

MEMORANDUM
APRIL 5, 2018

TO: BOARD OF DIRECTORS
ANDREW MUELLER, GENERAL MANAGER
PETER FLEMING, ESQ. GENERAL COUNSEL

FROM: RAY TENNEY, P.E. & DON MEYER, P.E.

SUBJECT: OPERATIONS OF ELKHEAD AND WOLFORD MOUNTAIN RESERVOIRS

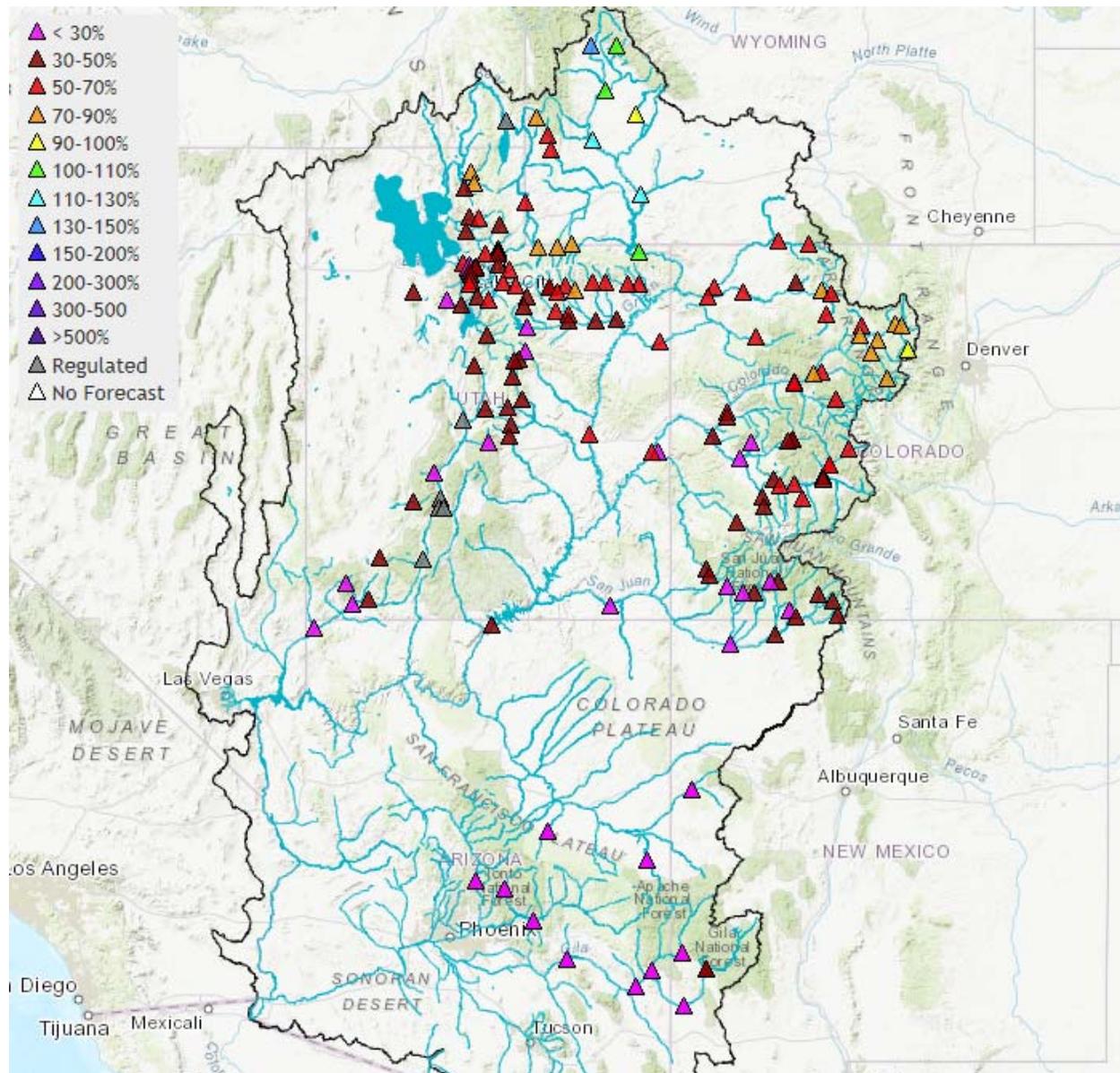
REQUESTED BOARD ACTIONS:

- 1. Anticipated Board action: Award the Ritschard Dam Crest Rehabilitation construction contract based on staff recommendation. Please see discussion page 5 of 6.*
- 2. Board action requested: Authorize the General Manager to amend the agreement with SGM, CA17019, to increase the compensation from \$20,000 to \$30,000 and extend the contract time to provide for SGM support of the dam crest rehabilitation construction effort. Please see discussion page 5 of 6.*
- 3. Board action requested: Direct staff to prepare an agreement for execution by the President with NWCC not to exceed \$80,000 for geotechnical engineering, testing, and construction observation support for the Ritschard Dam Crest Rehabilitation construction period. Please see discussion page 5 of 6.*
- 4. Possible Board action: Direct staff to negotiate best terms for Ritschard Dam main gate replacement procurement and prepare an agreement with the recommended supplier for execution by the President. Please see discussion page 5 of 6.*
- 5. Requested Board action: Authorize the General Manager to enter into a three year continuing services agreement with Grand Power and Plumbing for miscellaneous electrical work at Wolford Mountain Reservoir, not to exceed \$26,000. Please see discussion page 6 of 6.*
- 6. Requested Board action: Authorize the General Manager to execute an amendment to the Grand Fence agreement CA16036 to increase the not to exceed amount to \$45,000 from \$25,000. Please see discussion page 6 of 6.*

STRATEGIC INITIATIVE(S): None Applicable to Operations and Facility Maintenance

Water Supply Outlook

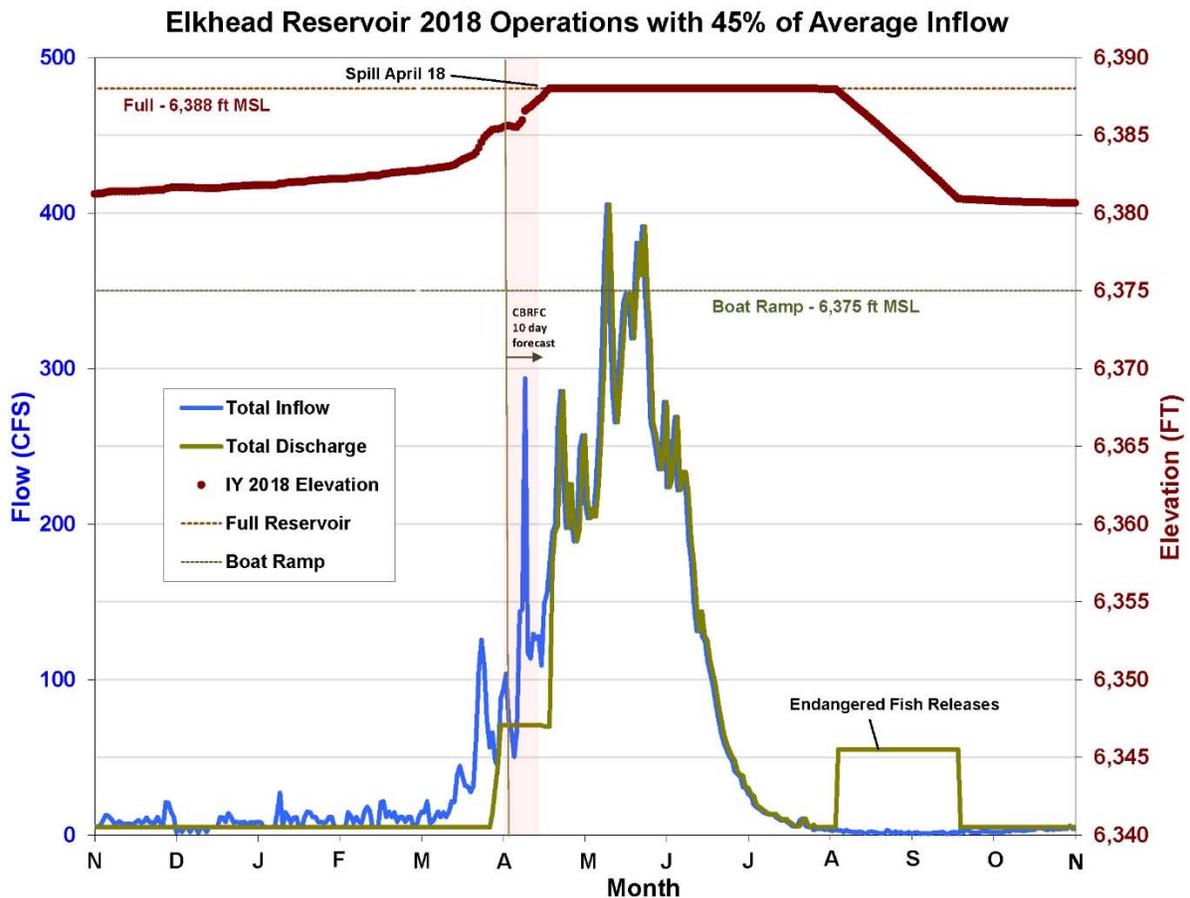
The April 1 Colorado Basin River Forecast Center (CBRFC) April – July Most Probable Runoff Forecasts at various locations in the Colorado River Basin are shown in the map below. Water Supply Forecasts have not improved since the last report to the Board in January and in fact have decreased slightly in the southern basin. The most probable inflow to Lake Powell has decreased from 54 percent of average in January to 42 percent of average in April.



