



California Department of Fish and Wildlife  
 Water Branch, Ecosystem Conservation Division  
 830 S STREET  
 SACRAMENTO, CA 95811

California Endangered Species Act  
 Incidental Take Permit No. 2081-2016-055-03  
**Construction and Operation of Dual Conveyance Facilities of the  
 State Water Project (California WaterFix)**

**Authority:** This California Endangered Species Act (CESA) incidental take permit (ITP) is issued by the California Department of Fish and Wildlife (CDFW) pursuant to Fish and Game Code section 2081, subdivisions (b) and (c), and California Code of Regulations, Title 14, section 783.0 et seq. CESA prohibits the take<sup>1</sup> of any species of wildlife designated by the California Fish and Game Commission as an endangered, threatened, or candidate species.<sup>2</sup> CDFW may authorize the take of any such species by permit if the conditions set forth in Fish and Game Code section 2081, subdivisions (b) and (c) are met. (See Cal. Code Regs., tit. 14, § 783.4).

<b>Permittee:</b>	<b>California Department of Water Resources</b>
<b>Principal Officer:</b>	<b>Cindy Messer, Deputy Director</b>
<b>Contact Person:</b>	<b>Marcus Yee, (916) 651-9567</b>
<b>Mailing Address:</b>	<b>P.O. Box 942836 Sacramento, CA 94236</b>

**Effective Date and Expiration Date of this ITP:**

This ITP shall be executed in duplicate original form and shall become effective once a duplicate original is acknowledged by signature of the Permittee on the last page of this ITP and returned to CDFW's Habitat Conservation Planning Branch at the address listed in the Notices section of this ITP. Unless renewed by CDFW, this ITP's authorization to take the Covered Species shall expire on **December 31<sup>st</sup>, 2042**.

Notwithstanding the expiration date on the take authorization provided by this ITP, Permittee's obligations pursuant to this ITP do not end until CDFW accepts as complete the Permittee's Full Project Operations Report required by Condition of Approval 8.9.3 of this ITP.

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1 Pursuant to Fish and Game Code section 86, "'take' means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." (See also *Environmental Protection Information Center v. California Department of Forestry and Fire Protection* (2008) 44 Cal.4th 459, 507 [for purposes of incidental take permitting under Fish and Game Code section 2081, subdivision (b), "'take' ... means to catch, capture or kill"].)

2 The definition of an endangered, threatened, and candidate species for purposes of CESA are found in Fish and Game Code sections 2062, 2067, and 2068, respectively.

strategy shall include detailed funding and commitments for the first five years (2019-2024), and lesser detail for the studies required after 2024.

Consistent with the role of the IICG as detailed in the Adaptive Management Program, Permittee in cooperation with Reclamation, shall submit annual updates to the strategy to CDFW for review and approval. These updates shall include extension of the detailed funding strategy for five years post submission date. To the degree that annual appropriations are relied upon, the funding strategy shall demonstrate that those funds have been appropriated, similar levels of annual appropriations have been consistently available in past years, and/or that those funds are planned for subsequent appropriations processes. CDFW anticipates that this condition is fully consistent with the Adaptive Management Program, including the role of the IICG.

As identified in the Agreement for Implementation of an Adaptive Management Program for Project Operations (Attachment 5), the IICG Manager shall manage preparation of the Annual Monitoring and Research Plan. Reclamation and DWR in coordination with the IICG, shall refer management related actions or proposals, as appropriate, to the Delta Science Program for review by an independent science panel consistent with that agreement.

9.8.12 Real Time Operations Fish Monitoring. Permittee shall fund long-term fish monitoring and any subsequent fish and water quality monitoring stations required to implement RTO of the Project throughout the Test Period and Full Project Operations, as described in Condition of Approval 9.9.5, and as may be further described in the Real Time Operations sections of the Test Period Operations Plan and the Full Project Operations Plan.

9.8.13 Clifton Court Forebay Aquatic Weed Control Program. Permittee shall implement the CCF Aquatic Weed Control Program as follows:

Permittee shall apply herbicides or use mechanical harvesters on an as-needed basis to control aquatic weeds and algal blooms in CCF. Herbicides may include Komeen®, a chelated copper herbicide (copper-ethylenediamine complex and copper sulfate pentahydrate) and Nautique®, a copper carbonate compound. Herbicide treatments shall occur only in July and August on an as needed basis in the CCF, dependent upon the level of vegetation biomass in the enclosure.

