California Sportfishing Protection Alliance

Information Proceeding to Develop Delta Flow Criteria for the Delta Ecosystem Necessary to Protect Public Trust Resources

Before the State Water Resources Control Board

Closing Statement

13 April 2010

The California Sportfishing Protection Alliance (CSPA) thanks the State Water Resources Control Board (State Water Board) for conducting this proceeding to develop Delta flow criteria that will protect the fisheries and beneficial uses of the San Francisco Bay/Sacramento-San Joaquin Delta Estuary. CSPA also appreciates the State Water Board's acceptance into the record of the expert testimony of agency scientists presented during the 1987 and 1992 evidentiary hearings on the Bay-Delta.

However, questions and comments by State Water Board members during the 22-24 March 2010 hearing evidence some confusion regarding the legislative mandate of SB-1 (Seventh Extraordinary Session). Should we flood the Yolo Bypass? Could source control of pollutants reduce the need for flow? What would happen if the points of diversion were moved from the south Delta (i.e., peripheral canal)? Several Board members expressed interest in short and long-term goals or functional goals driven by adaptive management.

The State Board was directed, "for the purpose of informing planning decisions," to "develop flow criteria for the Delta ecosystem necessary to protect public trust resources," including "the volume, quality, and timing of water necessary for the Delta ecosystem under different conditions" using the "best available scientific information."

It was not directed to consider supply-side demands in balancing competing needs or to focus on speculative, hypothetical proposals and assumptions that are not yet defined or cannot be quantified; e.g., peripheral canal, additional habitat, north Delta diversion, modified management approaches, etc. In other words, the Board was not directed to solve the problem but, rather, to define flows and criteria necessary to support a viable ecosystem. This information and recommendations will "inform" the BDCP and Delta Stewardship processes and future State Water Board evidentiary proceedings. Indeed, the State Water Board has already tentatively scheduled such hearings as part of a revised water quality control plan for the Delta.

An understanding of what is required to protect the existing Delta's ecosystem is essential before future proceedings can then consider how best to address problems through balancing consumptive and ecosystem needs. We urge the Board not to get sidetracked down rabbit holes that will complicate matters and undermine the Legislature's directive.

In a sense, Nature anticipated the Board's task. The Delta's estuarine ecosystem developed and prospered under a state-of-nature. It was Man's ill-considered intervention that brought the

pelagic and salmonid species that nature protected over eons to the brink of extirpation in mere decades. Where species flourished under the natural hydrograph, Man has deprived the estuary of half its water thereby reducing critical habitat, eliminating variability, moving X2 dramatically eastward, prolonging Old and Middle River reverse flows from less than 10% to 85% of the time, diminishing dilution of pollutants and turning the historical hydrograph on its head. The results cannot be surprising, as no estuarine ecosystem in the world has survived this level of abuse.

The vast majority of the assembled experts from U.C. Davis (Delta Environmental Flows Group), U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (DFG), Bay Institute et al (including Natural Resources Defense Council, Natural Heritage Institute, Environmental Defense Fund, American Rivers), Pacific Coast Federation of Fisherman's Associations/Institute for Fisheries Resources (PCFFA) California Water Impact Network (C-WIN) and CSPA found themselves on the same page regarding the causes of the Delta's collapse and measures necessary for its restoration. Their recommendations share a coherent and consistent thread with the recommendations of agency biologists, academia and NGOs in previous State Board evidentiary hearings in 1978, 1978 and 1992, because the biological and physical parameters necessary for renewable, diverse and abundant fisheries have been long known.

Addressing fisheries decline in a 1978 evidentiary hearing, the State Board found that "full mitigation of project impacts on all fishery species now would require the virtual shutting down of the project export pumps." Nothing presented in subsequent hearings alters that conclusion. Indeed, the draft orders following the 1988 and 1992 hearings, after balancing competing needs, were significantly more stringent than the protections contained in D-1641 and current U.S. Fish and Wildlife Service and National Marine Fisheries Service biological opinions. Unfortunately, political pressure caused those draft decisions to be withdrawn. The failure to heed the collected testimony and recommendations of fisheries professionals resulted in the present catastrophic collapse of the Delta's ecosystem.

