

# Salinas River Operations

## Habitat Conservation Plan



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# Agenda

1. Welcome and Introductions (Tania Carlone, CBI)
2. TAC Charter Review
3. Review of Salinas River Operations HCP
4. Technical Background Materials Review
5. Next Steps and Closing





# TAC Charter



# Technical Advisory Committee Goals & Objectives

Provide expert advice and recommendations to HCP development team regarding:

- Flow release triggers specific to species conservation for South-Central California Coast steelhead.
- Reservoir release strategies to meet existing water conservation goals related to groundwater recharge and SRDF operation.

# Technical Advisory Committee Decision Rule

- The HCP-TAC is an advisory group formed to provide recommendations.
- The HCP-TAC will work together to provide recommendations supported by the entire group.
- When full group support is not possible, the differing views will be recorded to be taken into consideration.

# Guiding Principles to Develop Operational Scenarios

Operational scenarios considered under the HCP will need to meet existing project and program goals and be consistent with the mission of the Agency.

MCWRA operates Nacimiento and San Antonio Reservoirs under regulatory authorizations as well as through legal agreements which will be considered as part of any water operations protocol brought forth by the HCP-TAC.

Operational releases from Nacimiento and San Antonio Reservoirs will be designed to meet regulatory and legal agreements while minimizing impact to species listed under the Federal Endangered Species Act and proposed for inclusion in the HCP.

MCWRA operates Nacimiento and San Antonio Reservoirs in coordination for multiple benefits including flood protection, groundwater recharge, operation of the SRDF, water supply, fish migration, fish habitat requirements, agriculture, and recreation.

Any releases of water from Nacimiento or San Antonio Reservoirs will be made with consideration given first to safety, including flow conditions and the structural integrity of Nacimiento and San Antonio Dams.

All considered water management operational scenarios will be analyzed using the Salinas Valley Operational Model (SVOM).

# Questions and Comments?



# Salinas River Operations

## Habitat Conservation Plan



# Elements of an HCP (1 of 2)

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HCP Element	Required or Recommended?
Program goals	Recommended
Plan area (geographic coverage)	Required
Covered species	Required
Biological goals and objectives	Required
Covered activities	Required
Permit duration	Required
Impact on species (level of take)	Required
Indirect impacts	Required
Cumulative impacts	Recommended
Impacts to critical habitat	Recommended
Conservation measures	Required
Avoidance and minimization measures	Required
Expected outcomes with conservation	Recommended

# Regulatory Guidance: Effects Analysis

## Section 10 for HCPs

### Objective:

To explain “[t]he impact that will likely result from such taking”

(16 U.S.C. §1539 (a)(2)(A)(i))

and show how

“the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild”

(16 U.S.C. §1539 (a)(2)(B)(iv))

For species regulated by NMFS, the HCP must also

Specify “the anticipated impact (i.e., amount, extent, and type of anticipated taking) of the proposed activity on the species or stocks,” and the “anticipated impact of the proposed activity on the habitat of the species or stocks and the likelihood of restoration of the affected habitat.”

(50 C.F.R. §222.307 (b)(5)(i-ii))

## Section 7

### Objective:

To “specif[y] the impact of such incidental taking on the species”

(16 U.S.C. §1536 (b)(4)(C)(i))

Evaluate the potential *effects of the action* on listed and proposed species, and critical habitat.

(50 C.F.R. §402.12(a))

*Effects of the action* is defined as “all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action.”

(50 C.F.R. §402.02)

# Steps in the Effects Analysis



# Comparison Point Scenarios

## 1. Current Operations

- Current operating procedures including the 2007 Biological Opinion flow prescription and Interim Operation Protocol

## 2. No Flow Prescription

- Operation of the dams to provide water to downstream users without any modifications for species or habitat needs

## 3. No Operations

- All inflow to the reservoirs is bypassed within the physical constraints of the dams

