SUPPLEMENTAL COMMENTS OF THE SAN FRANCISCO PUBLIC UTILITIES COMMISSION BEFORE THE STATE WATER RESOURCES CONTROL BOARD

March 9, 1995

The San Francisco Public Utilities Commission is a signatory to the comments on the draft Water Quality Control Plan ("Plan") and the draft Environmental Report ("DER") provided to the State Water Resources Control Board ("Board") by the Joint Agencies. The Public Utilities Commission hereby submits these additional comments to the to supplement San Francisco's comments at the Board's February 23, 1995, hearing.

1. Apparently outdated information is being utilized to describe the environmental setting of the San Joaquin River basin and its tributaries. At page IV-24, the DER states that "[a]t times, no flows may also occur below diversion points on larger streams." In reference to the Tuolumne River, that statement is incorrect. Fishery flow releases are required below LaGrange dam in all year types. Added to these required releases are river accretions from the ground water and operational return canal flows. Accordingly, the lower Tuolumne River cannot be characterized as having "no flow." Further, we are not aware of any "fish kills" in the Tuolumne River caused by dissolved oxygen problems. (DER at IV-25). The DER appears to overgeneralize findings among the several tributaries of the San Joaquin River basin. Many findings contained in the DER relating to the San Joaquin River basin generally should instead be confined to an individual tributary. We recommend that the DER be revised to better delineate issues and problems among the tributaries.

2. In general, Chapter IV of the DER lacks an adequate description of the socio-economic setting of the San Joaquin tributary areas. The focus of Chapter IV appears to be the west side of the San Joaquin valley. The DER at page VIII-1 states the discussion of the environmental effects of the proposed standards is "largely speculative" because the allocation of compliance responsibility will not occur until the water rights phase of the proceedings. We concur with the DER's statement, and recognize that at the time that allocation of responsibility is addressed a more complete identification of the "environmental setting" of potentially affected areas will occur.

3. The discussion of the modeling assumptions contained on page VII-4 clearly acknowledges that full compliance with the southern Delta agricultural requirements (through fresh water releases from upstream projects) has not been evaluated. Neither has compliance with the dissolved oxygen standard at Stockton been evaluated if fresh water releases are considered the only measure to achieve the standard. We assume that the Board will consider the reasonableness of compliance with these standards during the water rights phase of the proceedings. In the interim, careful weighing must be made of the tradeoffs between using New Melones reservoir releases for water quality purposes as opposed to releases for fish and wildlife purposes.

4. It is unclear how the change in New Melones Reservoir storage correctly depicts one of the "limiting cases" referred to on page VII-10 of the DER. Earlier descriptions in the DER state that the modeling assumed that New Melones Reservoir attempts to meet the fish standards and water quality objectives at Vernalis, subject to a cap in quantity of releases. To the extent that the fish standards are not met through Stanislaus River releases, additional water is "assumed" to be input at Vernalis from other tributaries. To capture the full potential "storage" impact of the standards, the additional water that is assumed to be input from the other tributaries needs to be added to the New Melones Reservoir storage change.

5. The narrative description of the potential effects to San Joaquin River flows on page VII-11 and the graph on page VII-13 illustrates the potential for masking impacts that will arise when "averaging" within year types. It is shown in Figure VII-10 that during the "above normal" years of the simulation, the average additional San Joaquin River flow will amount to 483,000 acre-feet due to the proposed standards. However, as stated in the narrative description, the largest single year of modeled additional flow may be 1963, when 897,000 acre-feet of additional release was required. There will be significant differences in impacts associated with the extremes of the range of flows that will be required by the proposed standards. We recommend that the depiction of the range of potential impacts be better illustrated and described.

6. At various locations within the DER, the US Fish and Wildlife Service salmon smelt survival index models have been used to indicate an anticipated biological response of salmon to the proposed standards. See DER at page VIII-30 and elsewhere. The validity of the models has been critiqued during the past year, and as a result the use of the models as predictors of response has been cautioned. We recommend that the depiction of absolute values concerning salmon survival be removed.

