STATE OF CALIFORNIA

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

STATE WATER RESOURCES CONTROL BOARD

[DRAFT] DECISION XXXX

In the Matter of Petition for Assignment of State-filed Application 25517 and accompanying water right Application 25517X01 and the Petitions for Release from priority of State-filed Applications 25513, 25514, 25517 (unassigned portion), 22235, 23780, 23781 in favor of water right Application 25517X01 of

Sites Project Authority.

DECISION CONDITIONALLY APPROVING WATER RIGHT APPLICATION FOR THE SITES RESERVOIR PROJECT AND DENYING ASSIGNMENT OF STATE-FILED APPLICATION AND RELEASE FROM PRIORITY OF STATE-FILED APPLICATIONS

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1. INTRODUCTION

In this Decision, the State Water Resources Control Board (State Water Board or Board) conditionally approves water right Application 25517X01 of Sites Project Authority (Applicant or Authority), with a priority date of May 11, 2022, to appropriate up to 986,000 acre-feet of water per year from the Sacramento River for diversion to storage from November 1 to June 14, at a rate of 4,190 cfs, for later use in northern and southern California for multiple purposes, including agricultural use, municipal use, and fish and wildlife protection. The appropriation of water is part of a new surface water storage project, the Sites Reservoir Project. The Permit includes terms and conditions to prevent injury to other legal users of water, avoid unreasonable impacts to fish, wildlife, and other instream beneficial uses, and public trust resources, protect water quality, conserve the public interest, and ensure the beneficial and reasonable use of water.

The portion of Application 25517X01 for appropriation of water from Funks and Stone Corral creeks is denied, without prejudice. The State Water Board also denies the Authority's petition for assignment of State-filed Application 25517, and the Board denies the Authority's petitions for release from priority of State-filed Applications 25513, 25514, 25517, 22235, 23780, and 23781, in favor of water right Application 25517X01, without prejudice.

2. FACTUAL AND PROCEDURAL BACKGROUND

2.1 Application and Petitions

On May 11, 2022, the Authority filed a petition for partial assignment of State-filed Application 25517, accompanying water right Application 25517X01, and petitions for release from priority of State-filed Applications 25513, 25514, 25517 (unassigned

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portion), 22235, 23780, and 23781 in favor of water right Application 25517X01. (Exhs. AHO-001– AHO-052.)[1] These filings are collectively referred to as the Sites Application.

2.1.1 Petition for Partial Assignment of State-Filed Application 25517

Water Code section 10500 authorizes the state to file applications to appropriate water that "is or may be required in the development and completion of the whole or any part of a general or coordinated plan looking toward the development, utilization, or conservation of the water resources of the state." (Wat. Code, § 10500.) The State Water Board holds these "state-filed applications" and retains the priority date of the filing of the water right application by the state. (*Id.*, §§ 10500, 10504.) Parties can petition to be assigned part or all of a state-filed application. (*Id.*, § 10504.01.) State-filed applications are discussed in additional detail in Section 3 of this Decision.

The Authority petitioned for assignment of State-filed Application 25517, which has a priority date of September 30, 1977. Application 25517 proposes a year-round diversion at a rate of up to 4,200 cfs from Willow Creek, Funks Creek, Stone Corral Creek, and the Sacramento River. Application 25517's proposed points of diversion are within Tehama, Glenn, and Colusa counties at Willow Dam, Funks Dam, Tehama-Colusa Canal, and Glenn Colusa Canal. The proposed purposes of use are irrigation, domestic, municipal, industrial, recreation, incidental power, fish and wildlife enhancement, and water quality control. The proposed place of use is the service area of the State Water Project. Application 25517 has not been assigned in whole or in part to any other party, and there are no other pending petitions for assignment other than the petition the Authority filed.

[1] The Administrative Hearings Office has introduced some exhibits for ease of reference for all parties. Unless the context indicates otherwise, references in this order to exhibits are to exhibits introduced during the hearing got this proceeding. These exhibits are filed in a folder titled "Parties' Hearing Exhibits" within the Hearing Documents folder in the administrative record for this proceeding. Within the Parties' Hearing Exhibits folder, there is a separate subfolder for the exhibits of each party that participated in the hearing.

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2.1.2 Water Right Application 25517X01

The Authority filed water right Application 25517X01 (Application 25517X01) with the petition for assignment of Application 25517. (Exh. AHO-001.)[2] The Authority proposes to construct a new 1.5-million-acre-foot surface water storage project near the town of Maxwell (Sites Reservoir or Sites Reservoir Project or Project). (*Id.* at pp. 12–13, 27.)

The Authority's application seeks to appropriate water from the Sacramento River, Funks Creek, and Stone Corral Creek. Funks Creek is tributary to Stone Corral Creek, which is tributary to the Colusa Basin Drain, which flows into the Sacramento River and Yolo Bypass. (Exh. AHO-001, pp. 23–31.) The application proposes four points of diversion: Golden Gate Dam (on Funks Creek), Sites Dam (on Stone Corral Creek), Tehama-Colusa Canal (on the Sacramento River), and Glenn-Colusa Main Canal (on the Sacramento River). (*Ibid*.)

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[2] Unless otherwise indicated, citations in this order to page numbers of exhibits are to the pages of the pdf files of the exhibits. These page numbers often are different from the text page numbers, or "internal" page numbers in the exhibits.

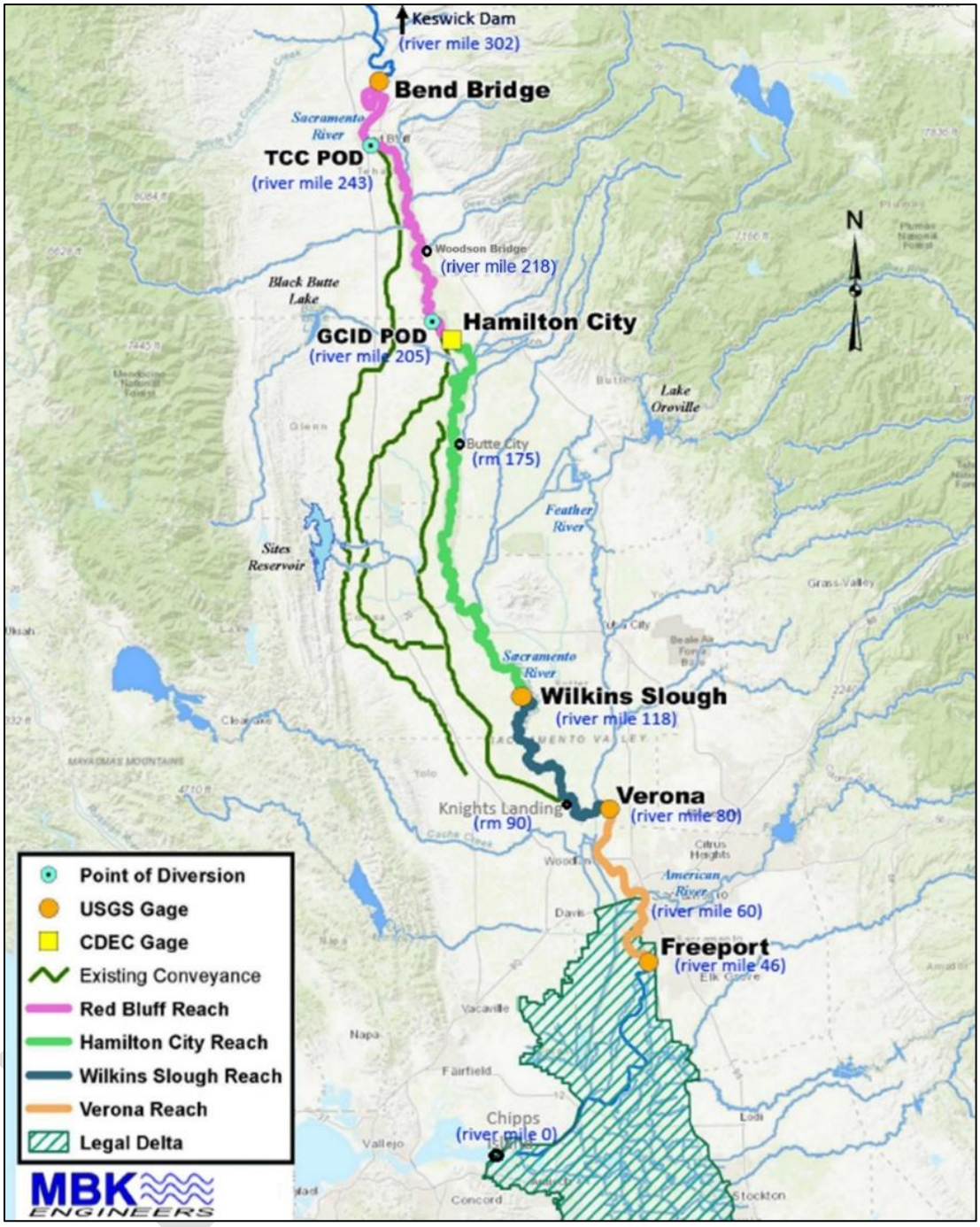

Figure 1 – Map detailing the reaches, stream gauges, and Sacramento River points of diversion. (Exh. AHO-039, p. 24, fig. 2.)

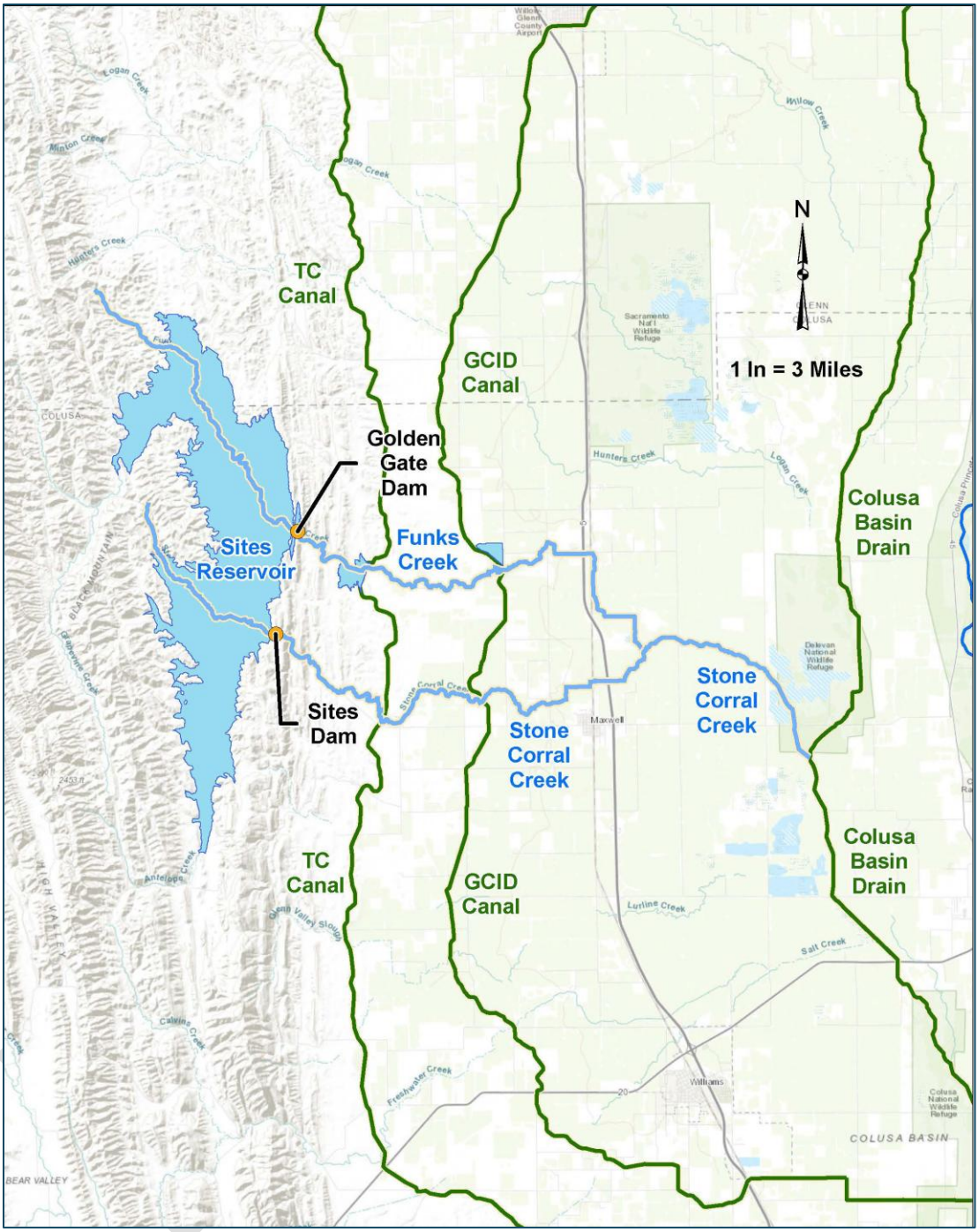

Figure 2 – Locations of Funks Creek, Stone Corral Creek, and associated points of diversion. (Exh. AHO-039, p. 31, fig. 3.)

The maximum amount of water requested for diversion is 1,500,000 acre-feet per year (AFY), to be diverted from the Sacramento River at a rate not to exceed 4,200 cubic-feet-per-second (cfs) and from Funks Creek and Stone Corral Creek at rates equivalent to their inflows at Golden Gate Dam and Sites Dam. (Exh. AHO-001, pp. 30, 32, & 36.) The Authority proposes two points of diversion (PODs) on the Sacramento River; the Red Bluff Pumping Plant (Red Bluff POD[3]), which will divert water into the Tehama-Colusa Canal (TCC) at a rate of up to about 2,200 cfs, and the Hamilton City Pump Station (Hamilton City POD[4]), which will divert water into the Glenn Colusa Irrigation District (GCID) Main Canal at a rate of up to 2,000 cfs. (Exh. AHO-069, p. 79.)

The proposed season of diversion is from September 1 of each year to June 14 of the succeeding year. (Exh. AHO-001, pp. 24, 27, 30, & 32.)

The application proposes rediversion at Sites Dam, Golden Gate Dam, and 52 other points located in Alameda, Colusa, Contra Costa, Fresno, Kern, Los Angeles, Madera, Merced, Riverside, Sacramento, San Bernardino, San Joaquin, Solano, and Yolo Counties. (Exh. AHO-030; Exh. AHO-034.)

The proposed purposes of use are irrigation, municipal, domestic, industrial, water quality, fish and wildlife preservation and enhancement, and recreational. The application also identifies incidental uses of power, aquaculture, frost protection, stockwatering, and fish and wildlife preservation and enhancement. (Exh. AHO-001, pp. 14–19; Exh. AHO-005; Exh. AHO-028.)

The proposed place of use consists of 32,691,036 acres within Glenn, Colusa, Sutter, Yolo, Yuba, Sacramento, Napa, Solano, Contra Costa, San Joaquin, Alameda, Stanislaus, Santa Clara, Santa Cruz, San Benito, Merced, Madera, Fresno, Kings, Tulare, Monterey, San Luis Obispo, Kern, Santa Barbara, Ventura, Los Angeles, San Bernardino, Orange, Riverside, San Diego, and Imperial counties, and generally

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[3] This POD is also referred to in the Sites Application and during the proceeding as the TCC POD. This Decision uses the term “Red Bluff POD”.

[4] This POD is also referred to in the Sites Application and during the proceeding as the GCID POD. This Decision uses the term “Hamilton City POD”.

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includes the service areas for the Central Valley Project (CVP) and State Water Project (SWP). (Exh. AHO-021; Exh. AHO-005.)

2.1.3 Petitions for Release from Priority of State-Filed Applications

The Authority petitioned for release from priority of State-filed Applications 25513, 22514, 22235, 23780, 23781, and any unassigned portion of State-filed Application 25517 in favor of Application 25517X01. A release from priority operates as a limited exception to the rule of priority. Such a release precludes the future assignee of a senior state-filed application from asserting priority over an otherwise junior water right if the Board has approved a release from priority in favor of the junior water right. None of the state-filed applications from which the Authority seeks a release from priority have been assigned in whole or in part to any other party, and there are no pending petitions seeking assignment of the applications other than the Authority's own request for partial assignment of State-filed Application 25517.

2.2 Physical Setting

2.2.1 Sacramento River

The Sacramento River is California's largest river by total discharge volume. The river is predominantly regulated by Shasta Dam, which creates Shasta Reservoir, and is operated by the U.S. Bureau of Reclamation (Reclamation) as part of the CVP. (Exh. AHO-72, pp. 17–18.)

Shasta Reservoir has a storage capacity of approximately 4.55 million acre-feet. The reservoir captures runoff from the Sacramento, McCloud, and Pit rivers for purposes of flood control, water supply, and hydropower generation. Operation of Shasta Reservoir is subject to state and federal requirements that address temperature, instream flows for fish and wildlife, downstream consumptive demands, water quality, and Delta outflow. (Exh. AHO-72, pp. 17–18.) Keswick Reservoir, formed by Keswick Dam, serves as an afterbay for releases from Shasta Dam. (*Ibid.*)

Downstream of Shasta Reservoir, tributary inflows, agricultural and municipal diversions, and flood management infrastructure materially impact Sacramento River flows. Key tributaries include the Feather and American rivers, which join the

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Sacramento River near the cities of Verona and Sacramento, respectively. Flows on the mainstem of the Feather River are regulated by Oroville Dam, operated by the Department of Water Resources (DWR) as part of the SWP. Flows on the American River are regulated by Folsom Dam, operated by Reclamation as part of the CVP. (Exh. AHO-72, pp. 23–24.)

Downstream of the confluences with these tributaries, the river flows southward, merging with the San Joaquin River in the Sacramento-San Joaquin Delta Estuary before reaching the San Francisco Bay and the Pacific Ocean. (*Ibid*.)

2.2.2 Sacramento-San Joaquin Delta

The watershed of the San Francisco-Bay/San Joaquin Delta Estuary (Delta or Bay-Delta) is formed at the confluence of the Sacramento and San Joaquin rivers, draining approximately 40 percent of the state. The Delta is a highly modified network of integrated channels and islands, eventually flowing through the San Franscisco Bay, under the Golden Gate Bridge, and out to the Pacific Ocean. In most years, approximately 76 percent of water enters the Delta from the Sacramento River, approximately 15 percent enters from the San Joaquin River, and approximately 5 percent enters from eastside tributaries, with the remainder coming from Delta precipitation. (Exh. AHO-72, p. 26.)

There are multiple factors that affect flow and water quality in the Delta. When there is low Delta outflow, seawater intrusion into the western and central portions of the Delta strongly influences water quality and water levels. Delta outflow, in turn, is influenced by Delta inflows, tidal flows, and volumes of export pumping at the CVP and SWP facilities in the southern Delta. The Delta also contains several physical structures that manage flow and water quality, such as the Suisun Marsh Salinity Control Gates, Delta Cross Channel gates, and the southern Delta temporary barriers. (Exh. AHO-72, pp. 26–27.)

2.2.3 Creeks and the Colusa Basin Drain

Stone Corral Creek and Funks Creek originate in the foothills of the Coast Range and flow east toward the Sacramento Valley and the Sacramento River. Both creeks are largely ephemeral, influenced heavily by rainfall events. (Exh. AHO-072, pp. 4–5.)

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Stone Corral Creek has a drainage area of 38 square miles and is tributary to the Colusa Basin Drain. Near the town of Maxwell, the creek passes over a siphon in the Tehama-Colusa Canal and three miles downstream, crosses the GCID Main Canal siphon. About 5.5 miles downstream of the GCID Main Canal, Stone Corral Creek is joined by Funks Creek, and flows an additional 5.7 miles to the Colusa Basin Drain. (*Id.* at p. 4.)

Funks Creek runs roughly parallel to Stone Corral Creek from west to east. Funks Creek has a drainage area of 43 square miles and drains into Funks Reservoir, a regulatory reservoir on the Tehama-Colusa Canal operated by Tehama-Colusa Canal Authority. Below Funks Dam, Funks Creek travels 3.9 miles through agricultural fields in a combination of natural and managed channels to where it crosses over the GCID Main Canal. (*Id.* at p. 5.)

The Colusa Basin Drain is a highly modified water channel that moves agricultural return flows and stormwater runoff from the Colusa Basin to the Sacramento River or the Yolo Bypass. The Colusa Basin Drain spans approximately 70 miles across Glenn, Colusa, and Yolo counties receiving inflow from local creeks, including Stone Corral and Funks creeks, as well as agricultural irrigation and drainage flows. The Colusa Basin Drain typically conveys flood flows from November through April, and agricultural irrigation and drainage flows from May through October. Peak flow in the Colusa Basin Drain occurs in the irrigation and drainage period during August and September. (*Id.* at pp. 10–11.)

2.2.4 Fisheries

Chinook Salmon

The Sacramento River is home to four runs of Chinook salmon, named after the time period, when the adults begin their return to freshwater from the ocean: winter-, spring-, fall-, and late-fall-run. (Exh. AHO-78, p. 10.) Winter-run are listed as endangered while spring-run are listed as threatened under both the federal Endangered Species Act (ESA) and the California Endangered Species Act (CESA). (Exh. AHO-161, pp. 26, 35; Exh. BK-61, pp. 16–17.) Fall and late-fall-run Chinook salmon are most abundant but

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are listed as federal and state species of concern. (Exh. AHO-161, pp. 44–45.) The fall-run and late-fall-run Chinook salmon fishery was closed to commercial fishing in 2023, 2024, and 2025 due to poor adult returns. (Exh. GSSA-1, pp. 3, 5–6, 9, ¶¶ 1, 12, 24; Exh. BK-1, p. 14, ¶ 26; Exh. AHO-343, p. 5.)

Each run displays the same basic salmonid life history, and all life stages are similarly reliant on cold, well-oxygenated water and adequate flows that signal migration and make high-quality habitat available. (Exh. AHO-271, p. 149; Exh. BK-96, p. 60.) There are, however, differences in migration cues, and the duration of each life stage differs by run. (Exh. AHO-271, pp. 147–149.) For example, winter- and spring-run Chinook salmon migrate to freshwater and hold for several months until sexually mature, while fall-run Chinook enter freshwater after reaching maturity. (*Id*. at p. 149.)

Winter-run Chinook salmon migrate from the ocean to the Sacramento River in winter to spawn in the spring and summer. (Exh. AHO-161, pp. 26–27.) Winter flow events cue adult migration and spawning, which occur in a limited reach downstream of Keswick Dam. (Exh. AHO-271, p. 155.) The eggs incubate in late spring and juveniles emigrate downstream from mid-July to the end of March, though the first large autumn storm events are associated with a pulse of juvenile movement downstream. (Exh. AHO-161, pp. 26-27; Exh. AHO-271, pp. 150–151; Exh. BK-21, p. 11.) The juveniles rear in-river and in the Delta before out-migrating to the ocean as smolts from November to May, where the runs intermix.

Spring-run Chinook life history requirements are largely the same as winter-run Chinook, though the duration and timing of migration differ. Spring-run migrate from the ocean as immature fish, mature in deep cold-water pools, and spawn in late summer and early fall. (Exh. AHO-161, p. 35.) The timing of juvenile emigration is highly variable, with some emigrating soon after emergence, usually from November to March, while others emigrate as yearlings. (*Ibid.*) This emigration period can extend from November to early May or June. (*Ibid.*)

Adult fall-run salmon migrate through the Delta and into Central Valley rivers from June through December and spawn in September through December. During the first few

months following emergence, generally January through June, the majority of fall-run salmon migrate out to the ocean. (Exh. AHO-161, pp. 44–45.)

Late-fall-run salmon migrate inland from October through April. Both late-fall- and fall-run salmon spawn from late September to December, and sometimes into January, in the Sacramento River and its tributaries. Unlike fall-run, late-fall-run typically spend seven to 13 months rearing in freshwater before emigrating to the ocean. (Exh. AHO-161, pp. 45–46.) Outmigration past Red Bluff generally occurs by the end of February, though the lower river migration window spans March to May, and extends through the Delta from April to June. (Exh. BK-1 pp. 24–25.)

Because each run's return is staggered by season, there may be Chinook salmon present in the Sacramento River at and downstream of the Red Bluff point of diversion within the Bay-Delta watershed at any given time. (Exh. AHO-271 pp. 149–151; Exh. Sites-300, p. 61, fig. 4-3; Exh. AHO-161, pp. 48–49, tbl. 11A-6 & tbl. 11A-7.)

Green Sturgeon

The population of green sturgeon within the Bay-Delta watershed is listed as threatened under the ESA. (Exh. AHO-161, p. 61.) It is a long-lived species; individuals can reach 70 years old, with delayed sexual maturity and infrequent spawning events. (Exh. AHO-161, p. 61; Exh. BK-1, pp. 44–45; Exh. AHO-271, p. 193.) Individuals migrate to the ocean prior to their first spawning season and return as adults in the winter and spring.

Spawning occurs March to July of wetter years, and spawning is limited to the upper Sacramento River between the Glenn-Colusa Canal and the Anderson-Cottonwood Irrigation District dam in Redding. (Exh. BK-1, pp. 44–45; Exh. AHO-271, pp. 193–194; Exh. Sites-017c, pp 7–9.) After spawning, adults can return to the ocean immediately in spring and summer, or they can hold over for several months in the river and wait to out-migrate in the fall or winter. (Exh. BK-1, p. 44.) Adult downstream migration is associated with pulse flows, and pulses between November and February cue juvenile movement. (Exh. AHO-161, p. 61; Exh. BK-80, p. 70.) Juvenile green sturgeon can spend up to two years in freshwater and remain between Red Bluff and Hamilton City

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for at least several months before migrating to the Delta. (Exh. BK-1, p. 44; Exh. AHO-271 p. 194.)

White Sturgeon

The watershed of the Bay-Delta is home to the only known reproducing population of white sturgeon, which is designated as a candidate for listing as a threatened species under the CESA. (Exh. BK-1, pp. 33–34, ¶¶ 71–72.) White sturgeon are long-lived, reach sexual maturity after 10 to 19 years of age, and experience extended intervals between reproductive events (two to four years), making population growth slow and uncertain. (Exh. BK-1, p. 33, ¶ 72; Exh. AHO-161, pp. 64–65.) Juveniles can rear in either estuarine or river habitats, but spawning occurs primarily in the Sacramento River. (Exh. AHO-161, p 66.) Individuals will migrate to spawning grounds in the winter, in response to higher flows and will reproduce from February to June before returning to the Delta. (Exh. AHO-161, p. 66; Exh. AHO-271, pp. 195–197.)

Longfin Smelt

Longfin smelt are listed as threatened under the CESA and the Bay-Delta distinct population segment was listed as endangered under the ESA in 2024. (Exh. AHO-161, p. 16; Exh. BK-1, p. 52, ¶ 121.) Longfin smelt have a two-year life cycle. (Exh. AHO-161, p. 16; Exh. BK-71, p. 4.) The juvenile and subadult life stages occur in coastal and estuarine habitats, and adult migration through the Delta to spawning habitat begins in the fall. (Exh. AHO-271, p. 186.) Migration occurs once water temperatures drop to a suitable level and spawning takes place November through April, with peak activity January through April. (*Ibid.*; Exh. BK-71 p. 4; Exh. AHO-161, p. 18.)

Delta Smelt

Delta smelt are listed as endangered under CESA, and U.S. Fish and Wildlife (USFW) has determined that reclassifying the Delta smelt from threatened to endangered is warranted. (Exh. AHO-161, p. 2.) They are small endemic fish with a one-year life cycle. (*Id.* at pp. 2–3.)

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Adult Delta smelt move from low-salinity habitat to freshwater between late December and February and are cued by increases in flow and turbidity caused by rain events. (Exh. AHO-271, p. 204.) They spawn in the spring, with most of the activity occurring in April through May when temperatures are below 64.4° Fahrenheit (F). (Exh. AHO-161, p. 3.) Juvenile distribution in the Delta is driven by late spring and early summer outflows, and in low water years, their residence time in the Delta increases and puts them into more frequent proximity of the CVP and SWP pumping facilities. (Exh. AHO-271, p. 204.)

Additional Species

Other anadromous fishes found in the Bay-Delta watershed include California Central Valley steelhead, Pacific lamprey, and western river lamprey. (Exh. AHO-161, pp. 54, 69, 72.) California Central Valley steelhead are ESA-threatened and display a similar life cycle to salmon. (*Id.* at pp. 54–56.) Their migration and life history are also dependent on the timing, magnitude, and frequency of flow events as well as cold, oxygenated water. In the Sacramento River, primary spawning grounds for steelhead are located between Keswick Dam and Red Bluff. (*Id.* at p. 55.) Pacific lamprey spawn in the Sacramento River from March to July. (*Id.* at p. 69.) Less is known about western river lamprey life history and habitat requirements. (*Id.* at pp. 69–72.) The Final Environmental Impact Report (Final EIR) chapter on Aquatic Biological Resources provides a complete list of fisheries of concern. (Exh. AHO-078, pp. 10–11.)

2.3 Project Features

2.3.1 Purpose and Investors

The Authority describes the Sites Reservoir Project as vital for the future resiliency of statewide water supply and a needed response to the impacts of climate change. (Exh. AHO-001, pp. 12–13.) The Project is intended to operate in coordination with other Northern California reservoirs, increasing flexibility in operation of the CVP and SWP. (*Ibid.*)

The Authority will divert water from the Sacramento River to storage in Sites Reservoir when flows exceed regulatory requirements and the needs of senior diverters, then

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release water primarily during dry and critically dry years when water supplies are limited. (Exh. AHO-001, pp. 12–13; Exh. Sites-070c, pp. 5 & 11, ¶¶ 11 & 16.) Water released from the reservoir will be delivered to entities that are either members of the Authority or have an agreement to participate in the funding and use of the Project. (Exh. AHO-001, at p. 13; Exh. AHO-028.)

Fifteen local public agencies created the Sites Project Authority through a joint powers agreement to design, acquire, construct, manage, govern, and operate Sites Reservoir and related facilities. (Exh. Sites-014, pp. 12–14.) The Authority's bylaws describe different membership types allowing various levels of participation in the Project, including Project Agreement Members, Associate Members, Non-Member Participating Parties, an Ex Officio Member (providing for DWR participation as a non-voting member), and a Cost Share Partner (providing for Reclamation participation as a non-voting member). (Exh. Sites-013, pp. 9–11.) The parties that have agreements with the Authority to help fund and make use of the Project are referred to collectively as the Storage Partners. (Exh. Sites-039, p. 6, ¶¶ 11–13.) There are currently 22 Storage Partners, each with differing allocated shares of the total proposed storage volume of Sites Reservoir in proportion to their funding commitments. (Exh. AHO-028, pp. 2–3; Exh. Sites-039, pp. 11–12, ¶¶ 27-28; Exh. Sites-049, p. 7.) After a water right permit is issued, contracts between the Authority and Storage Partners are intended to be finalized, and the number and composition of Storage Partners may change. (Exh. Sites-039, p. 12, ¶¶ 29–30.)

The Project will be funded through a combination of investments by Storage Partners and state and federal funding. (Exh. Sites-039, pp. 11–13, ¶¶ 27–32.) Funding from local agency Storage Partners will be secured through "Benefits and Obligations Contracts" with the Authority. (Exh. Sites-102, p. 12, ¶ 27a.)

Funding from the state will be provided by the California Water Commission pursuant to the Water Storage Investment Program (WSIP). (See Wat. Code §§ 79750 & 79755; Exh. Sites-008, p. 5; Exh. Sites-001, pp. 4-8, ¶¶ 11–23.) In written testimony submitted prior to the start of the hearing, the Authority asserted that it was eligible for $875 million

in exchange for certain public benefits. (Exh. Sites-102, p. 12, ¶ 27b.) The proposed public benefits of the Project were: ecosystem improvement as water deliveries to the Yolo Bypass to provide habitat benefits for Delta smelt and deliveries of Incremental Level 4 refuge water,[5] flood damage reduction, and recreation. (Exh. Sites-001, pp. 4 & 8-9, ¶¶ 11, 24, 30.) However, recent reports indicate that the Yolo Bypass flows for ecosystem benefit may be eliminated and that a portion of the water earmarked for this purpose may be reassigned to the refuge water supply benefit.[6] (Exh. AHO-344, p. 5.) The ecosystem benefits will be managed through a contract with the California Department of Fish and Wildlife (CDFW), while the flood damage reduction and recreation benefits will be managed through a contract with DWR. (Exh. Sites-071c, p. 9, ¶¶ 33–34.) The federal government, through Reclamation, is investing Water Infrastructure Improvements for the Nation Act funding in exchange for a 16 percent capacity interest in the Project. (Exh. Sites-102, p. 13, ¶ 27c; Exh. Sites-214.)

In addition to the above sources of funding, a portion of the cost will be financed through a Water Infrastructure Finance and Innovation Act loan. (Exh. Sites-219, p. 6.) The remainder of the Project will be financed through a combination of pay-as-you-go contributions, revenue bonds, and the option for U.S. Department of Agriculture rural development loans to cover certain Project features. (Exh. Sites-102, p. 12, ¶ 27a.)

2.3.2 Facilities and Proposed Operations

The Project will utilize two existing points of diversion (POD) on the Sacramento River: the Red Bluff POD, which pumps water into the Tehama-Colusa Canal, and the Hamilton City POD, which pumps water into the GCID Main Canal. (Exh. AHO-024, p. 1.) The Tehama-Colusa Canal and GCID Main Canal will convey water diverted from the

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[5] Incremental Level 4 refuge water is part of the Refuge Water Supply Program created by the Central Valley Project Improvement Act to ensure certain wetland habitat areas receive water. Reclamation implements long-term water supply contracts with agencies such as CDFW that manage the refuges. (Exh. Sites-001, p. 4, ¶ 12.)

[6] The Board takes official notice of the Authority's January 27, 2026, WSIP Quarterly Report as Exhibit AHO-344. For a complete list of all the documents of which the Board takes official notice, please see Appendix A to this Decision.

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Sacramento River to two regulating reservoirs in the footprint of the Project — the existing Funks Reservoir and a new Terminal Regulating Reservoir (TRR). (*Id*. at p. 2.) An underground pipeline will connect the regulating reservoirs to Sites Reservoir. (*Id.* at p. 3.) The Project will require several upgrades to existing infrastructure, such as the installation of two additional 250-cfs pumps at the Red Bluff POD, and upgrades to the GCID Main Canal system. (*Id*. at p. 1.)

The Authority has proposed a suite of conditions to specify when diversions could occur at the pumping plants, to reduce the effects of the Project on fish, wildlife, and other instream beneficial uses in the Sacramento River and the Delta, meet existing regulatory requirements, and avoid impacts on SWP and CVP operations and other senior right holders. (Exh. AHO-001, p. 38; Exh. Sites-070c, p. 5, ¶ 11; Exh. AHO-69, p. 80, tbl. 2-5; 2025-05-27 Sites Closing Br., p. 107, ¶ 25 [SPA Special Term 4].) These conditions would prohibit diversions unless: (1) the Delta is in excess conditions and standard water right permit Term 91[7] is not in effect, (2) downstream senior water rights are satisfied, (3) flows are "above those needed to meet all applicable laws, regulations, biological opinions, and court orders in place at the time of diversion," (4) there is capacity in the Tehama-Colusa Canal and GCID facilities, and (5) diversion criteria based on Sacramento River flows to protect fisheries are met. (Exh. Sites-070c p. 5, ¶ 11; Exh. AHO-069, pp. 78–79.)

The diversion criteria proposed in Application 25517X01 include protection of certain precipitation-generated pulses in Sacramento River flows at Bend Bridge, minimum bypass flows at the Red Bluff POD and the Hamilton City POD, and minimum flows in the Sacramento River at Wilkins Slough. (Exh. AHO-069, pp. 78-82 & tbl. 2-5.) These diversion criteria were also included in the Authority's incidental take permit (ITP) application as take-minimization measures under CESA. (Exh. Sites-120, pp. 226–227.) As described further below, these proposed bypass flows were modified in the final ITP

[7] Term 91 is incorporated as Term 28 in Permit 21487. References in this Decision to the Permit or to specific terms and conditions in the Permit are to Permit 21487.

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CDFW issued in 2024, and the pulse flows were replaced by “flow dependent diversion requirements.” (Exh. Sites-298, pp. 43–49.)

The main impounding structures proposed for Sites Reservoir are the Golden Gate Dam on Funks Creek and Sites Dam on Stone Corral Creek. (Exh. AHO-024, pp. 3–5.) These structures as well as seven additional saddle dams and two saddle dikes, built along the eastern and northern rims of the proposed reservoir, will create Sites Reservoir. (*Id.* at p. 3.) The resulting reservoir will have a surface area of 13,158 acres and storage volume of 1,507,930 acre-feet when full. (Exh. AHO-022, p. 1.) The physical dead pool of the proposed Reservoir is 17,700 acre-feet and the operational dead pool is 60,000 acre-feet. (Exh. AHO-069, p. 88.)

Water impounded in Sites Reservoir may be released through Sites Dam into Stone Corral Creek or from the Inlet/Outlet (I/O) Tower into Funks Creek, although releases into the creeks will not be used to supply Storage Partners. The Sites Dam diversion pipeline and tunnel is designed to release up to 100 cfs from the reservoir into Stone Corral Creek, with an emergency release capacity of 4,700 cfs. (Exh. AHO-069, p. 91.) The pipeline from the I/O Tower to Funks Creek is designed to release up to 100 cfs to Funks Creek, after discharging flows into an energy dissipation structure prior to entering the creek. (*Ibid*.)

Most Project water will enter and be released from the reservoir through the proposed Inlet/Outlet Works Facilities (I/O Works), which will be located south of the Golden Gate Dam. (Exh. AHO-069, p. 52.) The I/O Works consist of a multi-level I/O Tower with eight intake ports at various elevations within the reservoir. (Exh. AHO-24, p. 3; Exh. AHO-073, p. 38.) Under normal operating conditions, the estimated maximum inflows to Sites Reservoir from the regulating reservoirs through the I/O Works would be 3,900 cfs, the estimated maximum release flow would be 3,100 cfs, and the emergency maximum release would be 16,000 cfs. (Exh. AHO-24, p. 3; Exh. AHO-069, p. 52.)

Releases to Storage Partners will generally be made from May to November. (Exh. AHO-024, p. 6.) Water released from Sites Reservoir would flow from the I/O Works into either the TRR or Funks Reservoir. (*Ibid.*) Water released into the TRR would flow to

Storage Partners through the GCID Main Canal while water released into Funks Reservoir would flow into the Tehama-Colusa Canal and travel roughly 40 miles south to the proposed Dunnigan Pipeline. (*Id.* at pp. 5–6.) The Dunnigan Pipeline would then convey water to the Colusa Basin Drain at a maximum flow rate of 1,000 cfs, where it would subsequently travel to the Yolo Bypass or Sacramento River through the Knights Landing Outfall Gates. *(Id*. at p. 6; Exh. AHO-069, pp. 65, 87.) Water released through the Tehama-Colusa Canal to the Sacramento River may be rediverted through the Delta for use by Storage Partners located south of the Delta using existing CVP and SWP pumping facilities (collectively, the Delta Export Facilities). (Exh. AHO-069, p. 87.)

The timing and quantity of releases from Sites Reservoir will be based on Storage Partners' requests, limited by infrastructure capacity and regulatory requirements. (Exh. AHO-069, pp. 77, 87.) The Authority proposes that exports to Storage Partners through the Delta be subject to the same requirements placed on transfer or export of other types of non-CVP or SWP project water, which includes limiting exports to a period from July to November referred to as the "transfer window." (*Id.* at p. 87.) The Authority's proposed operations are described in more detail in the Project Description of the Final EIR/EIS and the Authority's Reservoir Operations Plan. (See generally, *id.*; Exh. AHO-314.)

The Authority additionally proposes to coordinate Sites Project operations with Reclamation and DWR to enhance flexibility of, and avoid interference with, CVP and SWP operations and utilize available capacity at the export facilities. (Exh. AHO-069, p. 88.) The proposed Sites Project operations include seasonal exchanges of water with the CVP and SWP. Pursuant to these exchanges, Sites Reservoir would make releases in the spring and summer to meet CVP and SWP contractual demands while reservoirs like Shasta Reservoir and Oroville Reservoir would release an equivalent amount of water in late summer and fall to meet Sites Storage Partner demands. (*Id.* at pp. 89–90.) The Authority may also make exchanges with GCID to satisfy demands from Storage Partners along the Sacramento River, as releases from Sites Reservoir cannot at this time be physically conveyed to any Storage Partner on the Sacramento River between the Hamilton City Pump Station and Knights Landing. (*Id.* at p. 87.)

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2.3.3 Incidental Take Permits

The Authority submitted an ITP Application for the construction-related effects of the project on January 19, 2021. The Authority initially requested take of three state-listed species: giant garter snake (*Thamnophis gigas*); tricolored blackbird (*Agelaius tricolor*); and Swainson's hawk (*Buteo swainsoni*). (Exh. Sites-317, p. 2.) Two additional candidate species were added to the application after submittal: Crotch's bumble bee (*Bombus crotchii*) and western bumble bee (*Bombus occidentalis occidentalis*). (Exh. Sites-317, p. 3.) CDFW issued an ITP for the Project's construction-related activities on October 22, 2024. (Exh. Sites-299.)

On October 24, 2023, the Authority submitted a separate ITP application to address the effects of Project operations. (Exh. Sites-120; Exh. Sites-317, ¶ 24.) The ITP application requested take of four state-listed species: Delta smelt (*Hypomesus transpacificus*), Longfin smelt (*Spirinchus thaleichthys*), Central Valley spring-run Chinook salmon in the Sacramento River system (*Oncorhynchus tshawytscha*), and winter-run Chinook salmon (*Oncorhynchus tshawytscha*). (Exh. Sites-120, p. 22.) The application identified bypass flows and pulse flow requirements as diversion criteria to minimize take. (Exh. Sites-120, pp. 226–227.) Following a CDFW determination that the ITP application was incomplete, on October 15, 2024, the Authority submitted a supplement to its ITP application and requested take of one additional candidate species: white sturgeon (*Acipenser transmontanus*). (Exh. Sites-326; Exh. Sites-327, p.14.) CDFW issued an ITP for project operations to the Authority on October 24, 2024 (2024 ITP). (Exhs. Sites-298–Sites-302.)