# Questions and Comments?



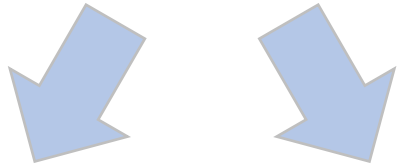


# Technical Background Materials



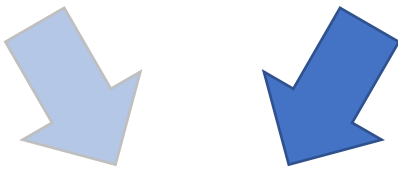
# Hydrologic Modeling System

SVWMM

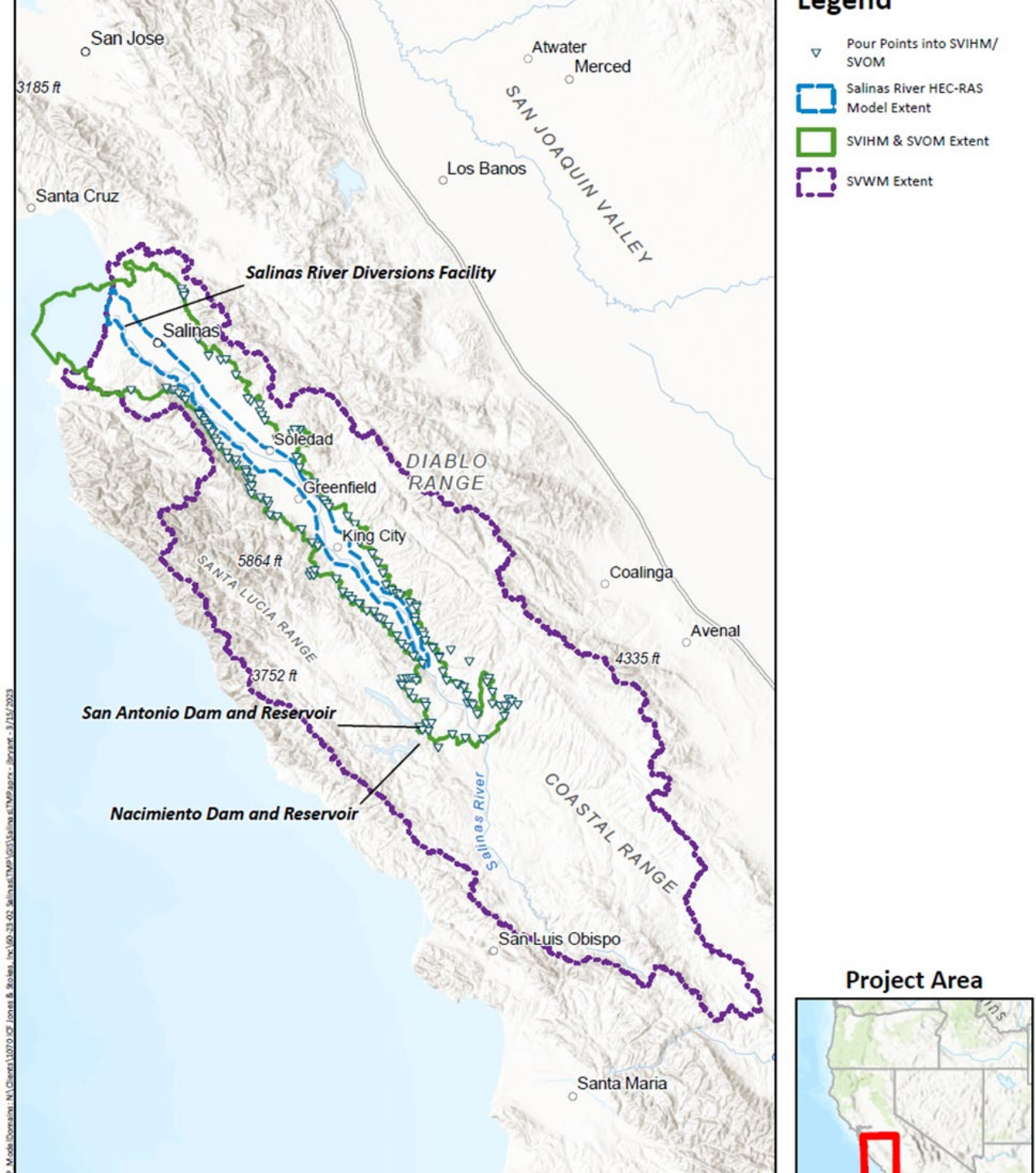


SVIHM

SVOM ↔ SWO

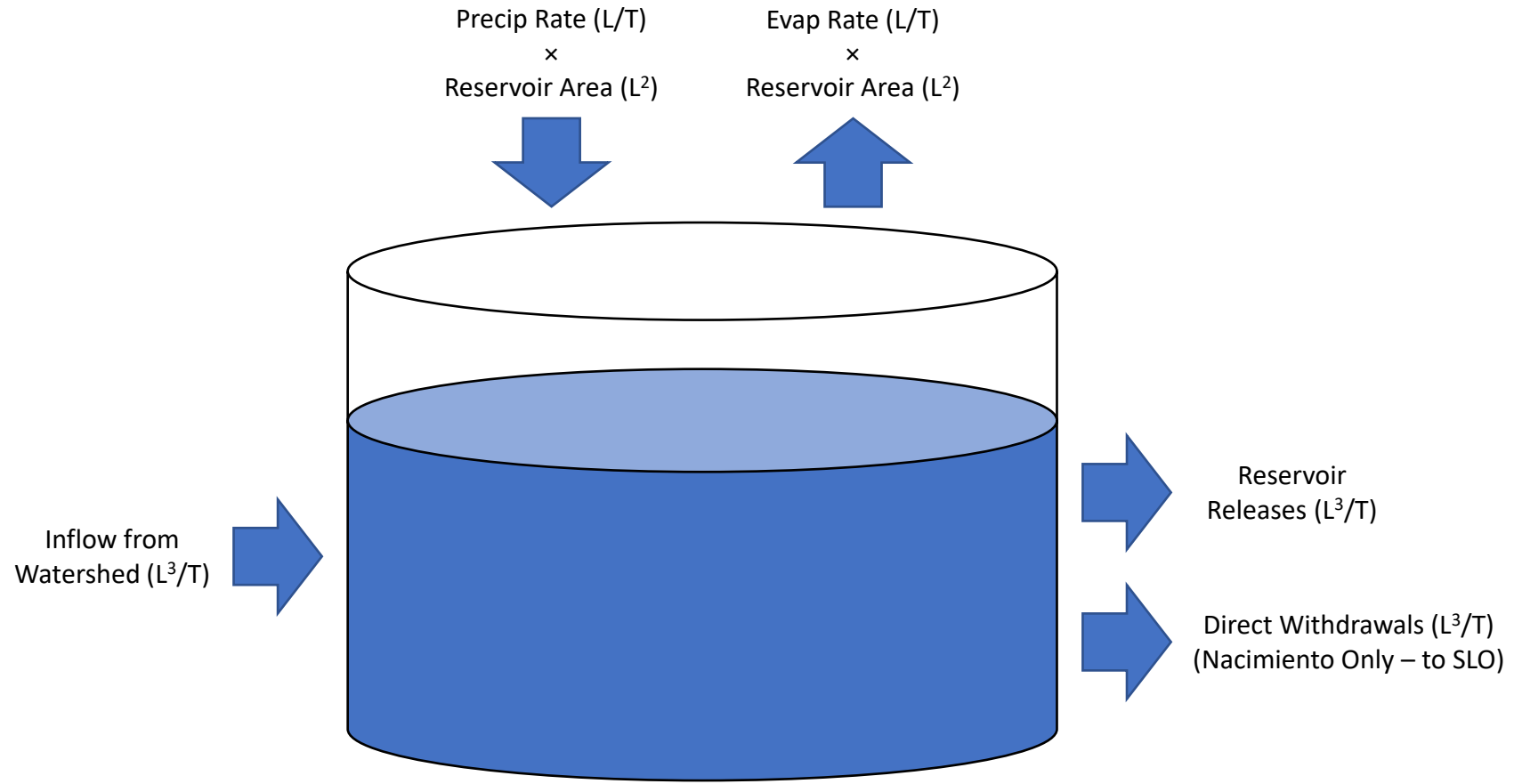


Salinas River  
HEC-RAS Model

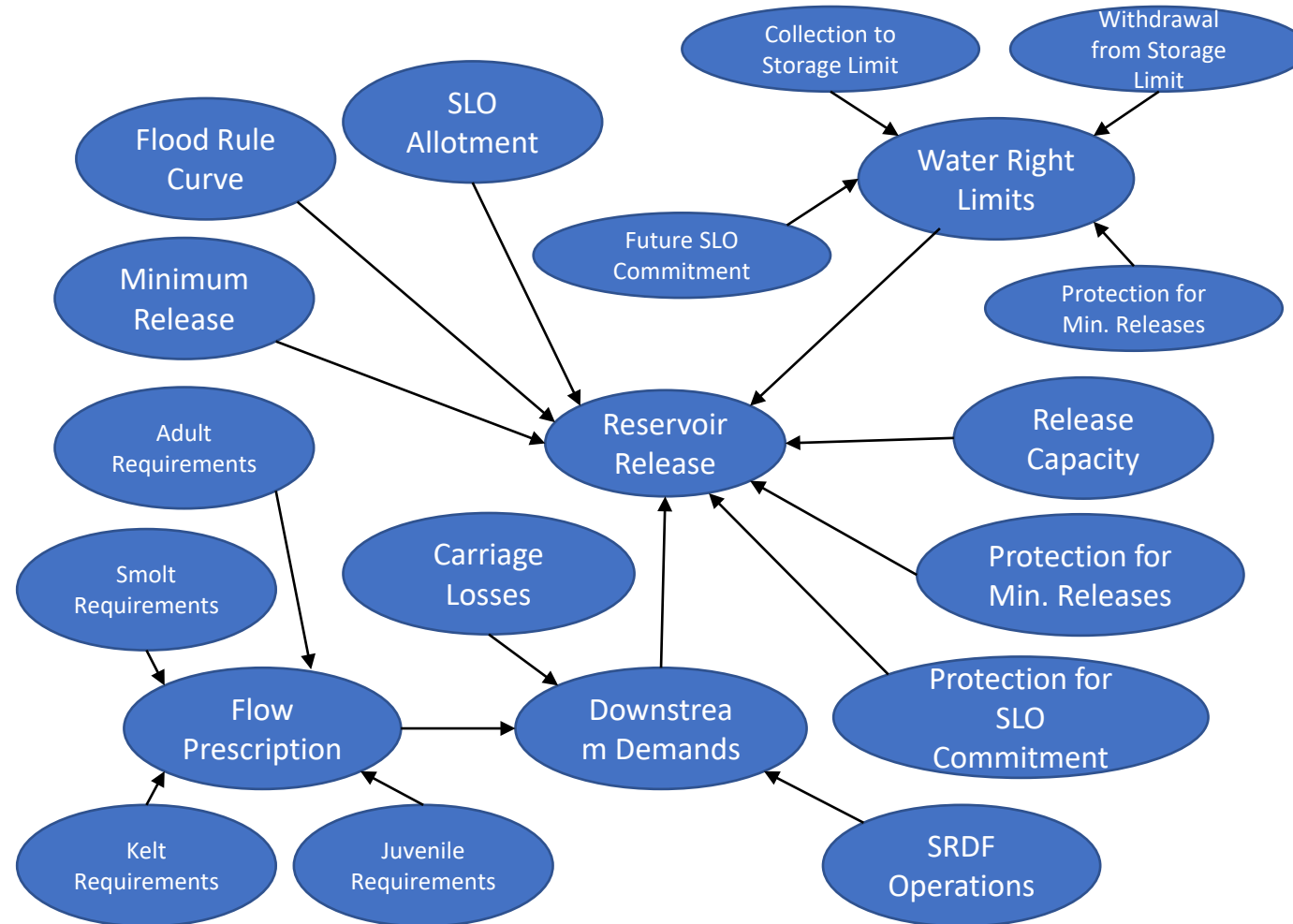




