# Lower Mokelumne River Project

## FERC Project No. 2916

## Technical Work Group (TWG) Meetings
## Fish & Aquatics

July 30, 2025

EBMUD

Kleinschmidt

# AGENDA

- **Welcome and Introductions**
- **Schedule Recap**
- **Review Preliminary Draft Study Plans**
- **Review TWG member comments and questions**
- **Action Items, Schedule and Next Steps**

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# Welcome & Introductions

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# Lower Mokelumne Relicensing Team

| Project Management Team | Resource Leads |
| --- | --- |
| | Michelle Workman |
| Priya Jain | James Jones |
| | Casey Del Real |
| Brad Ledesma | Jason Zhou |
| | Alice Towey |
| Joe Tam | Ben Bray |
| | I-Pei Hsiu |
| Karen Donovan | |

| Consultant Team | Facilitator |
| --- | --- |
| *Kleinschmidt* | Marie Rainwater |
| Shannon Luoma | |
| Fatima Oswald | |
| Olivia Smith | |
| Craig Addley | |

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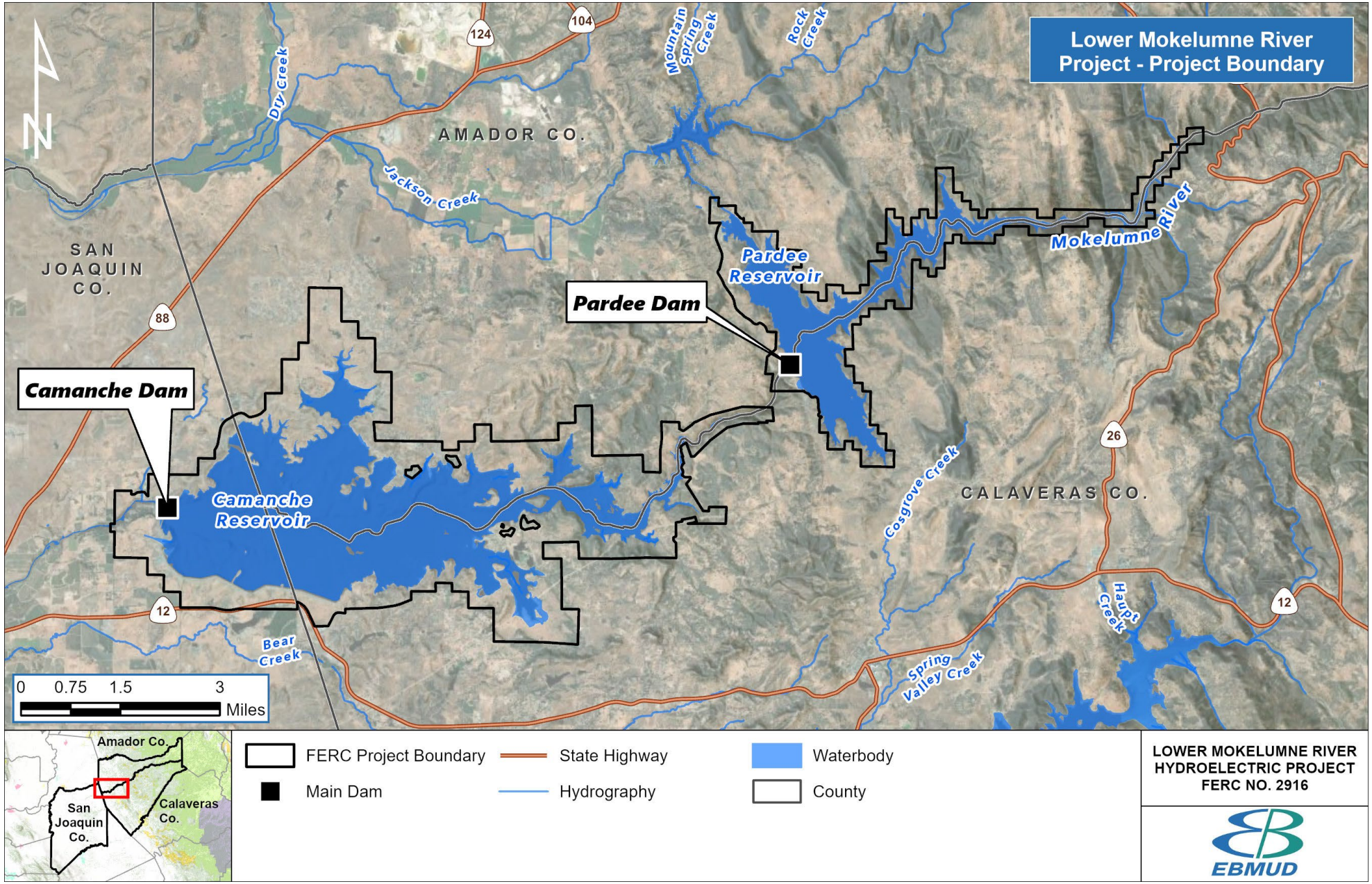
# Meeting Purpose and Objectives

