Klamath River Compact Commission
Klamath, Oregon
June 18, 2019

KRCC Present

Chrysten Lambert, Chair
Curtis Anderson
Tom Byler

Others Present

Kyle Gorman, OWRD
Tom Paul, OWRD
Bill Ehorn, CDWR
David Sandino, CDWR
Susan Miller, Siskiyou County Water Users Association
Dr. Richard Gierak, Citizens United
Rex Cozzalio, Siskiyou County Water Users Association
Richard Marshal, Siskiyou County Water Users Association
Don Henion, City of Yreka
Chelsea Share, Klamath Water Users Association
Mark Johnson, Klamath Water Users Association
Brandon Topham
Joan Sees, Irrigator
Tom Mallums, Headwaters LAC
Paul Simmons, Klamath Water Users Association
Jared Bottcher, Bureau of Reclamation
Laura Williams, Bureau of Reclamation
Lee Berget, Bureau of Reclamation
Dan Scalas, Adkins Engineering
Gerri Byrne, Modoc County
Brad Kirby, Klamath Water Users Association
Kate Foley, City of Medford
Gus DeVos
Gene Souza, Klamath Irrigation District
Mike Hiatt, Oregon Department of Environmental Quality
Tim McCarthy, WaterWatch of Oregon
Angelina Cook, McCloud Watershed Council

Welcome and Introductions

Chair Lambert called the meeting to order at 11:03am and offered introductions.

Administrative Topics

Chair reviewed the materials that were accidently destroyed. Minutes are not available for review. Going further minutes will be taken today. Previous federal representative has no copies of the notes as well. Curtis Anderson will keep a copy of his personal notes in the file. Tom Byler states that Oregon has not been able to identify any minutes or additional materials on this record.

Chair Lambert went over the account balances for the accounts of the Klamath River Compact Commission. No activity has occurred with the accounts since 2008, nor are we able to identify transactions before that time. Chair Lambert offered the balance of the accounts; there are two public investment accounts and a checking account.

1st public investment account balance $18,338.12

2nd public investment account balance $12,565.03

Checking account balance $$86,499.13

Chair Lambert seeks a motion to use funds from the checking account to cover the expenses of the meeting, solely the room rental. Commissioner Byler moves to cover the expenses of the meeting from the KRCC Checking account. Seconded by Commissioner Anderson. Voting in Favor: Lambert, Anderson, Byler. Motion Passed

Chair Lambert has concerns about the high balance in the checking account and whether it should be converted to one of the investment accounts. After a conversation with Wells Fargo, the Chair learned because it is a public account and has a higher level of protection there is no difference in the interest rates between the checking accounts and the investment account. Commissioner Anderson commented it does not make a financial difference he is ok leaving it at the status quo, Commissioner Byler agrees, and it only makes sense if it offers financial benefit.

Chair Lambert discusses the records of the compact and would like to secure the existing records of the Compact and identify a long-term location to house the records. Chair would also like to establish a more feasible mechanism for making the records accessible to the public. The Commission currently does not have staff like in previous years and without that structure, we will be more reliant on the states to maintain their records. Commissioner Anderson discusses what California has in their possession and suggests that California and Oregon both prepare an inventory list to bring to the next meeting to prepare the Commission to decide what to do with the records. Commissioner Byler echoes what Commissioner Anderson said and agrees it would be best to collect the records and decide moving forward based on what is decided with the Commission. Commissioner Anderson suggests a website to be built and maintained, Commissioner Byler agrees it is a good idea to have access to the record online to increase transparency. Chair Lambert has three boxes of records that are housed at the Klamath Falls Bureau of Reclamation office.

Historical Context of the Klamath River Compact, Paul Simmons, Executive Director, Klamath Water Users Association

Chair Lambert introduces Paul Simmons, Klamath Water Users Association; he presented the history surrounding the Klamath River Compact Commission. The Commission is by state law and has been ratified by Congress. A copy of his presentation is attached to these minutes.

The Commission recessed for a break at 11:53am

Chair Lambert called the meeting back to order at 12:10pm

Status of Groundwater Management, Joint State Presentation, Bill Ehorn, Chief, Regional Planning Branch, Northern Region Office, California Department of Water Resources, Thomas J Paul, Special Assistant to the Director, Oregon Water Resources Department

Chair Lambert introduces Bill Ehorn, Regional Planning Branch, Northern Region Office, California Department of Water Resources and Tom Paul, Special Assistant to the Director, Oregon Water Resources Department. They provided an update on groundwater management and the differences between Oregon and California groundwater management.

Chair Lambert opens up the meeting to public comment.

Public Comment – Transcribed verbatim

Don Henion, City Attorney, Yreka California

Ok, um I am the city attorney for the city of Yreka and it has..it..well its sole source of water is off of Fall Creek which is a tributary to the Klamath River north of the line and is considered the Upper Klamath Basin and falls within the jurisdiction of this body. Um our water source has received the sympathy of almost all the agencies we have talked to and when the amended Klamath settlement agreement was drafted there was specific paragraph that says all the parties of which, California, Oregon, and the federal government, are parties are agree that they will uh collectively and individually agree to not to oppose the cities continued use of its 1966 water permit which provides for a diversion of up to 15cfs. Uh the problem is that Fall Creek uh during multiple drought years often falls below 30cfs, in our original water permit there is a 15cfs instream bypass for fish and game services um and uh it has not been a big problem but it is dependent that the 30cfs is basically created by Pacific Corp because it gets a 16.5cfs diversion from Spring Creek which comes from Oregon and is pre-code water right. Now that uh is critical and at the same time when KRCC came up with its definite plan it decided it was

going to put a a fish hatchery next to our water diversion facilities and it has a junior water right of 10cfs so Yreka is always in a problem solving mode rather than a litigation mode so we have reached out to as many group as possible to make our issues known to the various stakeholders and regulatory agencies so here we would prefer not to exercise authority to kill the California's fish and game's plan to build a six million dollar hatcher to raise Chinooks and Coho and Steelhead but those are endangered and listed species which will create some critical habitat issues for us in the future. So we can't ignore it so uh what we are planning on doing is uh um reaching out to uh California's Water Resources and seeing if perhaps 10cfs for the fishery can be taken away from the 15cfs in the uh bypass and also do safe harbor agreements with state and federal agencies. So what I have for you is written comments that propose our varies issues for your future consideration.

Dr. Richard Gierak, Director, Citizens United

I am Dr. Richard Gierak, director of Citizens United. This is regarding the proposed removal of the Klamath hydroelectric dams. The commission was acted upon Congress in 1957 where it was your responsibility to see to it that the waters of Northern California and Southern Oregon are properly utilized for agriculture, hydroelectric power, and recreational use. It is now time for you to make it clear that the removal of four hydroelectric dams is not part of a viable plan. The entire plan is to allow the slew of Coho salmon, yet in 1988 federal judge Michael Hogan 1999 deemed that Coho Salmon are not indigenous to the waters of California or southern Oregon and all those listings were removed. Now I have in my possession today documents from the Kurok Nation and Shasta nation stating the Coho Salmon were never native to this river, so therefore this entire project is ridiculous. In addition, it is in violation of the constitution where in Jackson County, Klamath County, and Siskiyou County voters have made it clear not to remove these dams. It is in violation of the 1902 reclamation act as tens of thousands of thousands of acres will lose there water. Klamath River was designated as a recreational river in 1981 by the national Wild and Scenic River Act, removal of these dams would be in direct violation of that. Most importantly, it is a violation of the Dorman congress clause, where no state may take any action on a federally designated navigable river in which the Klamath is so designated. And of course, it is a violation of the Endangered Species Act since it was never listed, there genetics comes from the Cascadia River in Central Oregon and violation of the Rogue Valley irrigation rights as removal of these dams would reduce approximately 40% of these waters going to Oregon for their agriculture which is prime part of their background and financial status. Serious impacts on power costs to both the citizens and business in both Northern California and Southern Oregon. Right now the average for Northern California and Southern Oregon is roughly 200 a month switching over to natural gas as they are proposing would raise that 600 dollars per month and would have serious impacts for fire danger we know how bad the fires have done to both of our states while by removing these dams and reservoirs fire helicopters will have to travel further to fill there buckets and take longer putting everyone at risk in future fires and then we have the Iron Gate Reservoir, I only have about 30 seconds left and basically the original flooding that is why Iron Gate dam was

built by removing that dam property values will fall and expose all to the possibility of flooding and death. Based on this information I respectfully submit that you put in opposition to removal of all four dams.

Rex Cozzalio, Siskiyou Water Users Association

I have severe concerns for what is happening here. Ms. Lambert has made her position here as director of Oregon Trout Unlimited regarding Klamath dam determination and imposed regional rewilding very clear in public media. Ms. Lambert is appointed years ago under the Obama administration and in response and pursuit of a perceived agenda, she chose to sit on the legal obligations of the compact until today. Once the set-aside of the compact had been publicly recognized in the FERCC proceedings for forced imposition of dams and regional environmental destruction by the special interest KHSA in which Trout unlimited is a signatory. Ms. Lambert suddenly seeks to reconvene the compact. It is inescapable in appearance of Ms. Lambert's intent to is to attempt to influence and utilize the compact to facilitate a bias position that is evidenced here by the fact that during her tenure she has never persuaded the legal or legislative requirements to which she was obligated until now. Further evidence is that the selectively parsed and bias history presented today regarding the project. I am one of four generations that live immediately below where Iron Gate now exists before and after and have lived the environmental benefits of the project. I strongly object to presented interpretation of history, which carefully eliminates the intended perspectives and impacts on those most affected in support of the project and benefits of environment enhancements and the apparent manipulation I fear is Ms. Lamberts intent.

Tom Mallums, Headwaters LLC

Chair Lambert and members of the Commission thank you for the opportunity for the comments and to actually ask some questions. Uh I had a conversation with Curtis here earlier, the last meeting, I attended that meeting and there was a lot of questions and things raised that were going to be answered at the next meeting. It is unfortunate that those minutes disappeared he does have some notes and I would like to have those and whatever documentation you have answered at the next meeting as well as the questions that are being posed here today. Once question I have been asked by a number of people is just mention like Rex did is what precipitated this meeting happening at this time, is it just a coincidence or was this planned, what kind of conversations precipitated that. The one comment I have on the presentation on the SIGMA program uh I never thought I would see California be more proactive than Oregon and more lenient I would say in some of their regulations. I never dreamed that would happen but seems to be here in this time and place uh the modeling programs he talked about and the modeling programs that are being used in the state of Oregon specifically in regulating wells off uh it is a I think there are uh a much different animal in the two states apparently. The question for the California side, I would like to know at what threshold does the state step in and turn it off, regulate it off in the State of Oregon right now we were told, me, my wife, and our

counsel in a meeting here about two years ago, we were point blank told according to the model if our it is not that we are taking water from the water body, we were told according to the model if pumping our well prevents one drop of water from reaching the water body at some undetermined point in time they have the right to regulate us off, now that is asinine! From what the presentation on the California side that would never happen there. There is very strict monitoring and actual evidence of interference in the water table or the water body, in Oregon that is not the case, so I would again ask California again that threshold does that happen and I would encourage Oregon to take a more scientific approach rather than a guess modeling program that one drop off water effects it.

