

Floodplains Reimagined

Assessment of Physical Conditions to
Inform Scenario Development

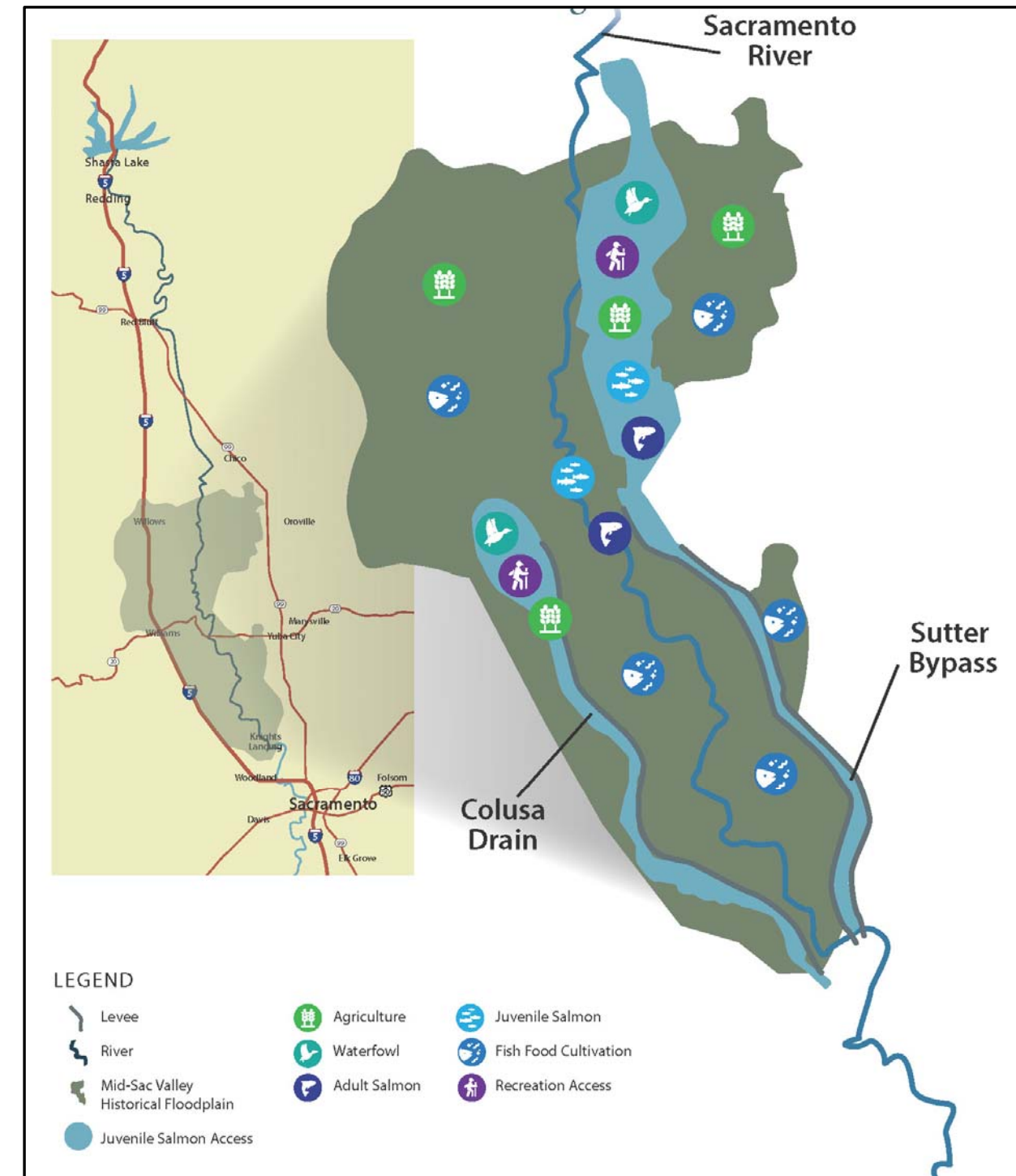
(DRAFT)

August 12, 2022

Objective Statement

Voluntarily increase the frequency and duration of shallow inundation in the winter months through increased connectivity with the Sacramento and Feather Rivers to:

- Improve juvenile salmon migration and access to productive rearing habitat
- Reduce adult fish passage impediments
- Improved Pacific Flyway bird populations
- Improve groundwater recharge
- Respect flood management functions
- Protect existing property and water rights



Types of Preliminary Actions

- River Connections
 - Notch overflow and flood weirs
 - Modify outfall gates
 - Modify existing or add new diversions
 - With or without fish screens
- Floodplain Infrastructure
 - Modify water management
 - Improve fish passage
- Land Management
 - Manage water on the field unit
 - Juvenile rearing
 - Fish food
 - Recharge
 - Fish friendly passage
 - Fish screens



Fremont Weir Adult Fish Passage (credit: DWR)

