

# RECLAMATION

*Managing Water in the West*

## FINDING OF NO SIGNIFICANT IMPACT (FONSI)

### **2013 Lower Klamath River Late-Summer Flow Augmentation from Lewiston Dam**

**FONSI 13-07 NCAO**

Recommended by:



Date:

8/6/13

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# Introduction

In accordance with section 102(2)(c) of the National Environmental Policy Act (NEPA) of 1969, as amended, the Northern California Area Office (NCAO) of the Bureau of Reclamation has determined that an environmental impact statement is not required for the environmental review to evaluate the effects of using up to 62 thousand acre feet (TAF) of water from Trinity Reservoir to provide preventative flow augmentation in the lower Klamath River in late-summer 2013 to reduce the likelihood of a disease outbreak among returning adult fall-run Chinook salmon that could result in a large scale fish die-off. This FONSI is supported by Reclamation's Environmental Assessment (EA) Number EA-13-07-NCAO, 2013 Lower Klamath River Late Summer Flow Augmentation from Lewiston Dam, which is hereby incorporated by reference.

## Background

In September 2002, a substantial number of returning adult fall-run Chinook salmon died prematurely in the lower Klamath River. Federal, tribal, and state biologists studying the die-off concluded that: (1) pathogens *Ichthyophthirius multifiliis* (Ich) and *Flavobacterium columnare* (Columnaris) were the primary causes of death to fish; and (2) warm water temperatures, low water velocities and volumes, high fish density, and long fish residence times likely contributed to the disease outbreaks and subsequent mortalities (Guillen 2003; Belchik et al. 2004; Turek et al. 2004). Flows in the lower Klamath averaged about 2,000 cubic feet per second (cfs) during September 2002.

In 2003, 2004, and 2012, predictions of large runs of fall-run Chinook salmon to the Klamath River Basin and drier than normal hydrologic conditions prompted Reclamation to arrange for late-summer flow augmentation to increase water volumes and velocities in the lower Klamath River to reduce the probability of a disease outbreak in those years. Thirty-eight thousand acre-feet (TAF) of supplemental water was released from Trinity Reservoir in 2003, and 36 TAF in 2004, and 39 TAF in 2012. While documentation of the effectiveness of these events is limited, general observations were that implementation of the sustained higher releases from August to early September in each year coincided with no significant disease or adult mortalities.

The 2013 preharvest forecast for the ocean abundance of Klamath Basin fall-run Chinook salmon is 727,600 and the estimated escapement of fall-run to the Klamath Basin is approximately 272,000 (PFMC 2013). This is 102,000 more fish expected to return to the river than estimated in 2002. Forecasts of flow accretions in the Klamath Basin (forecasted flow in the lower Klamath River minus dam releases) are about 50 percent of 2012, and reflect deteriorating hydrologic conditions. Fish biologists who work in the basin are again concerned that dry hydrologic conditions in the basin, and the above average expected run size, could be conducive to a disease problem similar to the one experienced in 2002.

# Proposed Action

Reclamation would operate Trinity and Lewiston Reservoirs to target a minimum flow of 2,800 cfs in the lower Klamath River (USGS Station KNK) between August 15 and September 21, 2013, hereafter referred to as the Action Period. Flow augmentation would use up to 62,000 AF of Trinity water. However, augmentation of flow would be subject to the following environmental and biological conditions, which are to be informed by active monitoring programs that can alter the timing and duration of flow augmentation. Details of the conditions follow:

- 1) Flow augmentation to meet the 2,800 cfs target at KNK would commence August 15th but would not interfere with timing or magnitude of the scheduled Hoopa Valley Tribe's Ceremony flows scheduled to occur in late August.
- 2) Flow augmentation to meet the 2,800 cfs target at KNK would continue through September 21, and possibly through September 30 if average daily water temperatures are projected to be above 23 C at KNK, or the presence of observed fish behavior of concern. Daily evaluations would be made to determine whether augmentation flows would continue and for how long between September 21 and 30.
- 3) Monitoring would also be used to gain knowledge regarding the ecological consequences of the actions while also informing management whether additional actions may be required to thwart a fish die-off in 2013. For example, the Yurok Tribe will sample adult Chinook salmon and thoroughly examine them for signs of Ich infection. In the very unlikely and emergency situation that a threshold number of examined adults are infected with Ich, as confirmed by the Service's California-Nevada Fish Health Center, an immediate emergency flow release from Lewiston Reservoir would be initiated to further disrupt the life cycle of the pathogen in an attempt to prevent a catastrophic disease outbreak. Specifically, Lewiston Reservoir would be operated to double the current flow on the lower Klamath River at the KNK gage for a 7-day period (up to a maximum flow of 5,600 cfs). Up to approximately 39 TAF would be needed to implement an emergency response. This is designed to increase the water turnover rate in areas where adult fish are holding, more effectively flush the infectious life form of Ich downstream into the estuary where they cannot survive, and make it more difficult for additional fish to be infected.
- 4) Ramping rates from Lewiston Dam would follow contemporary approved rates of change to minimize public and other environmental concerns.