# SVOM Reservoir Representation



# Factors Determining Reservoir Releases



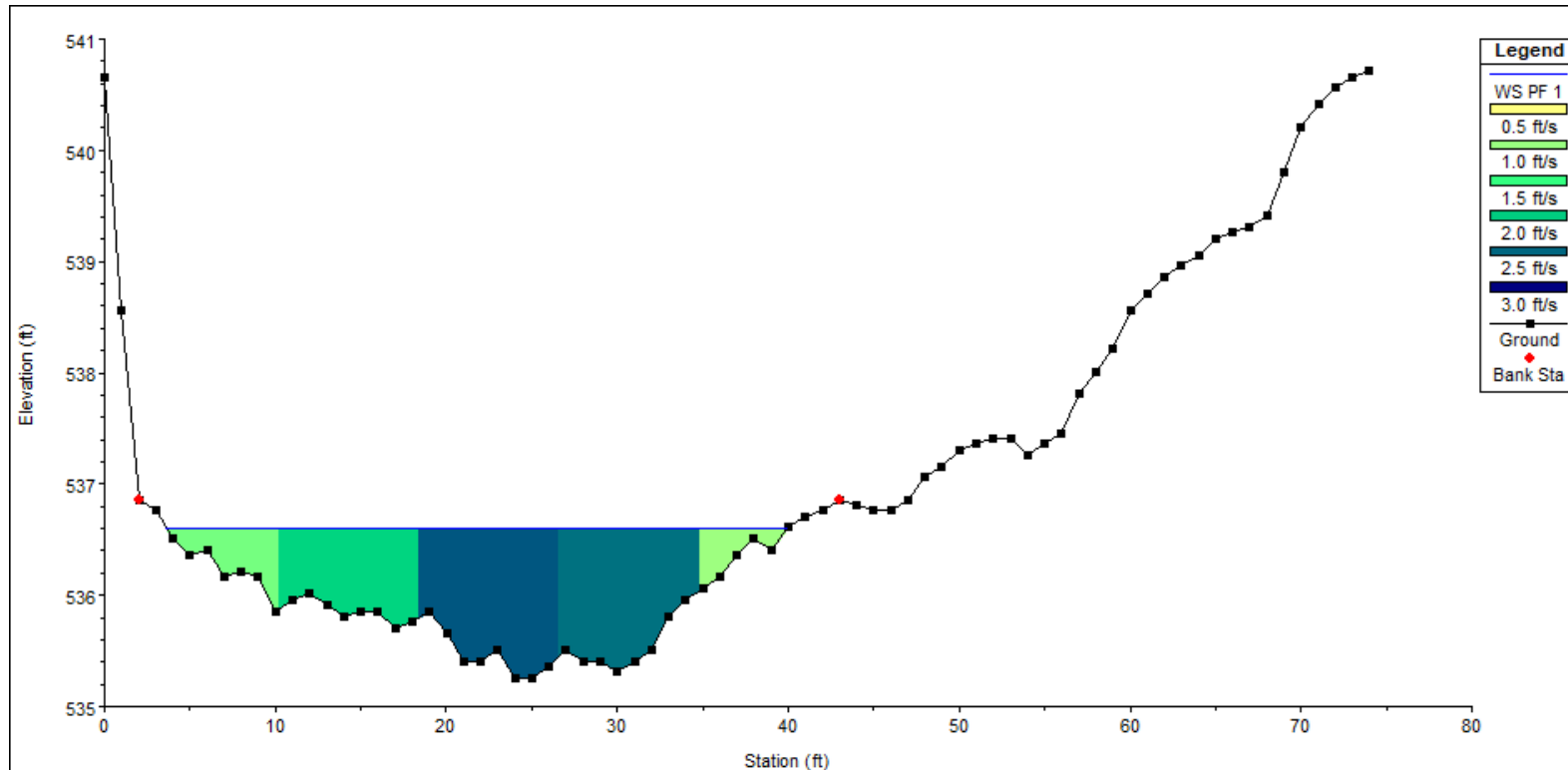
# Steelhead Effects Methods – Overview of Approach



