

# Flow Measure Accounting for Agreements to Support Healthy Rivers and Landscapes

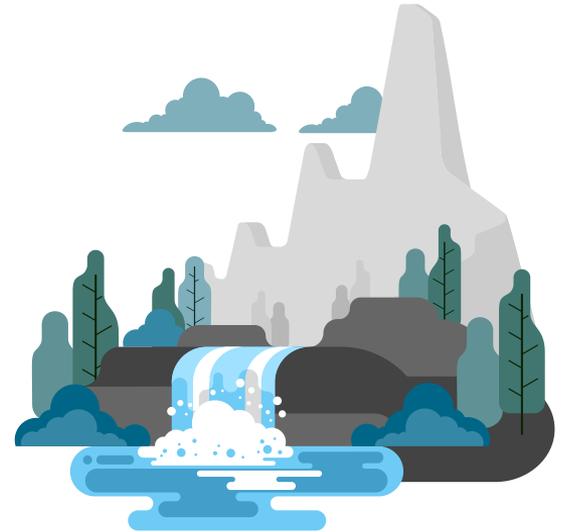
May 12, 2025

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# Outline

- Healthy Rivers and Landscapes (HRL)
- Methods to make real water available
- Example HRL Flow Asset deployments
- Realtime accounting and tracking



# HRL Overview

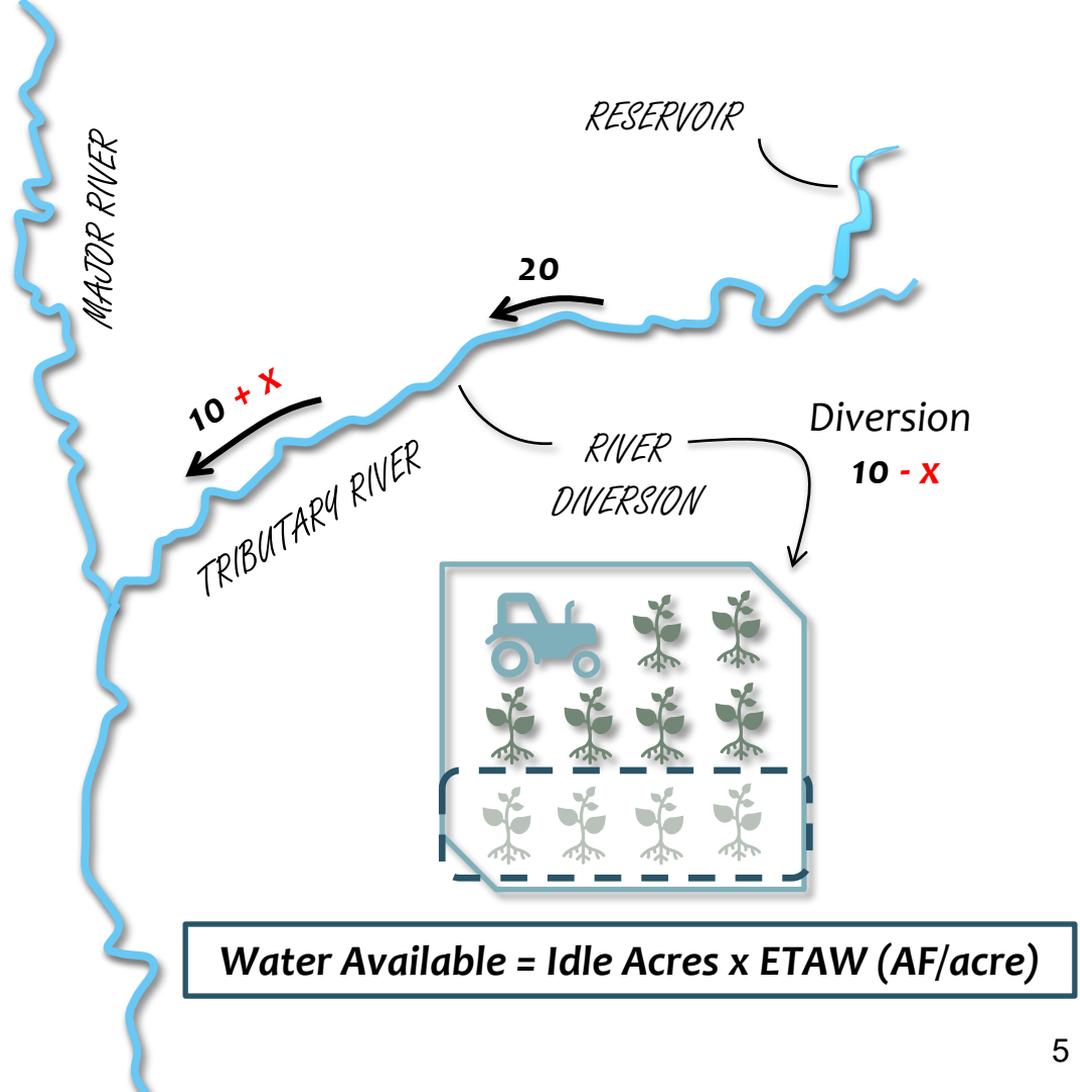
- HRL is an alternative under evaluation by the State Water Resources Control Board to update the Bay-Delta Water Quality Control Plan
- HRL is comprised of flow assets, habitat, and funding commitments by water users

