Subj: **Lake Red Bluff**
Date: 10/25/2002 8:50:44 AM Pacific Standard Time
From: ksay@tco.net
To: tcwaterman@aol.com
CC: editor@redbluffdailynews.com, stylist@snowcrest.net, doug@douglamalfa.com
Sent from the Internet (Details)

Marshall Pike

Red Bluff Chamber of Commerce,

Chairman of the Convention and Visitors Bureau

25 October 2002

Dear Chairman Pike;

I have been interested in the "Saving Lake Red Bluff" issue since it came to my attention this summer. I believe that all of the aspects of the Lake Red Bluff water and fish problem can be mutually solved by the construction of a new fish by-pass channel. If you look on a map of the Red Bluff area, you will see that an old Sacramento River channel named Paynes Creek Slough runs from the present river north of Red Bluff, just south of the Rio Vista Mobile Estates, through the Antelope area and terminates about one half mile down stream of the Red Bluff Diversion Dam boat ramp. If a fairly large channel were constructed with a series of articulated baffles at regular intervals along this 3.7-mile length, water flow though this channel could be regulated to a velocity that the migrating fish would follow.

Because of historical flood conditions, no structures have been built in this channel (except the bridges over it on Antelope Blvd. and Belle Mill Road) and it could be utilized to a width of 30 or 40 yards for its entire length. This channel could be build such that even in extreme low water conditions (with the diversion dam out) the total river flow could be directed down this by-pass. Also a gate at the entrance could be built such that when it is closed no water would flow down the by-pass. This would be desirable to provide for periodic maintenance of the by-pass. Also total river flow in the by-pass would provide for maintenance of the diversion dam.

When the diversion dam is in operation the water level rises to the height necessary for water to flow into the Corning and Tehama-Colusa Canals. At that time the baffles in the by-pass would be raised sufficiently to limit the flow into the by-pass to support the necessary flow into the irrigation canals. The conditions in the by-pass at this time would be a regular series of miniature waterfalls that the salmon would have to jump over as they swim up river. This is what people would really like to see when they visit a salmon-viewing site.

With a year around fish friendly by-pass channel, the diversion dam could be in place all year maintaining the normal lake level even if no water were necessary for the irrigation canals. People could use the lake for boating, fishing, or scenic recreation while the environmental concerns of the migrating fish are taken care of by the classic fish ladder. In addition to those concerns I think a by-pass channel also provides benefits for some issues that have not yet received much attention here in Red Bluff and Tehama County, but are sure to come up before much longer.

As more of the water normally used by the farmers for irrigation is sold to major metropolitan users in the south, more water will be pumped from the northern California aquifer to make up the difference. This will result in an aquifer pump down that cannot be maintained for any long period of time before our shallow wells begin to dry up. The only near-term solution is to capture the excess spring run off and store it either using above ground reservoirs or underground in the aquifers. Since it has been assumed that pumps would be used to supply the canals during the periods when the diversion dam is open for fish migration, I purpose that instead the pumps be used to pump the excess spring run off into the storage areas. In the spring run off, the pumps could operate at maximum run off removal from the river and the excess water pumped to a reservoir of sufficient elevation for

later gravity return to the irrigation canals. During the late fall and winter periods, the pumps could be used to pump the remaining reservoir water into the aquifer to return them to their original capacity. This is the basic outline of the project, but I would like to see a committee or board funded to verify the technical feasibility and rough cost this plan would entail.

Who pays for all of this? Well the taxpayers of California mainly, you and I, we will. If you think that by not worrying about how the people in southern California are going to get fresh water and we here in Tehama County will always have the water that we had in the past, I think we are in for a surprise. The people of northern California are out voted probably 20 to 1 versus the people who need the water. The people with the votes will get the water. What we need to do is to have the plan that will maintain our necessary water for agricultural irrigation, urban and environmental concerns here as well as supply our excess water to the populations south of us. They will gladly pay for any water project that promises to help meet their needs.

I know that these ideas are not as cheap as leaving the diversion gates down for only certain periods and raising them for fish migration. What I believe will happen if we settle for this partial approach is what happened in Oregon. One day the people who want the water down stream will simply say, " Your diversion dam is killing the salmon and must be removed". They will; of course, have the necessary legal paperwork from the ruling agency and the people of Red Bluff and Tehama County will watch from a safe distance as the concert pillars of the diversion dam are blown into tiny bits. After the dam has been removed how will the farmers maintain irrigation water in the canals. We will never again see a full Lake Red Bluff and no more boat races. Once we are reduced to pumping water from the river for irrigation, it is only a small step to stop the river pumps by making the fish screen requirements impossible to meet or we could be told that we can only pump water from the river during high water times. Everyone will then be completely dependent upon the aquifer, which we will have no way of replenishing.

What we need in this county is some leadership with a desire to serve the people who live here and find some answers to problems before the solutions are imposed on us by someone in Sacramento or Washington D.C. Since the County Board of Supervisors has not taken an interest in these issues, I would like to see the City of Red Bluff and particularly the Chamber of Commerce continue this fight. I have ask Doug La Malfa if I could send him these ideas and he told me that he is very interested in the future of water in northern California and would appreciate any ideas for Lake Red Bluff, the diversion dam, and the irrigation canals and how they could work together with preserving the salmon and other fish. I hope we are fortunate enough to have him as our new Assemblyman. I am sure that as a farmer himself, he will be a tremendous ally for any project that will help solve this dilemma. If I can help in any way, please feel free to call me at any time.

Ken Say

14342 St. Marys Ave.

Red Bluff, CA 96080

(530) 529-1226

ksay@tco.net

Subj:	**Critique of the 2002 Draft EIS/EIR for "Fish Passage Improvement Project at the Red Bluff Diversion Dam.**
Date:	10/24/2002 6:13:08 PM Pacific Standard Time
From:	jaw25@humboldt.edu
To:	tcwaterman@aol.com
File:	**RBDDFishPassageEISEIRMemo.doc** (40960 bytes) DL Time (28800 bps): < 1 minute

Sent from the Internet (Details)

Please see attached memo for comments regarding RBDD EIS/EIR.
-Joshua Wolf

Memo To: Art Bullock/Tehama-Colusa Canal Authority
From: Joshua Wolf, Senior Environmental Resources Engineering Student, Humboldt State University, Arcata, CA.
Date: October 24, 2002

Subject: Critique of the 2002 Draft EIS/EIR for "Fish Passage Improvement Project at the Red Bluff Diversion Dam."

Summary

This DEIS/EIR (Fish Passage Improvement Project at the Red Bluff Diversion Dam) is a well-presented document; however, additional information is needed to allow the reader to make an informed decision on the project. Substantial federal, state, and public involvement was noted in the document. The preparers actively sought public involvement and worked with public and regulatory agencies to identify significant issues during the scoping process. Five final alternatives are listed in the document, including a No Action Alternative. The other four alternatives include different combinations of fish ladders, pumps and dam operation schedules, to permit fish passage and achieve water diversion to the irrigation canals. Significant impacts and mitigation measures for each alternative are listed in the document.

An explanation should be provided regarding why the addition of large pumps would have no significant impact on power consumption and noise. Monitoring plans are too vague and should be expanded to include more thorough fish population and water quality-monitoring plans. The document is labeled "Public Draft," which gives the impression that another draft of the document exists that is not available for public review.

Purpose

The purpose of this memo is to critique the Fish Passage Improvement Project at the Red Bluff Diversion Dam (RBDD) Draft Environmental Impact Statement/Environmental Impact Report (DEIS/EIR) circulated in August 2002. The DEIS/EIR addresses the environmental issues, alternatives, and impacts associated with improvement of

anadromous fish passage, both upstream and downstream of the RBDD. A single document was prepared that complies with both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). This memo includes the following sections: Summary, Purpose, Project Overview, Federal/State Involvement, Public Involvement and Scoping, Stakeholders and Impacted Public/Environment, Document Presentation, Range of Alternatives, Mitigation and Monitoring Issues, and Recommendations.

Project Overview

The RBDD was built in the 1960s to divert Sacramento River water into the Tehama-Colusa (TC) and Corning canals for delivery to irrigation districts. Prior to the completion of the RBDD, anadromous fish could pass through the dam area unimpeded. The dam created a barrier across the Sacramento River that impedes fish from passing to spawning and rearing habitat upstream. When the dams' gates are lowered (gates-in) into the river, the water surface elevation behind the dam rises forming Lake Red Bluff, and allowing gravity diversion into the canals. When the gates are raised (gates-out), the river flows unimpeded through the dam, however no diversion is possible. The lowered gates create a barrier to fish because the existing fish ladders are inefficient at certain flows. Additionally, the lake that forms behind the dam provides habitat for species that prey on fish, reducing their population even more.

In 1993, the National Marine Fisheries Service (NMFS) required that the gates be kept raised for a greater portion of the year (September 15 through May 14) than had previously been required. This improved fish passage at RBDD, but decreased the amount of water that could be diverted into the canals. The current gates-in schedule may be reduced further, if it is found necessary to avoid jeopardizing species listed as endangered under the federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA).

The purpose of this project is to "improve the long-term ability to reliably pass anadromous fish and other species of concern, both upstream and downstream" of the

RBDD. The project also aims to "improve the long-term ability to reliably and cost-effectively move sufficient water into the TC Canal and Corning Canal systems to meet the needs of the water districts served by Tehama-Colusa Canal Authority." The lead agencies/preparers are the TCCA and the U.S. Bureau of Reclamation (USBR).

Document Presentation

The document is presented very clearly, and is understandable for an eighth grade level audience. The document contains many tables, figures, graphs and photos of the project area. In addition, comments were noted in the margins next to "important" information. The overall flow of the document was very effective in informing the reader of the proposed project. However, the DEIS/EIR is labeled "Public Draft," which gives the impression that another draft of the document exists that is not available for public review.

Federal, State and Public Involvement

Federal and state involvement was substantial, as noted in the DEIS/EIR. The lead co-agencies are the TCCA (CEQA lead) and USBR (NEPA lead). The DEIS/EIR states that the project received input from cooperating agencies, notably the U.S. Fish and Wildlife Service, NMFS, U.S. Forest Service, California Department of Fish and Game, and the Department of Water Resources. Input was also solicited and received from affected parties and agencies, including local governments, groups and individuals. The project has a website where the public can view the DEIS/EIR, request a CD copy of the document, and submit comments regarding the project. A hardcopy DEIS/EIR is available for the public at several locations, including three public libraries.