Unlike previous hearings, the State Board is mandated to disregard balancing or focusing on listed species. It is tasked to recommend a flow regime protective of the entire estuarine ecosystem.

The preponderance of scientific testimony presented in this, as in previous, hearings tells us that:

1. Flow (including the timing, duration, frequency and rate of change) is a major determinant of habitat and transport and the primary factors limiting Delta smelt and other species can be addressed through flow.
2. The relationship between habitat and fish abundance is strong.
3. An increment of improved flow leads to an increment of improvement for fish – simply put; greater flow produces more fish.
4. Recent Delta flows are insufficient to support native fisheries: as water diversions and exports increased, fisheries habitat decreased.
5. Reduced habitat has harmed native and encouraged non-native species.
6. Moving X2 westward increases habitat for most species and reduces entrainment.

7. The existing system is spatially and temporally static. Variability is essential and achieved by increasing the magnitude, timing and duration of flows. Flow variability supports native species and discourages non-native species.
8. Complexity and diversity need to be increased.
9. It is extremely important that any flow regime mimic the natural hydrograph and extend migration periods to protect diversity.
10. Flows are necessary to facilitate migration and move anadromous species quickly through the Delta.
11. Positive outflows are required to reduce residence time of contaminates and flush toxic pollutants, facilitate migration and move fish rapidly through the system.
12. Predation has always been present and, while not the cause of fisheries decline, is exacerbated by operation of the projects.

Experts from U.C. Davis, USFWS, DFG, Bay Institute, PCFFA, CWIN and CSPA provided recommended flow regimes for the estuary. Those recommendations are summarized in CSPA Table 1 attached to this closing statement. The specific recommendations of CSPA are attached as CSPA Table 2 and are based on the expert testimony of Dr. Carl Mesick, three retired DFG biologists who spent their careers working on the Delta (Don Stevens, Dave Kohlhorst and Lee Miller) and the water quality recommendations of Dr. G. Fred Lee.

With respect to Sacramento River flows to protect outmigrating salmon, the UC Davis experts suggested 25,000 cfs from March through June in six of ten years. The DFG recommended more than 20,000 cfs or greater through June. USFWS proposed 20-30,000 cfs in the spring months. PCFFA proposed 25,000 cfs between April and June. CSPA and C-WIN recommended 30,000 cfs between April and June.

There is a similar consistency in the recommendations for San Joaquin River outmigration flows. For wet years, the U.C. Davis experts suggested 20,000 cfs from April through June. DFG proposed 15,000 cfs for 70 days in the spring. USFWS recommended flows of 6,600 cfs beginning in February up to 25,900 in May. The Bay Institute proposed 5,000 cfs in March, 20,000 cfs from April through mid-May, 7,000 cfs from late May through mid-June and 2,000 cfs in late June. CSPA and C-WIN recommended 13,400 cfs from mid-March through mid June. There were similar consistencies between the recommendations of the various parties in above normal, below normal, dry and critically dry years.

We note that CSPA's San Joaquin River outmigration flows are weighted earlier in the year based upon the recommendations of Dr. Carl Mesick, whose extensive experience on the San Joaquin leads him to believe its imperative for fish to rear and exit the system before high downstream temperatures render survival problematic. Dr. Mesick testified: "It's the flows in the [San Joaquin] tributaries that determine how well the salmon smolts do as they migrate through the Delta. They have to be healthy and they have to grow quickly so that they develop and smoltify early so that they're migrating in March and April rather than May and June when things get too hot, the predators get very active, and it just becomes more difficult. One of the key elements of this is floodplain inundation during the winter. It provides a lot of food for the fish, they grow a lot faster, and they tend to start migrating out of the rivers much sooner than in most of the years when we just have baseflows. Now all of the flow regulations we have in the

San Joaquin include no winter floodplain inundation." Oral testimony, Mesick, Anadromous Fish Panel, 23 March 2010, afternoon session, File 1, 56:51. See also Mesick's testimony in CSPA Exhibit 7. Dr. Mesick also recommended 2,000 cfs positive flows, between 15 March and 15 May, from the head of Old River to the western confluence with the San Joaquin, in order to facilitate successful migration.

