STATE OF CALIFORNIA
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
STATE WATER RESOURCES CONTROL BOARD

In the Matter of Specified License and Permits[1] of the Department of Water Resources and U.S. Bureau of Reclamation for the State Water Project and Central Valley Project

ORDER APPROVING TEMPORARY URGENCY CHANGES TO WATER RIGHT LICENSE AND PERMIT TERMS RELATING TO DELTA WATER QUALITY OBJECTIVES

BY THE EXECUTIVE DIRECTOR:

1.0 OVERVIEW

This Order acts on a Temporary Urgency Change Petition (TUCP) submitted by the U.S. Bureau of Reclamation (Reclamation) and Department of Water Resources (DWR) (collectively referred to as Petitioners) requesting to suspend water right permit and license[2] requirements of the Central Valley Project (CVP) and State Water Project (SWP) (collectively, Projects) during February and March of 2023 that would otherwise necessitate that the Projects meet the Port Chicago Delta outflow requirements included in Table 4 of State Water Resources Control Board (State Water Board) Decision 1641 (D-1641). The D-1641 Delta outflow requirements vary based on hydrologic conditions with higher requirements applying based on wetter conditions the prior month that are intended to protect an array of estuarine species. The Port Chicago Delta outflow requirements are specifically intended to provide for some population growth of native estuarine species during wetter conditions. The Port Chicago Delta outflow requirement was triggered based on very wet conditions in January 2023. The Petitioners request the reduction in Delta outflows to allow for additional water

[1]The petition was filed for Permits 16478, 16479, 16481, 16482 and 16483 (Applications 5630, 14443, 14445A, 17512 and 17514A, respectively) of the Department of Water Resources' State Water Project and License 1986 (Application 23) and Permits 11315, 11316, 11885, 11886, 11887, 11967, 11968, 11969, 11970, 11971, 11972, 11973, 12364, 12721, 12722, 12723, 12725, 12726, 12727, 12860, 15735, 16597, 16600, and 20245 (Applications 13370, 13371, 234, 1465, 5638, 5628, 15374, 15375, 15376, 16767, 16768, 17374, 17376, 5626, 9363, 9364, 9366, 9367, 9368, 15764, 22316, 14858A, 19304, and 14858B, respectively) of the United States Bureau of Reclamation's Central Valley Project.

[2]X2 and an electrical conductivity (EC) value of 2.64 millimhos per centimeter (mmhos/cm) are referenced interchangeably in this Order. As stated in D-1641, "X2 is the location of the 2 parts per thousand salinity contour (isohaline), one meter off the bottom of the estuary, as measured in kilometers upstream from the Golden Gate Bridge. The abundance of several estuarine species has been correlated with X2. In the 1995 Bay-Delta Plan, an electrical conductivity value of 2.64 mmhos/cm is used to represent the X2 location." (D-1641, p. 10, fn. 11.)

diversions during higher runoff conditions triggered by wet conditions in January, in order to maintain and expand water supplies given prolonged drought and uncertain climatic conditions. This order conditionally approves the requested changes.

2.0 INTRODUCTION

After the driest three-year period on record, California experienced an extremely wet December and January as a result of a series of atmospheric rivers that began in late December. In January 2023, the state experienced one of the wettest three-week periods on record, yielding a snowpack that was at 205 percent of average on February 1, 2023. The beginning of February has been relatively dry and is expected to continue to be relatively dry for the next 10 days, with the exception of a modest storm event. While hydrologic conditions have improved in water year (WY) 2023 to date, it is possible that the remainder of the winter and spring will be dry reducing opportunities to divert water for human uses and promote water supply resiliency.

On April 21, 2021, Governor Newsom issued an emergency drought proclamation for the Russian River watershed and directed state agencies to take immediate action to bolster drought resilience and prepare for impacts on communities, businesses, and ecosystems. On May 10, 2021, Governor Newsom extended the drought state of emergency to include 41 counties, including the Delta watershed (collectively "Proclaimed Drought Counties"), due to warm temperatures and extremely dry soils resulting in a historic and unanticipated depletion of runoff from the Sierra-Cascade snowpack. On July 8, 2021, Governor Newsom increased the number of Proclaimed Drought Counties to 50 and on October 19, 2021, extended it to all remaining counties so that the drought state of emergency went into effect statewide. This was followed, on March 28, 2022, by Executive Order N-7-22 calling for greater water conservation, efficiency, and other actions to increase drought resiliency, including increased enforcement.

On February 13, 2023, Governor Newsom issued Executive Order N-3-23 stating that "to protect public health and safety, it is critical the State take certain immediate actions without undue delay to prepare for and mitigate the effects of the drought condition" and finding that under Government Code section 8571 "strict compliance with various statutes and regulations specified in [the] Order would prevent, hinder, or delay the mitigation of the effects of the drought conditions." Specifically, Governor Newsom issued Directive 3, withdrawing Directive 4 of the previous Emergency Proclamations and replacing it with the following text:

"To ensure adequate water supplies for purposes of health, safety, the environment, or drought resilient water supplies, the Water Board shall consider modifying requirements for reservoir releases or diversion limitations in Central Valley Project or State Water Project facilities to: (i) conserve water upstream later in the year in order to protect cold water pools for salmon and steelhead, (ii) enhance instream conditions for fish and wildlife, (iii) improve water quality, (iv) protect carry-over storage, (v) ensure minimum health and safety water supplies, or (vi) provide opportunities to maintain or to expand water supplies north and south of the Delta. The Water Board shall require monitoring and evaluation of any such changes to inform future actions. For any actions taken pursuant to this paragraph and any approvals granted in furtherance of this paragraph, Water Code Section 13247 and Public

Resources Code, Division 13 (commencing with Section 21000) and regulations adopted pursuant to that Division are suspended. Nothing in this Paragraph affects or limits the validity of actions already taken or ongoing under Paragraph 4 of my May 10, 2021 Proclamation or Paragraph 4 of my July 8, 2021 Proclamation."

On the same day, Petitioners jointly filed the TUCP that is the subject of this Order citing to the Governor's Executive Order N-3-23 and the need to build "water resilience amid climate-driven extreme weather."[3]

On February 14, 2023, the State Water Board issued a public notice of the TUCP, which established February 23, 2023, as the deadline for any objections.[4] Petitioners subsequently published the notice in newspapers having general circulation and within the counties wherein the points of diversion for the subject water rights lie.

This Order approves, subject to conditions, temporary suspension from the date of this Order through March 31, 2023, of the Port Chicago Delta outflow requirement specified in Table 4 of D-1641, which requires a specified number of days when a maximum daily average electrical conductivity (EC) level of 2.64 mmhos/cm (also referred to as X2) must be achieved based on the prior month's Eight River Index.[5] Pursuant to footnote [d] of Table 4, the requirement only applies in months when the average EC at Port Chicago during the 14 days immediately prior to the first day of the month is less than or equal to 2.64 mmhos/cm. Pursuant to footnote [a] of Table 4, the requirement for the number of days when the maximum daily average EC of 2.64 mmhos/cm must be maintained can also be satisfied by meeting a maximum 14-day running average EC of 2.64 mmhos/cm, or 3-day running average Net Delta Outflow Index (NDOI)[6] of 29,200 cubic feet per second (cfs).

This Order acknowledges that the Port Chicago Delta outflow requirement for April could be affected by the above change to the Port Chicago requirement for March due to footnote [d] of Table 4. To avoid unintended changes to April requirements, this Order includes a condition requiring the Port Chicago requirement for April to be determined assuming the changes authorized in this Order are not in effect during March and DWR and Reclamation complied with the requirement.

Unless renewed, changes approved as part of a TUCP request may remain in effect for up to 180 days. The changes approved by this order will be effective until March 31, 2023. The terms and conditions of approval of the TUCP will remain in effect until compliance is completed.

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[3] Attachment 1. Supplement to February through March 2023 Temporary Urgency Change, p. 1-7.

[4] The State Water Board will promptly consider all objections or comments received and may modify this order accordingly based on those objections or comments.

[5] The Eight River Index refers to the sum of the unimpaired runoff as published in the DWR Bulletin 120 for the following locations: Sacramento River flow at Bend Bridge, near Red Bluff; Feather River, total inflow to Oroville Reservoir; Yuba River flow at Smartville; American River, total inflow to Folsom Reservoir; Stanislaus River, total inflow to New Melones Reservoir; Tuolumne River, total inflow to Don Pedro Reservoir; Merced River, total inflow to Exchequer Reservoir; and San Joaquin River, total inflow to Millerton Lake.

[6] NDOI is defined in Figure 3 of D-1641.

Directive 3 of the of the Governor's Executive Order N-3-23 also requires that modifications to reservoir releases or diversion limitations be monitored and evaluated to inform future actions. The terms and conditions included in this Order are intended to comply with this requirement and to support the findings required by the Water Code for approval of a TUCP. This Order requires consultations on real-time operations with the State Water Board and fisheries agencies; monitoring, modeling, and other evaluations of the effects of the changes on native fish species; maintenance and of salinity gages and quality control of salinity data; accounting of the changes in Delta outflows, exports, reservoir storage, and related conditions resulting from the TUCP; evaluation of opportunities to use a portion of the water supplies resulting from the change for environmental purposes; compliance with the Interim Operations Plan submitted to and approved by the Court (see below for additional information); and compliance by Reclamation with the Sacramento River Temperature Management Plan as approved by the Executive Director. Finally, this Order contains provisions for continuing authority to modify the Order based on comments, objections, changed conditions, or new information.

To approve a TUCP, the State Water Board or its Executive Director, acting under delegated authority, must find (1) that there is an urgent need for the proposed changes, (2) that the changes will not injure any legal user of water, (3) that the changes will not result in unreasonable effects to fish and wildlife, and (4) that the changes are in the public interest. In addition, the State Water Board must protect public trust resources to the extent feasible and in the public interest.

According to the Petitioners, there is an urgent need for the proposed change as extreme weather conditions are "a new reality that challenges DWR and Reclamation's ability to balance Project operations while storing as much water as possible," the "proposed change would provide clear storage benefits south of the Delta and also have the potential to provide storage benefits north of the Delta," and "[m]aintaining water storage is critical should the recent dry conditions continue." (TUCP, Attachment 1, p. 1-9.)

Petitioners also state that this Order will not injure any lawful user of water because the Projects will be able to store water while maintaining significantly better than required standards for agricultural, municipal, and industrial uses in the Delta. (TUCP, Attachment 1, p. 1-11.)

The Petitioners state that the potential impacts of the changes on fish and wildlife are not unreasonable and are in the public interest. In determining whether the impacts of a change on fish and wildlife would be unreasonable, and whether the impacts to public trust resources would be in the public interest, the impacts of the change must be weighed against the benefits of the change to all beneficial uses, and the public interest. As described further below, the change would have the potential to result in negative effects on estuarine and migratory fish species and their habitat relative to conditions without the change by potentially delaying recovery of native species following several years of drought impacts, including changes to Delta outflows. For several estuarine species specifically, there is a strong statistically significant and enduring relationship between Delta outflows in the winter and

spring and abundance indices of those species. Improved conditions that occurred in January may offset to some extent impacts from reduced flows in February and March for some species. However, the exact effects are uncertain, particularly given several preceding years of drought. The Petitioners' modeling indicates that this change will increase water supplies by several hundred thousand acre-feet following several years of drought and limited water supplies, providing economic benefits to California's agricultural industry and improving water supplies to municipalities, including areas affected by reduced water supplies from the Colorado River.

For the foregoing reasons, and as explained in more detail below, the impacts to fish and wildlife and public trust resources from this change are not considered to be unreasonable, or contrary to the public interest, taking into consideration human uses for water.

3.0 BACKGROUND

3.1 Bay-Delta Plan and D-1641

The State Water Board's Water Quality Control Plan for the San Francisco Bay-Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan) establishes water quality objectives for the reasonable protection of beneficial uses of water in the watershed, including fish and wildlife, agricultural, and municipal and industrial uses. With the exception of the San Joaquin River flow and southern Delta salinity objectives approved in 2018, the water quality objectives included in the Bay-Delta Plan are the product of the Bay-Delta Accord, a voluntary agreement that was approved through a rigorous and extensive public process. During that process, the State Water Board considered and balanced multiple beneficial uses of water under different hydrologic conditions.

The Bay-Delta Plan includes various flow dependent water quality objectives, including salinity, river flows, and Delta outflows, as well as operational constraints on the Projects. The Bay-Delta Plan objectives were adopted to protect fish and wildlife populations living in or migrating through the watershed and to prevent water in the Delta from becoming too salty to be diverted or exported from the Delta for municipal, industrial, and agricultural uses. Water Year Type indices are used in the Bay-Delta Plan to coarsely adjust to California's variable hydrology by indexing the numeric value and time period of each flow and water quality objective to water year type (wet, above normal, below normal, dry, and critically dry). Higher flows and lower salinity levels are required in wet years and less stringent requirements for flows and salinity apply during drier years. Some of the water quality objectives also include additional relaxations in extreme dry conditions.