Evaluating key steelhead life stages – rearing, spawning, and migration

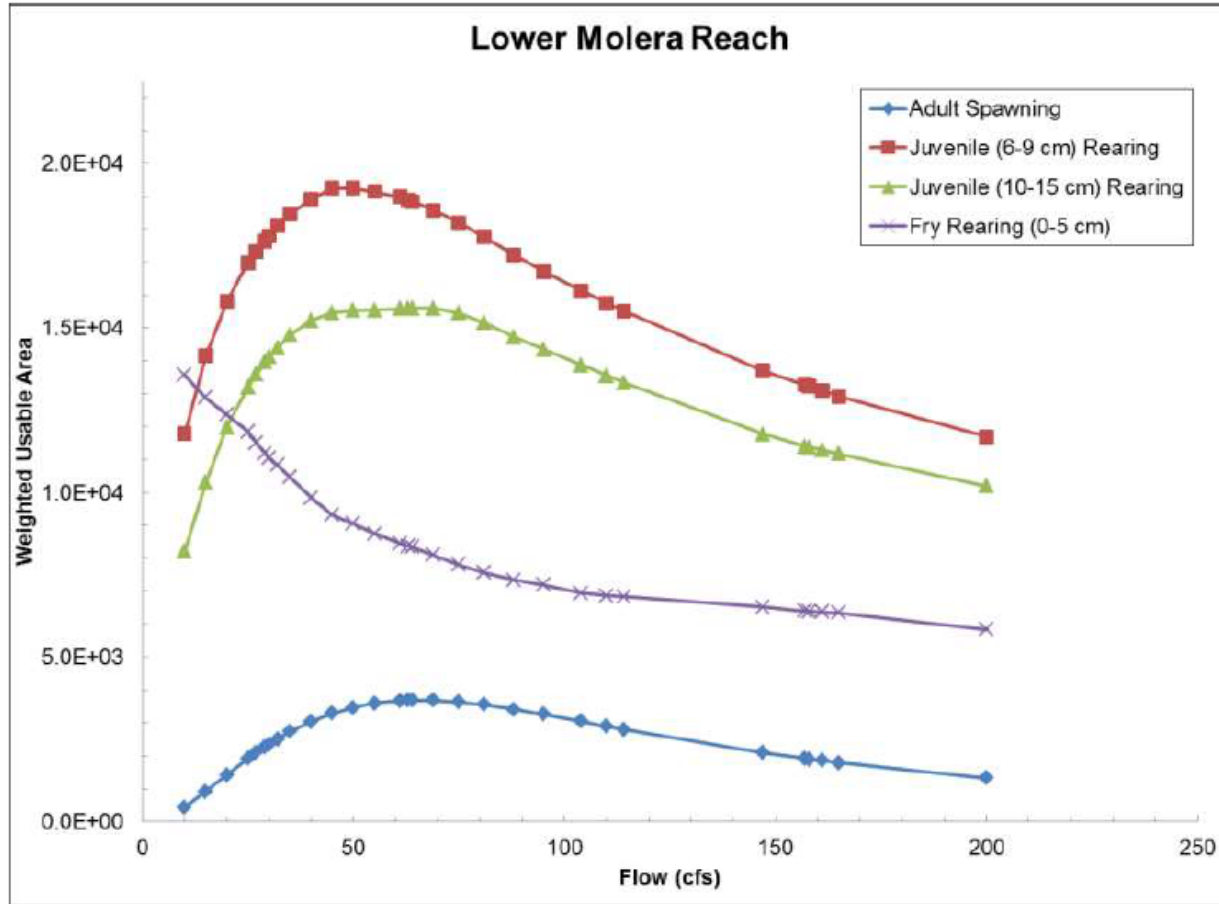
- Instream flow conditions at key locations modeled using SVOM.
- Impacts to rearing and spawning life stages will be evaluated using a habitat-based modeling approach.
- Impacts to migrating life stages will be evaluated using the Critical Riffle Analysis (CRA).
- Steelhead population response to water operations will be evaluated using the Ecosystem Diagnosis and Treatment (EDT) model.

# Evaluating Rearing and Spawning Impacts

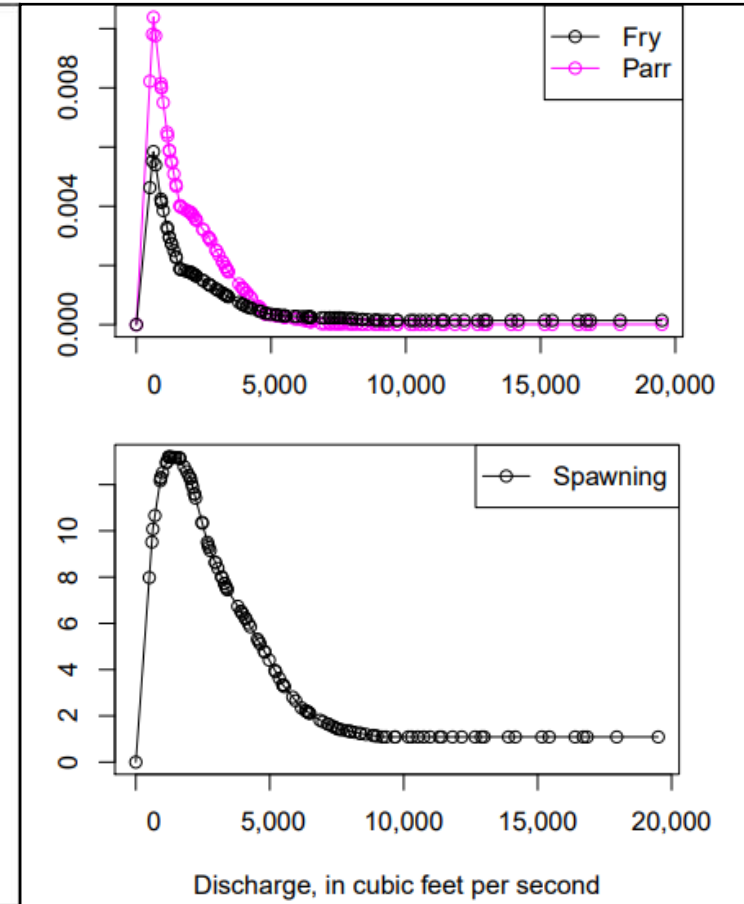


- Output from the SVOM will be used as the basis to model Instream Habitat Conditions.
- SVOM output will inform a 1-D HEC-RAS model to simulate changes in channel geometry and hydraulic conditions in Nacimiento and San Antonio Rivers.

