Sonoma Water

New Eel-Russian Facility (NERF) Modeling Analysis July 9, 2026

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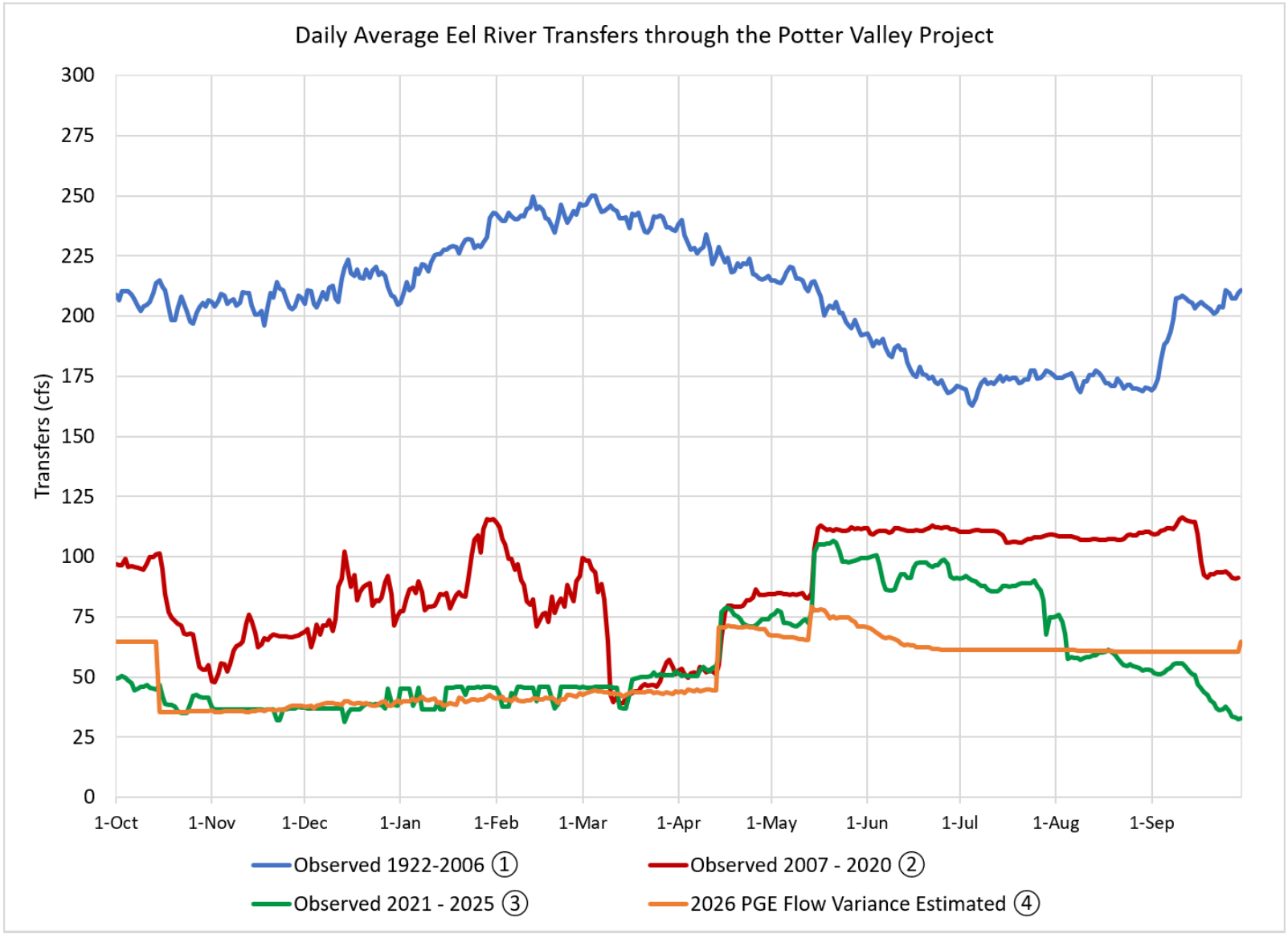
Lake Mendocino
4/9/2022: USACE

Presentation Overview

- Sonoma Water has been modeling how transfers from the Eel River to the Russian River will be different than historical diversions as a result of the decommissioning of the Potter Valley Project and the construction of the New Eel-Russian Facility (NERF) .
- This modeling is made more complicated by major changes in the diversion rules implemented over the last 20 years as a result of the 2004 FERC License Amendment, the transformer bank failure, seismic risk assessment that reduced operational storage capacity at Lake Pillsbury, major drought, and FERC flow variances.
- Under the NERF rules, there is water for diversion in all year types, even drought years such as 2020 and 2021, and water would have been diverted in water years 2025 and 2026.
- In general, the average annual water available to be transferred through NERF under the Water Diversion Agreement each year is similar to transfers under the 2004 FERC License Amendment, but we need more Russian River storage to maximize those transfers because of change in seasonality of the transfers.
- The Eel-Russian Project Authority continues to lead the effort to design, permit, and construct NERF so that water can continue to be diverted. Design and permitting are currently 100% funded.

