

**AGENDA**  
**KLAMATH BASIN COORDINATING COUNCIL MEETING**

November 14, 2012 at 9 am  
The Aquatics Center in Eureka, California

1. Introductions and review agenda.
2. General public comment.
3. Approve summary from last KBCC meeting (Ed Sheets).
4. Review status of implementing the Klamath Hydroelectric Settlement Agreement (Tim Hemstreet and Bob Gravely).
5. Presentation on the First Amendment to the Klamath Basin Restoration Agreement (Ed Sheets)
6. Public Comment on the First Amendment to the Klamath Basin Restoration Agreement.
7. Status Report on Climate Change Assessment (Gordon Leppig, CDFG and Ruben Ochoa, OWRD).
8. Status report on Oregon Water Resource Department preparation of a Final Order of Determination for the Upper Klamath Basin water rights adjudication process (Ruben Ochoa, OWRD).
9. Presentation on the status of Klamath Basin fisheries (Joe Polos, FWS, Eric Janney, USGS).
10. Status report on On-Project Plan (Julie Matthews, KWAPA)
11. Review workplan and schedule for implementing the KBRA (Ed Sheets).
12. Review and Approve changes to the KBCC Communications Protocols (Ed Sheets).
13. Other
14. Public comment period.
15. Discuss next steps and next KBCC meeting.

**in Eureka, California**

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in Eureka, California

[illegible]







**in Eureka, California**

Last	First	Email	Organization	Phone
Ryan	Lynn	lynnr8@gmail.com	NORTHWOOD CRAPPER CLUB Sierra Club	709-845-2825-
Scott-Graham	Graut	rpgroter@times-standard.com	Times - Standard	441-0514
Zunkerl	Herman	talunkrln@gmail.com	TBD Pres	496-6257
Orahoske	Andrew	andrew@wildedifema.org	EPIC	707-822-7711
BIRD	JERRY	jkbird@fs.fed.us	FS	<del>804</del> -916-498-5324
GEREC	MIKE	mgered@sustainablenorthwest.org	Sustainable Northwest	804-332-1197
Higgins	Patrick	p.higgins@dunsmuir.edu	Self	707-822-9420
Pace	Felice	wfp@felicejournal.com	self	—
Belchik	Michael	mbebelchik@yahoo.com	Yuck Tribe	—
VANNERY	Eric	ejanney@usgs.gov	U.S. Geology Survey	541-273-8687



# November 14, 2012 KBCC Meeting Attendance List in Eureka, California

Last	First	email	Organization	Phone
Perricelli	Claire	ceperce@global.net		
TRIAR	Amos	a.tripp@suddenlink.net	Kernuk Tribal Council	
Weselah	Tom	tom.weselah@asm.ca.gov	Assemblyman Chabrie	707 445-7014
Mullis	Just	justm8605@aol.com	Kernuk	541/892-8447
Gravel	Bob	bob.gravel@pacificorp.com	PacificCorp	503-813-7282
Sundberg	Ryan	Csundberg@co.humboldt.ca.us	Humboldt County	707 476-2395
<del>Kyle</del>				
Colman	Kyle	kyle.colman@worldstudies.org	OWIRA	541-388-6667
Kenneth Fisher		Kenneth@Klanat4River.org	Klanat 4 Riverkeepers	530 469 3218
Hamilton	John	<del>John.Hamilton@tus.gov</del>	USFWS, Yreka	530 842-5763
Saxel	Josh	josh@sra.org	SRA	530-468-4665
LEPPE	GORDON	GLENN@GCA.GOV	CDFG	707 441-2062
Tucker	Craig	c.tucker@kankus.com	Kankus	916 207 8294
DeRosier	Sylvia	olthap@pacificorp.com		
Tale	Chip	alan.r.dale@state.or.us	DDFW	541 388 6363
Driscoll	John	john.driscoll@gmail.com	Rep. Thompson	707 264-4595
Klingel	Hollie			707 442-6977
Hill	Hayden	hayden@hoopa.com	Hoopa Valley Tribe	
Simmons	Paul	psimmons@scandinavia.com	SSD / FWS	916 446-7879
Debra	FURMAN	FURMAN.E.DEBRA@STATE.CA.US	OFFICE OF THE ATTORNEY GENERAL	503-986-0574

**DRAFT**  
**Summary and Follow Up Actions**  
**September 9, 2011 KBCC Meeting in Redding, California**

**Next Meeting**

The KBCC identified a potential dates on October 19<sup>th</sup> and October 28<sup>th</sup>. Please continue to hold the October 28<sup>th</sup> date. The facilitator will work with the parties to confirm the dates for the next meeting.

**KBCC Actions**

The KBCC directed the Amendments Drafting Committee to identify potential amendments to the Klamath Basin Agreement s and report back at the next KBCC meeting. The goal would be a process that is complete in late 2011.

**Follow Up Actions**

1. The Drafting Committee will continue to work on potential amendments to the KBRA.
2. Parties will review the proposed eligibility criteria for the Power Program and be prepared to address the criteria at the next meeting.
3. The Communications Committee will continue to work on an improved website.
4. The Department of the Interior will continue to work on the FACA charters for the Klamath Basin Advisory Council and Technical Advisory Team and will report on the status at the next meeting.
5. Ed Sheets will update the workplan and schedule for the next meeting.
6. Comments on this draft meeting summary should be sent to Ed Sheets by October 24<sup>th</sup>.

**Summary of KBCC Meeting**

- The KBCC approved the summary of the July 17, 2011 meeting.
- The KBCC reviewed the status of the implementation of the Klamath Hydroelectric Settlement Agreement. As noted in previous reports, the California Public Utility Commission has approved the collection of the rate surcharge to go into a trust account for Facilities Removal. The CPUC decision found, among other things, that: “Through the use of the KHSA cost cap, ratepayers are protected from the uncertain costs of relicensing, litigation, and decommissioning that customers may be

responsible for sans the KHSA. If the KHSA surcharge is not instituted, ratepayers would be exposed to an uncertain amount of costs.”

- The Drought Plan Lead Entity provided a status report on the draft Drought Plan. The Drought Plan Lead Entity and forwarded the Drought Plan to the Department of the Interior on July 11, 2011 for its review as required under Section 19.2.3.D. Under Section 19.2.3.E, the Department of the Interior will: (1) ensure completion of any environmental compliance procedures under Applicable Law, (2) review the plan to determine that it includes the elements required by Section 19.2.2, and (3) make a decision on funding Plan implementation.
- A copy of the presentation to the KBCC is attached to the meeting materials for the September 9<sup>th</sup> meeting.
- The Klamath Basin Power Alliance presented draft eligibility criteria for the Power for Water Management Program. KBPA will be seeking KBCC review and approval at the next KBCC meeting.
- The KBCC reviewed the draft workplan and schedule, highlights included:
  - Forest Service Watershed Conditions Framework
    - The Forest Service provided a presentation on its Watershed Condition Framework. The Watershed Condition Framework establishes a new consistent, comparable, and credible process for improving the health of watersheds on national forests and grasslands. This framework focuses new restoration investments to provide economic and environmental benefits to local communities. The technical guide ensures consistent application of the framework.
    - The Forests within the agency, including the seven forests within the Klamath Basin, were directed to determine initial priority watersheds for work in FY 12. Factors considered in determining initial priorities include choosing watersheds where: opportunities are great, resistance to recovery is low, high resource values exist, priorities overlap with other entities and resources, and there is a high potential for partnerships and favorable collaboration.
    - Four forests with lands in the Klamath Basin have chosen nine priority watersheds within 8 of the 12 Klamath sub-basins.
  - BLM Wood River Wetland
    - BLM staff provided the background history of this area.
    - The presentation also described the past and ongoing studies and a progress report.



A copy of the meeting attendees is attached.

## KLAMATH BASIN COORDINATING COUNCIL MEETING

September 9, 2011 - Redding, CA

Name	Organization	E-mail	Phone #
Phillip Gaines	Forest Service	phillipgaines@fs.fed.us	541-997-6758
Timmy Hardin	Capital Press	thardin@capitalpress.com	530-605-3072
Steve Kark	ODES	stark.steve@delaware.gov	541-687-2073
Glen Sprain	PCFFA	fish.glr@gmail.com	541-689-2000
Mark Stephen	CDFG	mstephen@dfg.ca.gov	530-225-7275
Liane Randolph	Nat. Resources Agency	liane.randolph@resources.ca.gov	916-550-5069
BOB GOODMAN	KARUK TRIBE	RGOODMAN@KARUK.US	530 463 1600 ext 204
Bill Brock	USFS	wbrock@fs.fed.us	530-226-2430
Gay H Le	UKWUA	gaynix@mac.com	541-851-5950
Ryan Sundberg	Humboldt County Supervisor	rsundberg@Co.humboldt.ca.us	
Jerry Bird	USFS	jbird@fs.fed.us	530-841-4403
Annie Manji	CDFG	amanji@dfg.ca.gov	530-225-2315
Rhea Graham	Reclamation	rgraham@usbr.gov	916-978-5113
Pete Bruckner	SRR	pbruckner@state.ca.gov	530 462 4720
Mike Balchik	Yurok Tribe	mbalchik@yuroktribe.nsn.us	707 834-3891
Dave Hillemeyer	"	dave@yuroktribe.nsn.us	707 954-1524
Ken Feltcho	"	kfeltcho@yuroktribe.nsn.us	707 954-1523
Crystal Bowman	Karuk Tribe	cbowman@karuk.us	530 469 3456
NEIL MANJI	CDFG	nmanji@dfg.ca.gov	530 225-2313
Christine Mai	USFS - Shasta T	cmai@fs.fed.us	530-226-2425
AUGUST MONTGOMERY	Hoopa Valley Tribe	augiemontgomery@yahoo.com	625-4211x388
Tara Jane Campbell Miranda	KWUA	Tara@kwua.org	541 883-6100
Renee Snyder	BLM	rsnyder@blm.gov	541-855-4127
Alan Dale	ODEW	alan.r.dale@state.or.us	541 388 6363
Matt Barry	USFS	matthew_barry@usfs.gov	541 885-2501
Josh Wilson	USDA FS	joshua.wilson@fs.fed.us	530-226-2422
Ted Wise	ODEW	ted.g.wise@state.or.us	541 633 1115
Mike O'Connell	HVT	director@hvt-usn.gov	530 625-9207 XI

# **Klamath Hydroelectric Settlement Agreement Implementation Progress Report**

**November 7, 2012**

## **General Settlement Implementation**

**Dam Removal Surcharge Regulatory Developments** – Regulatory orders from both the California and Oregon public utility commissions approving the collection of dam removal surcharges have been issued, consistent with the framework for the Customer Contribution towards dam removal costs established in Section 4.1.1 of the Klamath Hydroelectric Settlement Agreement (KHSA). The OPUC order is available at <http://apps.puc.state.or.us/orders/2010ords/10-364.pdf>. The Oregon customer surcharges, with accrued interest, are designed to provide approximately \$184 million in funding for dam removal in 2020. The CPUC's final decision is available at: [http://docs.cpuc.ca.gov/PUBLISHED/FINAL\\_DECISION/134812.htm](http://docs.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/134812.htm). The California customer surcharges, with accrued interest, are designed to provide approximately \$16 million in funding for dam removal in 2020. The surcharges on Oregon customers have been collected since March 18, 2010 while the surcharges on California customers began in January 2012.

On January 13, 2012, Pacific Power filed a petition for modification of the Klamath surcharge to allow the total California customer share of capped dam removal costs to be collected by January 1, 2020 as it was originally designed. The adjustment would not increase the total amount that California customers will pay for Klamath dam removal costs, but due to an approximately one year delay in implementation of the surcharge, a change to the surcharge rate was necessary in order to meet the anticipated dam removal timeline contained in the KHSA. On November 1, 2012, the CPUC issued a final order approving the adjustment, which is available at: <http://docs.cpuc.ca.gov/SearchRes.aspx?docformat=ALL&DocID=31876963>

**Dam Removal Surcharge Balance** – As of October 31, 2012, the combined balance of the Oregon and California dam removal trust accounts was \$41.7 million.

**401 Abeyance** - On March 19, 2010, PacifiCorp requested, pursuant to Section 6.5 of the KHSA and on behalf of the Parties except ODEQ, to the California State Water Resources Control Board (SWRCB) and the Oregon Department of Environmental Quality (DEQ) that permitting and environmental review for PacifiCorp's licensing activities be held in abeyance during the Interim Period. This request was subsequently granted by DEQ on March 29, 2010 and the SWRCB passed a resolution granting the abeyance, with conditions, on May 18, 2010. On July 17, 2012, the SWRCB passed a new resolution (Resolution No. 2012-0039) to continue the abeyance of the Clean Water Act section 401 process in California related to PacifiCorp's licensing activities until June 30, 2013, subject to various conditions.

**Keno Transfer** - Pursuant to KHSA Section 7.5.2, PacifiCorp and the Bureau of Reclamation (Reclamation) have developed an agreement in principle related to the potential transfer of the Keno development. The agreement in principle was executed on August 22, 2012, and lays out the framework for transfer of the Keno facility to Interior consistent with the KHSA. PacifiCorp and Reclamation continue to work towards a Final Agreement for Keno Transfer, which will be developed prior to the Secretarial Determination.



## **Interim Conservation Plan Interim Measures and Endangered Species Act Regulatory Process**

PacifiCorp has applied to the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) for ESA Section 10 permits to address potential take of listed species that could occur during the interim period prior to project removal under the KHSA. Since 2009, PacifiCorp has worked closely with NMFS and FWS to develop applications for ESA Section 10 permits consistent with agency regulations. In February 2011, PacifiCorp filed an application for an ESA Section 10 permit with NMFS relating to a Habitat Conservation Plan for Coho Salmon. Following public comment, NMFS issued an incidental take permit to PacifiCorp on February 24, 2012.

Similarly, in August 2011, PacifiCorp filed an application for an ESA Section 10 permit with FWS to address potential take of sucker species that could potentially occur during the interim period, prior to Project removal. The application and related Habitat Conservation Plan identifies a protocol for implementing a Sucker Conservation Fund, and contemplates operational changes to the East Side and West Side developments that will avoid take of listed suckers. After considering public comments on the application, FWS will determine whether to issue an Incidental Take Permit that would authorize potential take of listed species associated with Project operations during the interim period prior to potential dam removal.

### **Interim Measure 2: California Klamath Restoration Fund / Coho Enhancement Fund**

PacifiCorp has provided funding of \$2,040,000 into the Coho Enhancement Fund since the Interim Conservation Plan was developed in November, 2008. Since 2009, NMFS and the California Department of Fish and Game (CDFG) have selected 16 projects to benefit coho salmon. PacifiCorp has developed a partnership with the National Fish and Wildlife Foundation (NFWF) to administer the fund. This partnership allows Coho Enhancement Fund grant recipients to be eligible for additional funding through other grant programs, further enhancing the conservation benefit of the fund. In October 2012, PacifiCorp selected three recipients to be awarded \$614,000 in funding to implement the following projects:

- The Karuk Tribe will receive \$250,000 to complete the implementation of a large-scale channel restoration and habitat enhancement project on Seiad Creek to enhance the survival and fitness of coho salmon through the restoration of floodplain function and the creation of spawning habitat.
- The Mid Klamath Watershed Council, based in Orleans, will receive grants for three projects totaling \$214,000. The projects will: create and enhance habitat for coho rearing in side channels of key Klamath tributaries; continue the creation of anadromous fish passage at the mouths and lower reaches of 72 Klamath in California; and take initial steps to improve conditions for coho in the Stanshaw Creek area near Somes Bar.
- Caltrans District 2 will receive \$150,000 to assist in removing an existing 15-foot diameter culvert on Fort Goff Creek, in Siskiyou County, and replace it with a single span bridge to restore a channel and facilitate coho passage. This culvert replacement has been identified as a high priority project for coho by both the CDFG and the NMFS.

### **Interim Measure 4: Hatchery and Genetics Management Plan**

On September 16, 2010 a Hatchery and Genetic Management Plan (HGMP) developed by CDFG and PacifiCorp for the Iron Gate Hatchery Coho Salmon Program was submitted to NMFS, and is currently under review. The HGMP program will operate in support of the Klamath River basin's coho salmon

recovery efforts by conserving a full range of the existing genetic, phenotypic, behavioral and ecological diversity of the coho salmon run.

PacifiCorp and CDFG have implemented a number of measures called for in the HGMP while the HGMP is under review by NMFS. These measures include improvements to egg rearing infrastructure, the installation of bird netting at the hatchery to improve coho survival, and active genetic broodstock management. In addition, the California Hatchery Scientific Review group has recommended that the HGMP be approved and implemented. PacifiCorp, CDFG, and NMFS continue to refine the HGMP and it is expected that the HGMP will be noticed for public comment in the near future.

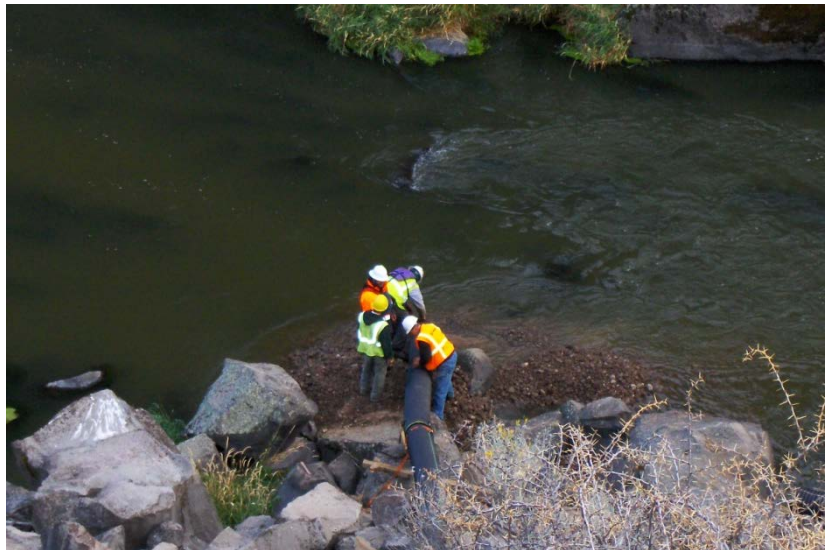
### **Interim Measure 5: Iron Gate Flow Variability**

Consistent with Term and Condition 2A of NMFS's March 2010 Biological Opinion on the operation of Reclamation's Klamath Project, a technical group including NMFS, Reclamation, PacifiCorp, USFWS, states, and tribes have coordinated on the delivery of variable flow releases from Iron Gate Dam. This coordination process continues and two flow variability events have occurred during fall 2012 to more closely mimic natural flow conditions in response to precipitation at Iron Gate Dam.

### **Interim Measure 7: J.C. Boyle Gravel Placement and/or Habitat Enhancement**

On October 3, 2011, the BLM issued a Finding of No Significant Impact (FONSI) for the proposed actions considered under Interim Measure 7 and Interim Measure 8 (discussed below). Between November 14 and 16, 2011, gravel was placed at two locations in the J.C. Boyle peaking reach of the Klamath River. Both locations were near campgrounds on the Klamath River. A conveyor truck was used to "shoot" approximately 250 cubic yards of gravel from the bank out into the Klamath River at each location.

Gravel augmentation was again conducted in October 2012 at 3 additional locations below J.C. Boyle dam. A total of 675 cubic yards of gravel – about 45 truck loads – was added to the river over the course of three days between October 22<sup>nd</sup> and October 24<sup>th</sup>. The bulk of the work was conducted by two local subcontractors. In addition to "shooting" gravel, it was necessary to deliver gravel at locations with challenging access via a pipe, as shown in the photo at right.



### **Interim Measure 8: J.C. Boyle Bypass Barrier Removal**

With permits in hand following a process through the Bureau of Land Management (BLM) in 2011, work was completed on October 13, 2012, to remove the bypass barrier approximately 2.5 miles upstream from the J.C. Boyle powerhouse. Boulders that comprised the barrier were winched above the normal high water mark and a 5-foot-wide section of river is now opened to fish passage through the former barrier area.

## **Interim Measure 10: Water Quality Conference**

PacifiCorp provided \$100,000 in funding for the water quality workshop to the California Coastal Conservancy in December 2011. The NCRWCB took the lead on the steering committee that is overseeing the workshop activities and secured additional funds to support the workshop from the California Coastal Conservancy, which matched PacifiCorp's funding. The workshop was held September 11-13, 2012, in Sacramento, CA and work is now underway to synthesize participants' comments on the various nutrient reduction technologies presented and develop a framework for potential projects that have a high likelihood of achieving nutrient reductions in the Upper Klamath Basin. A final report from the workshop is expected in 2013.

## **Interim Measure 11: Interim Water Quality Improvements**

PacifiCorp and the Interim Measures Implementation Committee (IMIC) selected a series of studies and pilot projects to develop necessary information to inform the selection of water quality improvement projects to be implemented under the interim measure. These ongoing studies include:

**Evaluation of Treatment by Wetlands.** PacifiCorp issued a final report "Approaches to Water Quality Treatment by Wetlands in the Upper Klamath Basin" in August, 2012. The purpose of this study is to provide information for use in considering and planning approaches to possible development of wetland systems in the Upper Klamath basin. The final report is available at PacifiCorp's Klamath website: <http://www.pacificorp.com/es/hydro/hl/kr.html#>.

**Evaluation of Organic Matter Removal for Keno Reservoir.** This study includes an assessment of the potential use of hydrodynamic separation and/or screening to remove phytoplankton and larger particulate matter from the water as a means to reduce nutrient and organic matter loading in the Klamath River. A mechanical particle separator, designed as stormwater treatment technology, was adapted for use and tested on 2 separate occasions in the summer of 2011 and additional work was conducted in 2012 using a more refined treatment system. Results of this study are currently under analysis and a final report will be issued in 2013.

**Evaluation of J.C. Boyle Reservoir Dissolved Oxygen Improvement.** The purpose of this study is to conduct planning for, and testing of, technologies for improving DO conditions in J.C. Boyle reservoir. Information has been gathered on commercially-available technologies for improving DO in the reservoir, including oxygenation, air injection, and mechanical mixing. Elements of this study also include DO testing and pilot projects of applicable technologies. Work is underway to complete a final report.

**Testing of Intake Cover for Water Quality Control in Iron Gate Reservoir.** This activity involves the evaluation of a cover or barrier in the vicinity of the Iron Gate dam intake for water quality control, particularly algal blooms. Work in 2012 consisted of a longer-term deployment of the intake barrier to explore its effectiveness in reducing microcystis and microcystin concentrations below Iron Gate Dam. A final report on this study will be completed in 2013.



**Test Treatment of Environmentally-Safe Algaecides in Copco Reservoir.** The purpose of this study is to evaluate the effectiveness of algaecide in reducing excessive algal growth in Copco reservoir. A test treatment of algaecide was conducted on September 6, 2012 and preliminary results indicate the algaecide was effective at immediately reducing algal concentrations, chlorophyll-a, and microcystin concentrations, consistent with the results of test treatments conducted in 2011 on water withdrawn from Copco reservoir. A report on the 2011 testing was distributed to the IMIC in October 2012 and a final report on the 2012 work is expected in 2013.

**Klamath Tracking and Accounting Program.** PacifiCorp continues to work with the NCRWQCB, ODEQ, and USEPA Regions 9 and 10 to develop a Klamath basin water quality improvement tracking and accounting program. A final Protocol document has been developed and work is continuing to use the protocol to assess and quantify the benefits of pilot projects that are being implemented in the Klamath basin, and thereby assess the effectiveness and appropriateness of the existing tools for use in the Klamath basin.

### **Interim Measure 15: Water Quality Monitoring**

PacifiCorp is now in the fourth year (2012) of funding baseline water quality monitoring consistent with this interim measure, which was begun under the Klamath Agreement in Principle. Annual planning, coordination and monitoring for Interim Measure 15 is completed collaboratively with PacifiCorp, ODEQ, NCRWQCB, EPA Region 9, the Karuk and Yurok Tribes, and Reclamation. The baseline monitoring program occurs over approximately 250 miles of river and reservoirs waters from Link dam near Klamath Falls to the Klamath River estuary near Klamath, CA throughout most of the year. Annual reports for this monitoring effort are available on PacifiCorp's website and on the Klamath Basin Monitoring Program website.

## Summary of Potential Amendments to the KBRA

November 14, 2012

### Summary

The parties to the Klamath Basin Restoration Agreement have initiated a process to amend the KBRA. The Agreement was signed in February 2010. The amendments would extend the time for passage of federal legislation, address tribal funding issues, and clean up other provisions of the document. They do not affect the Klamath Hydroelectric Settlement Agreement.

### Schedule

The formal amendment process began on October 12, 2012. The amendments will become effective when they are approved by all the parties that signed the KBRA.

The KBCC scheduled time for public comment on the amendments at the November 14, 2012 meeting in Eureka, California.

### Key Issues

**Extend the KBRA deadline for federal legislation:** As currently drafted, the KBRA will terminate unless Congress passes authorizing legislation by December 31, 2012. (The KHSRA does not have a termination date.) Because it is increasingly clear that Congress may not act before the KBRA's self-imposed deadline, the Parties are considering a KBRA amendment that would extend the agreement until December 31, 2014. Within 60 days following that date, any KBRA party could initiate a process to consider termination of the agreement and any amendments would require the approval of all the KBRA parties. If no party initiates the termination process at that time, the amendment also provides an annual opportunity to consider terminating the agreement if the federal legislation has not been enacted.

**Tribal Funding:** the amendments confirm that the signatory tribes and the Secretary of the Interior would have to agree to any future changes in funding that might affect the bargained-for-benefits of the agreement affecting tribal resources, the water agreements, or the future relinquishment of tribal claims against the United States in the KBRA. These amendments clarify the tribes' key role in the implementation of the fisheries program. The amendments also provide that the Secretary of the Interior and any of the signatory tribes can renegotiate the terms of the relinquishment and release of tribal claims against the United States if funding for the fishery or tribal programs is not realized in the future.

**Clear Lake, Gerber Reservoir, and the Lost River:** the amendments clarify that Clear Lake, Gerber Reservoir, and the Lost River above Harpold Dam are not required to provide water for delivery of the new wildlife refuge allocation in the KBRA.

**Klamath Basin Power Alliance:** the amendments would add the Klamath Basin Power Alliance as a new party to the KBRA.

**Clarify and update other KBRA provisions:** the amendments clarify various provisions and update schedules for a number of actions in the KBRA. For example:

- Funding: the amendments update references to funding to accommodate reductions in the KBRA cost estimates that the parties identified subsequent to signing the agreement.
- Drought Plan: the parties have completed the drought plan; the dates for future amendments have been updated.
- Habitat Conservation Plans: the KBRA provides a process to develop plans under the Endangered Species Act to address potential impacts of Upper Basin activities to fish including salmon returning to the Upper Klamath Basin if the Klamath River dams are removed. The amendments clarify the applicable processes based on policies of the resources agencies.
- Emergencies: the amendments clarify that Reclamation will continue to address emergencies that affect Klamath Reclamation Project facilities under existing authorities; this could include failures at Klamath Reclamation Project facilities or dikes on Upper Klamath Lake or Lake Ewauna that affects the storage and delivery of water necessary to meet the commitments of the KBRA.
- Eligibility for Power Program: the amendments clarifies the eligibility for the KBRA program to provide low-cost power to pump water to irrigators and wildlife refuges and return water to the Klamath River to make it clear that a power user can either own or lease the land and use individual or multiple meters or pumps.