The 2024 ITP includes requirements to conduct various monitoring and science programs to improve understanding of the Project's impacts on protected species. (Exh. Sites-298, pp. 23–43.) The ITP additionally includes operational criteria to protect listed species, such as the use and maintenance of fish screens, limitations on diversion based on flows in the Sacramento River and CVP and SWP operations, and limitations on releases and exchanges to mitigate water quality impacts. (*Id.* at pp. 43–54.) The 2024 ITP establishes a maximum annual diversion volume of 986,000 acre-feet per year from the Sacramento River, with a maximum diversion of 660,000 acre-feet per

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year at the Red Bluff POD and 421,000 acre-feet per year at the Hamilton City POD. (*Id.* at p. 43.) Diversions from the Sacramento River may not occur unless bypass flow requirements are met at each Sacramento River POD and at Wilkins Slough. To avoid temperature-related impacts on fisheries from Project operations, the 2024 ITP prohibits the Authority from making releases or exchanges that would result in increases of water temperatures greater than 0.5° F when protected species are present. (*Id.* at pp. 51–52.)

2.4 Final Environmental Impact Report

The Authority is the lead agency responsible for the preparation of environmental documentation required by the California Environmental Quality Act (CEQA) for the Sites Reservoir Project. The Authority assumed the role of lead agency in 2016 and circulated a Draft Environmental Impact Report in August 2017 (2017 DEIR). (Exh. AHO-064, p. 1; Exh. AHO-068, p. 1; Exh. Sites-073, p. 3; Exh. Sites-071c, pp. 2–3, ¶¶ 5–6.) In 2019, the Authority made changes to the proposed Project based on a value planning process to identify alternative Project designs to make the Project more affordable for Storage Partners while also addressing comments received on the 2017 DEIR. (Exh. Sites-071c, p. 3, ¶ 7.) These changes resulted in a revised Draft Environmental Impact Report, released and circulated on November 12, 2021. (Exh. Sites-071c, p. 3, ¶¶ 7–8; Exh. Sites-073, p. 4.) After receiving public comments, the Authority released the Final EIR on November 2, 2023, which was certified by the Authority's Board of Directors on November 17, 2023. (Exh. Sites-072 p. 3; Exh. Sites-071c, p. 3, ¶¶ 9–10.) The Final EIR is identified as Exhibits AHO-61 to AHO-257. The Authority filed a Notice of Determination for the Project with the State Clearinghouse and Colusa, Glenn, Tehama, and Yolo counties on November 20, 2023. (Exh. Sites-077–Sites-081; Exh. Sites-071c, pp. 3–4, ¶ 11.)

As a responsible agency under CEQA, the State Water Board must consider the Final EIR the Authority prepared in determining whether and under what conditions to approve the Sites Application. (Cal. Code Regs, tit. 14, § 15096, subd.(a).)

The adequacy of the Final EIR for the Sites Project for purposes of CEQA compliance was not a hearing issue. (See Cal. Code of Regs., tit. 14, § 15096, subd. (e); see also

2024-03-01 Notice of Public Hearing, pp. 13–15.) The parties were permitted, however, to submit evidence and argument concerning the Final EIR to the extent that the evidence or argument related to the hearing issues.

2.5 Application Notice, Protests, and Hearing Parties

By letter dated August 26, 2022, the Board's Division of Water Rights (Division) accepted the Sites Application as a bona fide attempt to conform to water right application requirements but determined that Application 25517X01 was incomplete. (Exh. AHO-260, p. 1; see Cal. Code Regs., tit. 23, §§ 656, subd. (b), 678, & 679.) The Division's acceptance letter identified additional information to be submitted to the Division before the Sites Application could be further processed. (Exh. AHO-260; see Cal. Code Regs., tit. 23, § 684.) In response, the Authority filed additional application materials on January 6, 2023, and application errata on May 4, 2023, to correct or otherwise clarify information contained in the initial and amended application filings.

On June 2, 2023, the Board issued a public notice of the Sites Application. (2023-06-02_Notice of Application A025517X01; 2023-07-12_Revised Notice of Application A025517X01.) The protest period ended on August 31, 2023.

The Board received protests from the individuals and entities listed below in Table 1. (Exhs. AHO-280–AHO-294.) Protests were based on a range of issues and included allegations that the Project would injure prior rights, be contrary to law, cause adverse environmental effects, and not conserve the public interest. The Board also received 14 comments in support of the Project and two comments opposing the Project. On October 31, 2023, the Applicant filed written answers to the protests. (Exhs. AHO-295–AHO-309.) The protest resolution period concluded on February 28, 2024, and the Division required written status reports to be filed by the Applicant and Protestants by March 29, 2024. (2023-12-05 Notice of Assignment (Sites Reservoir), p. 8.)

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Table 1

Protests to the Sites Application.

Protest	Parties
1.	California Sportfishing Protection Alliance; AquAlliance; California Water Impact Network; CalWild; Fly Fishers of Davis; Friends of the Swainson's Hawk; Friends of the River; Northern California Council of Fly Fishers International; Restore the Delta; Save California Salmon; Sierra Club California; The Winnemem Wintu Tribe; and Water Climate Trust
2.	CalWild
3.	Center for Biological Diversity
4.	Central Delta Water Agency; Delta Farms Reclamation District No. 2030 (McDonald Island); Rudy Mussi Investment L.P.; South Delta Water Agency; and Zuckerman-Mandeville, Inc.
5.	Clarke F. Ornbaun
6.	Contra Costa Water District
7.	County of San Joaquin
8.	North Coast Rivers Alliance; Pacific Coast Federation of Fishermen's Associations; San Francisco Crab Boat Owners Association; The Institute for Fisheries Resources; and The Winnemem Wintu Tribe
9.	Richard Morat
10.	San Francisco Baykeeper; The Bay Institute; Defenders of Wildlife; and Golden State Salmon Association
11.	State Water Contractors
12.	Stephen Owens
13.	T&M King Farms LLC
14.	Trout Unlimited, Inc.
15.	Water Climate Trust; International Rivers; The Winnemem Wintu Tribe; and Water Keeper Alliance
16.	Planetary Solutionaries[8]

[8] On April 17, 2024, Patrick Porgans filed supplemental information, in the form of a protest to the Sites Application, in support of a Notice of Intent to Appear (NOI) that he

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The Division canceled the protests of Stephen Owens and Friends of the Swainson's Hawk[9] on July 16, 2024, for failure to provide information as requested under Water Code sections 1334 and 1703.5.

Contra Costa Water District (CCWD) and the Authority notified the Administrative Hearings Office by letter dated January 24, 2024, that CCWD agreed to dismiss its protest conditioned upon inclusion of two permit terms agreed to by the Authority. (Exh. AHO-312, pp.1–2; 2025-05-27 Sites Closing Br., pp. 106 & 108 [SPA Special Terms 1 & 7] Permit Term 18.) SWC, DWR, and the Authority jointly entered into a settlement agreement dated June 7, 2024, to address SWC's protest. (Exh. Sites-065, pp. 7–15.) By letter dated June 12, 2024, SWC notified the AHO that, with inclusion of two proposed permit terms resulting from the settlement agreement, the SWC agreed to dismiss its protest. (2024-06-12 Joint Ltr to AHO; 2025-05-27 Sites Closing Br., p. 107, SPA Special Terms 4 & 5; Permit Terms 15 & 16.[10])

2.6 Proceedings Before the Administrative Hearings Office

2.6.1 Assignment and AHO Hearing

On November 13, 2023, the Executive Director of the State Water Board assigned Application 25517X01 to the Administrative Hearings Office (AHO) for further proceedings and an adjudicative hearing.

Parties to the hearing consisted of the Sites Project Authority and the Protestants listed in Table 1, above, except for CCWD. The hearing officer also granted party status to several additional entities. During the April 10, 2024, pre-hearing conference, the hearing officer granted party status to DWR and Reclamation based on potential impacts on the agencies' water rights. (2024-06-05 Procedural Ruling, p. 3.) On May 9,

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timely filed as a representative for Planetary Solutionaries. The hearing officer granted Mr. Porgans' request to participate as a party in the hearing. (2024-06-05 Procedural Ruling, p. 3.)

[9] Friends of the Swainson's Hawk was one of the undersigned parties to the joint protest filed by CSPA et al. (Exh. AHO-288, pp. 1, 3.)

[10] The two proposed terms were revised slightly for clarity and to ensure any amendments to the agreements are made available to the Board.

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2024, the Cachil DeHe Band of Wintun Indians of the Colusa Indian Community Council filed a Notice of Intent to Appear (NOI) seeking to participate as a party, which the hearing officer accepted on June 6, 2024. (*Ibid*.) On September 11, 2024, the hearing officer granted limited party status to the Paskenta Band of Nomlaki Indians for the purposes of cross-examining witnesses. (Case-in-Chief Transcript Combined (CIC Tr. Comb.), pp. 1801:5–14 & 1802:20–24.)[11] On September 18, 2024, the hearing officer granted limited party status to Chhé'ee Fókaa Band of Northeastern Pomo for purposes of cross-examination and presentation of rebuttal evidence. (CIC Tr. Comb., p. 2457:18 –23.)

The AHO conducted the hearing, beginning with policy statements on August 19, 2024. The AHO conducted site visits on August 21 and 22, 2024. The case-in-chief portion of the hearing began on August 27, 2024, and continued through November 7, 2024. The Authority presented testimony related to the 2024 ITP on February 3 and 6, 2025. The rebuttal portion of the hearing began on February 21, 2024, and continued through March 11, 2025. Parties submitted closing briefs on May 28, 2025, and reply briefs on June 27, 2025.

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[11] The official record of AHO proceedings is the videorecording saved to the administrative record. However, for ease of reference, we cite to the transcripts Sites provided, or where a court reporter was unavailable, to the Zoom-generated transcript. Unless otherwise noted, transcripts are available in the administrative record in the folder “Hearings Recordings and Transcripts,” and then in the subfolder, “Transcripts provided by Sites.” We have cited here to the combined transcripts for certain phases of the proceeding: (1) Case-in-Chief Transcript, which combines volumes 2 through 21, also available in this subfolder; (2) ITP Transcript, which combines volumes 22 and 23; and (3) Rebuttal Transcript, which combines volumes 24 through 32.

2.6.2 Hearing Issues

The June 5, 2024, Amended Hearing Notice identified the following Hearing Issues:

1. Should the State Water Board approve the Authority's petition for partial assignment of State-filed Application 22517, such that any permit issued pursuant to Application 22517X01 has a September 30, 1977, priority date? If so, what conditions, if any, including conditions to address the issues identified below, should be included in the approval?

    a. Would partial assignment of State-filed Application 22517 be for purposes of development not in conflict with the California Water Plan or any other general or coordinated plan for the control, protection, development, utilization, or conservation of the water resources of the state, or with water quality objectives?

    b. Should the State Water Board consider the public interest when determining whether to approve the Authority's petition for partial assignment of State-filed Application 22517? If so, would partial assignment of State-filed Application 22517 be in the public interest? Would it be in the public interest, and allow for the effective administration of water right priorities, for any permit issued pursuant to Application 22517X01 to have a priority date that is senior to existing, permitted rights with priorities junior to September 30, 1977, except for the specific water rights to which the Authority agrees to subordinate its permit?

    c. Would partial assignment of State-filed Application 22517 deprive the counties in which the water originates of water necessary for the counties' development?

    d. If the petition for partial assignment of State-filed Application 22517 is not approved, should the State Water Board consider Application 25517X01 as a water right application with a May 11, 2022, priority date, based on the date when the Authority filed Application 25517X01? If so, should the State Water Board also either i) consider the Authority's petition for partial assignment of State-filed Application 25517 as a petition for release from the priority of State-filed Application 25517 in favor of Application 25517X01, or ii) consider the Authority's petition for release from priority of State-filed Application 25517 in favor of Application 25517X01 to encompass the entirety of State-filed Application 25517?

2. Should the State Water Board approve the release from priority of State-filed Applications 25513, 22514, 22517, 22235, 23780, and 23781 in favor of Application 25517X01? If so, what conditions, if any, including conditions to address the issues identified below, should be included in the approval?

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a. Would a release from priority of State-filed Applications 25513, 22514, 22517, 22235, 23780, and 23781 in favor of Application 25517X01 be for purposes of development not in conflict with the California Water Plan or any other general or coordinated plan for the control, protection, development, utilization, or conservation of the water resources of the state, or with water quality objectives?

b. Should the State Water Board consider the public interest when determining whether to approve the Authority's request for release from priority of State-filed Applications 25513, 22514, 22517, 22235, 23780, and 23781 in favor of Application 25517X01? If so, would approval be in the public interest?

c. Would a release from priority of State-filed Applications 25513, 22514, 22517, 22235, 23780, and 23781 in favor of Application 25517X01 deprive counties in which the water originates of water necessary for the counties' development?

3. Should the State Water Board approve Application 25517X01 and issue a water right permit authorizing the appropriation of water? If so, what terms and conditions should be included in the permit, including conditions to address any of the issues identified below?

   a. Is water available for appropriation under the priority date of State-filed Application 22517? Is water available for appropriation if Application 25517X01 has a May 11, 2022, priority date? If so, when, under what circumstances, and in what amount is unappropriated water available to supply the Applicant?

      i. How much of the water available for diversion could physically be diverted by the Project consistent with the diversion limits proposed in Application 25517X01, the proposed conveyance and storage capacity, and possible operational limitations?

      ii. Would the proposed appropriation interfere with the exercise of existing water rights so as to injure existing water right holders? If the application is approved, what terms and conditions should be included to protect existing water right holders from injury?

      iii. What amounts of water are needed to remain instream in the public interest for recreation and the preservation and enhancement of fish and wildlife, or for protection of other beneficial uses? If approved, what terms and conditions should be included in any permit to preserve instream flows needed (1) to ensure consistency with applicable water quality control plans, (2) to keep fish in good condition below the dams, (3) to avoid jeopardy to the continued existence of any endangered or threatened species, and to avoid the destruction or

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adverse modification of critical habitat, and (4) to protect public trust resources to the extent feasible and in the public interest?

iv. What conditions, if any, should be included in any permit issued on Application 25517X01, in anticipation of the update to the Bay-Delta Plan?

1. Should any permit issued pursuant to Application 25517X01 prohibit diversions until the State Water Board has updated and implemented the Bay-Delta Plan and determined what limitations on diversions under the permit will be needed to meet Bay-Delta Plan requirements?

2. Alternatively, should any permit issued pursuant to Application 25517X01 be subject to interim requirements limiting diversions to ensure reasonable protection of beneficial uses pending the update and implementation of the Bay-Delta Plan?

3. Should any permit issued pursuant to Application 25517X01 include conditions to protect proposed voluntary agreement flows or the flows to which proposed voluntary agreement flows are intended to be additive, in the event the Bay-Delta Plan is updated to include voluntary agreements?

b. Do the area of origin protections in Water Code sections 1215–1222 apply to Application 25517X01? If so, would approval of Application 25517X01 allow export of water that would directly or indirectly deprive the Sacramento River System of the prior right to all the water reasonably required to adequately supply the beneficial needs of the area, or any of the inhabitants or property owners therein? Are there any conditions that should be included in any approval of the application to ensure that exports do not deprive the Sacramento River System of water reasonably required in the area of origin?

c. Would the water diverted under the proposed appropriation be put to reasonable and beneficial use? If approved, what terms and conditions should be included to ensure that the diversion and use of water is reasonable and beneficial?

d. Is the proposed appropriation in the public interest? If approved, what terms and conditions should be included to ensure that the diversion and use is in the public interest?

i. Would the proposed appropriation impact Tribal lands, Tribal interests, or Tribal cultural resources?

ii. Would the proposed appropriation advance racial equity and environmental justice?

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iii. Does the proposed appropriation advance the state goal of providing a decent home and suitable living environment for every Californian?

iv. Is the proposed appropriation consistent with the California Water Plan and any other general or coordinated plan for the control, protection, development, utilization, or conservation of the water resources of the state?

v. Would the proposed appropriation cause unreasonable adverse impacts to water quality, fish, wildlife, or public trust resources?

vi. What is the relative benefit to be derived from all beneficial uses of the water sought to be appropriated and any reclamation or reuse of the water as proposed by the Applicant?

vii. Does the public interest require subordination of exports from the Delta under any permit issued pursuant to Application 25517X01 to diversions for reasonable and beneficial uses within the areas of origin?

e. Has the Applicant obtained or demonstrated the ability to obtain necessary rights of access to occupy property or use existing works as proposed in the application?

4. Is there a feasible alternative or are there feasible mitigation measures within the State Water Board's authority that would substantially lessen or avoid any significant effect of the project identified in the Final EIR? If approved, what terms and conditions should be included in the permit to mitigate or avoid significant environmental impacts identified in the Final EIR?

2.6.3 Draft and Final Decisions

[Reserved]

3. PETITIONS FOR ASSIGNMENT AND RELEASE FROM PRIORITY

3.1 Background

In 1927, the California Legislature enacted statutes permitting the state to "make and file applications for any water which in its judgment is or may be required in the development and completion of the whole or any part of a general or coordinated plan looking toward the development, utilization, or conservation" of California's water resources. (Wat. Code, § 10500.) While held by the state, such applications, commonly referred to as state-filed applications, are not subject to the diligence requirement for

prosecuting an application. (*Ibid.*) Permits issued pursuant to state-filed applications give the applicant a priority of right matching the date of the application. (*Ibid*.)

Water Code section 10504 authorizes the State Water Board to assign state-filed applications to third parties or to release the higher priority of a state-filed application relative to the junior priority of another water right or rights. (Wat. Code, § 10504; Order WR 83-01, p. 18[12]; State Water Board Decision 1634 (1996), p. 3.) An assignment or partial assignment transfers all or part of the state-filed application to a third party. (Order WR 83-01, p. 18; State Water Board Decision 1587 (1982), p. 21.) Concurrently, the Board may issue to the assignee a permit to develop water under the priority date of the assigned state-filed application. (*Ibid.*) A release from priority, by contrast, grants to the requesting third party a limited exception to the rule of priority with relation to a particular state-filed application. Once the Board grants a release from a specific state-filed application, any future assignee of the application is precluded from asserting priority against the right or rights in favor of which the release was made. (Order WR 83-01, p. 19; Decision 1634, p. 3; State Water Board Decision 1603 (1984), pp. 9–10.) In this way, these assignments and releases act as exceptions to the priority system for water rights.

The Board may grant a petition for assignment or release from priority of a state-filed application if a petitioner satisfies three conditions. First, the assignment or release from priority must not conflict with a general or coordinated plan looking toward the development, utilization, or conservation of the water resources of the state. (Wat. Code, §§ 10504, 10500.) Second, the assignment or release from priority must not "conflict with … water quality objectives established pursuant to law." (*Id.*, § 10504.) Third, the State Water Board may not approve an assignment or release from priority "that will, in the judgment of the board, deprive the county in which the water covered by the application originates of any such water necessary for the development of the

[12] Copies of State Water Board decisions, orders, and resolutions cited in this Decision are saved as a courtesy in a subfolder in the administrative record for this proceeding. Some parties have also introduced copies of certain decisions or orders as exhibits, and where possible we have cited those exhibit numbers as well.

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county." (*Id.*, § 10505.) If these conditions are met, the Board may assign a state-filed application and issue a water right permit or approve a petition for release from priority. As with other discretionary decisions in administering water rights, the Board shall consider the public interest when determining whether to approve a petition for assignment or release from priority. (See Wat. Code, §§ 1253 & 1257 [consideration of public interest when acting upon application to appropriate water]; Order WR 2009-0033, p. 6, fn. 4 [consideration of public interest when acting upon a petition for change, even though not explicitly required by statute]; State Water Board Decision 935 (1959), p. 63 ["[I]t may well be said that in the field of acquisition of rights to the use of water . . . the State Water Rights Board is the guardian of the public interest"].)

In May 2022, the Authority petitioned the State Water Board for partial assignment of State-filed Application 25517, which has a priority date of September 30, 1977, and releases from priority of State-filed Applications 25513, 25514, the unassigned portion of 25517, 22235, 23780, and 23781, in favor of the Authority's application. Approval of the petition for assignment of Application 25517 would grant the Authority's application, and any permit issued based on that application, a priority date of September 30, 1977, in lieu of a priority date of May 11, 2022. Approval of the releases from priority would subordinate the priority of the other identified state-filed applications, which may be developed in the future, in favor of any permit issued on the Authority's application.

To support its petition for state-filed assignment, the Authority reached subordination agreements with the holders of 18 existing water rights with priority dates junior to September 30, 1977, within the Sacramento River and Delta watersheds. (See 2025-05-27 Sites Closing Br., pp.104–106, ¶ 22 [SPA Special Term 1]; See, e.g., Exh. Sites-411, p. 10 [MOU with Maxwell Irrigation District].) Based on these agreements, the benefiting right holders declined to file protests or dismissed their protests to the Authority's water right application and associated petitions. The Authority did not reach similar agreements with the holders of numerous other permitted or licensed rights in the Sacramento River watershed with priority dates junior to September 30, 1977.

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3.2 Analysis

We deny the Authority's petition for partial assignment of State-filed Application 25517 on two independent bases. First, we conclude that approval of the petition would not best conserve the public interest because of the impact of such an approval on the water supplies of existing and potential future users within the areas of origin of the Sacramento and Bay-Delta watersheds, and because approval of the petition with the associated subordination agreements would further complicate water right priorities within the watershed so as to frustrate administration of the priority system. Second, we deny both the petition for assignment and the petitions for releases from priority because we find that the Authority has failed to demonstrate that approval of the petitions would not "conflict with … water quality objectives established pursuant to law." (Wat. Code, § 10504.)

3.2.1 Consideration of the Public Interest

The Authority argues that, when assigning state-filed applications, the Board's public interest considerations are constrained to the factors identified in Water Code sections 10504 and 10505. (2025-05-27 Sites Closing Br., p. 25.) We disagree. Our public interest considerations are not so limited. State-filed applications are made and filed pursuant to the "rules and regulations of the State Water Resources Control Board relating to the appropriation of water," excepting only the normal due diligence requirements. (Wat. Code, § 10500.) The Board's decision whether to grant a petition for assignment or release from priority is discretionary. (*Id.*, § 10504 ["The board *may* release from priority or assignment any portion of any application filed under this part . . . ."] [italics added].) While assignment provides the applicant with the benefit of the priority date of the state-filed application, the applicant still must obtain a permit pursuant to that application to authorize the appropriation. (See, e.g., Wat. Code, § 10505.5; Order WR 83-01, p. 18 ["The recipient of an assignment *and the contemporaneous permit* receives a right to develop water" [emphasis added].) The Board is required to consider the public interest prior to issuing a permit to appropriate water. (Wat. Code, §§ 1253, 1255, & 1257.) Insofar as the permit is issued contemporaneously with the assignment, the Board may fully consider the public

interest when assigning state-filed applications and considering whether to approve an associated water right permit.

Area of Origin Protections

Approval of the Authority's petition for assignment would grant the Authority's water right priority over other rights in the watershed junior to September 30, 1977, except those right holders with whom the Authority entered a subordination agreement. Such a re-ordering of priority to accommodate this significant new appropriation would erode the available water supply for existing rights, potentially limiting water available for development within the area of origin. A 1977 priority date may also exempt the Project from watershed of origin protections, thereby prioritizing Sites Project diversions over future development within the watershed, and allow the export of Sites Project water even when CVP and SWP diversions are constrained by area of origin protections specific to those projects. Accordingly, we find that the public interest weighs against approval of the assignment of State-filed Application 25517.

Approval of assignment of State-filed Application 25517 may exempt the Project from area of origin protections that apply to exports of water pursuant to applications to appropriate surface water filed after January 1, 1985. (See Wat. Code, §§ 1215–1222.) For those applications, Water Code section 1216 prohibits the export of water for use outside of identified protected areas if the water is reasonably required to adequately supply the protected area's beneficial needs. Protected areas include the Sacramento River System, the Mokelumne River System, the Calaveras River System, the San Joaquin River System, and the Sacramento-San Joaquin Delta. The effect of these protections is to subordinate export projects to diversions necessary to satisfy local demands within the protected watersheds. Although the issue has not previously been addressed, presumably, area of origin protections would not apply to diversions by the Authority pursuant to Application 25517 for purposes of export from the Sacramento and Delta watersheds because Application 25517 was filed in 1977, even though the Authority did not petition for assignment of Application 25517 until 2022.

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CVP and SWP exports are subject to similar area of origin protections under Water Code sections 11460 through 11463. (See *United States v. State Water Resources Control Bd.* (1986) 182 Cal.App.3d 82,138–139.) These provisions protect a watershed of origin, or an area immediately adjacent thereto which can conveniently be supplied with water therefrom, from the CVP or SWP depriving the prior right to all water reasonably required to adequately supply beneficial needs in the watershed. (Wat. Code, §§ 11128,11460–11463.) For purposes of water rights administration, diversions for export by the CVP or SWP are treated as junior to diversions for beneficial uses within the watershed of origin.

The Sites Reservoir Project is intended in significant part to divert water to storage for export south of the Delta. (See Exh. AHO-028 [listing project participants and storage allotments as of December 31, 2021].) Although there are other Storage Partners located south of the Delta, just three of them — Metropolitan Water District, San Gorgonio Pass Water District, and San Bernadino Valley Municipal Water District — are allotted over one-third of the storage space in the Project. (*Ibid.*) The Authority proposes to operate the Project in coordination with the CVP and SWP, including exchanges of water whereby water would be released from Sites Reservoir to meet regulatory requirements to allow diversion of water to upstream storage in Shasta Reservoir or Oroville Reservoir. (See Exh. AHO-069, pp. 88–90.) The evidence in this proceeding suggests that Sites Reservoir would be operated, in part, as an extension of the CVP and SWP to enhance deliveries to CVP and SWP contractors. (See Exh. AHO-019; Exh. AHO-072, pp. 33–34; Exh. Sites-395, pp. 15:16–19 & 16:18–19.) Many of the Project's potential 24 participants are CVP contractors, SWP contractors, or receive supplies from the CVP or SWP. (Exh. AHO-005, pp. 11–33.)

If the assignment is approved and the Project is exempt from area of origin requirements, Project participants could strategically store water in Sites Reservoir for export south of the Delta even when area of origin demands are not fully met and the CVP and SWP are prohibited from diverting water. (See discussion at Rebuttal Transcripts Combined (Reb. Tr. Comb.), pp. 199:24–201:13.) Although the Authority has agreed to a permit term that prohibits operation of the Project in a manner that would

adversely affect operation of the CVP or SWP, this term would not address a scenario where CVP and SWP diversions, but not Sites Project operations, are restricted by area of origin protections, nor would this term prevent impacts on existing or future junior users within the areas of origin. (See 2025-05-27 Sites Closing Br., p. 107, ¶ 25 [SPA Special Term 4].) Likewise, although we appreciate the Authority's efforts to limit or resolve protests through negotiated agreements, the subordination agreements the Authority reached with junior right holders do not adequately address this issue, as they would only prevent impacts on a limited number of existing right holders within the watershed. Diversions to Sites Reservoir would remove water from the system otherwise available to supply existing junior rights and reduce the amount of water available for future in-basin uses.

Based on the expressed intent of the Legislature to prioritize area of origin uses over exports and to protect existing right holders, we conclude that area of origin limitations should apply to any water right issued for the Sites Reservoir Project. (State Water Board Decision 1486 (1978), pp. 24–25 [imposing area of origin protections to protect public interest].) Furthermore, because the Sites Reservoir Project is intended to be operated in close coordination with the CVP and SWP, area of origin restrictions should apply to all three projects to eliminate the opportunity for an end-run around those protections.

Administration of the Water Rights Priority System

Approval of the Authority's petition for assignment would also be contrary to the public interest because its approval, together with the subordination agreements the Authority reached with junior right holders, would present significant challenges for the Board's administration of the water right priority system in the Bay-Delta watershed.

Pursuant to a subordination agreement, "the holder of an otherwise senior water right consents to stand in order of priority behind another person or persons holding a junior water right." (*Bd. of Cnty. Comm'rs v. Crystal Creek Homeowners' Ass'n* (Colo. 2000) 14 P.3d 325, 329 fn.1 [as modified on denial of reh'g (Dec. 18, 2000)].) A subordination agreement is a limited reordering of priority that binds only the consenting parties.

Because the Authority has agreed to subordinate its water right to certain junior water right holders with various priority dates, the water right for the Project would have different priorities relative to different water right holders. Although the Authority and the subordinating right holders may have intended to reverse priority as between the Authority's permit and junior rights covered by the subordination agreements, that reversal of priority does not change the priority of junior rights with and without an agreement vis-à-vis one another. (Exh. AHO-025; Exh. AHO-312.) It is unclear how the Board would effectuate these agreements consistent with the rule of priority when implementing curtailments during times of shortage.[13]

We conclude, for these reasons, that the public interest weighs in favor of denial of the Authority's petition to obtain the benefit of the state's retained 1977 priority date for Application 25517. Denial of the petition ensures that the operation of the Project will be constrained by area of origin protections pursuant to Water Code section 1216, protects existing users by confirming a 2022 priority date for the Authority's permit, and preserves the Board's ability to administer the water rights priority system.

3.2.2 Required Statutory Findings

Independent from public interest considerations, we conclude that the Authority has not met the statutory requirements necessary for approval of assignment of a state-filed application or releases from priority of state-filed applications. Approval of any assignment or release from priority must not "conflict with … water quality objectives established pursuant to law." (Wat. Code, § 10504.) As described in additional detail in Section 4.4.2, based on currently available information, Project operations are likely to cause or contribute to exceedances of methylmercury water quality objectives in receiving waters of releases from Sites Reservoir. (Exh. AHO-073, pp. 60–62.) Because

[13] Approval of the petitions for release from priority of the state-filed applications in favor of the Authority's permit would create a similar issue. The releases would effectively reverse the priority of the state-filed applications and the Authority's permit, but they would not change the priority of water rights with priority dates between the state-filed applications and September 30, 1977, relative to the state-filed applications or the Authority's permit.

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the evidentiary record before us supports the finding that operation of the Project will conflict with applicable water quality objectives, we must deny the petitions.

The public interest factors that weigh against assignment of State-filed Application 25517 do not necessarily apply against approval of the Authority's petition for releases from priority, however. Therefore, the denial of the Authority's petition for releases from priority is made without prejudice. We may reconsider that decision at a future time and upon a demonstration by the Authority based on new information that approval would not conflict with water quality objectives.

Because the petition for assignment of State-filed Application 25517 is denied, the Board considers Application 25517X01 to have a May 11, 2022, priority date, based on the date when the Authority filed Application 25517X01.

4. WATER RIGHT APPLICATION 25517X01

Before approving an application to appropriate water, the State Water Board must make required findings related to water availability, impacts to fish, wildlife, and other instream beneficial uses and public trust resources, the public interest, beneficial use of water, and rights of access necessary to complete the proposed appropriation. Each of these factors is addressed in the following sections of the Decision.

4.1 Water Available for Appropriation

The Permit authorizes the appropriation of up to 986,000 AFY from the Sacramento River from November 1 to June 14, at a rate of 2,120 cfs at the Red Bluff POD and 2,070 cfs at the Hamilton City POD. The Authority has demonstrated that, at times, there is unappropriated water available for diversion from the Sacramento River to satisfy the appropriation as authorized by the Permit.

This Decision does not authorize appropriation of water from Funks Creek or Stone Corral Creek (collectively, Creeks) because the Authority did not submit sufficient information to demonstrate that water is available for appropriation from the Creeks. This determination is made without prejudice. The Authority may file a future application

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to appropriate water from the Creeks supported by a water availability analysis that includes downstream demands for water in the Colusa Basin Drain.

4.1.1 Legal Background

Water Code section 1375 provides that the State Water Board must find that there is "unappropriated water available to supply the applicant" before issuing a water right permit. (Wat. Code, § 1375, subd. (d).) Water that is not needed to satisfy riparian rights, and is not otherwise appropriated, may be available for appropriation. (*Id.*, § 1201.) Water Code section 1202 defines unappropriated water to include water that has never been appropriated, water that has not been applied to beneficial use in the exercise of due diligence under an appropriative claim of right, and return flows from water that has been appropriated or used. (*Id.*, § 1202.)

When determining the availability of unappropriated water, Water Code section 1243 requires the Board to "take into account, when it is in the public interest, the amounts of water required for recreation and the preservation and enhancement of fish and wildlife resources." (Wat. Code, § 1243.) Similarly, section 1243.5 requires the Board to consider the amount of water needed to protect instream beneficial uses, including uses protected by applicable water quality control plans. (*Id.*, § 1243.5.) The Board also has a duty to consider the effects of a proposed appropriation on public trust uses, including fish and wildlife habitat, and to protect those uses to the extent feasible and in the public interest. (*National Audubon Society v. Superior Court* (1983) 33 Cal.3d 419, 445–447.) The availability of unappropriated water is "a constantly fluctuating question" such that the Board's ultimate determination "necessarily can only be an estimate." (*Temescal Water Co. v. Dept. of Public Works* (1955) 44 Cal.2d 90, 106.)

4.1.2 Water Availability: Sacramento River

4.1.2.1. Evidence of Water Availability

The Authority's water right application seeks appropriation of 1,500,000 AFY at a diversion rate of 4,200 cfs from September 1 of each year to June 14 of the succeeding year, from the Sacramento River, Funks Creek, and Stone Corral Creek. (Exh. AHO-001, pp. 24, 27, 30, 32.) The Authority evaluates the availability of water to supply its

proposed appropriation in a report titled Amended Water Availability Analysis for Sites Reservoir Water Right Application (WAA Report). (Exh. Sites-25c, pp. 6–7, ¶ 6; Exh. AHO-039, p. 5.) The WAA Report presents three different methods for determining whether water is available for appropriation from the Sacramento River for the proposed Project. (Exh. Sites-070c, p. 17, ¶ 30.) The three methods are referred to here as the Face Value Analysis, the Historical Analysis, and the CalSim II Analysis. Each method relies on different supply and demand datasets to demonstrate water availability. (Exh. Sites-025c, p. 4, ¶ 11.)

The Face Value Analysis uses unimpaired flow data to represent supply. (Exh. Sites-025c, at pp. 4-5, ¶ 14.) To represent demand, the Face Value Analysis uses the maximum authorized diversions, or face value, of all water rights with a priority of right senior to September 30, 1977, in the Sacramento River watershed. (Exh. AHO-39, p. 69.) The Authority characterizes the results of the Face Value Analysis as a "conservative estimate of unappropriated water" which was determined by comparing "the monthly unimpaired flow data to the calculated maximum diversion and storage volumes based on the face value of senior water rights for each sub-watershed in the Sacramento River watershed and the Delta (including export demands and in-Delta consumptive uses)."[14] (Exh. Sites-070c, pp. 16 & 18, ¶¶ 27 & 30.) The Face Value Analysis does not consider flows that must remain instream to satisfy regulatory requirements or to support instream beneficial uses and therefore does not address considerations required by Water Code sections 1243 or 1243.5. (Exh. Sites-025c, p. 5 ¶ 14.) The Face Value Analysis does not consider demand associated with rights junior to the 1977 priority date of State-filed Application 25517 but assumes full development of rights senior to 1977 up to their full face value. (Exh. AHO-039, p. 69.)

[14] The term "face value" is used here to refer to the maximum diversion rate and volume authorized by a water right. The Authority identified maximum diversion rates, seasons of diversion, and storage volumes, if applicable, in permits, licenses, registrations, and certificates for all post-1914 water rights. (Exh. AHO-039, p. 69.) The Authority used historical maximums based on water use data available in the Division's Report Management System to estimate maximum diversion rates, seasons of diversion, and storage volumes, if applicable, for pre-1914 and riparian water right claims. (*Ibid.)*

The Historical Analysis uses measured historical stream flow to represent available supply after accounting for upstream demand, and it uses the face values of downstream water rights to estimate downstream demand. (Exh. AHO-025c, pp. 7–8, ¶ 20.) The Historical Analysis evaluates measured historical stream flows near the PODs and three downstream points of analysis on a daily-time step. (*Id.* at p. 8, ¶ 21.) At each of the PODs and points of analysis, the amounts of water potentially available are determined after considering the maximum diversion rates of downstream water rights. (Exh. AHO-039, pp. 21 & 25.) The analysis also incorporates operating criteria and minimum flows the Authority proposed to protect fisheries and instream uses. (Exh. Sites-70c, p. 17, ¶ 30; Exh. Sites-025c, p. 7, ¶ 20.) By using historical stream flows as a proxy for net supply after accounting for upstream demand, the analysis relies upon existing demand of upstream rights while assuming full development of downstream rights. (CIC Tr. Comb, p. 1614:10–23.)

The CalSim II Analysis simulates Sacramento River flows with operations of the SWP and CVP. (Exh. Sites-025c, p. 10, ¶ 28.) The analysis relies upon monthly historical hydrology from October 1921 to September 2003 to estimate supply and relies on development and land use within each planning area to estimate demand.[15] (Exh. Sites-025c, pp. 10–11, ¶¶ 28–29.) Experts for the Authority describe the CalSim II Analysis as an operationally realistic and system-wide perspective. (*Id.* at p. 10; Exh. Sites-070c, p. 19.) Use of the CalSim model allows for revisions in the analyses to evaluate different hydrologic inputs, such as historical or climate change, and assumptions regarding potential future regulatory requirements, such as percent of unimpaired flow requirements. (Exh. AHO-039, p. 50.) CalSim II is designed to primarily simulate the operations of the SWP and CVP on a monthly time-step. (*Ibid.)* To assess Sites Project operations with SWP and CVP operations, the Authority incorporated Sites Reservoir and its proposed operating requirements, such as diversion limitations and the bypass requirements the Authority originally proposed in its water right application, into the

[15] The analysis estimates demand in the Sacramento River watershed based on a 2020 level of development and demand in the San Joaquin River watershed based on a 2030 level of development. (Exh. Sites-025c, p. 10, ¶ 28.)

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CalSim II model. (Exh. Sites-025c, p. 10.) The Authority presented the Historical Analysis and CalSim II Analysis to show that water remains available for appropriation after accounting for proposed diversion criteria to protect instream beneficial uses.

The Division of Water Rights identified deficiencies in the Authority's initial WAA Report during review of the Authority's water right application under Water Code 1260, subdivision (k). (See Exh. AHO-260.) The Division required the Authority to augment its WAA Report with an analysis that considers the proposed updates to the Bay-Delta Plan. (*Id.* at p. 3.) In response, the Authority refined its existing analyses and conducted an additional analysis using a tool the Division developed, referred to here as the Division WAA Tool. (Exh. Sites-070c, pp. 20–21, ¶ 33; Exh. AHO-040, p. 1.)

The Division WAA Tool uses unimpaired flow data to represent supply, and it uses the face value of water rights to represent demand. (Exh. Sites-025c, p. 15, ¶ 43; Exh. AHO-040, p. 2.) The Division WAA Tool includes supply and demand information for the entire Delta watershed. (*Ibid*.) The Division WAA Tool imposes unimpaired flow requirements of 55 percent to the Sacramento River, Calaveras, Mokelumne, and Consumnes watersheds on a year-round basis and 40 percent to the Merced, Tuolumne, and Stanislaus rivers from February through June, to simulate regulatory requirements for the protection of fisheries and other instream beneficial uses. (*Ibid*.) The Authority post-processed the results of the analysis to incorporate the effects of Bend Bridge pulse flow protections and Wilkins Slough bypass flows the Authority proposed and analyzed in the Final EIR. (Exh. AHO-40, p. 2.)

In addition to an analysis using the Division's WAA Tool, the Authority submitted three additional CalSim II analyses to augment its initial WAA Report. (Exh. Sites-070c, p. 17, ¶ 30.) These three analyses respectively incorporate: (1) estimated climatic conditions in 2035 (CalSim 2035 CT); (2) estimated climatic conditions in 2070 (CalSim 2070 CT);

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and (3) a representation of a 55 percent unimpaired Sacramento River bypass flow requirement (CalSim UIF).[16] (*Ibid*.)

Following issuance of the 2024 ITP, the Authority submitted an updated Historical Analysis (ITP Historical Analysis) that incorporates the ITP requirements. (Exh. Sites-0311c, p. 2, ¶ 2; Exh. Sites-334R.)

Finally, on November 3, 2025, the Authority submitted an analysis using CalSim 3 modeling.[17] This analysis also incorporates requirements in the 2024 ITP and assumes 2040 median climate conditions. (See 2025-11-03 Sites Letter to AHO Re CalSim3.)

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[16] The Authority prepared an analysis of a 55 percent unimpaired Sacramento River bypass flow requirement by post-processing CalSim II modeling results developed for the Environmental Impact Statement prepared by Reclamation for the 2019 reinitiation of consultation under the federal Endangered Species Act on the coordinated long-term operations of the CVP and SWP. (Exh. Sites-25c, pp 13–14, ¶¶ 38–40.) Experts for the Authority refer to the analysis as the CalSim II – Alternative 4 Model.

[17] On October 20, 2025, the hearing officer directed the Authority to submit CalSim 3 modeling results that incorporate the operating conditions identified in the 2024 ITP for Sites Reservoir. (2025-10-20 Letter to Andrew Hitchings, p. 1.) On November 3, 2025, the Authority submitted technical memoranda comparing CalSim II and CalSim 3 modeling assumptions and summarizing the CalSim 3 results for Project diversions from the Sacramento River, releases from Sites Reservoir, and changes to Delta Outflow with operation of the Project. (2025-11-03 Sites Letter to AHO Re CalSim 3.) These technical memoranda (Attachments 1 & 2 to 2025-11-03 Sites Letter to AHO Re CalSim 3) are hereby accepted into the evidentiary record.

