

February 23, 2018

Alicia Kirchner, Chief
U.S. Army Corps of Engineers
Sacramento District
Attn: Planning Division
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Sent via email

RE: Yuba River Ecosystem Restoration Feasibility FREA Comments

Dear Chief Kirchner and US Army Corps of Engineers:

Thank you for this opportunity to Comment on the Draft Interim Feasibility Report and Environmental Assessment (FREA) prepared as part the Yuba River Ecosystem Restoration Study Program by the US Army Corps of Engineers (USACE). The Sierra Fund has participated in public forums on this topic in the past and has carefully reviewed the FREA.

The Sierra Fund is a 501 (c) (3) non-profit organization dedicated to restoring resiliency to the ecosystems and communities of the Sierra Nevada. We have spent the last dozen years building a comprehensive understanding of the impacts of the Gold Rush on our region, including the significant adverse impacts in the Yuba River Watershed during this era. Notable impacts of 19th century hydraulic mining include the introduction of mercury to aquatic ecosystems and the construction of debris control dams (DCD) to prevent the transport of mining debris.

Our comments are intended to support a project on the Yuba River that will help restore ecosystem resiliency, fish passage, water quality and economic opportunity and facilitate watershed-wide recovery from impacts and disturbances that are over a century in the making.

SUMMARY

The Sierra Fund believes that the FREA, while detailed and well presented with beautiful charts and maps, is significantly flawed in several key ways that we in detail in these comments. We believe that these flaws lead to the choice of a Tentatively Selected Plan (TSP) that does not best serve the purposes of the USACE Yuba River Ecosystem Restoration program.

These flaws are detailed under the headings of the four overarching comments as listed below:

COMMENT 1: The FREA relies on inaccurate and out-of-date information to draw inaccurate scientific and economic conclusions and develop ill-advised proposals for action.



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COMMENT 2: Alternatives to the proposed action do not adequately explore the opportunities, benefits and costs of modification of the USACE facilities Englebright and Daguerre Dams (both of which block fish passage for listed species), or the impacts of failure to do so.

COMMENT 3: The scope of the FREA should have included the larger issue of fish passage as a central focus of this ecosystem project.

COMMENT 4: The USACE partner, Yuba County Water Agency (YCWA), may have a conflict of interest related to their Narrows Dam project and other management priorities.

We document that that the FREA proposes activities that cost nearly \$100 million to restore 176 acres of riparian and riverine habitat using methods that could increase mercury methylation. Yet this project will contribute very little to the urgent need to restore fish habitat or reduce mercury discharge from this region to the San Francisco Bay and Delta. If the proposed Lower Yuba River restoration activities are going to move forward, at a minimum they must require significantly more substantial mitigation measures for mercury impacts of the proposed projects including: adherence to water quality assurance project plan (QAPP) for trace metal mercury sampling; adoption of best management practices and protocols based on accurate data and currently understood standards for both sediment and mercury; and extensive monitoring for many years after the project is implemented. In addition, we urge USACE to postpone implementation of any ecosystem restoration projects in the lower Yuba River until fish passage is restored to the upper watershed.

Our work demonstrates that there could be another much more practical and economically viable method to reconnect the floodplain to salmon rearing habitat, and simultaneously restore volitional fish passage and habitat for multiple species of fish including salmon and sturgeon, improve water quality, and improve public safety. We propose a FREA that looks directly at the *accurate* costs and benefits of modifying the USACE debris control dams on the Yuba River, Daguerre and Englebright Dams, and restoring volitional fish passage.

As a result of our analysis of the FREA, we respectfully request that the USACE not approve the National Environmental Restoration (NER) plan (Alternative 5) as the Tentatively Selected Plan (TSP). We believe that this report has flaws that run too deep to allow it to move forward as a decision document. Instead, we ask that the USACE either significantly revise this report, or design and implement a new process to develop a program that maximizes ecosystem restoration benefits in the Yuba River watershed relative to costs.

We also ask that that the USACE find a different local partner for the ecosystem study activities. The current partner, Yuba County Water Agency, is inappropriate to play this role.

DETAILED COMMENTS

COMMENT 1: The FREA relies on inaccurate and out-of-date information to draw inaccurate scientific and economic conclusions and adopt ill-advised proposals for action including the selected Tentatively Selected Plan.

The document does not address scientific and economic cost assessments accurately or adequately and does not reference the most relevant and latest research. By relying on outdated studies for the FREA, mistakes and shortcomings made in previous studies are propagated forward in this analysis. Major shortcomings include:

A. Mercury: The document does not address mercury contamination accurately or adequately and does not reference the most relevant and latest research.

The Lower Yuba River has been placed on the Clean Water Act Section 303(d) list due to mercury levels that exceed water quality standards. Water bodies on the 303(d) list are also referred to as “impaired” waters. Yet this study does not succinctly discuss this listing nor appropriate measures to limit release of mercury into the environment.

