United States Department of the Interior

BUREAU OF RECLAMATION
South-Central California Area Office
1243 N Street
Fresno, CA 93721-1813

IN REPLY REFER TO:

SCC-410
2.2.4.21
Cachuma Project

VIA ELECTRONIC MAIL AND U.S. POSTAL SERVICE

Mr. Erik Ekdahl, Deputy Director
State Department of Water Resources
Division of Water Rights
P.O. Box 100
Sacramento, CA 95812-0100
erik.ekdahl@waterboards.ca.gov

Subject: Submittal of Revised Term 18 Plan – Your letter dated May 26, 2020

Dear Mr. Ekdahl:

This letter and submittal is in response to your May 26, 2020 letter which requested additional information be added to our draft Term 18 Plan required by Cachuma Water Rights Order WR-2019-0148.

Reclamation has updated the draft Term 18 Plan based on your comments. The Revised Term 18 Plan in its entirety is included herein.

If you have any questions regarding this report, please contact me at (559) 262-0300, or David Hyatt of my staff at (559) 262-0334, by email at dhyatt@usbr.gov, or for the hearing impaired at TDD (800) 877-8339.

Sincerely,

Michael Paul Jackson, P.E. Digitally signed by Michael Paul Jackson, P.E. Date: 2020.08.07 16:48:36 -07'00'

Michael P. Jackson, P.E.
Area Manager

Enclosure

cc: Mr. Mark Capelli, South-Central/Southern California Coast Recovery Coordinator
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(each w/enclosure)

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BUREAU OF RECLAMATION

Cachuma Order
WR-2019-0148 Term 18 Plan

U.S. Department of the Interior
Interior Region 10 California-Great Basin
South-Central California Area Office

August 2020

Mission Statements

The mission of the Department of the Interior is to conserve and manage the Nation's natural resources and cultural heritage for the benefit and enjoyment of the American people, provide scientific and other information about natural resources and natural hazards to address societal challenges and create opportunities for the American people, and honor the Nation's trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities to help them prosper.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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Attachments

Introduction

On September 17, 2019 the State Water Resources Control Board (Water Board) adopted Final Order WR-2019-0148 amending the Bureau of Reclamation's (Reclamation's) water rights permits 11308 and 11310 for the Cachuma Project in Santa Barbara, California. Reclamation provides the following Plan in accordance with Term 18 of Order WR-2019-0148 to describe "the measures in place, or that will be implemented to ensure compliance with Terms 15 and 16."

Term 15 of Order WR-2019-0148

Term 15 of Order WR-2019-0148 requires Reclamation to "operate and maintain the Cachuma Project and implement conservation measures including but not limited to those described in Revised Section 3 (Proposed Project) of the Biological Assessment for Cachuma Project Operations and the Lower Santa Ynez River, June 2000, taking into consideration the 2013 Biological Assessment with any amendments and the 2016 Draft Biological Opinion, and right holder shall comply with all of the Reasonable and Prudent Measures 5 and 7 through 13, set forth at page 68, and the Terms and Conditions, set forth at pages 70–78, in the National Marine Fisheries Service's (NMFS) Biological Opinion: U.S. Bureau of Reclamation operation and maintenance of the Cachuma Project on the Lower Santa Ynez River in Santa Barbara County, California, September 2000".

Reclamation has and will continue to comply with terms and conditions of the *Biological Opinion for the operation and maintenance of the Cachuma Project on the Santa Ynez River in Santa Barbara County, California* issued by the National Marine Fisheries Service (NMFS) in 2000 (2000 BiOp). As 3 of the 6 passage barriers identified in the 2000 BiOp could not be completed by the end of 2005, Reclamation sent a letter to NMFS on December 29, 2005 requesting to reinitiate consultation on the Cachuma Project. Reconsultation with NMFS is ongoing. Reclamation will notice the Water Board within 30 days of issuance of a new biological opinion pursuant to Term 15.

Term 15(a) of Order WR-2019-0148

Term 15(a) of Order WR-2019-0148 requires Reclamation to "release or bypass water to maintain the following Mainstem Rearing instream flows in the Santa Ynez River, as set forth below [in Table 1] at all times." The flows in Table 1 are also required for Reclamation's continued compliance with the 2000 BiOp. Reclamation has operated the reservoir to meet 2000 BiOp flow requirements and will continue to operate the reservoir to meet flow requirements of Order WR-2019-0148.

Table 1 Mainstem Rearing Flows

Reservoir Spill[a] (af)	Lake Storage[b] (af)	Flow (cfs) Requirements at:		
		Highway 154	***Alisal Road***	***Stilling Basin & Long Pool***
≥ 20,000	NA	10	1.5[c]	-
< 20,000	≥ 120,000	5	1.5[d]	-
	≥ 30,000 and < 120,000	2.5	1.5[d]	-
	< 30,000	-	-	30 af/mo[e]

NA - not applicable

[a]Reservoir spill is calculated cumulatively over the course of the water year (FEIR, Vol. IV, Appendix F, Draft Technical Memorandum No. 5, p. 6), which begins October 1 (FEIR, Vol. IV, Appendix F, Draft Technical Memorandum No. 5, p. 8).

[b]Lake storage is measured on the first day of each month. (FEIR, Vol. IV, Appendix E, Technical Memorandum No. 1, p. 5.)

[c]The specified flow applies only when *Oncorhynchus mykiss* are present.

[d]The specified flow applies only if there was reservoir spill greater than or equal to 20,000 af in the prior water year and *Oncorhynchus mykiss* are present in the Alisal Reach.

[e]When there is less than 30,000 acre feet (af) of total water stored in the reservoir, regardless of origin, right holder shall provide periodic releases of 30 af per month to refresh the Stilling Basin and Long Pool directly downstream of the dam to provide for *Oncorhynchus mykiss (O. mykiss)* rearing in these areas. Less than 30 af per month may be released upon determination by the fishery agencies and the State Water Board that less water is necessary to refresh the Stilling Basin and Long Pool directly downstream of the dam for *Oncorhynchus mykiss* in these areas.

There is no feasible and reliable way to get a direct measurement of flows at San Lucas Bridge (Highway 154 Bridge) due to the braided nature of the stream and property access issues; therefore, in 2011, Stetson Engineers Inc. (Stetson) developed guidelines for releases from Bradbury Dam to meet required target flows pursuant to the 2000 BiOp. Since then, Reclamation has released flows from Bradbury Dam as prescribed in Stetson's Table ES-1 to meet 2000 BiOp target flows.

To comply with Term 15(a) of Order WR-2019-0148, as well as assess the efficacy of Table ES-1, Reclamation has been releasing approximately 2.2 cfs more than is prescribed in Table ES-1 and measuring flow in the Santa Ynez River at an alternate site near the east end of Refugio Road approximately 1.17 miles downstream from the Highway 154 bridge (34°35'28.45" N, 120°0256.89"W). Due to ongoing issues with property access and flow measurements at the Highway 154 bridge, Reclamation will be using the alternate site in lieu of the Highway 154 bridge to measure target flows.

Measurements made during May and June 2020 have shown that system losses to the alternate site below Highway 154 are approximately 2.2 cfs higher than Table ES-1 predicted during for the same months. Due to this recent finding and the new flow requirement at Alisal Bridge, Reclamation has developed new flow release tables to meet Term 15(a) flow requirements (Attachment 1). The Term 15 Compliance Tables in Attachment 1 are intended to be living documents that will change as new information is developed, as described in more detail below, to provide updated riparian losses from Bradbury Dam to both the alternate site below Highway

154 and the Alisal Bridge and provide flow release rates from Bradbury Dam to meet these flow targets.

Reclamation's assumptions for development of Term 15 Compliance Tables:

- Measuring flow of the Santa Ynez River at Refugio Road approximately 1.17 river miles downstream of the Highway 154 Bridge is an acceptable alternative to the required measurement at Highway 154 Bridge with no modification to the Water Order Term 15 flow requirements.
- Losses due to groundwater usage, riparian phreatophytic flora uptake, and other causes are variable throughout the calendar year and change over time.
- Peak losses are expected to occur in the summer with minimal losses occurring in the winter, consistent with seasonal variations in plant metabolism and agricultural irrigation demands.

For June through the end of the 2020 Water Year, Reclamation will follow the schedule set forth in Attachment A. As noted above the flows have been increased by 2.2 cfs as an initial prediction of required rearing flows. Reclamation will continue monthly measurements at the alternate site below Highway 154 in order to confirm that the releases are meeting target flows. Should flows be under or above required target requirements, Reclamation will make adjustments accordingly.

Daily records of release flow and Solvang Gage readings are being recorded. This data will be used to determine the losses from Bradbury Dam to Alisal Bridge. Corrections will be issued to the release from the dam if the measured flow at Alisal Bridge is below the required flows shown in Table 1 of Order WR-2019-0148.

Operations for meeting the 1.5 cfs flow requirement at Alisal Bridge are conducted through live monitoring of the Solvang Gage and making corresponding adjustments to flow releases from Bradbury Dam. A United States Geological Survey (USGS) gauge at Alisal Bridge, known as the Solvang Gauge (#11128500), on the Santa Ynez River provides flow data every 15 minutes. Reclamation will use this gauge to monitor for compliance with the 1.5 cfs target. The USGS site for the Solvang Gauge can be accessed at the following address: https://waterdata.usgs.gov/monitoring-location/11128500/#parameterCode=00065.

Each season and water year presents different hydrologic conditions on the Santa Ynez River, and thus different operating conditions at the dam to meet the various flow targets at the Highway 154 bridge and the 1.5 cfs target flow at Alisal Bridge. The relationship between flows released at Bradbury Dam and the resulting flows at the Highway 154 and Alisal Bridges shall be examined quarterly, or more frequently as needed, to further refine releases needed to meet flow requirements.

After three months of data collection and each month thereafter for the first 12 months, curve fitting will be used to generate a predicted loss curve and new release tables will be issued consistent with these revised curves. Data collection will continue in this fashion for a period of 5 years or until each water year type has been observed at least once. After the initial 12 month period, curves will be revised and reissued annually rather than monthly.

Term 15 Compliance Tables will be posted to Reclamation's publicly available website in accordance with Order WR-2019-0148 as a series of data tables representing differing water year and storage levels:

- < 30,000 AF with Critical/Dry/Below Normal water years
- < 30,000 AF with Above Normal/Wet water years
- 30,000 – 120,000 AF with Critical/Dry/Below Normal water years
- 30,000 – 120,000 AF with Above Normal/Wet water years
- >120,000 AF with Critical/Dry/Below Normal water years
- >120,000 AF with Above Normal/Wet water years
- Spill with Below Normal water year
- Spill with Above Normal/Wet water years

Term 15(c) of Order WR-2019-0148

Term 15(c) requires Reclamation to "proceed with rescue efforts within a period necessary to prevent steelhead mortality following any flow interruption of the Hilton Creek Watering System. It also requires that Reclamation "post all flow interruptions of the Hilton Creek Watering System and rescue efforts on a publicly accessible website."
The Hilton Creek USGS gauge (#11125600) provides flow data every 15 minutes and is publicly accessible online at the following address:
https://waterdata.usgs.gov/nwis/dv/?site_no=11125600&agency_cd=USGS&referred_module=sw

Any interruption in Hilton Creek flows can be observed at the USGS website provided above. Reclamation notifies NMFS regarding any Hilton Creek flow interruptions in accordance with the then-current ESA requirements. Upon completion of any applicable ESA requirements, Reclamation will notify the Water Board and the California Department of Fish and Wildlife (CDFW) in accordance with Term 15(c) of Order WR-2019-0148.

Reclamation will conduct rescues of *O. mykiss* in Hilton Creek pursuant to the most recent NMFS-reviewed rescue plan should any fish rescue be needed. An updated version of the most recent NMFS-reviewed Cachuma Project fish rescue plan is provided as Attachment 3. This plan will be updated as needed and will require coordination with NMFS prior to implementation. Reclamation's South-Central California Area Office (SCCAO) Operations page will provide details on rescue operations conducted in Hilton Creek, and will also provide a link to the California Data Exchange Center (CDEC) for access to Lake Cachuma Operations data. This information can be publicly accessed at the following address:
https://www.usbr.gov/mp/sccao/operations.html

Term 16(a)-16(b) of Order WR-2019-0148

Term 16(a) through 16(b) requires Reclamation to "release or bypass water to meet the Table 2 flows, set forth below, at all times during Wet and Above Normal water year types". The flows in Table 2 would be triggered when the cumulative inflow into Cachuma first reaches 33,707

acre feet in a water year, defined as beginning on October 1st and ending September 30th of the following year.

