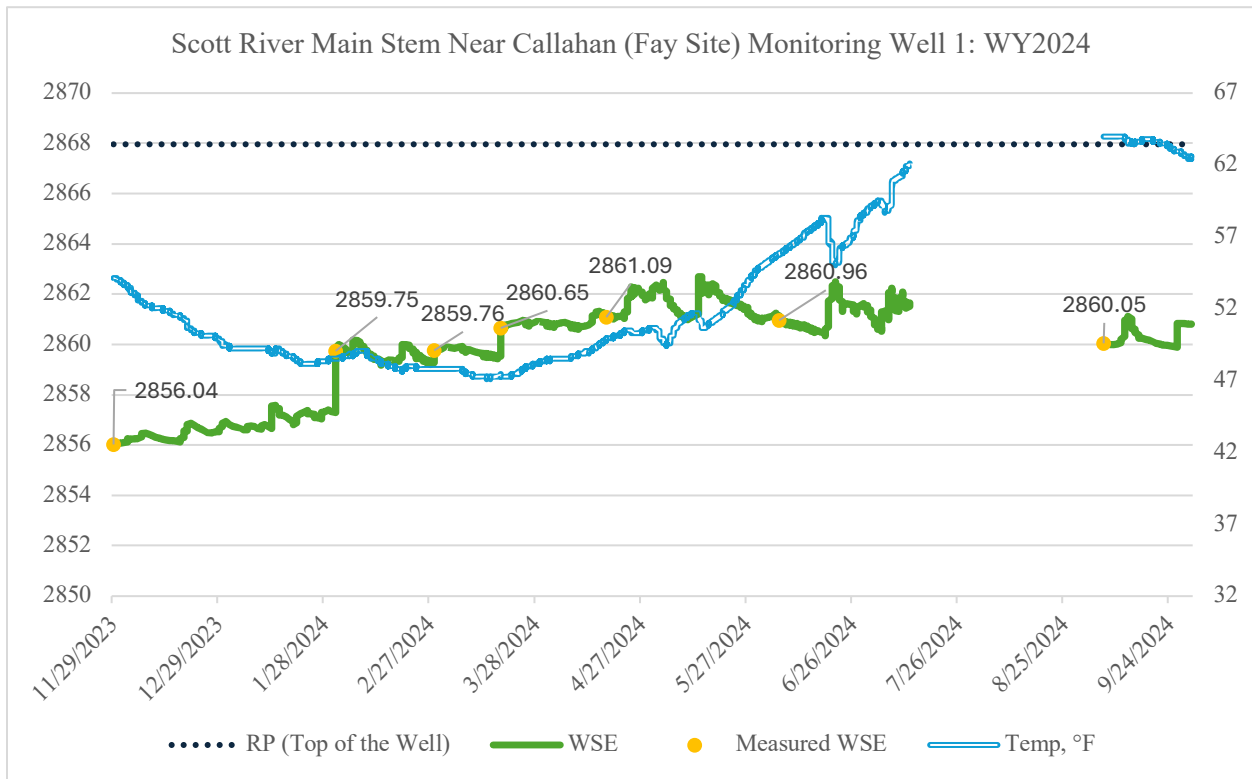


Figure 7: Scott River Main Stem Near Callahan (Fay Site) Monitoring Well 1: WY2024.

*Fay Site In-stream Flowstation Summary:*

The hydrograph for the Fay site, located near Callahan, California, captures seasonal variations in water flow (discharge) and surface water temperature across Water Year 2024. This site is situated in the upstream portion of the monitoring network and provides valuable insights into the flow and thermal conditions at the headwaters of the Scott River.

Flow patterns at the Fay site reveal a distinct seasonal trend, with peak discharges occurring during the spring snowmelt (March through May), reaching over **350 cubic feet per second (cfs)**. In contrast, late summer and early fall (July through September) recorded significantly reduced flows, dropping below **11 cfs**. This seasonal decline is consistent with diminished snowmelt contributions and increased irrigation withdrawals, which are typical for this region.

Water temperature trends mirrored these seasonal variations, with cooler temperatures during high-flow periods in the spring and elevated temperatures exceeding **72°F** during low-flow periods in the summer. These conditions underscore the critical connection between flow and thermal dynamics, with reduced flows amplifying the risk of thermal stress on aquatic species during the late summer months.

The data from the Fay site hydrograph is essential for understanding upstream contributions to the Scott River's flow and temperature regimes. This information serves as a baseline for evaluating downstream conditions and highlights the need for effective water management practices to sustain ecological health during critical low-flow periods.

