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April 8, 2011

The Honorable Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 – 1st Street, NE, Mail Code PJ-12.3
Washington, DC 20426

filed electronically

Ref: P-606-027 Kilarc-Cow Creek License Surrender

Re: Request for the Commission to consider restarting the NEPA Process.

Dear Ms. Bose:

The National Marine Fisheries Service (NMFS) submitted a biased and inadequate Biological Opinion (FERC Accession No. 20110302-0001) for the referenced project, as reflected in the Davis Hydro Comment (FERC Accession No. 20110323-5017) thereon. Davis Hydro submitted a Request of PG&E to Supply Temperature Study Information in P-606 (FERC Accession No. 20110323-5097) to which PG&E has replied with a similar bias (FERC Accession No. 20110329-5015) that it does not believe that the requested information should be required to inform the environmental analysis in this proceeding. The attached rationale, provided for your consideration, identifies the handling of the Kilarc temperature issue as illustrative of problematic biases and their consequences on your decision-making that have occurred thus far.

In closing, as we stated in our Comments on the June 2010 Draft Environmental Impact Statement (FERC Accession No. 20100825-5130), we at Davis Hydro came upon this problem/opportunity three years ago. We wish to be the hands to do field work on habitat, and one of the means to support the science, for the restoration of these fish resources. Davis Hydro asks you to start again to help us save the fish, and by doing so save the Community, its needed services, and in passing the accompanying planet.

Respectfully submitted,

Richard D. Ely
Davis Hydro, LLC

Attachment

cc: P-606 Service List

CERTIFICATE OF SERVICE

I hereby certify that I have on this day served the foregoing document by first class mail postage prepaid or email upon each person designated on the official service list compiled by the Secretary of the Commission in this proceeding.

Dated at Fair Oaks, CA this 8th day of April 2011.

Kelly W. Sackheim

Kelly W. Sackheim, Principal
Sackheim Consulting
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Request for Restarting and Deepening the NEPA Process

Importance of Kilarc Temperature Issues

PG&E has identified correctly the key issue of temperature for both Steelhead and salmon, for example in the PG&E Biologic Evaluation (draft) dated August 2009 (PG&E BE) they suggest:

> *Water temperature is a primary limiting factor of natural Chinook salmon production on many Central Valley streams (NMFS, 1999). Chinook are affected by water temperatures in the same manner as steelhead.*
>
> *PG&E BE pp.-3-11*

Removal of the Kilarc Project facilities would probably result in an increase in downstream temperatures where there are known populations of steelhead and Chinook that would be adversely affected, because the water held by the project diversion facilities at a higher elevation for a longer period of time would remain cooler than without the project, and then be further cooled by passing through the turbines. The nearly-inaccessible habitat of the Kilarc bypass region does not presently suffer from adverse temperatures with the project in place, either, as reflected in the PG&E BE, "Water temperature monitoring data collected in May through September 2003 showed that mean daily temperatures were cool, generally remaining below 64°F (18°C), throughout the bypass reach, even during the warmest portion of the year (late July). The cool temperatures provide desirable conditions for rearing salmonids." (*ibid* p. 4-4)

Throughout this work PG&E focuses on the effects of temperature as a key determinant of nearly inaccessible habitat of the Kilarc bypass region and the South Cow (*ibid* pp. 2:29 et seq.; 3:2 - 3:11; 3:15; 4:6; etc), the application of their analysis is applicable to the smaller temperature effects downstream of the Kilarc Project where there are known populations of steelhead and Chinook(*ibid* p.3:8). These known listed species populations will be negatively affected by Kilarc project removal.

PG&E's identification of temperature as a critical issue for steelhead and Chinook was also reflected in FERC's Draft Environmental Impact Statement[1] (DEIS) (p. 36, 69-71, 76, 79-81, 85, 88... 95, 98, etc). An indicative passage is on page 70 of the DEIS, "The return water from the powerhouse tailrace reduces mean stream temperature by up to 4°F relative to the water temperature in the bypassed reach immediately upstream of the Kilarc powerhouse."