Types of Preliminary Actions

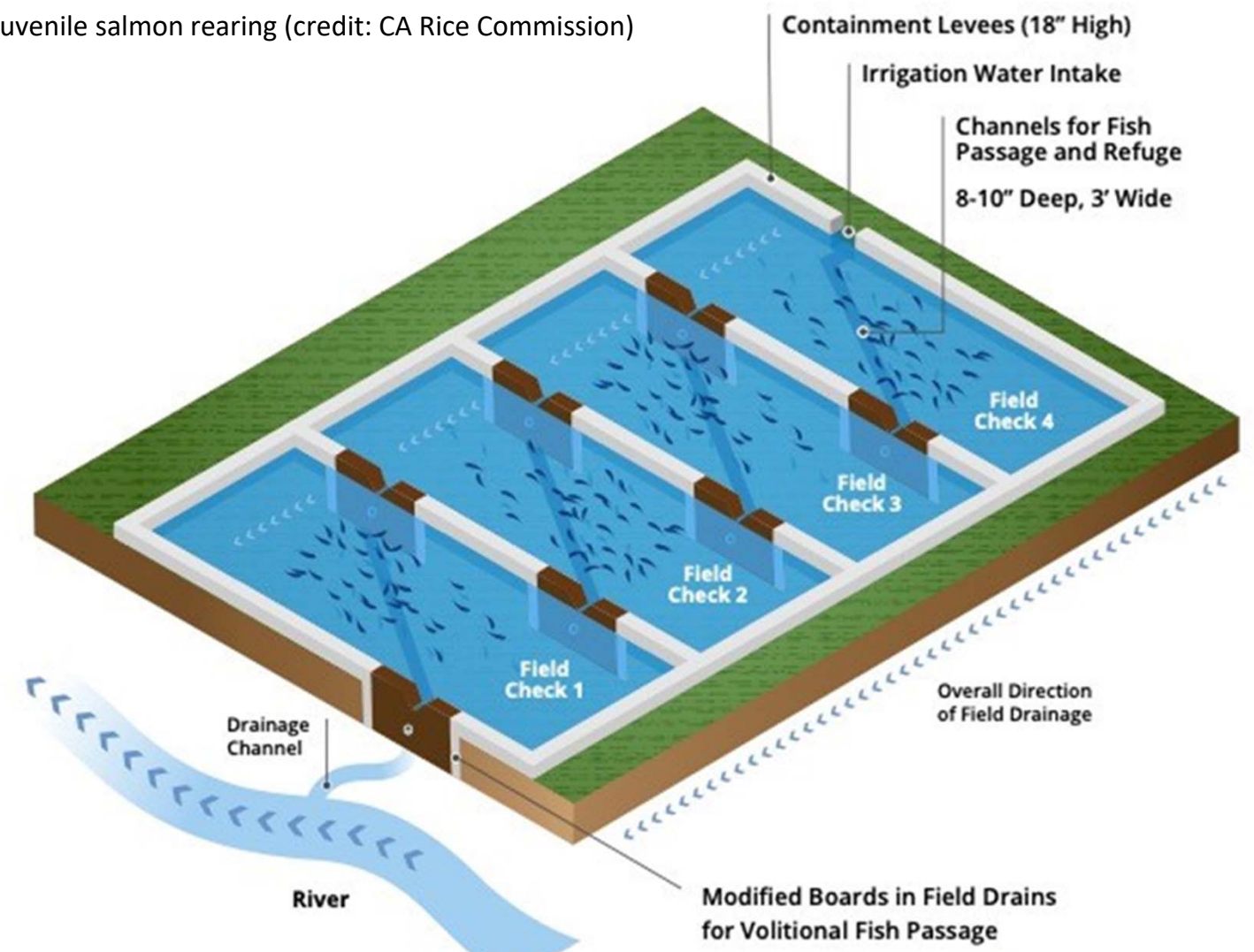
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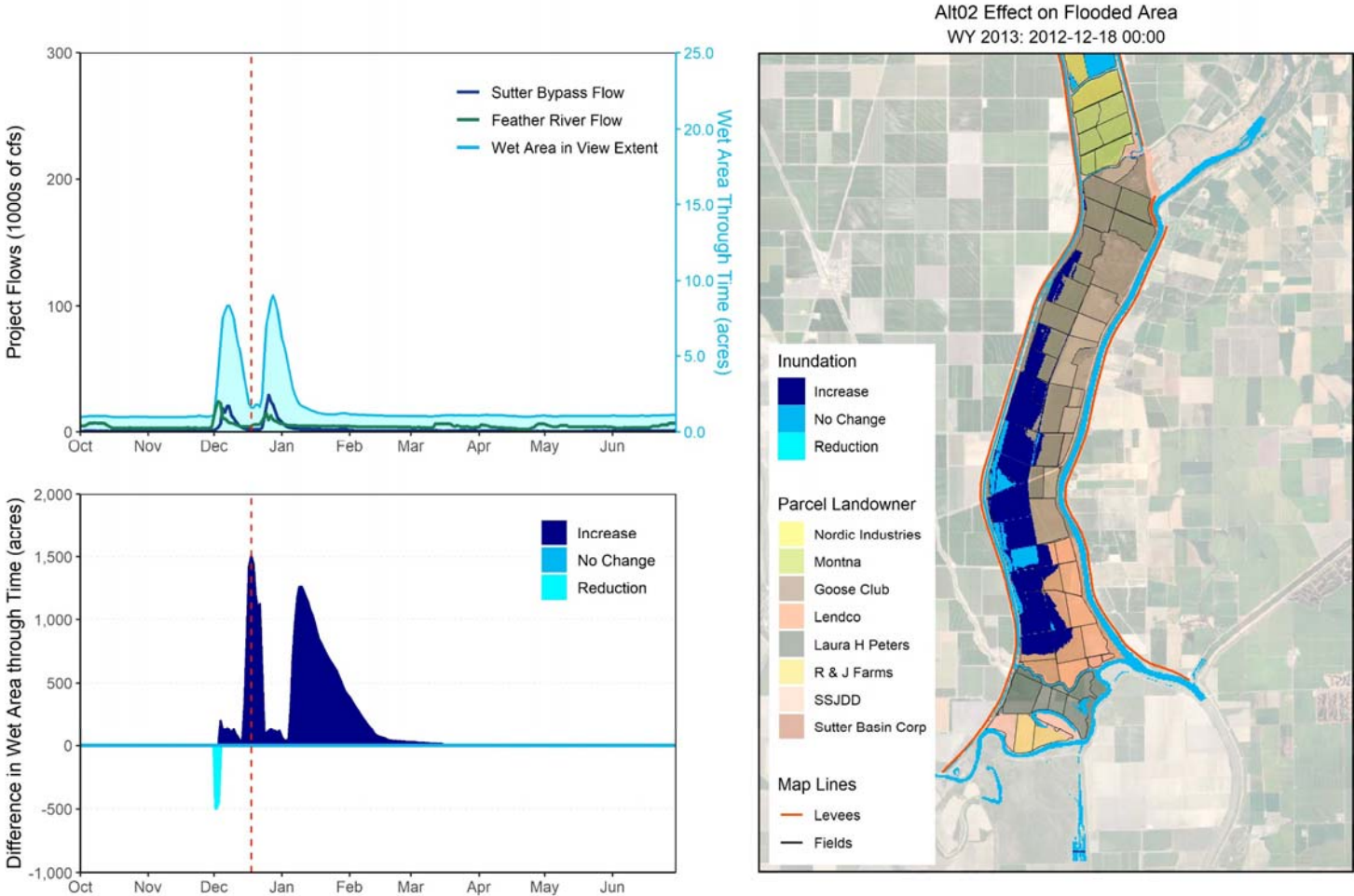
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Juvenile salmon rearing (credit: CA Rice Commission)



Actions are Preliminary!!

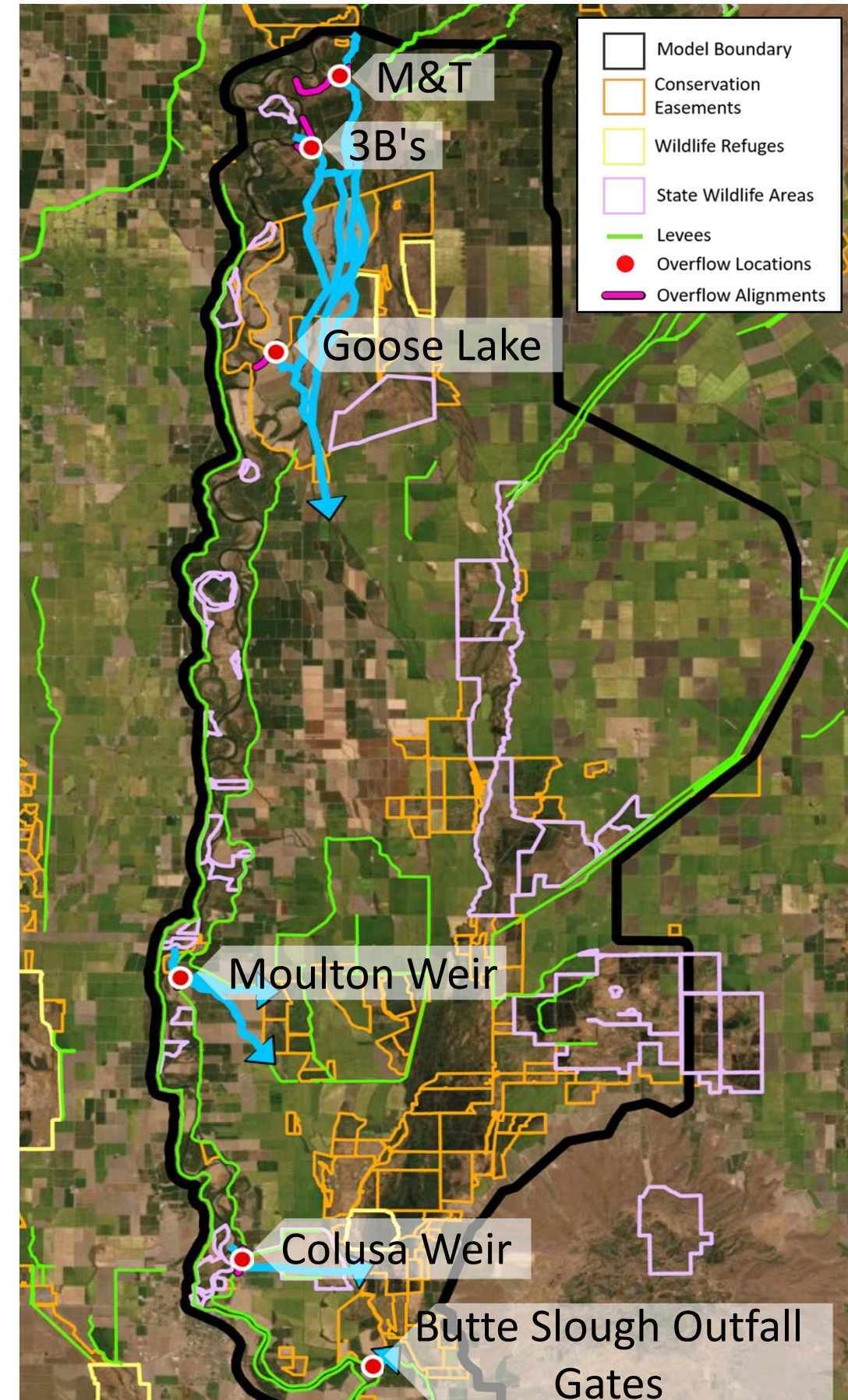
- Actions are dependent on landowner willingness
- Actions require evaluation
 - Are they feasible?
 - Are they beneficial?
 - Do they impact other projects?
 - Big Notch
 - Sites Reservoir