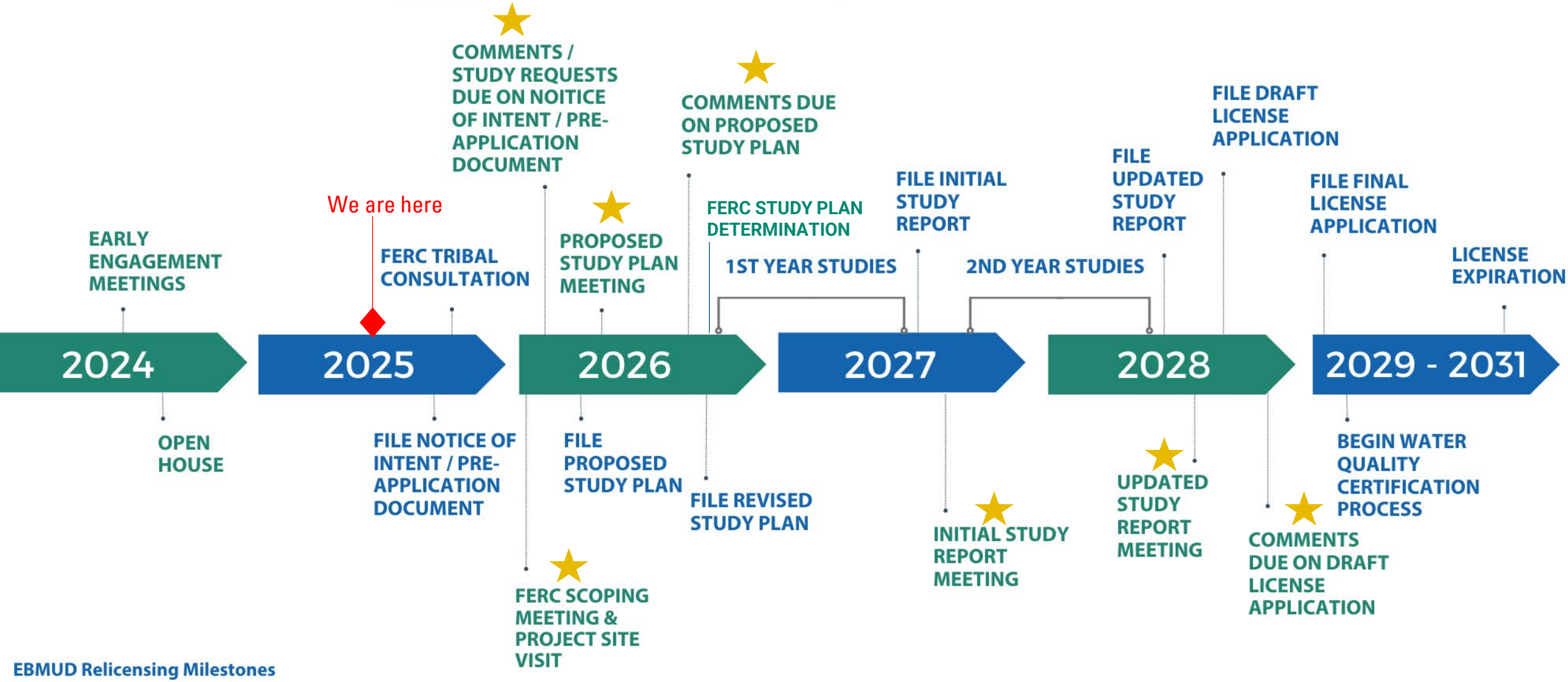
- Review preliminary draft study plans
- Review TWG Comments/Questions

# Lower Mokelumne River Project (P-2916)



# RELICENSING SCHEDULE

Lower Mokelumne River Project, FERC No. 2916




EBMUD Relicensing Milestones

Interested Parties Involvement Opportunities

★ Comment Opportunities (not all are shown)

# **Potential Study –** Reservoir Fish Habitat Study

Goals & Objectives:

- Summarize current fish species assemblage data, stocking records, and fishing success for Project reservoirs.
- Characterize existing Project daily water surface elevation patterns and pool habitat volumes (cold water, warm water, dissolved oxygen) at each reservoir.