## Background

In June 2011, the KBRA Non-Federal Parties revised the estimated costs for KBRA activities. The cost estimates were reduced 18 percent from the 2010 KBRA. The revised cost estimates also shifted a number of costs to later years; this reduced the cost estimates in the first seven years by 38 percent.

The Klamath Tribes raised concerns that some of the reductions affected the bargained-for benefits for fish restoration activities that were important to the Tribes in the KBRA water settlements and relinquishment and release of claims against the United States. The Klamath Tribes proposed several amendments to address these issues. The KBRA parties directed an ad hoc committee to review these proposals and other potential amendments to the KBRA to address changes that have occurred since the agreement was signed. The proposed amendments are the product of that review.

## **Parties to the KBRA**

### **State of California**

California Department of Fish and Game  
California Natural Resources Agency

### **State of Oregon**

Oregon Department of Environmental Quality  
Oregon Department of Fish and Wildlife  
Oregon Water Resources Department

### **Tribes**

Karuk Tribe  
Klamath Tribes  
Yurok Tribe

### **Counties**

Humboldt County, California  
Klamath County, Oregon

### **Parties Related to Klamath Reclamation Project**

Ady District Improvement Company  
Collins Products, LLC  
Enterprise Irrigation District  
Don Johnston & Son  
Inter-County Properties Co, which acquired title as Inter-County Title Company  
Klamath Irrigation District  
Klamath Drainage District  
Klamath Basin Improvement District  
Klamath Water Users Association  
Klamath Water and Power Agency  
Bradley S. Luscombe  
Malin Irrigation District  
Midland District Improvement Company  
Pioneer District Improvement Company  
Plevna District Improvement Company  
Reames Golf and Country Club  
Shasta View Irrigation District  
Sunnyside Irrigation District  
Tulelake Irrigation District  
Van Brimmer Ditch Company  
Randolph and Jane Walthall 1995 Trust  
Westside Improvement District #4  
Winema Hunting Lodge, Inc.



**Upper Klamath Irrigators**

Upper Klamath Water Users Association

**Non-Governmental Organizations**

American Rivers

California Trout

Institute for Fisheries Resources

Northern California/Nevada Council Federation of Fly Fishers

Pacific Coast Federation of Fishermen's Associations

Salmon River Restoration Council

Trout Unlimited

## Status Report on Climate Change Impact Assessment to Klamath Basin Restoration Agreement Parties

November 14, 2012

## Summary

Section 19.4 of the Klamath Basin Restoration Agreement (KBRA) provides a framework for the Parties to determine how long-term climate change may affect the fisheries and communities in the Klamath Basin. The parties could then re-convene to negotiate any supplemental terms to the KBRA that may be necessary to address changes in the climate in order to achieve the parties' goal of maintaining sustainable fisheries and communities. The Oregon Water Resources Department (OWRD) and California Department of Fish and Game (CDFG), in coordination with Water Managers and Fish Managers, are co-lead parties for this assessment. The co-lead parties initiated the assessment process in February, 2012. Ruben Ochoa and Gordon Leppig are the technical agency leads for OWRD and CDFG, respectively.

The co-lead parties expect to coordinate their assessment with the work being conducted by the Bureau of Reclamation (Reclamation) under the Secure Water Act. Since Congress passed the Secure Water Act, Reclamation has been working toward completing two phases of the Act. The first phase is the West Wide Climate Risk Assessment, which broadly looks at the risks to water supplies, power, and the ecosystem throughout Reclamation's facilities in the west but with emphasis on eight critical basins, including the Klamath. The second phase is referred to as the Basin Studies, which for the Klamath River, will look at the entire watershed from the headwaters to the estuary. The Basin Studies are intended to be appraisal level studies that will incorporate and rely on existing data and analyses to the extent possible. The Basin Study level of detail will not rise to the level of a feasibility study and will not include National Environmental Policy Act or California Environmental Quality Act review. The Secure Water Act Basin Study will undertake the following: 1) Water Supply Inventory and Assessment; 2) Water Demand Assessment; 3) System Reliability Assessment; 4) Develop & Evaluate Options; 5) Recommend Adaptation Strategies for further study; 6) Prepare a Draft and Final Report. A draft schedule of this Basin Study is presented below.

## Secure Water Act Draft Klamath Basin Study Schedule

BASIN STUDY TASKS	2012						2013						2014					
	J-F	M-A	M-J	J-A	S-O	N-D	J-F	M-A	M-J	J-A	S-O	N-D	J-F	M-A	M-J	J-A	S-O	
Inventory and Water Supply Assessment																		
Water Demand Assessment																		
System Reliability Assessment																		
Develop & Evaluate Options																		
Recommend Adaptation Strategies																		
Prepare Draft-Final Report																		

The co-lead parties have conducted a preliminary review of the climate change model projections and potential impacts for the Klamath Basin from a number of current overview reports. Based upon this preliminary review and due to uncertainty of some model results, the co-lead parties currently have no recommendations to the KBCC to re-convene to negotiate supplemental terms to the Restoration Agreement to address projected climate change impacts.

However, the co-lead parties will have another opportunity to evaluate climate change impacts on KBRA programs when Reclamation's upcoming Secure Water Act Klamath Basin Study is completed. This Basin Study has a broader scope than most past studies of the region and, to the extent possible, will quantify future water supply and demand in the entire Klamath watershed, as impacted by the latest available climate change scenarios. This Basin Study will focus its analysis on potential imbalances between future water supplies and demands, building on Reclamation's West Wide Climate Risk Assessments. The Basin Study will evaluate identified adaptation strategies using quantified metrics that may include, among others, the ability to meet water allocations and deliveries, water quality (eg. stream temperature), and fish and wildlife habitat.

While this Basin Study may not address all climate change-related questions, nor reduce the uncertainty surrounding future water supply and demand in the Klamath Basin, the co-lead parties believe that this Basin Study will provide a more comprehensive analysis of projected climate change impacts in the Klamath Basin than what currently exists.

For these reasons, the co-lead parties recommend that a detailed assessment of climate change effects on the Klamath Basin and its effects on KBRA actions be postponed until completion of Reclamation's Basin Study. A proposed KBRA climate change assessment schedule and work plan is presented below.

The co-lead parties find there are five recent overview reports that include specific Klamath Basin climate change projections and vulnerability assessments (listed below and available at [Klamathrestoration.gov](http://Klamathrestoration.gov)). The Klamath Facilities Removal Draft Environmental Impact Statement/ Draft Environmental Impact Report (DEIS/DEIR), released on September, 2011, provides the most recent summary of the current science and model projections of how climate change could affect the Klamath Basin in the future. The report "Preparing for Climate Change in the Klamath Basin," (Barr et al. 2010) also provides a useful summary of projected climate change impacts in the Basin. Below, we include an excerpt of the September, 2011, Klamath Facilities Removal DEIS/DEIR chapter on climate change (Chapter 3.10), and selected excerpts from Barr et al. (2010).

### **Reports with Klamath Basin Climate Change Projections**

Barr, B.R., M.E. Koopman, C.D. Williams, S.J. Vynne, R. Hamilton, and B. Doppelt. 2010. Preparing for Climate Change in the Klamath Basin. National Center for Conservation Science & Policy and the Climate Leadership Initiative. Ashland, CA.

U.S. Bureau of Reclamation. 2011. SECURE Water Act Section 9503(c) – Reclamation Climate Change and Water. Prepared for United States Congress, US Bureau of Reclamation, Technical Service Center, Denver, CO.

PRBO Conservation Science. 2011. Projected effects of climate change in California: ecoregional summaries emphasizing consequences for wildlife. Version 1.0. PRBO Conservation Science, Petaluma, CA.

Koopman, M.E., R.S. Nauman, B.R Barr, S.J. Vynne, and G.R Hamilton. 2009. Projected future conditions in the Klamath Basin of southern Oregon and northern California. National Center for Conservation Science and Policy, Ashland, CA.

U.S. Department of the Interior and California Department of Fish and Game. 2012. Klamath facilities removal draft environmental impact statement/environmental impact report. Sacramento, CA.

### **Proposed KBRA Section 19.4 Climate Change Assessment Schedule**

#### **2012**

<b>TASK</b>	<b>STATUS/RESULT</b>
Review existing and planned studies	Completed
Determine whether additional studies are needed	Completed. Secure Water Act Klamath Basin Study is needed.
Develop process and schedule for the assessment	Included here
Brief KBCC on schedule and process.	November 14, 2012 meeting in Eureka, CA
Seek comments from KBCC on the assessment process and schedule and the adequacy of the existing and planned studies.	November 14, 2012 meeting in Eureka, CA

#### **2013-2014**

- Monitor progress on Secure Water Act Klamath Basin Study.
- Compile and review any new relevant climate change studies and model projections for the Klamath Basin.
- OWRD and CDFG will meet at least once annually to evaluate Basin Study progress and new relevant climate change studies.
- Annually brief KBCC on Basin Study schedule and process and the results of any new climate change science.

#### **Winter 2014-Spring 2015 (depending when Klamath Basin Study is complete)**

- Prepare draft report that:
  - 1) Summarizes the findings and recommendations of the Klamath Basin Study,
  - 2) Summarizes the findings of previous and any new climate change reports and modeled projections,
  - 3) Compares these studies and their recommendations to the actions in the KBRA,
  - 4) Determines whether to recommend amendments to the KBRA, and



5) Describes process to monitor climate change-related effects on the KBRA in the future.

- Consult with Fish Managers, irrigators, and others on draft report and make revisions as needed.
- Brief KBCC and seek comments on draft report.

## **Summer-Fall 2015**

- Finalize and submit Climate Change Assessment Report to the KBCC.

### **Excerpt from Klamath Facilities Removal September, 2011 Draft Environmental Impact Statement/ Draft Environmental Impact Report, Climate Change and Greenhouse Gas Emission Chapter 3.10**

The projected changes in climate conditions are expected to result in a wide variety of effects in the Pacific Northwest<sup>1</sup> and the Klamath Basin with regard to the Proposed Action and the alternatives. The most relevant consequences related to the Proposed Action include changes to stream flow, temperature, precipitation, groundwater, vegetation changes, and flow. In general, climate model predictions include:

- Increased average ambient air and water temperature
- Increased number of extreme heat days
- Changes to annual and seasonal precipitation, including increased frequency and length of drought, less winter snow and more winter rain, and changes in water quality
- Increased heavy precipitation
- Reduced snow pack
- Vegetation changes
- Groundwater hydrology changes
- Changes to annual stream flow

These projected changes are discussed in detail in the following paragraphs. The potential impacts related to the Proposed Action are discussed in Section 3.10.4.3 - Effects Determination.

#### **Increased Temperature**

Future regional average annual air temperatures in Oregon are projected to increase by 0.2 to 1°F per decade depending on future GHG emissions, as compared to temperatures in the 20<sup>th</sup> century (OCCRI 2010). Projected temperature increases for the Pacific Northwest and the Klamath Basin are presented in Table 3.10-1.

**Table 3.10-1. Projected Changes in Air Temperature under Existing Conditions**

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<sup>1</sup> The Pacific Northwest is defined by the USGCRP as Washington, Oregon, Idaho, and western Montana. Although the USGCRP "Pacific Northwest" region does not include California, it has the climate most representative of the Klamath Basin. The USGCRP region that contains California is the "Southwest" climate region, which includes California, Nevada, Arizona, Utah, and parts of New Mexico, Colorado, and Texas. The Southwest data represents the desert climates, which is not applicable to the Klamath Basin.

Region	Next Two Decades	Mid-21 <sup>st</sup> Century	End of 21 <sup>st</sup> Century
Pacific Northwest	+3.0 °F	+3.6 to 5.0 °F	+5.1 to 8.3 °F
Klamath Basin	---	+2.1 to 3.6 °F	+4.6 to 7.2 °F

Source: United States Global Change Research Program 2009, Barr et al. 2010

Baseline conditions for the Pacific Northwest are based on data from 1961 to 1979 (USGCRP 2009). Baseline conditions for the Klamath Basin are based on data from 1961 to 1990 (Barr et al. 2010).

In addition, the results of the hydraulic, hydrologic and sediment studies conducted to support this document show an average temperature increase of 2.5 to 4.0 °F in the Upper Klamath Basin between 2020 and 2069, as compared to temperatures during the period 1950 –1999 (Reclamation 2010).

Increased temperature may result in a variety of general consequences for the Pacific Northwest and the Klamath Basin:

- Increased evaporation rates (USGCRP 2009).
- Increased incidence of wildfire (OCCRI 2010).
- Increased occurrence of short-term and long-term drought conditions (USGCRP 2009).
- Changing water quality of natural surficial water bodies, including higher water temperatures, decreased and fluctuating dissolved oxygen content (Barr et. al 2010), and increased cycling of detritus.
- Earlier, longer, and more intense algae blooms (Barr et al. 2010).
- Changes to soil moisture (USGCRP 2009), which may lead to soil subsidence under structures.
- Increased energy demand for cooling, refrigeration and water transport (Barr et al. 2010; USGCRP 2009).
- Buckling of pavement or concrete structures (USGCRP 2009).
- Decreased lifecycle of equipment or increased frequency of equipment failure (USGCRP 2009).
- Increased frequency of freeze-thaw cycles in winter months (USGCRP 2009).
- Changes to salmon populations due to increased water temperatures and other water quality changes (USGCRP 2009).
- Drought stresses and higher temperatures that could decrease tree growth and change habitat in most low- and mid-elevation forests (Barr et al. 2010).
- Warmer winters and longer growing seasons that may increase the frequency and intensity of insect attacks, such as those of the mountain pine beetle (Barr et al. 2010).
- Disruption of the coordination between predator-prey or plant-pollinator life cycles that may lead to declining populations of many native species (Barr et al. 2010).
- Increased water temperature (Barr et al. 2010).

As discussed in Section 3.3, Aquatic Resources, high water temperatures are detrimental to anadromous species when eggs or juveniles are present. High water temperatures have also been associated with fish kills in the Klamath River downstream of Iron Gate Dam.

### **Increased Number of Extreme Heat Days**

By mid-century, heat events are projected to increase in the Pacific Northwest (FHWA 2010). By mid-century, the Pacific Northwest could experience an additional one to three heat waves annually (i.e.,

three or more days with the daily heat index exceeding 90°F), with other locations experiencing up to one additional heat wave each year under a moderate emission scenario (Salathe et al. 2009).

Increases in the number of extreme heat days may result in declining air quality due to increased ozone concentrations and increased incidence of heat-related illness and death.

### **Annual Precipitation**

Over the next century, mean precipitation is projected to change gradually from existing precipitation averages. By mid-century (2035-45), the annual precipitation projections in the Klamath Basin exhibit a large range, from an 11 percent reduction to a 24 percent increase overall (Barr et al. 2010). Baseline conditions for the Klamath Basin are based on data from 1961 to 1990 (Barr et al. 2010).

The results of the hydraulic, hydrologic and sediment studies conducted to support this document show a change in total precipitation under the climate change scenarios ranging from five percent less to five percent greater precipitation between 2020 and 2069, as compared to precipitation during the period 1950 – 1999 (Reclamation 2010).

Precipitation changes associated with climate change are complicated by the El Niño Southern Oscillation (ENSO). ENSO produces a cool, dry winter in the Klamath Basin and has cycles of 2–7 years of building and declining precipitation (Independent Science Advisory Board 2007). Climate change could affect the frequency or severity of ENSO events, which would change precipitation patterns in the Klamath Basin (Kiparsky and Gleick 2003). In addition, the Klamath Basin is at the southern edge of a low pressure cell during ENSO events, with the primary effect being a shift of storms southward towards southern California (National Oceanic and Atmospheric Administration Fisheries Service [NOAA Fisheries] 2008). Climate change could move the low pressure area northward, which could change the types of ENSO effects within the basin from producing a drier winter to producing more intense winter storms.

### **Changes to Seasonal Precipitation**

While only a slight increase in precipitation (defined as annual total precipitation divided by the number of “wet” days where precipitation exceeds 1 millimeter per day) is projected for the Pacific Northwest (Salathe et al. 2009), changes in seasonal precipitation, including winter rain replacing winter snow, are projected to result in earlier and higher spring stream flows and lower late summer stream flows (USGCRP 2009; Barr et al. 2010). Table 3.10-2 summarizes projected seasonal changes in precipitation for the Pacific Northwest and the Klamath Basin.

**Table 3.10-2. Projected Seasonal Changes in Precipitation**

Region	Season	Next Two Decades	Mid-21 <sup>st</sup> Century	End of 21 <sup>st</sup> Century
Pacific Northwest	Winter	+3 to +5%	+5 to +7%	+8 to +15%
	Spring	+3%	+3 to +5%	+5 to +7%
	Summer	-6%	-8 to -17%	-11 to -22%
	Fall	+3 to +5%	+5%	+7 to +9%
Klamath Basin	Summer	---	-15 to -23%	-3 to -37%
	Winter	---	+1 to +10%	-5 to +27%
	Annual	---	-9 to +2%	-11 to +24%

Source: United States Global Change Research Program 2009, Barr et al. 2010

Baseline conditions for the Pacific Northwest are based on data from 1961 to 1979 (USGCRP 2009). Baseline conditions for the Klamath Basin are based on data from 1961 to 1990 (Barr et al. 2010).

Summer months in the Klamath Basin are projected to have precipitation decreases ranging from 15 to 23 percent from historic baseline (1961-1990) (Barr et al. 2010). However, less than 12 percent of the average annual precipitation in the Klamath Basin falls from June-August (Western Regional Climate Center 2010), so the effect on average actual summer precipitation would be small (less than 0.2 inches). In the Upper Klamath Basin, dry-season (April to September) and summer (July to September) stream flow have already declined 16 percent and 38 percent, respectively, during the period between 1961-2009 (Mayer and Naman 2011).

Changes to seasonal precipitation may result in a variety of general consequences for the Pacific Northwest and Klamath Basin, which are listed below.

- Shifting stream flow patterns, including higher and earlier peak spring flows and lower late summer flows may alter the timing of fish migration (Barr et al. 2010).
- Decreased summer water supply (OCCRI 2010).
- Increased fine sediment in streams may result in negative impacts on the spawning of native fish that build their nests in the areas of clean rocks and gravel (Barr et al. 2010).
- Cessation of flow from springs fed by groundwater may reduce the amount of refuge that these areas provide for fish survival (Barr et al. 2010).
- More variable flow from smaller groundwater springs may occur, with potential disappearance in the driest years (Barr et al. 2010).
- Increased frequency and severity of flooding may occur (USGCRP 2009).
- Increased runoff may lead to surface water quality changes, including increased turbidity, increased organic content, color changes, and alkalinity changes (Barr et al. 2010).

### **Increase in Heavy Precipitation**

Projections show that by mid-century, heavy precipitation, defined as annual total precipitation divided by the number of “wet” days where precipitation exceeds one millimeter per day, would increase slightly in the Pacific Northwest (FHWA 2010). The fraction of precipitation that falls on days where precipitation exceeds the 95<sup>th</sup> percentile was projected to decrease along the leeward side of the Cascade Mountains (Salathe et al. 2009). The characteristics along the leeward side of the Cascade Mountains are comparable to the Klamath Basin. Diffenbaugh (2005) projected an increase of up to 10 extreme precipitation events per year in the Pacific Northwest (up to a 140 percent increase) under a higher emission scenario with some variation depending on location within the region.

Increases in heavy precipitation may result in a variety of general consequences for the Pacific Northwest:

- Increased fine sediment in streams may result in negative effects on the spawning of native fish that build their nests in the areas of clean rocks and gravel (Barr et al. 2010).
- Increased frequency and severity of flooding may occur (USGCRP 2009).
- Increased runoff may lead to surface water quality changes including increased turbidity, increased organic content, color changes, and alkalinity changes (Barr et al. 2010).

### **Reduced Snowpack**

By the 2040s, April 1<sup>st</sup> snowpack is projected to decline by as much as 40 percent in the Cascade Mountains (Payne et al. 2004) and between 37 percent and 65 percent in the Klamath Basin (Hayhoe et al. 2004). Cascade snowpack is projected to be less than half of what it was in the 20<sup>th</sup> century, with lower elevation snowpack being most vulnerable (OCCRI 2010). Projections show that by mid-century, warm-season runoff will decrease by 30 percent or more on the western slopes of the Cascade Mountains and by 10 percent in the Rocky Mountains (USGCRP 2009). By the end of the century, snowpack is projected to decline by 73 percent to 90 percent (Hayhoe et al. 2004).

Similarly, the results of the hydraulic, hydrologic and sediment studies conducted to support the Secretarial Determination on the Klamath Dam Removal and Basin Restoration show a more rapid snow melt for all climate change simulations.

Reduced snowpack may result in a variety of general consequences for the Pacific Northwest, including increased incidence of short- and long-term drought and limited inundation periods for side channels, which serve as nurseries for young fish and other aquatic animals (Barr et al. 2010). Summer water supply will also decrease as a result of reduced snowpack (OCCRI 2010).

### **Groundwater Hydrology**

Projected increases in temperature and changes to seasonal precipitation will impact groundwater hydrology. Projected changes in groundwater hydrology include alterations of the timing and amount of recharge, increases in evapotranspiration, lowering of heads in boundaries such as streams, lakes, and adjacent aquifers, sea-level rise, and increased pumping demand, which will be exacerbated by population growth (OCCRI 2010). The high Cascade basins that are primarily fed by deep groundwater systems could sustain low flow during summer months (OCCRI 2010). Basins in the east of the Cascades are projected to have low summer flow in a distant future as groundwater recharge declines over time (OCCRI 2010).

Groundwater hydrology changes may result in a variety of general consequences for the Pacific Northwest and Klamath Basin, including the following:

- Decreased stream flows for rivers and streams that are primarily fed by groundwater supplies (Barr et al. 2010).
- Decreased availability of groundwater for agricultural use and water supply (USGCRP 2009).
- Reduced cool water refuge for aquatic animals due to the decline of springs fed by groundwater and the cessation and increased variability of flow to smaller springs (Barr et al. 2010).

### **Vegetation Changes**

Conditions in the Upper Klamath Basin are projected to favor grasslands in areas that are currently suitable for sagebrush and juniper (Barr et al. 2010). In the Lower Klamath Basin, conditions suitable for oaks and madrone may expand while those suitable for maritime conifer forest could decrease (Barr et al. 2010). The percentage of the Klamath Basin burned by wildfire is expected to increase from current levels by 11 percent to 22 percent per year by the end of the 21<sup>st</sup> century (Barr et al. 2010). In addition, decreased soil moisture and increased evapotranspiration may result in the loss of wetland and riparian habitats (Barr et al. 2010).

Vegetation changes may result in a variety of general consequences for the Pacific Northwest and Klamath Basin, including the following:



- Changes in water quality (e.g., sediment) from burn area runoff (Barr et al. 2010).
- Changes in the tree canopy that affect rainfall interception, evapotranspiration, and infiltration of precipitation, affecting the quantity of runoff (Barr et al. 2010).
- Changes in the shading over surface waters, which may affect surface water temperatures and other water quality characteristics (USGCRP 2009).
- Changes in wood and organic debris recruitment, which may affect water quality and channel morphology and complexity (Barr et al. 2010).
- Reduced ability to respond to flooding due to changes in wetland and riparian zone plant communities and hydraulic roughness (USGCRP 2009).
- Increased stress on species populations due to loss of wetland and riparian habitats (USGCRP 2009).
- Shifting distribution of plant and animal species on land, with some species becoming more or less abundant (OCCRI 2010).
- Rare or endangered species may become less abundant or extinct (OCCRI 2010).
- Insect pests and invasive species may become more abundant (OCCRI 2010).

### **Flow**

Future annual stream flow effects calculations based on projected precipitation amount and timing changes are particularly difficult to predict. Annual stream flows (the volume of flow in a year) were evaluated by comparing future model-estimated flows (based on runoff estimates from the three climate models) against actual stream flow measurements. Annual stream flows at the four stations evaluated (Iron Gate, Sprague River, Shasta River, and Salmon River) were “similar” to past records when comparing the frequency of “particularly” high and low flow events. The three models’ results vary regarding projections of higher or lower annual flows – two models projecting lower flows and one projecting higher annual flows as compared to current flows (Barr et al. 2010).

Similarly, the results of the hydraulic, hydrologic and sediment studies conducted to support this document show that the climate change scenarios are not sufficiently refined to determine effects to peak flows and therefore it is difficult to determine if climate change will have a significant impact on flood risk or geomorphology. However, if the future climate is wetter and with a faster snowmelt runoff during the spring, then peak flows would likely increase as well. However, if the climate is drier, faster snowmelt may result in peak flows that are not substantially higher (Reclamation 2010).

Though the model used to project future flows did not identify a consistent trend, it is known that free-flowing rivers respond better to changes in climate conditions due to the ability to adjust to and absorb disturbances through flow adjustments that buffer against impacts (Palmer et al. 2008). A natural riverine system is in constant, dynamic equilibrium, absorbing highly variable flow forces by changing channel morphology and dissipating energy via sediment transport and woody debris. A natural river system is capable of using those “tools” to gradually adjust to flow regime changes due to climate–induced precipitation change. Consequently, the more physical changes the river system has been subjected to, such as changes in sediment budgets and flow regimes due to dams or land clearing, the less capable the system is of responding to or absorbing changed flow regime.

### **3.10.5 References (pertinent to excerpt)**

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**Preparing for Climate Change in the Klamath Basin - 2010**  
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**Selected Excerpts**

*Purpose and Overview*

This report is part of the Climate Futures Forum project undertaken by the National Center for Conservation Science and Policy and the University of Oregon's Climate Leadership Initiative. The purpose of the project is to encourage the development of basin-wide planning in Oregon and California to prepare for the anticipated risks and impacts brought about by changing climate conditions. Taking steps to anticipate and prepare for the likely consequences of climate change can build resistance and resilience to the range of stresses expected to occur over the next century.

The Climate Futures Forum helps local stakeholders from a variety of systems and sectors to assess climate change projections for their region, identify likely impacts, and propose management strategies to prepare for them. The forum purposefully integrates strategies or recommendations across different systems and sectors within these systems (see below) to ensure that climate change preparation actions produce complementary benefits.

**Sectors within systems**

Throughout this report, we discuss Systems and Sectors. Our convention is that each system is made up of a number of sectors. For example:

**Natural Systems:** aquatic and terrestrial species and habitats, water quality and quantity, invasive plants, etc.

**Built Systems:** transportation infrastructure, homes, buildings, water and power supply,

**Economic Systems:** agriculture, forestry, retail, tourism, commercial fishing, health care,

**Human Systems:** social services, public health, education, emergency services, etc.

**Tribal Systems:** communities, species, places and artifacts of cultural importance

*Executive Summary*

**The Klamath Basin** of southern Oregon and northern California is rich in history, culture, and natural resources. This report explores how the local communities and natural resources of the Klamath Basin are expected to be affected by climate change and identifies approaches to preparing for such changes. Many of the impacts from climate change are already becoming apparent, such as an increasing average global temperature, rising sea levels, earlier snow melt, loss of snow pack, and changing precipitation patterns and storm frequency. Without severe cuts in greenhouse-gas emissions, these impacts and others will continue to accelerate and negatively affect local communities and natural

resources. While efforts to reduce emissions of greenhouse gases are essential to prevent the most severe impacts, we must also take steps to prepare for the impacts of climate change already inevitable due to emissions that have previously been released.

