No. 458

Letter from Wilkie Talbert, Continued

to greatest advantage and will generate substantially more power.

The dynamics of flow through the turbine tends to push fish away from the blades. No damaged fish were found around the Cape Cod test facility.

Other characteristics of Gorlov's Turbines:

*Turbines are made of an aluminum alloy that is corrosion proof and are light weight but very sturdy.

*Several turbines may be mounted on a common drive shaft to optimize the size of the generator or pump and the transmission arrangement. Power may be directed to either a generator or pump at different times.

*Since the turbines are modular they may be ganged to meet a desired power output.

*Turbine rotation is smooth with no vibration or dead startup zones.

4. Dr. Gorlov has licensed his designs to GCK Technology. His experimental work has included several small sizes and has ranged up to 24 and 40 inch diameters with 2,3, and 4 blades. Current work with GCK is aimed at establishing a production model that can be economically produced and sized to fit a variety of applications.

Their current goal is to establish a moderate sized, long term, full time operating facility in order to obtain operating experience under real world conditions. They see the situation here at Red Bluff as being near ideal and have expressed an interest in aiding Red Bluff to initiate the generating station and participate in the design and operation.

5.The Shasta College Technology Center could be involved in the generating station in a variety of ways, both academic and practical. GCK would likely wish to do studies which would involve students in doing research and aid in conducting the work. Siting of the Center near the dam should be considered since close access between an operating laboratory and classroom facilities with a library would be very favorable to both. The possibility of occasional visits by Dr. Gorlov himself would provide interest and incitement to students as well as inspiration.

Also note that the Sacramento River Discovery Center Charter School is expanding it's curriculum to 12th grade and is very close to the dam.

2

No. 458

Letter from Wilkie Talbert, Continued

6. The existence of established academic faculty at Chico State University would be of substantial aid in this program. Dr. Richard Holman, a full professor at Chico has been an essential member of the Red Bluff United Trails Group and various Watershed Restoration activities.

His participation will be sought in accomplishing velocity profile measurements of water flow while Lake Red Bluff is in this summer, and then in the fall after the lake is released. These measurements will be essential to determining the power potential of the Gorlov turbines at the dam. GCK Technology will also participate in these measurements to aid in beginning a design program to evaluate the cost and performance potentials. Longer term academic and practical participation by Chico personnel will be of substantial aid to all parties involved.

7. Longer Term Wind Power Generation

The Sacramento River Generation Station can be considered a near term initiation project with it's own characteristics. There is also a long term project involving wind power.

Recently, I noticed a web site for the American Wind Energy Association (www.awea.org) and found several references for California Wind Resource Potential including the Northern and Southern California Maps in the Wind Energy Resource Atlas of the United States. These maps have contour lines that designate the Wind Power Class of enclosed regions. These Classes range from Class 1 - most of the valley locally - to Class 6 - the highest class shown on the maps- which includes locations such as Altamont, Tehachopi, and San Gorgonio where all the Southern California wind generation facilities are located.

In looking at the Northern California map it was immediately apparent that north of San Francisco there were only three cities shown - Sacramento, Eureka, -- and Red Bluff !! Closer inspection revealed that there were two Class 6 regions, each about 30 to 40 miles from Red Bluff, one east in the Mt. Lassen region and one west in the Yolla Bolly region.

Attempts to clearly delineate these regions have not been successful as yet. They appear to be at the edge of Tehama County and are likely on Forest Service land, but whoever the landowner is, could Red Bluff Municipal Power do the development once it has accomplished the Sacramento River Generating Station ?

3

No. 458

Letter from Wilkie Talbert, Continued

It is also interesting to note that the Gorlov Helical Turbine can be designed to use as a wind turbine with all the advantages previously discussed for the water turbine:

* Power generation varies as the cube of the wind speed. Double the velocity and the power is increased eight times.

*Efficiency of 35% compared to 20% or less for propeller type wind turbines

* Light sturdy structure.

* Modular turbine design that can be ganged on a common shaft to meet a given generator capacity and multiple shafts to meet a desired total power production.

*Vertical shafts put the generator on the ground or a fixed base with the turbine shaft extending upwards. Turbines rotate smoothly with no vibration in the same direction, starting with no dead spots at low wind velocities, and increasing speed over a wide range of wind velocities.

*Turbines on vertical shafts will rotate independently of wind direction.

*The complexities of tower rotation to face into the wind and variable pitch propeller blades are eliminated.

The relationships previously noted for the Charter School, Shasta Technology Center, and Chico State University would enable staff and students to participate in wind turbine design and operation as well as for the water turbines.

This would put the City of Red Bluff in the enviable position of aiding and abetting the development of a new direction in sustainable, pollution-free alternative energy production which also provides income to the City.

4

No. 458

Letter from Wilkie Talbert, Continued

Conclusion:
It is not my purpose to promote any of the aspects of the projects discussed. Rather, I wish to simply point out some technology that has recently emerged and that could be of unusual significance to the City in several ways:

* Direct income.

* Jobs.

* Partial control of electric power rates to the local communities and agriculture.

* Drawing interest for desirable new businesses.

*Managing favorable relationships with local educational interests.

*Playing a leading role in advancing emerging, sustainable, non-polluting energy sources.

Just how significant any of these areas are depends largely on evaluating the river flow with Lake Red Bluff in and out in order to estimate how to manage the water velocity at the dam since the power generation potential varies as the cube of the water velocity--an extremely strong function. Since the lake is in for the next four months it is imperative that some water velocity profiles be made during this time and likely after the lake is released. This information will be essential for the City management to determine the most appropriate future course of action.

5

No. 458

Letter from Wilkie Talbert, Continued

Appendix

1. Estimates of Power Production and Value
2. Edison Patent Award Recipient
3. Photo of Turbine
4. Photo of Turbine and Cage, Korea Project
5. Drawing of Turbine, Korean Project
6, Turbine Comparisons
7. GCK Technology Website Text

1

No. 458

Letter from Wilkie Talbert, Continued

Estimates of Power Production And Value

Power estimates were made near the end of June when the flow through the gates was 11,880. cubic feet per second (cfs), and centered on the dam as follows:

Gates #3 and #9	#4 and #8	#5 and #7	#6	Total
Opening 0.5 ft.	1.0 ft.	1.7 ft.	3.5 ft.	9.9 ft.

Since the gates are 60. ft. wide, the total opening area was 594. sq. ft. and the flow velocity 11,880. / 594. = 20. ft./sec. = 6 meters /sec.

From Dr. Gorlov's notes, the production turbine as used in Korea is 40. in. in diameter, 100. in. long and develops 96 kw in a flow velocity of 6. m/s.

Along the 60 ft. gate length of 60 x 12 = 720. in. it might be possible to locate 7 turbines horizontally near the downstream side of the gate, leaving 20 in. for spacing.

Hence, for the center gate, #6, the gate opening is 3.5 ft. = 42. in., and the turbines are fully loaded, developing 96. kw each, totaling 672. kw.

Gates #5 & 7 are open 1.7 ft. = 20.4 in., and the turbines are half loaded, with 14 turbines developing 672. kw. at most, but likely somewhat less if the velocity is really reduced.

The rest of the gates could not be used very well with these turbines.

The value to the city would be a reduction in power consumption at a reported rate of $0.075 per kilowatt hour, amounting to 2 x 672. kw x 24 hours x 0.075 = $2419. per day.

Alternatively, suppose gates #5, 6, and 7 only were open with a combined height of 9.9 ft., so that each was open 3.3 ft = 39.6 in., or slightly greater to 40. in. so the turbines were all fully loaded. Then 21 turbines developing 96 kw each yield 2016. kw, or 2 megawatts. The value is then $3629. per day.

Note that it's more likely that only 6 turbines could fit in the 60. ft. gate width with structural mounting considerations. This would reduce the power to 1728. kw and the value to $3110. per day.

2

No. 458

Letter from Wilkie Talbert, Continued

Damage Potential Avoidance

Since debris can not be screened out out of the river and large stumps and logs occasionally pass through, some method is needed to avoid catastrophic damage.

1. Advance Warning
   Advance warning could be provided by sonar stations located upriver on each side and up the nearby creeks. These stations would likely be active only during hazardous periods but would need 24 hour monitoring at a central station near the dam.

2. Mounts (see photo for vertical mount cage used in Korea)
   The cage would provide protection for smaller debris. For larger debris the mounts should be designed so that each turbine module including the generator could be lifted clear of the water fairly quickly. The turbine would be horizontal with a vertical shaft to the generator above the water. The cage mount would be pivoted and counterbalanced by the generator so that all electricals and drive mechanism would be above water, and the drive force needed to pivot the whole module would be minimal.

   The mount design should also enable the turbine modules to be moved to different gates. During the summer with the lake in, the flow would be through the center gates , but with the lake out and all, or most, of the gates up, the flow is directed by the gravel bars toward the east side , gates #2, 3 and 4.

   The modular design also means that debris damage would likely be limited to one, or a few, of the turbine modules, and the remainder of the system would continue generating while the damaged modules were replaced with spares. The damaged modules could then be repaired as time permitted and become the next spares.

Fish Passage

Fish behavior has been reported as seeking flows ranging from perhaps 4 to 10 ft/sec velocities and avoiding much faster flows. The highest swim velocities are up to perhaps 22 ft/sec for brief bursts.

3

No. 458

Letter from Wilkie Talbert, Continued

The turbine operates best at higher velocities, and power production varies as the cube of the velocity. At 20 ft/sec the turbine produces 96 kw but at 10 ft/sec only 12 kw, down to 1/8 power for a velocity reduction of 1/2.

Hence, the dam gates could be adjusted to give the highest flow speeds at a few gates away from the fish ladders, maximizing the power produced and minimizing fish near the turbines.

At low speeds, the turbines would still produce some power, but the fish tend to be pushed away from the rotating turbine by the hydrodynamics of the flow pattern around the turbine.

Hence, both these effects, fish behavior and turbine flow patterns, tend to avoid fish contact with the turbines, promote fish movement toward the ladders, and maximize power production.

Costs and Value

The cost of the turbine itself was estimated at $3400. in production. The turbine module would include the cage and generator, and has been estimated at $10K to $15K depending on the required generator and cage complexity. Hence, the hardware cost of 18 modules plus 3 spares is in the range $210K to $315K.

Additional costs to be estimated are:

* Modules and mounting to the existing dam structure. Design, construction, and installation.
* Sonar stations and central monitoring facility, including administrative and operational spaces near the dam.
*Personnel required for 24/7 full year operation.

Cost estimates for the large scale ocean systems turn- key facility, but not operation, have been in the $2000. to $2500. range. Using the previous example of 18 turbines on 3 gates generating 1728. kw yields facility costs of $3.5 to $4.3 million.

Value for the 4 month summer period with the lake in would be $3000. per day x 120 days = $360,000.

4

No. 458

Letter from Wilkie Talbert, Continued

Estimating the power production for the 8 month balance of the year is uncertain in that it depends on weather conditions leading to releases from Shasta and Keswick dams, and drainage through the creeks. Even more uncertain is that heavy river flows will bring large debris down, and the modules would likely be pulled up to avoid damage.

The Bureau of Reclamation has abundant data taken daily for the years since the dam was built. This data could be analyzed for likely annual flows with allowance estimates for heavy debris periods. Flows ranged widely--January 1979, for example, ranged from 112K cfs to 4.2K cfs.

Flow data presented in the EIS/EIR study, Figures 3.3-4,5,6 well illustrate the extreme flow ranges and averages. Long term average flows are in the 15K to 20K acre-ft/day range.
Converting: 1500. acre-ft/day x 0.5042 =7,560. cu.ft./sec
2000. acre-ft/day x 0.5042 = 10, 084. cu.ft./sec

These correspond to power and value levels of:

Flow, cu.ft./sec	Power, kwh	Value, $/day	$/period
11,880.	1728.	3110.	x 4 months = 373K
10,000.	1062.	1912.	x 8 months = 459K
7500.	432.	778.	x 8 months = 187K

Hence, value over a year = $373K + $459K = $832K Typical?
= $373K + $187K = $560K Minimum??

Note that the power produced and value are extremely sensitive to water flow velocity, varying as the velocity cubed.

Small changes in gate openings can have dramatic effects on power produced and value. In particular, during the no-lake period with low flows, some of the gates could be closed to shunt flow to gates with modules, significantly increasing the velocity through the turbines, and hence, the power produced and value.

As the system is operated, the personnel will learn how to maximize the power produced without excessive risk from debris, and annual value could easily reach $1 million.
This implies the system payback time will be only a few years.

Funding for this program will be from grants.

5

No. 458

Letter from Wilkie Talbert, Continued

Edison Patent Award Recipient

Professor Alexander M. Gorlov of Northeastern University in Boston is the 2001 recipient of the ASME Thomas A. Edison Patent Award for his invention of the Gorlov Helical Turbine. The Edison Patent Award was established in 1997 to recognize the creativity of a patented device or process that has the potential of significantly enhancing some aspect of mechanical engineering. Professor Gorlov is a Professor Emeritus of mechanical engineering at Northeastern.

Gorlov has had a rich professional lifetime involved in mechanical invention. His main interest has been in harnessing low head hydropower, using naturally occurring river and tidal flows, and wind power for the direct, clean generation of electricity.

His initial efforts were with the Hydro-pneumatic Power Converter, a device that was able to use the energy in a flowing stream to compress air, which then was directed to an air turbine. In an attempt to improve the efficiency of this device, Gorlov investigated the use of the Darrieus Turbine to replace the conventional air turbine. Unfortunately, the Darrieus design suffers from dynamic instabilities that make it impossible to operate at high speed. In further research, Gorlov made a significant innovation. He replaced the straight blades of the Darrieus Turbine with blades curved in a helical shape, so that the air or water flow is always interacting with a fixed area of blade surface, thereby eliminating the near-destructive pulsations of the Darrieus design. This innovation, coupled with extensive optimization studies, led to a series of patents for the Gorlov Helical Turbine, the invention which currently shows promise for alleviating the worldwide crisis in energy use, and the one for which the Edison Patent Award was granted.

The Gorlov innovation makes possible the high efficiency conversion of kinetic energy from relatively slow-moving and multidirectional fluid flows (air or water) into electrical energy. The device is self-starting and always rotates in the same direction, independently of the fluid flow direction. In conjunction with an attached electric generator, it may be used to provide local power in remote areas or third-world countries. In addition, the devices may be used in large-scale power farms either for the direct clean production of electricity or for the electrolysis of water into hydrogen, in particular, using ocean currents. The turbine is being proposed for a massive development in Korea, and a small demonstration project is underway on Vinalhaven Island, Maine.

Double-Helix Turbine
(for underwater installation)

Triple-Helix Turbine
(generator above water)

Power systems for free flows with different helical turbines

No. 458

Letter from Wilkie Talbert, Continued

No. 458

Letter from Wilkie Talbert, Continued

Subject: Turbine in Korea
From: Alexander Gorlov <amgorlov@coe.neu.edu>
Date: Mon, 12 Aug 2002 16:53:49 -0400
To: TalbertWilkie Talbert <wilkiet@snowcrest.net>

Dear Mr.

Attached is the Twin Helical Turbine (GHT) in the tidal currents of Korean Peninsula

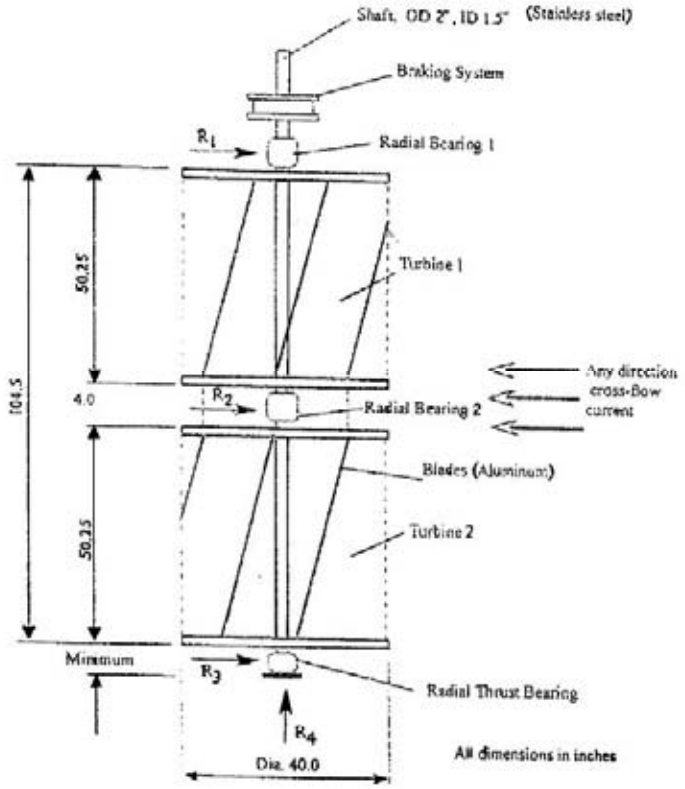
A.Gorlov

No. 458

Letter from Wilkie Talbert, Continued

GHT FOR THE ULDOLMOK CHANNEL (KOREA) PROJECT

Triple-Helix Twin Turbine Assembly



WEIGHT – about 200 LB
WEIGHT in water – about 90 LB

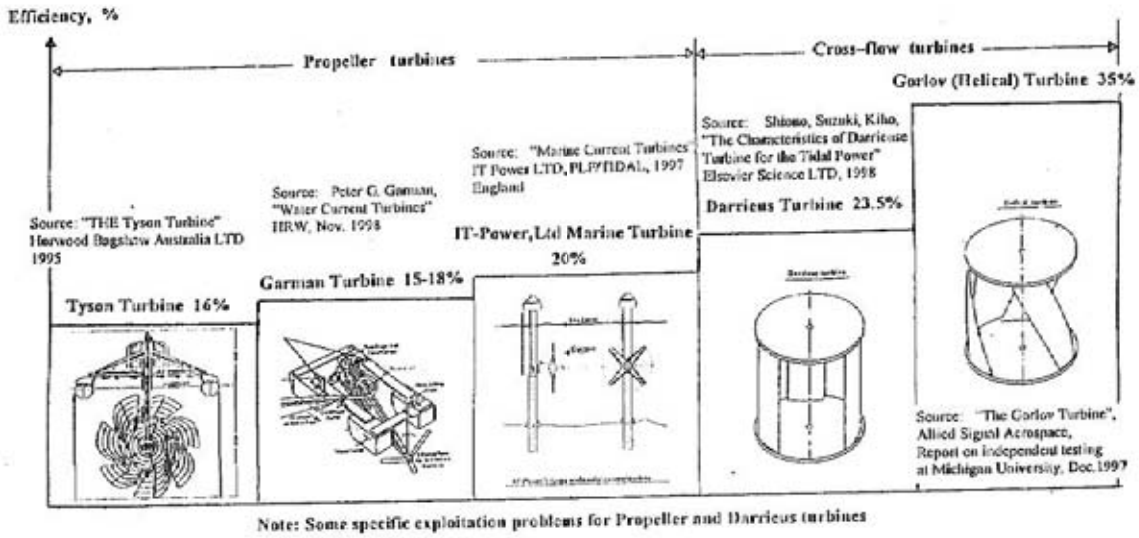
NOTE: This configuration is for heavy current flows. For lighter flows, the center radial bearing can be eliminated, and the top and bottom sub-units joined together.

No. 458

Letter from Wilkie Talbert, Continued

COMPARATIVE PERFORMANCE OF VARIOUS TURBINES

IN FREE (NON-DUCTED) WATER CURRENTS



Note: Some specific exploitation problems for Propeller and Darrieus turbines

1. Propeller turbines with fixed blades cannot be used directly in reversible tidal flow as well as at shallow water sites
2. Darrieus turbines develop strong pulsation. They are not self- starting in most cases

Helical turbines have none of the above disadvantages

No. 458

Letter from Wilkie Talbert, Continued

Inexhaustible energy from flowing water created by:

- Rivers
- Small dams built for flood control or recreation
- Tidal currents
- Ocean currents
- Discharge from conventional hydro-power dams
- Discharge from industrial plants

Ecologically benign:

- No raw material consumed in power production
- No waste product to dispose of
- No flooding from dams
- Minimal obstruction of water flow—fish and fauna friendly

A totally non-polluting process

Characteristics

The Gorlov Helical Turbine (GHT) was specifically designed for hydroelectric applications in free flowing low head water courses.
The following benefits make the GHT
especially valuable for generating hydroelectric power:
- Demonstrates superior power efficiency in free currents compared to other known turbines
- Rotates at twice the velocity of the water current flow.
- Self-starting in water current flows as low as two ft/s
- Rotates in the same direction, independent of water flow direction. This is especially advantageous for tidal and wave energy systems.
- No fluctuation in torque
- No cavitation even at high rotating speeds
- Allows construction of environmentally benign hydropower plants without dams
- Modular—can be assembled vertically, horizontally or in any other cross-flow combination using a common shaft and generator for an array of multiple turbines.
- The modular design offers great flexibility, which can simplify and reduce the construction, expansion and maintenance costs of a power generating facility.
- Flexible generating capacity proportionate to the number of modules
- Flexible progressive installation to suit available financing

No. 458

Letter from Wilkie Talbert, Continued

• Adaptable to local needs—homesteads, villages, islands, cities, countries
Long-term perspectives
• To reduce dependence on central power generation, especially in developing countries
• To provide electrification to remote areas which might never be reached by a power grid
• To reduce dependence of whole countries on exporters of oil, coal, nuclear and other imported fuels
• To open up new collaborative projects between nations to manufacture, install and pay for power supplies, e.g., between North and South Korea
• Can be used onsite to produce hydrogen for fuel cells from oceon or river currents.

No. 459

Letter from Michael B. Hoover, Dated November 29, 2002

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

November 29, 2002

Memorandum

To: Regional Director, U.S. Bureau of Reclamation, Sacramento, California

From: Field Supervisor, Sacramento Fish and Wildlife Office, Sacramento, California

Subject: Comments on the Draft Environmental Impact Report/Environmental Impact Statement for the Tehama-Colusa Canal Authority Fish Passage Improvement Project, Red Bluff Diversion Dam, Tehama County, California

The U.S. Fish and Wildlife Service (Service) is providing the following comments on the Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the Tehama-Colusa Canal Authority Fish Passage Improvement Project (project). These comments are provided under authority of the National Environmental Policy Act (NEPA) and have been coordinated with the Service's Red Bluff Fish and Wildlife Office. This information is intended to provide technical assistance to aid the Bureau of Reclamation's (Reclamation) planning process in accordance with section 1503.2 of the Regulations for Implementing the Procedural Provisions of NEPA.

In addition to the following comments and recommendations, the Service also provided Reclamation a Draft Fish and Wildlife Coordination Act (FWCA) Report in August 2002. This report summarized environmental impacts of proposed project alternatives, and the relative environmental benefits from decreasing the length of time that the Red Bluff Diversion Dam (RBDD) gates remain in the down position. The Gates-out Alternative eliminates the gates-down position entirely, and is the alternative recommended by the Service.