Butte Basin

Preliminary River Connection Actions

- Notch Overflow Weirs
 - M&T
 - 3B's
 - Goose Lake
- Notch Flood Weirs
 - Moulton Weir
 - Colusa Weir
- Re-Op Weirs and Outfall Gates
 - Butte Slough Outfall Gates



Butte Basin

Preliminary River Connection Actions

- Notch Overflow Weirs

- Inlets: regrade oxbows
- Outlets: regrade overflow channels
- Operable notch
 - Nov to mid-Mar; flow TBD; screening TBD

- M&T

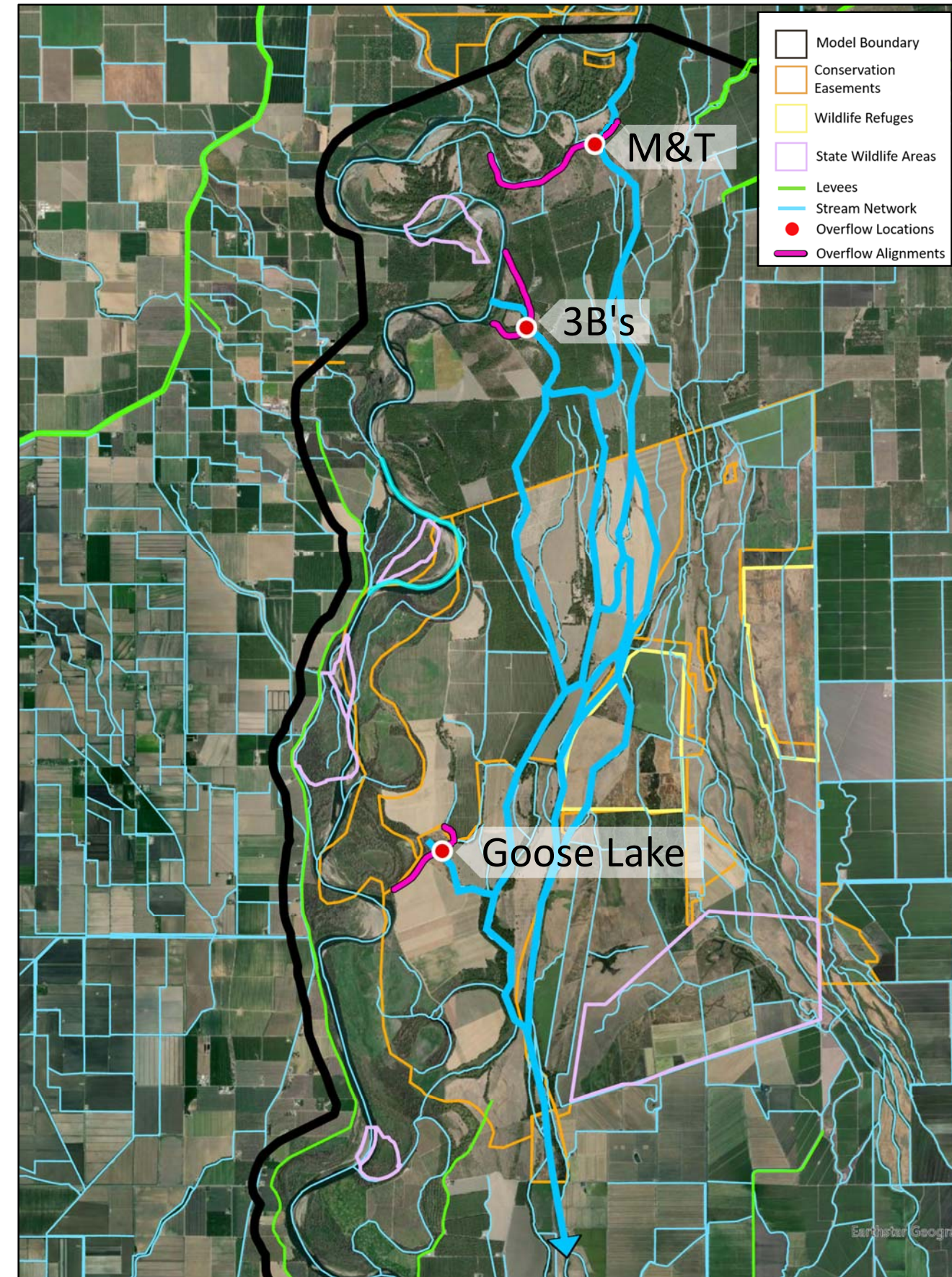
- Operable range: 117 ft to 129 ft
- River flows: 28K to 80K cfs
- Channel grading: 8,700 ft

- 3B's

- Operable range: 107 ft to 115 ft
- River flows: 29K to 80K cfs
- Channel grading: 8,100 ft

- Goose Lake

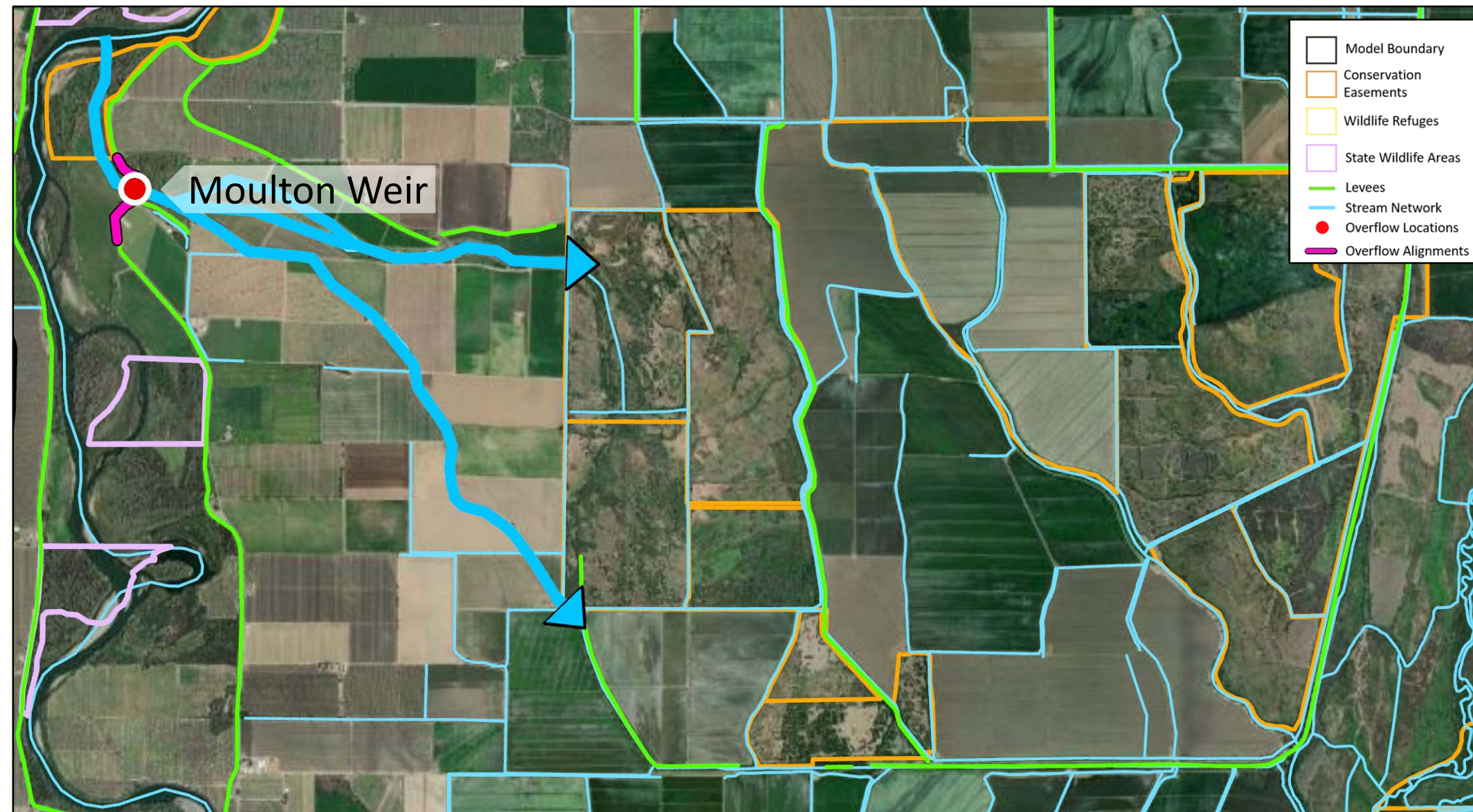
- Operable range: 96 ft to 105 ft
- River flows: 31K to 80K cfs
- Channel grading: 7,900 ft



