Sites Project Fishery Group Discussion

April 29, 2021

Sites

Agenda

1. Introductions
2. Approach to Meetings
3. Group Norms
4. Preferred Project
5. Overview of Project Operations
6. Modeling and Baseline
    1. Baseline
    2. Models and how they were used
7. Schedule and Future Meeting Topics

Approach to Fisheries Meetings

- Many diverse questions spanning aquatic system
- Sequential meetings
  - First meeting – Operations, modeling and baseline
  - Second meeting – Diversion effects above Delta
  - Third meeting – Diversion effects in the Delta
- No effects today, but will take topics for future meetings not already provided
- As always, questions on today's material are welcome

Group Norms

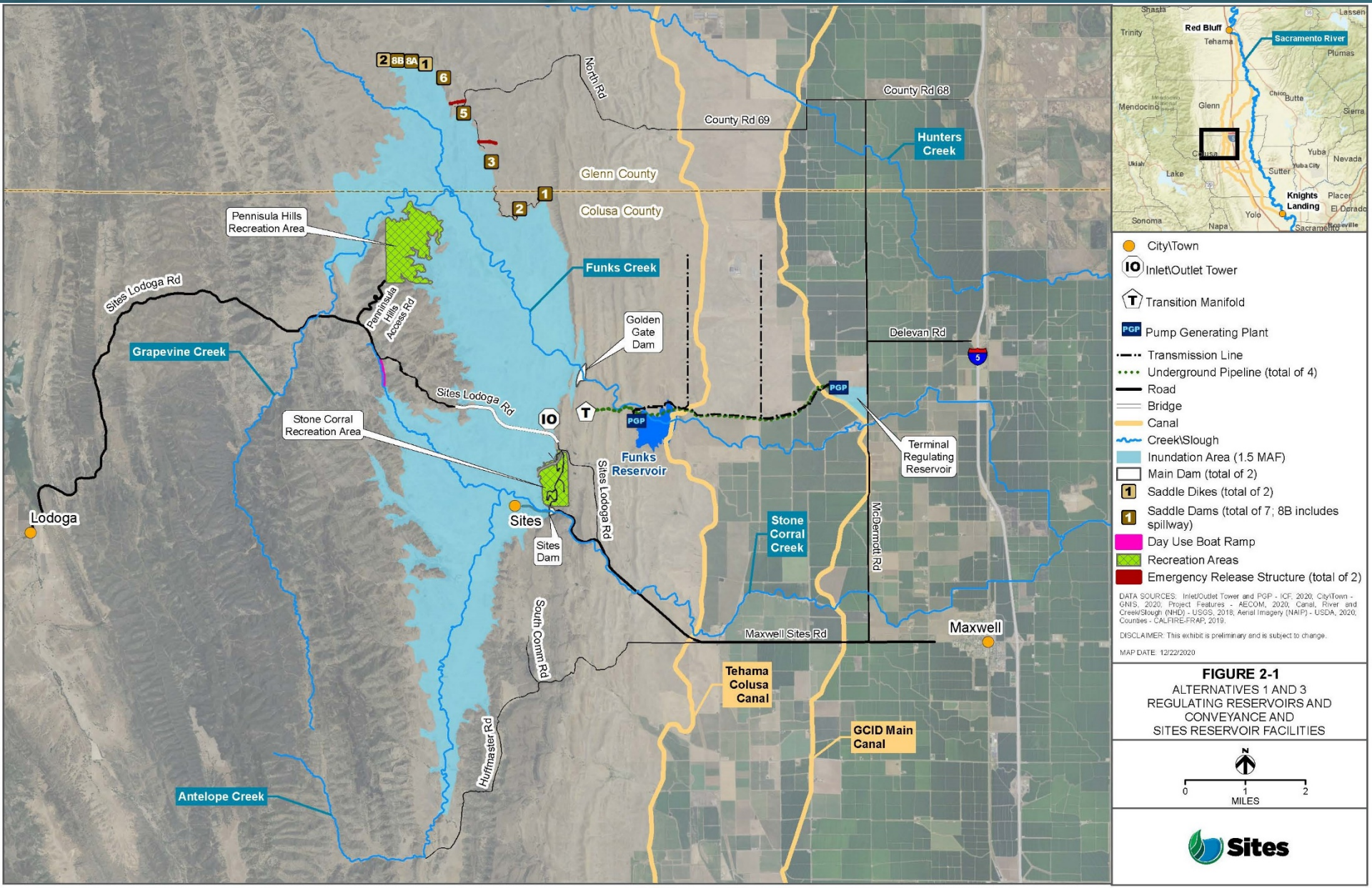
- Encourage everyone to be on video
- Mute yourself when others are speaking
- Respectful, professional dialogue
- Ask questions throughout, lets have a dialogue
  - Let the speaker finish their point
  - Use the raise your hand function in Teams if needed
- Topics for next meeting will be recorded and discussed at that meeting