Table 2 Flows Required in Wet and Above Normal Water Year Types

Minimum Flow Requirement*	Period of Flow	Purpose of Flow
48 cfs	02/15 to 04/14	Spawning
20 cfs	04/15 to 06/01	Incubation and Rearing
25 cfs	06/02 to 06/09	Emigration
Ramp to 10 cfs by 06/30		
10 cfs	06/30 to 10/01	Rearing and Resident Fish Maintenance
5 cfs	10/01 to 02/15	Resident Fish

*The above flows shall be maintained at both San Lucas and Alisal bridges. These flows may be met with both natural stream flow and releases from Bradbury Dam.

As an initial starting point, Reclamation will adapt the operating guidelines developed by Stetson to meet the Table 2 flow requirements at Highway 154 Bridge and Alisal Bridge. The operating guidelines will be an initial tool to develop the Term 16 Compliance Table (Attachment 2). Water release ramping protocol (rate of increase and decrease) for transitioning between flow targets will follow Reclamation's proposed water rights ramping schedule as identified in the 2000 BiOp.

Reclamation's Proposed Water Rights Ramping Schedule

Release Rate (cfs)	Ramping Increment (cfs)	Ramping Frequency (No more than once every)
> 90	25	4 hours
90 to 30	10	4 hours
30 to 10	5	4 hours
10 to 5	2.5	4 hours
5 to 3.5	1.5	4 hours
3.5 to 2.5	1	4 hours

Term 16 of Order WR-2019-0148 requires flows at Alisal Bridge ranging from 5 to 48 cfs. Reclamation is working on expanding the operating guidelines to meet the higher Table 2 target flows required at Highway 154 Bridge and Alisal Bridge. Development of compliance tables for Term 16, Table 2, will be done in conjunction with Term 15 compliance tables and follows the same process and assumptions.

The difference in plan procedures is the availability of a USGS flow gage at Alisal Bridge. The recorded flow from this gaging station and the same period releases from Bradbury Dam will be used to generate a predicted loss curve. Data collection will continue in this fashion for a period of 5 years or until each water year type has been observed at least once. After the initial 12 months period, curves will be revised and reissued annually rather than monthly.

The Term 16 Compliance Table will be posted as a series of data tables integrated with the Term 15 Compliance Tables.

Term 16(c)-16(e) of Order WR-2019-0148

Term 16(c) through 16(e) describe the protocol required for temporary reductions or terminations of Table 2 flows for the protection of the steelhead in the Santa Ynez River, as determined by the CDFW or NMFS. Reclamation will notify the Executive Director of the Water Board of any changes to Table 2 flows recommended by CDFW or NMFS in accordance with Term 16(c) of Order WR-2019-0148. The recommendation by CDFW or NMFS to temporarily modify Table 2 flows, as well as the required supporting information, would be posted on Reclamation's publicly accessible SCCAO Operations page located at the following address: https://www.usbr.gov/mp/sccao/operations.html

Term 16(f) of Order WR-2019-0148

Term 16(f) requires Reclamation to "confer with the Member Units to analyze reducing the safe yield of the Cachuma Project" within one year of the adoption of Order WR-2019-0148. Reclamation is further required to notify the Executive Director of the Water Board "in writing of any current or planned reduction to the Cachuma Project's safe yield" within 18 months of the adoption of Order WR-2019-0148.

Reclamation has been in contact with the County of Santa Barbara to schedule a meeting to discuss changes to the safe yield of the Cachuma Project and expects to complete this requirement by the September 17, 2020 deadline. Reclamation will notify the Executive Director of the Water Board regarding any changes to the safe yield by the March 17, 2021 deadline pursuant to Term 16(f) of Order WR-2019-0148.

Attachment 1 – Draft Term 15 Compliance Tables

Table 1A: Draft Term 15 Compliance Table, Mainstem Rearing Flows

For Conditions When:

- Total inflow to Cachuma Reservoir is less than 33,707 acre-feet
- Storage is greater than 30,000 acre-feet and less than 120,000 acre-feet
- Current WY spill is less than 20,000 acre-feet

Month	Highway 154 Bridge Target Flow	Estimated Losses to Hwy 154	Alisal Bridge Target Flow	Estimated Losses to Alisal Bridge	Minimum Release from Cachuma for Hwy 154	Minimum Release from Cachuma for Alisal Bridge*
	cfs	cfs	cfs	cfs	cfs	cfs
October	2.5	3.9	1.5	5.9	**6.4**	**7.4**
November	2.5	3.2	1.5	5.2	**5.7**	**6.7**
December	2.5	3.0	1.5	5.0	**5.5**	**6.5**
January	2.5	3.0	1.5	5.0	**5.5**	**6.5**
February	2.5	3.2	1.5	5.2	**5.7**	**6.7**
March	2.5	3.3	1.5	5.3	**5.8**	**6.8**
April	2.5	4.3	1.5	6.3	**6.8**	**7.8**
May	2.5	5.0	1.5	7.0	**7.5**	**8.5**
June	2.5	5.5	1.5	7.5	**8.0**	**9.0**
July	2.5	5.7	1.5	7.7	**8.2**	**9.2**
August	2.5	5.4	1.5	7.4	**7.9**	**8.9**
September	2.5	4.8	1.5	6.8	**7.3**	**8.3**

*The specified flow applies only if there was reservoir spill greater than or equal to 20,000 acre-feet f in the prior water year and *O. mykiss* are present in the Alisal Reach.

Table 1B: Draft Term 15 Compliance Table, Mainstem Rearing Flows

For Conditions When:

- Total inflow to Cachuma Reservoir is less than 33,707 acre-feet
- Storage is greater than 120,000 acre-feet
- Current WY spill is less than 20,000 acre-feet

Month	Highway 154 Bridge Target Flow	Estimated Losses to Hwy 154	Alisal Bridge Target Flow*	Estimated Losses to Alisal Bridge*	Minimum Release from Cachuma for Hwy 154	Minimum Release from Cachuma for Alisal Bridge*
	cfs	cfs	cfs	cfs	cfs	cfs
October	5.0	3.9	1.5	5.9	**8.9**	7.4
November	5.0	3.2	1.5	5.2	**8.2**	6.7
December	5.0	3.0	1.5	5.0	**8.0**	6.5
January	5.0	3.0	1.5	5.0	**8.0**	6.5
February	5.0	3.2	1.5	5.2	**8.2**	6.7
March	5.0	3.3	1.5	5.3	**8.3**	6.8
April	5.0	4.3	1.5	6.3	**9.3**	7.8
May	5.0	5.0	1.5	7.0	**10.0**	8.5
June	5.0	5.5	1.5	7.5	**10.5**	9.0
July	5.0	5.7	1.5	7.7	**10.7**	9.2
August	5.0	5.4	1.5	7.4	**10.4**	8.9
September	5.0	4.8	1.5	6.8	**9.8**	8.3

*The specified flow applies only if there was reservoir spill greater than or equal to 20,000 acre-feet in the prior water year and *O. mykiss* are present in the Alisal Reach. Based on estimated losses, target flows at Alisal Bridge do not require any additional release when meeting Highway 154 target flows.

Table 1C: Draft Term 15 Compliance Table, Mainstem Rearing Flows

For Conditions When:

- Total inflow to Cachuma Reservoir is less than 33,707 acre-feet
- A spill has occurred during the current WY in excess of 20,000 acre-feet

Month	Highway 154 Bridge Target Flow	Estimated Losses to Hwy 154	Alisal Bridge Target Flow*	Estimated Losses to Alisal Bridge*	Minimum Release from Cachuma for Hwy 154	Minimum Release from Cachuma for Alisal Bridge*
	cfs	cfs	cfs	cfs	cfs	cfs
October	10.0	3.9	1.5	5.9	**13.9**	7.4
November	10.0	3.2	1.5	5.2	**13.2**	6.7
December	10.0	3.0	1.5	5.0	**13.0**	6.5
January	10.0	3.0	1.5	5.0	**13.0**	6.5
February	10.0	3.2	1.5	5.2	**13.2**	6.7
March	10.0	3.3	1.5	5.3	**13.3**	6.8
April	10.0	4.3	1.5	6.3	**14.3**	7.8
May	10.0	5.0	1.5	7.0	**15.0**	8.5
June	10.0	5.5	1.5	7.5	**15.5**	9.0
July	10.0	5.7	1.5	7.7	**15.7**	9.2
August	10.0	5.4	1.5	7.4	**15.4**	8.9
September	10.0	4.8	1.5	6.8	**14.8**	8.3

*The specified flow applies only when *O. mykiss* are present. Based on estimated losses, target flows at Alisal Bridge do not require any additional release when meeting Highway 154 target flows.

Attachment 2 – Draft Term 16 Compliance Table

Table 2A: Draft Term 16 Compliance Table, Flows Required During Wet and Above Normal Years

For Conditions When:

- Total Inflow to Cachuma reservoir in the current water year exceeds 33,707 acre-feet, or
- From 10/1 to 2/14 total inflow of the previous water year exceeded 33,707 acre-feet.

Month	From	To	Days	Target Flow	Estimated Losses	Minimum Releases	Ramp Down Required	Ramp Increments
				cfs	cfs	cfs		
October	10/1	10/31	31	5.0	5.9	10.9	See 3-4	See 3-4
November	11/1	11/30	30	5.0	5.2	10.2	See 3-4	See 3-4
December	12/1	12/31	31	5.0	5.0	10.0	See 3-4	See 3-4
January	1/1	1/31	31	5.0	5.0	10.0	NA	NA
February	2/1	2/14	14	5.0	5.2	10.2	NA	NA
February	2/15	2/28	14	48.0	5.2	53.2	NA	NA
March	3/1	3/31	31	48.0	5.3	53.3	NA	NA
April	4/1	4/14	14	48.0	6.3	54.3	NA	NA
April	4/15	4/30	16	20.0	6.3	26.3	See 3-4	See 3-4
May	5/1	5/31	31	20.0	7.0	27.0	NA	NA
June	6/1	6/9	9	25.0	7.5	32.5	NA	NA
June	6/10	6/30	21	10.0	7.5	17.5	1/day	1 cfs
July	7/1	7/31	31	10.0	7.7	17.7	NA	NA
August	8/1	8/31	31	10.0	7.4	17.4	NA	NA
September	9/1	9/30	30	10.0	6.8	16.8	See 3-4	See 3-4

Table 2 flows initiate when Cachuma inflow exceeds 33,707 acre-feet and will continue until 2/14 of the following water year.
Flows will be maintained at both San Lucas (Highway 154) and Alisal Bridges and may be met with both natural stream flow and releases from Bradbury Dam.
June 10 to June 30 is a special ramp down period at the end of the emigration season. Release adjustments will be less than or equal to -1 cfs each day until the new target is reached. All other ramping adjustments will be performed per Reclamation's proposed water rights ramping schedule as identified in the 2000 BiOp and the Term 18 Plan.

Attachment 3 – Draft Fish Rescue Plan

Introduction

The following Fish Rescue and Relocation Standard Operating Procedure (Procedure) covers potential current and future fish (*Oncorhynchus mykiss [O. mykiss]* or native species) rescue and relocation needs of the Bureau of Reclamation's (Reclamation) Cachuma Project. Fish Rescue and Relocation efforts would be conducted in Hilton Creek per the Order and in the Lower Santa Ynez River as described in the *Biological Opinion for the operation and maintenance of the Cachuma Project on the Santa Ynez River in Santa Barbara County, California* issued by the National Marine Fisheries Service (NMFS) in 2000 (2000 BiOp) and as required in the California State Water Resources Control Board Order WR 2019-0148 (Order).