Richard Marshall, President, Siskiyou Water Users Association

I am Richard Marshal a rancher in Scott Valley California and president of the Siskiyou Water Users Association and the first thing I would like to do is call to the attention of Mr. Byler, a letter I sent on June 3rd and I was hoping to get a response to before we had this meeting because it has to do with this meeting and haven't gotten one yet, the only response I got was that you had forwarded it to Chrysten Lambert for answers. So the next thing I want to do is read from Article 9 relating to administration of the Klamath Compact It is hereby created a commission to administer this Compact. The Commission shall consist of three members; the representative of California shall be the Water Resources and the representative of Oregon shall be the state engineer, are you the state engineer of Oregon on water? So the next questions posed in here in Article 9 is that the President of the United States shall appoint a federal representative that shall be designated to serve as provided by the laws of the United States. Do you have a letter from President Trump appointing you to that position? Then I will read onto the conflict of interest situation, in the OMB directions provided for interstate water compact commissions it says, this is the definition of your job, as the President's representative on the commission, he or she should avoid identifying itself with any agency, program, or local faction or sectional interests federal representatives should maintain a neutral position on all matters. Now I know you have written numerous articles that are contrary to the Compact and you've had them in numerous magazines, including the KWA newsletter. I know that your father is on the board for the KRC who will benefit if they remove these dams. In addition to that you have been president, I don't know if you still are of the Trout Unlimited group is that correct, not answering? Ok, anyways I just pose these as reasons why I said at the outset of the meeting that you should not be the commission chairman or the federal representative for those various reasons and that so this meeting is not effectively put together the way it should be uh as to issues, one of the issues I raise is water quality, the water that comes out of Oregon has never been discussed in the Compact Commission and its one of the issues in the Compact Commission that they are supposed to handle that issue and further to Mr. Simmons he and I spoke a little, he gave a great talk about the compact but a lot of what was missing in my opinion was what happened in Siskiyou County, the people who were involved in Siskiyou County served as the California Commission and the fact that both the Oregon California Commissions when they were put together by the people in those respect states

to represent them and the Compact was a result of the meeting with those seven people that were involved at that time, the Presidents representative and three each from California and Oregon.

Chair thanked those that gave public comment.

There being no further business, the meeting was adjourned.

Respectfully submitted,

Jennifer Ranstrom-Smith

Klamath River Compact Commission Staff Support

Public Written Comment:

Klamath River Basin Compact

Between the States of Oregon & California

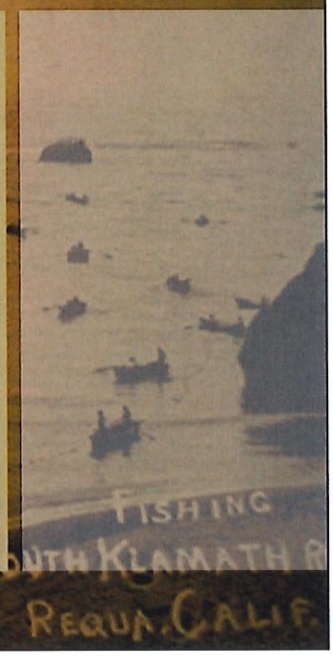
1

Subjects to be Covered

- BROAD OBSERVATIONS
- DRIVING FACTORS
  - How they were addressed, if at all

2

Topics not Covered



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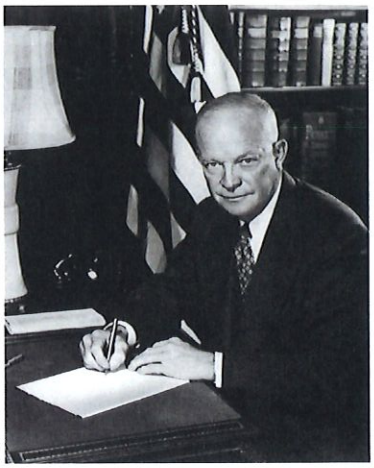
Broad Observations

A LOT of Stuff Happened in the 1950's



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Broad Observations

A LOT of Stuff Happened in the 1950's

- **1950:** California sued COPCO (PacifiCorp's predecessor) over flow fluctuations below COPCO developments
- **1950:** OR Attorney General changed historic position regarding Klamath Project water rights
- **1951:** COPCO applied for water rights for proposed J.C. Boyle, and for a federal license for J.C. Boyle and (ultimately) Copco No. 1 and Copco No. 2, other facilities
- **1954:** FPC (FERC) issued license for Project 2082, with conditions related to Klamath Irrigation Project
- **1954:** Authorization of Talent Division of the Rogue River Basin Project
- **1955:** Authorization of Trinity River Division of the Central Valley Project

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Broad Observations

A LOT of Stuff Happened in the 1950's

- **1956:** COPCO and Reclamation entered renewed, extended contract for Link River Dam operation and power for Klamath Project
- **1956:** FERC license for Project 2082 became effective
- **1957:** California and COPCO settled lawsuit: Iron Gate Dam to be constructed once it has been added to FERC license
- **1957:** Klamath River Basin Compact approved by both states' legislatures and Congress
- **1957:** "Off-Project" power contract entered between COPCO and KWUA
- **1959:** Howard Prairie Reservoir built

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Broad Observations

Regrettably but realistically, the Compact has not achieved its purposes "to facilitate and promote the orderly, integrated and comprehensive development, use, conservation and control [of water for multiple purposes of the Klamath River Basin] ...and to remove causes of present and future controversy..."

ARTICLE I

PURPOSES

The major purposes of this compact are, with respect to the water resources of the Klamath River Basin:

A. To facilitate and promote the orderly, integrated and comprehensive development, use, conservation and control thereof for various purposes, including, among others: the use of water for domestic purposes; the development of lands by irrigation and other means; the protection and enhancement of fish, wildlife and recreational resources; the use of water for industrial purposes and hydroelectric power production; and the use and control of water for navigation and flood prevention.

B. To further intergovernmental cooperation and comity with respect to these resources and programs for their use and development and to remove causes of present and future controversies by providing (1) for equitable distribution and use of water among the two states and the Federal Government, (2) for preferential rights to the use of water after the effective date of this compact for the anticipated ultimate requirements for domestic and irrigation purposes in the Upper Klamath River Basin in Oregon and California, and (3) for prescribed relationships between beneficial uses of water as a practicable means of accomplishing such distribution and use.

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Broad Observations

The challenges and conflicts presented and resolved in the Compact were not related to then-unanticipated laws and precedent that were to follow.

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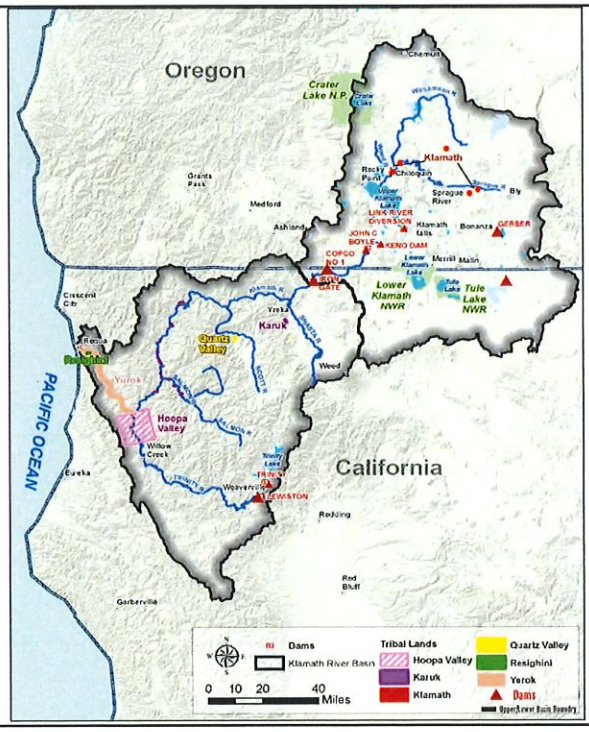
Driving Factors for the Compact Negotiation

(SOME OF THESE OVERLAP OR ARE INTERRELATED)

- Hydropower development control and purposes (who, and for what)
- Protection of then-future-potential irrigation development
  - Disputes over potential scope of development of Klamath Irrigation Project (how much irrigated land could develop under the 1905 appropriation made for the Project?)
  - Assurance of protection / priority for then-future-potential irrigation development in Upper Klamath Basin generally; concern that future hydro development between Keno and Copco No. 1 would limit future irrigation reliant on diversion upstream of Keno (for use in both states)
  - "Federalism" concerns over U.S. and COPCO contracts
  - Protections of "area of origin" generally
    - Envisioned developments for irrigation in Shasta and Scott Valleys; concerns over potential out-of-basin exports
- Concerns over flow fluctuations below hydro developments
- *Some but not all of these factors were addressed in the ultimate Compact*

9

Upper & Lower Klamath Basins



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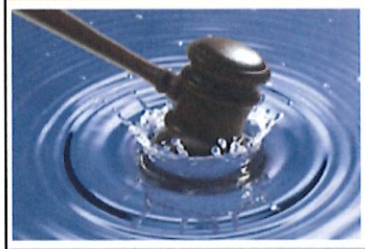
COMPACT DEVELOPMENT:
A CHRONOLOGY RELEVANT TO ARTICLES III AND IV



- The fundamentals of western water law
  - Intent
  - Diversion
  - Application to beneficial use with reasonable diligence

  "Appropriations," beneficial use, water rights and inchoate rights
- **Feb. 1905:** special statute for Reclamation Projects in Oregon ("Chapter 228")
  - United States may file a notice with the State Engineer of intent to use water for projects developed under the 1902 Reclamation Act
  - The water so identified is "deemed appropriated" by the United States and not available for appropriation by others unless released in writing
- **May 1905:** Reclamation Service filed a notice of intent to utilize all water of the Klamath Basin for the Klamath Project (yes, *all*)

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COMPACT DEVELOPMENT:
A CHRONOLOGY RELEVANT TO ARTICLES III AND IV

- **1916:** COPCO was operating Copco No. 1 in California; planning Copco No. 2 and more. It propositioned Reclamation that COPCO could:
  - Build and operate Link River Dam; release (for downstream generation) only water surplus to Project needs
  - Sell power to Reclamation and Project water users at low cost
- **1917:** COPCO and Reclamation entered 50-year contract
  - COPCO to build Link River Dam; transfer title to Reclamation
  - Subordinates downstream power use to Project irrigation use
  - Low cost power to Reclamation and Project users
- **1917-18:** *In re Waters of Umatilla River*, 88 Or. 376: Appropriations under the special legislation (Chapter 228) are not subject to a diligence requirement; water is not available to others for appropriation unless and until "released"
- **1917-1930's:** COPCO-Reclamation Contract highly controversial

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COMPACT DEVELOPMENT:
A CHRONOLOGY RELEVANT TO ARTICLES III AND IV

- **1925:** OR Attorney General Opinion: there is no water available for new appropriation in the Klamath Basin, given Reclamation's 1905 notice to use it all
- **1930:** OR Attorney General Opinion: State Engineer improperly issued a water right permit to COPCO for a new development in Oregon; permit should be rescinded; all water is appropriated per the 1905 notice for the Klamath Project.
- **1950:** OR Attorney General: I changed my mind. Water rights under the Klamath Project have to be perfected with diligence. To the extent water has not been put to use by the Klamath Project by now, it is available for appropriation.
- **1951:** COPCO applies for water rights and a FERC license for Big Bend No. 2 (now JC Boyle)