Preferred Project

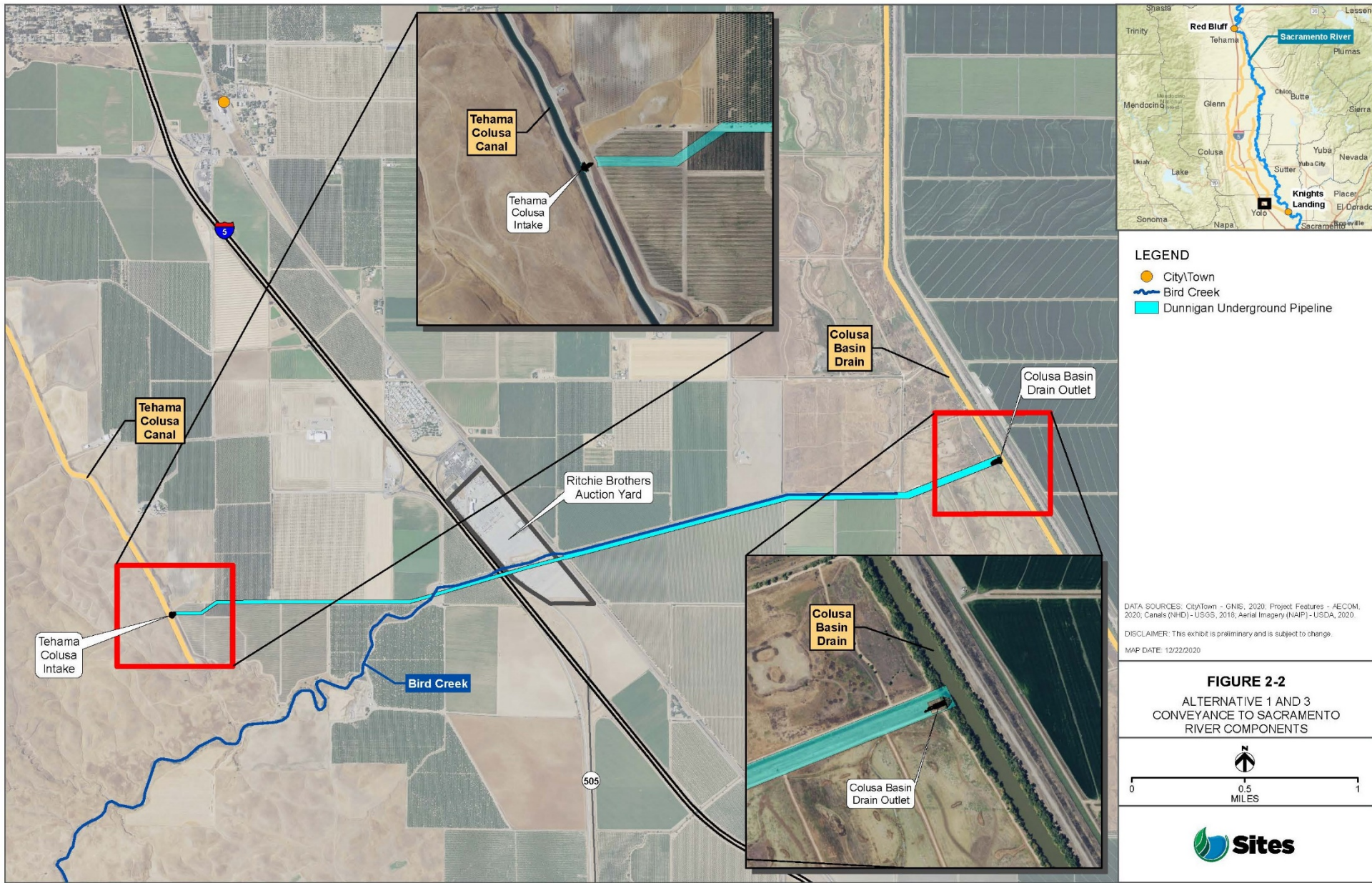
Major Revisions to Project

- Reservoir size reduced from 1.8 MAF to 1.5 MAF
- No Delevan diversion, pipeline or outfall
  - Utilize existing facilities at Red Bluff and Hamilton City pumping plants
  - Releases to Tehama-Colusa Canal to the Colusa Basin Drain
  - New 1,000 cfs pipeline and release near Dunnigan
  - Alternative 2: a new 1,000 cfs outfall to Sacramento River near Tyndall Landing
- Max diversion rate reduced from 5,900 cfs to 3,900 cfs
- Releases reduced from 1,500 cfs to 1,000 cfs