PROJECT

Red Bluff Diversion Dam is located in north-central California on the Sacramento River about two miles southeast of the City of Red Bluff. The dam and lake formed by the dam are owned and operated by Reclamation. The purpose of the project stated in the Draft EIS/EIR is to substantially improve the long-term ability to reliably pass anadromous fish and other species of concern, both upstream and downstream, past RBDD and substantially improve the long-term ability to reliably and cost-effectively move sufficient water into the Tehama-Colusa Canal and Corning Canal systems to meet the needs of the water districts served by the Tehama-Colusa Canal Authority (TCCA). A Preferred Alternative has not been selected by Reclamation at the time of this writing.

No. 459

GENERAL COMMENTS

The Service believes that all alternatives, especially a Preferred Alternative, should consider the following:

1) Central Valley Project Improvement Act (CVPIA) mandate requiring that Red Bluff Diversion Dam "minimize fish passage problems" (CVPIA section 3406(b)(10)), and the mandated CVPIA goal to develop and implement a program which makes all reasonable efforts to at least double natural production of anadromous fish (CVPIA 3406 (b)(1));

2) Record of Decision for the CALFED Bay-Delta Program (CALFED) Programmatic EIS/EIR, which includes minimizing fish passage problems at the Red Bluff Diversion Dam, species recovery, and restoring ecosystem function in the upper Sacramento River (summarized in Draft FWCA Coordination Act Report);

3) Support timely recovery of species listed under state and Federal acts as threatened or endangered as well as species of special concern as developed in the CALFED Multi-species Conservation Plan and the National Marine Fisheries Service Sacramento River Winter-run chinook Recovery Plan (1997);

4) Associated Purpose and Need statement, as stated in the project's Draft EIS/EIR, would achieve reliable fish passage improvement;

5) Mandate of section 7(a)(1) of the Endangered Species Act of 1973, as amended (ESA), for Federal agencies to utilize their authorities in furtherance of the purposes of the ESA, by carrying out programs for the conservation (including recovery) of listed species;

6) Project impacts and benefits relative to provisions of the FWCA for conservation, development, and improvement of fish and wildlife resources in connection with the project.

The Service believes that Alternatives 1A and 1B clearly do not fulfill requirements of the Central Valley Project Improvement Act (CVPIA) Section 3406(b)(10), nor meet other CVPIA objectives or Federal agency responsibilities under ESA. Further, because the Draft EIS/EIR does not clearly and succinctly evaluate if, and to what degree, each alternative meets CALFED-related commitments and the requirements of law in the CVPIA and ESA, we recommend you develop a decision matrix to discuss these areas. We believe this information is essential in alternative comparison and selection of a Preferred Alternative. } 459-1

The decision matrix described above should also include a section on reliability of each alternative to substantially improve the long-term passage of targeted fish species past RBDD and to meet long-term water district water supply needs in a cost-effective manner. Reliability is an important consideration for selecting a Preferred Alternative, as much uncertainty exists regarding the effectiveness of fish ladder design, adequacy of maintenance of ladders, potential for malfunction of ladders, injury and energy expenditure to migrating fish, migration delay at ladders, effectiveness of future monitoring and adaptive management, and the need for ESA review and future consultation. Associated with reliability, the final EIS/EIR should discuss } 459-2

Letter from Michael B. Hoover, Continued

459-1 The selected project would fall between Alternatives 1 and 2 in the following table.

Matrix Table of Project Alternative's Performance in Meeting CALFED-ERP, CVPIA, AFRP, ESA Recovery, and Riparian Habitat Restoration Goals

Alternative	NAA	1A	1B	2A	2B	3
Description	No Action	Gates in 4 months with improved ladders	Gates in 4 months with bypass channel	Gates in 2 months with improved ladders	Gates in 2 month with existing ladders	Gates out year-round
Address CVPIA doubling goals	No	Minimally	Unknown	Substantially work towards	Substantially work towards	Yes
CVPIA goal to minimize fish passage problems	No	Minimally	Unknown	Substantially work towards	Substantially work towards	Yes
Meet CALFED-ERP, CDFG SR Chinook Status Review, and WR Recovery Plan goals to permanently provide unimpaired passage for WR and SR Chinook salmon between areas downstream of RBDD to sole spawning areas in mainstem Sacramento River	No	No	Unknown	Substantially work towards	Substantially work towards	Yes
Meet CALFED-ERP, CDFG SR Chinook Status Review, and WR Recovery Plan goals to permanently provide unimpaired passage for WR and SR Chinook salmon between areas down-stream of RBDD to tributary spawning areas upstream of RBDD	No	No	Unknown	Substantially work towards	Substantially work towards	Yes
Meet CALFED-ERP, CDFG SR Chinook Status Review, and WR Recovery Plan goals to increase survival of juvenile WR and SR Chinook produced upstream of RBDD through reduced predation at RBDD	No	No	Unknown	Substantially work towards	Substantially work towards	Yes

No. 459

Letter from Michael B. Hoover, Continued

459-1, cont'd

Matrix Table of Project Alternative's Performance in meeting CALFED-ERP, CVPIA, AFRP, ESA Recovery, and Riparian Habitat Restoration Goals

Alternative	NAA	1A	1B	2A	2B	3
Meet CALFED Stage 1 Sacramento River Floodplain Processes goals	No	No	Unknown	No	No	Yes
Meet AFRP large, woody debris recruitment/SRA cover goals to moderate temperatures and enhance nutrient input	No	No	Unknown	No	No	Yes
Meet CVPIA Section 3406(b)(1)(A) first priority goal of restoring natural channel and riparian habitat values	No	No	Unknown	No	No	Yes

Notes:
ERP = Ecosystem Restoration Program
NAA = No Action Alternative
SR = spring-run
SRA = shaded riverine aquatic
WR = winter-run

459-2 Although it is likely that adaptive management strategies will be developed regardless of the project alternative selected, any specific monitoring and research plan would have to be developed and implemented through the actions of the project AMP. The AMPC with the advisement of AMTAC will create and guide the AMP. As discussed in Appendix H to the DEIS/EIR, prior to project implementation, a specific AMP will need to be developed and finalized through an MOU among TCCA and the other project participants, including Reclamation, USFWS, and CDFG. Signatory members of the MOU will make up membership of the AMPC, which will make all final decisions on strategies, actions, and policy, including dispute resolution. The AMPC will also provide direction for implementing project monitoring and research plans. To assist the AMPC, the AMTAC, consisting of technical members representing various stakeholders appointed by the AMPC, will meet, develop, and make recommendations to the AMPC on strategies and actions for implementing the AMP, including the AMP Monitoring and Research Programs. Until the ROD is signed, the AMPC is formed, the AMP MOU is signed, and the AMTAC is selected and seated, it is premature to speculate what specific adaptive management strategies and monitoring programs will be recommended or implemented.

No. 459

likely adaptive management scenarios for each alternative if the expected fisheries benefits are not achieved. } 459-2, cont'd

The Service recommends that Reclamation more completely analyze the effects of Lake Red Bluff on anadromous fish passage. Intuitively, we expect juvenile anadromous fish species to be more vulnerable to various predators when passing through lake environments as compared to riverine environments. We recommend the final EIS/EIR compare the differences between these habitat types in relation to out-migrating juvenile fish species. } 459-3 } 459-4

In addition, we believe Lake Red Bluff generally provides relatively poor habitat for juvenile anadromous salmonids, especially with respect to its lack of shaded riverine aquatic (SRA) habitat. SRA habitat provides many important resources for juvenile fish, including food, water temperature attenuation, and protection from predation. The filling and drawdown of the lake each year precludes survival of riparian vegetation that would otherwise create SRA habitat within much of the lake area. Under this annual scenario, SRA habitat is in shortest supply when lake levels are low, exposing bands of barren lake bed, and during gates-up conditions, when edges of the river do not reach much of the riparian vegetation on higher ground. We also expect adult salmon to benefit more from riverine conditions than lake conditions. Because this information is important for determining how each alternative meets the commitments and requirements explained in the decision matrix above, we recommend this discussion be included in the final EIS/EIR. } 459-5

Several analyses were included in the EIS/EIR that show adverse socioeconomic effects from increasing the length of time the RBDD gates would be up. The Service is interested in these analyses because we believe increasing the time of gates-up would provide greater fisheries and ecosystem benefits, inverse to socioeconomic results. Because of this relationship, the Service requests assurance that socioeconomic analyses considered in decisions that affect potential fisheries and ecosystem benefits are clearly presented and adequately supported (see additional comments under Specific Comments). } 459-6

The Service is concerned some sources of data presented in the document are not cited. For example, various estimates of salmon populations presented in the Draft EIS/EIR are without citation. Data presented in the Final EIS/EIR should provide full disclosure and support for sources of data, including citations. } 459-7

The word "chinook" is recognized as a formal noun by the American Fisheries Society, and so this term should be capitalized when used throughout the EIS/EIR document. } 459-8

SPECIFIC COMMENTS

Fishtastic Analyses

On page B1-6, Table 3 depicts specific passage efficiencies for the Adult Analysis Module. The values for the left bunk fish ladder, for example, range from 0.2 to 0.25, depending on the alternative. These values are very different from the passage efficiencies developed by the Technical Advisory Group's (TAG) Fishtastic-III Committee group meeting of January 18, 2001. "Fishtastic!" is the model used in the Draft EIS/EIR to analyze passage for juvenile and adult fish

Letter from Michael B. Hoover, Continued

459-3 See Response to Comment 457-10.

459-4 The effects of lacustrine-type habitat (lake-like) versus riverine-type habitat (river-like) on emigrating juvenile fish, including salmonids, in Lake Red Bluff would likely be substantial. Even in the case of Lake Red Bluff where the water retention time is rather small as contrasted to the more typical lake, environmental conditions in the impoundment favor species, including predator fish species, with preferences for slower velocities and warmer water temperatures. The much larger geographic footprint of Lake Red Bluff, coupled with slower water velocities compared to the Sacramento River, creates additional challenges for juvenile fish, including salmonids attempting to emigrate past RBDD. Additional opportunities for avian predation would be possible in Lake Red Bluff as opposed to the Sacramento River. With these conditions in mind, it is logical to make the following assumptions: (1) actively emigrating or dispersing juvenile fish, including salmonids, prefer riverine habitats over lacustrine habitat conditions; (2) piscivorous species, including pikeminnow, striped bass, and other predatory fish species, prefer lacustrine habitat conditions; (3) lacustrine habitat conditions provide greater opportunities than riverine habitat conditions for avian species foraging for juvenile fish, including salmonids; (4) the longer the RBDD gates remain in and Lake Red Bluff is present, the longer conditions favor predation by piscivorous fish and avian species. For the purposes of distinguishing project alternatives from the No Action Alternative, the following significance criteria for evaluating the effects of differences in habitat type and predation in Lake Red Bluff as opposed to the Sacramento River were used in the analyses of impacts and benefits: No difference in habitat effect/predation conditions = No change; <10 percent difference in habitat effect/predation conditions = No measurable impact (-) or benefit (+); >10 percent to <25 percent difference in habitat effect/predation conditions = Measurable impact (-) or benefit (+); >25 percent difference in passage indices = Large measurable impact (-) or benefit (+). Given the assumptions and significance criteria above, the effects of the proposed alternatives on emigrating juvenile fish species, including salmonids, in Lake Red Bluff are as follows: (1) No Action Alternative compared to existing conditions. For No Action Alternative, it would be expected that there would be no measurable difference in the days of gates-in operations compared to existing conditions. For both No Action and existing conditions, the RBDD

No. 459

Letter from Michael B. Hoover, Continued

459-4, cont'd gates would be out from September 15 through May 14 each year, approximately 242 days. There would be no change or effect on juvenile fish species, including salmonids, compared to existing conditions. (2) Alternative 2 (2-months gates-in operation) compared to No Action Alternative. For Alternative 2, it would be expected that there would be a measurable benefit from a larger number of days of gates-out operations compared to No Action. For the No Action Alternative, the RBDD gates would be out from September 15 through May 14 each year, approximately 242 days. For Alternative 2, the RBDD gates would be out from September 1 through June 30 each year, approximately 303 days. This is a beneficial difference of 61 days or 17 percent annually. This difference would constitute a measurable benefit to juvenile fish, including salmonids, compared to the No Action Alternative. (3) Alternative 3 (gates-out operation) compared to No Action Alternative. For Alternative 3, it would be expected that there would be a large measurable benefit from a larger number of days of gates-out operations compared to No Action. For the No Action Alternative, the RBDD gates would be out from May 15 through September 14 each year, approximately 242 days. For Alternative 3, the RBDD gates would be out year-round (365 days) each year. This is a beneficial difference of 123 days or 34 percent annually. This difference would constitute a large measurable benefit to juvenile fish, including salmonids, compared to the No Action Alternative. For the selected project, it would be expected that there would be a measurable benefit from a larger number of days of gates-out operations compared to No Action. For the No Action Alternative, the RBDD gates would be out from September 15 through May 14 each year, approximately 242 days. For the selected project, the RBDD gates would be out from the end of Labor Day weekend through June 30 each year, approximately 280 days. This is a beneficial difference of 38 days or 14 percent annually. This difference would constitute a measurable benefit to juvenile fish, including salmonids, compared to the No Action Alternative.

459-5 See Response to Comment 459-1.

459-6 Thank you for your comment. Your comment has been noted. No response is required.

No. 459

species at the RBDD fish ladders. The Fishtastic-III group arrived upon a fish ladder efficiency of 0.7 for old fish ladders, at a theoretical maximum volume of 10 percent of the river flow going through the fish ladders, and 0.8 for new fish ladders, at 10 percent of the river flow through the fish ladders. Reclamation should ensure that the wording and data used are consistent with the TAG discussions. } 459-9

Tim Hamaker issued his "Sensitivity Analysis for the TCCA Fish Passage Improvement Project's Fishery Passage Analysis Tool ("Fishtastic!" V.5.5) at the October 31, 2002 TAG meeting in Willows, California. This document should be incorporated into the EIS/EIR to defend the utility of the "Fishtastic!" analytical tool. } 459-10

Chapter 3: Environment and Environmental Consequences

Note: any comments provided here also apply to any analogous or similar statements made in Appendix B (Fishery Resources) of the EIS/EIR.

Pages 3-13 to 3-14; subheading "*Impacts of Current Operations on Native Anadromous Salmonids*" gives the reader the impression that the lowering of the RBDD gates and ensuing velocity barrier and whitewater turbulence resulting from the gate configurations is the only impediment to adult fish passage. The velocity barrier and whitewater turbulence are not the sole explanations for delay in passage of adult fish. Other explanations (such as inadequate attraction flows for the fish ladders) are found throughout the document and should be presented on these pages, as well. } 459-11

On page 3-14, a statement should be inserted explaining that Vogel's (1988) work was conducted during the years when RBDD gate operations differed from the current 4-months operations. } 459-12

On page 3-15, a statement should be included explaining that the same concentrations of Sacramento pikeminnow are not seen under the current 4 months gates-in operations as was seen historically. Potential reasons for this difference is that the dam gates presently are raised a longer period than they were previously, and the gates-in time period coincides with the period that the abundance of juvenile salmonids (Chinook salmon and steelhead/rainbow trout) generally are at their lowest. } 459-13

Referring to pages 3-26 and 3-27; subheading "American Shad." American shad are known to occasionally pass the dam. Nine adult shad passed the fish ladders during the 2002 fish counting season (mid-May through mid-September), and one adult shad passed the fish ladder during the 2001 season. The Service recommends that the final EIS/EIR state that passage of the dam by American shad is very limited, but not blocked. } 459-14

For the second sentence of page 3-27, replace the word "*prevents*" with "*limits*". } 459-15

Referring to pages 3-27, and 3-28; subheading "Rainbow Trout," it should be noted that the "Fishtastic!" sub-committee acknowledged within its internal discussions that since the ocean-going forms of juvenile *O. mykiss* could not be visually distinguished from its resident counterpart forms, any biological information pertaining to the juvenile life stage would treat these two forms as one. The Service recommends that a qualifying statement be inserted within } 459-16

Letter from Michael B. Hoover, Continued

459-7 Text has been revised to address this comment. See text change in Section 2.0 of this FEIS/EIR.

459-8 Text has been revised to address this comment. See text change in Section 2.0 of this FEIS/EIR.

459-9 See Thematic Response No. 1. The passage efficiencies used in the adult analysis module of the *Fishtastic!* analysis were based on all the *Fishtastic!* workshops, including the workshop of January 18, 2001. For adult fish, two mechanisms of effect were calculated, structure-based passage efficiency and facilities-based migration delay. In *Fishtastic!*, the structure-based passage efficiency for old ladders was assumed to be 70 percent, and new ladders were assumed to be 75 percent. In contrast, the values of 0.2 or 0.25 as shown in Table 3 (Appendix B, Attachment B1, to the DEIS/EIR) refers to an assigned facilities-based migration delay for a specific (individual) component of the entire RBDD facility configuration. These values were based on facilities relative migration efficiencies, were used in the calculation of migration delays, and were discussed and reviewed by TAG. The description of the *Fishtastic!* adult module calculations are somewhat lengthy and are found in DEIS/EIR Appendix B (Attachment B1), pages B1-13 through B1-17.

459-10 See Thematic Response No. 1.

459-11 Text has been revised to address this comment. See text change in Section 2.0 of this FEIS/EIR.

459-12 Text has been revised to address this comment. See text change in Section 2.0 of this FEIS/EIR.

459-13 Text has been revised to address this comment. See text change in Section 2.0 of this FEIS/EIR.

459-14 Text has been revised to address this comment. See text change in Section 2.0 of this FEIS/EIR.

459-15 Text has been revised to address this comment. See text change in Section 2.0 of this FEIS/EIR.

459-16 Text has been revised to address this comment. See text change in Section 2.0 of this FEIS/EIR.

No. 459

5

the EIS/EIR to acknowledge this important distinction, and that the remainder of the document be consistent in its language on this issue. } 459-16, cont'd

Referring to page 3-28; subheading "Impacts of Current Operations on Resident Native and Non-native Fish," first paragraph, first sentence: after the words "*...limit their access into...*", insert the words "*their respective.*" } 459-17

Chapter 3: Construction Impacts

Although spending estimates for construction of alternatives are included in the EIS/EIR (page 3-306, 3-307, and Table 3.10-4), expenses for future operations and maintenance are not included. Revenue impacts to the city and county are estimated for returning lake Red Bluff to its historic river condition, but expenses to Reclamation for operating and maintaining the dam to retain the lake are not considered. These costs should be incorporated into the EIS/EIR, as average annual costs and be presented in terms of total operations and maintenance cost for each alternative and cost per acre-foot of water supply from the project. } 459-18

Based on the Service's review of the Draft EIS/EIR, it appears that maintaining a period of time when the gates are in is not the best solution for biological and water supply needs, but would mainly benefit lake-dependent recreation. Based on this premise, income received by the city and county from lake-dependent recreation could be offset by costs to the government to provide the lake on a seasonal basis. The EIS/EIR should fully analyze the economic tradeoffs between project costs (including operations and maintenance) and recreation, as increasing the length of time that gates are in would provide fewer fisheries and ecosystem benefits. } 459-19

Chapter 3: Economic Value of Fish-Run Improvements

This comment refers to page 3-306. David Gallo, professor at CSU Chico, has prepared a draft report titled "The Economic Benefits to Freshwater Anglers of Achieving the Anadromous Fish Restoration Program Fish Population Goals for the Sacramento River System." It was estimated that consumer surplus would increase by $39.4 million annually for the system if the AFRP was able to reach program goals of doubling fish production in the Sacramento River system. The Service recommends using the information in this report to help put the potential economic benefits from increased fish production attributable to improved fish passage at RBDD into perspective in the EIS/EIR. } 459-20

Chapter 3: Economic Losses from Reduced Lake-Dependent Recreation and Tourism Spending

Assumptions and calculations on Tables 3.10-5 and 3.10-6 need clarification regarding sales and revenue during summertime with gates-out vs. gates-in conditions (i.e., what are the assumptions and data sources that were used to differentiate impacts for gates-in and gates-out conditions?). If non-summer months levels of tourism are being used in the EIS/EIR to estimate tourism/recreation spending that would occur during summer when gates are up, economic impacts would probably be over-estimated. This is because tourism during summer, even without the lake, would probably be higher than during non-summer periods. River-dependent recreation, especially in conjunction with riparian corridor recovery and/or restoration where possible in the lake bed area, would still be attractive for recreation during summer months without the lake. } 459-21

Letter from Michael B. Hoover, Continued

459-17 Text has been revised to address this comment. See text change in Section 2.0 of this FEIS/EIR.

459-18 Ongoing costs of maintaining the dam would be part of a No-build Alternative, or in this case, No Action Alternative. This may be a valid perspective to consider, but it was not part of the analysis (on DEIS/EIR page 3-304, the methodology clearly states we were evaluating the "build alternatives"). In other words, we disclosed impacts of the proposed action rather than a comparison of continued operation of the dam versus the proposed action. This probably ties back to the project purpose and need, and could be added if necessary.

459-19 Similar to the comment above, this is a matter of perspective, which should relate back to the purpose and need.

459-20 This goes back to the purpose and need, and the breadth of the action and no action alternatives we are to evaluate.

459-21 Sources are documented. On DEIS/EIR page 3-306, the document clearly states that we accounted for increased summer tourism potential in summer compared to winter regardless of the existence of a lake. "Finally, it is estimated that 50 percent of those additional sales are lake-dependent. Interviews with the motel operators indicated that while the lake was a big draw for some motels, others felt that much of their additional summer business resulted from summer business clientele and persons vacationing in the I-5 corridor." Only 50 percent of the added business during summer was attributed to the lake; 50 percent was attributed to general summer travel and vacationing unrelated to the existence of the lake.

No. 459

This assumption seems reasonable because the summer period is the most common vacation time, schools are out of session, days are warmer and longer, and Interstate 5 tourist traffic would still pass through Red Bluff. The Service recommends that non-summer months levels of tourism not be used to estimate tourism/recreation spending that would occur during summer when gates are up. } 459-21, cont'd

Chapter 3: Loss of the Nitro Nationals Drag Boat Races

Economic data used in the EIS/EIR analysis should be fully disclosed and supported. If data is confidential, as stated on page 3-311 of the EIS/EIR for boat race expense information, and cannot be included in the public record, it should not be used for project analysis in the EIS/EIR. } 459-22

The fifth paragraph on page 3-310 states that only out-of-region spectators and boaters were included in spending estimates, but the spending summary in Table 3.10 appears to include local spectators. Clarification is needed. } 459-23

Assumptions and sources of data in Table 3.10-8 need clarification and support from original data sources; for example, } 459-24

- Present data to support a 54 percent increase in the number of spectators during the 2-year period from 2000 to 2002.
- Is it realistic to assume that all local spectators would go to restaurants for breakfast on both days of the races, rather than some proportion having breakfast at home?
- Is it realistic to assume that all non-local spectators that are present on Saturday arrived Friday, incurring expenses at restaurants and lodging on Friday? Would some spectators commute each day?
- Present data to support an average of $81 per day per spectator for meals/refreshments.
- How would boat race spending over the weekend compare to a Memorial Day holiday weekend without the race? How much spending would occur on this holiday weekend without the lake and boat race?
- Are city and county expenses for holding the boat race considered in the analysis?