Many Protests and Objections to COPCO's applications

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COMPACT DEVELOPMENT:
A CHRONOLOGY RELEVANT TO ARTICLES III AND IV

- Department of Interior's position on proposed J.C. Boyle:
  - There is no water available for appropriation, all is still deemed appropriated by U.S.; Oregon A.G. is wrong
  - Currently, Project serves ~ 190,000 acres
  - DOI envisions additional storage, enlargement of the Project, to up to ~ 600,000 acres; including facilities serving internal "extensions" and Red Rock Valley, Butte Valley, Oklahoma District, others: all under 1905 right
  - Also future irrigation on Klamath Reservation
  - DOI envisions federal development of low-cost power on the River
    - Serve new irrigate development
    - Critical to existing irrigate development
    - 1917 Contract with COPCO will expire soon

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COMPACT DEVELOPMENT: A CHRONOLOGY RELEVANT TO ARTICLES III AND IV

- **1952:** FERC license issued for J.C. Boyle, Copco No. 1, Copco No. 2
  - Contingent on extension of 1917 Contract for duration of license (50 years) relative to low-cost power
  - FERC says water rights dispute is not our business, state law governs
- **1953 and 1955:** KWUA-COPCO-US negotiations began on extended contract for Link River Dam operations and power sales to Project.
- **1953:** States' appointed Klamath River Compact Commissions (negotiators)
  - General intent that Link River Dam contract extension and Compact negotiations be consistent, parallel
  - Commissions initially opposed Reclamation COPCO contract renewal until scope of future development could be identified and future irrigation protected through a Compact

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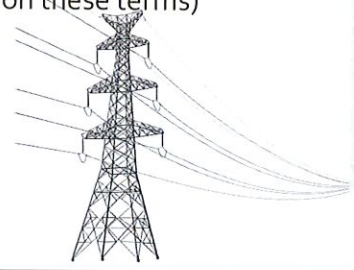
COMPACT DEVELOPMENT: A CHRONOLOGY RELEVANT TO ARTICLES III AND IV

- **1956:** COPCO and U.S. entered renewed, 50-year contract
  - Low cost power to Reclamation and Project water users
  - COPCO's use of water subordinated to the Project (and refuge use);
- A negotiated FERC license amendment and the state water right permit for J.C. Boyle, subordinated COPCO's use of water to future non-Project irrigation development (State negotiators withdrew objections to renewed contract based on these terms)



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COMPACT RESOLUTION OF THE ABOVE UPPER BASIN WATER AND POWER DISPUTES

- Compact Article III resolved issues over priority of uses and expanded irrigation[1]
  - "Recognizes vested water rights, including rights vested in the future, in the Klamath Project service area (a geographic area roughly similar to then, and today's, Klamath Project)
  - For post-Compact (post-1957) state law appropriations in the Upper Klamath Basin, there is a priority based on use rather than date of appropriation
    - Domestic and irrigation have priority over all other uses, except:
      - This use priority for new irrigation is limited and conditioned:
        - Maximum new acreage: OR 200,000, CA 100,000
        - Priority does not apply to exports from Upper Klamath Basin (except diversion from Four Mile Drainage); no exports from Upper Klamath Basin in CA
        - Return flow must be returned above Keno (except Four Mile diversion)

1 Related and overlapping limitations occur in the FERC license, 1956 Contract, and water right permit conditions.

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COMPACT RESOLUTION OF THE ABOVE UPPER BASIN WATER AND POWER DISPUTES

- Compact Article IV addressed power development:

  "It shall be the objective of each state . . . to provide for the most efficient use of available power head . . . in order to secure the most economical distribution and use of water and lowest power rates which may be reasonable for irrigation and drainage pumping, including pumping from wells."

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OTHER THREADS

"LOWER BASIN": CONCERNS OVER EXPORTS, PROTECTION OF IN-BASIN USE FOR SHASTA AND SCOTT VALLEYS AND PROXIMATE COMMUNITIES

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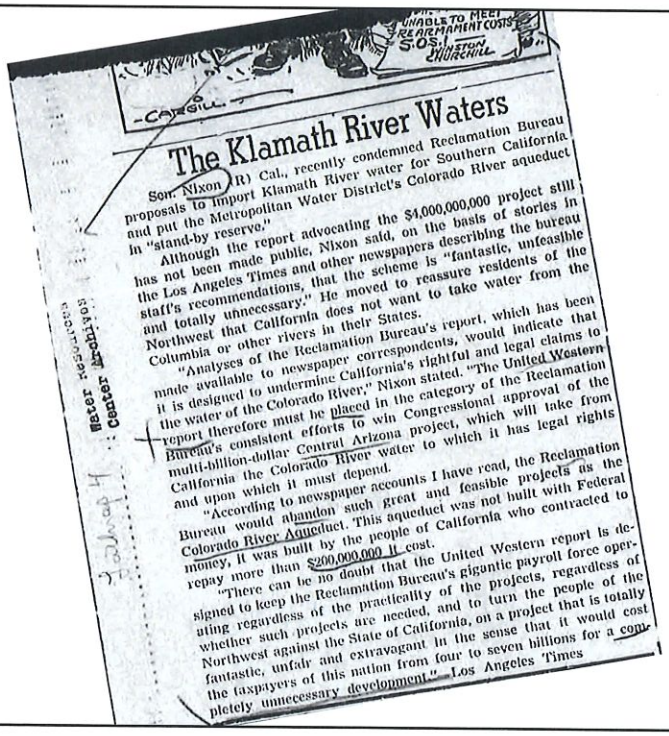
Sen. Nixon…Condemned Reclamation Bureau Proposal to Import Klamath Water for Southern California…



Water Resources Center Archives

The Klamath River Waters

Sen. Nixon (R) Cal., recently condemned Reclamation Bureau proposals to import Klamath River water for Southern California and put the Metropolitan Water District's Colorado River aqueduct in "stand-by reserve."

Although the report advocating the $4,000,000,000 project still has not been made public, Nixon said, on the basis of stories in the Los Angeles Times and other newspapers describing the bureau staff's recommendations, that the scheme is "fantastic, unfeasible and totally unnecessary." He moved to reassure residents of the Northwest that California does not want to take water from the Columbia or other rivers in their States.

"Analyses of the Reclamation Bureau's report, which has been made available to newspaper correspondents, would indicate that it is designed to undermine California's rightful and legal claims to the water of the Colorado River," Nixon stated. "The United Western report therefore must be placed in the category of the Reclamation Bureau's consistent efforts to win Congressional approval of the multi-billion-dollar Central Arizona project, which will take from California the Colorado River water to which it has legal rights and upon which it must depend.

"According to newspaper accounts I have read, the Reclamation Bureau would abandon such great and feasible projects as the Colorado River Aqueduct. This aqueduct was not built with Federal money, it was built by the people of California who contracted to repay more than $200,000,000 it cost.

"There can be no doubt that the United Western report is designed to keep the Reclamation Bureau's gigantic payroll force operating regardless of the practicality of the projects, regardless of whether such projects are needed, and to turn the people of the Northwest against the State of California, on a project that is totally fantastic, unfair and extravagant in the sense that it would cost the taxpayers of this nation from four to seven billions for a completely unnecessary development."—Los Angeles Times

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"LOWER BASIN": CONCERNS OVER EXPORTS, PROTECTION OF IN-BASIN USE FOR SHASTA AND SCOTT VALLEYS AND PROXIMATE COMMUNITIES

- California Water Plan (developed from late 1940's-mid 1950's)
  - Contemplated massive exports to Central and Southern CA (State filings for reservoirs at Happy Camp and Hamburg Reservoirs)
  - Also contemplated in-basin developments/storage for Shasta and Scott Valleys (e.g., State filings at Iron Gate)
  - Local planning activities in Siskiyou

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CONCERNS OVER EXPORTS, PROTECTION OF IN-BASIN USE FOR SHASTA AND SCOTT VALLEYS AND PROXIMATE COMMUNITIES

- Compact left State filings untouched (n.b. the state filings for export projects have area-of-origin conditions and the state filings for local development have temporal priority one month before the export filings)
- Article VII: No diversion of water out of Jenny Creek that the Compact Commission determines is needed for use on land within Jenny Creek Basin

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OTHER THREADS: FLOW FLUCTUATIONS

- Diurnal flows fluctuated wildly below COPCO No. 2
  - Bad for fish and fisherpersons
  - California sued COPCO, ultimately resulting in Iron Gate Dam being added to Project 2082 to provide regulation
  - Draft Compact term on flow fluctuation / regulation was ultimately dropped

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OTHER COMPACT PROVISIONS

- ARTICLES V-VI: INTERSTATE RIGHTS FOR MEASURING DEVICES; ACCESS AND PROPERTY IN THE OTHER STATE
  - Mutual grants of rights as necessary to measure; States to measure, monitor as necessary to monitor compliance, etc.
- ARTICLE VII: POLLUTION CONTROL
  - Emphasizes need for cooperation and provides powers for the Commission
- ARTICLE IX: ADMINISTRATION – THE COMMISSION
  - Authorities and responsibilities are as stated
  - Some authorities and responsibilities that were considered at one time or another during negotiation:
    - Take over Klamath Project
    - Be a Bi-"State Engineer", with the two states ceding control over allocation of water within certain sideboards

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QUESTIONS?

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Siskiyou County Water Users

June 3, 2019
Tom Byler
Director Oregon Water Resources
C/o Jennifer Ranstrom-Smith
725 Summer Street NE, Suite A
Salem, OR 97301

RE: Klamath Compact Commission

Dear Mr. Byler,

The Siskiyou County Water Users (SCWUA) has received indirectly notice of the impending meeting of the Klamath Compact Commission set for June 18 in Klamath Falls. We have a number of members who are thoroughly versed in the origination and legal nature of the Klamath Compact and as you probably are aware it was our State Senator, Mr. Randolph Collier representing Siskiyou County, who provided the leadership leading to the development of the Compact. In fact one member of our Water Users Board is a descendent of a member of the Siskiyou Board of Supervisors who authorized the participation in the Compact. In addition Mr. Frank Lathrop an advisor of Siskiyou County and Senator Collier served as the Secretary of the joint Compact Commission originating Board.

SCWUA also, as you may be aware, have been concerned and have raised the question with the Federal Energy Regulatory Commission regarding the role of the Klamath Compact in the Dam Retention process as well as the question of the Compact Clause of the U.S. Constitution and the Scenic Rivers Act and its application to the Klamath River. Our group was responsible for placing "Measure G" on the ballot a few years ago in which the voting public overwhelmingly voted by nearly 80% to retain the Klamath Dams. Siskiyou County clearly has a vested interest in the operation of the Klamath Compact as the County of Siskiyou Board of Supervisors was intimately involved in many aspects of the origination of the Compact itself. In addition the County has nearly 60% of the frontage of the Klamath River running through it.

It is with this background that we feel compelled to ask the following questions regarding the calling of a Compact meeting evidently through the auspices of the Oregon Water Resources Board.

1. What is your authority for calling a meeting of the Klamath Compact Commission?

2. Could you provide us with a copy of the set of **Rules and Regulations** governing the Commission operations?

3. Who is chairing the meeting?

4. Who is the Federal Representative and why is the meeting notice not signed by the Chairperson or on official Klamath Compact Commission letterhead.

5. Why is the California Water Resources Board not represented in the Notice?

6. What are the steps that should be pursued to place a matter on the agenda at this or a future meeting? One such issue appropriately under the auspices of the commission is the quality of the water arriving in California from Oregon.

7. Who is the Executive Director of the Commission charged with maintaining the Commission records and where are those records maintained for public inspection?

8. What is the location of the Commission's office?

9. Why is a meeting being called with so little notice after a hiatus of more than ten years? It is our understanding that the last meeting of the Commission was in 2006.