The following will guide all fish rescue and relocation efforts:

- The number of biologists required for the rescue effort will be determined based on the amount and complexity of habitat to be covered, the potential number of fish in need of rescue, and the fish rescue techniques to be used.
- The fish rescue operations will be preferentially initiated in the morning to coincide with cooler water temperatures and may cease if water temperatures exceed 18 degrees Celsius (°C) to reduce stress on captured and relocated fish. In some cases, biologists may determine that an immediate rescue would be more protective (i.e., due to impending habitat loss or risk of predation).
- A fishery biologist will provide an on-site briefing to all Project personnel before any action is implemented. The briefing will include a description of *O. mykiss* and its habitat, life-history characteristics likely to be encountered, protections provided by the Endangered Species Act (ESA), approved capture techniques and protocols, the specific location of the determined release point with carefully described directions to get there, and the terms and conditions of the incidental take statement for the Project.
- Prior to initiating a fish rescue and relocation effort, fisheries biologists with knowledge of the local watershed and fish refuge habitat will determine the closest suitable relocation site and determine how it will be accessed with the least amount of travel time and disturbance to the rescued fish. The relocation site or sites may be within walking distance or vehicle transport may be needed.
- Qualified biologists will inspect the rescue area to evaluate the best capture technique and relocation site for stranded native fishes, with an emphasis on rescuing *O. mykiss*.
- Fish collection will be conducted in a manner to minimize handling time and stress to captured *O. mykiss*. A combination of seining, dip-netting, electrofishing and hand capture may be used for rescue efforts. If the site is too deep to seine, biologists will use dip nets until water conditions are conducive to seining. Electrofishing may be used if a certified team of at least three biologists is present with the appropriate water quality testing instruments for safe operation.
- Captured fish will be segregated by species and life-stage upon capture and placed in separate holding containers with portable aerators and stream water from the rescue site. All non-native species will be humanely euthanized. Multiple containers will be used to

reduce crowding during collection and transfer. *O. mykiss* young-of-the-year will be held in a separate container from larger *O. mykiss* to prevent predation. All transport containers will have lids to prohibit fish from jumping out of the container or water being lost during transport.

- Water temperature and dissolved oxygen (DO) concentration levels will be monitored in transport containers during rescue, holding and relocation efforts.
- Temperature in the holding containers will be managed to within plus or minus 2° C of ambient river or creek water temperature to reduce stress to the fish and avoid thermal shock. The holding container with portable aeration system will be started prior to placing fish in the holding containers to ensure that suitable temperature and DO concentration levels are present during the adjustment period.
- Transport of native species to release points coordinated with NMFS will be conducted in an efficient manner and coordinated with ongoing collection activities to minimize holding and transport time.
- Native species will be transported in livewells to the predetermined release locations.
- Prior to releasing fish to receiving area waters, the holding and transport container water temperature will be equilibrated using the receiving habitat water. Fish in the holding container will be released to the receiving area water at least 10 minutes following acclamation.
- All captured fish will be identified, and data sheets will be used to record the species, number of fish, life stage, size class, and fish condition prior to, upon, and after collection and release.
- All non-native and invasive species will be euthanized per the guidance of the California Department of Fish and Wildlife (CDFW). After non-native aquatic species have been euthanized, they will be disposed of properly so as not to create a public nuisance or health hazard.
- All *O. mykiss* mortalities will be retained, individually bagged and labeled, frozen, and provided to NMFS.

Personnel

The Fish Rescue Team will be comprised of qualified and approved fisheries biologists and may include individuals from Reclamation, CDFW, the Cachuma Operations and Maintenance Board Fisheries Division (COMB-FD), contractors, and/or other approved entities. The current Points of Contact and Fish Rescue Team Members include:

Reclamation Points of Contact

1. David Hyatt, Resource Management Division Chief (559.262.0334, cell 559.905.0279)
2. Rain Emerson, Environmental Compliance Branch Chief (559.262.0335, cell 559.353.4032)
3. Daniel Cavanaugh, Operation & Maintenance Division Chief (559.262.0355, cell 559.579.3256)

NMFS Points of Contact

1. Darren Brumback, NMFS Fisheries Biologist (562.980.4060)
2. Anthony Spina, Southern California Branch Chief (562.980.4045)

California Department of Fish and Game

1. Mary Larson, Senior Environmental Scientist Supervisor (562.342.7186)
2. Kyle Evans, Fisheries Technician (805.962.4845)

COMB Fisheries Division Rescue Team Members

1. Tim Robison, Fisheries Division Manager, Senior Resource Scientist (805.689.8586)
2. Scott Engblom, Project Biologist (805.216.5135)
3. Scott Volan, Project Biologist (805.407.0931)
4. Daniel Razo, Biologist (805.452.5848)

The current COMB-FD Fish Rescue Team members have all been approved by NMFS for handling fish during migrant trapping operations and are certified by the United States Fish and Wildlife Service (USFWS) to conduct electrofishing.

Equipment

Beyond the basic items used during rescue and relocation operations, the equipment potentially used during fish rescues and relocations include:

- Seines (with maximum 1/8 inch mesh)
- Dip Nets (with maximum 1/8 inch mesh)
- Small aquarium dip nets (<1/8 inch mesh)
- Electro-fishers with long handled dip nets and rubber gloves
- Coolers and buckets with lids
- Aerators
- Temperature, DO concentration, and conductivity meters
- Decontaminated waders

All equipment brought in from other watersheds is decontaminated prior to any activities that include waders, seines, dip nets, transport vessels, etc.

To assure that the fish rescue equipment is available when needed, after each deployment it will be inventoried, cleaned and/or sterilized (as needed), examined for functionality, and stored. Holding and rescue containers will be distributed and staged in appropriate locations prior to initiating a fish rescue. Ice in containers (in sealed separate bags) will be on-site to cool water in the event of elevated temperatures in the holding tanks. Portable aerators will also be available to maintain holding tank DO concentration at acceptable levels.

Meeting Point

When a fish rescue operation is required, the meeting point will vary depending on the location of the incident and need. If the operation is located downstream of the Highway 154 Bridge, the meeting point will be designated on a case by case basis depending on location of the rescue. When a fish rescue is located just downstream of Bradbury Dam, the team will meet at the entrance gate to the Dam off Highway 154. During the initial meeting, the team will review safety procedures, receive an orientation of the site, review the CDFW/NMFS protocols, identify and locate river and/or creek landmarks and the sequence of the habitats of concern, identify relocation sites, and review the general procedure before fish rescues commence.

Considerations

Fish Rescue Action Area

Because much of the Lower Santa Ynez River mainstem is located on private property, and access to the river is limited in these areas, fish rescues will only be conducted on Reclamation property or where landowner access has been granted.

Response Time

All efforts will be made to conduct fish rescue operations within the period of time necessary to prevent steelhead mortality. Fish rescue operations will be conducted as expeditiously as possible; however, because the conditions necessitating a fish rescue generally occur unexpectedly, response times will vary. The response time for initiation of a required fish rescue operation is dependent on a variety of factors including, but not limited to: the specific conditions necessitating a fish rescue (measuring water quality and stream discharge conditions), timing of the knowledge of need for a fish rescue, and time required to assemble qualified staff.

Prioritization

In the event of a required fish rescue operation, prioritization of areas to be rescued will be determined for each event. The Fish Rescue Team will prioritize rescues considering the best available information and/or past experience, *O. mykiss* densities, and habitats at highest risk of drying out or developing degraded water quality conditions. If available, data on fish distribution will be provided to the Fish Rescue Team prior to initiating the rescue in order to facilitate further prioritization and determining suitable relocation sites.

Water Quality

Water quality monitoring will be performed using portable, handheld, multi-parameter water quality meters. Measurements of water temperature, DO concentration, specific conductance [conductivity], and stream discharge will be conducted prior to a fish rescue to evaluate conditions and determine the appropriate electro-fisher settings (if necessary) in preparation for the rescue. Once rescue operations are underway, additional water quality data will be gathered to determine what measures may be needed to provide appropriate conditions in holding and transfer tanks, and to assure relocation sites have adequate water quality conditions for fish survival.

Methodology

Fish rescues will be conducted using various methods including, but not limited to: dip-nets, seines and, electro-fishers. The electro-fishers will be operated by trained personnel from CDFW or COMB-FD staff with assistance from other rescuers. Water for the transport containers will be taken from the creek/river from which the fish are being rescued to assure appropriate imprinting and similar water quality conditions from the rescue site.

Prior to rescues, biologists will carefully inspect the habitat (bank or snorkel survey) to determine the approximate number of *O. mykiss* and other fish species present by life-stage. Then, biologists will determine the most likely hiding places of the fish and remove any obstacles that may interfere with capture activities (i.e., branches, woody debris, algae, etc). Attempts will be made to remove fish from the habitat using dip nets and aquarium nets if appropriate. Once rescued, fish will be immediately placed in an aerated holding container with a lid.

Once rescued, fish will be transported expeditiously to pre-determined relocation sites in containers with portable aerators and lids to prevent loss from the transport container. Multiple containers will be used to reduce crowding or separate size classes during collection, holding and then transfer. When possible, *O. mykiss* young of the year will be held separately from larger individuals to prevent loss from predation. Holding/transport container water temperature and DO concentration will be monitored continuously during rescue and relocation activities. Water temperature will be monitored and managed to within plus or minus 2°C of ambient water temperature to reduce stress to the fish and avoid thermal shock during both capture (rescue habitat to bucket) and relocation (bucket to relocation habitat).

Electrofishing is often the most effective means of capturing and relocating fish. At least two local biologists designated by Reclamation to conduct fish rescues shall be trained and current on electro-fishing safety and practices. Currently, COMB-FD has four staff members with USFWS certification for electrofishing. Electrofishing will be conducted to the extent practical according to the NMFS and USFWS Electrofishing Guidelines (NMFS 2000; USFWS 2018). However, when faced with a scenario where fish rescue using electrofishing is required in order to save as many individuals as possible a departure from water temperature and conductivity guidelines may be needed. Therefore, to be protective of *O. mykiss* procedures may be modified in coordination between and among Reclamation, NMFS, and COMB-FD.

In situations where very high turbidity prohibits visually locating stunned fish, or unsafe electrofishing conditions for the rescue crew exist, or when temperatures are unexpectedly high and above the guideline’s limit, electrofishing may not be feasible and rescues will be conducted using seines, dip nets, and/or other suitable methods.

Blocking Seines

After fish have been rescued, blocking seines may be installed to prohibit fish from moving back into areas of potential stranding; for example, this may be necessary during pump system repair

and/or testing operations when increased flows in Hilton Creek may result in brief moments of stream connectivity above the Lower Release Point (LRP). Blocking seines (1/8-inch mesh) would be placed to prevent fish from accessing the most vulnerable areas for fish stranding.

Relocation Sites

Depending on ambient stream and riparian corridor conditions, etc. the Fish Rescue Team will identify relocation sites during the pre-rescue meeting. Depending upon conditions these sites may vary year to year, month to month, and site to site. Sites will be selected based on the best information available. Sites will be selected considering the presence of favorable habitat conditions including, but not limited to: suitable water quality, habitat structure for refuge, carrying capacity, numbers of native and/or non-native predatory aquatic organisms, and habitat persistence or sustainability.

If no suitable relocation sites are believed to exist in the watershed from which the fish are being rescued, out of basin sites or temporary holding areas (e.g., Fish Rescue facilities or CDFW fish hatcheries) may be used with authorization from NMFS and CDFW.

Relocation sites for fish rescue and relocation operations conducted in the Highway 154 Reach and/or Hilton Creek areas will be selected depending on the anticipated duration of the interruption of flows and/or conditions, including drought, that reduce flows to the creek and downstream into the Highway 154 Reach. If the interruption or decrease in flow rate is anticipated to be short (1-12 hours), rescued fish will be relocated to a suitable refuge habitat within close proximity, preferably in lower reaches in Hilton Creek where deep refuge pool habitat exists. If the interruption is expected to be greater than 12 hours, there is reason not to relocate the fish to these locations, and/or CDFW and NMFS agree to an alternate site, fish will be relocated out of Hilton Creek to habitats in relatively close proximity on Reclamation property (listed in order of priority):

1. The Lower Santa Ynez River Long Pool.
2. The Lower Santa Ynez River mainstem just downstream of Long Pool.

Any fish captured during rescues conducted downstream of the Long Pool will be released into the Long Pool or into Hilton Creek depending on dam flow releases and the carrying capacity of the identified release habitat.

