

Robert Bateman’s Submitted Conclusions, Questions, and Recommendations
following the Flood/Safety Meetings held on April 10 and June 5, 2024
(July 2024)

Background

In his capacity as a member of the Oroville Dam Citizens Advisory Commission, Robert Bateman submitted this document to the California Natural Resources (CNRA) following meetings the California Department of Water Resources (DWR) convened in spring 2024 to address topics raised during the Commission’s meeting on March 1, 2024 (Meeting 16). During meeting 16, CNRA Secretary Wade Crowfoot asked DWR and interested Commissioners to convene a smaller group to further discuss project prioritization and flood-related topics prior to Meeting 17. The smaller-group meetings occurred in April and June and included DWR staff, several commissioners, and interested members of the public. Summaries prepared by DWR of the meetings held on April 10 and June 5, 2024 are posted on the [OCAC website](#) under “Meeting 16 Small Group Follow Up Discussions.” This document, prepared by Commissioner Bateman, has not been changed by state agencies except to add a header and this background paragraph.

1. Levees

i) Oroville Levee

The responsibility for the City of Oroville levee is not clear. In the past, for unknown reasons, the levee has been excluded from the State or USACE sponsorship. At present, thanks to the attention the OCAC has given to the levee, SBFCA and the DWR have initiated a multi-year program to support the City of Oroville in getting a clear idea of what action is needed in order to assess the levee and what renovation, if any, is needed. This includes restoring the Oroville Wildlife Area as a flood plain. In the past, there has been no assignment of responsibility for either the levee or for accurate inundation maps. Who is going to be responsible in future and how will this responsibility be assigned? Should the Oroville levee be included in the State Plan?

ii) Importance of Levee Capacity in the Water Control Manual (WCM)

It appears that, when the Water Control Manual was prepared over 60 years ago and revised over 40 years ago, there was no scientific data on the limit to which the downstream levees could contain high flows. During these two meetings, however, it was not made clear whether there was now soundly based data about the capacity of all the downstream levees today (the Oroville levee is an example of where the capacity is not known). The levee capacity is fundamental to the development of a WCM which should aim to protect downstream communities. Is this data now available and will the DWR make sure that the chances of releases from the Dam resulting in flows that exceed the levee capacity will only happen if the Dam is threatened?

2. Emergency Spillway

During the meetings it was stated that the extended flood pool would be maintained until the erodibility studies on the emergency spillway are completed. It has also been suggested that due to the nature of the underlying ground, it may not be feasible to build a usable spillway in that location. Is it now agreed that the reservoir will be managed so that there is no need to use the emergency spillway unless the Dam itself is threatened with collapse? Assuming so, the WCM rules and the flood pool should be established on this basis.

The published objective of the WCM is to avoid releases from Oroville of over 150,000 cfs. Assuming the WCM provides rules that mean that it will be highly unlikely for the releases to be above 150,000 fps, the only reason why the emergency spillway will be used is if the new gated spillway fails again, which is unlikely, or if the over 60-year-old gates fail. For this reason, the possibility of failure of the gates was emphasized in the CNA process. Is the DWR confident that the program to renovate the gates is moving ahead with sufficient urgency?

3. Flood Pool

The WCM regulations on the management of the flood pool are critical to downstream safety. They have not provided adequate protection in the past. The increase in the flood pool after the 2017 incident seems to have been arbitrary. The effectiveness of the increase in reducing risk depends on how the flood pool is managed more than its size. Although the flood pool was not

discussed in detail at the meetings, it was implied that the size of the flood pool along with the regulations for managing it would be specified in the WCM revisions. The rules for early releases are at least as important as the size of the flood pool. What are the DWR's proposals for the future management of the flood pool? (Note that it is important that the proposals are circulated before the WCM stakeholder meeting.)