Historical Eel River Transfers



① **Water Years 1922-2006:**

Post Scott Dam construction, Pre-2004 FERC License Amendment

Average WY Volume: ~150,000 ac-ft

② **Water Years 2007-2020:**

Pre-2004 FERC License Amendment

Average WY Volume: ~64,000 ac-ft

③ **Water Years 2021-2025:**

Post transformer bank failure, Scott Dam seismic risk determination, and major drought

Average WY Volume: ~42,000 ac-ft

④ **Water Year 2026 Estimated:**

Estimated average transfers with FERC Flow Variances until NERF construction

Average WY Volume: ~38,000 ac-ft

Eel River Transfer Analysis: 2 Operational Scenarios

Scenario #1: Observed (reported values)

- Eel River Transfers = observed (reported values)
- Lake Mendocino storage and outflow = observed (reported values)

Scenario #2: NERF Modeled

- *Eel River Assumptions*
  - Flow at Cape Horn Dam (NERF Facility)
    - Calculated using reported/estimated values from Scott Dam, Cape Horn Dam, and Potter Valley Project transfers
  - Transfer Operations (NERF Operations)
    - Consistent with the 2025 Water Diversion Agreement (WDA) Terms (Table 1)
    - Developed to allow transfers through the NERF while being protective of salmonid life stages in the Eel River

	Fall Flows	Winter Flows	Spring Flows	Summer Flows
	Oct 1 – Dec 31	Jan 1 – Feb 29	Mar 1 – May 31	June 1 – Sept 30
Floor (cfs)	300	250	125	35
Diversion Rate (% of flow)	20%	30%	20%	20%
Additional Rules	Require 1 freshet over 500 cfs	N/A	N/A	N/A

Table 1: NERF operation assumptions

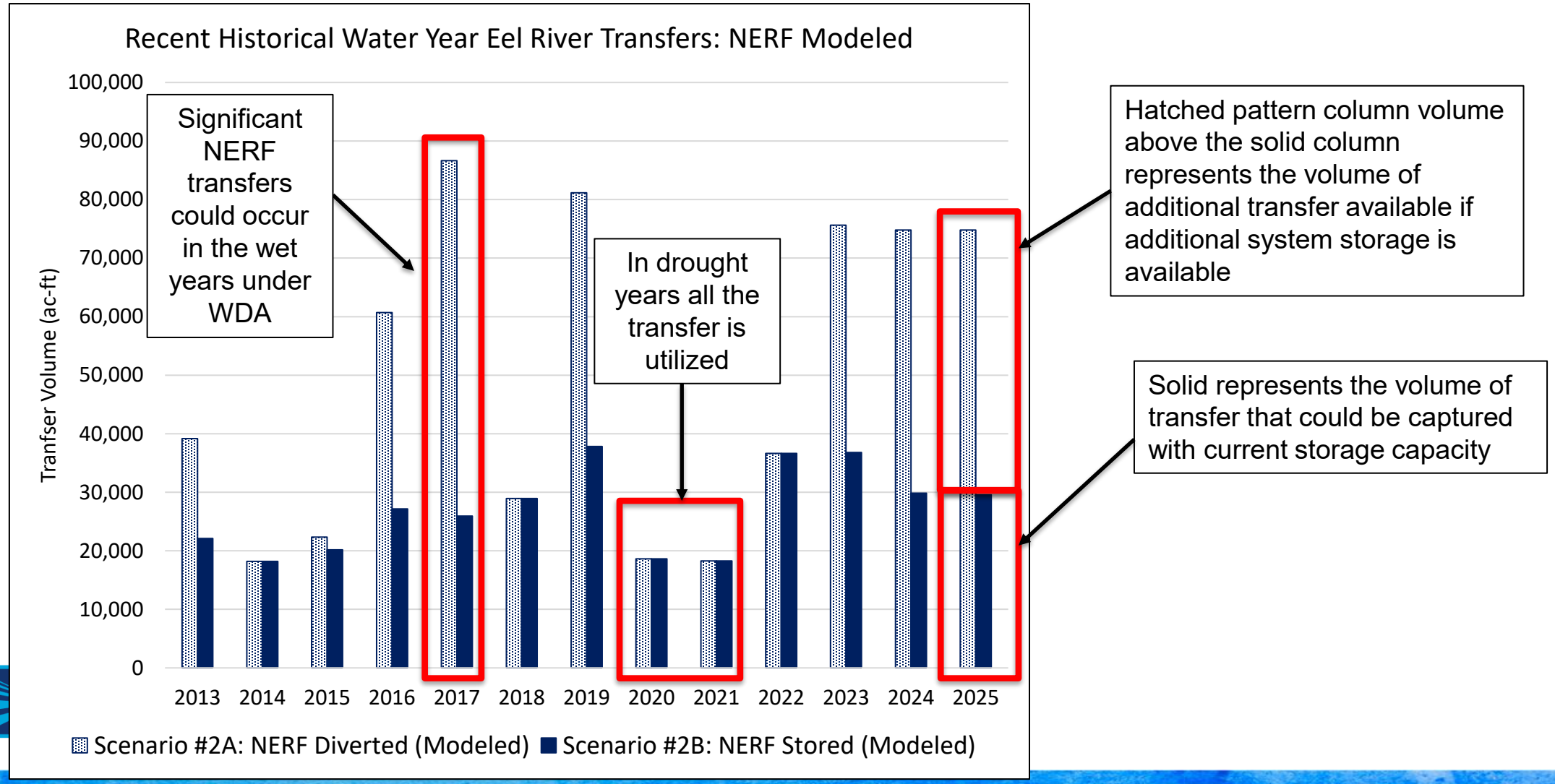
- *Russian River Assumptions (Current Lake Mendocino Operations)*
  - 2025 Lake Mendocino Updated FIRO Water Control Manual
  - Lake Mendocino Storage Thresholds Hydrologic Index
  - 2025 Biological Opinion Minimum Instream Flow Requirements
  - Inflows and downstream flows/losses = observed