Although releasing fish into the Stilling Basin has not been recommended due to frequent adverse water quality conditions and the presence of non-native aquatic predators, the Stilling Basin may become a more suitable relocation site in the future (e.g., during critical drought operations or if non-native fish species are removed from the Stilling Basin during a dewater and fish removal operation).

If a fish rescue is called for within the Refugio, Alisal or Reach 3 of the Lower Santa Ynez River mainstem, native fish will be relocated to the Highway 154 Reach in areas with suitable habitat and sustainable conditions. In Quiota Creek or Salsipuedes/El Jaro Creek, rescued fish will be relocated to suitable habitats within the same watershed. If no suitable sites are available, then fish will be relocated to the Highway 154 Reach or Hilton Creek.

In the case of a fish rescue and relocation operation in streams crossed by the South Coast Conduit, rescued fish will be relocated to suitable refuge habitats within close proximity, preferably in the same creek from which the fish were rescued. If this is not possible, fish will be relocated within the same watershed. If no suitable relocation sites exist within the watershed where fish are being rescued, fish may be relocated to a nearby watershed, or if none are available then suitable temporary holding areas (e.g. Fish Rescue facilities or CDFW fish hatcheries) may be used with authorization from NMFS and CDFW.

Reporting

Reclamation will contact NMFS (Darren Brumback at 562-980-4060 or Anthony Spina, 562-980-4045 or other staff as directed by NMFS) if one or more *O. mykiss* are found dead, injured, or stranded or likely to become stranded. The purpose of the contact will be to review the activity or conditions resulting in the dead, injured or stranded *O. mykiss* to determine if and what additional measures may be required.

Data collected during these rescues (including, but not limited to: pictures, copies of field notes/logs, data sheets, water quality data, fish counts, etc.) will be provided to Reclamation. Reclamation will submit a detailed technical report following the completion of each *O. mykiss* rescue and/or relocation event to NMFS' California Coastal Office (501 W. Ocean Blvd., Suite 4200, Long Beach, California 90802). The reports will include the data collected during the rescues as well as a description of the conditions or activities that caused the need for *O. mykiss* rescue and relocation and any recommendations that may be appropriate to modify such conditions or activities in the future.

Mortalities

Unless otherwise instructed by NMFS, all *O. mykiss* mortalities will be collected, measured for fork-length, photographed, cataloged (in the case of multiple mortalities), sampled for tissue and scales, and individually sealed in a labeled (date and location of collection) freezer bag and stored in a freezer. Sampling will follow standard protocol procedures. Reclamation, or its designee, will hold the collected mortalities until NMFS representatives can arrange to take custody of the carcasses. Reclamation will provide a report on the cause or suspected cause of death to NMFS.

Post-rescue Monitoring

For several days after the rescued fish are released, all relocation sites will be visually monitored (either from the bank or while snorkeling) to determine if any post-rescue mortality occurred or if additional rescue(s) are required.

Secondary Activities

Predator Species Removal

As time permits, non-native predatory fish or other non-native aquatic species may be removed in the Lower Santa Ynez River mainstem, where accessible, to reduce predation or competition at potential release points for rescued *O. mykiss*. Based on site conditions at the time of rescue, targeted removal of non-native predatory aquatic species (i.e., largemouth bass, smallmouth bass, sunfish species, carp, bullfrogs, etc.) may be undertaken in specific areas where relocation is planned or just prior to the release of rescued fish. Non-native predators captured during the rescue operations will be removed from the habitat and humanely dispatched. Any prickly sculpin (*Cottus asper*) rescued will be transported in separate buckets to avoid predation of or by *O. mykiss* and will be released in a separate location.

References

NMFS, 2000. Guidelines for Electrofishing Water Containing Salmonids Listed Under the Endangered Species Act. National Marine Fisheries Service (NMFS-NOAA).

USFWS, 2018. National Conservation Training Center: Principles and Techniques of Electrofishing (Online) – CSP2C01. Website: https://training.fws.gov/courses/CSP/CSP2C01/resources/.

Attachment 4 – NMFS and CDFW Comments on Draft Term 18 Plan

[EXTERNAL] Reclamation's Draft Cachuma Order WR-2019-0148 Term 18 Plan

Darren Brumback - NOAA Federal <darren.brumback@noaa.gov>

Wed 12/11/2019 8:29 AM

To: JACKSON, MICHAEL P. <MJackson@usbr.gov>
Cc: Hyatt, David E <dhyatt@usbr.gov>; Emerson, Rain L <remerson@usbr.gov>; Dellith, Chris <chris_dellith@fws.gov>; Mary Larson <Mary.Larson@wildlife.ca.gov>

1 attachments (3 MB)

11DEC2019_Cachuma Project WR-2019-0148_DB.pdf;

Good morning Michael,
Hope you are well. Attached is an advanced copy of NMFS' comments on the subject plan to assist your team with revisions.

Darren

--
Darren Brumback
Fisheries Biologist
NOAA Fisheries West Coast Region
U.S. Department of Commerce
Office: 562-980-4060

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

December 11, 2019

Michael Jackson
U.S. Bureau of Reclamation
1243 N Street
Fresno, California 93721-1813

Re: National Marine Fisheries Service Comments on U.S. Bureau of Reclamation's Draft Cachuma Order WR-2019-0148 Term 18 Plan

Dear Mr. Jackson:

Thank you for submitting to NOAA's National Marine Fisheries Service (NMFS) the U.S. Bureau of Reclamation (Reclamation)'s Draft Cachuma Order WR-2019-0148 Term 18 Plan (Draft Plan) for NMFS' review and comment on October 30, 2019. The Draft Plan is a requirement of the California State Water Resources Control Board's (Board) September 17, 2019, adopted Order WR 2019-0148 amending the U.S. Bureau of Reclamation's water right permits 11308 and 11310 for the Cachuma Project on the Santa Ynez River, Santa Barbara County, California.

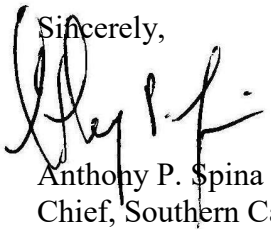
Reclamation has submitted the Draft Plan to NMFS per requirements of the Order. Having completed the review, NMFS has enclosed the following items for your reference and use:

- The Draft Plan, with our comments and recommendations for revision embedded therein;
- A copy of a NMFS-Reclamation communication, and attachment, dated March 14, 2017; and,
- Reclamation's October 2015 Cachuma Project Fish Rescue Plan

The information provided herein solely represents NMFS' technical assistance to Reclamation in regard to certain terms of the Board's Order WR 2019-0148. Accordingly, the enclosed comments and recommendations should in no way be interpreted as endorsement for the instream flow targets specified in the Board's Order (i.e., Table 1 and 2) or the Draft Plan's compliance with the requirements of the Endangered Species Act and associated implementing regulations.

We look forward to future coordination regarding Reclamation's compliance with the Board's Order WR 2019-0148. Should you have a question regarding the information contained in this letter or enclosure, please contact Darren Brumback at (562) 980-4060.

Sincerely,



Anthony P. Spina
Chief, Southern California Branch
California Coastal Office

Enclosures

cc: Mary Larson, California Department of Fish and Wildlife
Chris Dellith, U.S. Fish and Wildlife Service
Administrative file: 151422SWR2010PR00316

RECLAMATION
Managing Water in the West

DRAFT

Cachuma Order
WR-2019-0148 Term 18 Plan

U.S. Department of the Interior
Bureau of Reclamation
South Central California Area Office
Fresno, California

October 2019

Mission Statements

The mission of the Department of the Interior is to conserve and manage the Nation's natural resources and cultural heritage for the benefit and enjoyment of the American people, provide scientific and other information about natural resources and natural hazards to address societal challenges and create opportunities for the American people, and honor the Nation's trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities to help them prosper.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Table of Contents

Attachments

Introduction

On September 17, 2019 the State Water Resources Control Board (Water Board) adopted Final Order WR-2019-0148 amending the Bureau of Reclamation's (Reclamation's) water rights permits 11308 and 11310 for the Cachuma Project in Santa Barbara, California. Reclamation provides the following Plan in accordance with Term 18 of Order WR-2019-0148 to describe "the measures in place, or that will be implemented to 15 and 16."

NMFS-1

Commented [NMFS1]: What follows in regard to ensuring compliance with Term 15 is solely directed at Terms 15(a) implementing Table 1 *Mainstem Rearing Flows* and 15(c) regarding Hilton Creek Water System interruptions.

However, Term 15 is much broader; it requires Reclamation to implement conservation measures including but not limited to those described in Revised Section 3 (Proposed Action) of the Biological Assessment for Cachuma Project Operations and the Lower Santa Ynez River, June 2000, taking into consideration the 2013 Biological Assessment with any amendments and the 2016 Draft Biological Opinion. Yet, Reclamation does not identify any such conservation measures and the measures to ensure implementation.

Term 15 also requires Reclamation to comply with all of the Reasonable and Prudent Measures (RPM) 5 and 7 through 13, set forth at page 68, and the Terms and Conditions, set forth at pages 70-78, in NMFS' September 8, 2000, biological opinion. Yet, Reclamation does not describe the measures to ensure compliance with these RPMs and terms and conditions.

The Term 18 Plan should include how Reclamation intends to implement conservation measures and comply with RPMs and terms and conditions in NMFS' September 8, 2000, biological opinion as required in Term 15 and described above in this comment pending conclusion of reinitiated formal consultation under the ESA.

Term 15(a) of Order WR-2019-0148

Term 15(a) of Order WR-2019-0148 requires Reclamation to "release or bypass water to maintain the following Mainstem Rearing instream flows in the Santa Ynez River, as set forth below [in Table 1] at all times." The flows in Table 1 are also required for Reclamation's continued compliance with the *Biological Opinion for the operation and maintenance of the Cachuma Project on the Santa Ynez River in Santa Barbara County, California* issued by the National Marine Fisheries Service (NMFS) in 2000 (2000 BiOp).

Table 1 Mainstem Rearing Flows

Reservoir Spill[a] (af)	Lake Storage[b] (af)	Flow (cfs) Requirements at:		
		Highway 154	*Alisal Road*	*Stilling Basin & Long Pool*
≥ 20,000	NA	10	1.5[c]	-
< 20,000	≥ 120,000	5	1.5[d]	-
	≥ 30,000 and < 120,000	2.5	1.5[d]	-
	< 30,000	-	-	30 af/mo[e]

NA - not applicable

[a]Reservoir spill is calculated cumulatively over the course of the water year (FEIR, Vol. IV, Appendix F, Draft Technical Memorandum No. 5, p. 6), which begins October 1 (FEIR, Vol. IV, Appendix F, Draft Technical Memorandum No. 5, p. 8).

[b]Lake storage is measured on the first day of each month. (FEIR, Vol. IV, Appendix E, Technical Memorandum No. 1, p. 5.)

[c]The specified flow applies only when *Oncorhynchus mykiss* are present.

[d]The specified flow applies only if there was reservoir spill greater than or equal to 20,000 af in the prior water year and *Oncorhynchus mykiss* are present in the Alisal Reach.

[e]When there is less than 30,000 acre feet (af) of total water stored in the reservoir, regardless of origin, right holder shall provide periodic releases of 30 af per month to refresh the Stilling Basin and Long Pool directly downstream of the dam to provide for *Oncorhynchus mykiss (O. mykiss)* rearing in these areas. Less than 30 af per month may be released upon determination by the fishery agencies and the State Water Board that less water is necessary to refresh the Stilling Basin and Long Pool directly downstream of the dam for *Oncorhynchus mykiss* in these areas.