We would appreciate your answers to the above questions.

Sincerely yours,

Siskiyou County Water Users
President
Richard Marshall

Cc: Congressman Doug La Malfa
Siskiyou County Board of Supervisors
Assemblyman Brian Dahle

Oregon
Kate Brown, Governor

Water Resources Department
North Mall Office Building
725 Summer St NE, Suite A
Salem, OR 97301
Phone (503) 986-0900
Fax (503) 986-0904
www.wrd.state.or.us

June 6, 2019

Richard Marshall, President
Siskiyou County Water Users Association
347 N. Main Street
Yreka, CA 96097

Dear Mr. Marshall:

I received your letter dated June 3, 2019 asking a series of nine questions relating to the Klamath River Compact Commission. I am forwarding your letter to Chrysten Lambert, Chairperson of the Klamath River Compact Commission. With this letter, I am recommending that your June 3 communication be considered as a public comment to the Commission.

Sincerely,

Thomas M. Byler, Director
Oregon Water Resources Department

C:
Chrysten Lambert, Chairperson, Klamath River Compact Commission
Curtis Anderson, California Water Resources Department

Provided by Dr Richard Gierak
6/18/19

Office of the City Attorney
Yreka, California

DOHN R. HENION
City Attorney
City Prosecutor

P.O. Box 886
Crescent City, CA 95531
(707) 464-9761

June 18, 2019

Board of Commissioners
Klamath River Basin Compact Commission
Hand Delivered
Public Comment

Subject: City of Yreka's Request for Addition of Future Compact Agenda Item

Honorable Commissioners:

The States of Oregon, California and Federal Government entered into the Amended Klamath Settlement Agreement ("AKSA"). That agreement provides:

> ¶ 7.2.3 "Assessment and Mitigation of Potential Impacts to the City of Yreka:
> "The Parties collectively and each Party individually shall agree not to oppose the City of Yreka's continued use of 1966 California State Water Right Permit 15379, which provides for the diversion of up to 15 cfs for municipal uses by the City of Yreka."
> It additionally provides for assessment, *mitigation*, and/or *funding to address any impacts resulting from implementation of the Settlement, on the ability of the City to divert water consistent with its Water Right Permit 15379.*

Presently Yreka's permit contains a 15 CFS in stream bypass requirement for Fish and Wildlife purposes. Accordingly, at least 30 CFS must be present in Fall Creek for Yreka to fully utilize its 15 CFS domestic water rights.

The California Department of Fish & Wildlife has a junior 10 CFS water right for hatchery purposes. According to the Klamath River Recovery Corporation's Definite Plan, a six-million-dollar hatchery is planned to be constructed next to the City's water diversions. This hatchery will raise Coho, Chinook and Steelhead. To keep the hatchery operational, Yreka requests DWR to reduce the 15 CFS bypass condition in Yreka's diversion permit by the 10 CFS that DFW is permitted.

The hatchery will raise threatened and endangered species which could deleteriously affect Yreka's right to take under its permit. As you know, the compact provides its first priority in water allocations to domestic water supply. The compact's third priority is for fish and wildlife purposes. Yreka proposes to resolve any conflict arising from the hatchery's purpose of improving endangered and threatened species conservation through the entry of safe harbor agreements with state and federal officials to provide assurances that hatchery construction will not further burden Yreka's right to take and to provide state and federal Endangered Species Act incidental take protection for the city.

The present water only exists at that level because PacifiCorp has a pre-code water right to divert 16.5 cfs from Spring Creek to its Fall Creek Hydroelectric facility. Without this diversion Yreka will not have enough water. FERC had indicated that it intended to impose a condition to discontinue this diversion during the summer months. It would be in the joint interests of Yreka, state and federal Fish and Wildlife interests to join together to ensure that this condition is not imposed if FERC ultimately permits the decommissioning of the dams.

Thank you for your consideration of placing this on a future agenda.

Respectfully Submitted,

Dohn Henion
City Attorney, City of Yreka

Provided by Dan
6/18/19

Office of the City Attorney
Yreka, California

DOHN R. HENION
City Attorney
City Prosecutor

P.O. Box 886
Crescent City, CA 95531
(707) 464-9761

June 18, 2019

Board of Commissioners
Klamath River Basin Compact Commission
Hand Delivered
Public Comment

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Thank you for your consideration of placing this on a future agenda.

Respectfully Submitted,

Dohn Henion
City Attorney, City of Yreka

Rcvd 6/18/19

Dr. Richard Gierak
June 18, 2019

Re: Proposed removal of Klamath Hydroelectric Dams

Members of the Klamath River Compact Commission;

The Commission was acted upon by the Congress of the United States on August 30, 1957 wherein it is your responsibility to see to it that the waters of Northern California and Southern Oregon are properly utilized for agriculture, hydroelectric power and recreational use. It is now time for you to make it clear that the removal of four hydroelectric dams are not a viable plan. The entire plan is to allow for the sake of Coho Salmon production in the Klamath Basin. You must recall that prior to any dams on the Klamath River there were never Coho Salmon in the Basin. Federal Judge Michael Hogan in 1999 deemed that Coho Salmon were not indigenous and all listings in Southern Oregon and California waters were deleted. These Coho were planted from the Cascadia hatchery in Central Oregon based on genetic analysis. I also have in my possession documents from both the Shasta and Karuk Nations indicating that Coho were never native to the Klamath Basin.

In addition to this information this proposed dam removal is in violation of the Constitution whereas Siskiyou County, Jackson County and Klamath County voters have clearly voted against the removal of these dams.

It is also in violation the 1902 Reclamation Act as tens of thousands of agricultural acres will be lost by this absurd move.

The Klamath River was designated a Recreational River within the National Wild & Scenic Rivers System in 1981 and removal of these dams is a direct violation of this Act.

It is also in violation of the Dormant Commerce Clause wherein no State may take any action on navigable rivers wherein the Klamath River is so designated by the Federal Government.

The Federal Endangered Species Act is also violated as no indigenous species may be listed or acted upon as Federal Judge Hogan in 1999 so deemed.

Violation of Rogue Valley Oregon Irrigation Rights as removal of these dams would reduce approximately 40% of water from the Klamath River that now goes to Southern Oregon for agriculture which would result in serious loss of agriculture that now stabilize the economy of Southern Oregon.

Serious impact on power costs in Northern CA and Oregon as these hydroelectric dams supply Northern California and most of Oregon homes and businesses with the least expensive power available. The average homeowner is liable for approximately $200 per month and with the proposed natural gas power supply it would increase their costs to approximately $600 per month.

Serious fire danger to all in Siskiyou, Klamath and Jackson Counties as the dams supply fire helicopters access to water supply to fight forest fires. Removal of these dams would force said fire helicopters to much longer time delays to fill their buckets and thereby expose all to longer wait times and possibility of loss of lives and property.

Possible loss of life and property to all adjoining the Klamath River due to

occasional flooding wherein Iron Gate Dam was constructed to serve to protect all that lived on the banks of the Klamath River from catastrophic flooding events. Without this dam property values would fall and expose all with the possibility of loss of life and property.

According the Stephen Koshy, former director of the Central water commission, the ministry of water resources at the Government of India has stated that it is not technologically feasible to remove the Iron Gate and J.C. Boyle earth dams as they would totally collapse causing serious flooding to all adjoining properties and condemn all to serious toxic materials.

Based on this information I respectfully ask that you utilize your position to put a stop to this ludicrous proposed plan.

Thank you for your time and understanding,

Dr. Richard Gierak
5814 State Highway 96
Yreka, Ca. 96097
530 475-3212

Rcvd 6/10/19

Dr. Richard Gierak
5814 State Hwy 96
Yreka, CA. 96097
5/27/19

FERC

Re: KRRC plan to destroy Klamath River Dams under the 2016 Amended Klamath Hydroelectric Settlement Agreement. (KHSA)

It has come to my attention that FERC was under an Obama presidential mandate to approve removal of these dams, however, the present administration has removed that order and the following information should make it clear that these dams should not be removed.

(Washington, DC) – Congressman Doug LaMalfa said: "Before Secretary Bernhardt was confirmed as head of Interior, I made it clear to him our wishes for the Department to retract the letter of support for Klamath Dam removal issued under the Obama Administration. I'm glad to see he listened to our concerns. This course-reversal by Interior is a big victory for those fighting this misguided dam removal and a positive development for Northern California – we need to support new and existing water infrastructure projects, not tear them down. Siskiyou and Klamath Counties have voted overwhelmingly to retain the dams. I thank Secretary Bernhardt for using input of local citizens who are adamantly against this project to make this important decision."

On October 17, 2016, President Obama's Secretary of Interior Sally Jewel sent a letter to FERC urging the approval of an application to remove the Klamath Dams. On May 17, 2019, Secretary Bernhardt reversed that stance by Interior and has withdrawn the 2016 letter. FERC has authority to approve or deny the project

The KRRC plan to remove four dams on the Klamath River in Northern California and Southern Oregon by the States of California and Oregon are in violation of six Federal Laws. The people of Siskiyou County, Ca, Klamath County, OR and Jackson County, OR have voted to retain said dams. Secondly the Klamath River is designated a navigable river and is only subject to Federal laws and actions. States may not take action under any circumstance on navigable rivers in the U.S.

Violations include 1902 Reclamation Act, 1981 Wild & Scenic Rivers Act, Dormant Commerce Clause in Article 1 of the U.S. Constitution, Endangered Species Act, Klamath Basin Compact, Environmental Protection Agency and the Constitution of the United States.

Stephen Koshy, former director of the Central water commission, the ministry of water resources at the Government of India has stated that ; "It is not technologically feasible to remove Iron Gate and J.C. Boyle dams without catastrophic collapse"
Thank you for your position.

Dr. Richard Gierak

Rcvd 6/18/19

Dr. Richard Gierak
5814 Hwy. 96
Yreka, Ca. 96097
530 475-3212

Klamath River Compact Commission

Subject: Klamath hydroelectric dam removal

It has come to our attention that the removal of four hydroelectric dams on the Klamath River is in violation of five federal laws in addition to exposing all in the affected areas to greater dangers should these dams be removed. Not only Oregon fires but consider the number of California fires that would have been much worse without the reservoirs from these dams.

This communication is in reference to the proposed removal of four hydroelectric dams on the Klamath River. The entire proposal is based on the recovery of Coho Salmon which Federal Judge Michael Hogan in 1999 deemed were not indigenous and all listings in Southern Oregon and California waters were deleted. These Coho were planted from the Cascadia hatchery in Central Oregon

Thank you for your understanding of the seriousness of this proposed action. Proposed dam removal will kill all fish and wildlife dependent on the Klamath for ten years or more. Fire danger will increase without reservoirs used by fire helicopters and homes, businesses and towns along the river will be subject to severe flooding without the dams protecttions. It will also destroy thousands of acres of agricultural lands in northern California and Southern Oregon.

Illegal infractions regarding Klamath dam removals

Violation of the Constitution of the United States

Elections in Siskiyou County California and Klamath County Oregon voted 80% to retain the dams and removal of these dams would be in direct violation of the will of the people and the Constitution. Jackson County in Oregon has also indicated that their voters also want the dams to remain to assure them of irrigation waters and power costs.

Violation of the Reclamation Act of 1902

The Reclamation Act of 1902 (43 U.S.C. 391 et seq.) authorized the Secretary of the Interior to locate, construct, operate, and maintain works for the storage, diversion, and development of water for the reclamation of arid and semiarid lands in the western States.