7. Regarding the release of the 28TAF pulse flow in October, DER at page VIII-58, we believe the DER analysis to be in error concerning the non-necessity to provide a pulse flow in any year in the reference period. It appears from the data illustrated in Figure VIII-51 that the full 28TAF of additional release would have been required in at least some of the years. If we have correctly interpreted the proposed standard, the 28TAF pulse is required to attempt to provide a 2,000 cfs monthly flow at Vernalis.

8. The opening sentence of the section on page VIII-73, regarding growth inducing effect, references potential impacts to areas served by the CVP and SWP. If the proposed standards are met also by entities other than the two projects, those areas could also experience similar impacts. The DER should be revised to broaden the areas of potential impacts beyond the CVP and SWP service areas.

9. The discussion on page VIII-75 of the DER regarding the cumulative effect of this action in concert with other individual actions should be broadened. The "other projects and activities" that could collectively impact San Francisco should include the current

FERC proceeding for the lower Tuolumne River. Both the Delta Plan and the FERC proceeding could have significant individual and collective water supply ramifications to non-project entities.

10. We concur with the statement of the need to perform biological and hydrodynamic studies regarding the effectiveness of pulse flows contained at pages IX-12-13 of the DER. Design of such studies should ensure adequate information is acquired to distinguish between the effects of pulse flow/export reduction and barrier effectiveness.

11. The DER infers at page IX-1 that "salty return flows" in the San Joaquin River have a right to be there and that diversions of fresh water have frustrated that right. We recommend that such inference be removed. Saline return flows should be controlled at their source, and the use of fresh water releases to mitigate their effects should be avoided. The fresh water release requirements for the San Joaquin River should not be premised upon the dilution requirements of drainage flows.

12. The DER at page V-73-74 states that the San Joaquin River system supports a population of late fall-run chinook salmon. While there is certainly a late fall-run population of chinook salmon in the Sacramento River system, there is little basis to conclude that there is currently a distinct population of late fall-run in the San Joaquin or its tributaries, apart from late fall-run strays from the Sacramento River system and late spawning San Joaquin fall-run fish. *See,* attached Informational Memorandum from Dr. Peter Moyle and Ronald M. Yoshiyama. Absent substantial evidence supporting the existence of a San Joaquin population of late fall-run chinook salmon, the DER should remove these references.

Thank you for this opportunity to comment on the Draft Water Quality Control Plan and the Draft Environmental Report.

March 6, 1995 **Informational Memorandum**

To: Office of the City Attorney, San Francisco
From: Ronald M. Yoshiyama and Peter B. Moyle

Re: Late-Fall Run Chinook Salmon in the Central Valley

Late-fall run chinook salmon are a distinct component of the Central Valley chinook salmon stocks, characterized by various life-history features that in aggregate set them apart from the other three Central Valley runs (winter, spring, fall). There is some overlap in the timing of certain life history stages between the late-fall run and other runs, but there nonetheless are sufficient differences to justify their separation (Fisher 1994). The late-fall-run migration period extends at most from October to April, but the great majority of the run enters the Sacramento River from October through February, with the migration peak occurring in December. The spawning period may extend from early-January to early-April, but most spawning is in January-March with peak spawning in early-February. Late-fall-run spawners evidently are not known to turn blackish or red in color, at least not in Central Valley streams, as fall-run fish are known to do; late-fall spawners usually are buff- or cream-colored, or occasionally even silverish (F. Fisher, CDFG, pers. comm.). Judging from Sacramento River fish, there is no overlap between the spawning season of the late-fall run and those of the other runs. Juveniles of the late-fall run emerge in April-June and they remain in the streams for 7-13 months. This residency of the juveniles in the streams over the summer is a feature that sets the late-fall run apart from the other three runs. Unlike the other three runs, the proportion of age-4+ year fish among the late-fall-run females is high (41%) with correspondingly less predominance of age-3 females (57%). In the other three runs, age-3 females predominate to a much higher extent (77-92% of adult female migrants). The late-fall-run fish are generally the largest in size of the chinook salmon occurring in the Central Valley system. Biologically, the late-fall run is the most poorly known of the four runs, and its specific habitat requirements are not well understood (at least as of 1993). The late-fall run was not recognized as a distinct run until after completion of Red Bluff Diversion Dam (1966), which enabled the counting of the fish as they migrated past the fish ladders.