As the result of additional agreements that Petitioners reached regarding implementation of the 1995 Bay-Delta Plan, the State Water Board implements most of the Bay-Delta Plan flow and water quality objectives through conditions in the Projects' water right permits and license, which specify that the Projects must operate to meet flow and salinity objectives and other requirements. Specifically, D-1641 places responsibility on the Petitioners to achieve the water quality objectives specified in Tables 1, 2, 3 and 4 of the 1995 Bay-Delta Plan, as well as satisfying other requirements. The flow and water quality requirements established by the State Water Board in D-1641 are summarized in the tables and figures contained in Attachment 1 to this Order: Table 1 (Municipal and Industrial Beneficial Uses), Table 2

(Agricultural Beneficial Uses), Table 3 (Fish and Wildlife Beneficial Uses) and Table 4 (Number of Days When X2 Must Be Maintained at Chipps Island and Port Chicago). Included in Attachment 1 are footnotes to Table 3 that refer to definitions and other requirements contained in Figure 1 (Sacramento Valley Water Year Hydrologic Classification), Figure 2 (San Joaquin Valley Water Year Hydrologic Classification), Figure 3 (Formulas for NDOI and Percent Inflow Diverted), and Table 4).

Since adoption of D-1641, native and migratory fish populations have declined substantially. Several of these species of fish are listed as threatened or endangered under the California Endangered Species Act (CESA), the federal Endangered Species Act (ESA), or both, including Delta smelt, longfin smelt, green sturgeon, Central Valley steelhead (steelhead), winter-run Chinook salmon (winter-run) and spring-run Chinook salmon (spring-run). Fall-run Chinook salmon are not listed under CESA or ESA, but are a Species of Special Concern due to significant population declines over time. Fall-run Chinook salmon are critical to commercial and recreational fishing interests, as well as Tribal interests. Abundance of longfin and Delta smelt are at such low levels they are difficult to detect in the estuary, survival of juvenile salmonids and returns of spawning adults are chronically low, and risks of extirpation for multiple fish species are high.

The State Water Board is currently in the process of revising the Bay-Delta Plan and implementing those revisions for the reasonable protection of fish and wildlife and agriculture uses as discussed further below. As part of those processes, the State Water Board is also reevaluating the responsibilities for meeting Bay-Delta Plan objectives.

3.1.1 The Port Chicago Requirement and Delta Outflow

In the Delta, freshwater outflow (Delta outflow) repels saline water towards the Golden Gate Bridge. As Delta outflow increases, it increases the spatial extent of suitable habitat for various Delta species.[7] For longfin smelt, Sacramento splittail, starry flounder, and *Crangon franciscorum*, abundance indices show significant positive relationships with Delta outflow in the winter and spring months. Additionally, Delta inflows and outflows affect migration patterns and survival of both estuarine and anadromous species and the availability of habitat. Freshwater flow is an important cue for upstream migration of adult salmon and steelhead and is a factor in the survival of smolts moving downstream through the Delta. Freshwater inflow also has chemical and biological consequences through its effects on loading of nutrients and organic matter, pollutant concentrations, and residence time. The Delta outflow objectives include requirements for calculated minimum net flows from the Delta to Suisun and San Francisco Bays (or NDOI) and maximum salinity requirements, measured as EC. Since salinity in the Bay-Delta system is closely related to freshwater outflows, both types of objectives are indicators of the extent and location of low salinity estuarine habitat or the low salinity zone (LSZ). Listed in Table 3 of the Bay-Delta Plan and D-1641, the Delta outflow

[7] Kimmerer, W. J., MacWilliams, M. L., & Gross, E. S. (2013). Variation of fish habitat and extent of the low-salinity zone with freshwater flow in the San Francisco Estuary. *San Francisco Estuary and Watershed Science*, *11*(4).

objectives vary by month and water year type. The basic outflow objective sets minimum outflow requirements that apply year-round.

The Delta outflow objectives included in the Bay-Delta Plan and D-1641 for the February through June time frame are identified in Table 3, including footnote 10, and Table 4 of D-1641. These outflow requirements can be met through either meeting a daily or 14 day running average EC level or a 3-day running average Net Delta Outflow Index or NDOI, that provides flexibility to reduce the water supply costs of the requirements. Pursuant to footnote 10, the minimum daily NDOI during February through June is 7,100 cfs calculated as a 3-day running average. This requirement may also be met by achieving either a daily average or 14-day running average EC of less than or equal to 2.64 mmhos/cm (X2) at the Collinsville station (station C2). Increased Delta outflow objectives are also contained in Table 4, which requires maintaining X2 on a daily or 14 day running average at more westward stations of Chipps Island and Port Chicago for a certain number of days or by meeting 3-day running average NDOI levels of 11,400 and 29,200 cfs respectively based on the previous month's Eight River Index. To reduce the water supply costs, the X2 standard for Port Chicago is only required when the average EC at Port Chicago during the 14 days immediately prior to the first day of the month is less than or equal to 2.64 mmhos/cm (see Table 4, footnote [d]). The Port Chicago and Chipps Island X2 requirements contained in Table 4 were adopted to benefit Delta species and support positive population growth when hydrologic conditions would naturally support increased Delta outflow.

For January 2023, the Eight River Index was 6,380 thousand acre-feet (TAF) requiring 28 Chipps Island days and 27 Port Chicago days during February. Based on the 90 percent exceedance for the February 1 Water Supply Index (WSI), the Eight River Index for March is projected to be 2,389 TAF, which would require X2 to be met for at least 27 days at Chipps Island and five days at Port Chicago. If conditions are wetter, more days would be required, and if conditions are drier, fewer days would be required.

3.2 Current Hydrology and Water Supply Forecast

3.2.1 Hydrology

As of February 21, 2023, the Northern Sierra 8-Station Precipitation Index was at 39.1 inches, 116 percent of average for the date (Figure 1) following large storm events in December and January; the San Joaquin 5-Station Precipitation Index was 35.2 inches, 142 percent of average for the date (Figure 2). For context, the annual averages of cumulative precipitation for water year during 1991-2020 were 53.2 and 39.9 inches for the Northern Sierra 8-Station and San Joaquin 5-Station indices, respectively.

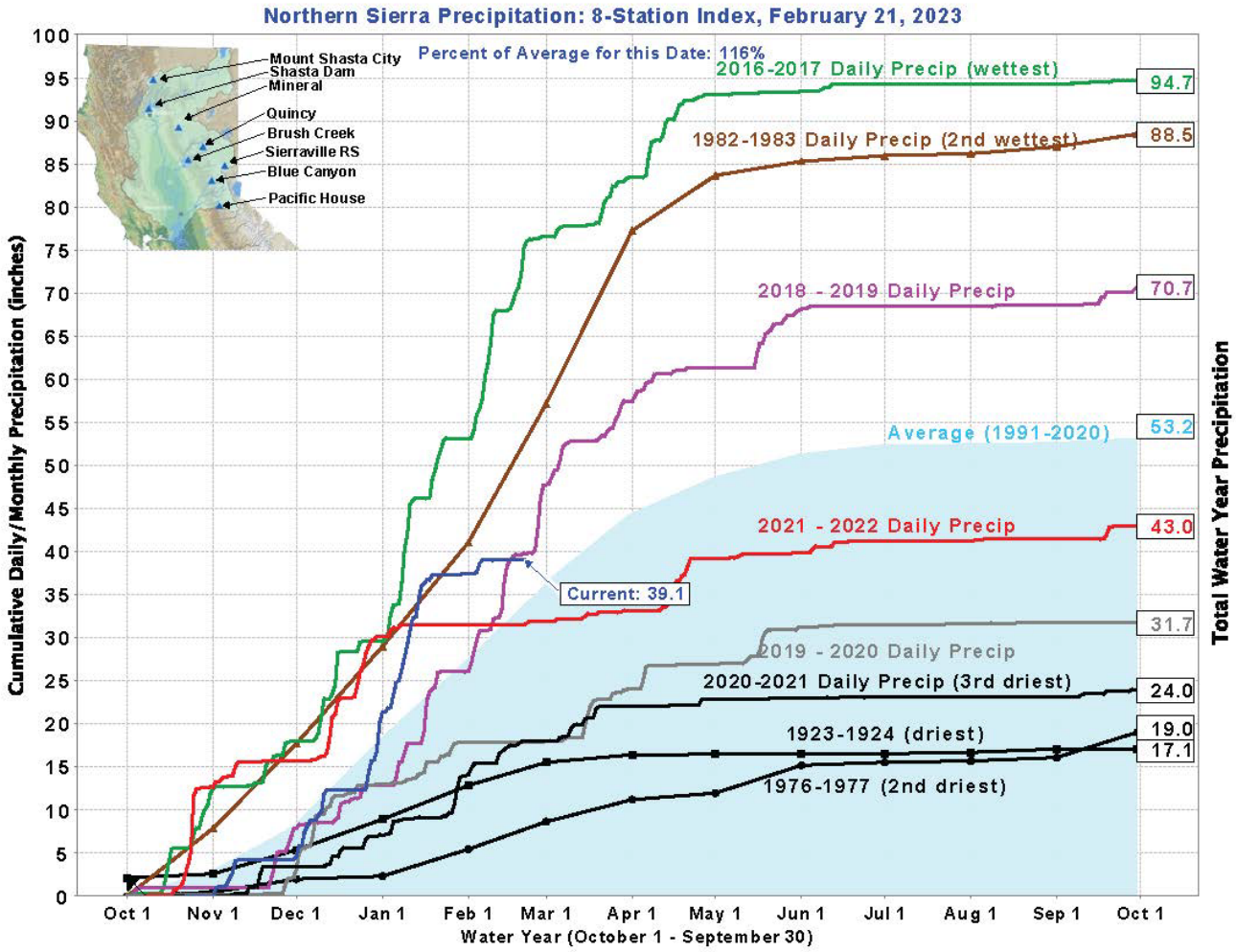

Figure 1. Northern Sierra Precipitation: 8-Station Index.
Source: https://cdec.water.ca.gov/reportapp/javareports?name=PLOT_ESI.pdf, accessed February 21, 2023.

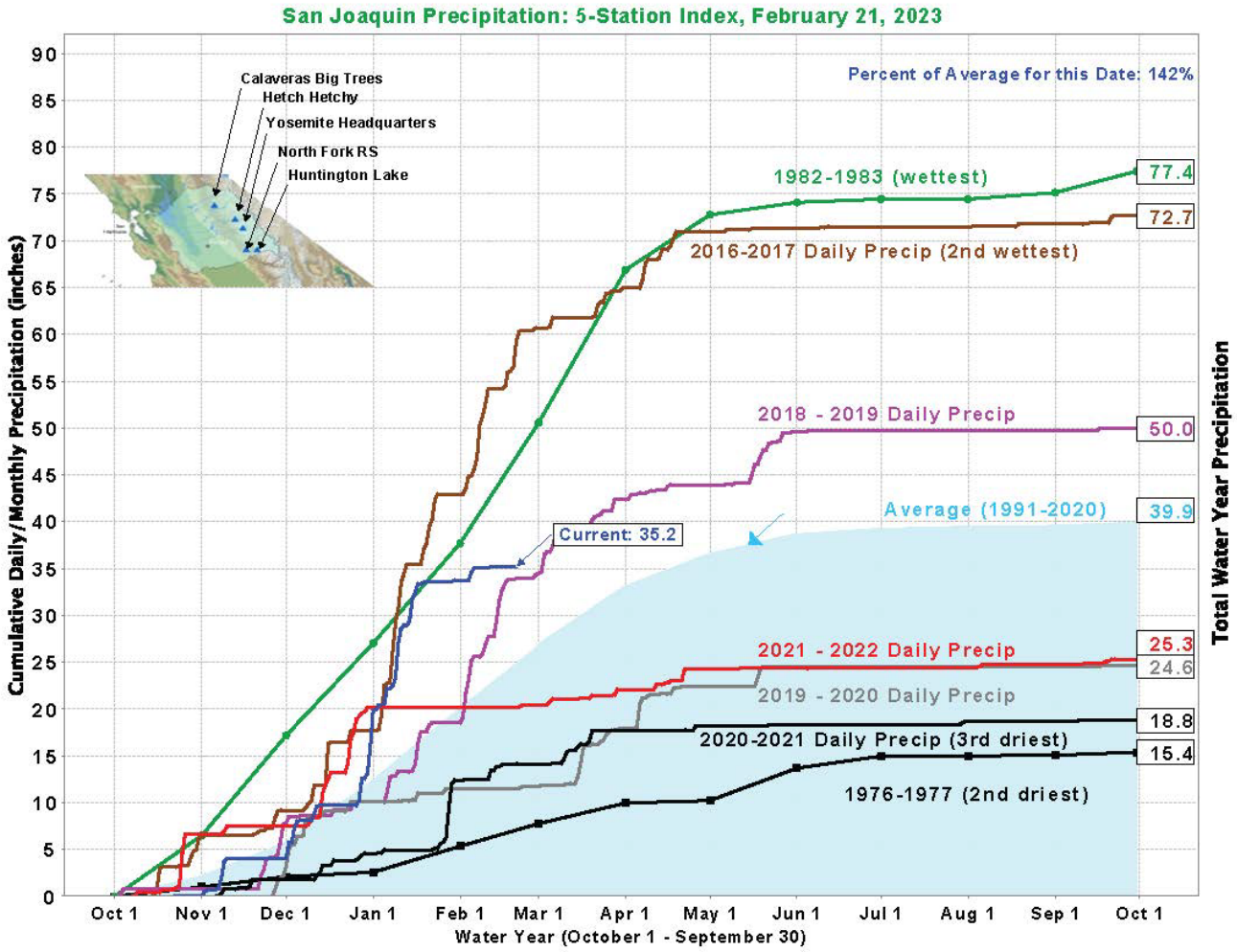

Figure 2. San Joaquin Precipitation: 5-Station Index. Source: https://cdec.water.ca.gov/reportapp/javareports?name=PLOT_FSI.pdf, accessed February 21, 2023.