This project is the result of a collaborative effort. The USDA Forest Service Pacific Northwest Research Station developed projections for the potential future climate of the Klamath Basin. The University of Oregon's Climate Leadership Initiative and the National Center for Conservation Science and Policy presented these projections to local leaders and experts in the Klamath Basin through a series of workshops. Leaders and experts used these climate projections to identify likely changes to natural (aquatic and terrestrial species and habitats), built (infrastructure), economic (agriculture, forestry, business), human (health, education, emergency services), and tribal (resources of cultural and indigenous community importance) systems. Finally, recommended strategies and actions were developed to prepare communities and natural resources for those changes.

### *Future Climate of the Klamath Basin*

Three global climate models—CSIRO, MIROC, and HADCM—and a vegetation model (MC1) were used to project future temperature, precipitation, vegetation, runoff, and wildfire in the Klamath Basin. The three climate models projected an increase in annual average temperatures compared to baseline temperatures (2.1°F to 3.6°F [1.1°C to 2.0°C] increase by mid-century and 4.6°F to 7.2°F [2.5°C to 4.6°C] by late century). Summer warming was projected to be greater than warming during other seasons.

Projections for annual average precipitation ranged from an overall reduction of 11% to an increase of 24%. All three models agreed that future summers are likely to be drier (a decrease of 3-37%) than past summers. Vegetation model results indicated a shift in growing conditions in the Upper Basin that could favor grasslands in areas currently suitable for sagebrush and juniper. In the Lower Basin, conditions are projected to favor oaks and madrone over maritime conifer forest (redwood, Douglas fir, and Sitka spruce), which are projected to decline. The vegetation model also projects 11-22% greater area burned by wildfire by late century.

### *Recommended Actions for Preparation Across Systems*

Through a series of workshops in the Klamath Basin, participants made recommendations for how to prepare for the changes expected under climate change. While recommendations were made for each specific system, many recommendations provide co-benefits across multiple systems and sectors. The strategies and actions suggested by workshop participants are likely to increase the resilience and resistance of local communities and natural resources to climate change. In summary:

#### **Natural Systems**

- Protect areas with cooler water as air and water temperatures rise. These include stream and lake areas with groundwater-fed springs and well-developed bank vegetation.
- Decommission and re-contour nonessential roads to reduce the overall impact of erosion and sedimentation during severe storm events.
- Reconnect rivers with floodplains, restore wetlands, and restore streamside areas to hold more water during floods and increase groundwater recharge.

- Protect intact habitats such as roadless areas that provide strongholds for many native species.
- Reseed areas after disturbance with locally collected native seeds to reestablish plants that occur in the area and limit the spread of invading species.
- Develop new partnerships across agencies, tribes, and landowners to encourage landscape scale planning across jurisdictional boundaries.

### **Built Systems**

- Increase reliability of water supply and decrease the likelihood of flooding by restoring wetlands, constructing bioswales (landscape elements designed to remove silt and pollution from surface runoff water), and restoring floodplains and streamside areas.
- Provide water conservation incentives to reduce demand and increase natural water storage.
- Provide homeowners with assistance in lowering their energy use to reduce reliance on services that may be interrupted.
- Replace undersized culverts to prevent roadstream crossing failures during floods.
- Expand rail use to increase energy efficiency of local and regional transportation and decrease reliance on the road network.
- Reduce the building of homes in fire-prone and flood-prone areas to keep communities safe and decrease the demand on emergency services.

### **Economic Systems**

- Retain resiliency of natural systems so they continue to provide ecosystem services such as clean water supply, flood buffering, and timber production so the communities and industries they support are maintained.
- Identify and take advantage of new renewable energy markets to reduce reliance on energy systems that may be disrupted and to build a local energy economy.
- Support the growth of small farms that provide local produce to improve food security and nutrition within communities.
- Retain large tracts of forestlands through carbon credits or limits on subdivisions as a means to reduce the risk of fire and the costs of emergency services as well as develop a carbon sequestration program.
- Promote tourism for activities like birding and cycling to expand the local economy while other industries, such as forestry, may decline due to climate change.
- Increase size and resiliency of commercially harvested fish populations through stream and watershed restoration activities to reestablish this sector of the economy.



## Human Systems

- Improve detection of, and response to, new diseases and disease vectors to quickly protect communities from emerging health threats that occur due to warmer temperatures.
- Provide incentives for more efficient homes that would reduce the impacts of severe heat on local populations.
- Increase passive cooling and air conditioning in public places to minimize the impacts of severe heat on the health of community members.
- Update emergency plans to reflect increased likelihood of severe weather, floods, and wildfires.
- Engage with and communicate among community groups (faith-based organizations, nonprofit groups) to assist governments in emergency response (e.g., distributing supplies in response to flooding events and identifying and assisting people at risk from severe heat).

## Tribal Systems

- Improve communication among state and federal agencies and tribes to allow for tribal input to planning processes and broaden community buy-in.
- Investigate feasibility of carbon credits for preserving tribal land forests to increase carbon sequestration and improve the local economy.
- Provide incentives for private landowners to cultivate culturally important species of plants and wildlife and allow for tribal use.
- Acknowledge the value of traditional ecological knowledge in managing natural ecosystems and protect such knowledge from misuse.

Heat waves, severe precipitation events, and prolonged drought are all expected to increase as a result of climate change. The recommendations made by local leaders and experts represent a sample of potential actions and strategies that could be taken in the Klamath Basin to prepare for climate change. By increasing the resilience of local communities in the Klamath Basin to changes brought on by climate change, the potential negative impacts of climate change would be reduced, thereby increasing the potential for maintaining current quality-of-life in the Basin.

# Klamath Basin Coordinating Council Climate Change Assessment Update

November 14, 2012 Eureka, CA

Gordon Leppig, DFG



# KBRA Sec. 19.4 Purpose

- Framework for assessment to determine how climate change may affect KBRA programs.
- Potential to negotiate supplemental terms to the KBRA to address climate change issues.
- The Oregon Water Resources Department (OWRD) and California Department of Fish and Game (CDFG), in coordination with Water Managers and Fish Managers, are co-lead parties for this assessment.

# Secure Water Act

## Phase I: Westwide Climate Risk Assessment

Broad look at risks to water supply, power, and ecosystem services

## Phase II: Basin Study

Quantifies future water supply and demands

Focuses on analysis of potential imbalances between future water supplies and demands.

# **Reclamation's Secure Water Act Klamath Basin Study Draft Schedule**

- **2012-2013 Water supply inventory and assessment**
- **2013 Water demand assessment**
- **2013-2014 System reliability assessment**
- **2014 Develop and evaluate options; recommend adaptation strategies**
- **2013-2014 Prepare draft/final report**



# Proposed KBRA Climate Change Assessment Schedule

**2012**

<b>TASK</b>	<b>STATUS/RESULT</b>
<b>Review existing and planned studies</b>	Completed
<b>Determine whether additional studies are needed</b>	Completed. Secure Water Act Klamath Basin Study is needed.
<b>Develop process and schedule for the assessment</b>	Included here
<b>Brief KBCC on schedule and process.</b>	Today's meeting
<b>Seek comments from KBCC on the assessment process and schedule and the adequacy of the existing and planned studies.</b>	Today's meeting

# Proposed KBRA Climate Change Assessment Schedule

**2013-2014**

- Monitor progress on Secure Water Act Klamath Basin Study.
- Compile and review new relevant CC studies and model projections.
- OWRD and CDFG will meet at least once annually to evaluate Basin Study progress and new climate change studies.
- Annually brief KBCC on Basin Study schedule and process and the results of any new climate change science.

# Proposed KBRA Climate Change Assessment Schedule

**Winter 2014- Spring 2015**

## Prepare draft report that:

- Summarizes Basin Study key findings
- Summarizes the key findings of previous CC studies
- Assesses projected CC impacts on KBRA actions
- Determines if KBRA amendments should be recommended
- Describes future process to monitor CC-related effects on KBRA
- Consult with fish managers, irrigators, and others on draft report and make revisions as needed.
- Brief KBCC and seek comments on draft report.

# Proposed KBRA Climate Change Assessment Schedule

**Summer-Fall 2015**

- Finalize and submit Climate Change Assessment Report to the KBCC.

Questions?

# Summary of Climate Change Projections for the Klamath Basin in the 21<sup>st</sup> Century



# Climate Change Effects

- Increased air temperature
- Changes in annual and seasonal precipitation
- Reduced snowpack
- Changes in flow regimes
- Sea level rise
- Increased storminess
- Vegetation changes

# Climate Change Projections -

model-derived estimates of a future climate.

Projections are not climate predictions or forecasts.

**“Climate is what we expect, weather is what we get.”**

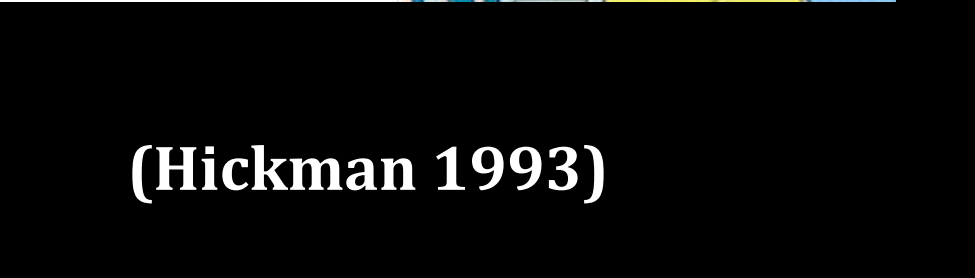
Mark Twain



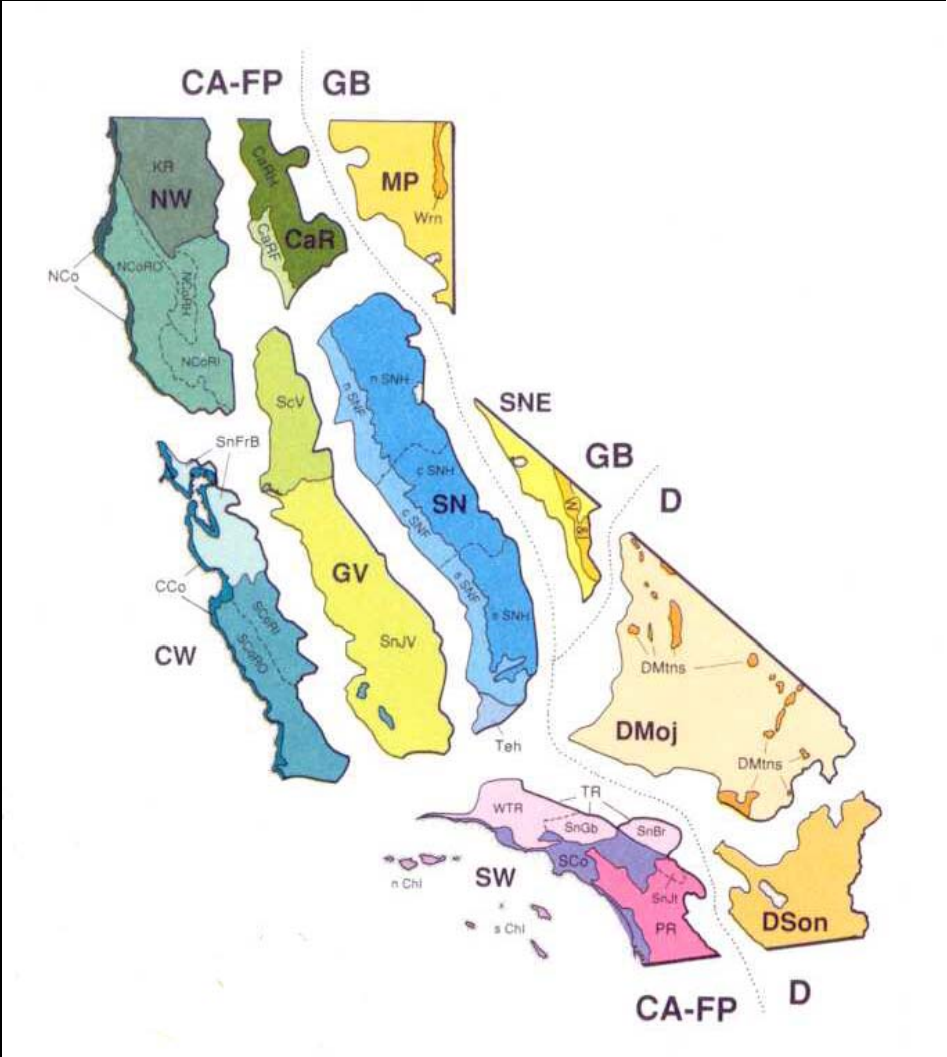
Best Science



# Model down-scaling



**(Hickman 1993)**



# Increased Air Temperature

Air temperature in the Klamath Basin  
is projected to increase:

+2.1 to +3.6 degrees F (+1.1 to + 2.0 C)  
by the Mid-21<sup>st</sup> Century.

+4.6 to +7.2 degrees F (+2.5 to +4.6 C)  
by the end of the 21<sup>st</sup> Century

# General Consequences of Higher Air Temperatures

- Increased evaporation rates
- Increased incidence of wildfire
- Higher warm-season water temperatures
- Changes in water quality
- Increased frequency and intensity of insect infestations/invasive species
- Increased # of extreme heat days

# Reduced Snowpack



- By the 2040s, April 1<sup>st</sup> snowpack in the Cascade Mts. is projected to decline by 40%.
- Klamath Basin snowpack is projected to decline by 37 to 65%.
- 73-90% decrease in snowpack is projected by the end of the 21<sup>st</sup> Century.

No. 514 Subject Thompson Peak, Head Grizzly Creek

Date July 24, 1911 Locality Trinity Co., Cal. Collector L.K. and A.M.A.



University of California

Museum of Vertebrate Zoology

Exposure..... Stop.....

Light..... Paper Glossy Contrast Cyko



# Thompson Peak 15 September, 2010



Justin Garwood, DFG

# Changes in Annual and Seasonal Precipitation

- Substantial uncertainty in precipitation projections.
- Projections indicate no significant change in mean-annual precipitation in the 21<sup>st</sup> Century

## However

- Summers will likely be drier
- Winters will likely be wetter



# Increases in Heavy Precipitation (Storminess)

Increase in the frequency and magnitude of extreme precipitation events.

## This could result in:

- Increased frequency and severity of flooding
- Increased runoff could lead to increased fine sediment in streams and lower water quality

# Stream Flows



More rain falling in the winter, less snowpack, and earlier snow melt means:

- Stream flow increases in winter-early spring
- Stream flow decreases in late spring, summer & fall
- Could result in decreased Summer water availability
- Potentially more frequent and greater magnitude flood events





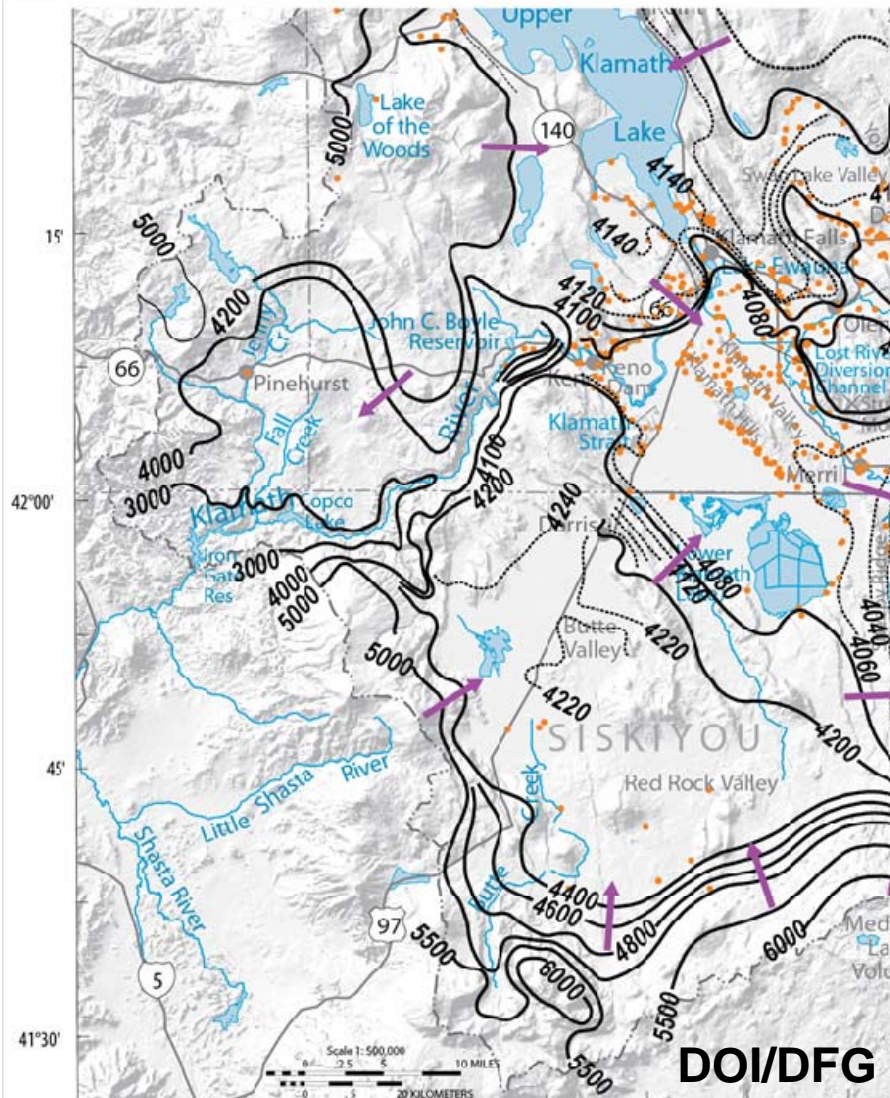


## ***Klamath River at Klamath Glen***



# Groundwater Hydrology

- Less snowpack +
- higher magnitude precipitation events +
- less precipitation in the dry season could =
- changes in aquifer recharge timing
- Changes in groundwater availability





# Changes in Wildfire Frequency, Severity, Intensity

Projected % change  
in area burned  
compared to baseline  
(1961-1990):

+ 13 to 18% by 2035-45

+11 to 22% by 2075-85



# Vegetation Changes

- Loss of subalpine habitat
- Decrease of maritime conifer forest
- Expansion of oak woodlands
- Possible replacement of sagebrush and juniper with grasslands





# Sea Level Rise



- + 6 inches (~15 cm) by 2030
- +12 inches (~30 cm) by 2050
- + 36 inches (~91 cm) by 2100

## **Q/A – Klamath Basin Adjudication (KBA) (KBCC 11/14/2012)**

### **What is the purpose of the Klamath Basin General Stream Adjudication?**

The Klamath Basin General Stream Adjudication (Adjudication) is a statutory process designed to determine the water rights for uses of water which began before adoption of the Oregon Water Code in 1909, or for uses of water which were reserved to the federal government or Indian Tribes.

### **Briefly, what is the history of the Adjudication? When did it start?**

The Adjudication was initiated on December 23, 1975. As a point of interest, several months prior to the initiation of the KBA (in July of 1975) the Oregon Office of State Engineer became the Oregon Water Resources Department (OWRD). Throughout the 1980s, OWRD conducted field inspections based on March 1, 1977 Notice of Intention filings, and made examinations of the streams as required by ORS 539.120.

Statements and Proof of Claim were due on February 1, 1991 with the exception that the Bureau of Reclamation project users and federal agencies had a filing deadline of April 30, 1997. The claim files were available for open inspection period beginning on October 1, 1999. The filing deadline for contests was May 8, 2000. 730 claims were filed resulting in 5664 contests filed to those claims. The claims encompassed the following uses: irrigation, domestic, stock water, power, tribal and federal instream flows and other federal reserved rights.

Contested case hearings at the Office of Administrative Hearings began in late 2001 and were completed in April 2011.

The Adjudication process was delayed several times due to lawsuits. These included *United States v. Oregon*, 44 F.3d 758 (9<sup>th</sup> Cir. 1994), which determined that the Adjudication is a comprehensive general stream adjudication within the provisions of the McCarran Amendment (43 USC § 666), which waives the United States' sovereign immunity for the purposes of adjudicating water rights; and *United States v. Adair*, 104 S.Ct. 3536 (1984) (Adair I) *United States v. Adair*, 723 F.2d 1394 (9<sup>th</sup> Cir. 1983) (Adair II) and *United States v. Braren*, (aka Adair III) (July 21, 2003), which determined that the United States and Klamath Tribes possessed certain reserved water rights to the rivers at issue in the litigation, but left quantification of those rights to the Adjudication.

### **What are the remaining steps for the Adjudication?**

The adjudicator is preparing his Final Order of Determination (FOD). When completed, OWRD will file the FOD with the Klamath County Circuit Court. OWRD anticipates filing the FOD sometime during the first half of 2013.

After the FOD is filed, OWRD will begin to administer water as determined in the FOD unless stayed by a bond as provided by ORS 539.180. Exceptions to the FOD can be filed with the Circuit Court. The Court will hear the exceptions and ultimately issue a decree. OWRD will issue certificates in accordance with the court-issued decree after the close of the appeal process to the decree. OWRD does not know how long the proceedings will take at the Circuit Court.

### **How will the Adjudication change the way water is used or regulated in the basin?**

Oregon's water laws are based on the principle of prior appropriation. This means the first person to obtain a water right on a stream is the last to be shut off in times of low streamflows. In water-short times, the water right holder with the oldest date of priority can demand the water specified in their water right regardless of the needs of junior (newer) users. The adjudication gives OWRD the authority to regulate to this principle. However, until the Final Order of Determination (FOD) is delivered to the Klamath County Circuit Court, the Department is unable to regulate for or against any of the water right claims. Once the FOD is delivered, claimants will be able to make a call to the Watermaster's office if water is not available to satisfy their water use as defined in the FOD. The Watermaster will then verify the right, confirm that water is not available and then regulate junior rights to satisfy the call for water.

### **Is the Adjudication going to affect groundwater rights?**

It is possible that groundwater rights will be affected by the adjudication. If there is conclusive evidence that a junior groundwater right is affecting a senior surface water right and the Department determines that regulating the groundwater right would provide relief in an *effective and timely manner*, then the groundwater source may be regulated against. The Department will review existing ground water uses to determine interference with a surface water source on a case-by-case basis.

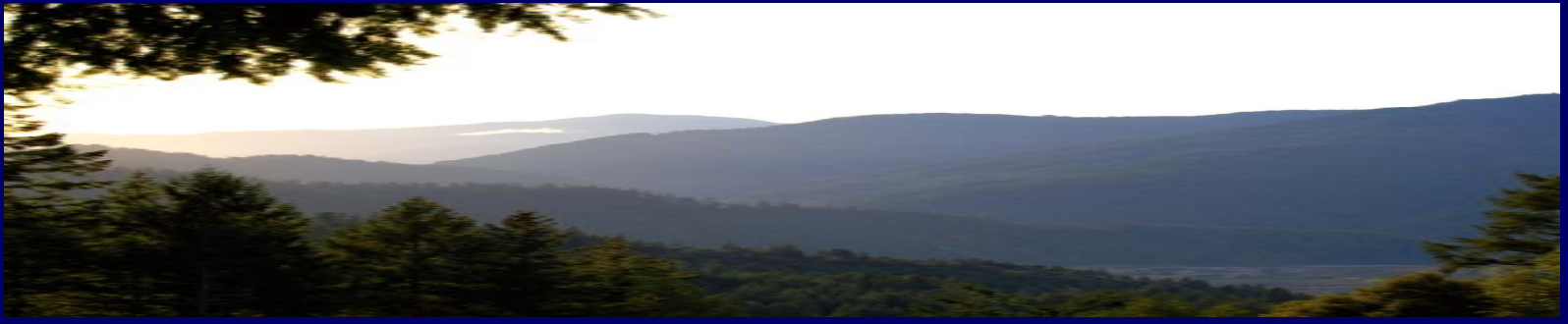
### **What quantity of water will the Klamath Tribes have a right to use?**

Proposed Orders have been issued by an Administrative Law Judge in all cases dealing with the Tribes' instream water right claims. The Proposed Orders are generally favorable to the Tribes' claims. Each of the Proposed Orders is subject to review and potential modification by OWRD's Adjudicator prior to issuance of OWRD's FOD. The extent of the Tribes' rights will be determined initially by OWRD's FOD.



# Oregon's Klamath Basin Adjudication

Ruben E. Ochoa  
Oregon Water Resources Department  
KBCC Meeting – November 14, 2012



## Statutory Authorization

- *ORS Chapter 539*

Sets forth the procedures that the Water Resources Department (WRD) must undertake to carry out a general stream adjudication in Oregon.

- *ORS 539.010*

Describes the protection of water rights vested or initiated prior to the passage of the Water Rights Act in 1909; and includes a process for negotiation of water rights with the federally recognized Indian Tribes of Oregon.





## History of Klamath Basin Adjudication

- December 23, 1975 – Adjudication initiated.
- February 1, 1991 – deadline to file Statements and Proofs of Claim.
- April 30, 1997 – deadline to file Proofs of Claim for Bureau of Reclamation project users and Federal Agencies.
- May 8, 2000 – deadline to file contests to Claims or Preliminary Evaluation of Claims.
- First half of 2013 – anticipated date of OWRD filing of the Final Order of Determination with Klamath County Circuit Court.



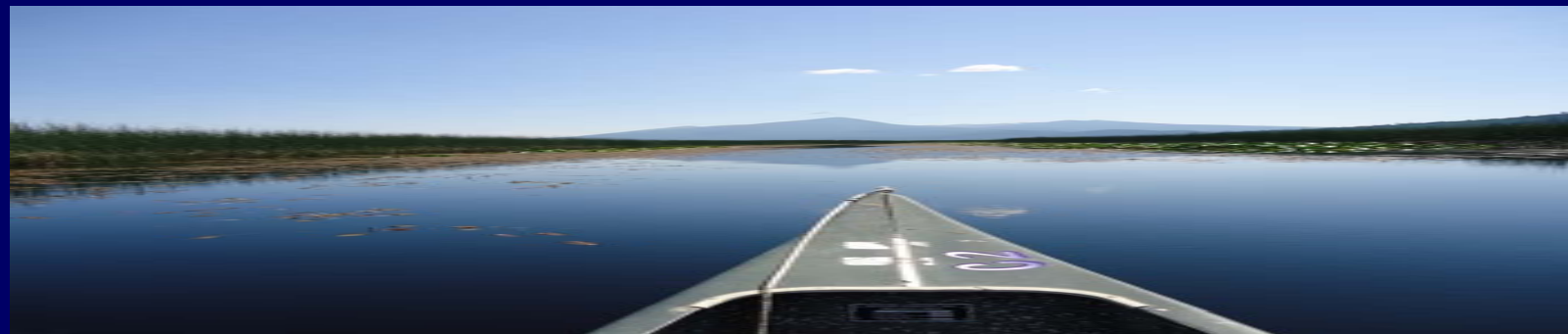
# Procedure

## Public Notices/Actions

- Notice of General Stream Adjudication.
- Notice of Intention to file claims.
- WRD conducts field inspections of intent submissions.
- Notice of opportunity/timeframe to file claims.
- Notice of right to inspect evidence.
- Notice of opportunity to contest claims and request a hearing.