Modeled NERF Eel River Transfers last 13 Water years (WY2013-WY2025)

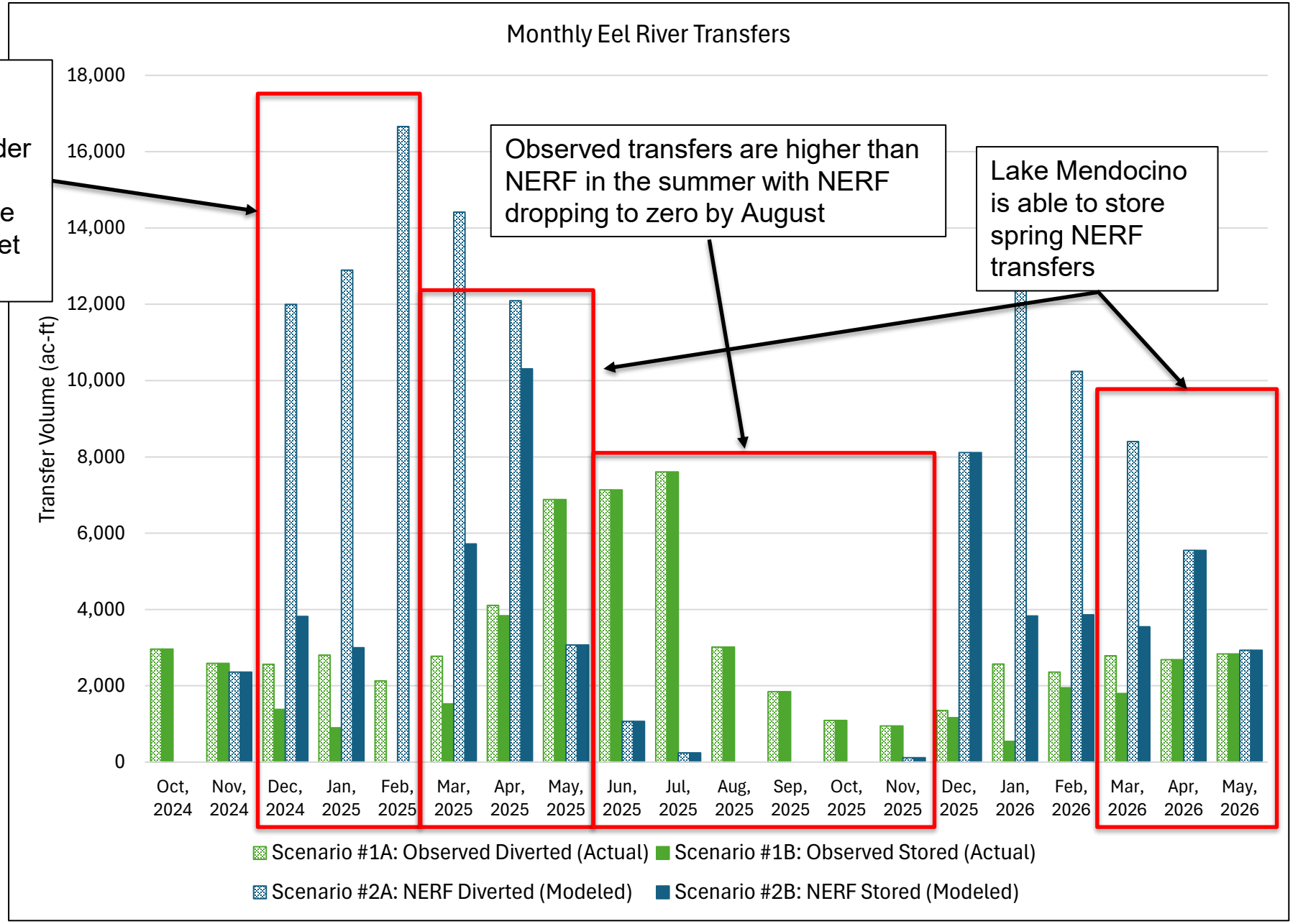
Analyze Two Metrics (A and B)