The late-fall run is believed to have had its original main spawning grounds located at the far northern and southern ends of the Central Valley, utilizing the upper mainstem rivers (but still essentially on the Valley floor) (Fisher 1994). Their characteristic summertime juvenile phase required sufficient flows to maintain appropriate (low) temperatures, which presumably limited where they could occur. The upper mainstem Sacramento River, above the present site of Shasta Dam, and perhaps the southernmost Valley reach of the San Joaquin River (Fisher 1994) apparently were two such areas with appropriate conditions.

There are several early (pre-Shasta Dam) references to what are inferred to be late-fall-run salmon in the McCloud River, the lower Pit River, and the upper mainstem Sacramento River (F. Fisher, pers. comm.). The occurrence of what apparently was a late-fall run in the San Joaquin River is evidently supported by an observation of a relatively late run recorded for a single year-- 1941. In December 1941, "a salmon run of undetermined size entered the upper San Joaquin River" (Hatton and Clark 1942). According to local residents, the run started "about the first of December". A total of 176 salmon was counted on Dec. 9-10 as they passed over 2 sections of Mendota Weir, and the authors considered it

"very likely" that only part of the run that passed during the counting period was actually counted. Their conclusion was that the event "tends to show that a run of several thousand fish may enter the upper San Joaquin River during the winter months, in addition to the spring run during March, April and May." This apparently temporally distinct run (starting ~Dec. 1) indicates that it was not simply the tail end of a remnant fall run that had started migrating in earlier. On the other hand, it may have been the bulk of the fall run itself, somewhat delayed for whatever reason. The authors in fact indicated there was no fall run in the river at that time. Fall-run migration and spawning times occur progressively later in the season in the more southerly parts of the Central Valley (F. Fisher, pers. comm.), and the bulk of the fall-run migration and spawning in the Tuolumne River commonly extends into December (T. Ford, pers. comm.). That December 1941 run likely was not a winter run because a winter-run population would require cold summer flows for egg incubation and fry rearing (more stringent than required for juveniles)--flows which the upper San Joaquin River did not possess, as far as we know.

Salmon runs that occurred during the "late fall" in several major tributaries (Mokelumne, American and Merced rivers) were noted by Clark (1929, CDFG Fish Bulletin No. 17) in his overview of the Central Valley chinook salmon stocks. In the Merced River, irrigation diversions in the spring, summer and early fall reportedly killed off the spring and "summer" (i.e., fall) runs, and only fish that arrived after the rains during late fall were able to enter the river (Clark 1929). In the Mokelumne River, Clark reported that the run was "usually quite late" and that the flashboards in Woodbridge dam were taken out during "late-fall (November)" to let the salmon pass. In the American River, the salmon run "[had] always been a late fall migration" (no month specified). In the opinion of Frank Fisher (pers. comm.) the runs mentioned by Clark most likely were fall-run fish that had been delayed in their entry into the rivers by the lack of water. This would be especially likely if by "late fall" Clark was referring to November, as he apparently did in his account for the Mokelumne River (see above). According to Mr. Fisher (pers. comm.), the true late-fall run would not be expected to enter the tributaries in significant numbers until December.

