

MEETING SUMMARY
Oroville Dam Citizens Advisory Commission
Meeting #10: March 25, 2022
10:00 a.m. – 12:00 p.m.
Virtual Meeting via Zoom Webinar

This meeting summary provides an overview of the March 25, 2022 Oroville Dam Citizens Advisory Commission (CAC) meeting and focuses primarily on capturing the comments and questions posed by Commissioners and members of the public. It is organized by agenda topic to assist readers in cross-referencing the meeting materials. This document is not intended to serve as minutes of the meeting or a transcript of the discussion. A transcript and materials from the meeting are available on the Oroville Dam CAC

website: <https://resources.ca.gov/Initiatives/Oroville-Dam-Citizens-Advisory-Commission>

MEETING AGENDA

- Welcome and Introductions
- Action Items, Meeting Roadmap, and Commission Report
- Update on the Palermo Tunnel and Piezometers
- Risk Scenario Presentation
- Discuss Public Safety Partnerships
- Downstream Flood Management and Preparedness
- Public Comment & Questions
- Adjournment

ACTION ITEMS

- Request for extend discussion beyond public meeting timeframe.
- DWR to report on any possible project acceleration due to low lake levels.
- Examine sharing salinity issues with federal facilities.
- Invite Cal OES to speak on the integration of state OES and county OES at future meeting.
- Suggestion from presenter, Dr. Rune Storesund, to work with DWR and the State Water Project related to existing models that could be used for his proposal.
- Request to develop outreach concepts and a list of the commission’s accomplishments for public awareness.
- DWR to review questions related to Feather River cfs figure and mapping accuracy.

WELCOME & INTRODUCTIONS

As mandated by the requirements set forth in Senate Bill 955 (2018, Nielsen), the Commission comprises representatives from the following agencies and public bodies. Attendance at Meeting 10 on March 25, 2022 is noted in the table below.

Agency or Public Body	Commissioner (or Alternate)	Present
California Natural Resources Agency	(Chair) Secretary Wade Crowfoot	x

California State Senate	(Vice Chair) Senator Jim Nielsen	x
California State Assembly	Assembly Member James Gallagher	x
Department of Parks and Recreation	Director Armando Quintero (represented by Matt Teague)	x
Department of Water Resources	Director Karla Nemeth	x
California Office of Emergency Services	Director Mark Ghilarducci (represented by Deputy Director of Planning, Preparedness and Prevention Christina Curry)	x
Oroville City Council	Council Member David Pittman	x
Oroville City Council	Mayor Chuck Reynolds	x
Butte County Board of Supervisors	Supervisor Tod Kimmelshue	x
Butte County Board of Supervisors	Supervisor Bill Connelly	x
Butte County Board of Supervisors	Genoa Northern	x
Yuba County Board of Supervisors	Supervisor Seth Fuhrer	x
Yuba County Board of Supervisors	Supervisor Andy Vasquez	x
Sutter County Board of Supervisors	Supervisor Mat Conant	x
Sutter County Board of Supervisors	Supervisor Dan Flores	x
California Highway Patrol	Sergeant Larry Starkey (represented by Officer Joseph Stokes)	x
Butte County Sheriff's Office	Lieutenant Steve Collins	x
Yuba County Sheriff's Office	Captain Joe Million	x
Sutter County Sheriff's Office	Deputy Andre Licon	x

Secretary Wade Crowfoot welcomed all presenters, facilitators, and members of the public to the tenth meeting of the Oroville Dam Citizens Advisory Commission, which was held virtually in

compliance with state orders regarding the Covid-19 pandemic. However, the Secretary mentioned that prior to the pandemic, Commission meetings had been held in-person in the Oroville area and stated that he hoped the next meeting could resume the use of an in-person format. Secretary Crowfoot then previewed the meeting agenda which included an update on action items and upcoming meeting topics and a check-in on the drafting of the commission report due to the Legislature and presentations on the Palermo Tunnel and piezometers from the Department of Water Resources (DWR), on flood risk planning from Dr. Rune Storesund of UC Berkeley Center for Catastrophic Risk Management, and on public safety partnerships again from DWR and the Office of Emergency Services (OES). The Secretary then noted that while the Commission's tight agendas can often leave limited room for deeper discussion, the upcoming April 22 Flood Safety Stakeholder Technical Workshop would be an opportunity for stakeholders to hear from a wide variety of experts and engage more robustly on topics of importance to them.