Given the current tributary accretion forecast, up to 62 TAF of supplemental water would be needed to implement the Proposed Action (not including the Ceremony pulse flow volume and assuming water temperatures remain below 23 C after September 21).

# Findings

The attached EA describes the existing environmental resources in the Proposed Action area and evaluates the effects of the No Action and Proposed Action Alternatives on the resources. Effects on several environmental resources were examined and found to be absent or minor. This analysis is provided in the attached EA.

This FONSI is based on the following:

## Cultural Resources

The Proposed Action involves the release of flows from Lewiston Dam on the Trinity River to augment flows in the lower Klamath River. This action would use existing infrastructure and no new construction or ground disturbance would occur as part of the Proposed Action. The release of flows from Lewiston Dam would be within the normal release flow range and water levels along the Trinity River and would not exceed the historic range of flows in the Trinity River. As a result, Reclamation has determined that the Proposed Action has no potential to cause effects to cultural resources eligible for inclusion in or listing on the National Register pursuant to 36 CFR §800.3(a)(1).

## Indian Sacred Sites

The Proposed Action would not inhibit access to or ceremonial use of an Indian Sacred Site, nor would the Proposed Action adversely affect the physical integrity of such sacred sites.

## Floodplains, Wetlands and Waterways

The Proposed Action does not involve construction, dredging or other modification of regulated water features. No permits under the Clean Water Act (CWA; 33 U.S.C. 1251) would be needed. Further, the Proposed Action only includes providing controlled reservoir releases that are within the normal operational envelope.

## Land Use

Under the Proposed Action, there would be no changes in land use due to implementation of the Proposed Action. The proposed water releases from Lewiston Dam are within the historic range of flows addressed in the Trinity River Mainstem Fishery Restoration Environmental Impact Statement/Environmental Impact Report (TRMFR EIS/EIR; U.S. Fish and Wildlife Service et al. 2000). In addition, the magnitude and timing of the target flows in the lower Klamath River are well within the range of historic flows resulting from rainstorms, etc. Therefore, no changes in land use near the rivers will be required as a consequence of the Proposed Action.

## Air Quality

Under the Proposed Action, no impacts to air quality would be expected. To the extent there may be such impacts, those would be speculative and need not be analyzed.

## Water Resources

Using the June 28, 2013, tributary accretion forecast (90% exceedance), and assuming Iron Gate Dam releases of 900 cfs and 1,000 cfs in August and September, respectively, the forecasted

KNK flows would be below 2,800 cfs before August 15 and supplemental releases would be needed from Lewiston Reservoir to achieve the target flow of 2,800 cfs at KNK as previously described.

Under the Proposed Action, the cold water of Trinity Reservoir would be reduced by up to 62 TAF in 2013, but would not result in significant affects to the cold water resource needs for the immediate year. This is because the end of water year 2013 storage volume in Trinity Reservoir is projected to be 1.362 MAF, which is well above the storage threshold of approximately 1 MAF where the temperature of water released through the penstocks may be a concern for downstream use. A loss of about 62 TAF from the cold water pool could result in an increase in water temperatures at Lewiston Dam of a few tenths of a degree Fahrenheit when the flow augmentation releases are completed.

In 2014, the reduction in storage of up to 62 TAF due to implementation of augmentation flows may influence the cold water resource, but is dependent upon whether the reservoir would fill. In the event the reservoir spills, or substantial safety-of-dams releases occur, there could be no effect. Otherwise, there could be a relatively minor reduction in available cold water resources that may be accountable to this action.