PG&E addressed this critical water quality issue in 2003; scientists such as Peter Moyle in 2002 and Lisa Thompson in 2006 (Kilarc.info: KC0260[2]) have focused on temperature as critical

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[1] FERC Accession No. 20100622-4001 available for download from http://elibrary.ferc.gov:0/idmws/file_list.asp?document_id=13826844

[2] *Stream Ecology from a Fish's Perspective: Habitat, Connectivity, and Flow*, available for download from http://kilarc.info/Docs_Maps_Drawings/Documents/KC0260%20Thompson_Lisa_%20July_2007_Restoration_Paper.pdf

habitat determinants for areas below the Kilarc project where there are known populations of steelhead and Chinook. These are cited in Davis Hydro's Kilarc Project Summary (DH-KP[3], Kilarc.info: KC0637) and Davis Hydro's filed Comments on NMFS Biological Opinion (DH-CBO[4], Kilarc.info: KC0647). The State and Federal Agencies – notably NMFS in their 2011 NMFS Public Draft Central Valley Recovery Plan – have focused on temperature as a key stressor and a key action item for these fish. (Refs. cited DH-KP, DH-CBO, DEIS).

The public record includes references to the obvious difference in temperature at the Kilarc Powerhouse project in the summer. For example in September 2007, Mr. and Mrs. Wetmore asked PG&E to again study this issue and filed data and a request for FERC[5] to order PG&E to immediately undertake appropriate environmental studies to identify the effects of the proposed draining and filling of Kilarc reservoir on downstream water temperatures.

Review of Previous Temperature Requests

PG&E Actions

In summary, at Kilarc downstream temperature is an important issue that has been repeatedly identified as important, and then ignored by PG&E. PG&E has a history of ignoring this issue; PG&E:

- Knew of the importance, and completed an extensive study of water temperature at Kilarc (2003)
- Ignored the Wetmores' filed request for a study of issue(2007)
- Ignored that DH identified this issue[6] (2007)
- Identified it as important in their Biological Evaluation (2009)
- Responded negatively to DH even looking at current and existing data. (2011)

PG&E's actions are not in the interest of clarifying the downstream effects of temperature on listed fish and extensive accessible habitat. They show no interest in discovering what is best for the fish. This bias against even looking at the data is underscored by their objections to Davis Hydro's simple request for releasing existing data and existing reports.

NMFS Actions

One might note that the same behavior by NMFS has been observed. The issue of temperature as well as other issues have been cited as important by NMFS' filed comments and studies, yet are scrupulously ignored by NMFS. The following is a list of some of the other issues ignored by NMFS and to a large extent by PG&E:

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[3] FERC Accession No. 20110114-5162 available for download from http://elibrary.ferc.gov:0/idmws/file_list.asp?document_id=13881787

[4] FERC Accession No. 20110323-5017 available for download from http://elibrary.ferc.gov:0/idmws/file_list.asp?document_id=13904291

[5] FERC Accession No. 20071009-0209 available for download at http://elibrary.ferc.gov:0/idmws/file_list.asp?document_id=13544986

[6] FERC Accession No. 20070731-5001, License Surrender Scoping Comments and Study Request of Davis Hydro LLC under P-606. A Scoping Paper: Suggested Project Surrender Alternatives and Derived Recommended Studies, available for download at http://elibrary.ferc.gov:0/idmws/file_list.asp?document_id=13526818

- Fires are pervasive in this area and will increase when Kilarc is removed,
- Fishermen will move from the off-channel Kilarc Reservoir downstream to sites on the creek where there are listed species,
- Predators and competition will increase in the bypass region and downstream, and
- Replacement power has to be built having a national, long-term global effect

References: NMFS Biological Opinion, DH-CBO

This bias against considering negative effects in existing data and existing reports on the very fish they are supposedly protecting is unexplained. More important, this agreement inhibits discussion of new ideas as they have evolved. Davis Hydro's Kilarc Project is an example that has improved with comments from many parties, it evolves with ideas from everyone, but detailed dialog with agencies would be useful[7]. These issues have been presented before FERC in this venue, all are important, and perhaps a half-step back is in order. We request the FERC create a forum for their review that would engender a solution that is best for the fish and the community.

FERC

FERC is, by derivation, culpable in ignoring this damage-by-prejudice bias that has perfused verbal and written input from 2005 Agreement participants. These documents and consultation (DEIS 1.4) are used extensively in preparation of the DEIS. Only a simple example dare be presented, as FERC is not the issue nor suggested as damaged-by-prejudice; they have simply been led astray, by the cascade of biased documents from the parties to the agreement.

A simple example: The DEIS Geographic Scope of analysis impact area ends at the confluence of the South Cow and the Old Cow (DEIS 3.2.1. p.36).