Butte Basin

Preliminary River Connection Actions

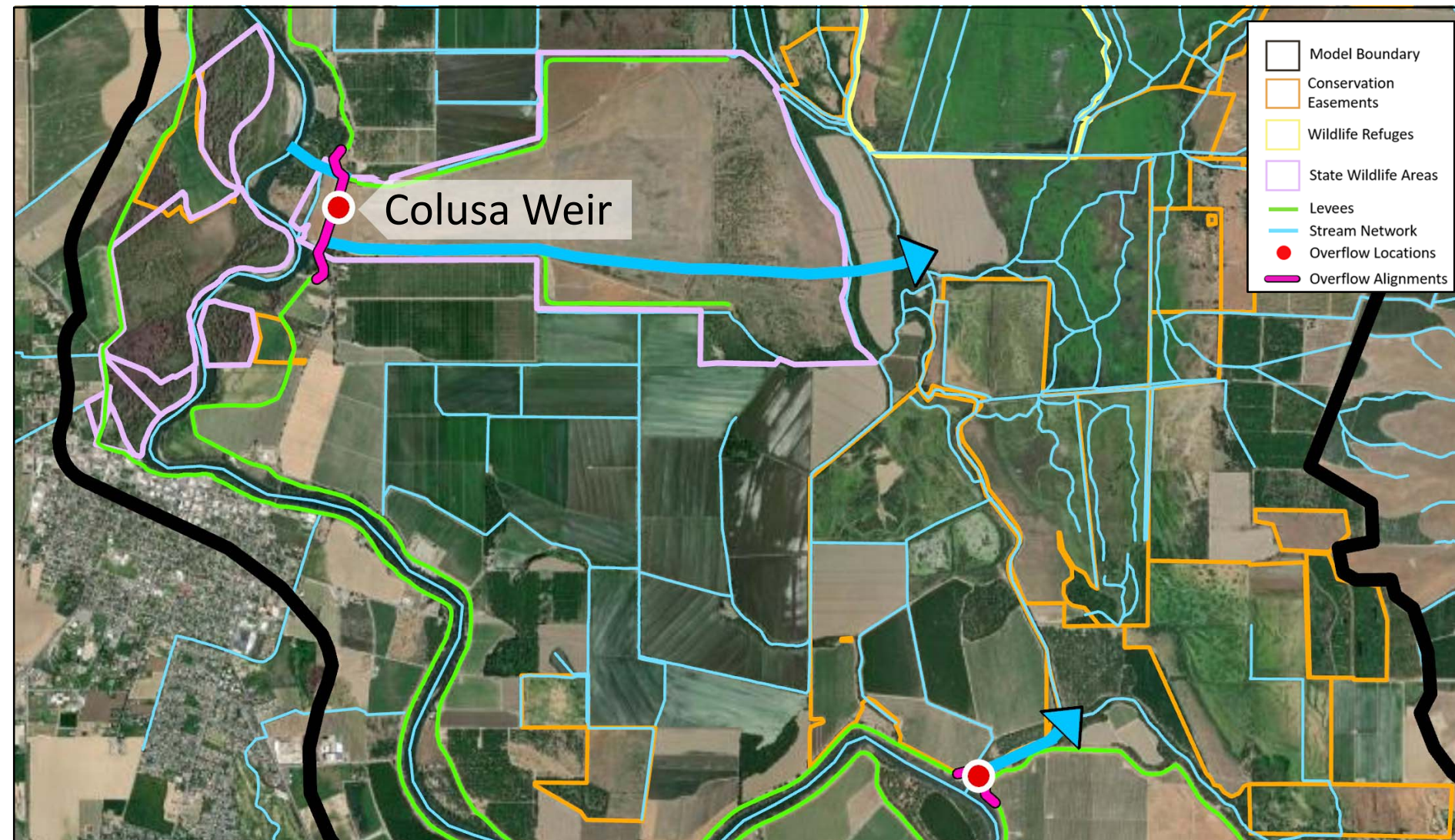
- Notch Moulton Weir
 - Inlet: grade channel, 3800 ft
 - Outlet: regrade overflow channels
- Operable notch:
 - Nov to mid-Mar
 - Flow TBD
 - Screening TBD
 - Range: 61 ft to 76 ft
- River flow: 35K to 60K cfs



Butte Basin

Preliminary River Connection Actions

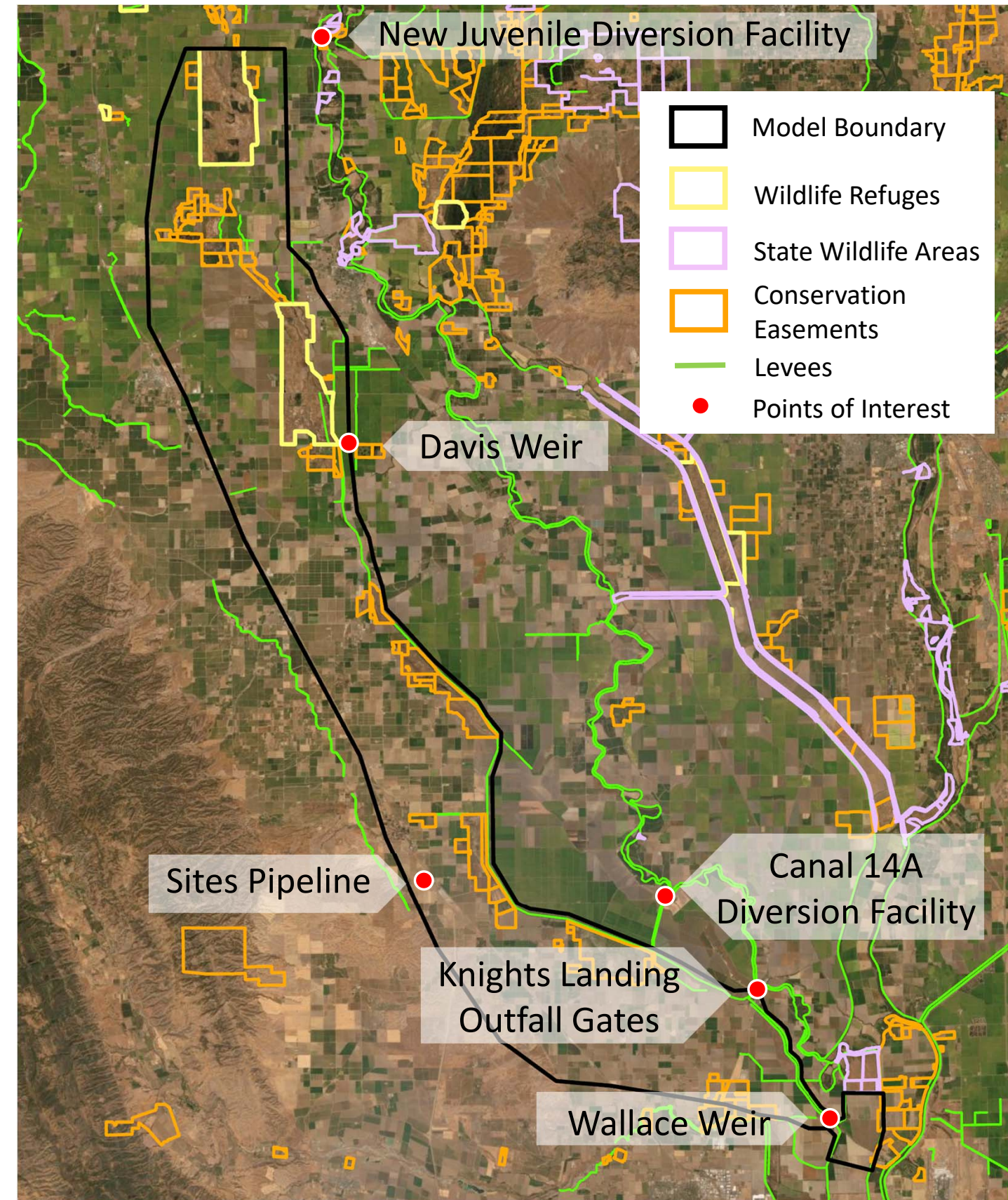
- Notch Colusa Weir
 - Inlet: regrade oxbows (1300 ft)
 - Outlet: excavate channel (15,000 ft)
- Operable notch:
 - Nov to mid-Mar
 - Flow TBD
 - Screening TBD
 - Range: 54 ft to 61 ft
- River flow: 20K to 35K cfs
- Re-Op BSOG
 - Bring more flows into bypass
 - Provide adult fish passage
 - Return fish food to the river