Table 2
Results of Water Availability Analyses
for Sacramento River Diversions

Method	Period of Analysis (and timestep)	Maximum Diversion Volume (TAF)	Average Annual Diversion (TAF)	Maximum Time Period of Availability
Face Value Analysis	1921 to 2014 (Monthly)	1,383	330	Dec to June
CalSim II Analysis	1921 to 2003 (Monthly)	1,055	276	Sept to June
CalSim 2035 CT	1921 to 2003 (Monthly)	967	303	Oct to June
CalSim 2070 CT	1921 to 2003 (Monthly)	1,114	309	Oct to June
CalSim UIF	1921 to 2003 (Monthly)	1,763	327	Sept to June
Historical Analysis	2000 to 2024 (Daily)	1,219	304[18]	Dec to June
ITP Historical Analysis	2000 to 2024 (Daily)	1,115[19]	255	Dec to June
Division WAA Tool	1921 to 2022 (Monthly)	565	57	Oct to May[20]
CalSim 3 (with ITP)	1922 to 2021 (Daily)	993	270	Oct to June

(Exh. Sites-25c, pp. 6, 8, 10, 16 [periods of analysis]; Exh. Sites-311c, p. 4 [period of analysis for ITP Historical Analysis], 7, tbls. 1 & 2; Exh. AHO-040, p. 16, tbl. 8; 2025-11-03 Sites Letter to AHO Re CalSim3, pp. 9 [period of analysis for CalSim 3 (with ITP)], 24, tbl. A.)

[18] The results for the Historical Analysis were originally a maximum diversion volume of 1,236 thousand acre-feet (TAF) and an average annual diversion of 287 TAF. (Exh. Sites-25c, p. 21, tbl. 2.) The Historical Analysis was updated to have the same period of analysis and application of travel times as the ITP Historical Analysis, which resulted in the values shown here. (Exh. Sites-311c, p. 4, ¶ 7.)

[19] The ITP limits total diversions to 986,000 AFY. If this criterion were removed, the maximum diversion volume would be 1,115,000 AF. (Exh. Sites-311c, p. 6, ¶ 11.)

[20] "Water is shown as available in all months of the Sites diversion season except June (water is available in a single June)." (Exh. AHO-040, p. 8.)

The Protestants did not conduct their own analysis of the availability of unappropriated water to supply Application 25517 or 25517X01. Protestants' arguments and evidence that are relevant to the amount of water available for appropriation from the Sacramento River are generally summarized as follows:

- Water the Authority identified as surplus is needed to maintain fisheries, protect public trust resources, and support instream beneficial uses. (Exh. BK-1, pp. 7–8, ¶¶ 12-15; Exh. BK-132, p. 3, ¶ 8.) California Sportfishing Protection Alliance submitted evidence and expert testimony that approval of the Authority's appropriation at the requested rates of diversion and annual volume would materially alter the Sacramento River hydrograph. (Exh. CSPA-1c, pp. 4–8, ¶¶ 9–20.)

- Water the Authority identified as available for appropriation is already appropriated by the SWP and CVP or claimed by state-filed applications. (Exh. SDWA-11, pp. 3–4, ¶¶ 3–6.) South Delta Water Agency (SDWA) submitted expert testimony that the face value of water rights for the SWP and CVP total 56,892,973.5 acre-feet and the face value of state-filed applications total 52,598,000 acre-feet. (*Id.* at p. 4, ¶ 4.) SDWA further asserted that there is no surplus supply for appropriation because the SWP and CVP cannot satisfy water quality obligations in dry years. (*Id*. at p. 4, ¶ 5.)

- Climate change will increase the frequency of dry and critically dry years, such that flows will not continue to be available to achieve Project purposes. (Exh. FOR-16, pp. 6–7, ¶¶ 13–15.)

We address these arguments as part of the finding of water availability and the maximum amount of water to be authorized for diversion under the Permit in the following subsections.

4.1.2.2. Analysis

The WAA Report and subsequent analyses demonstrate that water is available for appropriation from the Sacramento River during certain relatively high flow conditions. As explained below, we find water is available to supply a maximum diversion rate of

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4,190 cfs, within a diversion season of November 1 through June 14, up to a maximum annual diversion volume of 986,000 acre-feet.

Maximum Rate of Diversion

The Authority demonstrated that unappropriated water is, at times, available for diversion at the PODs at a combined rate of 4,200 cfs. All three of the Authority's methods of analysis and the Division WAA Tool show that water is available at this rate. (see discussion, *supra*, Section 4.1.2.1.) The CalSim II Analysis, the ITP Historical Analysis, and the Division WAA Tool, show that flows sufficient to support the maximum proposed diversion rates are available after considering flows needed to remain instream for fisheries and other instream beneficial uses.

Application 25517 seeks a maximum combined rate of diversion of 4,200 cfs, with a diversion rate of up to 2,200 cfs at the Red Bluff POD and up to 2,000 cfs at the Hamilton City POD. (Exh. AHO-001, p. 30 & 32.) The Final EIR describes a slightly different proposed project, with diversion rates up to 2,120 cfs at the Red Bluff POD and 2,070 cfs at the Hamilton City POD, for a total of "about" 4,200 cfs. (Exh. AHO-069, pp. 79 & 86.) The 2024 ITP analyzes and approves the maximum diversion rates described in the Final EIR. (Exh. Sites-298, p. 7.) To ensure consistency with the Authority's CEQA analysis and CDFW's analysis of Project operations under the CESA, we approve the diversion rates described in the Final EIR and the 2024 ITP. Thus, the Permit authorizes a maximum diversion rate of 2,120 cfs at the Red Bluff POD and 2,070 cfs at the Hamilton City POD, for a combined maximum rate of diversion of 4,190 cfs.

Season of Diversion

The Authority demonstrated that unappropriated water is, at times, available for diversion from November 1 through June 14.

All three of the Authority's methods of analysis show that water is available from December 1 through June 14. The multiple water availability analyses reach different results, however, as to the availability of water in the months of September, October, and November. The ITP Historical Analysis found no diversions could occur in the months of September, October, or November during the period of analysis. (Exh. Sites-

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311c, p. 6, ¶ 11.) The Face Value Analysis, which does not account for instream needs, also found no diversions could occur in the months of September, October, and November. (*Id.* at p. 7, tbl. 2.) Conversely, the analyses using CalSim II and CalSim 3 modeling both show that water could be available in the months of October and November. The analyses using CalSim II indicated some water availability as early as September.

While showing that water may be available in September and October, the CalSim II Analysis indicates average available volumes of only 3,000 acre-feet in September and October, and even lower average volumes in these months with changed climate conditions of 2035 and 2070. (Exh. AHO-039, pp. 179–185, tbls. B-1–B-9.) By contrast, the CalSim II Analysis shows that significant amounts of water may be available in November, with an average of 13,000 acre-feet and a maximum of 180,000 acre-feet based on historical hydrology. (Exh. AHO-39, p. 179, tbl. B-1.)

In reconciling varying results among the different tools, the Authority urges the Board to review the results of the multiple water availability analyses collectively, in accordance with the characteristics of and assumptions used in each analysis. (Exh. Sites-395c, p. 8, ¶ 18; Sites Closing Br., p. 34.) An expert for the Authority, Angela Bezzone, asserted that the 82-year CalSim II Analysis is a more appropriate tool than the 25-year ITP Historical Analysis to identify water that may be available for diversion because of the larger sample size of hydrologic data. (Exh. Sites-395c, p. 8, ¶ 18.) Ms. Bezzone also testified that, although the ITP Historical Analysis the Authority submitted did not show any water availability during November, when the Authority extended the period of analysis through December 2024 using gauge data from November 2024, water was shown to be available in November 2024.[21] (*Id. at* p. 8, ¶ 17.)

We conclude that the Authority has adequately demonstrated that water is available for diversion in November, in some years, based on the Division WAA Tool results, Ms.

[21] Although the extended analysis did not include downstream senior demand, the Delta was determined to be in excess conditions during at least part of the time period when water was available at the PODs. (Exh. Sites-395c, pp. 8-9, fn. 10, fig. 1.)

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Bezzone's testimony about the ITP Historical Analysis, and CalSim model results. We do not include September and October in the season of diversion because the CalSim analyses were the only analyses to demonstrate that any diversions were possible during those months, and the amounts shown to be available for diversion were nominal.

Maximum Annual Volume of Diversion to Storage

The 2024 ITP limits the annual volume of diversion to 986,000 acre-feet to protect listed species. (Exh. Sites-298, p. 43; Exh. Sites-300, p. 311.) CDFW concluded that an annual volumetric diversion limit of 986,000 acre-feet would avoid or minimize indirect Project-related impacts by providing "a level of protection for water quality and habitat for all Covered Species in the Sacramento River and Delta." (Exh. Sites-300, pp. 311 & 351.) We do not find a basis in the record to deviate from CDFW's finding regarding impacts on aquatic species. Because we conclude that 986,000 AFY of water is, at times, available for appropriation, the Permit authorizes an annual volume of diversion to storage of 986,000 AFY.

The Authority's three initial analyses estimate the annual maximum volume of unappropriated water at the PODs range from 3,878,000 AFY to 8,681,000 AFY, without considering the proposed diversion rates at the Red Bluff and Hamilton City PODs or flows that must remain instream for fisheries. (Exh. AHO-039, p. 6, tbl. ES-1.) Use of the Division WAA Tool, which additionally imposes a 55 percent unimpaired flow bypass requirement, results in an estimated maximum annual volume of 1,631,000 AFY of unappropriated water available at the Hamilton City POD. (Exh. AHO-040, p. 19, tbl. 10.) These results were sufficient to demonstrate a reasonable likelihood that unappropriated water is available for the proposed appropriation and allow the Division to accept and notice the Sites Application. (See Exhs. AHO-260 & AHO-266; Wat. Code, § 1260, subd. (k).)

The Authority also evaluates the maximum volumes of unappropriated water the Project could divert with operational constraints, such as limits on the rate of diversion. These volumes more accurately reflect the amount of water that the Authority would actually be

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able to appropriate. After imposing a maximum diversion rate of 4,200 cfs, the Authority's analyses show a maximum amount of water that the Project could divert ranging from 967,000 AFY to 1,383,000 AFY, excepting the results of the Division WAA Tool. (See Table 2.)

The Division WAA Tool estimates that a maximum annual diversion of 565,000 acre-feet would be possible with a 4,200 cfs maximum rate of diversion and 55 percent of unimpaired flow bypass requirement, and assuming senior water rights divert up to the full face value of those rights. (Exh. Sites-025c, pp. 15–16, ¶¶ 43 & 46.) The Authority raised several objections to the Division WAA Tool, including the representation of water right demand and assumptions for disaggregating the annual face values applied in the analysis. (See Exh. AHO-040, pp. 5–6 [technical issues].) In the absence of a subsequent analysis that addresses those issues, we rely on the CalSim 3 and ITP Historical Analysis results to evaluate the maximum annual volume of potential diversions at the PODs, taking into account the combined effects of demands associated with the operation of other projects under senior water rights and operational constraints on Project diversions such as the rate of diversion. The results of the CalSim 3 analysis and ITP Historical Analysis indicate it would be possible for the Project to divert between 993,000 AFY and 1,115,000 AFY of previously unappropriated water. When considered collectively, the water availability analyses the Authority submitted demonstrate that 986,000 AFY of water is, at times, available for appropriation.

The Protestants' contrary arguments do not lead to a different conclusion. First, the CalSim analyses assume the CVP and SWP will maximize diversions under their water rights subject to infrastructure capacity, regulatory requirements, and all other limiting conditions. These analyses therefore counter the Protestants' argument that the CVP and SWP have appropriated all remaining water in the watershed. That the CVP and SWP have been unable to meet water quality objectives in some dry years does not undermine the conclusion that water may be available for appropriation in wetter years. (2025-05-27 SDWA Parties' Closing Br., p. 43.) Second, although significant amounts of water are the subject of state-filed applications, absent specific evidence that a state-filed application may be developed that would conflict with the Authority's appropriation,

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these potential claims are too remote and uncertain to support the conclusion that this water is unavailable for appropriation by the Authority. Finally, we do not disagree with Protestants' assertions that in dry years, water may not be available to supply the Project. (*Ibid*.) Term 26 in the Permit makes clear that the Permit is subject to senior water rights and curtailment when water is unavailable at the Permit's priority date.

The water availability analyses the Authority submitted could support a conclusion that greater than 986,000 AFY of unappropriated water may, during extremely wet years, be present at the PODs. But consideration of the amount of water required to remain instream for the preservation and enhancement of fish and wildlife weighs against authorizing an appropriation that exceeds 986,000 AFY. (Wat. Code, §§ 1243, 1243.5.) This limitation on total annual diversions coupled with the Permit's bypass requirements are intended to ensure that adequate amounts of water will remain instream, in the public interest, for the preservation and enhancement of fish and wildlife and other instream beneficial uses. Furthermore, the ITP effectively limits the Authority's ability to divert water in excess of 986,000 AFY unless and until this limitation is revised or removed from the ITP. Although the 2024 ITP expires on December 31, 2039, there is no basis to expect that future iterations of the ITP will increase the amount of authorized diversions. (Exh. Sites-298, p. 1.) Finally, the evidence suggests that the Project will rarely, if ever, have the opportunity to divert more than 986,000 acre-feet in any year. Therefore, the limitation will have little effect on average annual yield.

In an exceptional water year in which the Permit's annual volumetric limit might constrain diversions, and if the Authority were operating under an ITP that allowed for diversions in excess of 986,000 acre-feet, the Authority could apply for a temporary water right permit pursuant to Water Code sections 1425 to 1431. In the unlikely event that the Authority were able to divert continuously at the maximum rate of 4,190 cfs, or 8,311 acre-feet per day, starting on November 1, it would take until approximately February 28 of the subsequent year to reach the 986,000 acre-foot limit. In such an extraordinary year, the Authority could anticipate reaching this limit and timely apply for a temporary permit.

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4.1.3 Water Availability: Stone Corral Creek and Funks Creek

The Authority proposes to impound water flowing in Funks Creek and Stone Corral Creek in Sites Reservoir by construction of Golden Gate Dam and Sites Dam. (Exh. Sites-070c, p. 4, ¶ 10.) The Authority evaluated the availability of water for appropriation in each creek by comparing historical streamflow data to the face value of water rights in that creek. (Exh. AHO-039, p. 31.) The Authority did not consider the demands of water right holders downstream of the confluence of Stone Corral Creek, to which Funks Creek is a tributary, with the Colusa Basin Drain. (CIC Tr. Comb., pp. 1914:24–1915:19.)

United States Geological Survey (USGS) stream data collected near the town of Sites for 25 years from 1958 through 1985 shows that Stone Corral Creek average daily mean discharge is well below 100 cfs throughout much of the year, though flow can greatly exceed 100 cfs periodically during the winter and spring months. (Exh. AHO-78, p. 57, tbl. 11-3; Exh. Sites-60, p. 15, fig. 4.) More current stream gauge data is not available for Stone Corral Creek. The Final EIR concludes that while equivalent flow data for Funks Creek do not exist, "Stone Corral Creek hydrology is likely representative of Funks Creek hydrology in terms of amount and seasonality of flow." (Exh. AHO-78, p. 57.)

The Authority's water availability analysis for the Creeks used the above streamflow data and assumptions about flows in Funks Creek to estimate supply, and the face value of water rights on each creek to estimate demand. (Exh. AHO-039, pp. 30–33.) The results indicated that water may be available in seven out of the 22 years included in the analysis in volumes ranging from 700 acre-feet to 24,000 acre-feet, averaging 2,900 acre-feet per year. (Exh. Sites-025c, p. 10, ¶ 27.) The analysis also indicated that water is available from January through April. (Exh. AHO-039, pp. 47–48.) Available supply is not adequate to meet the face value demand of rights on the Creeks from August through December or May through June.[22] (*Ibid*.) The Authority did not consider

[22] The Authority did not analyze water availability in July or August. (AHO-039, p. 47.)

available supply or demands of water rights downstream of the confluence of Stone Corral Creek and the Colusa Basin Drain. (CIC Tr. Comb., pp. 1914:24–1915:19.)

There are various sources of water that flow in the Colusa Basin Drain, including several foothill tributaries and agricultural return flow from surface water diversions from the Sacramento River,[23] and accretions in certain areas from the groundwater table. (Exh. Sites-142, pp. 183, 185, 474; Exh. King-81, pp. 4 & 39.) The Colusa Basin Drain is a highly controlled system with numerous inflows, return flows, and flow control structures. (Exh. King-81, pp. 36–39.) As a result, it is difficult to estimate water availability at any particular point of diversion for existing right holders. Clarke Ornbaun submitted measured data for a gauge located near the intersection of the Colusa Basin Drain and Highway 20, approximately 2.5 miles east of Colusa. (Exh. Ornbaun-004, p. 1; Exh. Ornbnaun-016, p. 1.)[24] There is no other information in the evidentiary record about flow in the Colusa Basin Drain, and there are no other readily available sources of data or estimates of the amount of water in the Colusa Basin Drain in addition to flows from Funks Creek and Stone Corral Creek.

According to the Board's water rights records, water rights exist with points of diversion on the Colusa Basin Drain downstream of the confluence with Stone Corral Creek. A review of information on file with the Division of Water Rights data system indicates over 50 water rights along the Colusa Basin Drain, authorizing diversions in amounts up to 42,500 AFY. The record contains some evidence that flows in the Colusa Basin Drain are, at times, insufficient to meet these downstream demands. For example, the gauge data Mr. Ornbaun submitted appears to show that water was unavailable during 2021. (Exh. Ornbaun-004, p. 1.) Ben King also submitted photographic evidence depicting low water levels in the Colusa Basin Drain. (Exh. King-52; Exh. King-54; & Exh. King-55.)

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[23] On average, the GCID Main Canal and Tehama-Colusa Canal convey approximately one million AFY into the region from diversions from the Sacramento River and Stoney Creek. (Exh. King-81, p. 39.)

[24] The exhibits from Mr. Ornbaun were not indexed when submitted. The AHO renamed the files to contain exhibit numbers and saved them in a folder titled "Files created by the AHO" within the Clarke Ornbaun Exhibits folder.

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The record is inadequate to support approval of the portion of Application 25517 that seeks to appropriate water from the Creeks, and therefore that portion of the application is denied. Specifically, our denial is based on the Authority's failure to submit evidence that water is available for appropriation from the Creeks after considering downstream supply and demand on the Colusa Basin Drain. The Authority's water availability analysis only considered demand from water rights that divert directly from the Creeks and did not address the impacts of the proposed appropriation on downstream water right holders or instream needs along the Colusa Basin Drain. (CIC Tr. Comb., pp. 1914:24-1915:19.)

Term 19 makes clear that impoundment of water from the Creeks is not authorized and that inflows from the Creeks must be released downstream. As the Authority described, the current dam designs have the capacity to release up to 100 cfs each on a regular basis, with additional capacity for emergency releases up to 4,700 cfs into Stone Corral Creek. (Exh. AHO-069, p. 91.) Because inflows from the Creeks can exceed release rates, Term 19 requires the Permittee to develop operating criteria to ensure inflows will be released within a reasonable time. (*Ibid.*; Exh. AHO-078, p. 57.) Any temporary impoundment must not injure other legal users of water or unreasonably impact fish and wildlife or other public trust resources. Term 20 is complementary to Term 19 and requires development of the technical studies and Creeks Operations Plan the Authority originally proposed to address any potential impacts on downstream fisheries resulting from the temporary impoundment of water. (See Exh. AHO-108, pp. 51–52; Exh. Sites-60.) The operating criteria Term 19 requires may be incorporated into the Creeks Operations Plan.

The denial of the portion of Application 25517 that seeks to appropriate water from the Creeks does not prejudice a future application by the Authority to appropriate water from the Creeks at Sites Dam and Golden Gate Dam for storage in Sites Reservoir. The Authority may submit such an application supported by information from the record of this proceeding with additional information regarding water availability along the Colusa Basin Drain. Such an application may also benefit from the data gathered through the technical studies required by Term 20. Should the Authority obtain a water right permit

to divert and store water from the Creeks, the Deputy Director may modify Terms 19 and 20 of this Permit to ensure consistency with that future-issued permit.

4.2 Avoidance of Injury to Senior Right Holders

Water Code section 1375, subdivision (d), provides that the Board must find that there is "unappropriated water available to supply the applicant" before approving an application for a water right permit. Unappropriated water is defined to exclude water needed for reasonable and beneficial use under existing, valid water rights. (Wat. Code, §§ 1201, 1202.) Accordingly, to show that unappropriated water is available, the applicant must demonstrate that water may be diverted and used in the amounts and the manner proposed without injury to any other lawful user of water. (See, e.g., Decision 1647 (2008), p. 19; State Water Board Decision 1642 (2001), p. 14; State Water Board Decision 1591 (1983), p. 4.) Not every interference with the exercise of a water right constitutes injury, however. Injury occurs if the interference is material and significant, and the cost to the senior right holder of avoiding the harm is unreasonable. (State Water Board Order WR 79-22, p. 7; *Peabody v. Vallejo* (1935) 2 Cal.2d 351, 376.)

4.2.1 Delta Water Rights

South Delta Water Agency, Central Delta Water Agency, Zuckerman-Mandeville, Inc., Delta Farms Reclamation District No. 2030, Rudy Mussi Investment L.P., and County of San Joaquin (the Delta Parties) argue that approval of the Authority's application as proposed will injure their water rights by lowering water levels and increasing salinity in the Delta. Based on the evidence in the record, we agree that approval of the application, absent appropriate terms and conditions, risks injury to legal users of water in the Delta. To avoid the risk of such injury, this Decision imposes conditions on the rediversion of water through the Delta Export Facilities under the Permit to require that water quality criteria are met and that water levels are adequate to support diversions by senior right holders using reasonable methods when the rediversions occur. This Decision also imposes conditions on the release of water under the Permit pursuant to an exchange to ensure that exchanges do not cause an increase in Delta exports that may result in injury based on water level or water quality impacts. (See Exh. Sites-70c, pp. 4 & 13, ¶¶ 10 & 13; Exh. SDWA-2a, p. 4, ¶ 6.)

4.2.1.1 Water Levels

The Delta Parties argue that Project diversion and export operations[25] will decrease water levels in the southern Delta and thereby injure their water rights in several ways. First, the Delta Parties argue that exports through the Delta Export Facilities already adversely affect water levels so as to injure legal users in the Delta, and that additional exports will contribute to further lowering of water levels. (2025-05-27 SDWA Parties' Closing Br., p. 11.) The Delta Parties assert that even a small decrease in stage attributable to the Authority's proposed operations — such as the 1.2-inch average decrease claimed by the Authority — could negatively impact legal users' ability to divert water from southern Delta channels. (See Exh. SDWA-2a, p. 9, ¶ 10.) Second, and relatedly, the Delta Parties argue that the modeling on which the Authority relies to show that its diversions will have minimal impacts on water levels is fundamentally flawed. (2025-05-27 SDWA Parties' Closing Br., pp. 12–13.) Third, the Delta Parties contend that by exporting more water and capturing high flows, Sites will reduce Delta circulation and flushing flows, increasing siltation and worsening low water levels. (*Id.* at pp. 11:25–12:12.) Finally, the Delta Parties offer evidence that the Water Level Response Plan required by Revised Water Right Decision 1641 (Decision 1641 or D-1641), as a condition of joint points of diversion (JPOD) operations, and on which the Authority relies for mitigation of potential injury from operation of the Sites Project, is inadequate to avoid injury from lowering of water levels. (*Id.* at p. 15:12–18; see also Exh. SDWA-91-a, pp. 24-26, ¶¶ 49-50.)

The Authority disputes each of these arguments. In particular, the Authority argues that modeled water level changes attributable to Sites Project operations will not cause material decreases in water levels and therefore does not rise to the level of injury. (2025-05-27 Sites Closing Br., pp. 40–41; 2025-06-26 Sites Reply Br., pp. 16–19.) The Authority further argues that the Water Level Response Plan will protect the Delta Parties from any threat of injury due to decreased water levels. (2025-05-27 Sites Closing Br., pp. 40–41; 2025-06-26 Sites Reply Br., pp. 16–19.) DWR and the State

[25] "Project export operations" is defined to include export of water under the Permit and export of water made available by exchange with water diverted under the Permit.

Water Contractors reiterate that all exports will need to comply with these existing requirements. (2025-05-27 SWC Closing Br., p. 6–28; 2025-05-27 DWR Closing Br., p. 4–4.)

The weight of the evidence in the record demonstrates that the Authority's proposed diversions will tend to contribute to lowered water levels in the southern Delta that may injure legal users absent appropriate conditions on Project operations. There appears to be no dispute that operation of the Delta Export Facilities impacts water levels in the southern Delta, and that Project operations will, at times, decrease water levels in the southern Delta by some amount. (See 2025-05-27 Sites Closing Br., pp. 33:28-34:1; Exh. Sites-110, ¶ 24; Reb. Tr. Comb., pp. 737:23–738:4; Exh. SDWA-80.)[26] Even the Authority's results show that its operations would, in certain conditions, have at least some adverse effect on water levels — up to 1.2 inches calculated as the monthly average change in minimum water levels by water year type. (Exh. Sites-110, p. 7, ¶ 24.) Because the Authority's witness, Dr. Samaneh Saadat, presented these model results as a monthly average by water year type, more significant fluctuations at a sub-monthly time step, or in a single month in a particular year, would not necessarily be apparent. SDWA Parties' witness, Thomas Burke, opined that even a 1.2-inch drop in water levels can prevent a grower from being able to irrigate under certain conditions, particularly when water levels have already been lowered due to the cumulative impacts of other diversions or exports. (CIC Tr. Comb., pp. 5213:22–5214:3 & 5429:3–5431:5.) Our finding that Sites Project operations may injure legal users in the Delta from increasing exports is consistent with other Board orders imposing terms and conditions

[26] The SDWA Parties' modeling shows that export operations in the Delta can decrease stage in southern Delta channels by as much as two feet. (Exh. SDWA-2a, pp. 5–9, ¶¶ 9–10.) The Authority, DWR, and State Water Contractors critique this model run comparison as overly simplistic because it assumes zero exports without making any other modifications to modeled operations. "If exports are at zero, then DWR and USBR would not be making reservoir releases to support the exports … by changing only the exports in the model, the SDWA Parties' modeling essentially creates a scenario of excess conditions throughout the summer months created by reservoir releases, which would never happen." (2025-05-27 DWR Closing Br., p. 13; 2025-05-27 SWC Closing Br., p. 9.) Because the validity of the Delta Parties' modeled comparison is unclear, we do not rely on it to support our conclusions.

on proposed exports through the Delta Export Facilities to avoid injury to legal users within the Delta. (Revised Decision 1641; see also, e.g., Order WR 2001-03-DWR; Order WR 2004-0024-DWR.)

More importantly, however, there appear to be significant problems with the modeling the Authority conducted to analyze the impact of its proposed operations on water levels in the southern Delta, rendering the results unreliable. The version of the DSM2 model the Authority utilized relies on modeling assumptions developed using outdated data depicting Delta channel geometry. (Exh. SDWA-002a, p.15, ¶ 16.) The bathymetry underlying the version of DSM2 the Authority utilized is 15 to 25 years old. (Exh. SDWA-091a, p. 15, ¶ 32.) SDWA Parties presented persuasive evidence that because of this outdated data, which does not account for changes in the channels that have occurred over time, Delta channel geometry assumed by the model varies significantly from actual conditions. (See Exh. SDWA-2a, pp. 15–17, ¶¶ 15–18, figs. 9–11.) Mr. Burke testified that in some places actual channel elevations are as much as four to five feet higher than modeled, as measured in a survey conducted jointly by SDWA and DWR. (*Id.* at, pp. 16–17, ¶ 17.) According to Mr. Burke, these "model runs using [the outdated channel geometry] will show flow rates in Middle River considerably higher than are actually occurring," and impacts from the Authority's proposed export operations could be significantly greater than the model predicts. (*Ibid.*)

The Authority defends its modeling analysis by characterizing its model results as "comparative" rather than predictive. (2025-05-27 Sites Reply Br., pp. 15:3–16:12.) The Authority argues that the estimated changes in water levels from comparing model runs with and without the Sites Project remain valid because any errors in the underlying assumptions are consistent as between the runs. Given the significance of the identified errors in the underlying bathymetry, however, we are unpersuaded that even a comparative use of the model is appropriate and could be used to accurately estimate expected impacts of Project operations. A model that is not calibrated to accurately approximate measured conditions is unlikely to be useful as either a comparative or a predictive tool. (See Exh. SDWA-91-a, pp. 15–16, ¶¶ 32–33.)

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Mr. Burke's secondary critique of the Authority's analysis is reliance on long-term monthly averaging over an 82-year period to evaluate impacts on water levels, which, as we previously referenced, may mask more acute, sub-monthly impacts, or more acute impacts evident in the monthly average for some but not all years of that water-type. (Exh. SDWA-91-a, pp. 26 & 28, ¶¶ 52 & 58.) We agree that the Authority's reliance on long-term averaging may fail to identify potential injury to agricultural users in the Delta from increased Delta exports. The Authority's use of averages, even when sorted by water year type, may not identify years in which more significant impacts occur. And a farmer's inability to irrigate for even a short period of time can have significant impacts on crop production. (See Exh. SDWA-2a, p. 9, ¶ 10.)

Overall, we are persuaded by Mr. Burke's critiques of the Authority's modeling. The potential sources of error within the Authority's modeling and analysis render unreliable the Authority's conclusions that its operations are unlikely to contribute to material impacts on water levels. Furthermore, even if the Authority's modeling were accurate, small decreases in stage may compound with the effects of operations by other junior right holders to cause a material impact that injures legal users in the Delta. That others may be jointly responsible for this result does not relieve the Authority of its obligation to avoid an incremental contribution to such an injury through its operations.

We also conclude that the Authority's commitment to comply with the Water Level Response Plan will not adequately mitigate the threat of injury to the Delta Parties from Sites export operations. The Division of Water Rights approved the Water Level Response Plan in 2004, pursuant to Revised Water Right Decision 1641. That Decision conditionally approved DWR and Reclamation's petition to export water from the southern Delta using one another's export facilities, commonly referred to as JPOD operations. The Water Level Response Plan established a process to address "water levels of concern" that result from the incremental effect of JPOD operations and additional pumping to accommodate water transfers. (Exh. Sites-252, p. 4.) The Plan requires forecasting of minimum water levels within the SDWA service area using DSM2, to determine whether water levels are adequate to allow JPOD or transfer operations at the Delta Export Facilities. (*Id.* at pp. 5; Exh. SDWA-91-a, p. 6.) An action

covered by the Water Level Response Plan may proceed if "[f]orecasts show the action will not cause or aggravate water levels of concern." (*Id.* at p. 5.) Although under the Plan, Reclamation and DWR are required to suspend operations if notified by SDWA that diverters within the service area are experiencing "water levels of concern," Reclamation and DWR may continue operations by using observed data in conjunction with model output to show that there is no incremental impact from operations. (*Id.* at p. 6.) Delta Parties presented testimony from Delta farmers that, over the time period that the Water Level Response Plan has been in effect, Delta water elevations have repeatedly dropped below the level needed for irrigation. (Exh. SDWA-66, p. 4; Exh. SDWA-91-a, p. 5, ¶¶ 5-8; Exh. SDWA-76, p. 4, ¶ 6; see also Exh. SDWA-91a, p. 24, ¶ 49.)

There are several reasons why the Water Level Response Plan may be inadequate to prevent Sites export operations from causing or contributing to injury. First, the DSM2 model runs DWR used to evaluate compliance with the Water Level Response Plan also rely on outdated underlying assumptions about channel geometry that undermined the Authority's assessment of water level impacts. (See Reb. Tr. Comb., p. 701:17–18.) Second, there is no requirement in the Water Level Response Plan that DWR regularly update and calibrate the model in the future to ensure that the assumptions approximate actual conditions. Third, DWR witness Aaron Miller testified that, to address lack of fit between model results and actual conditions, DWR staff "tune" the model "as they see fit … to simulate actual conditions," and do so without a written record of those adjustments other than within the working model files. (*Id.* at pp. 768:24–769:3, 770:15–771:4.) It is unclear whether DWR informs interested parties of those revisions, which may prevent affected parties from considering and potentially contesting the validity of those refinements. Finally, no party submitted direct evidence as to whether the water elevation criteria in the Water Level Response Plan remain appropriate to prevent injury. (See, e.g., *id.* at pp. 719:24–722:4.) For these reasons, we conclude that there is insufficient evidence that compliance with the requirements in the Water Level Response Plan will prevent injury.

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Instead of incorporating the requirements of Revised Decision 1641, the Permit prohibits rediversion of water at the Delta Export Facilities when water depths in Delta channels are not adequate to support diversions by reasonable methods. Neither the Authority nor the Delta Parties have submitted sufficient information to allow us to determine specific water levels and compliance locations that would avoid injury to valid right holders. Therefore, the Permit authorizes the Executive Director to approve, after notice and opportunity for public comment, water depths at specific measurement locations developed by the Authority in consultation with SDWA that demonstrate adequate water depths to prevent injury. Alternatively, or in conjunction with water depth criteria, the Authority may propose a physical solution to prevent injury to Delta right holders if the Authority obtains written concurrence from SDWA. A physical solution might include, for example, dredging of Delta channels, the use of portable pumps or other temporary infrastructure to divert and convey water, or provision of alternate water supplies when water levels in Delta channels are inadequate to support diversions. The Permit authorizes water to be rediverted at the Delta Export Facilities if either the approved water depths are met or any approved physical solution is implemented to prevent injury.

In anticipation of the development of a plan or other regulatory program to comprehensively address impacts of operation of the Export Facilities on water levels in the southern Delta, the Permit allows such a program to be incorporated into the Permit in lieu of other requirements under Term 49. The Permit authorizes water to be rediverted at the Export Facilities in compliance with a future-adopted regulatory program, upon approval by the Executive Director that such a program addresses changes in water levels to prevent injury to right holders from inadequate water depths in Delta channels. Such a regulatory program might consist of, but is not limited to, a regulation implementing the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan) or an approved plan to address water depths in the southern Delta pursuant to a federal or state-issued permit, license, or other approval.

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4.2.1.2 Salinity

The Authority asserts that its operations will not reduce the attainment of numeric salinity and chloride objectives in the Delta and therefore will not injure Delta water users. (2025-05-27 Sites Closing Br., p. 64.) The Authority relies on monthly average modeling using DSM2 to show that Sites Project operations would not negatively impact water quality in the Delta. (*Id.* at p. 65; Exh. Sites-110, p. 5, ¶¶ 13–14; Exh. Sites-256c, [slides 6–7]; Exh. Sites-282.) Probability exceedance figures the Authority presented for the D-1641 southern Delta compliance locations at Old River at Tracy Road Bridge, San Joaquin River at Brandt Bridge, and Old River near Middle River showed no discernable difference between the model runs with and without Sites Project operations. (Exh. AHO-136, pp. 6, 11, & 13; CIC Tr. Comb., pp. 1463:8–1465:20.)

The Delta Parties offered opposing evidence and argument that Sites Project operations will injure their water rights by increasing salinity. Specifically, the Delta Parties argue:

- The modeling on which the Authority relied to conclude that project operations will have minimal impacts on Delta salinity is unreliable (2025-05-27 SDWA Parties' Closing Br., p. 22–12);
- The Authority's decision to rely on long-term monthly averaging to evaluate potential salinity impacts inappropriately masks the project's potential impacts (2025-05-27 SDWA Parties' Closing Br., pp. 19:25–20:17; 2025-06-26 SDWA Parties' Reply Br., p. 14–22);
- The Authority's modeling shows that project operations will at times increase applied water salinity in areas where salinity is already high and even small increases in applied water salinity can adversely affect crop development 2025-05-27 SDWA Parties' Closing Br., pp. 16–17); and
- Operations at the Export Facilities already regularly cause exceedances of applicable salinity objectives adopted by the Board to prevent injury, and additional rediversions will only exacerbate this problem (2025-05-27 SDEWA Parties' Closing Br. p. 11.)

We first address impacts on salinity caused by diversions from the Sacramento River to storage in Sites Reservoir and then address impacts from the rediversion of water through the Delta Export Facilities.

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Salinity-Related Injury from Diversions

To protect beneficial uses in the Delta, this Decision conditions the Authority's diversions from the Sacramento River on attainment of the numeric water quality objectives for Sacramento River salinity and salinity-based Delta outflow in the Bay-Delta Plan. (Permit Term 29.) The Delta Parties also seek limitation of the season of diversion under the Permit to December 1 to March 31, to address an alleged up-to-117-day "long-term memory" of Delta salinity as affected by Sacramento River flows. (Exh. SDWA-72a, p. 13, ¶ 15.) The Delta Parties did not present evidence, however, that such a restriction on the diversion season is necessary to prevent salinity impacts if diversions are conditioned on compliance with water quality objectives and limited to times of relatively high flow as required by the bypass, pulse flow, and Delta outflow conditions already included in the Permit for fisheries protection. We conclude that the conditions on diversion requiring attainment of water quality objectives and bypass flows, which limit diversions to relatively high flow conditions, will prevent injury to downstream users from salinity impacts caused by Project diversions.

Salinity-Related Injury from Export Operations

Before addressing the extent to which Sites Project export operations may threaten injury to legal users by increasing salinity in the southern Delta, we first address the standard by which we should determine whether increased salinity may be injurious. In D-1641, the Board made the CVP and SWP jointly responsible for meeting specific salinity objectives in the Delta to protect agricultural beneficial uses. (See Revised Decision 1641, pp. 171 & 161.) As relevant here, Revised Decision 1641 provides that salinity must not exceed 0.7 mmhos/cm from April 1 through August 31, and must not exceed 1.0 mmhos/cm from September 1 through March 31, measured as a 30-day running average of mean daily electrical conductivity (EC) in mmhos/cm, at the following three locations in the interior southern Delta: (1) Station C-6 (San Joaquin River at Brandt Bridge); (2) Station C-8 (Old River near Middle River); and (3) Station P-12 (Old River at Tracy Road Bridge). (Revised Decision 1641, p. 194, tbl. 2.) In 2018, the State Water Board revised the southern Delta salinity objectives to relax the salinity objective

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from 0.7 mmhos/cm from April 1 through August 31, to 1.0 mmhos/cm year-round at these stations. (Exh. AHO-341, p. 25.)

Although the 2018 updates to the Bay-Delta Plan have not yet been implemented, this implementation status does not affect the validity of the adopted water quality objective. (State Water Board Order WR 2026-0001, pp. 11–12.) The objective reflects the Board's considered judgment as to the reasonable protection of agricultural uses of water in the Delta, to "attain the highest quality of water that is reasonable, considering all the demands being made on waters in the Estuary watershed." (Exh. AHO-341, p. 22; see Cal. Const., art. X, § 2; Revised Decision-1641, pp. 92–93; *Town of Antioch v. Williams Irrig. Dist.* (1922) 188 Cal. 451, 465.) Based on this determination by the Board, and in the absence of evidence in the record that would support some other specific salinity level as both reasonable and necessary to prevent injury, we conclude that an EC level of 1.0 mmhos/cm (1.0 dS/m) year-round is the most appropriate general legal benchmark for evaluating potential injury to agricultural water users in the southern Delta.

The relationship between export operations and salinity conditions in the southern Delta is complex, but in general, the evidence in the record shows that exports through the Delta Export Facilities will, at times, increase salinity. (Exh. Sites-110, ¶ 28; Exh. SDWA-2a, ¶ 12.) Even the Authority's model results show that Sites export operations will in some conditions have such an effect. (Exh. SDWA-91-a, ¶ 10; Exh. SDWA-92-a; 2025-05-27 DWR Closing Br., p. 7:19-20.) We are also persuaded by the Delta Parties' critique of the Authority's model results presented by Dr. Saadat, whose presentation applied multiple layers of averaging that may mask relevant modelled impacts.[27] (Exh.

[27] The Authority presented impacts based on monthly averages for salinity that had been averaged with all other modeled averages for that month over the 82-year period evaluated. (CIC Tr. Comb., pp. 958:16-959:16.) As the SDWA Parties explained in their closing brief: "Over the 82-year time frame examined, there could for example be wet Aprils and critically dry Aprils. The results for these extremely different conditions were averaged in producing the graphs presented by the Authority. There is no way for anyone to discern if the effects in some dry April[s] cause injury to legal users if the dry April data (averages) is averaged with the wet April's [sic] averages." (2025-05-27

Sites-110, p. 5, ¶¶ 13–14; Exh. Sites-256c [slides 6–7].) We therefore discount these figures and Dr. Saadat's opinions based on these figures. We conclude that a condition on Sites Project export operations is appropriate to ensure that operations will not contribute to exceedances of the water quality objectives intended to protect agricultural uses.

The Authority proposes to condition rediversion of water at the Delta Export Facilities on compliance by DWR and Reclamation with the requirements of D-1641. (2025-05-27 Sites Closing Br., pp. 108–109, ¶ 32 [SPA Special Term 11].) Because the salinity standards in D-1641 have effectively been superseded by the 2018 Bay-Delta Plan, and DWR and Reclamation have yet to submit a final Comprehensive Operations Plan that meets the requirements of the 2018 Bay-Delta Plan to address the impacts of export operations on salinity conditions in the southern Delta, we condition Sites Project export operations on attainment of the current, numeric water quality objectives demonstrated by measured conditions. Condition 43 of the Permit prohibits Sites Project exports operations through the Delta Export Facilities when measured EC levels at the three interior southern Delta compliance locations exceed the 2018 Bay-Delta Plan year-round objective of 1.0 mmhos/cm (1.0 dS/m).

SDWA Parties argue that attainment of the water quality objective may be insufficient to prevent injury because Sites Project operations may contribute to acute periods of heightened salinity in Delta channels when southern Delta water right holders are irrigating. (2025-05-27 SDWA Closing Br., pp. 16–19; 2025-06-26 SDWA Reply Br., p. 11.) SDWA Parties did not, however, provide concrete evidence that such a harm has occurred in the past, nor specific evidence in support of an alternate salinity requirement to address this potential for injury. The Board reserves the authority to revise the conditions of the Permit, after notice to interested parties and the opportunity for

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SDWA Closing Br., p. 20.) The Final EIR includes monthly average model results for salinity by water year type, which only partially addresses the SDWA Parties' critique. (See Exh. AHO-136, pp. 3, 6, 11, 13.)