The DEIS/EIR thoroughly describes the scoping process and gives much attention to public involvement. In 1992, the USBR launched a Public Involvement Program that aimed to educate and include the public in the decision-making process. The plan's activities included a public open house, public workshops, two focus groups, and public meetings. A project newsletter, fact sheet, and a Congressional Aide project briefing paper were also circulated to the general public. The program was put on hold in 1994

for unspecified reasons. A Prescoping Report was issued in January 2000, and a formal Scoping Report in September 2000. During the scoping period, a public meeting was held to solicit issues, concerns, and ideas from the public and interested agencies. Approximately 50 individual oral and written comments were received during the scoping period, and twenty-four oral comments were received at the pubic meeting. The document provides a summary of public and agency concerns identified during the scoping process. By working with the public and regulatory agencies, the significant issues were identified during the scoping process.

Range of Alternatives

The DEIS/EIR does an excellent job at formulating initial alternatives and selecting final alternatives that best meet the project's objectives. The document states that the alternatives were formulated from public input, scientific information, and professional judgment. The document also states that many alternatives were identified as reasonable for addressing the purpose statement for the project. These alternatives were reduced to the five (including a No Action Alternative) using secondary screening criteria that considered: effectiveness, implementability, environmental impacts, and cost. All of the alternatives considered for the project are described in the document, along with the screening criteria.

A table summarizing the final alternatives was located in the document. The table made it easy to compare and contrast the different alternatives. It provided such information as gates-in duration, type of fish passage facilities, and gates-out water supply. Another table lists the acreage of habitat impacted by each project alternative. For each alternative, charts show how agricultural demand would be met throughout the year.

The TCCA Board of Directors Preferred Alternative is the Gates-out Alternative. The document states that this alternative was chosen because selection of a Preferred Alternative "allows work on the solution to the fish passage and water delivery problems at the Red Bluff Diversion Dam to continue." The document also states that the TCCA

Board reserves the right to change the Preferred Alternative and that the TCCA Board is not committed to any particular course of action.

Stakeholders and Impacted Public/Environment

The major stakeholders and impacted public/environment are not clearly identified in the document. I assume that the major stakeholders are the farming communities in the California Central Valley, the community of Red Bluff, anglers, fish and recreational user of Lake Red Bluff. The farmers depend on the water for irrigation of crops. Since all of the alternatives include means of delivering water to the canals with pumps and/or the dam, the farmers stand to gain water source reliability. The City of Red Bluff is dependent on tourism associated with Lake Red Bluff, and on the fishing the river provides. The City stands to lose money if fish populations are decreased to the point where fishing no longer desirable. However, when the gates are raised (gates-out), the recreational use of the lake is diminished which will also negatively impact the community. Local anglers and fish will benefit if fish passage is improved and fish populations increase.

Alternatives' Impacts

An Environmental Checklist of the significant impacts for each alternative is provided in the document. Explanations of impacts are provided along with a list of the affected environment and environmental consequences for each of the alternatives. The impacted areas include: fishery resources, water resources, biological resources, recreation, land use, geology, socioeconomics, cultural resources, aesthetic and visual resources, air quality, and traffic. Areas identified to have no negative impacts are: agricultural resources, power resources, and noise. It is unclear how the addition of pumps to the RBDD does not impact the power resources and noise. A pump with a capacity of 2,500 cfs (Alternative 3) would seem to require substantial power and create a lot of noise. This is not adequately addressed in the DEIS/EIS.

Mitigation and Monitoring Issues

The document is very thorough in describing the mitigation for each of the alternatives' impacts. The mitigations described are specific measures that would be taken to reduce impacts on the environment. Adaptive management was also listed as a method to mitigate unforeseen impacts..

Monitoring plans are minimally discussed in the document. The monitoring of water quality, air quality and fish populations is mentioned briefly. The document implies that monitoring will only be implemented if deemed necessary. However, it is not clear what criteria are used to determine when monitoring would become necessary.

Recommendations

This DEIS/EIR is a well-presented document; however, additional information is needed to allow the reader to make an informed decision on the project. The reasons why the Public Involvement Program was terminated should be disclosed. An explanation should be provided regarding why the addition large pumps would have no significant impact on power consumption and noise. The document should expand on plans to monitor fish populations, and water quality. The preparers should also reveal why the document is labeled "Public Draft." By labeling the document Public Draft the impression is that another draft exists that contains information not released to the public.

Subj: **EIS/EIR Fish Passage Improvement Project - RB Diversion Dam**
Date: 10/30/2002 12:10:47 AM Pacific Standard Time
From: thehub@sonic.net
To: tcwaterman@aol.com
Sent from the Internet (Details)

As members of the Red Bluff Community, we attended the Public Hearing on September 25, 2002 and join our City Council, Chamber of Commerce and fellow citizens in pleading with you not to take away our lake. Because we live on and love the beautiful Sacramento River, especially when the gates are in, you might assume that we're only concerned with our property value, which will be destroyed if you ignore the town's input. But, in reality, we are most concerned with the future recreation, quality of life and economic development for the entire town of Red Bluff.

We understand that the current features of the dam may not provide the farmers with the water supply they were promised years ago, but what about the lake the Bureau of Reclamation promised the town of Red Bluff years ago? It has already been taken away from us for the majority of the year.

Hopefully the final EIS/EIR will reveal the real reason the TCCA and the other bureaucrats want to take out the dam, but until then, we can only hope that Alternative 1A is chosen. The fish *will* survive; the town may or may not. We don't want to see Red Bluff hung out to dry, or hung up in litigation. Please listen and respond to the people.

Sincerely,
David and Cathy Hubbard

Subj:	**Red Bluff Diversion Dam**
Date:	10/29/2002 12:01:28 PM Pacific Standard Time
From:	BWilliams@BKF.com
To:	tcwaterman@aol.com

Sent from the Internet (Details)

My vote - Remove the damn dam and let the fish though!
Thank you for your efforts.

Barry Williams, PLS
Project Manager

925 940-2229
925 940-2299 fax

Subj: **RED BLUFF DIVERSION DAM**
Date: 10/28/2002 7:02:42 PM Pacific Standard Time
From: terryd@attbi.com
To: tcwaterman@aol.com
Sent from the Internet (Details)

i wish to voice my opinion on the red bluff diversion dam. I am an avid fisherman, I spends a majority of my time taking full advantage of the sacramento river and all it has to offer. I am extremely skeptical about any good reason to damn up our rivers anymore than has already been done. dont you people learn? Have you not seen the situation the salmon run is in on the klamath river? It is not right to let people permanently desecrate a natural resource for profit. Those of us who live downstream from your little project will be at your mercy for water. every year the river seems to get lower and lower. everybody wants to suck up as much as they can. If i am way off here please let me know. please reply with a reason this project will be advantagouse to the majority of those who are affected from it and i will be happy to be a supporter of your project. but untill then i must vote no on the redbluff diversion dam

thank you
dan terry

Subj:	**Red Bluff Diversion Dam Removal**
Date:	10/28/2002 8:40:51 PM Pacific Standard Time
From:	billnorth2@attbi.com
To:	tcwaterman@aol.com
Sent from the Internet (Details)	

You have my vote to BRING DOWN THIS DAM. I'm a sport salmon fisherman and have commercially fished for them for the first 25 years of my life.
The public must realize how important the Sacramento River and its tributaries are in keeping the whole of that watershed healthy. Shasta Dam was bad enough. Maybe by starting with the dismantling of the smaller DAMS, the people will come to realize that just like a blood clout in a human, a river must be kept free of obstructions to keep it healthy
Keep up the GOOD WORK!

Bill North

Subj: **Gates at Red Bluff diversion, Alternative 3**
Date: 10/25/2002 10:13:41 AM Pacific Standard Time
From: whuber@jeffnet.org
To: tcwaterman@aol.com
Sent from the Internet (Details)

Sirs,
My name is Bill Huber. I am coordinator for the South Fork Trinity River CRMP.
As I have observed the politics of water and fish in California over the last 12 years I have come to realize that all of these issues are inextricably linked.
Recent fish kills in the Klamath effect fish populations in the South Fork, a tributary to the Trinity River which is in turn a tributary to the Klamath, and by manipulation, the Sacramento River.
Therefore fish kills on the Klamath effect the Sacramento River as well.
Likewise, fish kills on the Sacramento have a direct effect on how the Trinity Diversion is operated, and in turn, Trinity, Klamath, and South Fork Trinity River salmonid populations.
It is with regard to these issues that I have come to the conclusion that Alternative 3 be considered the best working alternative for restoration of fisheries in the Sacramento, and the Klamath Trinity River systems.
If less water is diverted for irrigating, which I think would be the case if it has to be pumped, by dint of the increased cost of pumping, then more water will be available in all three river systems for fisheries. If the gates are left open, and fisheries on the Sacramento River improve, this largest of California's river systems will share more of the fisheries harvest burden, which will also benefit the Klamath Trinity River and it's tributaries, including the South Fork Trinity River.
The benefit of a healthy fishery far outweighs the benefit of diverting water to grow subsidized rice and losing a great portion of that to evaporation during the months while the diversion dam is closed, and far outweighs the benefit of Lake Red Bluff as a recreation, tourist, and boat race venue.
I therefore support wholeheartedly Alternative 3 as the best working alternative for the restoration of salmonid fisheries in the Sacramento River.
Sincerely,
Bill Huber
SFCRMP coordinator

name = Joe Buckley
email = jbuckley@specialized.com
Comment = To whom this may concern: I am a student at UC Santa Cruz, and am writing a research paper on the RBDD/Fish Passage project. I have found your website to be very informative, however I do have one question. Who, or what agency, is ultimately going to be making the decision on which alternative to pick? Thank you in advance for your help.
Submit = Send

From: mailto_cgi@www.tccafishpassage.org [mailto:mailto_cgi@www.tccafishpassage.org]
Sent: Thursday, November 14, 2002 12:16 PM
To: Waldrop, Heather/RDD
Subject: MAILTO.CGI FORM DATA

name = kirk willard
email = kirk.willard@lmco.com or hkirkwillard@aol.com
Comment = Yes, my comment does pertain to the RBDD EIS/EIR.

1) I believe that the benefits to the general society and environment, would out weigh the cons of leaving the RBDD gates down for 2 or 4 months per year.

2) After reviewing key elements of the draft EIS, I believe the justification for selecting the option of gates up are not justified based on data provided.

3) The selection of a "No Action Alternative" under NEPA as well as "existing conditions" under CEQA should be the base alternative selected by the TCCA since they have not justified the #3 -- Gates-out Alternative. One cannot select an alternative with such significant impacts without a better justification.