To ensure compliance with Term 15(a), Reclamation would implement the recommended flows from Bradbury Dam as prescribed by the most current operating guidelines. Currently, Reclamation is implementing Table ES-1 from Stetson Engineers Inc.'s (Stetson's) 2011 *Evaluation of Aerial Photos for Monitoring Instream Target Flows in the Highway 154 Reach of Lower Santa Ynez River, California* for 2000 BiOp, and Table 1, flows to Highway 154 (Attachment 1), and is implementing Stetson's 2011 *Operating Guidelines for Monitoring Target Flow of 1.5 cfs at Alisal Bridge* for 2000 BiOp, and Table 1, flows to Alisal Bridge (Attachment 2).

For example, in water years when the reservoir spills more than 20,000 acre feet, Table 1 requires flows of 10 cubic feet per second (cfs) at Highway 154 and 1.5 cfs at Alisal Road (when *O. mykiss* are present). Table ES-1 requires releases ranging from 10.8 to 13.5 cfs from Bradbury Dam, depending on the month of the release, to meet the 10 cfs requirement at the Highway 154 Bridge.

Operations for meeting the 1.5 cfs flow requirement at Alisal Bridge are conducted in accordance with Stetson's 2011 *Operating Guidelines for Monitoring Target Flow of 1.5 cfs at Alisal Bridge* (Attachment 2) and can be divided into the following three steps:

1. *Real-Time Flow Monitoring* – There is a United States Geological Survey (USGS) gauge at Alisal Bridge, known as the Solvang Gauge (#11128500), on the Santa Ynez River that provides flow data every 15 minutes. Reclamation will use this gauge to monitor for compliance with the 1.5 cfs target. The USGS site for the Solvang Gauge can be accessed at the following address: https://waterdata.usgs.gov/nwis/dv/?site_no=11128500&agency_cd=USGS&referred_module=sw

   NMFS-3

   The streambed at Alisal Bridge poses a challenge for providing accurate flow readings from the USGS gauge because the stream path can move from one channel to another and miss the stationary USGS gauge. It is expected that USGS will monitor the gauge location and provide an instantaneous flow measurement weekly.

   Monitoring at six upstream locations will be implemented to help with early flow detection. The locations are at Meadowlark Pool, Lower Gainey Crossing, and Refugio Bridge for the Refugio Reach and at the Quiota Creek Confluence, one mile above Alisal Bridge, and at Alisal Bridge for the Alisal Reach. Early flow detection will allow dam operators to increase reservoir releases to maintain target flows.

   NMFS-4

2. *Releases from Bradbury Dam* – Reclamation will use a decision tree (Figure 1 *in* Attachment 2), developed by Stetson, to help determine the necessary releases to meet the 1.5 cfs target flow at Alisal Bridge. The process involves early detection, early

   NMFS-5

NMFS-2

Commented [NMFS2]: The description and example below refers only to monitoring the 1.5 cfs Alisal Road/Bridge instream flow target. Term 15 Table 1 includes instream flow targets at the Hwy 154 Bridge (2.5 and 5 cfs) apart from Alisal Road/Bridge flow target. Reclamation should also describe how it proposes to ensure compliance with the Hwy 154 Bridge flow targets.

To this end, Term 25 of the Order requires Reclamation to maintain publically-accessible continuous river flow measurements at the Hwy 154 Bridge to document compliance with the terms of the water right permit. Therefore, although Term 15 does not specifically refer to Term 25, Reclamation should consider incorporating compliance with Term 25 into the Term 18 Plan regarding this issue.

Commented [NMFS3]: Is this intended to mean or say that Reclamation expects the USGS to conduct weekly field measurements for the purpose of corroborating real-time (e.g., 15-minute) discharge data and calibrating stage-discharge rating curves?

Has Reclamation coordinated with the USGS to ensure this frequency of conducting field measurements or intend to do so? For instance, does Reclamation's contract with USGS for monitoring river/stream discharge in the lower Santa Ynez River establish the frequency for conducting field measurements and calibrating stage-discharged rating curves?

Reclamation should clarified the Term 18 Plan here to answer these questions.

Commented [NMFS4]: Please incorporate the following:
(1) Identify who will conduct this monitoring (e.g., Reclamation, USGS, other agency, consultant, other) and required or relevant knowledge and experience in measuring and monitoring stream discharge;
(2) Describe the protocol or methodology to be applied, including frequency of monitoring;
(3) Define the process and procedures for ensuring timely delivery of information to Bradbury Dam operators and process and timing for adjusting water releases from Bradbury Dam;
(4) Describe the timing and format for making this monitoring data, and any associated water releases, available to SWRCB, CDFW, and NMFS.

Commented [NMFS5]: We suggest including the actual decision tree in the
Term 18 Plan, rather than incorporating by reference.

sustenance release for the 1.5 cfs flow target, real-time monitoring, and real-time adjustments including incremental adjustments and pulse releases.

3. *Post-Release Evaluation and Reporting* – Each year presents different operating conditions on the Santa Ynez River to meet the 1.5 cfs target flow at Alisal Bridge. Released flows at Bradbury Dam and the resulting flows at Alisal Bridge shall be examined periodically to further refine releases to meet the flow requirements at Alisal Bridge.

Term 15(c) of Order WR-2019-0148

NMFS-6

Term 15(c) requires Reclamation to "proceed with rescue efforts within a period necessary to prevent steelhead mortality following any flow interruption of the Hilton Creek Watering System. It also requires that Reclamation "post all flow interruptions of the Hilton Creek Watering System and rescue efforts on a publicly accessible website."

The Hilton Creek USGS gauge (#11125600) provides flow data every 15 minutes and is publicly accessible online at the following address: https://waterdata.usgs.gov/nwis/dv/?site_no=11125600&agency_cd=USGS&referred_module=sw

NMFS-7

Any interruption in Hilton Creek flows can be observed at the USGS website provided above.

In the event of an interruption in Hilton Creek flows, Reclamation will conduct rescues of *O. mykiss* in Hilton Creek pursuant to the most ~~recent~~ current NMFS-reviewed rescue plan. The most recent NMFS-reviewed Cachuma Project fish rescue plan is provided as Attachment 3.

Reclamation's South-Central California Area Office (SCCAO) Operations page will provide details on rescue operations conducted in Hilton Creek, and will also provide a link to the California Data Exchange Center (CDEC) for access to Lake Cachuma Operations data. This information can be publicly accessed at the following address: https://www.usbr.gov/mp/sccao/operations.html

NMFS-8

Term 16(a)-16(b) of Order WR-2019-0148

Term 16(a) through 16(b) requires Reclamation to "release or bypass water to meet the Table 2 flows, set forth below, at all times during Wet and Above Normal water year types". The flows in Table 2 would be triggered when the cumulative inflow into Cachuma first reaches ~~33,307~~33,707 acre feet in a water year (beginning on October 1st and ending September 30th of the following year).

NMFS-9

Commented [NMFS6]: Reclamation should incorporate recommendations provided in the November 28, 2016, draft biological opinion, including Reasonable and Prudent Measure 3, and Terms and Conditions and proposed revisions provided to Reclamation in an e-mail and attachment dated March 14, 2017 (enclosed).

Commented [NMFS7]: Reclamation provided Attachment 3 on December 4, 2019: *Cachuma Project Fish Rescue Plan* dated July 29, 2015. Attachment 3 is not the "most recent NMFS-reviewed Cachuma Project fish rescue plan." Reclamation submitted a version to NMFS dated October 2015 (enclosed) in support of formal consultation under the Endangered Species Act, which NMFS reviewed as part of the consultation leading to NMFS' November 28, 2016, draft biological opinion.

Although Reclamation withdrew that request for consultation, we recommend Reclamation incorporate, as appropriate, recommendations contained in the November 28, 2016, draft biological opinion Reasonable and Prudent Measure 6 and Terms & Conditions and proposed revisions provided to Reclamation in an e-mail and attachment dated March 14, 2017 (enclosed).

Commented [NMFS8]: Please identify when this information would be posted relative to an incident.

Also, under reasonable and prudent measure 12 of the September 8, 2000, biological opinion for the Cachuma Project, Reclamation is required to immediately notify NMFS in the event of an interruption in Hilton Creek flows (i.e., water releases). Reclamation has notified NMFS via phone messages or e-mail or both shortly after detection of an interruption (within hours). Reclamation's notification to NMFS and timing of such notification should be specified in the Term 18 Plan.

Commented [NMFS9]: Because cumulative inflow into Cachuma Reservoir is not expected to reach ≥33,707 acre-feet for several months after October 1 during "above normal" and "wet" water years, initiating or continuing Table 2 instream-flow targets is unlikely to occur for several months after October 1. Instead, instream-flow targets default to Table 1 of the Order on October 1.

This will cause about 15 miles or more of the Santa Ynez River to be dewatered on or shortly after October 1 when the preceding water year was "wet" or "above normal." The amount and quality of steelhead habitat in the river reach that remains wetted will be appreciably reduced. The loss of steelhead habitat and take of steelhead is expected to exceed the effects and amount of take analyzed in the September 8, 2000, biological opinion for the Cachuma Project.

Therefore, Reclamation should propose operations (water releases) in the Term 18 Plan for the purpose of avoiding or minimizing habitat loss and potential stranding and death of steelhead when transitioning from one water year to the next .

Table 2 Flows Required in Wet and Above Normal Water Year Types

Minimum Flow Requirement*	Period of Flow	Purpose of Flow
48 cfs	02/15 to 04/14	Spawning
20 cfs	04/15 to 06/01	Incubation and Rearing
25 cfs	06/02 to 06/09	Emigration
Ramp to 10 cfs by 06/30		
10 cfs	06/30 to 10/01	Rearing and Resident Fish Maintenance
5 cfs	10/01 to 02/15	Resident Fish

*The above flows shall be maintained at both San Lucas and Alisal bridges. These flows may be met with both natural stream flow and releases from Bradbury Dam.

At present, Reclamation will adapt the operating guidelines developed by Stetson to meet the Table 2 flow requirements at the San Lucas Bridge (Highway 154 Bridge) and Alisal Bridge. The operating guidelines will be modified as necessary through calibration and adaptive management to achieve the flows required in Table 2.

A study is currently being developed to determine the releases required from Bradbu meet the Table 2 flow requirements at San Lucas Bridge and Alisal Bridge. Stetson's operating guidelines were developed to maintain a target flow of 1.5 cfs at Alisal Bridge; however, Term 16 of Order WR-2019-0148 requires flows at Alisal Bridge ranging fr cfs. Reclamation is working on expanding the operating guidelines to meet the higher Table 2 target flows required at San Lucas Bridge and Alisal Bridge.

The study to modify the operating guidelines will include:

1. An analysis of Wet and Above Normal water year types and natural stream flow downstream of Bradbury Dam, specifically at the USGS Solvang gauge at Alisal Bridge (#11128500).
2. A review of previous Water Rights 89-18 releases and the resulting flows at Alisal Bridge.
3. An examination of current conditions (i.e. vegetation, obstructions, infiltration, etc.) in the reaches of the Santa Ynez River from Bradbury Dam to Alisal Bridge.
4. An examination of flow conditions at San Lucas Bridge resulting from Water Rights 89-18 releases and storm run-off
5. An examination of specific periods of flow, minimum flow requirements, and how conditions in the Santa Ynez River affect flow release operations.
6. A dynamic review of the flow release operations conducted to meet Table 2 flows in water year 2020 (or the first Wet or Above Normal water year following the adoption of Order WR-2019-0148) and beyond. The review will be used to optimize future

NMFS-10

Commented [NMFS10]: Reclamation should include a water-release ramping protocol (rate of increase and decrease) for transitioning between flow targets (e.g., 48 cfs to 20 cfs minimum flow target). For instance, water-release ramping schedules proposed and implemented under previous ESA consultations.

NMFS-11

Commented [NMFS11]: When does Reclamation intend/expect to complete this study? We recommend including the date for completion in this Plan.

operations so that the minimum amount of water needed to consistently meet the Table 2 flow requirements at Alisal Bridge is released from Bradbury Dam.

Commented [NMFS12]: Will this study include an analysis of groundwater pumping effects and water-right release criteria (i.e., WR 89-18)? Because groundwater pumping can affect the amount and distribution of surface water and, consequently, the rates of water releases necessary to maintain instream flow targets, Reclamation should incorporate these elements in this analysis.