There are known populations of steelhead and large habitat areas of both Chinook and steelhead in Kilarc hydropower-affected areas at and just downstream this geographic boundary. These areas have known listed populations. They will be negatively affected. In contrast, listed populations upstream of the Kilarc power plant are non-existent, (DEIS, p. A-6 top) but potentially small numbers of hypothetical fish (of some type) who might benefit are included. When the FERC' DEIS ignores these downstream fish it ignores the following:

- The effects of the increase in downstream flow of predatory and competitive fish as a result of not killing them in the Kilarc facilities.
- The effect of increased temperature from removing the cooling effect of the hydropower
- The deterioration of the water quality and possible decrease in lateral cover from increased in fire prevalence,
- The destruction of the redds in the area due to increased presence of fishermen driven out of the Kilarc reservoir,
- An increase in fishing pressure on listed species in these areas due to displaced fishermen.

[7] Davis Hydro did not hear of the project decommissioning until two years after the March 2005 Agreement. By then, dialog had stopped and only dismissive criticism remained from the 2005 Agreement collective.

A Project's Integral Effect across Geography
These boundaries by a National agency are incomplete because the effect of building replacement power plants will increase acid rains and global warming here, across the nation, and around the world. Consultation with the EPA is required under the Clean Air Act §309, and not yet done here due FERC being led into thinking locally and ignoring destruction of fish globally. FERC defends its action (DEIS p.A-5) by stating that there would be no measurable effect on air quality. They are correct. But that is not the point. Just because we cannot measure the incremental effect on any one water body, or the marginal effect on fish from any one source, does not mean that an action does not have an incremental additive effect on all fish statewide, nationally, and globally -- including many (ESA) and Red Book (Russian) etc. listed species. Let's consider this an opportunity to think and act at least over the domain of a Federal agency.

The Integral of FERC policy across all Projects
Even more important, a National scope policy of ignoring immeasurable individual effects – as FERC does on Page A-5 of its DEIS, when integrated across all FERC reviews of projects, cripples equitable review of renewable energy projects into the future. FERC's policy of ignoring the incremental additive effects from all projects is the engine of global warming. The nexus of effects from ignoring acid rain and global warming is likely destroying more species than any other extant federal policy, and Federal are agencies, charged with preserving endangered species and balancing goals have the opportunity to address it. This can be changed and we implore FERC and NMFS to do that right here, right now. Today, the responsibility of a Federal agency is to think of the aggregate national and global effects of a local action, for it is the sum of these local actions that determines the future.

Conclusion

This is not yet science, for science is the study of the refutable. This is not yet collaboration or discussion, as we, DH, are willing, but unasked, to build a project that will produce far – far more fish than demolition. And this certainly is not independent investigation of what is best for the environment, and/or community. The fixity-of-thought shown in the PG&E response to Davis Hydro's data request and NMFS vacuous Biological Opinion based only on selected data, illustrate that these 2005-Agreeement organizations are as-yet incapable of making a unbiased assessments, supplying data, or conducting any study without prejudice. Therefore, Davis Hydro requests:

1. FERC reject or induce PG&E to withdraw its filing of its Biological Evaluation as a biased damaged-by-prejudice work, and label it as an opinion written to support the 2005 Agreement.

2. FERC remove PG&E from its role in the P-606 docket as preparer of Biological Assessments or Biological Evaluations, as they are clearly damaged-by-prejudice, and have demonstrated this by continuing forcefully to hide data to defend their biased position.

3. FERC request to NMFS similarly withdraw its Biological Opinion as biased, incomplete, and damaged-by-prejudice. It is clearly a biased selective presentation of only data supporting demolition as documented in the Davis Hydro Comment.

4. FERC, who wrote its DEIS based to a great extent on filings and input from these agents recast its existing DEIS as an initial draft EIS and let's have a second draft based on the studies that have yet to be incorporated and studies yet to be done.

5. FERC remove as demonstrated damaged-by-prejudice all signers and their staff who were advisors to the signers of the 2005 agreement from participating directly in a new NEPA process.

6. FERC restart the NEPA process using an unbiased external agency to conduct the process and studies, choosing and evaluating actors and submissions in that new process by the requirements of the DQA, APA, and Presidential Directive cited in our recent Comments on NMFS Biological Opinion.[8]

7. FERC consider alternative approaches of consultation and collaboration under NEPA. Both the Tetrick group and Davis Hydro have asked for consultation on defining processes to lead to helping the fish and the community. These informal requests have been ignored.