Alt 1 – Preferred Project



Alt 1 – Preferred Project



Overview of Project Operations

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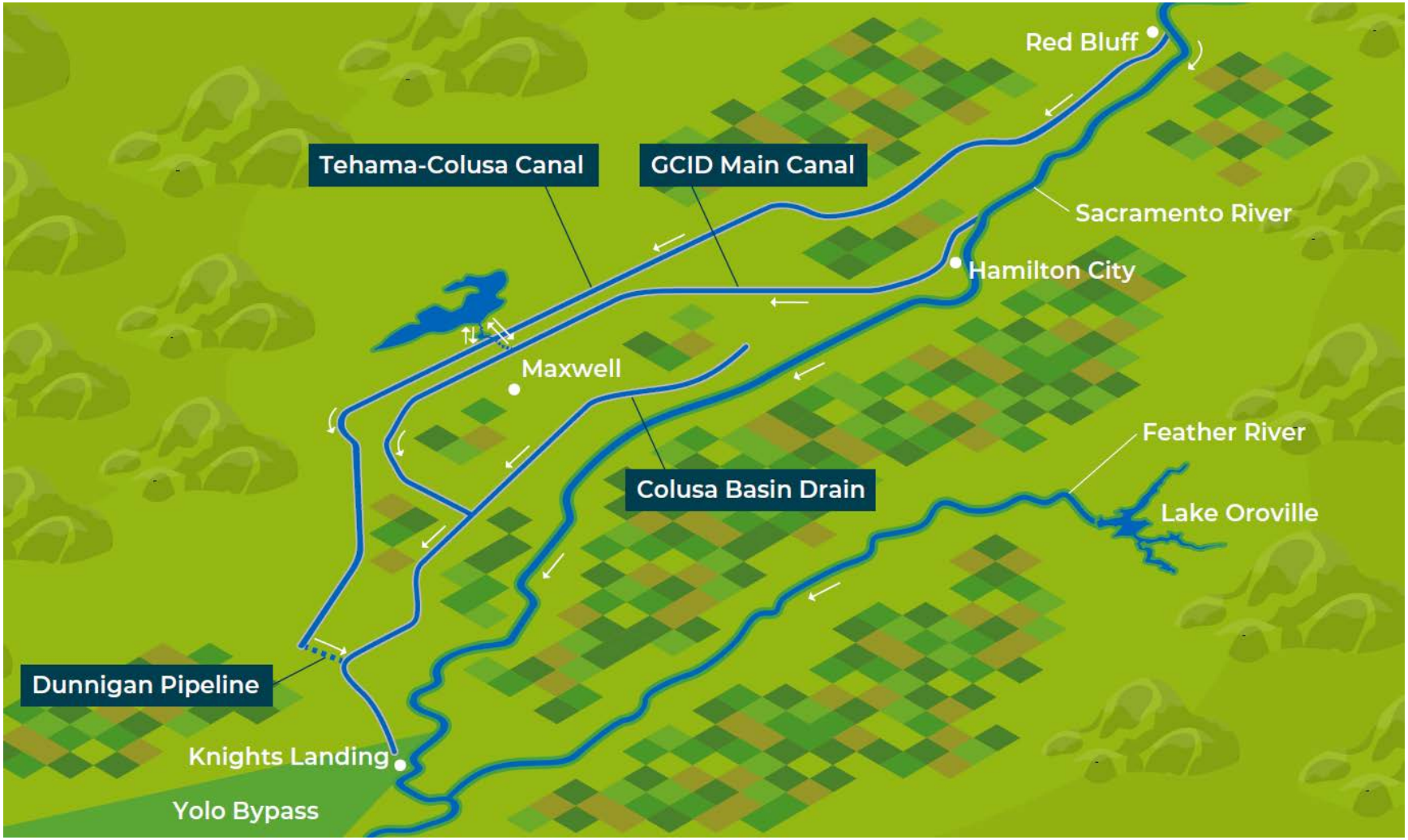
Project Water Operations



