From: Gary Bobker [mailto:bobker@sbcglobal.net]
Sent: Monday, July 13, 2015 4:14 PM
To: Carr, Chris@Waterboards; lholm@usbr.gov
Cc: Kate Poole; dobegi@nrdc.org; Tim Sloane; Jon Rosenfield
Subject: protest of DO TUCP

Chris and Lisa,

attached is the protest of the Bay Institute, Natural Resources Defense Council, and the Pacific Coast Federation of Fishermen's Associations regarding Reclamation's TUCP to relax the dissolved oxygen objective at Ripon.

cheers,

Gary

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State of California
State Water Resources Control Board
DIVISION OF WATER RIGHTS
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Web: http://www.waterboards.ca.gov/waterrights

PROTEST– PETITION

We have carefully read the notice:

June 23, 2015, Temporary Urgency Change Petition filed by United States Bureau of Reclamation To Change Terms of Water Rights Permits of the New Melones Project Requiring Implementation of the Dissolved Oxygen Objective on the Stanislaus River

Address, email address and phone number of protestants:

Gary Bobker, Program Director, The Bay Institute, Pier 35, The Embarcadero at Beach Street, San Francisco, CA 94133, bobker@bay.org, 415-272-6616

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Protest and objections based on ENVIRONMENTAL OR PUBLIC INTEREST CONSIDERATIONS

· not best serve the public interest

· have an adverse environmental impact □

State facts which support the foregoing allegations

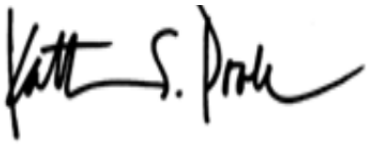
· see attached

Under what conditions may this protest be disregarded and dismissed? (Conditions should be of a nature that the petitioner can address and may include mitigation measures.)

· see attached

All protests must be signed by the protestant or authorized representative:

Signed:



Gary Bobker
The Bay Institute

Kate Poole
Natural Resources Defense Council

Tim Sloane
Pacific Coast Federation of Fishermen's Associations

Date: July 13, 2015

All protests must be served on the petitioner. Provide the date served and method of service used:

Email transmitting this form and appendix sent to Chris.Carr@Waterboards.ca.gov and lholm@usbr.gov.

ENVIRONMENTAL AND PUBLIC INTEREST CONSIDERATIONS REGARDING THE PROTEST BY THE BAY INSTITUTE, NATURAL RESOURCES DEFENSE COUNCIL, AND PACIFIC COAST FEDERATION OF FISHERMEN'S ASSOCIATIONS OF THE JUNE 23, 2015, TEMPORARY URGENCY CHANGE PETITION FILED BY THE UNITED STATES BUREAU OF RECLAMATION TO CHANGE TERMS OF WATER RIGHTS PERMITS OF THE NEW MELONES PROJECT REQUIRING IMPLEMENTATION OF THE DISSOLVED OXYGEN OBJECTIVE ON THE STANISLAUS RIVER

This protest of the June 23, 2015 petition is based on the following environmental and public interest considerations:

1. The environmental information provided by petitioner significantly underestimates the potential adverse effects of relaxing the dissolved oxygen (DO) objective on fish species in the Stanislaus River, the lower San Joaquin River, and the south Delta.

2. Previous actions by both petitioners and the State Water Resources Control Board (SWRCB) have significantly contributed to severely degraded environmental conditions on the Stanislaus River.

These considerations are addressed in greater detail below.

<u>The environmental information provided by petitioner significantly underestimates the potential adverse effects of relaxing the dissolved oxygen objective on anadromous fish species in the Stanislaus River and downstream.</u>

The requested reduction in the DO objective at Ripon is likely to impact juvenile steelhead and yearling Chinook salmon rearing upstream on the Stanislaus River, as well as adult fall-run Chinook salmon migrating into the Stanislaus River and, potentially, adult spring-run Chinook salmon that are holding in the river prior to spawning in the fall. Furthermore, the proposed relaxation will only exacerbate incredibly low DO levels observed in the lower San Joaquin River, adversely impacting fall-run Chinook salmon adults attempting to return to other San Joaquin River tributaries and the Calaveras River.. Finally, by reducing dissolved oxygen and

flow reaching the south Delta, the proposed change in the dissolved oxygen standard may negatively impact fish and wildlife resources of the southern Delta, including listed species such as Delta smelt and longfin smelt that are known to enter the southern Delta during the fall (especially when outflows are low), and green or white sturgeon.