8. FERC request PG&E to supply the data and report requested by Davis Hydro in the 3/26/2011 request to FERC as instructed by PG&E. These data are key to understanding temperatures in the Old Cow down across existing listing species habitat. This is a trivial amount of data and it is acceptable in any public electronic format. Davis Hydro will compile and publish it on WWW.Kilarc.info.

9. We request that FERC formally invigorate its administrative procedures under NEPA to comply with its own *Information Quality Guidelines Implementing Section 515* of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (P.L. 106-554) derived from the standards and thrust of the Data Quality Act. We recognize that this may mean a significant change in the way FERC currently involves applicants, agencies, and consultants. It also sets standards for data sourcing, acceptability, and quality.

10. Project Boundaries: FERC expand project impact boundaries to encompass the integral of all possible effects – direct and indirect. The Davis Hydro Alternative, for example through the Kilarc Foundation, will address fish habitat, genetics and epigenetics up and down the Sacramento River. Almost none of these effects will be in the project area. Another example: most of the effect of Kilarc Demolition will be in increased fire, water quality, downstream habitat impacts and national and international effects; not one of which is significantly under the Kilarc project footprint, where by any count, few fish will ever be.

[8] FERC Accession No. 20110323-5017 available for download from http://elibrary.ferc.gov:0/idmws/file_list.asp?document_id=13904291

In Summary

The 2005 Agreement containing a decision to demolish the Kilarc facility inadvertently codified an espoused mindset of participants in this agreement despite all claims to the contrary. The effect of encapsulating a decision in this early agreement to demolish this facility created a protective barrier of no-conflicting-data-need-be-discussed. This mindset has led to an active damaged-by-prejudice solution that cares little for the Whitmore community; it is worse for the fish on the Kilarc Project site in that overlooks newer ideas, has no positive solution for the South Cow fish or community, and precludes discussion.

It is time to restart. We request the FERC step back - rewind the clock and NEPA process back to the early scoping papers and needed studies as described by various parties in 2007 and let's do the studies and figure out what is best for the community, the fish, and the planet. In return, Davis Hydro is committed to working with any party interested in the fish to create a project that powerfully rebuilds this decimated resource while addressing community needs. We believe that helping the fish, we meet everyone's goals, and that is why we are here.

Davis Hydro, LLC
Richard Ely
Davis, California,
April, 2011

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August 25, 2010

The Honorable Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 – 1st Street, NE, Mail Code PJ-12.3
Washington, DC 20426 *filed electronically*

Re: Comments on the June 2010 Draft Environmental Impact Statement, P-606 License Surrender

Dear Ms. Bose:

Process

We have filed extensive comments on the DEIS on 7/26/2010 (FERC Accession No. 20100726-5012), and wish to have those acknowledged and incorporated. At your second Public Hearing on the DEIS, due to time constraints and previous speakers, we had to rush through our comments. The complete comments, as they would have been presented, are attached as Attachment 1. Please incorporate them into the public record.

Federal Data Quality Act

We again require that all data and studies used in your EIS be presented accordance with the 2002 Federal Data Quality Act (DQA) as well as standard NEPA procedures for supporting studies. Data used shall be presented in the proper context and identify the source along with the supporting data or models so that the public can assess for itself whether there may be some reason to question the objectivity of the sources. Id-DQA.

DQA requires that the substance of information disseminated must be accurate, reliable and unbiased. Id. FERC must identify the sources of the disseminated information, the methods used to produce it, and provide full, accurate, and transparent documentation. 67 F.R. at 8460. NEPA and DQA requires that sound statistical research methods must be used to generate original and supporting data and develop analytical results. Id. at 8459. Data subjected to formal, independent, external peer review, is presumed to be of acceptable objectivity, although such a presumption is rebuttable.

Substance

The remarks below, address only the Kilarc facility and the analysis of its components in this draft of the EIS, for it is clear to us that the Kilarc facility and the South Cow represent completely different issues and opportunities for all concerned – both the community and the fish.