The most significant flaw in the FREA is the outdated science used to describe mercury fate and transport in the Yuba River Watershed. The FREA relies on old data, inaccurate data and sometimes utilizes no data to address the issue of mercury, creating a serious problem with many aspects of the proposal actions.

Thirty years ago it was assumed that the dams were holding back the mercury because when mercury was referenced it was assumed to be liquid elemental mercury. New science has changed what is now known and understood about mercury, specifically, it is now understood that mercury attached to fine silts and clays travels long distances and can methylate when settled in aquatic environments with amenable conditions (Fleck et al., 2011; Marvin-DePasqualle et al., 2011). Particulate bound mercury is suspended when stirred up by earth moving equipment, whether it is for sediment removal efforts in reservoirs or for river restoration efforts that take place in hydraulic mining debris. Activities such as these are proposed as part of the FREA project designed to reconnect the river to the floodplain and create backwater channels.

The use of outdated science to describe issues associated with mercury is found on many pages and tables contained within the FREA. See *Cost/Uncertainty Due to Potential for Mercury Contamination: Table 3-6, page(s) 39, 45; Impact Analysis, Water Quality: Section 5.3.3, page 14; Efficiency of Measures: Table 3-5, page 42.*

To rectify these flaws, The Sierra Fund recommends that the following concepts, protocols and information be incorporated into the FREA:

- **Monitoring for mercury should be done according to EPA 1669 Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels (1996).**

The FREA needs to be specific about and qualify the use of methods and practices identified to address the potential for metals to be mobilized by the activities contemplated by the project.

The timing of these practices and the monitoring that should take place to evaluate the impacts, as a part of the creation of turbidity in mercury contaminated sediment deposits, is not currently included in the USACE document.

The FREA should require that protocols for monitoring of mercury follow trace metal sampling protocols outlined in USEPA guidelines 1669 and should develop a comprehensive QAPP that uses these protocols.

- **Earth moving equipment in hydraulic mine debris can cause the release of hazardous mercury into the aquatic environment and needs to be minimized and monitored using best available practices.**

Previous reports by USGS on a hydraulic mine deposit in Deer Creek found that erosion of river banks resulted in the release of 350 cubic meters of mercury-contaminated sediment to the creek between 2011 and 2013 (Howle et al., 2016).

Best management practices (BMPs) that incorporate the current understanding about mercury fate and transport need to be included in the planning and execution of earth moving activities in the Lower Yuba, which is primarily made up of hydraulic mining debris. BMPs may include reducing the disturbance of fine sediments, and avoiding the creation of low flow anoxic conditions.

As an example, on November 1, 2016 the U.S. Fish and Wildlife Service provided to the National Marine Fisheries Service a Biological Assessment and Essential Fish Habitat Assessment for the Yuba River Canyon Salmon Habitat Restoration Project. This assessment included BMPs developed in conjunction with the Regional Water Quality Control Board as part of the water quality certification under Section 401 of the Clean Water Act.

We recommend that USACE develop similar mercury release minimization measures through Section 7 consultation with NMFS as well as incorporation of appropriate minimization provisions as a condition in the 401 permit from the Regional Water Quality Control Board.

- **The creation of low flow channels may increase mercury methylation in the Lower Yuba and needs to be carefully monitored.**

In the Lower Yuba River mercury is a remnant of 19th century hydraulic mines. Mercury is particulate bound and prevalent in the restoration area. Testing for mercury prior to creation of side channels, (See description on page 144), would not be an indicator of the methylation potential of any given side channel created. Hydraulic mining debris containing elemental mercury may settle into side channels after equipment operation on the Lower Yuba River and the methylation of this mercury may be promoted by the shallow low-oxygen conditions of side channels.

As stated on page 39, “anaerobic conditions increase the likelihood of methylated mercury, and fine grain sediments more favorably partition methylated mercury for transport and deposition downstream.”

By accounting for mercury contamination behind Englebright Dam, and not accounting for mercury methylation potential in side channels and mercury contamination in the Lower Yuba River, efficiency scores in Table 3-5, page 42, are not accurate and need to be revised.

- **The creation of backwater and side channels for juvenile anadromous fish, described on page 98 of the USACE FREA, should include adequate mercury monitoring for the effects of mercury fate and transport.**

(Creation of backwater area: page 44, 98; Critical habitat: page 110; juvenile fish habitat in backwater area: page 44, 98; Quantity of Habitat: Table 3-3, page 36.)

Methylmercury is readily incorporated into biological tissue and is the most toxic form of mercury to humans (Alpers et al., 2005). Inorganic mercury is methylated by sulfate-reducing bacteria and other microbes that tend to thrive in low dissolved oxygen conditions (Fleck et al., 2016). Low oxygen conditions are more prevalent in slow moving, warm water, while water moving quickly, even shallow water, and has a higher dissolved oxygen content.