## WRD Adjudicator Develops Findings of Fact and Final Order of Determination of Rights





# **KLAMATH BASIN ADJUDICATION** **Claim and Contest Information** as of **June 1, 2012**

<b>Claim Type</b>	<b>Claims</b>	<b>Contests</b>	<b>Claims Settled/ Resolved</b>	<b>Contests Settled/ Resolved</b>	<b>Claims Active</b>	<b>Contests Active</b>
Federal Reserved Claims	313	4,355	313	4,355	0	0
Bureau of Indian Affairs/Tribal Claims	64	340	64	340	0	0
Other Claims (Pre-1909, Allottee, Walton)	300	969	300	969	0	0
Withdrawn Claims	29	--	29	--	--	--
Uncontested Claims	24	--	24	--	--	--
<b>TOTALS</b>	<b>730</b>	<b>5,664</b>	<b>730</b>	<b>5,664</b>	<b>0</b>	<b>0</b>

Contests Resolved = 100.0%

Claims Resolved = 100.0%



## Final Order of Determination (Elements)

### General Findings of Fact

Background

Introduction

Basin Description

Notices

### General Conclusions of Law

Allottee Rights – The Dawes Act of 1877, authorizes survey of tribal lands and division of lands into allotment for individual Indians.

Walton Rights – Non-Indian water rights derived from allottee rights. Based on *Colville Tribes v. Walton* (9<sup>th</sup> Circuit; 1981) court decision.

Pre-1909 Rights

Federal Reserve Rights

Cont.



## Final Order of Determination (Elements)

### Individual Partial Orders of Determination (by Claim Number)

- Specific Findings of Fact – by Claim
- Specific Conclusions of Law – by Claim
- Specific Order – by Claim

### Appendices



## FOD Filed With District Court

- Upon filing of FOD with the District Court, WRD will begin to administer for water rights claims in accordance with prior appropriation doctrine.
- Claimants will be able to make a call to the Regional Watermaster's Office to satisfy their claim.

Unless—FOD stayed by the District Court by a bond in accordance with ORS 539.180. Exceptions can be filed and heard by the Court and the Court will ultimately issue a decree. Upon issuance of the decree, WRD will issue water right certificates.



## Questions





# Trinity River Restoration Program

## 2012 Fall Flow Update



Joe Polos  
U.S. Fish and Wildlife Service  
Arcata Fish and Wildlife Office



Presentation to the  
Klamath Basin Coordinating Council  
November 14  
Eureka, CA





## TRRP - Fall Flows Background



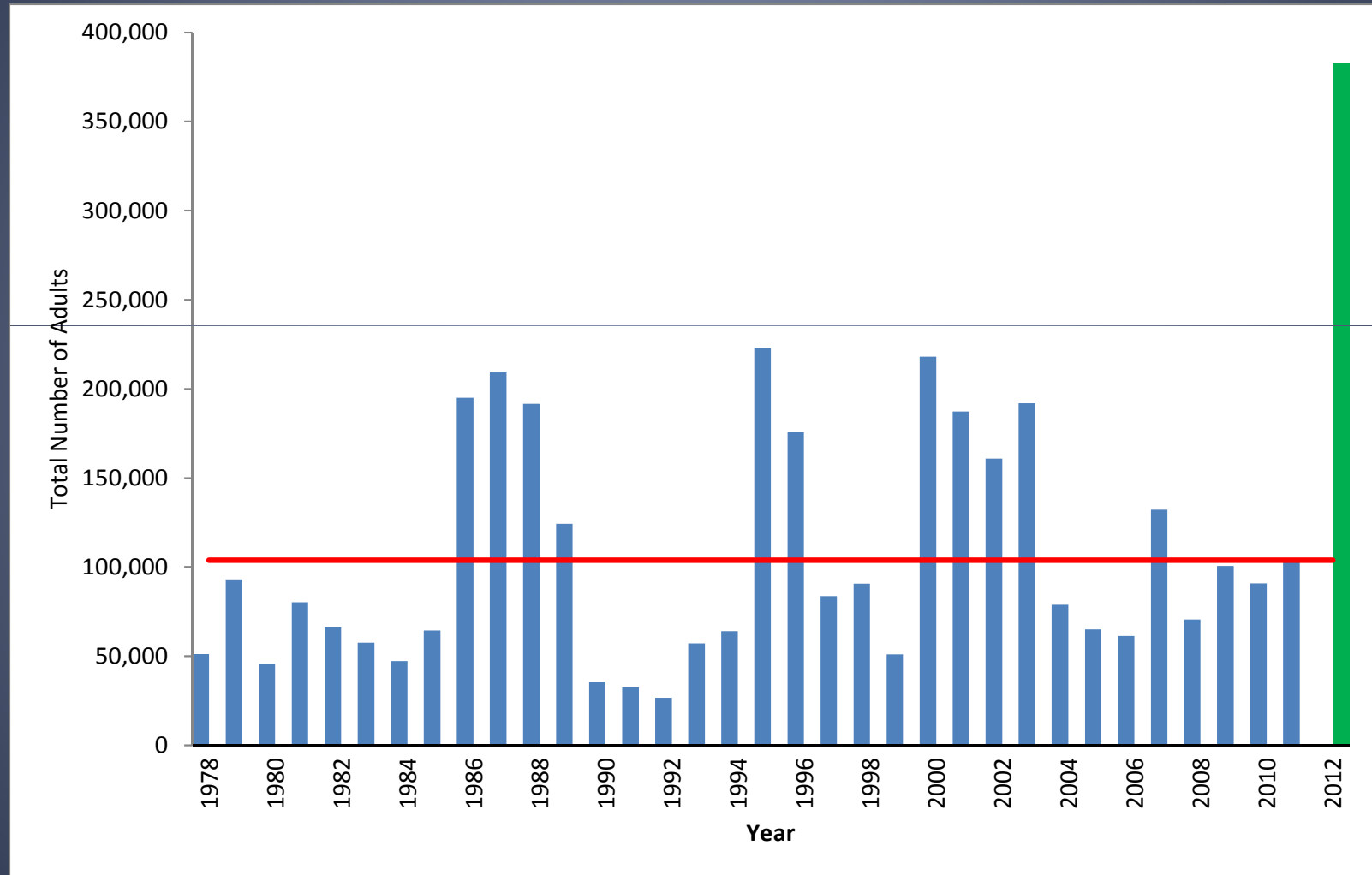
- 2002 Fish Kill— at least 33,000 adult salmon died in the lower Klamath River – epizootic due to severe Ich and columnaris infections.
- 2003 & 2004— supplemental flows released from Trinity as preventative measure to avoid another adult fish kill.
  - 34,000 af in 2003 and 36,200 af in 2004





## TRRP - Fall Flows

# Klamath Basin Adult Fall Chinook Salmon Inriver Run, 1978-2011 and Projected 2012 Inriver Run



- Horizontal red line is the 1978-2011 mean of 103,750 adult fall Chinook salmon.
- Projected Inriver Run = 86,300 natural spawners, 67,100 hatchery spawners, 160,000 tribal harvest, and 67,600 inriver recreational harvest.

## TRRP - Fall Flows

# 2012 Recommendation of the TRRP Fall Flow Workgroup



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### MEMORANDUM

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**TO:** BRIAN PERSON, RECLAMATION NORTHERN CALIFORNIA AREA MANAGER  
**FROM:** FALL FLOW SUBGROUP  
**SUBJECT:** 2012 FALL FLOW RELEASE RECCOMENDATION  
**CC:** TRRP FLOW WORKGROUP MEMBERS  
ERNEST CLARKE, TRRP SCIENCE COORDINATOR  
ROBIN SCHROCK, TRRP EXECUTIVE DIRECTOR  
**DATE:** MAY 31, 2012

---

### Background

## TRRP - Fall Flows

# 2012 Recommendation of the TRRP Fall Flow Workgroup

1. Preventative flow release designed to minimize the risk of a fish disease outbreak and subsequent fish kill.
2. Emergency flow release designed to reduce the severity of a fish kill.

From TRRP fall flow workgroup memos dated May 31, 2012 and August 16, 2012

## TRRP - Fall Flows

# Preventative Flow Recommendation

- Maintain a minimum flow of 3,200 cfs at the lower Klamath River gage (KNK) from August 15 – September 21
- If water temperature exceeds 23 C after Sept 21, maintain flows at 3200 cfs until water temperature cools to below 23 C.

## TRRP - Fall Flows

# Preventative Fall Flow Releases

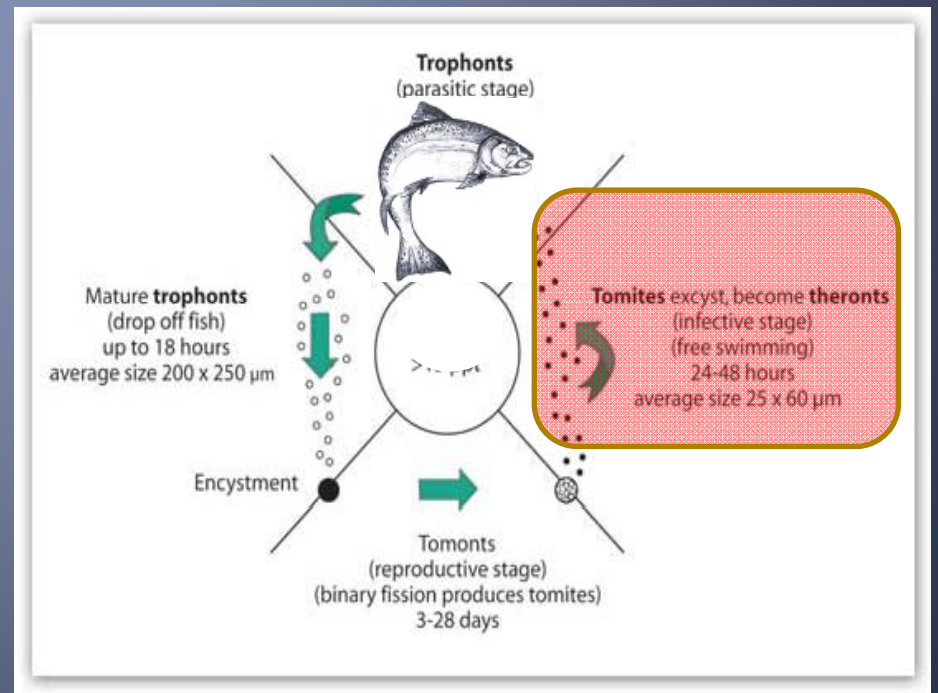
- Gaging records for the lower Klamath River indicate that the long term average discharge for both August and September is approximately 3,200 cfs, with the 50% exceedance during those months of approximately 3,000 cfs.
- The subgroup compared other large fall-run Chinook salmon run sizes to discharge in the lower Klamath River to gain an understanding of the hydrologic conditions in years with large runs. The information indicated that average discharge during years with large fall-run Chinook salmon run sizes ( $\geq 170,000$ ) was over 3,000 cfs in the lower Klamath River and under these conditions no significant pre-spawn mortality was recorded for fall-run Chinook salmon.

## TRRP - Fall Flows

### Preventative Flow Recommendation

“The purpose of the higher base flows is ... to achieve the increased water velocities and higher turnover rates of water in holding areas, which should reduce the ability of Ich to find and attach to a host fish during its free swimming infections stage.”

- Not necessarily to reduce water temperatures or to provide migration cues

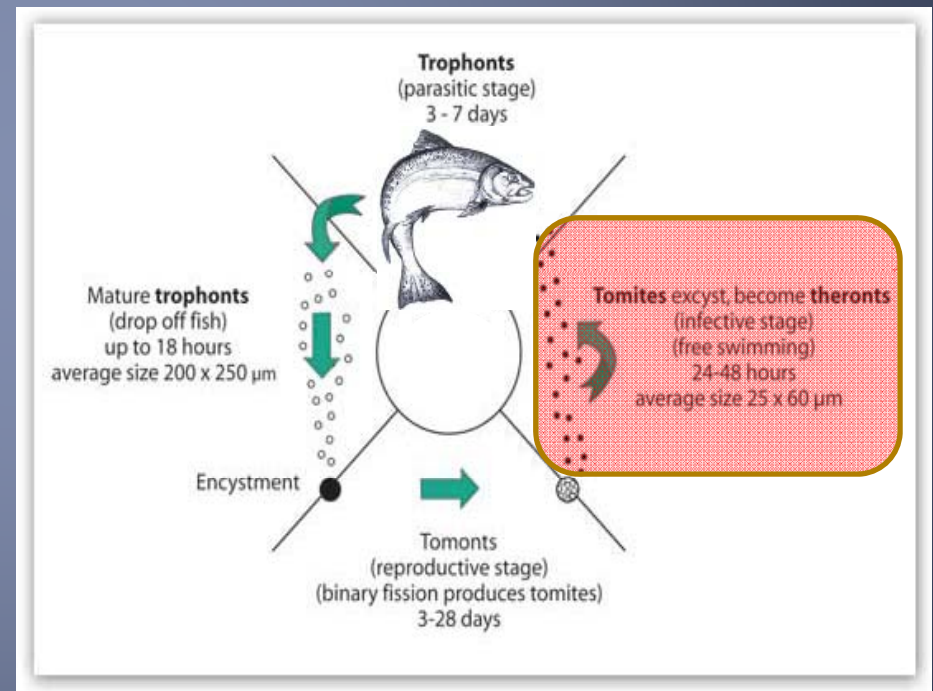




## TRRP - Fall Flows

# Emergency Flow Recommendation

- Double in the lower Klamath River for 7-days; up to a maximum of 6,400 cfs.
- Emergency flow release designed to disrupt the Ich life-cycle with shorter turn-over rate of water and increased velocities, reducing the probability of an Ich epizootic.
- Interrupting an epizootic would limit the severity of a fish kill.



## TRRP - Fall Flows

# Emergency Flow Triggers

- Stage 1 Monitoring:
  - Severe Ich infection (>30 parasites on a gill arch) in 5% of weekly sample or
  - Mortality of > 50 adult salmonids in a 20 km reach within a 24 hour period.
- Stage 2 Monitoring – Diagnostic Ich Survey
  - Initiated if either stage 1 criteria is met
  - Intensive sampling by CA/NV Fish Health Center and partner agencies.
  - Confirmed diagnosis of severe Ich infection in 5% sampled fish in a 2-day period (minimum sample of 30 fish).
- If Ich diagnostic survey finds  $\geq 5\%$  of sampled fish with severe Ich infections, recommend an emergency release.

TRRP - Fall Flows

## Training and Planning

- FWS hosted a Fish-Kill investigation course
- Klamath Fish Health Assessment Team
  - developed a fish kill response plan in 2005, updated in 2011
  - Weekly/bi-weekly conference calls to discuss conditions on the Klamath concerning the potential for a fish kill.
  - Coordinated by North Coast Water Quality Control board

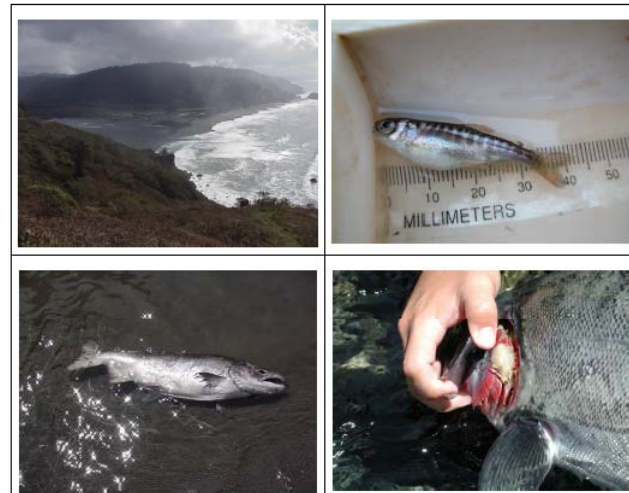


## TRRP - Fall Flows

# Training and Planning

- Klamath Fish Health Assessment Team –
  - California Department of Fish and Game
  - Hoopa Valley Tribe
  - Humboldt Watershed Council
  - Karuk Tribe
  - Klamath Salmon Anglers and Guides Association
  - NOAA Fisheries
  - North Coast Regional Water Quality Control Board
  - PacifiCorp
  - Quartz Valley Tribe
  - Salmon River Restoration Council
  - U.S. Bureau of Reclamation
  - U.S. Environmental Protection Agency
  - U.S. Geological Survey
  - U.S. Fish and Wildlife Service
  - U.S. Forest Service
  - Yurok Tribe

### Klamath River Basin Fish Kill Response Plan



**Klamath Fish Health Assessment Team  
(KFHAT)**

August 2005  
Updated March 2011

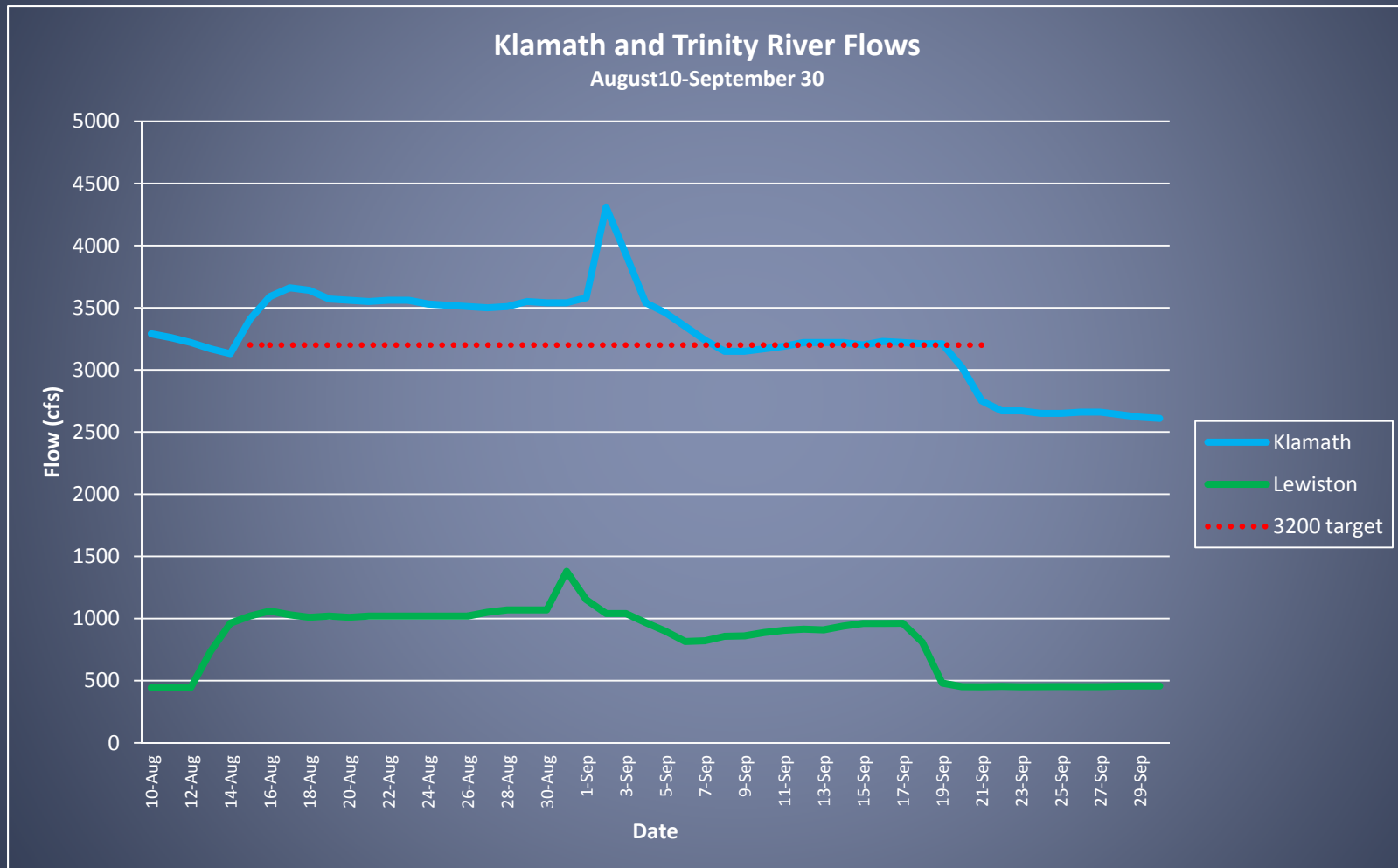


TRRP - Fall Flows  
**Flow Releases**

- Augmented flows from Lewiston Dam initiated on August 13.
- Flows returned to summer baseflow of 450 cfs of September 20.
- Approximately 38,960 af released from Lewiston as preventative fall flow.

## TRRP - Fall Flows

# Preventative Fall Flow Releases

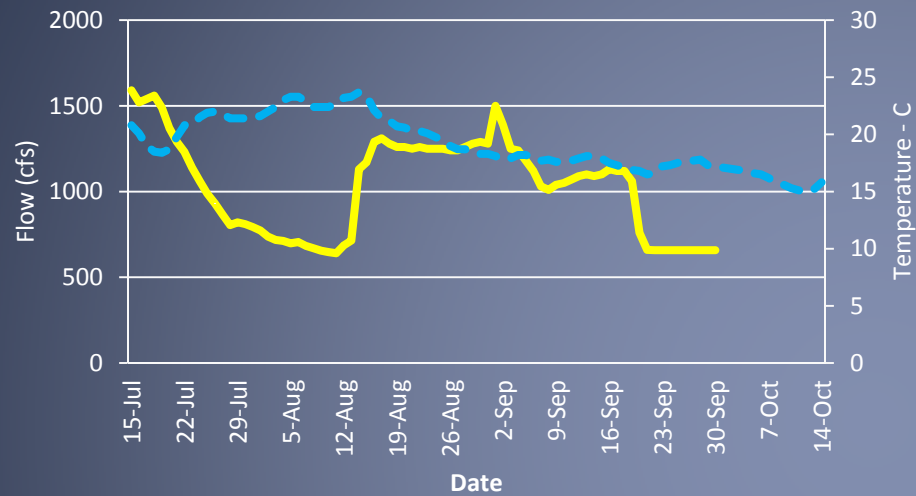




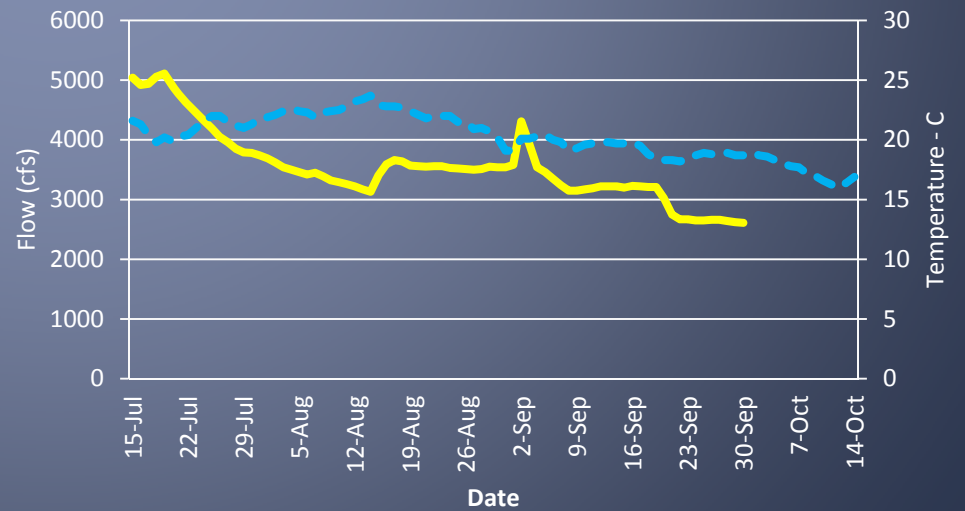
## TRRP - Fall Flows

# Preventative Fall Flow Releases

Flow and Water Temperature, lower Trinity River (HPA)



Flow and Water Temperature, lower Klamath River (KNK)