Colusa Basin

Preliminary River Connection Actions

- Re-Op Diversions
 - New Juvenile Diversion Facility
 - Canal 14A Diversion Facility
- Re-Op Weirs and Outfall Gates
 - Knights Landing Outfall Gates
 - Wallace Weir
- Sites Environmental Flows
 - Sites Pipeline

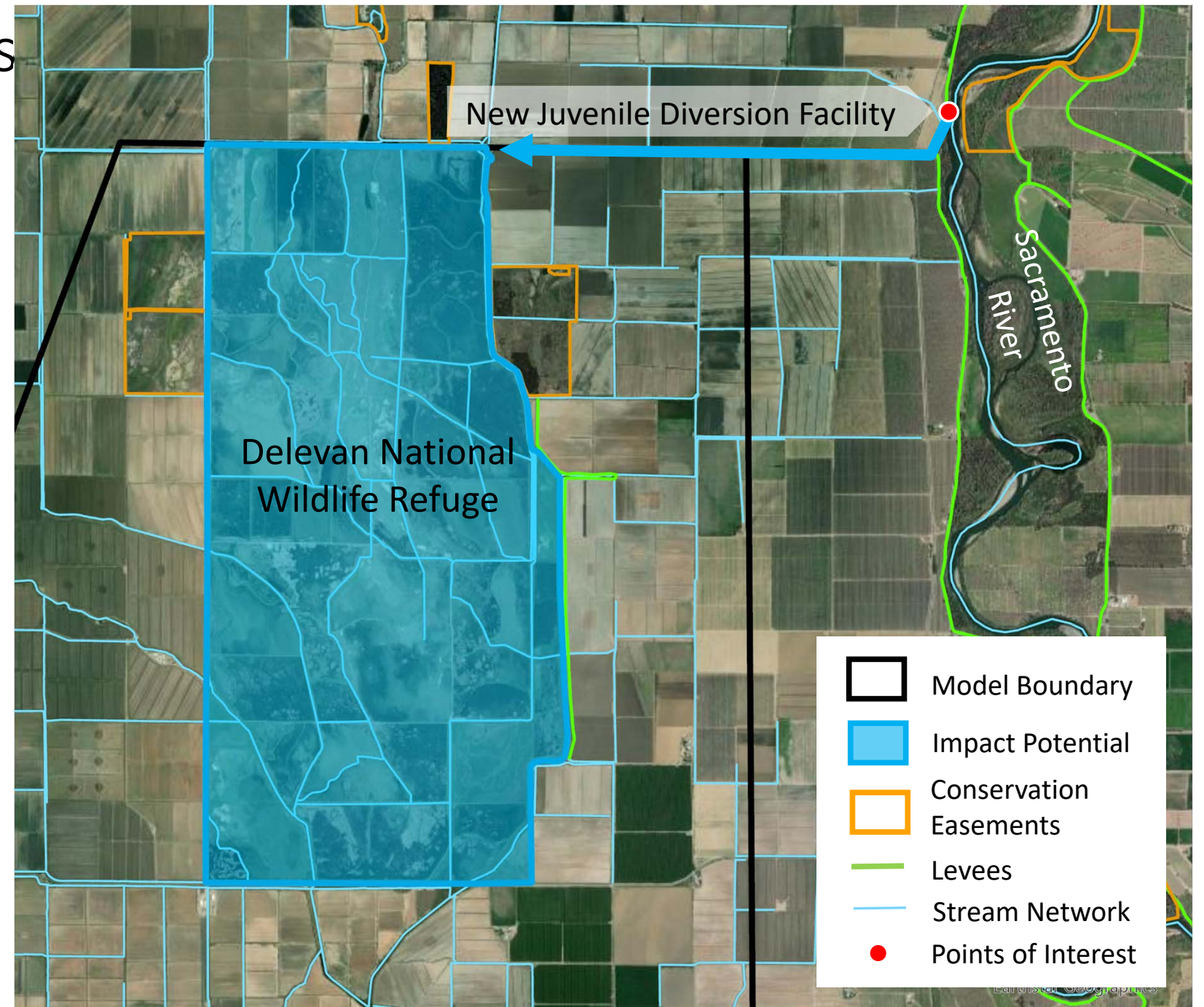


Colusa Basin

Preliminary River Connection Actions

- **New Juvenile Diversion Facility**

- Nov to mid-Mar
- Pump or gravity options
- Improve canal
- Create rearing and fish food habitat within refuge