# HRL Flow Assets

- HRL must provide “new water” at certain times for Delta outflow
- Most upstream HRLs rely on methods established for water transfers
  - Technical guidance provided by DWR and Reclamation
- Methods used for HRL include:
  - Cropland idling/fallowing
  - Groundwater substitution
  - Reservoir reoperation

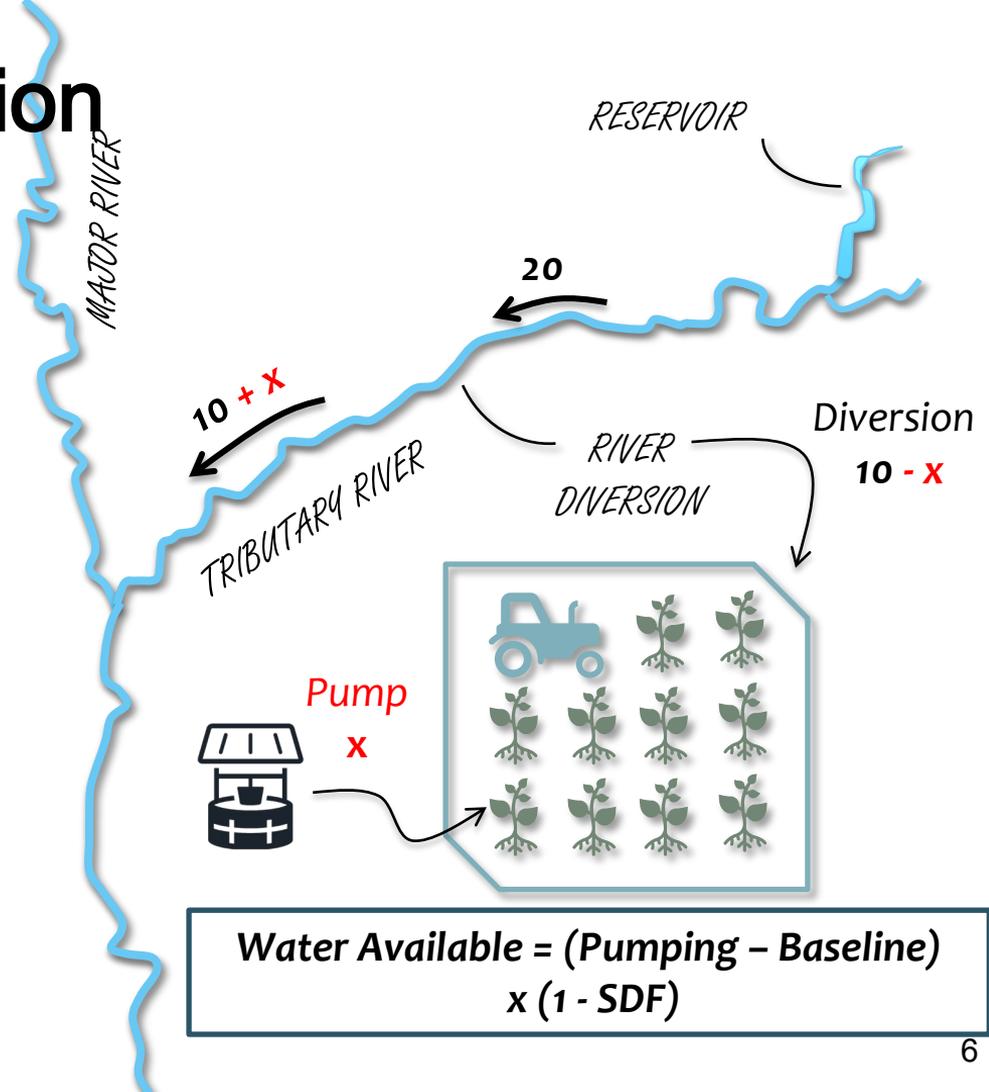
# Cropland Idling

- Forgone surface water
  - Water rights
- Historical land use records
- Field verification of idle acres
- Water available is idled crop evapotranspiration of applied water
  - Established ETAW