4) I concur with prior commentors that the benefit of having diverted water propelled by gravity due to the dam versas pumped transport is greatly under estimated by the draft EIS. It makes no sense to compare the amount of energy for pumping at this location with the total amount of energy for the state of California.

5) The EIR is unacceptable as it completely missed accounting the benefit of groundwater recharge from the expanded lake during gates-down operation. This is not insignificant and is a great benefit for the environment and sustainability of the Northern California communities.

6) The EIR is unacceptable as it underassessed the benefits of gates-down operation on the biota and wildlife due to expanded riparian or river edge areas. This includes many plant and animal species and certainly can be easily documented. This error alone is so grievous as to suggest that lake RB benefits were intentionally minimized.

7)The lack of adequate representation of socioeconomics and asethetics/visual resources as benefits of gates-down operation in the EIR is unacceptable. The draft EIR greatly under estimated these benefits as many other commentors have stated.

8) The draft EIR has errored in showing the gates-down benefits in comparison to the whole state of California while the negatives (fish survivability) are only shown in comparisons on the very limited local, time limited resources. Of course, if one wanted to demonstrate the benefits as significant they also could be shown on the local, time limited level and then the benefits would be significantly more important. In summary the EIR's benefits of gates-down operation is under-estimated, derided and naively subjugated to "assumed" unquantified fish survival benefits. That just flies in the face of decent use of the NEPA or CEQA policies of our state.

The benefits of gates-in operation with fish ladder improvement, greatly exceed the environmental and social costs. The EIR and selected alternative need to be revised.
-Kirk Willard (Up river landowner, citizen and taxpayer, dad etc.) Submit = Send

Subj:	**Lake Red Bluff**
Date:	11/11/2002 2:41:30 PM Pacific Standard Time
From:	Tteman5@cs.com
To:	Tcwaterman

In May, we bought a home on the Lake in Red Bluff. In fact, the first night we spent at our new home was May 14th and the next morning we woke up to a Lake in our back yard. All summer we were amazed at the amount of people that enjoyed the Lake. That included our family that came for visits and grandchildren. We enjoyed having our boat out the back door and friends in for the 4th of July to watch the Fire Works. We enjoyed watching the boats that came to view the fireworks and the families enjoying the Lake all summer.

When we learned there was a possibility we may lose the Lake, we were devastated. That was the first we had heard of it. We bought our home on the Lake in good faith believing the Lake would always be there.

We followed the Salmon run at the viewing station and were amazed at the number of Salmon this year compared to last year. We believe that 1A would be fair to everyone. The Farmers need water and that looks to be the best alternative. Red Bluff needs this Lake for recreation purposes and revenue.

We have watched a very costly new boat ramp go in directly across the River from us. Why is that boat ramp going in if there is a possibility we may lose our Lake?

Please leave our Lake the way it is and give us 1A.

Sincerely.

Pat and Ted Teman
255 Howell Ave.
Red Bluff, CA 96080

(530)529-4920

Subj: **Please support Alternative 3**
Date: 11/2/2002 11:02:08 PM Pacific Standard Time
From: caryn@holonet.net
To: tcwaterman@aol.com
Sent from the Internet (Details)

Dear Mr. Bullock:

Thank you for seeking public comment in response to the Red Bluff Diversion Dam Fish Passage Improvement Project DEIR/EIS.

I strongly support Alternative 3 the "Gates Out" alternative. Alternative 3 provides 100% effective fish passage for threatened and endangered salmon, steelhead, and other fish species. No other alternative provides the level of fish passage that meets the intent of the Endangered Species Act and other state and federal laws.

Potential economic impacts to Red Bluff could be mitigated by lowering the gates for the summer drag boat racing event. Other visual, recreational, and property value impacts will be mitigated as the river naturally revegetates. Sacramento and Redding benefit greatly from the rivers flowing through their communities, as will Red Bluff once the river is restored.

Please inform me of your decision concerning this important manner.

Sincerely,

Caryn Graves

Southwest Office
P.O. Box 29196
San Francisco, CA
94129-0196 USA
Tel: 415/561-FISH
Fax: 415/561-KING

THE
INSTITUTE
FOR
FISHERIES
RESOURCES

www.ifrfish.org

Northwest Office
P.O. Box 11170
Eugene, OR
97440-3370 USA
Tel: 541/689-2000
Fax: 541/689-2500

5 November 2002

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

RE: Comments on the Tehama-Colusa Canal Authority's (TCCA) Fish Passage Improvement Project Alternatives

Dear Mr. Bullock:

The following comments are filed jointly on behalf of the Pacific Coast Federation of Fishermen's Associations (PCFFA) and the Institute for Fisheries Resources (IFR). PCFFA represents working men and women in the West Coast commercial fishing fleet, including the vast majority of California's organized salmon trollers; upwards of ninety percent of the salmon harvested by these men and women are of Central Valley basin origin. IFR is the fishermen's research and outreach arm. As organizations representing family-owned commercial fishing operations based in the San Francisco Bay and throughout California, we have a particular interest in the health and functioning of the Sacramento River and its tributaries.

PCFFA and IFR believe the **"Gates Out" Alternative, Alternative 3**, under consideration by the TCCA provides the most logical next step for managing the water, wildlife and recreational resources of the Upper Sacramento River.

Potential Benefits to Wildlife

The Sacramento River is utilized by several anadromous fish species on a continual basis. These species include salmon and steelhead listed as "threatened" under state and federal endangered species acts that rely on the roughly 60 miles of river upstream from the Red Bluff Diversion Dam (RBDD) for its spawning and rearing habitat. As the 1987 Hallock study shows, even with fish ladders, RBDD is a significant barrier to the

immigration of adult salmonids. Conversely, emigrating juveniles upstream of the dam suffer from increased predation and disorientation. The decision to raise the gates part of the year has proved to be only a partial solution to these issues. The fact remains that the current four-month "gates in" period continues to affect the migration patterns of sensitive species.

Alternative 3 presents the TCCA with an opportunity to provide reliable passage for the fish species that rely on the Sacramento River.

Potential Benefits to Water Users

Under current operating procedures, TCCA is unable to meet all the needs of its customers during certain times of the year. Water users would benefit from Alternative three because RBDD's inadequate diversion function would be replaced with new fish-friendly "lift" pumps. The result would be more consistent flows to meet the needs of water users. The pumps would be able to operate in a way that would screen fish out of the intakes and avoid the possibility of harming a species listed under state and federal endangered species acts.

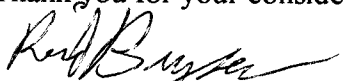
Alternative 3 allows TCCA to more reliably meet the needs of it customers.

Although Alternative 3 has received support from a wide range of agencies and stakeholders, some concerns have justifiably been raised over the potential economic impacts of returning the Sacramento River to its natural, free-flowing state at RBDD. TCCA should be mindful of the fact that riverfront property has a value comparable to lakefront property. Furthermore, with the restoration of year-round flows through the Red Bluff area, local business will benefit from expanded recreational potential in the form of fishing, boating and sightseeing to name a few.

Concerns over the future of the annual drag boat races in Red Bluff can also be accommodated with Alternative 3. If the race organizers were not able to find another suitable location for the even, the TCAA could decide to temporarily divert water at the RBDD for a one or two weeks week period in order to fill and drain a temporary reservoir.

By addressing the relatively few (but understandable) concerns regarding the "Gates Out" Alternative, TCCA can satisfy a wide range of supporters. Imperiled salmon, steelhead and sturgeon species will no longer be prevented from making their basic migration to and from crucial spawning habitat. Water users will benefit from more reliable water supplies. And people will be able to enjoy the Sacramento River in Red Bluff year-round.

Thank you for your consideration,



Reid Bryson
Institute for Fisheries Resources

Subj:	**Comments - Red Bluff Diversion Dam**
Date:	11/5/2002 9:46:26 AM Pacific Standard Time
From:	curtisfishes@yahoo.com
To:	tcwaterman@aol.com

Sent from the Internet (Details)

Art Bullock:

I am commenting on the Fish Passage Improvement Project at the Red Bluff Diversion Dam. I am a resident of Cottonwood and have lived in the North State since 1986. My preferred alternative would be the Gates out alternative. I strongly believe that we need to minimize all barriers on the Sacramento River as much as possible.

We cannot predict what the fisheries issues on the Sacramento River will be in a few years. An investment in solving fish passage over the Diversion Dam now may be obsolete in a few years. This is a complete waste of money. Eliminating the dam will 100% guarantee passage for all species of fish and wildlife that utilize the river. Thank you for considering my preference.

Sincerely,

Curtis K. Anderson
3779 Rolland Drive
Cottonwood CA 96022

October 28, 2002

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

Dear Mr. Bullock,

I am writing to you in support of the Alternative 3-The "Gates Out" Alternative. I believe that raising the gates of the Red Bluff diversion dam 12 months a year is the only alternative that provides 100 % effective fish passage for threatened and endangered salmon, steelhead, green sturgeon, and other fish species.

According to the California Salmon and Steelhead Advisory Committee, the Red Bluff diversion dam has destroyed more than half of the Sacramento River's Chinook salmon spawning runs in its first 20 years of operation. Many of the adult salmon and steelhead have a difficult time accessing the fish ladders and many of the juvenile fish become prey for predators behind the dam.

Salmon are endangered and need to be protected. Using ecological terms, the salmon in the Sacramento River could be facing extinction because they exhibit three characteristics of Rarity I (which is a classification of rarity or extinction). They have an extensive range, a broad habitat tolerance, and they have small local populations. This puts them at risk for extinction. As the Red Bluff diversion dam continues in its present state, more salmon will be killed and their population density decreased. This can eventually lead to extinction.

I understand that there are some economic concerns by the city of Red Bluff and their belief that they will lose economic revenue from drag boat races. There are also some other concerns regarding recreational, visual, and property value impacts.

Just lowering the gates during the 1-2 week period required to conduct the races can solve these concerns. Recreational and visual impacts will be enhanced as the river is restored. Property values will increase as the river becomes more beautiful and natural.

I urge your influence and support to help restore the Sacramento River so that our children and future generations will be able to watch salmon and steelhead make their journey up to spawn and then return back to the sea. Let us protect endangered salmon. Please support the Alternative 3-The "Gates Out" Alternative.