Implementation of the Proposed Action will not adversely affect power generation in 2013, with the exception of a small loss of potential power generation at Trinity Dam due to reduced head. The expected schedule for water delivery to the Clear Creek Tunnel has already been developed, and the Proposed Action would not affect these exports.

If Trinity Reservoir does not fill in water year 2014, some portion of the water that is released through Lewiston Dam to implement the Proposed Action in 2013 may not be available for later release through the Clear Creek Tunnel, Carr Powerplant, the Spring Creek Tunnel and Powerplant and the powerplant at Keswick Dam in 2014. In turn, this may result in decreased power generation. However, this would be complex to determine and quantify, depending on the particular refill patterns at Trinity Reservoir, whether safety-of-dams releases occur at Trinity Dam in 2014, Shasta Reservoir operations, etc. In very general terms, if 62 TAF were released to the Trinity River to implement the preventative flows under the Proposed Action, future foregone generation could be a maximum of about 75,330 megawatt hours. However, power generation opportunities are subject to many restrictions and uncertainties unrelated to the Proposed Action.

In 2013, recreational activities in Trinity Reservoir are not likely to change to any great extent due to the Proposed Action. In the current year, boat ramp access to the lake is expected to remain the same as the No Action Alternative. In contrast, there is a small chance that some boat ramps might not be useable due to a reduced water elevation in the lake during the latter part of summer 2014. As previously mentioned, however, the complexities and uncertainties of accurately predicting water surface elevations that far in the future are tied to variable and unpredictable precipitation patterns and therefore preclude Reclamation from providing meaningful estimates.

The significant recreational activities in the Trinity River that may be influenced by the Proposed Action include pleasure rafting and fishing (boating), and recreational fishing. Flows of about 1,200 cfs from Lewiston Dam needed to augment the lower Klamath River flow to 2,800 cfs would be expected to continue to provide bank and boat-based fishing as well as boating opportunities along the entire river. In addition, the greater quantity of water in the lower river would afford greater power boat access to a larger section of the Klamath River thereby expanding fishing opportunities for many.

Providing up to 62 TAF of supplemental water in the lower Klamath River as a preventative measure in the late summer in 2013 would not affect water supply allocations managed as part of the CVP in 2013, or water operations within the Central Valley. Water allocations for irrigation and M&I deliveries have already been determined for 2013, and the supplemental water would not affect the projected volume of water to be exported to the Sacramento River Basin in 2013. The extent that the release of up to 62 TAF affects the 2014 water supply and water allocations will depend on the water year 2014 hydrology and operational objectives. Water allocations are not likely to be affected by implementation of the proposed action.

Without implementation of the Proposed Action, Trinity Reservoir storage is forecasted to be approximately 1.362 MAF (90 percent exceedance value) at the beginning of water year 2014, which is lower than the historical average of about 1.66 MAF. Given the planned operation of Trinity Reservoir, Carr Powerplant, and Lewiston Reservoir, storage in Trinity Reservoir is forecasted to be 1.987 MAF at the end of April 2014 (50 percent exceedance). The approximately 62 TAF for preventative use in supplementing the lower Klamath River flows in late summer is about 4.5 percent of the forecasted volume present in Trinity Reservoir at the beginning of water year 2014 and about 3 percent of the 50 percent exceedance forecasted volume by the end of April 2014. Forecasting filling of Trinity Reservoir in April is complicated by the possibility of safety-of-dam releases that can occur from November through March as a result of above normal precipitation patterns that could occur. Safety-of-dam releases occurred in December 2012 and continued into early 2013.

If Trinity Reservoir fills during 2014, there would be no effects to water resources available for all potential purposes. In contrast, if Trinity Reservoir does not fill in 2014, some water volume, up to the amount released for supplemental Klamath River flows, may not be available for other potential purposes.

There are no anticipated substantial cumulative impacts on Trinity Basin water resources related to the Proposed Action. Although there are a number of relatively small scale water diversions downstream of Lewiston Dam, no additional impacts are expected to occur compared with recent past years.

The TRD of the CVP is operated in coordination with all the other CVP and State Water Project facilities. Due to varying future water supply conditions within this large geographic area, it is not possible to meaningfully evaluate how a potential slightly lower Trinity Reservoir storage in 2014 may exacerbate system-wide supply conditions in the future. However, any such effects would be very minor.

