STATE OF CALIFORNIA

STATE WATER RESOURCES CONTROL BOARD

In the Matter of:	)	
	)	
PUBLIC INFORMATIONAL PROCEEDING	)	**TESTIMONY OF**
TO DEVELOP FLOW CRITERIA	)	**C. MEL LYTLE**
FOR THE DELTA ECOSYSTEM TO	)	
PROTECT PUBLIC TRUST RESOURCES	)	
	)	
	)	

I am C. Mel Lytle, Ph.D. I have been the Water Resource Coordinator for the County of San Joaquin, Department of Public Works, since February of 2002. As such, I am involved in many water related issues which affect the County. These issues include investigating and seeking additional supplies for agricultural and urban needs, as well as for groundwater recharge and storage. In addition, I participate with other local interests in reviewing ongoing processes and activities which affect Delta water supply and quality. In this capacity, I am generally familiar with the issues facing those parts of the Delta within San Joaquin County. My formal training includes B.S. and M.S. degrees in Agronomy and a Ph.D. in Botany and am also a Post-doctoral fellow of the University of California Berkeley. Attached hereto as Exhibit SJC 2 is a copy of a recent curriculum vitae.

I am appearing today on behalf of the County of San Joaquin and the San Joaquin County Flood Control and Water Conservation District (collectively hereinafter "County"), the Central Delta Water Agency ("CDWA"), and South Delta Water Agency ("SDWA"). The counsels for the County, CDWA and SDWA asked me to review and submit certain documents and details as exhibits related to the subject of this

informational proceeding to develop flow criteria for the Delta. The information presented is largely related to the issues identified for Panel 1 Hydrology as indicated in the State Water Board's Revised Notice of Public Informational Proceeding dated January 29, 2010. A small portion of the information may relate to other panels regarding fish and other stressors, particularly water quality. My review was limited to historical information related to the Delta and San Joaquin River. Specifically, the County, CDWA, and SDWA asked that I present documents regarding historic flows, salinity and water quality within the Delta and San Joaquin River.

Planned Water Resource Development

According to historic planning documents, it was the responsibility of the State Water Project (SWP) to develop a sufficient water supply to meet the needs of its contractors and fulfill its other obligations to preserve fisheries, provide salinity control and meet the present and future needs within the Delta and other areas of origin. To meet water supply demands by the year 2000, the SWP was to supplement the flows into the Delta by 5 million acre-feet per year. See Exhibit SJC 3, Preliminary Edition of Bulletin No. 76 Delta Water Facilities, December, 1960. The Bulletin 76 Preliminary Edition was a report to the legislature which specifies the sources and timing of delivery of such supplemental Delta inflow. Exhibit SJC 3, See particularly pages 11, 12 and 13. Due to the lack of adequate project development, this additional 5 million acre-feet of water is not currently available, which has necessitated reliance on other sources primarily unregulated flow.

The specific flows necessary to provide salinity control are not specified by statutes. Avoidance of the isolated historic, pre-project levels of salinity within the

interior Delta was the apparent objective as discussed in the Preliminary Edition of Bulletin 76. (Exhibit SJC 3, at pages 4-6, 11, 12.) Salinity control sometimes historically characterized as being within the term "river regulation" is flow related.

For illustration purposes, Water Code section 11207 provides:

§11207. Primary purposes

Shasta Dam shall be constructed and used primarily for the following purposes:

(a) Improvement of navigation on the Sacramento River to Red Bluff.

(b) Increasing flood protection in the Sacramento Valley.

(c) Salinity control in the Sacramento-San Joaquin Delta.

(d) Storage and stabilization of the water supply of the Sacramento River for irrigation and domestic use. (*Added by Stats. 1943, c. 370, p. 1896*.)

Water Code section 12202 provides as follows:

§12202. Salinity control and adequate water supply; substitute water supply, delivery

Among the functions to be provided by the State Water Resources Development System, in coordination with the activities of the United States in providing salinity control for the Delta through operation of the Federal central Valley Project, shall be the provision of salinity control and an adequate water supply for the users of water in the Sacramento-San Joaquin Delta. If it is determined to be in the public interest to provide a substitute water supply to the users in said Delta in lieu of that which would be provided as a result of salinity control no added financial burden shall be placed upon said Delta water users solely by virtue of such substitution. Delivery of said substitute water supply shall be subject to the provisions of Section 10505 and Sections 11460 to 11463, inclusive of this code. (*Added by Stats. 1959, c. 1766, p. 4247, § 1.*)

Water Code section 12204 provides as follows:

§12204. Exportation of water from delta

In determining the availability of water for export from the Sacramento-San Joaquin Delta no water shall be exported which is necessary to meet the requirements of Sections 12202 and 12203 of this chapter. (*Added by Stats. 1959, c. 1766, p. 4249, § 1.*)