The recommendations from the U.C. Davis experts, USFWS, DFG, Bay Institute, C-WIN and CSPA regarding Delta outflow, X2, reverse flows and the need to return to a more natural hydrograph also exhibit broad agreement. All recommend significant increases in Delta outflow, as compared to the present flow regime. All recommend that reverse flows during critical life stages be minimized or curtailed. All recommend moving X2 westward to increase available habitat and reduce entrainment. All recommend a flow regime that more closely resembles the natural hydrograph under which fisheries evolved. Indeed, the State Water Board's own recommended outflows for "optimal levels of protection" in the 1988 draft Water Quality Control Plan are similar to those recommended during this hearing, as are the State Water Board's reverse flow criteria in the 1992 draft D-1630.

All of the recommendations from the U.C. Davis experts, USFWS, DFG, Bay Institute, C-WIN and CSPA, whether in this or previous evidentiary hearings, represent a substantial improvement over the current flow regime. Unfortunately, the Department of Water Resources (DWR), U.S. Bureau of Reclamation (USBR) and State Water Contractors did not offer flow recommendations, other than to urge continuation of the status quo.

DWR, USBR and State Water Contractor witnesses repeatedly raised the issue that increased fish flows risk depleting coldwater pools behind project reservoirs. First, this concern is premised on an over-subscribed system and unrealistic delivery schedule that promises more water than can ever be reliably exported. Second, over the last two decades, CSPA, DFG and others, including the Bay Institute, have repeatedly urged the State Water Board to apportion Delta flows based on a fair-share percentage contribution from all tributary streams and not simply limit that responsibility to state and federal project operations. Such a fair-share distribution would help protect coldwater pools in project facilities.

Several parties claimed that more information should be collected in order to eliminate uncertainty. We will never perfectly understand the complexity of the Bay-Delta estuary. The perfect is the enemy of the good. We clearly have enough knowledge to set flow standards. During the hearing, EPA's Bruce Herbold observed, "We have mountains of data." Oral testimony, Herbold, Opening Discussion, 22 March 2010, morning session, 58:25. Mr. Herbold also pointed out, "The best thing we have out there, the strongest signal we've got, is that flow makes fish." Oral testimony, Herbold, Pelagic Fish Panel, 23 March 2010, morning session, File 2, 1:54:55. Dr. Wim Kimmer remarked, "Scientific uncertainty actually is not that important right now…. Is there enough information in the record? Absolutely." Oral testimony, Kimmer, Hydrology Panel, 22 March 2010, afternoon session, 1:47:28. Dr Jay Lund testified that, "Yes, we know enough to start." And Dr. Tina Swanson said, "There is no scientific uncertainty regarding the fact that there are strong statistically significant relationships between seasonal Delta outflow and the abundance, productivity, survival and distribution of multiple fish species in the estuary" and "We know enough without having to know the mechanisms to move forward

to set flow criteria." Oral testimony, Swanson, Hydrology Panel, 22 March 2010, morning session, File2, 1:43:00; 1:46.

Several parties sought to blame predation and toxic pollution for the collapse of fisheries. Dr. Peter Moyle observed, "There have always been predators in the system. Salmon have always been subject to predation. So mainly what a screwed-up distribution system does in the Delta is to put salmon more in harm's way than it might otherwise be, and the lack of shallow water places that the wild salmon, especially, can hide out is probably critical." Oral testimony, Moyle, Anadromous Fish Panel, 23 March 2010, afternoon session, File 2, 1:00:25. Dr. Bill Bennett remarked, "Striped bass have been around since 1879 and they were an extremely important commercial fishery… Why would we want to get rid of it? There have always been places where striped bass eat little salmon… People tend to value individual losses, and individual losses very rarely add up to population level effects. Salmon have many, many, many more problems besides striped bass." Oral testimony of, Bennett, Other Stressors Panel, 24 March 2010, morning session, File 2, 46:55. Dr. Bennett added, "To think that they [stripers] are going to drive salmon or Delta smelt to extinction is totally unrealistic." Ibid at File 1, 26:53.