Term 16(c)-16(e) of Order WR-2019-0148 NMFS-12

Term 16(c) through 16(e) describe the protocol required for temporary reductions or terminations of Table 2 flows for the protection of the steelhead in the Santa Ynez River, as determined by the California Department of Fish and Wildlife (CDFW) or NMFS. Reclamation will notify the Executive Director of the Water Board of any changes to Table 2 flows recommended by CDFW or NMFS within the required timeframe via U.S. mail, e-mail, or telephone and will implement the required changes according to the most current operating guidelines. The determination by CDFW or NMFS to temporarily modify Table 2 flows, as well as the required supporting information, would be posted on Reclamation's publicly accessible SCCAO Operations page located at the following address: https://www.usbr.gov/mp/sccao/operations.html

Term 16(f) of Order WR-2019-0148

Term 16(f) requires Reclamation to "confer with the Member Units to analyze reducing the safe yield of the Cachuma Project" within one year of the adoption of Order WR-2019-0148. Reclamation is further required to notify the Executive Director of the Water Board "in writing of any current or planned reduction to the Cachuma Project's safe yield" within 18 months of the adoption of Order WR-2019-0148.

Reclamation has been in contact with the County of Santa Barbara to schedule a meeting to discuss changes to the safe yield of the Cachuma Project and expects to complete this requirement by the September 17, 2020 deadline. Reclamation will notify the Executive Director of the Water Board in writing of any changes to the safe yield by the March 17, 2021 deadline.

Darren Brumback - NOAA Federal <darren.brumback@noaa.gov>

Re: Action Items form 2/22/2017 Meeting on Cachuma Draft BiOp

1 message

Darren Brumback - NOAA Federal <darren.brumback@noaa.gov> Tue, Mar 14, 2017 at 3:32 PM
To: "Buck, Lisa" <lbuck@usbr.gov>
Cc: "Emerson, Rain" <remerson@usbr.gov>, NED GRUENHAGEN <ngruenhagen@usbr.gov>, David Hyatt <dhyatt@usbr.gov>, Duane Stroup <dstroup@usbr.gov>, Darren Brumback <darren.brumback@noaa.gov>

Hello All,
Attached are my responses to the items assigned.
Can you provide me an update when you expect to respond to other items.
Thanks,
Darren.

On Thu, Mar 2, 2017 at 7:46 AM, Buck, Lisa <lbuck@usbr.gov> wrote:

> Hi Rain,
>
> I had just a few action items to add to the list (see track-changes)
>
> thank you,
>
> -Lisa
>
> On Wed, Mar 1, 2017 at 5:11 PM, Emerson, Rain <remerson@usbr.gov> wrote:
>
> > My apologies for not getting these out to the group sooner. It has been a hectic last couple of weeks. Attached are my draft Action Items from our last meeting. Please take a look and let me know if there was anything I missed. I will then finalize and send out.
> >
> > On the first item, I am working on getting a track change version of NMFS' action items back to Darren once I get feedback from the Reclamation team.
> >
> > Rain L. Emerson, M.S.
> > *Supervisory Natural Resources Specialist*
> > Bureau of Reclamation, South-Central California Area Office
> > 1243 N Street, Fresno, CA 93721
> > Work Ph: 559-487-5196
> > Cell Ph: 559-353-4032
>
> --
> **Lisa Buck**
> Wildlife Biologist
> U.S. Department of the Interior
> Bureau of Reclamation
> 1243 N Street
> Fresno, CA 93721
> Phone: (559) 487-5262
> Email: lbuck@usbr.gov

--
Darren Brumback
Fisheries Biologist
NOAA Fisheries West Coast Region
U.S. Department of Commerce
Office: 562-980-4060

NOAA FISHERIES
West Coast Region

Action Items for February 22_DRB_March 14, 2017.docx
15K

Action Items for February 22, 2017 Meeting with NMFS on Cachuma DRAFT BiOp:

1. Rain will track change action items from previous meeting to include our additions.
2. Schedule next meeting
3. Chlorine – Reclamation to check on what happens during O&M draining
4. Reclamation to provide Settling Parties comments next week (5 business days)
5. Define and describe the parameters that control our releases from the reservoir (whose water is it) – what are the constraints e.g., permit conditions etc. (looking at T&C 1(a)2). Constrain flexibility for water rights releases, fish releases, flood releases, etc. "other water" – e.g. non-Project water.
6. Darren to look at Table 2-13 regarding "dry gaps in river" and water rights releases "flexibility" (what he is looking at avoiding and how Table 2-13 may address this concern)
    a. D. Brumback 3/14/2017: Implementing Table 2-13 water releases is expected to alleviate most situations of the SYR drying between Bradbury Dam and Solvang as has occurred in past (i.e., extensive sections of severally degraded water quality or completely dry and then re-watered from water-rights releases). However, similar situations may occur when flow targets are adjusted for consecutive dry years (≥5 cfs at Hwy 154) resulting in reduced habitat quantity and quality. Therefore, the value of preparing and implementing a process for coordinating and conducting water releases during these times remains.
7. Darren to look at "compensatory release" especially at higher release levels re: T&C 3(b)
    a. D. Brumback 3/14/2017: I recall the record supporting 2 cfs as the flow threshold for habitat; therefore, I can incorporate 2 cfs into T&C 3(b) (e.g., Reclamation shall release water at a rate no less than 2 cfs to avoid stranding of steelhead…). Reclamation is welcome propose a different threshold based on supporting evidence to inform modifying this T&C.
8. A threshold to replace the term "appreciably reduce" will be defined for T&C 3
    a. D. Brumback 3/14/2017: "Appreciably" can probably be deleted because of the 2 cfs criterion.
9. Darren will adjust T&C 3 to make it clear that it was intended to be inclusive of all Hilton Creek systems, not just the original Hilton Creek Watering System
    a. D. Brumback 3/14/2017: The following or similar will be added to T&C 3(a): The Hilton Creek Water System includes all past and future modification to the system (e.g., Emergency Backup System).
10. Reclamation to provide clarifying language/information regarding capabilities for total Hilton Creek watering system (maximum down to drought operations) – temporary alternative sources, e.g. ramping down – add language regarding "normal operations" vs "critical drought operations". What occurs/needed for testing of the systems and what are the capabilities of the rest of the systems (original to all the backups).
11. Reclamation will discuss non-native fish removal with the State (CDFW) to see about getting approval for this action
12. Reclamation to look at language in T&C 5 and what was previously provided to NMFS for Critical Drought Operations and see if there are areas to clarify
13. Darren to add language to T&C 6 regarding recent fish training requirements.
    a. D. Brumback 3/14/2017: The following or something similar will be added to T&C 6(b): At least two local biologists designated by Reclamation for conducting

fish rescues shall receive training and remain up to date in current electrofishing safety and practices (training example to be provided).

Next meeting – March 15, 2017 10am.

ENCLOSURE 5

RECLAMATION
Managing Water in the West

Cachuma Project
Fish Rescue Plan

Cachuma Project
Santa Barbara, California

U.S. Department of the Interior
Bureau of Reclamation
South Central California Area Office
Fresno, California

October 2015

Mission Statements

The mission of the Department of the Interior is to protect and manage the Nation's natural resources and cultural heritage; provide scientific and other information about those resources; and honor its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Cachuma Project
Fish Rescue Plan

Cachuma Project
Santa Barbara, California

Prepared by:

United States Department of the Interior
Bureau of Reclamation
Mid-Pacific Region
South-Central California Area Office
Fresno, California

Introduction and Objectives

The fish rescue plan prepared for, and submitted with, the 2013 Biological Assessment for the Cachuma Project (Appendix 2-C: Lower Santa Ynez River Fish Rescue Plan 2014), has been updated and expanded for the pending Biological Opinion on the Operation and Maintenance of the Cachuma Project (BiOp). The following updated Fish Rescue Plan (Plan) covers potential future needs for fish rescues which could be required for situations including, but not limited to: critical drought conditions, potential drought operations, standard Project operation in the Lower Santa Ynez River basin and streams crossed by the South Coast Conduit, Hilton Creek Watering System (HCWS) and/or Hilton Creek Emergency Backup System interruptions or failures, diminishing stream flow, degrading water quality conditions, contaminant spills, fish enhancement projects, and project monitoring/trapping efforts, etc., and for activities associated with the Proposed Actions to be covered through Reclamation's ongoing consultations with NMFS including those on the Operation and Maintenance of the Cachuma Project. Reclamation will coordinate with NMFS on a case by case basis to determine the need for implementing fish rescue operations.

Action Area

The Action Area for fish rescue and release comprises all stream/river reaches downstream of Bradbury Dam and at South Coast Conduit stream crossings.

Cachuma Project Fish Rescue Plan

The Cachuma Project Fish Rescue Plan includes the following elements:

Personnel: The Fish Rescue Team will be comprised of qualified and approved fisheries biologists or other staff from NMFS, California Department of Fish and Wildlife (CDFW), COMB Fisheries Division, contractors, or other approved entities. The current Fish Rescue Team and their points of contact are listed in Attachment A.

Equipment: To assure that the fish rescue equipment is available when needed, after each deployment it will be inventoried, cleaned and/or sterilized (as needed), examined for functionality, and stored. Holding and rescue containers will be distributed and staged in appropriate locations prior to initiating a fish rescue. Ice in containers (separate bags) will be onsite to cool water in the event of elevated temperatures in the holding tanks. Portable aerators will also be available to maintain holding tank dissolved oxygen (DO) concentration at acceptable levels.

Meeting Point: When a fish rescue operation is required, the meeting point will vary depending on the location of the incident and need. If the operation is located downstream of the Highway 154 Bridge, the meeting point will be designated on a case by case basis depending on location of the rescue. When a fish rescue is located just downstream of Bradbury Dam, the team will meet at the entrance gate to the Dam off of

Highway 154. During the initial meeting, the team will review safety procedures, receive an orientation of the site, review the CDFW/NMFS protocols, identify and locate creek landmarks and the sequence of the habitats of concern, identify relocation sites, and review the general procedure before fish rescues commence.

Water Quality: Water quality monitoring will be performed using portable, handheld, multi-parameter water quality meters. Measurements of water temperature, DO concentration, and specific conductance [conductivity] will be conducted prior to a fish rescue to evaluate conditions and prepare for the rescue. Once rescue operations are underway, additional water quality data will be gathered to determine appropriate settings for electro-fishing, to determine what measures may be needed to provide appropriate conditions in holding and transfer tanks, and to assure relocation sites have adequate conditions.

Prioritization: In the event of a required fish rescue operation, prioritization of areas to be rescued will be determined for each event. The Fish Rescue Team will prioritize rescues considering the best available information and/or past experience, *Oncorhynchus mykiss* (*O. mykiss*) densities, and habitats at highest risk of drying out. If available, data on fish distribution will be provided to the Fish Rescue Team prior to initiating the rescue in order to facilitate further prioritization.

Fish Rescue Methodology: Fish rescues will be conducted using various equipment including, but not limited to: dip-nets, seines, electro-fishers, buckets, coolers, and aerators. The electro-fishers will be operated by trained CDFW or NMFS staff with assistance from other rescuers. In order to prevent smolts from imprinting on out-of-basin water during rescue operations, if possible, water for the transport containers will be taken from the creek/river from which the fish are being rescued, or from within the same watershed. Once rescued, fish will be transported expeditiously to pre-determined relocation sites in containers with lids to prevent loss from the transport container. Multiple containers will be used to reduce crowding during collection and transfer. When possible, *O. mykiss* young of the year will be held separately from larger individuals to prevent loss from predation. Transport container water temperature and DO will be monitored during holding. Temperature will be managed to within plus or minus 2°C of ambient water temperature to reduce stress to the fish and avoid thermal shock.

Electrofishing is often the most effective means of capturing and relocating fish. Electrofishing will be conducted to the extent practical according to the NMFS Electrofishing Guidelines (NMFS 2000b). However, the guidelines dictate that no electrofishing should occur when water temperatures are above 18°C or are expected to rise above this temperature prior to concluding the electrofishing survey. In addition, studies by NMFS scientists indicate that no electrofishing should occur in California

coastal basins when conductivity is above 359 µS/cm. When faced with a scenario where fish rescue using electrofishing is required in order to save as many individuals as possible, departure from water temperature and conductivity guidelines may be necessary rather than allowing fish to succumb to poor water quality or reduced flow conditions. In situations where very high turbidity prohibits visually locating stunned fish, or unsafe electrofishing conditions for the rescue crew exist, or when temperatures are unexpectedly high and above the guideline's limit, electrofishing may not be feasible and rescues will be conducted using seines, dip nets, and/or other suitable methods.