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hearing, based on new evidence demonstrating that the requirement in the Permit is insufficient to prevent injury.

4.2.2 Federal Reserved Water Rights

When the federal government reserves land for a federal purpose, by implication, it reserves water rights "to the extent needed to accomplish the purpose of the reservation." (*Cappaert v. U. S.* (1976) 426 U.S. 128, 138.) Federal reserved water rights can apply to both surface water and groundwater. (*Agua Caliente Band of Cahuilla Indians v. Coachella Valley Water District* (9th Cir. 2017) 849 F.3d 1262, 1270.)

Cachil DeHe Band of Wintun Indians of the Colusa Indian Community of the Colusa Rancheria (Cachil DeHe) claims senior, but unadjudicated, federal reserved water rights to groundwater and to surface water from the Sacramento River established with the reservation of the Colusa Indian Community Rancheria (the Colusa Rancheria). (2025-02-18 Cachil DeHe Supplemental Information, p. 2;[28] 2025-05-27 Tribal Parties Closing Br., pp. 14–28; 23–34.) The Authority does not dispute that Cachil DeHe has unadjudicated senior federal reserved rights associated with the Colusa Rancheria. (2025-06-26 Sites Reply Br., p. 13; 2025-05-27 Sites Closing Br., pp. 38:27-39:1.)

The Authority's water right application is not the appropriate forum to adjudicate and quantify Cachil DeHe's federal reserved rights. (Accord, 2025-06-26 Tribal Parties Reply Br., p. 5.) An adjudication is also unnecessary for the Board to act on the Authority's application and to ensure that Cachil DeHe's reserved rights, including any used portions of its rights, are protected. The Tribe's reserved rights are senior to the Permit,

[28] This document is in the administrative record in the Supplemental Information subfolder of the Hearing Documents folder, in the folder for the Cachil DeHe Band of Wintun Indians. The Authority objected to introduction of this supplemental information, identified as Exhibit CICC-11. The hearing officer sustained this objection. (2025-04-18 Procedural Ruling on Evidentiary Motions (Sites), pp. 29-30.) Nonetheless, the ruling identifies that the hearing officer and the Board may consider the claims contained in the document as "non-evidentiary factual and legal argument, in conjunction with any closing brief filed by CICC." (*Ibid.*)

and, like riparian rights, federal reserved rights are not lost through non-use. (*Hargrave v. Cook* (1895) 108 Cal. 72, 76; *In re Waters of Long Valley Creek Stream System* (1979) 25 Cal.3d 339, 347; *Agua Caliente Band of Cahuilla Indians, supra,* 849 F.3d at p. 1272.) Similarly, federal reserved right holders may also increase diversions up to the scope of the right, so long as that increase is not wasteful or unreasonable. (*Winters v. United States* (1908) 207 U.S. 564.)

Prior to approving junior appropriations, the Board is not required to quantify unadjudicated rights such as riparian rights. (See, e.g., State Water Board Decision 1120 (1963), p. 3 ["A prospective riparian use is not a bar to the approval of a present application to appropriate water"].) Rather, junior appropriators take the junior right subject to any unexercised riparian rights and are on notice that they must curtail their diversions if necessary to avoid interfering with the exercise of those senior rights. (Permit Term 26.) Similarly, the Board need not quantify Cachil DeHe's unadjudicated federal reserved rights prior to approving the Applicant's junior appropriation. Instead, the Authority is similarly on notice that if Cachil DeHe increases its use within the scope of its right, the Authority may be required to curtail its diversions to ensure Cachil DeHe's rights are satisfied.

We explicitly acknowledge in the Permit that any federal reserved rights, including Cachil DeHe's rights, are senior to the water right to be developed and authorized by the Permit.

4.2.3 Groundwater Rights

Applicants bear the burden to show that water is available for appropriation and, correspondingly, that their diversions will not injure prior right holders. (State Water Board Decision 1633 (1995), p. 17.) An applicant must demonstrate that the proposed appropriation will not interfere with the exercise of surface or groundwater rights. (Wat. Code, § 1375, subd. (d); State Water Board Decision 1614 (1987), p. 5 ["[W]ater is not available for appropriation from a watercourse which feeds a groundwater basin if the appropriation would materially damage the rights of the overlying landowner"]; Decision 935, p. 20; *City of Lodi v. East Bay Municipal Utility Dist.* (1936) 7 Cal.2d 316, 331.)

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Based on the modeling referenced in the Final EIR, under some scenarios, operation of the Project may lower groundwater elevations by about one foot at locations downstream of the points of diversion near the location of the formerly proposed Delevan Pipeline intake[29] on the Sacramento River, after approximately 25 years of operating the Project.[30] (Exh. Sites-146, pp. 20 & 31, fig. 10A-9.) This lowering of groundwater levels reflects a modelled reduction of 50 to more than 100 cfs of recharge from the Sacramento River to the groundwater basin. (Exh. Sites-146, p. 37, fig. 10A-11.) The outlet at the Sacramento River of the formerly proposed Delevan Pipeline is approximately five to 10 miles upstream of the Colusa Reservation and Colusa Rancheria. (Exh. AHO-069, p. 2; Exh. Sites-142, p. 137, fig. 2-5; Exh. AHO-340, p. 4, fig. 1-2.)

The Authority's modeling of groundwater impacts from Project diversions is general and does not address the full nature and extent of potential impacts on the underlying groundwater system. To assess potential impacts on groundwater users, the groundwater modeling outputs would need to describe not only the impacts directly beneath the Sacramento River but the extent to which these impacts extend throughout the aquifer system. Absent some assessment of the extent of potential impacts, especially when diversions coincide with peak groundwater pumping, the likelihood and risk of injury to groundwater users remains uncertain. Similarly, the likelihood and risk of impacts on groundwater sustainability thresholds and actions identified in the relevant

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[29] The Delevan Pipeline and associated intake facilities were previously proposed as part of the Project but were not incorporated into the final design. (Exh. AHO-340, p. 5; Exh. AHO-069, pp. 2-3.) The intake would have been directly east of Sites Reservoir, at Sacramento River mile 158.5. (Exh. AHO-340, pp 4 & 5, fig. 1-2.)

[30] Appendix 8B of the Final EIR states that "[Central Valley Hydrologic Model] simulations for Alternative B show a decrease in stream stage of up to 1 foot and a decrease in groundwater elevations of up to 5.5 feet." (Exh. Sites-146, p. 20.) This statement appears to interchange the information depicted in Figure 10A-9 and should state that CVHM simulations for Alternative B show a decrease in stream stage of up to 5.5 feet and a decrease in groundwater elevations of up to 1 foot. (*Id.* at p. 31, fig. 10A-9.)

groundwater sustainability plans within the Colusa and neighboring subbasins is unclear.

However, no groundwater sustainability agency or other agency with interests in groundwater near the Project's points of diversion participated in this proceeding. The only party to the hearing to assert potential injury to its groundwater rights was Cachil DeHe. Cachil DeHe claims a federal reserved right to both surface and groundwater for the Colusa Rancheria, located adjacent to the Sacramento River, downstream of the proposed points of diversion. For a discussion of Cachil DeHe's unadjudicated federally reserved rights, see Section 4.2.2.

Based on the general groundwater model results the Authority submitted in the EIR, impacts of Project diversions on recharge and groundwater elevations could impact wells on the Colusa Reservation. (Exh. AHO-153, p. 10, fig. 8A-2; Exh. SCS-24; Exh. Sites-114, ¶¶ 27-30.) Cachil DeHe did not, however, submit any specific information in this proceeding about its claimed groundwater rights or well operations, such as the location and depth of wells, past and present amounts of water pumped, the purposes for which the water is currently used or may be used in the future, or the specific way in which the Project may injure its groundwater use. (Exh. SCS-3, p. 2, ¶ 33; Exh. SCS-91a, p.4, ¶ 13; Exh. SCS-29, p. 1.) Instead, Cachil DeHe asserts that it is the Applicant's burden to show that the Project will not injure the Tribe's groundwater rights and the Authority has failed to meet this burden. (2025-05-27 Tribal Parties Closing Br., pp. 17–18; 2025-02-18 Cachil DeHe Supplemental Information, p. 3.)

Protestants claiming injury to a right from approval of a water right application or petition are required to present evidence demonstrating the specific injury that may result. (See State Water Board Revised Order WR 2002-0013, p. 15; State Water Board Decision 1651 (2012), p. 24.)

> If the protest is based on interference with a prior right, there shall be an allegation of specific injury to protestant which will result from the proposed appropriation. The protest shall state the basis of protestant's claim of right to use water and when the use began, the use which has been made in recent years, and present use. The location of protestant's point of diversion

> shall be described with sufficient accuracy so that the position thereof relative to the point of diversion proposed by applicant may be determined.

(Cal. Code Regs., tit. 23, § 745, subd. (b).)

In other circumstances, Cachil DeHe would have been required to provide this information with a timely filed protest to participate in the hearing, but the hearing officer allowed Cachil DeHe to intervene as a party after the hearing had already begun. (2024-06-05 Procedural Ruling, p. 3.[31])

Given the minimal evidence in the record before us about potential impacts on groundwater users, the Board reserves jurisdiction pursuant to Water Code section 1394 to revise the terms or conditions of the Permit as necessary to protect the rights of groundwater users located in the groundwater subbasins adjacent to the Sacramento River downstream of the points of diversion. The Board may reserve jurisdiction over a permit pursuant to section 1394, "[i]f the board finds that sufficient information is not available to finally determine the terms and conditions which will reasonably protect vested rights without resulting in waste of water … and that a period of actual operation or time for completion of studies will be necessary in order to secure the required information." (Wat. Code, § 1394 subd. (a)(1).) Here, we reserve jurisdiction and require the Authority to develop a groundwater monitoring program to gather information about groundwater elevations to assist in determining whether diversions under this Permit may cause injury to groundwater right holders. (Permit Term 52.) That program may rely on and incorporate existing monitoring locations, protocols, and thresholds being implemented under the Sustainable Groundwater Management Act. The Authority must conduct additional monitoring only if existing monitoring activities are not sufficient to identify potential effects of diversions on groundwater elevations. For each monitoring location, the program shall identify water elevation thresholds at which the Permittee shall conduct analyses to determine whether Project diversions are contributing to groundwater level declines or other adverse effects to groundwater conditions that may

[31] Procedural Rulings are in the administrative record in the Notices, Orders, and Rulings subfolder of the Hearing Documents folder.

injure groundwater right holders. The Board reserves jurisdiction to modify the terms and conditions of this Permit upon receipt of evidence that operations authorized by this Permit may cause or threaten to cause injury to groundwater right holders in subbasins adjacent to the Sacramento River downstream of the points of diversion, and if, after notice to interested parties and opportunity for a hearing, the Permittee fails to demonstrate that Project operations will not cause injury.

4.3 Fish, Wildlife, and Other Instream Beneficial Uses

4.3.1 Fish and Wildlife

In determining the amount of water available for appropriation, the Board must consider the amount of water required to remain in the source to support instream beneficial uses, including the preservation and enhancement of fish and wildlife. (Wat. Code, §§ 1243, 1243.5.) The Board must also consider the effect of approving a water right application on public trust resources and protect those resources where feasible and in the public interest. (*National Audubon Society, supra,* 33 Cal.3d at pp. 426, 446–447.) Water Code section 1253 requires that the Board "allow the appropriation for beneficial purposes of unappropriated water under such terms and conditions as in its judgment will best develop, conserve, and utilize in the public interest the water sought to be appropriated." Such public interest considerations include the avoidance of unreasonable impacts on fish and wildlife. (See, e.g., State Water Board Decision 1345 (1969), p. 2 [reserving jurisdiction to impose appropriate permit terms in public interest to protect fish in Eel River]; State Water Board Decision 1379 (1971), pp. 15–16 [Board may impose permit terms that prevent operations from interfering with natural flow required to protect fish and wildlife].)

As trustee for fish and wildlife resources, CDFW shares responsibility with the State Water Board to protect fish and wildlife from impacts caused by the diversion and use of water. (*Environmental Protection Information Center v. California Dept. of Forestry & Fire Protection* (2008) 44 Cal.4th 459, 515 [describing CDFW's public trust duty to protect fish and wildlife].) CDFW is not, however, obligated to participate in every permitting action involving fish and wildlife resources. In this proceeding, CDFW elected not to participate as a party to present evidence or argument concerning permit terms

that may be necessary to protect fish and wildlife from impacts of the proposed diversions to the extent feasible, consistent with the public trust doctrine.

CDFW has issued ITPs pursuant to the CESA for the construction and operation of the Sites Reservoir Project, which are included in the administrative record. (Exhs. Sites-298–Sites-302.) But CDFW's responsibilities under the CESA are distinct from the Board's obligations under the Water Code and the public trust doctrine. The CESA directs CDFW to conserve endangered and threatened species and authorizes take of a listed species only when the impacts are minimized and fully mitigated. (Fish & G. Code, § 2081, subd. (b).) No ITP may be issued if the permit would jeopardize the continued existence of the species. (Cal. Code Regs., tit. 14, § 783.4, subd. (b).) In contrast, the Board is obligated in its water right permitting decisions to protect public trust resources where feasible and consider the amount of water required to remain in the source to support preservation and enhancement of fish and wildlife. These obligations extend beyond listed species. (See, e.g., State Water Board Decision 1631 (1994), pp. 87–129 [considering impacts of water diversions on non-listed species, including Mono Lake alkali fly, red-necked phalaropes, and trout species, among others]; see also State Water Board Order WR 2002-0002, pp. 10–11 [concluding Board would be "abdicating its public trust responsibilities" if it deferred to federal agency future determinations about flow requirements necessary to protect steelhead].)

4.3.1.1 Impacts on Fisheries from Diversions

This section of the Decision addresses potential impacts on fisheries from Project diversions and flow conditions in the Sacramento River. This Decision considers Delta outflow requirements in relation to flows necessary to support fisheries and other instream beneficial uses in Section 4.3.2. We address fishery impacts related to water quality, including temperature impacts, in Section 4.4.

Project diversions may have both near- and far-field impacts on fish. Near-field impacts occur at or near the PODs. For example, diversions may entrain fish — unintentionally transporting smaller juveniles through the pumping stations into the irrigation canals — or impinge juveniles against the fish screens. (Exh. AHO-078, p. 155.) Far-field effects occur away from the PODs and generally include impacts caused by changes in river

flow such as flow-related modifications to physical habitat, like spawning and rearing habitat, or reduction in flows needed to support fish migration. (Exh. AHO-078, pp. 109–121.)

The Authority asserts that operation of the Project in compliance with federal and state regulations and project-specific requirements as described in the Final EIR and as modified by the 2024 ITP, will not cause unreasonable adverse impacts on fish and aquatic species. (2025-05-27 Sites Closing Br., pp. 72–73.) The Authority's Final EIR evaluated impacts of Project construction and operation on aquatic species of management concern, including winter-run Chinook salmon, spring-run Chinook salmon, fall-run Chinook salmon, steelhead trout, Delta smelt, longfin smelt, green sturgeon, and white sturgeon, among others. (Exh. AHO-078, pp. 9–11.) The analysis in the Final EIR incorporates the Authority's proposed operations criteria, including minimum bypass flows at both points of diversion on the Sacramento River, pulse flow protections, and bypass flows at Wilkins Slough. (See, e.g., Exh. AHO-078, pp. 32, 128, 146.) The 2024 ITP replaced bypass flows at the points of diversion and pulse flow protections with flow-dependent diversion criteria and modified other criteria the Authority proposed. (Exh. Sites-300, p. 312.) The Authority's expert, Dr. Richard Wilder, concluded that the conditions in the 2024 ITP as compared to the conditions included in the project description in the Final EIR, would provide similar or higher protection to salmonids, sturgeon, and other fish and aquatic species of management concern. (Exh. Sites-309, p. 2; ITP Transcripts Combined (ITP Tr. Comb.), p. 219:7-20.)

The non-governmental organizations (NGO) Parties[32] and Tribal Parties[33] maintain that the Authority's application should be denied because existing conditions fail to protect

[32] The NGO Parties include Protestants San Francisco Baykeeper, Friends of the River, California Sportfishing Protection Alliances, Save California Salmon, Sierra Club, Center for Biological Diversity, and Water Climate Trust.

[33] Save California Salmon and Cachil DeHe filed the Joint Tribal Parties' closing brief. Although this joint closing brief purports to submitted on behalf of "Tribal parties, Tribal protestants, and organizations with Tribal interests," the brief does not explicitly identify the parties or include signatories.

native fisheries and Project diversions will further reduce flows, causing additional harm. (2025-05-27 NGO Parties Closing Br., pp. 9:6–25, 31:1–22.) These parties presented evidence that Project diversions will increase near-field impacts on green sturgeon and other native fish, reduce flows that have several fishery benefits, including support for out-migration of juvenile salmonids, migration cues for white sturgeon and green sturgeon, and support the continued existence of longfin smelt and Delta smelt. (*Id.* at p. 7; Exh. BK-1, at p. 43, ¶ 94.) Specific to salmonids, the NGO Parties submitted studies to show that higher flows cause, or are coincident with, many river conditions that benefit salmonid migration. (Exh. BK-58, p. 8; Exh. BK-29, p. 10; Exh. BK-78, p. 33.) During juvenile outmigration, for example, higher flows cause higher water velocities, decreased water temperatures, increased turbidity, and increased habitat area, thereby reducing exposure to predators. (Exh. BK-58, p. 8; Exh. Sites-300, pp. 35-36, 59.) Although the NGO Parties take the primary position that the Authority's water right application should be denied, these parties propose, in the alternative, terms and conditions on Project diversions to reduce impacts on fish which are included as Appendix A to their closing brief. (2025-05-27 NGO Parties Closing Br., pp. 67–72.)

We conclude, based on the weight of the evidence in the record before us, that diversions under the Permit can be conditioned to avoid unreasonable impacts on fish, thereby protecting fisheries to the extent feasible as required by the Board's public trust obligations. We further conclude that the diversion criteria imposed by the 2024 ITP are insufficient for this purpose. First, the conditions in the ITP are intended to prevent or mitigate take of listed species to avoid jeopardizing the continued existence of those species, but the conditions are not necessarily designed to maintain or enhance those fisheries. Second, in crafting the diversion criteria in the 2024 ITP, CDFW did not consider potential impacts on fall-run and late-fall-run Chinook salmon because those runs are not protected under the ESA, 16 U.S.C. § 1531 et seq., or the CESA, Fish & G. Code, § 2050 et seq. In contrast, the State Water Board is responsible for the protection of listed and non-listed species, to the extent feasible and in the public interest, from impacts of the Board's water right permitting decisions.

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The Permit includes the following project-specific bypass flow conditions to maintain flows in the Sacramento River to protect fisheries from impacts of Project diversions:

- Flow-dependent diversion criteria, including heightened requirements imposed by the 2024 ITP at the Red Bluff POD, which is extended to apply in January and February;
- Pulse flow protections at the PODs as the Authority initially proposed; and
- Bypass flow requirements as measured at Wilkins Slough of 14,125 cfs from December through April and 10,930 cfs (as required in the 2024 ITP) during the remainder of the authorized season of diversion.

As addressed in Section 4.3.2, the Permit also conditions Project diversions on Delta outflow requirements. The effect is to bypass flows necessary to native fish populations residing in, rearing in, or migrating through the Delta estuary. These Delta outflow requirements address impacts on fish and wildlife from Project diversions on a watershed-wide basis, while the project-specific requirements discussed in this section address impacts on fisheries from changes in flow within the Sacramento River.

Bypass Flow Criteria at the Points of Diversion

The Authority does not dispute that conditions on diversion throughout the proposed season of diversion are necessary to maintain adequate flows in the Sacramento River at, and downstream of, the PODs to support fisheries. (See, e.g., Exh. Sites-104, p. 7, ¶ 13 [operations criteria greatly limit potential for negative migration flow-survival effects on juvenile salmonids].)

The Final EIR and the Authority's water right application proposed minimum bypass flows as a condition of diversion at the Red Bluff POD and the Hamilton City POD. The Authority's criteria would prohibit diversions when flow in the Sacramento River is less than 3,250 cfs and 4,000 cfs at those PODs, respectively. According to its Final EIR, the Authority selected these bypass flows to protect salmon redds in accordance with Water Right Order 90-05, to stabilize flows in the Sacramento River, and to ensure proper function of the fish screens at the PODs. (Exh. AHO-069, pp. 81–82.) The Authority's expert, Dr. Marin Greenwood, testified that with the Authority's proposed bypass

conditions, the Project's near-field effects on salmonids would be limited and would not cause unreasonable impacts. (Exh. Sites-104, p. 5, ¶ 7.)

In its 2024 ITP, CDFW reached a different conclusion, finding that the Authority's proposed bypass conditions would allow a high risk of near-field impacts on listed species. (Exh. Sites-300, pp. 312 & 314–323.) Based on the Authority's modeling, at lower flows, the proposed bypass conditions would allow the Project to divert more than one third of the entire river flow — though such occurrences would be infrequent. (Exh. AHO-069, pp. 84–85, figs. 2-36 & 2-37.) According to CDFW's calculations, the Authority's proposed bypass conditions would allow the daily fraction of the Sacramento River diverted by the Project at the Red Bluff and Hamilton City PODs to be as high as 55 percent and 50 percent, respectively. (Exh. Sites-300, p. 322.) Accordingly, CDFW imposed flow-dependent diversion criteria in place of the bypass flows the Authority proposed.[34]

Flow-dependent diversion criteria require the Authority to scale diversions to flow in the river, authorizing smaller diversions during lower flows and larger diversions during high flows. CDFW developed the flow-dependent criteria to minimize impacts of diversions on winter-run and spring-run Chinook salmon during periods of low flows in the Sacramento River, while allowing the Project to maximize diversions during higher flows. (*Id.* at pp. 322–323.) CDFW evaluated the effects of different flow criteria on diversions and impacts on winter-run and spring-run Chinook salmon from screen exposure at the PODs and access to floodplain rearing habitat. (*Id.* at pp. 312–314.) The flow-dependent diversion criteria have the effect of capping the maximum

[34] Flows at the PODs are measured at the California Data Exchange Center Bend Bridge and Hamilton City gauges, respectively. Measured flows at the Hamilton City gauge identified in the ITP diversion criteria assume that no diversions are occurring at the Hamilton City POD. When diversions are occurring, the diversion rate at the Hamilton City POD should be added to the measured flows at Hamilton City to obtain an accurate estimate of flow at that location because the Hamilton City gauge is downstream of the Hamilton City POD. (Exh. Sites-300, p. 313.)

diversions at approximately 15 percent of the river flow at the Red Bluff POD and eight percent at the Hamilton City POD. (Exh. Sites-298, pp. 46–48, tbls. 2–4.)

CDFW found that flow-dependent diversion criteria would minimize near-field impacts such as screen exposure and other impacts from flow at or near the PODs. (Exh. Sites-300, pp. 312–313.) In addition, scaling diversion rates with river flow preserves a more natural hydrograph and thereby maintains ecological cues, e.g., natural changes in flow that cue migration. This scaling reduces potential impacts on fish related to juvenile stranding, habitat connectivity, food production, and overall habitat quality. (*Id.* at pp. 312–314, 342.)

With the Authority's proposed bypass criteria, Project diversions would increase total winter-run Chinook salmon fish screen exposure at the PODs by 150 percent. (Exh. Sites-300, pp. 315, 318.) By contrast, application of the flow-dependent diversion criteria reduces the expected increased exposure to 38 percent. (*Ibid.*) Decreased fish screen interactions reduce the potential for injury and mortality at the two PODs. (*Id.* at p. 322.) CDFW also considered the potential impacts on salmon mortality from decreased flows in the Sacramento River between Red Bluff and Hamilton City caused by diversions at the Red Bluff POD. According to CDFW's analysis, the Authority's diversions conditioned only by the bypass flows proposed in the Authority's application could, at times, increase mortality of winter-run and spring-run juvenile salmon within that reach by up to 25 percent. (*Id.* at p. 323.) In contrast, CDFW concluded that with the flow-dependent diversion criteria, the authorized reduction in flows in the Sacramento River between Red Bluff and Hamilton City caused by Project diversions would result in almost no additional salmon mortality. (*Ibid.*)

As shown in Tables 3, 4, and 5, reproduced from Exhibit Sites-298, *infra*, the 2024 ITP Hamilton City flow-dependent diversion criteria require a higher bypass flow than at Red Bluff to protect juvenile spring-run out-migration from Antelope, Mill, and Deer Creeks, which enter the Sacramento River downstream of the Red Bluff POD. (Exh. Sites-300, pp. 35, 313.) These diversion criteria apply during the entire diversion season. At the Red Bluff POD, the flow-dependent diversion criteria require higher flows during peak

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migration of winter-run and spring-run Chinook salmon. CDFW relaxed these criteria during January and February because it determined that fewer listed fish are expected to be present. (Exh. Sites-298, pp. 45–47; Exh. Sites-300, pp. 312–313.)

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Table 3

Flow-Dependent Diversion Requirements
at Red Bluff POD
(Jan. 1 to Feb. 28/29)

Real-Time Flow at Bend Bridge (cfs)	Maximum Diversion (cfs)
4,800	0
5,000	130
6,000	230
7,000	360
8,000	520
9,000	710
10,000	930
11,000	1,180
12,000	1,450
13,000	1,760
14,000	2,100
14,100	2,120
>14,000	2,120

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Table 4

Flow-Dependent Diversion Requirements
at Red Bluff POD
(March 1 to June 14 and Sep. 1 to Dec. 31) [35]

Real-Time Flow at Bend Bridge (cfs)	Maximum Diversion (cfs)
6,300	0
7,000	120
8,000	220
9,000	340
10,000	480
11,000	640
12,000	810
13,000	1,010
14,000	1,220
15,000	1,460
16,000	1,710
17,000	1,980
17,500	2,120

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[35] These tables do not reflect the diversion season of November 1 through June 14 authorized by the Permit.

Table 5
Flow-Dependent Diversion Requirements
at Hamilton City POD
(Full Diversion Period: Sep. 1 to June 14)

Real-Time Flow at Hamilton City (cfs)	Maximum Diversion (cfs)
10,500	0
11,500	280
12,500	370
13,500	480
14,500	590
15,500	720
16,500	850
17,500	980
18,500	1,130
19,500	1,290
20,500	1,450
21,500	1,620
22,500	1,800
23,500	1,990
24,500	2,200
>24,500	2,200

(Exh. Sites-298 [2024 ITP], pp. 46–48, tbls. 2-4.)

The NGO Parties assert that although the flow-dependent diversion criteria would eliminate the most extreme disruptions of the hydrograph, the criteria are not adequate to protect fish species. (Exh. BK-132, pp. 4 & 10–11, ¶¶ 10 & 26; Exh. CSPA-101c, pp. 4–5, 8–9, ¶¶ 14–15, 25.) Dr. Jonathan Rosenfield calculated that even with the 2024 ITP flow-dependent diversion criteria, Project diversions could exceed 5 percent of the flow at Hamilton City and Wilkins Slough on more than one out of every ten days. (Exh. BK-132, p. 11, ¶ 27.) The NGO Parties propose limiting total Project diversions to no more than 5 percent of Sacramento River flow, as measured at the point of diversion where flow is lowest. (2025-05-27 NGO Parties Closing Br., p. 68 [NGO Term 4].) The

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NGO Parties did not, however, provide a specific scientific foundation for this proposed limit.

We are persuaded by, and rely upon, CDFW's analysis demonstrating that its flow-dependent diversion criteria will minimize impacts of diversions on listed fish species and will do so more effectively than the bypass criteria the Authority proposed. We do not, however, rely solely on the diversion criteria in the 2024 ITP to avoid unreasonable impacts on fall-run Chinook salmon. The ITP does not purport to protect fall-run or late-fall-run as these populations are not protected under the ESA or the CESA. Because the 2024 ITP criteria are not intended to prevent harm to fall-run, the criteria do not require flows that are protective of migration during the high abundance fall-run migration months of January and February.

Fall-run Chinook salmon are of significant commercial, recreational, and cultural value. Historically, fall-run salmon were the dominant catch of the salmon fishing industry in California and coastal Oregon, with an estimated economic value of $500 million to $2 billion a year. (Exh. GSSA-1, pp. 3, 14–16, ¶¶ 3, 43–48, 50, Exh. PCFFA-1, p. 6, ¶ 12.) Because of poor adult returns, the Pacific Fishery Management Council, National Marine Fisheries Service, and California Fish and Game Commission closed the fall-run Chinook salmon fishery to commercial and recreational fishing in 2023 and 2024, and they closed the fishery to commercial fishing with limited recreational fishing in 2025. (Exh. GSSA-1, p. 3, ¶ 1; Exh. BK-1, p. 14, ¶ 26; Exh. AHO-343, p. 5.) Over the past two decades, the wild-spawning fall-run population has declined about 96 percent. (Exh. GSSA-1, pp. 5–6, ¶¶ 12-13.) Chinook salmon, including the more prevalent fall-run, are also an integral part of the spiritual beliefs and cultural practices of numerous California Tribes. (See, e.g., Exh. FOR-4, pp. 4-5, ¶ 10; Exh. FOR-2s, p. 7, ¶ 18.) Among other impacts, declines in salmon populations interfere with the conduct of spiritually significant Tribal ceremonies, the transmission of cultural practices and knowledge to younger generations, and traditional subsistence fishing. (See, e.g., Exh. FOR-4, pp. 4–5; Exh. FOR-2s, p. 7, ¶ 18.)

We conclude that the flow-dependent diversion criteria in the 2024 ITP for the Red Bluff POD that protect winter-run and spring-run Chinook salmon should be extended to the

months of January and February. Extending the heightened flow-dependent diversion criteria affords protection for fall-run salmon, whose outmigration as smolts primarily occurs from January through June. (Exh. AHO-161, p. 45.) Application of the same flow criteria to protect fall-run as to protect spring- and winter-run is appropriate because the studies and analysis relied upon to identify flow criteria to protect spring- and winter-run used survival estimates of fall-run as surrogates. (Exh. Sites-301, p. 3; Exh. Sites-300, pp. 105–108.) Moreover, these protections will minimize near-field impacts for other native species present near the Red Bluff POD during that timeframe, such as green sturgeon, which Protestants asserted were particularly susceptible to impacts from inadequately screened diversions. (Exh. Sites-300, p. 312; Exh. BK-1, p. 43, ¶ 94.) Accordingly, the Permit applies the flow-dependent diversion criteria for the Red Bluff POD established in the 2024 ITP to the entire diversion season under the Permit, including January and February.

Pulse Flows

The Authority proposed in its project description a pulse flow protection measure at Bend Bridge in addition to bypass criteria at the PODs and Wilkins Slough. This pulse flow protection was intended to protect survival of out-migrating juvenile winter-, spring-, fall-, and late-fall-run Chinook salmon and steelhead trout through the middle reaches of the Sacramento River. (Exh. AHO-069, pp. 80–81.) Because fish movement is correlated with increased flow and turbidity associated with the beginning of a precipitation-generated high flow event, prohibiting diversions during pulse flows reduces the potential for near-field impacts, like juvenile salmon interactions with fish screens. (Exh. AHO-069, p. 80; Exh. Sites-104, p. 4, ¶ 6; Exh. BK-21, p. 11.) Pulse-flow protection would also reduce the Project's potential far-field impacts on survival of migrating salmonids and juvenile salmonid access to floodplain-rearing habitat. (Exh. Sites-104, pp. 6–7, ¶¶ 11–13.)

The Authority's pulse flow measure prohibits diversion during the first seven days of qualified precipitation-generated pulse flow events, such as peaks in river flow rather than scheduled operational events, from October to May. Pulse flow protection would be

initiated when flow at Bend Bridge is forecasted to exceed 8,000 cfs, the combined tributary flow of tributary creeks exceeds 2,500 cfs, and fish are present. Pulse protection generally remains in place for seven consecutive days upon initiation but may cease earlier if flows at Bend Bridge exceed 29,000 cfs. Project diversions may continue as long as average daily diversions subtracted from the flow at Bend Bridge hold at least 25,000 cfs during the remainder of the seven-day period. (Exh. AHO-069, p. 81.) When pulse flow protections cease, the Project is not required to initiate new pulse flow protections until flows in the Sacramento River and certain tributaries fall below specific levels for seven consecutive days, thereby resetting the pulse flow protections. (*Ibid.*) The Final EIR and the Authority's expert witnesses relied on these pulse flow protections along with the bypass flow conditions the Authority proposed to conclude that Project diversions would not result in significant impacts on fisheries. (Exh. AHO-078, pp. 92, 107, 121, 128, 145–148 [winter-run], 174–176 [spring-run], 216–217 [fall-run/late fall-run], 240-241 [steelhead], 248–249 [green sturgeon]; Exh. Sites-104, pp. 4, 6, 7, ¶¶ 6, 11, 13; Exh. Sites-017c, p. 3, ¶ 5.)

The 2024 ITP applied flow-dependent diversion criteria at the PODs rather than pulse flow protections. CDFW concluded that the flow-dependent criteria would substantially reduce winter-run Chinook screen exposure as compared to the Authority's proposed bypass flows paired with pulse flow protection. (Exh. Sites-300, pp. 314–322.) CDFW reasoned that replacing the pulse flow protection with the flow-dependent diversion criteria would allow the Project to divert when flows are high while protecting flows from diversion during drier conditions. (Exh. Sites-300, p. 312.)

The NGO Parties support inclusion of pulse flow measures but assert that the duration of the Authority's proposed pulse protection is arbitrary and fails to protect juvenile Chinook salmon after seven days, even though the fish are likely to remain in the river upwards of five weeks after a qualified pulse has ended. (Exh. BK-1, p. 28, ¶ 56.) Protestants also assert that, while pulse flow protection would reduce some Project impacts on out-migrating Chinook salmon, the rules for reset of the pulse flow protection criteria would not protect pulse flows in critical and dry years. (Exh. CSPA-1c, p. 4, ¶ 10; Exh. BK-1, p. 28, ¶ 57.) Instead, Protestants propose a longer pulse protection with a

shorter reset period of seven days — prohibiting diversions for 14 days following a two-day increase in flow of 19 percent or more between the two PODs as compared to the Authority's proposed seven-day period of protection. (2025-05-27 NGO Parties Closing Br., p. 68 [NGO Term 3].) Finally, Protestants seek to limit the authorized diversion period to end on or before April 30 to protect important flow pulses in the late spring, which is a peak outmigration season for many fish species. (Exh. CSPA-1c, p. 21, ¶ 57; Exh. BK-1, p. 22, ¶ 42; 2025-05-27 NGO Parties Closing Br., p. 67 [NGO Term 1].)

We concur that pulse flows meaningfully contribute to survival of migrating juvenile salmon, at least until base flows in the Sacramento River at Bend Bridge reach approximately 24,720 cfs as an annual average. (Exh. BK-1, p. 18, ¶ 38 (a); Exh. BK-28, p. 15; Exh. BK-132, p. 10, ¶ 26.) Pulse protection in addition to the 2024 ITP criteria are likely to support additional juvenile salmon survival. Pulse flows are particularly important and have a greater impact on survival probability of out-migrating salmon during dry periods. (Exh. BK-1, p. 18, ¶ 38 (a); Exh. BK-28, p. 15; CIC Tr. Comb., pp. 2217:15–25 & 2321:16–22.) Finally, pulse flows are not only beneficial to salmon but cue juvenile green sturgeon migration in all water year types. (Exh. BK-1, pp. 47–48, ¶¶ 106–107.)

Pulse flow protections in addition to flow-dependent diversion criteria will further reduce fish screen exposure, thereby reducing fish mortality caused by Project operations. Even with the 2024 ITP criteria, spring-run Chinook will have significant screen exposure at the Red Bluff intake — as calculated by CDFW, the exposure will remain 269 percent greater than without Project diversions. (Exh. Sites-300, p. 318, tbls. 5-2 & 5-3.) In addition, fall-run and late-fall-run salmon out-migrate past Red Bluff in high abundance from January through April, largely overlapping the anticipated timing of most Project diversions from December through March. (Exh. Sites-395c, p. 11, ¶ 23; Exh. AHO-162, pp. 22 & 31, figs. 11A1-19 & 11A1-28.)[36] When comparing fish screen exposure under the flow-dependent diversion criteria to the Authority's proposed

[36] CDFW did not include the impacts of flow-dependent diversion criteria on fall-run Chinook salmon in the ITP.

diversion criteria, including pulse flows, CDFW found that that the flow-dependent diversion criteria resulted in lower screen exposure overall. (Exh. Sites-300, pp. 315, 318.) CDFW did not, however, analyze how combining the two approaches could further reduce impacts on fish. Risk of fish screen exposure increases based on both the fraction of Sacramento River flow diverted and the number of out-migrating fish present near the fish screens during diversion. (*Id.* at pp. 110–111.) Flow-dependent diversion criteria prevent the Project from diverting a substantial fraction of the Sacramento River when flows are low. (*Id.* at p. 312.) But because fish movement is associated with pulse flows, pulse flow protections limit diversion during times associated with high fish passage. (Exh. AHO-069, p. 80; Exh. Sites-104, pp. 3–4, ¶ 6, Exh. BK-21, p. 11; Exh. AHO-161, pp. 27, 32, 35, 60, 64–65.) In this way, the two criteria provide protection against both factors that increase risk of fish screen exposure.

Accordingly, the Permit requires compliance with the Bend Bridge pulse protection measure as described in the Authority's Final EIR. (Exh. AHO-069, pp. 80–81.) We find based on the evidence in the record that pulse flow protections, in addition to flow-dependent diversion criteria, will enhance appropriate migration cues, further reduce fish screen exposure, and increase survival of migrating juvenile salmon. We reject the NGO Parties' proposal to lengthen the period of pulse flow protection and shorten the reset period because (1) there is inadequate evidence in the record that heightened pulse protection would materially reduce Project impacts on fisheries, and (2) such a restriction would reduce project yield by prohibiting Project diversions even when flows are relatively high, without a demonstrated corresponding reduction in Project impacts.

Wilkins Slough Bypass Flow

The Authority proposes a bypass flow of 10,700 cfs at Wilkins Slough from October 1 to June 14 as a condition of diversion in its project description in the Final EIR and in its water right application.[37] The purpose of the requirement is to minimize Project impacts

[37] The Authority proposed a bypass flow of 5,000 cfs at Wilkins Slough as a condition on diversion in the month of September. Because we find that water is not available for appropriation in September, we do not discuss this proposal further.

on survival of out-migrating juvenile salmon and, as an ancillary matter, reduce risk of impacts on white sturgeon, longfin smelt, and Delta smelt. (Exh. Sites-300, pp. 326–327.) The 2024 ITP imposes a slightly higher minimum flow of 10,930 cfs at Wilkins Slough. (Exh. Sites-298, p. 44 [Condition of Approval (COA) 9.12].)

The 2024 ITP identified flow-survival response to flow at Wilkins Slough as a threshold effect. (Exh. Sites-300, p. 327.) A threshold effect means that fish receive significantly less benefit from river flows below the threshold.[38] Flows above the threshold increase fall-run Chinook salmon smolt survival to about 51 percent compared to about 19 percent at flows immediately below the threshold. (Exh. BK-1, p. 26, ¶ 49; Exh. BK-59, pp. 10-11.) There is, however, some uncertainty in the administrative record as to the exact flow where survival pivots from approximately 20 to 50 percent. (Exh. Sites-300, p. 327; Exh. BK-59, pp. 10-11; Exh. BK-132, p. 4, ¶ 11.) Based on several statistical models, the range extends from below 10,000 cfs to above 11,000 cfs. (Exh. BK-59, p. 9, fig. 4.)

Both the Authority and CDFW relied on the same study, Michel et al. (2021), introduced here as Exhibit BK-59, to identify an appropriate bypass flow requirement at Wilkins Slough. While the study determined that the threshold for flow-survival at Wilkins Slough was likely 10,712 cfs, five of the top statistical models used by the study found the flow threshold that produced maximum survival to be 10,930 cfs. (*Id.* at p.11; Exh. Sites-300, p. 327.) Recognizing the uncertainty associated with determining an exact flow threshold, CDFW required a bypass flow of 10,930 cfs in the ITP, to ensure protection of threatened and endangered species. (Exh. Sites-300, p. 327.) To account for flow attenuation and downstream travel time, which could result in reductions of up to 250 cfs for 72 hours after diversions have ceased, the 2024 ITP requires a three-day

[38] By contrast, a linear flow-survival relationship means that benefits to fish populations increases continuously as flows increase, in appropriate locations at appropriate times. (Exh. BK-1, p. 7, ¶ 12.)

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forecasted flow at Wilkins Slough to reduce the risk that Sites diversions may temporarily reduce river flows below the survival threshold. (*Id.* at pp. 326–327.)

Protestants argue that, if the Board is going to rely on the Michel et al. study, the Board should select a bypass flow at Wilkins Slough at or above 11,030 cfs, which is the upper end of the statistical error bound. (2025-05-27 NGO Parties Closing Br., p. 67 [NGO Term 2B]; Exh. BK-1, p. 26, ¶ 50.) Protestants assert that selecting the upper end of the statistical error bound would ensure that the bypassed flow would meet or exceed the threshold for significant survival benefits. Protestants also propose a 250 cfs buffer to account for flow attenuation and downstream travel time. In total, Protestants propose a bypass flow of 11,280 cfs at Wilkins Slough. (Exh. BK-132, p. 6, ¶¶ 15-16.)

We accept the reasoning and methodology CDFW relied upon in selecting 10,930 cfs as the appropriately protective default bypass criteria at Wilkins Slough based on the Michel et al. study. We reserve authority to modify the requirement if new information becomes available as to the precise threshold at which significant survival benefits are triggered, whether that threshold is demonstrated to be above or below 10,930 cfs.

