

**LONG-TERM OPERATION OF THE
CALIFORNIA STATE WATER PROJECT**

**ADDENDUM TO THE
FINAL ENVIRONMENTAL IMPACT REPORT
FOR THE COVERAGE OF WHITE STURGEON UNDER
INCIDENTAL TAKE PERMIT NO. 2081-2019-066-00**

PREPARED FOR:

California Department of Water Resources
3500 Industrial Blvd.,
West Sacramento, CA 95691
Contact: Christopher Wilkinson
916-873-4301



PREPARED BY:

ICF
980 9th Street, Suite 1200
Sacramento, CA 95814
Contact: Adrian Pitts
916-501-3199



June 2024

ICF. 2024. *Long-term Operation of the California State Water Project Addendum to the Final Environmental Impact Report for the Coverage of White Sturgeon under Incidental Take Permit No. 2081-2019-066-00*. June. (ICF 104469.0.014.) Sacramento, CA. Prepared for California Department of Water Resources, Sacramento, CA.

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Acronyms and Abbreviations

Term	Definition
2020 FEIR	2020 Final Environmental Impact Report
BSPP	Barker Slough Pumping Plant
CCF	Clifton Court Forebay
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGF	California Fish and Game Code
CVP	Central Valley Project
Delta	Sacramento-San Joaquin Delta
DWR	California Department of Water Resources
DWR, permittee	California Department of Water Resources
EIR	Environmental Impact Report
F&GC	California Fish and Game Commission
HAB	harmful algal bloom
ITP	incidental take permit
mm	millimeter
OMR	Old and Middle rivers
RRDS	Roaring River Distribution System
Skinner Fish Facility	John E. Skinner Delta Fish Protective Facility
SMSCG	Suisun Marsh Salinity Control Gates
SWP	State Water Project
taf	thousand acre-feet
WSTT	White Sturgeon Technical Team

Chapter 1

Introduction and Purpose

1.1 Introduction

The California Department of Water Resources (DWR, permittee) is submitting a Major Amendment Request to the California Department of Fish and Wildlife (CDFW) for its incidental take permit (ITP) for Long-Term Operation of the California State Water Project (SWP) (California Department of Fish and Wildlife 2020; 2020 LTO ITP, Permit No. 2081-2019-066-00). The 2020 LTO ITP provides incidental take coverage for the effects of SWP operations on four fish species listed under the California Endangered Species Act (CESA), including Longfin Smelt (*Spirinchus thaleichthys*), Delta Smelt (*Hypomeus transpacificus*), winter-run Chinook Salmon (*Oncorhynchus tshawytscha*), and spring-run Chinook Salmon (*O. tshawytscha*) in: (1) the Sacramento River from its confluence with the Feather River downstream to the legal Sacramento-San Joaquin Delta (Delta) boundary at the I Street Bridge in the City of Sacramento; (2) the Delta (i.e., upstream to Vernalis and downstream to Chipps Island); and (3) Suisun Marsh and Bay (see Figure 1-1). DWR is seeking to obtain incidental take authorization for the take of White Sturgeon (*Acipenser transmontanus*) resulting from ongoing SWP operations by including White Sturgeon as a covered species under the 2020 LTO ITP.

On November 29, 2023, the California Fish and Game Commission (F&GC) received a petition to list White Sturgeon as threatened under CESA. F&GC staff determined that the petition was complete and on December 7, 2023 referred it to CDFW for evaluation under Section 670.1, subsection 670.1(d)(1) of the California Code of Regulations (CCR) and California Fish and Game Code (CFG) Section 2073. CDFW subsequently evaluated the petition and determined that it was complete and met the legal standard and provided its evaluation report to the F&GC. The F&GC included the petition on the agenda for the F&GC meeting scheduled for June 19–20, 2024. If the F&GC finds that the petition contained sufficient scientific information to indicate that White Sturgeon listing may be warranted, the F&GC will designate White Sturgeon as a candidate species under Section 2068 of the CFGC and publish its findings in the Notice Register.¹

CDFW is required to prepare and submit a status review to the F&GC within 12 months of publication of the candidacy notice but may request a six-month extension to complete the status review. The F&GC will make a final determination on the petition after reviewing CDFW's status review. If the F&GC determines that action is warranted on the petition, White Sturgeon will become listed as a threatened species under CESA.

