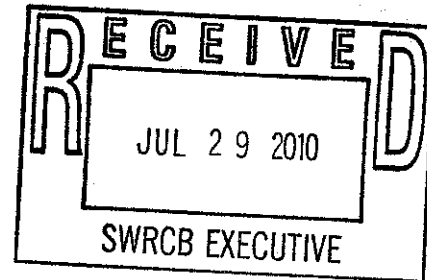




By e-mail and hardcopy

July 29, 2010

Charles R. Hoppin, Chair
c/o Jeanine Townsend, Clerk
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95814-0100



RE: Draft Delta Flow Criteria Report

Dear Chairman Hoppin and Members of the Board,

On behalf of the Bay Institute (TBI) and the Natural Resources Defense Council, we are writing to comment on the July 20, 2010, draft report, "Development of Flow Criteria for the Sacramento-San Joaquin Delta Ecosystem." We commend the Board and staff for their work on the draft report; in general, we believe that the proposed flow criteria contained in Tables 20-23, taken as a whole, represent the approximate magnitude and pattern of flows into, through, and from the Delta necessary to fully protect public trust resources, based on the best available scientific information and assuming that other stressors are simultaneously being addressed to some extent. We also note that a few of the species-specific flow recommendations may not be fully protective or that in a few instances background information is not completely accurate, even though the proposed flow criteria as a whole may provide an adequate level of protection for those species. Finally, we recommend several changes to the executive summary, so that it more accurately reflects the conclusions found in the draft report, and recommend deletion of Appendix B. We strongly encourage the Board to adopt the draft report, with these minor revisions and factual corrections, at your August 3, 2010 hearing.

Proposed Flow Criteria

The proposed flow criteria contained in Tables 20-23, taken as a whole, represent the approximate magnitude and pattern of flows into, through, and from the Delta necessary to fully protect public trust resources, based on the best available scientific information and assuming that some of the effects of other stressors are simultaneously being offset (see discussion below). This finding is based on our assessment that the proposed criteria would meet or exceed the species-specific flow needs described in Sections 4.2.3 and 4.2.4 and those additional species-specific flow needs noted below. Furthermore, expressing the outflow and inflow criteria as a percentage of unimpaired runoff over a

14-day averaging period is an appropriate approach for replicating natural variation in the timing and magnitude of flows and integrating species-specific flow recommendations using diverse flow parameters. We congratulate the Board and staff for preparing a set of flow criteria that faithfully discharges the mandate given it by the legislature, and we strongly urge the Board to adopt the proposed criteria at its August 3 meeting.

Species-Specific Flow Recommendations

For the most part, the species-specific flow recommendations contained in Sections 4.2.3 and 4.2.4 (on which the flow criteria contained in Tables 20-23 are based) also represent those flow magnitudes and patterns necessary for public trust resource protection. However, there are a few instances in which the species' recommendations are not fully protective and/or the background information does not accurately describe the flow needs of the species. Based on our initial analysis, meeting the proposed flow criteria in Tables 20-23 as a whole is likely to provide an adequate level of protection for these species. Nonetheless, correcting the species-specific descriptions and recommendations is an important issue. Because this species-specific information may be used in future planning or regulatory processes to review and/or revise the flow criteria, it is essential to provide policy makers with accurate information.

Chinook salmon – life-history timing: The information on Chinook salmon run-timing does not reflect the most current available information about the flow needs of the unique populations of different runs (i.e., Williams 2006). Two different tables in the draft describe the timing of life history stages for the different runs of Central Valley Chinook salmon. Table 2 uses information provided by CDFG in their submissions to the Board, whereas Table 3 draws on publications by Yoshiyama et al (1998) as cited in Moyle (2002).

These two tables present versions of Chinook salmon development that are not quite the same. As a result, the timing of flows recommended based on these life history patterns may not be fully protective of the public trust value of the Chinook salmon fishery. For example, Table 2 indicates that Sacramento River basin Chinook salmon migration occurs from November through June; Table 3 describes the winter-run migration window as lasting from December through July, with March as the peak. Some of this discrepancy can be attributed to the fact that Table 2 presents a cumulative migration window for the Sacramento runs combined. Wherever possible, identification of salmonid biological needs should be done on a run-specific basis (as the draft attempts to do in Table 3) because efforts to aggregate run-timing inevitably focus on the needs of fall run Chinook salmon, the most abundant run in the system. However, Table 3 does not reflect the most recent information on Central Valley Chinook salmon life history timing. For example, the exhaustive white paper on Central Valley Chinook salmon by Williams (2006) indicates a very different run timing for winter-run and other runs of Chinook salmon in the Sacramento River than in Table 3. Williams writes:

Mr. Charles R. Hoppin

TBI-NRDC comments re Draft Delta Flow Criteria Report

July 29, 2010

Page 3

“Winter-run sized Chinook pass the [Red Bluff Diversion Dam] mainly as fry in late summer and early fall, and in small numbers but at larger size in late fall and winter.” [Williams 2006, p. 99]

Winter-run are found in the Central Delta starting in September and through April of the next year. The peak period of entry into the Delta appears to occur from December through March (Williams 2006; Figure 5-35). Accounting for the most recent knowledge about salmonid migration times may affect the timing of Delta inflows included in species-specific recommendation for salmon.

Longfin smelt – Delta outflows: The draft report’s recommended winter – spring outflows for longfin in above normal and wet years in Table 8 do not require outflows to increase above the minimum amounts specified as runoff increases (although the outflow criteria in Table 20 would do so). Given current storage and diversion capacity constraints, outflows would presumably increase under most hydrological conditions in these years. However, any large-scale changes in the ability to capture high flows in wetter years could significantly reduce the occurrence of these higher outflows and of the associated benefits to longfin and other estuarine species.

Longfin smelt – Old and Middle River reverse flows: The OMR restrictions described in Table 8 for the protection of longfin smelt do not cover important periods in the longfin smelt life cycle, specifically the Dec. to Feb. period when longfin smelt spawners are being entrained (TBI Exhibit 4, Figure 7) and March, when measured entrainment is low but longfin larvae (which are not counted in entrainment estimates) are highly susceptible to entrainment. TBI’s analysis determined that entrainment of spawning adults is highly correlated with combined Delta export rates (TBI- 4, Figure 10) and was not as sensitive to outflow rates. Therefore, when the previous FMWT index for longfin smelt is low (i.e. <500,) OMR flows should be >0 cfs from December through February.

Entrainment of juvenile longfin is significantly and negatively correlated with Delta outflow rates (i.e. when outflow is low, entrainment is high). Entrainment of juveniles is high in April and May (TBI-4, Figure 7) and, given the spatial distribution of spawners and juveniles, it is exceedingly likely that larval longfin are being entrained as well during March in those years when juvenile entrainment is high in subsequent months. Accordingly, OMR flows should be > 0 cfs in the March-May period in below normal, dry, and critically dry years. Both DFG and DOI also called for OMR restrictions during the Jan-March period to protect longfin.

Delta smelt – Old and Middle River reverse flows: On page 124, the draft report recommends OMR restrictions to protect delta and longfin smelt, but acknowledges that additional OMR restrictions would be necessary if the outflow recommendations are not met. This important caveat should apply to both Delta inflow and outflow (not just Delta

outflow, as stated on page 124), given the important role of San Joaquin River inflows in the hydrodynamics of the South and Central Delta. This caveat on page 124 applies equally to the explanation under Table 23 on page 134, in order to be consistent with the text of the report. In addition, Criteria 3 in Table 23 (OMR flows in April and May) should apply not only to longfin smelt, but also to delta smelt for the March through June period, consistent with the information provided in Table 11.

The species-specific recommendation for OMR criteria to protect delta smelt in Table 11 calls for OMR flows $> -5,000$ cfs during Dec. to Feb. in all years, subject to adaptive management. We recognize that there is debate over the exact numeric criteria, but allowing reverse flows as high as $-5,000$ cfs as the default is unlikely to be adequately protective. The flow criteria on Table 23 also does not contain any OMR criteria to protect delta smelt or other pelagic species in the March – June period of below normal, above normal, and wet years. Relying on OMR criteria during this period that are in place only when salmon are present in the Delta may not adequately protect pelagic species, even when the inflow and outflow recommendations are met.

Sacramento splittail – Delta inflows/Yolo Bypass inundation: The draft report recommends 30 days or more of flows for floodplain inundation in above normal and wet years, noting that recommended flows of greater magnitude and duration in most years assume modification of existing weirs and that inundating floodplains without these modifications “would require excessive amounts [of] flows” (p. 80). Consistent with the legislative charge to the Board, specific flow regimes should be identified that would fully protect splittail in drier years without regard to water supply impacts, or biological or hydrological justifications offered for excluding such flows.