Combined with low flow rates and related high temperatures and inadequate river depths for migrating salmonids, the proposed change to the dissolved oxygen standard can be expected to have catastrophic effects on the fish fauna (particularly salmonids) and other wildlife populations (particularly amphibians) of the Stanislaus River and San Joaquin River basin as a whole. These populations have already suffered greatly over the past two years as a result of inadequate flows and associated high temperatures and related environmental conditions that resulted from the combination of severe drought conditions and the relaxation of critically important requirements for Delta inflow and outflow pursuant to the SWRCB's previous orders.

Reclamation's primary control on DO levels in the Stanislaus River is releasing flow from New Melones Reservoir. The reduction of flows associated with relaxing the DO objective affects a range of environmental values beyond DO, including temperature, water depth, quantity and quality of habitat for spawning and rearing, as well as other direct and indirect benefits provided by adequate flows. When these values are suboptimal, inadequate DO levels are even more harmful as they magnify the negative effects of elevated temperatures, constricted habitat availability, crowding and other factors.

Timing and exposure – steelhead: The TUCP correctly identifies that rearing steelhead juveniles and adults are likely to be present in the Stanislaus River during the summer. As described below, these fish have dissolved oxygen requirements well in excess of the proposed level of 5mg/L. The TUCP also correctly acknowledges that a reduction in dissolved oxygen levels from 7mg/L to 5mg/L at Ripon will result in reduced DO levels upstream of Ripon, but the TUCP acknowledges that there is no dissolved oxygen gauge data available upstream of Ripon. Thus, petitioners can neither measure whether the proposed change in the dissolved oxygen standard will result in dissolved oxygen levels lower than that required to protect federally listed steelhead on the Stanislaus River nor offer anything more firm than a conjecture that dissolved oxygen levels anticipated under the TUCP "*may* not impact juvenile or adult steelhead if they are holding farther upstream where temperatures are cooler and dissolved oxygen is *expected* to be higher" [emphasis added]. The environmental information provided by petitioners does not support a change to water quality standards that may impact a threatened fish species.

Timing and exposure – spring-run Chinook salmon: In recent years Chinook salmon have entered the Stanislaus River in the spring and held in the river through the summer (NMFS unpublished). In the Central Valley, this behavior is typically associated only with the federally and state protected spring-run Chinook salmon. Spring run also tend to produce some offspring that rear in their natal river for a year or more, before migrating, a strategy that produces "yearling" Chinook salmon. Yearling Chinook salmon have been detected migrating out of the Stanislaus River (Sturrock et al 2015; R. Johnson, personal communication), consistent with the hypothesis that "spring running" Chinook salmon spawned successfully. If either adult spring-run Chinook salmon or their offspring are in the Stanislaus River currently, the proposed change

to the dissolved oxygen level and other changes related to low flows (e.g. high temperatures, loss of holding habitat for adults) are likely to harm them.

Timing and exposure – fall-run Chinook salmon: The TUCP is completely silent on the potential impact of reduced DO levels, high temperatures, and low flows that will result from the proposed change on fall-run Chinook salmon migrating into the Stanislaus. Nor does it mention the likely effect of water from the Stanislaus with low DO on DO levels in the lower San Joaquin River and those adult Chinook salmon using the San Joaquin to migrate elsewhere in the basin. These are major omissions, given that there is no question that the timing and location of the low DO levels proposed in the TUCP overlap with the migration timing and path of fall-run Chinook salmon. Adult fall-run Chinook salmon enter the San Joaquin basin and its tributaries from September through December each year, and peak migrations begin in October and end by the end of November (e.g. Yoshiyama et al 1998; Moyle 2002). Thus, the low DO levels anticipated in the TUCP will undoubtedly impact fall-run Chinook salmon entering the Stanislaus River.