Protestants also urge the Board to rely upon a study by del Rosario et al. (2013), introduced here as Exhibit BK-21, rather than Michel et al. (Exh. BK-59), as the best available science addressing flows at Wilkins Slough and impacts on Chinook migration. (2025-05-27 NGO Parties Closing Br., pp. 36–37; Exh. BK-21, p. 15.) That study determined that flows of 14,125 cfs at Wilkins Slough trigger substantial winter-run

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Chinook migration while flows of 10,600 cfs do not. (Exh. BK-21, pp. 11, 16; CIC Tr. Comb., p. 2223:3-24.)[39] Protestants argue that the del Rosario et al. study is more reliable because it considered winter-run Chinook of all sizes while the Michel et al. study primarily considered larger and more mature fish, mostly consisting of fall-run juveniles. (Exh. BK-59, pp. 6 [tbl. 1], 11; Exh. BK-1, p. 21, ¶ 39.) CDFW also noted that the conclusions of Michel et al. may not hold true for winter-run and spring-run Chinook salmon because these runs exhibit different behavior, size, and migration timing than fall-run salmon. (Exh. Sites-300, pp. 197–199.) Protestants argue, based on del Rosario et al., that bypass flows at Wilkins Slough during peak winter-run Chinook migration should be 14,125 cfs, not 10,930 cfs, to provide cues for outmigration necessary for reasonable protection of the fisheries. (2025-05-27 NGO Parties Closing Br., p. 67 [NGO Term 2B].)

Protestants' evidence and CDFW's discussion regarding the limitations of Michel et al. (2021) are compelling. Moreover, while Michel et al. (BK-59) identifies a flow threshold at Wilkins Slough correlated to salmonid survivability, del Rosario et al. identifies flow thresholds correlated to important ecological cues and behaviors. (Exh. BK-59, p. 11; Exh. BK-21, pp. 16 & 18.) As discussed above, the Board's responsibility to reasonably protect fish and wildlife and to consider the amount of flow necessary to protect or enhance instream beneficial uses differs from CDFW's responsibility under the CESA to prevent take of listed species. We find, based on the evidence in the record, that a seasonal Wilkins Slough bypass flow of 14,125 cfs from December through April is necessary to cue the outmigration of Chinook salmon and avoid impacts that may occur from a delay in migration. (Exh. BK-28, p. 17; Exh. BK-59, p. 16.) During the remaining season of diversion, a bypass flow at Wilkins Slough of 10,930 cfs, consistent with the ITP, is adequate to ensure flows remain above the flow-survival threshold identified in Michel et al. Such a term is included in the Permit as Permit Term 23.

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[39] Exhibit BK-21 presents flowrates in metric units. 14,125 cfs is equal to 400 m^3/s and 10,600 cfs is equal to 300 m^3/s.

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Although the NGO Parties submitted the study by del Rosario et al. (2013) in support of a bypass flow at Wilkins Slough of 14,125 cfs from December through April, the NGO Parties' primary position is that a significantly higher bypass flow from January through March than that identified by the Michel et al. study or del Rosario et al study is necessary to protect Chinook salmon. Dr. Rosenfield testified that a more recent study (Hassrick et al. (2022)), introduced here as Exhibit BK-28, demonstrates a strong relationship between flow and the survival of migrating juvenile Chinook salmon that continues to increase even as flows exceed the thresholds identified in Michel et al. (BK-59) and del Rosario et al. (BK-21). (Exh. BK-1 p. 18, ¶ 38(a-f); Exh. BK-59, pp. 9–11; Exh. BK-21, p. 10.) According to Dr. Rosenfield's testimony, pulse flows contribute significantly to survival of migrating juvenile winter-run Chinook salmon until base flows in the Sacramento River at Bend Bridge reach approximately 24,720 cfs, and survival continues to increase as baseflows exceed 24,720 cfs. (Exh. BK-1, p. 18, ¶ 38(a-f); Exh. BK- 28, p. 16, fig. 8a; Exh. BK-132, pp. 10-11, ¶ 26.) Based on this evidence, Protestants propose a bypass flow at Wilkins Slough of 24,720 cfs from January through March. (2025-05-27 NGO Parties Closing Br. p. 67 [NGO Term 2B].)

Although the Hassrick study supports a finding that flows above 14,125 cfs at Wilkins Slough contribute to survival of migrating salmon, the pulse flow protections in the Permit will limit the impact of Project diversions on survival of migrating salmon by protecting higher pulse flows. (Exh. BK-28, pp. 15, 18.) The additional reduction of Project impacts on fish from a 24,720 cfs bypass flow requirement with pulse flow protections in place is unclear, and the combined reductions in impacts on fish may be diminishing. Moreover, the reduction in impacts on migrating salmon must be weighed against the significantly reduced opportunities for diversion. During the period of analysis used in the Authority's ITP Historical Analysis water availability tool, flows at Wilkins Slough met or exceeded 14,125 cfs on 1,362 days while flows at Wilkins Slough met or exceeded 24,720 cfs on only 479 days. (Exh. Sites-335R [based on Wilkins Slough flow values in column AC of sheet titled "WAA"].) We decline to impose such a bypass as a condition of diversion at this time, although the Board reserves the authority to revise the Wilkins Slough bypass flow requirement, after notice and opportunity for a hearing, based on new information.

Additional Conditions Proposed by the NGO Parties

In addition to flows in the upper Sacramento River, Sacramento River flows into the Delta are also relevant to fish migration survival and reproductive success. The NGO Parties propose to prohibit Project diversions when flows at Freeport[40] are less than approximately 35,300 cfs from December through April to maximize migration survival of winter-run and fall-run Chinook salmon through the Delta and support reproductive success for white sturgeon. (2025-05-27 NGO Parties Closing Br., p. 67 [NGO Term 2C]; Exh. BK-1, pp.18–21, 39–40, ¶¶ 38-41, 83–85.) Dr. Rosenfield testified that protection of even higher flows of approximately 35,300 to 53,000 cfs at Freeport is necessary to optimize survival of winter-run smolts through the Delta. (Exh. BK-1, pp. 18–19, ¶ 38(b).) The Authority maintains that a bypass flow requirement at Freeport is unnecessary because Project diversions will have negligible effects on juvenile salmon through-Delta survival. (2025-06-26 Sites Reply Br., p. 37.)

Because the Permit includes a bypass requirement at Wilkins Slough of 14,125 cfs from December through April (Permit Term 23) and a Delta outflow bypass requirement (Permit Term 30), we conclude that an additional bypass flow at Freeport is not necessary to protect juvenile Chinook salmon and other fish species. Bypass flows at Wilkins Slough are closely correlated with flows at Freeport. A 14,125 cfs Wilkins Slough bypass flow corresponds with Freeport flows of approximately 30,000 cfs. (Exh. AHO-246, pp. 21–23.) Moreover, flows at Freeport are influenced by several large tributaries downstream of the Project, including the Feather and American rivers. Due to the system-wide nature of flows into Freeport and the Bay-Delta, these inflows are likely to be more appropriately regulated through requirements under the Bay-Delta Plan rather than bypass conditions for diversions under this Permit alone.

To support juvenile salmon rearing and outmigration, Protestants also advocated for a prohibition on diversions from December through January in any water year following

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[40] This location corresponds to the Sacramento River watershed outlet to the Delta. (Exh. AHO-039, p. 77.) It is also the location of USGS gauge 1144765 on the Sacramento River. (*Id*. at p. 28.)

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greater than 30 percent temperature-dependent mortality of winter-run eggs and egg-to-fry survival of less than 20 percent. (Exh. CSPA-1c, p. 22, ¶ 60; 2025-05-27 NGO Parties Closing Br., p. 70 [NGO Term 16].) As discussed above, we conclude that the flow-dependent diversion criteria, pulse flow protections, and seasonal bypass requirement of 14,125 cfs at Wilkins Slough will protect juvenile salmon rearing and outmigration from the impacts of Project diversions to the extent feasible. The Board also reserves the authority to revise the Permit, after notice and opportunity for a hearing, based on new information demonstrating a reasonable likelihood that operations authorized by this Permit have caused or may cause unreasonable harm to fish, wildlife, or other instream beneficial uses.

Protection of Terrestrial and Plant Species

In addition to impacting fisheries, Project construction and operation will cause impacts on terrestrial and plant species. These impacts include permanent impacts from inundation within the reservoir footprint and placement of new infrastructure, as well as temporary impacts from construction.

The Authority's botany and wildlife experts testified about impacts of the Project on natural resources within the reservoir footprint. Because the Authority did not have access to private property, the ability to perform surveys was limited. (CIC Trans. Comb., p. 2630:5-2632:24; Exh. Sites-114c, pp. 3 & 6, ¶¶ 4 & 8.) Instead, the Authority's method of analysis relied upon aerial photographs, existing available information, and Geographic Information Systems modeling. (Exh. Sites-114c, p. 3. ¶ 4; Exh. AHO-077, pp. 7-8.) Habitats identified from these analyses included perennial and seasonal wetlands, streams, and riparian corridors, which CDFW and USFW recognized as habitats associated with high species diversity. (Exh. AHO-076, pp. 6–12; Exh. AHO-077, pp. 8–15; Exh. AHO-335, p. 4.)

The Final EIR concluded that the impact of construction of Sites Reservoir on vegetation and wetland resources would not be significant with the incorporation of Mitigation Measures VEG-1.1, VEG-1.2, and VEG-1.3, which generally require pre-construction surveys identifying the location of special-status plant species, avoiding

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those locations where feasible, and acquiring compensatory mitigation for permanent impacts in locations that cannot be feasibly avoided. (Exh. AHO-076, pp. 25–26.) The Authority's project description also incorporates best management practices to avoid impacts, including development and implementation of a Stormwater Pollution Prevention Plan, implementation of a Worker Environmental Awareness Program, construction monitoring for fish, wildlife, plant species habitats, and natural communities, and control of invasive plant species. (Exh. AHO-069, pp. 110–111; Exh. AHO-108, pp.12–14 & 29.)

The Final EIR assessed the potential for the Project to impact 33 special-status wildlife species and their habitats that have the potential to occur in the Project area. Listed species identified as having potential to occur within the Project area include California red-legged frog (federally listed as threatened), conservancy fairy shrimp (federally listed as endangered), vernal pool fairy shrimp (federally listed as threatened), vernal pool tadpole shrimp (federally listed as threatened), and giant garter snake (federally and state listed as threatened). The Final EIR concluded that with the incorporation of mitigation measures, the Project would have no significant impact on 32 of the 33 special-status species. (Exh. AHO-077, pp. 100–101.) The Authority's proposed mitigation measures include actions to avoid effects on listed vernal pool branchiopods, compensation for impacts on vernal pool branchiopod habitat, and protective measures for giant garter snake. The Final EIR found there would be a significant and unavoidable adverse impact on golden eagle because of the long-term loss of blue oak woodland, foothill pine, and oak savanna habitat. (*Ibid.)* In addition, the Final EIR found that the Project's impact on wildlife movement and habitat connectivity would remain significant and unavoidable even after mitigation. (*Id.* at p. 144.)

In late 2024, the Authority obtained an ITP from CDFW covering construction of the Project, which expires on December 31, 2034 (Construction ITP). (Exh. Sites-299, p. 1.) That ITP covers the incidental take of the giant garter snake, Swainson's hawk, tricolored blackbird, and Crotch's bumble bee. (*Id.* at p. 29.) The ITP requires the Authority to implement mitigation measures to limit the impacts on each species, including, for example, a capture and relocation plan for giant garter snakes, mortality

reduction and relocation plans for Swainson's hawks and tricolored blackbirds, and seasonal restrictions on activities during bloom season to protect Crotch's bumble bee. (*Id.* at pp. 41, 46, 49, 52.) With these mitigation measures, CDFW concluded that the activities covered by the Permit will not jeopardize the continued existence of the covered species. (*Id.* at p. 66.) The Authority's expert, Jennifer Hale, concluded that the measures the ITP required are consistent with, or exceed, mitigation measures the EIR required. (Exh. Sites-314, p. 3, ¶ 5.)

Reclamation, as the lead agency for the Project's federal ESA compliance efforts, obtained a USFW Biological and Conference Opinion for construction of the Project. The Biological Opinion covers incidental take of federally endangered, threatened, and proposed threatened plants and animals. This list includes Keck's checkermallow, Greene's tuctoria, palmate-bracted bird's beak, vernal pool tadpole shrimp, Hoover's spurge, valley elderberry longhorn beetle, vernal pool fairy shrimp, giant garter snake, northwestern pond turtle, western spadefoot, and monarch butterfly. (Exh. AHO-339, p. 2.) USFW concluded that adhering to the reasonable and prudent measures the Biological Opinion required would minimize take of those listed and potentially listed species. (*Id.* at p. 198.)

In addition to the terrestrial wildlife permits already issued, the Authority has committed to obtaining two Biological Opinions for federally listed species based on project operations, one from USFW for terrestrial species and one from National Marine Fisheries Service (NMFS) for aquatic species. (CIC Tr. Comb., p. 95:2-25; Exh. Sites-071c, p. 5, ¶ 15.) Finally, the Authority has committed to obtaining a federal permit for the take of bald and golden eagles. (Exh. Sites-071c, p. 5, ¶ 16.)

The Authority's expert witnesses testified that with the inclusion of mitigation measures and Best Management Practices, the Project would not have unreasonable adverse impacts on special-status plants and wildlife, or wildlife movement corridors. (Exh. Sites-113c, p. 3, ¶ 4; Exh. Sites-114c, pp. 16-19, ¶¶ 28–35.) The Authority's expert, Ms. Hale, testified that despite the analyses in the Final EIR, which found that there would be significant impacts on golden eagle habitat even with the inclusion of mitigation

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measures, the Authority's mitigation measures will ensure that impacts on golden eagles will not be unreasonably adverse overall. (Exh. Sites-114c, p. 17, ¶ 33.) Ms. Hale also testified that the completed reservoir would have the beneficial effect of providing additional food sources for bats and several bird species. (*Id.* at p. 13, ¶ 24.)

The NGO Parties object that the Authority failed to accurately develop an environmental baseline for the plants and wildlife that the Project will impact. (2025-05-27 NGO Parties Closing Br., pp. 52–54.) These parties argue that the Authorities' use of aerial imaging and habitat modeling to determine potential occurrence of special status species, rather than on-the-ground biological surveys, resulted in an inaccurate environmental baseline for the Authority's CEQA analysis. (E.g., Exh. FOR-344_Rebuttal Testimony_Smallwood, pp. 4–12.[41]) Dr. Shawn Smallwood, an expert witness for Friends of the River, emphasized the importance of biological surveys, and testified that he was able to detect 10 wildlife species in addition to those the Authority's experts identified during three days of biological surveys conducted from a public road in the Project area. (Exh. FOR-18, pp. 2-3, ¶ 3; Exh. FOR-344_Rebuttal Testimony_Smallwood, p. 13, ¶ 27.) Although the Final EIR includes mitigation measures requiring pre-construction surveys, the NGO Parties argue that these measures are inadequate, as the results will be obtained too late in the process, will be focused only on pre-identified species, and will not undergo public review. (2025-05-27 NGO Parties Closing Br., pp. 47–49.) To address this, the NGO Parties propose a permit term requiring the Authority to conduct additional surveys prior to Project construction in coordination with the State Water Board and CDFW, and to develop plans to fully mitigate all temporary and permanent impacts. (Baykeeper et al. - Proposed Permit Terms, p. 6 [Term 22].)

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[41] Two exhibits are identified in the Friends of the River exhibits folder with the name "FOR-344". One exhibit is a 47-page word document containing Dr. Smallwood's testimony, identified by the file name as "FOR-344_Rebuttal Testimony_Smallwood," and the other is a PDF copy of a seven-page PowerPoint presentation that summarizes Dr. Smallwood's rebuttal testimony identified by the file name as "FOR-344_Summary_Smallwood_Rebuttal." The reference in this citation is to the longer document and is identified with the full file name.

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We conclude that such a term is unnecessary. The Permit incorporates mitigation measures in the Authority's Final EIR that are within the State Water Board's purview, including those applicable to wildlife resources, aquatic resources, and vegetation and wetland resources. (See Permit Attachment 3.) These mitigation measures require the Authority to conduct pre-construction surveys for special-status species, such that actual presence will be determined before construction takes place. The Authority is required to report on the status of compliance with the mitigation measures to the State Water Board.

The NGO Parties additionally raise the need for the Authority to address the changed status of the burrowing owl. (2025-05-27 NGO Parties Closing Br., p. 54.) The California Fish and Game Commission identified the burrowing owl as a candidate species on October 10, 2024, but the Construction ITP does not address potential take of burrowing owl. (ITP Tr. Comb., p. 172:21-25; Exh. Sites-299, p. 29.) The Final EIR does, however, impose mitigation measures to protect the burrowing owl and Ms. Hale testified that the Authority is pursuing an ITP for that candidate species. (Exh. AHO-077, pp. 89–97; ITP Tr. Comb., p. 173:1–10.)

Based on the mitigation measures required by the Final EIR, the conditions of the Authority's ITP and Biological Opinion for construction activities, and anticipated permits to address Project operations and potential impacts on eagles and burrowing owls, we conclude that no additional terms and conditions within the State Water Board's permitting authority are necessary to adequately protect terrestrial species. The Board reserves the authority to revise the Permit, after notice and opportunity for a hearing, based on new information demonstrating a reasonable likelihood that operations authorized by this Permit have caused or may cause unreasonable harm to wildlife.

4.3.2 Bay-Delta Plan Update and Delta Outflows

The Project's diversions from the Sacramento River will impact the timing and volume of flows into and out of the Delta. This section addresses impacts of the Project on Delta inflows and outflows, and consistency of the Permit with anticipated updates to the Bay-Delta Plan.

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The Board must consider appropriate Delta outflow requirements on which to condition Project diversions. This obligation arises from the Board's responsibilities to consider: the amount of water required to support instream beneficial uses, including the preservation and enhancement of fish and wildlife (Wat. Code, §§ 1243, 1243.5); the effect of approving the application on public trust resources and protection of those resources where feasible and in the public interest (*National Audubon Society, supra,* at pp. 446-447); terms and conditions that will best develop, conserve, and utilize in the public interest the water sought to be appropriated (Wat. Code, § 1253); reasonable and prudent alternatives to avoid jeopardy to the continued existence of any endangered or threatened species, and destruction or adverse modification of critical habitat (Fish & G. Code, §§ 2053 & 2055); and terms and conditions necessary to carry out applicable water quality control plans. (Wat. Code, § 1258.) These legal and factual issues are identified by the June 5, 2024, Amended Hearing Notice for this proceeding in Hearing Issues 3.a.iii and 3.a.iv. (2024-06-05 Amended Notice of Public Hearing and Pre-Hearing Conference (Sites), p. 13.)

4.3.2.1 Regulatory Background

The Bay-Delta Plan

The Bay-Delta Plan was developed and is updated[42] pursuant to the requirements of the Porter-Cologne Water Quality Control Act (Wat. Code, § 13000 et seq.) and the federal Clean Water Act (33 U.S.C. § 1251 et. seq.) The Bay-Delta Plan applies to the Bay-Delta estuary and tributary watersheds. (Exh. AHO-341, p. 14.) The Bay-Delta Plan identifies beneficial uses of water in the Bay-Delta watershed, water quality objectives for the reasonable protection of those beneficial uses, and a program of implementation to achieve the objectives. (*Id*. at p. 16; see Wat. Code, § 13000 et seq.) The beneficial uses protected by the Bay-Delta Plan include municipal, industrial, agricultural, and various uses related to fish and wildlife. (Exh. AHO-341, pp. 20–21.) The Bay-Delta Plan includes flow-dependent water quality objectives, including salinity, river flows, Delta

[42] The Bay-Delta Plan was first adopted in 1978 and amended in 1991, 1995, 2006, and 2018. (Exh. AHO-341, pp. 2 & 8.) Unless otherwise specified, the term "Bay-Delta Plan" refers to the version as amended in 2018.

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outflows, and implementation measures to protect beneficial uses consistent with the Board's dual responsibilities to protect water quality and administer water rights. (*Id*. at p. 23)

State Water Board Revised Decision 1641, issued in 2000, allocated primary responsibility for meeting the 1995 Bay-Delta Plan's water quality objectives to Reclamation and DWR. (Revised Decision 1641 [Exh. AHO-277], pp. 13–14, 60, 62, 75, 77, 101, 142–144.) Decision 1641 imposes conditions on water right permits and licenses for the CVP and SWP that require these projects to be operated to meet water quality objectives and comply with implementation measures in the Bay-Delta Plan. (*Ibid*.) Among other requirements, the CVP and SWP must be operated to meet year-round Delta outflow objectives, which vary depending on hydrologic conditions and season. These Delta outflow objectives include objectives for minimum net flows from the Delta to Suisun and San Francisco bays (Net Delta Outflow Index or NDOI)[43] and maximum salinity measured as electrical conductivity. (*Id*. at pp. 193–199, 202–205.)

When natural flows in the watershed are insufficient to satisfy demands and Decision 1641 requirements, DWR and Reclamation must release water from storage or make imported water from the Trinity River available. Demands in the watershed are referred to as in-basin entitlements and are comprised of water right diversions senior to the SWP and CVP, natural losses in the system, and flows required by Decision 1641. Supplemental project water is water imported to the basin and released by the CVP, such as Trinity River water, and water released from storage by the CVP and SWP, that is in excess of export diversions by the SWP and CVP, carriage water, and in-basin deliveries. (State Water Board Decision 1594 (1984), p. 63.) Carriage water is the amount of additional Delta outflow needed to offset incremental changes in water quality caused by exports. (*Id*. at p. 19.) Water right permits and licenses junior to the SWP and CVP include Standard Term 91, which prohibits diversions when satisfaction of in-basin entitlements requires release of supplemental project water by the SWP or CVP.

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[43] NDOI is calculated by subtracting net Delta consumptive use and Delta exports from Delta inflow at specified locations. (Revised Decision 1641, p. 202, fig. 3.)

A concept closely related to Term 91 is the designation of conditions in the Delta as either in “balanced” or in “excess”. DWR and Reclamation determine whether the Delta is in balanced or excess conditions. Balanced conditions occur when upstream SWP and CVP reservoir releases plus unregulated flow approximately equal the water supply needed to meet Sacramento Valley in-basin uses, including requirements on operations of the CVP and SWP under D-1641, plus exports by the SWP and CVP. (Revised Decision 1641, p. 162, fn. 80; Exh. AHO-337, p. 167.) Excess conditions occur when unregulated flow, plus any upstream reservoir releases, exceed the flows needed for Sacramento Valley in-basin uses, Decision 1641 requirements, and export amounts. (Revised Decision 1641, p. 162, fn. 79; Exh. AHO-337, p. 168.)

In 2018, the State Water Board updated the Bay-Delta Plan’s Lower San Joaquin River flow and southern Delta salinity objectives and implementation provisions. The updates adopted in 2018 include San Joaquin River flow objectives to protect fish and wildlife beneficial uses and a southern Delta salinity objective to protect agricultural beneficial uses. (Exh. AHO-341, p. 18.) Among other flow-based requirements to achieve these narrative objectives, the Bay-Delta Plan requires 40 percent of unimpaired inflow, within an adaptive range of 30 to 50 percent, from each of the Stanislaus, Tuolumne, and Merced rivers’ inflows to the confluence of the San Joaquin River with the Delta at Vernalis from February through June. (*Id*. at p. 28.)

Flow Criteria Developed Pursuant to Delta Reform Act of 2009

The Sacramento-San Joaquin Delta Reform Act of 2009 established the coequal goals for the Delta of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. (Pub. Resources Code, § 29702.) In furtherance of these goals, the Act required the State Water Board to develop flow criteria for the protection of public trust resources of the Bay-Delta ecosystem. (44 Stats. 2009-2010, 7th Ex. Sess., c.5 (S.B.1).) Although the flow criteria do not have direct regulatory effect, the Board was required to submit these flow criteria to the Delta Stewardship Council to inform various decisions, including the update of the Bay-Delta Plan. (Wat. Code, § 85086, subd. (c).) Pursuant to the Act’s narrow statutory directive,

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the State Water Board identified flow criteria to protect fisheries in its report titled Development of Flow Criteria for the Sacramento San Joaquin-Delta Ecosystem. (See Exh. BK-96.)

The 2010 Flow Criteria Report concluded that Delta outflow of 75 percent unimpaired flow on a 14-day average is necessary from January through June to promote increased abundance and improved productivity for longfin smelt and to protect other public trust resources in the Delta ecosystem. (Exh. BK-96, pp. 110–111, 143.) The report did not consider water supply needs for other beneficial uses such as agricultural and municipal supply, nor did the report attempt to balance potentially competing public trust interests such as adverse effects of increased Delta outflow on maintenance of cold-water resources in upstream storage for the benefit of salmonids. (*Id.* at p. 15.) These broader considerations not addressed by the 2010 Flow Criteria Report are at issue in the Board's process to update the Bay-Delta Plan. (Exh. AHO-271, p. 31; Exh. AHO-279, pp. 83–84.)

Proposed Updates to the Bay-Delta Plan: Regulatory Pathway

The State Water Board is updating the Bay-Delta Plan in response to continued fishery and ecosystem declines in the Bay-Delta Watershed and its tributaries. (Exh. AHO-271, pp. 27–28; Exh. AHO-272, pp. 4–5.)

In 2017, following public comment and independent peer review, the Board issued a Scientific Basis Report in Support of New and Modified Requirements for Inflows from the Sacramento River and its Tributaries, and Eastside Tributaries to the Delta, Delta Outflows, Cold Water Habitat, and Interior Delta Flows (2017 Scientific Basis Report). (See Exh. AHO-271.) This report found that "best available science … indicates that the requirements [in D-1641 and Biological Opinions for CVP and SWP Delta export operations] are insufficient to protect fish and wildlife." (*Id.* at p. 28.) The 2017 Scientific Basis Report further describes the scientific bases for updates to the Bay-Delta Plan, including increased Delta inflows and outflows to protect native fish and wildlife in the Sacramento River, Delta, and associated tributaries. (*Id*. at pp. 39–45.)

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Among other topics, the 2017 Scientific Basis Report evaluated the potential benefits to native fish and aquatic species of various unimpaired tributary inflows and Delta outflows based on a percentage of unimpaired flow. (Exh. AHO-271, pp. 39–45.) Tributary inflow is the amount of instream flow contributed from a watershed to a confluence location, which may be within or upstream of the Delta. (*Id.* at pp. 39–42.) Delta outflow is the amount of fresh water that flows past the confluence of the Sacramento and San Joaquin Rivers into Suisun Bay. (*Id.* at pp. 43–45.) Unimpaired flow is the amount of water that would be present in a watershed without diversions given current infrastructure (i.e., levees or other channel modifications). (*Id.* at p. 49.) By basing inflow and outflow requirements on a percentage of unimpaired flow, a selected percentage of flows in the watershed are dedicated to instream uses to protect fish and wildlife beneficial uses. (*Id.* at pp. 283 & 300.) The remaining percentage of flow may be diverted for other uses.

The 2017 Scientific Basis Report evaluated a range of year-round unimpaired inflows to the Delta and corresponding Delta outflows from 35 to 75 percent. (Exh. AHO-271, p. 284.) Because Delta outflows are a product of inflows, the report considered Delta outflow requirements that were based on inflows with adjustments for downstream natural losses and gains. (*Id*. at p. 301.) The volume of tributary inflows and Delta outflows affects the survival and migration of native aquatic estuarine and anadromous fish species and their food sources, including phytoplankton and zooplankton, and the quality and quantity of suitable habitat for those species. (*Id*. at pp. 230 & 300.) Freshwater inflow to the Delta also affects concentrations and residence time for nutrients, organic content, and other pollutants. (*Id*. at p. 300.) The 2017 Scientific Basis Report concluded that unimpaired Delta inflows and outflows of 35 to 45 percent would provide “limited benefits,” inflows and outflows of 55 percent would provide “modest benefits,” and inflows and outflows of 65 to 75 percent would provide “more substantial benefits,” for fish and wildlife. (*Id.* at p. 299.)

In 2018, the State Water Board released a Framework for the Sacramento/Delta Update to the Bay-Delta Plan (2018 Framework). (See Exh. AHO-272.) The 2018 Framework identified a proposed Sacramento and Delta tributary inflow objective of 55 percent of

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unimpaired flow within an adaptive range of 45 to 65 percent. (*Id.* at p. 14.) The Framework found that Sacramento and Delta tributary inflows and corresponding Delta outflows of 55 percent of unimpaired flow would be more likely to provide improvements in protection of fish and wildlife beneficial uses as compared to lesser percentages, due in part to consistent achievement of flow thresholds associated with protection of various aquatic species. (*Id.* at p. 15.)

In 2023, the State Water Board released a Draft Staff Report and Substitute Environmental Document in Support of Potential Updates to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary for the Sacramento River and its Tributaries, Delta Eastside Tributaries, and Delta (2023 Draft Staff Report). (See Exh. AHO-279.) The 2023 Draft Staff Report evaluated the environmental and economic benefits and impacts of updates to the Bay-Delta Plan for the Sacramento River watershed, Delta tributaries, and Delta. (*Id.* at p. 74.) The report incorporated the finding in the 2017 Scientific Basis Report that Delta outflows of 55 percent of unimpaired flow would achieve flow thresholds associated with increases in population abundance and improvements in habitat conditions that support survival and population growth relative to lower flow levels. (*Id.* at 552.)

In October 2024, the Board released an initial draft update to the Bay-Delta Plan. The Board circulated subsequent drafts in July 2025 (July 2025 Draft Plan) and December 2025 (December 2025 Draft Plan).[44] (Exh. AHO-336 [July 2025 Draft Plan; Exh. AHO-337 [December 2025 Draft Plan].) The December 2025 Draft Plan includes proposed new objectives and two implementation pathways: (1) a Voluntary Agreement (VA) pathway (described further, below), which would allow right holders to implement flow and habitat restoration commitments included in the Healthy Rivers and Landscapes (HRL) proposal to meet Plan requirements; and (2) a regulatory pathway that would apply to all water rights not on the VA pathway or to water rights if the VA pathway is

[44] Hereinafter, this Decision refers to the December 2025 Draft Plan for simplicity, as the most current draft under consideration.

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discontinued for those rights. (Compare Exh. AHO-337, pp. 56 & 74 with Exh. AHO-341, p. 28.)

The December 2025 Draft Plan includes a narrative Sacramento River and Delta tributary inflow objective. (Exh. AHO-337, p. 27.) Under the regulatory pathway, this objective would be implemented by numeric tributary inflow requirements. (*Id.* at p. 56.) These numeric requirements are based on the supporting scientific information and conclusions in the 2017 Scientific Basis Report, 2018 Framework, and 2023 Draft Staff Report, summarized above, that 55 percent of unimpaired flow would provide marked improvements in the abundance of numerous fish species. (*Ibid.*) The program of implementation in the December 2025 Draft Plan would require that Sacramento River and Delta tributary inflows be maintained at 55 percent of unimpaired flows on a seven-day running average to meet the narrative inflow objective, within an adaptive range of 45 to 65 percent. (*Id.* at pp. 56 & 60.)

In recognition of the water supply and reservoir storage impacts of a 55 percent of unimpaired flow requirement for existing water rights, the December 2025 Draft Plan includes water supply adjustments that would reduce this requirement during average and drier conditions. (Exh. AHO-337, pp. 56–57.) Pursuant to the Draft Plan, water supply adjustments apply to existing water rights obtained before December 31, 2025.[45] (*Id.* at p. 56.) For water rights obtained after December 31, 2025, the Draft Plan imposes a default inflow requirement of 55 percent of unimpaired flow within an adaptive range of 45 to 65 percent. (*Ibid.*) The Board may, however, decide to apply water supply adjustments to a new right when acting upon the water right application. (*Ibid.*) Such a determination would have to consider conditions or requirements to ensure that the use of water under any new water right permit is consistent with and

[45] The water supply adjustments would require less than 55 percent of unimpaired inflow except during the wetter third of conditions. (Exh. AHO-337, pp. 56–57.) During the intermediate third of conditions, the adjustments would reduce inflow requirements to 45 percent, and under the drier third of conditions, the adjustments would reduce inflow requirements to 35 percent. (*Ibid.*)

supports the salmon protection, fish viability, inflow, inflow-based Delta outflow, and interior Delta flow objectives. (*Id.* at pp. 56 & 75.)

The December 2025 Draft Plan also includes narrative Delta outflow and inflow-based Delta outflow objectives. (Exh. AHO-337, at p. 28.) Under the regulatory pathway, these objectives would be implemented by requiring the required inflows from Sacramento/Delta tributaries and San Joaquin River tributaries to also be met as outflows, with adjustments for downstream natural depletions and accretions. (*Id.* at pp. 28, 67–68.) The inflow-based Delta outflow objective provides for continuity of flows from tributaries through the Delta, and it aligns outflow requirements with inflows in recognition that unimpaired tributary flow requirements within the watershed will vary among diverters based on flexibilities within the plan, such as water supply adjustments. (Exh. AHO-279, pp. 567–568.) All water rights not covered by the VA pathway would be subject to these numeric inflow and inflow-based Delta outflow requirements except those water rights determined to have a de minimis effect. (Exh. AHO-337, p. 56.)

Proposed Updates to the Bay-Delta Plan: Voluntary Agreement Pathway

In 2022, The State Water Board received a Memorandum of Understanding (2022 MOU) from signatory parties that included state and federal agencies, local public water agencies, and other water users. (Exh. AHO-279, pp. 4727–4791.) The 2022 MOU proposed voluntary agreements, later referred to as the HRL proposal, as an element of the updates to the Bay-Delta Plan and implementation thereof. (*Id*. at p. 4731.)

The December 2025 Draft Plan includes a “VA pathway” that would allow flow and habitat restoration and other related commitments to be implemented in lieu of the regulatory pathway provisions. (Exh. AHO-337, p. 74.) The flow commitments (HRL flow commitments or HRL flows) are intended to increase net Delta inflows and outflows from January through June, particularly in above-normal, below-normal, and dry years, through a combination of land fallowing, groundwater substitution, reservoir reoperations, and foregone SWP and CVP Delta exports. (*Id.* at pp. 76–78.) These flow commitments would be in addition to defined base flows. (*Id.* at p. 75.) Base flows include flows required by D-1641, flows resulting from the 2024 Record of Decision and

associated Bioligical Opinions for the Long-Term Operations of the CVP and SWP, and other regulatory requirements. (*Id.* at pp. 169, 171–172.) Base flows also include non-regulatory flows that are currently present in the system. (*Id.* at p. 75.) Flow commitments under the VA pathway are intended to provide net additive Delta inflow and outflow that is not only above existing requirements but above a baseline of required flow and otherwise unregulated and uncaptured flow present in the Bay-Delta system at the time the HRL proposal was submitted. (*Id.* at pp. 75, 169.)

Water rights included in the VA pathway would be excepted from curtailments imposed to meet tributary inflow and inflow-based Delta outflow requirements during the term of the VA pathway. (Exh. AHO-337, p. 76.) The 2025 Draft Plan includes a list of these water rights in Appendix B.1. (*Id*. at pp. 247-378.) Other water rights may be considered for inclusion in Appendix B.1 through the annual or periodic review process, with supporting environmental and scientific documentation to evaluate the associated impacts and benefits of including the additional rights. (*Id*. at p. 74.)

4.3.2.2 Sites Reservoir Project Impacts on Delta Inflows and Outflow

Diversions to Sites Reservoir will reduce Sacramento River inflow and corresponding Delta outflow both seasonally and on a net annual basis. (Exh. AHO-078, p. 298.) CalSim II modeling conducted by the Authority and relied upon in the Final EIR indicated that, on average, the long-term annual reduction to Delta outflow caused by the Project would be approximately 150,000 AFY, although the CalSim 3 model results discussed below have revised this estimate.[46] (Exh. AHO-124, p. 94, tbl. 5B3-5-4c [Full

[46] The Authority's CalSim II modeling estimates Project operations, including diversions, releases, and exchanges, with the applied constraints of water availability, infrastructure capacity at the points of diversion, and available storage in Sites Reservoir. (Exh. AHO-072, pp. 31–33; See Exh. AHO-114.) The CalSim II modeling assumes compliance by the CVP and SWP with D-1641 Delta outflow and salinity requirements, D-1641 Export/Inflow (E/I) requirements, the 2019 USFWS/NMFS Biological Opinions, and 2020 SWP ITP. (Exh. AHO-069, pp. 78–79; Exh. AHO-114, pp. 47–49 [applicable assumptions for regulatory standards on pp. 2, 5–13].) The modeling also assumes that the Delta must be in excess conditions for Sites diversions to occur. (Exh. AHO-069, p. 78; Exh. AHO-114, p. 50 [applicable assumptions for Project diversions on p. 28].)

Simulation Period Average values for each month converted to units of acre-feet per day and multiplied by the number of days in each month results in approximately 150,000 AFY].) The combined effects of Project diversions, releases to the Sacramento River and Yolo Bypass, and operational changes for Shasta Reservoir, Oroville Reservoir, and Folsom Reservoir due to exchanges with Sites Reservoir, would reduce Delta outflow primarily during the winter and spring.[47] (*Ibid.*) In general, average monthly reductions in Delta outflow would be greatest from December through March of wet, above-normal, and below-normal years. (*Ibid.*) Reductions in Delta outflow could occur, however, in any water year type because Project diversions could occur in any water year type. (*Ibid.*)

The 2024 ITP imposes a Delta outflow condition on Project diversions that is in addition to the operational constraints the Authority proposed and analyzed in the Final EIR – requiring an increase of at least 3,000 cfs in NDOI above flows that produce excess conditions, before diversions can occur. (Exh. Sites-298, p. 43.) This condition is intended to allow the SWP and CVP to meet user demand while meeting regulatory requirements. (Exh. Sites-300, pp. 342 & 352.) Of particular concern to CDFW was the protection of Delta outflow in winter and spring, an important rearing and migration period for winter-run and spring-run Chinook salmon and white sturgeon, and an important period in the life histories of longfin smelt and Delta smelt. (*Ibid.*) CDFW found that an additional 3,000 cfs increase in NDOI after a determination of excess conditions, combined with the maximum annual diversion limit of 986,000 acre-feet, would avoid or minimize indirect impacts on longfin smelt and Delta smelt habitat quality, habitat quantity, and food production. (*Id.* at pp. 351–352.)

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[47] Increases in Delta outflow in certain months are minimal, and are due to modeled Yolo Bypass habitat flows, carriage water, and operational changes for reservoirs at Shasta, Oroville, and Folsom. (Exh. AHO-072, p. 36; Exh. AHO-074, pp. 21–22.) Releases to Yolo Bypass are no longer expected, which may impact how the Project would modify Delta outflow. (Exh. AHO-344, p. 5.)

The Authority conducted additional modeling following the issuance of the 2024 ITP using CalSim 3. (2025-11-03 Sites Letter to AHO Re CalSim3.[48]) In addition to the 2024 ITP diversion criteria, the CalSim 3 model runs are based on updated hydrology, climate conditions, and operational rules that collectively contribute to differences in modeled diversions, releases, and changes to Delta outflow relative to the CalSim II results.[49] (*Id*. at pp. 9–12.) These modeling results show that the long-term average annual net reduction to Delta outflow caused by the Project, with the conditions in the 2024 ITP, is 190,000 AFY, and Project diversions would reduce Delta outflow primarily from November through April.[50] (*Id.* at p. 19, figs. 8 & 9.)

4.3.2.3 Applicant's Proposal to Address Delta Inflows and Outflows

The Authority asserts that Standard Terms 91 and 96, in addition to bypass flow requirements at the PODs and Wilkins Slough, are sufficient to avoid unreasonable impacts on fish, wildlife, and other instream beneficial uses from reductions in Delta outflow. (2025-05-27 Sites Closing Br., pp. 24 & 72.)

Standard Term 91, referenced above, prohibits diversions when the SWP or CVP are releasing supplemental project water. Supplemental project water releases occur during balanced conditions. (*Id.* at pp. 103–104.)

Standard Term 96 states:

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[48] Letters and other correspondence can be found in the administrative record for this proceeding under the subfolder labeled "Correspondence."

[49] Among other differences, CalSim 3 includes an extended simulation period, updated CVP and SWP requirements from the 2024 Biological Opinions and 2024 SWP ITP, increased spatial resolution and accuracy of reservoir operations and surface water and groundwater flows, and a daily time-step for estimating diversions. (2025-11-03 Sites Letter to AHO Re CalSim3, pp. 9–12.)

[50] The increase of 40,000 acre-feet in the modeled average annual net reduction to Delta outflow caused by the Project with ITP requirements appears to be due to differences between the CalSim II model and the CalSim 3 model, as described in footnote 45.

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> The State Water Board is currently in the process of amending the [Bay-Delta Plan] to establish new and modified Delta tributary inflow and cold water habitat and Delta outflow objectives that may significantly reduce the season when water is available for diversion and the amount of water available for diversion under this permit. Subject to appropriate procedure, the season of diversion and the maximum amount authorized to be diverted may be reduced to implement existing or revised water quality and flow objectives included in the Bay-Delta Plan.
>
> (*Id.* at p. 104.)

The Authority claims that Term 96 would address compliance with any updates to the Bay-Delta Plan that may be finalized before the Project becomes operational, including any modified Delta outflow requirements. (*Id.* at pp. 42–43.) Because the updates are anticipated to be adopted soon, and there would be additional periodic review periods before the Project is in operation, the Authority asserts that more specific limitations on diversion to implement the Bay-Delta Plan would be "premature." (*Id.* at p. 42.) For the same reasons, the Authority argues that prohibiting Project diversions until the Bay-Delta Plan is updated and implemented is unnecessary. (*Id.* at p. 43.)

In August 2025, after the Board's release of the July 2025 Draft Bay-Delta Plan, the hearing officer scheduled a status conference in this proceeding to address: (1) incorporation of a future-adopted update to the Bay-Delta Plan into any permit issued to the Authority, and (2) appropriate Delta outflow requirements pending adoption and implementation of an updated Bay-Delta Plan. (2025-08-08 Notice of Status Conference, pp. 3-6.) Parties had the opportunity to comment on these issues in status conference statements and during the status conference.