## 9.9 Specific Measures for Covered Fish Species

9.9.1 Coordinated Operating Agreement. The operational criteria specified in Conditions of Approval 9.9.4 and 9.9.5 shall be implemented consistent with the Coordinated Operating Agreement (COA), as follows:

Under the COA, Reclamation and DWR agree to operate the CVP/SWP under balanced conditions in a manner that meets Sacramento Valley and Delta needs while maintaining their respective annual water supplies as identified in the COA. Balanced conditions are defined as periods when the two projects agree that releases from upstream reservoirs, plus unregulated flow, approximately equal water supply needed to meet Sacramento Valley in-basin uses and CVP and SWP exports. Coordination between the CVP and the SWP is facilitated by implementing an accounting procedure based on the sharing principles outlined in the COA. During balanced conditions in the Delta when water must be withdrawn from storage to meet Sacramento Valley and Delta requirements, 75 percent of the responsibility to withdraw from storage is borne by the CVP and 25 percent by the SWP. The Project operational criteria specified under the Project Description and throughout Condition of Approval 9.9 shall be implemented consistent with the COA.

**9.9.2 Project Operations.** Upon initiation of the Test Period, Permittee shall adhere to the requirements outlined in the Test Period Operations Plan. Upon initiation of Full Project Operations Permittee shall adhere to the operating criteria described in the Full Project Operations Plan. The Test Period Operations Plan and the Full Project Operations Plan shall include all operational criteria and real-time operations requirements described in this Condition, or as modified through amendments to this permit (see Condition of Approval 6).

Throughout Condition 9.9 the water year type used to determine Project operations shall be based on the Sacramento 40-30-30 index to be based on the 50% exceedance forecast in the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, per current approaches; the first update of the water year type to occur in February. The Permittee shall use the previous water year type for October through January, and the current water year type from February onwards.

Throughout Condition 9.9 OMR flows used to determine Project operations shall be based on the Old and Middle River Index developed through the Old and Middle River Index Demonstration Project initiated in 2014 by Reclamation, and be in compliance with the USGS tidally filtered Old and Middle River Stream Gages.

**9.9.3 Controlling Operational Criteria.** When this permit, D-1641, the biological opinion(s), or other SWP authorizations establish operational criteria, the most restrictive applicable criteria shall control Project operations.

**9.9.4 General Operating Criteria.** South Delta operations criteria presented in Table 9.9.4-1 represent restrictions on Project operations to be implemented to protect Covered Fish Species, which shall be met unless superseded by real-time operations described in Condition of Approval 9.9.5.

**Table 9.9.4-1. New and Existing Water Operations Flow Criteria**

Parameter	Criteria
New Criteria Included in the Proposed Project	
NDD intake bypass flows	<ul style="list-style-type: none"> <li>• Bypass Flow Criteria (specifies bypass flow required to remain downstream of the NDD intakes):               <ul style="list-style-type: none"> <li>○ October 1 – November 30: Minimum flow of 7,000 cfs required in river after diverting at the NDD intakes.</li> <li>○ December 1 – June 30: see Pulse Protection and Post-Pulse Criteria below</li> <li>○ July 1 – September 30: Minimum flow of 5,000 cfs required in river after diverting at the NDD intakes.</li> </ul> </li> <li>• Pulse Protection:               <ul style="list-style-type: none"> <li>○ All pulses of CHNWR and CHNSR shall be protected from October 1 – June 30.</li> <li>○ Sacramento River pulse is determined based on real-time monitoring of juvenile fish movement (see Condition of Approval 9.9.5.1).</li> <li>○ Low level diversions maintained during the pulse protection period.</li> <li>○ Low-level diversions of up to 6% of total Sacramento River flow at Freeport, not to exceed 900 cfs total diversions, such that bypass flow never falls below 5,000 cfs.</li> <li>○ No more than 300 cfs may be diverted at any one intake.</li> </ul> </li> <li>• Post-pulse Criteria (specifies bypass flow required to remain downstream of the NDD intakes):               <ul style="list-style-type: none"> <li>○ October 1 – November 30: Minimum flow of 7,000 cfs required in river after diverting at the NDD intakes.</li> <li>○ December 1 – June 30: Once the pulse protection ends, post-pulse bypass flow operations may remain at Level 1 diversion depending on fish presence, abundance, and movement in the north Delta; however, the exact levels will be determined through initial operating studies evaluating the level of protection provided at various levels of diversions. If those criteria are met, operations can proceed as defined in Sub Table A in this Condition</li> </ul> </li> </ul>