Senator Jim Nielsen also provided introductory remarks. He thanked the Secretary and DWR Director Karla Nemeth for their continued leadership of the Commission and expressed that he was pleased with the Commission's ongoing work. The Senator underscored the importance of involving the public in discussions about water supply and flood risk, and he stated that he was looking forward to the public learning more about technical topics like these at the Flood Safety Workshop.

DWR Director Karla Nemeth gave an update on the Oroville Dam and drought conditions gripping the state following another dry winter. December's record rain was followed by a transition into a record-dry January, February, and March. As of the week of the workshop, Lake Oroville was at 46% of its capacity, just 67% of the historical average for the time of year. DWR predicted that that inflows into Lake Oroville would have peaked in February, which also has never occurred before and was indicative of the historically dry conditions.

Director Nemeth addressed how DWR was planning to prepare for an upcoming dry year. Health and safety needs in Oroville and in surrounding communities will be the highest priority, as well as protecting critical thresholds for endangered species and meeting settlement contractor needs. DWR requested a modification of some of the water quality requirements downstream of Oroville and kept a salinity barrier in the delta- both to limit releases from Oroville. The Director stated that the goal was to keep the storage in Lake Oroville above 860,000 acre-feet of water through September.

She also told commissioners that DWR is employing new methods of measuring snowpack, including snow sensors in the Feather River Watershed. It has also been conducting snow observatories to gauge the water content of the snow and create more accurate water predictions in coming years.

Commissioner Connelly asked if in the future the Commission's facilitation team would consider staying on after the official end of meetings to address unfinished business. He also suggested sharing the salinity problem with federal facilities, especially considering its impact on recreation. Secretary Crowfoot stated that the team would respond to Commissioner Connelly's question. Director Nemeth responded that DWR does already partner with the federal Bureau of Reclamation on controlling salinity. She added that with low lake levels the Department would see if there were opportunities to accelerate work on recreational projects.

ACTION ITEMS, MEETING ROADMAP & REPORTING

Kearns & West delivered an update on Commission action items and the 2022 meeting roadmap. The action item tracker is updated quarterly and included:

- Report out how instrumentation performed and was managed during winter operations
- Provide regular updates and milestones developments from DWR on Forecast-Informed Reservoir Operations (FIRO) as well as Oroville and New Bullards Bar water control manual processes
- Follow-up on the status of the Federal Energy Regulatory Commission (FERC) relicensing
- Follow-up on the status of Federal Emergency Management Agency (FEMA) reimbursement for spillway reconstruction.
- Discussion to help state agencies and local partners address homeless encampment concerns around Feather River
- DWR updates on debris and storm inflows
- Agendize discussion on lessons learned from 1986 and 1997 water events
- Develop single tracking log cataloging ongoing or future safety projects
- Continue to discuss Risk Assessment and hear from outside experts
- Update on water theft prevention
- Resources for sediment removal
- Capital Improvement Projects discussion and expenditure chart for 2010-2017
- Recreation expansion project updates, including Bidwell Ramp
- Update on Proposition 1 and the Sites Reservoir
- Update on safety work at the Palermo Tunnel
- Update on flood control outlets

Kearns & West proposed topics, subject to change, for 2022 meetings including:

Flood Safety Stakeholder Technical Workshop April 2022:

- Flood safety
- Downstream community concerns
- Stakeholder input and questions

Q2 Meeting July 2022:

- Stakeholder technical workshop readout
- OCAC Report: first draft review and feedback
- Dam Facilities Asset Management
- Dam facilities annual maintenance plan

Kearns & West also gave an update on the development of the Commission's first report, which will be delivered at the end of 2022. Rob Olmstead (Senator Nielsen's chief of staff), Supervisor Connelly and Lt. Collins had met to give input on the high-level report outline presented at the meeting in December. A draft report will be presented during Meeting #11 in July.