San Joaquin River flows tied to Delta outflow

Several factors including project operations have led to significant degradation of water quality and flow on the San Joaquin River. D1641, at pgs 80 to 83. located at www.waterrights.ca.gov/hearings/Decisions/WRD1641.pdf. The water from the San Luis Unit in particular was not to be obligated until it was certain that a drain with an ocean or bay outlet would be constructed. See Exhibit SJC 4 which is the San Luis Act of 1960, Public Law 86-488, authorizing the San Luis Unit by Congress which provided that a sufficient drainage outlet was to be constructed due to the salt accumulation from irrigation within the Unit. No such outlet was provided and yet the San Luis Dam was constructed and the water committed to use along portions of the west side of the San Joaquin Valley causing degradation of the San Joaquin River through direct agricultural drainage discharges and/or induced accretions of contaminated groundwater to the river. D 1641 at p. 82. In addition, some of the lands served with such water contain high levels of selenium which through applied irrigation leaches from the soil adding to the selenium contamination and loading in the river. Adequate flow is necessary in the San Joaquin River and Delta in order to mitigate the impacts of these contaminants. D 1641 at p. 83.

Exhibit SJC 5 is the June 1980 Joint Report of the United States Water and Power Services (which is now the Bureau of Reclamation) and South Delta Water Agency setting forth the historic flows and water quality and describing the impacts to the Southern Delta water supply. The 1980 Report is important to the State Water Boards consideration in determining in stream flows to protect public trust uses because it

provides a good record of pre-project flows on the San Joaquin. It also provides a summary of pre-project water quality on the River.

For example, Table V-21 provides a summary of reductions in runoff for the San Joaquin River at Vernalis from pre-CVP to post-CVP. The numbers are significant, showing that the reduction in runoff due to the CVP from the April-September time frame is 347-526 KAF (thousand acre feet), and that the percentage of reduced post-1947 flow is 28-39% for that same April-September time frame. The Report also includes reductions due to other upstream development.

With regard to water quality, the Report also provides significant data regarding pro-project conditions. Figures VI-25 and VI-27 show the water quality in the San Joaquin River by decades using a number of different data sets. We see from these Figures that water quality in the River was for the most part always better under pre-project conditions. In fact, the mean monthly averages set forth during pre-project times are always better than current standards. This data seems to confirm that of Contra Costa Water District which concludes that historically, even under dry conditions, the Delta was flushed with good quality water in the fall and winter months.

Exhibit SJC 6 contains excerpts from the Water Supervisor's Reports for the years of 1928 through 1969 regarding salinity measurements made in the Sacramento-San Joaquin River Delta and contains grab sample water quality data for numerous locations within the Delta. This data documents the water quality within the Delta before the projects, including the drought year of 1931 and illustrates the post SWP and CVP deterioration of water quality in the San Joaquin River in spring and summer months.

I would also like to note one more issue regarding the protection of public trust needs in the southern Delta. In order to maintain water quality in southern Delta channels, there needs to be a net flow in each channel to prevent the accumulation and concentration of salts (and other constituents) as well as to control temperature and dissolved oxygen. A combination of tidal flows and altered flows due to export operations result in null zones where no or little net flow exists. DWR modeling done at the request of SDWA indicates that there are various possible methods by which net flow might be established, but I am unaware of any report or modeling which specifies what level of net flow is optimum to protect public trust uses. If DWR does not present any evidence on this issue, I will simply refer you to Exhibit SJC 17, which is the DWR modeling referenced above.

Historic State Water Board findings regarding flow

State Water Resources Control Board Decision 1485 amended the permits of the CVP and SWP to establish or revise terms and conditions for salinity control and for protection of fish and wildlife, and to coordinate the terms of the various permits for the two projects. At page 13 of D 1485, the State Water Board determined that "To provide full mitigation of project impacts on all fishery species now would require the virtual shutting down of the export pumps." Exhibit SJC 7 located at www.waterrights.ca.gov/hearings/Decisions/WRD1485.pdf. In addition, in 1978 the State Water Board determined at page 14 of D 1485 that "Full protection of Suisun Marsh now could be accomplished only by requiring up to 2 million acre-feet of freshwater outflow in dry and critical years in addition to that required to meet other standards." Exhibit SJC 7.

Exhibits SJC 8 through SJC 14 are copies of exhibits and documents submitted by the Paul R. Romberg Tiburon Center for Environmental Studies ("Romberg Tiburon Center") to the State Water Board in hearings leading to draft D 1630. The State Water Board hearings which resulted in draft D 1630, which final decision was not adopted by the State Water Board, started in about 1987 and culminated in 1992 as a result of a hearing notice for the purpose of establishing terms and conditions for interim protection of public trust uses of the San Francisco Bay/Sacramento-San Joaquin Delta Estuary.