Sincerely,

Sharon Zimmerman

Sharon Zimmerman
5628 Sperry Drive
Citrus Heights, CA 95621

28 Avenue B #4B
New York, NY 10009
October 30, 2002

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

Dear Mr. Bullock:

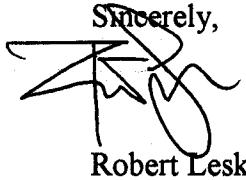
I thank for seeking public comment in response to the Red Bluff Diversion Dam Fish Passage Improvement Project DEIR/EIS.

I strongly support Alternative 3 the "Gates Out" alternative. Alternative 3 provides 100% effective fish passage for threatened and endangered salmon, steelhead, and other fish species. No other alternative provides the level of fish passage that meets the intent of the Endangered Species Act and other state and federal laws.

Potential economic impacts to Red Bluff could be mitigated by lowering the gates for the summer drag boat racing event. Other visual, recreational, and property value impacts will be mitigated as the river naturally revegetates. Sacramento and Redding benefit greatly from the rivers flowing through their communities, as will Red Bluff once the river is restored.

Please inform me of your decision concerning this important manner.

Sincerely,



Robert Lesko

To: Art Bullock
From: H. A. McCormick

Dear Sir:

I attended every meeting on Lake Red Bluff until the last one. I was very sick then. At the last meeting I attended you had many nice drawings of a bypass. The only thing wrong with it was it came back to the river like this . It would be better if it came in like this .

Everyone seemed happy with the bypass, even the fish people were not against it. They said it would save a lot of the little fish just below the dam. A few years back, I helped gather signatures for a petetion to save Lake Red Bluff. It would be a great financial loss if we lose it. Could you please tell me what happened to the bypass? A self-addressed envelope is provided.

Sincerely,
H.A. McCormick
350 Gilmore #101
Red Bluff, CA 96080

Mr. Art Bullock
Tehama-Colusa Canal Authority

October 29, 2002

Re: Red Bluff Diversion Dam

Dear Sir:

Please support Alternative 3 – The "Gates Out" Alternative.

Raising the gates 12 months a year is the only alternative that provides 100% effective fish passage for threatened and endangered salmon, steelhead, green sturgeon, and other fish species. The potential economic impacts to Red Bluff may be mitigated by simply lowering the gates for the annual drag boat races. Recreational, visual, and property value impacts will be mitigated as the river restores itself over time.

Thank you very much,

RE Sullivan

Robert Sullivan, MD
400 37th St.
Sacramento, CA 95816

October 29, 2002

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

Re: EIS/EIR Fish Passage Improvement Project – Red Bluff Diversion Dam

Dear Mr. Bullock:

As members of the Red Bluff Community, we attended the Public Hearing on September 25, 2002, and join our City Council, Chamber of Commerce and fellow citizens in pleading with you not to take away our lake. Because we live on and love the beautiful Sacramento River, especially when the gates are in, you might assume that we're only concerned with our property value, which will be destroyed if you ignore the town's input. But, in reality, we are most concerned with the future recreation, quality of life and economic development for the entire town of Red Bluff.

We understand that the current features of the dam may not provide the farmers with the water supply they were promised years ago, but what about the lake the Bureau of Reclamation promised the town of Red Bluff years ago? It has already been taken away from us for the majority of the year.

Perhaps the Final EIS/EIR will reveal the real reason the TCCA and the other bureaucrats want to take out the dam, but until then, we can only hope that Alternative 1A is chosen. The fish *will* survive; the town may or may not. We don't want to see Red Bluff hung out to dry, or hung up in litigation. Please listen and respond to the people.

Sincerely,

David A. Hubbard Cathy Hubbard

David Hubbard
Cathy Hubbard
370 Brearcliffe Drive
Red Bluff, CA 96080

TEHAMA-COLUSA CANAL AUTHORITY

Fish Passage Improvement Project

at the Red Bluff Diversion Dam

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side 1

COMMENT SHEET

Draft Environmental Impact Statement/Environmental Impact Report
Public Hearing
September 25, 2002

Name DAVID & CATHY HUBBARD

Address 370 BREARCLIFFE DR
RED BLUFF CA 96080

Please add my name to your mailing list.	Yes	X	No	

We, as members of the Red Bluff community, join our City Council, Chamber of Commerce and fellow citizens in pleading with you not to take away our lake. Because we live on and love the beautiful Sacramento River, especially when the gates are in, you might assume that we're only concerned with our property value, which will be destroyed if you ignore the town's input. But, in reality, we are most concerned for the future recreation, quality of life and economic development for the entire town of Red Bluff.

We understand that the current features of the dam may not provide the farmers with the water supply

(Continued)

Submit comments at this meeting or send comments to: Art Bullock/Tehama-Colusa Canal Authority, P.O. Box 1025, Willows, CA 95988, Fax 530.934.2355, E-mail tcwaterman@aol.com.
The public comment period ends November 5, 2002.

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side 2

Fish Passage Improvement Project

at the Red Bluff Diversion Dam

they were promised years ago, but what about the lake the Bureau of Reclamation promised the town of Red Bluff years ago? It has already been taken away from us for the majority of the year.

Hopefully, the final EIS/EIR will reveal the real reason the TCCA and the other bureaucrats want to take out the dam, but until then, we can only hope that Alternative 1A is chosen. The fish will survive; the town may or may not. We don't want to see Red Bluff hung out to dry, or hung up in litigation. Please listen and respond to the people.

David & Cathy Hubbard

Submit comments at this meeting or send comments to: Art Bullock/Tehama-Colusa Canal Authority, P.O. Box 1025, Willows, CA 95988, Fax 530.934.2355, E-mail tcwaterman@aol.com.
The public comment period ends November 5, 2002.

-----Original Message-----
From: mailto_cgi@www.tccafishpassage.org [mailto:mailto_cgi@www.tccafishpassage.org]
Sent: Thursday, November 21, 2002 12:26 PM
To: Waldrop, Heather/RDD
Subject: MAILTO.CGI FORM DATA

name = Sarah Hugdahl
email = Sarah@srrc.org
Comment = My comment pertains to the draft EIS.The Red Bluff Diversion Dam is the most significant problem for fish passage in the Sacramento Valley.I am opposed to the gates being open at a cost to the fisheries. Thank you, S.Hugdahl Submit = Send

From: mailto_cgi@www.tccafishpassage.org [mailto:mailto_cgi@www.tccafishpassage.org]
Sent: Tuesday, November 26, 2002 8:39 AM
To: Waldrop, Heather/RDD
Subject: MAILTO.CGI FORM DATA

name = C. Hersey
email = chersey@hotmail.com
Comment = Please remove the dam and help restore the Sacramento river to it's original condition Submit = Send

-----Original Message-----
From: mailto_cgi@www.tccafishpassage.org [mailto:mailto_cgi@www.tccafishpassage.org]
Sent: Sunday, December 01, 2002 2:59 PM
To: Waldrop, Heather/RDD
Subject: MAILTO.CGI FORM DATA

name = chris zelenka
email = c.zelenka@attbi.com
Comment = I am in favor of alternative 3. The return of the river to its natural state as best as it possibly can be should be the goal. Building pumps to help agriculture would be far better than keeping the flow of the water interrupted. Submit = Send

A&J EVENTS INC. 1433 Hill Street, Red Bluff, CA 96080
(530) 527-8528 / (530) 527-5732 Fax: (530) 528-2137

November 14, 2002

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

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

Dear Mr. Bullock:

This letter is to follow my recent letter to you in regards to the Draft EIS/EIR.

As you are aware, my partner Joe Froome and I represent A&J EVENTS INC. which is the production company in charge of organizing the Nitro Nationals Drag Boat event held annually on Lake Red Bluff. We support the Alternative 1A which improve fish passage as well as the agricultural needs of the farming community. All while retaining Lake Red Bluff for 4 months of the year (May 15th – September 15th).

The panicle of the A&J EVENTS structure is the world-renowned, IHBA World Championship Drag Boat Racing event; know as the Nitro Nationals. This event represents one third of our annual business. Any other alternatives suggested, will result in the end of this high profile event. We have studied the Draft EIS/EIR in great detail, and though the issue of mitigation has been mentioned, it dose not indicate any specific guide lines for planning and carrying out this effort. My question to you is how is mitigation going to be implemented should an alternative be chosen that will not allow for the holding of the Drag Boat event? Certainly this mitigation needs to address not only the current lost income and value of the event but indeed the long term loss of future income and benefits to A&J EVENT INC. As well as the loss of revenue to the entire community of Red Bluff.

In the mean time, we are in the process of planning and organizing for the 2003 event. What dose the immediate future of the gate operation entail? Is this schedule likely to change for the year 2003? Our company will have invested a substantial amount of funds in planning for the 2003 event by the close of this calendar year. And will stand to suffer a great deal should there be a change in the gate schedule. Is this some thing you can address with some certainty?

In closing, I implore you to disclose the urgency and utmost importance of this issue to the decision makers, and help in selecting the appropriate alternative 1A that will be a win win scenario for all parties involved as apposed to making a decision which would mean a catastrophic out come not only for A&J EVENT INC. and the City of Red Bluff but for the TCCA as well. Let this not be a battle fought in our court systems but in cordial conference between the parties.

I would like to thank you in advance for your consideration and response to our questions and comments, and look forward to hear from you soon.

Yours truly,

Ali Abbassi & Joe Froome
A&J EVENTS INC.

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TEHAMA COUNTY / CITY OF RED BLUFF
LANDFILL MANAGMENT AGENCY
19995 Plymire Road • P.O. Box 8549
Red Bluff, CA 96080
Phone: (530) 528-1102
FAX: (530) 528-9304
E-mail: tclp@tco.net

November 8, 2002

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

FISH PASSAGE IMPROVEMENT PROJECT AT THE RED BLUFF DIVERSION DAM, TEHAMA-COLUSA CANAL AUTHORITY, STATE CLEARINGHOUSE NO. # 2002042075

Dear Mr. Bullock,

The following comments relate to the EIS/EIR for the Fish Passage Improvement Project. The comments are neither for nor against any particular alternative, but rather provide additional information regarding alternatives 1A, 1B, 2A, 2B and 3, and its potential effect on residents of Tehama County.

The fish screen and pumping station proposed in the various alternatives are superimposed over two distinct parcels of land near Red Bank Creek, referred to as the "mill site." The parcel nearest to Red Bank Creek, represented more or less by a gravel road encompassing the parcel, is an active industrial landfill currently operated by the Pactiv Corporation. This landfill is used for disposal of paper sludge generated by Pactiv's wastewater treatment facility at its molded fiber manufacturing plant. Primarily, the waste is dried paper sludge, although the waste may also include oil and chemical residues, plastics, metal, and ash. The EIS/EIR relates that the landfill will be "closed" prior to the project, and the superimposed pump station covers roughly half of the surface area of the landfill.