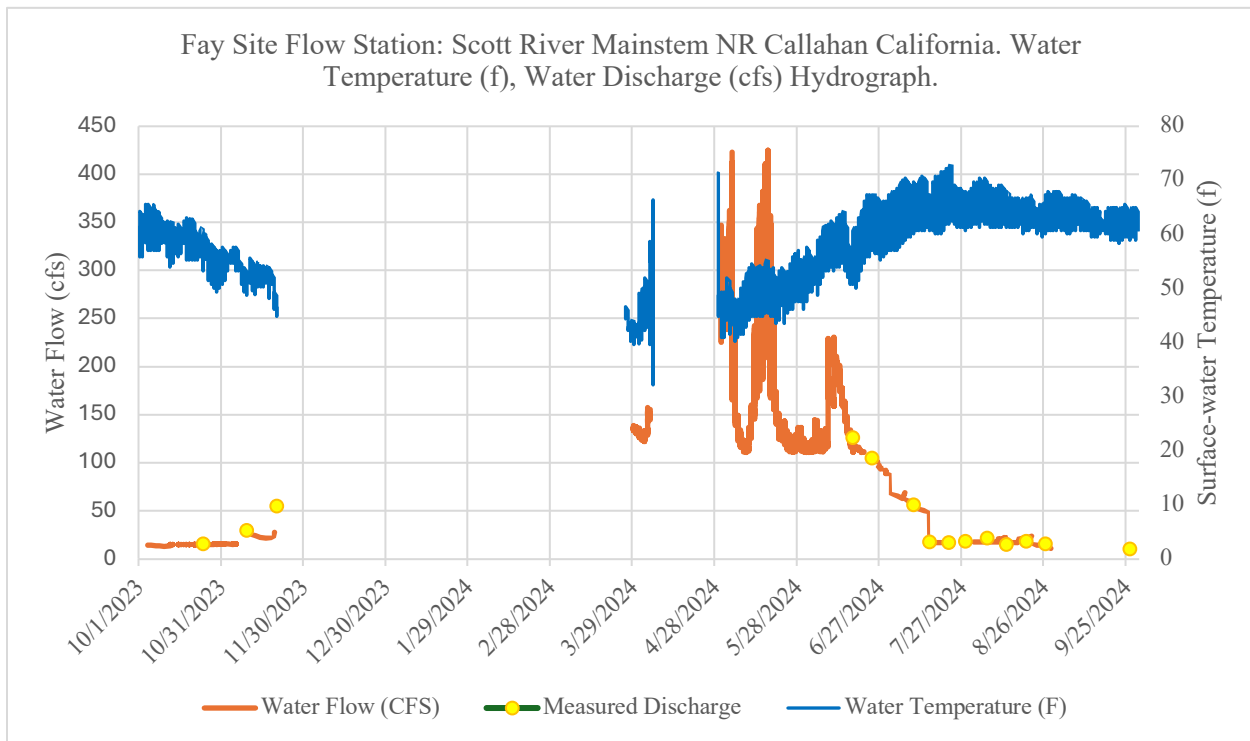


Figure 8: Fay Site Staff Gage WY2024 discharge and surface-water temperature comparison hydrograph.



*Fay Site Rating Curve Summary:*

The mining tailings upstream likely influence the flow regime by altering sediment dynamics and channel morphology, which may create deviations in the rating curve under extreme flows or channel alterations.

The observed discharge data underscores the importance of maintaining flows above low-flow thresholds during dry periods to support ecological health. The tailings area upstream may contribute to irregular flow patterns and sedimentation, necessitating targeted restoration efforts to stabilize and enhance flow dynamics. Given the sensitivity of this site to upstream conditions, continued monitoring is vital for detecting changes in the rating curve over time, which may result from sediment redistribution or restoration efforts.

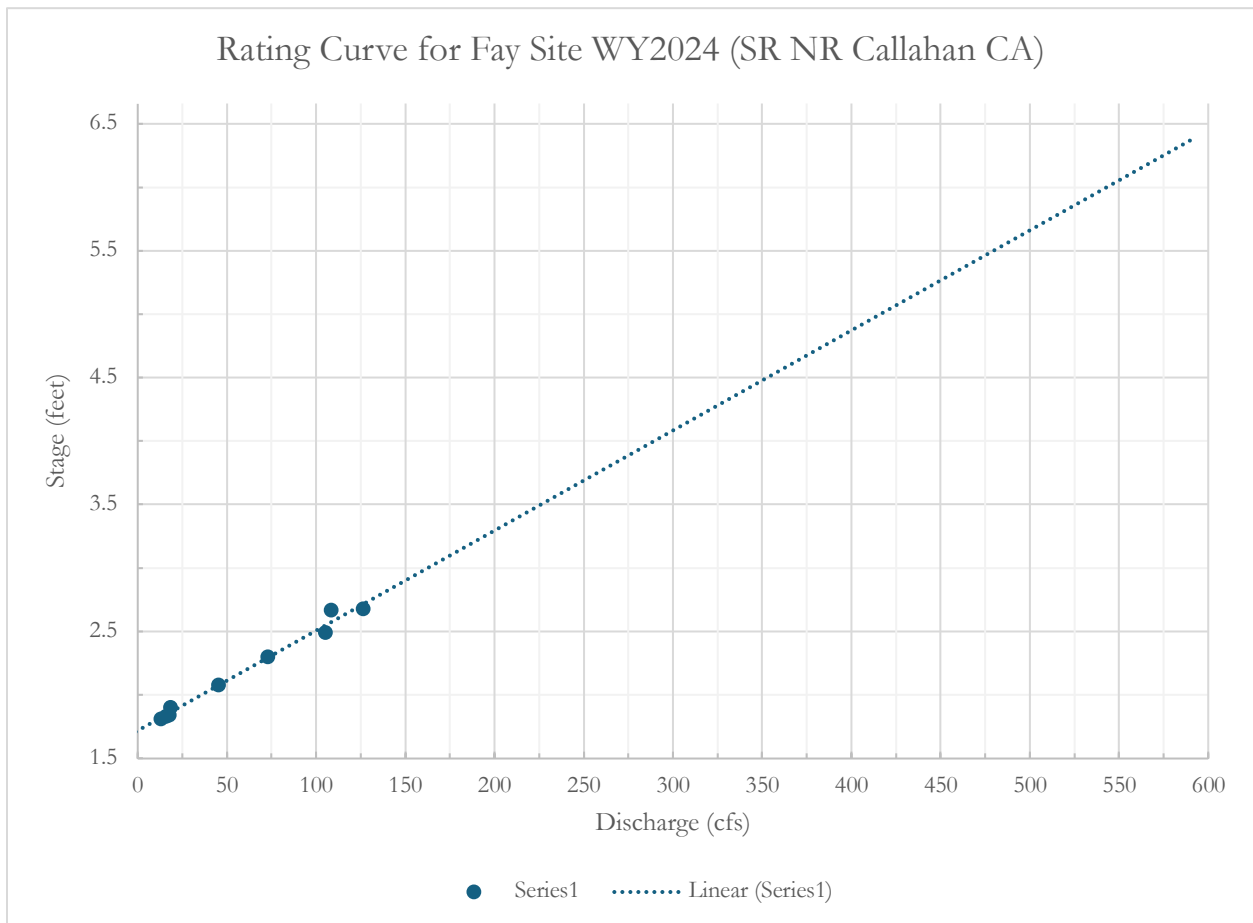


Figure 9: Rating Curve for Fay Site WY2024 (SR NR Callahan CA).

