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5 April 2010

Phillip Crader
Division of Water Rights
State Water Resources Control Board
Sacramento, CA 95812-2000

Dear Mr Crader

Per your instructions of 25 March and 29 March, 2010 to the participants in the Board's 'Informational Proceeding to Develop Flow Criteria for the Delta Ecosystem', the Pacific Coast Federation of Fishermen's Associations and the non-profit public service research organization the Institute for Fisheries Resources are pleased to submit the attached closing statement summarizing PCFFA's/IFR's recommendations to the Board for the development of flow criteria, pursuant to the Board's public trust obligations, needed to protect the public trust resource of the San Francisco Bay-Delta estuary represented by Sacramento River fall-run chinook salmon.

Per your instructions we shall put six copies of our closing statement in the mail to you today.

Sincerely,

A handwritten signature in cursive script that reads "Bill Kier".

William M Kier
Senior science advisor
Institute for Fisheries Resources

cc: William F. Grader, Jr, Executive director
Pacific Coast Federation of Fishermen's Assns.

**CLOSING STATEMENT
OF THE
PACIFIC COAST FEDERATION OF FISHERMEN’S ASSOCIATIONS
AND THE
INSTITUTE FOR FISHERIES RESOURCES
CONCERNING THE DELTA THROUGH-FLOW CRITERIA
NECESSARY FOR THE PROTECTION OF THE PUBLIC TRUST RESOURCE
REPRESENTED BY SACRAMENTO RIVER FALL-RUN CHINOOK SALMON¹**

The Pacific Coast Federation of Fishermen’s Associations (PCFFA), in collaboration with the Institute for Fisheries Resources, provided testimony to the California State Water Resources Control Board (Board) on 23 March, 2010 concerning the Delta through-flow² needs of the public trust resource represented by Sacramento River fall-run chinook salmon.

PCFFA/IFR’s testimony was provided by Bill Kier, a biologist who specializes in salmon population and salmon habitat assessments, work that Mr Kier began as a California Department of Fish and Game scientist more than 50 years ago. Mr Kier has participated in several Board San Francisco Bay-Delta estuary flow proceedings, usually as an expert witness concerning the flow needs of salmon.

In addition to his work as a State scientist and his long-standing consulting practice (www.kierassociates.net) providing science support services to State and federal resource management agencies, Mr Kier serves as senior science advisor to the Institute for Fisheries Resources, a public service research organization affiliated with PCFFA.

PCFFA is the largest organization of commercial fishing groups on the Pacific Coast of North America. The home ports of PCFFA’s members stretch from San Diego to Alaska. A great many of PCFFA’s members depend upon Sacramento River fall-run chinook salmon (‘SRFC’ to State and federal fisheries managers), a San Francisco Bay-Delta estuary public trust resource, for their livelihoods.

The SRFC population declined precipitously in 2008. As a result of that decline hundreds of PCFFA fishing families have been out of work since 2007.

While a National Marine Fisheries Service panel charged by the Pacific Fishery Management Council to investigate the cause of the precipitous SRFC decline concluded that ocean conditions were the ‘proximate’ cause of the collapse they were quick to add that ‘the

¹ Submitted into the California State Water Resources Control Board’s 2010 informational proceeding to develop the flow criteria needed to support the public trust resources of the San Francisco Bay-Delta estuary

² We note that while much of the discussion by the SWRCB member and witnesses other than PCFFA’s referred simply to Delta ‘flows’ or ‘inflows’ or ‘outflows’, PCFFA’s testimony pointedly stressed the need for through-flows, flows from our most upstream point of reference near Sacramento, through the Delta and reaching the upstream segments of San Francisco Bay – Delta ‘through-flows’

rapid and likely temporary deterioration in ocean conditions is acting on top of a long-term, steady degradation of the freshwater and estuarine environment [emphasis added]³.

It is precisely that long-term, steady degradation of the SRFC's freshwater and estuarine environment, and its primary cause, excessive freshwater diversions from the Bay-Delta estuary, that PCFFA's testimony brought clearly and authoritatively to the record of these proceedings.

PCFFA's testimony drew directly from research performed for the State-federal Bay-Delta Interagency Ecological Study Program by US Fish and Wildlife Service scientists Dr Martin Kjelson and Patricia Brandes. This research was presented to the Board as 'The Needs of Chinook Salmon, Oncorhynchus tshawytscha, in the Sacramento-San Joaquin Estuary', U.S Fish and Wildlife Service Exhibit 31⁴ in the Board's 1987 'Water Quality/Water Rights Proceeding on the San Francisco Bay/Sacramento-San Joaquin Delta'.

There has never been a more unequivocal, compelling presentation made to the Board on the subject of Delta through-flows needed for the protection of public trust chinook salmon resources than that provided by Dr Kjelson and Ms Brandes.

There has certainly never been such a thoroughly deliberated testimony.

Dr Kjelson was cross-examined for several days by water industry attorneys. Attempts by water industry consulting scientists to rebut the Kjelson-Brandes findings concerning the relationship among Delta through-flows; the survival of juvenile salmon out-migrating through the Delta; and the resulting size of adult salmon returns to the Sacramento River were rejected by the Board and its staff in the Board's October, 1988 'Draft Water Quality Control Plan for Salinity, San Francisco Bay/Sacramento-San Joaquin Delta Estuary' – the Kjelson-Brandes testimony was a principal foundation of the conclusions and recommendations of that draft plan.

It is a testament to the verity of the Kjelson-Brandes science, that presented to the Board in such heavily-contested yet conclusive detail 23 years ago, that it was drawn upon heavily by the Board's own Delta Environmental Flows Group in its 22 March 2010 presentation in the current proceedings.