Executive Summary

This section contains numerous caveats and cautionary notes regarding the application of the report’s flow criteria. Many of the caveats are appropriate. What the summary fails to do, however, is sufficiently convey the importance of the findings behind the flow criteria, their scientific weight, and their implications for future management. Reading the main body of the report, as opposed to the executive summary, one is struck by the following:

- The report clearly shows that the Delta is receiving far less flow than is needed to protect public trust resources, and that improving the magnitude and timing of flows is essential, if not sufficient in itself, to restoring the Delta ecosystem.
- The report clearly shows that there is sufficient scientific information to identify flow criteria that would provide protection for these resources, and the proposed criteria in the report are in fact based on the best available scientific information.
- Furthermore, the report documents that there is very substantial evidence regarding the expected benefits to public trust resources of many of the flow

criteria, particularly Delta outflows and river inflows, and that it is not necessary for this evidence to be conclusive in order to justify necessary flow improvements.

The summary should be revised to accurately, clearly and fully reflect these extremely significant findings from the main body of the report. In addition, the summary should be revised to quote directly from relevant statutes or court decisions rather than describe them.

Appendix B

The report repeatedly emphasizes that the flow criteria are for informational purposes only, pursuant to the charge given the Board by the legislature in Water Code Section 85086, and that regulatory or adjudicatory changes to water rights and/or water use that may incorporate this information are subject to the applicable laws governing water quality control planning, water rights decisions, and public trust proceedings. In addition, the report acknowledges in several places that the flow recommendations only focused on public trust needs in the Delta, and did not consider effects upstream (such as effects on cold water reservoir storage) or effects on other beneficial uses. Nonetheless, Appendix B, Water Supply Modeling, was prepared by the Department of Water Resources and added to the report, without significant caveats of any kind. Not only were water supply impacts properly excluded by the Board in its consideration of flow criteria, but in producing any estimate of such impacts there are many modeling assumptions, simplifications, and operational decisions that must be used but which are not adequately explained in the text of Appendix B, and which is likely to result in a significant overestimate of the impacts to State and Federal water contractors. For these reasons, we strongly recommend that the Board should exclude Appendix B from the final report.

Other comments

Other stressors: The draft report notes repeatedly that the flow criteria were developed assuming that other stressors were not being addressed. While this statement may be true for many of the criteria, it is not accurate for the winter – spring outflow criteria. The draft repeatedly cites our analysis in TBI Exhibit 2 regarding outflows necessary to promote increased abundance and improved productivity for longfin smelt and other desirable estuarine species as a basis for its proposed outflow criteria. However, that analysis (TBI-2, p. 14) specifically notes that:

“...the flow required to support such populations in the past (prior to the introduction of putative “other stressors” or after their elimination) is indicated by the intersection of the 1967-1987 flow abundance relationship and the recovery target. Thus, we identify flows required to restore abundance of longfin smelt without the effect of “other stressors”. (Doing so underscores the need to

concurrently implement actions to mitigate for the effects of other stressors; otherwise higher flows would be required to fully protect public trust resources).”

Specifically, in proposing the winter – spring outflows to protect public trust resources in Table 20 the report uses the 1956 – 1987 period as a reference for determining adequate flow conditions (pp. 101-2) and thus assumes a level of benefits to those resources that occurs absent the effects of other stressors – or in other words, with the effects of other stressors being mitigated.

Goals and objectives terminology: Section 4.2.1 includes a set of biological and management objectives used to guide the development of flow criteria. These are more properly described as goals rather than objectives, and should be relabeled as such. Goals are usually defined as broad narrative statements of desired outcomes, whereas objectives are usually defined as much more specific, measurable, and time-bound descriptions of attainment of the goal. Since goals and objectives are generally used as described above in the various planning processes which Sec. 85056 intended to be informed by the Board’s flow criteria, we recommend revising the terminology in the report to reflect that its statements here are goals.

Description of hydrology/hydrodynamics: It should be noted in Section 3.3.2 that the unimpaired runoff record represents the watershed runoff in the 1922-2003 period absent dams and diversions with current land uses and does not represent the “natural” Delta inflow and outflow, because it does not reflect the alteration in the watershed runoff characteristics that have occurred in the past 150 years due to vegetation conversion, channelization and other land use alterations. These factors, along with more rain, less snow, earlier snowmelt, and less attenuation by upstream flood basins also would tend to make the unimpaired Delta flows higher in the winter and early spring and lower in the late spring and early summer than pre-disturbance “natural” flows.

Thank you for the opportunity to offer these comments on the draft Delta flow criteria report. Please contact us if you have any questions regarding our comments. We look forward to working with you in the future to use the information in this report to improve protection for public trust resources in the Delta.

Sincerely,



Gary Bobker
Program Director
The Bay Institute



Doug Obegi
Staff Attorney
Natural Resources Defense Council