Chapter 3: Property Value

Paragraph three on page 3-315 suggests that lake-view properties have an added property value of 4 to 18 percent. These figures appear to have been derived from comparisons of lake-view properties to properties without either a lake view or a river view. Data should be provided in the EIS/EIR to indicate what added value would be reasonable to assume for a river view, or that a lake view is more desirable than a river view (and thus have greater added value than a river view). } 459-25

Further, when considering property value with respect to views, it should be kept in mind that under alternatives with 4-month and 2-month periods of gates-in each year, there would be } 459-26

Letter from Michael B. Hoover, Continued

459-22 Confidential and proprietary data are frequently used in economic studies such as this. We disagree with this comment.

459-23 The statement on DEIS/EIR page 3-31- should be clarified to say that "Spending estimates reflect distinctions in likely spending by local and out-of-region spectators." In other words, we estimated the proportion of guests likely to be local (and spending money at the boat races that would not otherwise have been spent) versus out-of-region, and adjusted spending estimates accordingly. Text has been revised to address this comment. See text change in Section 2.0 of this FEIS/EIR.

459-24 We believe the documentation provided was adequate for an EIS/EIR, and the assumptions are reasonable.

459-25 We could find no such data. Our opinion was stated in that paragraph using the limited available data.

459-26 It is possible that recovery or restoration of riparian habitat would improve property values in the future relative to what would occur shortly after implementing a year-round Gates-out Alternative. One could envision a scenario in the long term where restored riparian habitat could lead to property values similar to what they would be under a 4-month gates-in scenario. One could also envision that a lake in summer months would lead to higher property values than restored riparian habitat along a flowing river. However, this is somewhat speculative, and habitat restoration effects seem to be more of a secondary impact that might or might not occur in the future. For example, Are we certain that a successful recovery and restoration program would occur? How long would it take? Would it be perceived as being as valuable as having a lake during the hot summer months?

No. 459

periods of 8 months and 10 months, respectively, when portions of a barren lake bed would be exposed. This would be in contrast to the year-round Gates-Out Alternative, which after recovery or restoration of riparian vegetation, should provide a year-round river landscape with additional riparian vegetation in portions of the old lake bed having suitable growing conditions. These factors should be considered in the EIS/EIR conclusions. These concerns also apply to impact estimations in the "Aesthetic and Visual Resources" section of the EIS/EIR. } 459-26, cont'd

Chapter 3: Fiscal Impacts to City of Red Bluff

Similar concerns regarding data and assumptions for comparing alternatives and estimating fiscal impacts to the City of Red Bluff exist here, as were described above under "Economic Losses from Reduced Lake-Dependent Recreation and Tourism Spending" and "Loss of the Nitro Nationals Drag Boat Races." The manner in which gates-in and gates-out economic conditions were calculated should be clarified and supported with data. } 459-27

Chapter 6: References

Although Gaines and Martin's (2001) draft report document is cited on page 3-28, the report recently has been issued in its final form and may be cited as follows:

Gaines, P.D. and C.D. Martin. 2001. Abundance and seasonal spatial and diel distribution patterns of juvenile salmonids passing the Red Bluff Diversion Dam, Sacramento River. Red Bluff Research Pumping Plant Report Series, Volume 14, U.S. Fish and Wildlife Service, Red Bluff, CA. } 459-28

Appendices

Appendix A - Secondary Screening Criteria (page A-19).

Under subheading "Conclusion," the Service recommends that the discussion on the fish passage delay be modified and/or clarified to reflect other attributes of the dam gate operations and design that may be contributing to passage delay at the RBDD. Potential reasons for the delay of adult salmonids (and other adult fish) may be due to inadequate attraction flows associated with the fish ladders or other reasons, not only due to the complex flow patterns and water velocities resulting from the dam gate configurations. } 459-29

Appendix B - Fishery Resources.

Assumptions; Adult Module, Page B1-12, 3rd paragraph. The radio-telemetry work performed by the Red Bluff Fish and Wildlife Office took place during August and September of 1999, 2000, and 2001. The Service does not want to present the impression that there was three years of continuous data. The sentence "...based on the 3 years of radio telemetry data currently..."should be reworded to read "*...which was based on seasonal (August through September, during 3 different years, 1999-2001) radio telemetry data currently available, is approximately...*" Similar statements referring to the 3 years of work should be consistent in its wording (see Attachment B1 "Fishtastic!", page B1-13 and other areas of the EIS/EIR). } 459-30

Page B-12; subheading "*Other Native Anadromous Species (Sturgeon, Pacific Lamprey, River Lamprey).*" second paragraph, first sentence. Replace the word "*expirated*" with "*extirpated*". } 459-31

Letter from Michael B. Hoover, Continued

459-27 We believe the documentation provided in this analysis was more than adequate to support the conclusions of the EIS/EIR.

459-28 Text has been revised to address this comment. See text change in Section 2.0 of this FEIS/EIR.

459-29 Several alternatives for the EIS/EIR, including the No Action Alternative, were developed as part of the effort to improve fish passage and water reliability at RBDD. Appendix A to the DEIS/EIR outlined the development and assessment of the project alternatives identified as part of the fish passage improvement project at RBDD. As this was a document developed to guide the development of the alternatives carried into the DEIS/EIR, it would be inappropriate to revise or edit the text of this document after the fact.

459-30 Text has been revised to address this comment. See text change in Section 2.0 of this FEIS/EIR.

459-31 Text has been revised to address this comment. See text change in Section 2.0 of this FEIS/EIR.

No. 459

8

Page B-14, third paragraph. The Service is not aware that juvenile green sturgeon are transported to the Sacramento-San Joaquin River estuary. Perhaps the sentence meant to state that the juveniles "*...emigrate downstream...*" } 459-32

Page B-18; subheading "Non-native Anadromous Species (American Shad, Striped Bass)," first paragraph, third sentence. Replace "*1982*" with "*1882*". } 459-33

Appendix B2 - Results Summary

The following three comments refer to pages B2-3 through B2-4, Subheading "Juveniles" and address the Fishtastic results (Table 2) which shows "no measurable benefits" to either the winter or late-fall runs of Chinook salmon for the two-months Gates-in Alternatives and the Gates-out Alternative. These comments provide support that winter- and late-fall runs of Chinook salmon do receive some measurable benefit from the 2-Months and Gates-out Alternatives. These comments should be incorporated into the final EIS/EIR.

The juvenile emigration rotary trapping operations below Red Bluff Diversion Dam are performed by the Service's Red Bluff office. The results of their brood year 1994 through brood year 1999 juvenile trapping operations suggests that these findings are in contrast to the Fishtastic analyses for juvenile winter-run and late-fall Chinook races. } 459-34

The Service (2001) study observed late-fall Chinook estimated passage levels during three (1997, 1998, and 1999) of the five sampling years to be very pronounced during the spring through summer months. This suggests that juvenile passage conditions would be benefitted by a Gates-out operation. } 459-35

The Service (2001) study also observed that juvenile winter-run Chinook estimated passage during the month of September to be the highest singular month during four (1995, 1996, 1997, and 1999) of the five years of sampling. This also suggests that passage conditions for winter-run Chinook salmon would be improved by the Gates-out Alternative. } 459-36

The Service (2001) study may be referenced as:

Gaines, P.D. and C.D. Martin. 2001. Abundance and seasonal, spatial and diel distribution patterns of juvenile salmonids passing the Red Bluff Diversion Dam, Sacramento River. Red Bluff Research Pumping Plant Report Series, Volume 14. U.S. Fish and Wildlife Service, Red Bluff, California. } 459-37

SUMMARY

In the draft FWCA Report submitted to Reclamation in August 2002, the Service supported minimizing the length of time that fish passage is impaired at RBDD. The Gates-out Alternative returns the Sacramento River to flow without restrictions at Red Bluff, allowing unrestricted passage in all months of the year for all priority species of fish around RBDD. The Gates-out Alternative is the only Proposed Alternative that provides a measurable benefit to adult winter- and fall-run Chinook salmon and steelhead. Lastly, the Gates-out Alternative is the alternative that would best contribute to restoration of the river corridor ecosystem, and the only alternative that would enable recovery and/or restoration of riparian habitat, including SRA habitat, presently precluded by seasonal inundation from Lake Red Bluff. Based on the Service's } 459-38

Letter from Michael B. Hoover, Continued

459-32 Text has been revised to address this comment. See text change in Section 2.0 of this FEIS/EIR.

459-33 Text has been revised to address this comment. See text change in Section 2.0 of this FEIS/EIR.

459-34 The juvenile emigration rotary trapping data used in the preparation of the juvenile salmonid analysis in the DEIS/EIR were draft data transmitted to CH2M HILL from Phil Gaines of USFWS's Red Bluff Office in December 2000. This transmittal of draft data was prior to the release of the cited publication (Gaines and Martin, 2001). In reviewing the cited report (Gaines and Martin, 2001), there are small differences in the reported monthly juvenile passage percentages compared to those used in the DEIS/EIR analysis. These small differences in monthly emporal distributions and their potential effect on the results of the analysis of alternatives are discussed in Responses to Comments 459-35 and 459-36.

459-35 Using data from the cited report (Gaines and Martin, 2001), the average percentage of late-fall-run Chinook juveniles passing RBDD during the months of mid-May through mid-September for the years of 1997 through 1999 is approximately 40.6 percent of the total annual passage. In the analysis of juvenile passage in the DEIS/EIR, the total percentage passing RBDD during the mid-May to mid-September period was 34.1 percent, a difference of approximately 6.5 percent less than that of Gaines' (2001) report. Using the slightly higher percentage of juveniles passing during the gates-in periods for No Action and Alternative 1 (gates in for 4 months), the juvenile passage indices calculated for these alternatives would be less than reported on Figure 3.2-9 and in Table 3.2-7 of the DEIS/EIR (Index = 93). Therefore, the incremental benefits of Alternative 2 (2 months gates in) and Alternative 3 (gates out) to juvenile late-fall Chinook salmon as compared to the No Action Alternative would increase somewhat over that shown in the DEIS/EIR. This would likely signify measurable benefits (>10 percent difference increase in passage index) for Alternative 3, and possibly Alternate 2 compared to the No Action Alternative.

459-36 As suggested in the comment, using the data from the cited report (Gaines and Martin, 2001), the average percentage of winter-run Chinook salmon juveniles passing RBDD during the months of mid-May

No. 459

Letter from Michael B. Hoover, Continued

459-36, cont'd through mid-September for the years of 1995 through 1997 and 1999 is approximately 42 percent of the annual total. Using the monthly percentages (draft data) that were used in the analysis of juvenile passage in the DEIS/EIR, the percent of the total passing RBDD during the mid-May to mid-September period was 39.4 percent, a difference of approximately 2.6 percent less that that of Gaines' (2001) report. Using the slightly higher percentage of juveniles passing during the gates-in periods for No Action and Alternative 1, (gates in for 4 months) the juvenile passage indices calculated for these alternatives would be less than that shown on Figure 3.2-9 and in Table 3.2-7 of the DEIS/EIR (Index = 96). Therefore, the incremental benefit of Alternative 3 (Gates-out Alternative) to juvenile winter-run Chinook salmon as compared to the No Action Alternative would increase somewhat but may or may not exceed the 10 percent threshold signifying measurable benefits. However, if the entire data set for all years (1995 through 1999) from the cited report (Gaines and Martin, 2001) were used instead of the draft data used in the DEIS/EIR, approximately 46.9 percent of the annual total pass RBDD during the months of mid-May through mid-September. The data used in the analysis of juvenile passage in the DEIS/EIR was 39.4 percent, a difference of approximately 7.5 percent less than that of Gaines' (2001) report. In this case, using the entire data set from Gaines' (2001) report for juveniles passing during the gates-in periods for No Action and Alternative 1, the calculated passage indices would be substantially less than that shown on Figure 3.2-9 and in Table 3.2-7 of the DEIS/EIR (Index = 96). Furthermore, using USFWS's (2001) data, the incremental benefit (difference in indices values) from the No Action Alternative and Alternative 2 (2 months gates in) may signify measurable benefits to passing juvenile winter-run Chinook salmon; and Alternative 3 (gates out) would likely signify measurable benefits to passing juvenile winter-run Chinook salmon.

459-37 Text has been revised to address this comment. See text change in Section 2.0 of this FEIS/EIR.

459-38 Thank you for your comment. Your comment has been noted. No response is required.

No. 459

Letter from Michael B. Hoover, Continued

9

analysis contained in the draft FWCA Report and our review of the Draft EIS/EIR, we believe the Gates-out Alternative to be the Environmentally Preferred Alternative pursuant to NEPA. } 459-38, cont'd

If you have any questions regarding the information in this memorandum, please contact A. Leigh Bartoo, Watershed Planning Branch, at (916) 414-6729.

Attachment

cc:
AES, Portland, Oregon
FWS, Red Bluff, California (Attn: Jim Smith
USBR, Red Bluff, California (Attn: Max Stodolski)
CDFG, Redding, California (Attn: Harry Rectenwald)
NMFS, Sacramento, California (Attn: Mike Tucker)
DWR, Red Bluff, California (Attn: Ralph Hinton)
CH2MHILL, Redding, California (Attn: Mike Urkov)
TCCA, Willows, CA

No. 460

sacramento river preservation trust

November 27, 2002

Art Bullock
Tehama-Colusa Canal Authority (TCCA)
P.O. Box 1025
Willows, CA 95988

Dear Art,

The Sacramento River Preservation Trust (Trust) has been involved in the evolution of the Fish Passage Improvement Project (Project) at the Red Bluff Diversion Dam (RBDD) for a number of years, including serving on the Stakeholder Group. The Trust has recently done a cursory review of the Draft Environmental Impact Statement/Environmental Impact Report (DEIS/EIR) and, in conjunction with a number of ongoing concerns that the Trust has had with the Project, would like to submit the following comments:

1. When is the Bureau of Reclamation going to choose its Preferred Alternative? Will this be done before the Final EIS/EIR is completed? 460-1
2. Is there an estimated cost for each Alternative presented in the DEIS/EIR? 460-2
3. How much water (cfs) is currently available to the TCCA when the gates are in? How does this relate to the pumping capacities presented in the various Alternatives (1700cfs, 2000cfs, 2500cfs)? 460-3
4. In the last five years, how much water has been *purchased* by either the TCCA and/or its member districts? In the last five years, how much water has been *sold* by either the TCCA and/or its member districts? 460-4
5. The two recreation studies used in the DEIS/EIR are out-dated, in particular the Sacramento River Recreation Study done in 1980 by the Department of Water Resources. In addition, the 1995 study done by California State University, Chico was, in the Trust's opinion, too narrow in its geographic scope. Considering how important this information is when addressing the concerns of the local populace, especially the citizens of the City of Red Bluff, the Trust recommends that a much more comprehensive recreation study be done. At a minimum, the geographic scope of such a study should stretch from at least Balls Ferry upstream to Woodson Bridge downstream. 460-5
6. Related to the above is the discussion of socio-economics. On page XVI of the Executive Summary, under the Socio-economics section (last paragraph), it is stated that, "...a noticeable impact to local residents would occur in a number of social aspects such as reduction of the quality of life and reduced community cohesion because of the Gates-out Alternative." The Trust finds this statement to be *outrageous* and asks that a complete factual justification be given for its inclusion in the DEIS/EIR. If this is not possible, the statement needs to be eliminated from the Final EIS/EIR and a more factual representation presented in its place. 460-6
7. It is the Trust's understanding that no additional land is to come under cultivation as a consequence of this project. Is this correct? If so, what is the baseline that is being used in terms of acreage and how much of this acreage is in each affected district? If not, how much additional acreage is being brought online and what is the justification, especially in terms of current groundwater use? 460-7

P.O. Box 5366, Chico, CA 95927
(530) 345-1865

Letter from John Merz, Dated November 27, 2002

460-1 At this time, TCCA and Reclamation are moving forward with building a pumping plant at the project site to meet agricultural water demands and alleviate water supply reliability issues. As of November 2007, the selected project includes a pumping facility with a maximum capacity of 2,500 cfs. Reclamation anticipates a gates-in period between July 1 and the end of Labor Day weekend; TCCA has no position on changes to gate operations.

460-2 Table A-11 in the DEIS/EIR lists the capital and O&M costs for each alternative for fish and agriculture. The project cost estimate will be updated to reflect changes in building costs in fall 2007.

460-3 With gates down, TCCA can divert approximately 2,500 cfs. TCCA and Reclamation are presently supporting the construction of a 2,500-cfs pumping station footprint.

460-4 Comment is not directed to the EIS/EIR. Water purchases and sales within TCCA were not considered for inclusion or analysis in the EIS/EIR.

460-5 Thank you for your comment. Your comment has been noted. No response is required.

460-6 Because of the thousands of public comments and public input received throughout this decade-long analysis, we believe this statement of impact to be true. There will undoubtedly be impacts to quality of life and community cohesion if Lake Red Bluff is eliminated.

460-7 DEIS/EIR Section 3.8, page 3-258, states that increased water reliability may allow farmers to plant additional crops and that no farmland would be converted to nonagricultural uses because of this project. Most usable agricultural land in Tehama, Glenn, and Colusa Counties is already in production according to the Sacramento Valley Integrated Regional Water Management Plan, because even those areas outside of water districts generally have access to ample groundwater supplies. It is possible that some small amount of additional land could be cultivated, but the impact would be less than significant when compared to the large amount of agriculture already in production in the area. Tehama County uses mostly small stream diversions to irrigate agricultural lands, so these changes would probably occur in Glenn or Colusa County. In recent years, the general trend toward permanent crops in the region has much more of an impact on the water resources of the areas than does the

No. 460

8. The Trust has been told that this project has no bearing on the current work being done as part of the North-of-the-Delta Offstream Storage Investigation. The Trust disagrees and believes this issue should be addressed under the Cumulative Impacts section of the DEIS/EIR. } 460-8

The Trust looks forward to your response to our comments and hereby requests that we be kept informed of any and all further actions concerning this project. In particular, the Trust requests to be notified of when this project will be brought before the TCCA Board of Directors for discussion of the DEIS/EIR and adoption of the Final EIS/EIR.

Sincerely,

John Merz
Chair, Board of Directors

cc: Friends of the River
Pacific Coast Federation of Fishermen's Association
NORCAL Fishing Guides and Sportsmen's Association
Interested Parties

Letter from John Merz, Continued

460-7, cont'd amount of land in production. Furthermore, urbanization, although relatively small in magnitude in these rural areas, would likely offset any additional cultivation that might result from this project.

460-8 DEIS/EIR Section 4.2 (Growth-inducing Analysis) states that the existence of a pump station at the TCCA diversion location could possibly result in increased ability to deliver water during the winter months to the proposed Sites Reservoir. Also see Table 4.1-1 of the DEIS/EIR for North-of-Delta Offstream Storage alternatives consideration.

No. 461

Email from Marshall Pike, Dated December 2, 2002

Subj:	**Transmittal of Vogel Report**
Date:	12/2/2002 1:44:22 PM Pacific Standard Time
From:	mpike@calparksco.com
To:	tcwaterman@aol.com
File:	**TenDeficiencies.pdf** (24016 bytes) DL Time (28800 bps): < 1 minute

Sent from the Internet (Details)

Art: I am fully aware that you have received Dave's report in a timely fashion. Please add this summary as the transmittal from the CVB of his data. Thanks for the opportunity to help craft a solution to the needs of the Authority and the community. Sincerely, Marshall Pike

No. 461

Emailed a
(after deadline)

DATE: November 30, 2002

Mr. Art Bullock
Tehama-Colusa Canal Authority
P.O. Box 1025
Willow, CA 95988

RE: Written Comment on the Draft EIS/EIR for the Fish Passage Improvement Project published in the Federal Register on August 30, 2002 with comments due by extension to November 30, 2002.

Dear Mr. Bullock:

After receiving the Comments on the RBDD Draft EIS/EIR prepared by Dave Vogel of Natural Resource Scientists, Inc. it becomes apparent that the process must account for the deficiencies noted in his study and research before any further action is contemplated to modify the current conditions for Fish Passage at Red Bluff Diversion Dam. This summary of Mr. Vogel's work is provided to give laymen an understanding of the findings. Please incorporate these remarks for further consideration of the project.

Ten Key Deficiencies in the Biological Presentation of the DEIS/EIR for the Fish Passage Improvement Project at Red Bluff Diversion Dam

Key 1 The DEIS/EIR makes use of dated study data and relies on unpublished raw data that has not been reviewed for methodology or relevance. Most of the dated studies quoted, even if accurately characterized, were conducted during the 6 to 12 month gates in conditions prevalent until 1992 when the current 4 month gates in regime was adopted. 461-1

- The most egregious is the overstatement of the delay and blockage of fish passage indexed at 21 days taken from raw data extrapolations and in direct contradiction to previous reviewed studies that indexed the delay at much less, typically closer to 4 days.

Key 2 The DEIS/EIR fails to correctly characterize the run timing of the various adult upstream migrations. That is, if the presence of the diversion dam causes the delay in fish movement upstream, then the absence of the dam would predict that the actual peak in passage would be sooner than depicted in the graphic presentations and that a higher than depicted % of fish would have passed by the time the gates were lowered. The DEIS/EIR predicts too great an impact on the total % of the spring run chinook salmon run due to this mischaracterization. It also erroneously concludes that the effect of the RBDD is the same on all species evaluated, a clearly incorrect and misleading assumption. Study after study indicates that run timing is dependent of total flow and seasonal peaks. In fact, the greatest impediment to upstream movement is in high flow periods, typical of heavy storm periods and high spring run-off periods. In years of low flow from rain and run-off, the timing of the peak of the run is typically much earlier. 461-2

Key 3 The DEIS/EIR makes incorrect assumptions on Flow Attraction and the efficacy of new fish ladders. Studies noted that management of the flow through various gate configurations had a dramatic effect on the delay of salmon at the dam. Studies noted a strong relationship between flow through gates adjacent to the fish ladders and improved passage. This fact alone invalidates much of the subsequent findings and conclusion about delayed passage. Additional local empirical data shows an exponential relationship between the proportion of flow through the ladders and delay of salmon below the dam. More flow, less delay. 461-3

- The DEIS/EIR virtually ignores the ample evidence on the record of successful fish passage facilities, particularly in the Pacific Northwest. 461-4
- The DEIS/EIR ignores the record of recommendations dating back to at least 1970 when improvement in the ladders was first noted as likely to provide significant improvement in fish passage, nor does it address the failure of authorities to implement these recommendations. 461-5

Email from Marshall Pike, Continued

461-1 See Response to Comment 457-1.

461-2 See Response to Comment 457-3.

461-3 See Response to Comment 457-4.

461-4 See Response to Comment 457-1. Passage studies cited by Dave Vogel were from the Columbia River Basin, not the Sacramento River at RBDD and, therefore, not directly pertinent to the passage problem at RBDD.

