

August 2, 2011

The Resources Agency
BDCP Program
901 P Street
Sacramento, CA 95814

Attention: Ms. Karla Nemeth

Subject: Flood Matters of Importance in Developing the Yolo Bypass Fishery Enhancement Plan

Dear Ms. ~~Nemeth~~ *Karla*

I write today as one member of the Central Valley Flood Protection Board and a resident of Sacramento, where over 200,000 residents are at risk of flooding from the Sacramento River. I served 11 years as the Executive Director of the Sacramento Area Flood Control Agency (SAFCA), during which period I developed an understanding of the importance of the Yolo Bypass in managing Central Valley Floods. I have attended several meetings of the Yolo Bypass Fish working group meetings. I am hopeful that my understanding of the Bypass and my thoughts on matters that I believe will be important as part of the Board consideration of the BDCP project may help BDCP move its program forward. This letter does not, in any way, represent the Board's view. Rather it is my effort to explain the flood purpose of the bypass and the requirements that I, as one Board member, believe should be imposed as part of any Board issued permit. These are solely my opinions.

Flood Purposes

The Yolo Bypass is the single most important element of the Sacramento River Flood Control Project. It conveys flows from the Sacramento, Feather, and American Rivers past the largest urban area in the Central Valley and reduces flood risk to adjacent properties downstream of the confluence of the Feather and Sacramento Rivers. It provides the only outlet for several west side watersheds. In concert with its flood function it has fostered a variety of habitats, provides educational and recreational opportunities, and shares a mutually beneficial relationship with agriculture.

The entrance to the bypass is guarded by the Freemont Weir, which serves to split flood flows between the Bypass and the Sacramento River. The 1957 design capacity of the Bypass immediately below the weir is 343,000 cfs and the Sacramento River is 107,000 cfs. These are compared to 100-year and 200-year flows in the following table.

Yolo Bypass Flows

Event	Location	
	Freemont Weir	Below I-80
1957 Design	343,000	480,000
100-year ⁽¹⁾	411,000	549,000
200-year ⁽¹⁾	479,000	633,500

⁽¹⁾Supplemental Report for the Design Water Surface Profile for the Natomas Levee Improvement Program, MBK Engineers, June, 2008

It is important to understand that any modification of the Bypass north of I-5 or to the Fremont Weir can affect the flow split. Modeling done by SAFCA showed that as bypass flows approach the design capacity, hydraulic control of the amount of flow entering the Bypass shifts from the Weir to the bypass channel. This means that changes in the roughness of the bypass can and will affect the flow split. Note that a 2 percent reduction, at design bypass flow, shifts 7,000 cfs to the Sacramento River, an increase of almost 7 percent. Any increase in Sacramento River flow will raise the water surface in the Sacramento River, where SAFCA is in the process of completing levee modifications designed to provide 200-year protection to Natomas and planning modifications to Sacramento River levees downstream of the American River.

Just north of the City of West Sacramento, the Sacramento Weir and Bypass serves to divert additional Sacramento River flow into the Bypass. For practical purposes the diversion amounts to all of the Sacramento River flow and portion of the American River flow which travels up the Sacramento River channel. When the joint project at Folsom Dam is completed, American River flow during a 200-year event will be controlled to 160,000 cfs. The capacity of the Sacramento River downstream of the American is 112,000 cfs. The difference, 48,000 cfs, must be conveyed down the Sacramento River and up to the Sacramento Weir. Assuming the Sacramento River above the weir is at its capacity of 107,000 cfs, the available capacity for the American River is 5,000 cfs. This simple arithmetic does not account for differences in timing of peak flows which may reduce Sacramento River flows below Freemont.

The above shortfall, combined with the fact that the design capacity of the Yolo Bypass is significantly less than the now mandated 200-year urban protection shows that there is significant uncertainty as to how the Yolo Bypass will be managed in the long term. I hope a future strategy is identified in the Central Valley Flood Protection Plan, but think it is more realistic to assume that document may only suggest alternatives for further consideration. I am aware of one alternative that involves setting back levees in the upper bypass, diverting a portion of peak flood flows in to the Deepwater Channel, and raising some low levees along the lower bypass. In any case, I will be very concerned as to how BDCP can provide assurances that its program will not significantly increase the cost or reduce future options for managing the bypass. The option briefly described above will significantly increase opportunities for environmental enhancements like BDCP is planning, and it should be relatively easy to provide such assurances through the HCP.

Immediate Matters

While I believe the above uncertainties about the future are critical, I also recognize it may not be possible to address them at this time. Matters that I believe BDCP must address include the following.