Protocols for monitoring for methylmercury must be described in the FREA as an overarching objective and created specifically for each of the projects as they are implemented and also post project.

B. Fish: The document does not address habitat in any other area of the watershed besides the Lower Yuba, and it references reports that do not accurately represent the habitat upstream of Englebright Reservoir.

Critical habitat for anadromous fish in the Yuba River watershed is only considered for the Lower Yuba River in the FREA (See page 110). New studies continue to document the importance of habitat outside of designated critical habitat, including non-natal tributaries, for growth and survival to juvenile salmon that need to escape high flows, temperatures and sediment inflows from main channel flows (Phillis et al., 2018). The tributaries along with the South, Middle and North Yuba Rivers, provide these benefits but are not considered designated habitat in this analysis.

The estimated quantity of habitat gained with the removal of Englebright Dam is underestimated in the FREA. The FREA uses EC 11-2-206 as a reference for calculating quantity of habitat gained, which was superseded by EC 11-2-208 (page 35). River lengths measured using the measure tool in ArcGIS 10.5, show habitat above Englebright Dam is double the habitat below it in the Lower Yuba. Since fish can still access the Lower Yuba River below Englebright Dam with the removal of Englebright Dam, this habitat should be included in overall calculations of habitat available after removal. Adding this habitat, the quantity of habitat is much greater with the removal of Englebright Dam.

The FREA should be corrected to reflect this more accurate information.

- **Previous studies have not accurately represented the habitat available in reaches above Englebright Dam.**

Previous studies by the Yuba Salmon Forum (2012) summarized the available habitat upstream of Englebright using temperature sensors. A limited number of temperature sensors were placed in easy to access areas with large distances between them for this study. Using these data, the Yuba Salmon Forum (YSF) came to the premature and likely incorrect conclusion that temperatures in the South, Middle and North Yuba Rivers upstream of Englebright were too warm for the survival of anadromous fish.

Specifically, these previous studies evaluated temperature data from temperature sensors that were placed in easy to access locations that were not classified as “optimal habitat,” thus providing data for warmer stretches of water that aren’t used as holding habitat for anadromous fish. For example, one temperature sensor location (Marysville Gage) in the lower Yuba River, used for the habitat analysis was described as “relatively wide and flat, with very little cover or shade” (HDR, 2007). Although providing temperature data for the Yuba River, this sensor was not placed in an area that Salmon would use as refugia, inadequately representing habitat used by Salmon.

The spatial and temporal coverage of temperature sensors in previous studies was inadequate to determine the thermal refugia available as holding habitat for salmonids if they were returned to the upper watershed. The extent and quality of holding habitat upstream of Englebright can be assessed by reconsidering the locations of temperature sensor placement and their representation of thermal refugia. Without this analysis the error and limitation of previous studies will continue to propagate and lead to the premature conclusion that there is no or inadequate holding habitat upstream on Englebright. In 2017, The Sierra Fund began a study evaluating anadromous fish holding habitat in the Yuba River Watershed. This study focuses on holding habitat in pools (≥ 10 feet deep) for spring-run Chinook salmon on stretches of the North, Middle and South Yuba Rivers above Englebright Dam. Previously collected data in Addley et al., 2013, along with additional data collected by The Sierra Fund (2017-2020) will be analyzed to assess holding habitat upstream and its viability for Spring Run Chinook Salmon and other anadromous fish.

Studies to characterize the habitat suitability in the upper Yuba River watershed should be based on comprehensive data collections efforts that represent conditions that fish use over the time periods that fish use them. The FREA needs to evaluate habitat and conditions in the Upper Yuba appropriately and not use flawed studies to support the claim that there is not sufficient habitat upstream of Englebright to warrant its removal for threatened and endangered species.

- **The FREA does not reflect the statutory and regulatory requirements of USACE or Environmental Protection Agency protocols and practices.**

The evaluation for removal of sediment behind Englebright Dam used in the USACE FREA is outdated and improperly represented. The cost estimates for sediment removal does not use the Environmental Dredging techniques developed by USACE in 2008. By using newer techniques described in the USACE 2008 report, a more accurate assessment for removal techniques and

associated costs for removal of Englebright Dam can be established. Furthermore, the FREA report doesn't use USACE protocols and standards to evaluate sediment management opportunities for Englebright.

In addition, as shown above, proposals for monitoring for mercury do not include appropriate protocols as a condition, including EPA 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels (1996). The timing of sediment removal activities and the monitoring that should take place, as a part of the creation of turbidity in mercury contaminated sediment deposits, is not currently included in the FREA document. Monitoring of mercury should follow trace metal sampling protocols outlined in EPA 1669.

The FREA should be revised to reflect these federal protocols.