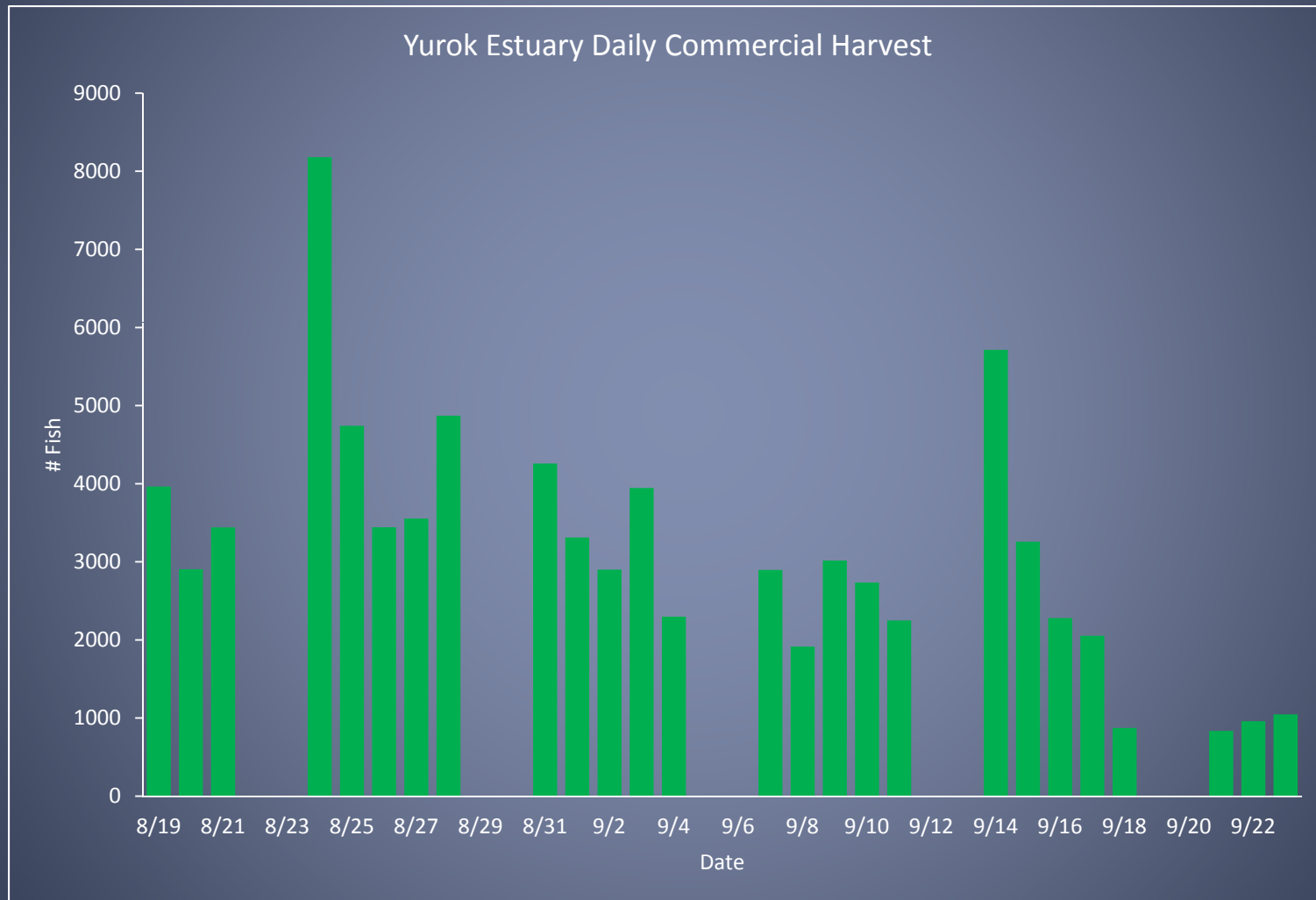
TRRP - Fall Flows

## Fish Info

All Data Are Preliminary



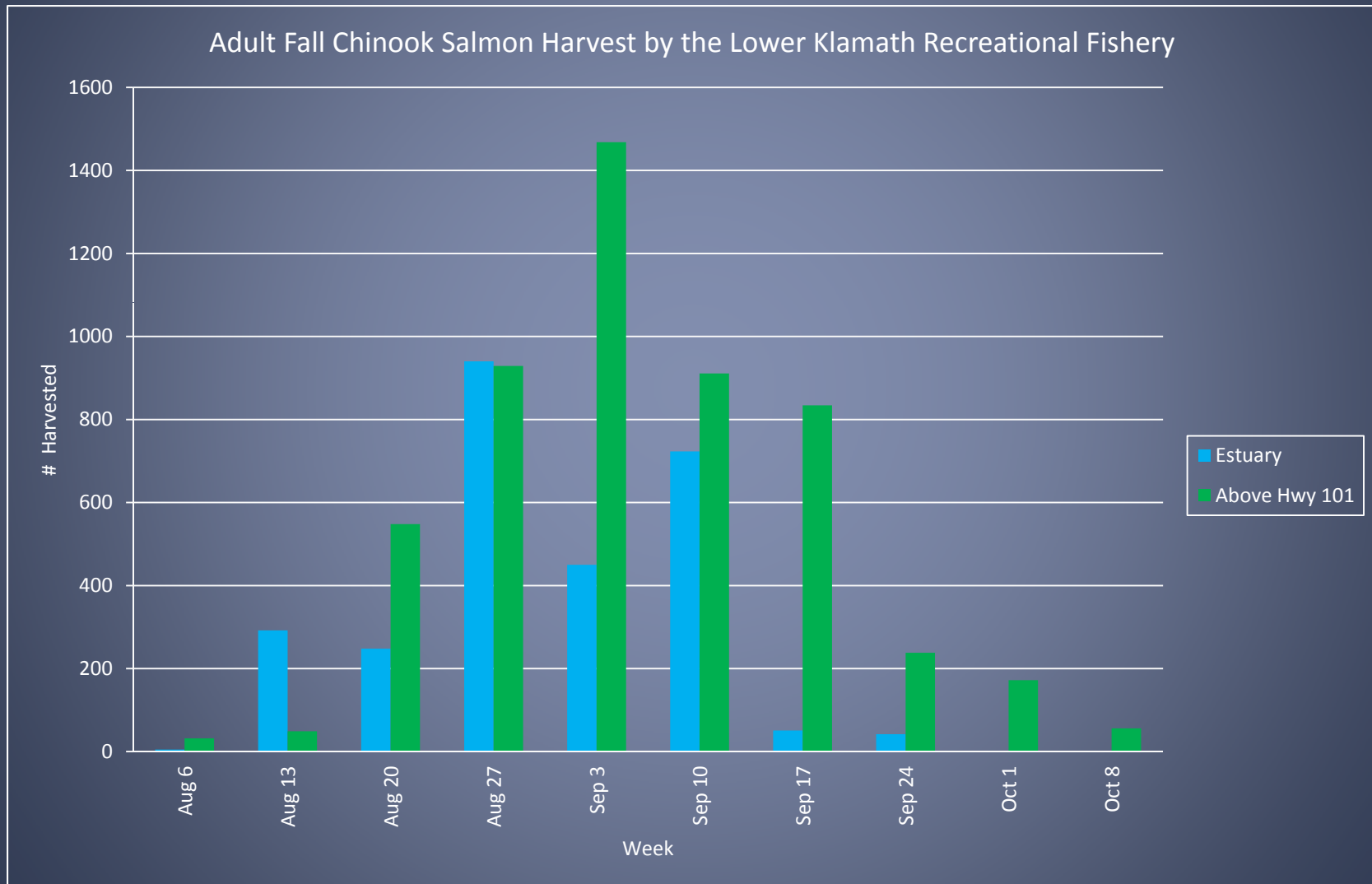
## TRRP - Fall Flows Fish Monitoring



Data Provided by YT

## TRRP - Fall Flows

# Fish Monitoring

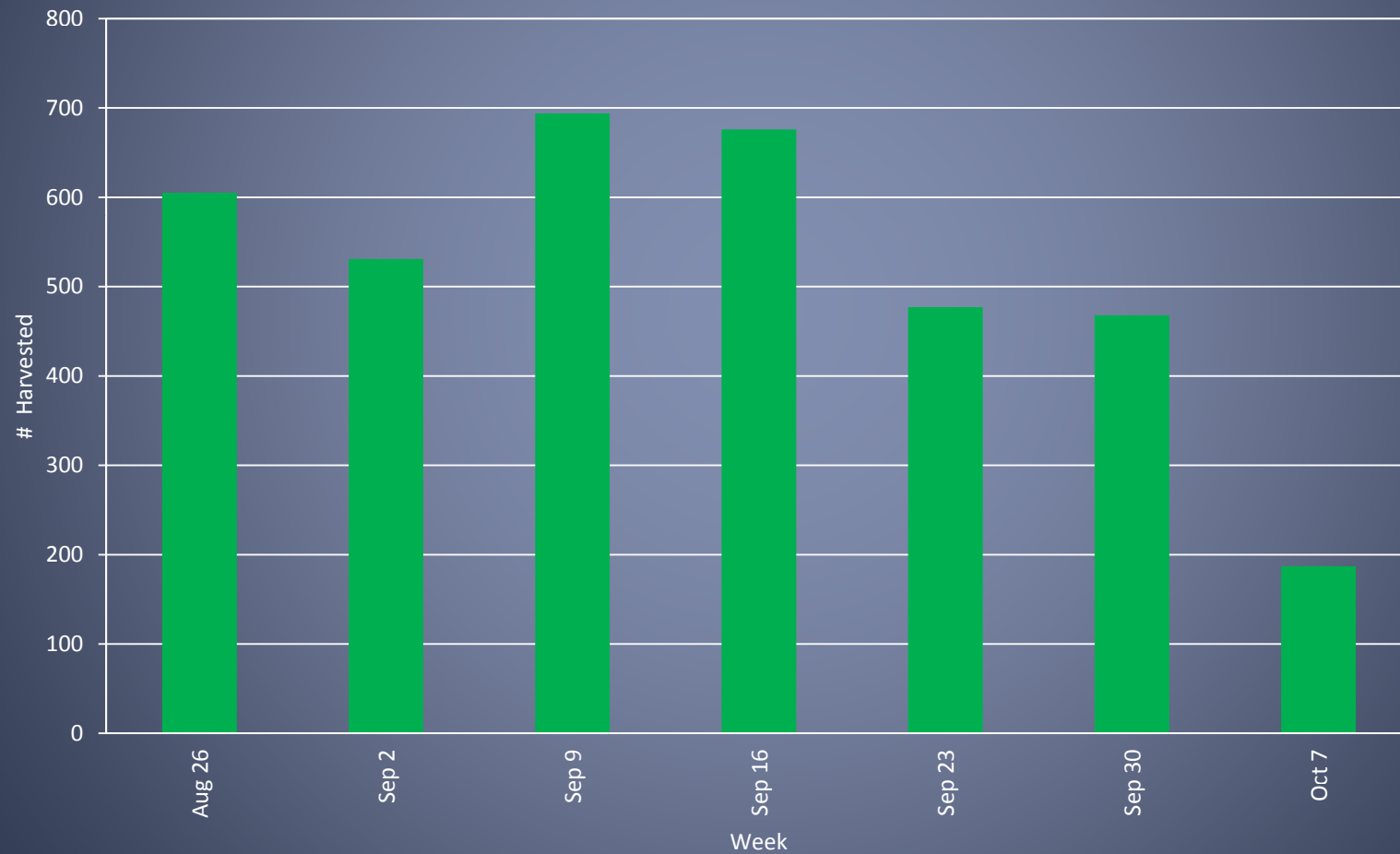


Data Provided by CDFG



# TRRP - Fall Flows Fish Monitoring

Adult Fall Chinook Salmon Harvest by the Hoopa Valley Tribal Fishery

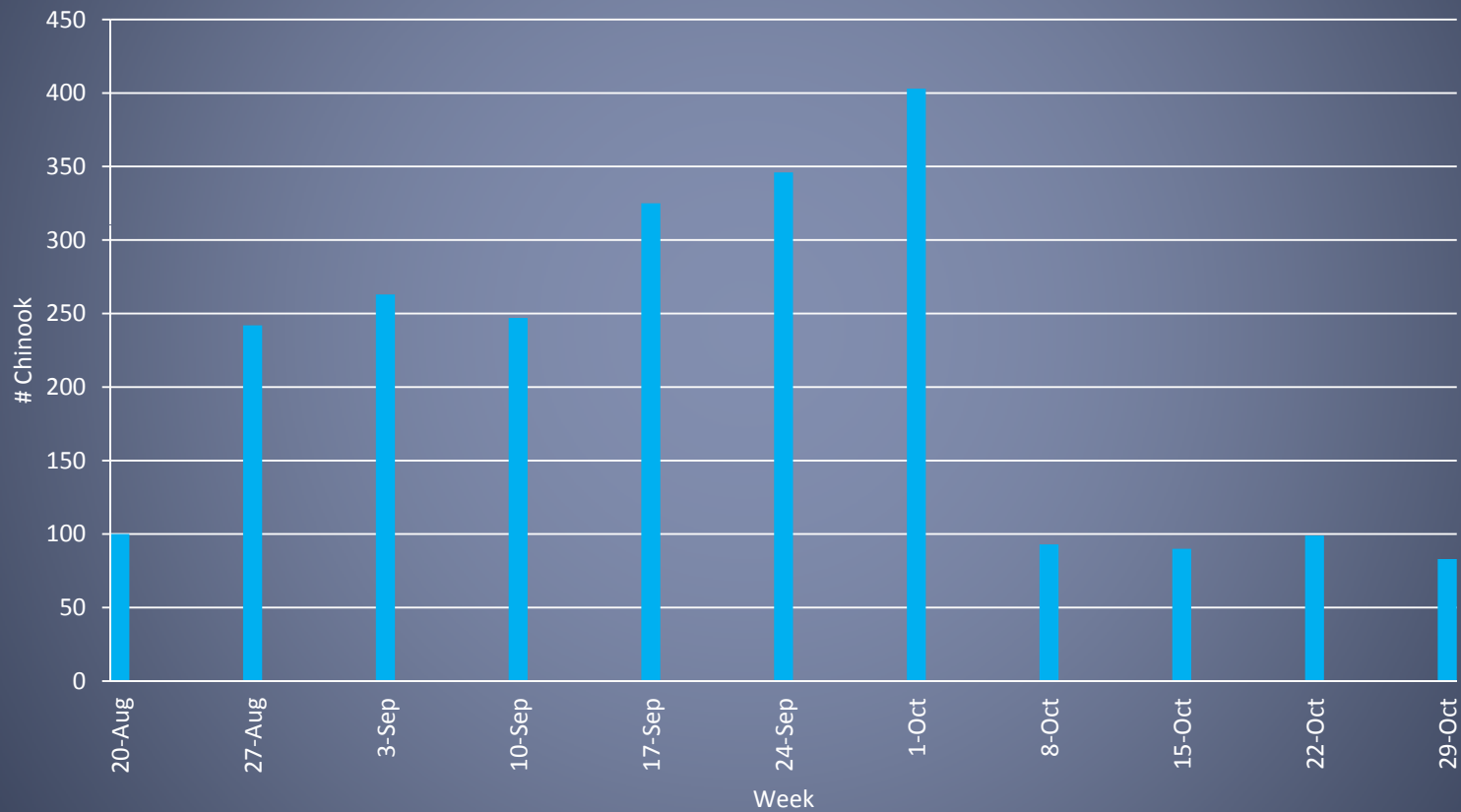


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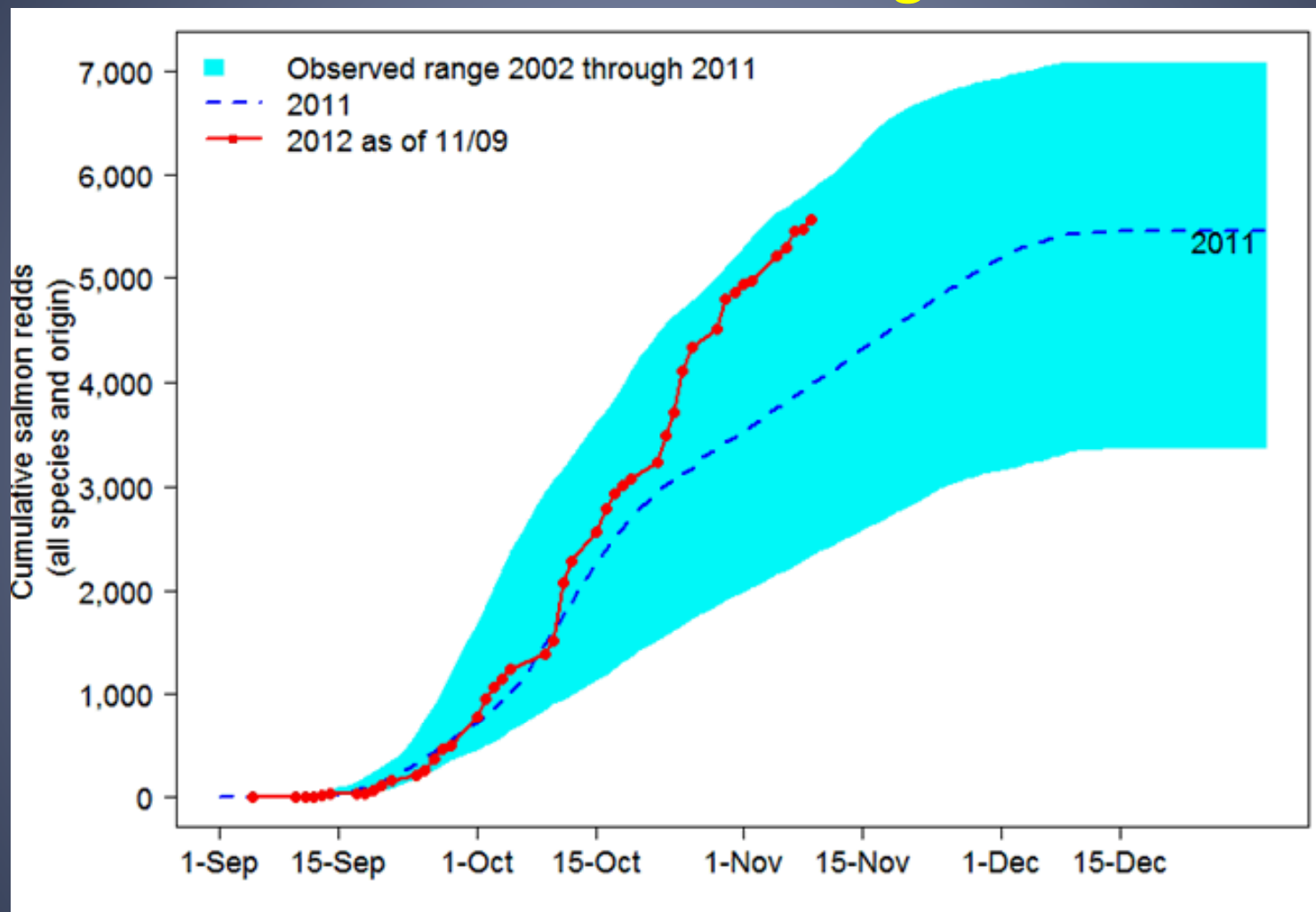
## TRRP - Fall Flows Fish Monitoring

### # Adult Chinook Trapped at the Willow Creek Weir - 2012



Data Provided by CDFG

## TRRP - Fall Flows Fish Monitoring

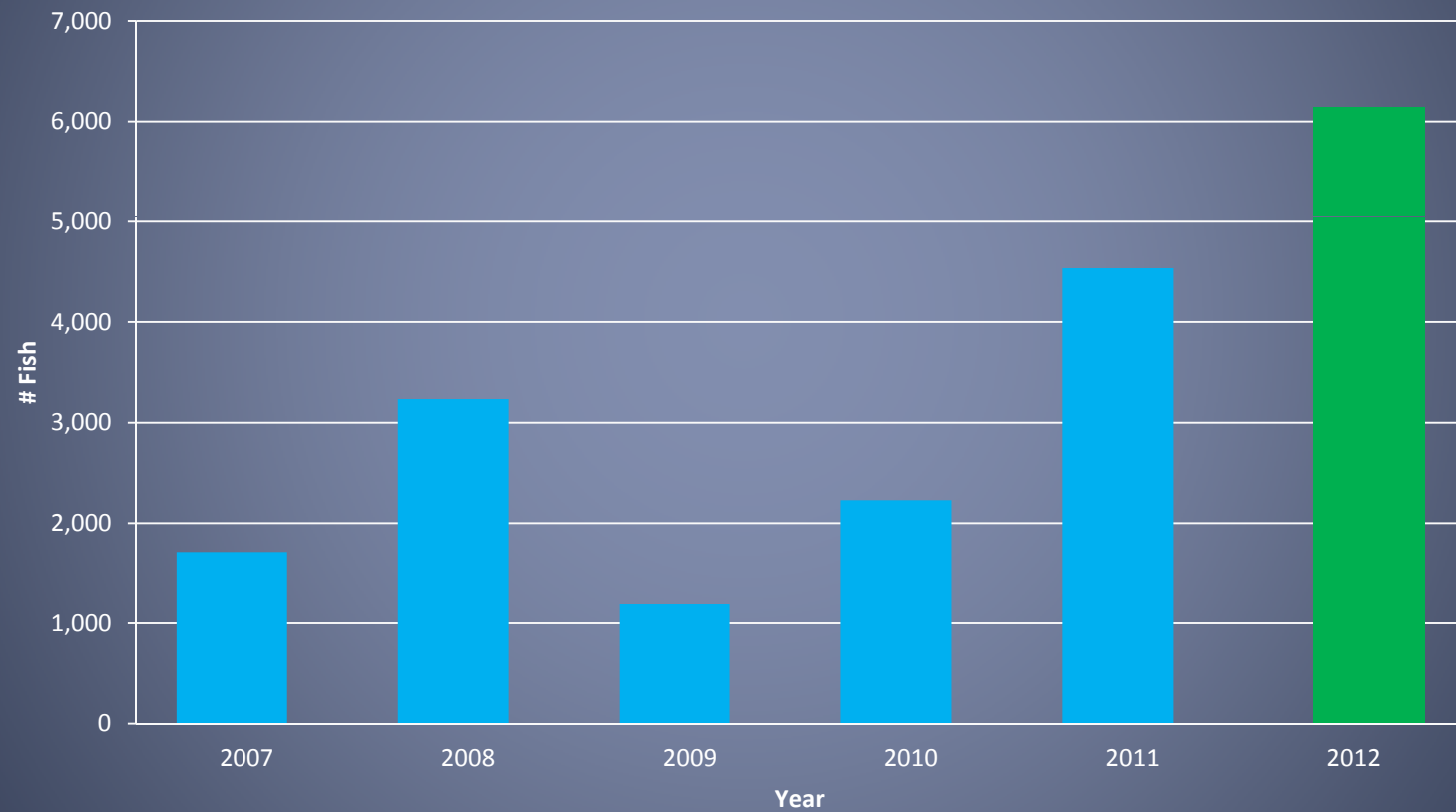


Comparison of fall 2012 cumulative Trinity River mainstem redd counts (Chinook and coho salmon) from Lewiston Dam to Cedar Flat as of 11/09/2012 to counts in 2011 and the range of years 2002-2011.

## TRRP - Fall Flows Fish Monitoring

### Scott R. (above RM 18) Fall Chinook (Jacks & Adults)

through Nov 11

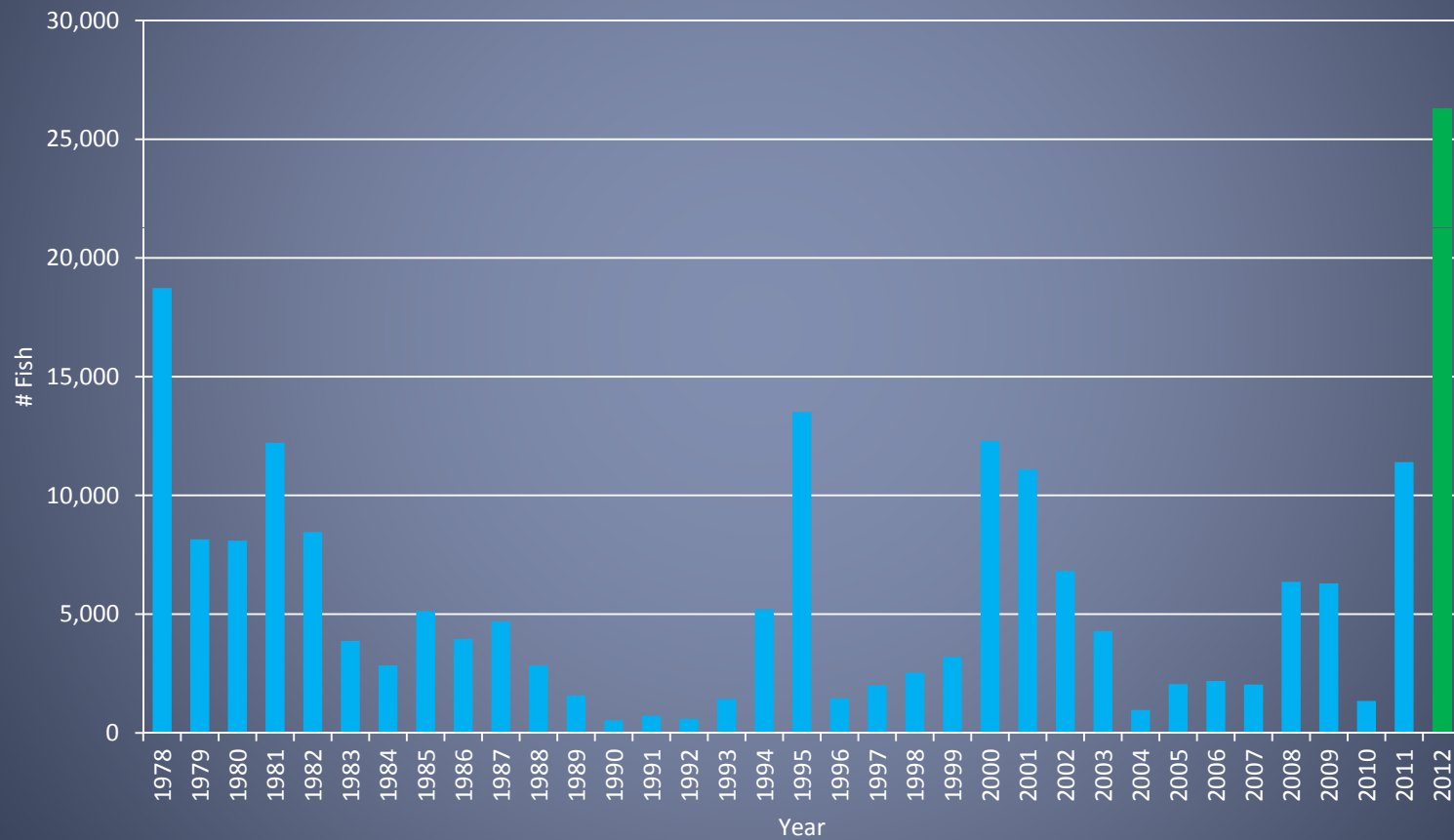


Data Provided by CDFG

## TRRP - Fall Flows Fish Monitoring

### Shasta R. Fall Chinook (Jacks & Adults)

through Nov 5

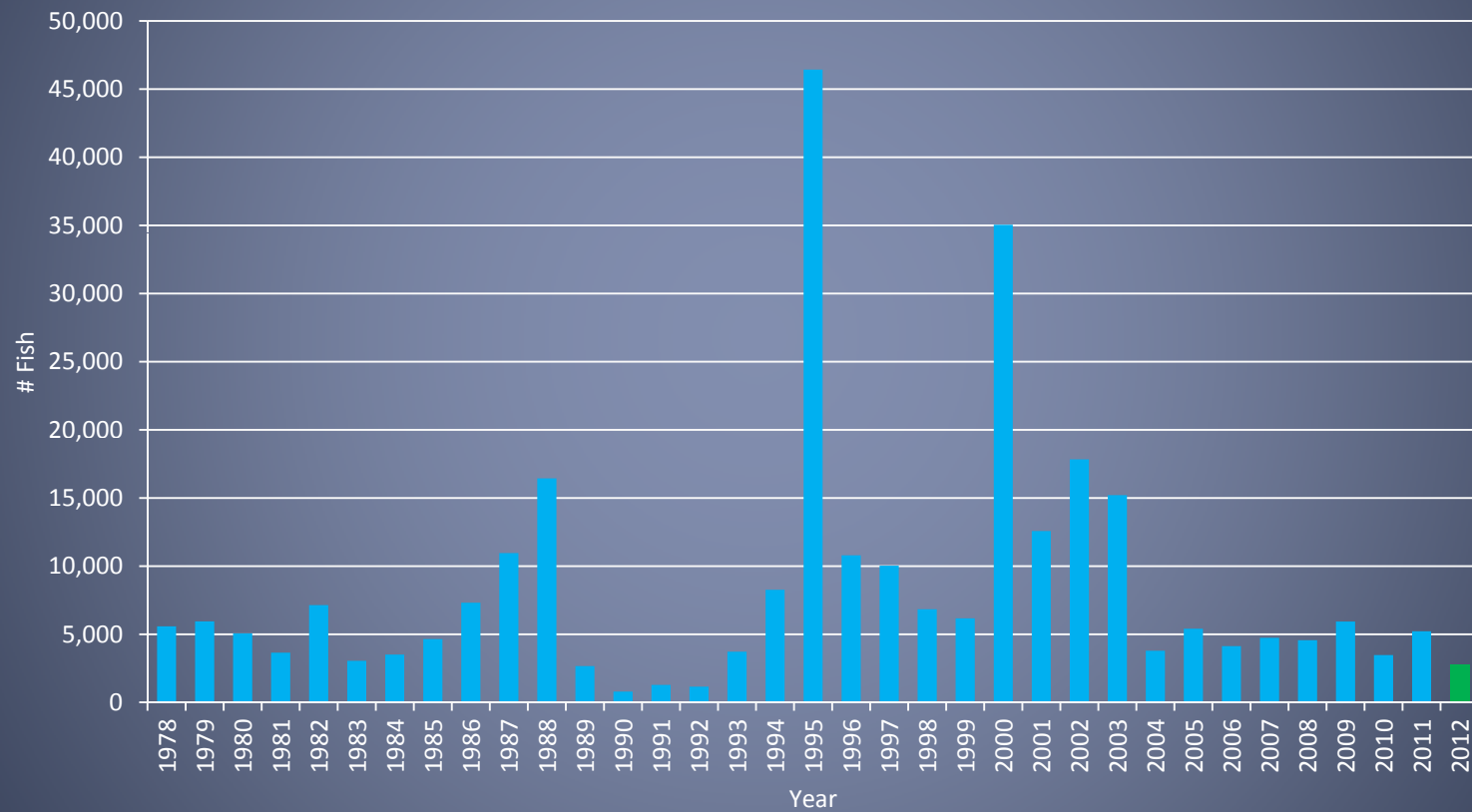


Data Provided by CDFG

## TRRP - Fall Flows Fish Monitoring

### Bogus Ck. Fall Chinook (Jacks & Adults)

through Oct 18



Data Provided by CDFG

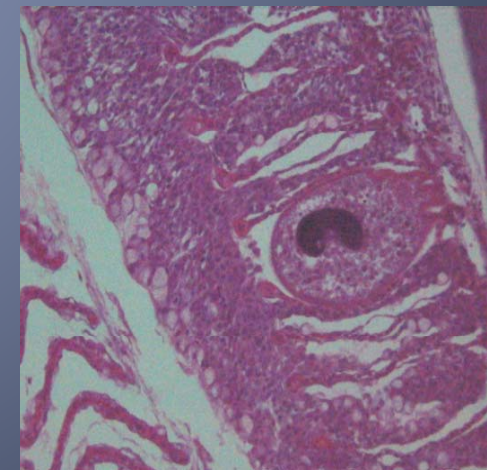




## TRRP - Fall Flows Fish Health Monitoring



- Weekly monitoring on the lower Klamath River from August 13 through October 6.
- Target sample size was 30 Chinook salmon/week.
- No incidences of Ich were found.