To recap PCFFA's testimony (again, drawn directly from FWS' SWRCB Bay-Delta flows Exhibit 31 of 1987):

- Habitat alterations in the Delta limit (Central Valley) salmon production primarily though reduced survival during the out-migrant (smolt) stage;

³ See Lindley, S.T et al. What caused the Sacramento River fall Chinook stock collapse? Report to the Pacific Fishery Management Council. March, 2008.

http://swfsc.noaa.gov/uploadedFiles/Operating_units/FED/Salmon_decline_report_March_2009.pdf

⁴ PCFFA furnished the Board an electronic copy of the Kjelson-Brandes testimony on 7 January 2010

- These lower survivals are associated with decreases in the magnitude of flow through the estuary [emphasis added];
- Smolt mortality in the estuary will impact resulting adult salmon population levels;
- Increasing smolt survival rates through the Delta is a critical step toward restoring natural salmon production in the Central Valley [emphasis added];
- Smolt survival increases with increasing Sacramento River flow at Rio Vista, with maximum survival observed at or above 20,000 to 30,000 cubic feet per second (cfs):
- Smolt survival is highest when water temperatures are below 66 °F. (NOTE: water temperature during the spring salmon smolt out-migration period is inversely related to flow. *i.e.*, higher flows have lower water temperatures).

PCFFA’s recommendation to Board in the current proceedings is, then, to

- Acknowledge that the Kjelson-Brandes 1987 Exhibit 31 science is as useful to and compelling for the Board’s use today as it was when it was deliberated in the Board’s Bay-Delta proceedings 23 years ago;
- Acknowledge that established relationship among between Sacramento River flow increases; increased survival of juvenile chinook salmon during their obligatory journey across the Delta to the Bay; and the resulting increase in the size of the returns of adult chinook salmon to the Central Valley/Sacramento River spawning grounds two-and-a-half years later detailed in the U.S Fish and Wildlife Service’s 204-page testimony to the Board ‘The Needs of Chinook Salmon, Oncorhynchus tsawytscha, in the Sacramento-San Joaquin Estuary’ (Exhibit 31 of the 1987 Proceedings);
- Given that the current State administration’s Bay Delta Conservation Planning program contemplates development of a Delta bypass water conveyance with a capacity of 15,000 cfs, perhaps involving as many as five separate intake structures, set the upstream point of application of Delta flow criteria for Sacramento River chinook salmon above the most upstream location of such intake (*e.g.*, Sacramento or Hood) and apply the criteria to the chinook salmon juveniles’ entire migratory path down the length of the Sacramento River through the Delta to the uppermost reaches of the San Francisco Bay system (*e.g.*, Chipps Is.);
- Set the flow criteria needed for the protection of the public trust resource represented by Sacramento River fall-run chinook salmon at that level determined by the Kjelson-Brandes research to yield the greatest survival of juvenile salmon during their out-migration from the Sacramento River to San Francisco Bay – 20,000 to 30,000 cubic feet per second (split the difference and set the criteria at 25,000 cubic feet per second).

As the Kjelson-Brandes testimony made clear the Board’s salmon flow criteria in place at that time (1987) would achieve from zero to 2% “safe passage’ for juvenile salmon across the Delta based on the relationship between smolt survival and flow, as determined by their decade-long Interagency Ecological Study Program research project.

An appropriate river-to-Bay juvenile migration survival rate – that which a 25,000 cubic feet per second juvenile salmon out-migration flow criterion would achieve – should yield

adult returns of fall-run chinook salmon to the Sacramento River spawning grounds within the range of the conservation goal established for this public trust resource in the Pacific Fishery Management Council's 'Pacific Coast Salmon Plan'⁵ – never fewer than 122,000 adult fall-run chinook salmon returning to the Sacramento River spawning grounds.

Until the most recent years the long-term average of adult fall-run chinook salmon returning to the upper Sacramento River has been 226,600.

Returns fell to 88,000 in 2007; 66,000 in 2008; and 39,530 in 2009.

The unprecedented low returns of adult fall-run chinook salmon to the Sacramento River in recent years correlate with the dramatically increased withdrawals of water from the Delta estuary by the State Water Project beginning in 2003.

The Legislature has directed your Board⁶, pursuant to your public trust obligations, to develop flow criteria for the Delta ecosystem necessary to protect public trust resources. Sacramento River fall-run chinook salmon are beyond the shadow of a doubt 'public trust resources' of the Delta ecosystem.

The Legislature directs that the flow criteria that your Board develops to inform the planning decisions of the Delta Plan and the Bay Delta Conservation Plan 'include the volume, quality and timing of water necessary for the Delta ecosystem under different conditions'.

PCFFA and IFR respectfully recommend – again, based upon science that your Board has already deliberated at length – that your Board adopt all of the following criteria necessary to protect the public trust salmon resources of the Delta ecosystem:

- set the volume of water needed for successful Sacramento River fall-run chinook salmon juvenile out-migration – 'safe passage' – from the Sacramento River to Chipps Island at 25,000 cubic feet per second
- assure that the temperature of flows provided to ensure juvenile Sacramento River fall-run chinook salmon safe passage across the Delta not exceed 66 degrees F.
- provide that Sacramento River flows of 25,000 cubic feet per second having a temperature of no more than 66 degrees F. shall be maintained from a point upstream (*e.g.* Sacramento City or Hood) of the most upstream diversion point requested hereinafter by the California Department of Water Resources or its State Water Project collaborators, past each such point of diversion, thence downstream at least to Chipps Island from 1 April until 16 June of each year.

We thank the Board for its consideration of PCFFA's and IFR's science-based Delta flows criteria recommendations.

⁵ see: Pacific Fishery Management Council, Pacific Coast Salmon Plan <http://www.pcouncil.org/salmon/fishery-management-plan>

⁶ See CA Water Code Section 85086 (c) (1)