Snowpack conditions expressed as snow water contents in the Central Valley watersheds reflect higher-than-average conditions for water year 2023 (Figure 3). As of February 21, 2023, the statewide average snow water equivalent is at 36.8 inches, which represents 139 percent of the April 1 average and 174 percent of normal for the date.[8] For the Northern Sierra/Trinity region, it is at 32.9 inches, 114 percent of the April 1 average and 144 percent of normal for the date. For the Central Sierra region, it is at 38.5 inches, 141 percent of the April 1 average and 176 percent of normal for the date.

[8] Statewide Snow Water Content: Current Regional Snowpack from Automated Snow Sensors. https://cdec.water.ca.gov/reportapp/javareports?name=swccond.pdf. https://cdec.water.ca.gov/reportapp/javareports?name=PLOT_SWC.pdf. Accessed February 13, 2021.

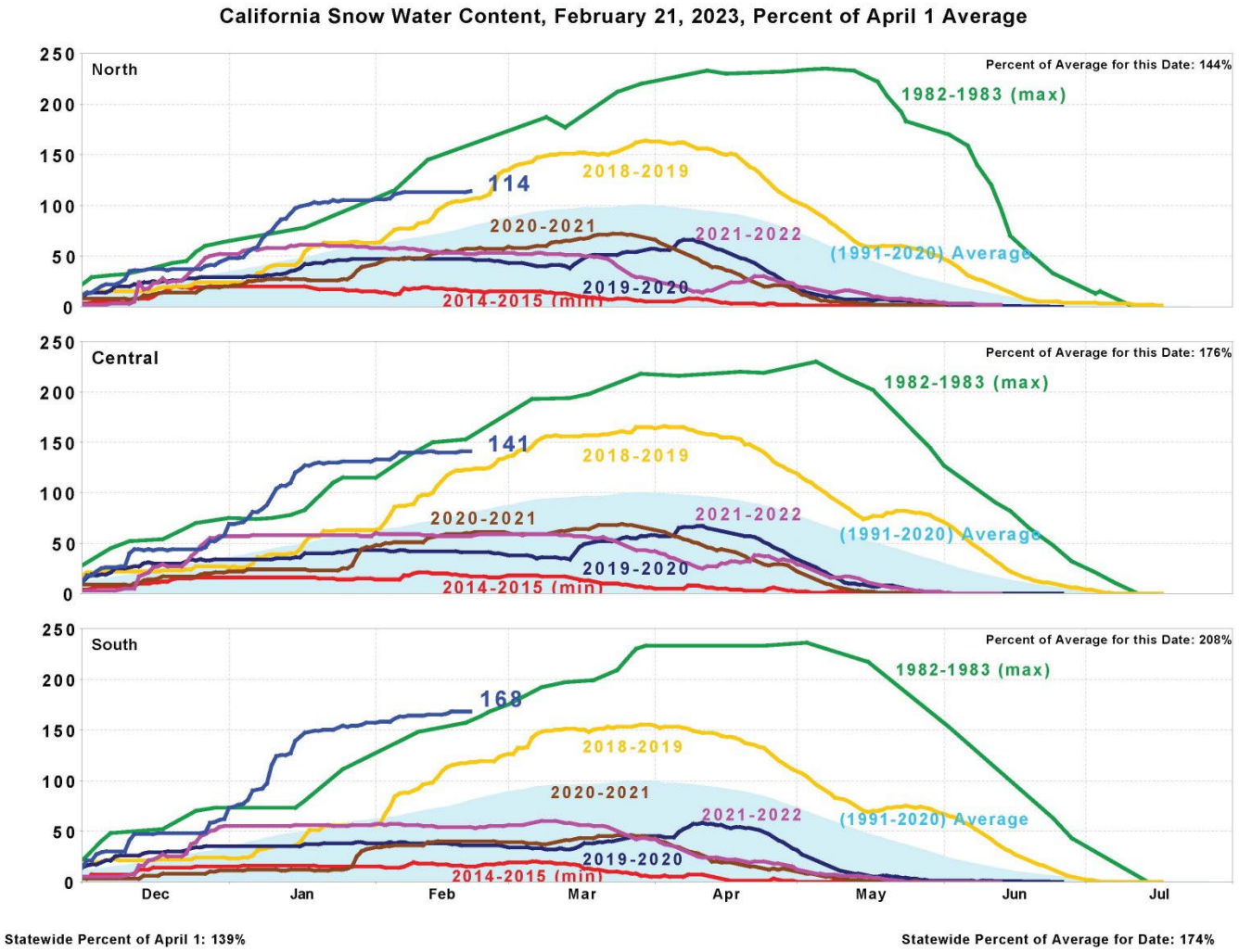

Figure 3. California Snow Water Content. Source: https://cdec.water.ca.gov/reportapp/javareports?name=PLOT_SWC.pdf, accessed February 21, 2023.

According to US Drought Monitor data,[9] as of February 14, 2023, 84.6 percent of California is currently experiencing moderate drought and 32.6 percent is in severe drought, while no area is under extreme drought (Figure 4). By comparison, as of February 15, 2022, 99.6 percent of California was under moderate drought, 66.4 percent under severe drought, and 1.4 percent under extreme drought. At the start of water year 2023 (October 1, 2022), 99.8 percent of California was under moderate drought, 94.0 percent under severe drought, 40.9 percent under extreme drought, and 16.6 percent under exceptional drought.

[9] U.S. Drought Monitor Map released February 9, 2023. https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?CA. Accessed February 21, 2023.

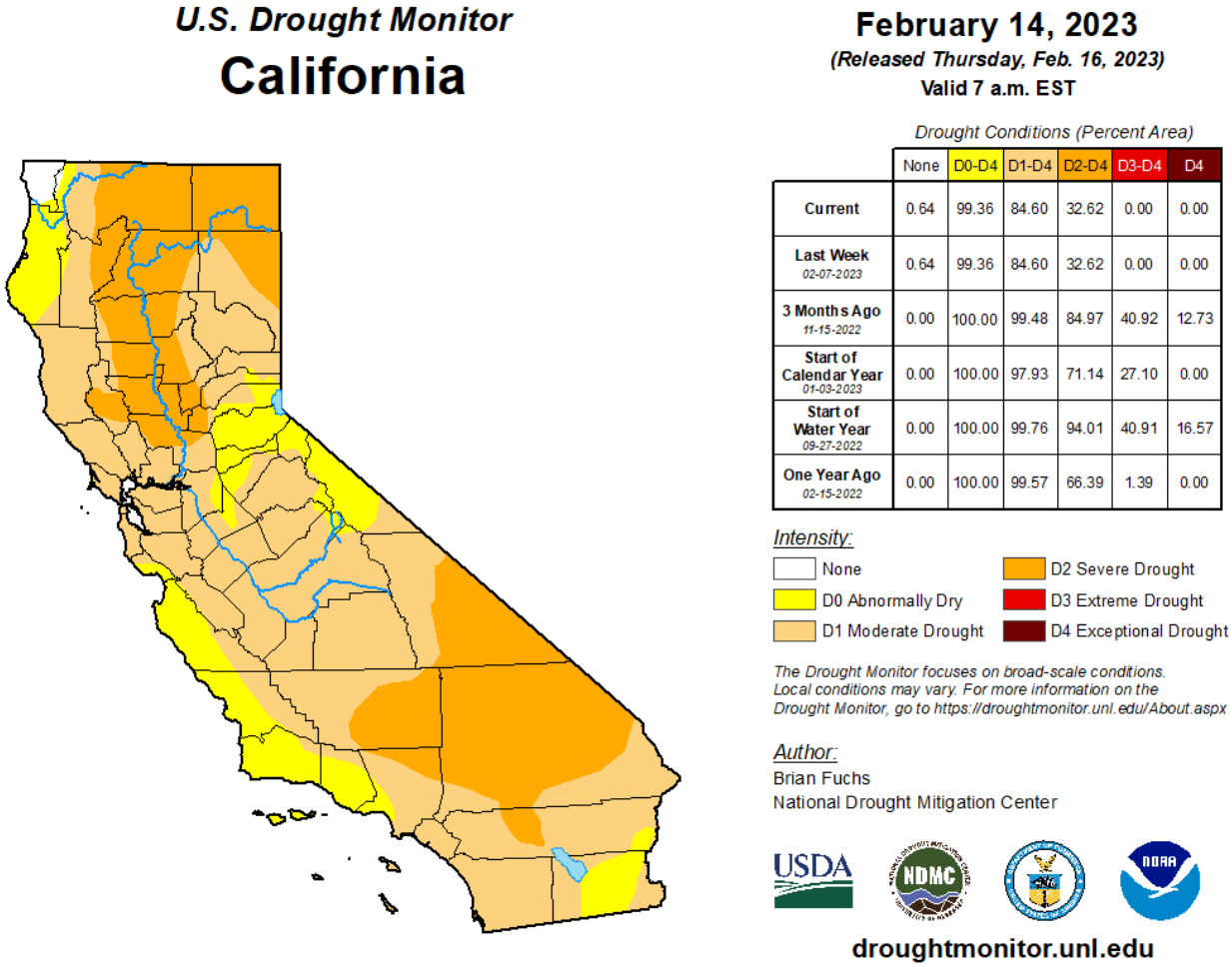

Figure 4. U.S. Drought Monitor data for California. Source: https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?CA, accessed February 21, 2023.

Although drought conditions persist, the water supply forecast (Bulletin 120) from DWR,[10] issued on February 1, 2023, forecasts that the Sacramento River unimpaired runoff will be 20.0 million acre feet (MAF) for water year 2023 at the 50 percent probability of exceedance (113 percent of average) and 15.4 MAF at 90 percent probability of exceedance (87 percent of average).[11] Bulletin 120, as of February 1, also forecasts that the Sacramento Valley Water Year Type Index (SVI: 40-30-30) will be 7.86 at the 50 percent probability of exceedance and 6.27 at 90 percent probability of exceedance. These SVI estimates would

[10] Department of Water Resources Bulletin 120 (B120) Report: https://cdec.water.ca.gov/snow/bulletin120/

[11] Water Supply Index (SWI) Forecasts: https://cdec.water.ca.gov/reportapp/javareports?name=WSI (Accessed on February 9, 2023)

result in a classification of the Sacramento Valley water year type for 2023 as Above Normal (50 percent exceedance) or Dry (90 percent exceedance).

Bulletin 120 also forecasts that the San Joaquin Valley Water Year Type Index (SJI: 60-20-20) for the water year 2023 will be 4.75 MAF at the 50 percent probability of exceedance and 3.77 MAF at 90 percent probability of exceedance. This would result in a classification for the San Joaquin Valley water year type for 2023 as Wet (50 percent exceedance) or Above Normal (90 percent exceedance).

3.2.2 Reservoir Storage Levels

Water storage levels in many Project reservoirs are significantly improved with the initially wet winter conditions of December 2022 and January 2023. For example, as of February 14, 2023, Lake Shasta is at 58 percent of capacity, whereas a year ago this measure was at 36 percent.[12] Lake Oroville currently is at 69 percent of capacity, whereas it stood at 46 percent a year ago. The current storage values are 85 percent and 114 percent of respective long-term averages and are expected to gain significant storage from snowmelt runoff.

South of the Delta, the principal storage facility for the SWP and CVP is San Luis Reservoir, which relies predominantly on water exported from the Delta. It currently stands at 72 percent of capacity (93 percent of the historical average), whereas this value was 45 percent a year ago. Figure 5 shows the storage levels of major water supply reservoirs in California as of February 14, 2023.