- Exhibit SJC 8 is the closing brief entitled "Closing Brief of the Romberg Tiburon Center for Environmental Studies." This closing brief reviews the modifications of freshwater flow to the Delta and the relationship between flow modification and fisheries decline.
- Exhibit SJC 9 is a September 1981 article entitled "Water, Water Everywhere But Just So Much To Drink" by Michael A. Rozengurt and Michael J. Herz.
- Exhibit SJC 10 is "Analysis of the Influence of Water Withdrawals on Runoff to the Delta-San Francisco Bay Ecosystem (1921-83)" Technical Report Number 87-7 dated May 1987 by Michael Rozengurt, Michael J. Herz and Sergio Feld.
- Exhibit SJC 11 is "Summary of the Role of Water Diversions in the Decline of Fisheries of the Delta-San Francisco Bay and Other Estuaries" Technical Report Number 87-8 dated September 1987 by Michael Rozengurt, Michael J. Herz and Sergio Feld (with preface by Joel W. Hedgpeth).
- Exhibit SJC 12 is the errata for the "Role of Water Diversions in the Decline of Fisheries of the Delta- San Francisco Bay and Other Estuaries."

- Exhibit SJC 13 is the peer reviews of the report "The role of water diversions in the decline of fisheries of the Delta-San Francisco Bay and other estuaries."
- Exhibit SJC 14 is the peer review by Dr. Luna Leopold of the report "Analysis of the influence of water withdrawals on runoff to the Delta-San Francisco Bay ecosystem (1921-83)" by M. Rozengurt, M. Herz, and S. Feld.

These exhibits from the Romberg Tiburon Center correlate historical fish abundance with flow. The Romberg Tiburon Center 1988 closing brief, which is Exhibit SJC 8, summarizes the impacts. The October 6, 1987 submittal which includes the peer review by Dr. Luna Leopold (Exhibit SJC 14) concludes at page 6 "The logical and in my opinion the imperative step is to preclude henceforth any additional diversions of water from the Delta System."

Preserving and Restoring Fisheries

Exhibit SJC 15 is a copy of Title 34 of Public Law 102-575 "Central Valley Project Improvement Act" commonly referred to as the CVPIA. The CVPIA authorized and directed the Secretary of the Interior to:

> "develop within three years of enactment and implement a program which makes all reasonable efforts to ensure that, by the year 2002, natural production of anadromous fish in Central Valley rivers and streams will be sustainable, on a long-term basis, at levels not less than twice the average levels attained <u>during the period of 1967-1991</u>; Provided, That this goal shall not apply to the San Joaquin River between Friant Dam and the Mendota Pool, for which a separate program is authorized under subsection 3406(c) of this title; Provided further, That the programs and activities authorized by this section shall, when fully implemented, be deemed to meet the mitigation, protection, restoration, and enhancement purposes established by subsection 3406(a) of this title; And provided further, That in the course of developing and implementing this program the Secretary shall make all reasonable efforts consistent with the requirements of this section to address other identified adverse environmental impacts of the Central Valley project not specifically

enumerated in this section." (Emphasis added.) Sec. 3406(b)(1).

The CVPIA defines the term anadromous fish as the following:

> "those stocks of salmon (including steelhead), striped bass, sturgeon, and American shad that ascend the Sacramento and San Joaquin rivers and their tributaries and the Sacramento-San Joaquin Delta to reproduce after maturing in San Francisco Bay or the Pacific Ocean." Sec. 3403.

Furthermore the Bureau of Reclamation must meet the salinity objectives by taken actions other than releases of fresh water from New Melones Dam and Reservoir. The Bureau of Reclamation has been instructed to do so by Congress. On October 25, 2004, the President signed into law HR 2828 (Public Law 108-361) which contains important direction for the Secretary of Interior and the Bureau of Reclamation regarding operation of New Melones Reservoir. Public Law 108-361 directs the Bureau of Reclamation with the assistance of the State, to initiate and implement actions to achieve the Bay-Delta water quality objectives while reducing the demand on water from New Melones Reservoir for meeting these objectives. Exhibit SJC 16. Sec. 103(d)(2)(2)(D)(iii).

Pursuant to the new statute, the State Water Board is to establish in stream flows for the Delta which would protect public trust uses. I believe the starting point is to first look at what conditions existed prior to the operation of the SWP and CVP. I believe there is agreement that the public trust uses were adequately protected during this time, regardless of the specific impacts those projects have had on the public trust. From the data I am providing, it would seem appropriate to conclude that some minimum inflow from the San Joaquin River, of some specific water quality would be necessary to protect the public trust. Current flows and current quality do not appear to be sufficient. Closely related to this is the issue of net flows in the southern Delta. At least a portion of that

certain amount and quality of inflow is required to pass through the southern Delta in order to protect the public trust.