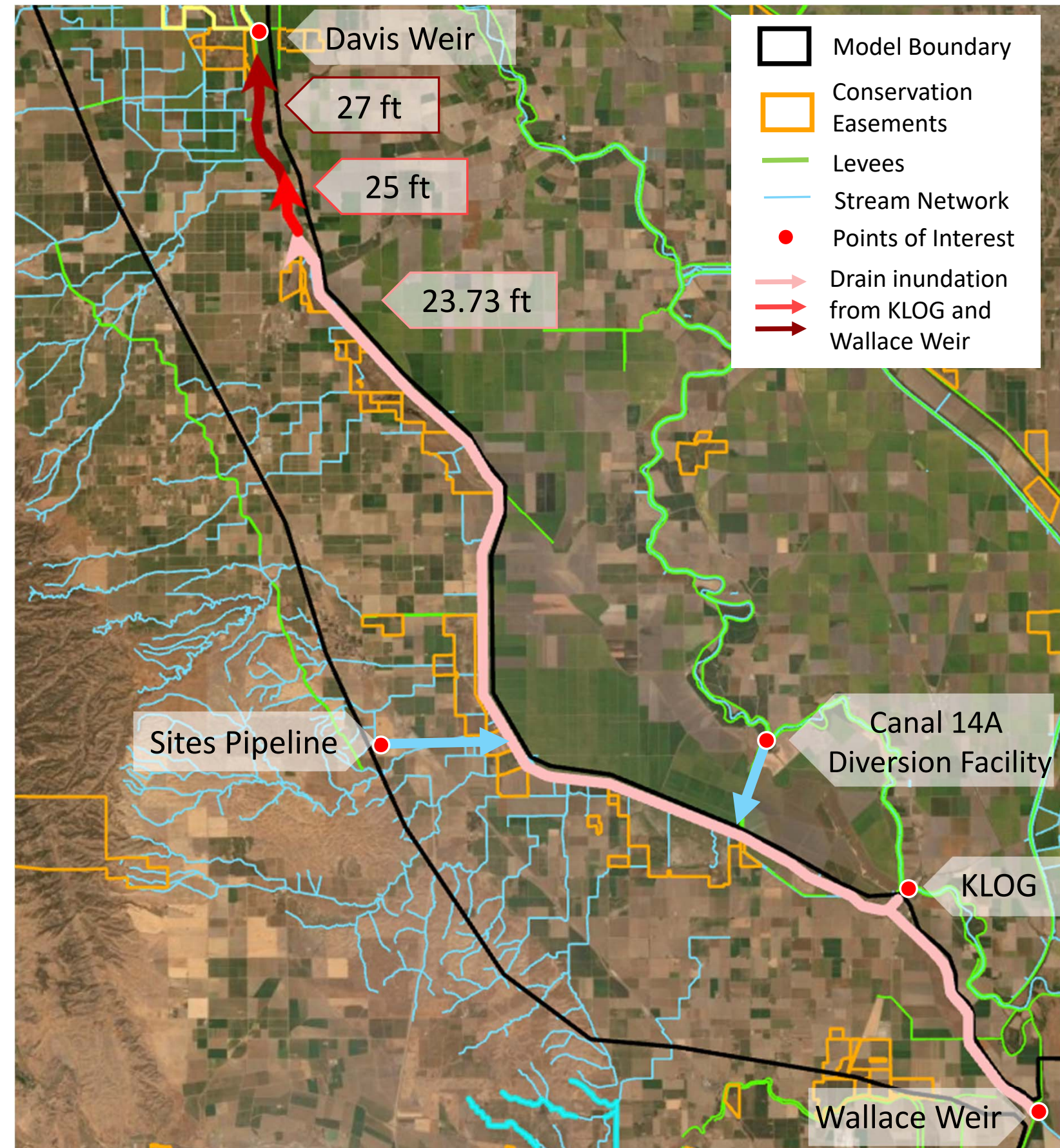


Colusa Basin

Preliminary River Connection Actions

- Lower Basin Actions

- Nov to mid-Mar
- Re-Op Canal 14A Diversion Facility
 - Pump or gravity options
- Sites Environmental Flows
 - Alter timing of environmental flow releases (TBD)
- Re-Op KLOG
- Re-Op Wallace Weir



Colusa Basin

Preliminary River Connection Actions

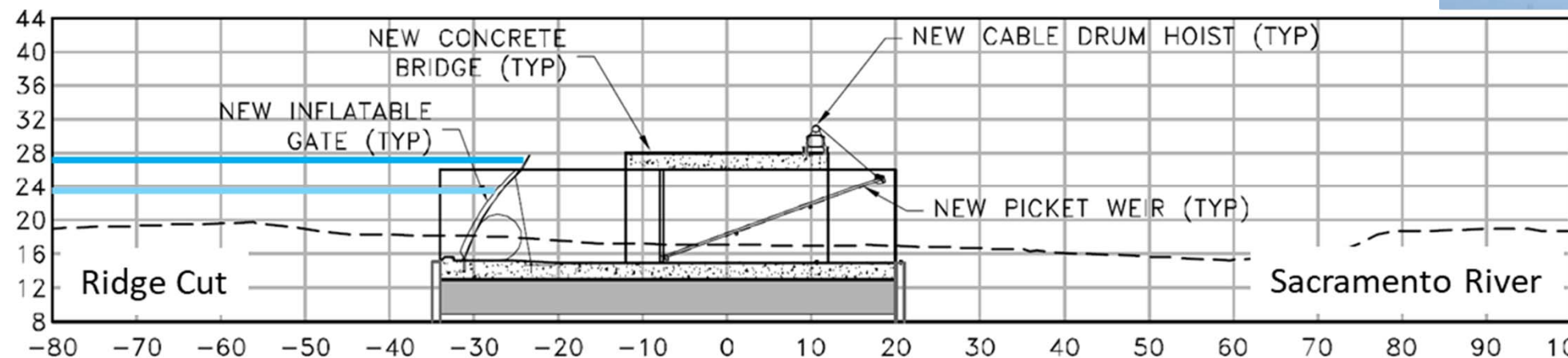
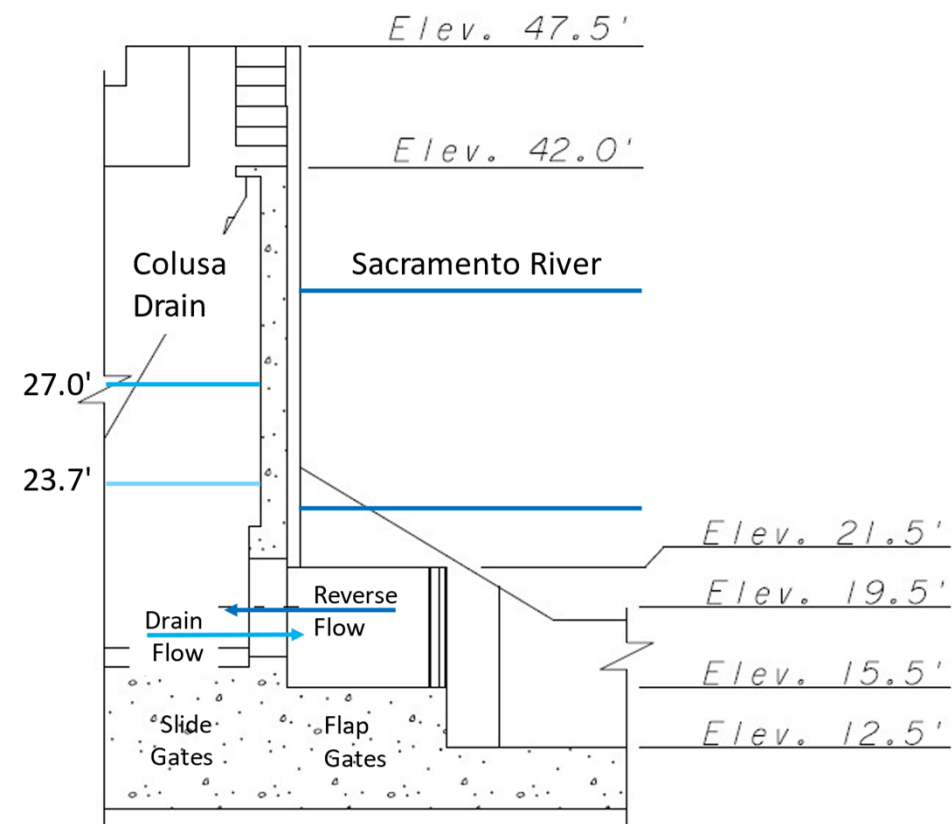
- Lower Basin Actions

- Re-Op KLOG

- Normal ops: flow to river when drain level is higher than river level
 - Re-ops: reverse flow via open flap gates

