



June 4, 2021

Eileen Sobeck, Executive Director
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Transmitted via email to: eileen.sobeck@waterboards.ca.gov; Erik.Ekdahl@waterboards.ca.gov
diane.riddle@waterboards.ca.gov;

RE: Objection to, Protest of, and Request for Reconsideration of State Water Resources Control Board's Approval of Shasta Temperature Management Plan under Water Rights Order 90-5

Dear Ms. Sobeck:

On behalf of the Natural Resources Defense Council, The Bay Institute, San Francisco Baykeeper, California Sportfishing Protection Alliance, Defenders of Wildlife, Institute for Fisheries Resources, Pacific Coast Federation of Fishermen's Associations, Save California Salmon, Sierra Club California, and Restore the Delta we are writing to object to, protest, and request reconsideration of the State Water Resources Control Board's ("Board's") approval¹ of the Shasta Temperature Management Plan submitted by the Bureau of Reclamation ("Reclamation") under Water Rights Order 90-5 ("Shasta TMP"). As discussed in more detail below, approval of the Shasta TMP violates the requirements of Water Rights Order 90-5 because: (1) it results in water temperatures that will cause devastating and unreasonable impacts to the salmon fishery; and (2) the Bureau of Reclamation and State Water Resources Control Board have not reduced water allocations to Sacramento River Settlement Contractors and other contractors as required under Water Rights Order 90-5. In addition, the Shasta TMP is contrary

¹ Pursuant to Water Rights Order 90-5, the Shasta TMP is deemed approved unless the Director of the Division of Water Rights objects within 10 days of submission of the plan. The Board's letter dated May 21, 2021, and the Board's failure to object to the Shasta TMP within 10 days of submission, constitutes constructive approval of the Shasta TMP. *See also* Shasta TMP at 2.

to law because it results in ongoing violations of the Basin Plan water quality objectives for water temperatures below Shasta Dam.² We therefore request that the State Water Resources Control Board formally object to the Shasta TMP on or before June 7, 2021.

I. The Shasta TMP Violates Order 90-5 Because it Results in Devastating and Unreasonable Impacts to the Fishery

The Shasta TMP would result in devastating impacts to winter-run Chinook salmon, spring-run Chinook salmon, and fall-run Chinook salmon that spawn and migrate in the Sacramento River as a result of water temperatures released from Shasta Dam that will cause massive temperature dependent mortality of salmon, that violate the Basin Plan, and that are detrimental to the fishery. The water temperatures and resulting impacts to the salmon fishery under the Shasta TMP are neither reasonable nor lawful.

The Board’s May 21, 2021 letter indicated that it could approve a draft temperature management plan that achieved Shasta end of September storage of 1.25 million acre feet of water because that plan might kill 50 percent of the endangered winter-run Chinook salmon in the egg stage. Killing half of this critically endangered species’ eggs due to avoidable temperature dependent mortality would be unreasonable. However, the Shasta TMP estimates that temperature dependent mortality of winter-run Chinook salmon eggs will be significantly higher than the Board’s estimate, assuming that this 1.25 MAF end of September Shasta storage level is achieved:

	NMFS	Reclamation (HEC-5Q and Martin Model)
Estimated Temperature Dependent Mortality	64-73% (Mean) 71-81% (Median)	77-88% (adjusted fall temperature) 67-80% (HEC-5Q)

See Shasta TMP, Enclosure at 9, Attachment 2 at Tables 1-2, Attachment 3. This means that more than two thirds of the endangered winter-run Chinook salmon eggs are likely to be killed this year from lethal water temperatures alone. In contrast, the National Marine Fisheries Services’ (“NMFS”) 2017 proposed amendment to the Shasta Reasonable and Prudent Alternative recommended a maximum of 30% temperature dependent mortality of winter-run Chinook salmon in critically dry years like 2021, and warned that it was not clear that the species could avoid extinction even at that rate of temperature dependent mortality. January 19, 2017 letter from NMFS to Reclamation regarding Proposed Amendment to the Reasonable and

² See Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board, Central Valley Region, Revised May 2018, at Table 3-7, available online at: https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf (“The temperature shall not be elevated above 56°F in the reach from Keswick Dam to Hamilton City nor above 68°F in the reach from Hamilton City to the I Street Bridge during periods when temperature increases will be detrimental to the fishery.”).

Prudent Alternative of the 2009 Opinion, available online at https://media.fisheries.noaa.gov/dam-migration/nmfs_s_draft_proposed_2017_rpa_amendment_-_january_19_2017.pdf.³ The Shasta TMP approved by the Board will result in more than twice the maximum temperature dependent mortality that NMFS has previously determined would avoid jeopardizing the continued existence of this species.