Blocking Seines: After fish have been rescued, blocking seines may be installed to prohibit fish from moving back into areas of potential stranding; for example, this may be necessary during pump system repair and/or testing operation when increased flow in Hilton Creek may result in brief moments of stream connectivity from the Upper Release Point (URP) and Lower Release Point (LRP) to the Lower Santa Ynez River mainstem and Long Pool. Blocking seines (1/8-inch mesh) would be placed to prevent fish from accessing the most vulnerable areas for fish stranding.

Relocation Sites: Depending on ambient stream and riparian corridor conditions, etc. the Fish Rescue Team will identify relocation sites during the pre-rescue meeting. Depending upon conditions these sites may vary year to year, month to month, and site to site. Sites will be selected based on the best information available. Sites will be selected considering the presence of favorable habitat conditions including, but not limited to: suitable water quality, habitat structure for refuge, carrying capacity, numbers of native and/or non-native predatory aquatic organisms, and habitat persistence or sustainability. If no suitable relocation sites are believed to exist in the watershed from which the fish are being rescued, out of basin sites or temporary holding areas (e.g. CDFW fish hatcheries) may be used with authorization from NMFS and CDFW.

Relocation sites for fish rescue and relocation operations conducted in the Highway 154 Reach and/or Hilton Creek areas will be selected depending on the anticipated duration of the interruption of flows and/or conditions, including drought, that reduce flows to the creek and downstream into the Highway 154 Reach. If the interruption or decrease in flow rate is anticipated to be short (1-12 hours), rescued fish will be relocated to suitable refuge habitat within close proximity, preferably in Reach 4 of Hilton Creek where deep refuge pool habitat exists (Figure 1). If the interruption is expected to be greater than 12 hours, there is reason not to relocate the fish to these locations, and CDFW and NMFS agree to an alternate site, fish will be relocated out of Hilton Creek to habitats in relatively close proximity on Reclamation property (listed in order of priority) (Figure 2): 1) the Lower Santa Ynez River Long Pool and 2) the Lower Santa Ynez River mainstem just downstream of Long Pool. Any fish rescues downstream of the Long Pool will be

released into the Long Pool or up into Hilton Creek depending on dam flow releases and the carrying capacity of the identified release habitat.

Although releasing fish into the Stilling Basin is currently not recommended due to frequent adverse water quality conditions and the presence of non-native aquatic predators, the Stilling Basin may become an more suitable relocation site in the future (e.g. post 89-18 Water Rights Releases).

In the case of a fish rescue and relocation operation in streams crossed by the South Coast Conduit, rescued fish will be relocated to suitable refuge habitats within close proximity, preferably in the same creek from which the fish were rescued. If this is not possible, fish will be relocated within the same watershed. If no suitable relocation sites exist within the watershed where fish are being rescued, fish may be relocated to a nearby watershed, or if none are available then suitable temporary holding areas (e.g. CDFW fish hatcheries) may be used with authorization from NMFS and CDFW.

Figure 1: Hilton Creek reaches; Reach 6 is normally dry outside of the wet season

Figure 2: Fish Rescue Relocation Sites near Hilton Creek

Mortalities: Unless otherwise instructed by NMFS, all *O. mykiss* mortalities will be collected, measured for fork-length, photographed, sampled for tissue and scales, and individually bagged, then stored in a freezer. Sampling will follow standard protocol procedures. Reclamation, or its contractor, will hold the collected mortalities until NMFS representatives can arrange to take custody of the carcasses.

California Red-legged Frogs: No California red-legged frogs (CRLF, *Rana draytonii*) have been observed within the Lower Santa Ynez River mainstem or Hilton Creek areas since monitoring began in the mid-1990s. CRLF have been observed in the Quiota, Salsipuedes, and El Jaro Creeks. In areas where CRLF may be present, biologists who are experienced and authorized by the United States Fish and Wildlife Service (USFWS) will be on hand during fish rescues to identify CRLF in all life stages. If CRLF are found during a fish rescue operation the observation(s) will be documented, CRLF will not be captured and/or relocated, and Reclamation will report the documented occurrence(s) to the USFWS and the CDFW. The biologist who made the observation will be responsible for documenting the occurrence in the California Natural Diversity Database.

Post-rescue Monitoring: For several days after the rescued fish are released all relocation sites will be visually monitored (either from the bank or while snorkeling) to determine if any post-rescue mortality occurs or if additional rescue(s) are required.

Reporting: Data collected during these rescues (including, but not limited to: pictures, copies of field notes/logs, data sheets, water quality data, fish counts, etc.) will be provided to Reclamation, and Reclamation will provide a detailed technical report to NMFS following the completion of a fish rescue or post-rescue mortality event.

Predator Species Removal: As time permits, non-native predatory fish or other aquatic species may be removed in the Lower Santa Ynez River mainstem, where accessible, to reduce predation at potential release points for rescued *O. mykiss*. Based on site conditions at the time of rescue, targeted removal of non-native predatory aquatic species (including fish) may be undertaken in specific areas where relocation is planned or just prior to the release of rescued fish. Non-native predators including fish and other aquatic species captured during the rescue operations will be removed and dispatched. Any prickly sculpin (*Cottus asper*) rescued will be transported in separate buckets to avoid predation by *O. mykiss* and will be released in a separate location.

References

NMFS, 2000a. Cachuma Project Biological Opinion, U.S. Bureau of Reclamation Operation and Maintenance of the Cachuma Project on the Santa Ynez River in Santa Barbara County, California. National Marine Fisheries Service, Southwest Region.

NMFS, 2000b. Guidelines for Electrofishing Water Containing Salmonids Listed Under the Endangered Species Act. National Marine Fisheries Service (NMFS-NOAA).

SYRTAC, 2000. Lower Santa Ynez River Fish Management Plan. Santa Ynez River Technical Advisory Committee, prepared for the Santa Ynez River Consensus Committee, Santa Barbara, CA.

Reclamation, 1998. Hilton Creek Fish Rescue Plan. U.S. Bureau of Reclamation; Fresno, CA.
Reclamation, 1999. Biological Assessment for Cachuma Project Operations and the Lower Santa Ynez River. Prepared for the National Marine Fisheries Service, U.S. Bureau of Reclamation, Fresno, CA.

Attachment A: Fish Rescue Team Points of Contact

Agency	Name	Phone Number
Reclamation	Ned Gruenhagen	(559)487-5227 (559) 284-2735 (559) 392-3958
NMFS	Darren Brumback	(562) 980-4060
COMB		
Fisheries Division Manager	Tim Robinson	(805) 687-4011x215 (805) 689-8586
Project Biologists	Scott Engblom	(805) 216-5135
	Scott Volan	(805) 407-0931

[EXTERNAL] Re: WR Order 2019-148

Larson, Mary@Wildlife <Mary.Larson@wildlife.ca.gov>

Thu 12/12/2019 10:45 AM

To: Emerson, Rain L <remerson@usbr.gov>; Buck, Lisa E <lbuck@usbr.gov>; Hyatt, David E <dhyatt@usbr.gov>
Cc: JACKSON, MICHAEL P. <MJackson@usbr.gov>; Wilson, Erinn@Wildlife <Erinn.Wilson@wildlife.ca.gov>

1 attachments (14 KB)
BOR Draft Plan - Order WR-2019-0148.xlsx;

Good Morning

The Department's comments to the above referenced plan are attached as an excel spreadsheet. Hopefully this format will make addressing our comments easier.

Let me know if you have any ques ons about what we have provided.

Mary Larson

California Department of Fish and Wildlife Comments on the US Bureau of Reclamation's Draft Cachuma Order WR-2019-0148 Term 18 Plan

CDFW Comment Number	Page #	Section	paragraph #/bullet	comment	
1	1	Introduction	1	As a planning document that is responsive to the state board's order, the introduction should include all direct given by the Board as well as the constrains (e.g. reasonal and prudent measures).	CDFW-1
2	1	Introduction	2	the introduction should describe in more detail the documents that will be used to inform the plan. However it should also be recognized that this is a standalone document. The reader should not have to searchr all of the referenced literature in order to understand what is being proposed and why.	CDFW-2
3	2	Term 15(a)	throughout	Table references need to be clarified to avoid confusion. Suggest adding in WR Order 2019-0148 in title of table to distiguish it from BiOp and other referenced tables with the same enumerator.	CDFW-3
4	2	"	Bullet 1	Due to issues with this USGS gauge, we support the independent verification of the flows at this gauge at set intervals proceeding and following storm events. Additionally, information on who will perform these measurements and with what type of equipment should be included.	CDFW-4
5	2	"	Bullet 2	the decision tree from the Stetson Report (08/17/2011) should be incorporated within the plan.	CDFW-5
6	3	Term 15(a)	Bullet 3	This section lacks details. There should be a decription of what data will be collected and how it will be evaluated so as to inform potential changes to the release schedule. Additionally, a timeline for when the evaluation report will be given to the Water Board, CDFW and NMFS, what will be included in that report is important and how it will be transmitted to the agencies.	CDFW-6
7		Term 15(b)		While this is not part of the plan, it would be helpful to have an updated status report on the barriers that were identified in the Biological Assessment of the Cachuma Project Operations and the Lower Santa Ynez River, June 2000. This could be included as an appendix to the plan. it would help that agencies to know what has been accomplished from the BA and what is still left to be dealt with.	CDFW-7
8	3	Term 15(c)	3	The current NMFS-reviewed rescue plan should be incorporated in full within the plan.	CDFW-8

CDFW Comment Number	Page #	Section	paragraph #/bullet	comment	
9	3	Term 15(c)	3	A paragraph should be included on rescue notification that includes the Department of Fish and Wildlife -South Coast Region fisheries staff for those times when NFMS personnel are not reachable. This recommendation is based on the Department's involvement in a number of rescue/relocation events as a result of flow interruptions into Hilton Creek.	CDFW-9
10	3	Term 16(a)-16(b)	3	cummulative flows of 33,707 not 33,307.	CDFW-10
11	5	Term 16(c)-16(e)	throughout	The actual language from the Order should be incorporated into this document. Also the plan should include details about the type of data that will be necessary to determine if steelhead are at risk as well as who will be responsible for collecting this information. It is not clear if the Water Boards intent was for CDFW to collect this information independently or be dependent on the Bureau of Reclamation.	CDFW-11
12	5	Term 16(f)	1	will NMFS and CDFW be invited to participate in the safe yield reduction discussions?	CDFW-12
13		Attachment 2, page 4	1	Those sections of the Stetson report dated 08-17-2011 that are relavent to this plan should be incorporated in whole or part into the main body of this Plan for ease of use with the exception of Step 2 of that document relative to beaver dam removal. The Department of Fish and Game does not believe that the presence of beavers pose a threat to passage. should data be presented that shows otherwise, the Department will reconsider it position.	CDFW-13
14		Attachment 3, pages 1 and 8	4	CDFW is mentioned as an entity that will be involved in possibly rescue events, it would be advisable to add the CDFW Senior Fisheries Biologist and steelhead biologist (Kyle Evans) to the attached table A: Fish Rescue Points of Contact so that we have sufficient notice to assist if needed.	CDFW-14

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Larson, Mary@Wildlife <Mary.Larson@wildlife.ca.gov>

Thu 12/12/2019 10:45 AM

To: Emerson, Rain L <remerson@usbr.gov>; Buck, Lisa E <lbuck@usbr.gov>; Hyatt, David E <dhyatt@usbr.gov>
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Attachment 5 – Response to NMFS and CDFW Comments on Draft Term 18 Plan

Introduction

On September 17, 2019 the State Water Resources Control Board (Water Board) adopted Final Order WR-2019-0148 (Order) amending the Bureau of Reclamation's (Reclamation) water rights permits 11308 and 11310 for the Cachuma Project in Santa Barbara County, California. On December 17, 2019, Reclamation submitted a Plan to the Water Board in accordance with Term 18 of the Order; however, as noted in our submittal, Reclamation did not have adequate time to prepare a written response to comments pursuant to Term 17(4) of the Order.