Potential Methodology:

- Quantify cold and warm water reservoir habitat over the period of record (POR) (2001 -2024)
  - Use the hydrology model to characterize reservoir operations.
  - Use the water temperature model to characterize reservoir water temperatures.
  - Quantify cold water habitat (water temperature ≤20ºC and DO ≥7 mg / l).
  - Quantify warm water habitat (water temperature >20ºC and DO ≥5 mg / l).

# **Comments Received –** Reservoir Fish Habitat Study

**<u>Comments from Foothills Conservancy:</u>**

- **Are these studies a reanalysis of data collected in 2020-2024 or an expanded analysis of data collected during those years?  Or both?**
    - *The Reservoir Fish Habitat Study is an analysis of the availability of physical reservoir habitat (temperature, dissolved oxygen, reservoir volume) for the entire hydrologic model period of record (2020-2024)*

# **Potential Study –** Instream Flow Study

Goals & Objectives:

- Summarize the historical instream flow modeling
- Use the current HEC-RAS hydraulics / habitat model to characterize habitat versus flow relationships to develop a time series analysis of aquatic habitat under existing conditions.
- Identify the time periods, flow conditions, and life stages when habitat may be a limiting factor for fish, benthic macroinvertebrates, other aquatic species, and riparian vegetation.

Potential Methodology:

- Establish an Aquatic TWG to provide input and technical review of modeling procedures.
- Identify the target species and life stages for modeling based on management importance and/or sensitivity to Project operations.
- Use the current HEC-RAS hydrodynamic and habitat model
  - Use existing modeling reaches
- Develop a time series analysis of habitat for existing conditions.

# **Comments Received –** Instream Flow Study

**<u>Comment from CDFW:</u>**

- **Although habitat is a crucial factor for salmonid success, temperature and flow are of equal or greater importance. They are necessary components that should be included in the Instream Flow Study Plan to determine potential Project impacts on egg survival and juvenile rearing and migration.**
    - *Comment noted. The instream flow study will include flow and incorporate water temperature as developed in the Water Temperature Study.*

# **Potential Study –** Fish Population Study

Goals & Objectives:

- Document fish species composition, distribution, and abundance in the reservoirs and river reaches.
- Characterize fish growth, condition factor, and population age structure in the reservoirs and river reaches.
- Collect fish for mercury tissue analysis

Potential Methodology:

- Use the existing reservoir and river sampling / monitoring program (2027).
- Document fish species composition, distribution, and abundance in the reservoirs and river reaches using historical and recently collected data.
- Characterize fish growth, condition factor, and population age structure in the reservoirs and river reaches using historical and recently collected data.
- Collect fish for mercury tissue analysis in the Water Quality Study

# **Comments Received–** Fish Population Study

**Comments from CDFW:**

- **The number of water temperature and dissolved oxygen (DO) monitoring locations in the FPSP should be increased and the data collected used to conduct egg survival estimates for instream spawning. The temperature and DO data collected should be made available publicly in a real-time manner, similar to real-time data provided by the California Data Exchange Center (CDEC).**
- **Fry emergence trapping should be added as a component of the FPSP to determine egg survival and compared with egg survival estimates.**
    - *EBMUD is developing an egg survival study which includes water quality monitoring such as temperature and dissolved oxygen (DO). At this time, EBMUD is not committing to providing data real-time as part of the study plan however, the study will include collection of temperature and DO.*
- **The FSPS should be revised to include locations where out-migrating fall run Chinook salmon smolt mortality is occurring. This information should be recorded and reported to Project stakeholders as they move downstream. Additional rotary screw trap monitoring sites, juvenile salmon acoustic telemetry system, or passive integrated responder antenna monitoring should be added in consultation with Project stakeholders to narrow down location specifics as appropriate. Solutions to address the high mortality rate in these locations should be developed for stakeholder approval.**
    - *EBMUD will develop a juvenile mortality study.*
- **The FPSP should be revised to allow for the investigation and modeling of an installed coldwater release device/system in Camanche Reservoir to allow for cooler water temperatures and improved fishery conditions in the Mokelumne River.**
    - *EBMUD is proposing a Water Temperature Study plan where this comment will be addressed.*
- **Please provide the results of the most recent fish population study to inform comments on the draft Reservoir Fish Habitat Study Plan. CDFW staff may have additional comments or suggested revisions on the draft Reservoir Fish Habitat Study Plan once we have had the opportunity to review this data.**
    - *Recent information on fish populations can be found online. All interested parties will have another opportunity to review study plans as part of the ILP following PAD filing.*