[12] http://cdec.water.ca.gov/reportapp/reservoir.html

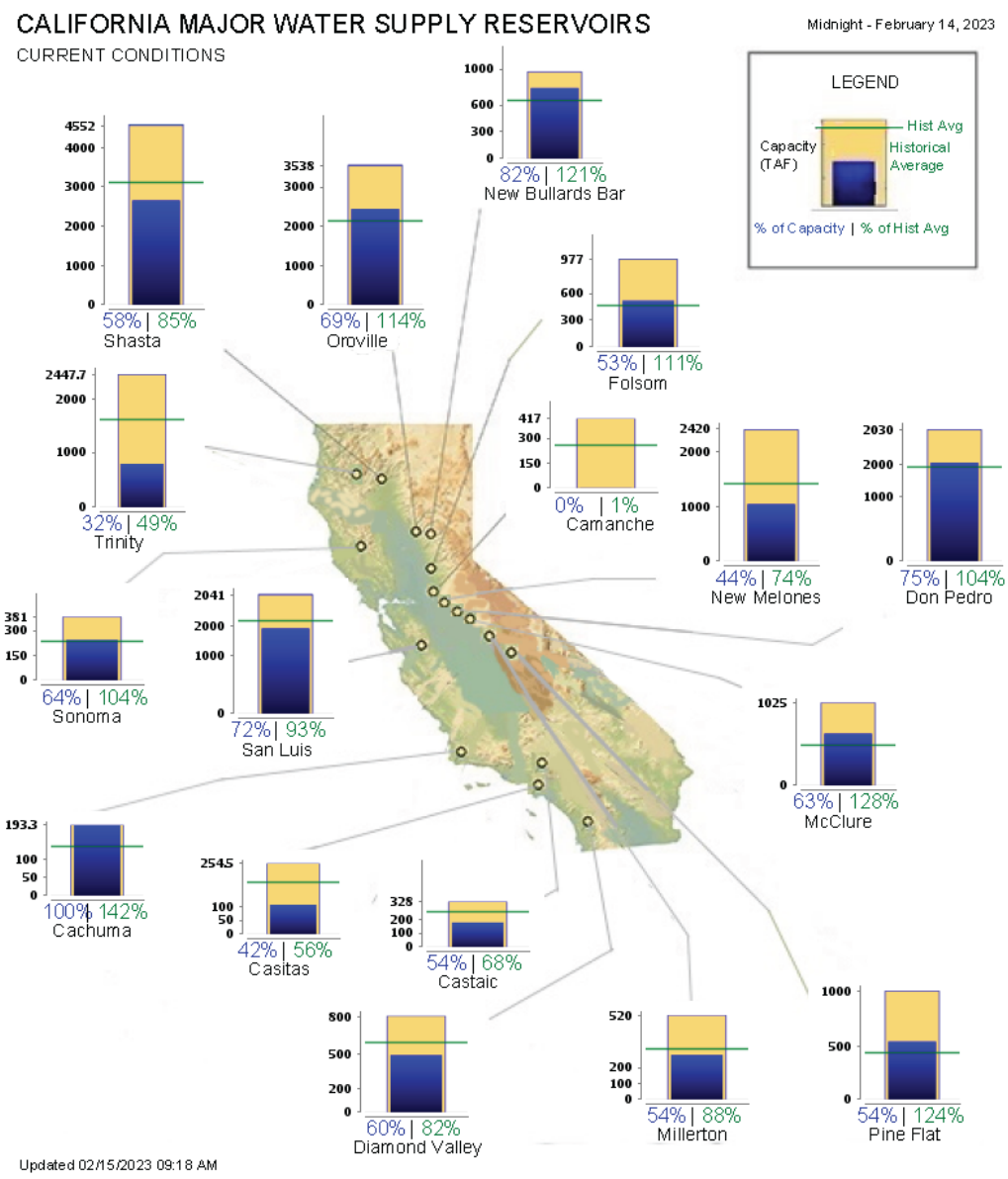

Figure 5. Major Reservoir Conditions in California as of February 14, 2023
Source: https://cdec.water.ca.gov/reportapp/javareports?name=rescond.pdf, accessed February 14, 2023.

Although many large Project reservoirs are in better condition than a year ago, their storage levels, to varying degrees, still reflect the below-average conditions of the previous three water years. (See Figures 1 and 2, traces for 2019-20, 2020-21, and 2021-22.) Forecasted inflows (50 percent probability of exceedance) to the major reservoirs upstream of the Delta for the duration of this TUCP (February – March) and the typically high runoff months beyond (April-July) are summarized in Table 1.

Table 1. Summary of Estimated Watershed Inflows (50 percent probability of exceedance) associated with Project Reservoirs (Feb. – Jul., 2023)

Watershed	Major Reservoir	Maximum storage (TAF)	Current storage (TAF)	Estimated Inflow (TAF)	
				February - March	April – July
Sacramento River, upper	Shasta	4,552	2,654	1,448	1,740
Feather River	Oroville	3,538	2,434	1,150	1,960
American River	Folsom	977	518	783	1,710
Stanislaus River	New Melones	2,400	1,042	336	1,100

Note: Inflow values here are approximations indicated by the forecast unimpaired flows from Bulletin 120 as of February 1, 2023. The estimate assumes that diversions and storage above the major reservoirs and other streamflow depletions will be moderately small. Sources: https://cdec.water.ca.gov/dynamicapp/wsSensorData for current storage values at major reservoirs: Shasta Dam (SHA), Oroville Dam (ORO), New Melones Reservoir (NML), and Folsom Lake (FOL). Watershed estimated runoff values from Bulletin 120, Water Supply Forecast, with 'Inflow to Shasta' for Sacramento River, upper; 'Feather, Oroville' for Feather River; 'American, Folsom' for American River; and 'Stanislaus, Goodwin' for Stanislaus River. Data accessed on February 15 at https://cdec.water.ca.gov/reportapp/javareports?name=B120DIST

3.2.3 Project Water Supplies

The SWP and CVP provide water supplies under different types of contracts, including: service contracts with contractors north and south of the Delta that do not have their own underlying rights; settlement and other contracts with users within the Delta watershed (Sacramento River, Feather River, Stanislaus River, and North Delta) who divert water under their own rights and claims and also divert previously stored Project water when those rights are not adequate to meet demand (settlement/supplemental supply); and settlement and exchange contractors who receive replacement and supplemental supplies from the CVP exported from the Delta in exchange for diversions by those users under their own rights and claims from the upper San Joaquin River. Project allocations for 2023 have not yet been fully announced or finalized but after significant January storms, DWR announced on January 20, 2023, that the SWP allocation is expected to be 30 percent of requested supplies for 2023.[13] The CVP has not released its allocations yet, but is expected to shortly. This change is expected to increase SWP allocations and result in higher allocations than would otherwise occur for CVP contractors.

3.3 Delta Interim Operations Plan

In 2016, Reclamation and DWR requested reinitiation of consultation pursuant to the federal ESA on the Projects' coordinated long-term operations. In response, on October 21, 2019, the USFWS and NMFS issued new Biological Opinions (2019 BiOps). Thereafter, on February 20, 2020, Reclamation approved a Record of Decision (ROD) modifying CVP

[13] Department of Water Resources news releases: https://water.ca.gov/News/News-Releases/2023/Jan-23/Recent-Storms-Allow-State-Water-Project-to-Increase-Expected-2023-Deliveries.

operations pursuant to the 2019 BiOps. The same day, the California Natural Resources Agency (CNRA), California Environmental Protection Agency (CalEPA), and the California Attorney General, on behalf of the people of California (collectively "State Parties"), filed litigation in federal district court against Reclamation, USFWS, and NMFS (collectively "Federal Defendants") challenging the 2019 BiOps and 2020 ROD as insufficiently protective of threatened and endangered species, among other causes of action.[14] A group of Environmental Plaintiffs also challenged the 2019 BiOps and 2020 ROD in a parallel action that was later coordinated.[15] On March 31, 2020, CDFW, finding federal ESA coverage no longer sufficient to also meet CESA standards, issued its own more protective Incidental Take Permit (ITP).

On January 20, 2021, President Biden issued Executive Order 13990 (EO 13990), entitled "Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis." EO 13990 directed federal agencies to review all actions taken during the four previous years and to consider whether to take additional actions to fulfill environmental objectives and bolster resilience to climate change. As part of EO 13990 implementation, the Federal Defendants reinitiated consultation on the 2019 BiOps on September 30, 2021. Thereafter, the U.S. District Court for the Eastern District of California solicited proposals for more protective interim SWP/CVP operations for WY 2022 while the reconsultation was underway.

The State and Federal Parties, recognizing the need to harmonize the Projects' operations, particularly if the 2022 water year was below normal, dry, or critically dry, negotiated an Interim Operations Plan (IOP) and filed it with the court as their respective Proposed Orders that aligned the CVP with the ITP and established operational priorities, Sacramento River temperature management and planning requirements, and storage goals for Shasta Reservoir. The IOP added the State Water Board as a member of the Water Operations Management Team, which makes real-time species risk assessments for the Projects' Delta operations and requires that the Executive Director be included in Director level operational discussions. Environmental Plaintiffs filed a Proposed Order requesting stricter measures, including imposition of D-1641 (i.e., a bar to a TUCP that seeks modifications to D-1641 requirements) and Defendant Intervenor water contractors filed a Proposed Order leaving the 2019 BiOps in place during the pendency of the reconsultation.

On March 14, 2022, the Court adopted the Order proposed by the Federal Defendants. The Order required the SWP and CVP to comply with the IOP (paragraphs 6 through 17 of the Order) through September 30, 2022, and remanded the 2019 BiOps and 2020 ROD to USFWS, NMFS, and Reclamation, respectively, without vacating them. The court also stayed the litigation until September 30, 2022, and requested the Federal Defendants and California Plaintiffs to file a joint status report on August 31, 2022, "describing the status of discussions

[14] *California Natural Resources Agency et al., v. Raimondo*¸ (E.D. Cal., Case No. 1:20-cv-00426-DAD-EPG) (hereafter *CNRA v. Raimondo*).

[15] *Pacific Coast Federation of Fishermen's Associations et al., v. Raimondo* (E.D. Cal., Case No. 1:20-cv-00431-DAD-EPG) (hereafter *PCFFA v. Raimondo*).

regarding a plan for interim coordinated operations to govern for the water year beginning October 1, 2022, or some other interval of time."[16]

On September 30, 2022, the IOP expired, and State and Federal Parties filed a joint status report with the Federal District Court proposing to extend the IOP, with minor modifications, until December 31, 2023 (IOP Extension). Environmental Plaintiffs and Defendant Intervenors both filed objections. Primarily, Environmental Plaintiffs seek to amend the IOP Extension to limit Reclamation's ability to seek approval of TUCPs unless it curtails south-of-Delta water deliveries for other than human health and safety or refuge supplies. Defendant Intervenors opposed the IOP Extension as unnecessary, continuing to claim that the 2019 BiOps are adequate. On February 13, 2023, the State and Federal Parties filed an Informational Notice updating the Court that the TUCP that is the subject of this Order was pending. On February 14, 2023, Environmental Plaintiffs filed a "Response to Informational Notice" objecting to the potential impacts of the TUCP and asserting D-1641 forms part of the baseline for the IOP. On February 17, 2023, Defendant Intervenors filed a Declaration in response to Environmental Plaintiffs response that attached a February 14, 2023, *Weekly Assessment of CVP and SWP Delta Operations on ESA-listed Species* and a copy of the Governor's Executive Order N-3-23. The court has not yet ruled on whether to approve the IOP Extension or modify it.

3.4 Substance of the 2023 Temporary Urgency Change Petition

DWR and Reclamation filed the TUCP pursuant to Water Code section 1435 et seq. The TUCP requests that the State Water Board temporarily modify a requirement included in the water right permits and license for the SWP and CVP imposed by D-1641, which requires DWR and Reclamation to meet flow and water quality objectives established in the Bay-Delta Plan. Specifically, during February through March 2023, DWR and Reclamation request to:

- Modify footnote [d] of Table 4 in D-1641 to state "This standard does not apply to February and March 2023."

The requested action would effectively remove the Port Chicago Delta outflow requirement, modifying that requirement from 29,200 cfs to 11,400 cfs or moving the required EC compliance location upstream by approximately 10 kilometers for the days the Port Chicago requirement applies.

According to the Petitioners, these changes would allow management of reservoir releases to increase south of Delta exports to stabilize water supply in the spring and summer and potentially conserve upstream storage. According to the Biological Review (Attachment 2, p. 2-8, Table Model1) that was submitted with the TUCP, the proposed TUCP changes would increase south of Delta exports by more than 680 TAF compared to without TUCP

[16] *PCFFA v. Raimondo, CNRA v. Raimondo,* Order Granting Federal Defendants' Motion for Voluntary Remand Without Vacatur (Final Order) (March 14, 2022).

conditions.[17] Benefits to north of Delta reservoir storage are not expected to be significant. However, increased exports could reduce reliance on Shasta Reservoir for CVP exports to some extent this summer and fall.

3.5 Status of Fish Species and Biological Reviews

The biological review for the 2023 February and March TUCP outlined the expected impacts of the TUCP on fish species in the Delta. The biological review did not analyze impacts of the TUCP upstream of the Delta. The analysis compared Delta conditions with and without the proposed change to the Port Chicago requirement. In the analysis, hydrologic conditions for February and March were based on a 90 percent exceedance forecast from January 1, 2023, that did not include the major January storm events. The January 1 WSI forecast resulted in the determination that, in the absence of the TUCP, the Port Chicago standard would be required to be met for 27 days in February and 9 days in March. If modeling were updated to include the February 1 WSI forecast and both the 50 percent (2,675 TAF) and 90 percent (1756 TAF) exceedance forecasts for the 8-River Index in February, the potential requirement for meeting the Port Chicago standard in March ranges from 12 to 20 days. As a result, the analysis described in Attachment 2 of the TUCP may underestimate the effects of the TUCP for the month of March.