461-5 The comment notes that the DEIS/EIR ignores the record of recommendations that fish ladders would "likely provide significant improvement in fish passage" and does not address the "failure to implement these recommendations." There is a long history of passage investigations, feasibility analyses, and evaluations of potential fish passage solutions at RBDD. These many investigations led to Reclamation issuing an "Appraisal Report on the Red Bluff Diversion Dam Fish Passage Program" (Appraisal Report) in 1992, as noted in Appendix A to the DEIS/EIR. In Reclamation's 1992 Appraisal Report, 22 alternatives for improvements to mitigate fish passage impediments at RBDD were identified from previous studies and recommendations. Following screening, of these 22 identified alternatives, 10 were screened out and 12 were carried forward for further evaluation in the Appraisal Report. As a result of the Appraisal Report's evaluation, numerous conclusions were drawn. From the list of the 12 alternatives evaluated, 3 alternatives consisted of new ladders coupled with leaving the RBDD gates in year-round. All of these "new ladder alternatives" were shown to result in adverse effects on the total salmon population, and especially to winter-, spring-, and fall-run Chinook salmon. These adverse effects were a result of high mortality associated with full-time operation of the fish ladders with RBDD gates closed (page IV-16 of the Appraisal Report). Of the three "pumping plant alternatives" evaluated in the Appraisal Report, each with differing periods of gates-in operations, all were shown to have significant benefits on salmon populations. Of three pumping plant alternatives, the full pumping plant without RBDD gates-in operation alternative resulted in, "by far," the greatest benefits to salmon populations. The two alternatives that consisted of a combination of new fish ladders and a pumping plant demonstrated small beneficial effects, combining low mortality of the pumping plant for part of the year

No. 461

Email from Marshall Pike, Continued

461-5, cont'd

coupled with higher mortality of the new fish ladders for the remainder of the year when the RBDD gates are closed. Finally, three alternatives were evaluated in the Appraisal Report that included construction of new fish ladders combined with operations of RBDD that were currently practiced in 1992 (gates in April 1 through November 30), "ladders and gate operations alternatives." Of these "ladders and gate operations alternatives," some benefits were demonstrated to salmon populations. However, the number of adult winter-run salmon saved by these alternatives were minimized because of higher mortality of the portion of the run when the gates were in while the fish ladders were in operation. In summary, the Appraisal Report determined that the fish passage problems at RBDD are associated primarily with the RBDD gates. The findings in the Appraisal Report further stated that "Replacement of the fish ladders has far less beneficial effect than does opening of the gates." Furthermore, the Appraisal Report found that "…the participating fishery agencies have expressed strong reservations regarding the predicted success of the proposed fish ladders." Finally, the Appraisal Report found that with the proposed new (and larger) fish ladders: "…there are concerns that they may not be significantly more effective than the existing ladders given the existing configuration of RBDD." Of the four fish passage alternatives that were determined to be "reasonable," the order of their greatest benefit to salmon were as follows: (1) the full-sized pumping plant with RBDD gates out year-round alternative; (2) new large (3,000 cfs) left bank fish ladder, new 1,000-cfs center ladder, and a modified 800-cfs right bank ladder coupled with gates-out operations from December 12 through April 1 alternative; (3) new but smaller (800 cfs) left bank fish ladder, new (1,000 cfs) center ladder, modified 800-cfs right bank ladder coupled with gates-out operations from December 12 through April 1; and (4) large pumping plant with RBDD gates in mid-May through mid-July. In the Alternatives, Fish Passage Analyses, and Agricultural Water Supply Benefits Analyses, Appendix A to the DEIS/EIR, a summary of previous fish passage alternatives (Table A-1) is shown. In that table, 33 alternatives were identified from prior studies. The analyses provided in Appendix A lay out the benefits and the liabilities of the most feasible alternatives using the previously identified alternatives and "…existing knowledge built from decades of study at RBDD."

No. 461

Key 4 The DEIS/EIR distorts the impact of RBDD on the Spring-run Chinook by failing to correctly characterize the dimension of the total species and the extent of the species range. The DEIS/EIR leads the uninformed reader to conclude that as much as 72 % of the spring run are impacted by the gates in period beginning May 15. In fact, the spring run chinook are much more prevalent in 5 tributaries below the RBDD (Antelope, Mill, Deer, Big Chico and Butte Creeks) than in the 3 tributaries above RBDD (Battle Creek, Clear Creek, Cottonwood Creek) where their range and return is intermittent. Of the total species run for these 8 tributaries alone (not including the runs in the Feather, Yuba, and other drainages south), the RBDD affects less than 3%. Of this small percent, an even smaller percent migrate past RBDD after May 15 and as previously stated, the run time projected is actually much earlier. In effect, the impact on Spring Run Chinook is a small percent of a small percent and not an impact on the entire population.

461-6

Key 5 The DEIS/EIR provides misleading concern about the green sturgeon in the face of a near complete lack of study or statistically relevant data. If extrapolation of the known extent and range of the species were used, RBDD affects as few as one to two dozen fish that may transition the area of the RBDD in May and an even fewer number are actually blocked by the lowering of the gates on May 15. In addition, prime habitat of the type sturgeon seek for spawning and rearing is more abundant below the RBDD than above. As the DEIS/EIR uses green sturgeon as one of the primary fish species for focused attention, the failure of the DEIS/EIR to properly characterize the impact is very misleading, particularly to the uninformed reader. In addition, the common, oft-stated premise that fish ladders cannot pass sturgeon is erroneous as the north ladder on Bonneville Dam on the Columbia River successfully passes some sturgeon. The DEIS/EIR should have noted that the design warrants further study and investigation.

461-7

Key 6 One of the most prevalent misleading statements in the DEIS/EIR is that the mortality of smolt (out migrating juvenile salmon) is 55% due to problems with passage and predation around RBDD. The statistical basis for this was a single study conducted in 1984 by the author of this commentary (Vogel et al. 1988). Many factors that were present at that time are no longer in place, not the least of which is the gate operating period was reduced from 12 months to 4 months. In addition, the various other improvements including relocation of the juvenile fish bypass outflow, use of drum screens, elimination of back eddys that encourage predator staging have also been implemented. The observed, natural dispersal of predatory pikeminnow due to the reduction of gate operation also objectively predicts much lower mortality. In addition, the study quoted was based on experiments conducted on daytime activity. Further, more relevant studies during night time activity that were ignored by the DEIS/EIR, when the majority of smolt transition of the RBDD takes place, shows that mortality was 16%. And lastly, the study quoted also notes that, of the pikeminnow captured with stomach contents (about 66% by weight largely of smolt) goes on to say that only 25% of the pikeminnow captured had any stomach contents at all, a fact not provided by the DEIS/EIR. Once again, the DEIS/EIR uses the percent of a percent argument to make its case for high mortality that simply does not exist.

461-8

Key 7 The DEIS/EIR fails to acknowledge a continuing list of changes in operation and management of the RBDD that have contributed to significant improvement in fish passage.

- RBDD lights turned out at night to discourage predator feeding below the dam
- Improved louver and screen maintenance
- Unclogging the fish bypass pipe
- Abandonment of the salmon spawning channels
- Installation of a training wall at the right bank fish ladder to remove a predation inducing back eddy
- Installing new drum screens at the headworks
- Installing the new bypass outfall down river in maximum stream flow conditions
- Reduction of the gate operation from 12 to 8 to 6 to 4.
- Fixing leaks in the dual purpose canal screens
- Changing the treatment of the dual purpose canal for algae control
- Elimination of the flow straightening vanes in the bypass pipes
- Implementation of spring pulse flow practices

461-9

Email from Marshall Pike, Continued

461-6 See Responses to Comments 457-3 and 457-5.

461-7 See Response to Comment 457-6.

461-8 See Response to Comment 457-7.

461-9 See Responses to Comments 457-1 and 457-8.

No. 461

Key 8 The DEIS/EIR mischaracterizes the lake-like conditions created by Lake Red Bluff. Flow rates typically cause a complete turn over of impounded water ever 3-4 hours. The impoundment is much more akin to an elevated river than a lake. Conditions that improve due to lake-like circumstances simply do not occur and the predator values predicted by lake conditions do not exist. If conditions predicted by the DEIS/EIR did exist, they would be dwarfed by much more extensive examples of this condition in the naturally occurring oxbows downstream from RBDD. The inconsistency of the logic as applied in the DEIS/EIR becomes overwhelming.

461-10

Key 9 The DEIS/EIR fails in its primary purpose to present a complete and unbiased statement of the project to be reviewed by it after failure to describe in any detail the scope and impact of the construction of a massive pumping plant on the main channel of the Sacramento River (the Mill site). This deficiency is enough to reject the DEIS/EIR on it's face. For all intents and purposes, the decision makers are asked to approve and undefined engineering project, the size of which is undetermined, with virtually no commentary on the environmental impacts associated with the construction and ongoing operation and maintenance requirements. **Simply stated, if the project area did not exist as a diversion dam and headworks to a canal system at this point in time, would the DEIS/EIR provide sufficient detail to allow the decision makers to authorize a 2500 cfs pumping installation with 1000 feet of screening and the mid channel training wall required to maintain flow across the screens and the excavation of several acres of sediment and cobbles at the confluence of Red Bank Creek and the likelihood of annual excavation requirements based on the DEIS/EIR as drafted?** Clearly, the answer would be no.

461-11

Key 10 The profound influence of all of the deficiencies noted on the analysis of impacts presentation cannot be understated. The statistical model (Fishmatic) used to rate the alternatives for the acknowledged project purpose of "substantial improvement in fish passage" is totally compromised and of no relevance for this reason. Even if the deficiencies were corrected in the model, the result would be the same. Indeed, it is deduced that the model, "Fishtastic," was designed specifically to assure the highest rating of biologic improvement was assigned to the gates out alternative under any and all iterations of the data entry process. The consultant can be rightly criticized for allowing this model to impact it's presentation.

461-12

The analogous situation to this presentation would be an estimation of present day automobile mortality using data collected decades ago before installation of modern-day safety features (e.g. seat belts, air bags, road improvements and numerous less visible changes). If the only studies performed on automobile mortality took place before these improvements, and if no data were collected since the improvements were implemented, using the DEIS/EIR rationale, there would be no reductions or improvements in the current rate of automobile mortality.

Sincerely,

Marshall W. Pike
Convention and Visitor's Bureau
Red Bluff – Tehama County Chamber of Commerce

Email from Marshall Pike, Continued

461-10 See Response to Comment 457-10.

461-11 See Response to Comment 457-11.

461-12 See Response to Comment 457-12.

No. 462

Letter from Charles Willard, Dated November 26, 2002

Board of Supervisors
COUNTY OF TEHAMA

District 1 - Barbara McIver
District 2 - George Russell
District 3 - Charles Willard
District 4 - Ross Turner
District 5 - Bill Borror

Richard Robinson
Chief Administrator

November 26, 2002

Mr. Art Bullock
Tehama-Colusa Canal Authority
P. O. Box 1025
Willows, CA 95988

Re: August 2002 Draft EIS/EIR - Comments
Fish Passage Improvement Project at Red Bluff Diversion Dam

Dear Mr. Bullock:

At the November 26, 2002, regular meeting of the Tehama County Board of Supervisors, action was taken to approve the attached comments on the Draft Environment Impact Statement/Environmental Impact Report regarding the Fish Passage Improvement Project at the Red Bluff Diversion Dam.

Thank you for your full and careful consideration of the concerns expressed by the Board.

Very truly yours,

Charles Willard
Chairman

Attachment

P.O. Box 250 • 332 Pine St., Red Bluff, CA 96080 • (530) 527-4655 • FAX (530) 529-0980

No. 462

TEHAMA COUNTY BOARD OF SUPERVISORS

COMMENTS ON THE RED BLUFF DIVERSION DAM DRAFT ENVIRONMENTAL IMPACT STATEMENT/ENVIRONMENTAL IMPACT REPORT

November 26, 2002

The Tehama County Board of Supervisors is aware of the twofold purpose of the Red Bluff Diversion Dam (RBDD) Fish Passage Improvement Project:

Substantially improve the long-term ability to reliably pass anadromous fish and other species of concern, both upstream and downstream, past RBDD.

Substantially improve the long-term ability to reliably and cost effectively move sufficient water into the Tehama-Colusa Canal Authority and Corning Canal systems to meet the needs of the water districts served by the Tehama-Colusa Canal Authority (EIS/EIR Page 1-2).

The Board is also aware that the EIS/EIR is required by NEPA to:

Evaluate a range of alternatives, disclose potential impacts, and identify feasible mitigation. Reasonable alternatives must be rigorously and objectively evaluated under NEPA(as opposed to CEQA'S requirement that they be discussed in "meaningful detail") [EIR/EIS page 1-3].

The Board of Supervisors is concerned that Federal and State agencies declared their preferred alternative before the Draft EIR/EIS was published (August 2002). Did these agencies have knowledge of the entire document before they made their decision, or were they merely promoting their own self-interests? The Board of Supervisors refrained from being an advocate of any alternative until a greater understanding of all the issues could be developed. Our belief is that no solution (alternative) is going to be satisfactory for all stakeholders; however, all alternatives must be analyzed objectively using accurate data and the best available science to bring forth an acceptable solution. 462-1

The Board has reason to believe that major revisions are needed in the final EIS/EIR to meet the **PURPOSE AND NEED** and the **OBJECTIVE EVALUATION** required by NEPA.

AREAS OF CONCERN

Disposal of Material From PACTIV Landfill

The disposal of up to 170,000 cubic yards of material from the active PACTIV industrial landfill off-site to allow construction of the "mill site" pumping plant could have significant impacts to the Tehama County/Red Bluff Landfill. These impacts are not addressed in the EIS/EIR. This is especially disturbing to the Board, as it is our understanding that CH2M Hill contacted the Solid Waste Manager, Alan Abbs. They were made aware of his concerns, but neglected to include them in the document (refer to letter of November 8, 2002, from Mr. Abbs to Art Bullock for details). 462-2

1

Letter from Charles Willard, Continued

462-1 The lead agency for CEQA stated its preferred alternative in the DEIS/EIR in the interest of full public disclosure. The identification of a preferred alternative does not obligate a lead agency to select a particular alternative, but rather is intended to focus attention on the agency's preference at the time of circulation. Indeed, since publication, TCCA has amended its preference in part because of additional consideration and comments received. As of November 2007, the selected project includes a pumping facility with a maximum capacity of 2,500 cfs. Reclamation anticipates a gates-in period between July 1 and the end of Labor Day weekend; TCCA has no position on changes to gate operations.

462-2 Handling of excavated waste from the Mill Site has been the subject of additional analysis. Current estimates of offsite disposal needs have been reduced from the estimates disclosed in the DEIS/EIR, from up to 200,000 cubic yards to a current estimate of up to 84,000 cubic yards. A comprehensive plan for handling excavated waste will be developed in conjunction with current landowners, regulatory agencies, and the lead agencies. As noted in the DEIS/EIR, the majority of excavated material will remain onsite, and some portion of excavated material will be hauled offsite, consistent with applicable laws and permits.

No. 462

Power Resources

The conclusion reached in alternatives 2A, 2B, and 3 as to operational impacts to power resources we believe to be irrational. *"The impacts from operations on power resources would be less than significant, no mitigation is required"* EIS/EIR Pages 3-292, 3-196. Alternatives 2A, 2B require an estimated additional 1.5 million kwh's annual usage over Alternative 1. Alternative 3 requires an estimated 4.5 million kwh's over Alternative 1. Given most of this additional demand will occur in summer months when system demand is the highest, we think the conclusion of "no significant impact" erroneous. When the public has been asked to conserve, conserve, conserve and utilities rebate significant sums to consumers to upgrade appliances to more efficient units, and agriculturists are encouraged to install water efficient irrigation systems, it seems illogical to conclude the demand created by the additional load of these pumping plants could be determined to be "insignificant." The blackouts experienced throughout California in the winter of 2002 suggest an increase in power consumption of the magnitude of these proposals could be significant. The Board would suggest the EIS/EIR compare the loss of any of the conservation programs that have been implemented versus the energy saved before concluding the additional power requirements of Alternatives 2 or 3 be labeled insignificant. Perhaps it is a small percentage of the power marketed by Western Power; however, to the customers now purchasing this power, it will in all probability be "very significant."

462-3

462-4

City of Red Bluff- Loss of Lake Red Bluff

The EIS/EIR goes into considerable detail in analyzing the socioeconomic impacts of the various alternatives. We realize the numbers presented are, at best, estimates of the economic impact to the area if the time the water is impounded behind the dam is reduced from present conditions. Table 3.10-14 states the annual sales losses from the loss of the Nitro National Drag Boat Races to be $3,154,000 under either Alternative 2 or 3. Annual sales losses from reduced recreation and tourism would be $363,000 for Alternative 2 and $1,086,000 for Alternative 3. Reduction in annual sales and use taxes to the City of Red Bluff is estimated to be $52,000 and $89,000, respectively. Reduction in property values and loss of property tax revenue, while estimated to be small, would be negative to property owners and the City and County. Reduced quality of life and loss of community cohesion are **moderate** for Alternative 2 and **high** for Alternative 3.

Given the above estimates of impacts, the authors of the EIS/EIR come to the conclusion that for Alternative 2, ***"there would be some potential for loss of property values for the owners of property adjacent to the lake or with easy access to the lake resulting from the loss of the lake for an additional 2 months of the year. There would be a moderate reduction in the quality of life and reduced community cohesion for local residents. However, the lake would be still present during the hottest summer months (July and August), and while the socioeconomic impacts would be noticeable, the impacts would not be significant; therefore, no mitigation is required" (EIS/EIR Page 3-320).***

The Tehama County Board of Supervisors takes issue with the conclusion that the impacts of Alternative 2 to the socioeconomic environment would **"not be significant."**

462-5

For Alternative 3, the authors conclude ***"The sum of the effects on local economic activity, fiscal impacts to the City of Red Bluff, property value declines, and social impacts under Alternative 3 result in a significant socioeconomic impact and cannot be mitigated."***

2

Letter from Charles Willard, Continued

462-3 Your comment has been noted. See DEIS/EIR Section 3.9 for additional information on power resources. The additional load would be supplied with power from the CVP consistent with other federal facilities.

462-4 The impact of the new facility on regional electrical supplies and the increased potential for blackouts was considered during the development of the project and was found to be less than significant. Furthermore, the lead agencies have carefully considered the cost of O&M of the proposed facility, including the cost of power, during the development of alternatives.

462-5 Significant impacts would occur under Alternative 2.

No. 462

We agree with the conclusion of the authors. However, we suggest Alternative 3 is a **non-viable Alternative** since the significant socioeconomic impacts cannot be mitigated. } 462-6

Fish Passage Issues

The Tehama County Board of Supervisors has received a draft report prepared by David A. Vogel, Senior Scientist, Natural Resource Scientists, Inc., of Red Bluff. The report provides a "technical peer review of the August 2002 Public Draft Red Bluff Diversion Dam Environmental Impact Report as related to fishery resources."

The Board of Supervisors has neither the time nor resources to critique the entire document. However, we feel Mr. Vogel identifies some very significant issues which we believe to be of such magnitude that the final EIS/EIR is obligated to address them.

The Board believes it imperative that the Tehama-Colusa Canal Authority and the Bureau of Reclamation, the lead agencies of the project, address the issues Mr. Vogel raises in the section entitled **"UNDISCLOSED IMPACTS FROM THE PROPOSED LARGE-SCALE PUMPING PLANT AT THE MILL SITE"** (November 23, 2002 DRAFT-Comments on the RBDD Draft EIS/EIR Page 35). The water reliability objective for all the Alternatives suggested in the EIS/EIR is entirely dependent upon a proper functioning large-scale pumping plant. Mr. Vogel suggests, and the Board agrees, that the EIR/EIS is silent on too many of the issues surrounding the viability of constructing and operating such a facility. The EIS/EIR suggests that a large pumping plant could be constructed and operated with no (zero) adverse effects on fish. We think this to be a very misleading statement. Screens required for pumps of the magnitude required for every suggested Alternative will not be 100% efficient, thus there will be some juvenile fish loss. Since these screens and associated environmental impacts will be in the river year-round, fish depredation could be significant. Further analysis on the construction and operation of such a large scale pumping plant is imperative before a final EIS/EIR be approved. } 462-7 } 462-8

Mr. Vogel's report leads us to believe there could be many issues similar to the one described above, where the best available science was not utilized in drafting the EIS/EIR, that some conclusions were reached using faulty data, and speculative outcomes promulgated.

Since fish passage issues are one of the two objectives of the project, we find it perplexing that the authors of the EIS/EIR have so little confidence in their proposed solutions as described on page 3-306. **"At this time, it is difficult to predict whether the build alternatives in and of themselves would result in substantial improvements in fish survival rates, but the potential exists."** This statement leads us to believe that the purpose of the project to **"substantially improve the long-term ability to reliably pass anadromous fish and other species of concern"** may not be met. Mr. Vogel's "opportunity for improved fish passage" makes constructive recommendations on this issue. Since the EIS/EIR authors seem to have little confidence in the outcome of Alternatives 2 and 3, we believe that Mr. Vogel's recommendations for improved fish passage should be considered. } 462-9

3

Letter from Charles Willard, Continued

462-6 The commentor is incorrect in the assertion that significant impacts render an alternative non-viable. A project resulting in significant impacts can still be approved, designed, constructed, and operated. One of the basic tenets of both NEPA and CEQA is the disclosure of such potential effects.

462-7 See Response to Comment 457-11.

462-8 See Response to Comment 457-11.

462-9 See Response to Comment 457-13.

No. 462

RECOMMENDATIONS

The Tehama County Board of Supervisors recommends that the EIS/EIR document address the above concerns as well as those raised in the Vogel report. We are reluctant to select a preferred alternative until these issues have been addressed. However, due to what we believe to be the unmitigable significant impacts on the socioeconomic impacts to the City of Red Bluff and the County of Tehama of Alternatives 2 and 3, the Board of Supervisors opposes consideration of these alternatives at this time. } 462-10

The Board of Supervisors is acutely aware of the need for the Tehama-Colusa Canal Authority to have a reliable, cost-effective ability to move water into the canal systems. We urge all involved to work diligently to address the issues brought forth so an alternative can be implemented to supply their needs.

4

Letter from Charles Willard, Continued

462-10 Thank you for your comment. Your comment has been noted. No response is required.

No. 463

MICHAEL T. SHEPHERD
Member American Board of Trial Advocates
RICHARD L. CRABTREE
LINDSEY A. NAYDUCH

LAW OFFICES
SHEPHERD & CRABTREE

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November 27, 2002

Via Facsimile & U.S. Mail

Art Bullock
Tehama-Colusa Canal Authority
P.O. Box 1025
Willows, CA 95988
Fax: (530) 934-2355

Re: *Draft Environmental Impact Statement/Environmental Impact Report Fish Passage Improvement Project at the Red Bluff Diversion Dam*

Dear Mr. Bullock:

This office represents the City of Red Bluff regarding the Tehama Colusa Canal Authority ("TCCA") and United States Bureau of Reclamation ("USBR") *Draft Environmental Impact Statement/ Environmental Impact Report Fish Passage Improvement Project at the Red Bluff Diversion Dam* ("DEIS/EIR"). As explained below, the DEIR/EIS does not comply with the California Environmental Quality Act ("CEQA") and the National Environmental Policy Act ("NEPA") in several essential respects. Please include this letter in the comments to be addressed in the final EIS/EIR, and in the administrative record on this project.