According to the Fish Passage Improvement Project EIS/EIR (Section 2.3.1), construction and excavation at the "mill site" could require the removal of 750,000 yards of material. Of this amount, 580,000 yards could be "stored" on site, while the remainder (170,000 yards) would be hauled to a disposal facility. The EIS/EIR is not specific as to how many cubic yards the Pactiv landfill accounts for in the 750,000 yard excavation estimate, although 170,000 yards is implied.

Of the 750,000 yards of material, my specific interest is only in the 170,000 yards proposed for off site disposal. Although there are several possible destinations for the waste, the Tehama County/Red Bluff Landfill would appear to be the closest. The EIS/EIR is not specific regarding the final destination location, or if "off site" only means away from the proposed construction area, but still on Pactiv property. This amount, at

1200 pounds per yard (assuming the waste was compacted to industry standards upon original landfilling), equates to approximately 102,000 tons of waste. As a comparison, the Tehama County/Red Bluff Landfill annually receives about 50,000 tons of waste from businesses and residents of Tehama County.

Without knowing the planned fate of the waste, I will present two possible scenarios, and their affects on Tehama County, the Landfill, and the two Agencies.

Re-disposal off-site (and not at Tehama County/Red Bluff Landfill)- Transporting the waste off-site to a facility regulated by the California Integrated Waste Management Board (CIWMB), could result in a significant penalty to the Agencies as a result of Assembly Bill 939, which requires the county to divert 50% of it's waste from landfill disposal by 2000. Although technically the waste was previously disposed, the waste could count against the county for diversion purposes unless the CIWMB is aware of the waste history and circumstances that have led to its excavation and re-disposal. If the waste is disposed at a non-Tehama County run landfill, the Agencies may not have the opportunity to take action to remove the waste from the annual disposal reports. If this option will be pursued, I would ask that the CIWMB be provided with a background of the Pactiv landfill and the Fish Passage Project, so that the Agencies and Tehama County can avert potential penalties due to AB939 violations. Fines can be up to $10,000 per day over the violation period.

Re-disposal off-site (at the Tehama County/Red Bluff Landfill)- If this option is being contemplated, the same concern regarding AB939 would apply, although the Agencies may be able to be more proactive in addressing AB939 issues. In addition, please consider the following:

1. The Landfill is currently undergoing several permit revisions through the CIWMB. I am relatively confident that the permit revision will allow a maximum of 400 tons of waste per day for daily operations. On average, the landfill receives nearly 140 tons of waste per day from normal operations, although the amount varies significantly from day to day. This leaves 260 tons per day (on average), for short-term disposal events. In operating within our permit limitations, this would result in continuous maximum tonnage disposal of 392 days, which could conflict with the stated construction period of mid-May to mid-October. This time period would require significant coordination to minimize the possibility of exceeding permit limitations on a daily basis, as well as not unduly disrupting other public disposal. Legally going above the permitted disposal rate would require a new CEQA study, in addition to going through the re-permitting process. Again, potential fines are $10,000 per day for violations.

2. The Landfill is also currently running out of space in our Phase 1 portion of the landfill, and we will soon begin disposing of waste in the Phase 2 portion. This change is scheduled to happen sometime in early 2004, although the date could be affected by the permitting process and by our efficiency in resource recovery operations. The beginning of the Fish Passage Improvement Project could affect

the eventual starting date of Phase 2 disposal or initial Phase 2 operations, which could result in added costs or lack of available disposal space prior to final construction of this phase.

Without a doubt, disposal of Pactiv's waste at the Tehama County/Red Bluff Landfill would provide a significant short-term source of revenue to the Agencies and their contractor, GreenWaste of Tehama, provided that the waste was acceptable for disposal at a Class III facility. It could also, however, provide several challenges that could result in significant regulatory action, including fines. As the Solid Waste Director, I only wish to make you aware of the effects of the proposed project as it relates to solid waste operations in Tehama County. The letter is not meant to preclude waste disposal from any specific site, but rather to ask that future project managers communicate their intentions in a timely matter, so that potential regulatory problems can be averted. Ultimately, any decisions regarding large-scale disposal operations at the Tehama County/Red Bluff Landfill may be brought before the Directors of the Tehama County/Red Bluff Landfill Agency, or the Directors of the Tehama County Sanitary Landfill Agency, for approval.

By copy of this letter, I am also informing the CIWMB and Tehama County Environmental Health of my concerns, so that regardless of the alternative chosen and disposition method of waste from the mill site, they have early notice of possible issues. If you have any questions regarding this letter, or solid waste operations in Tehama County, feel free to contact me at 530-528-1102. Thank you for allowing me the opportunity to comment.

Sincerely,

Alan Abbs
Solid Waste Director

CC: Directors, Tehama County/Red Bluff Landfill Management Agency
Directors, Tehama County Sanitary Landfill Agency
Rick Robinson, County of Tehama, Chief Administrator
Susan Price, City of Red Bluff, City Manager
Christine Karl, CIWMB, Permitting and Enforcement
Waste Analysis Branch, CIWMB
Allan Fleming, Tehama County Environmental Health
Michael Gross, GreenWaste of Tehama
Mike Urkov, CH2Mhill
Roger Hillstrom, Pactiv Corporation

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX 75 Hawthorne Street
San Francisco, CA 94105

November 18, 2002

Michael J. Ryan
Area Manager
Northern California Area Office
Bureau of Reclamation
16349 Shasta Dam Boulevard
Shasta Lake, CA 96019-8400

Dear Mr. Ryan:

The Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement (DEIS) for the **Fish Passage Improvement Project, Red Bluff Diversion Dam**, Tehama, Glenn, Colusa, Yolo Counties, CA (CEQ Number: 020376, ERP Number: IBR-K39075-CA). Our review is pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and Section 309 of the Clean Air Act. This letter provides a summary of EPA's concerns. Our detailed comments are attached.

The Tehama-Colusa Canal Authority (TCCA) and US Bureau of Reclamation (Bureau) propose to implement modifications to Red Bluff Diversion Dam (RBDD) to reduce or minimize the impacts of the RBDD on upstream and downstream migration of juvenile and adult anadromous fish, while improving the reliability of agricultural water supply in the Tehama-Colusa and Corning Canal systems.

Fish passage and agricultural water diversion needs at the RBDD currently conflict. When the RBDD gates are lowered into the Sacramento River, the elevation of the water surface behind the dam is raised, allowing gravity diversion of water into the Tehama-Colusa and Corning Canals for delivery to seventeen irrigation districts and creating Lake Red Bluff. Raising the gates (gates-out position) allows the river to flow unimpeded but precludes gravity diversion into the canals. When the gates are lowered (gates-in position) to facilitate diversions, RBDD presents a barrier for both upstream- and downstream-migrating fish. Fish ladders included in the original dam design are inefficient at certain flows. Additionally, the tailrace and lake created by the dam provide for species that prey on juvenile salmon, reducing their overall survival rates. Fish passage at the RBDD is crucial because more than 75 percent of naturally spawning chinook salmon in the Sacramento River spawn in the reach upstream of RBDD.

This project is part of the CALFED Program. The feasible alternative approaches involve various RBDD gates-in and gates-out scenarios, accompanied by improvements to existing facilities and construction of new fish ladders, fish screens, and pumping facilities. Current operations and facilities provide for a 4-month gates-in period from May 15 to September 15, three fish ladders (two permanent fish ladders on each side of RBDD, one temporary fish ladder in the center of RBDD), and operation of a Research Pumping Plant which is testing fish friendly screw and helical pumps.

Five action alternatives and the No Action alternative are evaluated in detail. Alternative 1A, 4-Month Improved Ladder Alternative, provides for a four-month gates-in period, new fish ladders, and an increase of pumping capacity to 1700 cubic feet per second (cfs) from 320 cfs. Alternative 1B, 4-Month Bypass Alternative, would also provide for a four-month gates-in period, modified right bank fish ladder, increased pumping capacity to 1700 cfs, and a new 1000 cfs bypass channel around the left abutment of RBDD. Alternative 2A, 2-Month Improved Ladder Alternative, would reduce the gates-in period to two months, July 1 through August 31, modify both the left and right fish ladders, and increase pumping capacity to 2000 cfs. Alternative 2B, 2-Month with Existing Ladders Alternative, would use the existing fish ladders, reduce the gates-in period to 2 months, and increase pumping capacity to 2000 cfs. Alternative 3, Gates-Out Alternative, would eliminate the gates-in period and increase pumping capacity to 2500 cfs. The Gates-Out Alternative would eliminate Lake Red Bluff and would provide run-of-the-river fish passage throughout the year.

TCCA has identified the Gates-Out Alternative as their preferred alternative because it maximizes pumping capacity and agricultural water supply reliability. The Bureau has not identified a preferred alternative. The US Fish and Wildlife Service (FWS), California Department of Fish and Game (CDFG), National Marine Fisheries Service (NMFS), and California Department of Water Resources (DWR) have identified the Gates-Out alternative as the alternative which would provide the greatest benefits to fish passage. Reduced gates-in alternatives, Alternatives 2A and 2B, are identified as the next best alternatives for providing increased fish passage.

The Red Bluff-Tehama County Chamber of Commerce and local citizens have expressed strong objections to any alternative that would eliminate the seasonal creation of Lake Red Bluff due to the significant adverse impacts to local recreation opportunities and revenue. Their preferred alternative would be to maintain the current 4-month gates-in period. The citizens of Red Bluff have also supported a bypass channel alternative. TCCA and the Bureau included the 4-Month Bypass Alternative in the detailed evaluation of alternatives due to this intense local interest.

EPA commends the joint goals of improved fish passage and agricultural water supply reliability. We believe the DEIS presents alternatives which provide a mutually beneficial balance between these two goals. EPA concurs with TCCA, FWS, CDFG, NMFS and DWR that the Gates-Out or 2-month gates-in alternatives best meet the purpose and need of improving fish passage, while improving the reliability of agricultural water supply in the Tehama-Colusa and

Corning Canal systems. The DEIS clearly demonstrates that only these alternatives would provide measurable fish passage benefits (Tables 3.2-6 to 3.2-11).