## Conclusion

The 2024 monitoring activities successfully captured hydrological and water quality dynamics in the Scott River main stem, providing critical data to inform resource management. Continued monitoring through 2025 will enhance understanding of multi-year trends and event-driven changes.

To further support data reliability and accessibility, the SRCD should prioritize permanent installations at all monitoring sites. Permanent installations will ensure the stability of monitoring equipment through high-flow events and reduce the need for frequent redeployment, which can disrupt data continuity. These installations, however, may require compliance with permitting processes and regulations, particularly regarding impacts on riparian zones or floodplain stability. The SRCD should work closely with regulatory agencies to ensure compliance while pursuing permanent solutions.

# Fieldwork Summary

## *Setup and Instrument Deployment*

October 2023: Monitoring equipment was installed at all primary sites, including staff gauges and Hobo water level loggers. Initial challenges included adjusting logger placements at Fay Lane and Horn Lane due to fluctuating river conditions and cable damage from debris.

## *Routine Monitoring and Observations*

- Flow and water quality measurements were collected approximately biweekly, with adjustments for seasonal high flows and low-flow periods.
- Winter 2023/2024: Observations indicated rising water levels due to precipitation events, with significant flows recorded in November and December (e.g., 85.26 cfs at Meamber Bridge, November 20).
- Spring 2024: Snowmelt contributed to high flow rates. Equipment was adjusted to accommodate increased flows, with notable values recorded (e.g., 126.44 cfs at Fay Lane on June 17).
- Summer 2024: Flow measurements highlighted decreasing river levels, with staff gauge readings and discharge measurements documenting low-flow conditions. Algae and sediment buildup became apparent in late summer.

## *Equipment Challenges and Maintenance*

- Equipment frequently required adjustments due to sediment deposition, debris accumulation, and cable damage. Replacement and repairs were conducted promptly (e.g., damaged cables replaced at Fay Lane on April 5).
- Data loggers were periodically disturbed for battery checks, memory downloads, and redeployment, ensuring continuous monitoring despite environmental challenges.

## *Key Findings*

1. Seasonal Flow Patterns:
  - Flow rates fluctuated significantly, reflecting seasonal precipitation and snowmelt dynamics. Notable measured high flows included 163.30 cfs (Meamber, June 21) and 126.44 cfs (Fay Lane, June 17).
  - Low-flow conditions were documented in late summer, with minimum discharge readings below 10 cfs at several sites.
2. Temperature Observations:
  - Water temperatures varied seasonally, with higher temperatures during summer months (e.g., 72°F at Fay Lane in August).
  - Temperature fluctuations correlated with diurnal and seasonal air temperature changes.

## Recommendations:

1. In the short term, the SRCD should enhance protective measures for monitoring equipment to reduce damage from debris and wildlife and expand data analysis to include correlation studies between flow dynamics and ecological parameters (e.g., fish habitat observations noted during site visits).
2. In the long term, the SRCD should investigate and pursue more project funding opportunities like this one as well as implement more technologically advanced equipment for real-time monitoring integration to improve data accessibility and reliability.
3. Plan and budget for the design and implementation of permanent installations at all monitoring sites, ensuring alignment with compliance standards and environmental regulations.

## Citations:

*Maurer, S. (2002). Scott River Coho Spawning Ground Surveys 2001-2002. SRCD.*

*Moyle, L. R. (1991, July 1). Status of Coho Salmon in California. Davis, California: UC Davis.*

## Appendices:

### A. Field Notes.

#### 10/3/23 TD

Member staff gauge 2.0 @ 1038 pst Member flow @ 1205 pst  $Q = 37.577$  cfs +/- 1.7% V mean 1.310 V max 2.044 Width 25.399 Area 28.684 ft<sup>2</sup> Depth 1.13 max 1.65 Temp 60f Staff gauge 2.0 @ 1217 pst

10/3/23 Fa231003

Staff gauge 1.5 @ 9:35 pst Air 19c Water 17c Flow measurement 15.3032 cfs Width 22.2 Mean depth 1.107 ft Area 24.5695 ft<sup>2</sup> Temp 62.155f Vmean 6229 Vmax 1.0984 Uncertainty 2.75% GPS N41.234484 W122.505551 Staff gauge 1.5 @ 11:20 pst

10/3/23

Horn lane HO231003 Staff gauge 1.59 @ 11:59 pst Air 19 c Water 17 c @ 12:29 pst Flow measurement 14.0236 ft<sup>3</sup>/s Width 16.5 Depth .534 Temp 61.914 f Vmean 1.5911 Vmax 2.2654 Q uncertainty +/-5.54% GPS 41.272475 W122.510767 \* Not a good reading lots of Debre in the flow.

#### 10/6/23 TD

Horn lane Staff gauge 1.57 @ 0915 pst Air 14c Water 14.5c Disturbed device (Hobo data logger) @ 0937 pst redeployed device 1040 pst in new housing. Noted damage to data cable appx 18 inches from device, wires exposed inside.

#### 10/10/23 CJ, TD

9:18 PST Fay Lane well 1 Well sounding @ 8.08 ft @v 9 am pst Hobo water logger S/N 21773417 Battery status Good 0% memory Fay Lane well 1 Launched the device 9:24 pst Deployed device 9:28 pst

#### 10/10/23 CJ, TD

10:21 PST Youngs dam well 1 Well sounding @ 10:10 pst 12.56 Hobo water logger S/N 21773408 Battery status good 0% memory Youngs Dam well 1 Launched the device @ 10:28 pst.