COMMENT 1: SUMMARY

- ❖ The FREA must be done again using accurate, up-to-date information on available fish habitat and mercury fate and transport.
- ❖ The FREA needs to specify that all ecosystem restoration projects moving gravels and sediments in the Lower Yuba River region must require scientifically rigorous pre- and post-project monitoring for mercury discharge.
- ❖ The FREA needs to specify that creation of backwater and side channels for juvenile anadromous fish should include adequate mercury monitoring for the effects of mercury fate and transport.
- ❖ The FREA should be updated to include more accurate information on fish habitat above Englebright Dam including incorporating new data that has been recently collected in the field.

COMMENT 2: Alternatives to the proposed action do not adequately explore the opportunities, benefits and costs of restoring volitional fish passage through modification of Englebright and Daguerre Dams.

USACE is the only entity with jurisdiction or authority to address fish passage at Englebright and Daguerre Point Dams. USACE is responsible for fish passage at Englebright Dam and Daguerre Point Dam. Fish populations in the Yuba River watershed are struggling because they do not have access to their historic spawning grounds because these two dams mark the present upstream limit of access.

USACE should prioritize its efforts on improving the facilities it owns and is responsible for over doing habitat restoration activities elsewhere. A fish passage project that encompasses Daguerre Point and Englebright Dams will have long lasting benefits for salmon and sturgeon. Habitat restoration projects can be "blown out" in a single storm.

Instead of leveraging this historic opportunity to restore volitional fish passage to the Yuba Watershed, the FREA relies on inaccurate information documented in these comments to dismiss any serious evaluation of the impact of restoring volitional fish passage. The FREA states vaguely (page ES8) that some future study should examine the potential for restoring fish passage.

This is not acceptable. The FREA needs to be redone to include an accurate analysis based on scientifically rigorous information about the costs and benefits of modifying the two USACE projects, Englebright Dam and Daguerre Point Dam, which serve as the primary blocks to volitional fish passage.

A. Modification of Englebright Dam should be explored to provide fish passage.

Englebright Dam blocks access for spring-run Chinook (an endangered species), fall-run Chinook, and steelhead (threatened) to the upper portions of the watershed to spawn. However, the FREA did not carefully evaluate modification of Englebright Dam for fish passage or mercury discharge from the dam.

It is important to note that the report ONLY considered “removal” of Englebright instead of examining a variety of alternatives such as “notching” the dam. This left only dam removal, the most expensive alternative, on the table for consideration.

Further, the document wrongly promotes outdated and misguided assumption that Englebright Dam is holding back legacy mercury leftover from gold mining operations, preventing it from going further downstream. This is incorrect, and in fact the Englebright Dam is discharging particulate bound mercury every time it spills water over its edge, especially during winter flooding conditions. This particulate bound mercury can remain suspended in water and travel long distances – as far downstream as the San Francisco Bay, Delta and estuary.

Another outcome of overlooking mercury and the potential to remove mercury from the Yuba Watershed (by treating and removing contaminated sediments behind Daguerre Point and Englebright Dams) is that the potential economic benefits of removing this neurotoxin from the watershed is not mentioned. The potential for mercury contaminated sediment removal in the upper watershed to produce cleaner water and sediment discharge to the lower system is not monetized or mentioned.

It is also worth noting that the costs of removing the Englebright Dam were evaluated in the report but evaluation of the economic benefit of restoring volitional fish passage was entirely absent.

Englebright Dam modification or removal would have a higher average overall efficiency ranking in the alternatives analysis if more accurate estimates were used to evaluate the costs of sediment removal, and the benefits-costs analysis was conducted per section 905(b) including consideration of the economic benefit of restoring volitional fish passage. See *Cost Limitations: section 3.4.3, page 34, 35.*

- **The cost estimates for sediment removal and treatment in the FREA are not supported.**

The cost estimates for the removing sediment from behind Englebright are not supported by factual information in the FREA. The Sierra Fund can demonstrate that the cost estimates included in the USACE FREA, for sediment removal behind Englebright dam included in *Table 3.2* (page 35), are overestimated. The Sierra Fund will provide under separate cover our cost estimates for this operation (Wallace and Monohan, 2018).

With the USACE's very high cost estimate in the FREA, removal of Englebright Dam's average overall efficiency drops significantly. These cost estimates must be evaluated and potentially revised.

- **The cost estimate for sediment removal does not use the Environmental Dredging techniques developed by USACE, 2008.**

In a 2008 document written by US Army Corps of Engineers, guidelines are provided for evaluating environmental dredging as a prospect for sediment removal (Palermo et al., 2008). This document specifically describes technical aspects of environmental dredging, transporting contaminated dredged materials and directly related tasks associated with environmental dredging (i.e. monitoring before, throughout and after dredging, risks, conditions, etc.) (Palermo et al., 2008). Although written by the USACE, the 2008 document is not used in evaluating environmental dredging behind Englebright Dam in the FREA. The evaluation parameters for removal of sediment behind Englebright Dam used in the FREA are outdated and improperly represented.