Parameter	Criteria
	of Approval. The specific criteria for transitioning between and among pulse protection, Level 1, Level 2, and/or Level 3 operations, shall be based on real-time fish monitoring and hydrologic/behavioral cues upstream of and in the Delta (see Condition of Approval 9.9.5.1).
South Delta operations <sup>32, 33</sup>	<ul style="list-style-type: none"> <li>• October 1 – November 30: To be determined based on RTO and protection of the D-1641 San Joaquin River 2-week pulse.</li> <li>• December 1 – December 31: OMR flows will not be more negative than an average of -5,000 cfs when the Sacramento River pulse protection triggers and no more negative than an average of -2,000 cfs when the South Delta RTO Measure 1 triggers. No OMR flow restriction prior to the Sacramento River pulse protection or South Delta RTO Measure 1 triggers.</li> <li>• January 1 – February 28: OMR flows will not be more negative than a 3-day average of 0 cfs during wet years, -3,500 cfs during above-normal years, or -4,000 cfs during below-normal to critical years, except -5,000 in January of dry and critical years.</li> <li>• March 1 – March 31: OMR flows will not be more negative than a 3-day average of 0 cfs during wet or above-normal years or -3,500 cfs during below-normal and dry year and -3,000 cfs during critical years.</li> <li>• April 1 – May 31<sup>34</sup>: Allowable OMR flows depend on gaged flow measured at Vernalis, and will be determined by a linear relationship. If Vernalis flow is below 5,000 cfs, OMR flows will not be more negative than -2000 cfs. If Vernalis is 6,000 cfs, OMR flows will not be less than +1000 cfs. If Vernalis is 10,000 cfs, OMR flows will not be less than +2,000 cfs. If Vernalis is 15,000 cfs, OMR flows will not be</li> </ul>

<sup>32</sup> The criteria do not fully reflect the complexities of CVP/SWP operations, dynamic hydrology, or spatial and temporal variation in the distribution of aquatic species. As a result, the criteria will be achieved by operating within an initial range of real time operational criteria from January through March and in June. This initial range, including operational triggers, will be determined through future discussion, including a starting point of -1250 to -5000 cfs based on a 14-day running average, and will be informed by the Adaptive Management Program, including real time monitoring. Further, the 3-day averaging period may be modified through future discussion. Modifications to the 3-day average period and the range of operating criteria may be needed, in part, because: 1) the water year type is forecasted in February but not finalized until May and 2) 0 cfs, or positive, OMR in wet and above normal years may be attained coincident with unimpaired flows.

<sup>33</sup> OMR measured through the currently proposed index-method (Hutton 2008) with a 14-day averaging period consistent with the current operations (USBR 2014).

<sup>34</sup> When OMR target is based on Vernalis flow it shall be a function of 5-day average measured flow.

Parameter	Criteria
	<p>less than +3,000 cfs. If Vernalis is at or exceeds 30,000 cfs, OMR flows will not be less than 6,000 cfs.</p> <ul style="list-style-type: none"> <li>• June 1 – June 30: Similar to April and May, allowable flows depend on gaged flow measured at Vernalis (except without interpolation). If Vernalis is less than 3,500 cfs, OMR flows will not be more negative than –3,500 cfs. If Vernalis exceeds 3,500 cfs up to 10,000 cfs, OMR flows will not be less than 0 cfs. If Vernalis exceeds 10,000 cfs up to 15,000 cfs, OMR flows will not be less than +1,000 cfs. If Vernalis exceeds 15,000 cfs, OMR flows will not be less than +2,000 cfs.</li> <li>• July 1 – September 30: No OMR flow constraints<sup>35</sup>.</li> <li>• RTO OMR criteria (see Condition of Approval 9.9.5) or the above, whichever results in more positive (or less negative) OMR flows will be applicable<sup>36</sup>.</li> </ul>
HOR Gate operations	<ul style="list-style-type: none"> <li>• October 1 – November 30: RTO management will be used, with the current expectation being that the HOR gate will be operated to protect the D-1641 pulse flow (see Condition of Approval 9.9.5).</li> <li>• January 1 – March 31, and June 1-15: RTO will determine exact operations to protect salmon fry when migrating. During this migration, operation will be to close the gate subject to RTO for purposes of water quality, stage, and flood control considerations (see Condition of Approval 9.9.5).</li> <li>• April 1 – May 31: Initial operating criterion will be to close the gate 100% of the time subject to RTO for purposes of water quality, stage, and flood control considerations (see Condition of Approval 9.9.5).</li> <li>• June 16 – September 30 and December 1 – December 31: Operable gates will be open.</li> </ul>