I. The Purpose and Need Statement for the Project is Misleading

The *Purpose and Need Statement* (DEIR/EIS, p. 1-2) states that the "need for the project is in response to the continued and well-documented fish passage and agricultural water supply problems associated with the operation of RBDD [Red Bluff Diversion Dam]." With respect to fish passage, this description of the "need" for the project ignores extensive and significant improvements for downstream fish passage since the time of the cited research in the 1980s. For example, in Appendix B, *Fishery Resources*, the document indicates that the "current" impacts of the RBDD cause serious impediments to fish passage, citing research done in 1982, 1987 and 1988. (DEIR/EIS, p. B-5.) This analysis of fisheries impacts fails to discuss fish passage improvements completed since that time, including, among other things, the installation of a $15 million fish screen in 1990 and relocation of the fish bypass outfall far downstream of the dam. (See comments on Draft EIR/EIS submitted by David Vogel, Research Scientists, Inc. which are incorporated herein by reference.) } 463-1

The real and significant improvements to fish passage problems at RBDD over the past two decades are ignored in the *Purpose and Need Statement* and this results in inaccurate } 463-2

Letter from Richard L. Crabtree, Dated November 27, 2002

463-1 See the thematic responses in Section 3.0 of this FEIS/EIR. Improvements to fish passage at RBDD have been incorporated into the analysis, and it has been determined that impediments to fish passage remain. Gate operations are currently under review as part of the OCAP consultation under ESA. Also see the USFWS CAR (Appendix I to the DEIS/EIR) for additional background on this subject.

463-2 See DEIS/EIR Section 3.2, Fishery Resources, for a discussion of the baseline conditions at RBDD. The analysis in the EIS/EIR used the current 4-month gate operation as a baseline. Also see Thematic Response No. 2 and the Fish and Wildlife CAR (Appendix I to the DEIS/EIR) for additional background on fishery resources at RBDD.

No. 463

Art Bullock
November 27 2002
Page 2
Re: **Fish Passage Project – Red Bluff Diversion Dam**

assumptions regarding not only the degree of need for the project but the analysis of the project alternatives, which purport to provide relief for the inaccurately depicted "fish passage problems." Because the baseline conditions are not adequately or accurately identified, the alternatives analysis is flawed. } 463-2, cont'd

To highlight the difficulty created by the false assumptions of the seriousness of the fish passage problems at RBDD, one need only look at the preferred alternative selected by TCCA. Selection of the "Gates Out Alternative" occurred in the context of the baseline fish passage conditions as described in the DEIR/EIS; the description that does not acknowledge significant fish passage improvement projects over the past 15 to 20 years. The *Introduction* section containing the *Purpose and Need Statement* implies that the Gates Out Alternative would provide the only appreciable improvement to fish passage conditions, and misstates the necessity for removing the gates in light of the true baseline fish passage situation. (DEIR/EIS, p. 1-1.) Additionally, this false inference makes an inappropriate statement of preference for one project alternative during the draft document stage of environmental review, and ignores the staggering impacts on the social, recreational and fiscal well being of the City of Red Bluff. The weighing process conducted by TCCA in selecting its preferred alternative undoubtedly involved consideration of the *overstated* fish passage problems against the harmful impacts to the City, resulting in an unintentional and unsupported decision that it is necessary to inflict serious harm on the City in a heroic effort to improve fish passage.

463-3
463-4
463-5

The DEIS/EIR states "[a]ll of the impacts associated with the operation of *all of the alternatives are beneficial to increased fish passage*." (DEIS/EIR, p. X.) Unfortunately, these alternatives are analyzed under the weight of incorrect assumptions regarding the actual and current conditions at the RBDD. If the actual fish passage conditions were properly included in the DEIS/EIR, then the alternatives analysis would look quite different, and the weighing process would include consideration of the already improved fish passage conditions against the gravity of the harm to the environment and the City for some additional increment of improvement. } 463-6

With respect to NEPA compliance, environmental analyses are to be prepared early in the decision making process so that they can make an important contribution to that process. (40 C.F.R. § 1502.5.) "Ultimately, it is not better documents but better decisions that count. NEPA's purpose is not to generate paper work – even excellent paper work – but to foster excellent action." (40 C.F.R. 1500.1(b).) In this case, the analysis of the true baseline fish passage conditions has not yet been done, and is so obviously not a part of the decision making process that one of the lead agencies has prematurely identified a preferred alternative with the most egregious environmental impacts. Not only does the omission of true baseline conditions result in an inferior document, it most certainly negates any possibility of excellent action. } 463-7

In *County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 192-193, the court cited a NEPA case and concluded as follows:

Letter from Richard L. Crabtree, Continued

463-3 The commentor is incorrect in his assessment of the alternatives. The analysis presented in the EIS/EIR, confirmed by the Fish and Wildlife CAR, and concurred by other cooperating resource agencies, concluded that both the 2-month gate operation and the 0-month gate operation would provide significant improvements over the existing condition. See DEIS/EIR Section 3.2, Fishery Resources, for additional discussion of the relative effect of the different gate-operation scenarios.

463-4 One lead agency, TCCA, disclosed its preference for the Gates-out Alternative in an effort to fully disclose its intentions, consistent with CEQA. The statement of a preferred alternative did not influence the analysis of resource areas considered in the EIS/EIR. See DEIS/EIR Section 3.10 for a discussion and analysis of the impacts of the alternatives on socioeconomic resources, including resources in the Red Bluff area.

Note that TCCA's preferred alternative identified in the DEIS/EIR is not the selected project. As of November 2007, the selected project includes a pumping facility with a maximum capacity of 2,500 cfs. Reclamation anticipates a gates-in period between July 1 and the end of Labor Day weekend; TCCA has no position on changes to gate operations.

463-5 As noted in Responses to Comments 463-1, 463-2, and 463-3, the lead agencies disagree with the commentor's assertion that fishery impacts have been misrepresented. The selection of the selected alternative was the result of a deliberate, measured process that took special note of the concerns of stakeholders affected by the decision as well as the concerns of the lead agencies and the cooperating resource agencies.

463-6 See thematic responses.

463-7 Your comment has been noted. The lead agencies assert that the EIS/EIR complies with NEPA.

No. 463

> "Only through an accurate view of the project may affected outsiders and public decision-makers balance the proposal's benefit against its environmental cost, consider mitigation measures, assess the advantage of terminating the proposal (i.e., the "no project" alternative) and weigh other alternatives in the balance. An accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR."

The DEIR/EIS does no provide an accurate view of the project such that the public and decision-makers may balance the project's benefits against its environmental cost. The huge cost that would be borne by the City under the Preferred Alternative should not be measured against an inaccurate and outdated view of the current fish passage conditions at RBDD. To move forward to project approval on the basis of the DEIS/EIR in its current form would prevent the document from fulfilling its purpose of providing relevant information to all interested parties and decision makers. } 463-8

II. Selection of a Preferred Alternative During the Draft Document Stage Violates the Spirit of CEQA and NEPA

Declaring a preference for the "Gates Out Alternative" before the environmental review process is complete turns the NEPA/CEQA process on its head. NEPA and CEQA are designed to foster informed decision-making. The DEIS/EIR reads like a *post hoc* rationalization argument, attempting to justify a decision already made. CEQA requires the selection of feasible alternatives that lessen the environmental impacts of proposed projects. (Pub. Resources Code § 21002.) Public Resources Code Section 21002 Provides:

> "The Legislature finds and declares that it is the policy of the state that *public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects*, and that the procedures required by this division are intended to assist public agencies in systematically identifying both the significant effects of proposed projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects."

TCCA has already identified the Gates Out Alternative as the Preferred Alternative, and further fouled the preparation of the draft environmental document by stating that its preference is really for the "maximum pumping facility, regardless of gate operations, recognizing that its chief concern was water supply reliability." (DEIS/EIR, p. 1-8.) Thus, one of the co-lead agencies has identified a preferred alternative while completely disregarding CEQA's mandate that the lead agency must systematically identify both the significant effects of the proposed project and the feasible alternatives or mitigation measures which will avoid or substantially lessen such significant effects. It is obvious from the DEIS/EIR that TCCA is determined to approve the project with the "maximum pumping facility" and plans to do so because water } 463-9

Letter from Richard L. Crabtree, Continued

463-8 The descriptions and analyses contained in the EIS/EIR represent the most accurate view possible of the proposed actions and their forecast effects. On the whole, these descriptions and analyses provide disclosure for interested and affected stakeholders and form the basis for sound, informed decisionmaking by the lead agencies.

463-9 See Response to Comment 463-4. The disclosure of a preferred alternative in the DEIS/EIR furthers the use of the EIS/EIR as a disclosure document. Note that the current selected alternative is different than the preferred alternative outlined in the DEIS/EIR. As of November 2007, the selected project includes a pumping facility with a maximum capacity of 2,500 cfs. Reclamation anticipates a gates-in period between July 1 and the end of Labor Day weekend; TCCA has no position on changes to gate operations.

No. 463

supply reliability is TCCA's "chief concern." (DEIS/EIR, p. 1-8.) TCCA's desire for maximum pumping does not nullify CEQA's requirement that the environmentally superior alternative must be identified. (14 Cal. Code Regs. ("CEQA Guidelines") § 15126.6(e)(2).) The DEIS/EIR reads like a rationalization for the selection of the Gates Out Alternative, with the TCCA pretending that the enormous impacts to the City of Red Bluff are small when compared to the benefits of "maximum pumping." This selection of a Preferred Alternative with the water supply interests of TCCA being the only true consideration violates the spirit and the letter of both CEQA and NEPA.

III. The Direct Impacts of the Gates Out Alternative are Not Adequately Addressed

A. Impacts Related to the Mill Site Fish Screen

The Gates Out Alternative contemplates the construction of a new pumping facility at the Mill Site with a pumping capacity of 2,180 cfs. This would require the installation of a massive fish screen. (DEIS/EIR, p. 2-12.) The screen would be approximately 1,000 feet long. (*Id.*) As noted by Dave Vogel in his comments during the public hearing on September 25, 2002, there is a disturbing lack of meaningful information in the DEIS/EIR regarding the large-scale pumping plant on the Sacramento River. } 463-10

It is well documented that fish screens of this magnitude require extremely good control over river channel hydraulics during the life of the project. The document acknowledges that the largest diversion on the Sacramento River occurs at GCID's Hamilton City Pumping Plant, where up to 3,000 cfs is diverted into GCID's main canal. (DEIS/EIR, p. 3-68.) Thus, the proposed pumping plant for the project at the Mill Site, with a pumping capacity of 2,180 cfs, is no small diversion, nearing the capacity of the largest diversion on the River. Construction of the fish screen facility at GCID's Hamilton City Pumping Plant involved, among other things, a multimillion dollar in-river gradient restoration project and flow control structures designed to protect the fish screen from river bypass and to optimize operations by maintaining approach and sweeping velocities consistent with fisheries agencies' fish screen criteria.

Mr. Vogel noted during his comments on September 25, 2002, that he has personally witnessed significant river channel changes at the Mill Site over the past 20 years, and that the downstream end of the site has become shallow, with the river channel changing course from the right to left bank. Mr. Vogel went on to state that he could not envision how fish screens could function without *major dredging* in the river and the *reconfiguration of the existing channel*. None of this is addressed in the DEIS/EIR, except to state that the details will be worked out in the final engineering design. (DEIS/EIR pp. 2-12 to 2-18.) This is unacceptable deferral of studies and inquiry that does not satisfy CEQA or NEPA. Additionally, the informational purpose of the document is not fulfilled, given that essential elements of the project, no matter which alternative is selected, have been completely ignored. } 463-11

Letter from Richard L. Crabtree, Continued

463-10 See Response to Comment 457-11.

463-11 It would be likely, as for other fish protect facilities that have been planned and constructed throughout the Sacramento River watershed over the past decade, that channel dredging and/or other in-channel construction practices would occur for the Gates-out Alternative or any other alternative where construction would occur. To the extent possible, given the stage of design of a pump station or any other components of other alternatives, the analysis of impacts of facility operations and construction was provided in the DEIS/EIR. However, specific details of methods and quantities of fill and dredge materials, for example, and specific habitat areas affected would need to be addressed in the specific environmental permits that will be required during facility design and prior to construction. These permits were outlined on page 1-17 of the DEIS/EIR. The permits that would be necessary to address any specific impact of instream construction would include, but are not limited to, Federal Clean Water Act Sections 401, 402, and 404; Federal River and Harbors Act Section 10; ESA Section 7; California Fish and Game Streambed Alteration; Petition to Change Point of Diversion (DWR); and Encroachment Permit (State Reclamation Board) among others. Also see Response to Comment 457-11.

No. 463

Art Bullock
November 27 2002
Page 5
Re: **Fish Passage Project – Red Bluff Diversion Dam**

The omission of information regarding how the massive fish screen investment would be maintained and protected is a glaring and untenable flaw in the DEIS/EIR. Figure 3.2-1 clearly depicts highly erodable soils and recent channel deposits around the Mill Site, which could easily facilitate river meander and result in the bypassing of the fish screen facility. The natural tendency for river meander could require bank protection upstream and downstream of the new fish screen. Bank protection would result in the destruction of habitat and infringe upon federal and state policies in support of establishing a riparian meanderbelt along the Sacramento River. Further, control over the channel, which will be absolutely necessary to maintain approach velocities consistent with fisheries agencies' criteria, can only be achieved through dredging of the river channel. (Dave Vogel's September 25, 2002 comments.) Dredging will impact species, including the same listed species the project seeks to protect, and annual dredging may or may not be allowed under the federal Clean Water Act or other regulations. Finally, the fish screen would include a fish bypass system (DEIS/EIR, p. 2-17), which would undoubtedly require at least some review and study to ensure proper performance according to the fisheries agencies' criteria. None of these impacts are addressed in the DEIS/EIR. The long-term maintenance, performance review and protection of the fish screen facility is barely mentioned in the document, and this omission must be corrected in order to allow the public and the decision makers to assess the true impacts of the various alternatives. 463-12

Another issue raised by the fish screen portion of the project alternatives is whether or not NMFS will grant a "variance" for an exception to the "no pumped fish bypass" criterion. (DEIS/EIR, p. 2-17.) There is no discussion regarding the likelihood of such a variance. The entire fish screen discussion assumes a variance will be granted by NMFS, without inclusion of a contingency plan or discussion of action to be taken in the event NMFS enforces the "no pumped fish bypass" criterion. 463-13

Finally, the long-term operation and maintenance of the fish screen will impact fisheries resources. Table ES-4 indicates that impacts to fisheries resources would come only during construction of the new fish screen. There is no information regarding the potential for annual in-river dredging that may be necessary to maintain channel configuration in order to meet approach and sweeping velocity criteria at the fish screen. 463-14 Further, any bank protection that becomes necessary to protect the fish screen from river meander and to meet criteria would impact riparian habitat, including possible impacts to shaded riverine aquatic cover, VELB and other resources. 463-15

Table ES-4 further says that effects from sediment disturbances and turbidity may occur during construction, but does not mention these effects as they may occur during long-term maintenance of the fish screen facility, which may involve maintenance dredging. 463-16 Finally, long-term impacts to power supplies, traffic and circulation, noise, aesthetics, land use, recreation, socioeconomics, fishery resources, water resources/quality and biological resources simply are not included in the DEIS/EIR to the extent these impacts will result from long-term maintenance, testing and/or protection of the fish screen facility. 463-17

Letter from Richard L. Crabtree, Continued

463-12 See Responses to Comments 463-11 and 457-11.

463-13 The decision to require or not to require a fish bypass will occur during the project's ESA consultation process, and ultimately rests with NMFS. Any requirements for Reasonable and Prudent Measures and other conservation terms that may or may not be included in the BO would be issued by NMFS for the project. It is premature to speculate what measures, terms, or conditions might come out of this consultation and the issuance of a BO by NMFS at the present time.

463-14 See Responses to Comments 457-11 and 463-11.

463-15 See Response to Comment 463-11.

463-16 See Response to Comment 463-11.

463-17 Long-term maintenance of the proposed fish screen facility would be similar to maintenance activities currently in place at RBDD.

No. 463

In summary, a complete picture of the project's impacts has not yet been included in the DEIS/EIR. As a result, the document does not satisfy the requirements of NEPA or CEQA. } 463-18

B. Impacts Related to Reduction in Flood Carrying Capacity of Sacramento River

The DEIS/EIR fails to consider other foreseeable impacts from the Gates Out Alternative. Table 1.5-1 indicates that the California Department of Water Resources is concerned that the "[a]dditional riparian growth resulting from the project will reduce the flood-carrying capacity of the Sacramento River in already reduced natural floodplains and bypass channels. This potential impact could increase water surface elevations" and that "[t]he additional vegetation in the floodplain could have significant effects on water surface elevations in the Red Bluff area during high water events. (DEIS/EIR, p. 1-14.) In other words, the Gates Out Alternative will increase flood related risks to Red Bluff residents during high water events. This impact is dismissed in the document and never addressed other than in the list of agency concerns. In fact, Table ES-4 falsely indicates "no negative impacts were identified" for "surface-water hydrology and management."

The DEIS/EIR considered the environmental consequences to water resources, and purports to have considered contacts with resource agencies in the process. (DEIS/EIR, p. 3-85.) The significance criteria states that an impact would be significant if it would "[e]xpose people or structures to a significant risk of loss, injury or death involving flooding." (DEIS/EIR, p. 3-86.) The analysis goes on to conclude that the operation of the Gates Out Alternative would have no significant impact on hydrology – and does not even mention the increased riparian growth that could reduce the flood-carrying capacity of the Sacramento River.

The Department of Water Resources is a "resource agency" contact, and the concern expressed by that agency has been ignored in the document. The impacts related to additional riparian growth in the dry bed of Lake Red Bluff have not been adequately discussed in the DEIS/EIR. Specifically, the document must provide information regarding the degree of increased risk of harm to Red Bluff residents and their property from potential flooding during high water events, and mitigation measures must be included to the extent feasible. In this regard, if the additional riparian growth is to be managed in some way, the impacts to people and resources, including VELB, should be disclosed. } 463-19

IV. Analysis of the "Preferred Alternative" Improperly Minimizes Grave Project Impacts to the City of Red Bluff

The DEIS/EIR acknowledges that the Gates Out Alternative "would result in a significant economic impact to the local community." (DEIS/EIR, p. XVI.) The estimated financial impact of $4.2 million per year represents nearly the entire annual general fund budget of the City of Red Bluff. (DEIR, p. XVI and p. 3-316.) Reductions in property values and income from the Nitro National boat races would result in serious financial impacts to the City.

Letter from Richard L. Crabtree, Continued

463-18 Your comment has been noted. The lead agencies assert that the EIS/EIR complies with NEPA and CEQA.

463-19 See Response to Comment 483-4. When assessing the impacts of an alternative, it is important to consider the applicable significance threshold under consideration. For potential impacts resulting from increased water surface levels during high-water events, the applicable threshold is presented on DEIS/EIR pages 3-95 and 3-96. Specifically, the threshold is related to the relationship of existing property to the 100-year flood event. The commentor expresses concern that additional vegetation that might result from additional periods of gates-out operation would significantly alter water surface elevations during flood events. The lead agencies have considered such a potential effect, but reject it for two reasons: (1) It is unlikely that new vegetation in the area currently inundated by Lake Red Bluff would result in large woody species such as cottonwoods because the area would still be subject to relatively high flows and associated scouring during winter storm events. (2) The proposed project is a full-sized-footprint pump station with a maximum capacity of 2,500 cfs. Reclamation anticipates a gates-in period between July 1 and the end of Labor Day weekend; TCCA has no position on changes to gate operations. This proposed change to gate operations is considered within the context of a reoperation of the CVP, which would include consideration of flood operations. Currently, flood control is not an authorized operation of RBDD.

No. 463

Additionally, the impacts of "reduced quality of life" and "loss of community cohesion" could be devastating. The impacts associated with the Gates Out Alternative are huge and could be disastrous for the City.

To summarize, the Gates Out Alternative would result in recreation and tourism spending losses of $1,088,000 annually and the loss of 19 tourism related jobs. Losses related to elimination of the Nitro National boat races would be $3,154,000 annually and the loss of 49 boat racing related jobs. (Table 3.10-14.) Finally, the reduced quality of life and loss of community cohesion impacts from the Gates Out Alternative would be "HIGH." (*Id.*) "No mitigation is available to offset these impacts." (DEIS/EIR, p. XVI.) The DEIS/EIR glosses over these impacts with little discussion. The disproportionate "cost" of the project should not be borne by the citizens of Red Bluff, who would receive little in the way of benefit from the increased capacity for agricultural water deliveries. 463-20

These egregious impacts to the City and its citizens may not be avoidable through mitigation measures, but there is a project alternative available that would meet the project's goals *and* prevent disproportionate impacts to the City: Alternative 1A. (See DEIS/EIR, p. 3-258 and Table 3.8-2.) In its identification of the Preferred Alternative, the DIES/EIR does not discuss the weighing of the Gates Out Alternative against the grave harm to the City, nor does it mention the fact that Alternative 1A would avoid these impacts and meet project goals in an obviously environmentally superior way.

V. Alternative 1A is the Best Alternative

Table ES-4 shows that Alternative 1A will have unmitigated significant impacts in only one category, and those impacts are only temporary, associated with construction activities. By contrast, the Gates Out Alternative will result in unmitigated significant impacts in 4 categories (recreation, land use, socioeconomic and aesthetics). Additionally, there is *no mitigation available* for the socioeconomic impacts of the Gates Out Alternative. (DEIS/EIR, p. 3-332.) Both alternatives 1A and Gates Out meet the goals of the project to improve fish passage conditions and reliability of water supply deliveries (DEIS/EIR, pp. 3-258 to 3-268), but Alternative 1A is obviously the environmentally superior alternative.

"CEQA contains a 'substantive mandate' that public agencies refrain from approving projects with significant environmental effects if the there are feasible alternatives or mitigation measures that can substantially lessen or avoid those effects." (Remy, Thomas, Moose & Manley: GUIDE TO THE CALIFORNIA ENVIRONMENTAL QUALITY ACT, 10th Ed., p. 13.) "CEQA compels government first to identify the environmental effects of projects, and then to mitigate those adverse effects through the imposition of feasible mitigation measures or through the selection of feasible alternatives." (*Sierra Club v. State Bd. of Forestry*, 7 Cal.4th 1215, 1233 (1994).) Thus, under the mandates of CEQA, the Gates Out Alternative cannot be selected if there is a feasible alternative with less adverse impacts. Here, that feasible, 463-21

Letter from Richard L. Crabtree, Continued

463-20 Your comment has been noted. It is important to recognize that by identifying its preferred alternative, the lead CEQA agency highlighted the tradeoff between the benefits of the project and the impacts. Also, see Response to Comment 463-9 for additional discussion of the preferred alternative and Response to Comment 463-5 for a discussion of fishery benefits from the project. Note that TCCA's preferred alternative identified in the DEIS/EIR is not the selected project. As of November 2007, the selected project includes a pumping facility with a maximum capacity of 2,500 cfs. Reclamation anticipates a gates-in period between July 1 and the end of Labor Day weekend; TCCA has no position on changes to gate operations.

463-21 The lead agencies recognize the commentor's preference for Alternative 1A, but note that the 4-month gate operation may be subject to change because of future administrative processes beyond the lead agencies' control. The commentor is also advised that the applicable CEQA citation is in the Guidelines at Section 15043: "A public agency may approve a project even though the project would cause a significant effect on the environment if the agency makes a fully informed and publicly disclosed decision that: (a) There is no feasible way to lessen or avoid the significant effect (see Section 15091); and (b) Specifically identified expected benefits from the project outweigh the policy of reducing or avoiding significant environmental impacts of the project." Furthermore, CEQA Guidelines at Section 15093 states: "CEQA requires the decision making agency to balance, as applicable, the economic, legal, social, technological, or other benefits of a proposed project against its unavoidable environmental risks when determining whether to approve the project. If the specific economic, legal, social, technological, or other benefits of a proposed project outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered 'acceptable.'"