By basing analysis on the newer techniques described in the USACE 2008 report, a more accurate assessment for removal techniques and associated costs for removal of Englebright Dam can be established. The FREA should be revised to include the methods described in USACE 2008, along with a more accurate estimate of the costs of these techniques.

- **The costs estimates for sediment removal do not consider the potentially substantial off sets of sellable aggregate and gold or the potential use of some of these materials for restoration activities.**

Based on our preliminary estimates, not included in the FREA, gold recovery from sediment removal from behind Englebright Dam could be used to partially offset the cost of the operation (Wallace and Monohan, 2018). Sand and gravel production could also be used to further offset the cost of sediment removal (Wallace and Monohan, 2018). In addition to the potential for commercial sales of these construction materials, sand and gravel from the operation could be used for gravel augmentation activities that would be needed to restore fish passage.

The FREA needs to be revised to reflect this potential source of income from the project.

- **A USACE-led pilot dredging and sediment management project should be developed to determine the viability of dredging sediment from an existing reservoir as a precursor to fish passage.**

The purpose of a Section 905(b) analysis, also known as a reconnaissance report, is to address the requirements of Section 905(b) of the Water Resources Development Act of 1986. The purpose of this 905(b) analysis was to determine whether there is a Federal interest in participating in a cost-shared feasibility FREA to investigate ecosystem restoration in the Yuba River Watershed in the interest of water resource development opportunities.

Based on consistency with Army and budgetary policies and the likelihood of a project meeting criteria for Federal participation in implementation, the USACE recommended continuing with a feasibility FREA. Based on USACE benefit-cost guidelines, the USACE did not include sediment removal prior to dam modification as an option to be considered in the feasibility FREA. However, the USACE benefit-cost guidelines did not take into account the economic value of gold and aggregate which may offset project costs. Furthermore, the potential benefits to ecosystems that dam removal or lowering may have for anadromous fish in the form of volitional passage opportunities and access to habitat was not taken into account.

The FREA should be revised to recommend development of this pilot project between the USACE Sacramento District Office and the USACE Environmental Laboratory in Vicksburg, Mississippi. This project could establish practices and technologies to minimize impacts on water quality, explore options for sediment management, and provide data for a detailed feasibility FREA and benefit-cost analysis.

- **The removal or modification of Englebright Dam would double the amount of habitat available, providing a higher carrying capacity for the Yuba River Watershed, thus allowing more fish to migrate to the watershed.**

(Studies (Yuba Salmon Forum Summary Habitat Analysis): section 1.5.2, page 12.)

Englebright Reservoir represents the current upstream boundary for anadromous fish due to its impassable dam (Gathard Engineering Consulting, 2014). Approximately 30 miles of habitat would be restored with the Yuba River Restoration efforts by USACE. Anadromous fish, specifically federally endangered spring-run Chinook salmon, are limited by the amount of available, suitable habitat. With the removal of Englebright Dam, a minimum of 60 additional miles of habitat become available, without removing any additional facilities.

The FREA must be revised to reflect this more accurate information about the amount of fish habitat above Englebright Dam.

- **The economic benefit estimates for Englebright Dam removal are not described.**

Because the modification of Englebright Dam to provide volitional fish passage is dismissed as too expensive, the economic benefits of a restored volitional fish passage are not calculated. The

potential for this restoration to provide enormous benefits to the immediate region as well as the larger Sacramento watershed should have been a central part of this analysis.

The FREA must be revised to include the economic benefits of restoring of volitional fish passage to the entire Sacramento watershed as well as the economic benefit of reducing mercury discharge from Englebright Dam to downstream water users.

- **The cost of doing nothing with regard to Englebright Dam will eventually result in long term operation and maintenance costs due to the sediment building up behind the dam. These costs are not considered in the FREA.**

The FREA fails to look at the long term economic and ecosystem impact of NOT modifying Englebright Dam. Englebright Reservoir continues to be operated although it provides little benefit. Englebright Dam was installed as a debris control dam (DCD), to contain hydraulic mining sediment and prevent it from being flushed downstream (James, 2005). Englebright Reservoir was not created for flood control, water storage, or power generation. Englebright Reservoir contains 21 million cubic yards of sediment deposited since its completion, reducing its overall capacity by 25% (Alpers et al, 2006). The sedimentation rate is high compared to other lakes and reservoirs; it is accumulating sediment at approximately 0.5 meters per year (Alpers et al., 2006).

Sediment continues to be contained in Englebright Reservoir. By leaving Englebright Dam in place, operation and maintenance of the facility will need to be continued (e.g. gravel augmentation below Englebright Dam to provide proper gravel sizes for spawning salmon (Pasternack, 2010), Habitat Studies for Threatened and Endangered Species (Pejchar and Warner, 2001), and others, adding cost yearly. While there is habitat below Englebright Reservoir, there is limited area for migrating fish. Without adding quantity to the amount of quality habitat available to anadromous fish, the carrying capacity of habitat will be limited to below the reservoir, allowing a finite number of fish in the available stretch.