<sup>35</sup> Permittee shall include a preference for south Delta diversions July 1 to September 30 up to total diversions of 3,000 cfs; No specific intake preference beyond 3,000 cfs to provide limited flushing flows to manage water quality in the south Delta.

<sup>36</sup> Change in CVP/SWP diversions from the south Delta will occur to comply with OMR targets will be achieved to the extent exports can control the flow. The OMR targets would not be achieved through releases from CVP/SWP reservoirs. The combined CVP/SWP export rates from the proposed NDD intakes and the existing south Delta intakes will not be required by this Permit to drop below 1,500 cfs to provide water supply for health and safety needs, critical refuge supplies, and obligation to senior water rights holders.

Parameter	Criteria
Spring Outflow <sup>37</sup>	<ul style="list-style-type: none"> <li>• March 1 — May 31: Sub Table B. Total exports shall not be required by this permit to fall below Human Health and Safety (currently 1500 cfs).</li> </ul>
Rio Vista minimum flow standard <sup>38</sup>	<ul style="list-style-type: none"> <li>• September 1 – December 31: flows per D-1641 <ul style="list-style-type: none"> <li>○ September 1- September 30: All water year types: 3,000 cfs</li> <li>○ October 1 – October 31: wet, above normal, below normal, dry: 4,000 cfs, critically dry: 3,000 cfs</li> <li>○ November 1 – December 31: wet, above normal, below normal, dry: 4,500 cfs, critically dry: 3,500 cfs</li> </ul> </li> </ul>
Fall Outflow	<ul style="list-style-type: none"> <li>• September 1 – November 30: Implement Fall X2 requirements in wet and above normal year types (see Condition of Approval 9.9.4.4)</li> </ul>
Winter and Summer Outflow	<ul style="list-style-type: none"> <li>• D-1641 Delta outflow and February – June X2 criteria shall be followed if not superseded by criteria listed above (see Condition of Approval 9.9.4.5).</li> </ul>
Export to inflow ratio	<ul style="list-style-type: none"> <li>• Operational criteria are the same as defined under D-1641, and applied as a maximum 3-day running average (see Condition of Approval 9.9.4.6).</li> <li>• Sacramento River inflow is defined as flows downstream of the NDD intakes and only south Delta exports are included for the export component of the criteria.</li> <li>• Combined export rate is defined as the diversion rate of the Banks Pumping Plant and Jones Pumping Plant from the south Delta channels.</li> <li>• Delta inflow is defined as the sum of the Sacramento River flow downstream of the proposed NDD intakes, Yolo Bypass flow, Mokelumne River flow, Cosumnes River flow, Calaveras River flow, San Joaquin River flow at Vernalis, and other miscellaneous in-Delta flows.</li> </ul>

<sup>37</sup> To minimize impacts of the Project on LFS Permittee shall operate to achieve spring outflow criteria (see Condition of Approval 9.9.4.3).

<sup>38</sup> Rio Vista minimum monthly average flow in cfs (7-day average flow not be less than 1,000 below monthly minimum), consistent with the SWRCB D-1641.