In addition, because Stanislaus River water drains directly into the San Joaquin River, low DO levels in the lower Stanislaus will lead to or exacerbate low DO levels below the confluence of these rivers; such an effect would impede migration of fall-run Chinook salmon attempting to use the San Joaquin River as a corridor, including those migrating into the Tuolumne and Merced Rivers upstream of the Stanislaus, and potentially the Calaveras river downstream. The lower San Joaquin River is already beset by persistently low DO levels that have impacted fall-run Chinook salmon migration and other aquatic resources in the past (e.g. Hallock et al. 1970; Jassby and Van Nieuwenhuyse. 2005; CVRWQCB and CBDA 2006). Violations are especially frequent during the fall when flows in the Stockton Deep Water Ship Channel fall below 1,000 cfs; this condition continues to occur even after improvements to the City of Stockton's wastewater treatment facility were implemented (TBI 2013, Technical Appendix, Figure 2). If the TUCP is approved, it is not likely that flows from upstream in the San Joaquin Basin will be sufficient to oxygenate water with low DO emanating from the Stanislaus River. In fact, in the late summer and fall, the lower San Joaquin is typically very warm and concentrated with other compounds (reducing its ability to carry DO) including high concentrations of agricultural runoff that generate a high biological oxygen demand (BOD); these substance are a major driver of low dissolved oxygen conditions in the lower San Joaquin. Therefore, reducing DO levels on the Stanislaus is likely to impact adult salmon migrations into other San Joaquin River tributaries.

The exacerbation of water quality conditions in the Stockton Deepwater Ship Channel and the southern Delta is likely to adversely affect other native fishes that are usually found in the region, including delta smelt, longfin, and green and white sturgeon (see below for more information).

Effects of relaxing dissolved oxygen objective on fish populations: There is no evidence that DO levels as low as 5mg/L will maintain Chinook salmon populations on the Stanislaus River. The effects of DO as low as 5mg/L will be devastating to many species of fish that encounter such conditions, including salmonids. If they persist, DO levels of ~5mg/L alone could cause a near or total failure of adult fall run salmon migration on the Stanislaus River and other tributaries of the San Joaquin; in combination with the low flows and high water temperatures expected to co-

occur with these low DO conditions, the effect of implementing the TUCP could easily be catastrophic to this year's cohort of returning salmon and their offspring.

The TUCP acknowledges that DO levels as low as 5mg/L are damaging to salmonids, but it is only partially correct when it states that "Oxygen distress can occur in salmonids at DO concentrations less than 6.5 mg/L causing reduced swimming ability and growth." The effect of low DO will depend on ambient water temperatures, water chemical composition, crowding of fish, availability of water of adequate depth, and exertion of the fish, among other factors, and could be much more severe than the TUCP indicates given these related conditions. For example, adult fall-run Chinook salmon migrating through the exceedingly hot and polluted waters of the San Joaquin River this fall will require DO levels higher than what they would require if temperature and flow conditions were closer to optimal. Similarly, adult "spring-running" Chinook salmon holding upstream of Ripon likely will require higher levels of DO this summer and fall both because their metabolism will be accelerated by the high water temperatures occurring in the Stanislaus this year and because they are likely to be challenged by inadequate quantity and quality holding habitat as a result of low river flows.