Congress facilitated development of the Klamath Project by authorizing the Secretary to raise or lower the level of Lower Klamath and Tule Lakes and to dispose of the land uncovered by such operation for use under the Reclamation Act of 1902. Starting around 1912, construction and operation of the numerous facilities associated with Reclamation's Klamath Project significantly altered the natural hydrographs of the upper and lower Klamath River. Reclamation's Klamath Project consists of an

extensive system of canals, pumps, diversion structures, and dams capable of routing water to approximately 200,000 ac (81,000 ha) of irrigated farmlands in the upper Klamath Basin. Water diversions from from UKL for the Klamath Project affects river flows downstream of Link River and Iron Gate dams. It has come to my attention that in section 372 of the Act the water right becomes an integral part of the property and cannot be taken or reduced.

The headwaters of the Klamath River originate in Southern Oregon and flow through the Cascade Mountain Range to the Pacific Ocean south of Crescent City, California. The river extends nearly 250 miles and is just one of three waterways that pass through the Cascades to the Pacific. It is named after a native American name - klamet - meaning swiftness.

Violation of the 1981 National Wild & Scenic Rivers Designation

The Klamath River was designated a Recreational River within the National Wild & Scenic Rivers System in 1981. The Klamath River enters California from Oregon just north of the Goosenest Ranger District. Heading west it is impounded by two dams forming Copco Lake and Iron Gate Reservoir. Nine miles further west it turns south and follows Interstate 5 for a few miles before again turning west and entering the Happy Camp/Oak Knoll Ranger District. The next 85 miles provide many opportunities for recreation and scenic vistas before the river enters the Six Rivers National Forest.

Dam removal would release toxic material that would destroy the habitat for all species in addition to physically changing the course of the Klamath River in direct violation of the National Wild & Scenic Rivers designation.

Violation of the Dormant Commerce Clause

No State may impose any regulatory action against navigable rivers in the US of which the Klamath River is considered a navigable river. This would also prohibit removal of any dams located on a navigable river in the US by States.

Violation of the Federal Endangered Species Act

Under the Federal ESA only indigenous species can be listed and under the Final report of Coho Salmon by the Klamath Expert Panel Coho Salmon were planted from Cascadia, Oregon and are not indigenous to the Klamath. In early September 1999, federal district Judge Michael Hogan agreed, throwing out the coho's status as threatened under the E.S.A

Violation of Rogue Valley Oregon Irrigation Rights

Removal of these dams would reduce approximately 40% of water from the Klamath River that now goes to Southern Oregon for agriculture which would result in serious loss of agriculture that now stabilize the economy of Southern Oregon

Violation of the Klamath Basin Compact

The proposed removal of four hydroelectric dams on the Klamath are also in violation of the Klamath River Basin Compact which was ratified by Congress on August 30, 1997.

Serious impact on power costs in Northern CA and Oregon
Hydro electric dams supply Northern California and most of Oregon homes and businesses with the least expensive power available. The average homeowner is liable for approximately $200 per month and with the proposed natural gas power supply it would increase their costs to approximately $600 per month.

Violation of Union Veterans of the Civil War Cemetary
It has come to my attention that on the banks of the Klamath River in Northern California that there exists a Union Veterans of the Civil War cemetery that will be destroyed should they illegally remove four hydroelectric dams on the Klamath

Violation of Shasta Indian burial rights
At the present time Shasta Indian Tribe burial grounds are protected by Iron Gate Reservoir and removal of this dam their burial grounds could be exposed, plundered and desecrated.

Shasta Nation and Karuk Tribe deny Coho native
We have documentation from both the Shasta Nation and Karuk tribe denying Coho were indigenous to both the Rogue Valley and Klamath basin.

Violation of Siskiyou Counties water rights
Removal of these dams would be in serious loss of existing water rights as proposed solutions to avoiding this problem would be in serious possibility of failure and exposed to vandalism.

Possible loss of life and property to all adjoining the Klamath River
Due to occasional flooding Iron Gate Dam was constructed to serve to protect all that lived on the banks of the Klamath River from catastrophic flooding events. Without this dam property values would fall and expose all with the possibility of loss of life and property.

Serious fire danger to all in Siskiyou County
At the present time the dams supply fire helicopters access to water supply to fight forest fires. Removal of these dams would force said fire helicopters to much longer time delays to fill their buckets and thereby expose all to longer wait times and possibility of loss of lives and property.

Prior law decisions
In the late 90's a proposal was made to change the definition of Federal ESA regulations regarding endangered salmon to Ecological Society of America regulations which means that instead of regulations applying only to water and substrate would be changed to allow them regulations up to a mile from the banks of a river. Through the States of Idaho, Washington, Oregon and California State Granges we defeated this change.
In the early 2000's the Granges engaged Pacific Legal Foundation and listings of Coho in Northern California and Southern Oregon were cancelled as the Coho were not indigenous to these waters and rivers.
In the mid 2000's an attempt was made by environmental groups to list Chinook Salmon in the upper Klamath and the Siskiyou County Water

Users Association filed a de-listing petition which was successful and the Chinook listing was denied.
Submitted by;
Dr. Richard Gierak

Bachelors Degrees in Biology, Chemistry, Doctorate in the Healing Arts, Director of Interactive Citizens United, Director of New Frontiers Institute, Inc. Prior Participant of FERC and FPAT (Fish passage advisory team report) and HET (Hatchery evaluation team) Prior Vice President of Greenhorn Action Grange, Prior California State Grange Spokesman for the Water Committee, Prior National Whip of the Property Rights Congress of America, Representative of the Grange States of California, Oregon, Washington and Idaho regarding EFH regulations, Prior member of the Siskiyou County Water Users Assoc and former Executive member of the RNC.

OREGON STATE SENATE
900 COURT STREET NE, S-305
SALEM, OR 97301
DENNIS LINTHICUM
STATE SENATOR
District - 28
Chris Stein / Hydroelectric Specialist
Oregon Department of Environmental Quality
165 E. Seventh Avenue
Eugene, OR 97401
(202) 208-3100
July 17, 2018

Re: Opposition to J. C. Boyle Dam Removal 401 Water Quality Certification Approval Current and future Oregonians are, and should continue to be, beneficiaries of the monumental achievements in water infrastructure that has created Oregon's exemplary agricultural economy. The proposed removal of the four PacifiCorp dams, including the J. C. Boyle dam in Oregon, will destroy that very infrastructure.

Therefore, I stand alongside the majority of tax-payers and citizens in firm opposition to ODEQ's approval of a water quality certification request for the J. C. Boyle Dam removal project. The dam removal effort has too many uncertainties which bear negatively on long-term water quality, river habitat and fish spawning grounds due to the river dynamics and existing sedimentary buildup behind the dams. These dams serve several environmentally beneficial functions by first, creating a series of reservoirs which diminish turbidity and improve water quality as water moves through the system. These reservoirs are essentially giant settling ponds for particulate matter, including erosional debris, dead algae, cobble-sized sediment, pebbles, and valley-fill alluvium. Particulate organic

matter, that originates from Upper Klamath Lake, basin agricultural return flows, municipal and industrial sources in the Klamath Falls area, is largely trapped by the J. C. Boyle reservoir. The overall nutrient loads, including naturally occurring phosphorous rich material, settles behind the dam and never reaches the slower moving and shallower gradient portions of the river system. In turn, Copco 1, Copco 2 and Iron Gate Dam reservoirs also serve to keep sedimentary debris from flowing further downstream. Although, all four reservoirs are known to have elevated organic loads, they still serve as excellent sedimentary traps. Current estimates range from 15 million to 30 million cubic yards of sediment behind all four dams. The J. C. Boyle dam, had an estimate that was originally 1.5 million cubic yards. Today the estimate has been forced into a range that is deemed politically acceptable, at 600,000 cubic yards. This number is still a ridiculously large volume of sedimentary debris to consider flushing into the California river system. Flushing this debris would be unconscionable and would cause catastrophic harm to the overall river environment, downstream fish populations, spawning grounds and riparian habitats. Additionally, the toxicity of these enormous volumes of muck and sedimentary composites have not been sufficiently studied. Mining operations have long surrounded the river system throughout So. Oregon and No. California. A U.S. Geological Survey review of mine data (2005), highlights that these past operations released elevated amounts of toxic substances into the watershed, including arsenic, chromium, copper, lead, mercury, nickel, tungsten, uranium, and zinc. Oregon has been tightening rules, initiating moratoriums and legislating outright bans on various small-volume run-of-river dredge mining operations for years. Therefore, ODEQ should have serious reservations about the complexities involved in this potential toxic stockpile and be less insistent on approving this certification. Otherwise, the citizens will recognize this current 401-certification process is a politically motivated, agenda-driven water quality charade reeking with double-standards. The existing dams provide beneficial cleansing structures which allow the massive fresh-flow tributaries, and downstream volumes of low phosphoric, clean water from the western-slope to actually improve water quality as it travels the 250 miles to the Pacific Ocean. ODEQ should never considering allowing this potential toxic debris into the river system. First, it will never make it to the Pacific Ocean because deep boulder pockets, gravel and cobble bars and the subsequent multiple confluence embankments and ridges that occur along the lower elevations will trap the overwhelming tonnage of debris.

Additionally, the downstream gradient is too shallow, and the river flows will never be sufficient to mobilize the debris field. ODEQ's permit approval pretends to only be concerned about water quality in Oregon. This is indefensible because all of these toxins, muck and sedimentary debris will devastate the lower river. The downstream impacts cannot be ignored. From River Mile 160 to the Pacific Ocean the gradient approaches a mere two percent (.1893) grade (Figure-1). The drop to sea level is only a 1600-foot change in elevation, which is only 10 feet per mile. ODEQ certainly knows the typical waste-water or home septic system would require a slope of 110 feet per mile to drain efficiently.

While dam critics often complain that dam construction has altered the natural sediment transport processes reducing gravel bar and pocket gravel deposits and thereby reducing salmonid and lamprey spawning and rearing habitats, dam removal is not the solution. The purposeful disbursement of Oregon's debris field into California's portion of the Klamath River system would be an immoral act. In fact, the debris flow today, with the dams in place, is too heavy for the current channelized flows to successfully push into the Pacific. Even with the benefit of increase flows used for dissolution and flushing programs, which are regulated by the dam structures, there is insufficient flow to clear the mouth of the river.

The J. C. Boyle dam: • Provides cool water for the continued operations of Iron Gate Fish Hatchery which releases 7 million anadromous fingerlings annually • Provides clean, renewable, low-cost hydroelectric power for 70,000 households • Reduces peak flood flows by 25 percent • Reduces algae blooms in the Lower Klamath River • Reduces river temperatures in the Lower Klamath River • Reduces river sedimentation and debris buildup in the Lower Klamath River

• Provides for lakeside camping, hiking, fishing, boating and recreational opportunities

• Provides river rafting and business opportunities

• Provides reservoirs for bio-remediation, while trapping toxins and sediment

• Allows for flow control and remediation techniques, such as flushing flows

These positive attributes provide enormous public benefit and sufficient reason for ODEQ's denial of this step in the dam removal certification process.