Bypass alternatives have been formally reviewed in at least three previous public documents. All three documents have resulted in recommendations that the bypass alternatives not be considered further (Appendix A, pg. A-20). The bypass channel is considered experimental, with a significant risk of failure to achieve fish passage improvements. As currently designed, the 4-Month Bypass Alternative, would have significant adverse effects on the Sacramento River Discovery Center, US Forest Service campground, and the Red Bluff Recreation Area (Appendix A). Mitigation for these adverse effects may not be feasible. Given the severe land use conflicts and untested, experimental nature of the bypass alternative, EPA concurs with the US Forest Service, FWS, CDFG, NMFS, DWR and the DEIS evaluation, that Alternative 1B, 4-Month Bypass Alternative, is the alternative which would provide the least fishery benefits (Appendix G).

We acknowledge the potential adverse recreation and economic impacts which could occur with the loss of Lake Red Bluff or reduction of its presence from four months to two months. We note the extensive mitigation measures provided in the DEIS to offset these impacts (Section 3.5 Recreation, Section 3.10 Socioeconomics). For instance, the promoters of the Nitro National Drag Boat Festival, which provides significant local economic benefits, have expressed interest in moving the race date to July, during the gates-in period for the 2-Month Alternatives (pg. 3-212). Furthermore, the primary project purposes of the RBDD are irrigation, flood control, and power production (pgs. 1-4 to 1-7). Therefore, RBDD must first be managed and operated to fulfill these chief project purposes. In fact, the US Forest Service acknowledged in their 1991 Lake Red Bluff FEIS that the use of Lake Red Bluff and RBDD could change and has postponed lake dependent development until resolution of the fish passage issue (pg. 3-208). Recreation is recognized as a beneficial use of the RBDD facilities even though recreation beneficiaries have not taken part in the management, funding, or repayment of these facilities. The DEIS shows that it should be possible to avoid, minimize, and offset adverse recreation and economic impacts caused by the permanent loss of Lake Red Bluff or its absence for an additional two months. We urge TCCA, the Bureau and the City of Red Bluff to work collaboratively and creatively to minimize potential adverse recreation and economic impacts.

No! not mentioned

? ?

secondary purpose only

While EPA supports the Gates-Out or 2-Month Alternatives, we have concerns regarding hazardous materials and air quality. We are also concerned about water quality impacts. These concerns relate to temperature effects of alternatives which would retain the dam for a four-month period; the soil contaminant hot spots on the Mill Site; and the rise of groundwater, caused by creation of Lake Red Bluff, in the unlined Class III landfill owned and operated by the Pactiv Corporation (pg. 3-247). Although Pactiv intends to close the landfill, elimination of Lake Red Bluff or a reduction in it presence, would help reduce the rise of groundwater into the landfill and potential contamination of this groundwater.

Based upon our review, we have rated the document EC-2 Environmental Concerns - Insufficient Information. Please refer to the attached "Summary of Rating Definitions for further details on EPA's rating system.

We appreciate the opportunity to comment on the DEIS. Please send two copies of the Final EIS to the address above (Mail Code: CMD-2) when it is filed with EPA's Washington, D.C. office. If you have any questions, please feel free to contact me or Laura Fujii, the primary point of contact for this project. Laura Fujii can be reached at 415-972-3852 or Fujii.Laura@epa.gov.

Sincerely,

Lisa B. Hanf, Manager
Federal Activities Office

Attachments: Summary of EPA Rating Definitions
Detailed Comments

cc: Buford Holt, Northern California Area Office, Bureau of Reclamation
Max J. Stodolski, Red Bluff Division, Bureau of Reclamation
Art Bullock, Tehama-Colusa Canal Authority
Jim Smith, US Fish and Wildlife Service
Mike Tucker, National Marine Fisheries Service
Mike Van Dame, Mendocino National Forest
Harry Rectenwald, California Dept. of Fish and Game
Dwight P. Russell, California Dept. of Water Resources

SUMMARY OF EPA RATING DEFINITIONS

This rating system was developed as a means to summarize EPA's level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the EIS.

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

ADEQUACY OF THE IMPACT STATEMENT

Category 1" (Adequate)

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

"Category 2" (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analysed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

"Category 3" (Inadequate)

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analysed in the draft EIS, which should be analysed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, "Policy and Procedures for the Review of Federal Actions Impacting the Environment."

DETAILED COMMENTS

Hazardous Material Comments

1. All action alternatives include construction of a new pumping station on the Mill Site. Soil borings and test pits have shown motor oil in several soil samples, chromium exceeding state hazardous waste criteria in one soil sample, and polychlorinated biphenyls above the EPA industrial preliminary remediation goal in one sample (pg. 3-111). Mitigation for construction-related impacts states that the construction contractor will follow applicable federal, state, and local regulations if contaminated soil is encountered. EPA is concerned with the soil contaminant hot spots on the Mill Site. We believe the process of remediation and disposal of contaminated soil should be determined and fully disclosed prior to construction.

Recommendation:

EPA recommends that more specific information on the remedial and disposal process for contaminated soil be included in the final EIS (FEIS). Include Tehama-Colusa Canal Authority's and the Bureau's most current assessment for the areas having known or suspected contamination and the proposed schedule for remediation, if remediation is required. The FEIS should briefly describe applicable State and Federal requirements.

2. We are concerned with the rise of groundwater, caused by creation of Lake Red Bluff, in the unlined Class III landfill owned and operated by the Pactiv Corporation. At times when the groundwater level is high, elevated levels of inorganic constituents are detected in groundwater collected from site wells. Total dissolved solids, turbidity, iron, and manganese concentrations have exceeded the secondary maximum contamination levels in the well downgradient of the landfill. The DEIS states that Pactiv has completed a corrective action plan and intends to close the landfill, possibly by capping the landfill with a geosynthetic clayliner or designating a containment zone (pg. 3-247 to 3-248). We note that capping the landfill would not necessarily resolve the encroachment of groundwater from below or address groundwater encroachment and contamination caused by the creation of Lake Red Bluff.

Recommendation:

The FEIS should fully address the potential effects of the action and no action alternatives on the groundwater contamination situation at the Pactive Class III landfill. For instance, elimination of Lake Red Bluff, a reduction in its elevation, or a reduction in the number of months the lake is created, could reduce or eliminate the rise of groundwater into the landfill and subsequent groundwater contamination.

Air Quality Comments

EPA believes that it is important and appropriate that the FEIS address the new eight-hour ozone standard and the new "fine" particulate matter standard ($PM_{2.5}$). The DEIS states that the project site is not in attainment for the state PM_{10} and ozone standards. The area is also expected not to be in attainment for the 8-hour Federal ozone standard (pg. 3-455). $PM_{2.5}$ is not addressed in the DEIS. Although EPA has not designated nonattainment areas for either eight-hour ozone and $PM_{2.5}$ standards, we believe these standards may have bearing on the proposed actions. Because the eight-hour ozone standard is more stringent than the one-hour ozone standard, it is likely that parts of the project area would be designated as a nonattainment area for the eight-hour ozone standard, possibly within the time frame of the proposed action. Therefore, it would be useful, and appropriate under the public disclosure requirements, to include a discussion of the implications of the new eight-hour ozone standard with respect to the execution of this project. EPA recognizes the serious health effects that "fine" particulates can cause, and, therefore, urges project proponents to reduce particulate emissions to the greatest extent possible. This is particularly important where the project will impact sensitive receptors, such as children and the elderly. We note that the Sacramento River Discovery Center, US Forest Service Campground, and Red Bluff Recreation Area are close to proposed construction sites and are heavily used by school children and recreationists.

Recommendations:

In its discussion of air quality impacts the FEIS should include a discussion of the new eight-hour ozone standard, as well as the new $PM_{2.5}$ standard. To the extent that monitoring data is available on these two criteria pollutants, include that information in the FEIS. In addition, we urge the Co-Lead Agencies to commit to a detailed discussion of measures to reduce construction and operational generation of $PM_{2.5}$.

Water Quality Comments

Data suggest that RBDD has a warming effect on the Sacramento River (pg. 3-92) and, in fact, the temperature objective for this reach of the Sacramento River is frequently violated at the RBDD. Thus, a reduction of the gates-in period from four months to two months, as well as the gates-out alternative, could lower the temperature of the Sacramento River water. Despite the discussion of temperature issues with the current gates-in regime (pg. 3-91), the DEIS does not appear to fully assess the water temperature impacts of the alternatives. In addition, the installation of cofferdams to enable construction could increase turbidity and sedimentation in the river.

Recommendation:

The FEIS should evaluate in more detail the potential effects of the alternatives on water quality. This evaluation should examine potential effects to river temperatures of continued periods of water impoundment at the dam. Construction-related impacts should be described in more detail, and Best Management Practices and mitigation measures to avoid or minimize adverse effects should be described and implemented.

General Comments

1. A total of 17 water districts contract with the federal government for water deliveries from the Tehama-Colusa and Corning canals. These districts have contracts totaling 325,000 acre-feet (af) of water each year. The DEIS states that the total maximum diversion from RBDD would not change from the cumulative Central Valley Project (CVP) service contract amount (pg. 3-268). However, all the action alternatives appear to provide a maximum diversion total of 667,260 af to 757,350 af (Tables 3.8-2 to 3.8-6).

Recommendation:

We recommend the FEIS describe in more detail the CVP water service contract held by TCCA, especially diversion limitations and requirements. It would also be helpful to include a short description of other water sources for TCCA, how water supply shortfalls are met, and the diversion schedules from RBDD during normal, dry, and wet years. Describe the relationship between the total contract amount of 325,000 af and the maximum diversion potential of the action alternatives. For example, describe the conditions when TCCA would be able to utilize the maximum diversion potential of the pumps.

2. The Socioeconomic evaluation does not appear to include a description of the significance criteria. The significance criteria is especially important for the socioeconomic effects analysis because, although the difference between effects of the alternatives is quite small, the DEIS concludes that some alternatives have no significant impacts while other alternatives do have significant impacts.

Recommendation:

The FEIS should include a full description of the significance criteria used for socioeconomic impacts. We are especially interested in why the DEIS concludes that the 2-month alternatives have no significant impacts while the Gates-Out alternative does. Data in the DEIS states that impacts of the 2-month gates-in alternatives would result in a total loss of $3.5 million dollars per year to Tehama County out of a revenue base of $1.7 billion and 1.1 percent loss of sales and tax revenues to the City of Red Bluff. The loss under the Gates-Out alternative would

be $4.2 million per year to Tehama County out of $1.7 billion revenues and a 1.9 percent loss of sales and tax revenues to the City of Red Bluff (pg. 3-321).