In addition, the Shasta TMP does not even include a single mention of “fall-run Chinook salmon” or “spring-run Chinook salmon” despite the fact that Water Rights Order 90-5 requires protection of the salmon fishery, which the Board has previously acknowledged includes protections for other salmon runs, including fall-run Chinook salmon. *See, e.g.*, April 3, 2020 letter from the Board to Reclamation regarding Order 90-5 Sacramento River Temperature Planning. Yet prior modeling has demonstrated that the plan is likely to cause very substantial temperature dependent mortality of spring-run and fall-run Chinook salmon, given the water temperatures that are anticipated in October and November. The Shasta TMP likewise anticipates that between September 15 and November 29, daily water temperatures in the Sacramento River at Clear Creek will likely exceed 60 degrees. Shasta TMP at Attachment 2. This will cause significant temperature dependent mortality of spring-run and fall-run Chinook salmon that spawn in the Sacramento River this year, but that mortality is not even considered in the Shasta TMP.

In contrast to the excessive and unsustainable mortality estimated in the Shasta TMP, modeling by NMFS (attached hereto as Exhibit A) has estimated that CVP operations that reduce reservoir releases by approximately 500,000 acre feet, resulting in end of September Shasta Reservoir storage of 1.47 million acre feet, and which limit maximum monthly average Keswick releases to 6,000 cfs during the months of June, July and August, would significantly reduce temperature dependent mortality of winter-run Chinook salmon eggs (as low as 32% assuming 90% exceedance hydrology and 2015 meteorology, and as low as 50% under 99% exceedance hydrology and 2015 meteorology) and substantially improve water temperatures in October and November, reducing mortality of spring-run and fall-run salmon.

The Shasta TMP’s expected temperature dependent mortality of eggs is especially unreasonable given the additional mortality risks salmon face throughout the rest of their life stages. For instance, CDFW’s juvenile production estimate (“JPE”) spreadsheet this year estimated that less than 50% of the salmon eggs that survive to the fry life stage will successfully migrate downstream to Red Bluff Diversion Dam as smolts, and estimates that only one third of those smolts will survive the migration downstream from Red Bluff Diversion Dam to the Delta. *See* January 25, 2021 letter from NMFS to Reclamation, available online at <https://media.fisheries.noaa.gov/2021-02/nmfs-by-2020-jpe-letter.pdf>.⁴ And of course, there is

³ This and other documents that are cited herein are incorporated by reference.

⁴ The U.S. Environmental Protection Agency has concluded that river temperatures between 57.2 degrees Fahrenheit and 62.6 degrees Fahrenheit – within the range the Shasta TMP estimates will

substantial additional mortality as winter-run Chinook salmon migrate through the Delta and San Francisco Bay, before they finally reach the ocean. When other sources of mortality in freshwater are considered (including those exacerbated by operation of Shasta Dam), such high levels of egg mortality may result in complete or nearly complete loss of this year's winter-run Chinook Salmon cohort that spawned in the wild.

In addition, this year the Bureau of Reclamation caused substantial pre-spawn mortality of winter-run Chinook salmon from its disastrous hydropower bypass operations in the month of May. The Bureau's operations greatly exceeded the water temperatures that NMFS and the California Department of Fish and Wildlife had recommended, with the daily average temperature of the water that was released from Keswick Dam of 60.7 degrees Fahrenheit on May 11, and daily average temperature of 61.6 degrees Fahrenheit at Clear Creek that day. The California Department of Fish and Wildlife has documented very substantial pre-spawn mortality throughout the month of May:

5-11-21- The 2021 Winter run carcass survey began on May 3rd, to date 21 carcasses have been observed. Drought conditions have resulted in severe cold water pool issues for this coming season. Currently a bypass of the power turbines at Shasta Dam is occurring where warm water is being sent downstream to meet various agricultural and water quality needs. This has resulted in water temperatures above 60 degrees (61.5 as of today's high) being released at Keswick Dam. At present time it is unknown of the duration of these warm flows. Survey crews have noted that many of female carcasses and some live but weak females are dying before spawning. Of the eight female carcasses measured to date, four have been unspawned. Additionally LSNFH staff have visually noted large schools (1000 +) of salmon (likely winter-and spring run) congregating immediately below Keswick Dam and on the surface. Since at least 2003 this behavior has not occurred except for this year. Discussions are ongoing within the Sacramento River Temperature Task Group (SRTTG) as to what water temperature regime will best utilize the available cold water to provide the biggest benefit to winter-run survival.