# **Comments Received–** Fish Population Study

**Comment from Foothills Conservancy:**

- ***Hatchery Operations indicates that EBMUD plans to identify limiting factors related to successful hatchery operations. Some of these key factors should be identified in the study plan, such as water supply issues, water temperature changes, fish disease threats and hatchery structure deficiencies etc. The ability of the hatchery to successfully continue its salmon and steelhead mitigation is important and impacts both recreational fishing, and potentially using hatchery fish to help restore some native aquatic ecosystems upstream of the project. This is something that had considerable support, but has been delayed due to fish disease concerns that have been overcome at some projects elsewhere on the west coast. Section 8.0 indicates that this is a single year study. Elsewhere in the plan it indicates that it will include river sampling over several years (2026 and 2027).***
    - *Comment noted.*

# **Comments Received–** Fish Population Study

**<u>Comment from Foothills Conservancy:</u>**

- **There haven't been anything in these plans about addressing the threat from invasive golden mussels which are impacting recreational fishing and boating in the project area. Will this be part of the Aquatic TWG activities or another relicensing group?**
    - *EBMUD is actively working on golden mussel monitoring, including eDNA monitoring.*

# **Potential Study –** Special Status Amphibians & Aquatic Reptiles Study

Goals & Objectives:

- Identify and map potential habitat for Northwest Pond Turtle (NWPT) in the study area.
- Document the distribution and abundance of NWPT populations in the study area.
- Document the presence of potential NWPT nesting habitat near Project facilities.
- Sample eDNA for foothill yellow-legged frog, red legged-frog, and giant garter snake.
    - Note: Tiger salamander and western spadefoot toad are addressed in the wildlife study plan.

Potential Methodology:

- Develop NWPT habitat suitability criteria  in cooperation with relicensing participants.
- Use GIS to characterize NWPT habitat within the study area.
- Conduct distribution and abundance surveys for NWPT in the study area.
- Document the presence of potential NWPT nesting habitat near Project facilities (GIS and field).
- Sample eDNA for foothill yellow-legged frog, red legged-frog, and giant garter snake.

# **Comments Received –** Special Status Amphibians & Aquatic Reptiles

**Comments from CDFW:**

- **Before the meeting can you please send me a copy of the following documents referenced in the study plan? (Lower Mokelumne River Project Pre-Application Document (PAD) (EBMUD 2025) and CRLF and CTS Safe Harbor Agreement).**
    - *Documents have or will been shared when available.*
- **The plan notes that FYLF have not been observed in the project study area—have formal visual encounter surveys been conducted or is this based on incidental observations during other project work? If formal surveys have not been conducted, I strongly recommend conducting visual encounter surveys for multiple life stages along the NF Mokelumne River inflow, river between the reservoirs, and below Camanche Dam.**
    - *The study plan methodology includes eDNA sampling for FYLF and visual encounter surveys based on the results of that sampling. We will include a FYLF desktop habitat component to the study plan.*
- **I recommend adding additional eDNA sampling locations for FYLF in the NF Mokelumne inflow and below Camanche Dam as FYLF are a stream-obligate species and unlikely to be present at the sites in the reservoirs.**
    - *The study plan methodology includes eDNA sampling for FYLF and visual encounter surveys based on the results of that sampling. A desktop habitat analysis portion will be added to this study.*
- **How were the NWPT survey sites selected?**
    - *Sites were selected based on representing typical habitat where NWPT may occur and are generally co-located with electrofishing locations. The exact pool locations will be selected in the field.*
- **What is the proposed survey frequency and timing? The time of year can greatly impact the detectability of both NWPT and FYLF.**
    - *EBMUD is proposing a single study season. The sampling will occur between late May and the end of July.*

# Action Items & Next Steps

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# Next Steps

**By August 6 –** Relicensing Team will distribute meeting materials to attendees

**October 2025 –** EBMUD submittal of Pre-Application Document (PAD)

# Stay Informed

- Lower Mokelumne Website: EBMUD.com/MokRelicense
- Email: MokRelicense@ebmud.com
- Jason Zhou, EBMUD: 510-287-0263
- FERC e-Subscription (docket number “P-2916”) at www.ferc.gov
  - Formal Relicensing begins October 2025 with EBMUD submittal of the Pre-Application Document (PAD)