Sub Table A. Post-Pulse Operations for NDD Intake Bypass Flows								
Permittee shall implement following bypass flow requirements to (1) maintain fish screen sweeping velocities, (2) minimize potential increase in upstream transport of productivity in the channels downstream of the intakes, (3) support salmonid and pelagic fish movements to regions of suitable habitat, (4) reduce losses to predation downstream of the diversions, and (5) maintain or improve rearing habitat conditions in the north Delta.								
Level 1 Post-Pulse Operations			Level 2 Post-Pulse Operations			Level 3 Post Pulse Operations		
If Sacramento River flow is over...	But not over...	The bypass is...	If Sacramento River flow is over...	But not over...	The bypass is...	If Sacramento River flow is over...	But not over...	The bypass is...
December 1 to April 30								
0 cfs	5,000 cfs	100% of the amount over 0 cfs	0 cfs	5,000 cfs	100% of the amount over 0 cfs	0 cfs	5,000 cfs	100% of the amount over 0 cfs
5,000 cfs	15,000 cfs	Flows remaining after constant low level diversion	5,000 cfs	11,000 cfs	Flows remaining after constant low level diversion	5,000 cfs	9,000 cfs	Flows remaining after constant low level diversion
15,000 cfs	17,000 cfs	15,000 cfs plus 80% of the amount over 15,000 cfs	11,000 cfs	15,000 cfs	11,000 cfs plus 60% of the amount over 11,000 cfs	9,000 cfs	15,000 cfs	9,000 cfs plus 50% of the amount over 9,000 cfs



17,000 cfs	20,000 cfs	16,600 cfs plus 60% of the amount over 17,000 cfs	15,000 cfs	20,000 cfs	13,400 cfs plus 50% of the amount over 15,000 cfs	15,000 cfs	20,000 cfs	12,000 cfs plus 20% of the amount over 15,000 cfs
20,000 cfs	no limit	18,400 cfs plus 30% of the amount over 20,000 cfs	20,000 cfs	no limit	15,900 cfs plus 20% of the amount over 20,000 cfs	20,000 cfs	no limit	13,000 cfs plus 0% of the amount over 20,000 cfs
May 1 to May 31								
0 cfs	5,000 cfs	100% of the amount over 0 cfs	0 cfs	5,000 cfs	100% of the amount over 0 cfs	0 cfs	5,000 cfs	100% of the amount over 0 cfs
5,000 cfs	15,000 cfs	Flows remaining after constant low level diversion	5,000 cfs	11,000 cfs	Flows remaining after constant low level diversion	5,000 cfs	9,000 cfs	Flows remaining after constant low level diversion
15,000 cfs	17,000 cfs	15,000 cfs plus 70% of the amount over 15,000 cfs	11,000 cfs	15,000 cfs	11,000 cfs plus 50% of the amount over 11,000 cfs	9,000 cfs	15,000 cfs	9,000 cfs plus 40% of the amount over 9,000 cfs

17,000 cfs	20,000 cfs	16,400 cfs plus 50% of the amount over 17,000 cfs	15,000 cfs	20,000 cfs	13,000 cfs plus 35% of the amount over 15,000 cfs	15,000 cfs	20,000 cfs	11,400 cfs plus 20% of the amount over 15,000 cfs
20,000 cfs	no limit	17,900 cfs plus 20% of the amount over 20,000 cfs	20,000 cfs	no limit	14,750 cfs plus 20% of the amount over 20,000 cfs	20,000 cfs	no limit	12,400 cfs plus 0% of the amount over 20,000 cfs
June 1 to June 30								
0 cfs	5,000 cfs	100% of the amount over 0 cfs	0 cfs	5,000 cfs	100% of the amount over 0 cfs	0 cfs	5,000 cfs	100% of the amount over 0 cfs
5,000 cfs	15,000 cfs	Flows remaining after constant low level diversion	5,000 cfs	11,000 cfs	Flows remaining after constant low level diversion	5,000 cfs	9,000 cfs	Flows remaining after constant low level diversion
15,000 cfs	17,000 cfs	15,000 cfs plus 60% of the amount over 15,000 cfs	11,000 cfs	15,000 cfs	11,000 cfs plus 40% of the amount over 11,000 cfs	9,000 cfs	15,000 cfs	9,000 cfs plus 30% of the amount over 9,000 cfs

17,000 cfs	20,000 cfs	16,200 cfs plus 40% of the amount over 17,000 cfs	15,000 cfs	20,000 cfs	12,600 cfs plus 20% of the amount over 15,000 cfs	15,000 cfs	20,000 cfs	10,800 cfs plus 20% of the amount over 15,000 cfs
20,000 cfs	no limit	17,400 cfs plus 20% of the amount over 20,000 cfs	20,000 cfs	no limit	13,600 cfs plus 20% of the amount over 20,000 cfs	20,000 cfs	no limit	11,800 cfs plus 0% of the amount over 20,000 cfs
Bypass flow requirements in other months:								
If Sacramento River flow is over...			But not over...			The bypass is...		
July 1 to September 30								
0 cfs			5,000 cfs			100% of the amount over 0 cfs		
5,000 cfs			No limit			A minimum of 5,000 cfs		
October 1 to November 30								
0 cfs			7,000 cfs			100% of the amount over 0 cfs		
7,000 cfs			No limit			A minimum of 7,000 cfs		