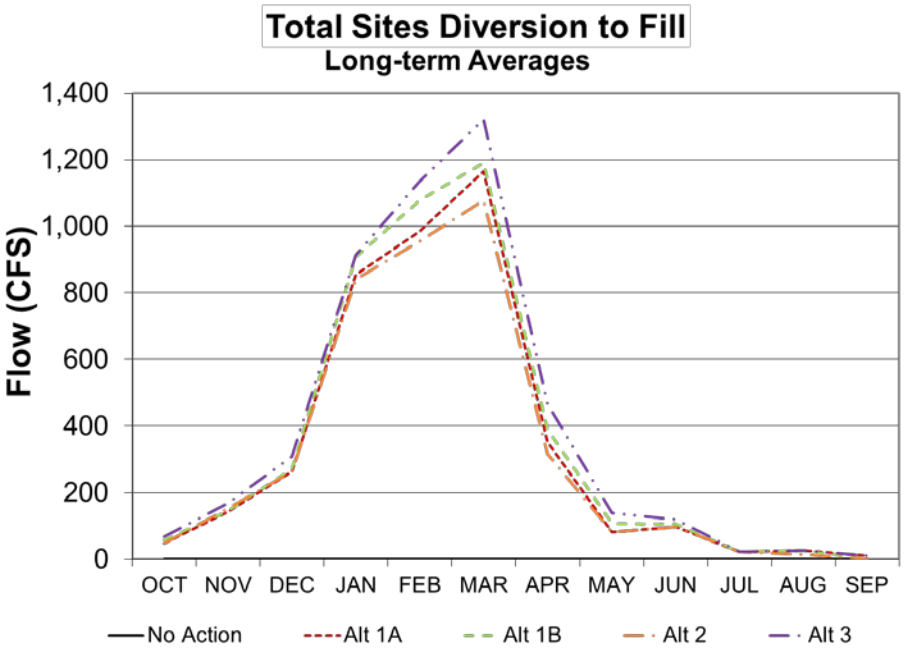
Operations Project Description

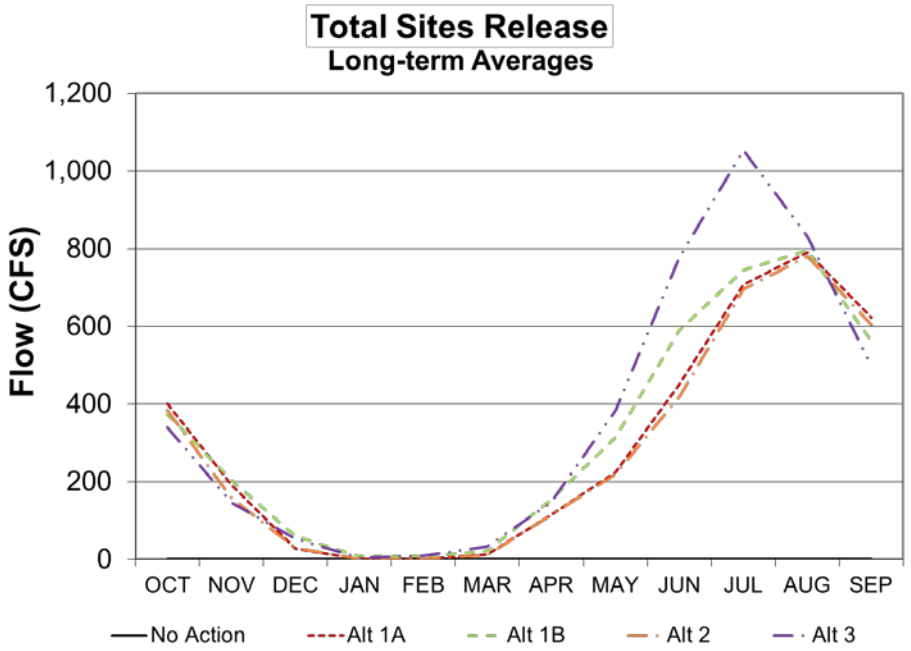
- Operational Criteria
  - Junior diverter – Diverting after all senior water rights and water quality and flow requirement are met
  - Diverting during “excess conditions” (as determined by Reclamation and DWR)
  - Diversion locations in priority:
    1. Red Bluff Pumping Plant into the Tehama-Colusa Canal
       - Up to 2,100 cfs diversion for Sites (plus losses), subject to other uses
    2. Hamilton City Pump Station into the GCID Main Canal
       - Up to 1,800 cfs diversion for Sites (plus losses), subject to other uses
  - Diversions when Sacramento River not fully appropriated (September 1 to June 15)

Operations Project Description (cont.)