No Significant Anadromy Possible

Bob Carey in his public remarks on 8/17/2010 before the FERC, addressed the CDFG Memorandum introducing the idea that steelhead could pass both Whitmore Falls, and the reference paper cited by CDFG. He carefully read the cited paper and applied it to the situation at the Whitmore Falls. He showed clearly that the probability of significant use of the waters above the Whitmore Falls by rainbow trout for anadromy

is nearly impossible. Attachment 2 to this letter is the key memorandum by CDFG staff. Attachment 3 is the reference paper cited. The conclusion is clear to anyone who reads the reference, and places it in the geographic context so well described by Mr. Carey of fish conditioned by 250 miles swim from the sea.

Upstream passage of fish and the presence of fish in the ten miles between the Whitmore Falls and the Kilarc Project are not negatively impacted by the project. Many people have testified that there are no steelhead and very few trout above Whitmore Falls.

If there is no anadromy many miles below the Kilarc project, what then are we doing even mentioning it in the EIS except to eliminate it from consideration?

Water Temperature and Habitat Destruction

The Kilarc Project lowers water temperature in the Old Cow. How much is to be determined, but it is clearly greater than zero. It is also clear that a major water quality issue on the lower Old Cow and Cow Creek is high temperature caused by many factors that we can address, but helped by the cooling effect of the Kilarc Project. Therefore, on temperature alone, - however small the effect, removing the project will harm, i.e. "Take", steelhead lower in the Creek. If any action resulting from the disposition of the Kilarc facility "Takes" anadromous fish, which are known to exist in the Cow, please include this "Take" in the EIS. It can be estimated from the studies on temperature effects Dr. L. Thompson of UCDavis.

Long Term Habitat Destruction from Fire

Removal of the Kilarc facility will increase the prevalence of fires in the area over the long term. Fires destroys the soils structure and increases rapid erosion into the Creeks we are trying to protect. This marginal increase in fires will statistically decrease habitat long term, and will decrease any fish resources in the area. Well below the Whitmore Falls and in the South Cow this negative environmental impact will result in a "Take" of an endangered species – as they are well documented in the Upper Cow and upper reaches of the South Cow.

Removal of this very popular Kilarc Reservoir and its put-and-take fishing spot will drive fishers downstream to others fishing areas closer to the Main stem of the Sacramento River where they may catch steelhead or potential steelhead. This represents additional fishing pressure take represents a "take". Please include this "Take" in the EIS.

Acid Rains

Removal of this renewable resource will have as a direct consequence the continuation of a natural gas/coal mix in the greater California electric power market. The acid rains, heavy metals, and other contamination will be spread downwind across the Midwest poisoning to a microscopic extent many millions of square miles of habitat of endangered fish. The effects of pH and other contaminants on this species is well known from the literature. This indirect pervasive effect, much like global warming, represents a statistical "Take" of many - fish and other species notably amphibians across our country.

In the EIS please include this "Take"' not only of steelhead by all affected species impacted by changes in acid rains – Frogs and many well documented species of the acid rain-burned Green Mountains of Vermont are typical examples. "Take" of all species should be considered. Ignoring these incremental national and global effects by an agency that espouses Federal environmental domain is disappointing.

Replacement Power Construction

Removal of the Kilarc facility and the construction of any replacement power plants will have direct and indirect consequences throughout our economy. The economic multipliers are reflected with EPA environmental multipliers showing how for any economic activity there is a consequential environmental degradation. In this case, they are twice as large as normal due to both the site demolition and the *de novo* new site construction.

These construction impacts extend throughout our economy and destroy habitat and wildlife just as far. Some of the impact is resident on endangered species and indeed even the potential steelhead across these United States. This "Take" should be considered. These are National/ International effects on all national/international species of concern. In summary, in the EIS, please incorporate the national effects of demolition of green power resources.

Resident Fish and Habitat Diminution

Assuming that water were returned to the Kilarc bypass reach, and assuming that the small trout population there expanded, what would be the consequences? The fish that are present in the Old Cow are derived from fish that have been in this area for over 100 years augmented by the fish from hatcheries. Any anadromous fish would have (by definition) long ago left. This means that these "resident adapted" or "resident mode" or "resident eco-response" or "resident form" (depending on the author) fish will expand and emit juveniles downstream. Way downstream these juveniles will compete in known steelhead areas and put selection pressure on steelhead juveniles competing for the same resources. This competitive pressure with listed steelhead and possibly (to a small extent) juvenile salmon for habitat represents a "Take" of these species. Please include this "Take" in your analysis.