Director Nemeth answered Supervisor Connolly's question about summer operations and recreation. The Loafer Creek Boat Launch should be available if lake levels remain above 675 feet. This fall DWR will look to extend that boat launch 640 feet into the late so it can remain operation even at low lake levels.

Senator Nielsen asked if the current salinization barrier in the Delta was similar to the Reber Plan of the 1940's. Director Nemeth said that she would find out if it was similar to the Reber Plan. The Senator asked if DWR was considering that the solution for salinity issues in the Delta may be allowing more salinization to flow up the river. The Director responded that that idea was not a part of the discussion as of that time.

PALERMO TUNNEL AND PIEZOMETERS

David Sarkisian, Manager of the State Water Project Dam Safety Program gave an update about the piezometers recently installed at the Dam and the Palermo tunnel.

The installation of additional piezometers was recommended in the Oroville Dam Safety Comprehensive Needs Assessment. These piezometers include flood control outlet piezometers, dam toe piezometers, and Oroville Dam core block and grout Gallery piezometers. Four FCO piezometers were installed through the Flood Control Outlet in 2020 with two vibrating wire instruments installed in each installation for redundancy.

Senator Nielsen commented that he was very pleased at the installation of the piezometers because none had been present at the time of the spillway incident.

David Sarkisian said that in 2020 eight piezometers were also installed at the dam toe. These piezometers were outfitted with real-time vibrating wire instruments and are intended to monitor internal erosion-related potential failure modes as well as inform seepage analyses and modeling. So far, these piezometers have been very reactive to rainfall passing through the shell of the dam. Currently there are eight planned core block and grout gallery piezometers that will be installed soon.

Sarkisian then covered the Palermo Tunnel. In order to be able to more reliably dewater the tunnel, the State Water Project has refurbished the bulkhead of the tunnel used to block the tunnel intake. Sarkisian then detailed the engineering the State Water Project and its contractors undertook to remove, recoat, and reinstall the bulkhead.

Supervisor Connelly asked what the condition of the tunnel was and if there was a valve on the downstream side. Sarkisian answered the condition of the tunnel was good in 2016 and downstream there is a tunnel plug that leads to a valve. Supervisor Connelly then asked if there is any leakage or seepage from the tunnel. Sarkisian answered that there is some seepage but that is to be expected with this kind of tunnel. Supervisor Connelly then asked if there was a way to ensure there was no seepage from the tunnel because local, educated constituents were concerned. Sarkisian responded that presently through the conditions assessment and maintenance the tunnel is performing as designed and intended.

Supervisor Conant asked why Mr. Sarkisian and the State Water Project believed eight piezometers were adequate for the Dam. Sarkisian answered that from his perspective these initial piezometers could be monitored over the next few years and the data they produce would provide an answer as to whether more piezometers in additional locations were warranted. Supervisor Conant said he was pleased that there would be a possibility for more piezometers to be added in the future.

DR. RUNE STORESUND ON RISK SCENARIOS

Dr. Storesund began his presentation by stating that he believes there is an existing risk that elevated releases from the Oroville Dam over 150,000 cubic feet per second could be hazardous to downstream communities. Dr. Storesund submitted a notice of intent to Cal OES to seek funding to evaluate the impact of elevated releases. His goal would be to provide an updated set of inundation maps that account for extraordinary events. For instance, in a redacted version of the Oroville Dam Water Control manual he found that a possible scenario included a release of 620,000 cubic feet of water per second, but he could not find any inundation mapping available to address that kind of risk.