With respect to water pollution, Dr. G. Fred Lee acknowledged in his written testimony the "numerous, known violations of water quality standards/objectives in the Delta that are likely to cause adverse impacts on aquatic life resources of the Delta." Dr. Lee also pointed out that these impacts are exacerbated by other contaminates for which we lack water quality standards or where the criteria/standards are recognized as not being protective (for example, selenium). He observed, "We have documented, through our own studies and those of others, that SWRCB-permitted operation of the DWR USBR South Delta export projects are causing significant, recognized adverse impacts on Delta water quality that, in turn, adversely impact Delta aquatic life resources. The magnitude and location of adverse impacts are influenced by allowed flow manipulations in the Delta as part of the operations of the SJR USBR South Delta export projects." Dr. Lee concluded by saying, "To afford aquatic resource protection, adequate flows of high-quality Sierra runoff water are needed to dilute the large number of pollutants discharged to the Delta and its tributaries. Such dilution flows should be used to rapidly transport the pollutants though the Delta." Lee written testimony, pp. 3, 5.

There was considerable discussion regarding the unreliability of water year projections. Fish in the Delta and tributaries have biological needs in January and February before it is known how much water will be available for all uses later in the year. The eight-river index in the Sacramento and San Joaquin watersheds was developed in part to address early season management. While application of this index is far from exact, it may be the best tool developed to date that can be employed in a significantly augmented flow regime. Even if a more precise method is developed, restoring and protecting fish will sometimes reduce the availability of water for other purposes. Any appropriate biological flow regime is inherently less certain than economic forecasting.

Although not discussed, the specter of the peripheral canal hovered over this proceeding like a phantom. There will be time enough to analyze and critique proposals for a peripheral canal when we have an actual circulated project to review. We will, however, offer the following observations insofar as anyone is tempted to view such a canal as an excuse to avoid addressing

the issue at hand. First, no estuary in the world has been restored by diverting additional water around it nor has reducing dilution flows ever protected water quality. Second, removing additional volumes of Sacramento River inflow to the Delta will exacerbate the impacts of contaminate loading from the San Joaquin River and worsen water quality in the eastern and southern Delta. Third, transference of entrainment impacts from the south Delta to the last viable salmonid river in the Central Valley makes little sense, given the failure to provide state-of-the-art fish screens at existing export facilities. Fourth, it is unlikely that the point of diversion can be transferred to the North Delta without harming holders of existing water rights.

The bottom line is that the Central Valley hydrograph has been turned on its head and far too much water had been diverted to other purposes. The result is an astonishing collapse of one of the great natural estuaries in the world.

Given the over-allocation of water in California, any new flow regime that mimics the natural hydrograph and provides more water for fisheries will inevitably impact other water users. But, the State Water Board is not tasked with finding solutions and making water rights decisions in this proceeding. The Legislature explicitly directed the Board to determine what flows are required to protect the estuarine ecosystem, given its present physical configuration. This information is crucial in order to inform subsequent proceedings that will seek and implement solutions and balance competing needs for limited water supplies.

For more than three decades, the State Water Board has received expert testimony from resource agency scientists, academic experts and consultants retained by environmental NGOs regarding criteria necessary to protect the Delta. That testimony, predicated upon the life histories of specific species, has shared a consistent thread: the need for considerably greater inflow and outflow, the minimization of reverse flows and a return to a more natural hydrograph.

As the State Water Board has turned a deaf ear to this testimony and ignored the mountains of accumulating evidence, fisheries have continued their downward spiral. Time is running out. CSPA urges the Board to analyze the flow recommendations submitted and develop a flow schedule protective of all of the various life stages of the estuary's anadromous and pelagic species.