No. 463

Art Bullock
November 27 2002
Page 8
Re: **Fish Passage Project – Red Bluff Diversion Dam**

environmentally superior alternative is Alternative 1A. There is no evidence or analysis in the DEIS/DEIR which supports a conclusion that Alternative 1A is not feasible.

CEQA's substantive mandate that a project not be approved if there are feasible alternatives or mitigation measures differs from the requirements under NEPA. "In requiring the imposition of feasible means of eliminating significant environmental effects, CEQA differs from NEPA. [Citations.] Under CEQA, an agency cannot satisfy the statute simply by considering the environmental impacts of a proposed project." (Remy, Thomas, Moose & Manley: GUIDE TO THE CALIFORNIA ENVIRONMENTAL QUALITY ACT, 10th Ed., p. 14.) Thus, it is not enough under CEQA to merely consider thee impacts of the proposed project. CEQA requires that feasible environmentally superior alternatives be adopted.

Furthermore, under CEQA, physical changes that will cause adverse social or economic effects on people are considered significant environmental impacts. (Guidelines § 15064(e).) CEQA requires that impacts to human beings be given priority. (Guidelines §15065(d).) The negative impacts to human beings associated with the loss of Lake Red Bluff are staggering, as set noted above and shown in the DEIS/EIR. Adequate mitigation and/or adoption of a project alternative to avoid these human impacts must occur under the mandates of CEQA.

All alternatives improve water supply deliveries over the No Action Alternative. The ability of Alternative 1A to meet *maximum* [i.e., worst case scenario] water deliveries *could* be exceeded for 14 days during the irrigation season, between May 1 and May 15. (DEIS/EIR, p. 3-258 to 3-259.) The Gates Out Alternative has a similar possibility of failing to meet maximum estimated demands for one day during the irrigation season. (DEIS/EIR, p. 3-269.) Importantly, however, Alternative 1A has the ability to meet the water needs defined by average and maximum water delivery and average and maximum crop demand "for the majority of the irrigation season, May 15 to September 15." (DEIS/EIR, p. 3-259.) Additionally, the unnecessary human impacts associated with the Gates Out Alternative can and should be avoided by adopting Alternative 1A. It is possible to meet project goals and comply with NEPA and CEQA through this course of action.

463-21, cont'd

* * * *

Because of the issues raised above, the City of Red Bluff believes that the DEIR/EIS fails to meet the requirements of the California Environmental Quality Act and the National Environmental Policy Act. The document should be withdrawn and a revised DEIR/EIS released which adequately addresses all direct and reasonably foreseeable impacts, provides adequate and feasible mitigation, considers the alternatives under the correct assumptions about

463-22

Letter from Richard L. Crabtree, Continued

463-22 Your comment has been noted. There are no plans to recirculate the EIS/EIR. The lead agencies assert that the EIS/EIR complies with NEPA and CEQA.

No. 463

Letter from Richard L. Crabtree, Continued

the current state of fish passage at RBDD and avoids excessive and unnecessary impacts to the City of Red Bluff.

Very truly yours,

SHEPHERD & CRABTREE

RICHARD L. CRABTREE

RLC:tc
cc: City of Red Bluff
Attention: Susan Price, City Manager

No. 464

Letter from Steven L. Evans, Dated November 26, 2002

FRIENDS OF THE RIVER
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CALIFORNIA'S STATEWIDE RIVER CONSERVATION ORGANIZATION

November 26, 2002

Mr. Art Bullock
Tehama-Colusa Canal Authority
P.O. Box 1025
Willows, CA 95988

Re: Red Bluff Diversion Dam Fish Passage Improvement Project
Draft Environmental Impact Statement/Report (DEIS/R)

Dear Mr. Bullock:

Thank you for soliciting comments from the public in response to this important report. I also wanted to express my appreciation for the excellent outreach and facilitation of public comments provided by the Tehama-Colusa Canal Authority at the public meetings and via the internet. The interactive nature of your public participation process is a model for other agencies to follow.

Friends of the River strongly supports implementation of the preferred alternative identified in the DEIS/R – Alternative 3: Gates-Out. The Gates-Out alternative best improves fish passage for sensitive, threatened, and endangered fish species and meets the intent of various legislative and administrative decisions requiring the remediation of fish passage problems at the Red Bluff diversion dam (RBDD).

However, the DEIS/R fails to provide some essential information to support its decision. The final EIS/R should provide more perspective as to why fish passage needs to be improved at the RBDD, as well as include additional information concerning impacts and proposed mitigation measures associated with all alternatives.

We believe the DEIS/R's impact analysis of the Gates-Out alternative has been overstated in many areas (including recreation, visual resources, tourism, and land values), and that some common sense mitigation measures have been ignored. In addition, at least one additional alternative – removal of the RBDD – should be considered in the final EIS/R.

Our detailed comments are attached. Thank you for your consideration.

Sincerely,

Steven L. Evans
Conservation Director

No. 464

Comments of Friends of the River
November 26, 2002
Red Bluff Diversion Dam Fish Passage Improvement Project
Draft Environmental Impact Statement/Report (DEIS/R)

Pg. v – There is reference to the TCCA Board reserving the right to consider other alternatives such as the "Flexible Gate" alternative. There is no further information concerning this alternative to be found in the DEIS/R. Therefore, the TCCA Board cannot legally under CEQA/NEPA consider this alternative. 464-1

Pg. 1-7 – The Legislative and Management History section fails to mention the important pertinent legislative and administrative actions that place this project in perspective and would at least inform the public why the project is proposed. These legislative and administrative actions include: 464-2

- 1973 Endangered Species Act – Congress directs federal agencies to protect and conserve threatened and endangered fish, wildlife, and plant species, and their ecosystems. The Sacramento River winter-run chinook salmon is subsequently listed under the Act as an endangered species in 1994, the winter steelhead as a threatened species in 1998, and the spring-run chinook salmon as a threatened species in 1999.
- 1984 California Endangered Species Act – Requires the California Department of Fish & Game to protect and conserve threatened and endangered fish, wildlife, and plant species, and their habitat. Subsequently, the Sacramento winter run chinook salmon is listed as a state endangered species in 1989 and the spring run chinook salmon as a state threatened species in 1999.
- 1988 Salmon, Steelhead Trout And Anadromous Fisheries Program Act – Directs the California Department of Fish & Game to implement measures to double the numbers of salmon and steelhead present in the Central Valley.
- 1993 Central Valley Action Plan (for restoring anadromous fish) – California Department of Fish & Game adopts as a top (A-1) priority, "Develop and implement permanent measures to minimize fish passage problems for adult and juvenile anadromous fish at the Red Bluff Diversion Dam in a manner that provides for the use of associated CVP conveyance facilities for delivery of water to the Sacramento Valley National Wildlife Refuge complex."
- 1994 Central Valley Project Improvement Act – Requires the Bureau of Reclamation to "...develop and implement measures to minimize fish passage problems for adult and juvenile anadromous fish at the Red Bluff Diversion Dam in a manner that provides for the use of associated Central Valley Project conveyance facilities for delivery of water to the Sacramento Valley National Wildlife Refuge complex. Costs associated with implementation shall be reimbursed in accordance with the following formula: 37.5 percent shall be reimbursed as main project features, 37.5 percent shall be considered a non-reimbursable Federal expenditure, and 25 percent shall be paid by the State of California."

Friends of the River Comments – RBDD DEIS/R *Page 1*

Letter from Steven L. Evans, Continued

464-1 The commentor is correct. The DEIS/EIR reviewed a range of alternatives from gates out to 4 months of gate operation with various passage alternatives. Any alternative not within this range of alternative could not be considered without additional environmental assessment.

464-2 Text has been revised to address this comment. See text change in Section 2.0 of this FEIS/EIR.

No. 464

- 1996 Steelhead Restoration and Management Plan for California – Directs the California Department of Fish & Game to implement actions to restore Central Valley steelhead, including determine an alternative to the Red Bluff Diversion Dam that would eliminate or reduce the need for the dam gates, and allow unobstructed fish passage.
- 1997 Proposed Recovery Plan for the Sacramento River Winter-run Chinook Salmon – National Marine Fisheries Service adopts a objective to maximize the survival of juveniles passing the Red Bluff Diversion Dam and recommends development and implementation of "...a permanent remedy at the Red Bluff Diversion Dam which provides maximum free passage for juvenile (and adult) winter-run chinook through the Red Bluff area, while minimizing losses of juveniles in water diversion and fish bypass facilities."
- 2000 CALFED Bay-Delta Restoration Progam Record of Decision – Authorizes the implementation by state and federal agencies of a comprehensive ecosystem restoration program, which includes "Modifying or eliminating fish passage barriers, including the removal of some dams, construction of fish ladders, and construction of fish screens that use the best available technology."
- 2000 CALFED Bay-Delta Ecosystem Restoration Program Plan – Adopts specific conservation measures to "Manage operations at the Red Bluff diversion dam to improve to improve fish passage, reduce the level of predation on juvenile fish, and increase fish survival" and to "Prevent predatory fish from congregating below the Red Bluff Diversion Dam by modifying operations."

464-2, cont'd

Pg. 2-1 – Alternatives: A dam removal alternative should be included in this analysis. There is no indication that such an alternative was considered. Most CEQA/NEPA documents list alternatives not analyzed in detail to inform the public the range of alternatives originally considered. Serious consideration of a dam removal alternative is needed, given the importance of fishery values affected by the dam and the fact that retention of the RBDD infrastructure could result in future operations that could further adversely impact these values.

464-3

Pg. 2-2 – "The current gates-out operation at RBDD (September 16 through May 14) has greatly reduced the period of time when adults are delayed and juveniles are adversely affected by RBDD operations." This statement is primarily applicable to the endangered winter run chinook salmon. And even for the winter run, the DEIS/R indicates a 12% improvement in adult fish passage. This is a significant improvement given that the winter run annually consists of only a few hundred fish. The DEIS/R also shows significant measurable benefits for several other salmon stocks and fish species, some of them listed as threatened and endangered.

464-4

Pgs. 2-20 through 25 – Dam Bypass: One of the standards for the dam bypass is that it provide sufficient attraction flows to successfully provide a significant improvement in fish passage. Since the flow out of the proposed bypass would be similar to flows from existing fish ladders, there is no evidence that a dam bypass would improve fish passage. Given the cost of this alternative, the fact that Lake Red Bluff will continue to

464-5

Friends of the River Comments – RBDD DEIS/R *Page 2*

Letter from Steven L. Evans, Continued

464-3 DEIS/EIR Appendix A, page A-1, contains a detailed description of the alternatives that were considered and/or eliminated. Removal of the dam is not necessary to allow unrestricted fish passage because the gates could be permanently raised and/or welded in place.

464-4 Thank you for your comment. Your comment has been noted. No response is required.

464-5 Thank you for your comment. Your comment has been noted. No response is required.

No. 464

act as a vector for juvenile salmonid predation, the unacceptable impacts of the bypass on the Red Bluff Recreation Area, as well as the fact that the bypass is likely to not provide significant improvement in fish passage, this alternative should be eliminated from any further consideration. } 464-5, cont'd

Pg. 3-6 – Species Listed or Proposed for Listing: This section fails to note mandates to improve passage at the RBDD for federally and state listed salmonid species in the Proposed Winter Run Recovery Plan, the California Steelhead Restoration and Management Plan, and many other administrative documents and decisions. It also fails to note that the Sacramento River "…is the most important waterway in the Central Valley," in regard to anadromous fish (CDFG 1993). In addition, this section of the DEIS/R fails to place in perspective the overall status of the listed stocks and the significance of listed salmonids that spawn upstream of the RBDD. } 464-6

Before dams blocked 90% of their spawning habitat, the spring chinook run was the largest in the Central Valley and was conservatively estimated at nearly a million fish annually. In the Sacramento River and its tributaries, the spring run population declined from nearly 39,000 fish in 1940 to an average of 2,400 fish today. Today, spawning wild spring run are considered to be extirpated from the main stem Sacramento River. The remaining stock spawns in tributaries, including a few tributaries upstream of the RBDD. The spawning tributaries upstream of the RBDD – Battle Creek, Cottonwood Creek, Clear Creek, and a few others – support just a few hundred spring run salmon annually.

Battle Creek is considered the best opportunity to restore all five runs of salmonids in the Sacramento watershed and CALFED is investing more than $30 million to do so. CALFED has also made significant investments in salmonid habitat restoration on Clear Creek (including the removal of the McCormick-Saeltzer dam) and on Cottonwood Creek. The low numbers and unique nature of the stocks upstream of the RBDD, and the investment in public resources to restore these stocks, is a powerful argument in favor of maximizing successful passage of TES salmonids past the RBDD.

Pgs. 3-16 through 18 – Other Native Anadromous Fish: This section fails to fully document the status of the Sacramento River green sturgeon, which is officially recognized by the California Department of Fish & Game as a fish species of special concern. In 2001, the National Marine Fisheries Service determined that listing the green sturgeon under the Endangered Species Act may be warranted. A listing decision is pending. Moyle et al recommended that it be listed and protected as a threatened species. (1992, 1995). Moyle also provides a rough population estimate for the Sacramento River of 160 to 1,600 fish. According to Musick et al (2000), all known or suspected spawning populations of green sturgeon probably contain only a few hundred mature females. According to the 2001 petition to list the green sturgeon, the Sacramento River stock is one of only two remaining spawning populations in California (the other is located in the Klamath watershed). Although it may be unclear whether or not all sturgeon observed downstream of the RBDD when the gates are down are in fact green sturgeon, there is extensive documentation that green sturgeon do indeed migrate at least as far as the RBDD. The fact that sturgeon are commonly sighted below the RBDD when the gates are down is evidence that the RBDD plays a significant role in impeding passage of adult sturgeon. In contrast, the Gates-Out } 464-7

Friends of the River Comments – RBDD DEIS/R *Page 3*

Letter from Steven L. Evans, Continued

464-6 Numerous plans and programs have addressed fish passage issues at RBDD. In addition to the programs and legislation summarized in the DEIS/EIR, the following additional documents call for implementation of actions for resolving fish passage problems at RBDD. The Recovery Plan for the Sacramento River Winter-run Chinook Salmon specifically provides recovery goals for winter-run Chinook salmon. The specific goals for RBDD include Goal II/Objective 2 and Goal III/Objective 1: Maximize survival of juveniles (and adults) passing the RBDD by operating the RBDD in a gates-up condition from September 1 through May 14 each year until a permanent remedy for the facility is implemented; and develop and implement a permanent remedy at RBDD which provides maximum free passage for juvenile (and adult) winter-run Chinook through the Red Bluff area while minimizing losses of juveniles in water diversion and fish bypass facilities. CDFG's Steelhead Restoration and Management Plan calls for correction of fish passage and loss problems at RBDD and recommends that measures to restore the Sacramento River and estuary be implemented as soon as possible. In the 1993 CDFG Central Valley Plan for Action it was recommended (A-1 priority) that permanent measures to minimize fish passage problems at RBDD be developed and implemented.

464-7 The final rule to list the Southern DPS green sturgeon was published in the Federal Register on April 7, 2006 (Federal Register Volume 71, Number 67). The effective date of the listing of this species as federal threatened was July 6, 2006. At the time the final rule listing the Southern DPS green sturgeon was published, critical habitat designation was undeterminable because of insufficient information. The period for publishing a final rule designating critical habitat has been extended for 1 additional year, during which NMFS will meet with co-managers and stakeholders to review existing information and evaluate specific areas essential to the conservation of the Southern DPS. Green sturgeon are also a state species of concern.

No. 464

alternative significantly improves passage for adult green sturgeon by 54% and 38% for juveniles.

Pg. 3-18 – River Lamprey: This section fails to note that river lamprey are officially recognized by the California Department of Fish & Game as a fish species of special concern. } 464-8

Pg. 3-28 – Species Listed or Proposed for Listing: This section should note that a petition was filed in 2001 proposing the ESA listing of the green sturgeon, and that NMFS determined that listing may be warranted and a listing decision is pending. } 464-9

Pg. 3-34 – Significance Criteria: The delineation of <10 percent difference in passage indices as "less than significant" is arbitrary. It fails to consider the importance of the stocks that must pass the RBDD to spawn upstream in the Sacramento River and in critical tributaries such as Battle Creek and Cottonwood Creek. Even a modest 4% and 8% improved passage for endangered winter run juveniles and threatened steelhead juveniles respectively should be considered significant. Any measurable improvement for a species listed as endangered should be considered significant, and the steps taken to achieve that improvement reasonable and prudent. } 464-10

Pg. 3-35 – "…no alternative resulted in significant (measurable) adverse impacts to (adults or juveniles) of any of the five native anadromous salmonid species." One would hope that a project intended to improve passage for threatened, endangered, and sensitive (TES) fish species would indeed have no significant adverse impacts. But the DEIS/R narrative fails to emphasize the definitive corollary to this statement – that some of the alternatives provide significant measurable positive impacts (improvements) for TES fish species. } 464-11

Table 3.2-6 shows that adult winter chinook and steelhead receive measurable benefit and adult spring chinook receive large measurable benefit from the gates out alternative. In addition, the table demonstrates that adult spring chinook receive a large measurable benefit from the 2 month improved and 2 month existing ladders alternatives. Although the table arbitrarily assigns no measurable benefit between alternatives for juvenile salmonids, it also indicates 4% improved passage for endangered juvenile winter run and 8% improved passage for threatened juvenile steelhead. Passage improvement for green sturgeon under the Gates-Out alternative is even more impressive – 54% for adults and 38% for juveniles. } 464-12

Pg. 3-67 – Water Resources: The discussion concerning surface water hydrology should consider the potential for river meander affecting the ability of existing and new pumps to divert water from the river. } 464-13

Pgs. 3-89 through 90 – Hydrology/Water Management Impacts: It should be noted in this section that one of the reasonably foreseeable impacts of any alternative that allows additional water diversion (or pumping) beyond current operations (No Action alternative) may result in increased diversions from the Sacramento River for offstream storage, and subsequent impacts on the river ecosystem, fish, and wildlife. } 464-14

Friends of the River Comments – RBDD DEIS/R *Page 4*

Letter from Steven L. Evans, Continued

464-8 See page 3-28 of the DEIS/EIR where this species' status as a state species of concern is disclosed.

464-9 See Response to Comment 464-7.

464-10 As stated on DEIS/EIR page 3-34 in the description of significance criteria, a <10 percent difference in passage indices constituted a no measurable impact or benefit. The term "measurable" is important and must be distinguished from "significant." Because of some of the assumptions and information (e.g., average water year) used in the assessment tool (*Fishtastic!*), the "precision" in determining differences between alternatives and the No Action Alternative, by necessity, needed to be broad. Therefore, in the context of judging differences between an alternative and No Action, the relative numerical differences in the indices were important, but were not meant to be construed as exact. It was assumed that an index value of less than 10 percent difference was within the ability of the assessment tool to distinguish an alternative and, therefore, had a similar outcome. For the purposes of distinguishing an alternative that resulted in a calculated passage index of 80 (for example) as opposed to a calculated index value of 92, the categories of differences (<10, >10<25, >25) came into play. In this example, the difference in index values is 12 (92-80=12) or a difference of 11 percent and, therefore, would have been judged "measurably different." It is important to remember that the absolute actual difference in index values or even the percentage differences are not precise and are not meant to directly relate to a population statistic such as numbers of spawners. Finally, it must be remembered that all of the analyses resulted in passage benefits, compared to No Action, regardless of alternative. There were no outcomes of adverse effects from any alternative in regards to its adult and juvenile passage indices. The differences in the outcomes only provided measures of relative improvements or benefits of one alternative over another.

464-11 All of the analyses resulted in passage benefits, compared to No Action, regardless of alternative. There were no outcomes of adverse effects from any alternative in regards to its adult and juvenile passage indices. The differences in the outcomes only provided measures of relative improvements or benefits of one alternative over another as compared to No Action. Thank you for your comment. Your comment has been noted. No further response is required.

No. 464

Letter from Steven L. Evans, Continued

464-12 Thank you for your comment. Your comment has been noted. No response is required.

464-13 See Response to Comment 311-42.

464-14 DEIS/EIR Section 4.2 (Growth-inducing Analysis) states that the existence of a pump station at the TCCA diversion location could possibly result in increased ability to deliver water during the winter months to the proposed Sites Reservoir. Also see Table 4.1-1 of the DEIS/EIR for North-of-Delta Offstream Storage alternatives consideration.

No. 464

Pg. 3-118 – Riparian Habitat: This section documents the fact that seasonal flooding caused by the RBDD and its reservoir restricts the amount of riparian habitat in this section. Without the seasonal flooding, riparian habitat would normally re-vegetate much of the affected river segment. } 464-15

Pg. 3-179 – Riparian Habitat Impacts: Natural re-vegetation of the inundation zone under the Gates-Out Alternative would almost certainly create more riparian habitat than the 6.81 acres lost due to construction impacts. There is extensive research concerning Sacramento River riparian resources to provide a reasonable estimate of recreated riparian habitat associated with the Gates-Out Alternative. } 464-16

Pg. 3-189 – Recreation: This section fails to compare recreational use on other segments of the Sacramento River with recreational use of the Red Bluff segment under the various alternatives. Without this comparison, it is difficult to determine whether any of the recreational impacts are permanent or long term. Logically, reservoir-based recreation will simply give way to river-based recreation under the Gates-Out alternative. Extensive river-based recreation already occurs upstream and downstream of the RBDD. } 464-17

We compared the 1995 Lake Red Bluff segment recreational data in the DEIS/R with recreational use data compiled for various segments of the river by the California Department of Water Resources in 1980. The CDWR data shows that the Sacramento River segments upstream and downstream of Lake Red Bluff supported more power boating, swimming, and fishing in 1980 than Lake Red Bluff does today. In fact, total recreation use in the upstream and downstream segments in 1980 is competitive with 1995 Lake Red Bluff use figures. It is logical to assume that total recreational use in the upstream and downstream segments is actually much higher today. The CDWR data also shows a 61% increase in overall recreational use in the Lake Red Bluff segment, compared to the 1995 DEIS/R data. But this may be because the 1980 data combines Lake Red Bluff recreation use with river-based recreation activities that occurred between the lake and Jellys Ferry bridge.

It is reasonable to expect that more than half of the recreational use in the Red Bluff area correlates with the period when the gates are down under current operations. But this use is not necessarily associated with RBDD operations. The correlation is more likely associated with the prime summer recreation period from May to September.

Pgs. 3-213 through 215 – Operations Related Impacts: A careful examination of actual recreational uses indicates that most activities are not strictly reservoir-based. Even assuming that all power boating and water skiing would end under the Gates-Out alternative (an unreasonable assumption), these activities comprise less that 16% of the overall recreational use along the river. Power boats and jet skis are common along other free flowing segments of the Sacramento River, including segments just upstream and downstream of Red Bluff. Redding and Sacramento enjoy extensive river-based recreational opportunities in parks along rivers flowing through their communities.