#### 10/10/23 TD, CJ

Horn lane well1 11:14 pst Well sounding 12.35@ 11:12 pst Hobo water logger S/N 21182935 Battery status good 21% memory Horn Lane well 1 Launched device 11:23 pst Deployed device 11:30 pst

**10/10/23**

Horn lane staff gauge 1.57 @ 11: 48 pst Instream S/N 21615265 Launched 11:52 pst Deployed 11:56 pst new hobo logger S/N 21229424 Battery Good 0% Memory. \* Deployed new logger due to damaged cable on the other one.

**10/10/23 TD, CJ**

Meamber Well sounding 8.22 ft @ 1330 pst S/N 21773412 Hobo logger Battery good 0% memory used Launch @ 1:37 pst Deployed @ 1:40 pst \* Needs lid.

**10/13 TD**

Capped stilling well at meamber, removed coupler to place cap, resulted in logger dropping approximately 2 inches.

**10/19/23 TD**

Horn lane staff gauge 1.675 ft @ 12:39 pst Flow 26.0621 cfs +/- 2.12% @ 1430 pst Staff gauge reading 1.675 ft Water 58.7 f

**10/24/23 TD**

Fay lane Staff gauge 1.52 ft @ 1049 pst Flow = 16.024 cfs +/- 2.8 % Water 55.61 F

**10/24/23 TD**

Youngs dam SVID is open. Staff gauge 3.25 @ 1120 pst

**10/24/23 TD**

Horn lane Staff gauge 1.8 ft @ 1140 pst Noted 8 potential redds and 4 or 5 chinooks.

**10/24/23 TD**

Meamber Staff gauge 2.13 ft @ 1238 pst Increments of .6 for measurement. Noted 2-3 chinook present and 3 more that passed by heading upstream while taking flow measurement. Flow 44.127 cfs +/- 1.86% Staff gauge 2.15 ft @ 1400 pst Temp 53.813f Air temp 13.8 c Water temp 12.50 c

**11/9/23 TD**

Meamber Staff gauge reading 2.4 ft @ 14:10 pst Air 9 c Water 9.5 c Flow measurement attempted/ Battery failed.

**11/9/23 TD, CJ, JM**

Staff gauge 2.23 ft @ 11:10 pst Water 8 c Air 5c Flow 55.0365 cfs +/- 3.81 uncertainty Mean depth 1.225 ft Area 66.6425 ft/s Vmax 1.2838 Vmean .8258 Temp 47.567f

**11/9/23 CJ, JM**

Fay lane Staff gauge 1.7 ft @ 2:00 pst Air 13 c Water 19c Flow 30.4542ft3/s Mean depth 1.291 Area 29.1735 ft2 Temp 52.901 f Vmean 1.0439 Vmax 1.6846 Uncertainty +/- 2.35%

**11/20/23 JM, CJ**

Fay lane FA231120 Flow 55.612 ft 3/s Width 23.7 Mean depth 1.474 ft Area: 34.9295 ft Temp 48.021 f Vmean : 1.5921 Vmax 2.4712 Uncertainty +/- 2.22% Staff gauge: 1.9 ft Air temp 18 c Water 9 c

**11/20/23 TD**

Meamber Air 10c Wter 8.5c Staff gauge 2.66 @ 1220 pst Flow 85.260 +/- 1.2% Temp 46.7 Vmean 2.162 Vmax 3.405 Depth mean 1.68 max 2.15

**11/28/23 CJ, TD**

Meamber Disturbed @ 1355 pst Well sounding 7.88 ft @ 1357 pst Hobo logger, data logger S/N 21773142 Removed from well and returned to office field computer down.

**11/28/23 CJ, TD**

Disturbed @ 1442 pst Well sounding 7.8 ft @ 1449 pst Hobo data, logger S/N 21773417 Removed from well returned to office.

**11/28/23 CJ, TD**

Horn lane Well Hobo logger Disturbed @ 1111 pst Well sounding 11.87 ft @ 1517 pst Hobo logger S/N 21182935 Removed from well returned to office.

\*Horn lane Water level logger Flo station disturbed at 1539 pst S/N 21229424 Removed for return to office. Flow station Staff gauge left in place. River levels could come up at least 1 foot before it will require removal.

**11/29/23 CJ**

Horn lane232911 Hobo logger S/N 21229424 Battery status 22% memory used

**11/29/23 CJ**

Fay lane well1 232911 S/N 21773417 Battery status good 22% memory used.



**11/29/23 CJ**

Horn lane well1 232911 S/N 21182935 Battery status good 22% meory used.

**11/29/23 CJ**

Meamber well1 232911 S/N 21773412 Battery status goodb22% memory used.

**11/29/23 TD, CJ**

Meamber well hobo logger S/N 21773412 deployed @ 11:19 pst with deployed start set @ 3 pm  
pst Well sounding 7.88 ft @ 11:15 pst

**11/29/23 TD,CJ**

Fay lane well well sounding 7.82 ft @ 1202 pst Hobo logger S/N 21773417 deployed @ 1205  
pst with delayed start set to 1500 pst

**11/29/23 TD, CJ**

Horn lane well sounding 11.91ft @ 1345 pst Hobo water loggerS/N 21182935 deployed @ 1354  
pst with delayed start set to 1500 pst.

**11/29/23 TD, CJ**

Horn lane Staff gauge 2.07 ft @ 1332 pst Moved Flow tracking station slightly upstream due to  
changing river conditions saw 1 live fish , possibly coho.