The FREA should be revised to reflect Englebright Reservoir long-term operation and maintenance costs as one “cost savings” in removing or modifying the Englebright Dam.

B. Daguerre Point Dam must be removed or modified. It is killing fish.

(Cost risk/uncertainty due to potential for mercury contamination: page 39. Unresolved Ecological Problem: section 3.4.4, page 43.)

Daguerre Point Dam on the Yuba River impedes fish passage for Chinook, steelhead, and sturgeon. It no longer functions as intended and USACE should take action now to fix this obstacle to fish.

Daguerre Point Dam was installed during the Gold Rush era as a catchment basin for mining debris (Pejchar and Warner, 2001). Daguerre Point Dam is 6.4 meters tall, enough to block approximately 40% of anadromous fish migration (Pejchar and Warner, 2001). Without a functional fish ladder, fish have trouble navigating through Daguerre Point Dam (Yoshiyama et al.,

2001). The area behind the dam is full of mining sediment, and thus the dam is no longer able to catch substantial sediment (Pejchar and Warner, 2001).

- **Sediment from behind Daguerre should be removed now before restoration efforts begin.**

The FREA should require that the sediment behind Daguerre Point Dam should be removed before lower river restoration efforts begin. By removing the mercury contained in the sediment behind the Daguerre Point Dam, re-introduction and methylation into the water system would be reduced. This option should be fully explored in a revised FREA.

This is especially true if construction of fish ladders is proposed to get around the Daguerre Point Dam. Fish ladder modifications could release sediment. Thus removing the sediment trapped behind this old dam prior to beginning ecosystem restoration is crucial.

In order for fish passage to occur using fish ladders, modification of existing ladders are needed (Hunerlach et al., 2004). With these modifications, sediment behind the dam could be released, possibly introducing contaminants into the River (Hunerlach et al., 2004). In order to improve habitat in the Lower Yuba River, passage over Daguerre Point Dam will be needed to maximize quantity of habitat to the upstream limit, Englebright Dam.

The removal of Daguerre should be considered in the revised FREA, not just modifications and associated fish ladders.

- **The cost of doing nothing at Daguerre Point Dam is creating operation and maintenance problems and costs due to the sediment building up behind the dam. These costs are not considered in the FREA.**

The FREA should be revised to reflect the cost of doing nothing at Daguerre Dam Point in terms of long-term operation and maintenance costs.

C. If modification of the Englebright and Daguerre Point Dams is pursued AFTER the Lower Yuba River is restored, all the Lower Yuba restoration efforts could be lost and the investment wasted.

Throughout the FREA, Englebright Dam and Daguerre Point Dam removal remains a possibility, following an undefined future “in-depth examination.” Dam removal investigation may advance in the near future in part because of the environmental benefits, shown in *Table 3-4* of the USACE FREA (i.e. fish passage for threatened and endangered spring-run Chinook salmon, removal of contaminated sediment captured behind the dam, etc.).

Although risk and cost of Englebright Dam and Daguerre Point Dam removal appears to be overestimated in *Tables 3-5 and 3-6* (page 39 under risk and uncertainty regarding efficiency ranking), its ecological benefits are too great to be ignored. Since the removal of Englebright/ Daguerre remains a possibility to restore river connectivity, restoration efforts below Englebright/ Daguerre

dam should be done POST removal of either or both dams. This should be a key finding of the FREA.

COMMENT 2: SUMMARY

- ❖ The FREA must be revised to reflect a vigorous evaluation of the costs and benefits of restoring fish passage through the USACE dams at Daguerre Point and Englebright including the costs of the removal and treatment of sediment; the downstream economic benefit of reducing mercury discharge from these two failing debris control dams; the Sacramento Valley-wide economic value of restoring fish passage; as well as the cost of doing nothing at Daguerre Point Dam and Englebright Dam.
- ❖ The FREA should evaluate and address the problems associated with pursuing Lower Yuba River restoration prior to modification of the upstream Daguerre Point and Englebright Dams.

COMMENT 3: The scope of the FREA should have included the larger issue of fish passage as a central focus of this ecosystem project.

As noted in the FREA, the Authority for USACE to pursue projects for flood control and allied purposes including ecosystem restoration was granted in Rivers and Harbors Act of 1962, P.L. 87-874. Section 209 specifically targets rivers and streams in northern California draining into the Pacific Ocean for the purposes of developing *multiple-purpose water resource projects* (emphasis added), particularly those which would be eligible under the provisions of title III of Public Law 85-500. PL 85-500 Section 301 (b) provides that “reasonable value may be taken into account in estimating the *economic value of the entire project* (emphasis added).” Further, Congress authorized investigation into ecosystem restoration opportunities in the Sacramento River Basin and streams in northern California draining into the Pacific Ocean, including the Yuba River watershed.