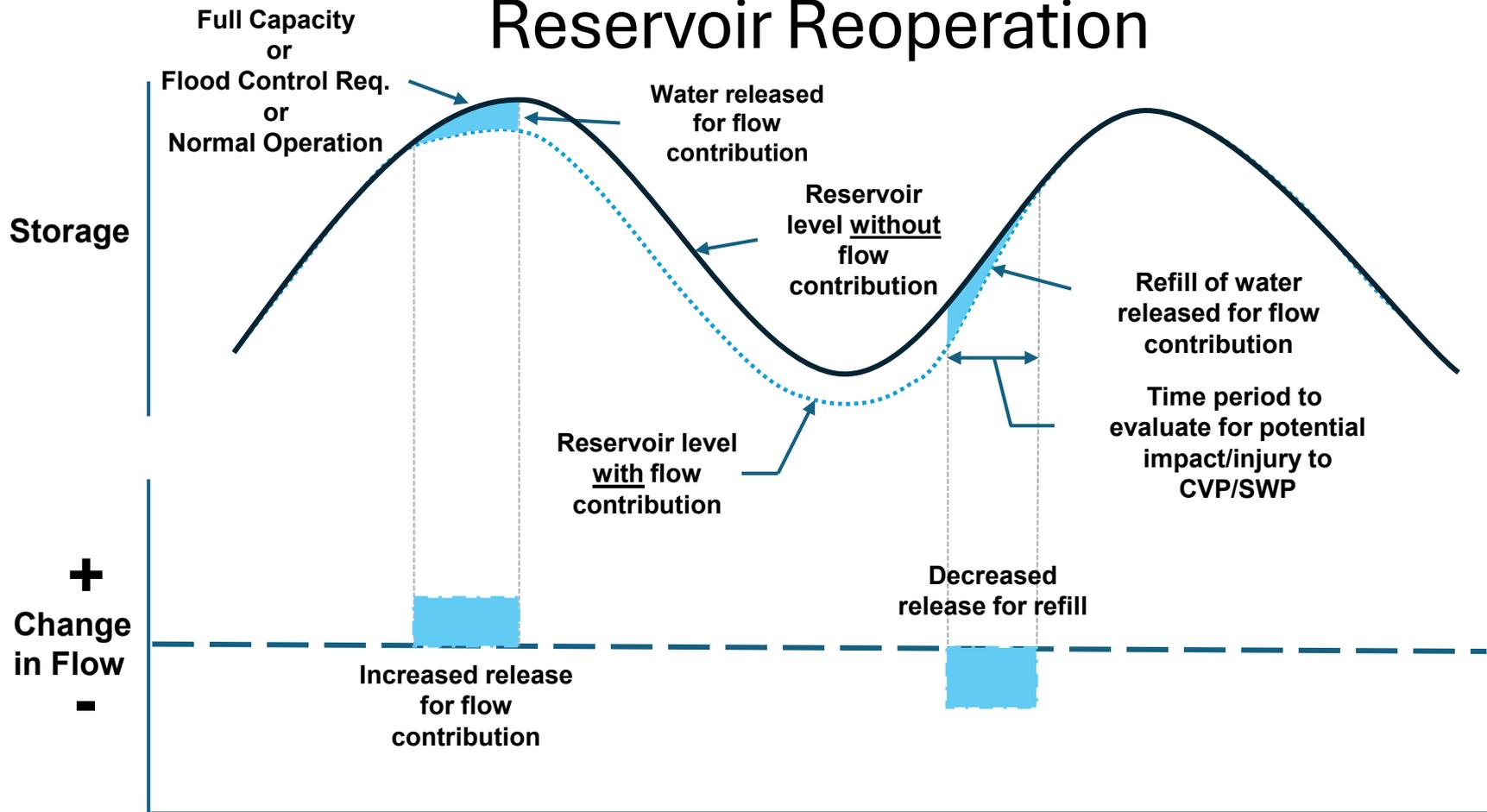


# Groundwater Substitution

- Forgone surface water
  - Water rights
- Baseline pumping
- Monitoring and measurement
- Consistent with GSP
- Stream depletion factor (SDF%) applied to account for future effects on streams and CVP/SWP



# Reservoir Reoperation



# Reservoir Reoperation

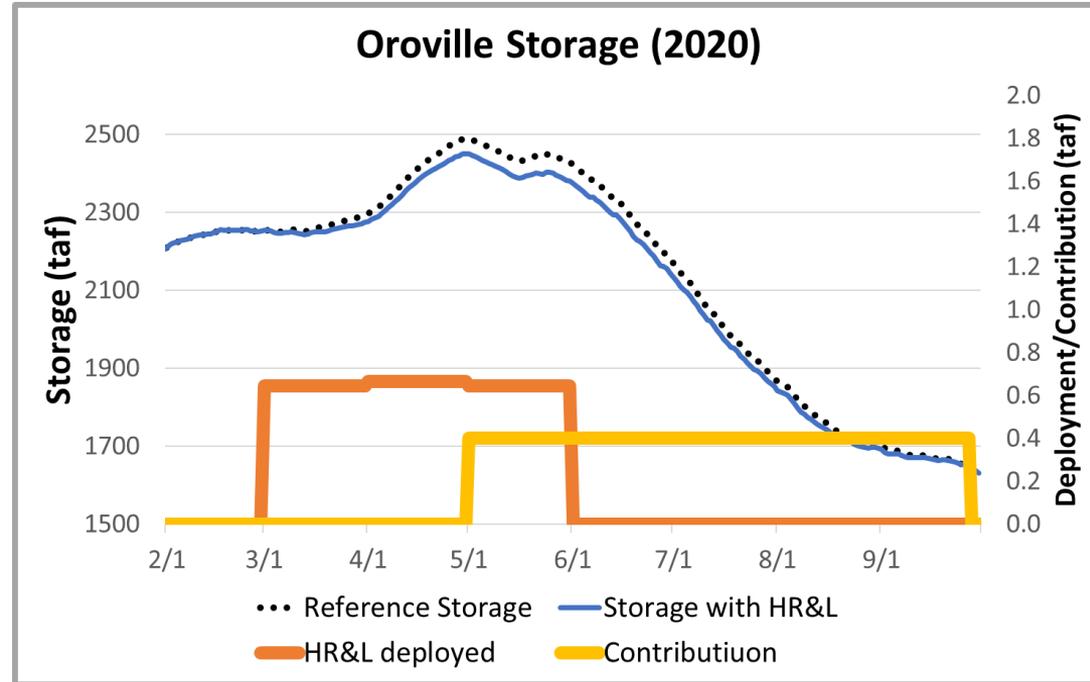
- Establish baseline flow, without reoperation, downstream
- $\text{Water available} = \text{Observed flow} - \text{baseline flow}$
- Track space vacated in reservoir until it refills

# HRL Flow Asset Deployment

- Flow Assets generally deployed March through May
- Water made available through combination of methods
- Flows released from Shasta, Oroville, Folsom as reservoir reoperation and paid back through crop idling and groundwater substitution