There is no factual basis for the assumption that the Gates-Out alternative will permanently impact recreational use. It will simply change some but not even most of the recreational use already occurring in the Red Bluff area. The impact on drag boat } 464-18

Friends of the River Comments – RBDD DEIS/R *Page 5*

Letter from Steven L. Evans, Continued

464-15 See DEIS/EIR Section 3.4.2, page 3-194.

464-16 Page 3-179 of the DEIS/EIR discusses the topic of riparian revegetation in the inundated area. Thank you for your comment. We agree that the amount of likely riparian revegetation would result in an area much larger than just the construction-impacted area mentioned; however, it is not known how the areas within the City of Red Bluff might be developed. It is likely that many of the areas within the City would transition to some sort of park or trail system if Lake Red Bluff were eliminated. Therefore, quantifying this riparian area would be difficult.

464-17 It is true that recreational uses will likely transition from reservoir-type activities to river-related recreational activities. This would likely provide a positive long-term benefit to recreation.

464-18 The DEIS/EIR states on page 3-235 that impacts will be permanent to recreation because boat docks that were formerly used for launching will never again be usable under the Gates-out Alternative. Throughout the public process and comment periods, discussions have been ongoing to determine if an alternative could be considered that would allow for the Nitro Nationals event to be held. Several issues would need to be addressed to lower the RBDD gates for this specific event, including sturgeon-run timing considerations, cost of maintaining RBDD solely for this event, and the inability to reschedule the event because of the nature of the racing circuit. Although the selected project does not include a gates-in period during Memorial Day weekend, a request for this operation will be submitted to NMFS if gate operations were to change.

No. 464

races could be mitigated by simply lowering the gates when the event occurs. This mitigation was not apparently considered in the DEIS/R. The impacts of lowering the gates for the drag boat races on fish passage and riparian habitat re-vegetation would have to be analyzed and mitigated. } 464-18, cont'd

Pg. 3-237 – Boat Docks/Ramps Impacts: Although boat docks would no longer be needed under the Gates-Out alternative, boat ramps designed to accommodate river-based use would be appropriate. The statement that the Gates-Out alternative's impacts on private and public boat ramps would be significant and cannot be mitigated is not true. The DEIS/R should consider proposing the construction of one or more public boat ramps designed to accommodate river-based boating as mitigation for the Gates-Out alternative. } 464-19

Pgs. 3-307 through 313 – Economic Impacts: This section appears to assume that most or all summertime recreation in the Red Bluff area is lake dependent. This is a false assumption. Many of these economic activities would occur even without the lake due to increase tourism associated with the summer recreation period. } 464-20

Pgs. 3-313 through 315 – Property Values: The discussion on property values apparently fails to compare river front property with lake front property. Property adjacent to water is likely to have a higher value than property distant from water. But what is the difference in value between river front and lake front property? This important information is lacking in the DEIS/R. } 464-21

Pgs. 3-369 through 370 – Permanent Landscape Changes. The impact on visual quality is overstated and fails to consider the fact that over time, the reservoir imprint will naturally revegetate. Most of the barren gravel areas now evident under current operations when the gates are up, will revegetate. A flat, broad expanse of water under current operations when the gates are down will be replaced with a dynamic meandering river clothed in riparian forest. Visual impacts are likely to be fully mitigated with 10-20 years and could be accelerated with an active riparian habitat restoration program. } 464-22

Letter from Steven L. Evans, Continued

464-19 Thank you for your comment. At this time, no mitigation has been proposed for replacement of the boat docks.

464-20 The commentor is correct: lake recreation is not the only form of recreation in the local area. There were no assumptions made for this section that indicated all recreation was centered around Lake Red Bluff; however, it was a focal area for the impact analysis.

464-21 Thank you for your comment. The commentor is correct that riverfront property is generally of higher value than ordinary property. Several of the public comments from concerned property owners indicate that many of those that would be directly affected are located along sloughs or areas that are some distance from the natural river channel. It is unknown what sort of development if any might be undertaken between property owners and the river. Any such improvements, trails, and nature-viewing areas would likely impact home values as well in the area.

464-22 The commentor is correct in that visual impacts might improve with time; however, the direct impacts must be disclosed and considered for this project under CEQA. The terms "long-term" and "short-term" are open to interpretation and, thus, the EIS/EIR chose to error on the side of impact disclosure for aesthetics.

No. 465

CALIFORNIA ADVISORY COMMITTEE ON SALMON & STEELHEAD TROUT
P. O. Box 291 Trinidad, CA 95570

November 26, 2002

Mr. Art Bullock, General Manager
Tehama-Colusa Canal Authority
P.O. Box 1025
Willows CA 95988

Mr. Bob Hight, Director
California Department of Fish and Game
1416 Ninth St., 12th Floor
Sacramento, CA 95814

The Honorable Assemblymember Virginia Strom-Martin, Chair
The Legislative Joint Committee on Fisheries and Aquaculture
State Capitol, Room 3146
Sacramento, CA 95814

Dear Mr. Bullock,

The California Advisory Committee on Salmon and Steelhead Trout (CAC) is a public committee authorized by the Legislature to provide recommendations to the Legislative Joint Committee on Fisheries and Aquaculture and to the Director of the Department of Fish and Game on matters related salmon and steelhead resources. The CAC has a long history of seeking improvement to the conditions at Red Bluff Diversion Dam that have had significant negative impacts to the salmon and steelhead resources of the Sacramento River. After our review of the EIS/EIR for the Fish Passage Improvement Project at the Red Bluff Diversion Dam (RBDD), the CAC would like to provide the following comments:

The CAC supports the adoption of the Tehama/Colusa Canal Authority's Preferred Option of the Alternative 3- "Gates Out" action to provide the greatest recovery benefits to ESA/CESA "threatened" listed Spring-run chinook salmon 465-1

After review of the "Purpose and Need Statement", the CAC recommends that only the Alternative 3- "Gates Out", and Alternative 2A-"Two Month Improved Ladder" should be considered as meeting the intended purpose to "Significantly improve the long-term ability to reliably pass anadromous fish and other species of concern, both upstream and downstream, past RBDD". 465-2

All of the other alternatives clearly should be determined to not qualify as fish passage improvements, and if implemented, could only be regarded as water conveyance facility improvements (except for the No Action Alternative). Meeting the significant monetary expense of constructing any new pumping stations without an irreversible commitment to opening the 465-3

Letter from Mitch Farro, Dated November 26, 2002

465-1 Thank you for your comment. Your comment has been noted. No response is required.

465-2 Thank you for your comment. Your comment has been noted. No response is required.

465-3 As found and discussed in DEIS/EIR Appendix I, Draft Fish and Wildlife CAR, numerous elements of the CALFED ERP are met by Alternative 2A (2 Months Improved Ladder) and Alternative 3 (Gates-out Alternatives). As pointed out by the commentor, these alternatives also meet mandates under CVPIA 3405 (b)(1) to minimize fish passage problems to meet the goal of doubling the populations of anadromous fish and meet goals of the Sacramento Winter-run Recovery Plan. The discussion of the specific CALFED elements that these two alternatives meet are found on pages 30 through 32 of Appendix I to the DEIS/EIR. Discussion of the benefits of these alternatives in reaching goals of the CVPIA and Sacramento Winter-run Recovery Plan are found on pages 28 through 30 of the Fish and Wildlife CAR.

No. 465

gates at RBDD for fish passage should be the responsibility of the beneficiaries of the Tehama/Colusa Canal and future off-channel water storage facilities. } 465-3, cont'd

Only Alternative 3-"Gates Out" and Alternative 2A- "Two Month Improved Ladder" meet the CALFED Environmental Restoration Program's elements as expressed in the CALFED Programmatic EIS/EIR Record of Decision to minimize fish passage problems at the RBDD and restore ecosystem function in the upper Sacramento River. These goals are enumerated in the U.S. Fish and Wildlife Service Draft Coordination Act Report for the Fish Passage Improvement Project. Further, there are specific Congressional mandates requiring RBDD to "minimize fish passage problems" in the Central Valley Project Improvement Act in order to meet the goal of restoring the fishery and doubling the population of anadromous fish (CVPIA 3406 (b) (1)) that should be clearly stated in the document.

The EIS/EIR does not adequately state that lake based recreation is not an authorized purpose of the Red Bluff Diversion Dam. Neither does it address the fact that salmon population improvements were used as a significant economic justification for the original cost/benefit analysis for construction of RBDD. The document needs to address that rather than increasing salmon populations, the past operation of RBDD has been a significant cause for the decline of several runs of chinook salmon, causing major economic impacts to other regions in California and Oregon. } 465-4

The use of the event promoter's (A&J Events) proprietary information in the socioeconomic analysis of the economic losses associated with the loss of the Nitro Nationals Drag Boat Races without independent analysis of the data should not be allowed. The document also needs to include a further analysis of simply rescheduling the Nitro Nationals event to within the two-month gates in operation options to give an accurate picture of socioeconomic impacts. The economic impacts to a much broader geographic area of failing to achieve timely recovery of species listed under state and federal endangered species acts need to be stated to put any local impacts in proper perspective. } 465-5

Additionally, the document needs to include the positive economic benefits to in-river and delta fisheries, as well as the significant economic benefit to coastal communities via ocean sport and commercial fisheries that occur from San Luis Obispo to northern Oregon. } 465-6

The EIS/EIR needs to clearly state that the two-month gates in alternatives meet, at a minimum, the objectives of the CALFED ROD, the mandates of the CVPIA, and of the National Marine Fisheries Service's Sacramento River Winter-run Chinook Recovery Plan, and are therefore reasonable and prudent actions by the project proponent. If the two-month gates-in options meet these objectives, then the Alternative 3- "Gates Out" option can be considered as enhancement due to the additional benefits to the fishery resources and the environment. } 465-7

Thank you for the opportunity to provide comments on the Public Draft of the Red Bluff Diversion Dam Fish Passage Improvement Project's EIS/EIR. If you have any questions, please contact me as the Chair for the California Advisory Committee on Salmon and Steelhead Trout.

Sincerely,

Mitch Farro

Mitch Farro, Chair

Letter from Mitch Farro, Continued

465-4 See Response to Comment 311-71.

465-5 Thank you for your comment. Economic information for many sources was used to complete the analysis. A significant level of discussion has occurred between all parties to consider the option of moving the boat drags to an alternative time or location. The boat drags travel in a racing circuit similar to NASCAR, and rescheduling them is difficult or impossible. Alternative locations have been discussed, but still present significant economic impacts to the City and County. The commentor is correct that failing to protect salmon might have a broader impact than the local economy.

465-6 The commentor is correct that improvements to fish passage at RBDD will likely have positive effects in other regions; however, it is difficult (perhaps impossible) to quantify these benefits.

465-7 See Response to Comment 465-3.

No. 466

(3)

Attention: Mr. Art Bullock, General Manager
Tehama-Colusa Canal Authority
P.O. Box 1025
Willow, CA 95988

RE: Written Comment on the Draft EIS/EIR for the Fish Passage Improvement Project published in the Federal Register on August 30, 2002

Dear Mr. Bullock:

My comments are intended to address the issue of the analysis of the impact of various alternatives on Recreation.

Of the 6 alternatives proposed, we are supporting the Alternative 1a that retains the gates-in 4 months, improves the fish ladders and that also provides for a pumping facility to meet the water needs of the TCCA into the future. } 466-1

The Recreation Use Study of Red Bluff Diversion Dam Area and the Sacramento River by Chico State is quoted as the reference source for evaluation of the impact on recreation. In the second printing dated January 19, 1996, the study reveals on page 2 that attendance was not counted at the Boat Drag Races or the 4th of July evening fireworks events. Therefore, no comparative analysis on the impact of loss of these events was provided in the DEIS/EIR. The DEIS/EIR document could lead the reader to believe that no statistics are available when they are available from the event organizers. As such, they should be included for purposes of comparative analysis and decision making. If the available statistics were reported, the Recreation Impacts Summary Matrix, Figure 3.5-6 in the EIS/EIR document, would show Lost User Days for Alternative 3 (Gates Out) at twice the reported level or over 38,000 user days. This oversight alone would demonstrate the inaccuracy of the representation provided and the unreliable nature of the Chico State report as a source document. Carrying on the statistical imperative of counting this one event, the lost user days would be three times higher than reported for either Alternatives 2A or 2B (Two month Gates operation). } 466-2

Letter from Three Illegible Signatures

466-1 Thank you for your comment. Your comment has been noted. No response is required.

466-2 In DEIS/EIR Table ES-4, under Socioeconomic, the Gates-out option lists impacts to Fish Runs/Spending/Property Value/Quality of Life and Community Cohesion as significant. These impacts are considered significant and unavoidable if a Gates-out Alternative is chosen. However, this alternative is not the selected project. The selected project includes a pumping facility with a maximum capacity of 2,500 cfs. Reclamation anticipates a gates-in period between July 1 and the end of Labor Day weekend; TCCA has no position on changes to gate operations.

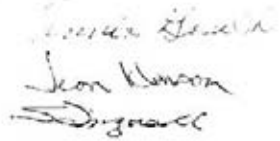
No. 466

The further impact of lost events such as the July Family Fourth on the River, the May Antique Car Show at River Park, the annual RC Fly-in at Lake Red Bluff Recreation Area in June, the tubing festival on Labor Day, not to mention countless smaller public and private events attracted to our parks by virtue of the lakeside setting in the summer are not addressed in this simple analysis here tonight for sake of time. Mr. Rob Gibbs, Director of the City of Red Bluff Parks and Recreation Department has statistical reports for group use of River Park that demonstrates a large segment of user day activity not accounted for by the Chico State study. Lack of attention to this statistical oversight is disappointing to say the least and it borders on a prejudicial misrepresentation at worst. 466-3

My specific questions are: What justification is there for understating this important and measurable recreation component in the analysis? 466-4 Will the analysis provided for the panel prior to the Record of Decision include the accurate portrayal of recreational use as modified by inclusion of this available information? 466-5

Lastly, if the potential for increased recreation opportunities due to dramatic enhancement of the fishery resource by the gates out or 2 month gates operation is stated as offset or mitigation, why does the DEIS/EIR project at best only 704 user days gained by these Alternatives (reference same Fig 3.5-6)? 466-6 Where is the "world class fishery" that proponents of these Alternatives believe would result from selecting either of these Alternatives? 466-7

A substantive revision of the presentation on recreation impacts in the document should be the proper response to this comment.



Letter from Three Illegible Signatures, Continued

466-3 See Response to Comment 466-2.

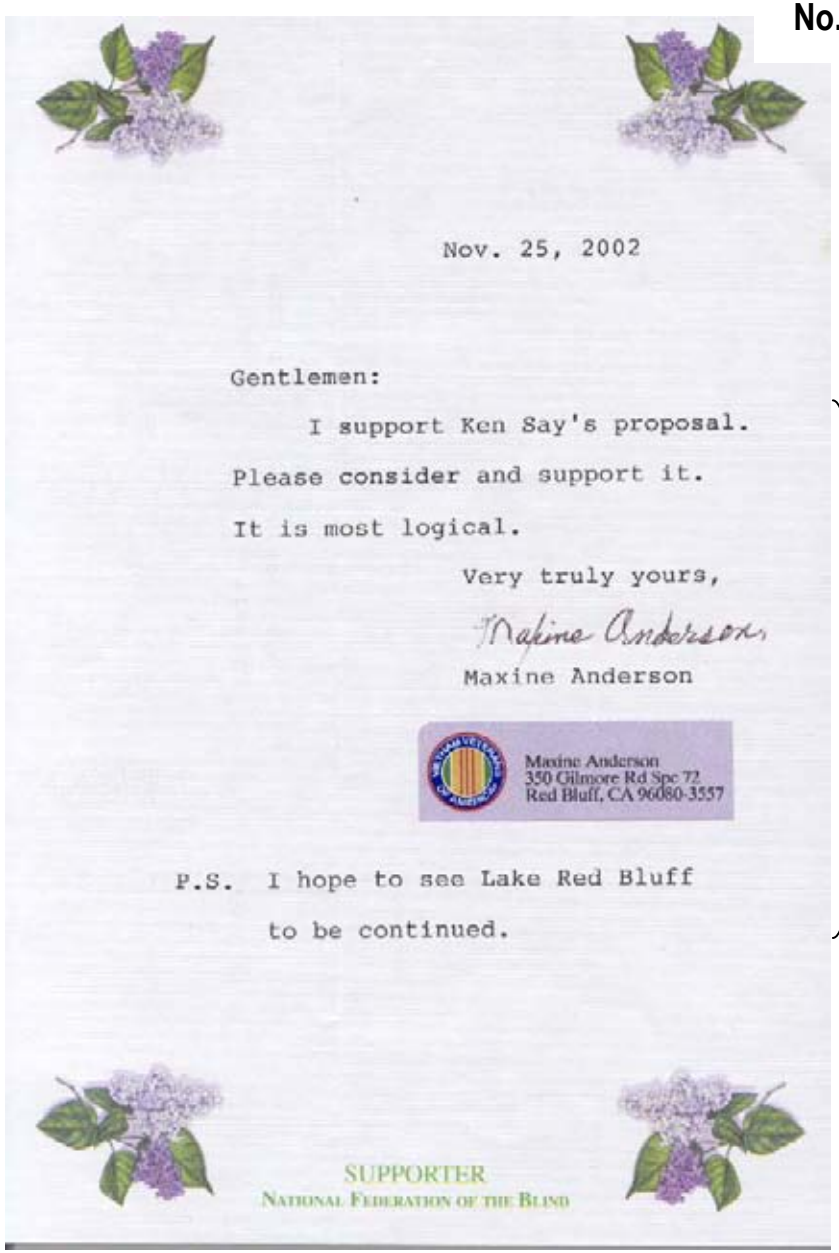
466-4 See Response to Comment 466-2.

466-5 See Response to Comment 466-2.

466-6 Increased fishing opportunities would provide only partial offset mitigation for Alternative 2 or 3.

466-7 The commentor rhetorically asks where is the "world class fishery" that proponents of the alternatives believe would result from selecting either of the 2-months Gates-in or Gates-out Alternatives. It is unknown what the reference to "world class fishery" refers to, but it is logical to assume that with additional opportunities for anadromous fish to pass RBDD unimpeded, coupled with ongoing restoration actions throughout the upper Sacramento River watershed, river fisheries would greatly improve. It is a fact that, except in the Sacramento River, there is nowhere else in California, and possibly the world, where adult Chinook salmon are found in every month of the year. Some of these races (runs) of Chinook salmon presently number in the hundreds of thousands of adults returning to spawn every year (i.e., fall-run Chinook salmon). With continued efforts to protect, enhance, and restore habitats and access to those habitats, it is quite feasible that the fisheries in the Sacramento River watershed could return to or come near the historical population levels recorded early in the twentieth century. If that were to occur, given the depletions of salmon stocks seen in other major watersheds in Western North America, it is possible that the salmon fisheries in the Sacramento River could then be described as "world class."

No. 467



Nov. 25, 2002

Gentlemen:

I support Ken Say's proposal.

Please consider and support it.

It is most logical.

Very truly yours,

Maxine Anderson

Maxine Anderson
350 Gilmore Rd Spc 72
Red Bluff, CA 96080-3557

P.S. I hope to see Lake Red Bluff

to be continued.

SUPPORTER
NATIONAL FEDERATION OF THE BLIND

467-1

Letter from Maxine Anderson, Dated November 25, 2002

467-1 Thank you for your comment. Your comment has been noted. No response is required.

No. 468

Letter from Illegible Signature

Attention: Mr. Art Bullock, General Manager
Tehama-Colusa Canal Authority
P.O. Box 1025
Willow, CA 95988

RE: Written Comment on the Draft EIS/EIR for the Fish Passage Improvement Project published in the Federal Register on August 30, 2002

Dear Mr. Bullock:

As a public citizen, I want to ask questions about the panel chosen for the selection of the alternative and the public record of bias.

Of the 6 alternatives proposed, I am supporting the Alternative 1a that retains the gates-in 4 months, improves the fish ladders and that also provides for a pumping facility to meet the water needs of the TCCA into the future.

In light of the decision of the lead agency for the State, Tehama Colusa Canal Authority, to commit to the gates out alternative (Alternative 3), made on December 5, 2001 and reaffirmed on February 6, 2002, months before the DEIS/EIR was prepared or available to the public or to the agencies and since the fisheries agencies, in their Planning Aid Memo dated October 19, 2001 stated: except for the No Action alternative, "All remaining alternatives appear to meet, to various degrees, the intent of the needs and purpose statement."

My questions are:

No. 468

1. Should not the State appoint an independent agency such as the Department of Water Resources to make the final recommendation? } 468-1
2. Should not TCCA, as a beneficiary of the process, recuse itself? } 468-2
3. Since the consultant for the project, CH2MHILL, has demonstrated an ongoing professional design and engineering services inclination, should not the final response to proposal questions be crafted by an objective engineering/biological resources firm? } 468-3
4. Substantive questions raised about the DIES/EIR require substantive answers. Will the responses given by CH2MHILL be submitted for peer review, by objective third party resources such as the National Academy of Science? } 468-4

644 Main St
Red Bluff CA
96080

Letter from Illegible Signature, Continued

468-1 The TCCA and DWR have agreed on their respective roles as lead agency and responsible agency, consistent with CEQA. The CEQA Guidelines state at Section 15051, "If the project will be carried out by a public agency, that agency shall be the Lead Agency even if the project would be located within the jurisdiction of another public agency." In this case, TCCA has taken the lead in implementing the project; responsible agencies, including DWR, concur with this determination.

468-2 As noted in Response to Comment 468-1, TCCA is acting as lead agency, consistent with CEQA. The TCCA would take the lead in implementing the project, and is complying with CEQA by openly examining the impacts and benefits of the project.

468-3 CH2M HILL is undertaking the environmental assessment of the project on behalf of the lead agencies, who are ultimately responsible for compliance with both NEPA and CEQA. This is a typical arrangement whereby a consulting firm provides professional resources that are beyond the typical scope of a public agency. For such an arrangement to be credible, the consultant must consistently provide unbiased analysis so that its clients can make informed decisions. The analysis becomes part of the public record and is available for review for indications of bias or errors or omissions.

468-4 Responses to comments become part of the administrative record for the project and form the basis for decisionmaking by the lead agencies. Neither NEPA or CEQA require consultation by outside "peer" groups. Because both lead agencies are public entities, they are required by NEPA and CEQA to take objective views of the evidence, analysis, and reasoning presented in the EIS/EIR.

No. 469

Tehama Tomorrow
Vision • Resources • People

Mr. Art Bullock
General Manager
Tehama-Colusa Canal Authority
PO Box 1025
Willows, California 95988

November 27, 2002

Dear Mr. Bullock,

By way of introduction Tehama Local Development Corporation is the lead economic development agency for Tehama County. Representing both public jurisdictions and private industry. We have reviewed the Red Bluff Diversion Dam EIS/EIR prepared by the Tehama Colusa Canal Authority and have several concerns.