As part of this process the following objectives were defined as part of ecosystem restoration:

- Improve the quantity, quality, and complexity of aquatic habitat.
- Improve the quantity, quality, complexity, and connectivity of riparian habitat.
- Improve longitudinal river connectivity.
- Improve lateral connectivity of the river to its floodplain.

The generous nature of the enabling statutes allows the projects to look broadly at benefits of watershed restoration throughout the whole Sacramento Watershed and in more detail at the Yuba River. In contrast to this broad authority, the analysis in this FREA leaves out both ecological and economic cost benefit analysis of the proposed project for the whole Yuba watershed and the larger Sacramento Valley

As noted in the Executive Summary, the FREA does not address the entire scope of its authority. Instead, it has narrowed its focus to a fraction of the Yuba, especially in calculating both the potential economic benefits of restoration and its costs. We believe that this narrowness of focus does not serve the spirit of the statutory authorities.

The Yuba Watershed encompasses 1,340 square miles on the western slopes of the Sierra Nevada Mountain Range. The FREA proposes 179 acres for restoration (0.28 of a square mile or .00002 percent of the Yuba River Watershed) for a price of approximately \$100 million. As documented above, the price of this option is likely under estimated because this project has hazards and expenses that are not documented in this FREA. In addition, the costs of alternatives such as modification of dams to restore fish passage, were incorrectly assessed as well.

The cost of the restoration project is significant. Yet it will result in very limited, though important habitat restoration. Furthermore, the project is being implemented in the wrong order of operation. Because the scope of the study is incorrect, it puts the Lower Yuba River restoration activities ahead of fish passage restoration. The ecosystem activities proposed here may waste time and money by not first pursuing activities suggested in these comments such as removing sediment from behind Daguerre Point Dam prior to beginning restoration in the Lower Yuba River.

Due to the limited scope of the project, the economic benefits of a broader study that would address the USACE ecosystem restoration activities, such as the impact of improved water quality and restored fish passage, are not considered. In addition, the multiple benefits of a broader project including the generation of marketable products such as sand, gravel and gold are not considered. These oversights fail to consider the economic benefits of the modification of Daguerre Point Dam and Englebright Dam in developing the cost benefit analysis for the project.

The FREA itself notes on page 43 that the FREA has “unresolved ecological problems.” As proposed this FREA does nothing to restore fish passage, and actually recommends an additional FREA to solve this problem. Why not address all ecological problems now with a defensible and holistic FREA? We have demonstrated that much of the underlying science and evaluation of project costs and benefits that are used to make a decision in the document are incorrect. This means that the conclusion that the preferred project reasonably maximizes ecosystem restoration benefits in the Yuba River Watershed relative to costs is *incorrect*. And, this means that the document does not meet statutory requirements.

COMMENT 3 SUMMARY:

- ❖ The FREA must be revised to take a broader look at the ecosystem restoration opportunities, especially fish passage, which USACE has specific obligations to protect.

COMMENT 4: The USACE partner, Yuba County Water Agency, may have a conflict of interest related to their Narrows Dam project and other management priorities.

The USACE partner, Yuba County Water Agency (YCWA), may have a potential conflict of interest in promoting and financially supporting an ecosystem restoration project selection that entirely ignores modification of existing USACE dams including the Englebright and Daguerre Point Dams.

As noted in the report, USACE initiated the Yuba River Ecosystem Restoration Feasibility Study in 2015 at the request of the Yuba County Water Agency (YCWA), the non-Federal sponsor for the study. The USACE and the Yuba County Water Agency (YCWA) are the lead agencies in the Feasibility Study and share the cost of the study equally, pursuant to the Feasibility Cost Sharing Agreement executed by the parties on June 2, 2015 and amended July 31, 2017. The result of that contact is this FREA.

This FREA looks at the feasibility of reducing the impacts to listed salmonids WITH EXISTING PROJECT CONDITIONS. That would include Englebright and Daguerre Point Dams protected in place. This is important for YCWA, the non-federal sponsor on the study, as they prepare for the relicensing of the Yuba River Development Project under FERC No. 2246.

YWCA has a vested interest in protecting the potential Narrows Dam site in place for hydroelectric generation, and Daguerre protected in place for water deliveries through Hallwood and Brophy Canals. This is made clear with the description of the *Future Without Project Condition assumption* (Main Report page 26) that described a future that will continue to be overshadowed by the presence of large dams blocking fish passage in the Yuba River Watershed. This is not a watershed approach as would be appropriate under a 905(b) reconnaissance study.