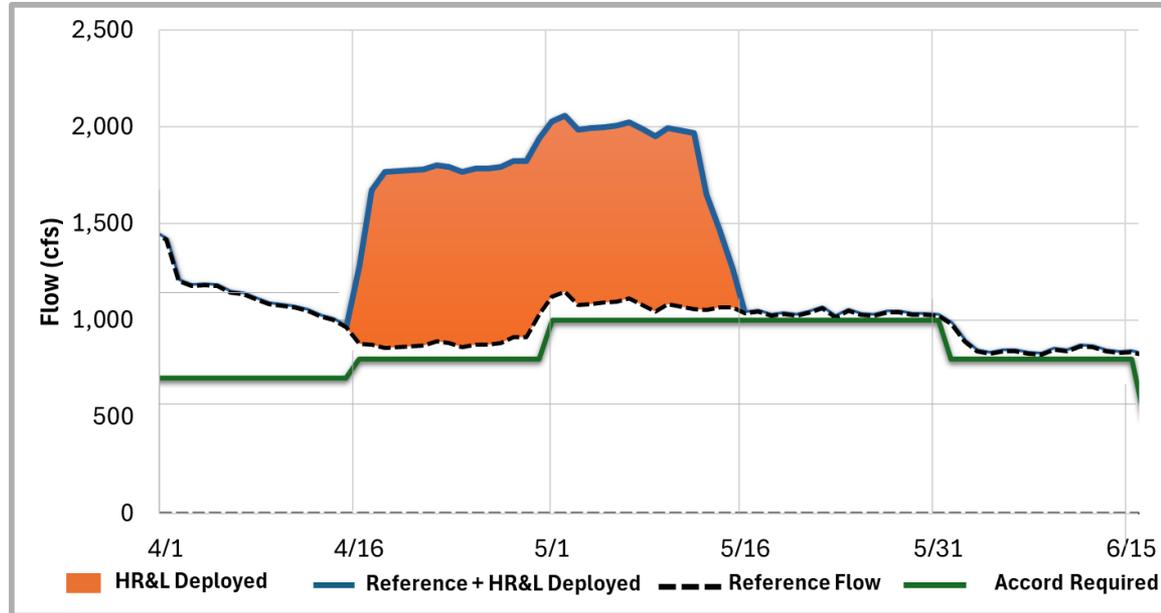
# Flow Deployment vs. Contribution Timing

- Deployments from storage to the river and then Delta March through May
  - Water provided up front
- Actions to make water available occur during the irrigation season and reduce required release from Oroville
  - Crop idling
  - Groundwater substitution