The late-fall run is now essentially restricted to the Sacramento River drainage. The great majority of the fish spawn in the mainstem of the Sacramento River, with ≥90% spawning above Red Bluff Diversion Dam (R. Painter, CDFG, pers. comm.), although late-fall spawners apparently also utilize some of the tributaries (Antelope, Battle, Big Chico, Butte, Clear, Cottonwood and Deer creeks and the Feather and Yuba rivers; R. Painter, pers. comm. and CDFG 1993). There is a "modest" run that returns to the Coleman National Fish Hatchery every year, but the hatchery has been unable to build up a sustainably large run and has had to supplement its spawners with fish taken in the Keswick Dam trap-- the Keswick fish composing perhaps 67-75% of the spawners (R. Painter, pers. comm.). The presence of late-fall-run salmon in the Feather River noted by CDFG (1993) may in part refer to attempt by CDFG to introduce the run during the early 1970s with eggs originating from the Coleman National Fish Hatchery; that attempted introduction resulted in 2 generations of late-fall-run fish returning to the Feather River Hatchery, and disappearance of the run thereafter (F. Fisher, pers. comm.). At present (March 1995), the Feather River Hatchery is not receiving any naturally returning late-fall-run spawners (F. Fisher, pers. comm.), but some fish had been seen occasionally in the Feather river away from the hatchery up to ~1991 (R. Painter, pers. comm.).

While the late-fall-run chinook salmon may have been present at one time in the San Joaquin River drainage, their continued presence during the last several decades is unlikely. The reason for this is that the late-fall-run juveniles must oversummer in fresh water, which requires continuous flows of cold water. The construction of dams on the Merced, Tuolumne, and Stanislaus rivers blocked access to potential upstream rearing areas and provided only very limited cool-water habitat below the dams. In

drought years, this habitat may have disappeared altogether. According to CDFG (1993), "There have never been formal inventories of late-fall-run chinook salmon in the San Joaquin basin"-- i.e., late-fall runs have not been counted separately during the annual counts or surveys as they have been in the Sacramento River basin. It is conceivable, but unlikely, that a remnant late-fall run has managed to persist in the San Joaquin system, especially in the Stanislaus River where suitable flows have been most consistently maintained. Up to the present time (1990s), there reportedly have been observations of a few salmon spawning in the Tuolumne River as late as February (F. Fisher, pers. comm.; check with Bill Loudermilk, CDFG, to verify), and a few juveniles have been caught during the summer. The timing of these life stages is indicative of late-fall-run fish (based on the criteria of Fisher 1994). Also, small numbers of late-emerging fry have been observed in many years in the San Joaquin tributaries--and these fry are probably too small to migrate out successfully in the spring with the bulk of the true fall-run juveniles. These late-emerging fry may simply be fall-run progeny that were spawned late in the season, or they may be fall-run juveniles that emerged at a "normal" time but for some reason grew very slowly (suggested by T. Ford), or they may be the progeny of stray late-fall-run spawners that originated from the Sacramento River. Any determination of the existence of "late-fall-run" fish in the San Joaquin system would need to be supported by genetic studies. Recently conducted work by the USFWS apparently indicates that such a difference exists between late-fall-run and fall-run fish in the Sacramento basin (F. Fisher, pers. comm.).

The late-fall run is not numerous; of the four Central Valley runs, it is only slightly more abundant than the ESA-listed winter run and the remnant populations of pure spring run. Since 1967, the counts of late-fall-run fish passing Red Bluff Diversion Dam have ranged over 4,900-35,600 fish (R. Painter, pers. comm.). Run sizes averaged ~22,000 fish in 1967-1976 and dropped to an average of ~9,700 fish in 1982-1991. The count in 1987 was 16,000 fish, and in 1991 it was 7,089 fish. Counts for the most recent years are not available because the Red Bluff Diversion Dam gates are now left open to allow free passage of winter-run fish, and counts of fish migrating past the dam therefore cannot be made.

References

CDFG. 1993. Restoring Central Valley Streams. A Plan for Action. Report by the California Department of Fish and Game, Sacramento. November, 1993. 129 pp.

Fisher, F. 1994. Past and present status of central Valley chinook salmon. Conservation Biology 8(3): 870-873.

Hatton, S.R. and G.H. Clark. 1942. A second progress report on the Central Valley fisheries investigations. Calif. Fish and Game 28(2): 116-123.

Personal communications

Frank Fisher, CDFG, Red Bluff. Phone conversation on March 2, 1995 with R.M.Y.

Richard E. Painter, CDFG, Red Bluff. Letter of April 9, 1991 to Peter B. Moyle.