¹ The California Department of Water Resources (DWR) is submitting an amendment application as a cautionary measure should the F&GC act to grant White Sturgeon candidacy status under CESA. If the F&GC acts to deny the petition and not grant White Sturgeon candidacy status, however, DWR would not need incidental take coverage for White Sturgeon. In those circumstances, DWR would withdraw the application for an amendment to ITP No. 2081-2019-066-00 and not rely on this addendum to the Final Environmental Impact Report for the Long-term Operation of the California State Water Project.

As a candidate species, White Sturgeon are conferred protection from take under CESA. Therefore, the California Department of Water Resources (DWR) seeks to obtain incidental take authorization for the take of White Sturgeon resulting from ongoing SWP operations.

No changes to SWP facilities or operations are proposed.

DWR has prepared this addendum for the proposed major amendment to the 2020 LTO ITP to comply with the California Environmental Quality Act (CEQA) (California Public Resources Code Section 21000 et seq.), augmenting the 2020 Final Environmental Impact Report (EIR) for Long-Term Operation of the California State Water Project (2020 FEIR) (California Department of Water Resources 2020; State Clearinghouse No. 2019049121). As described in this addendum, the proposed inclusion of White Sturgeon as a covered species under the 2020 LTO ITP does not require revisions to the conclusions or findings presented in the FEIR because no new or substantially more intense or severe significant environmental impacts or potentially significant environmental impacts would occur.

1.2 Background

The SWP facilities in the Delta provide for delivery of water to areas within and immediately adjacent to the Delta, and to regions south of the Delta consistent with applicable laws, contractual obligations, and agreements. DWR stores, diverts, and conveys water in accordance with DWR's existing water rights to deliver water pursuant to water contracts and agreements up to full contract quantities. The main SWP Delta features are Suisun Marsh and Bay facilities, the Harvey O. Banks Pumping Plant, the Clifton Court Forebay (CCF), the John E. Skinner Delta Fish Protective Facility (Skinner Fish Facility), and the Barker Slough Pumping Plant (BSPP). The SWP also includes the ongoing operation of existing facilities in coordination with the Central Valley Project (CVP). The locations of the various facilities of the SWP in the Delta are shown in Figure 1-1.

CDFW approved an ITP on March 31, 2020, for the potential take of four CESA-listed fish species associated with the long-term operation of the SWP facilities in the Delta. DWR's Notice of Determination for the FEIR prepared to support the ITP was filed with the State Clearinghouse on March 30, 2020. The FEIR evaluated six alternatives, including the No Project Alternative. DWR selected Refined Alternative 2b as the environmentally preferred alternative that would be implemented as the long-term operation of the SWP. Refined Alternative 2b includes a suite of operations-related elements to minimize impacts on aquatic species and additional actions to benefit CESA-listed fish species in the Delta.

As explained in the FEIR, seasonal timing of exports differs from historical operations under Refined Alternative 2b, but the total volume of exports would generally be expected to remain the same. Additionally, Refined Alternative 2b includes a collaborative real-time risk assessment approach to the management of flows in Old and Middle rivers (OMR) that provides CDFW with greater authority to curtail exports to minimize entrainment-related effects on CESA-listed fish species and includes a behavioral modification barrier at Georgiana Slough to minimize emigrating juvenile Chinook Salmon entrance into the central Delta. Refined Alternative 2b also commits DWR to implementing its proportional share of OMR restrictions when such restrictions are recommended by the Water Operations Management Team or required by CDFW. Refined Alternative 2b also includes adaptive management actions such as convening an Adaptive Management Team that will develop and implement an Adaptive Management Program.

CDFW and DWR will oversee efforts to monitor and evaluate SWP operations and related activities, use structured decision-making to assess the relative costs and benefits of those operations and activities, and identify changes to those operations and activities, if needed to maintain species protections. The major environmental benefits associated with Refined Alternative 2b include the shifting of spring maintenance flows to develop up to 150 thousand acre-feet (taf) of water for use in the summer–fall period of the current year or spring–fall of the following year (except if the following year is a Critical water year), and providing an adaptively managed 100-taf block of water to supplement Delta outflow any time between June and October of Wet and Above Normal water years or deferring a portion of the 100 taf to the following year for deployment (except if the following year is a Critical water year). The components of Refined Alternative 2b were included as conditions of approval in the 2020 LTO ITP. DWR is committed to implementing the conditions of approval.

The requested major Amendment to ITP No. 2081-2019-066-00 to include White Sturgeon as a covered species is in a cautionary measure in consideration of the F&GC potentially granting candidate threatened status under CESA. Because candidate species are conferred protection from take under CESA, DWR is requesting incidental take coverage for ongoing SWP operations.