In addition, the YCWA is currently undergoing review of their FERC license on the New Bullards Bar Dam, including looking for ways to mitigate the impact of their dam on fish habitat and fish passage. While it is clearly stated in the FREA that the final project cannot pay for actions that are legally required of another entity or that are included as Operation and Management costs of an existing USACE project (e.g. mitigation requirements of FERC licenses, NMFS May 2015 Biological Opinion) it seems at least possible that YCWA may be able to use this project as potential mitigation for their FERC relicensing requirements.

The decision to exclude the impact of USACE dams on the Yuba River was made as part of the FERC relicensing process on the New Bullards Bar Dam, a decision justified at the time because Englebright construction preceded the construction of New Bullards Bar. However, there is no scientific or policy justification for the exclusion of the alternative to modify Daguerre Point and Englebright Dams from the USACE FREA and only look at the Lower Yuba River restoration. This decision to confine the bounds of the FREA may have been unduly influenced by YCWA's interests and needs.

Lower river restoration project described in the FREA provides many real benefits for YWCA customers and constituents. However, YCWA should not be in position to partner on a USACE project where they have such a demonstrated conflict of interest.

This conflict of interest could and should have been avoided by both parties. USACE should have never agreed to enter into this contract with YWCA. Section 1506.5(c) under NEPA prohibits a person or entity entering into a contract with a federal agency to prepare an EIS when that party has at that time and during the life of the contract pecuniary or other interests in the outcomes of the proposal.

This issue of a potential conflict of interest is also addressed directly under the Council for Environmental Quality (CEQ) “40 Questions.” Question 23a addresses the issues that arise when there are conflicts between a federal proposal with land use plans, policies or controls.

It asks: How should an agency handle potential conflicts between a proposal and the objectives of Federal, state or local land use plans, policies and controls for the area concerned? (See Sec. 1502.16(c).

Answer: The agency should first inquire of other agencies whether there are any potential conflicts. If there would be immediate conflicts, or if conflicts could arise in the future when the plans are finished, the EIS must acknowledge and describe the extent of those conflicts. If there are any possibilities of resolving the conflicts, these should be explained as well. The EIS should also evaluate the seriousness of the impact of the proposal on the land use plans and policies, and whether, or how much, the proposal will impair the effectiveness of land use control mechanisms for the area. Comments from officials of the affected area should be solicited early and should be carefully acknowledged and answered in the EIS.

COMMENT 4 SUMMARY:

- ❖ YCWA has a conflict of interest in decisions regarding the restoration of fish passage on the Lower Yuba River. The USACE needs to find a new partner for their work on ecosystem restoration projects in the Yuba River watershed.

CONCLUSION AND FINAL RECOMMENDATIONS

We believe that the FREA needs to be rejected in its entirety. The opportunity to restore fish passage must be explicitly evaluated and not just mentioned as an issue needing “future study.” After more than two decades of debate, **this is the study** that needs to take on the big issue of fish volitional passage restoration. By leaving this important element out of the study the huge economic benefits of restoring this vital ecosystem to allow anadromous fish passage for species including salmon and green sturgeon is entirely omitted.

We request that the USACE not approve the National Environmental Restoration (NER) plan (Alternative 5) as the Tentatively Selected Plan (TSP). Instead, we ask USACE to

1. Identify a new local partner to fund the effort; and
2. Revise the Yuba River Ecosystem draft FREA to propose a plan actually restores ecosystem health and fish passage for the Yuba River Watershed. The USACE needs to redo the FREA to examine methods to restore fish passage and reconnect flood plain fish to upper watershed habitat. The FREA project should restore the Yuba River Watershed and specifically the fisheries in our state by modifying Daguerre Point Dam and Englebright Dam to accommodate fish passage. The economic benefits of these activities should include the impact of volitional fish passage to restore vital fish species including spring-run Chinook salmon and green sturgeon, as well as the downstream impact of reducing mercury discharge from this region.

The California Gold Rush greatly benefited our nation. It is time to give back to the communities and ecosystems still blighted by the impacts of this era. Financial gain from gold mining in the Sierra Nevada directly benefited the Nation as a whole (Richards, 2008). The United States was able to expand trading opportunities and finance the Civil War and the Mexico – United States War because of the Gold Rush. Yet the Gold Rush left the Sierra Nevada region severely degraded with scars and pollutants from hydraulic and hard rock mining (Richards, 2008). The region from which so much was gained remains degraded.

Financial assistance to help restore the Sierra Nevada should be provided by our nation which benefited from its damage. The Federal Government should financially assist removing Gold Rush produced mercury contaminated materials, captured by Englebright Dam and Daguerre Point Dam.

The USACE has done some truly incredible restoration projects in the past, such as the work done at Lake Isabella in the southern Sierra Nevada. This project needs to be improved to meet the standards we know USACE is capable of. The time to restore the Yuba River watershed and ecosystem is NOW.

Thank you again for this opportunity to comment. Please feel free to contact us if you have any questions.

For the Sierra,



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CEO



Dr. Carrie Monohan
Science Director

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