I will stop here. This has all been said before in many earlier filings by ourselves and others. Unfortunately, these filings were neither considered nor yet incorporated into the draft EIS.

The destruction of Green power generation, the fish, our atmosphere, the community, and incrementally the thousands of affected species by Federal Agencies should only be done if there is overwhelming evidence of some higher goal. In the EIS, please make it clear what is this goal.

Alternatives

Davis Hydro has put forth somewhere over 4 evolving Alternatives to demolishing the Kilarc site – all of them can be enabled by willing participants within the FERC process. They started on an early idea that we could use significant parts of the revenues from the Kilarc facility to sponsor resource enhancement. The Davis Hydro Alternatives have evolved. They evolve daily as in any adaptive management plan; we learn as we are going. They evolve because the genetic and epigenetic sciences under us is evolving even faster. It is evolving due to constructive parallel analyses by the newly enlightened fish resource Agencies such as the EIS on the Hatchery operations.

Goals and the Law

When Davis Hydro first came upon this project, it was seen as an opportunity to use the hydropower to help protect or enhance an endangered species.

Davis Hydro will, if allowed, use its resources through and with

the Kilarc Foundation to help the fish whether or not there are any endangered species.

This is important because it is unlikely there is any speciation, or even profound genetic effects at play in the issues before us such as steelhead anadromy. The law, and even its intent, may not be applicable. Science has moved on, especially in the last two years. Epigenetic effects on the surface of a quasi-stable O. *mykiss* genome are the probable cause of most anadromy, eco-responses, and most likely the cause of failure to thrive in the first year from hatcheries. This science is rapidly changing as we understand the modulation of genome expression of phenotypic behaviors from what would be an appropriate allele. Science is now far ahead of the law, and our efforts want to be directed at the fish, not at the law.

Davis Hydro, working with fish geneticists will develop this further in future filings or working papers as the science develops[1]. Suffice it to say, our ability to help these fish appears to have nothing to do with "Endangered Species", little to do with genetics, and nothing to do with the extremely rare fish that might pass up the Whitmore Falls. It does have a great to do with intent and actions.

Our intent from our fist conversation with CDFG is that we will figure our how use this project to help the fish or we will not do the project. We are figuring out what to do as the science changes underneath us. We are learning, and a review of the dates of much of the recent work on, anadromy, steelhead, restoration genetics, and the CDFG hatchery EIS shows, everyone else is also learning at an ever increasing rate. We want to be part of that recovery.

Intent

We do not speak only of promises. We have set up the Kilarc Foundation LLC for the long term handling of resource enhancement and related research projects. We have committed a percentage certain of profits from any operation of the Kilarc facility into that entity. We have stated that frankly we are not interested in discussing the applicability of the Endangered Species Act, or arguing about the rare passage up the Whitmore falls; we are interested in helping the fish, and we are committed to it, and we want to get to work.

Actions

It is not easy to take many actions to date due to lack of control of the site, or cooperation with PG&E or any State or Federal agency. However, the following are underway:

Underway

1. We have set up the Kilarc Foundation and will fund it to the extent possible.

2. We have started by starting a Restoration Genetics program to address the problems identified by the USFWS/CDFG 2010 Hatchery EIS/EIR. This has led to a comprehensive temperature monitoring program of the Old Cow to define the target temperature regime we will be restoring fish into. This temperature, flow and water quality profile definition will be extended into other target Creeks for the benefit of new eco-adapted restoration projects

[1] A brief review of the changing landscape of the understanding of steelhead anadromy can be had by anyone observing recent scientific papers and their dates or by searching on "steelhead epigenetics" in Google, Science Citation Index, or any good biological scientific search engine.

in the future.

3. We have retained a fish genetics consultant and specialists on fish screening.

4. We have studied the whole of the Old Cow and much of the bypass with numerous other biologists looking for the most effective use of this resource and what we can do down on the Cow.

5. We have started a dialog with the Olsen Project downstream asking them to engage with us in studying the Old Cow habitat area, to see if we can enhance it.

6. We have outlined a program of micro-spawning grounds to be seeded with fish or egg-cases to be distributed up and down the Sacramento River. This will restore small local-eco-adapted stocks of fish that do not suffer from the epi-genetic problems endemic in the larger hatcheries.