The hearing officer explicitly sought input from the parties about the applicability of water supply adjustments to any permit issued to the Authority, given that the July and December 2025 Draft Plans state that the determination of whether water supply adjustments will apply to a new water right will occur with the processing of those water right applications. (2025-08-08 Notice of Status Conference, pp. 5-6.) The hearing officer invited comment about whether to receive additional evidence and conduct additional hearing days to address whether, and to what extent, water supply adjustments should apply. (*Ibid.*) The hearing officer also explicitly sought comment

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from the parties on a draft term that would impose a 55 percent of unimpaired Delta outflow requirement on Project diversions, pending completion of the Bay-Delta Plan processes. (*Ibid.*)

The Authority did not request an opportunity to submit evidence as to whether water supply adjustments should apply to any permit issued through this proceeding if the Bay-Delta Plan were updated to allow for those adjustments. Counsel for the Authority stated that to "delay a proposed order in this proceeding" to conduct hearing days to receive evidence on the issue would be an "incredibly inefficient use of time." (2025-09-04 Zoom-generated transcript, pp. 10, 12-13; 2025-08-28 Sites Status Conference Statement, p. 4.) Instead, the Authority indicated that it intends to submit proposed amendments to the draft Bay-Delta Plan that would apply water supply adjustments to the Sites Reservoir Project as part of the periodic review process by which the Bay-Delta Plan could be further amended before the Project is operational. (2025-09-04 Zoom-generated transcript, p. 12.)

The Authority also took the position that a permit term explicitly imposing an interim 55 percent of unimpaired Delta outflow requirement was not necessary because the Board should implement any outflow requirements in accordance with the updated Bay-Delta Plan expected to be adopted in 2026. The Authority additionally expressed its position that it would be inappropriate to impose "the proposed 55% unimpaired flow requirements solely on the Sites Project prior to the adoption of the Bay-Delta Plan." (2025-08-28 Sites Status Conference Statement p. 4, fn. 8.)

4.3.2.4 NGO Parties' Arguments and Evidence Addressing Delta Inflows and Outflows

The NGO Parties maintain that 75 percent of unimpaired Delta outflow is necessary to support and protect public trust resources and native fish populations and seek denial of the application on this basis. (2025-05-27 NGO Parties Closing Br., pp. 32, 61; Exh. BK-1, pp. 12–13, ¶ 23.) Additionally, because current environmental conditions and regulations are not sufficient to support the Bay-Delta ecosystem or its fisheries (Exh. BK-1, pp. 7, 9-13, ¶¶ 13, 18–20, 22–23), the NGO Parties argue that even proportionally

small changes in Delta outflow deteriorate populations of native zooplankton prey relied upon by native fish, waterfowl, and shorebirds and "will reduce flows that are needed to support out-migration of juvenile salmonids, that provide migration cues for White Sturgeon and Green Sturgeon, and that provide critically needed flows to support the continued existence of Longfin Smelt and Delta Smelt." (2025-05-27 NGO Parties Closing Br., p. 32; Exh. BK-1, pp. 70–71, ¶ 164; Exh. BK-132, pp. 14–15, ¶¶ 37–38.) The NGO Parties also argue as a procedural matter that the Authority's application should be denied because the Authority did not consider or present evidence relevant to the hearing issues assuming a 75 percent Delta outflow requirement applied to Project diversions. (2025-05-27 NGO Parties Closing Br., p. 61.)

In the alternative, the NGO Parties propose a variety of conditions on diversion based on Delta outflow, including a term that would require an NDOI of 75 percent of the total calculated unimpaired outflow and a cumulative average NDOI of at least 42,800 cfs to protect fish species. (2025-05-27 NGO Parties Closing Br., p. 67, Terms NGO2A & NGO 2D.) To support a 75 percent unimpaired flow Delta outflow requirement, the Protestants' experts rely in significant part on information about the biological significance of varying levels of Delta outflow addressed in the Board's 2010 Flow Criteria Report and 2017 Scientific Basis Report. (2025-05-27 NGO Parties Closing Br., p. 67; Exh. BK-96; Exh. AHO-271.) In addition, Dr. Rosenfield testified in detail about the importance of flows into and through the Delta for fish and wildlife beneficial uses. (See Exh. BK-1.) Dr. Rosenfield offered detailed and specific testimony about the impacts of reductions in Sacramento River inflow and Delta outflow from Sites Project diversions on particular species. (*Id.* at pp. 13, 33, 43, 51, 62, ¶¶ 25, 69, 94, 118, 142.)

4.3.2.5 Analysis

As an initial matter, the NGO Parties urge the State Water Board to act on the pending updates to the Bay-Delta Plan before acting on the Authority's water right application, to "allow the State Board to make an ultimate decision on the Application based on the best information for water availability, water supply benefits, unit costs, and impacts of the Project …." (2025-05-27 NGO Parties Closing Br., p. 28.) This approach would risk inordinate delay in the completion of this proceeding. The date of final adoption of an

updated Bay-Delta Plan is still uncertain given the complexity and state-wide significance of that proceeding. Even with final adoption, implementation of the updated plan will remain outstanding, as will resolution of any associated litigation challenging the Board's action. To address the possibility that the Project may be operational before the Board has adopted and implemented the updated Plan, the Permit includes interim Delta outflow bypass requirements that are based on the scientific information and analysis in the evidentiary record, including the Board's 2017 Scientific Basis Report (Exh. AHO-271), 2023 Draft Staff Report (Exh. AHO-279), and 2025 Partially Recirculated Draft Staff Report (Exh. AHO-338).

Accordingly, we reject the Authority's argument that an interim Delta outflow requirement for diversion under the Permit is unnecessary because the Bay-Delta Plan will be updated before the Sites Reservoir Project is operational. (2025-08-28 Sites Status Conference Statement, p. 4.) As just described, the outcome and timing of the Bay-Delta planning and implementation processes cannot be predicted with certainty. Given the failure of existing regulatory requirements to adequately protect the Delta ecosystem, we cannot rely on those requirements to appropriately condition Sites Project diversions in the interim period. (Exh. AHO-279, p. 82 ["Existing regulatory minimum Delta outflows would not be protective of the ecosystem"].)

The Authority argues that it would be inappropriate to impose a 55 percent unimpaired flow requirement solely on the Sites Project prior to the adoption of the Bay-Delta Plan. (2025-08-28 Sites Status Conference Statement at p. 4, fn. 8.) Absent an appropriate interim Delta outflow requirement, however, we would be required to prohibit Project diversions unless and until the Bay-Delta Plan was updated and implemented to prevent unreasonable impacts from Project diversions on fisheries and other public trust resources. Furthermore, the Bay-Delta ecosystem is in ecological crisis due, in part, to the diversion and export of water from the watershed, and this Permit authorizes a significant new appropriation in that system. Because the water right for the Sites Reservoir Project will be the most junior right of significance in the watershed, it is appropriate to subject Project diversions to more restrictive criteria to ensure that this

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additional appropriation does not further degrade conditions while a comprehensive regulatory approach is pending.

Interim Delta Outflow Bypass Requirements

To protect fish and wildlife from the impact of Project diversions, the Permit imposes a bypass requirement based on Delta outflows. As an interim measure, the Permit prohibits diversions when Delta outflows are less than 55 percent of unimpaired flows calculated as a seven-day running average, pending implementation of an updated Bay-Delta Plan. (Permit Term 30, subd. (a).) This requirement is based on the conclusions in the 2017 Scientific Basis Report and the 2023 and 2025 Draft Staff Reports. (Exh. AHO-271, p. 299; Exh. AHO-279, p. 552; Exh. AHO-338, p. 39.)

As described in Section 4.3.2.1 above, year-round Delta outflows of 55 percent of unimpaired flow are associated with marked improvements in the protection of native fish and wildlife. (Exh. AHO-279, p. 552.) The 2023 and 2025 Draft Staff Reports consider and incorporate the scientific studies Dr. Rosenfield referenced in his testimony and reach the conclusion that Delta outflows of 55 percent of unimpaired flow achieve substantial benefits for fisheries as compared to lower levels of outflow. (Compare, Exh. BK-1, pp. 74–92, ¶¶ 178–297; Exh. AHO-279, pp. 444–477.) Although the NGO Parties submitted evidence of the benefits to fisheries and the Bay-Delta ecosystem of a 75 percent Delta outflow requirement, this evidence does not consider the significant competing state-wide demands for other beneficial uses of water. The 2010 Flow Criteria Report identifies flows to protect public trust resources in the Delta if fishery protection was the *sole purpose* for which its waters were put to beneficial use. (Exh. BK-96, p. 15.) Because we are tasked in this proceeding with determining requirements to avoid impacts on fish and wildlife that are reasonable and feasible, we must weigh the competing demand for appropriation of water pursuant to Application 25517X01 to support domestic, industrial, municipal, agricultural, and other consumptive uses.

We conclude based on the information, analysis, and balancing of competing beneficial uses described in the 2017 Scientific Basis Report, the 2018 Framework, and the 2023

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and 2025 Draft Staff Reports, as supported by other evidence in the record, that a 55 percent Delta outflow requirement on Project diversions is appropriate. The Delta outflow bypass requirement will prohibit Project diversions, and the impact of Project diversions on Delta outflows, unless Delta outflows are at least 55 percent of unimpaired flow. While the bypass requirement will not ensure Delta outflows achieve 55 percent of unimpaired flow, it will ensure that Project diversions do not cause flows to fall below this level on a seven-day running average.[51] This interim requirement will limit impacts on native fish species, and other instream beneficial uses and public trust resources from Project diversions, while allowing the Sites Reservoir Project to divert unappropriated water in the Sacramento River system for beneficial use.

We impose this requirement with some flexibility, in recognition that the December 2025 Draft Plan proposes an unimpaired Delta inflow requirement, and a corresponding inflow-based Delta outflow requirement, of 55 percent of unimpaired flow within an adaptive flow range of 45 to 65 percent. The Draft Plan contemplates that required flows may be managed as a volume or block of water on a seasonal basis ("flow shaping"). (Exh. AHO-337, p. 60.) Consistent with the concept of "flow shaping," the Permit allows adjustment of the Delta outflow bypass requirement in Term 30, in those years when the project-specific Sacramento River bypass flow criteria in Term 23 limit Project diversions, but the Delta outflow requirement in Term 30 is met. In that circumstance, the project-specific diversion criteria control Project diversions. As a result, those criteria contribute to greater than 55 percent of unimpaired flows as Delta outflows by prohibiting or limiting Project diversions even when the Delta outflow requirement is met.

The Permit allows the Authority to (1) quantify the additional volume of water it would have been able to divert absent the project-specific bypass requirements in Term 23, and (2) divert this quantity of water at a later time in the same water year, even if the 55

[51] Methods for calculating daily Unimpaired Delta Outflow are based on equations and data sources applied in the Division Water Availability Tool. (Exh. AHO-042.)

percent of unimpaired Delta outflow requirement is not being met.[52] The effect of the provision is to allow the Authority to shift the timing of bypasses to meet the Delta outflow requirement. The flexibility afforded by this provision maintains project yield while ensuring that project-specific bypass criteria are met and that Delta outflow requirements are attained on a volumetric, water year basis.

Implementation of Updated Bay-Delta Plan Requirements

Permit Term 30(c) is intended to integrate, by reference, any future update to the Bay-Delta Plan that includes numeric Sacramento River inflow and inflow-based Delta outflow requirements applicable to diversions under the Permit. Term 30 provides that upon adoption of an updated Bay-Delta Plan and regulatory action by the Board to implement the requirements of the Plan, those regulatory requirements shall apply. Unlike the project-specific bypass flows, which are intended to protect fisheries and other instream beneficial uses from impacts of this Project's diversions on flows in the Sacramento River mainstem, the Delta outflow requirements are intended to address the collective impacts of Project diversions and other diversions from the Sacramento-San Joaquin Watersheds on flow conditions in the Delta. The update to the Bay-Delta Plan is the most appropriate mechanism for this Board to balance the cumulative demands on the watershed and impacts of diversions on fisheries and other instream beneficial uses at a system-wide scale. The provisions of Term 30 ensure that the Permit is not inconsistent with the Bay-Delta Plan's regulatory action to implement an updated Plan.

The flexibility in Permit Term 30(d) described above remains in effect if the Bay-Delta Plan is updated. This provision allows the Authority to quantify the additional volume of water it would have been able to divert absent the project-specific bypass requirements in Term 23 and divert this quantity of water later in the same water year even if the 55 percent of unimpaired Delta outflow requirement is not met. If the updated Bay-Delta

[52] The amount the Authority "would have been able to divert" must consider limitations such as diversion and conveyance capacity, storage capacity in Sites Reservoir, and limitations imposed by other conditions on diversion in the Permit.

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Plan includes specific provisions for flow shaping, however, then those provisions shall apply in lieu of the methodology described in Term 30(d)(ii).

Any Delta outflow requirements applicable to the Permit shall not, however, include water supply adjustments unless the updated Bay-Delta Plan authorizes water supply adjustments that are applicable to Permit 21487. The Authority explicitly disclaimed any intent to seek water supply adjustments through this adjudicative process and instead indicated that it intends to seek water supply adjustments as part of the Bay-Delta Plan periodic review process. (2025-08-28 Sites Status Conference Statement, p. 4; 2025-09-04 Zoom-generated transcript, pp. 10–13.) We reserve authority to consider at a future time whether to modify the Permit to include water supply adjustments or other modifications to best develop, conserve, and utilize the state's water resources in the public interest. (Permit Term 57.) Alternatively, the Authority may seek such a change in the terms of the Permit by filing a petition for change.

Project Diversions and HRL Flow Commitments

If updates to the Bay-Delta Plan include a VA pathway for compliance, Project diversions may reduce the additive flows to Sacramento River inflow and Delta outflow provided by HRL flow commitments, and the underlying baseline to which those flows are intended to be added, absent appropriate terms and conditions to limit these impacts.

To assess quantitatively how Project diversions might affect HRL flows and corresponding Delta outflows, the Authority performed a daily and a monthly analysis.[53]

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[53] The Authority relies on several simplifying assumptions to facilitate these analyses. First, the analyses utilize the flow schedule for the HRL flow commitments identified in the January 2023 Draft Scientific Basis Report Supplement. (Exh. Sites-070c, ¶ 34; Exh. AHO-048, p. 4.) As implemented, HRL flows will not necessarily follow this assumed flow schedule but will most likely vary from year to year and may include releases in months outside of the assumed schedule, particularly in below normal and dry years. Second, the analyses assume equal distribution of HRL flow commitments across each day of the month. In fact, HRL flows would likely involve pulse flows on sub-monthly time steps.

The Authority's daily analysis utilizes the Authority's Historical WAA Tool to graphically evaluate overlap between Project diversions and HRL flows. (Exh. AHO-048, pp. 5–26, figs 1-22.) The analysis shows some days of overlap in most years, with more overlapping days in wet and above-normal years and fewer overlapping days in dry years. (*Id.* at p. 27, tbl. 1.) The Authority's monthly analysis utilizes CalSim model results to quantitatively estimate the effects of Project diversions on Delta outflow by summing the estimated decreases in Delta outflows with Project operations and estimated increases to Delta outflows with HRL flows.[54] (*Id.* at p. 31.) The monthly analysis indicates that absent additional conditions on diversion, Project diversions would in some months partially offset the HRL program's contribution of increased Delta outflow in all water year types commensurate with Project diversions: less in drier years and more in wetter years. (*Id*. at pp. 30 & 33–34, tbls. 7 & 12; see also Exh. AHO-338, p. 139.) The NGO Parties submitted their own analysis of impacts on Delta outflows that generally yielded similar results (Exh. CSPA-101c, p. 7, ¶ 21, tbl. CSPA-101B.)

The Authority asserts that there would be limited impacts from Project operations on HRL flows because the Project would not divert when HRL flows are provided. (2025-05-27 Sites Closing Br., p. 44.) Project diversions would occur when Sacramento River flows exceed regulatory requirements and bypass flows required by permit conditions, while HRL flows would generally be deployed when additional flow is expected to be most beneficial to the system. (*Ibid.*; Exh. Sites-070c, p. 22, ¶ 34.) The Authority's analysis demonstrates, however, that there is some expected overlap of Project diversions with HRL flows. (Exh. AHO-048, pp. 27 & 34, tbls. 1 & 12.)

[54] The Authority relied upon post-processed estimates of changes in Delta outflow with HRL flows in the January 2023 Draft Scientific Basis Report Supplement to evaluate interaction between Project diversions and HRL flow contributions. Since issuance of that report, updated estimates of changes in Delta outflow with HRL flows based on dynamic modeling results were included in the September 2023 Final Draft Scientific Basis Report Supplement and, most recently, in the December 2025 Revised Draft Staff Report Chapter 13. (Exh. AHO-279, p. 4988; Exh. AHO-338, p. 139.)

To ensure that the Project does not divert HRL flows in the Sacramento River, the Authority proposes the following term, in relevant part:

> Permittee shall not divert the flow assets that have been made available by the Sacramento River Mainstem HRL parties (Sacramento River Mainstem HRL flow assets) when they are present. To implement this, available scheduling and/or accounting of Sacramento River Mainstem HRL flow assets shall be used to determine when Sacramento River Mainstem HRL flow assets are present. For all days that Sacramento River Mainstem HRL flow assets are present, the allowable diversions shall be based on flow conditions absent any Sacramento River Mainstem HRL flow assets….
>
> (2025-05-27 Sites Closing Br., pp. 109–110, ¶ 36 [SPA Special Term 15].)

The Authority's Special Term 15 would protect Sacramento River HRL flows from diversion but would not prevent the diversion of Sacramento River base flows to which the HRL flows are additive. Thus, at times, Project diversions could reduce or eliminate any increase in flows that would otherwise result from HRL flow commitments in the Sacramento River. Special Term 15 does not address the reductions in total Delta outflow from diversion of baseflows to which the HRL flows are intended to be additive.

To prevent the erosion of baseflows, the NGO and Tribal Parties proposed a permit term that would prohibit Project diversions in any month in which HRL flow commitments are added to the Bay-Delta Watershed. (2025-08-28 NGO-Tribal Status Conference Statement, pp. 6–7.) These parties assert that limiting the months during which diversions can occur would prevent the Project from diverting HRL flows either directly, by diverting when HRL flows are present in the Sacramento River, or indirectly, by diverting base flows. (*Ibid.*) Such a term would, however, significantly restrict the opportunities for Project diversions outside of wet years. (See Exh. AHO-048, pp. 5–26.)

The State Water Contractors also propose a permit term to protect HRL flows, which is substantially similar to the limitation on operation of the CVP and SWP in the 2025 Draft Plan. The proposed term would prohibit the direct diversion of HRL flows and limit the diversion of underlying base flows:

> Sites Reservoir must bypass other HRL flow commitments to achieve the additive HRL Delta outflow commitments above base conditions, as well as

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> other flows provided by non-HRL parties to meet Bay-Delta Plan regulatory requirements and other instream flow dedications.

(2025-08-28 SWC Status Conference Statement, p. 3; Exh. AHO-336, p. 78; see also AHO-337, pp. 81-82.)

We concur with the Protestants and the State Water Contractors that limitations on diversion are necessary and appropriate to ensure that Project diversions will not (1) undermine the intended benefits of HRL flows, (2) directly divert flows made available by HRL flow commitments, or (3) divert flows not available for diversion by non-HRL parties senior to the Project's water right, to which HRL flows are intended to be additive.

To protect the intended benefits of HRL flows, the Permit includes a narrative requirement that diversions shall not interfere with the intended benefits to fish and wildlife of flow and non-flow commitments provided pursuant to the VA pathway. At a minimum, to ensure that the Project does not divert HRL flows in the mainstem of the Sacramento River or the underlying flows to which they are additive, Term 31 prohibits diversions on any day when HRL flow commitments are present in the mainstem of the Sacramento River. And, to reduce the impacts of Sites diversions on HRL flow benefits to Delta outflows and avoid the diversion of flows bypassed by non-HRL parties, the Permit allows for diversion only of that amount of flow that exceeds the Delta outflow requirements under the regulatory pathway for Project diversions set forth in Term 30, plus any HRL flows contributing to Delta outflow.

Term 31 prohibits reductions in HRL flows that would undermine short-term flow-shaping benefits, and limits impacts on net additive flow to Delta inflows and outflows on a seasonal timescale. Although Project diversions, when they occur, will necessarily decrease average Delta outflow with HRL flows on a seasonal basis – Term 30, Term 31, and the terms imposing project-specific bypass flow requirements, will avoid unreasonable impacts on fish and wildlife beneficial uses in the Sacramento River and Delta. The terms allow the Project to divert unappropriated water in the Sacramento River when all project-specific bypass requirements are met, and Delta outflows exceed

the criteria for diversion under the Permit plus any HRL flows made available to enhance Delta outflow.

In acknowledgement that the precise provisions of any VA pathway to be included in the updated Bay-Delta Plan are uncertain or may be further amended after adoption of the Plan, the Board reserves the authority to modify Term 31 following notice and opportunity for public comment to ensure consistency with the Bay-Delta Plan.

Voluntary Agreement Pathway

The Authority has indicated its intent to seek inclusion of any water right for the Sites Reservoir Project in the VA pathway, including Appendix B.1 and other relevant sections, pursuant to the appropriate process in the Bay-Delta Plan as it may be updated. (2025-09-04 Zoom-generated transcript, pp. 12-13.) If the Authority develops a proposal to include the Permit in the VA pathway, the Board may consider the proposal following completion of supporting scientific and environmental documentation. Such a proposal may include as a component for the Board's consideration, the amount of project-specific bypass flows required under Term 23 that exceed Sacramento River inflow and Delta outflow regulatory requirements as proposed flow commitments. If the Board updates the Bay-Delta Plan to include this Permit in the VA pathway, thus excepting the Permit from the Sacramento/Delta inflow and inflow-based Delta outflow requirements, Term 30, part (c), will apply and require compliance with the approved VA pathway provisions in lieu of the requirements of Term 30, part (b).

4.4 Water Quality

In 1967, the Legislature merged the State Water Quality Control Board with the State Water Rights Board to ensure the coordinated consideration of water rights and water quality. (Wat. Code, § 174.) To this end, the Water Code mandates that when acting upon water right applications, the Board shall "consider water quality control plans … and may subject such appropriations to such terms and conditions as it finds are necessary to carry out such plans." (Wat. Code, § 1258.) The Board may also consider water quality as part of its broad authority to subject a new appropriation to such "terms and conditions as in its judgment will best develop, conserve, and utilize in the public

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interest the water sought to be appropriated." (Wat. Code, §§ 1253, 1257.) Finally, the Board must consider the water quality effects of approving a water right application on public trust resources and protect those resources where feasible and in the public interest. (*National Audubon Society v. Superior Court*, *supra,* at pp. 426, 446–447.)

There are three main water quality impacts that diversion of water from the Sacramento River to storage in Sites Reservoir, and subsequent releases of that water for delivery, may cause or contribute to: (1) increases in temperature in the Sacramento River, (2) high levels of methylmercury in Sites Reservoir and in reservoir releases, and (3) harmful algal blooms (HABs) in Sites Reservoir and downstream of the reservoir. The Final EIR additionally analyzed how the Project could impact other water quality parameters, such as metal concentrations other than methylmercury, salinity within the Reservoir and the Sacramento River, and pesticide concentrations. (Exh. AHO-073, pp. 47, 72–75, 94–100.) We find that the mitigation measures required by CEQA will appropriately address potential impacts from these other water quality constituents. (*Id.* at pp. 112–121.)

4.4.1 Temperature

Sites Project operations may impact temperature in the Sacramento River in two ways. First, diversions will decrease the volume of flow in the Sacramento River, which can increase river temperature downstream of the points of diversion. Second, releases of Project water into the Sacramento River that are warmer than the river will increase river temperatures.

Exposure of Chinook salmon populations to elevated water temperature is a major factor contributing to population decline in the Sacramento River watershed. (Exh. AHO-161, pp. 51-52; Exh. BK-1, pp. 14, 17, ¶¶ 26, 35.) Temperatures above 53.4°F can cause temperature-dependent mortality of salmon eggs and alevin while temperatures above 56°F can cause substantial mortality to salmon eggs and alevin. (State Water Board Order WR 90-05, p. 3; Exh. Sites-300, p. 169.) As temperature increases, migrating juveniles and adults may also be affected.

> [Although] Chinook Salmon are most sensitive to temperature during spawning and egg incubation … [w]ater temperature reaching or exceeding

> 70 °F (21 °C) blocks migration and can be lethal for [winter-run Chinook salmon] and [spring-run Chinook salmon] adults and juvenile Chinook Salmon in the Sacramento River Basin. Sub-lethal effects of increased water temperatures can also indirectly cause mortality, as fish are more susceptible to disease, contaminants, and predation. Survival studies of juvenile Chinook Salmon have found that survival declines steeply when temperatures exceed 68 °F (20 °C). A recent study in the Sacramento River found that mortality for migrating Chinook Salmon smolts was six times higher in temperatures exceeding 68 °F (20 °C). Lower stream flows and warming water temperatures reduce the spatial and temporal extent of rearing and migration habitat as well as functionally disconnect the migratory corridor, which truncates migration and reduces life history and genetic diversity of populations.

(Exh. Sites-300 [2024 ITP, Attachment 5] p. 136 [internal citations omitted]; see also Exh. AHO-078, pp. 19 & 38; Exh. AHO-163, pp. 10–13 [noting temperature index values needed for survival, growth, or presence]; Exh. BK-47, pp. 354–355; Exh. PCFFA-1, pp. 11-12, ¶ 27; Exh. BK-1, p. 17, ¶ 35.)

Central Valley Basin Plan Objectives for Temperature

The Water Quality Control Plan for the California Regional Water Quality Control Board Central Valley Region (Central Valley Basin Plan) includes a general basin-wide water quality objective for temperature to reasonably protect fisheries, and it includes specific objectives for particular water bodies. (Exh. SCS-40, p. 50.) If there is any conflict between the two objectives, "the more stringent objective applies." (*Ibid*.) The general objective states that intrastate waters designated with cold freshwater habitat or warm freshwater habitat beneficial uses shall not be "increased more than 5°F above natural receiving water temperature." (*Ibid*.) The waterbody specific objective for the Sacramento River states:

> The temperature shall not be elevated above 56°F in the reach from Keswick Dam to Hamilton City nor above 68°F in the reach from Hamilton City to the I Street Bridge during periods when temperature increases will be detrimental to the fishery.
>
> In determining compliance with the water quality objectives for temperature, appropriate averaging periods may be applied provided that beneficial uses will be fully protected.

(*Ibid.*)

The Central Valley Basin Plan also includes a Controllable Factors Policy, which states:

> Controllable water quality factors are not allowed to cause further degradation of water quality in instances where other factors have already resulted in water quality objectives being exceeded. Controllable water quality factors are those actions, conditions, or circumstances resulting from human activities that may influence the quality of the waters of the State, that are subject to the authority of the State Water Board or Regional Water Board, and that may be reasonably controlled.

(Exh. SCS-40, p. 75.)

Pursuant to this policy, actions such as the diversion of water that may be reasonably controlled shall be prohibited even when water quality objectives are already exceeded.

The specific temperature objective for the Sacramento River at the Red Bluff POD extending downstream to Hamilton City is 56°F. The objective for the reach that includes the Hamilton POD and Knights Landing, continuing downstream to the I Street Bridge, is 68° F. (*Id.* at p. 50.) These objectives apply "during periods when temperature increases will be detrimental to the fishery." (*Ibid.*) The Central Valley Basin Plan does not specify when temperature increases are detrimental to the fishery or how such a determination is to be made.[55]

Temperature Impacts from Diversions to Sites Reservoir

Diversions of water to Sites Reservoir will decrease the volume of flow in the Sacramento River, thereby tending to increase river temperature downstream of the points of diversion at Red Bluff and Hamilton City. These impacts are expected to be relatively small. (Exh. Sites-115c2, p. 5, ¶ 13; Exh. AHO-138, pp. 204 & 226 [Appendix 6C].) The Authority's temperature modeling showed that temperature impacts from diversion to storage in Sites Reservoir and re-operation of other upstream reservoirs through exchanges would be less than 1° F modeled as a monthly average. (Exh. Sites-

[55] The only precedential order by the State Water Board addressing this issue is Order WR 92-02, which states that temperatures above 56°F upstream of Hamilton City would be detrimental to the fishery "when any of the four runs of Chinook salmon are spawning or incubating eggs in the upper Sacramento River." (Order WR 92-02, p. 4.)

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115c2, p. 5, ¶ 13; Exh. AHO-138, pp. 204 & 226 [Appendix 6C].) Protestants estimate that Sites Project diversions may, "on some days" between October 1 and June 14, increase temperatures in the Sacramento River by up to 1.8°F, but concede that these impacts would not occur at times when the increase would contribute to daily mean temperature exceeding 68°F at Wilkins Slough. (Exh. SCS-8a, pp. 10–11, ¶ 13; Exh. SCS-11, pp. 10–11, ¶ 13.) Diversions are unlikely to occur at times when the diversions may cause Sacramento River temperatures to exceed the temperature objectives because the authorized season of diversion does not include the month of September, and the Wilkins Slough bypass requirements will limit diversions to relatively high flow conditions. (Exh. SCS-11, pp. 10–11, ¶ 13; 2025-05-27 Sites Closing Br., p. 61.) We conclude that diversions of water from the Sacramento River to storage in Sites Reservoir is not expected to cause or contribute to exceedances of the water quality objectives.

Temperature Impacts from Releases from Sites Reservoir

Water released from Sites Reservoir for conveyance in the Sacramento River will first be temporarily impounded in Funks Reservoir and then travel 40 miles through the Tehama Colusa Canal and more than 10 miles through the Colusa Basin Drain, mixing with waters therein, before being released into the Sacramento River at Knights Landing. (Exh. AHO-139, pp. 6–11; Exh. SCS-11, p. 2, ¶ 2; Exh. Sites-300, p. 144.) From May through September, the Authority intends to target a release minimum temperature from Sites Reservoir of 65°F for rice growing. (Exh. Sites-115c2, pp. 4–5, ¶ 10; see Exh. AHO-073, pp. 37–39; 2025-05-27 Sites Closing Br., p. 60.) As the released water travels through the Canal System and the Colusa Basin Drain, the water may warm depending on the temperature of the receiving waters, ambient air temperatures, travel time, and other factors.

The Authority asserts that releases from Sites Reservoir into the Sacramento River will "result in a slight reduction in water temperature" and that modeled monthly average Sacramento River water temperature with and without Sites Project operations are "nearly the same." (2025-05-27 Sites Closing Br., p. 61; see Exh. AHO-73, pp. 70–71,

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tbl. 6-12d.) The Authority's model results show that releases from Sites Reservoir would, at maximum, increase the long-term monthly average temperature in the Sacramento River by 0.1°F. (2025-05-27 Sites Closing Br., p. 55; Exh. Sites-407, p. 6, ¶ 16, tbl. 2; Exh. AHO-73, pp. 70–71, tbl. 6-12d.) The Final EIR and the Authority's expert on water quality impacts, Anne Huber, concluded that Sites operations would not cause any exceedance of the general temperature objective prohibiting a 5° F change in the receiving water temperature. The Final EIR and Ms. Huber did not address whether any exceedance of the Central Valley Basin Plan's specific temperature objectives for the Sacramento River might occur.

We find the Authority's analysis of potential temperature impacts of the Project insufficient for two reasons: (1) the Final EIR and the Authority's witnesses applied the general rather than the specific temperature objective, even though increases in temperature above the specific objective would likely be detrimental to the fishery, and (2) the results from the Authority's temperature model are unreliable for reasons discussed below.

The Final EIR and Ms. Huber analyzed the likelihood that Project operations would cause exceedances of the general water quality objective for temperature in the Central Valley Basin Plan but did not address the specific objectives applicable to the Sacramento River. (Exh. Sites-115c2, p. 4, ¶ 9; Exh. AHO-073, p. 69.) Ms. Huber concluded that operations would not increase natural receiving water temperature by 5° F or more based on the modeled monthly averages but expressed no opinion as to whether operations could increase Sacramento River water temperature above 56°F in the reach from Keswick Dam to Hamilton City or 68°F in the reach from Hamilton City to the I Street Bridge. The Authority argues in its closing brief that Ms. Huber rightly applied the general temperature objective rather than the specific objectives for the Sacramento River, because the Authority's "fish effects analysis" demonstrated that the potential temperature impacts of Sites Reservoir releases on salmonids were minimal. (2025-05-27 Sites Closing Br., p. 62.)

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The Authority's evidence does not adequately address evidence in the record that a seven-day average daily maximum temperature above 68°F is likely to impact juvenile salmonid rearing and growth, and lead to overall decreased survival in the Sacramento River when fish are present. (Exh. Sites-300 [2024 ITP, Attachment 5] p. 136; Exh. BK-1, pp. 21–22, ¶ 41; Exh. BK-129, p. 34.) CDFW found that for salmonids, 60°F is the upper bound of the stressful range of temperatures for juvenile rearing, 66°F is the thermal avoidance threshold for adult migration, and 70°F is the thermal blockage threshold, which is potentially lethal to adult salmon. (Exh. Sites-300 [2024 ITP, Attachment 5], pp. 137–139.) The EIR indicates that Chinook salmon are generally present in the relevant reaches of the Sacramento River downstream of Knights Landing year-round, so there appears to be no time period in which, as a general matter, exceedance of 68°F as a seven-day average daily maximum temperature in the Lower Sacramento River reach would not be detrimental to salmonids. (Exh. AHO-161, pp. 30-31, 41, 47–48.) Therefore, we conclude that 68°F is the appropriate water quality objective against which impacts of releases from Sites Reservoir should be assessed, absent additional information about specific conditions.

In addition, we find that some of the assumptions and input to the Authority's temperature modeling weaken the conclusions in the Final EIR and the opinions of Ms. Huber. CDFW similarly found that the Authority's temperature models left "extremely high uncertainty associated with model outputs and their ability to inform analyses of the Project's impacts on downstream water temperature," and that "the water temperatures of releases into the river [from Sites Project operations] are currently poorly understood." (Exh. Sites-300, pp. 144, 146.)

First, the Applicant's modeling assumes that water released from the reservoir will warm in the Tehama Colusa Canal, Glenn County Irrigation District Main Canal, and the Colusa Basin Drain (collectively, the Canal System) at the same rate as if flowing in the Sacramento River. (2025-05-27 NGO Closing Br., p. 46; Exh. AHO-073, p. 38; CIC Tr. Comb., p. 5021:2-6.) Several factors, including the total volume of flow and channel morphology, will cause water to warm significantly faster in the Canal System than in the Sacramento River. (CIC Tr. Comb., pp. 5201:2-13, 5022:22-5023:13; Exh. Sites-300,

pp. 144-145.) This assumption will cause the model to underestimate the temperature of water originating from Sites Reservoir when it is released into the Sacramento River.

Second, the Authority's model assumes that releases would travel for three to eight days down the 40-mile length of the Tehama Colusa Canal and 10.5-mile length of the Colusa Basin Drain to Knights Landing, where the releases would then enter the Sacramento River. (Exh. AHO-139, p. 12; Exh. SCS-11, p. 2, ¶ 2.) To determine the rate at which releases would warm during transit, the Authority's "estimations used assumptions for warming as a function of canal length." (Exh. AHO-073, p. 38.) But during irrigation season, operation of the Knights Landing Outfall Gates, which control flow from the Colusa Basin Drain to the Sacramento River, create "an upstream ponding effect" for several miles. (Exh. AHO-072, pp. 11, 53; Exh. King-81, pp. 37, 81, 91.) This ponding extends upstream of the proposed location of the Dunnigan Pipeline, where releases from Sites Reservoir enter the Colusa Basin Drain. (Exh. AHO-072, pp. 11, 53; Exh. King-081, pp. 37, 81, 91.) The Authority's model does not account for the additional time that water may remain in the Colusa Basin Drain due to ponding and operation of the outfall gates nor does the Authority address how the Knights Landing Outfall Gates may be operated to accommodate Sites Project releases. (Exh. AHO-073, p. 38; Exh. AHO-139, p. 13; CIC tr. Comb., p. 2319:17-22.)

Third, the Authority utilized a water temperature blending model that produces only monthly average estimates and does not model daily maximum temperature or any other sub-monthly time step. (Exh. Sites-300, p.144; 2025-05-27 Sites Closing Br., pp. 6061; Exh. AHO-138, p. 2.) As we have discussed elsewhere in this Decision, monthly averages tend to mask shorter-term but potentially significant impacts. (See Discussion, *infra*, Section 4.2.1.2; Exh. Sites-407, p. 6, tbl. 2; Exh. Sites-300, pp. 144–145.) Although the Central Valley Basin Plan allows for appropriate averaging periods to determine compliance with the temperature water quality objectives, a monthly time-step is generally not adequate to protect fisheries from temperature effects. (Exh. SCS-40, p. 50; Exh. Sites-300, pp. 144–145.) CDFW also identified the masking effect of monthly averages as a weakness in the Authority's temperature model, stating that "impacts to protected species could result from daily or sub-daily changes in water

temperature." (Exh. Sites-300, p. 144.) United States Environmental Protection Agency (U.S. EPA) recommends use of a seven-day average of daily maximum values to identify whether temperature effects will be detrimental to a fishery (Exh. AHO-163, p. 11); CDFW requires a three-day average in the 2024 ITP to identify potentially significant temperature impacts. (Exh. Sites-298, p. 51.) We conclude, therefore, that a monthly average is inappropriate to assess potential impacts on fisheries and attainment of water quality objectives.

Given the uncertainty of impacts on temperature from Sites Reservoir releases based on the record before us, the Permit allows the Authority two options to ensure that its operations do not cause or contribute to an exceedance of the Sacramento River temperature objective or cause an unreasonable impact on fish.

First, Sites may opt to develop a Sacramento River Temperature Strategy (Temperature Strategy) based on an improved temperature model and more extensive network of monitoring data to more accurately quantify and forecast temperature changes in the Sacramento River caused by releases of water from Sites Reservoir. The purpose of the Temperature Strategy is to allow flexibility in Project operations that do not contribute to exceedance of the temperature objective based on actual conditions and forecasted impacts, including the status, life-stage, and presence of fish at the time of releases to the Sacramento River. The Authority would be required to obtain concurrence from CDFW that any exceedance of the specific objective of 68°F in the reach of the Sacramento River from Hamilton City to the I Street Bridge will not detrimentally affect fisheries. In recognition that temperature in the Sacramento River is largely controlled by releases from Shasta Reservoir, the Authority would be required to consider in developing this Temperature Strategy the potential role of exchanges between Sites Reservoir and Shasta Reservoir to increase cold-water pool available for temperature management. We also encourage the Authority to consider other actions in coordination with right holders and operators of infrastructure in the Sacramento River watershed to offset temperature increases that might otherwise occur, including, for example, a coordinated operations plan for the Colusa Basin Drain and the Knights Landing Outfall Gates.

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As an alternative to developing a Strategy, the Authority may comply with numeric temperature criteria that condition releases from Sites Reservoir intended for conveyance through the Sacramento River. Pursuant to Permit Term 42, such releases are prohibited unless the water to be conveyed in the Sacramento River is (a) cooler than the Sacramento River or (b) less than 68°F, at the point of release from the Colusa Basin Drain into the Sacramento River as measured on an instantaneous basis. These criteria will prevent exceedance of the temperature objective for the Sacramento River and further degradation if the objective is already exceeded. We conclude that this condition is appropriate in the absence of reliable information in the evidentiary record about: (1) the operation of the Knights Landing Outfall Gates at times when the Sites Project Authority is likely to release water into the Sacramento River; (2) circumstances in which exceedance of 68°F in the Sacramento River may or may not be detrimental to fisheries; and (3) the expected temperature of water released from Sites Reservoir entering the Sacramento River at Knights Landing. As described above, if new information becomes available demonstrating that these release criteria may be modified or relaxed without causing or contributing to temperatures that would be detrimental to the fisheries, the Authority may develop a Temperature Strategy that incorporates modified criteria for approval by the Executive Director.

4.4.2 Mercury

The federal Clean Water Act identifies inorganic mercury as a priority pollutant. (40 C.F.R. § 423, Appendix A.) Bioaccumulation of organic methylmercury is the main route by which mercury endangers humans and wildlife. (Exh. AHO-073, pp. 16–17.) In California, the most likely pathway for humans to be affected is through consumption of fish that have elevated mercury due to accumulation of methylmercury. (*Id.* at p. 16.) Heightened levels of methylmercury in publicly accessible waterways interferes with the public's interest in the state's fisheries and undermines the value of the state's fisheries, which the state holds in trust for the public. Mercury in fish tissue has the greatest impact on those who consume large quantities of affected fish, which may occur through consumption for subsistence or as a matter of cultural practice. (Exh. FOR-2, p. 12, ¶ 20; Exh. AHO-073, p. 43.)

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Mercury in reservoirs can be present in the underlying soils, in water that enters the reservoir through surface or subsurface flow, and from atmospheric deposition. (Exh. AHO-073, p. 43.) Multiple environmental variables influence mercury methylation, including concentration of inorganic mercury, presence of organic carbon, and water chemistry conditions. (*Ibid.*) In newly constructed reservoirs, the initial inundation of organic matter, like soils and vegetation, will cause relatively short-term increases in mercury methylation. Upon the initial fill of a new reservoir, methylmercury concentrations may be double or triple the expected long-term average for up to 10 years. (*Id.* at p. 17.)

The Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California (ISWBE) and the Central Valley Basin Plan set methylmercury water quality objectives. The ISWBE methylmercury sport fishing objective applies to the Colusa Basin Drain, Stone Corral Creek, and Funks Creek, and will likely apply to Sites Reservoir based on beneficial uses of water designated for the reservoir under the Porter-Cologne Water Quality Control Act and the Clean Water Act. (Exh. AHO-342, p. 4.) The objective is measured in fish tissue as 0.2 mg/kg wet weight of trophic level 4 fish.[56] (*Id.* at p. 5.) The ISWBE also contains a Tribal subsistence methylmercury objective of 0.04 mg/kg wet weight of a mixture of 70 percent trophic level 3 fish[57] and 30 percent trophic level 4 fish. (*Ibid.)* The ISWBE methylmercury provisions are implemented through water quality discharge permits that incorporate load allocations set by the total maximum daily load (TMDLs) for the receiving waterbodies. (Exh. AHO-342, p. 8.)