In closing, there is another item that ODEQ must consider – Cost. Original cost estimates ranged from $1.4 billion and upwards. After 2010, when the US Congress first balked at funding the destruction of the Klamath Dams, there was an enormous effort to "find cost

reductions." The results offered nothing more than cost shifting and slight-of-hand congressional Gerry-rigging of payments from various agency-level accounts. Never-the-less,
the public was told of a new cost estimate of $800 million, a reduction of $400 million. Today, the Klamath River Renewal Corp. estimates total cost at $400 - $450 million dollars, an estimated reduction of nearly $1 billion. It appears that if we wait a couple of more years the cost would be halved again! I suggest, that a neat and tidy, $1 billion cost reduction from the original estimates with an overall price-tag of only $400 million cannot be legitimate, at least not using the same project scope and equivalent efforts. This begs the question, what items will be added to complete the dam removal project and who will fund future restoration and remediation efforts?

No doubt, tax-payers will end up paying the full-price. They will be burdened with millions of dollars of cost-overruns, future water quality issues, higher rates for base-load electricity, devastated habitat and riparian areas, and the destruction of private property, all because of an over-whelming, unfathomable mindset intent on destroying western civilization's technological advances.

Oregonians should be the beneficiaries of the monumental investments, hard work and successful achievements made possible by our state's water infrastructure. Oregon's status as a modern agricultural and technological engine has been made possible by inexpensive baseload electricity and abundant, well-managed water resources. Please ensure our heritage by denying approval for the 401 Water Quality Certificate for the removal of the J.C. Boyle dam.

Sincerely,

Dennis Linthicum

OR State Senate – District 28

Rcvd 4/16/19
DR. Richard
Gierak

Stephen Koshy

4122 Glenalbyn Drive, Apt # 108, Los Angeles, CA - 90065
Tel. 323-227-1546, E mail: stephen_koshy@sbcglobal.net

Formerly:

Director,
The Central Water Commission, The Ministry of Water Resources, **Government of India.** 1977 - 86

Member,
PEOPLES ACTION for DEVELOPMENT INDIA, Ministry of Agriculture, **Govt of India.** 1983 - 86.

Member,
Annual Working group for Nation's Irrigation Sector, (For each state in India) The Planning Commission, **Govt of India.** 1981 - 86.

Member Secretary,
Government's Committee to divert east flowing rivers of Kerala and Karnataka states toward the west. **Govt of India.** 1983 - 86.

Head of Office,
Preparing a Master Plan of Hydro - electric projects in the **Himalayan Nation of Bhutan.** 1974 - 1977.

Member,
Government of India's team to prepare an integrated development plan for the **Nation of Bhutan.** 1975 - 77.

Scholar,
The United Nations Development Program **AUSTRALIA** 1971 - 73.

Thesis: 'INDIA's AGRICULTURE POLICY: - A NEW STRATEGY." School of Public Administration, University of Southern California. **U.S.A.** 1979 - 81.

Graduate Studies:

University of Kerala, **INDIA.** 1950 - 56.

University of Queensland, **AUSTRALIA** 1971 - 73.

University of Southern California **U.S.A.** 1979-81

Institute of Economic Growth, **INDIA** - 1982.

Administrative Staff college of **INDIA.** - 1983

March 28, 2012

To: Thomas P. Guarino
County Counsel, County of Siskiyou
205 Lane Street, Yreka, CA - 96097

Dennis M. Tanabe
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205 Lane Street, Yreka, CA - 96097

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Rita Haas, Executive Assistant
Office of the County Counsel, County of Siskiyou
205 Lane Street, Yreka, CA - 96097

Subject: Klamath Facilities Removal - Sept 2011 (EIS/EIR).

Reference: My submittion on March 23, 2012, to the Honorable Supervisors.

I respectfully submit that it is not technologically feasible to remove the Iron Gate and J.C. Boyle earth dams. I reaffirm and reinforce my comments, edit and add a few missing details, such as the general cross sections of the earth dam.

This is an 'engineering' issue. I alerted BOR engineers of their error, justified my assertion, provided its scientific proof and also explained a few technical terms to assist even non technical people. The BOR has not responded, as required by law, customs and practices.

Civil Engineers learn in their 2nd year of engineering about an earth dam's three sections:

- An inner "Clay Core". The clay prevents reservoir water from leaking through.
- "Filters" on both sides of "Clay Core" that prevent clay particles from escaping.
- An outer "Gravel shell" that gives stability to the dam.

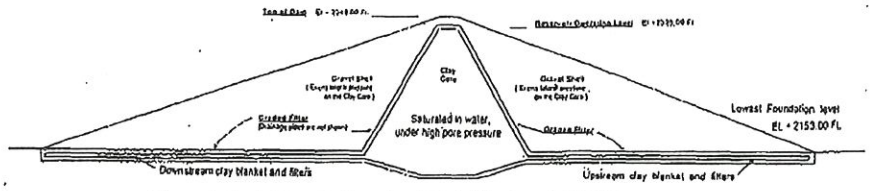
The "Gravel shell" exerts lateral pressure on the clay core. The "Clay Core" is topped with dry compacted gravel, to safely "confine" the Clay on all sides; by "Filters" on both sides and the weight of earth on top. Such "confinement" prevents the clay from yielding to the Gravel's pressure, even after the reservoir fills and the "clay" gets soaked in water.

Below are a few characteristics of clay.

- Individual clay particles are less than 2 microns in size, with microscopic space in between.
- Clay becomes weaker and softer with more water and its particles slide more easily over each other. With more water clay gradually becomes "plastic-like", then "liquid - like." The Swedish scientist Atterberg defined the "plastic" and "liquid" limits that are universally accepted.
- Clay has more strength if it is "confined"(restrained on all sides and prevented from yielding to pressure) than if it is "unconfined"(not restrained on all sides.) Its strength decreases when it is "unconfined" so that it will yield to external pressure and be squeezed out).

The "clay", after decades below water, develops high pore pressure (*pressure of water between its microscopic clay particles*). Any attempt to breach an earth dam, with its clay in such condition is unsafe. When the breach nears the clay's saturation level, the clay will yield to the Gravel's pressure, and the dam will collapse catastrophically. *It is a certainty, not a probable event.*

1.0. Scientific proof: Below is an earth dam's general cross section with the Iron Gate's elevations. This is from my enclosed letter to BOR dated November 2011.



The earth dam's Cross Section - Iron Gate's Elevations are shown.

1.1. During dam's construction, clay is "unconfined', but compacted "stone hard" with low moisture content. Clay attains high strength by expelling the voids and interlocking its particles. Its strength makes it possible to design the dam so that the "unconfined' clay could resist the Gravel's pressure during dam's construction. It is safe to fill the reservoir, only after "confining" the clay under the weight of the dry earth on top.

1.2. During the dams' operation, water under pressure enters the microscopic space in between the clay particles, saturates the clay and creates 'high pore pressure' (*the pressure of water between the microscopic clay particles*). This pore pressure is eventually in hydrostatic equilibrium with the outside water pressure. This is a high 174 ft water pressure for the Iron gate dam.

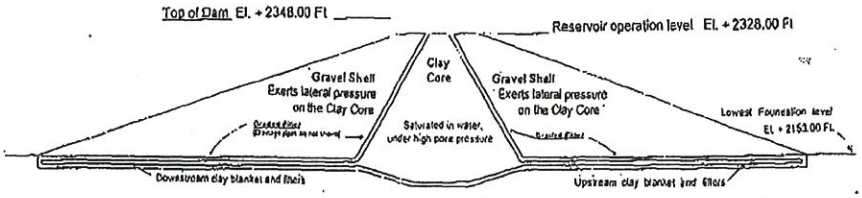
Clay's strength indeed decreases with more water, but the clay is "confined" and will not yield to Gravel's pressure because it is "confined." The dam is safe; the clay will not yield as long as the clay is "confined.'

1.3. After reservoir draw down, clay will take years to dissipate its pore pressure and to dry, due to its low permeability. If permeability is of the order of 10 raised to the power of minus 8, (i.e.,10) the pore pressure dissipates only @ a few inches per year). This is due to the "viscosity" of water and the *microscopic* pore space in between the *microscopic* clay particles.

1.4. Prior to breaching, clay core is "confined"((i.e., restrained on all sides, so that it will not yield to external pressure or be squeezed out). It is designed to resist the Gravel shell's pressure and the dam is safe.

1.5. During the "proposed action" the wet clay core will become "unconfined", it will yield to external pressure and be squeezed out. The dam will collapse catastrophically.

A general cross section of an earth dam, during breaching, with the Iron Gate's Elevations is reproduced below, from my enclosed letter to the BOR, dated November 18, 2011..



The earth dam's Cross Section during breaching.

2.0. My enclosed letters to the BOR and to the Honorable Board of Supervisors had my brief conclusions, recommendations, etc. The dams' catastrophic collapse, makes other issues moot. However, I mentioned a few, such as Stability of slopes, sediment behind dams, rate of draw down and preparation and review. *For the sake of brevity, I muted further comments.*

This is an engineering issue; not a political issue. The consultants made an error and BOR engineers misinformed the rest. You could demand from the BOR a response to my observations. A soul search, a departmental enquiry and a Congressional enquiry will be in order.

The decision makers will never determine to remove the dams if they are otherwise correctly informed. It is critical to inform the Honorable Governors of California and Oregon, the Honorable Secretary DOI, the Honorable Secretary DOE, the Honorable Senators of California and Oregon, the Honorable Congressmen and the Honorable elected officials from the area, and the public. As a Civil servant all my life, I feel compelled to intercede and correct a catastrophic error of epic dimensions.

I would repeat; it is possible to comply with the Endangered Species Act, with dams in place. BOR engineers could innovate a safe passage for the endangered Species of salmon with all the dams in place. Please contact me, if you need any more comments or assistance on this issue.

Respectfully submitted,

Stephen Koshy
3.28.2012
Stephen Koshy

Enclosure: My submission to the Honorable Board of Supervisors.
My letters to BOR.

Stephen Koshy

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Administrative Staff ollege of INDIA. - 1983

March 23, 2012

To: The Honorable Grace Bennett
Chair, County of Siskiyou Board of Supervisors
201 Fourth Street, Yreka, CA - 96097

The Honorable Jim Cook
Supervisor, County of Siskiyou Board of Supervisors
201 Fourth Street, Yreka, CA - 96097

The Honorable Ed Valenzuela
Supervisor, County of Siskiyou Board of Supervisors
201 Fourth Street, Yreka, CA - 96097

The Honorable Michael Kobseff
Supervisor, County of Siskiyou Board of Supervisors
201 Fourth Street, Yreka, CA - 96097

The Honorable Marcia H. Armstrong
Supervisor, County of Siskiyou Board of Supervisors
201 Fourth Street, Yreka, CA - 96097

Subject: Klamath Facilities Removal - Final Environmental Impact Statement / Environmental Impact Report, Sept 2011 (EIS/EIR) - Comments.

I respectfully submit this jointly to your Honors. Removing the Iron Gate and J.C. Boyle earth dams, as suggested by the "proposed action" is technologically not doable or safe. It will be disastrous. It is not merely an economic issue, it is an 'engineering' safety issue as well.

Engineering science provides this proof. These earth dams have "clay" in the middle, soaked in water for decades, with high pore pressure (*pressure of water between its microscopic clay particles, which I will explain later on also*). Any attempt to breach an earth dam, with its clay in such condition will cause the dam to collapse catastrophically.

I will justify my assertion, provide its scientific proof further and also explain a few technical terms to assist non technical people.

1.0. The Scientific Proof: A general cross section of an earth dam, with the Iron Gate's elevations, is on page 1 of my enclosed letter to the Bureau of Reclamation, dated November 18, 2011. An earth dam has three sections.