3. A cost analysis for each alternative does not appear to be included in the DEIS. Given the potential high costs of some of the facilities, such an evaluation would be helpful to the public and decision maker.

Recommendation:

The FEIS should include a table with the relative cost of each action alternative. If specific values are not available, an estimate should be used to at least provide a comparison of the financial feasibility of the alternatives.

4. We commend TCCA and the Bureau for the proposed mitigation ratios of 3:1 for impacts to waters of the U.S. It appears that the 2-month gates-in alternatives and Gates-Out alternative have lower impacts to both water of the U.S. and to listed species.

Recommendation:

The discussion about wetland delineation on page 5-6 should be under the Section 404 discussion, not Section 10 discussion. Authorization under Section 10 will be required since the Sacramento river is considered navigable to the Kewick Dam. We request a copy of your mitigation plan for review when it is available to the public.

5. The DEIS does not appear to evaluate the seismic risk to the Mill Site, pumps , fish screen or conveyance pipes.

Recommendations:

The FEIS should include a short evaluation of seismic risks, if any, at the proposed construction sites. For instance, would liquefaction be a concern?

6. Loss of Lake Red Bluff or a reduction of the months it is created would have a significant impact on public and private boat docks and ramps which are sized to the lake elevations. The DEIS states that these impacts cannot be mitigated. EPA believes there are means to mitigate these impacts such as extending the docks and ramps to the river shoreline or providing floating docks and facilities. Such measures have been used on water supply reservoirs to mitigate for an increase in reservoir elevation fluctuations.

Recommendation:

TCCA and the Bureau should pursue mitigation measures to address the potential impacts to boat docks and ramps, currently dependent on Lake Red Bluff elevations. For instance, the FEIS should evaluate the feasibility of extending existing boat docks, replacing or modifying existing public docks and ramps, or

providing other facilities which could offset the loss of existing boat docks and ramps.

7. The DEIS states that the 4-Month Improved Ladder alternative and 4-Month Bypass alternatives would have the same volume of excavated material, 800,000 cubic yards of soil (pg. 3-249). However, the Bypass alternative includes improvement to one fish ladder plus excavation of a large bypass channel.

Recommendation:

The FEIS should re-evaluate the estimate of excavated material for the two alternatives above and correct the volume values, if necessary.

Red Bluff – Tehama County
CHAMBER OF COMMERCE
Web Page: www.redbluffchamberofcommerce.com
Email: [illegible]tco.net

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

DATE: November 21, 2002

Dear Mr. Bullock:

On behalf of the 400 plus members of the Red Bluff-Tehama County Chamber of Commerce, I am writing to endorse the resolution #37-2002 of the City of Red Bluff (May 7, 2002) and to share with you the regional support for the continuation of the Red Bluff Diversion Dam in its current 4 months gates-in operating regimen.

Of the 6 alternatives proposed, the Chamber supports Alternative 1a which retains a gates-in operation for 4 months, improves the fish ladders, and provides for a pumping facility to meet the water needs of the TCCA into the future.

In support of this position, the Chamber of Commerce, for the past 6 months, circulated the following petition to submit as public comment on:

Draft Environmental Impact Statement/Environmental Impact Review for the Tehama Colusa Canal Authority Fish Passage Improvement Project at the Red Bluff Diversion Dam published in July 2002 (projected)

We, the undersigned, endorse the resolution of the Red Bluff City Council, No. 37-2002 which says in part:

"Be it Resolved that the City Council of the City of Red Bluff hereby expresses its strong, unequivocal support for leaving the gates in at the Red Bluff Diversion Dam from May 15th to September 15th of every year thus preserving Lake Red Bluff and its economic and recreational benefits for the community."

We further state that the selection of any alternative that reduces the operation of the Diversion Dam below 4 months is an unacceptable economic and community development loss extending well beyond the local community and includes: loss of tourism and the benefit of tourism expenditures that generate sales tax and occupancy tax revenue to the city and in transit; loss of recreational benefits including community events such as the Memorial Day Boat Drags, boat launching and shoreline leisure; loss of property value; degradation of parks

and community gathering amenities; negative impacts to the Red Bluff Downtown Revitalization process that included lake front attributes, amenities and pedestrian/trail access plans, and other significant impacts.

We further endorse the alternative 1-A 4-month Improved Ladder Alternative and accept the solution that includes adding pumping capacity determined to be necessary to provide reliable water to the TCCA.

We further request that any Adaptive Management Program include a provision for peer review of the recommendations of the Adaptive Management Science Team (AMST) and that the Policy Review Board be required to evaluate the AMST recommendations after peer review analysis and before recommendations are implemented.

To date, the Chamber has, and will provide if so requested, petitions with 6642 individual names. An additional 478 names are illegible and are not counted in the total of individual names. Of the total, 3,190 (48%) are from residents of Tehama County, 561 (8.4%) are from Redding and areas to the north, 346 (5.2%) are from Chico and areas to the south, 318 (4.8%) are from the San Francisco Bay Area, 198 (3%) are from the Sacramento area, 1,437 (21.6%) are from all other areas of California and 594 (8.9%) are residents from out of the State of California.

We feel it is important to recognize that concern over the loss of Lake Red Bluff goes well beyond the interests of local individuals and businesses. The regional use of this Lake cannot be minimized and its loss affects persons and businesses well beyond the local community. What analysis does the DEIS/EIR provide to demonstrate the impacts outside of the local community? Elimination or reduction in the gates operating period of the Red Bluff Diversion Dam must address the regional impacts, not just the local impacts. Please explain what measures to mitigate regional losses are contemplated? How will these losses be measured and what resources will be used to compile the record?

Thank you for the opportunity to comment on this DEIS/EIR.

Sincerely,

Brad Helser,
President, Red Bluff-Tehama County
Chamber of Commerce

cc: Max Stodolski, Bureau of Reclamation
Marshall Pike, The California Parks Company

Proposal

Red Bluff Municipal Power

Author- Wilkie Talbert
5/22/02

Submitted to
Susan Price, City Manager
Charles Hayden, Director of Development

Proposal
Red Bluff Municipal Power

This is a proposal to establish a Red Bluff Municipal Power Authority. The advantages of having Municipal power were well demonstrated during the utility power havoc the first half of last year. The beneficial characteristics were well documented for Los Angeles, Sacramento, and Redding and can be examined for suitable application to Red Bluff in other discussions. This Proposal discusses how to generate the power.

A unique and fortuitous situation has developed which could be of substantial advantage to Red Bluff:

!. Red Bluff is located on the Sacramento River with the flow principally controlled by releases from Shasta Dam which maintains a continuous and regular flow pattern. The flow has some variation but during the summer months is relatively constant and the power potential is augmented by the additional head due to Lake Red Bluff.

2. The Diversion Dam exists. The normal flow pattern with Lake Red Bluff can be used with advantage to channel and control flow through a set of water turbines and provide mounting and support for the turbines, generators and cabling for year around operation. Electrical power generation during the summer when the demand is highest would be increased by the head from Lake Red Bluff.

Additionally, some turbines could be arranged to drive water pumps directly rather than generators when the lake was out.

3. A unique water turbine has been recently developed and patented by Alexander Gorlov, Professor Emeritus at Northeastern University, specifically for low head water flows with velocities typical for rivers and ocean channels. The American Society of Mechanical Engineers awarded Dr. Gorlov the Edison Patent Award for 2001.

An outstanding property of the Gorlov Helical Turbine is that it's power generation varies as the cube of the water velocity. Hence, surveys of the actual water velocities at locations for the turbines are very important in order to maximize the power generation.

A second noteworthy property of the turbines is that their efficiency is 35% over a large range of water velocities. Propeller driven water turbines have efficiencies of 20% at best so that a given site can be used

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.

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 ?

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.

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.

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

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.

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.

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.

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??

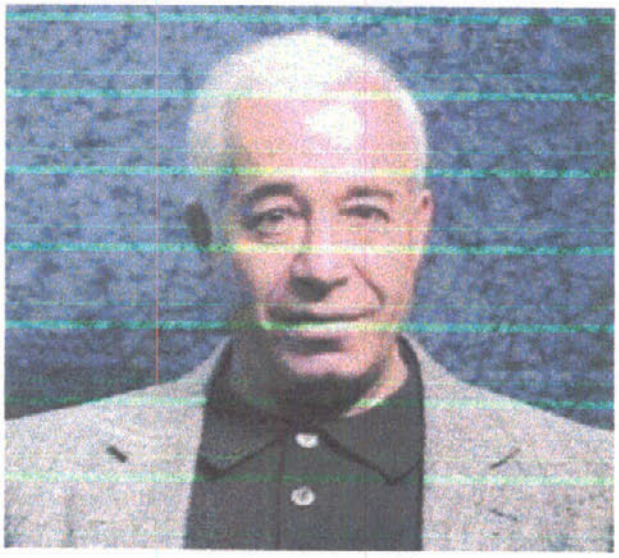
Note that the power produced and value are extremely sensitive to water flow velocity, varying as the velocity cubed.

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.