All other provisions of the 2020 LTO ITP would remain in effect, and all operations would continue to comply with applicable laws, contractual obligations, and agreements. All provisions in the 2020 LTO ITP and operation of the SWP will continue to protect the four species currently covered under the ITP, as well as White Sturgeon, after the proposed revisions to the ITP are accepted by CDFW and the ITP is amended.

DWR, in coordination with the U.S. Bureau of Reclamation, developed new operating criteria for the SWP and DWR submitted an ITP Application for the Long-term Operations of the State Water Project on November 1, 2023, and anticipates that CDFW will issue a new ITP in fall/winter 2024. DWR also released a Draft EIR for public review on May 29, 2024. The new ITP is expected to cover the same four species as the 2020 LTO ITP, as well as White Sturgeon. Therefore, DWR is seeking to amend the 2020 LTO ITP for the same duration that 2020 LTO ITP is in effect.

1.3 Purpose of the EIR Addendum

According to Section 15164(a) of the CEQA Guidelines, the lead agency or a responsible agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in Section 15162 requiring preparation of a subsequent EIR have occurred. Section 15162 of the CEQA Guidelines lists the conditions that would require the preparation of a subsequent EIR rather than an addendum. These include the following:

1. Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
2. Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

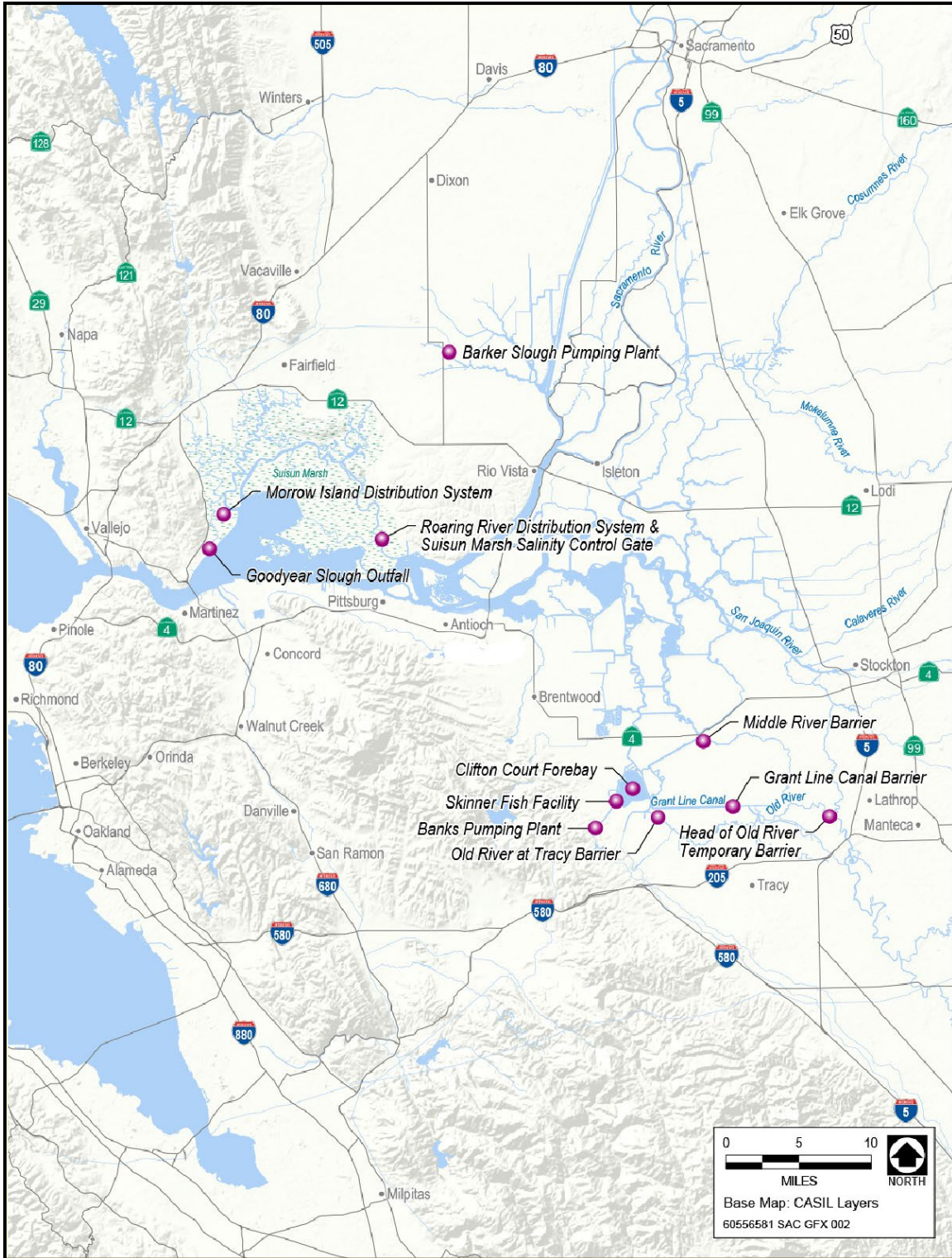
3. New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time of the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:
 - a. The project will have one or more significant effects not discussed in the previous EIR or negative declaration;
 - b. Significant effects previously examined will be substantially more severe than shown in the previous EIR;
 - c. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
 - d. Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