# Evaluating Rearing and Spawning Impacts



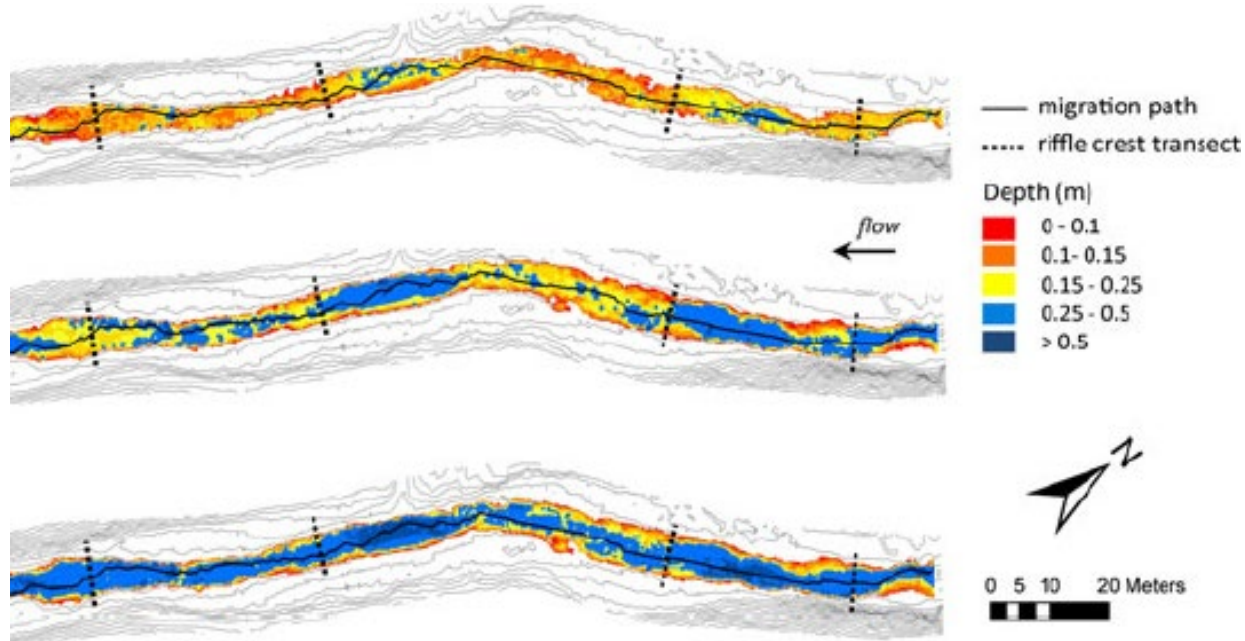
Source: Holmes and Cowan 2014



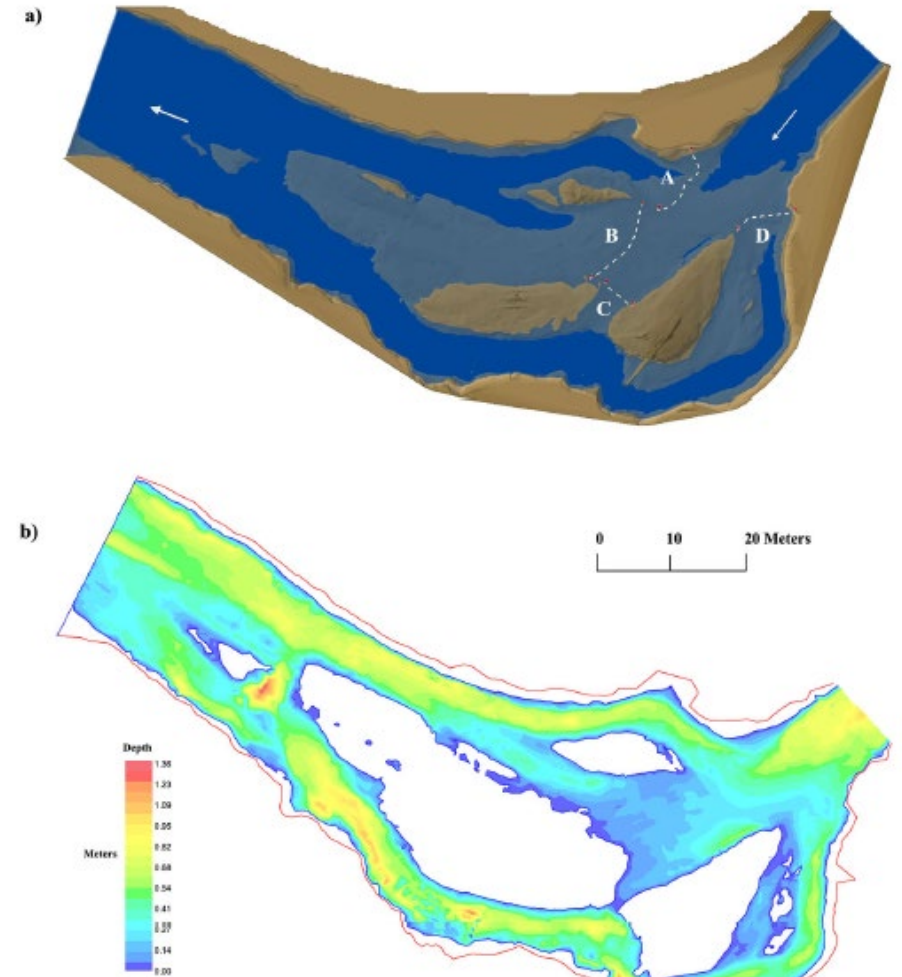
Source: Perry et al. 2019

- Functional relationships between Weighted Useable Area (WUA) and discharge will then be developed