Edison Patent Award Recipient



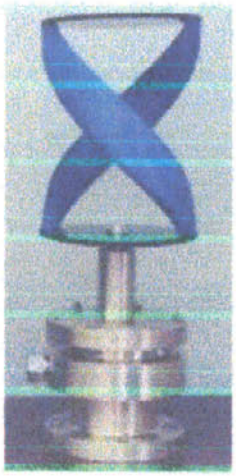
Professor Alexander M. Gorlov of Northeastern University in Boston is the 2001 recipient of the ASME Thomas A. Edison Patent Award for his invention of the Gorlov Helical Turbine. The Edison Patent Award was established in 1997 to recognize the creativity of a patented device or process that has the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

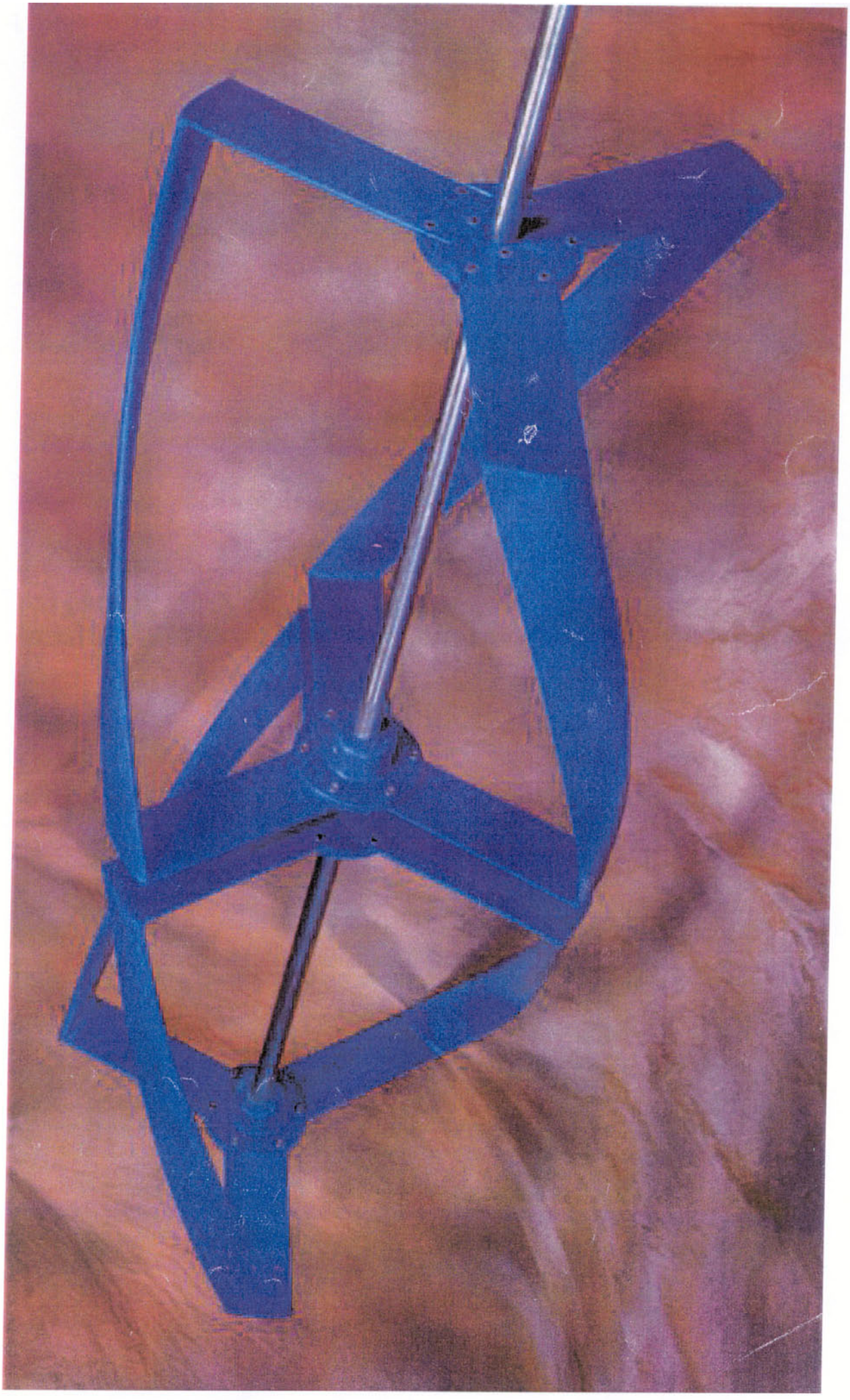
The Gorlov innovation makes possible the high efficiency conversion of kinetic energy from relatively slow-moving and multidirectional fluid flows (air or water) into electrical energy. The device is self-starting and always rotates in the same direction, independently of the fluid flow direction. In 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



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>

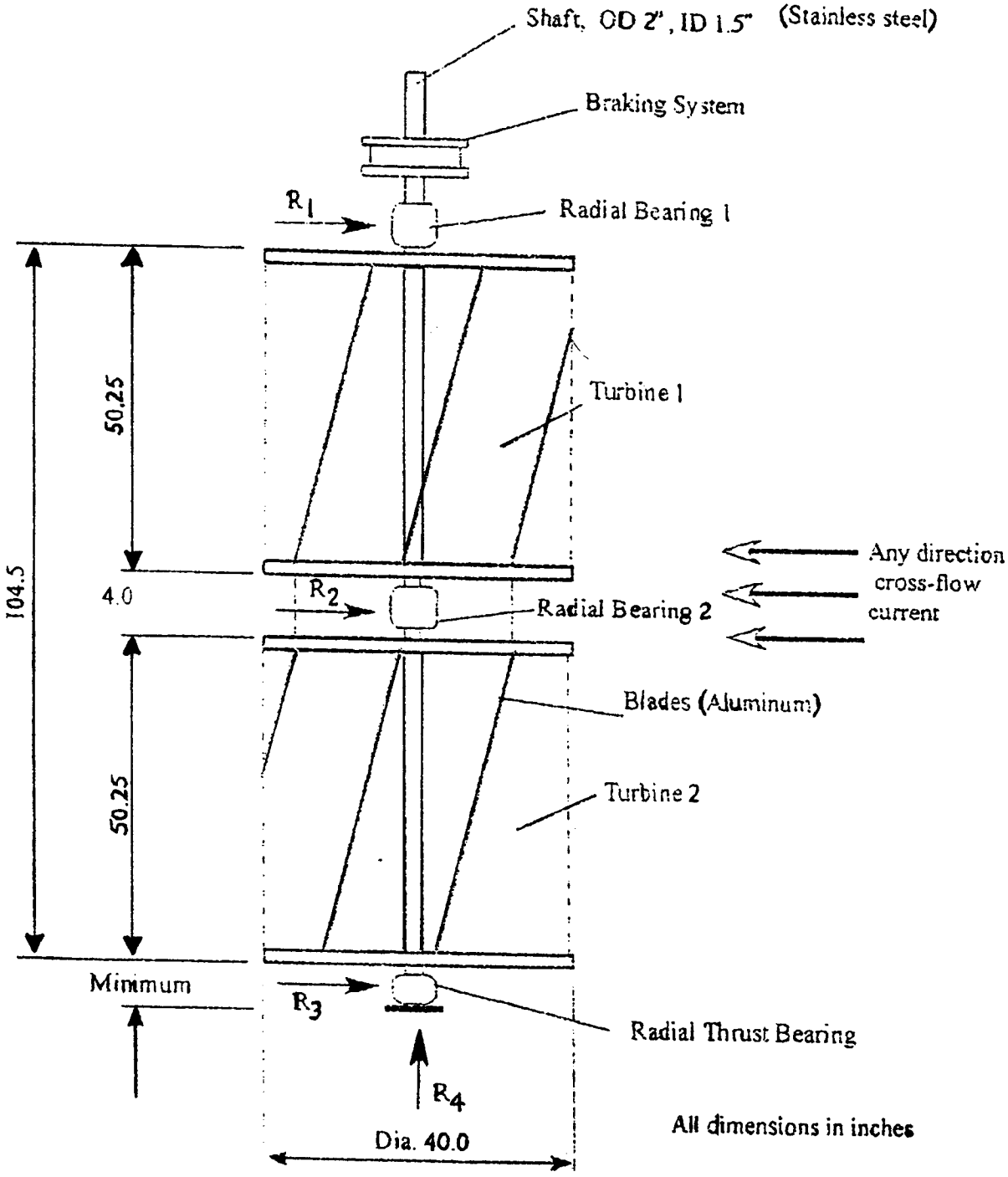
Dear Mr.

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

A.Gorlov

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.

COMPARATIVE PERFORMANCE OF VARIOUS TURBINES

IN FREE (NON-DUCTED) WATER CURRENTS

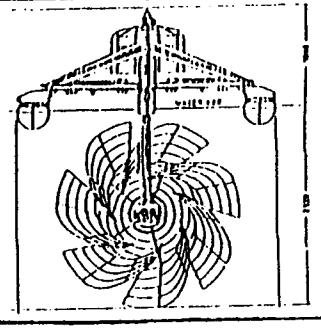
Efficiency, %

Propeller turbines

Cross–flow turbines

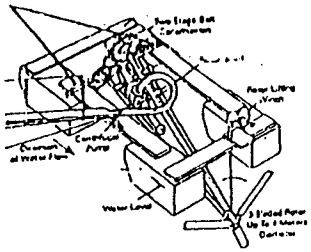
Tyson Turbine 16%

Source: "THE Tyson Turbine"
Horwood Bagshaw Australia LTD
1995



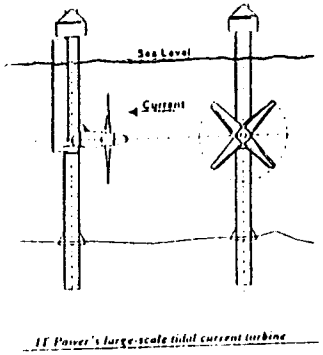
Garman Turbine 15-18%

Source: Peter G. Garman,
"Water Current Turbines"
HRW, Nov. 1998



IT-Power,Ltd Marine Turbine 20%

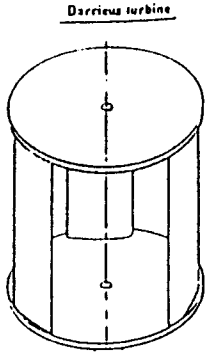
Source: "Marine Current Turbines"
IT Power LTD, PLF/TIDAL, 1997
England



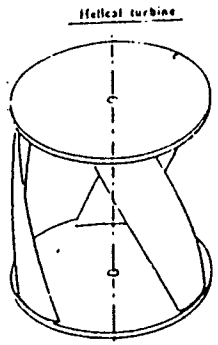
IT Power's large-scale tidal current turbine

Darrieus Turbine 23.5%

Source: Shiono, Suzuki, Kiho,
"The Characteristics of Darrieuse
Turbine for the Tidal Power"
Elsevier Science LTD, 1998



Gorlov (Helical) Turbine 35%



Source: "The Gorlov Turbine",
Allied Signal Aerospace,
Report on independent testing
at Michigan University, Dec.1997

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

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

• 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.

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.

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.

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

likely adaptive management scenarios for each alternative if the expected fisheries benefits are not achieved.

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.

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.

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).

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.

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.

SPECIFIC COMMENTS

Fishtastic Analyses

On page B1-6, Table 3 depicts specific passage efficiencies for the Adult Analysis Module. The values for the left bank 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

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.

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.

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.

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.

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.

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.

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

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

the EIS/EIR to acknowledge this important distinction, and that the remainder of the document be consistent in its language on this issue.

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.*"

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.

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.

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.

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.

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.

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.

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.

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

- 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).

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

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.

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.

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.

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.

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).

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

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*..."

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

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.

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.

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.

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.

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

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.

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

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?

2. Is there an estimated cost for each Alternative presented in the DEIS/EIR?

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)?

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?

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.

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.

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?

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

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.

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