Data Provided by YT

## TRRP - Fall Flows

# Potential Negative Ecological Consequences

Sustained high releases during the summer demark from natural flow regime which can have ecological consequences.

- Dewatering of spring Chinook salmon redds. – none observed
- Increased hybridization of spring and fall Chinook salmon if earlier migration of fall Chinook salmon occurs in response to higher flows. – fall migration possibly a little earlier based (week) on HVT fishery but weir data suggested possibly a little later (week) – post season of CWT data will provided detailed information.
- Premature emigration of juvenile lamprey.
- Negative effects to amphibians and reptiles.





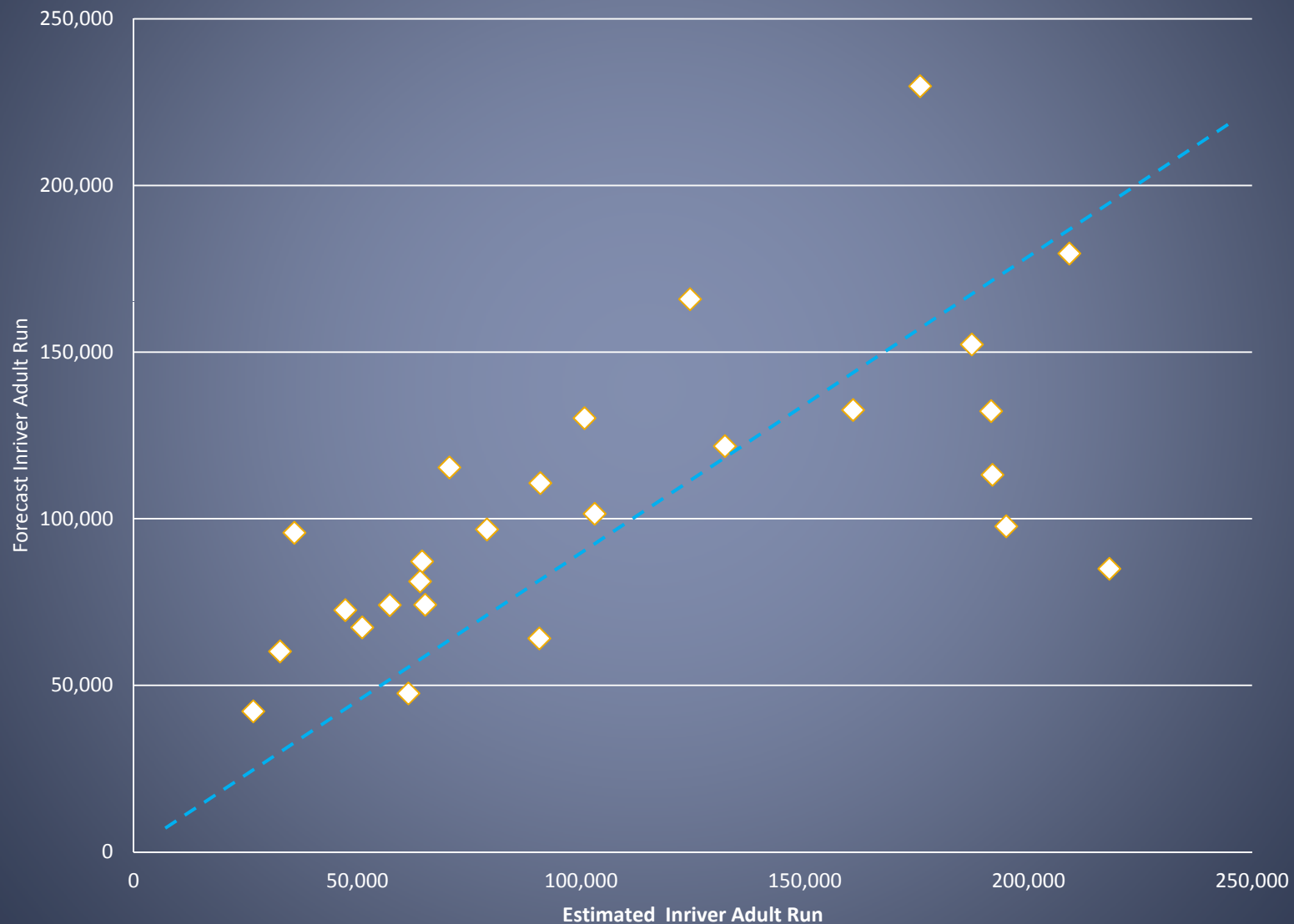
TRRP - Fall Flows

# Questions?

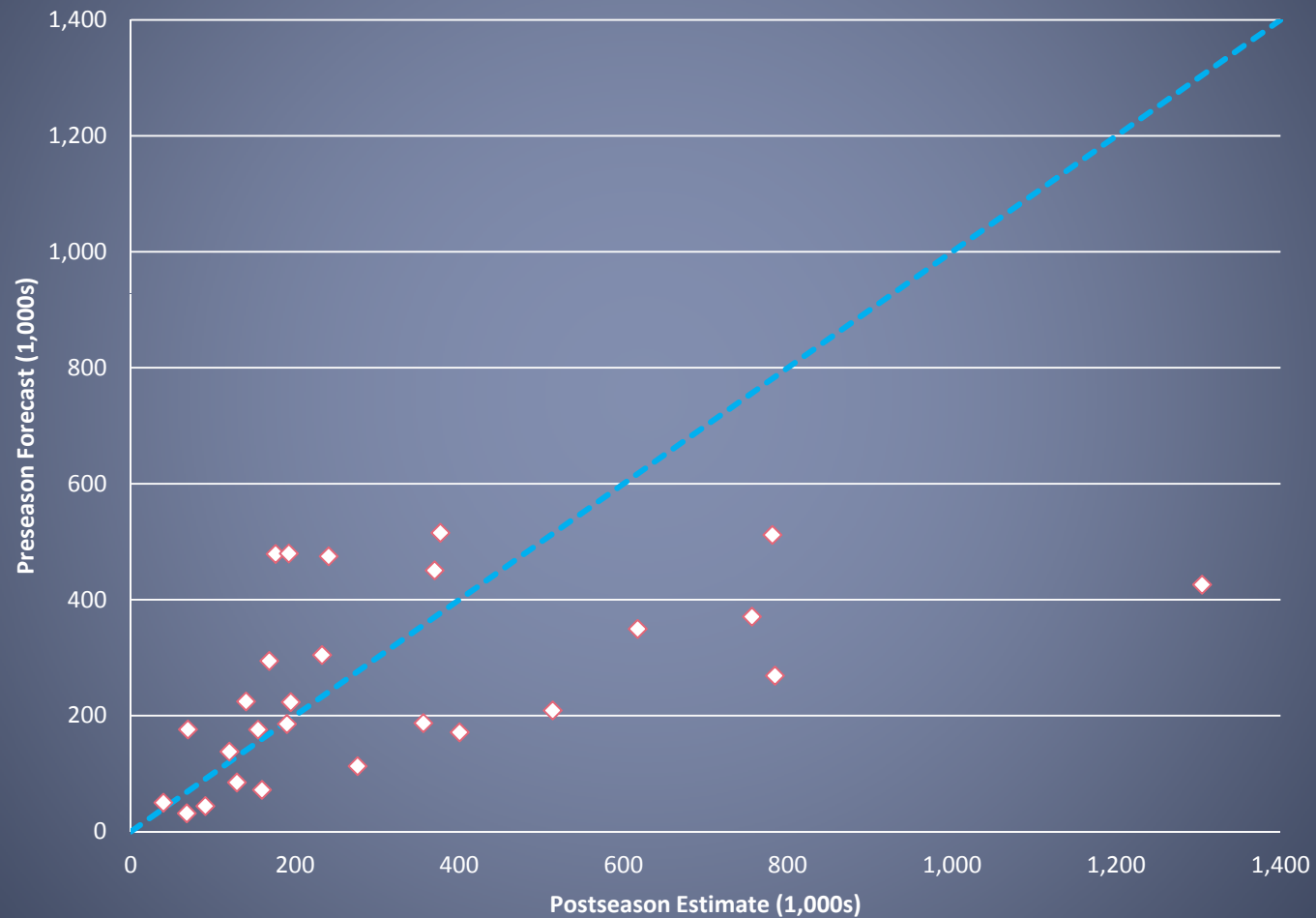


# Post season in-river run estimate vs preseason forecast for Klamath Basin adult fall Chinook salmon, 1984-2011. Dashed blue line indicates one-to-one relationship.

(Preseason projections for 1995 and 1997 not available).



Post season estimate vs preseason forecast of age 3 ocean population of Klamath Basin fall Chinook salmon, 1985-2011. Dashed blue line indicates one-to-one relationship.

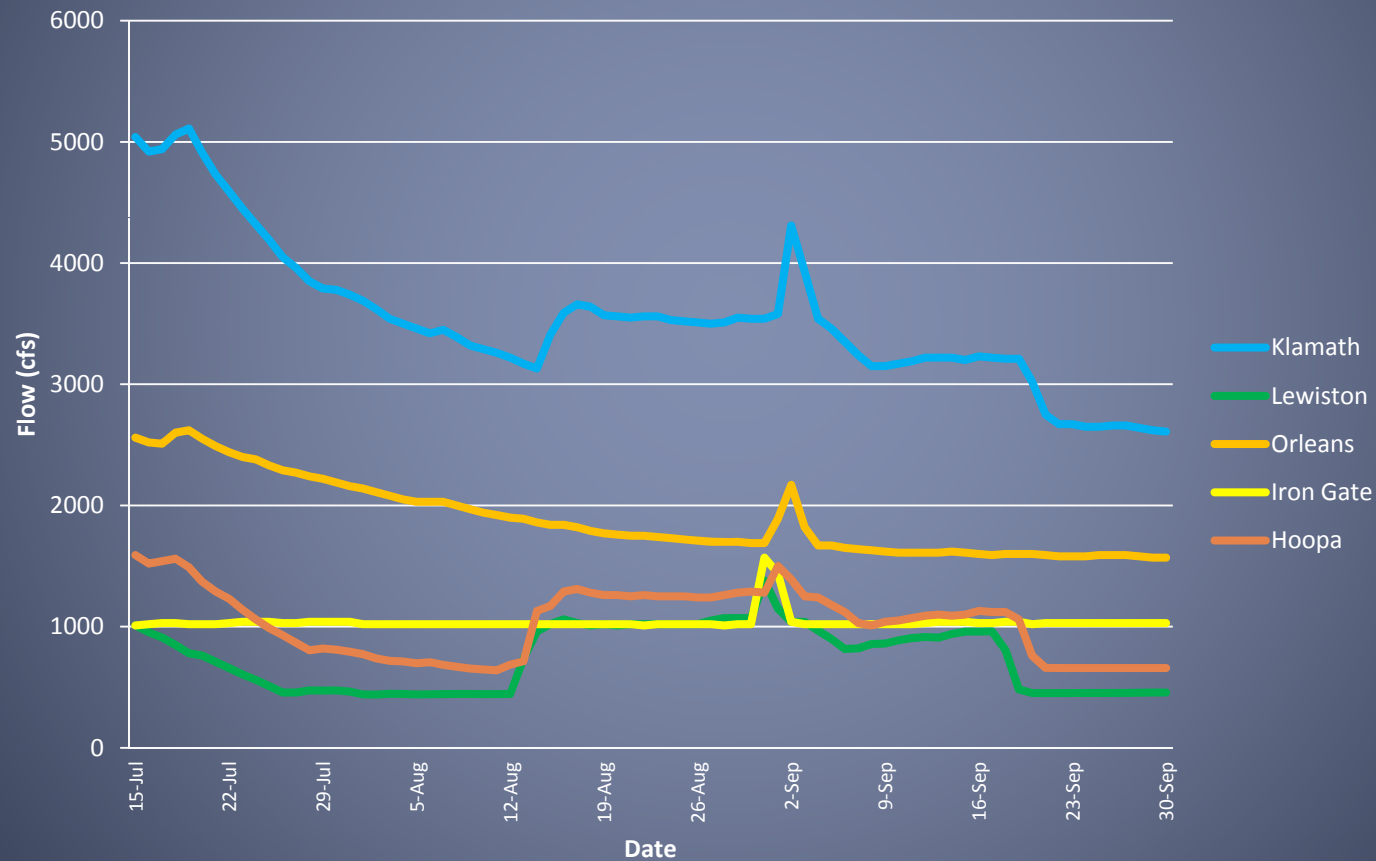




# TRRP - Fall Flows

## Preventative Fall Flow Releases

Klamath and Trinity River Flows,  
July 15-September 30



# Status Update of Endangered Sucker Populations in the Klamath Basin

Science in support of recovery planning

Eric Janney

USGS WFRC, Klamath Falls Field Station

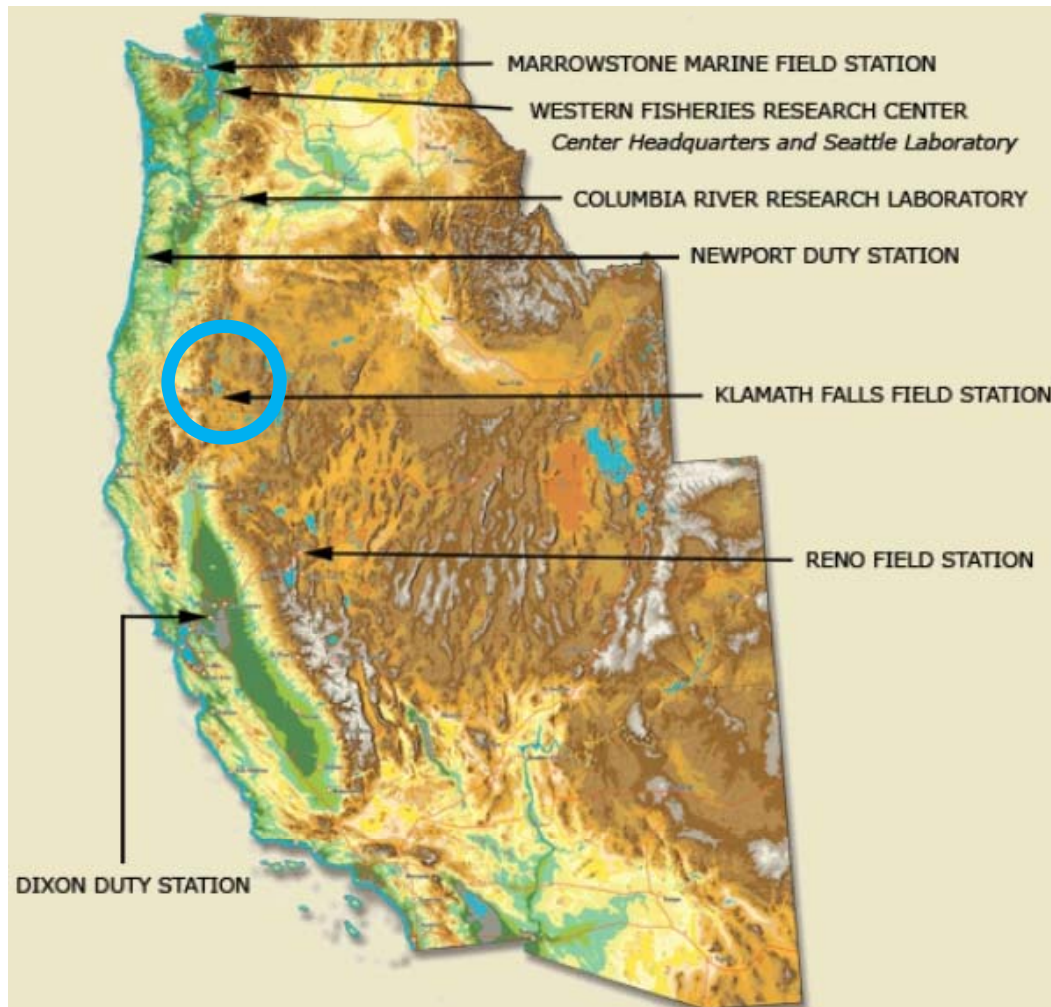
Presented data are provisional and subject to change

Klamath Basin Coordinating Council Meeting

14 November 2012



# Western Fisheries Research Center



Klamath Falls Field Station  
Established in 1999

Partners with

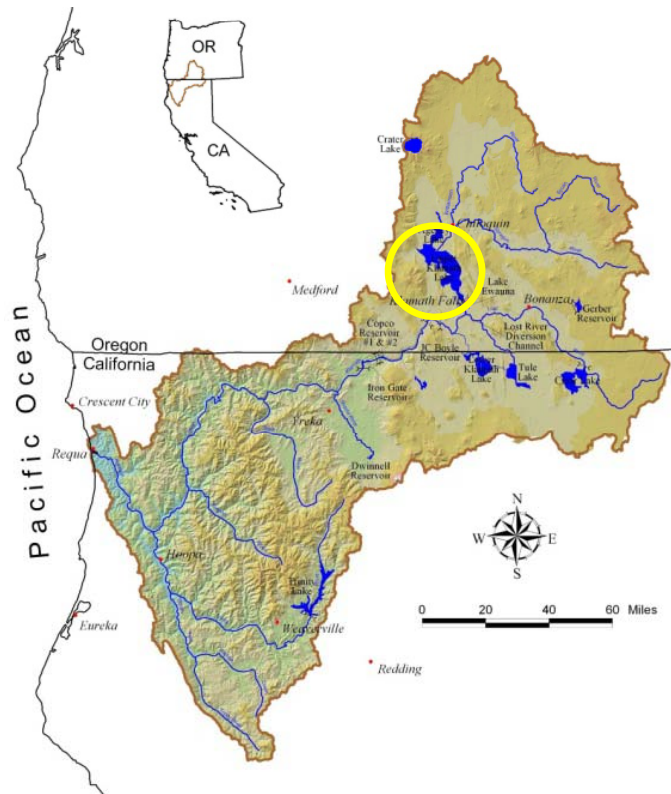


# Primary Goals of USGS sucker Research

- Monitor the status, trends, and population dynamics of suckers in UKL and Clear Lake
  - Used to evaluate ESA recovery
- Evaluate factors that may be limiting or preventing recovery
  - Examples – avian predation, disease, water quality, entrainment, etc.

# Upper Klamath Lake

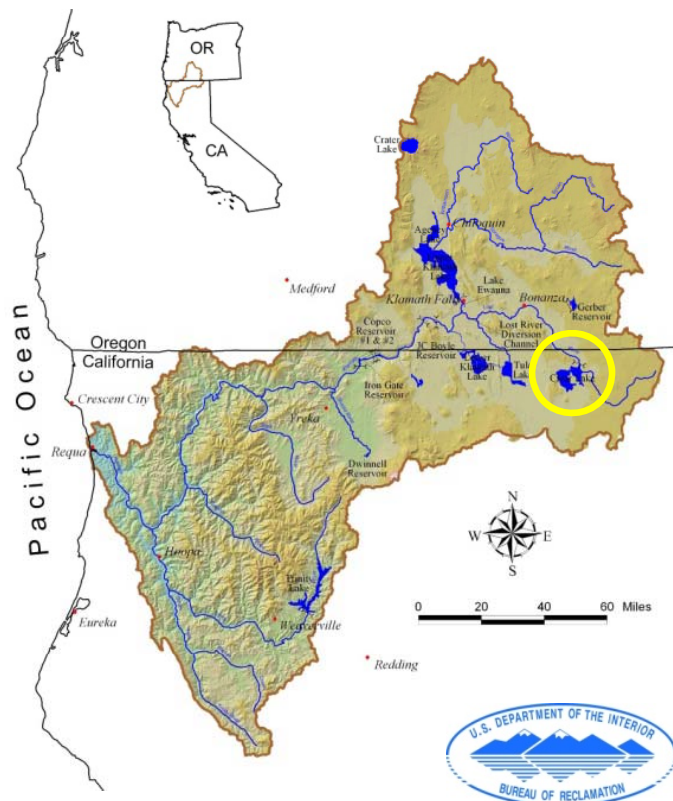
- Largest remaining Lost River sucker population
- Hypereutrophic
- Massive algal blooms
- Extremes in water quality





# Clear Lake

- Largest remaining shortnose sucker populations
- OK water quality
- Spawning limited to Willow Creek Basin
- Large populations of nesting piscivorous birds



# Population dynamics = change in abundance over time

---

Rate of population change

$$\lambda_i = \frac{N_{(i+1)}}{N_{(i)}} =$$

Number of new fish  
Each year



The number that die  
each year



# Data Collection Methods





# Monitoring Adult sucker Populations using state of the art mark-recapture modeling



# How can we estimate population rate of change Without knowing absolute abundance?

---

## Survival

Probability that a tagged sucker survives from one year to the next.

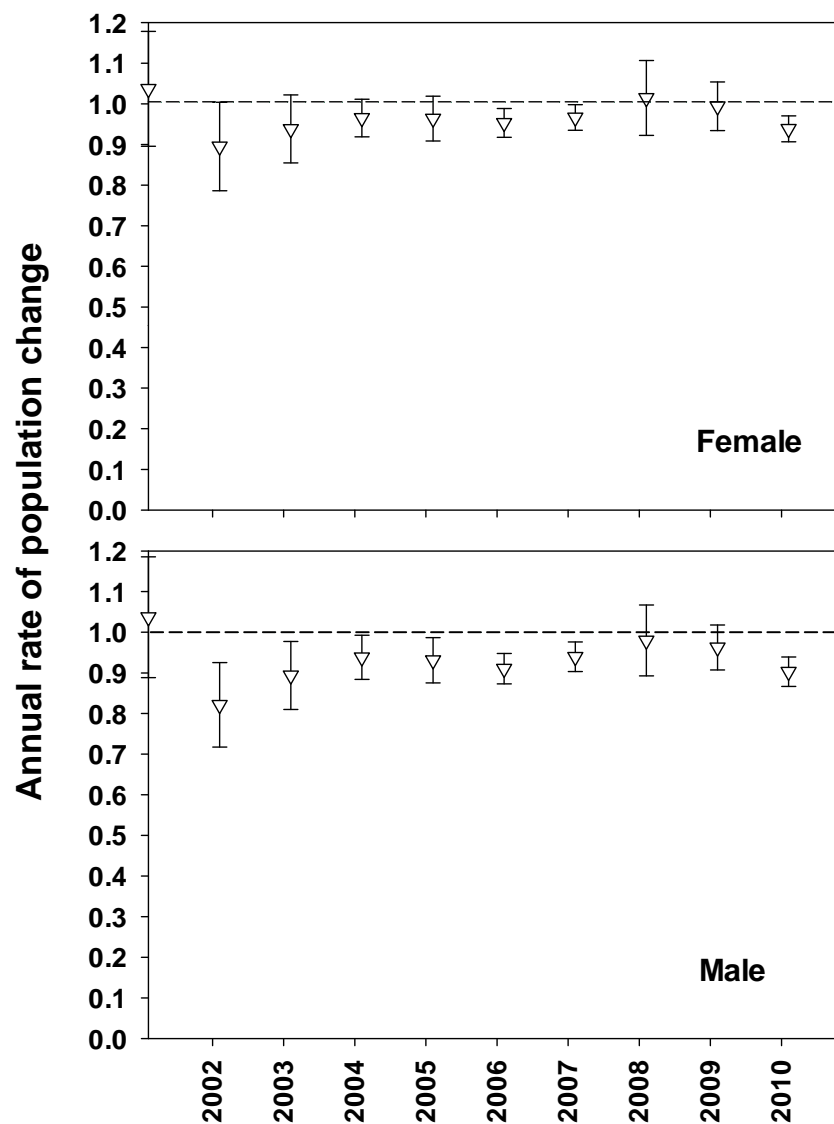
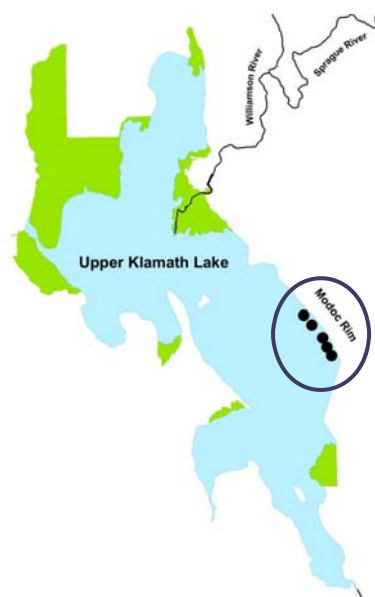
## Seniority

Probability that a sucker in the spawning population this year was also in the population the year prior.