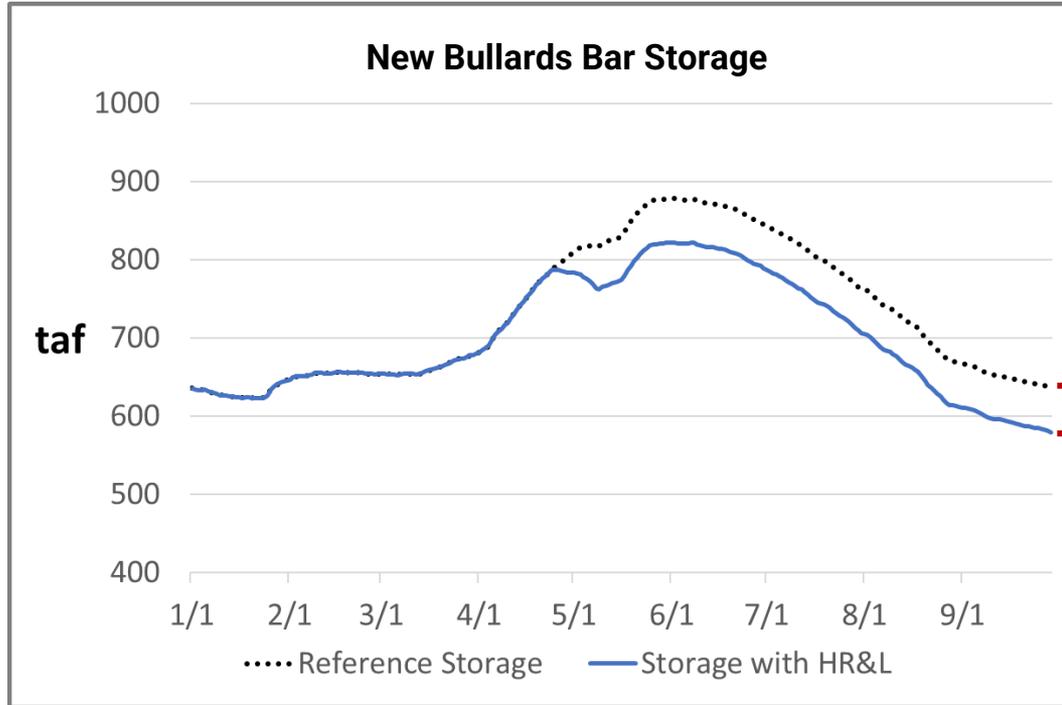


# Yuba River HRL Deployment Example

- Deploy a pulse flow in April/May
- Reference Flow assessed at Marysville gauge:
  - D-1644 & Yuba Accord flows
  - New Bullards Bar Operations
    - Target storages
    - FERC license terms
    - Water Control Manual
  - Water Service Agreements to 8 Member Units
  - Forecasted uncontrolled flows from the Middle and South Yuba rivers



# Yuba River HRL Deployment Example



Lower 9/30 storage target in New Bullards Bar reservoir verifies HRL contribution.

# Realtime HRL Accounting

- Flow Operations Team
- 2025 Dry Run Example

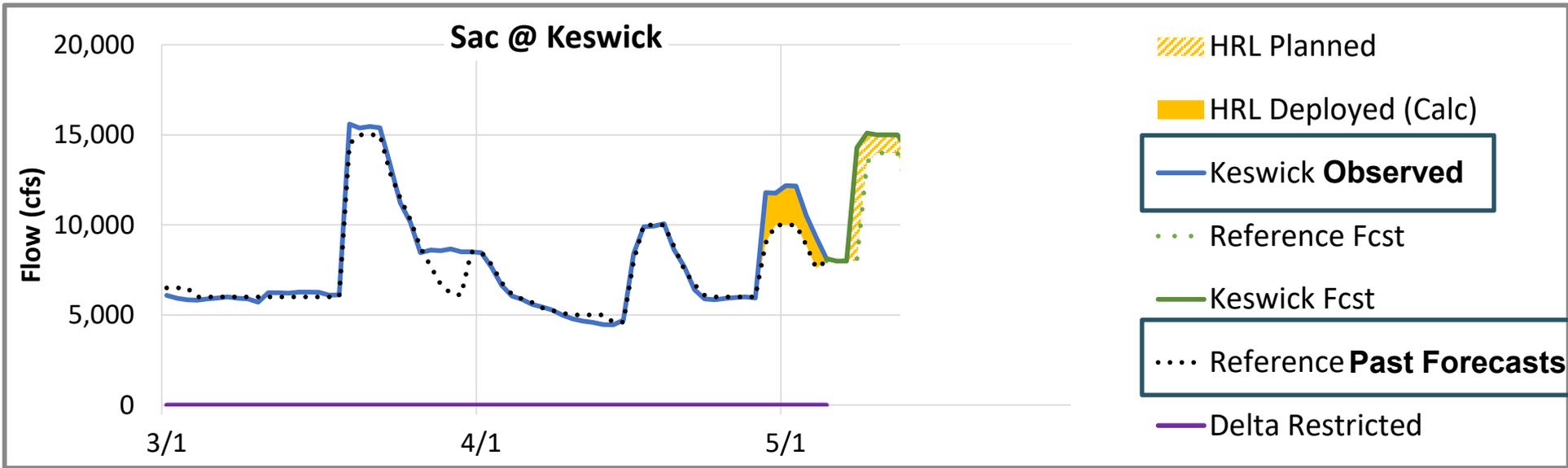
# Flow Operations Team (FOT)

- **Who:** CVP/SWP and local operators, State Board and CDFW
- **When:** As needed starting January; weekly before, during, immediately after Flow Assets are deployed
- **Why:** Define Reference Conditions and track Flow Assets
  - Understand and document reference conditions and Flow Asset deployment/accounting
- Modeled after currently established operations coordination
  - Weekly Water Operations Management Team

# 2025 Dry Run for Realtime HRL Accounting

- Weekly FOT meetings started in February
- Forecasted reference conditions on each tributary entered on Monday for week ahead
- FOT reviews prior week reference condition versus actual operations and describes new forecast

# Dry Run Example



- Reference forecasts and observed compared
- Tributary HRL flow contribution = Observed – Reference during deployment

# Questions and Discussion