Section 15163 of the CEQA guidelines allow for preparation of a supplemental EIR if any of the conditions described in Section 15162 would require the preparation of a subsequent EIR and only minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation.

This addendum concludes that the major amendment to the 2020 LTO ITP does not trigger any of the CEQA Guidelines Section 15162 conditions described above because the proposed addition of White Sturgeon as a covered species under the 2020 LTO ITP does not require revisions to the conclusions or findings presented in the 2020 FEIR. No new or substantially more intense, severe significant environmental impacts, or potentially significant environmental impacts would occur.

The level of protection for the four species currently covered under the 2020 LTO ITP, as well White Sturgeon and the other species evaluated in the 2020 FEIR will not change as a result of the requested amendment. The requested amendment includes a minimization measure that requires DWR to convene a White Sturgeon Technical Team (WSTT) that will begin planning a series of studies (e.g., enhanced monitoring and life cycle model development) to better understand factors that influence White Sturgeon movement into the south Delta and SWP CCF. The WSTT also will develop information that will form the basis of an operational assessment in the event of elevated entrainment risk that may lead to a measure to reduce take at the SWP. Along with the development of information that will form the basis of an assessment, DWR and CDFW will develop information for what constitutes elevated entrainment risk, taking into account historical salvage, catch from the long-term operation monitoring programs, hydrologic conditions, and relative SWP and CVP salvage. DWR and CDFW will coordinate on the elevated entrainment risk and potential measures to reduce take before presenting the issue to the Water Operations Management Team for assessment. These measures would increase the level of protection compared to that currently provided by SWP operations.

DWR does not propose changes to any other component of the 2020 LTO ITP, including conditions of approval.



Source: California Department of Water Resources 2020

Figure 1-1. State Water Project Facilities Located in the Delta

2.1 Summary of Previous Environmental Review Process

The effects on the environment of long-term operation of the SWP facilities in the Delta and issuance of an ITP to provide incidental take coverage for four CESA-listed fish species were addressed in the 2020 FEIR. The analyses presented in the FEIR concluded that the Proposed Project and the alternatives considered would have either no impact or a less-than-significant impact on the environment. DWR selected Refined Alternative 2b as the long-term operation of the SWP.

Further, DWR's environmentally preferred alternative, Refined Alternative 2b, proposed mitigation to meet the legal standard under CESA to minimize and fully mitigate the take of listed species consistent with DWR's application for an ITP. Refined Alternative 2b provides additional freshwater flows in the spring and summer, and physical barriers and other deterrents to keep fish away from the SWP pumps. This alternative is expected to result in multiple environmental benefits that would contribute to the greater protection of special-status aquatic species than historical operations.

Refined Alternative 2b was determined to have less-than-significant impacts on all environmental resources evaluated and includes mitigation that minimizes and fully mitigates impacts on CESA-listed fish species. Therefore, the long-term operation of the SWP and issuance of the ITP:

1. Will not degrade environmental quality, substantially reduce habitat, cause a wildlife population to drop below self-sustaining levels, reduce the number or restrict the range of special-status species, or eliminate important examples of California history or prehistory.
2. Does not have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.
3. Will not have impacts that are individually limited but cumulatively considerable.
4. Will not have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly.

The environmental analyses and findings presented in the FEIR reflect the independent judgment of DWR as the lead agency under CEQA.

2.2 Environmental Analysis

This section of the addendum analyzes the potential effects on the physical environment from implementing the proposed amendment to the 2020 LTO ITP. This analysis has been prepared to determine whether any of the conditions in Section 15162 or 15163 of the State CEQA Guidelines (as described in Section 1.3, *Purpose of the EIR Addendum*) would occur as a result of the proposed minor revisions to the ITP.

