

YCWA Examination of Floodplain Inundation Proposals/Model Runs

Yuba River

Development Project

(FERC Project No. 2246)

October 11, 2016

YCWA Sideboards (June 29, 2016)

1. At most, only a minimal increase in total annual release volume requirement
2. Consider Forecast Uncertainty
3. At most, only minimal decreases in carryover storage volumes
4. Must be able to comply with new or changed permit or license conditions
5. YCWA will resist using NBB/Colgate to mitigate effects on lower Yuba River of uncontrolled inflows from MY or SY
6. YCWA is interested in rebounding from uncontrolled inflows in an environmentally friendly way
7. No significant additional reduction in water supply reliability and water deliveries
8. No significant change in flow schedule probability of occurrence
9. No overall reduction in water temperature benefits achieved with the Accord

Basis of Review and Comparison

- Hydrology, modeling and operations perspective
- Combined assessment of model results with translations to “real world” operations
- Also made assessments of YCWA ability to reasonably modify proposed flow elements to fit within sideboards (for ones that we believe do not fit)

What we looked at (from J. Lynch 10/4 email)

- Regarding the proposals for Spring Floodplain Inundation and Riparian Recruitment, YCWA will further examine changes to the Relicensing Participants proposals, including timing changes, that might result in the flow proposal fitting within the YCWA sideboards. YCWA understands those Relicensing Participants interests are:
 - Provide quality juvenile salmonid rearing habitat through floodplain inundation (USFWS/CFWA's October 9, 2015 presentation)
 - Implement flows in the range of at least 3,400 cfs (at Smartsville) for spring inundation
 - Implement the flows in Schedule 1 years (original proposal was Schedule 1, 2 and 3)
 - Provide a gradual recession of spring flows from higher to lower flows for wetter years (Schedule 1)
 - Provide the flows in the late March through April period
 - Examine May higher flows as a potential alternative (not fully agreed to by Relicensing Participants at 9/28 meeting)

Spring Floodplain Recession Flows (High Spring Flows)

(from 9/28 meeting)

- Major impacts and not within Sideboards 1 (annual volume), 3 (carryover storage) 7 (water supply reliability). Some impact to #8 (schedule probability of occurrence).
- Major water supply and carryover storage impacts in wetter years. Results in irrigation shortages in a wet year (1970) and at threshold for irrigation shortages in a second wet year (1997). Significant impact to carryover in two additional years (1984 and 2004), resulting in significant impact to carryover in 20% of years with Schedule 1 in March. Not able to reasonably modify and contain within sideboards.
- Changed flow requirement is a 157,686 AF increase in combined Smartsville/Marysville requirement annual volume (uses Marysville requirement after March 31 for Base Case because no Smartsville requirement in the Base Case and Marysville requirement controls).

Spring Floodplain Recession Flows (High Spring Flows) (continued)

(from 9/28 meeting)

- Intended higher late March and April flows (3,400 cfs) are met in most years due to physical conditions of facilities (storage, release capacity etc.) and natural flow occurrence.
- When higher flows are not met in Base Case these are the years when significant violation to sideboards occur. In other words, if impact years were excluded with additional conditions that limit implementation of higher flows, what is left is years when these flows will occur anyway without instream flow increase due to natural flow abundance. It would be very difficult to craft limiting terms to exclude water supply and carryover impacts. Therefore not able to reasonably modify to fit within sideboards.

Late March and April ~ 3,400 cfs at Smartsville for ~30 days in Schedule 1 Years

- Examined further limiting years when 3,400 cfs flow would be required (fewer schedule 1 years)
 - To exclude years with modeled or potential impacts (1997 & 1970 from modeling):
 - Using NYI would result in none of the Schedule 1 Years being left with the requirement
 - Using March B-120 April to July Forecasted Runoff would result in about 50% of Schedule 1 years being left with the requirement
 - If the March B-120 trigger were used, the flows would be similar to what would occur under the FLA flows anyway in all but 1 year
- Examined reductions of the proposed 3,400 cfs
 - Would required large reductions or elimination of the requirement
 - Would not meet the goal of floodplain inundation
 - Would not meet the goal of gradual reductions in flow through the spring

Examined May higher flows at Smartsville as a potential alternative (Schedule 1)

- 3,400 cfs flow in May of Schedule 1 Years would still cause impacts in the same years as the previous proposals/model runs
 - Would cause 57 TAF reduction in Carryover Storage in 1970 (Slightly below model requirement of 450,000) and 45 TAF reduction in Carryover Storage in 1997
 - No additional irrigation shortages above base case
- Higher May flows without March/April flows would not address the goal of a gradual spring recession in years of interest
 - Would exacerbate “April hole” where flows would drop in April and then increase in May

Summary: Results of additional examination of high spring flows

- Did not find a way to reasonably modify the proposals/model runs to meet the Relicensing Participant's interests and YCWA's interests
- Did not find that a shift to a May flow of 3,400 cfs would address Relicensing Participants interests, and shift would still have significant impacts to Carryover Storage
- Re-affirmed that in many Schedule 1 years, proposal/model run flows of 3,400 cfs are achieved under the base case anyway due to abundance of runoff
 - For the period of March 23 to April 22 the base case had flows at or above 3,400 cfs for at least 20 days in 13 of all years (31% of all years) versus the proposal/model run that had 3,400 cfs for 32 days in 20 years (49% of all years)

YCWA Flow Proposals for the Lower Yuba River

- FLA items that already affect the lower Yuba flows:
 - Flow Fluctuation Criteria for September to June (addresses stranding and redd dewatering)
 - Hourly Ramp down limit of 200 cfs/hr
 - Upstream conditions that affect lower Yuba River flows (tunnel closures etc.)
- Schedule 6 Summer Flows (addresses temperature)
 - Yuba Accord/SWRCB water rights requirement for 30,000 AF block of water
- Spring Riparian Recession Rates (addresses seed establishment)
 - Beginning at 4,130/3,400 (depending whether N1 is operating), daily maximum flow reductions