## **Biological Resources**

Under the Proposed Action, the susceptibility of returning adult fall Chinook salmon to diseases that led to the 2002 fish die-off would decrease in the lower Klamath River during the late summer in 2013. Modeling results suggest that during implementation of the proposed action, Lewiston Reservoir water temperatures would be about 0.5°F cooler than under a no action scenario. Additionally, it is well documented that the Trinity River and lower Klamath River would see a reduction in water temperatures. In turn, Chinook salmon may experience less physiological stress and vulnerability to disease. In 2003, 2004, and 2012, supplemental flows were implemented, and general observations were that the sustained higher releases from mid-August to mid-September in each year coincided with no significant disease or adult mortalities. However, given the inherent uncertainties regarding events of this nature, combined with the predicted large fish run size, it is not possible to predict with absolute certainty that the Proposed Action will preclude a fish die-off in 2013, nor is it possible to accurately quantify the reduced disease risk attributed to the increased flows. There may also be an increase in water temperatures in the Trinity River just subsequent to the Proposed Action. This could be as high as 0.5°F at Lewiston Dam. The timing of an increase in release temperature could coincide with a period when river temperatures are typically near the Basin Plan Objectives at Douglas City and the confluence of the North Fork Trinity River.

Implementation of the Proposed Action would not affect the quantity and quality (i.e. water temperature) of flow and would also remain suitable for transbasin diversions to Whiskeytown Reservoir in 2013. Modeling results suggest that during the augmentation releases at Lewiston Dam and into October, water temperatures of releases from Whiskeytown Dam into Clear Creek would be reduced by about 0.4°F. Starting about mid-October, Whiskeytown Dam releases may potentially increase up to 0.25°F. A similar response is indicated for the Spring Creek Powerplant release. In turn, potential negative temperature impacts in the Sacramento River Basin are expected to occur after September, during the seasonal transition into expected cooler fall ambient conditions. The temperature impact in the Sacramento River at Airport Road is expected to be less than 0.1°F.

As a consequence, the influence of the Proposed Action would be similar to the No Action Alternative and there would be no substantial effects to the biota of the Sacramento River Basin in 2013.

Trinity and Shasta Reservoirs are operated in a coordinated fashion. Depending on the details of future operations and the fill pattern at both reservoirs, the Proposed Action may reduce the available cold water resources used to meet temperature objectives in the Sacramento River in 2014. Changes to the ability to achieve temperature objectives would be expected to be minor, as would the associated affects to ESA-listed salmon and steelhead.

No addition cumulative impacts to biological resources beyond those described in the TRMFR EIS/EIR are anticipated.

## **Global Climate**

While no GHG emissions would be generated by as a direct result of implementation of the Proposed Action, there may be some broader scale or theoretical effects to GHG emission levels associated with the Proposed Action.



If 62 TAF of water is released from Trinity and Lewiston Reservoirs to augment flows in the lower Klamath River, some of that volume of water may have been exported from the Trinity River at some unknown time in the future, depending on fill patterns for Trinity Reservoir and other operational decisions. In that case, hydroelectric power would have been generated at the J.F. Carr Powerplant, the Spring Creek Powerplant, and likely the Keswick Powerplant. The power generated by this volume of water would have been available for purchase by the CVP “preference” power customers as available. CVP preference power customers share the CVP energy production that is in excess of Reclamation’s water pumping needs. At any given time, CVP power customers may have to purchase power when available CVP power is not sufficient for their demands. This non-CVP power may be hydrocarbon generated. Assuming 62 TAF of water is used for flow augmentation, a maximum of 75,330 megawatt hours of power generation may be foregone at some time in the future. Assuming that power customers would have to replace all of that power with hydrocarbon generated power, an estimated additional 53,149 metric tons of CO<sub>2</sub> equivalent would be emitted. The magnitude and timing of the potential additional CO<sub>2</sub> equivalent is unknown, as are the associated effects on Global Climate. For example, it is unlikely that more than 25,000 metric tons of CO<sub>2</sub> equivalent would be emitted on an annual basis so it is unlikely to have a significant effect on global climate.