- Diversion Criteria
  - Pulse flow protection implemented at Bend Bridge:
    - Each pulse protected (previously protected one pulse per month)
    - Pulse “reset” to differentiate between pulses
  - Wilkins Slough Bypass flow requirements:
    - 8,000 cfs April/May
    - 5,000 cfs all other months
  - Fremont Weir Notch:
    - Objective is to limit changes to frequency and duration
    - Model:
      - First 600 cfs held to 1% change
      - 600 – 6,000 cfs held within 10%
      - No restriction above 6,000 cfs

Diversions and Releases





Modeling and Baseline

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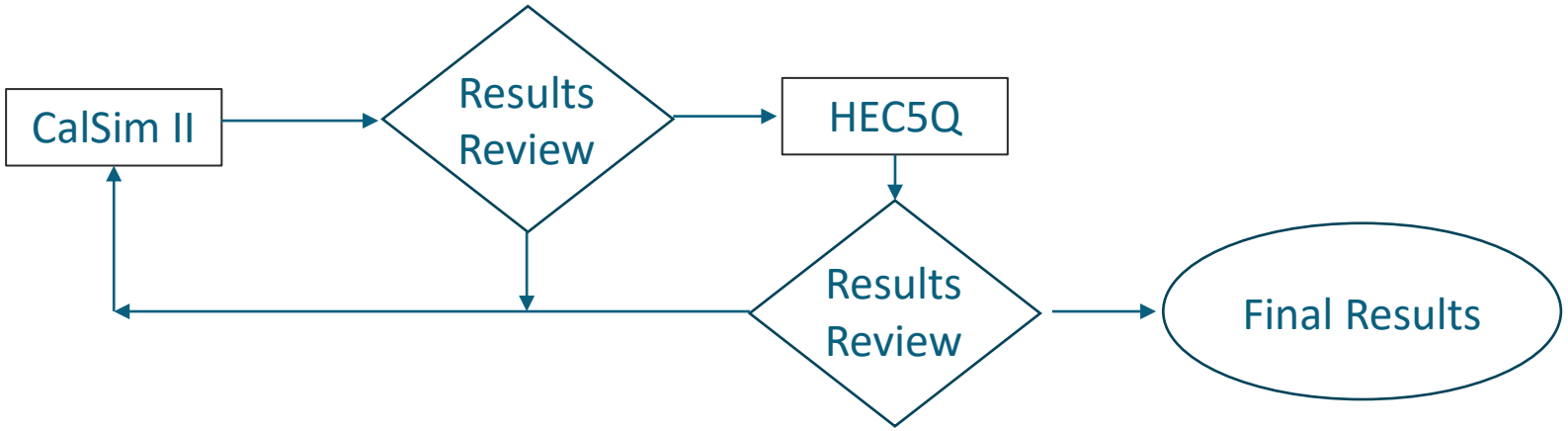
Baseline

- 2020 Benchmark CalSim II Model
  - Existing conditions
  - 2019 BiOps and 2020 SWP ITP
- Developed by Reclamation in coordination with DWR and CDFW
- All baseline actions preserved in alternatives evaluated in Revised Draft EIR/Supplemental Draft EIS

Modeling Framework

- Develop operations in CalSim II
- Inform secondary models with CalSim II results
- Update CalSim II based on analysis of:
  - CalSim II results
  - Secondary model results



CalSim II Model

- Monthly hydrologic operations model
- Developed and maintained by Reclamation and DWR
- Simulates operations of CVP and SWP over a range of hydrologic conditions
- Allows for specification and achievement of user-specified allocation targets

DSM2

- 1-Dimensional Hydrodynamic Model of the Sacramento – San Joaquin River Delta
- Developed by DWR
- Inputs are informed with CalSim II results
- DSM2 Modules:
  - HYDRO: Hydrodynamics
  - QUAL: Water Quality
- Informs aquatics models

HEC5Q

- 1-Dimensional reservoir operation, routing and temperature model
- Sacramento and American Rivers
- Inputs are informed with CalSim II results
- Considers reservoir operations, temperature control devices (TCDs) and meteorology
- Informs aquatics models