- Re-Op Wallace Weir

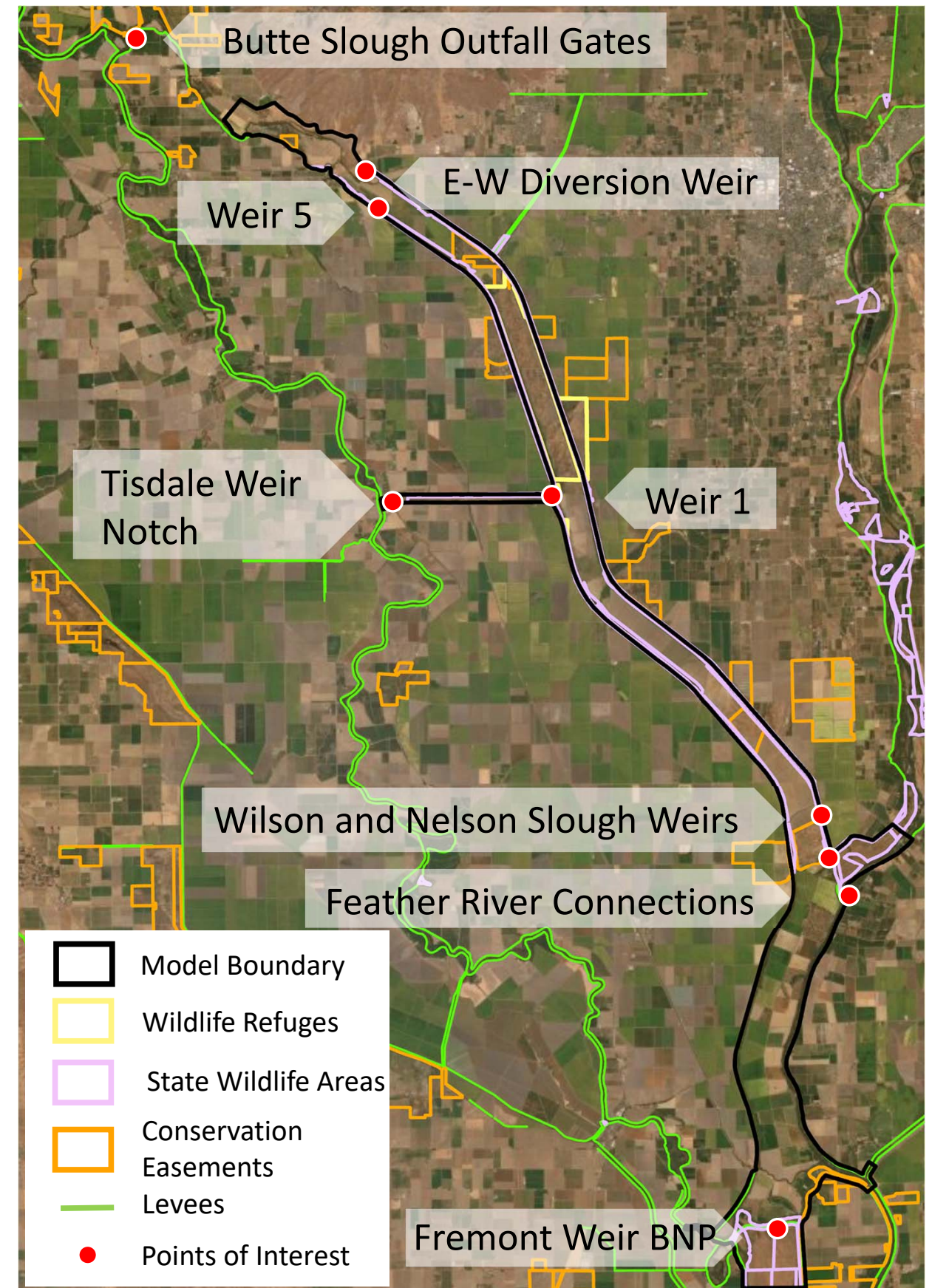
- Operate inflatable gate to a higher level to backwater canal
 - 23.7 ft NAVD88 = normal drain level
 - 27 ft NAVD88 = maximum weir crest



Sutter Bypass

Preliminary Actions

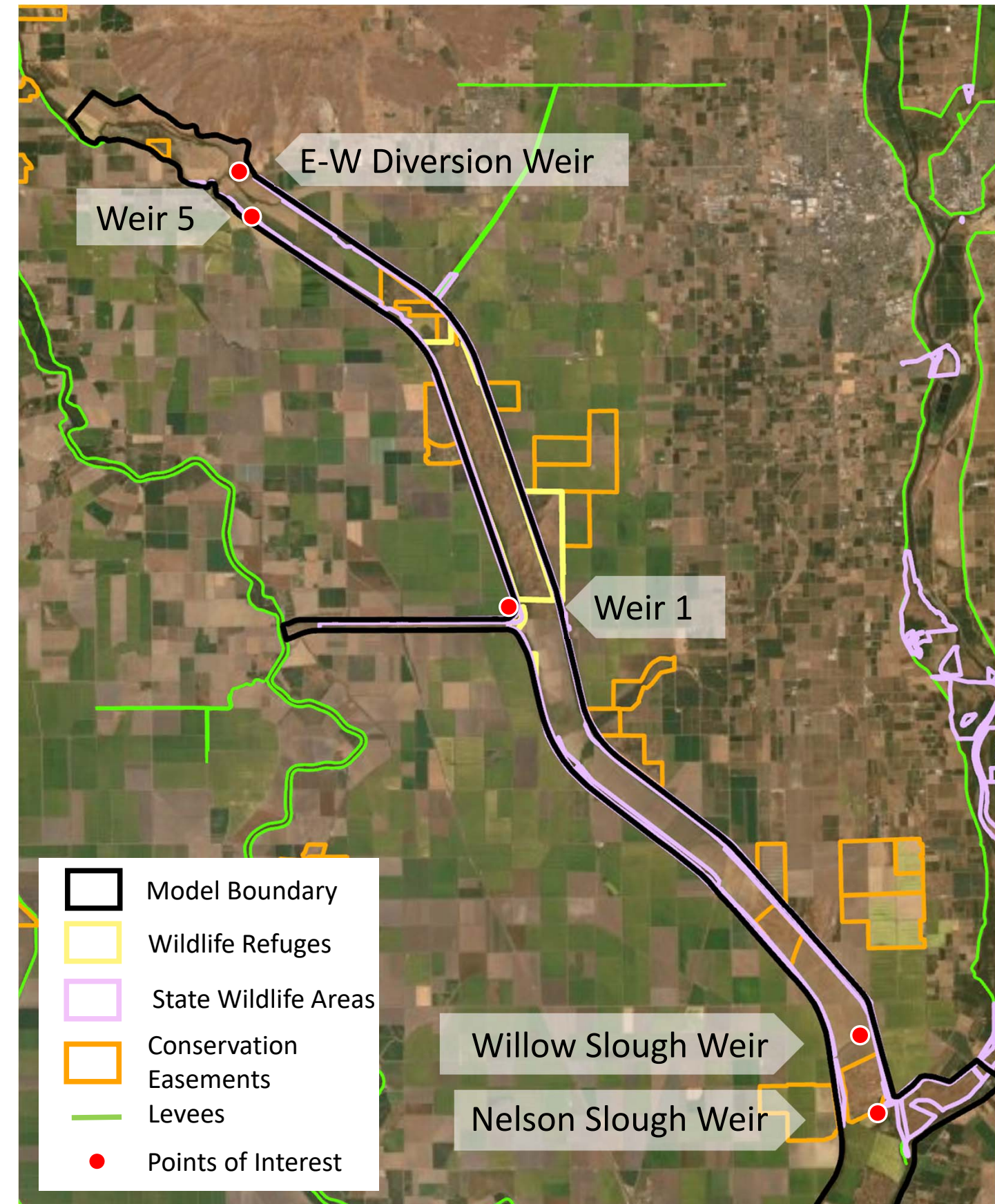
- Work in Progress
 - Actions are being evaluated as part of:
 - Sutter and Tisdale Bypasses Flood and Multi-Benefit Management Plan (RD 1500)
 - Lower Sutter Bypass Anadromous Fish Habitat Management Planning Project (River Partners)
- Re-Op Weirs and Outfall Gates
 - East-West Diversion Weir and Weir 5
 - Weir 1
 - Willow Slough and Nelson Slough Weirs
- Notch Flood Weirs
 - Re-Op Tisdale Weir Operable Notch
- Other
 - Feather River connections