Elkhead Reservoir

Water Delivery Operations

Below is a graph of recent and projected 2018 Elkhead Reservoir operations, assuming the CBRFC 10 day forecast for inflow, 45 percent of average inflow thereafter (based on the April 1 CBRFC Most Probable runoff forecast), and a release rate of 70 cfs. The reservoir is 2.5 feet down from full pool, releasing 70 cfs. With the fish net in place and the ice completely melted, the reservoir can be allowed to fill and spill. The forecast for spill date is April 18th but could be a day or two earlier or later depending on temperatures and precipitation.



Driftwood

Colorado Parks and Wildlife (CPW) staff gathered up the driftwood on the dam face in piles for burning when fire danger allows. CPW will not be able to burn the driftwood due to State policy on fires so the River District will need to make other arrangements. The driftwood may be piled far enough up on the dam to allow us to wait until fall of 2018 to burn it when fire danger is lower due to snowfall.

Wetland Mitigation Requirements and 404 Permit Release

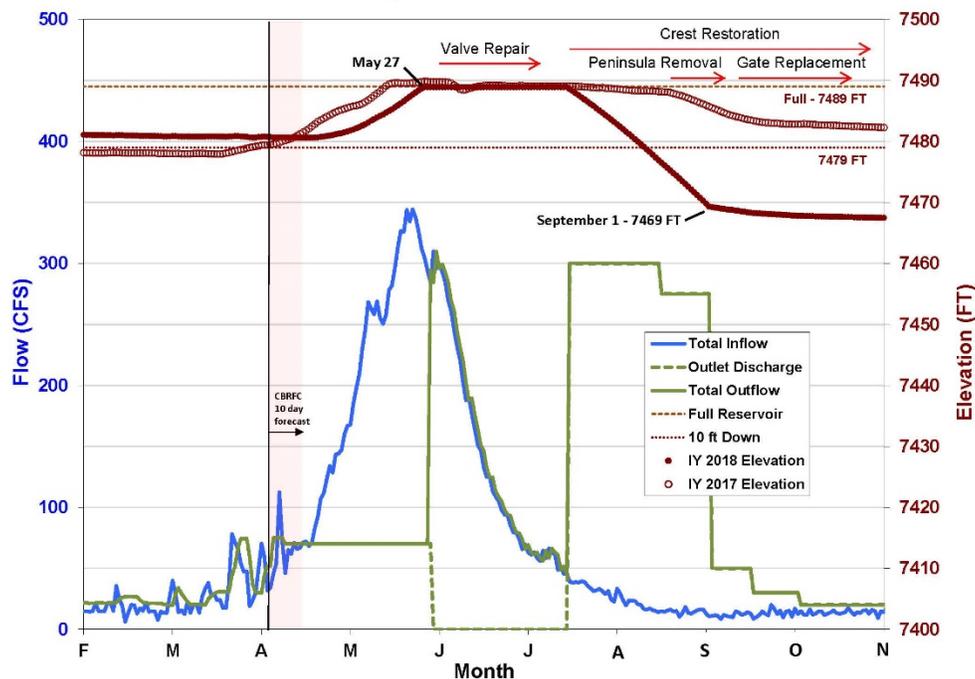
River District staff met with the USACE in January to discuss 404 permit compliance achievement and ongoing monitoring for the wetlands development at Elkhead Reservoir. We agreed with the USACE to continue monitoring and reporting on the development of the wetlands in the inflow to Elkhead Reservoir on a biannual basis as the wetlands form on the accumulating sediment in the upstream end of the reservoir. Biannual monitoring will continue until sufficient acreage has been created to allow the USACE to release the wetland mitigation areas from further monitoring. The 2017 monitoring showed 24.7 acres of wetlands developed which is 5.7 acres short of the necessary wetland development. Operating the reservoir full now that the spillway fish net is in place resulted in the formation of 3.3 acres of new wetland between the 2016 and the 2017 monitoring so we expect the necessary wetland development can occur as soon as 2019 or 2021 monitoring efforts. Reducing the monitoring effort to biannual will save about \$18,000 in the “off-years.”

Wolford Mountain Reservoir

Water Delivery Operations

Below is a graph of recent and projected Wolford reservoir operations. The Colorado Basin River Forecast Center (CBRFC) April 1st Most Probable runoff volume forecast into Wolford is 33,000 acre feet, or 61 percent of average. The volume needed to fill the reservoir is 11,700 acre feet. If conditions stay dry the duration of the Shoshone Call will dictate timing of fill. The proposed operating plan for 2018 is to fill the reservoir by June 1st, assuming the storable inflow is sufficient, while continuing to monitor deformation monthly. Once the reservoir fills, the seal on the 96” butterfly valve will be replaced. The reservoir will be drawn down beginning July 15th to 20 feet below full pool by September 1st to facilitate removal of the instrumentation peninsulas. Water surface elevation is expected to be near 7467 feet MSL (22 feet below full pool) by November 1st.