- An inner "Clay Core" to prevent reservoir water from leaking through.
- "Filters" on both sides of "Clay Core" to prevent clay particles from escaping. The "Filters" act along with the weight of dry earth on top to safely"confine"the clay (i.e., restrain it on all sides, so that it will not yield to external pressure or be squeezed out).
- An outer "Gravel shell" that exerts lateral pressure on (*in other words, squeezes*) the wet "Clay Core." The "Gravel shell" gives stability to the dam.

1.1. During dam construction, the clay is compacted "stone hard" with low moisture content, to resist the Gravel shell's pressure. Clay attains high strength on compaction with low moisture content, by expelling the voids and interlocking its particles. Clay's strength decreases with more water.

1.2. During dams' operation, water under pressure enters the microscopic space in between clay particles, saturating the clay and causing pore pressure (*pressure of water between its microscopic clay particles*). This pore pressure is eventually in hydrostatic equilibrium with the outside water pressure. This is a high 174 ft of water pressure for the Iron gate dam.

Below are a few more characteristics of clay.

- Individual clay particles are less than 2 microns in size, with microscopic space in between.

- Clay becomes weaker and softer with more water and its particles slide more easily over each other. Clay gradually becomes "plastic-like", then "liquid - like." The Swedish scientist Atterberg defined the "plastic" and "liquid" limits that are universally accepted.

- Clay's strength decreases when it changes from a "confined" state(i.e., restrained on all sides, so that it will not yield to external pressure or be squeezed out) to an "unconfined"state (i.e., not restrained on all sides so that it will yield to external pressure and be squeezed out).

The clay's pore pressure is kept low during construction, by optimizing its moisture content, by limiting the compacting rollers' weight and by constant monitoring. It is safe to fill the reservoir, only after "confining" the clay under the weight of the dry earth on top.

1.3. After reservoir draw down, clay will take years to dissipate its pore pressure and to dry, consistent with its low permeability. If the clay's permeability of is of the order of 10 to the power -8, (i.e.,10^{-8}) the pore pressure dissipates only at the rate of a few inches per year). This is due to the "viscosity" of water and the *microscopic* pore space in between the *microscopic* clay particles.

1.4. Prior to breaching, clay core is "confined"((i.e., restrained on all sides, so that it will not yield to external pressure or be squeezed out). It is designed to resist the Gravel shell's pressure and the dam is safe.

1.5. During the "proposed action" the wet clay core will become "unconfined" (i.e., not restrained on all sides so that it will yield to external pressure and be squeezed out). It will yield to the Gravel shell's pressure and the dam will collapse catastrophically.

A general cross section of an earth dam, during breaching, (with the Iron Gate's Elevations) is on page 2 of my enclosed letter dated November 18, 2011 to the Bureau of Reclamation.

1.6. Consequences of catastrophic collapse. The dam will collapse catastrophically. It will be a disaster of epic proportions. The lives of machinery operators on the dams' top and of people below, will be in peril.

Expensive models could predict the debris' specific shape after the dams' collapse. The debris will certainly envelope the diversion tunnel's "inlet" and "outlet". The reservoir levels will rebuild. Water will pressure its way through and over the collapsed debris. Expensive overhead cable ways will be hastily required to remove the debris, bucket by bucket. The future of Salmon will be adversely impacted.

2.0. Other issues: The earth dams' catastrophic collapse is the main issue. It makes other issues moot. However, I mentioned a few more errors and omissions to the BOR, both technological and administrative:

2.1. Stability of slopes. The earth dam's carefully graded "Gravel shell" is designed to withstand draw down, but the slopes aren't. Ground water levels have risen and will take years to come down to original levels. The side slopes are saturated with high pore pressure. The 174 ft deep reservoir will draw down in 68 days. The clays within the slopes could be similar to the fine sediment load, with low resistance and fail. The EIS/EIR failed to investigate slope stability during draw down.

World renowned Prof. A.W. Skempton's 4th Rankine Memorial lecture, in 1964 (Long term Stability of Slopes, *Geotechnique* 14, 75-102) and State of the Art Report 1969 (7th Int. Conf. Soil Mech. Found. Eng., Mexico,) are classics on the subject.

2.2. The sediment behind the dams. The EIS/EIR considers the sediment till Year 2002. It omits 18 years of sediment till 2020, when it proposes dam removal.

2.3. The rate of draw down. The EIS/EIR proposes an arbitrary draw down rate of 3 ft per day, it is not supported by any calculations or any experimental draw down.

2.4. Preparation and review. The management assigned a concrete specialist to prepare the Chapter on earth dam removal and a hydrology specialist to review it. The earth dam design and geo-technical sections have not applied their insight to avoid this costly error.

For the sake of brevity, I mute further comments.

3.0. Conclusion: The "proposed action" is certain to cause the dam's catastrophic collapse. It is a certainty since the earth dams' wet clay core will yield to outer Gravel shell's pressure. *It is not just a probability.*

The fatal error of catastrophic collapse, invalidates *all those Alternatives* that involve earth dam removal. The *Alternative Four* involving cutting a fish passage through the Iron Gate dams' saturated clay core is also not safe or doable for the same reason.

The EIS/EIR would contravene the National Environmental Policy Act (NEPA), the California Environmental Quality Act (CEQA), the Klamath Hydroelectric Settlement Agreement (KHSA), the Klamath Basin Restoration Agreement (KBRA) as well as many more statutes under the Oregon Department of Environmental Quality, the California Department of Fish and Game (CDFG), the US Environmental Protection Agency (EPA), etc.

The significant impact of the earth dams' catastrophic collapse, can not be avoided or mitigated. The Facilities Removal would not be completed within the State Cost Cap, since the collapsed debris cannot be left below running water in the river bed. Expensive overhead cable ways or other contrivances will be hastily required to remove the debris. The entire expense would be counter productive.

It is critical to inform Honorable Jerry Brown, Honorable Kitzhaber, Honorable Ken Salazar and concerned others in a timely manner, since a determination is due by March 31, 2012. Their Honors may please review my analysis, if necessary, with help from those without any conflict of interest and also enquire as to how the EIS/EIR's fatal error was allowed to happen.

4.0 Recommendation. My purpose is not merely to say that something has been wrong, but that something can be done about it. The DOI/BOR engineers can review the topography of the 4 dams and reservoirs, consider the data and innovate a new hydro-system passage.

The new hydro-system passage should provide the bulk of the Juveniles and the adult spawners a safe passage. This is an engineering problem and demands an engineering solution. The dams are to stay, the farmers to get irrigation water, hydro power to be retained and the Salmon to recover. I think, it is possible.

5.0 My experience in the subject: As Deputy Director, Earth Dams Directorate, Central Water Commission in India in 1963-64, I coordinated the designs and specification drawings for four major earth dams, later constructed in India: the Tawa, Bargi, Barna and Hsdeo. I've investigated major earth dams in the Indian Himalayas that were later constructed. This background has helped this effort.

The United Nations later trained me on "Stability of Slopes and Earth dam design." in the University of Queensland, Brisbane, Australia during 16 months in 1971-73. Dr. Peter James, an authority on the subject was my Mentor. Dr. James had researched under (Late) world renowned Prof. Sir, A.W. Skempton, of the Imperial College of London.

The Commonwealth of Education and Science, Australia arranged extensive training visits to major projects in Australia for several months. I had the rare privilege to obtain valuable insights from their senior engineers.

My information about the Klamath Removal project is very recent, initially from newspaper reports. The DOI sent me the Executive Summary in early October and the full Report on 28th October. I am a late comer to this issue. However, I have analyzed the data and information in the EIS/EIR.

I find from the EIS/EIR that the DOI held seven public scoping meetings, and received written, verbal and electronic inputs, but no one alerted the DOI of the danger of even trying to remove the earth dam. My analysis is purely technical. I have consulted no one. I have no political affiliation or membership in any environmental organization. Thanks for the opportunity to send some of my comments.

I enclose copies of my two formal letters dated November 18, 2011 and December 21, 2011 to the lead engineer, Bureau of Reclamation who authored the EIS/EIR. These letters remain unanswered. I request the Honorable Board of Supervisors, County of Siskiyou to kindly review my comments or refer to independent University professors of Civil engineering, who do not have a conflict of interest.

6.0. Acknowledgments I acknowledge the United Nations Development Program, the University of Queensland, Brisbane, Australia, Dr. Peter James , my Mentor, and the Commonwealth of Education and Science, Australia, whose far sight is now helping the United States on this issue.

I acknowledge my professors at the School of Public Administration, University of Southern California, Los Angeles, who taught me Public Policy and placed high expectations on me with their long past testimonials. I acknowledge my extensive experience in India and the patience, love and faith that my four children in the United States have put in me. All of them have made this effort possible. I give them thanks.

Please contact me, if you need any more comments or assistance on this issue.

Respectfully submitted,

Stephen Koshy 3.23.2012

Stephen Koshy

Copy to The Honorable Thomas P. Guarino, County Counsel, County of Siskiyou.

Enclosure: as above, my letters to BOR dated November 18, 2011 and December 21, 2011

Stephen Koshy

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December 21, 2011

To: Thomas Hepler. P.E.
Team Leader, Waterways and Concrete Dam Group
Bureau of Reclamation
Denver, Colorado.

Subject: Klamath Facilities Removal - Final Environmental Impact Statement / Environmental Impact Report, Sept 2011 (EIS/EIR) - Additional Comments.

My earlier comments on Nov 18th provided scientific proof that the proposed action to remove the Iron Gate dam and J.C. Boyle earth dam, is not safe or doable. The dams would collapse catastrophically.

The dams' catastrophic collapse made other issues moot. However, I raised a few more errors and omissions in the EIS/EIR; such as the slopes' stability, sediment release, draw down rate and technical specializations of preparer and reviewer. I am informed that geo-technical specialists were involved in creating the EIS/EIR. My additional comments reinforce my earlier comments (attached.)

1.0. <u>The dam's catastrophic collapse</u>. This event is certain to happen, not just a probability. The dam's clay core is saturated in water under pressure for 58 years and has high pore pressure (*pressure of water between the microscopic clay particles.*) The dam's instrumentation would reveal the pore pressures at different elevations.

The outer gravel shells exert lateral pressure on the clay core. Prior to "proposed action" to remove the dam, the clay is safely "confined" between filters and the weight of earth from top. The "confined" clay will not yield to the gravel shells' lateral pressure, and the dam is safe.

The "proposed action" to remove the dam, will remove the confining earth on top and will "un-confine" the clay, which will certainly yield to the gravel shells' pressure, and the dam will certainly collapse catastrophically.

2.0 <u>Other issues</u>.

2.1. <u>Stability of slopes</u>. EIS/EIR has meager information about the engineering geology of reservoir areas. The PanGeo (2008) study is "preliminary" about "current" conditions. There is no evaluation of the effect of 174 ft draw down on slope stability.

Chapter 3, para 3.11.3.5 mentions potential landslides: .... "relatively steep slopes, underlain by tuff. ..... wave action at the shoreline of the reservoir has eroded sand and volcaniclastic tuff beneath daltomite beds and has resulted in the calving of daltomite into reservoir creating vertical exposures as high as 20 ft in the diatomite." ....."the (fine grained) red volcaniclastic material underlying the hill slopes .... may be vulnerable to rapid erosion if subjected to concentrated water flows."