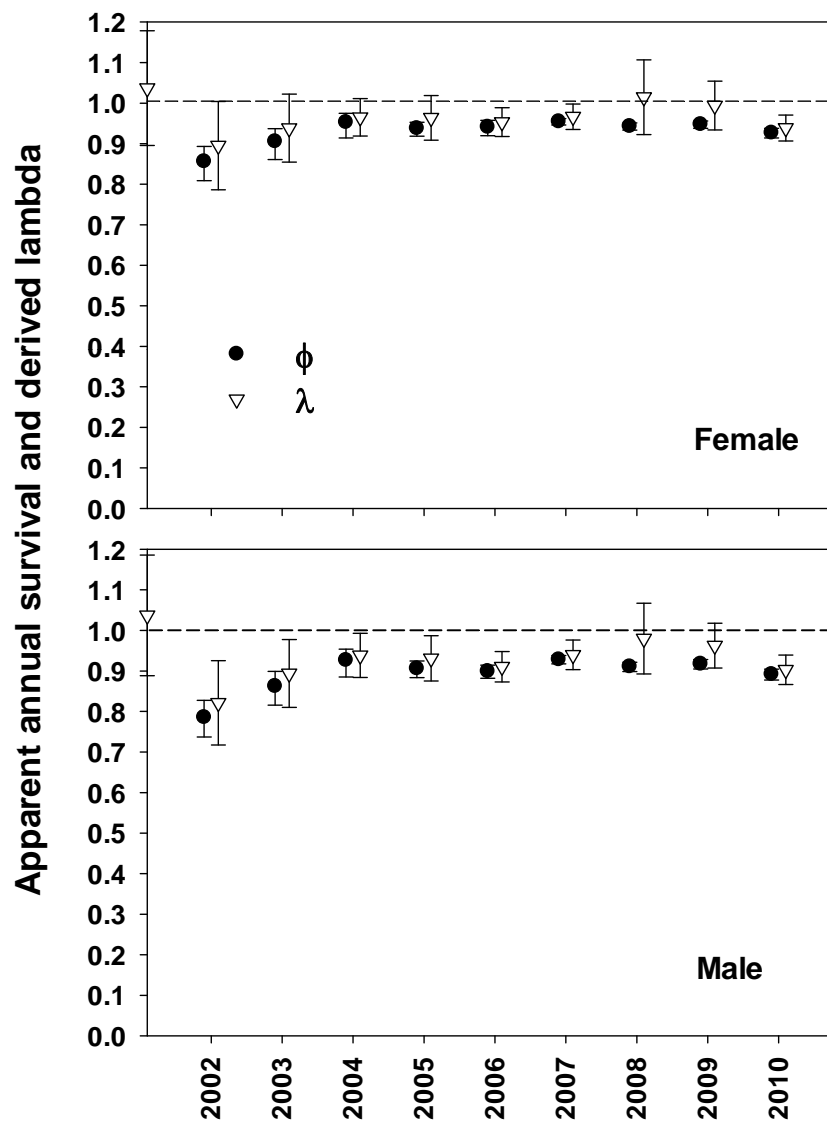
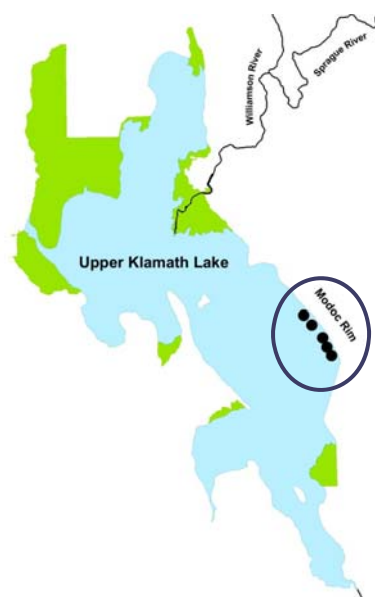
$$\text{Population Rate of Change} = \frac{N_{(i+1)}}{N_{(i)}} = \frac{\text{Survival at time}_{(i)}}{\text{Seniority at time}_{(i+1)}}$$



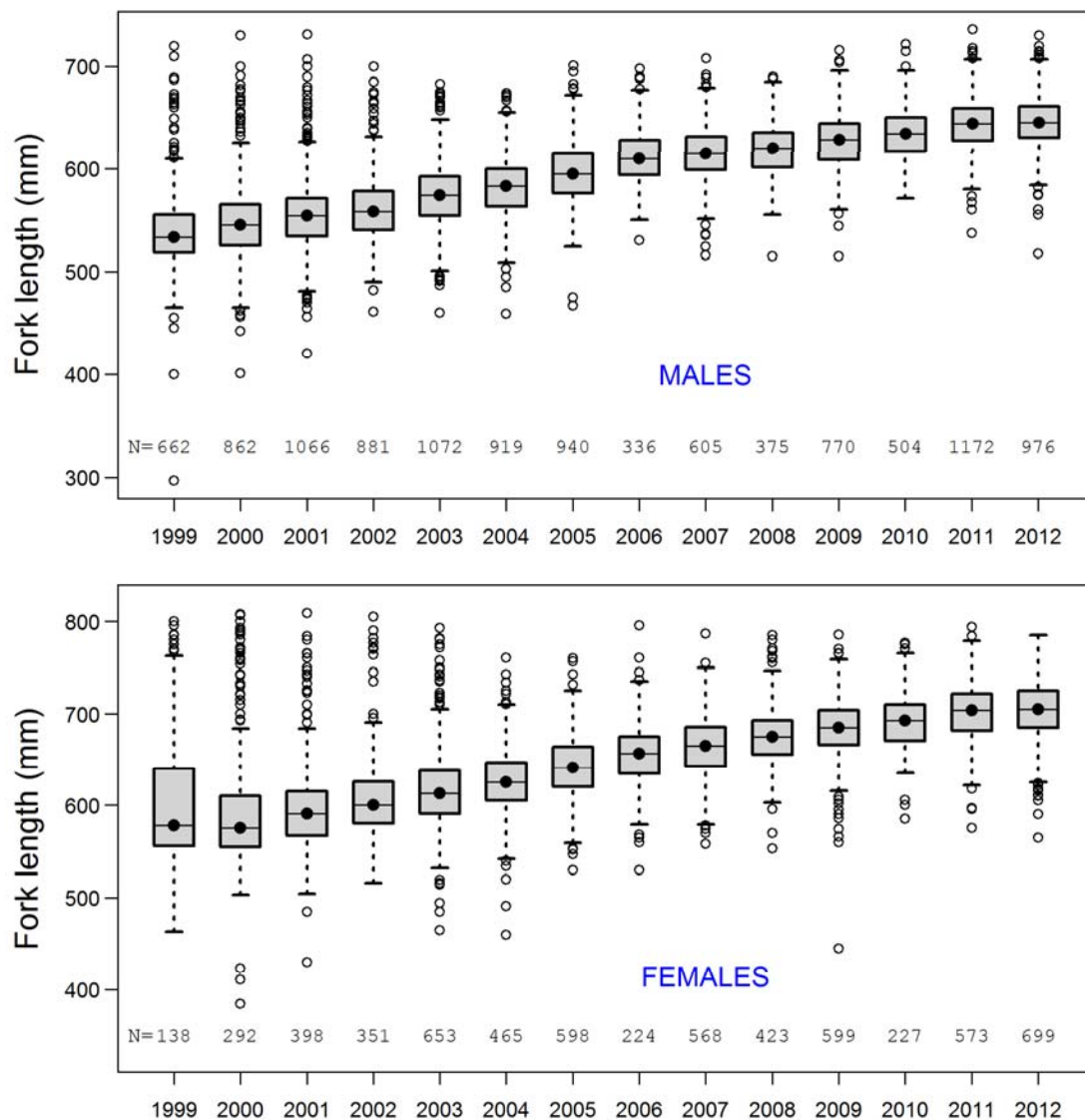
# UKL lakeshore spawning Lost River Sucker sucker population trend



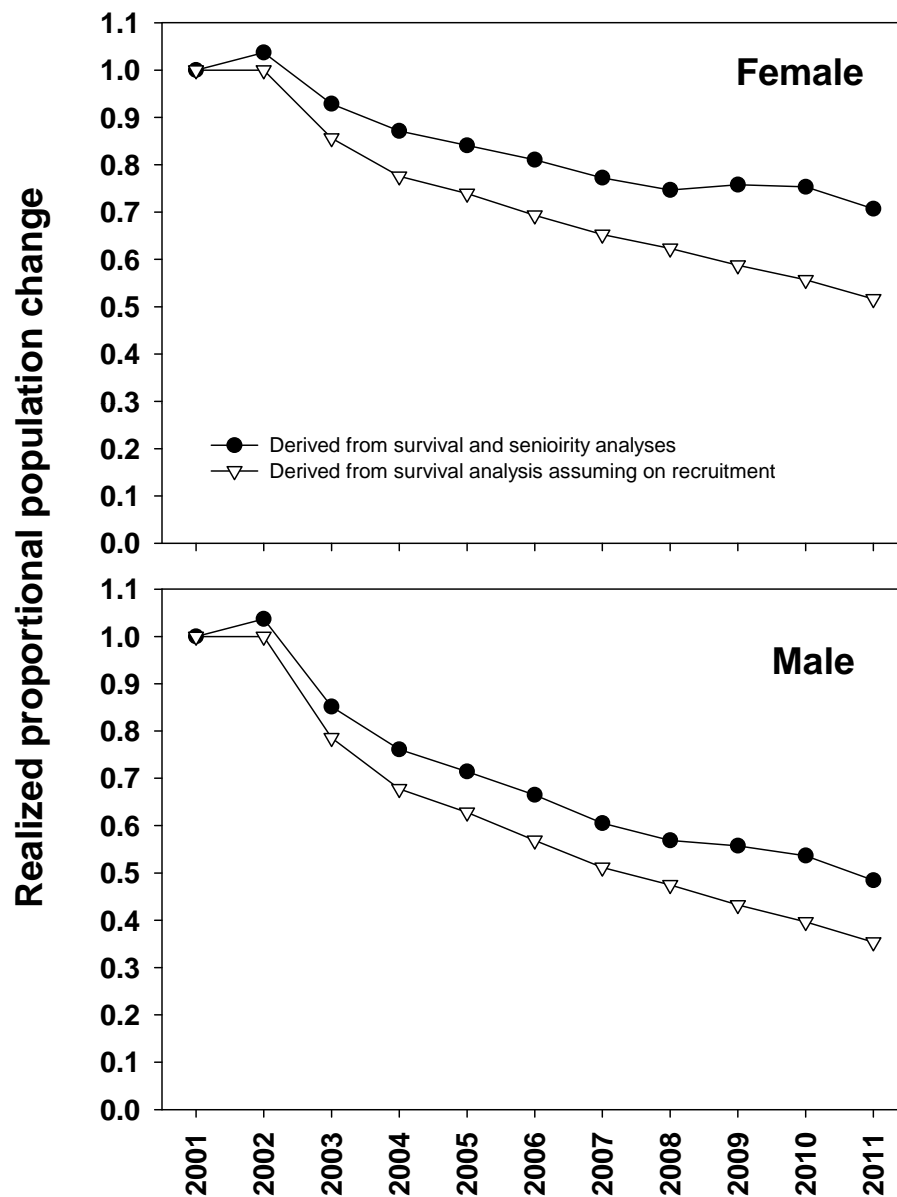
# UKL lakeshore spawning Lost River Sucker sucker population trend



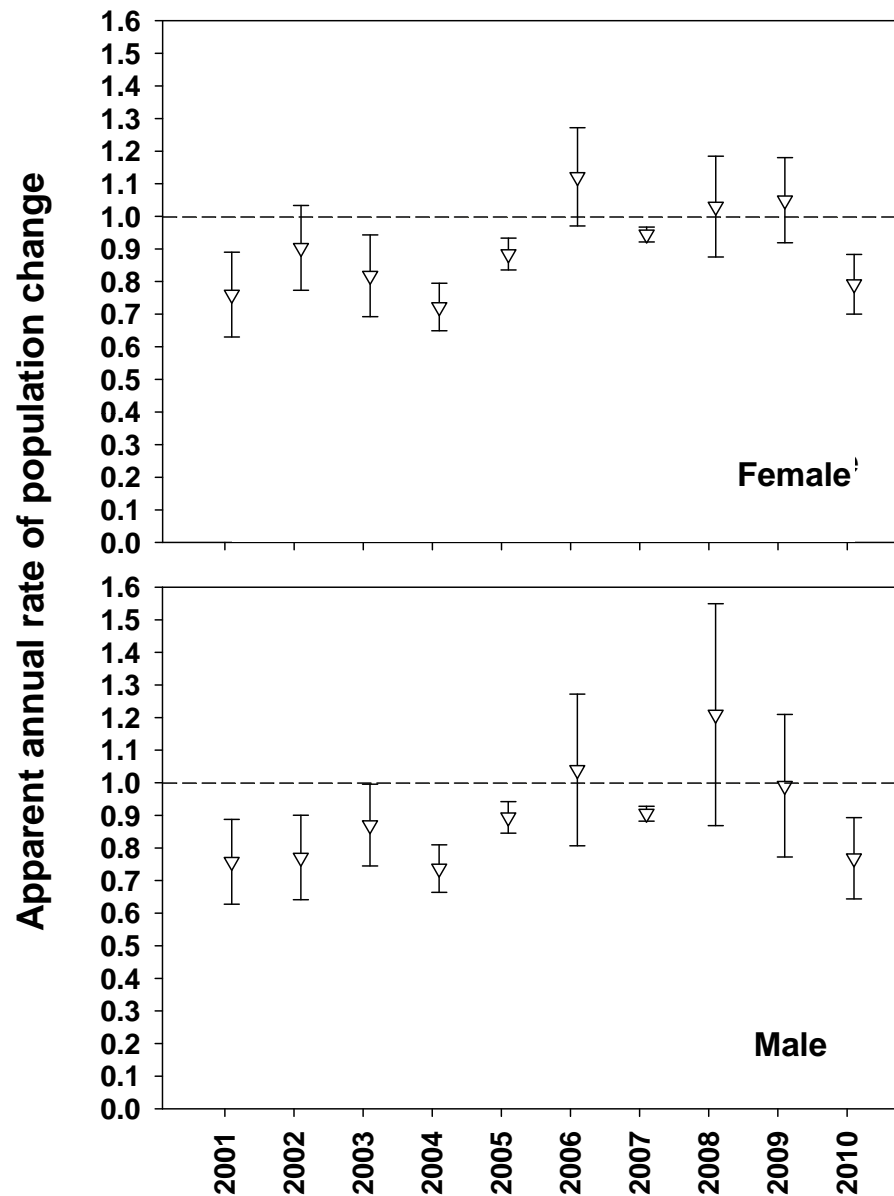
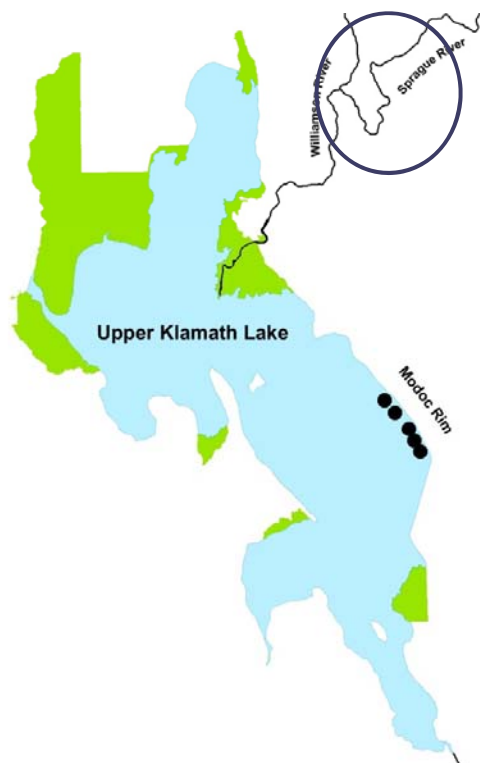
# Changes in lakeshore spawning Lost River Sucker size distribution



## UKL lakeshore spawning Lost River sucker population trend

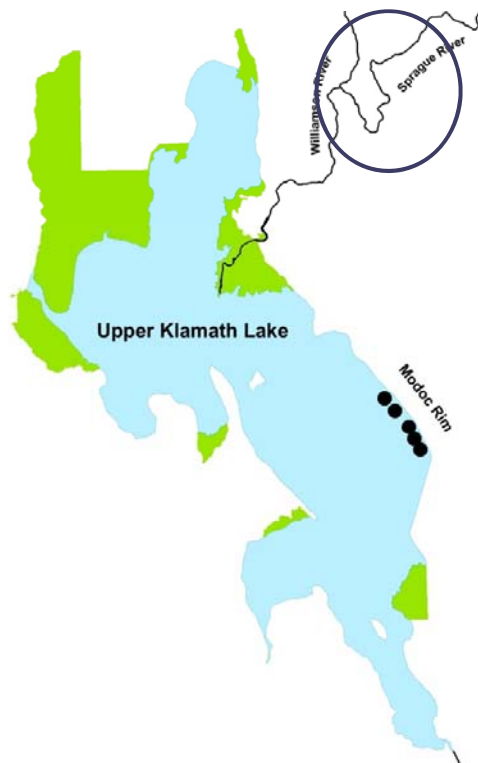
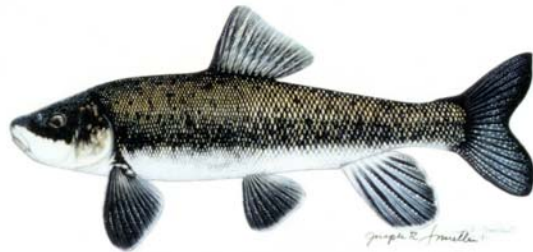


# UKL shortnose sucker population trend

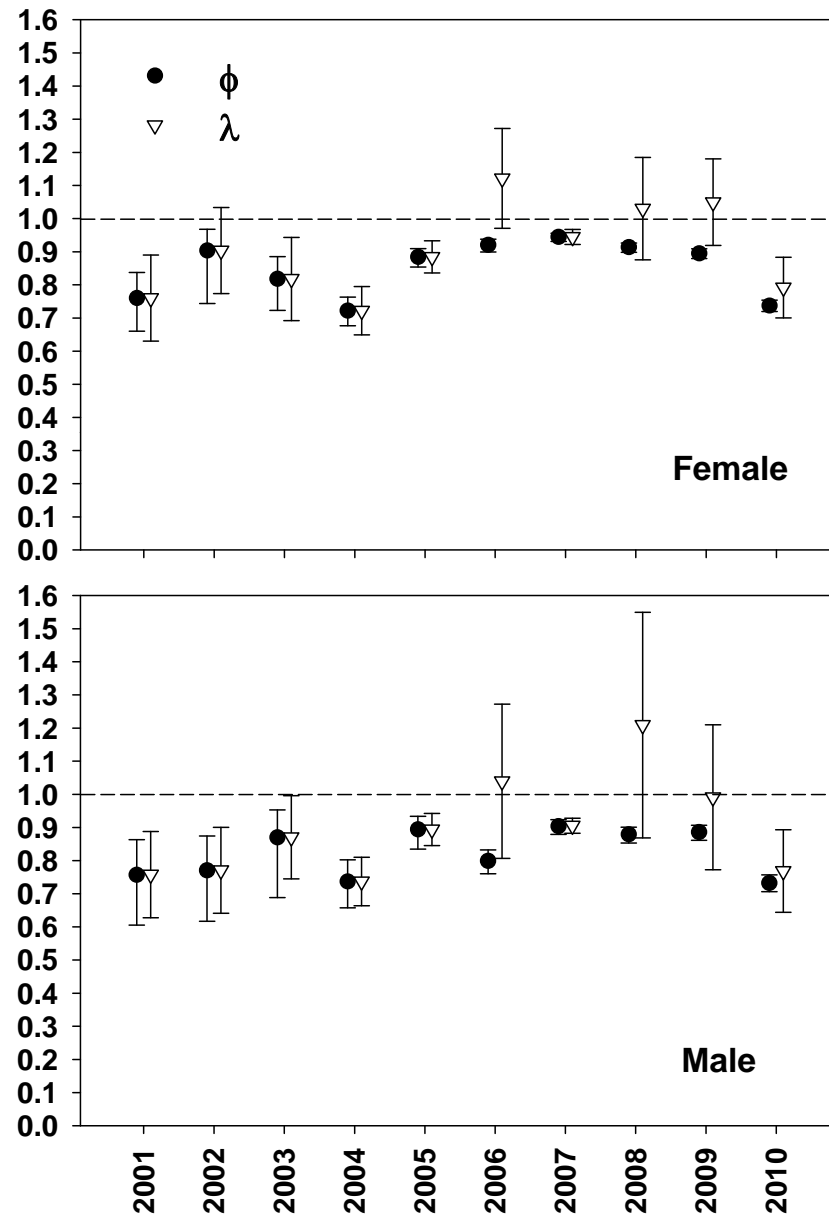




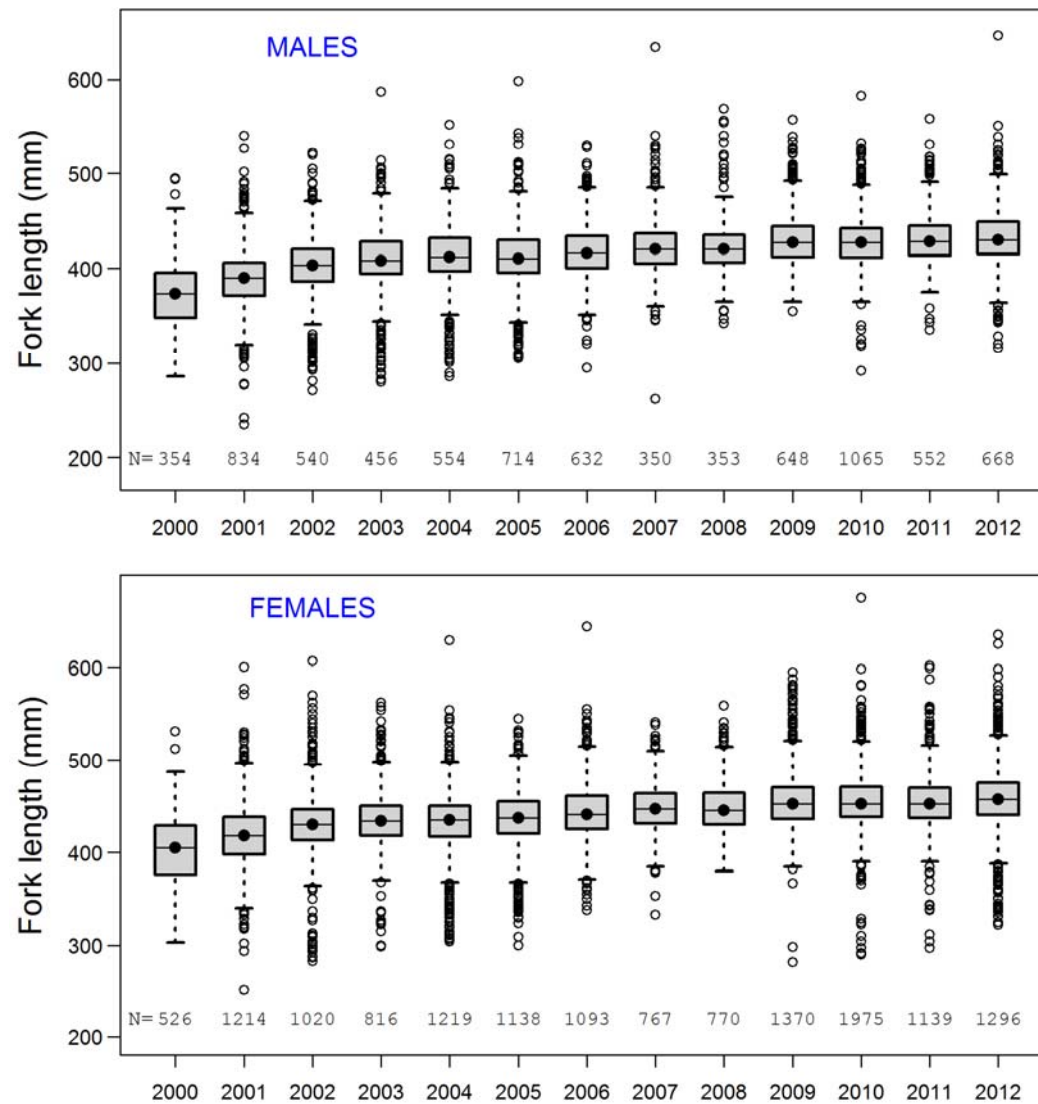
# UKL shortnose sucker population trend



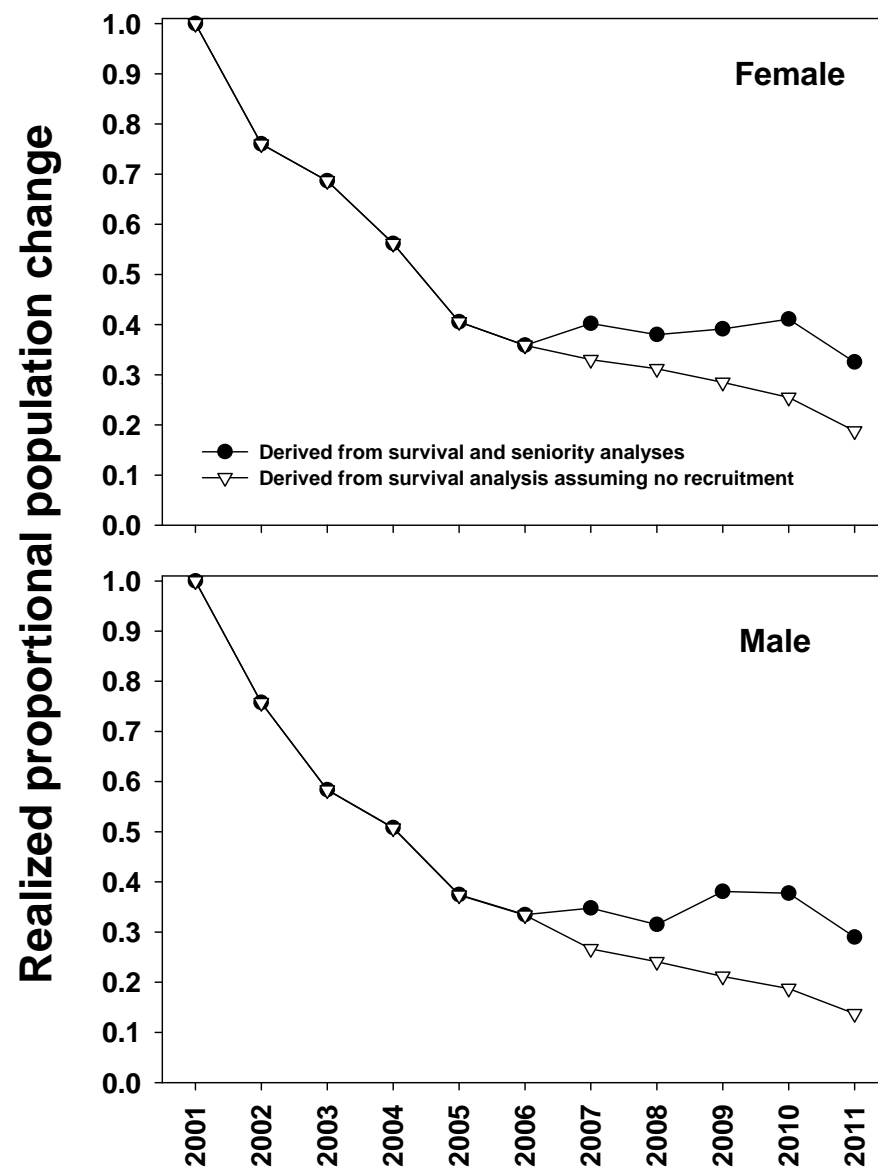
Apparent annual survival and derived lambda