# Evaluating Migration Impacts



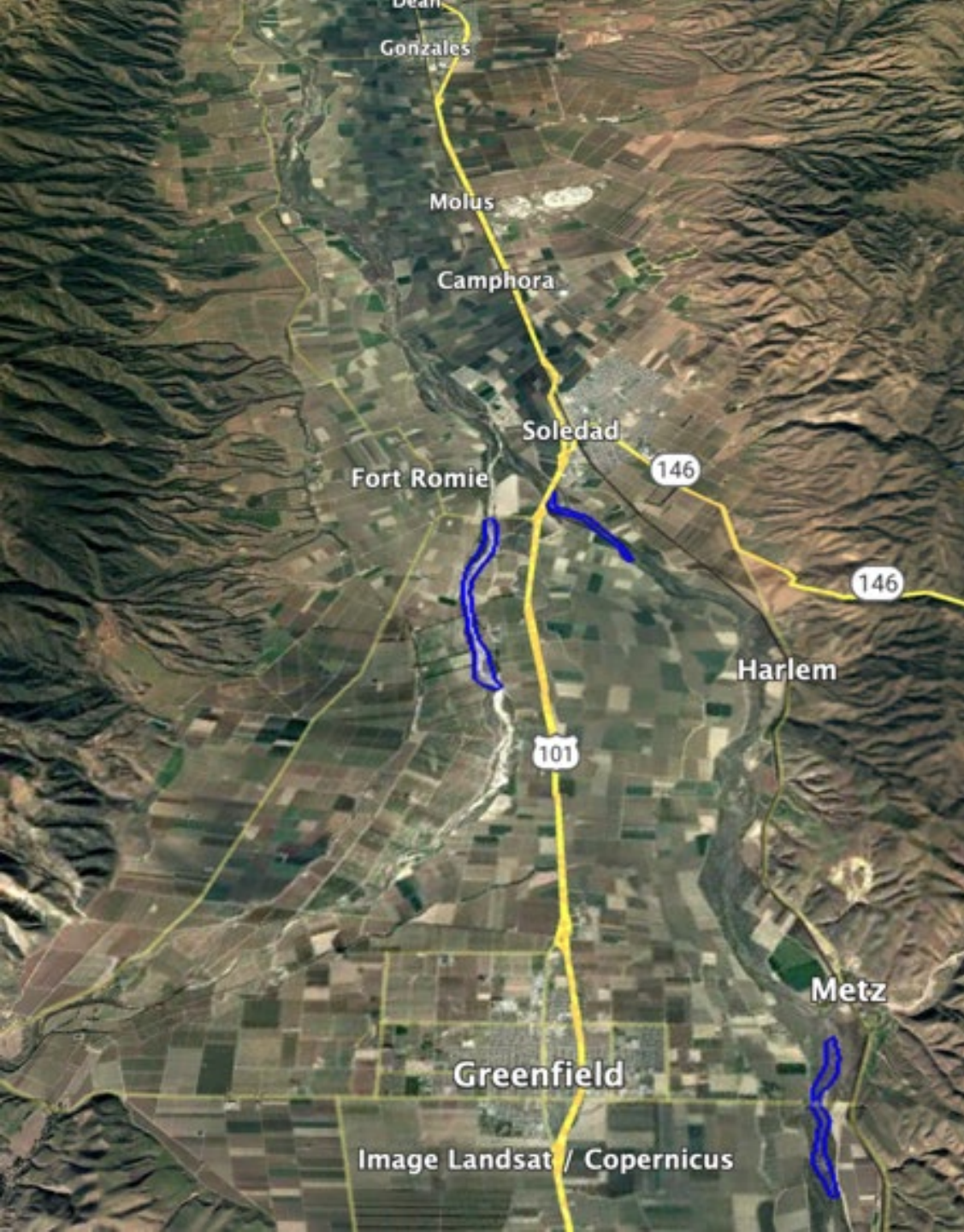
- CRA will be used to identify shallow riffles that impact adult and smolt passage.
- Minimum migration flows will be developed for both life stages.