2.2.1 Topics Considered in This Addendum

The proposed changes are to include White Sturgeon as a covered species under the 2020 LTO ITP.

These proposed changes would not modify the long-term operations or substantively modify the actions evaluated in the FEIR. Therefore, the proposed changes would not result in new significant impacts or a substantial increase in the intensity or severity of environmental effects for any of the following topic areas:

- Agricultural Resources
- Geology, Soils, and Mineral Resources
- Water Quality
- Noise
- Visual Resources
- Utilities and Service Systems
- Hazards and Hazardous Materials
- Environmental Justice
- Biological Resources (Terrestrial)
- Cultural Resources
- Tribal Cultural Resources
- Recreation
- Transportation and Circulation
- Air Quality
- Hydrology and Hydraulics

Additional analysis on aquatic biological resources related to the proposed change is provided in analysis below.

2.2.2 Analysis of Recent SWP Operations on White Sturgeon

2.2.2.1 Delta SWP Facility Operations and Maintenance

During the period of implementation of the 2020 LTO ITP (April 1, 2020 to present), salvage of White Sturgeon at the Skinner Fish Facility was generally comparable to that occurring over the prior years beginning in October 2012 (Table 2-1). Relatively higher salvage occurred in December 2023–February 2024. During the months expected to be covered by the ITP issued under DWR's application to amend the 2020 LTO ITP (June 2024–fall/winter 2024), there was little salvage during the period of the 2020 LTO ITP implementation, a pattern that was also generally evident in prior years (Table 2-1). Mortality occurring during the salvage process is likely low because of relatively high louver efficiency (Steel et al. 2020:3). Predation on juvenile White Sturgeon is relatively low compared to alternate prey and decreases as sturgeon grow to around 200 millimeters (mm) (Steel et al. 2020). Continuation of export operations under the 2020 LTO ITP criteria would be expected to result in similar low levels of salvage as observed during the period of 2020 LTO ITP implementation. Screen and louver cleaning at the Skinner Fish Facility could increase entrainment loss of White Sturgeon that otherwise could have been salvaged during cleaning operations, although increased mortality during such periods would be limited because few White Sturgeon would be expected to be present based on historical salvage data (Table 2-1) and screen/louver cleaning would be short relative to the overall time salvage operations would be conducted.

Statistically significant positive correlations between White Sturgeon year-class strength and Delta outflow have been found for November through February and March through July outflow averaging periods (Fish 2010). Other similar analyses have found statistically significant April through May outflow correlations (ICF 2024:6-207). The mechanisms for these correlations are uncertain and

could reflect upstream or in-Delta impacts, with appreciable amounts of variation left unexplained by the relationships and differences in year-class strength possibly reflecting hydrological conditions as opposed to operational differences in outflow. Fish (2010:81) hypothesized that a correlation with winter outflow reflects attraction flows for adults, whereas a correlation with spring outflow reflects successful spawning, hatching, rearing, and increased downstream transport of juveniles to the estuary; spawning, hatching, rearing, and transport within the riverine environment would be a function of Sacramento River flow/Delta inflow rather than Delta outflow. To the extent that the mechanisms reflect outflow, continuation of Delta SWP facility operations under the 2020 LTO ITP criteria would be expected to result in similar levels of effect as have occurred during the period of 2020 LTO ITP implementation, with limited potential for effect during the June through fall/winter period during which the amendment operations would occur.

Table 2-1. Salvage of White Sturgeon (Length in Millimeters in Parentheses) at the State Water Project Skinner Fish Facility, October 1, 2012–May 20, 2024

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
2012	0	0	0	0	0	0	0	0	12 (358)	0	0	0
2013	0	0	0	6 (378)	0	0	0	6 (309– 352)	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0	0	0	0	0	0
2017	0	0	2 (370)	3 (360)	4 (410)	0	0	4 (80)	2 (144)	12*	8 (237)	0
2018	0	1 (250)	18 (225– 290)	0	0	0	4 (349)	0	0	0	0	0
2019	0	0	0	8 (489– 540)	0	4 (537)	0	0	0	0	0	0
2020	0	0	0	0	0	0	0	0	0	0	0	0
2021	0	0	0	0	0	0	0	0	0	0	0	0
2022	0	0	0	0	0	0	0	0	0	0	0	0
2023	0	0	0	0	0	0	0	0	0	0	0	2 (311)
2024	0	4*	20 (296– 401)	11 (291)	34 (227– 376)	0	0	0	–	–	–	–

Source: Aasen 2024.