Wolford IY 2018 Operations Model with 61% Ave Inflow



Dam Crest Rehabilitation

The construction documents prepared by staff with the structural engineering assistance of SGM have been approved by the State Engineer Dam Safety Branch, and a Nationwide 3 404 permit has been obtained for the work. The project was advertised for bid March 8th and a pre-bid site visit held March 26th was attended by 7 contractors. Bids are due April 12th. Staff expects to be able to review the bids and make a recommendation for award at the April Board meeting.

Anticipated Board action: Award the Ritschard Dam Crest Rehabilitation construction contract based on staff recommendation.

Ritschard Dam Crest Rehabilitation – Structural Engineering Support During Construction

In preparation of the Construction Documents structural engineering support for the repositioning of span 1 of the outlet tower bridge and the raising of the transformer vault was provided by SGM. Structural engineering support on these components of the dam crest rehabilitation along with analyzing construction loads on the spillway bridges will be required of SGM during construction.

Board action requested: Authorize the General Manager to amend the agreement with SGM, CA17019, to increase the compensation from \$20,000 to \$30,000 and extend the contract time to provide for SGM support of the dam crest rehabilitation construction effort.

Ritschard Dam Crest Rehabilitation Construction – Geotechnical Engineering, Testing, and Construction Observation Support

During construction of the Ritschard Dam Crest Rehabilitation the services of a materials testing consultant with laboratory capability will be required on site nearly daily. Additionally nearly daily construction observation will be required. To provide both these services Staff has developed a scope of work and budget with NWCC of Steamboat Springs. Using NWCC for both services will help avoid duplicative effort of testing personnel from a consultant traveling to the site and daily construction observation by River District staff based in Glenwood Springs. Based on the proposed construction schedule of 90 days and the testing anticipated, staff and NWCC have identified a scope of work and fee schedule not to exceed \$80,000.

Board action requested: Direct staff to prepare an agreement for execution by the President with NWCC not to exceed \$80,000 for geotechnical engineering, testing, and construction observation support for the Ritschard Dam Crest Rehabilitation construction period.

Outlet Works Gates Replacement

The main gate at the Ritschard Dam outlet works requires replacement. The work will require specification and procurement of a replacement gate. Staff has engaged a gate expert to advise on the options for gate replacement and to assist with identifying qualified and interested suppliers.

Five interested and qualified gate manufacturers have been identified and requests for proposals will be extended to each prior to the Board meeting. Proposals will be evaluated based on gate

material, gate features, delivery, and cost. A staff recommendation may be available prior to the Board meeting.

Possible Board action: Direct staff to negotiate best terms for Ritschard Dam main gate procurement and prepare an agreement with the recommended supplier for execution by the President.

Dam Deformation Monitoring

Dam deformation monitoring continues with daily observations, monthly movement readings, periodic surveys, data reduction and evaluation, and results presentation to the State Engineer (SEO). In general the crest settlement and downstream movement in the maximum section of the dam embankment are continuing with rates and patterns similar to past behavior.

Electrical Service Contract

Electrical service at Wolford Mountain Reservoir at the dam and around the recreation area has been provided through a series of three year continuing services agreements (CSA) with Grand Power and Plumbing. The last three year CSA with Grand Power and Plumbing has run its course. Staff recommends a new three year CSA with Grand Power and Plumbing be drafted in an amount not to exceed \$26,000.

Requested Board action: Authorize the General Manager to enter into a three year continuing services agreement with Grand Power and Plumbing for miscellaneous electrical work at Wolford Mountain Reservoir, not to exceed \$26,000.

Fencing Contract

Fencing around Wolford Mountain Reservoir and in the recreation area requires constant maintenance and frequent additions and upgrades. This fencing work has been provided by Grand Fence under a three year continuing services agreement (CSA) with a not to exceed amount of \$25,000. The current CSA with Grand Fence runs through August of 2019, however greater than anticipated fencing construction and maintenance needs have consumed the previously authorized \$25,000. Additional fencing needs have been identified as public behavior has increased the need to control unauthorized activities such as launching of boats overland when the boat ramp is closed. Also fencing upgrades are necessary to protect upstream wetland mitigation areas from grazing. Staff requests the Board authorize an additional \$20,000 for fencing maintenance, repair, and additions through the remaining contract time bringing the not to exceed amount to \$45,000.

Requested Board action: Authorize the General Manager to execute an amendment to the Grand Fence agreement CA16036 to increase the not to exceed amount to \$45,000 from \$25,000.