Flow+ 50.0873 cfs +/- 3.71% Width: 53.9 Depth mean : 1.339 Vmean : 0.6941 Vmax: 1.0588  
Temp: 45.485 Staff gauge 2.08 ft @ 1455 pst

**11/31/23 CJ, JM**

Meamber bridge well1 well sounding 7.7 ft @ 10:45 pst Hobo logger not disturbed. Well, gps  
N41.39400 W122.83356

**1/31/24 CJ, JM**

Fay lane well1 well sounding 6.2 ft @ 11:15 pst Hobo logger not disturbed Well Gps N41.39381  
W122.83350

**2/28/24 CJ, JM**

Meamber well1 well sounding 5.19 @ 11:13 pst Hobo logger not disturbed Air temp 32f

**2/28/24 CJ, JM**

Fay well1 well sounding 7.10 ft @ 12:08 pst Hobo logger not disturbed Air temp 38f

**2/28/24 CJ, JM**

Horn well1 well sounding 9.81 ft @ 12:38 pst Hobo logger not disturbed Air temp 38f

**3/18/24 CJ, ES**

Meamber bridge well1- .55 feet from the ground level to well top with cap. Meamber well Gps N41.62920 W122.95750

Well sounding @ 11:58 pst is 2.5 ft Hobo logger disturbed @ 12:02 pst S/N 21773412 Battery status good Memory used 22% Last Launch 11/29/23 Downloaded and relaunched end of June 2024 File name Meamber well1 \_24318 to Evans laptop Relaunched @ 12:12 pst

**3/18/24 ES, CJ**

Fay well1 1.84 ft from ground to top of well with no cap on GPS N41.39381 W122.83350 Well sounding @ 1:08 is 7.3 ft Hobo logger disturbed @ 1:11 pst S/N 21773417 Battery status good Memory used 49% Recommend relaunching same as meamber . File name Faylane well1 \_24318 to Evans laptop redeployed @ 1:16 pst Well sounding 7.3 ft

**3/18/24 CJ, ES**

Horn lane .99 ft from ground to top of well with no cap GPS N41.45711 W122.85148 Well sounding @ 1:54 pst is 10.22ft Hobo logger disturbed @ 2:00 pst S/N 21182935 Battery status good Memory used 49% Recommend relaunching same as others in June File name Horn Lane well1 \_24318 saved to Evans laptop Redeployed @ 2:05 Well sounding 10.22 ft

**3/19/24 CJ, KI**

Horn lane Staff gauge install 3ft @ 1:24 pst Deployed @ 1:24 S/N 21787629 Started logging @ 1:30 PST Put in flow station post Air 19c Water 13c GPS N41.45687 W122.8518

**3/20/24 CJ, ES**

Meamber bridge staff gauge and flow station set up S/N 21787628 Hobo logger S/N 21615269 Water conditions were too high to safely put in equipment will try again at later date.

**3/26/24 CJ, KI, JM**

Fay lane install Hobo water level station S/N 21787627 Water level sensor S/N 21137383 Air 7c Water 15c @ 11:54 Started logging @ 12:27 pst Staff gauge 3.0 ft @ 12:39 pst Weather: overcast but warm out.

**3/27/24 JM, CJ**

Fay lane Heavy rain went to check on gauges everything is secure Air 4c Water 5c @ 8:55 pst  
Staff gauge 2.75ft \* Even tho more water river bed widened causing level to go down. -CJ

**3/28/24 KI, CJ**

Fay lane Air 9c Water 5c @ 11:35 PST Staff gauge 3.0 ft Disturbed @ 11:49 pst redeployed @  
12:27 pst Staff gauge was moved from T post to wood pier Staff gauge 3.0 ft

**4/4/24 CJ**

Fay lane Air 18c Water 11c Disturbed logger for repair on stand as high water has pushed it up  
@ 11:15 pst took whole station put on bank until tomorrow.

**4/5/24 ES, CJ**

Fay lane Air 20 c Water 13c Removing from stilling well attaching and putting Tpost  
Redeployed @ 11:30 pst reestablished staff gauge to T post. Staff reading 3.03 ft

**4/6/24 ES, CJ**

Fay lane Brake in cable checking connection seems to be logging will check at interval and make  
plan for further installment Air 20c Water 11c

**4/9/24 CJ, KI**

Meamber bridge Air 20c Water 13 c @ 12:59pst Well sounding @ 1:03 pst is 4.9 ft Nice Sunny  
day very warm, river is high and strongly flowing.

**4/16/24 TD, CJ, JM**

Air 9c Water 9.5 c Flow measurement attempted/ Battery died.

**4/17/24 JM, TD, CJ**

Meamber well1 Well sounding @ 12:02 pst is 3.5 ft Nice sunny day, river is high and swiftly  
flowing.

**4/17/24 TD, CJ, JM**

Fay well1 well sounding 6.86 ft @ 12:57 pst Air 25 c Water 10 c Sunny warm day no clouds.

**4/17/24 TD, CJ, JM**

Horn well1 well sounding 9.07 ft @ 2:17 pst Air 18 c

**4/19/24 TD, JM, CJ**

Horn lane warm and sunny high flows and depth Air 22c Water 7 c @ 11:14 pst Staff gauge submerged/ Not measured.

**4/23/24 TD, JM, CJ**

Meamber bridge High depth, fast flow from warm weekend Air 24c Water 9c @10:57 pst.

**4/26/24 ES, CJ**

Meamber bridge placed station and ran wire thru congruent and deployed Hobo logger @ 11:35 pst Shows connected and logging but sensor needs configuring which Evan will check equipment next week , Weather is windy and raining ,river is very high and full. Air 20 c Water 16c

**4/29/24 ES, CJ**

Fay lane Replaced cable and deployed logger @ 11:59 pst Warm day, clouds in and out. River is very high saw a fish jump!

**4/29/24 ES, CJ**

Meamber bridge Restarted device @ 12:59 moved Hobo logger further out into channel Disturbed @ 1:15 pst placed atrial camera @ device spot to see if we can capture Beaver as there are signs. Day was warm river has gone down abit river bed visable on right bank.