In summary we feel that the Socioeconomic (Section 3.10) grossly underestimates the long-term impacts for the community of Red Bluff. In an effort to understand these impacts we commissioned an independent analysis of the 2002 Lake Red Bluff Nitro Nationals. The study completed by CSU Chico Center For Economic Development with the help of the Red Bluff Chamber of Commerce and A& J Events, was accomplished using the most conservative and accurate data available. Like the consultants that prepared the EIS/EIR CSU also employed IMPLAN Modeling to determine the effects on the local economy. } 469-1

Interestingly our modeling indicates a lower [1]TOTAL IMPACT form the event $ 2.6 (M) compared to $3.1 (M); which presents a stronger case for our long term Secondary Impact Analysis. Based upon our report, it is our opinion that EIS/EIR Secondary Impact Numbers are VERY low for an area like Red Bluff. According to Mr. Warren Jenson with CSU Center for Economic Development, a multiplier of 1.19 like that used by the consultant preparing the EIS/EIR are more characteristic of places like Alturas and Loyalton where there are few retail goods available. } 469-2

[1] See attached report Economic Impact Brief - page 2

Tehama Local Development Corporation
PO Box 1224 • 1700 Airport Boulevard • Red Bluff, CA 96080 • Tel: (530) 529-7100 • Fax (530) 529-0153 • (800) 603-4267

Letter from Dexter Wright, Dated November 27, 2002

469-1 Although the analysis presented by the commentor presents slightly different methodologies and assumptions, the conclusion, relative to No Action, is consistent with the analysis presented in the DEIS/EIR. The inherent variability in these types of projection-based analyses is typical and does not change the conclusion that the impact of gates-out operations would be significant and unavoidable in terms of loss of the Nitro National boat drags.

469-2 The commentor indicates that a higher multiplier (1.54 versus 1.19) gives a higher impact. Inputs during analysis are a matter of professional opinion. We do not dispute these findings. In DEIS/EIR Table ES-4, under Socioeconomic, the Gates-out option lists impacts to Fish Runs/Spending/Property Value/Quality of Life and Community Cohesion as significant. These impacts are considered significant and unavoidable if a Gates-out Alternative is chosen. However, this alternative is not the selected project. The selected project includes a pumping facility with a maximum capacity of 2,500 cfs. Reclamation anticipates a gates-in period between July 1 and the end of Labor Day weekend; TCCA has no position on changes to gate operations.

No. 469

Letter from Dexter Wright, Continued

A Secondary Impact of 1.54 formulates some considerable differences with regards to long-term economic impacts for the community.

Annual Impact	TLDC Study	EIS/EIR	Variance
Indirect Spending of Local Industry	$246,000	$196,000	$50,000
Indirect Spending of Local Employees	$632,000	$304,000	$328,000
Total Employment Loss	55	49	6

These Secondary Impacts are extremely important to the long-term economic base of the community. For example; over the course of 10 years an event like the loss of the Nitro Nationals will cause a loss of $2.4 (M) in industry spending and $6.3 (M) in employee spending. Resulting in a significant impact to local retailers, governments and the quality of life for residents.

Ten Year Impact	TLDC Study	EIS/EIR	Variance
Indirect Spending of Local Industry	$2,460,000	$1,960,000	$500,000
Indirect Spending of Local Employees	$6,320,000	$3,040,000	$3,280,000
Total Employment Loss	550	490	60

469-2, cont'd

In light of the above information it is our position that the EIS/EIR inadequately addresses that long-term impacts to the community. Subsequently, Tehama Local Development Corporation requests that a more comprehensive socioeconomic impact analysis is necessary before any of the alternatives can be considered.

469-3

Sincerely

Dexter Wright
Executive Director

Cc Red Bluff Chamber of Commerce
City of Red Bluff

469-3 See Response to Comment 469-2.

No. 470

Letter from Center for Economic Development

470-1 This is an attachment to Comment Letter 469. No response is required.

Economic Impact Brief

Impact of the 2002 Lake Red Bluff Nitro Nationals on Tehama County

Analysis and brief prepared by the Economic Studies Program at the Center for Economic Development, California State University, Chico

470-1

For questions or comments, please contact

Economic Studies Program
Center for Economic Development
California State University, Chico
Chico, California 95929-0765
Phone: 530-898-4598
Fax: 530-898-4734
www.csuchico.edu/cedp/

Dan Ripke, Director
Warren Jensen, Program Manager
Maya Maas, Editor

CED
Center For Economic Development

No. 470

Letter from Center for Economic Development, Continued

1. Direct Impact of Red Bluff Drag Races

The Nitro Nationals is an annual drag racing event held at Lake Red Bluff in Tehama County, California. If Lake Red Bluff were to be altered such that the Nitro Nationals event could no longer be held at this facility, the economic impact to Tehama County would be substantial.

Economic Development On-Call provided CED with extensive detail regarding the direct impact of this event. Table 1 presents the information provided that was used in determining of the overall economic impact.

Table 1 - Direct Impact Information on 2002 Lake Red Bluff Drag Races Provided by Economic Development On-Call

	Average Per Spender	Assumed Number of Spenders	Number of Days	Direct Bus. & Org. Revenue	Model Industry
Event organization					
Total spending of event organization	n/a	n/a	n/a	$ 100,040	Racing and track operation
Participants					
Hotels	$ 99.00	550	3	$ 163,350	Hotels and other lodging places
Eating Places	$ 41.00	750	2	$ 61,500	Eating and drinking places
Service Stations	$ 20.00	240	1	$ 4,800	Automotive dealers and service stations
Entertainment	$ 20.00	750	3	$ 45,000	Amusement and recreation services
Total local spending of event participants				$ 274,650	
Non-local attendees					
Friday dinner	$ 26.00	2,740	1	$ 71,240	Eating and drinking places
Saturday breakfast	$ 7.00	3,045	1	$ 21,315	Eating and drinking places
Saturday event	$ 40.00	5,582	1	$ 223,280	Eating and drinking places
Saturday dinner	$ 28.00	4,364	1	$ 122,192	Eating and drinking places
Sunday breakfast	$ 7.00	6,475	1	$ 45,325	Eating and drinking places
Sunday event	$ 40.00	10,202	1	$ 408,080	Eating and drinking places
Sunday dinner	$ 25.00	4,317	1	$ 107,925	Eating and drinking places
Monday breakfast	$ 7.00	3,422	1	$ 23,954	Eating and drinking places
Miscellaneous	$ 10.00	7,993	1	$ 79,930	General merchandise stores
Automobile expenses	$ 12.50	1,570	1	$ 19,625	Automotive dealers and service stations
Hotels	$ 70.00	600	2	$ 84,000	Hotels and other lodging places
Bed & breakfasts	$ 95.00	15	2	$ 2,850	Hotels and other lodging places
RV parks	$ 25.00	38	2	$ 1,900	Hotels and other lodging places
Transient occupancy tax (10% of lodging)	n/a	n/a	n/a	$ 25,210	State and local government
Total local spending of non-local attendees				$ 1,236,826	
Total direct impact				$ 1,611,516	

Page - 1

No. 470

Letter from Center for Economic Development, Continued

The total budget for event organization, provided by A&J Events, was $272,000. Of this amount, $100,000 was spent at businesses and organizations in Tehama County. Participants spent an estimated $275,000 and non-local attendees spent an estimated $1.24 million in Tehama County during the weekend of the event. Non-local attendees is used because it cannot be assumed that local attendees would not spend these same dollars locally if the Nitro Nationals were not held in Red Bluff.

Overall, the direct impact of the Nitro Nationals on business and organizational revenue in Tehama County, the total value of the organizational budget plus estimated local business spending by participants and attendees, is estimated at $1.61 million.

2. Summary of Impacts

The following is an economic impact analysis of the direct impact of the Nitro Nationals event on Tehama County.

Table 2 – Economic Impact of 2002 Red Bluff Boat Drag on Tehama County

Impacts	Bus. & Org. Revenue	Employment	Labor Income
Direct impact	$ 1,612,000	42	$ 603,000
Indirect impact of local industry spending	$ 246,000	3	$ 89,000
Indirect impact of local employee spending	$ 632,000	10	$ 291,000
Total Impact	**$ 2,661,000**	**55**	**$ 983,000**
Multiplier	1.54	1.31	1.63

Source: Center for Economic Development at California State University, Chico

The $1.61 million spent directly by the event organizers, participants, and attendees supports 42 jobs earning $603,000 in labor income in Tehama County.

These businesses spent an estimated $246,000 this year at other local businesses. This facilitates the addition and retention of about 3 jobs earning $89,000 in labor income.

New and retained employees that result from direct and indirect business and organization revenue also spend an estimated $632,000 at other local businesses, facilitating the addition and retention of 10 jobs that earn $291,000 annually.

In total CED estimates economic activity in Tehama County resulting from the Nitro Nationals event totaled $2.66 million in business and organizational revenue, which allowed for the employment of 55 persons earning $983,000 annually.

The multiplier for revenue, employment, and payroll is included in Table 2 to show the ratio of direct impact to indirect impact. For example, a revenue multiplier of 1.54 shows

Page - 2

No. 470

Letter from Center for Economic Development, Continued

that for every dollar spent in Tehama County by A&J Events, participants, and non-local attendees related to the Nitro Nationals results in an additional $0.54 in revenue to other businesses in Tehama County, for a grand total of $1.54 in the economy for every $1.00 of spending.

The fact that the multiplier for employment is lower than that for labor income shows that local jobs supported by the 23 businesses pay more than the county average. This further emphasizes the importance of the local jobs supported by the Nitro Nationals event.

3. Indirect Impact by Industry

Not all industries are impacted to the same degree by the Nitro Nationals event. The indirect impact of local industry and employee spending is distributed among the 141 industry sectors present in Tehama County in the economic model. CED analyzed indirect impact by industry in order to analyze which industries were impacted the most as a result of the Nitro Nationals event.

Table 3 – Indirect Business and Organization Revenue Impact by Industry Due to the Nitro Nationals Event

Industry	*Total Indirect Revenue*
Banking	$ 58,000
State and local education	$ 51,000
State and local government, excl. education	$ 49,000
Real estate (rental)	$ 41,000
Existing residential dwelling sales	$ 38,000
Eating & drinking places	$ 28,000
Hospitals	$ 30,000
New residential dwelling sales	$ 28,000
Nonspecific business services	$ 28,000
Motor freight transport and warehousing	$ 27,000
Non-residential maintenance and repair	$ 27,000
Automotive dealers and service stations	$ 24,000
Wholesale trade	$ 23,000
Doctors and dentists	$ 22,000
Insurance carriers	$ 21,000
Food stores	$ 17,000
Other state and local government enterprises	$ 16,000
General merchandise retail stores	$ 16,000
Management and consulting services	$ 16,000
New industrial and commercial buildings	$ 15,000

Source: Center for Economic Development at California State University, Chico

Page - 3

No. 470

Letter from Center for Economic Development, Continued

Table 3 shows the top 20 industries impacted in terms of increase in business and organizational revenue. This is revenue generated other than directly by A&J Events, participants, or non-local attendees.

Financial industries are the primary beneficiaries of indirect spending in Tehama County, including banking, property sales, rental real estate, and insurance services. Governmental sectors are also present in two of the top three sectors, split nearly evenly between revenue for public education and other government revenue. This does not take into account the increase in demand for public education, but public education includes all K-12 schools and colleges that are state supported.

Five of the nine retail trade sectors are present in the top 20, including eating and drinking places (again, not including direct spending of participants and non-local attendees), auto dealers and service stations, food stores, and general merchandise stores. Two of the four health care sectors are also present, including revenue for the local hospital and for local doctors and dentists.

The remaining industries represent a wide range of sectors, including 3 from construction and maintenance, 2 from services, and 1 from transportation. Wholesale trade and government enterprises are also present.

The top 20 industries represent $585,000 of the indirect business revenue impact, or 67 percent of the $878,000 in total indirect impact.

4. Economic Model

In order to make the estimates above, a regional economic model was built for Tehama County using the IMPLAN economic impact analysis system by the center. IMPLAN models the economy through pre-input matrices measuring dollar flows from industry to industry, from industries to households, and from households to industries. This is called an input-output economic model and can be used to measure how changes in spending by households or industries produce changes in spending by all households and all industries. The input-output economic model charts the flows from one industry or household to another through a matrix. A matrix is a mathematical equation that is capable of solving for multiple variables in the same matrix or equation.

A model based on the social accounting matrix (type SAM model) was used to determine the effects of these businesses in the local economy. IMPLAN's type SAM model is the most widely used model as of the date of this study. It is used by a majority of economic analysis consulting firms who work with local governments and economic development organizations to analyze the impact of changes to the local business structure.

The indirect impact shown in Table 1 was entered into the model. The model produces estimates of the two types of indirect impact. The total impact was then calculated by CED.

Page - 4

No. 470

Letter from Center for Economic Development, Continued

For some activities not specifically related to industries, the center used an industry that most closely matched the inputs and outputs of these types of facilities. For example, an insurance claim processing service in Tehama County was included in insurance agents and brokers, which is a service using similar purchasing patterns, customers, and wage levels as insurance claim processing.

5. Definitions

Business revenue is the total value of goods and services produced by establishments in Tehama County. All values are given in year 2002 dollars.

Employment is the total number of full-time equivalent jobs in Tehama County. All direct employment is assumed to be full-time; however, indirect employment is full-time equivalent and likely includes some degree of part-time employment (two 20-hour per week jobs equal one job).

Labor income is the total wage, salary, and proprietary income estimated to be earned annually by local employees and proprietors.

The **direct impact** is the aggregate revenue, employment, and labor income (payroll) of all of the businesses upon which the economic impact analysis is based. These are detailed in Table 1.

There are two types of **indirect impacts**, the impact of local industry spending and the impact of local employee spending, each of which are calculated separately. The indirect impact of industry spending is based on the economic model's regional purchase coefficient by county and by industry, or the estimated amount of money spent locally versus nonlocally. In the case of this analysis, where a sub-county region is analyzed, the regional purchase coefficient applies to just Tehama County. The indirect impacts are detailed in Table 2.

Total impact is direct impact plus indirect impact.

The **multiplier** is the ratio between total impact and direct impact. It is calculated by dividing total impact by direct impact.

No. 471

Subj: **Vote for Alternative 3**
Date: 11/27/2002 11:46:20 PM Pacific Standard Time
From: atilley20@attbi.com
To: towaterman@aol.com
Sent from the Internet (Details)

I strongly support Alternative 3. please lift the gates and allow the Salmon and Green Sturgeon to rebuild there numbers back to there natural state. The cost of the pump system does not over-ride the natural evolution of these species. } 471-1

Thank You,
Tony Tilley

Email from Tony Tilley, Dated November 27, 2002

471-1 Thank you for your comment. Your comment has been noted. No response is required.

No. 472

Subj: **Support for Alternative 3**
Date: 11/29/2002 1:48:28 PM Pacific Standard Time
From: mark@oyestudio.net
To: tcwaterman@aol.com
Sent from the Internet (Details)

Hi folks,

Just wanted to express my support for Alternative 3 on the Red Bluff Diversion Damn. I'm a lifetime fisherman who would like to see the mighty sacramento restored (as much as is possible) to it's free flow, unobstructed state. There is no doubt in my mind that it would positively affect not only the local community, but also downstream fisheries in the greater bay area - where I live. I hope the powers that be will make the right decision on this important and historic event. 472-1

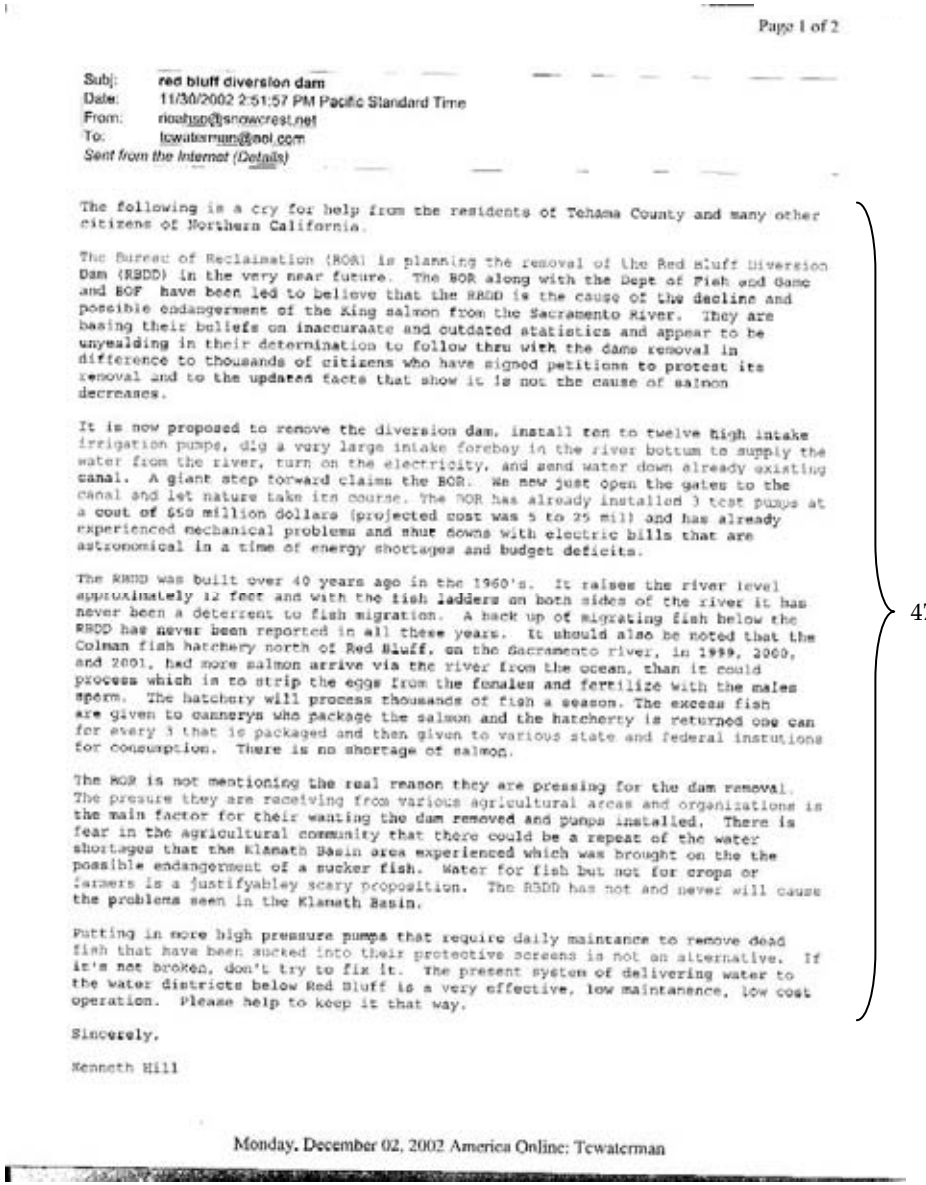
best regards
Mark R. Culpepper
2279 Pine Street
San Francisco, CA 94115
415-931-3149

Email from Mark R. Culpepper, Dated November 29, 2002

472-1 Thank you for your comment. Your comment has been noted. No response is required.

No. 473

Email from Kenneth Hill, Dated November 30, 2002



Page 1 of 2

Subj: red bluff diversion dam
Date: 11/30/2002 2:51:57 PM Pacific Standard Time
From: rioahsp@snowcrest.net
To: tcwaterman@aol.com
Sent from the Internet (Details)

The following is a cry for help from the residents of Tehama County and many other citizens of Northern California.

The Bureau of Reclamation (BOR) is planning the removal of the Red Bluff Diversion Dam (RBDD) in the very near future. The BOR along with the Dept of Fish and Game and BOF have been led to believe that the RBDD is the cause of the decline and possible endangerment of the King salmon from the Sacramento River. They are basing their beliefs on inaccuraate and outdated statistics and appear to be unyealding in their determination to follow thru with the dams removal in difference to thousands of citizens who have signed petitions to protest its removal and to the updated facts that show it is not the cause of salmon decreases.

It is now proposed to remove the diversion dam, install ten to twelve high intake irrigation pumps, dig a very large intake foreboy in the river bottum to supply the water from the river, turn on the electricity, and send water down already existing canal. A giant step forward claims the BOR. We now just open the gates to the canal and let nature take its course. The BOR has already installed 3 test pumps at a cost of $50 million dollars (projected cost was 5 to 25 mil) and has already experienced mechanical problems and shut downs with electric bills that are astronomical in a time of energy shortages and budget deficits.

The RBDD was built over 40 years ago in the 1960's. It raises the river level approximately 12 feet and with the fish ladders on both sides of the river it has never been a deterrent to fish migration. A back up of migrating fish below the RBDD has never been reported in all these years. It should also be noted that the Colman fish hatchery north of Red Bluff, on the Sacramento river, in 1999, 2000, and 2001, had more salmon arrive via the river from the ocean, than it could process which is to strip the eggs from the females and fertilize with the males sperm. The hatchery will process thousands of fish a season. The excess fish are given to canneryw who package the salmon and the hatcherry is returned one can for every 3 that is packaged and then given to various state and federal instutions for consumption. There is no shortage of salmon.

The BOR is not mentioning the real reason they are pressing for the dam removal. The pressure they are receiving from various agricultural areas and organizations is the main factor for their wanting the dam removed and pumps installed. There is fear in the agricultural community that there could be a repeat of the water shortages that the Klamath Basin area experienced which was brought on the the possible endangerment of a sucker fish. Water for fish but not for crops or farmers is a justifyabley scary proposition. The RBDD has not and never will cause the problems seen in the Klamath Basin.

Putting in more high pressure pumps that require daily maintance to remove dead fish that have been sucked into their protective screens is not an alternative. If it's not broken, don't try to fix it. The present system of delivering water to the water districts below Red Bluff is a very effective, low maintanence, low cost operation. Please help to keep it that way.

Sincerely,

Kenneth Hill

Monday, December 02, 2002 America Online: Tcwaterman

473-1

473-1 The commentor makes an number of inaccurate statements regarding the lack of demonstrative effects of the RBDD on salmon and their migration. The statement that there has never been a report of fish backing up below RBDD in the 40 years that RBDD has been in place is not true. Numerous scientific studies over the lifetime of RBDD have documented the blockage and delay of salmon and other species when the RBDD gates are in the down position. For references that document effects of RBDD to fisheries of the Sacramento River see Response to Comment 31-6. As an example, the most recent radio-telemetry investigation conducted by USFWS (1999-2001) found that, on average, radio-tagged adult fall-run Chinook salmon are delayed approximately 21 days prior to their movement through the fish ladder at RBDD. The commentor cites information that in 1999 through 2001 CNFH had more salmon arrive at the hatchery than it could handle, and that proves there is no shortage of salmon. However, the fish that the commentor are referring to are predominantly fall-run Chinook salmon, many of which pass through the ladders at RBDD. However, many also pass through RBDD unobstructed after the gates are lifted in mid-September. Although it is true that many fall-run Chinook salmon remain in the Sacramento River and its tributaries, there are populations of Chinook salmon that are known to be diminished in numbers (e.g., winter-run and spring-run Chinook salmon), as witnessed by their listing as endangered and threatened, respectively, by the federal and state governments. The commentor states that putting in high-pressure pumps will require daily maintenance to remove dead fish that have been sucked into their screens. That statement is also inaccurate. No pump station can be permitted for building on the Sacramento River unless it can be demonstrated that it can meet or exceed fish screening performance criteria for the protection of early lifestages of fish such as salmon and steelhead, a fact stated in the DEIS/EIR.