3.5.1 Delta Smelt

Delta smelt was listed as threatened under the federal Endangered Species Act (ESA) March 5,1993 (58 FR 12863), and their critical habitat was designated on December 19, 1994. In a 5-year status review in 2010, USFWS determined that Delta smelt should be listed as endangered but has not yet reclassified the species because of higher priority listing actions. Delta smelt was listed as threatened under the California Endangered Species Act (CESA) in 1993 and as endangered in 2009.

Delta smelt is an endemic fish species to the San Francisco Bay-Delta and is comprised of only one genetic population. The majority of Delta smelt live only one year. Delta smelt exhibit two basic life history strategies.[18] One is to remain and complete their life cycle in freshwater tidal waters of the north Delta. The other is for larvae or small juveniles to be carried by river currents to brackish rearing habitats of the estuary, primarily Suisun Bay and Marsh. A recent study indicated that a small proportion of Delta smelt employ a brackish-water resident life history (Hobbs et al. 2019[19]). In early winter, mature Delta smelt migrate from rearing brackish estuarine habitats to freshwater spawning areas in the Delta. Delta smelt spawning occurs

[17] This estimate is based on modeling for the February 1, 2023, through September 30, 2023, period using the January 90 percent exceedance forecast that did not account for major January storm events. The actual increase in exports attributable to the TUCP will depend on the effective period of the TUCP and hydrology. Under updated wetter hydrologic conditions, benefits would be higher, notwithstanding the effective date of this approval.

[18] Moyle, P. B., J. A. Hobbs, and J. R. Durand. 2018. Delta Smelt and Water Politics in California. Fisheries 43(1): 42 – 50.

[19] Hobbs, J.A., L.S. Lewis, M. Willmes, C. Denny, and E. Bush. 2019. Complex life histories discovered in a critically endangered fish. Scientific Reports. 9:16772. https://doi.org/10.1038/s41598-019-52273-8.

from early February through May and larval fish have been observed from late February through June. During and after a variable period of larval development, the young fish migrate downstream until they reach the low salinity zone (LSZ), typically described based on the location of X2, where Delta smelt reside until the following winter. The location of the Delta smelt population follows changes in the location of the LSZ which depends primarily on Delta outflow.

Delta smelt have shown significant declines in population abundance since 2002 in a phenomenon known as the Pelagic Organism Decline (POD).[20] Delta smelt has not recovered from the POD and is currently at risk for extinction. To aid in the recovery of Delta smelt, an interagency effort has begun to raise and release cultured Delta smelt into the Delta. The USFWS and CDFW, along with DWR and Reclamation, have begun experimental releases of captively produced Delta smelt into the Delta to help inform future supplementation of the species in the wild. All cultured Delta smelt are marked to distinguish them from wild fish in monitoring efforts. To date in WY 2023, a total of 43,705 cultured Delta smelt have been released into the Delta.[21]

The abundance of Delta smelt is measured with the Spring Kodiak Trawl Index (January-May), the 20-mm Survey (March-July), the Summer Tow Net Survey (June-August), and the Fall Midwater Trawl (FMWT) Survey (September-December), as well as the Enhanced Delta Smelt Monitoring (EDSM) program established in 2016 to increase sampling for this rare species. The 2022 FMWT abundance index for Delta smelt was zero (0) for the fifth consecutive year.[22] Since December 1, 2022, a total of 31 sub-adult and adult Delta smelt have been detected including 6 in salvage at the SWP and CVP export facilities as of February 15; of these, three were unmarked wild fish[23].

This winter, strong precipitation events in December and January resulted in Delta outflows and turbidity that triggered several protective measures for Delta smelt in the USFWS 2019 Biological Opinion and the CDFW 2020 Incidental Take Permit (ITP). In response to high flows, the integrated winter pulse protection action was triggered on December 31 for the SWP and CVP, which limited OMR flows to no more negative than -2,000 cfs from January 3 through January 16. On January 17, 2023, elevated turbidity at Bacon Island triggered the federal Turbidity Bridge Avoidance action and ITP Condition of Approval 8.5.1, which continued OMR restrictions of no more negative than -2,000 cfs for 5 days through January 22. Due to continued elevated turbidity, OMR was restricted to no more negative than -3,500

[20] The concurrent decline of four pelagic species (Delta smelt, longfin smelt, striped bass, and threadfin shad) in the Upper Estuary attributed to three general factors acting individually or in concert to lower pelagic productivity, including toxins, invasive species and water project operations.

[21] See Delta smelt releases at https://www.cbr.washington.edu/sacramento/workgroups/delta_smelt.html

[22] Data available from CDFW Fall Midwater Trawl Survey Monthly Abundance Indices, https://www.dfg.ca.gov/delta/data/fmwt/indices.asp.

[23] Data available from Attachment 2 of the TUCP, USFWS EDSM Daily Report (https://www.fws.gov/library/collections/lodi-fwo-monitoring-data) and SacPas (https://www.cbr.washington.edu/sacramento/workgroups/delta_smelt.html).

cfs for an additional 5 days through January 27 and no more negative than -5,000 cfs after that.

In response to high flows and turbidity, Delta smelt have likely migrated upstream into the Delta and are actively spawning during February. The TUCP would reduce Delta outflow requirements allowing for lower outflows and higher exports by the SWP and CVP from the Delta. The Petitioners state that the TUCP will result in significantly more negative OMR flows[24] and QWEST,[25] increasing the entrainment risk to Delta smelt adults and larvae present in the Delta. The petitioners state that the risk to Delta smelt during the TUCP period would be limited by entrainment risk management and operational adjustments under the 2019 Biological Opinions and the 2020 CDFW ITP.

The period of the TUCP overlaps with the winter-spring portion of the adult spawning, and egg and larval early juvenile periods of Delta smelt, when the majority of the population would be in the Delta. Delta smelt have a strong positive relationship with the extent of the LSZ which, as noted above, is typically described based on the location of X2. Ecologically, X2 serves as an indicator of habitat suitability for many Bay-Delta Estuary organisms and is associated with variance in abundance of diverse components of the ecosystem.[26] At all times of year, the location of X2 influences both the area and quality of habitat available for Delta smelt to successfully complete their life cycle. In general, Delta smelt habitat quality and surface area are greater when X2 is located in Suisun Bay.[27] Both habitat quality and quantity diminish the more frequently and the further the LSZ moves upstream, toward the confluence of the Sacramento and San Joaquin rivers,[28] thus further constraining the habitat for juvenile Delta smelt closer to the upstream spawning areas in the lower Sacramento River, San Joaquin River, and the Cache Slough Complex/Sacramento Deep Water Ship Channel.

The Petitioners identified that the proposed changes could result in a reduction of suitable spawning habitat for adult Delta smelt during March, particularly in historical hot spots such as Montezuma Slough. This habitat would have remained adequate if the Port Chicago X2 requirement were met. The Petitioners also identify that reduced Delta outflow as a result of the TUCP has the potential to negatively impact the abundance of several prey species for

[24] See Table WR5 in Attachment 2 of the February13, 2023 TUCP

[25] See Table DS1 in Attachment 2 of the February 13, 2023 TUCP

[26] Jassby, A. D., W. J. Kimmerer, S. G. Monismith, C. Armor, J. E. Cloern, T. M. Powell, J. R. Schubel, and T. J. Vendlinski. 1995. Isohaline position as a habitat indicator for estuarine populations. Ecological Applications 5:272–289.

[27] Kimmerer, W. J., MacWilliams, M. L., & Gross, E. S. 2013. Variation of fish habitat and extent of the low-salinity zone with freshwater flow in the San Francisco Estuary. *San Francisco Estuary and Watershed Science*, *11*(4).

[28] Feyrer, F, M. L. Nobriga, and T. R. Sommer. 2007. Multi-decadal trends for three declining fish species: habitat patterns and mechanisms in the San Francisco Estuary, California, USA. Canadian Journal of Fisheries and Aquatic Sciences 64:723–734.

Delta smelt[29] and reduce overall Delta smelt recruitment[30]. Polansky et al. (2021)[31] found a negative relationship between Delta smelt recruitment and both the location of X2 during March through May and the Projects' Export to Delta Inflow (E:I) ratio, as well as a positive relationship of recruitment and post-larval survival rates to Delta outflow. According to the Petitioners, X2 would move eastward by 1.8 km during March through May under the TUCP (to approximately 75.9 km) relative to the base case (74.1 km). Delta outflows would decrease and the E:I would increase under the TUCP compared to the base case. All of which could negatively affect Delta smelt. Other impacts to the ecosystem that relate to Delta smelt remain uncertain under the TUCP.

3.5.2 Longfin Smelt

Longfin smelt was listed as threatened under CESA in 2009 and as a candidate for listing under ESA in 2012. Longfin smelt is a native, semi-anadromous open water fish moving between fresh water and saltwater. Longfin smelt generally have a 2-year life cycle. During the second year, they primarily inhabit the San Francisco Bay and are thought to be pelagic (living or occurring in open water). Spawning typically takes place as early as November and may extend into June, peaking between February and April. Spawning occurs in fresh or slightly brackish water over aquatic vegetation or sandy-gravel substrates when temperatures drop roughly below 64.5° Fahrenheit (F)[32]. Longfin smelt eggs hatch between December and May, with a peak hatch in February. Delta outflow transports the buoyant larvae and juveniles downstream to higher salinity habitats.

The 2022 FMWT abundance index[33] for longfin smelt was 403, up from the 2021 index of 323 and the greatest index since 2011, but still significantly lower than indices prior to the POD in 2002. Like Delta smelt, longfin smelt suffered a drastic decline in abundance around 2002 and was included in the POD (1982-2002 average: 5734). Longfin smelt were once a common species in the San Francisco estuary, but the population has declined and is now less than one percent of its abundance when sampling began 50 years ago.

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[29] These zooplankton species are either positively correlated to Delta outflow or show no significant relationship, see Figure ZOOP1 in Attachment 2 of the TUCP.

[30] Smith, W. E., L. Polansky, and M. L. Nobriga. 2021. Disentangling risks to an endangered fish: using a state-space life cycle model to separate natural mortality from anthropogenic losses. Canadian Journal of Fisheries and Aquatic Sciences 78(8):1008-1029. The mean carbon weight of several Delta zooplankton species (calanoid copepods, cyclopoid copepods, cladocerans, and mysid shrimp) during February and March was identified as a predictor for Delta smelt recruitment.

[31] Polansky, L., K. B. Newman, and L. Mitchell. 2021. Improving inference for nonlinear state-space models of animal population dynamics given biased sequential life stage data. *Biometrics* 77(1):352-361. Available at https://onlinelibrary.wiley.com/doi/epdf/10.1111/biom.13267.

[32] Baxter, R., M. Nobriga, S. Slater, and R. Fujimura. 2009. Effects Analysis: State Water Project Effects on Longfin Smelt. California Department of Fish and Game. Available at https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/cmnt091412/sldmwa/baxter_et_al_2009.pdf.

[33] Data available from CDFW Fall Midwater Trawl Survey Monthly Abundance Indices, https://www.dfg.ca.gov/delta/data/fmwt/indices.asp

Juvenile longfin smelt distribution is monitored through the Smelt Larva Survey (SLS) from January through March.[34] Survey #2[35] for the SLS was completed for January 17–19, 2023, showing the greatest density of larvae in Grizzly Bay and Suisun Bay, with no catches occurring upstream of the Sacramento River and San Joaquin River confluence. Survey #3 was completed for January 30- February 1, 2023, showing a shift in longfin smelt distribution upstream, with catch occurring on the lower Sacramento River and Lower San Joaquin River.

Drought years 2021 and 2022 reflected similar timings in upstream migration with longfin smelt reaching the OMR corridor in mid- to late-February during Survey #4. In March of 2020 and 2021 (SLS Survey #6[36]), longfin smelt distribution extended to the export facilities and resulted in salvage at the CVP and SWP export facilities.[37] In April, despite minimum export rates, longfin smelt salvage reached record highs of 483 individuals in 2020 and 5151 individuals in 2021. The 2023 TUCP will reduce Delta outflow in February and March, which could shift the longfin smelt distribution closer to the south Delta export facilities. The combination of reduced Delta outflow and increased Delta exports creates a greater risk of entrainment of longfin smelt during February-April of 2023 under the TUCP than what would occur absent the TUCP. Similar to Delta Smelt, the petitioners expect that real time management of OMR restrictions would limit any entrainment risks as a result of the TUCP.