**4/30/24 TD, CJ**

Meamber bridge sunny and cold Well saounding 3.73 ft @ 10:50 pst Air 15c Water 8 c @ 10:51pst

**4/30/24 TD, CJ**

Horn lane Air 20 c Water 8 c @1:15 pst Well sounding 9.16 ft @v1:25 pst Staff gauge submerged.

**4/30/24 JM, CJ, TD**

Fay lane Well sounding 6.09 @ 2:15 pst

**5/17/24 CJ, TD**

Fay lane Highest River level yet placed rocks to bury conduit.

Beautiful sunny day.

**6/5/24 ES, CJ**

Meamber well1 well sounding 3.95 @ 10:05 pst Air 52 f Water 8c overcast warm day river has gone down but still very high.

**6/5/24 ES, CJ**

Fay bridge well sounding 6.99@ 11:20 pst Air 55f Water 9 c sunny and cloudy.

Flow is still fast maybe able to flow track soon.

**6/5/24 CJ, ES**

Horn well1 well sounding [8.38@11:58](#) pst Air 56 Water 9c

**6/10/24 CJ, ES**

Tried to put in staff gauge on the river right side of fay bridge water is down but cfs is still really high and I couldn't successfully cross. Condition is hot and sunny skies are clear. Has been sunny all week.

**6/17/24 ES, CJ**

Fay lane preliminary stage 2.54 installed new staff gauge downstream of bridge river left plus new cross section for flow measurements: Staff gauge 2.68 @ 9:47am pst Air 79f Water 56f Flow measurement 126.4372 Width 58.2 Mean depth 1.41 Area 82.56 ft sq Temp 56.82 Uncertainty 3.61.

**6/21/24 CJ, ES**

Meamber Staff gauge 1.05ft @ 10:15 pst Air 82f Water 62 f hot sunny clear day. River has

come down .9 Flow measurement 163.3009 Width 61 Temp 64.413 Uncertainty 3.52

**6/24/24 ES, CJ**

Fay staff gauge 2.49 @ 11:35 am pst warm sunny clear day Air 88f Water 62f Flow tracker discharge 105.148 Width 55 depth 1.141 avg water temp 64.975 Uncertainty score Q =3.23% Start time 12:35 end time 1:47 pm

**6/28/24 CJ, ES**

Horn staff gauge 1.89

**7/1/24 KI, CJ**

Fay lane staff gauge 2.30 @ 8:26 am pst Air 19c Water 15c Nice warm day blue skies water is lower. Flow tracking discharge 12.8258 ft Width 55.1 ft Temp 59.808 f QV 0.0262 ft Uncertainty 3%

**7/3/24 KI, CJ, ES**

Horn lane staff gauge 1.70ft @ 10: 15 pst Air temp 38c Water temp 15 c warm day blue skies. Installed Hobo logger and put cable in conduit. Flow tracking Discharge 97.5359 ft Width 60 ft Temp 58987 QV 0.023 FT/S Uncertainty 3.42 Deployed RX logger and pressure transducer in river at horn 9:30 am.

77-2 book two Field notes

**5/29/24 ES, CJ**

Horn lane staff gauge 3.93 @ 10:08 pst

**7/9/24 ES, CJ**

Fay lane staff gauge 2.08 @ 8:45 pst Flow tracking reading: flow 45.2992 cfs Mean depth 0.889  
Temp 61.861 (water) Q% 3.91 measurement start: 8:40 am pst End: 9:30 am pst

**7/11/24 ES, CJ**

Horn lane staff gauge 1.21 @ 9:12 am pst Discharge : 56.5794 cfs Width : 55 Temp 62.104 Q:  
4.64%

**7/15/24 ES, CJ**

Horn water temp 17c Air temp 30c / smoky and sunny Staff gauge 1.90 @ 10:35 am pst  
Construction issue with rx station

Fay water temp 63f Air temp 31c / less smoky, hot, sunny Staff gauge 1.95 @ 11:13 am pst \*  
Found staff gauge CJ & KI installed in March/ April Flow tracker Discharge 18.2849 cfs Width  
47 ft Temp 67.213 f Mean depth 0.82 Q : 3.24 % End time 12:30 pm pst

**7/17/24 ES, CJ, KI**

Horn lane Air 35c Water 18c Nice hot day, light smoke. Staff gauge 1.1 ft @ 9:05 pst Flow  
tracker Discharge is 39.3666 Width 52 ft Temp 62.164 Mean depth .686 QV 3.29 % End time  
10:44 am pst Horn lane juvenile fish survey started CJ, KI, ES

**7/19/24 ES, CJ, KI**

Meamber bridge Flow tracking Staff gauge reading 1.22 ft @ 9:02 am pst Air 30c Water 17c  
Moved flow station and staff gauge downstream as river channel has lowered a lot forming  
smaller bank width. Flow tracker discharge 41.9397 ft<sup>3</sup>/s Width 26 ft Temp 65.438 f Mean  
depth 0.79 ft QV2.73% End time 10:10 pst

**7/22/2024 CJ, KI**

Fay lane flow tracking Staff gauge Reading 1.84 ft @ 8:08 pst Air 27c Water 64 f Moved flow  
station just above old station as water has lowered and river bank width shorter. Hot smoky day.  
Flow tracker discharge 17.6215 cfs Mean depth 0.742 Temp 64.476 uncertainty 4.62% Width  
47.5 End time 9:02 am pst

**7/28/2024 CJ, NH**

Fay bridge Air 25c Water 20c Nice warm day mild smoke in the air, river is low Staff gauge 1.8 @ 10:15 am pst Flow tracker discharge 18.9106 cfs Mean depth 1.051 ft Temp 71.729 Uncertainty 3.54 % Width 49.4 f

End time 2:38 pst

### **7/31/2024 CJ, NH**

Horn lane Staff gauge reading 1.07 @ 12:00 pst moved staff gauge Flow tracker discharge 33.0579 cfs Width 47.3 Temp 69.057 f QV 0.0141 f Uncertainty 3.19 % Water 72 f Air 86f Clear skies very little breeze warm day no smoke. New staff gauge spot reading 1.54f

