

Conceptual Plan to Develop Environmental Documents for Peak Flow Synchronization in the Trinity River

Background

- Peer reviewed literature and research by TRRP partners and staff since the ROD has been implemented indicate that there are fisheries and ecosystem benefits from providing flow releases from Lewiston Dam that more closely mimic natural flow patterns than the current flow schedule.
- At its December 5, 2019 meeting, the Trinity Management Council (TMC) made a motion to direct the TRRP to "*continue and/or [initiate] studies to analyze the effects of synchronizing Lewiston Dam flows and tributary flows on TRRP goals, contingent on available funding, that assist in the development of potential environmental documents.*"
- Significant improvement in both the quantity of water and changes to the simplistic flow regime released from Lewiston Dam occurred as a result of the research and work of USFWS and HVT (1999), the Mainstem Trinity River Fishery Restoration Environmental Impact Statement and the implementation of the ROD in 2000. However, the ROD still results in one peak flow in the spring, and a baseflow of 300 cfs for approximately seven months of the year (October to May) when streams in the region experience their largest and most variable flow events
- Through monitoring of implementation of the ROD, TRRP scientists have recognized that several alternative hypothesis presented in USFWS and HVT 1999 provide opportunity to improve upon the ecological benefits of Lewiston Dam flow releases. The need for increased synchronization of environmental flows with natural hydrology is supported by both observations of monitoring efforts during implementation of the ROD and literature published since 1999.
- This memorandum is intended to serve as a primer for BOR NCAO and BOR CVO in an effort to work collaboratively, and to receive approval of the concept prior to TRRP staff and partners undertaking additional effort on this important subject.
- Following approval of this conceptual plan, TRRP would begin modeling and data analysis needed to produce an EA under NEPA and other required regulatory documents to ensure sufficient legal and regulatory compliance prior to implementing the action.

Conceptual Proposed Action

- In order to help meet ROD objectives, the action would utilize 60 TAF of ROD water volume from the amount typically reserved for spring peak flows for releases above winter baseflow between December 15 and April 21.
- As stated in the Trinity River Flow Evaluation Study, "*No high-flow release(s) are planned, but synchronization of peak releases with stormflows should be evaluated through the adaptive management program to assess opportunities to maximize benefits of high-flow releases while conserving water.*" This action is in keeping with the Trinity

River Flow Evaluation Study and ROD because the adaptive management process would be used to efficiently utilize water and maximize benefits to river ecology and fish habitat.

- Spring ROD flows would be reduced by 60 TAF, regardless of water year type which is determined on April 1.
- The releases above 300 cfs between December 15 and April 15 would be largely predetermined and the remaining water volume would be distributed after 15 April as is done for the current ROD spring release.
- In keeping with the objectives of the ROD, the purpose of the action would be to 1) maximize geomorphic change within the Trinity River for the long-term benefit of fish habitat during a seasonally appropriate period; and 2) provide better temperatures for rearing salmonids during the spring juvenile growth period. Other benefits include increasing the quantity and quality of juvenile rearing habitat by increasing access to productive areas like floodplains, and providing seasonally appropriate disturbance of the macroinvertebrate community to provide optimal food resources for rearing salmonids. Reducing the volume of water released in the spring and allowing water temperatures to warm up earlier in the year would also reduce potential for impacts to reproductive cycles of other aquatic and riparian species such as Foothill Yellow Legged Frog, ground nesting birds and bank denning mammals.
- The peak flow would be synchronized with a storm event. The action would not occur in the rare chance that there were no substantive storm events during the December 15 to April 21 time period.
- Peak flow for the action would be capped at a certain flow level (e.g. 8,000 cfs) to ensure flood control downstream of Lewiston Dam would not be exceeded. Discharge predictions from the California Nevada River Forecast Center for the Trinity River at Junction City would be used to ensure peak flow from Lewiston Dam did not contribute to flooding of property, roads, or facilities.
- The target for implementation of this action would be WY 2022 (Earliest date of December 15th 2021), but the proposed action would be crafted as a multiyear action that may occur in any year after 2022.