He requested support in planning and creating these new inundation maps. The areas that need assistance include: recruiting letters of support from downstream communities, helping meet a 25% local cost-share agreement dictated by Cal OES, and working with DWR and the State Water Project on coordinating inundation map efforts.

Christina Curry, Cal OES deputy director, thanked Dr. Storesund for his presentation and noted that Cal OES is on the advisory commission, so he could consider that input taken in terms of endorsing the idea of better data analysis that goes into the local hazard mitigation plans. She highlighted that Cal OES offers funds to help counties and cities update local hazard mitigation plans and it regularly works with government agencies to ensure that these plans are up to date. Secretary Crowfoot thanked the Deputy Director and added that the Department of Water Resources is also close to this issue.

Commissioner Northern then added that this work was incredibly important to the Oroville community because when the spillway incident occurred inundation maps were very difficult to find in addition to other resources regarding the evacuation. She indicated her willingness to endorse Dr. Storesund's project with letters of support and encouraged others to do the same. Secretary Crowfoot thanked Commissioner Northern and noted Cal OES's presence on the Commission may complicate action by the Oroville Citizen's Advisory Commission in support of Storesund's application into a competitive grant funding process from the same agency.

Supervisor Connelly asked Dr. Storesund how much funding he would need to complete the inundation maps. Dr. Storesund explained that the issue is not being short on funds. Instead, he wants to encourage the community's engagement in the process. Supervisor Connelly asked if Dr. Storesund would consider asking DWR for support so that these kinds of maps can prevent the kind of over-evacuation that occurred during the 2017 spillway incident. Dr. Storesund responded that he did not see a reason why DWR could not provide the local 25% match in funding or in-kind services needed to obtain the grant from Cal OES. Secretary Crowfoot suggested that DWR consider such a partnership and noted that they need to be mindful of protocol because many of the State agencies in question are members of the Commission.

Supervisor Conant asked if Dr. Storesund's work would answer questions about whether an event was a once-in-a-hundred-year event or once-in-a-thousand-year event. Dr. Storesund replied that he could estimate the recurrence intervals for these elevated releases with the caveat that those estimates would be based on past data that does not account for climate change.

Senator Nielsen thanked Cal OES for work on the statewide 911 upgrade. Deputy Director Curry returned the thank you and mentioned Cal OES' excitement about the modernized system.

Director Nemeth emphasized the importance of DWR and Cal OES working with local offices of emergency services and listening to local community needs. She applauded Butte County for its partnership with DWR on emergency preparedness.

Supervisor Conant asked if Cal OES should join the next meeting to speak on the integration of statewide and county emergency services offices. Secretary Crowfoot suggested that facilitators organize the appearance at future meeting. Dr. Storesund asked if counties, other than Butte County that has already submitted one, could send letters of support for more inundation maps to Cal OES.

Senator Nielsen asked if there was some way the accomplishments and work of the commission since its inception could be more publicized. Secretary Crowfoot tasked facilitators with compiling a list of the commission's accomplishments that could be addressed at a future meeting.

PUBLIC SAFETY PARTNERSHIPS

Lori Nezhura, Deputy Director of Planning, Preparedness, and Prevention at Cal OES, provided a presentation on emergency action plans (EAPs). She shared how Cal OES reviews and returns emergency action plans to their drafters for them to then continually update. EAPs must adhere to FEMA's guidelines, including having updated inundation maps and emergency notification flowcharts.

EAP goals include identifying emergency conditions, specific actions to minimize loss of life or property based on approved inundation maps. The presentation addressed the mandated outreach that dam owners must conduct with local law enforcement, fire, and Cal OES and other state and federal agencies. Dam owners must incorporate the results of this outreach into their EAPs and must demonstrate to Cal OES that this outreach has been done. The Deputy Director explained the purpose of notification flowcharts and showed the audience a copy of the Oroville Dam EAP.