# Critical Riffle Analysis Overview

- Drone photogrammetry to establish passage thresholds
- Field-verification across a range of flows
- Methodology chosen due to limitations of CDFW SOP in sandy channels
  - Minimize field effort
  - Expand spatial coverage
  - Improve modeling flexibility

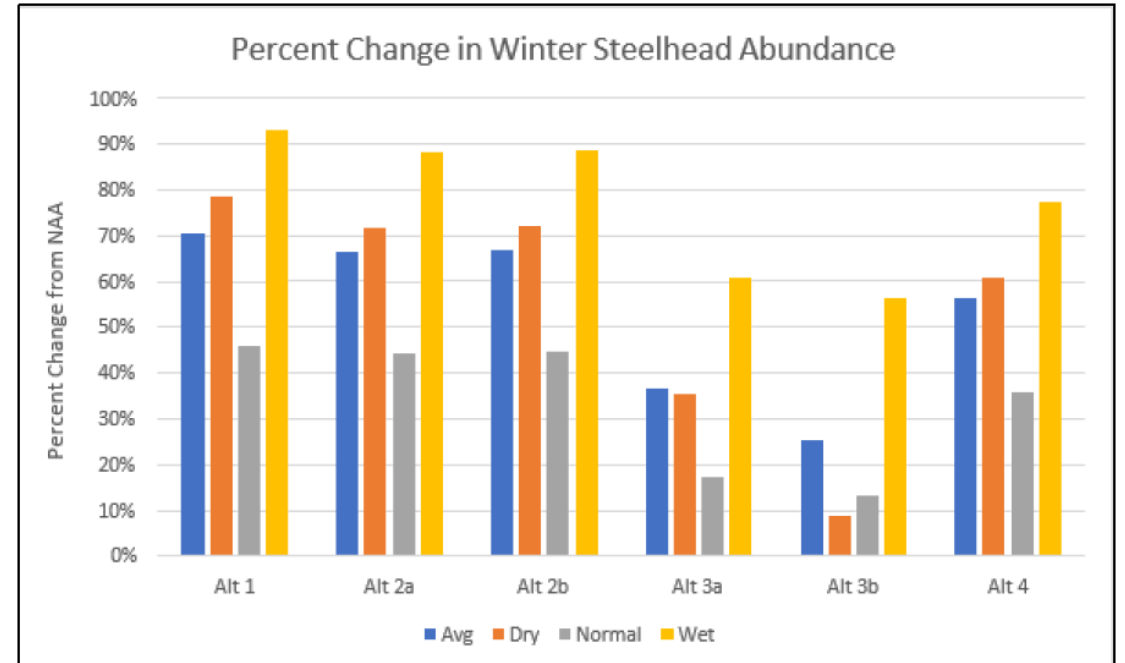
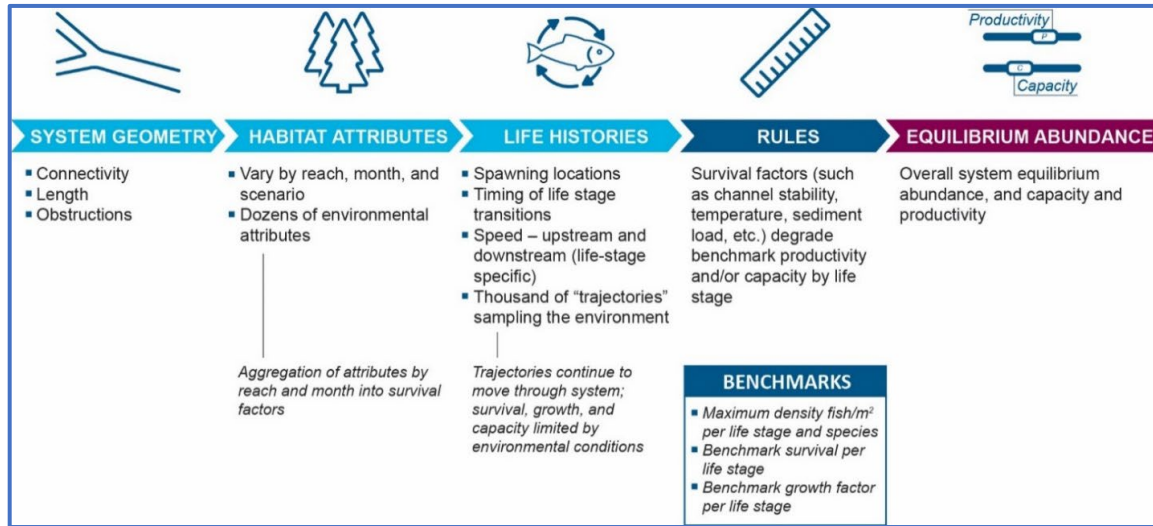




# CRA Field Data Collection

- Five study reaches (4 in Salinas River and 1 in Arroyo Seco)
- Identified critical riffles within each reach to evaluate model accuracy across multiple locations

# Modeling Lifecycle Impacts



- Hydrologic and habitat model results will be applied to the Ecosystem Diagnosis and Treatment (EDT) model
- EDT is a spatially explicit habitat-based lifecycle model that produces Viable Salmon Population parameters which can be compared across Operational Scenarios.

# Questions and Comments?



# Next Steps

- Anticipated next meeting January 22, 2024
- In-person workshop 1:00 – 5:00 pm
- Anticipated topics for discussion:
  - Review comparison point scenario model run results
  - Begin to formulate potential operation scenarios to consider under HCP

# Project Information:

[salinasrivermanagementprogram.org](https://salinasrivermanagementprogram.org)

# Project Team Contact:

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