## **Indian Trust Assets**

Under the Proposed Action, it is expected that the risk of disease vulnerability to the large returning run of fall Chinook salmon to the lower Klamath River in the late summer would be decreased, relative to the No Action Alternative. In turn, the risk to the tribal trust fishery would be expected to decrease. In 2003, 2004 and 2012, supplemental flows were implemented, and general observations were that the sustained higher releases from mid-August to mid-September in each year coincided with no significant disease or adult mortalities. However, as previously mentioned, the expected decrease in risk associated with the Proposed Action cannot be accurately quantified.

Cumulative effects to ITA from future activities are somewhat speculative. Activities of Executive Branch federal agencies that may affect ITA are carefully scrutinized regarding their affects to these assets. State and local activities that are undertaken on non-Federal land are subject to associated limitations, and the resulting affects to ITA would be speculative.

## **Environmental Justice**

Under the Proposed Action, it is likely that the large run of fall Chinook salmon returning to the lower Klamath River in the late summer would be less susceptible to a disease outbreak similar to that which ultimately caused the 2002 fish die-off. In turn, the risk to the tribal, commercial and recreational fisheries, and the associated environmental justice would be reduced. However, as previously mentioned, this expected decrease in risk cannot be accurately quantified at this time.

Cumulative effects of future activities on minority and low income populations are speculative. Federal agency actions are subject to scrutiny regarding their affects to these populations. However, state and local activities on non-Federal lands are not necessarily subject to the same analyses. Therefore, it is speculative to determine the effects of future, non-Federal activities on minority and low income populations.

## **Socioeconomic Resources**

Under the Proposed Action, there would be a reduced risk of disease susceptibility to the large run of fall Chinook salmon returning to the Klamath River in the late summer. In turn, there may be less potential for adverse effects to fisheries-related socioeconomic resources. As previously mentioned, it is not currently possible to accurately quantify the expected decrease in disease susceptibility for fall Chinook salmon returning to the lower Klamath River in the late summer associated with the Proposed Action.

Depending in part on whether Trinity Reservoir completely fills in water year 2014 after the Proposed Action would be implemented; there is a possibility that some of the water volume from Trinity Reservoir used to implement the Proposed Action may not be available for other uses in the future. It would be speculative to estimate the amount of water that may be unavailable in the future. However, the amount of water needed for the preventative flows in the lower Klamath River is a small proportion of the total CVP water deliveries. Since the CVP facilities are operated in a coordinated fashion, and annual water allocations to contractors are determined by supply conditions throughout the system, it is unlikely that any allocations to individual contractors would be reduced in the future due to implementation of the Proposed Action.

Implementation of the Proposed Action will not adversely affect power generation in 2013, with the exception of a small loss of potential power generation at Trinity Dam. The expected schedule for water delivery to the Clear Creek Tunnel has already been developed, and the Proposed Action would not affect these exports.

If Trinity Reservoir does not fill in water year 2014, some portion of the water that is released through Lewiston Dam to implement the Proposed Action may not be available for later release through the Clear Creek Tunnel, Carr Powerplant, the Spring Creek Tunnel and Powerplant and the powerplant at Keswick Dam at some time in the future. In turn, this may result in decreased power generation. However, this would be complex to determine and quantify, depending on the particular refill patterns at Trinity Reservoir, whether safety-of-dams releases occur at Trinity Dam in 2014, Shasta Reservoir operations, etc. In very general terms, if 62 TAF were released to the Trinity River to implement the preventative flows under the Proposed Action, future foregone generation could be a maximum of about 75,330 megawatt hours. However, power generation opportunities are subject to many restrictions and uncertainties unrelated to the Proposed Action. Also, power production patterns are generally driven by water operations decisions. Whether power in excess of Reclamation's water pumping needs is available at a given time, and whether power available for CVP power customers is sufficient for their demands is difficult to predict. In the unlikely event that water operations are changed due to implementation of the Proposed Action, CVP power customers may have to buy power from alternative sources when CVP power would have otherwise been generated using the water that was used to implement the Proposed Action.

Cumulative impacts of future activities on socioeconomic resources are speculative. Federal agency actions are subject to scrutiny regarding their affects to these resources. State and local activities on non-Federal lands are not necessarily subject to the same analyses. So it is not

possible to meaningfully determine the effects of future, non-Federal activities on socioeconomic resources.