A) Diverted: Total transferred based on Eel River conditions. NERF modeled based on WDA.

B) Stored: Transfers that can be currently stored in Lake Mendocino or passed through for downstream beneficial use (not released for flood control). NERF model assumes a PVID future storage project. The modeling has included a placeholder 3,000 ac-ft.



Measured versus Estimated NERF Eel River Transfers last 20 months



Large NERF transfers available under WDA with future storage projects in wet winters

Observed transfers are higher than NERF in the summer with NERF dropping to zero by August

Lake Mendocino is able to store spring NERF transfers

NERF versus Measured Eel River Transfers

	Monthly Volumes (ac-ft)			
	Scenario #1A: Observed Diverted (Actual)	Scenario #1B: Observed Stored (Actual)	Scenario #2A: NERF Diverted (Modeled)	Scenario #2B: NERF Stored (Modeled)
Oct-24	2,961	2,961	0	0
Nov-24	2,588	2,588	2,358	2,358
Dec-24	2,563	1,379	11,994	3,818
Jan-25	2,803	899	12,894	3,000
Feb-25	2,130	0	16,658	0
Mar-25	2,773	1,523	14,416	5,715
Apr-25	4,106	3,838	12,093	10,308
May-25	6,879	6,879	3,073	3,073
Jun-25	7,135	7,135	1,070	1,070
Jul-25	7,603	7,603	243	243
Aug-25	3,017	3,017	0	0
Sep-25	1,843	1,843	0	0
Oct-25	1,091	1,091	0	0
Nov-25	944	944	112	112
Dec-25	1,349	1,166	8,109	8,109
Jan-26	2,571	545	13,560	3,830
Feb-26	2,360	1,950	10,241	3,861
Mar-26	2,787	1,799	8,399	3,547
Apr-26	2,682	2,682	5,549	5,549
May-26	2,832	2,832	2,928	2,928
Period Total	63,016	52,674	123,695	57,522

Lake Mendocino stores NERF diversions in a springs:
Spring 2025 (wet spring):
~19,000 ac-ft for NERF (modeled)
~12,000 ac-ft for observed

Spring 2026 (dry spring):
~16,000 ac-ft for NERF (modeled)
~9,000 ac-ft for observed

Over the October 2024 through May 2026 period:
NERF is modeled to have stored more transfers over the last two years compared to observed

2025 FERC Variance implemented August 2025. 2026 Variance implemented May 2026

Large NERF transfers available if system storage is available

Key Take Aways

- **NERF Transfers would occur every year**
  - In the last 13 years the annual NERF transfers (modeled) range from ~18,000 ac-ft in the 2021 drought to ~86,000 ac-ft in the 2017

- **Last 2 years the NERF stored transfers (modeled) are similar to observed transfers**
  - In the last 2 years NERF (modeled) stored transfers are modeled ~57,000 ac-ft and observed stored transfers ~52,000 ac-ft

- **This analysis shows the significant benefits to be achieved by constructing additional storage in the Russian River watershed.**
  - In the last 13 years (non-drought years) there is an average of ~40,000 ac-ft/yr of additional NERF transfers that can be utilized with additional water supply projects