Note: Abundance numbers are extrapolated from salvage sampling, so not all fish were measured for length.

*Length measurements not available.

– indicates future time period.

2.2.2.2 Summer and Fall Habitat Actions

There would be considerable temporal overlap of the Summer and Fall Habitat Actions with White Sturgeon occurrence in the Delta, although it is unknown what proportion of individuals may encounter the Suisun Marsh Salinity Control Gates (SMSCG) in Montezuma Slough. Boat lock passage would be available past the gates when the gates are closed. Any short-term obstruction occurring would be unlikely to affect the ability of White Sturgeon to move within their overall range, and the winter/spring adult upstream migration period would not coincide with the Summer and Fall Habitat Actions. The Summer and Fall Habitat Actions effects on salinity through X2 management during September/October (i.e., 30-day average $X2 \leq 80$ kilometers per 2020 LTO ITP Condition 9.1.3.1) would not affect White Sturgeon given that laboratory studies show that salinity tolerance increases with age for juveniles (McEnroe and Cech 1985).

2.2.2.3 Skinner Fish Protection Facility Improvements

Skinner Fish Facility improvements would have limited effects on White Sturgeon because there would be few White Sturgeon exposed to the facility based on historical salvage data during the period of 2020 LTO ITP implementation (Table 2-1) and because salvage efficiency is relatively high and predation loss is likely low (Steel et al. 2020).

2.2.2.4 Tidal Habitat Restoration

Effects on White Sturgeon from tidal habitat restoration are uncertain but are unlikely given limited observations of White Sturgeon use of tidal wetland habitat relative to other available habitats (Patton et al. 2020).

2.2.2.5 Water Transfers

Continuation of water transfers during the July through November water transfer window would likely result in similar effects as observed during the 2020 to present implementation period under the 2020 LTO ITP. In 2020 and 2022, water transfers accounted for around 5 percent of SWP+CVP water exported; during 2021, water transfers accounted for over 40 percent of SWP+CVP exports. Salvage of White Sturgeon during the July through November water transfer window during water years 2020–2023 was low (six total individuals) and there was generally little salvage during these months in the prior decade as well (Table 2-1).²

2.2.2.6 Agricultural Barriers Operations

Installation and operation of the agricultural barriers in the south Delta would continue as has occurred during the 2020 LTO ITP implementation period. The proportion of the White Sturgeon population exposed to the agricultural barriers is likely low because of the barrier location in the south Delta, as suggested by relatively few White Sturgeon salvaged at the south Delta export facilities in recent years (see Section 2.2.2.1, *Delta SWP Facility Operations and Maintenance*) and observations that most spawning occurs in the Sacramento River, together with overall population size. Operation of the barriers beginning in May would not overlap the adult winter/spring upstream migration period through the Delta and therefore would not be a substantial impediment. Juvenile and non-migrating adult White Sturgeon in the Delta could encounter the barriers and have

² There was no salvage at the CVP during July through November in 2020, 2021, or 2022 (see Table 2-2).

movement blocked but such effects would be expected to occur on only a small proportion of the population.

2.2.2.7 Barker Slough Pumping Plant Operations and Maintenance

Operations of the BSPP would be expected to have minimal effects on White Sturgeon because BSPP fish screens are designed to protect juvenile salmonids per National Marine Fisheries Service criteria. These criteria include low approach velocity that is generally below recommended water flow velocity to protect present White Sturgeon life stages (Verhille et al. 2014). White Sturgeon larvae may occur in the Delta during spring of higher outflow years, potentially making them susceptible to entrainment through the fish screens given that there is no recommended approach velocity during this time period (Verhille et al. 2014). However, this is outside of the June through fall/winter period associated with the ITP amendment's operations. No White Sturgeon larvae were collected during larval fish monitoring at BSPP in 2015 and 2016 (Yip et al. 2017, 2019), despite relatively high numbers of White Sturgeon larvae being present in the Delta during 2016 based on capture in the 20-mm Survey.

Sediment removal by suction dredge at BSPP would have the potential to entrain larval and juvenile White Sturgeon, although the numbers would be expected to be limited given low numbers of larvae and juveniles expected to occur in the area and relative infrequency of the work. Larvae and juveniles can escape the influence of the dredge head outside a radius of 2 meters, at which point velocities decrease to less than 30 centimeters per second (Boysen and Hoover 2009). Removal of aquatic weeds with grappling hooks from the BSPP fish screens would be expected to have little effect on White Sturgeon given that abundance would be expected to be low in the vicinity and any White Sturgeon present nearby could swim away from the disturbance.