5-21-21. Carcass counts have increased although a large number of these observations have been pre-spawn mortalities. Crews continue to observe live fish that are exhibiting unusual swimming behavior, fish covered with fungus patches, and unspawned fish drifting downstream while still alive but moribund

occur during September through November, when winter-run Chinook Salmon fry are rearing – are associated with “elevated disease risk.” *See* EPA 2003. EPA Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards, available online at: <https://nepis.epa.gov/Exe/ZyPDF.cgi/P1004IUI.PDF?Dockey=P1004IUI.PDF>. In addition, increased water temperatures also increase the activity and metabolism of salmon predators.

and presumed to die shortly after observation. To date of the 66 carcasses observed 25 have been unspawned (16 of these were females). Water temperatures have cooled in the upper river earlier this week as power bypass operations have been reduced and much cooler weather has prevailed over the past days.

5-27-21-- Prespawn mortality continues to be an issue. To date half of the 102 carcasses observed have been females and 66% (22 of 33) of these have been pre-spawn collections. The large school of salmon below Keswick dam is no longer as big a school. Crews are reporting small schools of fish in moribund condition further downstream in some locations. Water temps in the river coming from Keswick dam are in the 54-57 degree range presently.

California Department of Fish and Wildlife, 2021 Winter-Run Salmon Update File (last visited June 3, 2021), attached hereto as Exhibit B; *see* also May 24, 2021 email from Doug Killiam to Michael Harris et al, Winter-run Chinook monitoring update May 24, 2021, attached hereto as Exhibit C. Based on estimated water temperatures in the Shasta TMP and uncertainties associated with those estimates, Reclamation's operation of Shasta Reservoir is also likely to cause pre-spawning mortality and/or significant reductions in reproductive success for migrating adult fall-run and spring-run Chinook Salmon.

Finally, the estimates of downstream water temperatures and temperature dependent mortality of eggs in the Shasta TMP are likely biased low for a number of reasons, including:

- The Shasta TMP uses 90% exceedance hydrology to estimate reservoir inflow this summer, rather than the more conservative 99% exceedance hydrology that is more accurately tracking observed runoff this year;
- The Shasta TMP relies on only moderately conservative meteorology (25% exceedance), even though air temperatures are expected to be very warm this summer and fall;
- The Shasta TMP relies on estimates of accretions and depletions from DWR that the document admits "come[s] with substantial uncertainty" and that were very inaccurate during the prior drought;
- The Shasta TMP results in early side gate operations, with first side gate operations anticipated as early as July 13 and no later than August 8. During the prior drought Reclamation lost temperature control soon after side gate operations began, and that is likely to recur this year;
- Reclamation's reservoir releases from Shasta and Keswick Dams in May were more than 1,000 cfs higher than estimated in the 90% exceedance operational forecast in the draft Shasta TMP (monthly average planned releases in May were supposed to be 7,379 cfs, but actual releases in May averaged 8,390 cfs).

As a result, absent a cap on reservoir releases from Keswick and additional actions to conserve upstream storage (such as cutting DWR's State Water Project allocation to zero and conserving

the water in Shasta), water temperatures and temperature dependent mortality are likely to exceed even the unreasonable estimates in the Shasta TMP.

For all of these reasons, approval of the Shasta TMP would cause unreasonable impacts to the fishery, and the Board should immediately object to the plan.

II. The Shasta TMP Violates Water Rights Order 90-5 Because the Bureau of Reclamation and State Water Resources Control Board Failed to Analyze or Consider Mandatory Reductions in Water Allocations to Water Contractors, Including the Sacramento River Settlement Contractors

The Shasta TMP also violates Water Rights Order 90-5 because it fails to “reduce releases to the extent reasonable and necessary to control water temperatures” and prioritizes water delivery to its contractors – in excess of their reasonably claimed water rights – over its permit obligations. Reclamation continues to argue that water deliveries to Sacramento River Settlement Contractors under their contract with Reclamation are beyond the reasonable control of Reclamation. *See* Shasta TMP at 14. The Board has repeatedly rejected this argument. While the Shasta TMP includes some voluntary measures, it does not reduce water allocations to settlement and exchange contractors to their reasonably claimed water rights, which would demonstrably reduce water temperatures and reduce the unreasonable impacts to salmon under the Shasta TMP. Because the Shasta TMP does not reduce water allocations to settlement and exchange contractors (Sacramento River Settlement Contractors, San Joaquin River Exchange Contractors, and DWR’s Feather River Settlement Contractors⁵) to the amounts they could reasonably claim to be entitled to under their claimed water rights⁶ in order to improve water temperatures, nor require DWR to reduce the State Water Project allocation to zero and conserve this water behind

⁵ As the Shasta TMP explains, pursuant to the Coordinated Operating Agreement the Bureau of Reclamation must provide 60% of the in basin demands in the Sacramento Basin, which includes providing 60% of the water supply for DWR’s Feather River Settlement Contractors. Shasta TMP at 14. This means that DWR must provide the other 40% of the in basin demands in the Sacramento Basin under the Coordinated Operating Agreement. As a result of the Coordinated Operating Agreement, DWR’s operation of the State Water Project – and DWR’s failure to reduce its State Water Project allocation to zero and store the conserved water in Shasta – are subject to regulation under Water Rights Order 90-5.