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[56] Under the Central Valley Basin Plan, representative Trophic level 4 fish in the Delta are generally fish species that consume other fish, including largemouth bass, striped bass, channel and white catfish, crappie, and Sacramento pikeminnow. (Exh. SCS-40, p. 206.)

[57] Trophic level 3 fish include American shad, black bullhead, bluegill, carp, Chinook salmon, redear sunfish, Sacramento blackfish, Sacramento sucker, and white sturgeon. (Exh. SCS-40, p. 207.)

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The Central Valley Basin Plan contains numeric water quality objectives for methylmercury in waterbodies within the legal Delta, including the Sacramento River and Yolo Bypass. (Exh. SCS-40, p. 44.) These objectives are 0.08 mg/kg wet weight of trophic level 3 fish and 0.24 mg/kg wet weight of trophic level 4 fish. (*Ibid*.) The Central Valley Basin Plan implements the Delta methylmercury water quality objectives through its Delta Methylmercury Control Program. (Exh. SCS-40, pp. 148–170.) The program included Phase 1, which required entities discharging methylmercury within the Delta to conduct source control studies and develop and evaluate methylmercury management programs. (*Id.* at p. 149.) The Central Valley Regional Board will use the information gathered in Phase 1 to identify modifications to the Delta Methylmercury Control Program such as site-specific water quality objectives, load and waste load allocations, requirements and schedules for implementing methylmercury management practices, and the creation of a mercury offset program. (*Ibid.*)

Although neither the ISBWE nor the Central Valley Basin Plan explicitly require the State Water Board to allocate responsibility for meeting methylmercury water quality objectives through water right proceedings, Section 4.3.1.8 of the Central Valley Basin Plan recommends that the State Water Board consider methylmercury impacts when acting on new water right applications. (*Id.* at p. 112.) That section instructs the Board to consider the following in any future proceedings related to its permitting: (1) methylmercury controls for new water management activities that have the potential to increase methylmercury levels, (2) evaluation and implementation of feasible management practices to reduce or prevent the project from increasing methylmercury, and (3) funding or studies to develop and evaluate management practices to reduce methylmercury production. (*Ibid*.)

Once filled, Sites Reservoir is expected to contain mercury concentrations of 2.8 ng/L, which is higher than other Northern California reservoirs such as Oroville Reservoir or Shasta Reservoir. (Exh. Sites-116, p. 10; Exh. AHO-073, p. 19; Exh. AHO-144, p. 44.) Inorganic mercury will be introduced into the reservoir from the Sacramento River and atmospheric deposition. (Exh. AHO-073, p. 44.) Organic carbon in the inundated area and anoxic conditions that are likely to occur in the water column will further stimulate

mercury methylation. (Exh. Sites-116c, p. 7, ¶ 19; Exh. AHO-073, p. 16.) The Final EIR predicts concentrations of 0.16 ng/L of aqueous methylmercury during the first 10 years after the reservoir initially fills, decreasing to 0.08 ng/L in the long-term. (Exh. AHO-073, pp. 60 & 85, tbls. 6-11 & 6-18.) By comparison, Shasta Reservoir has a mean methylmercury concentration of 0.021 ng/L, and Oroville Reservoir has a mean methylmercury concentration of 0.011 ng/L. (Exh. AHO-144, p. 45.) The Authority's expert testified that he expects "mercury concentrations in largemouth bass in the future reservoir to exceed State objectives," with concentrations of approximately 0.47 to 0.85 mg/kg, well-exceeding the 0.20 mg/kg wet weight sport fish objectives. (CIC Tr. Comb., p. 1567:20 1568:22; Exh. Sites-116c, ¶¶ 30 & 31.)

The Delta, Sacramento River, and Colusa Basin Drain are listed under the Clean Water Act as impaired for mercury. (Exh. Sites-116c, pp. 14–15, 21–22, ¶¶ 38 & 52; Exh. AHO-073, p. 21.) The Final EIR estimates that releases of water from Sites Reservoir will increase aqueous methylmercury concentrations in the immediate receiving waterbodies, Colusa Basin Drain, Stone Corral Creek, and Funks Creek, and the Sacramento River. (Exh. AHO-073, pp. 65 & 68.) The expected heightened concentrations in the first decade after the initial fill could result in levels of methylmercury within fish tissue in these waterways that exceed the sport fishing water quality objective. (*Id.* at p. p. 65; Exh. Sites-116c, pp. 14-15, ¶ 38.) These impacts will lessen over time as methylmercury concentrations within the reservoir diminish.

Sites Reservoir releases are also expected to increase aqueous methylmercury concentrations in the Sacramento River. The Authority estimated that Sites Project operations will increase aqueous concentrations at Freeport by up to 10 percent during dry and critically dry years in the first decade after the initial fill. (Exh. Sites-116c, p. 20, ¶ 51, fig. 3.) The Authority's expert, Cameron Irvine, concluded that such an increase, "could result in statistically significant increases in the body burdens of methylmercury in fish which would increase risks of adverse effects to humans and wildlife that consume Delta fish during these water year types." (*Id*. at pp. 21–22, ¶ 52.) In the long term, the Project is expected to increase aqueous methylmercury during dry and critical years at Freeport by about 1 percent. (*Id*. at p. 19, ¶ 51, fig. 1.)

Mitigation Measure WQ-1.1 is intended to minimize methylmercury concentrations in Sites Reservoir and associated impacts, although the Final EIR identifies the impacts from methylmercury as significant and unavoidable even with mitigation. (Exh. AHO-073, p. 65.) Pursuant to Mitigation Measure WQ-1.1, the Authority must not stock the reservoir with fish for the first 10 years after the initial fill and implement a fish sampling program to identify if any fish are present (e.g., due to unauthorized fish stocking), post fish consumption and warning signs if necessary, manage reservoir water chemistry to control methylmercury production such as by adding an oxidant to the water, and, after the initial ten years, manage reservoir fisheries to reduce methylmercury in fish tissues. (*Id.* at pp. 65-68.) The Final EIR acknowledges that although current research suggests that there may be other means to reduce methylmercury concentrations, "the degree of effectiveness of any single methylmercury minimization action or combination of actions … is not known at this time." (*Id.* at p. 65.)

Given the developing body of information and evolving state of technology to address mitigation of methylmercury in waterbodies, more information is necessary to identify specific requirements for managing methylmercury within Sites Reservoir and releases from the reservoir to protect human health and meet applicable water quality objectives.[58] The Permit generally requires the Authority to avoid or reduce to the extent feasible elevated mercury concentrations that may occur from the initial fill and operation of Sites Reservoir. To develop additional information about possible control mechanisms, the Permit requires the Authority to conduct a feasibility assessment of actions and technologies that may be utilized for this purpose before constructing the reservoir, including hypolimnetic oxygenation. The results of this assessment must be considered and incorporated into a Methylmercury Mitigation Plan to be submitted by the Authority. The plan shall identify methylmercury controls and management

[58] In their Reply Brief, the NGO Parties renew their objection to Sites witness Alicia Forsythe's opinion testimony regarding the effectiveness of Mitigation Measure WQ-1.1 because she was not identified as a water quality expert. (2025-06-26 NGO Reply Br., p. 13.) Because we do not rely on Ms. Forsythe's testimony in reaching our conclusions, we do not address this objection further.

measures and require water quality monitoring and data gathering to identify the effectiveness of the measures employed.

The Methylmercury Mitigation Plan shall be developed in consultation with the Central Valley Regional Water Quality Control Board, Office of Environmental Health Hazard Assessment, and the State Water Board, and must be consistent with applicable methylmercury water quality objectives in the ISWBE and the Central Valley Basin Plan. To achieve consistency with water quality objectives, the Plan must include a load allocation for methylmercury discharges from the reservoir to be developed in consultation with the Central Valley Regional Board. If the Authority demonstrates to the satisfaction of the State Water Board's Executive Director that meeting the identified methylmercury load allocation through mitigation measures and operational changes is not within the Authority's reasonable control, then the Authority may take alternative compliance actions as identified in the Plan.

4.4.3 Harmful Algal Blooms

Harmful Algal Blooms (HABs) are a growing and persistent problem throughout California. (Exh. AHO-073, p. 28.) HABs occur when cyanobacteria grow out of control within a waterbody. (*Id.* at p. 24.) Blooms of cyanobacteria physically choke waterways and may release chemical cyanotoxins, impeding beneficial uses and presenting health risks to people and wildlife. (*Ibid*; Exh. BK-1, pp. 71–72, ¶ 167.) Generally, HABs occur in warmer, calm water where there are non-limiting concentrations of dissolved nutrients. (Exh. AHO-073, p. 25.) Some cyanobacteria produce dormant cells that may sink to the lake bottom or stream bed sediment where they can remain viable for extended periods of time. (*Id.* at p. 26.) If environmental conditions are conducive, these cells may germinate, serving as inoculum to seed the cyanobacterial population. (*Ibid.*) The Final EIR includes a detailed summary of current information and knowledge about HABs formation and the fate of resulting cyanotoxins in waterbodies. (*Id.* at pp. 24–28.)

There is currently no regulatory standard for HABs, although the State and Regional Water Quality Control Boards are in the process of developing water quality objectives for cyanotoxins. (Exh. Sites-337c, p. 2, ¶ 4; CIC Tr. Comb., p. 1617:13–18.) Absent water quality objectives, the Reservoir Management Plan (RMP) outlined in the Final

EIR bases its adaptive management triggers on California's Water Quality Monitoring Council's HABs warning levels for recreationalist use of water. (Exh. AHO-108, p. 36.) Each trigger level is characterized by increasing concentrations of cyanobacteria, cyanotoxins, and other site-specific indicators, like algal mats or discoloration. (*Ibid.)* At the "Caution" level, the Water Quality Monitoring Council recommends keeping children away from algae in the water and preventing pets and other animals from going into or drinking the water. *(Id*. at p. 37.) At the "Warning" level, toxins from algae in the water can harm people and kill animals. (*Ibid.*) At the "Danger" level, boating on the water is not recommended. *(Ibid*.) Save California Salmon's expert witness, Jacob Kann, testified that the "Caution" level provides useful protective thresholds for recreation in the reservoir and for downstream waterways. (Exh. SCS-8a, p. 28, ¶ 30.) Even absent a water quality objective or other regulatory standard, the potential impact on human health and beneficial uses of water requires that the Board consider the effect of proposed Project operations on HAB formation as a matter within the public interest and for the protection of public trust resources.

Sites Project operations may contribute to the occurrence of HABs through (1) releases from the reservoir, by supporting conditions for HABs within Sites Reservoir and releasing cyanotoxins and cyanobacteria seedstock of toxin-producing strains that may migrate downstream and develop into HABs, and (2) diversions from the Sacramento River, by reducing flushing flows that might otherwise impede HAB formation and growth downstream.

Cyanobacteria in Sites Reservoir and Reservoir Releases

There is no factual dispute that conditions within Sites Reservoir are likely to result in HAB formation. The Final EIR and the Authority's own expert concluded that nutrient concentrations and water quality conditions in Sites Reservoir during summer and fall, when there are warmer temperatures and reduced reservoir storage volume, will be conducive to the formation and maintenance of HABs. (Exh. AHO-073, pp. 62, 80, 101; Exh. Sites-115c2, pp. 27–28, ¶¶ 71, 74; Exh. Sites-337c, p. 27, ¶ 77; Exh. SCS-8, pp. 15–16, ¶ 14.) If HABs occur near the I/O Tower, reservoir releases through the I/O

Tower may transport cyanotoxins and cyanobacteria seedstock from the reservoir to downstream waterways.

To manage HABs, the Authority intends to take the actions identified in its RMP, as described in Appendix 2D of the Final EIR. (Exh. AHO-108, pp. 32, 36.) Requirements in the RMP will include:

- Visual monthly monitoring for HABs from at least April 1 through October. If toxic cyanobacteria is suspected, the presence or absence will be confirmed with microscopy. Monitoring will increase to weekly if toxic cyanobacteria is confirmed to be present in suspected blooms and further increase in frequency if cell density and cyanotoxin concentrations at any monitored location reaches the "Caution" action trigger level.[59]
- If a bloom is suspected or if sampling confirms that the "Caution" action trigger level has been reached or exceeded, the Authority will post "Caution" advisory signs in visible locations around the reservoir.
- If there are HABs near the I/O tower, water sampling will occur at multiple depths and locations in the vicinity of the tower and downstream, as necessary, to assess cyanobacteria and cyanotoxin concentrations. If cyanobacteria and cyanotoxins are confirmed near the I/O tower at a level at or exceeding the "Caution" action trigger level, reservoir releases will be made from deeper in the reservoir to avoid high concentrations of cyanobacteria and cyanotoxins, with consideration of other water quality objectives (e.g., water temperature for rice).

Appendix 2D states that if HABs become "a consistent problem" near the I/O Tower, the RMP will include "additional measures [that] may be implemented to manage HABs and/or reduce the potential for release of high concentrations of cyanobacteria and cyanotoxins from Sites Reservoir." (Exh. AHO-108, p. 41.) Appendix 2D does not determine specific mitigation measures to be imposed but acknowledges that HABs

[59] The Caution trigger is reached if any of the following criteria are met: (1) total microcystins equal or exceed 0.8 µg/L, (2) cylindrospermopsin equals or exceeds 1 µg/L, (3) Anatoxin-a is detected, (4) the cell density of potential toxin producers equals or exceeds 4,000 cells/mL, or (5) there is discoloration, scrum, algal mats, soupy or paint-like appearances, or suspected illness. (Exh. AHO-108, p. 38.)

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prevention and intervention technology is evolving and states that measures to be considered will include hypolimnetic oxygenation, flocculants, algaecides, and use of a physical barrier. (*Id.* at p. 42.) In managing the depths of reservoir releases to avoid release of poor-quality water, the Authority will be required to consider and balance various water quality factors while meeting the target release temperature of 65° F water for rice-growing. Appendix 2D acknowledges that under certain conditions, such as when reservoir levels are low, "it could be difficult to completely avoid releasing lower-quality water … (e.g., higher metal concentrations from the bottom of the reservoir or HABs from near the surface of the reservoir)." (*Id.* at pp. 49–50.)

The monitoring and management measures in the RMP as described in Appendix 2D of the Final EIR are likely to reduce impacts from cyanobacteria in Sites Reservoir and in water released from Sites Reservoir. The NGO Parties object that although the terms of the RMP may reduce these impacts, the RMP is non-binding. (2025-05-27 NGO Parties Closing Br., p. 49.) Additionally, the RMP does not include standards for the balancing of competing water quality interests in determining the withdrawal elevation of reservoir releases or set clear triggers for responsive actions. (*Ibid.*) To address these concerns, the Permit requires incorporation of the RMP into the Water Quality Portfolio which is binding on the Authority upon the State Water Board's approval. Additionally, and as further described below, if the Authority elects to develop a comprehensive HABs Prevention and Mitigation Strategy (HABs Strategy), that submittal must include clear triggers and thresholds for mitigation actions. Absent an approved HABs Strategy, the Permit prohibits the Authority from releasing water from the reservoir when cyanobacteria or cyanotoxin levels in the released water are the "Caution" level.

In response to the risk that releases from Sites Reservoir may transport cyanobacteria inocula downstream, the Authority asserts that any inocula spread by the release will be diluted during transit and, because the Delta "is already replete with cyanobacteria," these diluted releases are unlikely to be biologically meaningful. (Exh. Sites-337, p. 27, ¶ 77.) The Final EIR similarly concluded that the dilution of cyanobacteria concentrations coupled with the RMP's management actions, would result in less than significant effects on downstream water quality. (Exh. AHO-073, p. 109.) Protestants,

including the NGO Parties, Tribal Parties, and the Delta Parties, challenge the Authority's assertion that releases of cyanobacteria will have no effect on the likelihood of HABs occurrences within the Delta. These Protestants argue that cyanotoxins and cyanobacteria released from Sites Reservoir are likely to persist in Delta waters, increase cyanobacteria inocula in the Delta, and exacerbate drivers of HABs formation. (2025-05-27 NGO Parties Closing Br., p. 49; 2025-05-27 SDWA Closing Br., pp. 27-28; Exh. SCS-8a, pp. 28-29, ¶¶ 30-31; Exh. BK-1, p. 74, ¶ 174.)

We conclude that the effects of dilution and the pre-existing presence of cyanobacteria seedstock within the Delta will not necessarily neutralize impacts of reservoir releases. The conditions for the spread of cyanobacteria and cyanotoxins into the Delta through reservoir releases and factors that stimulate HABs formation are currently poorly understood, and the testimony of the Authority's expert witness on this point lacks robust supporting scientific information.[60] (Exh. Sites-337c, p. 27, ¶ 77.) Further investigation of mitigation technology, additional monitoring, adaptive management, and conditions on reservoir releases, in addition to the provisions of the RMP, are necessary and appropriate to limit the likelihood that Project operations will contribute to HABs or the spread of toxic cyanobacteria.

First, the Permit requires the Authority to investigate, prior to construction of the reservoir, emerging technologies and other management measures that may reduce the occurrences of HABs in the reservoir and the presence of cyanobacteria in reservoir releases. The Authority must prepare, in consultation with the State Water Board and the Central Valley Regional Water Quality Control Board, a feasibility assessment of actions that may be taken prior to construction and technologies that may be installed during and after construction to control cyanobacteria and cyanotoxin production in Sites Reservoir. The Authority is directed to consider pilot programs in evaluating these

[60] Ms. Huber cited a technical report prepared for the Central Valley Regional Water Quality Control Board and the State Water Resources Control Board in 2015 (Exh. BK-6), for the proposition that conditions within the Sacramento River may not be conducive for growth of cyanobacteria. This report does not address the risks posed by spread of inocula within Delta channels.

actions and technologies, which may be conducted in coordination with other existing efforts to develop reservoir management measures to prevent or reduce HABs.

Second, in addition to monitoring within the reservoir as the RMP requires, the Permit requires monitoring for cyanobacteria in receiving waters of releases from Sites Reservoir. This monitoring shall occur in coordination with any existing or future-developed HABs monitoring networks within the same watersheds. The Authority shall assess:

- Whether HABs increased or decreased in duration, frequency, or intensity at any of the monitoring locations;
- Whether detections of cyanobacteria or cyanotoxins occurred, and the timing of these occurrences in relation to diversions under the Permit and HABs drivers such as flow, temperature, or nutrient conditions in the water body where cyanobacteria or cyanotoxins occurred; and
- The varieties of cyanobacteria or cyanotoxins that were detected and whether varieties detected downstream of the reservoir were of the same variety as those occurring in the reservoir.

This information will be used to determine whether Sites Reservoir operations are a contributing factor to downstream HABs formation and, if so, appropriate conditions on reservoir releases to reduce impacts on downstream water bodies.

Third, the Permit provides the Authority an option to adaptively manage HABs-related water quality impacts. We recognize that prevention and mitigation of toxic cyanobacteria within the reservoir and reservoir releases while minimizing impacts on Project yield will require operational flexibility, given the multiple water quality and other factors that the Authority must balance in making releases. To achieve this flexibility, the Permit allows the Authority to develop a HABs Strategy. The HABs Strategy must identify actions and technologies to be applied that will prevent or reduce HABs within the reservoir and reservoir releases; operational changes and other actions to be taken if monitoring indicates the presence or threat of HABs in the reservoir or a threat of release of toxic cyanobacteria from the reservoir; monitoring locations and thresholds that will trigger these operational changes or other actions; and pilot studies or other ongoing feasibility assessments of technology, methods, and actions to prevent or

mitigate the production or release of toxic cyanobacteria. Within the framework of the Strategy, the Authority will have discretion to adaptively manage reservoir releases to achieve water quality objectives and meet water supply demands.

Finally, if the Authority elects not to develop a HABs Strategy, or prior to developing such a Strategy, the Permit prohibits water from being released from Sites Reservoir when toxic cyanobacteria or cyanotoxin in the released water are above the "Caution" level. Although not a regulatory standard, we find the "Caution" level to be an appropriate standard on which to condition releases from Sites Reservoir to avoid potential downstream impacts. The Authority similarly relies on the "Caution" level in its proposed RMP to trigger releases from deeper strata of the reservoir to avoid water with higher concentrations of cyanobacteria that may be harmful to human health or contribute to the spread of cyanobacteria inocula. (Exh. AHO-108, p. 38; Exh. SCS-8a, p. 28 ¶ 30.) If, in the future, the State or a Regional Water Quality Control Board adopts a numeric water quality objective for cyanobacteria or cyanotoxin to protect beneficial uses, that numeric objective will be substituted for the "Caution" level in this term of the Permit.

Impacts from Diversions to Sites Reservoir

Protestants allege that, in addition to potential impacts caused by releases of water from Sites Reservoir, diversions to Sites Reservoir will contribute to downstream conditions supporting the growth of HABs. (2025-05-27 NGO Parties Closing Br., pp. 49–50.) Reduced flows into the Delta generally correspond with increased residence time in Delta channels, increased temperature, and lower turbidity, all of which are known to contribute to HAB formation. (See Exh. BK-6, p. 59.) Dr. Rosenfield testified that diversion of water to Sites Reservoir and the corresponding reduction in winter and spring Sacramento River flows will contribute to the formation of HABs in the Delta. (Exh. BK-1, pp. 71–73, ¶¶ 166, 170–172.) Dr. Rosenfield expressed the opinion that even reductions in high flows may contribute to HABs formation because these flows mix the water column, which impedes bloom formation and growth, and flush stagnant

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channels where HABs are otherwise likely to form. (Exh. BK-1, pp. 72-73, ¶¶ 171–172; 168; Exh. Sites-337c, p. 25, ¶ 72.)

The Authority presented opposing testimony on rebuttal. The Authority's water quality expert, Ms. Huber, opined that diversions to Sites Reservoir would not contribute to HAB formation in the Delta because: (1) diversions to Sites Reservoir will largely occur in winter (from November to March), whereas HABs tend to occur in the late spring, summer, and early fall; (2) Sacramento River flows do not materially contribute to flushing flows in stagnant Delta channels; (3) cyanobacteria seeds persist in the Delta in spite of flushing flows; and (4) decreases in Sacramento River flows from diversions to Sites Reservoir would be a small percentage of total river flow. (Exh. Sites 337c, p. 22, ¶ 66; Exh. AHO-073, pp. 28, 110.)

Although we do not necessarily agree with all of Ms. Huber's points on this issue, she rightly notes that the authorized season of diversion under the Permit excludes summer and fall months when HABs typically occur. Furthermore, Permit conditions to protect flows for fish, such as bypass requirements and Delta outflow requirements, will have the ancillary effect of generally prohibiting diversions when flows and other conditions in the Sacramento River and the Delta are conducive to the growth of HABs. We conclude based on currently available information and current conditions, that Project diversions are unlikely to reduce flows that would otherwise disrupt a HAB occurrence or contribute to conditions that would increase the likelihood of HAB formation. We acknowledge, however, that future changes in climate or other changed conditions may lead to earlier formation of blooms, resulting in more overlap with the HAB growth and the season of diversion under the Permit. (Exh. BK-50, p. 18.)

To address changing circumstances and continuing uncertainty about contributing factors to HAB formation, the Permit requires that the Authority participate in Delta monitoring for cyanobacteria and cyanotoxins. This monitoring data will provide additional information about any association between Project diversions, Delta conditions, and downstream HABs. The Authority must identify as part of its monitoring whether detections of cyanobacteria or cyanotoxins occurred and the timing of these

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occurrences in relation to diversions under the Permit and HABs drivers such as flow, temperature, and nutrient conditions in the water body where cyanobacteria or cyanotoxins occurred. (Permit Term 35.) If an association is demonstrated between diversions and downstream HABs, the Board may revise the terms and conditions for diversion under the Permit pursuant to its general reservation of authority to protect the public interest and public trust resources.

4.4.4 Water Quality Portfolio

The Water Quality Portfolio required by the Permit consolidates the RMP described in Appendix 2D of the Final EIR, and any additional monitoring and management actions relative to temperature, methylmercury, and HABs that are either required by the Permit or submitted pursuant to an optional plan by the Authority. Within the Water Quality Portfolio, the Authority shall describe how it intends to monitor and manage these water quality constituents, and whether the Authority has elected to develop and implement a HABs or Temperature Strategy. To ensure consistency with existing regulatory and monitoring programs, incorporate relevant expertise, and provide a meaningful opportunity for Tribes to comment on impacts and management of Project operations, the Authority must consult with the Central Valley Water Quality Control Board, CDFW, and any California Native American Tribe requesting consultation when developing the Portfolio. (See Exh. SCS-40; discussion, *infra*, at Section 4.3.1.) The State Water Board must approve the initial Portfolio, after notice and opportunity for public comment, prior to the diversion of water to storage in Sites Reservoir. (Permit Term 34.)

The Authority must submit updates to the Water Quality Portfolio at least every five years following initial approval. Updates to the Water Quality Portfolio shall identify actions implemented during the prior five years, the impact of those actions on water quality in waterbodies affected by Project operations, and any proposed changes or additions to actions in the Portfolio. Approval of the Water Quality Portfolio and subsequent updates shall expire six years after their respective approval dates.

In developing the Water Quality Portfolio, we urge the Authority and its Storage Partners to consider the potential benefits of Project operations that minimize the conveyance of water through the Sacramento River. The three primary potential water quality impacts

from operation of the Sites Reservoir Project — temperature, methylmercury, and HABs — arise primarily because water will be released from the reservoir for conveyance in the river. (See discussion, *supra*, at Sections 4.4.1–4.4.3.) By focusing Sites Project operations on local, in-basin deliveries through the Canal System and the Colusa Basin Drain, the Authority might avoid these impacts and corresponding conditions on releases from the reservoir that are necessary to protect the quality of Sacramento River water. (*Id*.) The in-basin deliveries of Sites Project water might be made as part of an exchange for higher quality water stored in Shasta or other North-of-Delta reservoirs for export through the Delta. In so doing, the Sites Project may be able to achieve similar water supply benefits while protecting Sacramento River water quality.

4.5 Tribal Interests

The parties representing Tribes and Tribal interests (Tribal Parties) assert that construction and operation of the Sites Reservoir Project will harm Tribal interests and cultural resources. As the Tribal Parties described, the impacts of the Project will include not only the inundation area of the reservoir and associated infrastructure but will extend through the estuarine habitat of the Delta, and the migratory path of salmonids from the Pacific Ocean to natal spawning grounds. (See 2025-05-27 Tribal Parties Closing Br., p. 5; Exh. FOR-4, p. 11, ¶ 35; Exh. FOR-6, p. 2, ¶ 3; Exh. FOR-304, pp. 4, 9–10, ¶¶ 9, 23–26.) These parties further argue that the Authority's Tribal consultation was inadequate, and therefore insufficient to identify and mitigate harms to Tribes and Tribal interests that are threatened by Project construction and operation. In particular, the Tribal Parties object that, as a credible source of information, Traditional Ecological Knowledge should have been incorporated into the Authority's analysis of impacts. (2025-05-27 Tribal Parties Closing Br., pp. 7, 22–23; Exh. FOR-4, p. 11, ¶ 35.)

This section of the Decision addresses the Tribal Parties' claims regarding the consultation process, consideration of Traditional Ecological Knowledge, portions of Hearing Issue 3.d.i., regarding impacts of the proposed appropriation on Tribal lands, Tribal interests, and Tribal cultural resources, and Hearing Issue 3.d.ii., regarding racial equity and environmental justice. Many of the significant interests the Tribal Parties

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raised are considered elsewhere in this Decision, according to the subject matter, and are addressed with terms and conditions as follows:

Injury to Senior, Federal Reserved Water Rights

See Section 4.2.2.

- The Authority's permit is subject to prior rights, including federal reserved rights. Diversions are prohibited when available supplies are insufficient to satisfy the demands of senior rights, whether or not those senior rights are adjudicated. (Permit Term 26.)
- The Authority is required to develop a groundwater monitoring program to identify whether its diversions are causing or threatening to cause injury to groundwater right holders, including groundwater rights held by Cachil DeHe. (Permit Term 52.)

Water Quality Impacts

See Section 4.4.

- The Authority must develop a Water Quality Portfolio in consultation with Tribes to address harmful algal blooms, methylmercury, and temperature. The Water Quality Portfolio shall contain plans for monitoring and mitigation of water quality impacts in receiving waters such as the Sacramento River and the Delta. (Permit Term 34.)
- The Water Quality Portfolio and associated consultation requires the Authority to take the following actions:
- Conduct a feasibility assessment of actions and technologies, prior to construction, that may be incorporated into the Project to reduce HABs and prevent or mitigate elevated levels of methylmercury within the reservoir and its releases. (Permit Term 32.)
- Conduct a pre-construction survey to identify areas that may have higher concentrations of mercury within the inundation area, and identify actions the Authority will take to address these areas of higher concentration. (Permit Term 33.)
- Monitor for cyanobacteria and cyanotoxins, and conduct associated analysis to determine whether operations are impacting the timing and frequency of HABs in receiving waters. (Permit Term 35.)

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- Cease releases from the reservoir if specified limits on levels of cyanobacteria or cyanotoxins are exceeded. (Permit Terms 36 & 37.)
- Monitor for temperature and take associated actions to ensure that water released from the reservoir to the Sacramento River avoids temperature-related detrimental effects on fisheries. (Permit Terms 40, 41, & 42.)
- Identify limits on levels of methylmercury in reservoir releases, and actions the Authority must take to reduce methylation of mercury within the reservoir to the maximum feasible extent. (Permit Terms 38 & 39.)

Impacts on Tribal Beneficial Uses

See Section 4.3.2. and 4.5.2.

- The State Water Board reserves the authority to amend the Permit when relevant water quality control plans are updated to include water quality objectives and associated implementation plans to protect Tribal Beneficial Uses. (Permit Term 57.)
- The State Water Board reserves the authority to amend the Permit upon receipt of new information demonstrating a reasonable likelihood that operations authorized by this Permit have caused or may cause unreasonable harm to fish, wildlife, or other instream beneficial uses, including tribal beneficial uses, regardless of whether those uses are designated under a relevant water quality control plan. (Permit Term 57.)

Impacts on Fish and Wildlife

See Section 4.3.1.

- The Authority is required to develop operating criteria that will prevent the release of harmful algal blooms into Stone Corral and Funks Creek and ensure sufficient water is allowed to pass into the Creeks to keep in good condition any fish that may be planted or exist below the dams. (Permit Terms 19 & 20.)
- Diversions from the Sacramento River are prohibited unless the pumping plants install fish screens in accordance with CDFW screening criteria. (Permit Term 21.)
- The Authority must operate in compliance with its Incidental Take Permit and the Monitoring, Measurement, and Reporting Plan in the Final EIR. (Permit Terms 22 & 25.)

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In addition to the requirements of the ITP, the following conditions apply to diversions under the Permit:

- Additional bypass flows are required at the Red Bluff POD from January 1 to February 28, specifically for fall-run Chinook salmon;
- Diversions are prohibited during the first seven days of pulse flows meeting certain criteria; and
- Heightened Wilkins Slough bypass criteria apply. (Permit Term 23.)

4.5.1 Tribal Consultation

Assembly Bill No. 52 (2013-2014 Reg. Sess.) (AB 52) establishes government-to-government consultation between agencies and California Native American Tribes as part of the environmental review process mandated by CEQA. Pursuant to the consultation process, a lead agency must engage in meaningful consultation with Tribes that are "traditionally and culturally affiliated with the geographic area of the proposed project." (Pub. Resources Code, § 21080.3.1, subd. (b).) " '[C]onsultation' means the meaningful and timely process of seeking, discussing, and considering carefully the views of others, in a manner that is cognizant of all parties' cultural values and, where feasible, seeking agreement." (Gov. Code, § 65352.4.)[61] Consultation ends when parties agree to mitigate or avoid significant effects on Tribal cultural resources or, after acting in good faith and through reasonable effort, a party concludes that a mutual agreement cannot be reached. (Pub. Resources Code, § 21080.3.2 (b).)

Here, the Authority was the CEQA lead agency. The Authority, therefore, had the obligation to meaningfully consult with Tribes affiliated with the geographic area that would be impacted by the Sites Reservoir Project. The Tribal Parties argue that consultation was inadequate because the Authority failed to include relevant Tribes affiliated with the geographic region beyond the physical footprint of the Project that could be impacted by the Project, and failed to achieve the quality of consultation appropriate to the Tribes' status as sovereign entities. (2025-05-27 Tribal Parties

[61] Public Resources Code section 21080.3.1 (b) states that "'consultation' shall have the same meaning as provided in section 65352.4 of the Government Code."

Closing Br., pp. 11–12, 25-30; Exh. FOR-304, pp. 5–7, ¶¶ 11, 14–16, 19; 2025-06-26 Tribal Parties Reply Br., pp. 8–10.)

According to the Authority's testimony and associated documentation, the Authority consulted with Cachil DeHe and Yocha Dehe Wintun Nation (Yocha Dehe) pursuant to the AB 52 process and engaged in other communications about the proposed project with other Tribes outside the AB 52 consultation process. (Exh. Sites-071c, pp. 20 & 22, ¶¶ 72–73 & 79; see also Exh. Sites-095.) This consultation led to the Authority's coordination with Cachil DeHe and Yocha Dehe as Tribal monitors during geotechnical investigations, and the transfer to the Authority of Yocha Dehe's Treatment Protocol for Handling Human Remains and Cultural Items Affiliated with the Yocha Dehe Wintun Nation. (2025-05-27 Sites Closing Br., p. 55; Exh. AHO-090, p. 11; Exh. Sites-071c, p. 21, ¶ 75.) During consultation, Tribal Parties informed the Authority that Tribal cultural resources will be impacted by Project construction and operations, but due to concerns about confidentiality, did not provide information regarding the specific nature, location, or potential impacts on these resources. (2025-05-27 Sites Closing Br., p. 56; 2025-06-26 Tribal Parties Reply Br., pp. 8–9.)

In addition to CEQA-required consultation, the Authority attempted to establish a long-term strategy to incorporate further coordination with Tribes by convening a Tribal Government Working Group with five Tribes geographically and culturally affiliated with the Project footprint. (2025-05-27 Sites Closing Br., p. 58; Exh. Sites-071c, p. 26, ¶ 89.) The goal was to "create a forum for efficient, effective, and meaningful tribal nation input into the development of the Project." (Exh. Sites-071c, p. 26, ¶ 89; Exh. See also Sites-097, p. 1.) For various reasons, the effort lacked Tribal support. (2025-06-26 Tribal Parties Reply Br., pp. 10–11.)

As stated above, AB 52 imposes on the CEQA lead agency the requirement to consult with Tribes traditionally and culturally affiliated with a project's geographic area. The purpose of the consultation is to assist the lead agency in identifying and assessing the significance of a project's impacts on Tribal cultural resources and evaluating any mitigation measures or alternatives that may reduce those impacts. (Pub. Resources

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Code, § 21080.3.2, subd. (a).) As a responsible agency, the State Water Board must conclusively presume that a certified EIR is adequate, with certain limited exceptions not applicable here. (Cal. Code Regs. tit. 14, § 15231 [CEQA guidelines].) A determination as to the legal adequacy of the consultation the Authority conducted as required by CEQA pursuant to AB 52 is, therefore, not within the scope of this proceeding. We may consider, however, whether the quality of consultation may have impaired consideration of impacts on Tribal cultural resources in the Final EIR, which in turn affects the Board's consideration of whether and under what conditions to approve the proposed appropriation.

The Tribal Parties ask the Board to prohibit construction and operation of the Project until the Authority develops, and the Board approves, a new plan for Tribal consultation and involvement for the full geographic range of potential impacts, and the Authority completes a survey of Tribal cultural resources that will be impacted by construction or inundation within the immediate Project footprint. (2025-05-27 Tribal Parties Closing Br., p. 38.) This Decision does not, however, require a second round of Tribal consultation. Such a term would impose a duplicative consultation requirement in addition to the explicit procedures crafted and adopted by the Legislature. In addition, certain of the Project's impacts on cultural resources within the immediate Project footprint cannot be mitigated and therefore further consultation would not be beneficial to discuss impacts that cannot be mitigated.

The same is not true for consultation regarding impacts on water quality. The Permit requires the Authority to develop a Water Quality Portfolio to address the potential impacts of Project operations related to temperature, methylmercury, and HABs in receiving waters, including the Sacramento River and the Delta. As the Tribal Parties described, Tribal members may contact potentially affected waterways and consume fish from these waterways when engaged in cultural practices or traditional subsistence fishing, and Tribal members have a cultural connection to the health of the ecosystems supported by these waterways. (Exh. FOR-2s, pp. 7–9, 11–12, ¶¶ 18, 20, 24; Exh. FOR-6, pp. 4–5, ¶ 9.) An opportunity for consultation would support the exchange of

additional relevant information and knowledge in the Authority's development of effective mitigation strategies and the Board's evaluation of those strategies. Consultation is also appropriate in recognition of the Tribes' sovereign status and significant interest in the quality of the receiving waters that may be affected. Because cultural resources that may be affected by changes in water quality extend throughout the Sacramento River watershed and the Delta, for this consultation process, the Authority must develop a notification list of Tribes with current or ancestral lands in any county that overlies either the Delta or the Sacramento River watershed. The notification list must also include all Tribes that have requested, in writing, notification of the opportunity to consult and all Tribes that participated as parties in this proceeding.

4.5.2 Tribal Cultural Resources and Racial Equity

Through the hearing process, Tribes, Tribal organizations, and Tribal community members offered evidence of the cultural significance of the resources contained within the Project impact area, including the Sacramento River watershed upstream and downstream of the PODs, and through the Delta. (See Exh. FOR-2s; Exh. FOR-4; Exh. FOR-6; Exh. FOR-8.) In their closing brief, the Tribal Parties identify impacts on salmon, water quality, Tribal Beneficial Uses, and federal reserved water rights, as matters of significant concern. (2025-05-27 Tribal Parties Closing Br., pp. 12–13, 16–18, 20–21.) As identified above, these matters are addressed in the relevant sections of this Decision. The Tribal Parties also assert impacts on ancestral lands and culturally significant plants and seek consideration of Traditional Ecological Knowledge in the identification and mitigation of impacts, which we address here. (2025-05-27 Tribal Parties Closing Br., pp. 7, 22–23.) Finally, the Tribal Parties assert that approval of the proposed appropriation would hinder racial equity and environmental justice goals. (2025-05-27 Tribal Parties Closing Br., pp. 33–34.)

California Tribes historically occupied the lands that would be inundated by Sites Reservoir, and multiple Tribes consider the larger area that would be impacted by the

Project to be ancestral homelands. (Exh. King-14, pp. 22, 30-31; Exh. FOR-4, p. 3, ¶ 4; Exh. FOR-6, pp. 2–3, ¶¶ 4–5.) Cachil DeHe's ancestral homelands are within the Sacramento Basin. (Exh. SCS-3, at pp. 10-11, ¶¶ 30–32; Exh. FOR-8, p. 2, ¶ 2; Exh.

King-2, p. 3.) Shingle Springs Band of Miwok Indians (Shingle Springs Band) had major village sites along the Sacramento River and greater Delta waterways. (Exh. FOR-330, pp. 5–6, ¶ 8.) The Shingle Springs Band now owns lands that once held the ancestral village site of Wallok in Verona, California, at the confluence of the Feather and Sacramento Rivers. (*Id.* at p. 6, ¶ 9.) The traditional homeland of the Winnemem Wintu Tribe covers the upper Sacramento River watershed and the McCloud River watershed. (Exh. FOR-4, pp. 2–3, ¶¶ 3–4.) As described in testimony, the cultural practices of these and other Tribes "cannot occur without healthy river ecosystems, which include the land, plants, animals, and fish that the tribe has incorporated into its culture and traditions since time immemorial." (2025-05-27 Tribal Parties Closing Br., p. 19; see also Exh. FOR-6, p. 7, ¶ 16; Exh. FOR-330, pp. 6–7, ¶¶ 10–12.)

As identified in the Final EIR, Project construction and inundation of the lands within the reservoir will permanently impact certain Tribal cultural resources. (Exh. AHO-090, pp. 4, 6, 21 [impacts under Alternative 3].) Some of these impacts cannot be mitigated. To the extent that specific impacts from construction activities can be avoided or mitigated, those measures are required by the Mitigation, Monitoring, and Reporting Program in the Final EIR, and are incorporated as a condition of the Permit. (Exh. Sites-075, see Permit Attachment 3.) For construction activities, the Authority must include Tribal monitors to observe all ground-disturbing activities and identify, avoid, and protect Tribal cultural resources and any found human remains in accordance with resource-specific treatment plans and burial treatment plans developed in consultation with Tribes. (Exh. AHO-090, pp. 21–23.)

In addition to the culturally significant ecological resources addressed elsewhere in this Decision such as fish and terrestrial species (See discussion, *supra*, at Section 4.3), riparian plants such as tule reeds are essential to many Tribal cultural practices, including boat building, basket weaving, and making of regalia, as well as other cultural purposes. (2025-05-27 Tribal Parties Closing Br., p. 23; Exh. FOR-6, pp. 4–5 ¶ 9; Exh. FOR-330, p. 13, ¶ 25; Exh. AHO-090, p. 7.) The Tribal Parties assert that changes in Sacramento River flows caused by Project diversions will harm existing riparian plant life and prevent reestablishment of culturally significant riparian plants, such as tule, that

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were historically prevalent. (2025-05-27 Tribal Parties Closing Br., p. 23.; Exh. FOR-6, pp. 4–5, ¶ 9; Exh. FOR-330, pp. 13–14, ¶¶ 25–26; Exh. FOR-2s, pp. 11–12, ¶ 24.) There is no specific evidence in the record as to the relationship between particular flow levels and growth or abundance of tule in the Sacramento River or the Delta. However, the Permit's site-specific bypass flow requirements, pulse flow protections, and Delta outflow bypass requirements, will reduce impacts on flows from Project diversions, and as an ancillary matter, help to protect flows — including pulse flow events — to support riparian plant life. In addition, the Board reserves the authority to amend the Permit and its terms to better protect instream beneficial uses, including Tribal uses, and public trust resources, and to incorporate water quality objectives or implementation plans to protect designated Tribal Beneficial Uses as relevant water quality control plans are updated.