The Biological Review attached to the TUCP indicates that reduced Delta outflow under the TUCP has the potential to degrade habitat quality for longfin smelt during a critical time period for the species. According to the review, the TUCP has the potential to reduce the abundance of several longfin smelt zooplankton prey species. Furthermore, reduced Delta outflows during winter and spring have the potential to reduce longfin smelt abundance. Fall (Fall Mid-Water Trawl or FMWT) abundance indices have shown a positive relationship to Delta outflow in the preceding winter and spring months. Delta outflow during the January-June period was positively correlated to the longfin smelt Fall Mid-Water Trawl (FMWT) index (based on data collected between 1967 and 2016[38]). The Biological Review submitted by the Petitioners includes a statistical modeling analysis based on December-May Delta outflows suggesting that the TUCP conditions could result in approximately 6 percent lower longfin smelt abundance (modeled 2023 longfin smelt FMWT index) compared to the baseline conditions, though statistical and hydrologic variability may result in lesser or greater effects. Overall, the

[34] Data available at CDFW Smelt Larva Survey, https://wildlife.ca.gov/Conservation/Delta/Smelt-Larva-Survey

[35] Data available from CDFW Smelt Larvae Survey #2, Fish Distribution Map, https://www.dfg.ca.gov/delta/data/sls/CPUE_Map.asp

[36] Data available from CDFW Smelt Larvae Survey #6 from 2021 and 2022, Fish Distribution Map, https://www.dfg.ca.gov/delta/data/sls/CPUE_Map.asp

[37] Data available from CDFW Fish Salvage Monitoring at https://apps.wildlife.ca.gov/Salvage

[38] State Water Resources Control Board (State Water Board). 2017. 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. With assistance from ICF. 427 pages Available at https://www.waterboards.ca.gov/water_issues/programs/peer_review/docs/scientific_basis_phase_ii/201710_bdphaseII_sciencereport.pdf

TUCP has the potential to further degrade habitat quality for longfin smelt, and result in reduced recruitment of juveniles in 2023.

3.5.3 Winter-Run Chinook Salmon

Winter-run Chinook salmon (or winter-run) was listed as endangered under CESA in 1989 and listed as endangered under the ESA in 1994. The federal listing includes both natural and artificially propagated stocks. Prior to the summer spawning period for winter-run, adults migrate through the Delta from November through May[39] and hold in the upper Sacramento River below Keswick Dam until they are ready to initiate spawning, with the majority of spawning typically occurring between June and July upstream of Clear Creek. After spawning, the fertilized eggs require cold water to ensure their proper development, with temperatures below 53.5 degrees F being optimal and warmer temperatures becoming lethal.[40] These optimal temperatures are needed from the onset of spawning through juvenile emergence which spans from May through October and into November. Downstream rearing and migration of juveniles occurs from fall through the spring when temperature conditions are typically more favorable, and juveniles may experience less temperature impacts due to their ability to seek thermal refugia after egg emergence. Juveniles proceed to rear and slowly migrate downstream following emergence, reaching the Delta as early as October and remaining in the Delta through May. Apparent residence time in the Delta, based on the arrival at Knights Landing and departure at Chipps Island was 87 days on average, but ranged from 40 days to 110 days depending on hydrologic conditions[41]. Historically, a majority of winter-run exit the Delta in March and April. The February-March period of the TUCP overlaps with the period when juvenile winter-run Chinook salmon are migrating through and rearing in the Delta in large numbers.

In 2022, the Sacramento River had a modest adult winter-run return estimated at 5,927 adults[42]. Despite drought conditions, temperature management in 2022 was largely successful as a result of lower releases from Shasta Reservoir which conserved cold water resulting in estimated temperature dependent mortality (TDM) of 18 percent. [43] Despite successful temperature management, a fourth consecutive year of Thiamine deficiency in spawning adults and unattributed background mortality resulted in a record low winter-run egg-to-fry survival of 2.17 percent. In January, 2023, NMFS released a juvenile production

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[39] Yoshiyama, R. M., Fisher, F. W., & Moyle, P. B. (1998). Historical abundance and decline of chinook salmon in the Central Valley region of California. *North American Journal of Fisheries Management*, *18*(3), 487-521.

[40] Martin, B. T., Pike, A., John, S. N., Hamda, N., Roberts, J., Lindley, S. T., & Danner, E. M. 2017. Phenomenological vs. biophysical models of thermal stress in aquatic eggs. *Ecology Letters*, *20* (1), 50-59.

[41] del Rosario, R. B., Y. J. Redler, K. Newman, P. L. Brandes, T. Sommer, K. Reece, and R. Vincik. 2013. Migration patterns of juvenile winter-run-sized Chinook salmon (Oncorhynchus tshawytscha) through the Sacramento–San Joaquin Delta. San Francisco Estuary and Water Science 11(1).

[42] Available at https://www.fisheries.noaa.gov/s3/2023-01/jpe-letter-2022.pdf

[43] Available at https://oceanview.pfeg.noaa.gov/CVTEMP/data/download/2022/Run_TDM_2022_Forecast_Hindcast_Analysis/SWFSC_TDM_Hindcast_2022.pdf

estimate letter[44] that estimated 49,924 juvenile winter-run Chinook salmon will reach the Delta, the lowest level on record.

As of February 7, 2023, the Salmon Monitoring Team (SaMT) estimated 25-35 percent of juvenile winter-run had yet to enter the Delta, 55-75 percent were currently in the Delta, and 0-10 percent of juveniles have exited the Delta. Hatchery winter-run Chinook salmon from Livingston Stone National Fish Hatchery are released in February and March and will be migrating through the Delta during the TUCP period of February-March. For the juveniles entering and rearing in the Delta from February to April 30, the TUCP is expected to reduce through-Delta-survival[45]. Juveniles will be exposed to impacts from reverse flows and slower mean flow velocity in February and March as a result of the TUCP, both of which have been shown to result in longer travel times,[46] thereby increasing predation risk relative to baseline conditions. The petitioners have committed to keeping the Delta Cross Channel (DCC) gate closed for the duration of the TUCP to minimize routing risks for out-migrating salmonids into the interior Delta.

According to the Biological Review for the TUCP, the TUCP is expected to reduce the relative through-Delta survival of juvenile salmon by four and zero percent in February and March, respectively, and increase survival by one percent in April. However, these model estimates did not incorporate potential impacts of far more negative OMR flows, increased water exports, and entrainment into the export facilities that would also be expected to impact fish under the TUCP. Historical patterns of juvenile outmigration indicate that juvenile winter-run Chinook salmon will start to exit the Delta by the end of February and conclude by the end of April resulting in the TUCP potentially having an effect on most of the wild and hatchery juvenile winter-run. Lifecycle modeling has not been conducted to estimate the full impact of the TUCP, but the record low juvenile survival could make the 2022 brood year uniquely susceptible.

Adult winter-run may experience a temporary delay in upstream migration under the TUCP. However, the Petitioners conclude that these temporary delays would not have any permanent physiological impairments. Reduced flows on the Sacramento River may also dilute olfactory cues important for adult navigation to their natal stream and result in increased rates of straying.[47] However, the overall impacts remain uncertain for adult winter-run.

3.5.4 Spring-Run Chinook Salmon

Spring-run Chinook salmon were listed as threatened under the ESA and CESA in 1999. The ESA listing was reaffirmed in 2005 and expanded to include the Feather River hatchery

[44] Available at https://www.fisheries.noaa.gov/s3/2023-01/jpe-letter-2022.pdf

[45] See Table WR3 in Appendix 2 of the TUCP filed on February 13, 2023.

[46] Romine, J. G., R. W. Perry, S. J. Brewer, N. S. Adams, T. L. Liedtke, A. R. Blake, and J. R. Burau. 2013. *The Regional Salmon Outmigration Study--survival and migration routing of juvenile Chinook salmon in the Sacramento-San Joaquin River Delta during the winter of 2008-09*. USGS Open-File Report 2013-1142. U.S. Geological Survey, Reston, VA.

[47] California Department of Water Resources (2020). Final Environmental Impact Report for long-term operation of the California State Water Project. California Department of Water Resources, Division of Environmental Services, West Sacramento, CA

stock. Escapement of spring-run has remained persistently low since 2012. Spring-run adults migrate to natal streams between February and September, with peak migration in May and June. Following the summer holding period in cold water refugia, spawning occurs between late August and November with a peak in October and November. Juvenile spring-run express two different life history patterns. Some juveniles begin to migrate downstream into the Delta from late-fall through spring and exit the Delta by May as young-of-year (YOY). The remaining juveniles can rear in the streams for up to a year and emigrate from their natal streams as yearlings. Yearling spring-run typically emigrate during the fall/early winter of the following year and have left the Delta by the end of January.

Although Central Valley spring-run Chinook salmon were likely the most abundant salmonid run in the Central Valley under historical conditions, large dams eliminated access to almost all historical habitat, and spring-run salmon populations have suffered the most severe declines of any of the four Chinook salmon runs in the Sacramento River basin. The Central Valley, as a whole, is estimated to have supported up to 600,000 spring-run salmon between the late 1880s and 1940s. However, from 1970 through 2012, the spring-run salmon run size estimates have fluctuated from highs near 30,000 to lows near 3,000.[48] During 2011-2020, the average annual spring-run salmon escapement was 10,641 fish, ranging from 1,591 fish in 2017 to 23,810 fish in 2013. An escapement estimate for 2022 is not currently available.

Spawning conditions likely improved in 2022 compared to 2021 with cooler temperatures, wetter conditions, and increased reservoir storage. On the mainstem Sacramento River, conservation efforts to provide cold water for winter-run Chinook salmon also likely benefitted spring-run Chinook salmon, with daily average temperatures remaining below 58 degrees F through October. Heavy precipitation from November through January likely resulted in favorable conditions for spawning and egg survival across the entire Central Valley.

YOY spring-run Chinook exhibit slightly later migration timings through the Delta than winter-run Chinook. As of February 7, 2023, the Salmon Monitoring Team (SaMT) estimated 58-75 percent of young of the year spring-run had yet to enter the Delta, 25-40 percent were currently in the Delta, and zero to two percent of juveniles have exited the Delta. YOY spring-run that emigrate in the Sacramento River basin will experience migratory and entrainment impacts similar to winter-run Chinook as described above in section 3.5.3. Yearling spring-run are not expected to be present in the Delta during the TUCP and will not be impacted.

For YOY emigrating from the San Joaquin River basin, the Petitioners indicate that increased CVP exports are expected to have minimal effects on through-Delta survival of juvenile

[48] Azat, J. 2021. GrandTab.2021.06.30 California Central Valley Chinook Population Database Report. California Department of Fish and Wildlife.

salmon from the San Joaquin River basin based on modeling.[49] The overall impacts of the TUCP on spring-run are difficult to discern due to a lack of life cycle modeling.[50]

Early migrating adult spring-run may be present in the Delta during the TUCP and would experience similar migratory delays and risks of straying as winter-run described above. Peak adult migration for spring-run has historically been during May and June, but migration can occur as early as March. The TUCP is expected to have limited effects on adults through temporary delays to upstream migration, but the overall impacts remain uncertain for adult spring-run.

3.5.5 Fall-Run Chinook Salmon

Central Valley fall-run and late-fall run Chinook salmon (fall-run) are a California Fish Species of Special Concern. Adult fall-run migrate upstream and spawn from late September through January. Generally, fall-run juveniles emigrate from their natal streams during winter through spring. Fall-run juveniles have typically exited the Delta by the end of June. Although fall-run are currently the most abundant of all Central Valley salmon runs, natural production of fall-run Chinook salmon in the mainstem Sacramento River has declined since 1967–1991.

Juvenile fall-run emigrating from the Sacramento River will enter the Delta beginning in February and continue through the end of April. Early life-history fall-run that enter the Delta in February are expected to experience similar through Delta survival impacts as described above for winter-run and spring-run Chinook Salmon. Fall-run emigrating from the San Joaquin River are expected to experience similar uncertain changes to through Delta survival and entrainment risk as described for spring-run above. Adult fall-run will not be present in the Delta from February through April and are not expected to be impacted by the TUCP. A life cycle model for fall-run does not exist due to similar challenges as described for spring-run above.

3.5.6 Central Valley Steelhead

Steelhead were listed as threatened under the ESA in 1998. Adult steelhead typically migrate upstream and spawn during the winter months when river flows are high and water clarity is low. Unlike Chinook salmon, adult steelhead may not die after spawning and can return to coastal ocean waters and return to spawn more than once. Juvenile steelhead rear for one or two years in cool, clear, fast-flowing, streams and rivers (Moyle 2002). Outmigration of juvenile steelhead peaks from February through May for the Sacramento River basin and April through May for the San Joaquin River basin.

Juvenile steelhead from the Sacramento River basin emigrating through the Delta are expected to experience similar migratory impacts as described for winter-run Chinook salmon above. However, the full measure of the impacts is uncertain for steelhead because survival

[49] See Table SR3 of Attachment 2 in the February 13, 2023 TUCP.

[50] Development of a life cycle model for spring-run has been limited by insufficient data, significantly larger range of occupied habitat, and challenges in distinguishing run types in salmonids during sampling.

as a function of flow has not been examined in a similar manner to that of Chinook salmon. Steelhead from the San Joaquin River basin may potentially experience lower through-Delta survival due to higher exports under the TUCP and lower San Joaquin River inflow to total export ratios[51]. A life cycle model for steelhead does not exist due to similar challenges as described for fall and spring-run.