BDCP should recognize that the Central Valley Flood Protection Board and the Corps of Engineers are not going to permit conservation measures in the Bypass unless BDCP's program includes a long term vegetation management plan to insure flood benefits are not reduced and flood costs are not increased. I believe BDCP can anticipate having to carefully model, using a 2 dimensional model, the before and after conservation measures hydraulics of the bypass including a sensitivity analysis to show how changes in anticipated roughness, beyond those anticipated to result from the conservation measures, will effect hydraulics. Irrespective of the results, BDCP should expect that their long term management plan will need to include ongoing hydraulic analysis, using data collected whenever there are significant flows in the bypass, to back calculate high flow water surface elevations and submit the results in a letter report to the Board. On-going modeling is justified because the BDCP program involves adaptive management and there are no bookends on the scope of future changes. Additionally, because the BDCP objective is focused on threatened and endangered species, the Board will expect the long term

program will identify how BDCP will include "Take" authority so that changes necessary to preserve hydraulic properties can be accomplished without becoming entangled in the ESA. Finally, you will need to demonstrate a reliable source of perpetual funding for these activities. Since the program is associated with an HCP, it should be possible to meet such a requirement.

BDCP needs also to understand that agricultural operations and the current management of the Yolo Bypass wetlands are significantly reducing State maintenance cost in the bypass by controlling vegetation growth. Ag simply likes to maintain a land surface that is hydraulically smooth, and Fish and Game has demonstrated that they too are committed to preserving optimal hydraulic parameters. Farming in the Bypass already has significant challenges associated with storms occurring after the end of April when farmers must begin to work their fields. BDCP's program, which involves increasing the frequency and extent of bypass flooding could easily curtail Ag operation and/or force a change in Fish and Games management of their property. Furthermore, the focus on endangered species may result in new mandates for bypass farmers. Fish Screens on irrigation intakes seem unavoidable. Constraints on pesticides and fertilizers are a concern as are changes to irrigation and drainage canals. It will therefore be important to analyze how BDCP's program will curtail Ag, and to mitigate for such curtailment, or to demonstrate a secure perpetual funding program for additional maintenance activities due to the loss of farming. Relying on State appropriations is not, in my opinion, a reliable source of funding.

Increased flow frequency and duration also has the potential to increase erosion, which will be a concern where flows are close to levees. On the other hand, I do not think we can reasonably make BDCP responsible for all erosion. I would suggest that when the program is better defined, you meet with Keith Swanson, head of DWR flood maintenance, and negotiate an approach to funding any increased erosion.

Be aware that there is a shortfall in design capacity of the lower bypass below Putah Creek. This is probably a result of construction of the deep water ship channel, but to the best of my knowledge, this has never been clearly established. In any case, be particularly careful with proposals that could affect hydraulic characteristics below Putah Creek and seek a means of partnering with existing Reclamation Districts and the State to correct this deficiency.

With respect to the Corps of Engineers, you undoubtedly know the project cooperative agreement between the Corps and the Flood Board for the Sacramento River Flood Control Project requires that the Board secure the Corps approval of any alterations or encroachments within the project boundaries. Alterations that do not affect the flood objectives can be approved under the authority referred to as 208.10. Alterations that might affect the projects original flood objectives are, in the Corps view, a potential change to a project authorized by Federal Law (Congress) and either Congressional approval of the specific alterations or Corps approval under section 408 are mandated. In the case of conservation measures and particularly alteration of the Fremont Weir, I believe the Corps will ultimately determine the BDCP program requires approval under the authority of Section 408. Such approval triggers NEPA and I am uncertain as to whether or not existing environmental documents will meet the Corps needs.

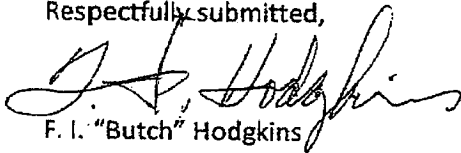
While you may have been told otherwise, please understand that it is difficult to get reliable information from the Corps in advance of submitting a specific proposal. This is partly because the Corps is a large organization and individuals assigned to assist in the planning of a project like yours are not always aware of other Corps requirements, and partly because the Corps does not have enough project specific information to make a final decision at this time. Furthermore, the BDCP proposal is likely to be of significant concern to the Board, and the Board typically seeks Corps input on such matters.

I sense that stakeholder representing flood interests believe that BDCP's doesn't understand flood matters. I think this may arise because various biological elements of the BDCP program are described without an explanation of how related flood concerns will be addressed. Even though BDCP has often stated its commitment to the principal that flood control comes first, BDCP representatives often launch into descriptions of biological alterations without stating that they need input so that they understand and mitigate for any potential adverse flood impacts. I think stakeholders see this approach as a lack of concern and understanding of flood needs.

I would be pleased to discuss these matters with you at your convenience. Again, this is not a letter from the Board, but a letter from an individual. I know how important BDCP is to the future of our State, and these comments are submitted in hope of assisting you in bringing forward a project that can be favorably considered.

Thank you for your sustained efforts to understand and address stakeholder concerns.

Respectfully submitted,



F. I. "Butch" Hodgkins

cc Members of the Board
Jay Punia