Chapter 3, Figure 3.11-2 identifies existing potential landslide areas in the Iron Gate and in the Copco 1 Reservoir areas. EIS/EIR has enough information to suggest the certainty of slope failures on draw down, but failed to investigate them. The slope failures will add to the sediment release'

2.2. The sediment behind dams. EIS/EIR must rectify its omission of 18 years' sediment from 2002 to 2020, and also add the estimated sediment from slope failures. It will change Appendix E.

2.3. Administrative issues. Honorable Jerry Brown, Honorable Kitzhaber, and Honorable Ken Salazar need to make legislation and a determination by March 31, 2012. Time is therefore of essence. It is critical to inform their Honors and concerned others in a timely manner.

The BOR Deputy Commissioner Operations; the Directors for Operations, Technical Resources and Technical Services Center, the Regional Director, the Engineering and Geo-technical Services Divisions and Group leader, may please concurrently review my analytical comments to assist the Special Advisor to Chief of Staff, the Honorable Commissioner and the Honorable Secretary.

3.0. Social and Public information issues. It is critical to inform the stake holders, the public and concerned others in a timely manner, since many are eagerly expecting a positive determination by March 31, 2012. Our President's declared policy demands transparency, responsibility and adherence to scientific evidence.

4.0. Conclusion: My earlier comments are attached with its Conclusions, Recommendations, My experience in the subject and Acknowledgments. These continue to apply.

As my earlier comments said, the dams are to stay and the Salmon to recover. BOR engineers can review the topography of the 4 dams and reservoirs, consider the data and innovate a new hydro-system passage to provide the bulk of the Juveniles and the adult spawners a safe passage. This is an engineering problem and demands an engineering solution. I think it is possible.

Again, my analysis is purely technical. I have consulted no one. I have no political affiliation or membership in any organization. Thank you for the opportunity to send my additional comments.

Please contact me, if you need any more comments or assistance on this issue. Please acknowledge and reply.

Respectfully submitted,

Stephen Koshy 12.21.11

Attached: My earlier comments dated Nov 18.

Stephen Koshy

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November 18, 2011

To: Thomas Hepler. P.E.
Team Leader, Waterways and Concrete Dam Group
Bureau of Reclamation
Denver, Colorado.

Subject: Klamath Facilities Removal - Final Environmental Impact Statement / Environmental Impact Report, Sept 2011 (EIS/EIR) - Comments.

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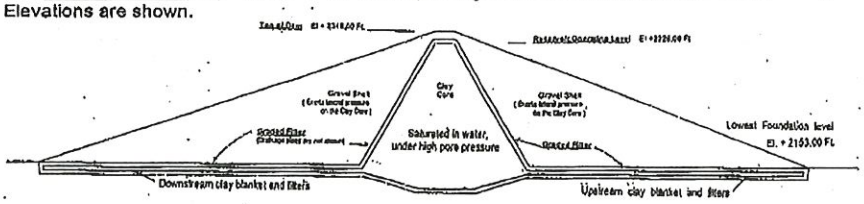

The earth dam's Cross Section - Iron Gate's Elevations are shown.

The earth dams have three sections.

- An inner "Clay Core" to prevent reservoir water from leaking through.
- "Filters" on both sides of the "Clay Core." They prevent clay particles from escaping. They also safely confine the clay below the weight of the dry earth on top.
- An outer "Gravel shell" that exerts lateral pressure on (*in other words, squeezes*) the wet "Clay Core." The "Gravel shell" gives stability to the dam.

1.1. During dam construction, the clay is compacted "stone hard" with low moisture content, to resist the Gravel shell's pressure. Below are a few characteristics of clay.

- Individual clay particles are less than 2 microns in size, with microscopic space in between. Clay attains high strength on compaction with low moisture content, by expelling voids and interlocking its particles. Clay's strength decreases with water.
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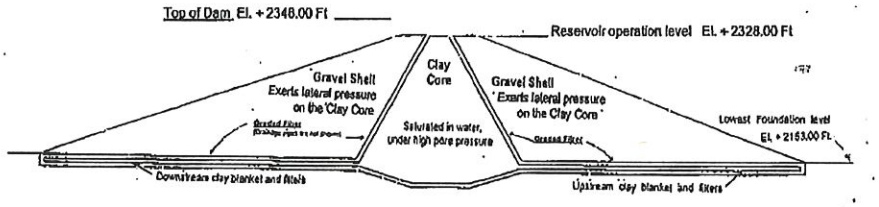
- Clay's strength decreases when it changes from a "confined" to an "unconfined" state.

The clay's pore pressure is kept low during construction, by optimizing its moisture content, by limiting the compacting rollers' weight and by constant monitoring. It is safe to fill the reservoir, only after confining the clay under the weight of the dry earth on top.

1.2. During dams' operation, water enters under pressure into the microscopic space between clay particles, saturating the clay and causing pore pressure (*pressure of water between its microscopic clay particles*). This pore pressure is eventually in hydrostatic equilibrium with the outside water pressure. This is a high 174 ft of water pressure for the Iron gate dam.

1.3. After reservoir draw down, clay will take years to dissipate its pore pressure and to dry, consistent with its low permeability. This is due to the "viscosity" of water and the *microscopic* pore space in between the *microscopic* clay particles. It will be dangerous to try to remove the dam, with its clay in such condition. The dam will collapse catastrophically.

1.4. Prior to breaching, the wet clay core is "confined". It is designed to resist the Gravel shell's pressure and the dam is safe.



The earth dam's Cross Section during breaching.

1.5. During the "proposed action" to remove the Iron Gate and J.C. Boyle earth dams, the wet clay core will become "unconfined." It will yield to the Gravel shell's pressure and the dam will collapse catastrophically.

1.6. Consequences of catastrophic collapse. The lives of machinery operators on the dams' top and of people below, will be in peril. Expensive models could predict the debris' shape after the collapse. The debris will envelope the diversion tunnel's "inlet" and "outlet". The reservoir levels will rebuild. Water will pressure its way through and over the collapsed debris. Expensive overhead cable ways will be hastily required to remove the debris, bucket by bucket. The future of Salmon will be adversely impacted.

2.0. Other issues: The earth dams' catastrophic collapse is the main issue. It makes other issues moot. However, I may mention a few more errors and omissions, both technological and administrative:

2.1. Stability of slopes. The earth dam's carefully graded "Gravel shell" is designed to withstand draw down, but the slopes aren't. Ground water levels have risen and will take years to come down to original levels.The side slopes are saturated with high pore pressure. The 174 ft deep reservoir will draw down in 58 days. The clays within the slopes could be similar to the fine sediment load, with low resistance and fail. The EIS/EIR failed to investigate slope stability during draw down.

World renowned Prof. A.W. Skempton's 4th Rankine Memorial lecture, in 1964 (Long term Stability of Slopes, *Geotechnique* 14, 75-102) and State of the Art Report 1969 (7th Int. Conf. Soil Mech. Found. Eng., Mexico,) are classics on the subject.

2.2. The sediment behind the dams. The EIS/EIR considers the sediment till Year 2002. It omits 18 years of sediment till 2020, when it proposes dam removal.

2.3. The rate of draw down. The EIS/EIR proposes an arbitrary draw down rate of 3 ft per day, It is not supported by any calculations or any experimental draw down.

2.4. Preparation and review. The management assigned a concrete specialist to prepare the Chapter on earth dam removal and a hydrology specialist to review it. The earth dam design and geo-technical sections have not applied their insight to avoid this costly error.

3.0. Conclusion: The "proposed action" to remove the Iron Gate and J.C. Boyle earth dams, is not safe or doable. While trying to remove these earth dams, their wet clay core will become "unconfined", they will yield to their outer Gravel shell's pressure and the dams will collapse catastrophically. *For the sake of brevity, I mute further comments.*

The fatal error of catastrophic collapse, invalidates *all those Alternatives* that involve earth dam removal. The *Alternative Four* involving cutting a fish passage through the Iron Gate dams' saturated clay core is also not safe or doable for the same reason.

The EIS/EIR would contravene the requirements of the National Environmental Policy Act (NEPA), the California Environmental Quality Act (CEQA), the Klamath Hydroelectric Settlement Agreement (KHSA), the Klamath Basin Restoration Agreement (KBRA) as well as many more statutes under the Oregon Department of Environmental Quality, the California Department of Fish and Game (CDFG), the US Environmental Protection Agency (EPA), etc.

The significant impact of the earth dams' catastrophic collapse, can not be avoided or mitigated. The Facilities Removal would not be completed within the State Cost Cap, since the collapsed debris cannot be left below running water in the river bed. Expensive overhead cable ways or other contrivances will be hastily required to remove the debris. The entire expense would be counter productive.

It is critical to inform Honorable Jerry Brown, Honorable Kitzhaber, Honorable Ken Salazar and concerned others in a timely manner, since a determination is due by March 31, 2012. Their Honors may please review my analysis, if necessary, with help from those without any conflict of interest and also enquire as to how the EIS/EIR's fatal error was allowed to happen.

4.0 Recommendation. My purpose is not merely to say that something has been wrong, but that something can be done about it. The DOI/BOR engineers can review the topography of the 4 dams and reservoirs, consider the data and innovate a new hydro-system passage.

The new hydro-system passage should provide the bulk of the Juveniles and the adult spawners a safe passage. This is an engineering problem and demands an engineering solution. The dams are to stay, the farmers to get irrigation water, hydro power to be retained and the Salmon to recover. I believe it is possible.

5.0 My experience in the subject: The United Nations trained me in the University of Queensland, Brisbane, Australia during 16 months in 1971-73 on "Stability of Slopes and Earth dam design." Dr. Peter James, an authority on the subject was my Mentor. Dr. James had researched under (Late) world renowned Prof. Sir, A.W. Skempton, of the Imperial College of London. The Commonwealth of Education and Science, Australia arranged extensive training visits to major projects in Australia for several months. I had the rare privilege to obtain valuable insights from their senior engineers.

As Deputy Director, Earth Dams Directorate, Central Water Commission in India in 1963-64, I coordinated the designs and specification drawings for four major earth dams, later constructed in India: the Tawa, Bargi, Barna and Hsdeo. I've investigated major earth dams in the Indian Himalayas that were later constructed. This background has helped this effort.

My information about the Klamath Removal project is very recent, initially from newspaper reports. The DOI sent me the Executive Summary in early October and the full Report on 28th October. I am a late comer to this issue. However, I have analyzed the data and information in the EIS/EIR.

I find from the EIS/EIR that the DOI held seven public scoping meetings, and received written, verbal and electronic inputs to identify the alternatives. It is evident that no one alerted the DOI of the danger of even trying to remove the earth dam, with its clay core saturated in water and under high pore pressure. My analysis is purely technical. I have consulted no one. I have no political affiliation or membership in any environmental organization. Thanks for the opportunity to send some of my comments.

I again request to convey the result of my analysis to Honorable Jerry Brown, Honorable Kitzhaber, Honorable Ken Salazar and concerned others in a timely manner, since their determination and concurrence is due by March 31, 2012.

6.0. Acknowledgments I acknowledge the United Nations Development Program, the University of Queensland, Brisbane, Australia, Dr. Peter James , my Mentor, and the Commonwealth of Education and Science, Australia, whose far sight is now helping the United States on this issue.

I acknowledge my professors at the School of Public Administration, University of Southern California, Los Angeles, who taught me Public Policy and placed high expectations on me with their long past testimonials. I acknowledge my extensive experience in India and the patience, love and faith that my four children in the United States have put in me. All of them have made this effort possible. I give them thanks.

Please contact me, if you need any more comments or assistance on this issue.

Respectfully submitted,

11.18.2011

Stephen Koshy