**Sub Table B. Spring Outflow Criteria** Upon initiation of the Test Period and throughout the rest of the permit term, Permittee shall provide average Delta outflow for LFS based on the 50% exceedance forecast for the current month's ELT 8 River Index (8RI), as described in Condition of Approval 9.9.4.3.

February ELT 8RI (TAF)	February Average Delta	March ELT	March Average	April ELT 8RI (TAF)	April Average Delta	May ELT	May Average Delta Outflow
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	Outflow Target (cfs)	8RI (TAF)	Delta Outflow Target (cfs)		Outflow Target (cfs)	8RI (TAF)	Target (cfs)
0	0	0	0	0	0	0	0
450	7100	450	7100	450	7100	250	4000
900	7100	1000	7100	1000	7100	850	4000
1000	9100	1625	7100	1500	7100	1545	4000
1100	11000	1700	8700	1855	7100	1600	4700
1200	13000	1800	10900	1900	8100	1700	6000
1300	14900	1900	13000	2000	10300	1800	7300
1400	16900	2000	15200	2100	12500	1900	8600
1500	18800	2100	17400	2200	14700	2000	9900
1600	20800	2200	19500	2300	16900	2100	11300
1700	22700	2300	21700	2400	19100	2200	12600
1800	24700	2400	23800	2500	21300	2300	13900
1900	26600	2500	26000	2600	23500	2400	15200
2000	28600	2600	28100	2700	25700	2500	16500
2100	30500	2700	30300	2800	27900	2600	17800
2200	32500	2800	32400	2900	30100	2700	19100
2300	34400	2900	34600	3000	32300	2800	20400
2400	36400	3000	36800	3100	34500	2900	21700
2500	38300	3100	38900	3200	36700	3000	23000
2600	40300	3200	41100	3300	38900	3100	24300
2700	42200	3300	43200	3400	41200	3200	25600
2815	44500	3360	44500	3500	43400	3300	26900
> 2815	44500	> 3360	44500	3550	44500	3400	28300
				> 3550	44500	3500	29600
						3600	30900
						3700	32200

3800	33500
3900	34800
4000	36100
4100	37400
4200	38700
4300	40000
4400	41300
4500	42600
4600	44000
4650	44500
> 4650	44500

9.9.4.1 Sacramento River Flow Reversal Avoidance. Permittee shall manage NDD intake operations at all times to avoid increasing the magnitude, frequency, or duration of flow reversals in the Sacramento River at the Georgiana Slough junction above pre-Project levels.

Permittee shall describe operational criteria to ensure this requirement is met throughout the Test Period and Full Project Operations and for inclusion in the Test Period Operations Plan and the Full Operations Plan. Permittee shall monitor the magnitude, frequency, and duration of Sacramento River flow reversals at the Georgiana Slough junction throughout the Test Period and Full Project Operations (see Pre-construction Study 13 and Post-construction Study 13 in Conditions of Approval 9.6.10 and 9.6.11).

9.9.4.2 NDD Intake Operations. RTOs will govern operations of the NDD intakes, when they are controlling (see Condition of Approval 9.9.3 *Controlling Operational Criteria*), during the October through June CHNWR and CHNSR migration period. Under RTOs, the NDD intakes shall be operated within the range of pulse protection and Levels 1, 2, and 3, with pulse protection operations (defined in Sub Table A) in place when CHNWR and CHNSR migration is occurring. Post-pulse bypass flow operations from December 1 – June 30 may remain at Level 1 diversion depending on fish presence, abundance, and movement in the north Delta; however, the exact levels will be determined through initial operating studies evaluating the level of protection provided at various levels of diversions, and as described in Condition of Approval 9.9.5.1.