We have proposed and the Kilarc Foundation may fund carrying out the following activities, if permitted:

Proposed Actions

1. Research
   - a. Spawning
     - i. In-gravel studies
     - ii. Cover, hydraulics, composition
     - iii. Predation In and post emersion
   - b. Informal Screening
     - i. We will test and display numerous screens in the Kilarc Canal showing how fish can be screened by ranchers economically
   - c. Herding studies
     - i. Fish herding studies started at UC Davis can be continued here, for the benefit of fish resource management everywhere.
   - d. Physical Facilities
     - i. Wet/ Dry Lab. Research facilities, bunkhouse provided
     - ii. Fully instrumented study areas
     - iii. On-Canal and Up Old Cow study areas made available

2. Eco-System Restoration
   - a. Kilarc Foundation will choose and fund cost effective off-site projects – fences, screens, easements, run-off controls
   - b. Seek matching grants to extend screening
   - c. Work with WSRCD on joint-funded projects
   - d. Possible hands-on maintenance of diversion screens

3. Restoration Genetics
   - a. In headrace a prototype of different types of micro spawning beds to be established in targeted tributaries around the upper Sacramento

b. Temperature profiles and spatial studies to match genotype sources to target spawning beds.
c. Support for expansion of State and Federal conservation genetics program.

4. Production
   a. In Kilarc Channel the production of genetically appropriate stocks to restock Cow Creek. This is a small effort.
   b. In other off-site spawning beds, inseminate these beds with appropriate genotype epigenetic encoding to the diverse target micro-ecosystems we are seeding. This is necessary for proliferation. This is expected to be a large effort and very controversial. It will be fraught with failures, difficult to measure success, but essential for rapid restoration of a diverse healthy population in the Sacramento.

5. As Davis Hydro, we will start an education outreach program at the Kilarc Reservoir that will have as elements
   a. Spawning demonstration and explanation
   b. Field run-off pollution explanations and demo
   c. Several different types of economical low-maintenance screens.
   d. Hands-on workshops for showing ranchers how to protect their fish: screening and irrigation plans, drawings, controllers, material lists, subsidies, handholding, encouragement to protect their fish ... we are dead serious.
   e. School-kid level demonstration and explanation: Paper handouts and tours of brood ponds, screens, and
   f. Websites with
      i. All applicable papers and explanatory material on how to save the fish
      ii. Background and details of fish screens
      iii. Programs for conservation easements
      iv. Contacts for getting help

In Conclusion

We ask that the next draft Environmental Impact Statement consider all applicable Alternatives and studies requested two years ago. We ask FERC assist in holding meetings with the resource agencies to see if we can find some common ground. It is extremely disappointing to be dealing through FERC with the very people we want to work with to help the fish. We again request a new direction in the EIS.

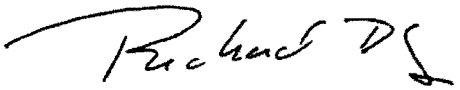
We again hold out our hand to the fish Resource Agencies saying we cannot do this alone, please help. Fish restoration requires source stocks, genetic labs, access to spawning grounds, and coordination with other programs. Restoration transplanting, for example, requires a correct balance of appropriate effective population size into any area where there is indigenous ancestral stock. This is fraught with risk, for the bottlenecking of the transplant eliminates many alleles that may have been useful, yet importing too many overwhelms local resistant alleles and leads to out-breeding depression. This is currently as much an art as science. We would like to be useful as we can be in helping larger entities establish a plethora of small targeted inoculants, tailored in their origin to survive the restoration transplant.

In closing, we at Davis Hydro have come upon this problem/opportunity 3 years ago. We wish to be the

field hands and possibly to some extent the science out reach team for the restoration process. Our friends in genetics and soon in epigenetics are not generally in the field with field experience. We see ourselves working in that vane. We see many failures ahead as pointed out by an earlier CDFG review. We are not afraid of failure, for we know that that is a statistical reality in this field. We are relieved that it appears that the steelhead behavior is not a fragile – perhaps not an uncommon allele expression, but an epigenetic imprint that is passed between generations for expression when conditions permit. This is yet to be tested. Given that this is a new field and a very new line of research, we expect and welcome overcoming problems. We have started and we hope to succeed based on our expanded reading in restoration genetics, and applied genomics.

FERC, Davis Hydro asks you to start again to help us save the fish, and by doing so save the Community its needed services and in passing the accompanying planet.

Respectfully submitted,



Richard D. Ely
Davis Hydro, LLC

cc: P-606 Service List