3.5.7 Southern Distinct Population Segment of Green Sturgeon

Green sturgeon were listed as threatened under the ESA in 2006. Information on green sturgeon is extremely limited; thus information on their life history is inferred from those of white sturgeon. Adult green sturgeon begin their upstream spawning migration into the San Francisco Bay in March, reach Knights Landing during April, and spawn between March and July. Juveniles spend 1 to 4 years in freshwater and estuarine habitats before they enter the ocean. Juvenile green sturgeon are routinely collected at the Projects' salvage facilities throughout the year. Salvage records indicate that sub-adult green sturgeon may be present in the Delta during any month of the year in low numbers but are most commonly salvaged in July and August.

Juvenile and sub-adult green sturgeon typically occupy regions of the Delta which are tidally dominated and not affected heavily by riverine flows. However, the biological processes are poorly understood for juveniles and sub-adults and the impacts of the TUCP remain uncertain.

4.0 APPLICABILITY OF THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) AND WATER CODE SECTION 13247

As noted above in the Introduction, on February 13, 2023, Governor Newsom issued Executive Order N-3-23. Among other things, Directive 3 of the order orders the State Water Board to consider modifying requirements for reservoir releases or diversion limitations for SWP and CVP facilities to provide opportunities to maintain or expand water supplies north and south of the Delta.

Ordinarily, the State Water Board must comply with any applicable requirements of the California Environmental Quality Act (CEQA) (Pub. Resources Code, Division 13, § 21000 et seq.) prior to issuance of a temporary urgency change order pursuant to Water Code section 1435. (See Cal. Code Regs., tit. 23, § 805.) However, Directive 3 of the Governor's February 13, 2023 Executive Order waived CEQA and the regulations adopted to implement CEQA for the purposes of carrying out Directive 3 to the extent that CEQA otherwise would have applied to any actions taken or approvals granted pursuant to that directive, including the State Water Board's action on the TUCP.

The Governor's Proclamation also suspended Water Code section 13247 as applied to actions taken pursuant to Directive 3. Section 13247 requires state agencies, including the State Water Board, to comply with water quality control plans unless otherwise directed or authorized by statute. Absent suspension of section 13247, the State Water Board could not approve a petition to modify water right permits and licenses in a way that does not provide for

[51] Buchanan, R.A., E. Buttermore, and J. Israel. 2021. Outmigration survival of a threatened steelhead population through a tidal estuary. Canadian Journal of Fisheries and Aquatic Sciences. 78: 1869-1886. https://doi.org/10.1139/cjfas-2020-0467.

full attainment of the water quality objectives as specified in the Bay-Delta Plan, even during a drought emergency.

5.0 PROCEDURAL REQUIREMENTS CONCERNING THE TEMPORARY URGENCY CHANGE PETITION

The State Water Board may issue an order approving a TUCP in advance of public notice. (Wat. Code, § 1438, subd. (a).) Public notice must be provided as soon as practicable, unless the change will be in effect less than 10 days. (*Id*., § 1438, subds. (a), (b) & (c).) Any interested person may file an objection to a temporary urgency change. (*Id*., subd. (d).) The State Water Board must promptly consider and may hold a hearing on any objection. (*Id*., subd. (e).) State Water Board Resolution 2012-0029 delegated to the Board Members individually and to the Executive Director the authority to hold a hearing, if necessary, and act on a TUCP. (Resolution 2012-0029, ¶¶ 2.2, 4.4.1.)[52]

The Petitioners filed the TUCP on February 13, 2023, and the State Water Board issued a Notice of the TUCP on February 14, 2023. The State Water Board also posted the TUCP and associated notice on its website and notified persons on its email distribution accordingly, and instructed the Petitioners of their obligation to publish the State Water Board notice in newspapers having general circulation and published within the counties wherein the points of diversion lie. (*Id*., § 1438, subd. (b)(1).) In its notice, the State Water Board advised that objections to the TUCP would be accepted until noon on February 23, 2023. The State Water Board will give prompt consideration to any such objections received, which may form the basis for future modifications to this Order.

6.0 REQUIRED FINDING OF FACT

Water Code section 1435 provides that a permittee or licensee who has an urgent need to change the point of diversion, place of use, or purpose of use from that specified in the permit or license may petition for a conditional temporary change order. The State Water Board's regulations set forth the filing and other procedural requirements applicable to TUCPs. (Cal. Code Regs., tit. 23, §§ 805, 806.) The State Water Board's regulations also clarify that requests for changes to permits or licenses other than changes in the point of diversion, place of use, or purpose of use may be filed, subject to the same filing and procedural requirements that apply to changes in point of diversion, place of use, or purpose of use. (*Id*., § 791, subd. (e).)

Before approving a temporary urgency change, the State Water Board must make the following findings:

1. the permittee or licensee has an urgent need to make the proposed change;

2. the proposed change may be made without injury to any other lawful user of water;

[52] The Deputy Director for Water Rights may act on a temporary urgency change petition if there are no objections to the petition.

3. the proposed change may be made without unreasonable effect upon fish, wildlife, or other instream beneficial uses; and

4. the proposed change is in the public interest.

(Wat. Code, § 1435, subd. (b)(1-4).)

The State Water Board exercises continuing supervision over temporary, urgency change orders (TUCO) and may modify or revoke them at any time. (Wat. Code, §§ 1439, 1440.) The authorization to divert and use water under a TUCO expires automatically 180 days after issuance, unless the TUCO is revoked, or an earlier expiration date is specified. (*Id*., § 1440.) The 180-day period does not include any time required for monitoring, reporting, or mitigation. (*Ibid*.) The State Water Board may renew a TUCO for a period not to exceed 180 days. (*Id*., § 1441.)

6.1 Summary of the Ordering Conditions that Support the Required Findings of Fact

As summarized and described in the introduction, this Order conditionally approves changes to the Port Chicago Delta outflow requirement for the remainder of February and March This Order also includes the following conditions, which are intended to ensure that the changes can be made (1) without injury to other legal users of water; (2) without unreasonable effects on fish, wildlife, or other instream beneficial uses; (3) consistent with the public trust doctrine; and (4) in the public interest:

- DWR and Reclamation must consult on a regular basis with designated representatives from the State Water Board and the fisheries agencies concerning current conditions and potential changes to SWP and CVP operations needed to reasonably protect fish and wildlife beneficial uses of water.

- DWR and Reclamation must conduct necessary monitoring, modeling, and other evaluations to provide information to State Water Board staff and the fisheries agencies on at least a weekly basis regarding the effects of this change on native resident and migratory fish species, including to inform whether this change in combination with other operations may affect entrainment of native fish species at the SWP and CVP export facilities. DWR and Reclamation must also conduct any additional monitoring and analyses that may be requested by State Water Board staff or fisheries agencies staff that the Executive Director determines is warranted. Specifically, on a weekly basis DWR and Reclamation must evaluate expected entrainment effects with and without the changes approved in this order, as feasible. The Order reserves continuing authority to impose restrictions on exports or other conditions to avoid impacts to native fish species from this change.

- DWR and Reclamation must identify opportunities to use a portion of the additional water supplies resulting from this change to improve water supplies to wildlife refuges and to provide for pulse flows for the benefit of native fish and wildlife and must provide a report to the Executive Director by April 3, 2023. The Order reserves authority to direct use of a portion of the water supply gains resulting from this Order for fish and wildlife purposes.

- Upon occurrence of significant additional precipitation and runoff in the Delta watershed, or other changed conditions or new information, the Executive Director reserves authority to modify the Order to meet the required findings.

- The Order specifies that suspension of DWR and Reclamation's responsibility to meet the March 2023 Port Chicago Delta outflow requirement identified in Table 4 of D-1641 does not alleviate DWR and Reclamation of the responsibility for meeting any Port Chicago requirements that would have applied in April without the changes approved by this order.

- DWR and Reclamation are required to ensure that the EC gages at all D-1641 Delta outflow compliance stations, including at the Port Chicago (station D-10), Chipps Island (station C-14), and Collinsville (station C-2) stations are operational and calibrated and that monitoring data is quality controlled to ensure that the data is reliable for compliance and evaluation purposes.

- The Petitioners are required to calculate and maintain a record of the following under the changes approved in this order as compared to without the changes: the change in Delta outflows; the change in the location of X2; the volume of additional exports; the increase in water supply allocations to contractors, including refuges; and any expected increases in carryover storage that would provide for higher storage levels going into water year 2024 north or south of the Delta, including the volume and location of those storage benefits.

- Through the remainder of the water year, the Petitioners are required to submit updated monthly water year operations outlooks. The outlooks are required to be posted on DWR's website and updated as necessary based on changed conditions.

- The Order requires DWR and Reclamation to operate consistent with the IOP extension proposed by DWR and Reclamation, and the IOP extension approved by the court once that occurs.

- The Order requires Reclamation, in consultation with the fisheries agencies, to implement the Water Year 2023 Sacramento River Temperature Management Plan as approved by the Executive Director.

- Petitioners must immediately notify the Executive Director if any significant change in conditions occurs that warrants reconsideration of this Order.

- The Order reserves the Executive Director's and State Water Board's authority to require modifications to the Order based on public or agency comments or objections or changed circumstances.

6.2 Urgent Need for the Proposed Change

Under Water Code section 1435, subdivision (c), an "urgent need" means "the existence of circumstances from which the board may in its judgment conclude that the proposed temporary change is necessary to further the constitutional policy that the water resources of

the state be put to beneficial use to the fullest extent of which they are capable and that waste of water be prevented..."

The Governor's Executive Order N-3-23, direct the State Water Board to consider modifying requirements for reservoir releases or diversion limitations applicable to SWP or CVP facilities to provide opportunities to maintain or expand water supplies north and south of the Delta.

Extremely wet conditions in December 2022 and January 2023 have bolstered storage levels in SWP and CVP reservoirs and built an above average snowpack across the Sacramento and San Joaquin watersheds. Since early February, however, conditions have been relatively dry. Climate extremes in WY 2022 showed that a wet winter can be followed by extremely dry conditions. A return to dry conditions for the remainder of WY 2023, coupled with meeting the Port Chicago Delta outflow requirement, would decrease south of Delta water supplies by hundreds of thousands of acre-feet following significantly reduced water supplies occurring in 2021 and 2022. The repeat occurrence of extreme dry conditions over the last two decades and need for TUCPs over the last decade also points to longer term consideration of the impacts of climate change and need for associated longer term planning and implementation actions outside of TUCPs.

Relevant to the issue of urgency, as well as the findings regarding unreasonable impacts on fish and wildlife and the public interest, are the water supply benefits that are expected as a result of the changes approved by this order. The projected water supply benefits resulting from the proposed changes, according to the modeled hydrology for the TUCP, which assumed drier conditions (90 percent exceedance hydrology), are expected to be an increase of over 680 TAF in exports south of the Delta during the February to September period, with the possibility for greater benefits with wetter hydrology. The TUCP identified some interim storage benefits in Oroville and Folsom reservoirs from reduced releases that contribute to exports during the summer identified above. Petitioners maintain that releases from Shasta Reservoir would not be required to meet the Port Chicago Delta outflow requirement, and the proposed change to that requirement is not expected to benefit storage levels in Shasta Reservoir significantly. However, increased exports could reduce reliance on Shasta Reservoir for CVP exports to some extent this summer and fall. Any increase in Shasta storage attributable to the change in Delta outflow requirements should be used to ensure that Reclamation complies with its existing obligations to control temperatures in the Sacramento River pursuant to Order WR 90-5. Accordingly, this order requires Reclamation to implement a 2023 Sacramento River Management Plan that is approved by the Executive Director. Maintaining normal Project operations to meet Delta outflow objectives established in Table 4 of D-1641 would significantly reduce opportunities to export water, making those supplies unavailable for the remainder of the season for water supply contractors. Reductions in surface water supplies could also place additional strain on already significantly depleted groundwater basins and on supplies needed from the Colorado River (which is currently experiencing a significant prolonged drought) by some SWP contractors. As such, there is an urgent need for these changes.

In summary, in light of the severe magnitude of the drought over the last 3 years and uncertainty in future hydrology, there is an urgent need for the proposed changes to address

or help to minimize the significant impacts to water supplies that occurred during 2021 and 2022, and to help stabilize water supplies in 2023.

6.3 No Injury to Any Other Lawful User of Water

The proposed changes as conditioned will not injure any other lawful user of water. As used in Water Code section 1435, the term "injury" means invasion of a legally protected interest. (*State Water Resources Control Board Cases* (2006) 136 Cal.App.4th 674, 738-743.) The changes modify a water quality objective for the protection of fish and wildlife that is intended to provide for improved conditions for fish species during wet conditions. The change is not expected to have a material effect on water quality or water supplies for other legal users of water since the change would not modify DWR and Reclamation's obligations to meet water quality objectives for agricultural or municipal purposes.

The proposed change will have no impact on water quality objectives for municipal and industrial beneficial uses, or agricultural beneficial uses. Moreover, approval of the proposed change does not affect the Petitioners' obligation to curtail their diversions of natural and abandoned flows to the extent necessary to protect senior water right holders, or to meet any independent contractual obligations that the Petitioners may have. Based on the above, the proposed changes will not injure other users of water due to changes in water quality.