Reclamation Temperature Model

- 1-Dimensional reservoir operation, routing and temperature model
- Feather River
- Inputs are informed with CalSim II results
- Considers reservoir operations and meteorology

Winter-Run Early Life Stage Mortality

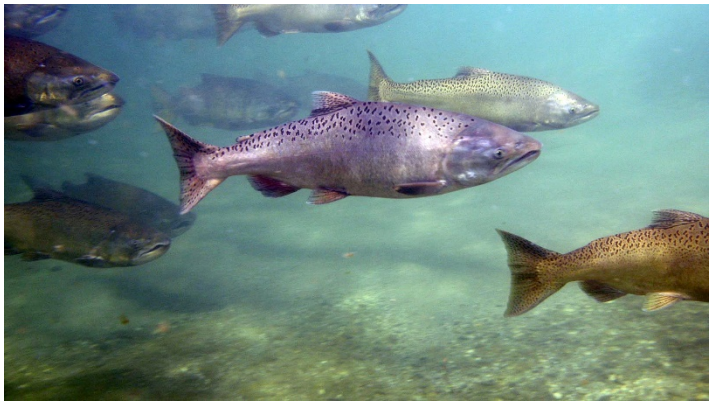
- Two methods:
  - Martin model: Considers temperature throughout redd's lifespan
  - Anderson model: Considers a 5-day "critical period" before hatching
- Relied upon for real-time operations
- Informed with results of HEC5Q model

SALMOD

- Evaluates mortality as a function of flow and temperature
- Considers mortality at several stages of the life cycle
  - Spawning
  - Egg incubation
  - Alevins
- Not a life-cycle model
  - Assumes same number of female returning spawners each year
- Inputs are informed with results of HEC5Q model

Additional Models

- IOS, conducted by Cramer Fish Sciences
- OBAN, conducted by QEDA
- Juvenile Chinook salmon flow-survival threshold analysis (Michel et al. 2021), conducted by ICF
- Various in-river and Bay-Delta species- and effect-specific analyses, conducted by ICF



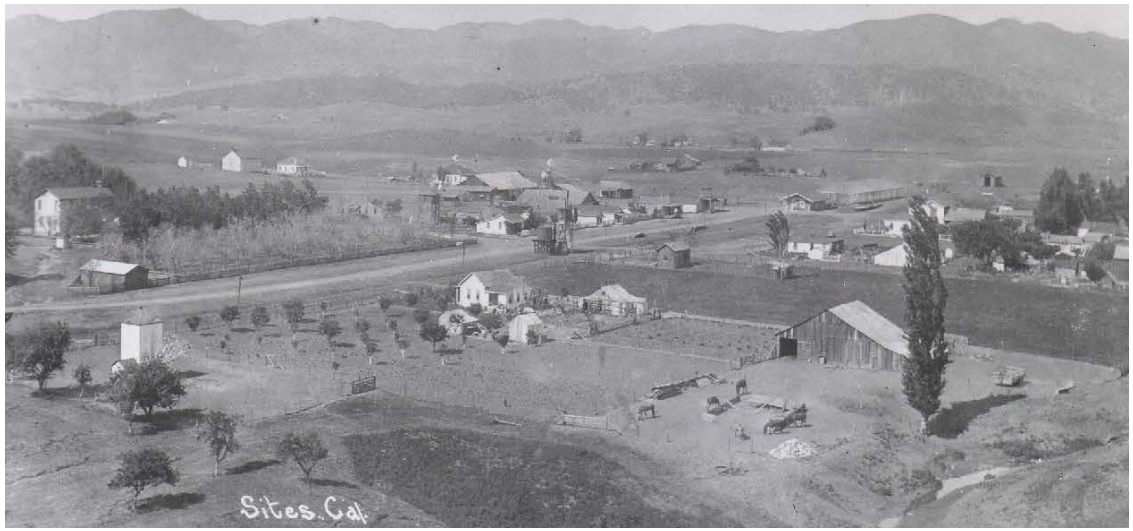
Schedule and Next Meeting

Schedule

- Summer 2021
  - Revised Draft EIR/Supplemental Draft EIS Released
- December 2021
  - Biological Assessment to Agencies
  - Submit State ITP Applications
- Spring 2022
  - Final EIR/EIS
- Spring 2023
  - All permits obtained
- Spring 2024 Construction Begins

Additional Topics from the Group

- Any additional questions or thoughts?
- Topics for the next meeting?



Action Items and Next Steps

Thank you!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