4. Forecasts of Precipitation and Snowmelt

The inaccuracy or the incorrect application of forecasts, particularly of snow melt, were significant factors in the past emergencies. Forecasting techniques have developed a great deal over the past decades. Matt Mentink raised several questions about forecasting during the meetings. These were responded to in the summary. He will be following up on these responses.

We are particularly concerned about the validity of the wetness index and its use in controlling the flood pool. We are advised that simplistic 'wetness indices' are outdated but while this subject was mentioned during the meetings we were not told would replace it or even whether it would be replaced. From a scientific and common-sense point of view it should be replaced by an equation bringing together forecasts of all the factors that can affect the inflows to the lake. The 'wetness index' might have been the best way available 60 years ago for measuring the capacity of the terrain to absorb moisture but it is illogical; for instance, it does not account properly for snow melt as was the case in 1996/7. Is the 'wetness index' going to be replaced or reformed in the WCM revisions? If not why not? If it is going to be replaced, will the DWR provide details of the replacement before the proposed WCM stakeholders meeting?

Certain principles should be established for the use of forecasts in the WCM, for instance:

- i) The margins of error should be interpreted on the side of safety not water delivery.
- ii) Careful records should be kept on the accuracy of forecasts.
- iii) Forecasts of inflows should be based on scientific measurement of the various factors involved and the 'Wetness Index' replaced or reformed.
- iv) As forecasting techniques develop in future, the WCM rules should be revised.

Does the DWR agree with these principles and what principles has the DWR recommended to the USACE as to how forecasts should be integrated into the flood pool rules?

5. WCM

The focus on flood control and past floods is timely so that the OCAC is informed in considering the WCM revisions. The downstream community OCAC commissioners and members are communicating directly with the USACE. We are seeking a meeting for stakeholders before the NEPA process so that their concerns can be addressed before initial recommendations, which the USACE is developing in conjunction with the DWR are put in place. The two meetings with the DWR and the follow up questions we are asking the DWR are providing information so that we are equipped to make sure that the revised WCM will protect us from floods which the existing rules did not.

Does the DWR agree that there should be a WCM stakeholders meeting before the WCM revisions are finalized for NEPA review?

6. Safety Culture

The two meetings are evidence that the attitude towards safety at the DWR has improved dramatically since 2017. The commitment to safety expressed during the meetings was reassuring. It is encouraging the David Sarkisian's department has doubled in size in the last few years and that the safety procedures established by FERC are being followed.

However, after reviewing the meeting summaries, we have the following concerns:

- i) Are those involved in safety receiving and understanding correct and applicable information on which to base their judgements? During 2017 they were not – despite plentiful information that the emergency spillway should not be used, it was.

The discussions at the meeting indicated that the DWR is now better briefed on many aspects of the history. But, for instance, the answers to our questions have left some doubt about whether the awareness in the DWR of the circumstances surrounding the potentially disastrous situation in January 1997 when 300,000cfs was anticipated to be flowing into the lake which was full. It seems clear that snowmelt had not been forecasted correctly. But, what else was going on. We have not received answers to our questions: for instance, what was the lake level in early December 1996 and when were releases started and what size were they. This information is necessary for the causes of the crisis to be understood. Does the DWR have this information and have the lessons been learned from the 1996/7 emergency.

- ii) While there are now managers filling the positions relating to safety mandated by FERC, it is unclear whether they have the authority to require appropriate action nor whether safety is adequately represented strategic and tactical decisions at the highest level in the organization.

The management of the reservoir requires a careful balancing of the supply of water against the safety of downstream communities. Given the structure of the financing of Oroville Dam, the State Water Contractors, quite rightly, have strong and durable influence over decisions. It is important to downstream communities that safety has, and is seen to have, equivalent influence. Wade Crowfoot has said several times that he is responsible for downstream safety and his actions and attitudes make this credible. While the support of the Secretary of Natural Resources is necessary, it is not a long-term guarantee that safety will remain the top priority – in the past it has not been. Has consideration been given to creating a division of risk analysis and reduction reporting directly to the Director of the DWR?