The Tribal Parties object that the Authority failed to consider Traditional Ecological Knowledge in identifying and assessing impacts of the Project in the Final EIR. (2025-05-27 Tribal Parties Closing Br., pp. 22–23; see Exh. FOR-330.) Traditional Ecological Knowledge is an "evolving knowledge acquired by Indigenous Peoples through direct contact and experience with the environment since time immemorial." (Exh. FOR-330, pp. 1–2.) This Board recognizes Traditional Ecological Knowledge as a valuable, scientific knowledge system. Testimony based on Traditional Ecological Knowledge may be admitted as relevant evidence and relied upon in adjudicative proceedings before the State Water Board and the Administrative Hearings Office. The State Water Board has also passed resolutions recognizing Traditional Ecological Knowledge to be consistent with best available scientific information and directing agency staff to incorporate

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Traditional Ecological Knowledge where feasible. (State Water Board Resolution Nos. 2021-0050, p. 8; 2023-0028, p. 4; 2023-0044, p. 2; 2024-0036, p. 9.[62]) Similarly, we support the application of Traditional Ecological Knowledge in the development of plans required by this Decision and to inform the Board's consideration of approval of these plans, and any future amendments to the Permit pursuant to the Board's reservations of authority.

Finally, Hearing Issue 3.d.ii. asks whether the proposed appropriation would advance racial equity and environmental justice as part of the Board's consideration of whether approval of the proposed appropriation would be in the public interest. The Board has resolved to make racial equity, diversity, inclusion, and environmental justice central to its work so the outcomes influenced by Board decisions are not determined by a person's race and the benefits are shared equitably by all people. (State Water Board Resolution No. 2021-0050 [Exh. SCS-86], p. 7.) This consideration is an essential part of the Board's duty to ensure that approval of an application to appropriate water is in the public interest. (*Id.* at pp. 2–4; Wat. Code, §§ 1253, 1255.) Protestants argue that approval of the Authority's water right application would violate the commitments the Board has made to racial equity and environmental justice in its decision-making. (2025-05-27 Tribal Parties Closing Br., p. 34; 2025-05-27 NGO Parties Closing Br., pp. 16 & 62.)

The Final EIR identifies impacts on Tribal cultural resources through disturbance and inundation of lands within the footprint of the reservoir that cannot be fully mitigated. A water infrastructure project of this magnitude will, however, cause some unavoidable impacts from land disturbance. There is no evidence here that a modified location for the proposed reservoir or associated infrastructure, or other changes in reservoir construction or mitigation measures could avoid these potential impacts. In support of approval of the proposed appropriation, there is significant evidence that changes in

[62] Copies of State Water Board resolutions, decisions, and orders cited in this Decision are saved as a courtesy in a subfolder in the administrative record for this proceeding. Some parties have also introduced copies of certain resolutions as exhibits, and for ease of reference, we have cited those exhibit numbers as well.

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climate and resulting impacts on the water supplies of the state support the development of additional supplies through diversion and storage of high flows, if appropriately conditioned. (See, e.g., Exh. Sites-067, pp. 4, 6, 8–9; Exh. Sites-088; Exh. Sites-090, pp. 153–155.)

The Tribal Parties also assert that additional consultation is necessary to achieve racial equity and call on the State Water Board to impose additional measures to require meaningful consultation, even if AB 52 consultation requirements were legally satisfied. (2025-05-27 Tribal Parties Closing Br., pp. 31–32.) As discussed above, we conclude that it would be inappropriate for this Board to require a second consultation process that parallels the requirements of AB 52, in conflict with the Legislature's judgment as to the specific procedures and obligations for public agency consultation with Tribes. This Decision does, however, require the Authority to meaningfully consult with Tribes about potential water quality impacts from Project operations, to incorporate Traditional Ecological Knowledge and other input that may be offered through the consultation process in the development of strategies to mitigate or avoid these impacts.

With the conditions in the Permit that acknowledge the senior priority of federally reserved rights, limit diversions for the benefit of fish and other aquatic life, require Tribal consultation to develop effective strategies to maintain water quality, require compliance with mitigation measures in the Monitoring, Measurement, and Reporting Plan, reserve authority to amend Permit terms as necessary to avoid harms to fish and wildlife, and other instream beneficial uses, including Tribal uses, and reserve authority to amend Permit terms as necessary to protect Tribal Beneficial Uses as they may be designated and implemented in relevant water quality control plans, we conclude that this approval is consistent with the goals identified in the Board's Racial Equity Resolution and Action Plan, and is in the public interest.

4.6 Public Interest

Water Code section 1253 requires the Board to impose those terms and conditions necessary to "develop, conserve, and utilize" water in the public interest. Commensurately, Water Code section 1255 requires the Board to reject an application

to appropriate water when, “in its judgement the proposed appropriation would not best conserve the public interest.” (Wat. Code, §§ 1253; 1255.) The Board’s obligation to consider the public interest is foundational to the Board’s water rights authority. "[In] the field of acquisition of rights to the use of water . . . the State Water Rights Board is the guardian of the public interest.” (Decision 935, p. 63.)

Certain factors relevant to the Board’s consideration of the public interest are laid out explicitly in statute. Water Code section 1256 requires the Board to consider any general or coordinated plan prepared and published by the Department of Water Resources for the management of water resources in the State, such as the California Water Plan. (Wat. Code § 1256.) Water Code section 1257 mandates the Board consider the relative benefit derived from all beneficial uses of water, such as those uses specified in relevant water quality control plans. (*Id.*, § 1257.) Additionally, Water Code section 1259 requires the Board to “consider the state goal of providing a decent home and suitable living environment for every Californian.” (*Id*., § 1259.)

In addition to these specific statutory mandates, in determining the public interest, the Board will look to “any guidelines which the Legislature has provided.” (Decision 1379, p. 26; see Decision 935, p. 59 [“Applicable criteria for our guidance are found in various statutory provisions”].) Previous Board Decisions have determined that the “most comprehensive expression of policy for the guidance of this board in determining the public interest is the [California] Environmental Quality Act of 1970 [CEQA].” (Decision 1379, pp. 26–27.) The Board has additionally found useful the general statements of policy in the Water Code, such as sections 100 through 113, and the specific statutory provisions relating to a particular project or project area. (Decision 935, p. 64 [discussing Water Code provisions relating to the Central Valley Project]; Decision 1379, pp. 27–28 [discussing Water Code provisions related to the Delta].) These directives from the Legislature include the policy of the state that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. (Wat. Code, § 106.3.)

Those elements of the public interest raised by the parties and not discussed elsewhere are addressed in this section of the Decision. The Board’s finds that approval of the

appropriation is in the public interest. This finding is consistent with the 2023 California Water Plan and gives due consideration of the relative benefit to be derived from all beneficial uses of the water sought to be appropriated. (Exh. Sites-090, p. 155; Wat. Code, §§ 1256 & 1257.)

Overall, we conclude that the terms and conditions imposed herein are necessary to best develop, conserve, and utilize the appropriated water in the public interest, and that issuance of the Permit with those terms and conditions is consistent with the public interest in the development of the water resources of the state.

Greenhouse Gas Emissions (GHG)

The Protestants assert that Project operations will result in significant greenhouse gas (GHG) emissions that are underestimated in the Final EIR.

Construction and operation of a new reservoir can introduce a wide range of GHG emissions into the atmosphere. The sources of these emissions include construction-related activities, maintenance-related activities, energy required for water conveyance, decay of organic matter on the land prior to flooding, and biological productivity, or trophic status, of the reservoir after filling. (Exh. AHO-088, pp. 5–9; Exh. FOR-251, pp. 20 & 31.)

The Final EIR applies a formula developed by the Intergovernmental Panel on Climate Change (IPCC) to estimate the reservoir's potential GHG emissions. The IPCC is a recognized global authority on methodologies to estimate GHG inventories. (CIC Tr. Comb., pp. 3306; 4218-4220.) Experts from both the Authority and the Protestants rely in their testimony on the IPCC's 2019 refinements to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Specifically, these experts rely on portions of the guidelines that address estimates of GHG emissions from wetlands and land converted to flooded land. (Exh. FOR-317, pp. 2–3 ¶ 3; Exh. AHO-223, p. 1–3.)

The IPCC's formula for estimating GHG emissions from flooded land includes an alpha variable, representing the trophic level of the reservoir, that increases as the biological

productivity of the water body increases.[63] In general, low alpha (α) values correlate with bodies of water with low nutrients and organic matter, while high alpha (α) values correlate to warm bodies of water with high levels of nutrient loads, plant growth, and algae. (2025-05-27 NGO Parties Closing Br., pp. 55–56; Exh. FOR-317, pp. 3–5; Exh. FOR-251, p. 15.) The higher the alpha value, the higher the level of GHG emissions. The default alpha value utilized in the formula is 1.0. (CIC Tr. Comb., pp. 3338:18–20 & 3470:8–12; Exh. FOR-317, pp. 3–4.) The Final EIR utilizes the default alpha value to estimate GHG emissions from Sites Reservoir. (Exh. AHO-223, p. 9.) As the Authority explained, this default value was used because "it is not possible to know the anticipated trophic level of Sites Reservoir." (2025-06-26 Sites Reply Br., p. 44; CIC Tr. Comb., pp. 3473:6–3474:15.)

Mitigation Measure GHG-1.1 requires the Authority to develop a GHG reduction plan to reduce GHG emissions resulting from construction and operation of the Project to net zero. (Exh. Sites-075, pp. 57–65; Exh. AHO-088, pp. 17–26.) The GHG reduction plan is to be developed and implemented in 5-year increments. The plan must identify specific GHG reduction measures that will be implemented and include quantification of the expected reductions that will be achieved by each measure. Consistent with the plan, the Authority may reanalyze GHG emissions from Project operations to update the required reduction commitment to achieve net zero. This analysis must use latest available engineering data for the Project and be performed using approved emissions models and methods available at the time of that analysis. (Exh. AHO-088, p. 19.) The Authority asserts that Mitigation Measure GHG-1.1 addresses any risk that the Final EIR underestimated GHG emissions because, "regardless of the ultimate GHG

[63] This formula is: $F_{CH4res} = \alpha\ (EF_{CH4\ age\ \leq 20,j} * A_{tot\ j.})$. In this formula, ($F_{CH4res}$) is the annual reservoir surface emissions of methane as methane per year, (α) is the alpha variable emissions factor adjustment for trophic state in reservoir, ($EF_{CH4\ age\ \leq 20,j}$) is the emissions factor for methane emitted from a reservoir's surface for a reservoir less than or equal to 20 years old, (A_{tot}) is the total area of the reservoir, and (j) is a climate zone. (Exh. AHO-223, p. 9; Exh. FOR-251, p. 25.)

emissions levels, the Authority must meet the net-zero emissions standard." (2025-05-27 Sites Closing Br., p. 79; Exh. AHO-88, pp. 17–26.)

The Protestants argue that (1) the Authority significantly underestimates GHG emissions from construction and operation of Sites Reservoir, and (2) Mitigation Measure GHG-1.1 fails to require the Authority to re-analyze its emissions to ensure that the goal of net zero emissions is achieved.

On rebuttal, Friends of the River expert witness Mark Easter testified that the Authority's use of the default alpha value is inappropriate. (Exh. FOR-317, p. 7, ¶ 10.) The 2019 IPCC refinement states that trophic status is generally determined using total phosphorus or concentrations of chlorophyll *a*, which is a measure of the concentration of algae in water. (Exh. FOR-251, p. 31; Exh. FOR-317, p. 3, fn. 2; Exh. AHO-073, p.15.) The Final EIR found that the mean total phosphorous concentrations within the Sacramento River at the two PODs was 40 to 70 µg/L, which the 2019 IPCC refinement correlates to an alpha value of 5.3 to 14.5. (Exh. AHO-073, p. 13; Exh. FOR-251, p. 15.) The Final EIR also found, and the Authority does not dispute, that the reservoir will be conducive to HABs formation and growth of invasive and noninvasive aquatic plants. (Exh. AHO-073, pp. 62 & 80.) The Protestants claim that based on these two factors, the trophic status of Sites Reservoir will be hypereutrophic with an alpha value of up to 39.4, substantially higher than the default alpha value of 1.0. (2025-05-27 NGO Parties Closing Br., pp. 51–52; Exh. FOR-251, p. 15; Exh. FOR-317, pp. 4–5, ¶ 5.) Mr. Easter acknowledges that there is considerable uncertainty in evaluating biogeochemical emissions of greenhouse gases from ecosystems. But the information in the Final EIR supports use of an alpha (α) value with an uncertainty ranging between 5.3 to 39.4. (Exh. FOR-317, p.11, ¶ 20.) This alpha (α) value would result in an estimate of GHG emissions from the reservoir that is approximately 5 to 40 times higher than as estimated by the Authority. (2025-05-27 NGO Parties Closing Br., pp. 54–55; Exh. FOR-251, p. 15; Exh. FOR-317, pp. 7–8, ¶ 11.)

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The NGO Parties also challenge the Authority's assertion that Mitigation Measure GHG-1.1 requires the Project to achieve net zero emissions. Mitigation Measure GHG-1.1 states:

> Although the emissions provided in this analysis could be used to inform the required mitigation commitment, the methods used to quantify emissions are conservative. This analysis does not account for any GHG reduction measures that may be implemented by the Authority pursuant to this measure. Accordingly, this EIR likely overestimates actual GHG emissions that would be generated by the Project. *The Authority may therefore reanalyze GHG emissions for construction and/or operation of the Project to update the required reduction commitment to achieve net zero.*
>
> (Exh. AHO-088, p. 19 [emphasis added].)

The Authority's expert described this measure as providing "an *opportunity* for the Authority to reevaluate what the emissions are. However, they could also use the emissions as established in the EIR/EIS document." (CIC Tr. Comb., p. 3351:15-19 [emphasis added]; 2025-05-27 NGO Parties Closing Br., p. 57.) The Protestants object that the mitigation measure does not require the Authority to revise its GHG emission estimates based on updated data reflecting actual conditions in the reservoir. Rather, the Authority has the option to reevaluate emissions, or it may opt to continue to rely on the estimates in the Final EIR using an alpha value of 1.0 to quantify the Project's net-zero target.

The Protestants presented substantial evidence that actual reservoir conditions may support an alpha value significantly higher than the 1.0 default value assumed in the Final EIR's estimate of GHG emissions. To ensure that the Authority measures GHG emissions using current methods and data rather than relying on estimates using the default IPCC alpha value, the Permit requires the Applicant to update its accounting of GHG emissions every 5 years using best available science. Requiring reanalysis based on updated data is consistent with the structure of Mitigation Measure GHG-1.1, which allows for reanalysis every 5 years. (Exh. AHO-088, pp. 17–26.) Because the Authority's use of the 1.0 default value may underestimate the Project's GHG emissions, we find that it is in the public interest and consistent with Authority's stated net-zero goal to

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require updated GHG accounting as new information becomes available to produce a more accurate estimate.

Financial Feasibility

The economic viability or financial feasibility of a project is one element that the Board has considered in determining whether a project is in the public interest. The Board has denied or conditioned applications for projects where applicants have been unable to demonstrate adequate financing, a market for the water sought, or contracts for water or power to be supplied by the project. (See State Water Board Decision 984 (1960), p. 13; State Water Board Decision 958 (1960), pp. 8–9; State Water Board Decision 1588(1982), pp. 25–26.)

For example, in Decision 958 the Board denied an application to appropriate water for power generation because the applicant could not demonstrate that the project was financially feasible. (Decision 958, pp. 8–9.) There, the applicant admitted that he was unable to obtain financing for the project and lacked contracts with any specific buyers to sell the power that the project was intended to develop. (*Id*. at p. 4.) Instead, the applicant speculated that electricity produced by the project could be solely based on generalized increases in demand for electricity in Southern California. (*Id*. at pp. 4–5.) In analyzing the application, the Board noted that an applicant is "not required to establish with certainty that his undertaking will be successful," but must offer a reasonable basis to find that the project will proceed promptly and diligently. (*Id*. at p. 7.) The Board found the application contrary to the public interest because the applicant had no contract to sell the power to be generated and failed to introduce any evidence on which the Board could find that the applicant would be able to finance, construct, or operate the project. (*Id*. at p. 9.)

Similarly, in Decision 984, the Board found that the applicant's proposed hydroelectric project was financially infeasible. (Decision 984, p. 13.) There, the applicant was unable to show that any entity had made commitments to purchase the power to be generated by the project. (*Id*. at p. 8.) The Board also found that the "economics of the proposed project baffle analysis," because the applicant "had no cash," "cannot attract investors

for profit," and expected "certain unnamed wealthy men to donate the substantial sums necessary for this venture." (*Id*. at pp. 9–11.) Based on this and other evidence, the Board concluded that it would not be in the public interest to approve an appropriation for a project of such questionable feasibility. (*Id*. at pp. 13–14.)

These cases demonstrate that, when analyzing the financial and economic feasibility of a proposed project, the Board looks to whether there are reasonable assurances that there will be adequate funding for development of the project with due diligence and that the water diverted for the project will be put to beneficial use.

Protestants argue that, without disclosing the cost of Project water, the Board "cannot conclude the Project will be affordable" and in the public interest. (2025-06-26 NGO Reply Br., p. 18.) The Authority does not dispute that affordability is "a key issue for participants." (CIC Tr. Comb., p. 109:16–17.) In 2020, the Authority developed a Value Planning Document because the project design at that time resulted in estimated unit costs for water "exceeding the ability of several participants to pay." (Exh. Sites-039, pp. 7-8 ¶ 17.) The Value Planning Document resulted in a redesigned and a "significantly less expensive project," that reduced the Project cost repayment to an estimated $600 per acre-foot in 2020 dollars. (Exh. Sites-045, p.27; Exh. Sites-215, p. 12.) This per acre-foot estimate was based on an estimated project cost of $3.4 billion in 2019 dollars. (Exh. Sites-045, p. 27.) In 2024, Jerry Brown, the Authority's Executive Director, estimated that Sites Water would cost about $850 per acre-foot in 2021 dollars, with an additional cost of $450 per acre-foot for transportation south of the Delta. (Exh. FOR-365, pp. 8-9, ¶ 14; Exh. FOR-367, p. 11.) This revised estimate was based on an estimated project cost of $3.9 billion.

The Protestants estimate that the cost of project water has increased since Mr. Brown's estimate due to increasing project costs and reduction in yield from limitations on diversion imposed by the ITP. (Exh. FOR-365, pp. 8-9, ¶¶ 14 & 17.) Based in part on project costs of $4.8 billion as of 2023, Protestants estimate that the cost of Project water per acre-foot will be $1,600 for north of the Delta participants and $1,900 for south of the Delta participants. (2025-05-27 NGO Parties Closing Br., p. 24; Exh. FOR-

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365, p. 8, ¶ 14.) This estimate also incorporates results of the Authority's Historical WAA Tool which show that, after imposing the ITP diversion criteria, annual average potential diversion volume of the Project is 84 percent of annual average potential diversion volume without the ITP criteria. (2025-05-27 NGO Parties Closing Br., p. 24; Exh. Sites-334-R, p. 7.) In 2025, after Closing Briefs were submitted, Protestants introduced evidence that the Authority estimates that Project costs will increase from $4.8 billion to $6.2 to $6.8 billion. (Exh. BK-136, p. 2; Exh. BK-137, p. 9, Exh., Exh. BK-138, p. 15.) Protestants emphasize that this potential $1.6 to $2.0 billion increase in total project cost will further raise the cost of water per-acre foot.

The Authority does not directly dispute these estimates. Rather, the Authority counters that a determination of affordability and economic viability should be made by the Storage Partners. (2025-05-27 Sites Closing Br., p. 79.) The Authority relies on the 2023 Draft Plan of Finance to demonstrate that Storage Partners have expressed a willingness to pay for Project water. (2025-05-27 Sites Closing Br., p. 79; Exh. Sites-219, pp. 4–7.) In addition to the current list of Storage Partners, the Authority points to the "waiting list" of entities that have expressed an interest in buying into or increasing their share of storage space in the reservoir. (2025-06-26 Sites Reply Br., pp. 50–51; Exh. Sites-219, pp. 1–2; Exh. Sites-044.) The Authority asserts that Protestants have failed to offer any evidence that a cost of $1,600 to $1,900 per acre-foot would be unaffordable for Project members. (2025-05-27 Sites Reply Br., p. 51.)

We expect that individual Storage Partners will appropriately consider the costs and impact to ratepayers when deciding whether to participate in the Project, and reach a determination based on their particularized demands, expected growth, water supply alternatives, and existing water supply portfolios. There is ample evidence that Storage Partners are particularly willing to strategically incorporate Project water into their water supply portfolios for use during dry and critical water years, and that Project water will be more affordable than some alternatives these entities are considering. (Exh. Sites-417, p. 3 ¶ 8; Exh. Sites-419 pp. 3–4, ¶¶ 6–8; Exh. SWC-1, pp. 9–10, ¶¶ 29–30.) In addition, the Authority has been conditionally awarded $875 million in State funding under the Water Storage Investment Program for the public benefits of the Project.

(Exh. Sites-039, p. 7, ¶ 16; Exh. Sites-163.) Unlike the circumstances presented in prior Board Decisions where applicants failed to identify a single willing contractor for water or power, nor any reasonable likelihood of investment in the project, here, the Authority has identified willing Storage Partners to account for 100 percent of the Project yield. Therefore, we conclude that the Authority has sufficiently demonstrated that the Project will be developed and water placed to beneficial use.

Efficiency of Water Use

The Board "is charged with acting to prevent unreasonable and wasteful uses of water." (*Light v. State Water Resources Control Bd.* (2014) 226 Cal.App.4th 1463, 1482, as modified on denial of reh'g (July 11, 2014); *California Farm Bureau Federation v. State Water Resources Control Bd.* (2011) 51 Cal.4th 421, 429, as modified (Apr. 20, 2011); Cal. Const. Art. X sec. 2; Wat. Code, § 100.) What is a reasonable use of water is "a question of fact to be determined according to the circumstances in each particular case." (*Joslin v. Marin Municipal Water Dist.* (1967) 67 Cal.2d 132, 139, as modified on denial of reh'g (Sept. 21, 1967).) Water used for a beneficial purpose must still be used reasonably. (*Bring Back the Kern v. City of Bakersfield* (2025) 110 Cal.App.5th 322, 347.) And, even if a use is reasonable when water is present "in excess of all needs," it may be unreasonable "in an area of great scarcity and need." (*Tulare Irr. Dist. v. Lindsay-Strathmore Irr. Dist.* (1935) 3 Cal.2d 489, 567.)

In determining the reasonable use of water, the Board has considered, in the context of the particular circumstances, the efficiency of certain uses of water. A failure to implement water conservation measures can constitute an unreasonable use of water. (*Light, supra*, 226 Cal.App.4th at p. 1486; State Water Board Decision 1600 (1984), p. 74.) Based on the evidence before us, however, we do not find that the intended uses for Project water would be wasteful or unreasonable.

The NGO Parties assert that the Board should restrict water deliveries to entities who have not implemented certain conservation measures. (2025-06-26 NGO Reply Br. p. 11; 2025-05-27 NGO Closing Br., p. 13.) For agricultural uses, the NGO Parties argue that water users should be required to reduce wind drift, evaporative losses, canopy

interception losses, and soil evaporation. These parties present evidence that more efficient systems, such as drip irrigation, could be used to avoid these inefficiencies. (Exh. WCT-003, pp. 5–10.) Additionally, the NGO Parties claim that there are measures to reduce irrigation that would correspondingly reduce crop transpiration without marginal impact to crop yield. (*Id.* at p. 10.) These measures include practices such as deficit irrigation, choice of crops that require less irrigation, and idling or fallowing land. (*Id*. at p. 6.)

The Authority's experts respond that efficient irrigation techniques are already widely implemented, and efficient water use is heavily incentivized through water pricing structures. (Exh. Sites-415, pp. 3–4, ¶ 7; Exh. Sites-417, p. 2, ¶¶ 3–5; Exh. Sites-419, p. 7, ¶ 16.)

While the NGO Parties may propose more efficient ways for Storage Partners to apply water to beneficial use, reasonable use does not require use of water as efficiently as possible regardless of cost or impacts on the intended use. (See Decision 1600, pp. 75–76 [requiring practical measures to limit waste of water, such as repairing defective infrastructure and reducing spills from canals, without mandating the most efficient forms of irrigation].) Identifying the most efficient method of water use for a purpose such as irrigation is also a complex determination and will vary throughout the state.

Moreover, Board action on this water right application, through which the Board can only condition the applicant, is ill-suited to regulating efficiency for each Storage Partner and user of Project water. (2025-05-27 NGO Reply Br., p. 11.) In 2024, the Board adopted regulations to require more efficient water use in the urban water sector. (Cal. Code Regs., tit. 23, §§ 965–978.) Those regulations set tailored water supply targets for over 400 water suppliers serving 95 percent of the state's population. (Exh. AHO-345, p. 12.) Each water supply target took into consideration factors such as regional evapotranspiration rates and population densities and allowed for numerous variances to account for unique situations. In contrast to those complex regulations which set clear targets and timelines, the NGO Parties ask the Board to condition deliveries of Project water to Storage Partners on the condition that each partner meet generalized efficiency

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goals. Even if the Board were inclined to use a broad brush to require efficiency in this way, this proceeding is not the appropriate forum for achieving those efficiency goals.

While we will not at this time condition deliveries of Project water on implementation of particular conservation measures or achievement of specific efficiency goals, California's Constitution prohibits the waste and unreasonable use of water. The Authority, therefore, is responsible for ensuring that all water diverted under the Permit is put to reasonable beneficial use, and the Board will retain ongoing authority to address any specific allegations of unreasonable or wasteful water use under the Authority's Permit in the future.

4.7 Beneficial Uses and Purposes of Use

Beneficial Uses

Beneficial use is a fundamental measure of a water right. (Wat. Code, § 1240.) California's Constitution mandates that the right to appropriate water "shall be limited to such water as shall be reasonably required for the beneficial use to be served." (Cal. Const., art. X, § 2; *see also*, Wat. Code, § 100.) The requirement that water be put to beneficial use is an "overriding constitutional limit." (*United States v. State Water Resources Control Bd.* (1986) 182 Cal.App.3d 82, 105.) The Board cannot approve an application to appropriate water without first determining that the water sought to be appropriated will be applied to beneficial use. (*Central Delta Water Agency v. State Water Resources Control Bd.* (2004) 124 Cal.App.4th 245, 260, as modified on denial of reh'g *(Dec. 16, 2004)*; see also State Water Board Decision 1121 (1963), p. 9 [both diversion and beneficial use are necessary ingredients of a valid appropriation].)

In its application, the Authority provided a list of 24 current Storage Partners and descriptions of how those partners will beneficially use Project water. (Exh. AHO-028.) Storage Partners are governmental entities and public agencies with established beneficial uses. (Exh. AHO-005, pp. 9–26.) Investment in the Project provides Storage Partners with the opportunity to improve the reliability of their water supplies and satisfy current and future demands in their service areas. (*Id*. at p. 9.) The proposed beneficial uses of the Project include: domestic, irrigation, municipal, industrial, recreational, fish

and wildlife preservation and enhancement, and water quality. (2025-05-27 Sites Closing Br., p. 76; Exh. AHO-005, pp. 9–33.) Together, these planned uses account for 100 percent of the expected yield of the Project. (*Id*. at p. 37.) The Authority also identified eleven entities that are on a wait list to become Storage Partners, and two current Storage Partners that have requested an increase in their current allocation of storage space in Sites Reservoir. (*Id*. at pp. 26–33.)

The list of Storage Partners could change. On August 27, 2024, Jerry Brown testified that the current Storage Partners and their participation levels were not yet finalized, and the Authority is "expecting these numbers to change and for these commitments to occur within the next 24 months." (CIC Tr. Comb., p. 52:18-20; Exh. AHO-005, p. 9.) According to Mr. Brown's testimony, upon an approval by the Board of the Authority's water right application, the Authority will offer a "Sites Reservoir capacity interest" to the listed Storage Partners and provide them six months to complete their individual actions and execute agreements. (Exh. Sites-039, p. 12.) During that six-month period, it is possible that "existing Storage Partners may ultimately choose to not invest in the Project or may decide to increase or decrease their investment in Sites Reservoir prior to Project financing." (Exh. AHO-005, p. 9.) Although the Authority has also provided a "wait list" of Storage Partners should any on the current list fail to finalize their agreements, there is still some uncertainty as to which agencies will ultimately use the water and for which specific beneficial uses. (Exh. AHO-005, p. 2; Exh. Sites-044.) We also recognize that the conditions imposed by this Decision on conveyance of Project Water through the Sacramento River to protect water quality may limit deliveries to Storage Partners south of the Delta, and a corresponding increase in exchanges or deliveries to Storage Partners within the Sacramento Valley. Regardless of whether any of the current Storage Partners are replaced by an entity on the waiting list, or whether the current allocations to the Storage Partners are adjusted, the record supports the conclusion that the Storage Partners will use the water sought to be appropriated for established beneficial uses.

Term 54 of the Permit addresses the possibility that the Storage Partners and their proportional interests in the Project will change after permit issuance. To ensure that the

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amount of water authorized for appropriation under the Permit remains limited to that reasonable amount that will be put to beneficial use, the Permit requires the Authority to submit a report to the Deputy Director depicting changes, if any, to Storage Partners, purposes of use, and percent interest in reservoir storage space. Should the Deputy Director determine based on the report that the Authority proposes to make a material change to the intended recipients of Project water and their established beneficial uses as described in the Authority's application, such as by adding a new Storage Partner that was not on the wait list at the time of this Decision, then the Board must decide whether the change is consistent with its original findings as to the intended beneficial use of water authorized for appropriation under the Permit. This requirement is not intended to require re-examination of changes in allocations among the existing Storage Partners or minor changes that would result in similar amounts of water being applied to the same beneficial uses. Rather, it is intended to ensure that the Board's finding that water will be put to beneficial use, which is based on the information in the Authority's application, is consistent with the actual beneficial uses of Project water.

Purposes of Use

This Decision generally approves the purposes of use and places of use the Authority proposed in its water right application, with the following limited clarifications. The Authority did not include stockwatering or frost protection as purposes of use in its application but proposed the uses as incidental. (Exh. AHO-001, p. 18; Exh. Sites-071c, p. 11, ¶ 44.) The Authority described these uses as incidental to irrigation because water delivered to irrigators may be used for stockwatering and frost protection. (Exh. AHO-001, p. 18.) These uses are not incidental to irrigation but are independent purposes of use that may occur following delivery. The Authority has clearly stated its intent to deliver water for use for these purposes. We clarify this issue by including stockwatering and frost protection as authorized purposes of use under the Permit instead of incidental uses.

Similarly, the Authority proposes fish and wildlife preservation and enhancement, aquaculture, and water quality as incidental purposes of use because of potential benefits associated with downstream deliveries of water from Sites Reservoir. (*Ibid*.)

Aquaculture use is defined as the use of water for raising fish or other organisms for commercial purposes or large-scale private uses. (Cal. Code Regs. tit. 23, § 667.) The Authority has not proposed or described this use other than to list aquaculture as an incidental purpose of use. Therefore, incidental aquaculture is not included as a purpose of use in the Permit. Further, potential associated benefits of project operations are not purposes of use, and do not require authorization through inclusion in the Permit. Therefore, incidental fish and wildlife preservation and enhancement and water quality are not included as incidental purposes of use in the Permit. The application also describes an instream place of use for these incidental purposes of use. (Exh. AHO-001, pp. 20–21.) The instream place of use associated with the above incidental uses is not included in the Permit.

4.8 Rights of Access

The Board's regulations provide that an applicant who will need to occupy property or use existing works owned by others to divert and use water under a proposed appropriation must either obtain the consent of the owner or provide "evidence of the applicant's ability through condemnation proceedings or otherwise to secure the necessary right of access before the application will be approved." (Cal. Code Regs., tit. 23, § 775.) At the time it submitted its water right application, the Authority did not have any agreements for use of the existing diversion and conveyance facilities to be utilized by the Project, nor did the authority own any land necessary for construction of the Project. (Exh. Sites-012, p. 2, ¶ 4.) The Authority will need to acquire title to roughly 15,000 acres of land as well as permanent and temporary easements in Colusa, Glenn, and Yolo County to construct and operate the Project. (*Id*. at p. 2, ¶ 6.) Project operations will also require the Authority to acquire rights to use existing facilities local agencies and Reclamation own. (Exh. Sites-102, pp. 9–10, ¶¶ 20–24.) These facilities, referred to as Partner Facilities, include fish screens, pump stations, canals, and regulating reservoirs, which will be used to convey water into and out of Sites Reservoir. (*Ibid.*)

Although the Authority has not yet acquired the land and easements necessary to construct and operate the Project, its joint powers agreement authorizes the Authority to

do so, including through the exercise of eminent domain power. (Exh. Sites-012, p. 2, ¶ 4; Exh. Sites-014, p. 3, § 2.3.4.) During the hearing, the Authority offered testimony indicating that it had begun negotiations to acquire various properties necessary for the construction of project facilities and anticipates more intensive efforts to acquire necessary property — either through negotiations or the exercise of its eminent domain power — beginning in 2026. (Exh. Sites-012, pp. 2–3, ¶¶ 6-10; see also Exh. Sites-015.) The Authority has also negotiated framework agreements with various local agencies that govern the development of final Facilities Use Agreements for use of shared project facilities. (Exh. Sites-102, pp. 9–11, ¶¶ 21–24 [discussing Cooperative Agreements between the Authority, Tehama Colusa Canal Authority, Glen-Colusa Irrigation District, and Reclamation District No. 108].) The local agencies with whom the Authority has negotiated these framework agreements are also Authority member agencies under the Authority's joint powers agreement. (Exh. Sites-014, p. 1.)

The Authority is negotiating agreements with Reclamation for the use of the Tehama-Colusa Canal system infrastructure, which may take the form of a Warren Act contract or similar conveyance agreement for non-CVP water. (Exh. Sites-102, p. 10, ¶ 23.) To export water from the Delta using the CVP and SWP pumping facilities, the Authority proposes to reach a three-party operations agreement between the Authority, DWR, and Reclamation, that would govern coordinated operations of the Project in conjunction with the SWP and CVP operations and facilities. (Exh. AHO-71, pp. 8–9, tbl. 4-2.) Although Reclamation has not yet made a final decision about whether it will participate in the Sites Reservoir Project, Congress has authorized it to do so under the WIIN Act and Reclamation has indicated that it supports approval of the Authority's application. (2025-05-27 Reclamation Closing Br., pp. 2:9-20 & 4:4-5.) DWR also supports approval of the Authority's water right application. (2025-05-27 DWR Closing Br., p. 2:1–12.) No party has submitted evidence to suggest that the Authority will not be able to acquire the approvals necessary for the Project's use of CVP and SWP facilities from Reclamation and DWR.

Based on its eminent domain power, the framework agreements executed between the Authority and its partner agencies, and Reclamation and DWR's support for the water

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right application, we find that the Authority has demonstrated that it can—and is likely to—acquire rights of access to the land and facilities necessary to construct and operate the Project. (See Cal. Code Regs., tit. 23, § 775.)

5. CEQA FINDINGS

Before approving a project, a responsible agency must make findings under CEQA Guidelines sections 15091 and 15093, as applicable. (Cal. Code of Regs., tit. 14, § 15096, subd. (h).)

Section 15091 requires a responsible agency to make one of the following findings for every significant environmental effect of the project that is within the agency's purview: (1) changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the final EIR; (2) such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding or (3) specific economic, legal, social, technological, or other considerations make infeasible the mitigation measures or project alternatives identified in the final EIR. (Cal. Code of Regs., tit. 14, § 15091, subd. (a).)

If approval of the project will cause an unmitigable significant impact, section 15093 requires the approving agency to make a statement of overriding considerations before approving the project. A responsible agency's role in considering alternatives and mitigation measures is limited to only the direct or indirect environmental effects of those parts of the project it decides to carry out, finance, or approve. (Cal. Code of Regs., tit. 14, § 15096, subd. (g)(1).)

The Project will have some significant but mitigable impacts. (Exh. AHO-067 [summary of impacts and mitigation measures from Final EIR].) As described in the Final EIR, these impacts are primarily related to disturbance of vegetation and wetland resources, fish and wildlife, and greenhouse gas emissions. (Exh. AHO-067, pp. 4, 7–14, 23.)

To the extent these significant potential impacts are within the State Water Board's purview, the Board has responsibility to avoid or mitigate those impacts to the extent

feasible. Therefore, the Board incorporates as a condition of the Permit the mitigation measures in the Mitigation Monitoring and Reporting Program for the Project and additional permit terms discussed elsewhere in this Decision. (Exh. Sites-075; see Permit Attachment 3 [mitigation measures that reduce these impacts to less than significant].)

Pursuant to section 15091, subdivision (a)(3), the State Water Board has reviewed the Project alternatives described in the EIR and finds these alternatives would have the same impact as the Project or would not attain some of the Project objectives. Therefore, the alternatives identified in the Final EIR are not feasible.

The Project will have some significant and unavoidable impacts. As described in the Final EIR, these impacts are primarily related to water quality, vegetation and wetland resources, wildlife, paleontological resources and unique geologic features, agricultural resources, established communities, air quality, cultural resources, Tribal cultural resources, and visual resources. (Exh. AHO-067, pp. 1, 4, 7, 11, 16–18, 21–25.) Approval of Sites Project Authority's Application will make possible the capture and storage of a substantial volume of high-quality water to improve water resiliency throughout the State and address impacts of climate change, among other benefits. (Exh. AHO-001, pp. 12–13.) Changes in climate and resulting impacts on the water supplies of the state support the development of additional supplies through diversion and storage of high flows. (See, e.g., Exh. Sites-067, pp.4, 6, 8–9; Exh. Sites-088; Exh. Sites-090, pp. 153–155.) For these reasons, reasons articulated elsewhere in this Decision, and reasons identified in the Final EIR (Exh. Sites-073, pp. 29–36; Exh. Sites-073,) the State Water Board finds the benefits of the Project override potentially significant impacts that will not be eliminated or substantially lessened by the conditions in this Decision and Permit 21487.

6. CONCLUSION

For the reasons discussed herein, Application 25517X01 of the Sites Project Authority is approved, excepting any appropriation of water from Funks or Stone Corral Creeks, subject to terms and conditions specified in the Permit. The petition for assignment of

State-filed Application 25517 is denied. The petitions for release from priority of State-filed Applications 25513, 25514, 25517, 22235, 23780, and 23781, in favor of water right Application 25517X01, are denied, without prejudice. Due to the denial of assignment of State-filed Application 25517, the application filed by the Authority is renumbered as Application 33534.

ORDER

IT IS HEREBY ORDERED THAT Application 33534 is approved with terms and conditions. The Division shall issue Permit 21487, with any necessary minor modifications, to Sites Project Authority.

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Attachment A: Official Notice Documents

The State Water Board may take official notice of such acts as may be judicially noted by courts of this state. (Cal. Code of Regs., tit. 23, § 648.2.) The Board takes official notice of the following documents for the following reasons:

1. AHO-336, State Water Resources Control Board, Draft Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Watershed (July 2025).
    - The courts may take official notice of the "[o]fficial acts of the legislative, executive, and judicial departments of the United States and of any state of the United States." (Evid. Code, § 452, subd. (c).)

2. AHO-337, State Water Resources Control Board, Draft Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Watershed (December 2025).
    - The courts may take official notice of the "[o]fficial acts of the legislative, executive, and judicial departments of the United States and of any state of the United States." (Evid. Code, § 452, subd. (c).)

3. AHO-338, December 2025 Revised Draft Staff Report Chapter 13.
    - The courts may take official notice of "[f]acts and propositions that are not reasonably subject to dispute and are capable of immediate and accurate determination by resort to sources of reasonably indisputable accuracy." (Evid. Code, § 452, subd. (h).)

4. AHO-339, U.S. Fish and Wildlife Service, Biological and Conference Opinion for the Sites Reservoir Project (July 16, 2025).
    - The courts may take official notice of the "[o]fficial acts of the legislative, executive, and judicial departments of the United States and of any state of the United States." (Evid. Code, § 452, subd. (c).)

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5. AHO-340, The Sites Project Authority and US Bureau of Reclamation, Sites Reservoir Project Draft Environmental Impact Report/ Draft Environmental Impact Statement, (Aug. 2017).
    - The courts may take official notice of the "[o]fficial acts of the legislative, executive, and judicial departments of the United States and of any state of the United States." (Evid. Code, § 452, subd. (c).)

6. AHO-341, 2018 Bay Delta WQCP.
    - The courts may take official notice of the "[o]fficial acts of the legislative, executive, and judicial departments of the United States and of any state of the United States." (Evid. Code, § 452, subd. (c).)

7. AHO-342, ISWBE Tribal and Subsistence Fishing Beneficial Uses and Mercury Provisions.
    - The courts may take official notice of the "[o]fficial acts of the legislative, executive, and judicial departments of the United States and of any state of the United States." (Evid. Code, § 452, subd. (c).)

8. AHO-343, 2025-Federal Register Vol. 90.
    - The courts may take official notice of the "[o]fficial acts of the legislative, executive, and judicial departments of the United States and of any state of the United States." (Evid. Code, § 452, subd. (c).)
    - The courts may take official notice of "[f]acts and propositions that are not reasonably subject to dispute and are capable of immediate and accurate determination by resort to sources of reasonably indisputable accuracy." (Evid. Code, § 452, subd. (h).)

9. AHO-344, Sites Project Authority, Water Storage Investment Program Quarterly Report (Jan. 27, 2026).
    - The courts may take official notice of "[f]acts and propositions that are not reasonably subject to dispute and are capable of immediate and accurate determination by resort to sources of reasonably indisputable accuracy." (Evid. Code, § 452, subd. (h).)

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10. AHO-345, Assessing Early Implementation of Urban Water Use Efficiency Requirements, (Jan. 4, 2025).
    - The courts may take official notice of the "[o]fficial acts of the legislative, executive, and judicial departments of the United States and of any state of the United States." (Evid. Code, § 452, subd. (c).)

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