The following document supplements Reclamation's Term 18 Plan and is a written response to the Attachment 4 comments provided by the National Marine Fisheries Service (NMFS) and the California Department of Fish and Wildlife (CDFW). Reclamation considered all of the comments provided by NMFS and CDFW prior to finalizing the Term 18 Plan submitted to the Water Board on December 17, 2019.

Reclamation's response(s) to the comments on the Term 18 Plan, as well as any applicable reason(s) for not accepting or incorporating changes, are addressed below.

As included in Attachment 4 of the Term 18 Plan, Reclamation identified individual comments in each of the comment letters by abbreviating the agency and providing a sequential number (e.g., NMFS-1 and CDFW-1). The response to comments follow this convention.

Response to National Marine Fisheries Comments

NMFS-1: In this comment, NMFS asserts that Reclamation only focused on Term 15(a) and 15(c) and did not consider the entirety of Term 15 including implementation of conservation measures under existing and previously rescinded Endangered Species Act (ESA) consultations.

Reclamation has considered this comment. The Term 18 Plan as drafted was prepared to focus on the required measures necessary to comply with the Water Board's flow requirements in Tables 1 and 2 of the Order, as well as any potential fish rescues should flow interruptions occur in Hilton Creek. The referenced conservation measures from the Cachuma Project's 1999 Biological Assessment (1999 BA) and the 2000 Biological Opinion (2000 BiOp) are ongoing section 7 ESA requirements that Reclamation has been and continues to comply with. The 2013 BA and 2016 Draft BiOp that NMFS referenced were terminated by NMFS on June 15, 2018 and have been superseded by Reclamation's 2019 BA which was provided to NMFS on November 8, 2019[1].

[1]On October 16, 2019, Reclamation sent a Petition For Reconsideration to the Water Board which included the determination that the inclusion of the 2013 BA and 2016 Draft BiOp in the Final Order is Contrary to State Law.

Reclamation updated the Term 18 Plan to address this comment and will continue to comply with all existing section 7 ESA measures and requirements under NMFS' existing 2000 BiOp until such time as a new BiOp has been received and accepted.

NMFS-2: Reclamation disagrees with NMFS' comment that the draft Plan only focused on compliance and monitoring at Alisal. Term 15(a) as drafted and provided to NMFS and CDFW included compliance and monitoring for both required locations. However, Reclamation has updated the Plan to make compliance and monitoring at both locations clearer.

NMFS suggests that Reclamation consider "incorporating compliance with Term 25 into the Term 18 Plan". Reclamation has considered this recommendation but does not believe that addressing compliance with Term 25 is necessary or appropriate for the Term 18 Plan. Term 25 compliance will be addressed by Reclamation pursuant to the requirements of the Order.

NMFS-3: In this comment, NMFS requests clarification on what was meant regarding weekly field measurements by the U.S. Geological Survey (USGS) at Alisal as well as details on Reclamation's coordination with USGS. Reclamation has revised this section to address the coordination and monitoring that is done on an as-needed basis to ensure compliance with required flows.

NMFS-4: In this comment, NMFS requests incorporation of additional information on the real-time flow monitoring including (1) who will do the monitoring, (2) protocol/ methodology and frequency of monitoring, (3) process/procedures for timely delivery of information, and (4) timing and format for providing monitoring information to Water Board, NMFS, and CDFW. Reclamation has updated its real-time flow monitoring to include additional information in the Plan to address this comment.

NMFS-5: In this comment, NMFS suggests including the decision tree as part of the Plan rather than incorporating by reference. Reclamation did not incorporate the decision tree by reference, rather, the decision tree was included as Attachment 2 of the Plan. No updates to the Plan are needed to address this comment.

NMFS-6: In this comment, NMFS states that Reclamation should incorporate into its Plan for complying with Term 15(c) recommendations provided in the 2016 Draft BiOp, "including Reasonable and Prudent Measure 3, and Terms and Conditions and proposed revisions provided to Reclamation in an e-mail and attachment dated March 14, 2017." As noted above in response to NMFS-1, the 2016 Draft BiOp was terminated by NMFS on June 15, 2018 and has since been superseded by Reclamation's 2019 BA. Reclamation included conservation measures in its 2019 BA to address fish rescue and is in ongoing consultation with NMFS regarding these measures. As specific measures are still in development, no updates to the Plan have been made. Reclamation will continue to comply with all

existing section 7 ESA measures and requirements under NMFS' existing 2000 BiOp until such time as a new BiOp has been received and accepted.

NMFS-7: In this comment, NMFS states that the draft fish rescue plan provided as Attachment 3 is not the most recently reviewed plan. Reclamation has replaced the draft Attachment 3 with the fish rescue plan provided as part of the 2019 BA which is the most recently reviewed plan. See also Response to NMFS-6.

NMFS-8: In this comment, NMFS requests that Reclamation identify when information regarding a fish rescue will be posted to a publicly available website. Reclamation plans to provide reporting on fish rescue operations once it has completed its obligations pursuant to the ESA. Reports on a flow interruption would be posted once Reclamation's compliance efforts with NMFS has been satisfied.

NMFS-9: In this comment, NMFS suggests that Reclamation "propose operations (water releases) in the Term 18 Plan for the purpose of avoiding or minimizing habitat loss and potential stranding and death of steelhead when transitioning from one water year to the next."

Reclamation's interpretation of Term 16(b) differs from NMFS. As shown in Table 2, flow releases from Bradbury Dam are initiated during a Wet or Above Normal year at a specific amount depending on when the cumulative inflow (≥33,707 acre-feet) is triggered, i.e. 48 cfs if between 2/15 and 4/14 or 20 cfs if between 4/15 and 6/1, etc. These releases would continue pursuant to the schedule outlined in Table 2 **into** the next water year ending February 15. At that point, flows would then either be retriggered if cumulative inflow again designates the year as Above Normal or Wet or revert to Table 1 flows. It is unclear how this schedule would dewater 15 miles of the Lower Santa Ynez River (LSYR) after October 1 resulting in appreciable reduction in habitat or exceeding take specified in the 2000 BiOp.

Further, per Term 16(d) any proposed changes to Table 2 flows by NMFS require agreement between NMFS, CDFW, Reclamation, and the Member Units that the proposed change will not cause a greater water supply impact than that which would occur if water were released to meet the Table 2 flows in accordance with the existing schedule. If NMFS is proposing such a change, Reclamation suggests a meeting be scheduled with CDFW and the Member Units to discuss further.

NMFS-10: In this comment, NMFS suggests that Reclamation "include a water-release ramping protocol (rate of increase and decrease) for transitioning between flow targets (e.g. 48 cfs to 20 cfs minimum flow target)." Reclamation also noticed that ramping for the transition between February 15 – April 14 (48 cfs) and April 15 – June 1 (20 cfs) was not included in Table 2 although ramping was included for the transition between June 2 – June 9 (25 cfs) and June 30 – October 1 (10 cfs). Reclamation plans to continue implementation of previously consulted upon ramping schedules that include the changes required in Table 2; however,

Reclamation also noticed that Table 2 does not include a ramping period for the February to April transition as it does for the June transition. This would require at a minimum a 1.5 to 2 day ramping period not currently accommodated in the schedule.

NMFS-11: In this comment, NMFS suggests that Reclamation include a date in the plan for completion of the study that is currently being developed to determine releases needed to meet Table 2 flows. Comment noted. Reclamation has not included a date in the plan as the study is still under development and a final date is not available at this time.

NMFS-12: In this comment, NMFS suggests that Reclamation include an analysis of groundwater pumping and water rights release criteria as part of the study as they can affect the rates of releases to meet instream target flows. Reclamation is aware that various conditions along the LSYR can impact meeting target flow requirements and would continue to incorporate adaptive management into its operations to ensure that target flows are being met. As noted on page 4 of the Term 18 Plan, "The operating guidelines will be modified as necessary through calibration and adaptive management to achieve the flows required in Table 2."

Response to California Department of Fish and Wildlife Comments

CDFW-1: In this comment, CDFW suggests that all direction given by the Water Board be included in the Plan to show responsiveness to the Order. Comment noted. Reclamation did include reference to the Order in the draft Plan and does not believe repeating verbatim what is in the Order is necessary to show responsiveness.

CDFW-2: In this comment, CDFW states that the introduction should describe in more detail documents that are being used to inform the Plan and that the document should be standalone. It is unclear what documents are being referenced in this comment. Reclamation did include as attachments the documents that are being referenced to show how Reclamation plans to comply with Term 15 and Term 16 of the Order.

CDFW-3: In this comment, CDFW suggests that table references should include the Order number in order to differentiate between the Order and other outside documents with the same number. Comment noted. Tables are referenced under Order headings and include numbering consistent with the Order. No changes have been made to the Plan.

CDFW-4: In this comment, CDFW states that they support Reclamation's proposal to implement independent verification of flows at the USGS gage. They also suggest

that who and how this will be done be included in the Plan. Reclamation has updated this section to address this comment.

CDFW-5: In this comment, CDFW states that the decision tree from the 2011 Stetson Report be incorporated within the Plan. Reclamation provided the decision tree as part of Attachment 2 to the draft Plan (see page 6 of Attachment 2). No changes have been made to the Plan.

CDFW-6: In this comment, CDFW states that this section lacks details. Reclamation has revised this section based on feedback from the comments. As noted in the version submitted to the Water Board, "Reclamation in coordination with the Member Units is developing a table similar to Table ES-1 that would recommend maximum releases from Bradbury Dam that would meet required flows at Alisal Road/Alisal Bridge. Until such time as the table is developed and approved by the Executive Director, Reclamation plans to provide and monitor the recommended flows to Alisal Road/Alisal Bridge pursuant to Table 1 of Term 15(a) by implementing Stetson's 2011 Operating Guidelines for Monitoring Target Flow of 1.5 cfs at Alisal Bridge (Attachment 2)."

CDFW-7: In this comment, CDFW acknowledges that their comment is not a requirement of the Order but suggests that a table be appended to the draft Plan to identify what barriers listed in the 2000 BA have been completed. Comment noted. It is unclear how the proposed table would assist in showing how Reclamation plans to comply with Term 15 and Term 16 of the Order. Further, this comment is in conflict with Term 15(b) of the Order. No changes have been made to the Plan.

CDFW-8: In this comment, CDFW states that the current NMFS-reviewed rescue plan be incorporated in full within the Plan. Reclamation has included the most recent NMFS-reviewed rescue plan in its entirety as Attachment 3 of the Plan. See also Response to NMFS-7.

CDFW-9: In this comment, CDFW states that a paragraph be included that describes rescue notification and to include CDFW South Coast Region staff should NMFS not be reachable. Reclamation intends to continue coordination with NMFS and CDFW during rescue operations as it has in the past. The proposed rescue plan included as Attachment 3 to the Plan is currently in consultation and final review with NMFS; however, Reclamation plans to update the notification list and will add CDFW staff notification to the Plan.

CDFW-10: In this comment, CDFW notes an error regarding cumulative inflow. Reclamation has corrected this.

CDFW-11: In this comment, CDFW states that "actual" language from the Order be included throughout the document. See Response to CDFW-1. CDFW's requested clarification on the intent of the Water Board is outside Reclamation's purview.

Reclamation recommends that CDFW seek clarification from the Water Board on their intent.

CDFW-12: In this comment, CDFW asks whether they and NMFS will be invited to participate in Reclamation's safe yield reduction discussions. This question is outside the scope of the Term 18 Plan. No change has been made to the Plan.

CDFW-13: In this comment, CDFW states that relevant sections from the 2011 Stetson Report in whole or in part be incorporated within the main body of the Plan. Reclamation has considered this; however, rather than piecemealing out portions of the report, Reclamation provided the entire report as Attachment 2 to the Plan.

CDFW-14: In this comment, CDFW suggests CDFW staff be included in the Fish Rescue Points of Contact list for the Fish Rescue Plan. See Response to CDFW-9.