9.9.4.3 Spring Outflow: Abiotic Habitat for Longfin Smelt. To minimize take of LFS associated with impacts of Project operations on abiotic habitat, Permittee shall maintain Delta outflows that are protective of LFS every year from March 1 – May 31. These outflows will: 1) maintain estuarine processes and flow positively associated with LFS abundance; 2) maintain downstream transport of LFS larvae to rearing habitat; and 3) dedicate water to maintain LFS habitat quality and quantity at levels consistent with recent conditions. Protective outflows from March 1 – May 31 every year shall be determined by the use of a lookup table derived from a linear relationship between the 50% exceedance forecast for the current month's 8RI and recent historic Delta outflow (1980 – 2016), as shown in Sub Table B.

Upon initiation of the Test Period and throughout the permit term, Permittee shall provide average Delta outflow for LFS based on the 50% exceedance forecast for the current month's 8RI, as specified in Sub Table B in Condition of Approval 9.9.4 and below:

- February 8RI 50% exceedance forecast shall be used to establish the target average Delta outflow beginning on March 1, until the March 8RI 50% exceedance forecast is made available.
- March 8RI 50% exceedance forecast shall be used to establish the target average Delta outflow beginning when the March 8RI 50% exceedance forecast is made available through March 31.
- April 8RI 50% exceedance forecast shall be used to establish the target average Delta outflow beginning when the April 8RI 50% exceedance forecast is made available through April 30. If April 8RI 50% exceedance forecast is not available on April 1, March 8RI 50% exceedance forecast shall be used to establish target Delta outflow until April 50% exceedance forecast is available.
- May 8RI 50% exceedance forecast shall be used to establish the target average Delta outflow from beginning when the May 8RI 50% exceedance forecast is available through May 31. If May 8RI 50% exceedance forecast is not available beginning May 1, April 8RI 50% exceedance forecast shall be used to establish target Delta outflow until May 50% exceedance forecast is available.

Permittee may use preliminary 8RI 50% exceedance forecast estimates to establish outflow targets in the first ten days of each month, if approved by CDFW in writing.

Reduction in combined exports below minimum health and safety requirements (1,500 cfs) is not required by this Condition of Approval.

These targets are intended to be provided through the acquisition of water from willing sellers and through operations of the CVP/SWP. Permittee shall achieve Delta outflow targets through shared export allocations between the NDD and South Delta, consistent with required Operating Criteria described in Condition of Approval 9.9. If the target average Delta outflow is greater than 44,500 cfs Permittee shall consult with CDFW to determine how to allocate exports between the NDD intakes and the South Delta.

Permittee shall utilize Net Delta Outflow Index (NDOI) data to confirm that the average Delta outflow target was met from March 1 – March 31, April 1 – April 30, and May 1 – May 31. Permittee shall provide daily NDOI data quantifying daily Delta outflow in each 30 day period to CDFW on or before April 5, May 5, and June 5 every year.

Permittee shall submit a written report to CDFW on or before June 30 every year explaining how operations of the Project complied with the requirements of this term. This annual report shall include, but is not limited to:

- 1) 50% exceedance 8RI forecasts in February, March, April, and May
- 2) Daily NDOI from March 1 – May 31
- 3) Daily diversion rates from each NDD intake
- 4) Daily total exports from the South Delta CVP/SWP facilities
- 5) Description of water obtained from willing sellers to contribute to achieving the outflow targets from March 1 – March 31, April 1 – April 30, and May 1 – May 31.

This report will be used to determine whether Permittee complied with the operational requirements in this Condition of Approval on an annual basis.

9.9.4.4 Fall Outflow – Estuarine Habitat for Delta Smelt. Permittee shall coordinate with Reclamation to provide sufficient Delta outflow to maintain average X2 from September 1 – October 31 no greater (more eastward) than 74 km in the fall following wet years, and 81 km from September 1 through November 30 following above normal years. The monthly average X2 shall be maintained at or seaward of these values for each individual month and not averaged over the two month period. In November, the inflow to CVP/SWP reservoirs in the Sacramento Basin shall be added to CVP/SWP reservoir releases to provide an added increment of Delta inflow and augment Delta outflow to achieve the target X2 location. Permittee shall utilize wet and above normal water year type classifications as defined in the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary.

9.9.4.5 Winter and Summer Outflow. Upon initiation of the Test Period and Full Project Operations Permittee shall adhere to Net Delta Outflow Index as defined in D-1641 from January 1 – August 31 when it is controlling (see Condition of Approval 9.9.3).