Sutter Bypass

Preliminary Infrastructure Actions

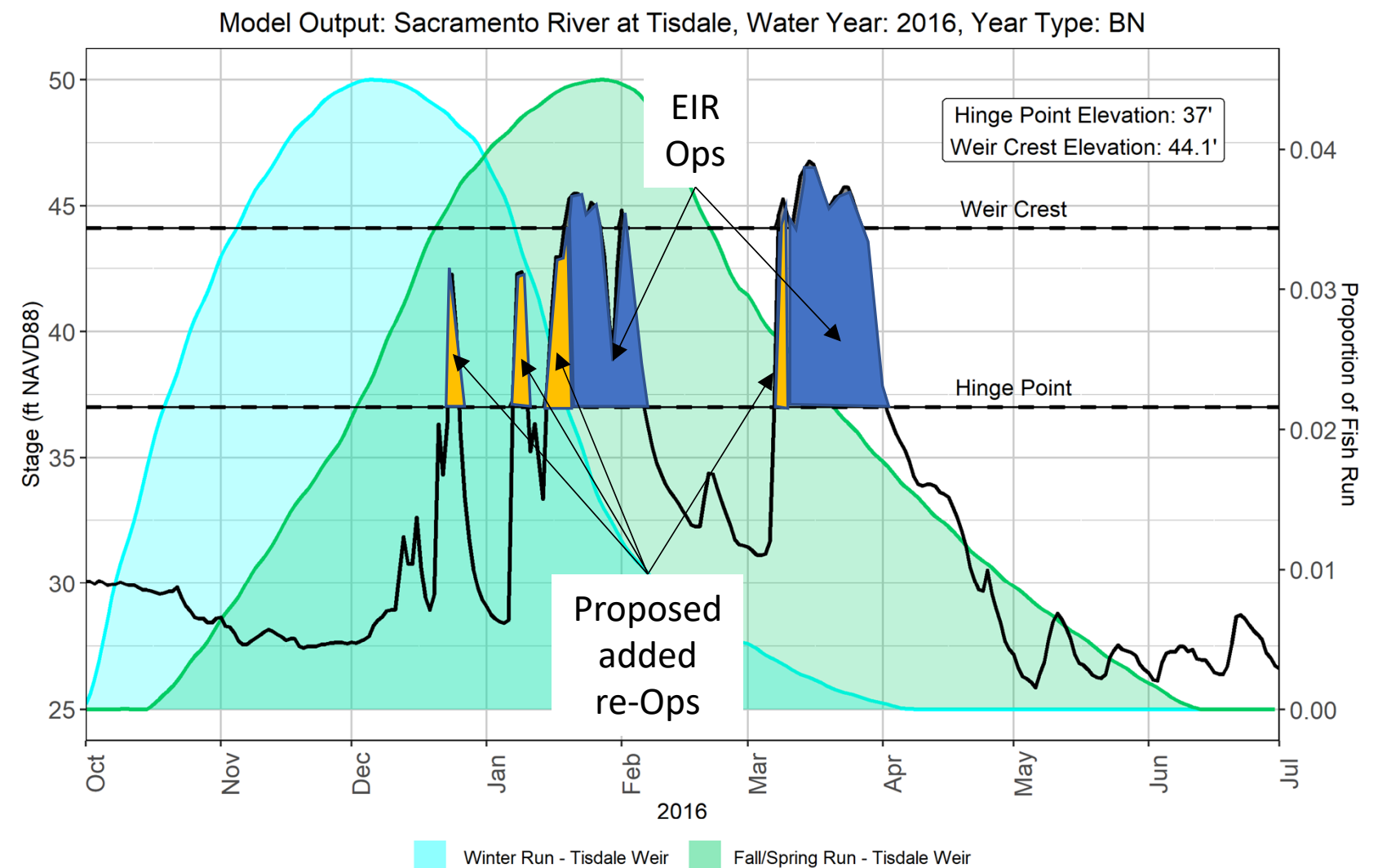
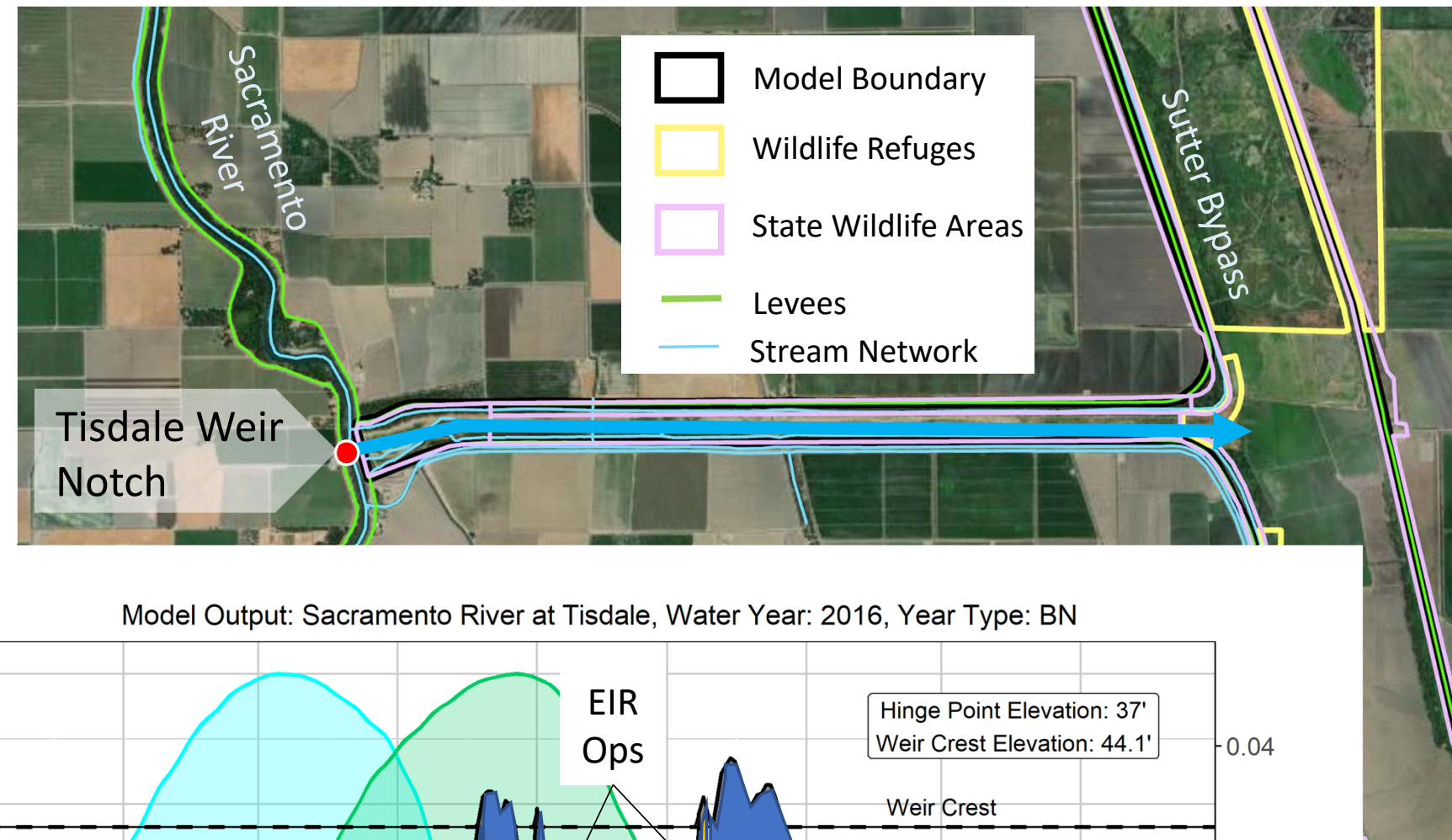
- Re-Op Weirs
 - East-West Diversion Weir and Weir 5
 - Redirect flows from West Borrow Canal to East Borrow Canal
 - Weir 1
 - Rehab weir and construct new cross canal
 - Redirect flows from West Borrow Canal to East Borrow Canal
 - Fish passage
- Willow Slough and Nelson Slough Weirs
 - Re-op to maintain a higher East Borrow Canal base stage



Sutter Bypass

Preliminary River Connections

- Re-Op Tisdale Weir Notch
 - Normal ops: post weir overtopping per EIR
 - Re-ops: all river pulses, weir overtopping not required
- Operable notch
 - Nov to mid-Mar for re-ops
 - Flow < 2500 cfs
 - Range: 37 ft to 44 ft
- River flow: 15K to 22K cfs



Sutter Bypass

Preliminary River Connection Actions

- Feather River Connections
 - Improve borrow canal conveyance at lower flows
 - Notch flood control rock weir to enhance connectivity at moderate flows
 - Enhance scour channel connectivity under a range of flows