2.2.2.8 Clifton Court Forebay Weed Management

Based on historical data from the 2020 LTO ITP implementation period and prior historical data for approximately the past decade, relatively low numbers of White Sturgeon would occur in CCF (Table 2-1). For the White Sturgeon that enter the forebay, their residence time in the forebay and whether they enter and exit back out past the radial gates is unknown. White Sturgeon may be exposed to herbicide treatments (typically applied during the summer and more recently in the fall) but it is unknown if the copper or Aquathol K (endothall-based) treatments result in direct harm or mortality. However, the National Marine Fisheries Service presumes that these treatments have a similar effect on sturgeon as they do on Rainbow Trout and outmigrating Chinook Salmon and White Sturgeon may be more tolerant to Aquathol K (Rea 2015, 2017). Mechanical removal of aquatic weeds in CCF occurs on an as-needed basis and therefore could coincide with occurrence of White Sturgeon, with occurrence near mechanical removal activities being more likely if both fish and weeds are concentrated into particular areas by prevailing water movement in CCF.

2.2.2.9 Suisun Marsh Facilities Operations

Operation of the SMSCG from September through May to meet salinity standards set by the State Water Resources Control Board and Suisun Marsh Preservation Agreement coincides with the winter/spring upstream migration period of adult White Sturgeon, as well as with general occurrence of adult and juvenile White Sturgeon (Miller et al. 2020). Montezuma Slough provides an upstream migration route, but the proportion of the total run utilizing this route is unknown, therefore effects caused by any delays in upstream movements caused by the boat lock operations

are unknown. As with Green Sturgeon (National Marine Fisheries Service 2019:463), the generalized movements of White Sturgeon are unlikely to be affected by periodic delays ranging from a few hours to a few days caused by SMSG operations. Any effects of the other Suisun Marsh facilities (Morrow Island Distribution System, Roaring River Distribution System [RRDS], and the Goodyear Slough Outfall) would be expected to be minor: entrainment has not been observed in prior studies (Enos et al. 2007), very little entrainment of larvae is expected based on prior particle tracking modeling studies (Culberson et al. 2004), the screens on the RRDS minimize loss by entrainment, and although entrainment could occur at the Goodyear Slough Outfall, it is an open system and White Sturgeon could exit at the intake or the outfall.

2.2.2.10 Monitoring and Special Studies

Continuation of monitoring and special studies could result in effects on White Sturgeon (e.g., incidental capture in survey nets) but the numbers affected would be expected to be low.

2.2.2.11 Drought-related Actions

Drought-related actions would not occur during the short-term period covered in DWR's 2020 LTO ITP amendment application (June–fall/winter 2024).

2.2.3 Analysis of the Requested Amendment to Other Aquatic Biological Resources

The inclusion of White Sturgeon as a covered species under the 2020 LTO ITP would not affect any other aquatic biological resource evaluated in the 2020 FEIR. Because SWP facilities and operations would not change as a result of including White Sturgeon as a covered species under the 2020 LTO ITP, no additional impacts on aquatic species would occur. The requested amendment includes a minimization measure that requires DWR to convene a WSTT that will form the basis of an operational assessment in the event of elevated entrainment risk to White Sturgeon that may lead to a measure to reduce take at the SWP. This minimization measure may result in incidental benefits to other aquatic species.

2.2.4 Cumulative Impacts

2.2.4.1 Specific Projects and Programs Effects on White Sturgeon

Continued operation of the CVP is likely the single project with the greatest potential to affect White Sturgeon cumulative with the continued operations of the SWP under the 2020 LTO ITP. As with SWP salvage (Table 2-1), CVP salvage occurs throughout much of the year, with the highest salvage during the 2020 LTO ITP implementation period having occurred in July through August 2023 (nearly 790 White Sturgeon) (Table 2-2). To some extent this may have reflected relatively high Age-0 recruitment in the Wet water year of 2023, with somewhat high salvage during these months having also occurred in 2017, another wet year. Continuation of Delta SWP facility operations under the 2020 LTO ITP criteria together with CVP operations would be expected to result in similar levels of outflow-related effects as have occurred during the period of 2020 LTO ITP implementation and CVP operations. There is uncertainty in the extent to which mechanisms relating outflow to year-class strength reflect hydrological versus operational effects on outflow and whether the patterns are driven by upstream or in-Delta mechanisms.