Mr. Sarkisian provided a presentation on inundation mapping and EAPs at the Oroville facility. Prior to 2017 the Oroville Dam did have inundation maps in its EAP. Senate Bill 92 (2017) raised the bar for inundation mapping and EAP requirements. The bill mandated that dam owners, including the State Water Project, submit inundation maps for approval by the DWR's Division of Safety of Dams. In addition, EAPs would now need to account for uncontrolled releases from appurtenant structures, such as spillways. Mr. Sarkisian explained the maps currently in Oroville's EAP and what information they contained. Sarkisian concluded his presentation by stating that the 2017 legislation had enhanced public safety awareness and standards and that existing hydraulic models used to develop the Oroville inundation maps could be used to investigate questions such as those raised by Dr. Storesund's proposal.

Supervisor Connelly questioned if other mapping information was accurate. Mr. Sarkisian said he would check the accuracy and appreciated the Supervisors helping ground truth the information.

Commissioner Northern thanked Mr. Sarkisian for providing the inundation maps presented and she expressed that she would share the link to them with her Facebook group of Oroville Citizens. Then she asked Deputy Director Nezhura if Oroville was classified as a hazardous dam and whether that hazard was extremely high, high, or significant. The Deputy Director

replied that Oroville's hazard level was classified as "extremely high." This is the classification of dams that may impact highly populated areas or critical infrastructure.

PUBLIC COMMENT AND QUESTIONS

In the next section of the meeting, an opportunity was given to members of the public to ask questions or leave a public comment.

One member of the public from Paradise asked whether a boat ramp or other improvements to trails were being planned to be made on their side of the lake. The commenter also asked if outflow from the dam was being pulsed and what the reason for that would be. Director Nemeth answered that downstream water quality requirements drive outflow. In addition, John Leahigh mentioned that differences in hourly outflow within the Oroville complex is often driven by the need for power production at the Hyatt Power Plant.

In response to the commenter's question about recreation improvements, Assistant Deputy Director John Yarbrough of DWR answered that while the department is currently focused on the Loafer Boat Ramp, it does have plans to improve foot paths at Lime Saddle.

Another member of the public asked if there was already information available that could answer Dr. Storesund's questions about maximum releases and inform additional inundation maps. David Sarkisian answered that while DWR has some of the information Dr. Storesund is referencing, his scope is wider than the current information the department possesses.

Another commenter emphasized Supervisor Connelly's skepticism about the capacity of the Feather River. They asked for the reasoning behind issuing unconditional one-year licenses and if the original Alternative Licensing Process (ALP) is still the basis for licensing. Director Nemeth replied that that is still the basis for licensing and that the department is still waiting on a license from FERC. Ted Craddock from DWR also added that the department regularly checks in with FERC but that FERC has not provided a timeline.

Another member of the public expressed concern regarding boat users and owners who urged the DWR to allow some usability on Lake Oroville in the summer. Secretary Crowfoot replied that DWR is working to keep as much water as possible behind the dam and John Yarbrough of DWR added that the levels at Lake Oroville will depend on the weather conditions, the larger system it is part of, and whether the Water Board approves a request for adjustments to water quality levels downstream. He also added that all information is posted to DWR's website as it becomes available.

Director Nemeth also stated that as we face more extreme weather conditions in California, DWR will continue to consider recreational needs and will balance those with addressing drought. She also stated that the department views investments in recreational infrastructure, like those that will occur over the summer, as long-term climate investments. John Yarbrough offered himself as a contact for further questions on recreation.

ADJOURNMENT

Secretary Crowfoot concluded the meeting by noting that he would be amenable to extend the meetings slightly in the future if necessary to cover all content. He announced that the next meeting would be in July 2022.

Senator Nielsen concluded by thanking the commission before Secretary Crowfoot adjourned the meeting.