Summary

- We are asking BOR NCAO and BOR CVO to evaluate this concept and determine if the concept would be supported for implementation in WY 2022 and subsequent years, if the needed environmental documents and legal coverage were in place prior to December 15th 2021.
- Following BOR's preliminary approval, TRRP would begin development of NEPA and ESA documents to evaluate the effect of the action on the human and natural environments.
- Below are example hydrographs:

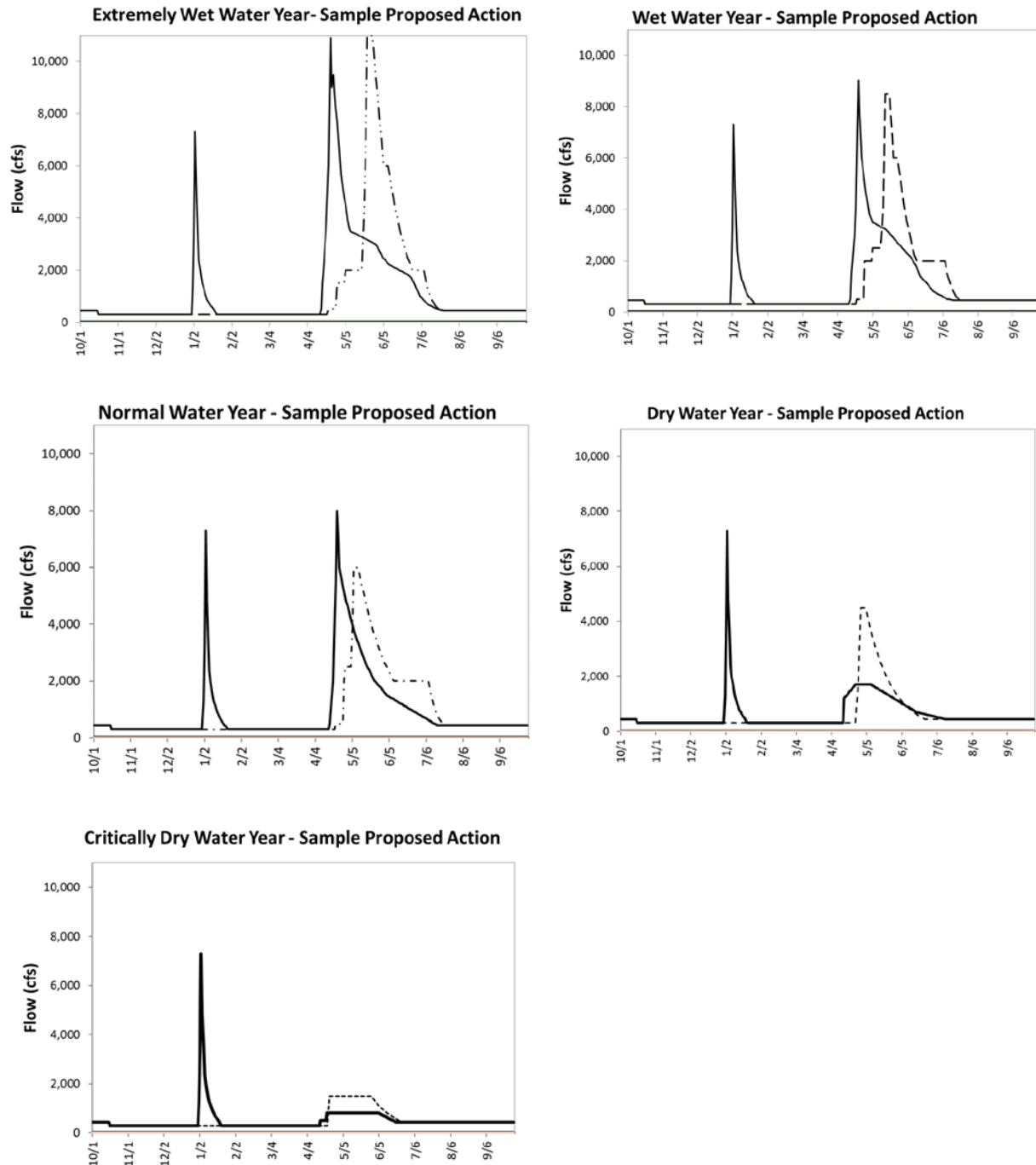


Figure 1. Example hydrographs with a 60 TAF winter peak flow release from Lewiston Dam and the resulting spring flow release reduced proportionally by 60 TAF. These are examples provided as a concept and are not intended to reflect the final proposed action.

Reference

USFWS and HVT (U.S. Fish and Wildlife Service and Hoopa Tribal Fisheries). 1999. Trinity River Flow Evaluation Final Report. Report to the Secretary, U.S. Department of the Interior. Washington, D.C. Available: <http://www.fws.gov/arcata/fisheries/reportsDisplay.html>. Accessed August, 2020.