Table 2-2. Salvage of White Sturgeon (Length in Millimeters in Parentheses) at the Central Valley Project Tracy Fish Facility, October 1, 2012–May 20, 2024

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
2012	56 (243–345)	0	4 (357)	0	4*	0	0	0	0	0	0	0
2013	0	4 (317)	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0	0	0	0	0	0
2017	4 (360)	0	0	0	0	0	0	0	12 (82)	16 (209–277)	20 (290)	16 (274–305)
2018	8 (290)	0	0	0	0	0	0	4 (441)	0	0	0	0
2019	0	4 (235)	0	0	0	0	0	0	0	0	4 (225)	8 (275)
2020	0	0	0	0	0	0	0	0	0	0	0	0
2021	0	0	0	0	0	0	0	0	0	0	0	0
2022	0	0	0	0	0	0	0	0	0	0	0	0
2023	0	0	0	0	0	0	4 (20)	4 (70)	80 (109–210)	534 (103–284)	253 (171–308)	55 (232–346)
2024	4 (313)	32 (227–361)	12 (295)	20 (350)	0	0	0	0	–	–	–	–

Source: Aasen 2024.

Note: Abundance numbers are extrapolated from salvage sampling, so not all fish were measured for length.

*Length measurements not available.

– indicates future time period.

2.2.4.2 Other Effects on White Sturgeon

A number of species threats exist that may cumulatively affect White Sturgeon. During the June through fall/winter period of the 2020 LTO ITP amendment application, there is the potential for harmful algal blooms (HABs) to affect White Sturgeon. Following the major 2022 event, in late July 2023 another bloom of *H. akashiwo* returned to San Francisco Bay, which was less intense and of shorter duration, with 15 White Sturgeon carcasses reported (Hause et al. 2023). It is likely that additional HAB-induced mortality of fishes including sturgeon will recur in the future and blooms could be severe depending on environmental conditions (Hause et al. 2023). Angling of White Sturgeon will also occur, with harvest limited by the emergency regulations implemented in November 2023 in response to the 2022 HAB event.

2.2.4.3 Cumulative Effects on Other Aquatic Biological Resources and Other Resources evaluated in the 2020 FEIR

As described in the 2020 FEIR, the incremental contribution of the long-term operation of the SWP to the cumulative impact on aquatic resources would not be cumulatively considerable because the proposed SWP operations are subject to the same regulatory framework promulgated by the federal and state resource agencies, and include environmental commitments, conservation, or protective measures specifically intended to offset, reduce, or otherwise limit potential impacts on aquatic species. Because including White Sturgeon as a covered species under the 2020 LTO ITP would not change SWP facilities and may result in operational measures to reduce entrainment of White Sturgeon, including White Sturgeon as a covered species under the 2020 LTO ITP would not result in additional impacts on other aquatic species.

Therefore, the long-term operation of the SWP would not result in cumulatively considerable impacts on aquatic biological resources or other resources evaluated in the 2020 FEIR.

2.3 Conclusions

As described in this addendum, the proposed inclusion of White Sturgeon as a covered species under the 2020 LTO ITP does not require revisions to the conclusions or findings presented in the 2020 FEIR because no new or substantially more intense or severe significant environmental impacts, or potentially significant environmental impacts would occur.

Based on the discussion presented in Section 2.2, *Environmental Analysis*, the proposed inclusion of White Sturgeon as a covered species under the 2020 LTO ITP would not result in any of the conditions described in Sections 15162 and 15163 of the State CEQA Guidelines that call for preparation of a subsequent EIR or supplemental EIR.

In summary, the proposed inclusion of White Sturgeon as a covered species under the 2020 LTO ITP would not result in any of the following:

1. New significant or potentially significant environmental effects,
2. Substantially increase the intensity or severity of previously identified significant effects,
3. Mitigation measures or alternatives previously found to be infeasible becoming feasible, or
4. Availability/implementation of mitigation measures or alternatives that are considerably different from those analyzed in the 2020 FEIR that would substantially reduce one or more significant or potentially significant effects on the physical environment.

These conclusions confirm that a subsequent or supplemental EIR is not warranted, and this addendum to the 2020 FEIR is the appropriate CEQA document pursuant to State CEQA Guidelines Section 15164 to evaluate and document the changes and additions to the long-term operation of the SWP facilities in the Delta. No changes are needed to the certified 2020 FEIR for the long-term operations of the SWP.

Chapter 3 References

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