### **8/2/2024 NH, CJ**

Meamber bridge Staff gauge reading .84ft @ 9:45 pst Air 84f Water 62f Nice sunny day a little overcast with a nice breeze. Water is low. Flow tracker discharge 19.7385 cfs Width 24ft Temp 69.385f QV 0.0326 ft/s Uncertainty 3.68%

### **8/5/2024 CJ, NH**

Fay lane Staff gauge reading 1.84 ft @ 9:48 am pst Water 68f Air 89f Hot day clear calm sky river has risen some. Saw some baby crawfish near bank. Flow tracker discharge 21.8842 cfs Width 49ft Uncertainty 3.9 % QV 0.0064 FT Temp 68.105 f

### **8/7/2024 NH, CJ**

Horn lane staff gauge reading @ new spot 1.44 @ 8: 53 am pst Air 70 f Water 62f Hazy warm day had to move flow line back as river continues to lower and we needed a fuller river bank width. Flow tracker discharge 8.5324 cm/8 =27.9934cfs ES Width 56 ft Temp 18.047 c QV 0.0015 Uncertainty 3.28% Largest uncertainty 2.41%

### **8/8/2024 CJ, NH**

Well sounding Meamber well1 8.8 ft Air 72f Water 62f Fay bridge well1 7.8 ft Horn bridge well1 12.45 ft

### **8/9/2024 CJ, NH**

Meamber bridge Air 82f Water 63 f Staff gauge reading .64 @ 10: 04 am pst Hazy hot day. Discharge 2.2909m/s =7.51607 cfs Width 22.5 Temp 19.498c QV 0.0087 Uncertainty 4.59% Largest 4.45%

### **8/12/24 NH, CJ**

Fay bridge Staff gauge 1.83 ft @ 9:02 am pst Warm smoky day from Orleans fire Air 78f Water 72 f Flow tracker discharge 15.863 cfs width 46ft Temp 66.002 f QV 0.0048 f Uncertainty 2.6%



### **8/15/2024 CJ, NH**

Horn lane Staff gauge 1.43ft Air 74c Water 67c cool morning hazy some smoke. Discharge 23.4448 cfs Uncertainty 3.01 Width 55 ft Temp 62.441f QV 0.0041 ft White crane fishing 1.7 is the perfect increments for flow line.

### **8/16/2024 NH, CJ**

Staff gauge reading .82 ft Hot sunny day water continues to lower had to move flow line may move again flow discharge 5.0436 cfs Width 24 ft Temp 65.952f Qv 0.0166 ft Uncertainty 4.98% Largest 4.44% \* saw a hundred or so Juvenile fish.

### **8/19/2024 NH, CJ**

Fay lane Staff gauge 1.84 ft Air 77f Water 64f Nice day blue skies with some clouds. Moved flow tracking station down river past the rapids. Cleared new area of layers of large rocks to make a clear clean line. Flow tracker discharge 19.1085 cfs Temp 67.9 f Qv 0.018f Uncertainty 3.86% Largest 3.24% Width 34 ft

### **8/21/24 NH, CJ**

Meamber bridge Staff gauge reading .69 Nice sunny day water has gone up abit from weekend rain Water 61c Air 84c Discharge 7.9366 cfs Temp 66.731f QV 0.0194 ft Uncertainty 4.24% Largest 3.84% Width 19 ft

### **8/21/24 NH, CJ**

Horn bridge Staff gauge reading 1.45 ft Nice hot sunny day saw a huge leech! Air 72f Water 69f Discharge 23.1722 cfs Width 44.5 Temp 67.039 QV 0.0039 Uncertainty 2.62 % Largest 2.62% Staff gauge 1.45 ft

### **8/26/24 CJ, NH**

Fay lane staff gauge reading 1.84ft @ 9am pst we disturbed the hobo logger to install a cinder block to stabilize logger from moving Disturbed 9:25 pst Deployed @ 9:31 pst Air 78f Water 64f Flow tracker discharge 15.9312 cfs Width 28ft Temp 66.799f 2<sup>nd</sup> staff reading 1.84 ft QV 0.0184 ft Uncertainty 3.72% Largest 2.95%

### **8/27/24 CJ, NH**

Meamber bridge Staff gauge reading .85 ft @ 9:45 am pst We are disturbing hobo logger to put in cement block as anchor for logger. Disturbing hobo logger @ 9:48 pst Relaunching @ 9:56 pst Staff gauge reading 1.85 ft Water 66f Air 72f Disturbing hobo logger station @ 10:09 am pst to rearrange wire plugged back in @ 10:31 am pst

### **8/28/24 CJ, NH**

Meamber bridge Staff gauge reading .83 @ 9am pst Air 70f Water 60f Hot sunny day site visit with 77-2 funder. Flow tracking discharge 15.8011 ft<sup>3</sup>/s Width 22ft Temp 65.537f Vmean 1.1534 QV 0.0254 ft/s Uncertainty 3.54% Largest 2.97% Staff gauge .83 ft

### **8/30/24 CJ, NH**

Horn lane Staff gauge 1.31 ft @ 10:04 am pst Hot sunny day clear blue skies Air 88f Water 68f Disturbing hobo logger to encase with cinder block for stability. Disturbed @ 10:08 am pst relaunched @ 10:16 pst Staff gauge reading after cinder block 1.31 ft warm day clear skies calm. Flow discharge 13.3397 cfs Width 32ft Temp 65.787f Vmean 0.3822 QV 0.003 ft/s Uncertainty 2.11% Largest 1.62%

### **9/5/24 NH, CJ**

Fay lane well1 well sounding @ 7.9ft @ 8:55 am pst Disturbing hobo logger 9am pst Battery status good memory used 100% @ 9am pst logger was stopped at full relaunched @ 9:14 am pst 2<sup>nd</sup> well sounding @9:16 am pst 7.9ft Air 85f Water 62f Staff gauge reading was 1.8ft did not flow track as it was a duplicate. Hot sunny day Alge and slime along north bank gross!