Furthermore, 6.5mg/L of DO (which petitioners suggest is adequate) is considered sub-optimal throughout most of the Chinook salmon's range (steelhead requirements for dissolved oxygen are expected to be similar to those required by Chinook salmon). Washington's Department of the Environment (WA DOE 2002) and USEPA (1986) indicate that DO levels needed for maximum swimming performance are 8-9 mg/L (milligrams per liter) or more. Optimal swimming performance is important to the reproductive success of Chinook salmon as they are using their energy stores migrating dozens of miles upstream; their reproductive tissues are developing; and they cease feeding upon entering freshwater – delayed migrations or decreased migration efficiency may result in reduced spawning success or failure to reproduce. Again, given that temperature, flow, depth, water quality, and crowding conditions may be far short of optimal during fall of 2015, optimal DO levels are more important this year than they would be if flow and temperature levels were closer to their respective optima. Reduced swimming efficiency has been observed at DO levels <7mg/L (WA DOE 2002 and Dahlberg 1968). DO levels below 6 mg/L result in avoidance (i.e., stalled or aborted migrations; WDOE 2002). Davis (1975) reported distress among adult salmon exposed to <6mg/L DO.

As noted in the TUCP, low DO at Ripon (e.g., ~5mg/L) implies low DO levels for some unknown distance upstream of Ripon. Petitioners assume that DO levels need only reach ~6.5mg/L to support salmonids upstream (as described above, there are likely to be spring-running Chinook salmon adults and yearling juveniles in the Stanislaus as well as steelhead). However, because the scientific literature is clear that DO levels <7mg/L are detrimental to salmonids (especially when temperatures are high, flows are low, and water quality is not pristine), the extent of the river upstream from Ripon that will experience inadequate DO under the TUCP is greater than anticipated in the environmental information provided by petitioners.

Salmonids are not the only fish in the San Joaquin and south Delta that may be negatively affected by low DO levels. In fact, members of the sturgeon family (Acipenseridae) are even less tolerant of low DO than are members of the salmon family (Cech and Doroshov 2004). DO requirements for Delta and longfin smelt are unknown, but given their typical habitats

preferences (pelagic waters) it is highly unlikely that they are tolerant of low DO levels. By allowing low DO levels, low flows, and high temperatures in the Stanislaus River, granting the TUCP will exacerbate water quality conditions (including DO levels that are already problematic) in a manner that could affect a suite of species attempting to use habitats in the lower San Joaquin (including for migration upstream) and southern Delta (for examples, see CVRWQCB and CBDA 2006).

Previous actions by both petitioners and the SWRCB have contributed significantly to severely degraded environmental conditions on the Stanislaus River.

Degraded environmental conditions on the Stanislaus River and downstream are not solely or even primarily the result of severe drought conditions. Up until June 12, "[w]ater deliveries to Oakdale Irrigation District and South San Joaquin Irrigation District [were] at the minimum contractual level to meet their senior water rights" (environmental information form, p. 6). These deliveries by petitioners contributed significantly to the reduction in coldwater storage in New Melones Reservoir. Meanwhile, during the late winter and spring of 2015 the SWRCB granted a series of TUCPs by Reclamation and the California Department of Water Resources to relax water quality objectives for San Joaquin River inflow at Vernalis, including both base flows and the April-May pulse flow. As a result, the April-May pulse flow occurred at the level that is usually the base flow, exacerbating low DO conditions and disrupting migration of salmonids from the Stanislaus and other San Joaquin River tributaries. Reduced winter-spring flow levels should have resulted in increases in storage behind reservoirs that were sufficient to provide for the minimum needs of fish and wildlife beneficial uses; instead, the Bureau has persistently reduced the amount of water available to prevent potentially irreparable harm to fish and wildlife beneficial uses in order to increase deliveries to irrigation districts. In summary, both the reductions in upstream storage available to protect salmonid spawning and the reductions in DO levels downstream are attributable in large part to the actions of petitioners and the agency that regulates them this year and earlier in the current drought. The SWRCB should require Reclamation to restrict releases from New Melones to those levels required to maintain temperature control and water quality objectives throughout the remainder of WY 2015. Neither Reclamation's water rights nor the water rights held by other water users on the Stanislaus River entitle those users to further devastate native fish and other public trust resources at the expense of all current and future Californians. Indeed, such actions are contrary to obligations to maintain fish in good condition under California Fish and Game Code sec. 5937 and related statutes. Furthermore, Reclamation should be directed to prepare and implement an operations plan for WY 2016 and following years that ensures that temperature control and water quality objectives will be achieved before releases can be made for other purposes.

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