6.4 No Unreasonable Effect upon Fish, Wildlife, or Other Instream Beneficial Uses

The changes proposed in the TUCP have the potential to negatively impact native resident and migratory fish species as described in section 3.5 above and in Appendix 2 of the TUCP. However, in accordance with the Executive Order N-3-23, the changes would "(vi) provide opportunities to maintain or to expand water supplies north and south of the Delta" to ensure adequate water supplies for the purpose of drought resilience. Under the TUCP, water supplies are expected to increase by more than 680 TAF according to the modeling submitted with the TUCP, which assumed drier conditions (90 percent exceedance hydrology). With wetter hydrology, these benefits could be greater. In their February 13, 2023 letter to the State Water Board[53], CDFW concurred with Reclamation and DWR's assessment that impacts to fish and wildlife resources from the proposed changes would be no more than incremental. Subsequently, CDFW submitted a letter on February 18, 2023, indicating that they are currently processing a request for a minor amendment to DWR's ITP to incorporate changes to operations as described in the TUCP. CDFW indicated that, although they are still in the process of evaluating the request, in the course of their review to date they "have not seen that the change would result in any substantial impact to fish and wildlife." Based on the above, the potential for impairment to fish, wildlife, or other instream beneficial uses from the approved temporary changes is not considered unreasonable considering the expected benefits to drought resilient water supplies.

6.5 Impacts to Public Trust Resources

Prior to approval of a TUCP, the Board must find that the proposed change may be made without unreasonable effect upon fish, wildlife, or other instream beneficial uses. In addition, the State Water Board has an independent obligation to consider the effect of the approval of

[53] Available at https://www.waterboards.ca.gov/drought/tucp/

changes in this Order on public trust resources and to protect those resources to the extent feasible and in the public interest. (*National Audubon Society v. Superior Court* (1983) 33 Cal. 3d 419, 446-447.) Public trust uses include navigation, commerce, fishing, recreation, and the preservation of fish and wildlife habitat. Disapproving the TUCP to avoid the potential impacts of the proposed change on fish and wildlife is not considered to be in the public interest for the reasons given in sections 6.2, 6.4, and 6.6 of this Order. Specific additional public trust resource areas of known concern, in addition to fish and wildlife, are discussed below.

6.5.1 Recreation

The temporary reductions in Delta outflow requirements in D-1641 approved by this Order are not expected to impact water contact recreation that depends on water surface elevation to support activities. Water surface elevation in the Delta is determined by the rise and fall of the tides, which results in upstream and downstream movement of large volumes of water and produces flows and velocities that are generally much greater than the volume of water associated with net Delta outflow. Temporary changes in Delta outflow may also impact recreational fishing by modifying survival of fish species that depend on different types of habitat. For example, reductions in Delta outflow may negatively impact juvenile fall-run survival, which could result in fewer adults and a shorter recreational fishing season when the cohort returns in three years. Reductions in Delta outflow may result in habitat conditions that promote survival of introduced recreational fish such as largemouth bass. While this may be a positive impact for recreational fishing of largemouth bass, it is also a negative impact to native fish species consumed by largemouth bass and other predators that use similar habitat. There may be short-term impacts to recreational fishing associated with this Order. However, these impacts are not contrary to the public interest in the context of the need to increase water supplies to support drought resiliency in the event of continued dry conditions.

6.5.2 Water Quality and Available Habitat

As described in sections 3.5, 6.3 and 6.4, reductions in Delta outflow requested by the TUCP are expected to allow salinity to intrude further upstream which degrades habitat for native and migratory fish populations. The petitioners will continue to meet other salinity requirements imposed by D-1641 and provide adequate water quality conditions for municipal, industrial, and agricultural uses. The near-term potential negative impacts to fish and wildlife are not considered contrary to the public interest in the context of extreme weather events and uncertain hydrologic conditions, and the increase in water supplies to support drought resiliency in the event of continued dry conditions.

6.6 The Proposed Change is in the Public Interest

The temporary modifications authorized in this Order are considered to be in the public interest. As discussed above, hydrologic and water supply conditions in the Bay-Delta watershed continue to be impacted by the drought and may be inadequate to meet all of the needs for water in the basin this year and heading into next year if conditions continue to be dry. To respond to these conditions, the changes in the Order are warranted to avoid the significant water supply impacts of meeting the Port Chicago X2 requirement through March of this year. The changes approved in this Order will improve south of Delta water supplies so that they can be used for multiple purposes. The changes approved in this Order balance the various uses of water now and in the future while preserving water right priorities and

protecting the public interest. This Order also requires planning, modeling, consulting, monitoring, and reporting and reserves authority to modify the Order to ensure that it remains in the public interest.

7.0 CONCLUSIONS

The State Water Board has adequate information in its files to make the evaluation required by Water Code section 1435 concerning the modification and renewal of the TUCP Order discussed above.

I conclude that, based on the available evidence:

1. The Petitioners have an urgent need to make the proposed changes;

2. The petitioned changes; as conditioned by this Order, will not operate to the injury of any other lawful user of water;

3. The petitioned changes, as conditioned by this Order, will not have an unreasonable effect upon fish, wildlife, or other instream beneficial uses; and

4. The petitioned changes, as conditioned by this Order, are in the public interest.

ORDER

NOW, THEREFORE, IT IS ORDERED that the petition for temporary urgency change in permit and license conditions under Permits 16478, 16479, 16481, 16482 and 16483 (Applications 5630, 14443, 14445A, 17512 and 17514A, respectively) of the Department of Water Resources (DWR) for the State Water Project (SWP) and License 1986 and Permits 11315, 11316, 11885, 11886, 11887, 11967, 11968, 11969, 11970, 11971, 11972, 11973, 12364, 12721, 12722, 12723, 12725, 12726, 12727, 12860, 15735, 16597, 20245, and 16600 (Applications 23, 234, 1465, 5638, 13370, 13371, 5628, 15374, 15375, 15376, 16767, 16768, 17374, 17376, 5626, 9363, 9364, 9366, 9367, 9368, 15764, 22316, 14858A, 14858B, and 19304, respectively) of the United States Bureau of Reclamation (Reclamation) for the Central Valley Project (CVP); is approved, subject to the following terms and conditions. Except as otherwise provided below, all other terms and conditions of the subject license and permits, including those added by the State Water Resources Control Board (State Water Board) in Revised Decision 1641 (Decision 1641) shall remain in effect. The changes approved in this Order shall be effective from the date of this Order until March 31, 2023, and the other conditions shall remain effective until satisfied.

1. Except as otherwise provided below, unless this Order is amended or rescinded, the requirement that DWR and Reclamation meet Delta outflows listed for Port Chicago in Table 4 of Decision 1641 are suspended from the date of this Order through March of 2023. All other Delta outflow requirements included in Decision 1641 remain in effect.

2. DWR and Reclamation shall consult on a regular basis with designated representatives from the State Water Board, the Department of Fish and Wildlife (CDFW), National Marine Fisheries Service (NMFS), and U.S. Fish and Wildlife Service (USFWS) (collectively fisheries agencies) concerning current conditions and potential changes to SWP and CVP operations needed to reasonably protect fish and wildlife beneficial uses of water.

3. DWR and Reclamation shall conduct necessary monitoring, modeling, and other evaluations to provide real time information to State Water Board staff and the fisheries agencies on at least a weekly basis, and more often if warranted or directed, regarding the effects of this change on native resident and migratory fish species, including to inform whether this change in combination with other operations may affect entrainment of native fish species at the SWP and CVP export facilities. DWR and Reclamation shall also conduct any additional monitoring and analyses that may be requested by State Water Board staff or fisheries agencies staff that the Executive Director determines is warranted. Specifically, on a weekly basis DWR and Reclamation shall evaluate expected entrainment effects with and without the changes approved in this order, as feasible, and present that information to State Water Board staff and fisheries agency staff for review and input. The Executive Director reserves continuing authority to impose restrictions on exports or other conditions to avoid impacts to native fish species from this change, including limitations on reverse flows and measures to prevent native fish species from being drawn into the interior Delta with turbidity events.

4. DWR and Reclamation shall evaluate opportunities to use a portion of the additional water supplies resulting from this change to improve water supplies to wildlife refuges and to provide for pulse flows for the benefit of native fish and wildlife. DWR and Reclamation shall provide a report to the Executive Director by April 3, 2023, identifying how a portion of the water supply improvements resulting from this change will be used for fish and wildlife purposes, and if not, the reason it is not going to be used for this purpose. The Executive Director reserves authority to direct use of a portion of the water supply gains resulting from this Order for fish and wildlife purposes.

5. Upon occurrence of significant additional precipitation and runoff in the Delta watershed, or other changed conditions or new information, the Executive Director reserves authority to modify this order to meet the required findings.

6. The suspension of DWR and Reclamation's responsibility to meet the March 2023 Port Chicago Delta outflow requirement identified in Table 4 of Decision 1641 shall not alleviate DWR and Reclamation of the responsibility for meeting any Port Chicago requirements that would have applied in April without the changes approved by this order. DWR and Reclamation shall conduct an evaluation as directed by the Executive Director to determine whether, absent the suspension of the Table 4 Port Chicago Delta outflow requirement in March of 2023, and assuming DWR and Reclamation complied with the requirement, the Port Chicago Delta outflows would have been required in April 2023 pursuant to footnote [d] of Table 4. If compliance with Port Chicago Delta outflows would have been required pursuant to footnote [d] absent the changes approved in this order, DWR and Reclamation shall meet the Port Chicago requirement indicated in Table 4 during April 2023.

7. DWR and Reclamation shall ensure that the electrical conductivity gages at all Decision 1641 Delta outflow compliance stations, including at the Port Chicago (station D-10), Chipps Island (station C-14), and Collinsville (station C-2) stations are operational and calibrated and that monitoring data is quality controlled to ensure that the data is reliable for compliance and evaluation purposes. The Petitioners shall notify the State Water Board within 24 hours of any gage outages or malfunctioning monitoring instruments and describe steps that will be taken to expeditiously remedy the situation.

8. The Petitioners shall calculate and maintain a record of the following under the changes approved in this order as compared to without the changes: the change in Delta outflows; the change in the location of X2; the volume of additional exports; the increase in water supply allocations to specific groups of contractors, including refuges; and any expected increases in carryover storage that would provide for higher storage levels going into water year 2024 north or south of the Delta, including the volume and location of those storage benefits. These records shall be submitted to the State Water Board and fisheries agencies within 10 business days after the first day of the following month, with the exception of the carryover storage information which is due by November 15, 2023.

9. Through the remainder of the water year, the Petitioners shall submit updated monthly water year operations outlooks identifying information described in a. through f. below. The outlooks shall be posted on DWR's website and updated as necessary based on changed conditions. Monthly updates shall be posted on DWR's website and provided to the State Water Board and fisheries agencies within 20 working days after the first day of the month.

    a. Upstream: Inflows to and storage levels in the major reservoirs (Shasta, Folsom, Oroville, Trinity, Whiskeytown, San Luis, and New Melones). River releases from the aforementioned reservoirs.

    b. Delta inflows, channel depletions, exports, and outflows.

    c. SWP: deliveries to Feather River Service Area contractors, north-of-Delta Table A contractors, and south-of-Delta Table A contractors. Information regarding SWP deliveries shall include the monthly and total volume, volumes delivered to specific water users, and the basis of water right or contractual agreement under which the deliveries are made.

    d. CVP: deliveries to Settlement contractors, American River municipal and industrial (M&I) contractors, Sacramento River agricultural water service contractors, Sacramento River M&I water service contractors, Contra Costa Water District, north-of-Delta refuges, exchange contractors, south-of-Delta agricultural water service contractors, south-of-Delta M&I water service contractors, south-of-Delta refuges, East side water right holders, New Melones East side, and Friant Unit. Information regarding CVP deliveries shall include the monthly and total volume, volumes delivered to specific water users, and the basis of water right or contractual agreement under which the deliveries are made.

    e. South-of-Delta water transfers, including the transferors, transferees, and the quantities transferred. Water that is delivered by or from SWP or CVP facilities in lieu of or in exchange for groundwater or surface water.

    f. Monthly coordinated operations agreement balances.

10. DWR and Reclamation shall operate consistent with the terms of the proposed Interim Operations Plan (IOP) submitted to the Court on September 30, 2022, until such time as the Federal District Court issues an Order. Following which, the Petitioners shall comply with the Federal District Court Order.

11. Pursuant to the requirements of this Order and State Water Board Order WR 90-5, Reclamation, in consultation with the fisheries agencies, shall implement the Water Year 2023 Sacramento River Temperature Management Plan as approved by the Executive Director.

12. This Order may be further modified by the Executive Director or the State Water Board based on public and agency comments or objections, or changed circumstances.

Information concerning changes to this Order will be posted on the State Water Board's website within 24 hours.

13. This Order does not authorize any act that results in the taking of a candidate, threatened, or endangered species, or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). If a "take" will result from any act authorized under this Order, the Petitioners shall obtain authorization for an incidental take permit prior to construction or operation of the project. Petitioners shall be responsible for meeting all requirements of the applicable Endangered Species Act for the temporary urgency changes authorized under this Order.

14. Petitioners shall immediately notify the Executive Director of the State Water Board if any significant change in conditions occurs that warrants reconsideration of this Order.

February 21, 2023

Dated

Eileen Sobeck,
Executive Director