### **9/5/24 NH, CJ**

Well sounding @ 12.6 ft @ 10:36 am pst Air 82f Water 62f Staff gauge 1.30ft Duplicate so did not flow track. Beautiful day hot and sunny water flowing nicely.

### **9/5/24 CJ, NH**

Meamber bridge well sounding @11:48 pst 8.75 ft Disturbed hobo logger @ 11:54 am pst Battery status good Memory used 64 of 64 100% Relaunched @ 11:58am pst 2<sup>nd</sup> well sounding 8.75 Staff gauge reading .91ft @12:09 pst duplicate so no flow measurement taken. Hot sunny day river has went up since last time here 8/28/24 Air 82f Water 64f

### **9/9/24 NH, CJ**

Site checks at Fay and Horn. clear Hot day

Fay Water 62f Air 77f Staff gauge 1.82 ft No flow tracking due to a duplicate Staff reading. Green Alge and sludge.

Horn lane Water 59f Air 78f Staff gauge 1.29ft No flow tracking due to duplicate staff reading.

### **9/11/24CJ, NH**

Horn site check raining and gloomy day. Staff gauge 1.21 ft no flow tracking due to staff reading Water61f Air 58f River has gone down slightly. Meamber site check raining and gloomy Staff gauge reading 1.9ft Water 62f Air 54f No flow tracking duplicate reading.

### **9/13/24 NH, CJ**

Fay site check Staff gauge 1.78 ft Air 62f Water 65f Warm day clear skies No flow tracking

### **9/13/24 CJ, NH**

Horn lane Staff gauge reading 1.24 @ 11: 43 am pst Had to move staff gauge as island popped up in middle of flow station. Water went down even after rain showers early in the week 9/11/24 New flow line is north of staff gauge. Air 84f Water 64f saw a bunch of frogs took a picture. Flow tracker reading @ 12:21 pst discharge 27.3968 fts/s Width 14.5ft Temp 62.512 Vmean 1.4122 QV 0.0199ft/s Uncertainty 2.04% Largest 1.37%

### **9/16/24 CJ, NH**

Meamber bridge Staff gauge reading .97 @ 10:45 am pst Overcast cloudy day rain over weekend made water come up. Air 78f Water 59f Flow tracker discharge 22.4624 ft<sup>3</sup>/s Width 20.3 ft Mean depth 0.754ft Temp 60.632 Vmean 1.4673 QV 0.0293FT/S Uncertainty 2.76% Largest 2.45% saw a beaver or otter at our staff gauge.

### **9/18/24 NH, CJ**

Fay lane Staff gauge 1.86 ft @ 8:53 pst duplicate staff reading. Air 65f Water 60f

### **9/18/24 CJ, NH**

Horn lane Staff gauge reading 1.46 ft Water 60f Air 68f river went up from recent rain fall. Saw a large red tail hawk flying above.

### **9/25/24 NH, CJ**

Meamber bridge Staff gauge reading 1.12 ft @ 9:55 pst 9:57 pst adjusted hobo logger because it was buried in sand. Nice cool day slightly cloudy. Flow line is @ .7 across line. Flow measurement 33.0337 ft<sup>3</sup>/s Width 22ft Mean depth 0.904 ft Area 19.895ft<sup>2</sup> Temp 61.115f Vmean 1.6602 QV 0.0311ft/s Uncertainty 2.48% Largest 2.1%

### **9/26/24 CJ, NH**

Horn well sounding 12.58 ft Water 60f Air 70f Staff gauge 1.36ft Clear cool day.

Fay lane well sounding 7.1 ft Water 63f Air 81f Staff gauge 1.77 ft Discharge 10.6516 cfs Depth 0.817 Area 22.871 ft Width 28 ft Temp 63.028 Vmean 0.4657 Qv 0.0136 Uncertainty 4.22 %

Meamber well sounding 8.3 ft Air 83f Water 61f Staff gauge 1.1 ft

### **9/30/24 CJ, NH**

Horn bridge Staff gauge 1.3 ft duplicate reading Water 61f Air 75f Nice cool sunny day no clouds.

**9/26/24 CJ, NH**

Horn well sounding @ 12.58ft Water 60f Air 70f Staff gauge 1.36 ft Clear cool day.

**9/26/24 NH, CJ**

Fay lane well sounding @ 7.1 Water 63f Air 81f Staff gauge 1.77 ft flow tracking discharged 10.6516 Depth 0.817 Area 22.871 Width 28ft Temp 63.028 f Vmean 0.4657 QV 0.0136 Uncertainty 4.22%

9/26/24 Meamber well sounding @ 8.3 ft Air 83f Water 61f Staff gauge 1.1 ft

**9/30/24 NH, CJ**

Horn lane Staff gauge reading 1.3 ft duplicate staff reading no flow tracking Water 61f Air 75f Nice cool sunny day no clouds.

b. Data Tables.

Index Reach	Reach Description	Downstream River Mile	Upstream River Mile	Total Length (miles)
8	Below Meamber Bridge	21	24.4	3.4
9	Dutton to Meamber Bridge	24.4	28.6	4.2
10	Hwy 3 to Dutton	28.6	35.5	7
11	Hwy 3 to Etna Creek	35.5	41.1	5.5
12	Etna Creek to Horn Lane Bridge	41.1	44.7	3.6
13	Horn Lan Bridge to Youngs Dam	44.7	46.5	1.8
14	Youngs Dam to Fay Lane	46.5	48.6	2.1
15	Fay Lane to Callahan	48.6	52.2	3.6
16	Above Callahan	52.2	59.1	6.9
<b>Totals</b>				<b>38.1</b>

Table 2: Scott River Valley Index Reach Table.