⁶ As the Board is well aware, no one in California has a right to use water unreasonably, and all water rights are subject to the reasonable use and Public Trust doctrines, under which the Board has ample authority to regulate pre-1914 water rights to protect fish and wildlife. *See, e.g., Stanford Vina Ranch Irrigation District v. State of California*, 50 Cal.App.5th 976, 983, 1002-1003 (2020); *Light v. State Water Resources Control Board*, 226 Cal.App.4th 1463, 1482-85 (2014); *U.S. v. State Water Resources Control Board*, 182 Cal.App.3d 82, 106, 129-130 (1987). Nothing herein should be read to suggest that the Board could not further limit allocations of water to settlement or exchange contractors beyond their claimed water rights, should such use be unreasonable under Article X, section 2 or impair the Public Trust.

Shasta Dam to improve temperature management, the Shasta TMP violates Water Rights Order 90-5.

Water Rights Order 90-5 requires Reclamation to operate to achieve water temperatures of 56 degrees Fahrenheit at Red Bluff Diversion Dam whenever daily water temperatures higher than 56 degrees would be detrimental to the fishery, and allows Reclamation to move the compliance point upstream when factors beyond the reasonable control of Reclamation prevent them from doing so. As we have discussed in numerous letters to the Board, and as the Board has admitted in numerous letters to the Bureau of Reclamation, factors within the reasonable control of Reclamation include reducing water supply allocations to the CVP's water contractors, including Sacramento River Settlement Contractors:

To the extent that Reclamation delivers water under its own water rights, Reclamation's obligation to deliver water to its contractors does not take precedence over its permit obligations. Order WR 90-5 requires Reclamation to reduce releases to the extent reasonable and necessary to control water temperature. This permit condition is not and cannot be nullified by a contractual obligation. **Reclamation's water supply contractors are not entitled to more water under their contracts than Reclamation is authorized to deliver consistent with the terms and conditions of its water right permits and licenses.**

State Water Resources Control Board, June 1, 2020 letter to Reclamation (emphasis added).

As discussed in the attached Protest and Objections to the TUCP submitted by NRDC et al on June 4, 2021 (attached hereto as Exhibit D), Reclamation is allocating more water to these contractors than they could reasonably be entitled to under their claimed water rights.⁷ This fundamentally violates Water Rights Order 90-5, because NMFS' modeling shows that reducing allocations to these contractors would significantly reduce water temperatures and resulting temperature dependent mortality of salmon this year, including winter-run Chinook salmon. *See* Exhibit A. The same is true with respect to DWR's State Water Project allocation, which could substantially improve water temperatures below Shasta Dam if the allocation were reduced to zero and the conserved water stored behind Shasta Dam. *See* Exhibit D. And it is important to note that while the proposed water transfers included in the Shasta TMP may benefit other water users, the water transfers do not appear to improve conditions for salmon, and they cause additional unmitigated impacts to waterfowl and other fish and wildlife. *Id.* For all of these reasons, the Shasta TMP violates Water Rights Order 90-5.

⁷ As the letter also explains, Reclamation has failed to ensure that the Sacramento River Settlement Contractors are reasonably and beneficially using the full amounts of water under their contracts, and a 25% reduction in their maximum contract amounts does not significantly reduce water diversions and deliveries. *Id.*

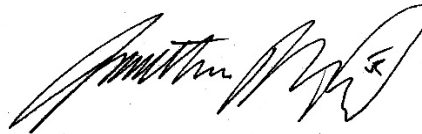
III. Conclusion

The Shasta TMP results in devastating and unreasonable impacts on the salmon fishery, including wholly failing to consider impacts to the fall-run Chinook salmon that form the backbone of the State's salmon fishery. Modeling by the National Marine Fisheries Service demonstrates that reducing reservoir releases would significantly improve protections for the fishery, significantly reducing temperature dependent mortality of salmon. However, the Shasta TMP fails to reduce reservoir releases sufficient to provide reasonable protection of the fishery because it does not reduce water supply allocations to zero for the State Water Project and does not reduce water supply allocations to the amounts that could reasonably be claimed under the settlement and exchange contractors' claimed water rights. Therefore, the Shasta TMP violates Water Rights Order 90-5, and we object to, protest, and request reconsideration of the Board's approval of the Shasta TMP. The Board should object to the Shasta TMP on or before June 7, 2021.

Sincerely,



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Protest and Objections to, and Request for Reconsideration of, Approval of Shasta Temperature Management Plan under Water Rights Order 90-5
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