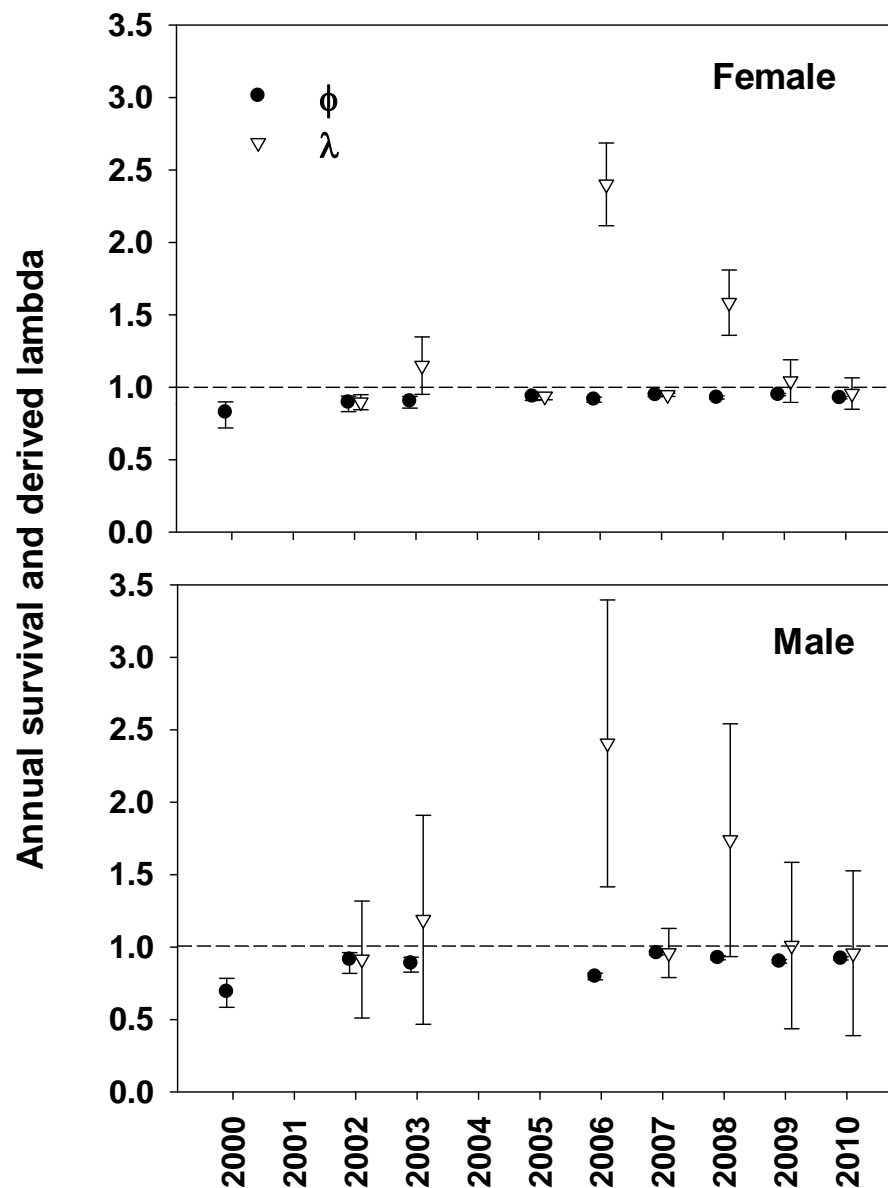
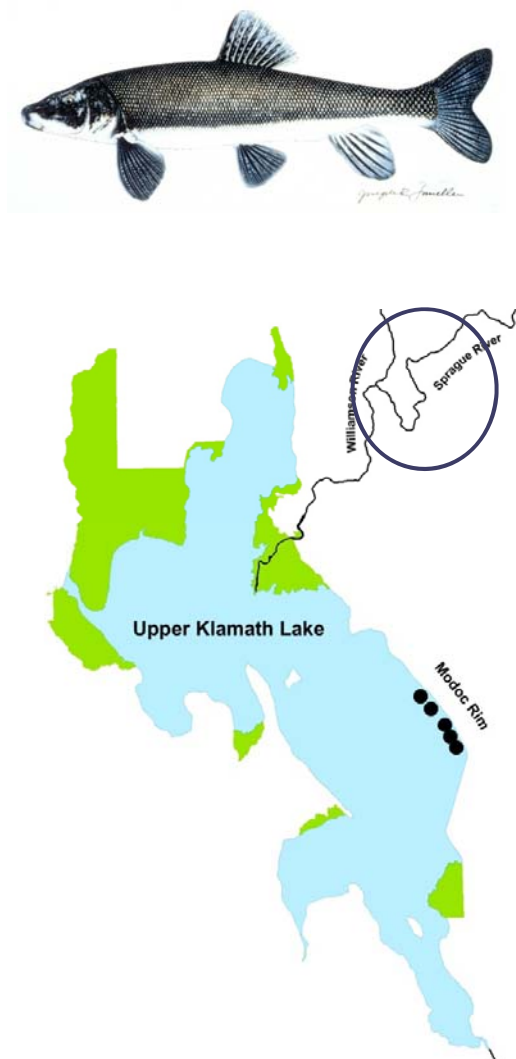
# Changes in Shortnose Sucker size distribution



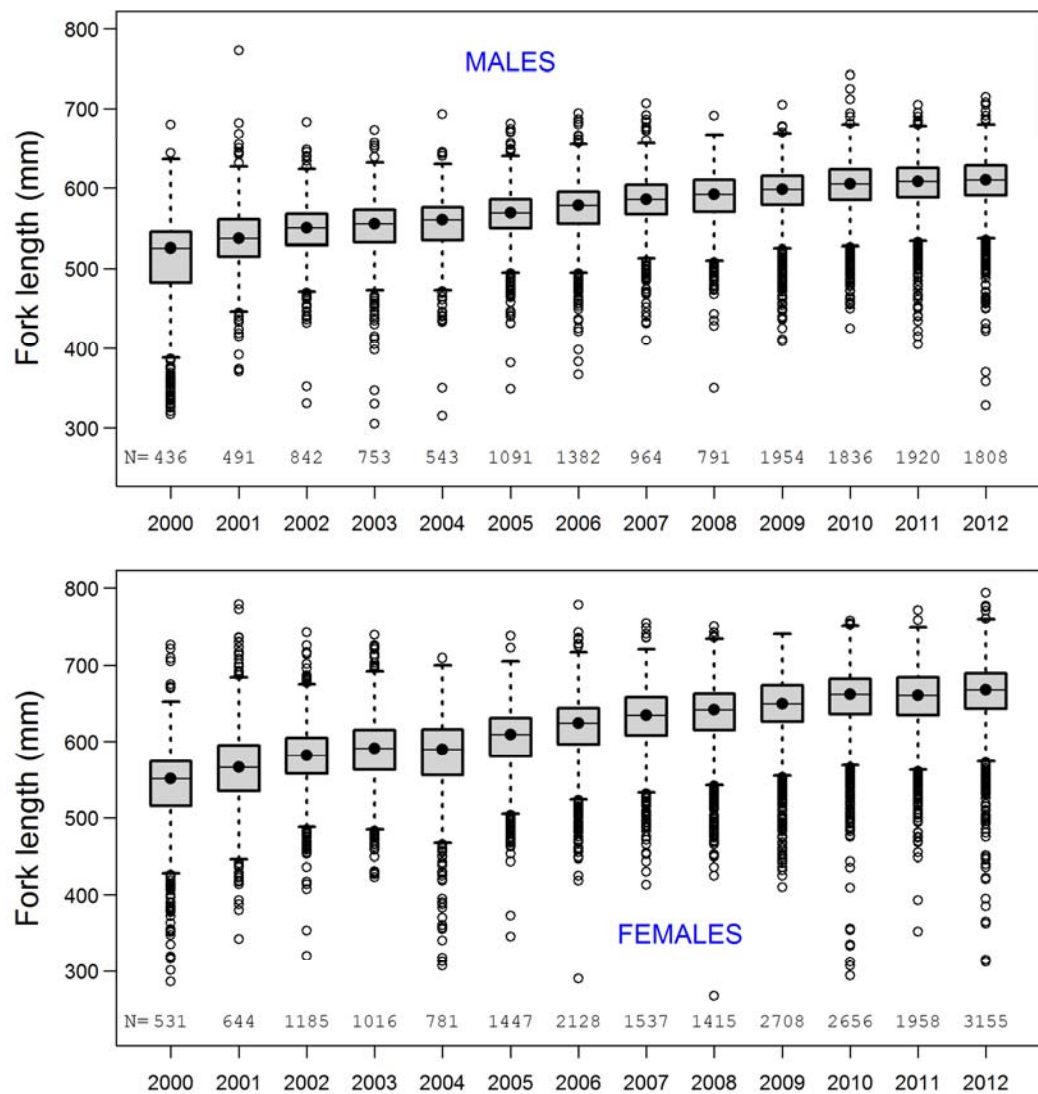
## UKL Shortnose sucker population trend



# UKL river spawning Lost River Sucker population trend

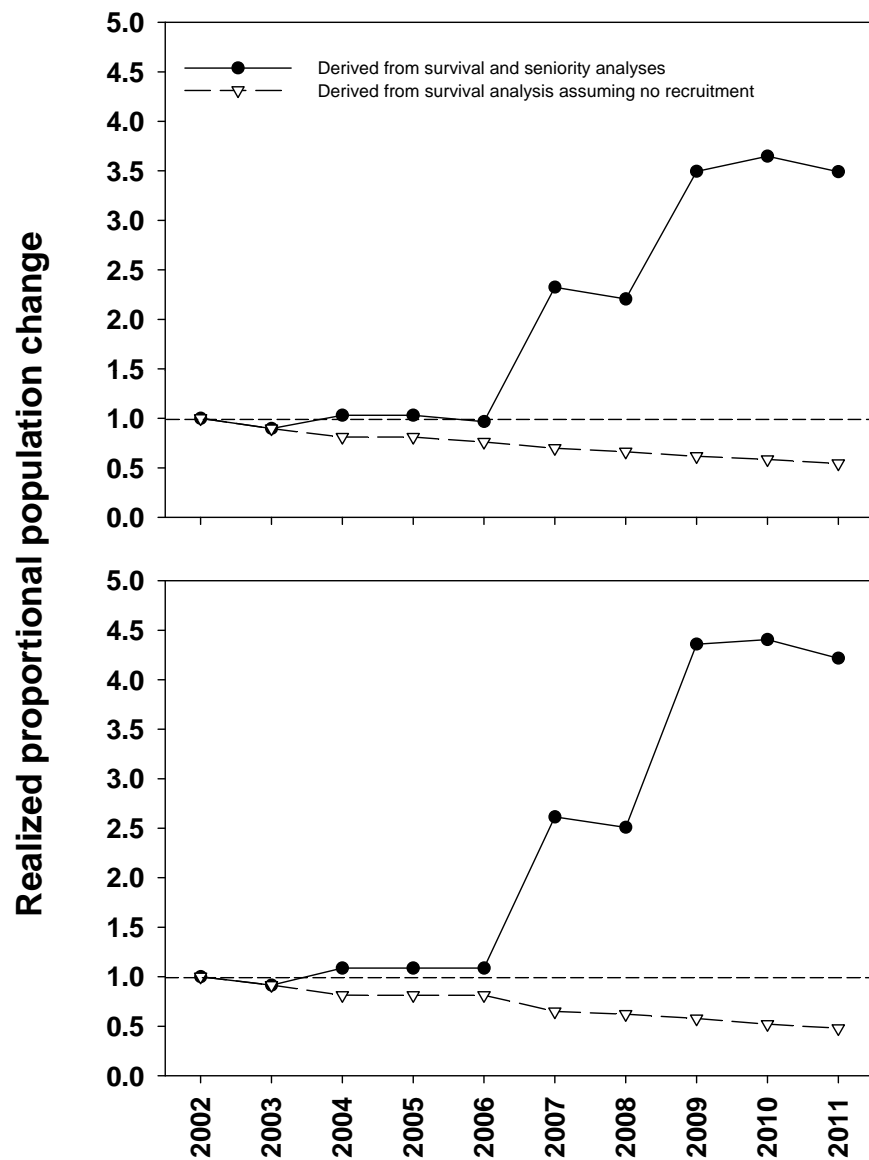


## Changes in river spawning Lost River Sucker size distribution





## UKL river spawning Lost River sucker population trend

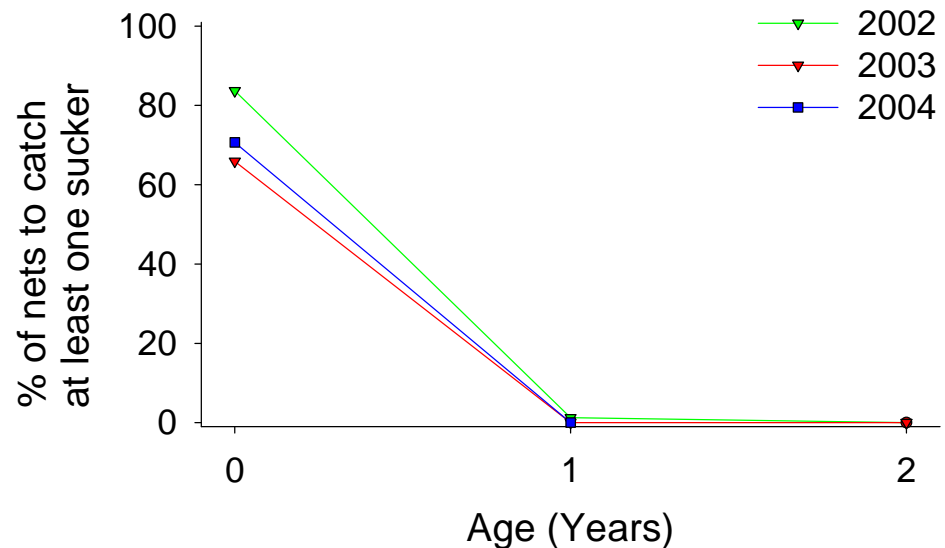


# Status in Upper Klamath Lake

- Lost River suckers
  - Survival is “Good” – typically > 90% per year
  - Little recruitment for over a decade
  - 30-60% loss since 2001
- Shortnose suckers
  - Adult survival is marginal in some years
  - Little recruitment for over a decade
  - 60-80% loss since 2001

# Status of sucker Populations

- 'Good' numbers spawn each year
- Larvae/small juveniles (age-0) are present each year
- High mortality of age-0 fish each year
- Occurs at a large scale over a short time period
- See few age1+
- Almost never see age 2+



# Juvenile Sucker Ecology

- Age-0 juveniles are habitat generalists for the most part
- Older juveniles behave like adults
- Apparent high mortality of age-0 fish in late summer or fall

- Water quality?
- Disease?
- Algal Toxin?
- Avian Predation?
- Entrainment?
- Combination of factors



# Clear Lake Sucker Populations

- **10,000+ fish PIT tagged – hopeful we will be able to estimate vital population parameters**
- **Unlike Upper Klamath Lake, Clear Lake has far more shortnose suckers than Lost River suckers**
- **More diverse age structure than UKL**
- **Data indicate access to spawning spawning habitat in Willow Creek are more dependent on flow than lake level**
- **Telemetry data suggest high bird predation rates in some years**



# Conclusions

- Ongoing concern for UKL populations
  - Ageing populations with poor survival for SNS in some years
  - Lack of recruitment to spawning populations
    - Importance of early life history studies
  - Substantial reductions in population size
- More work needed in Clear Lake Reservoir
  - Ongoing capture-recapture
  - Telemetry study
  - Age composition

# Questions?



# Willow Creek

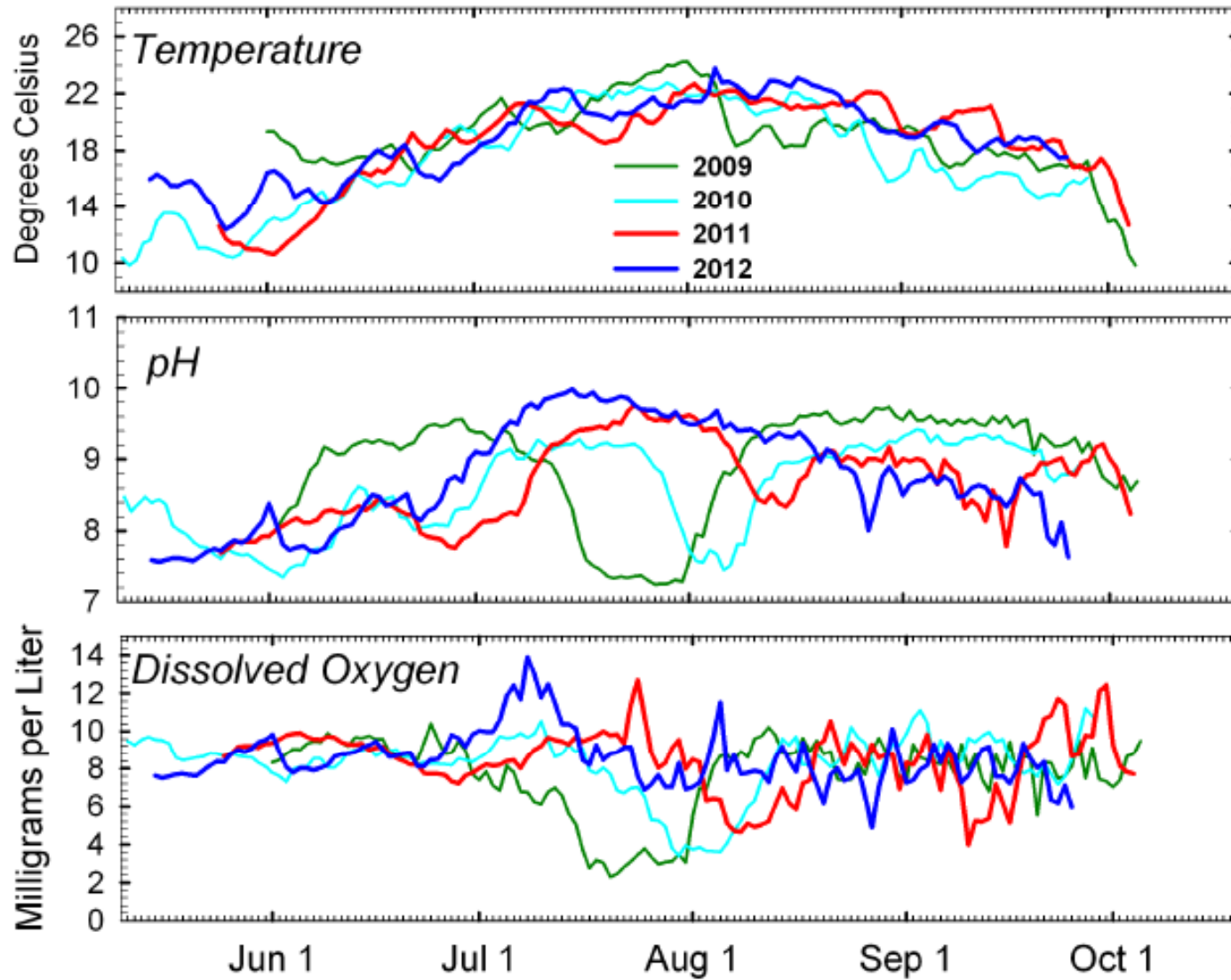




# Willow Creek

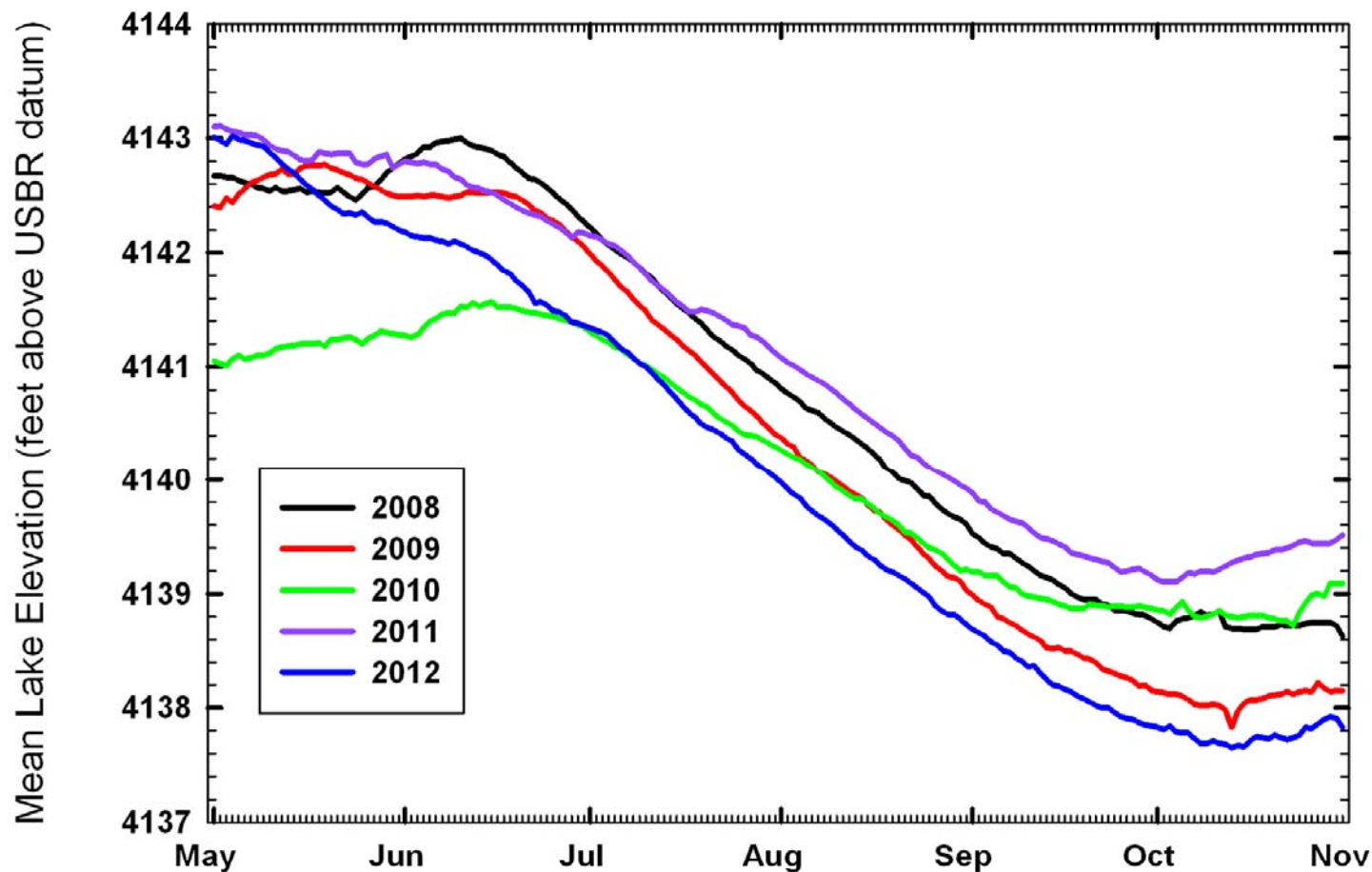


### Daily Mean Values at MDN Upper

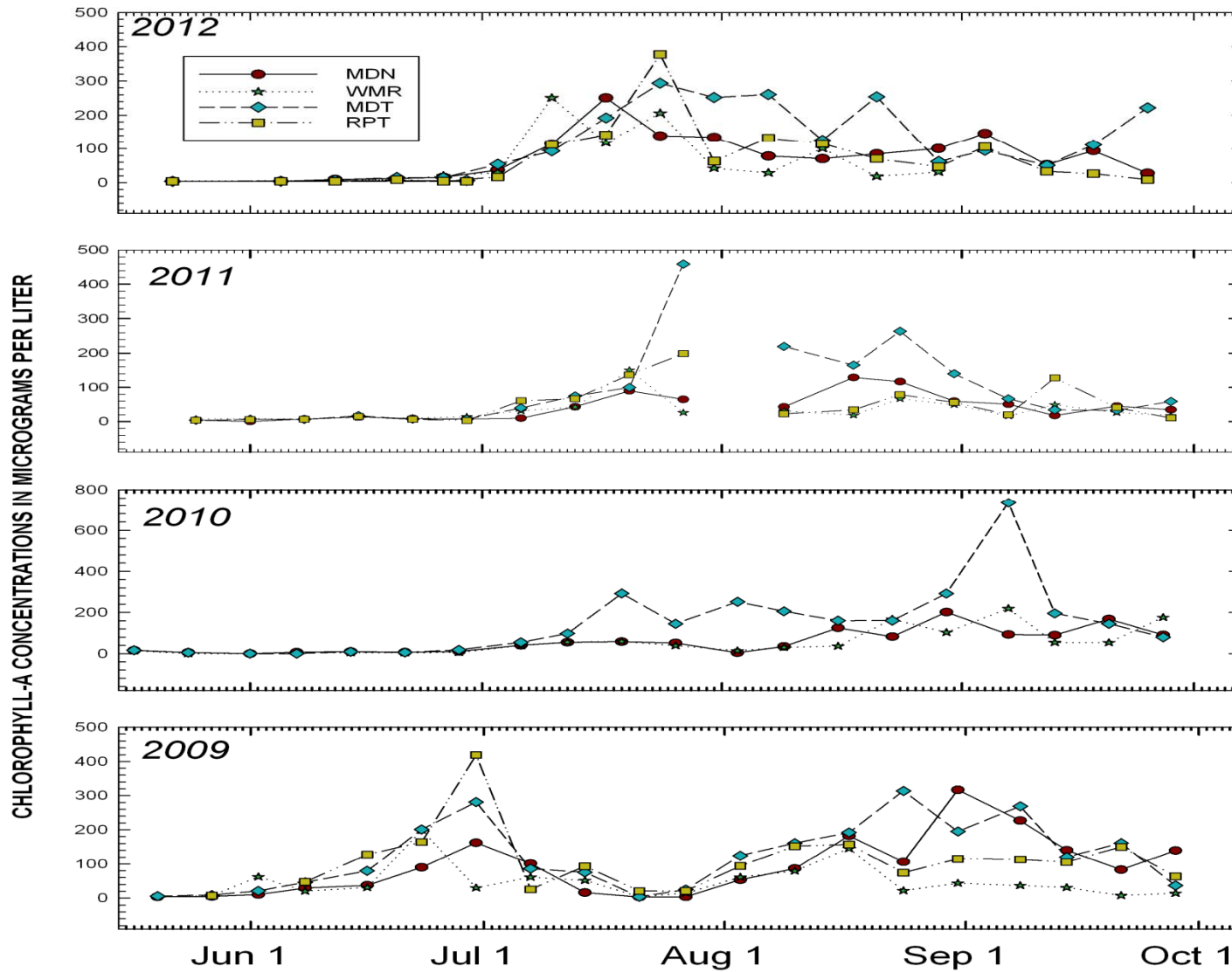




**Mean Daily Lake Elevations - Upper Klamath Lake**  
**USGS Site ID: 11507001**  
*2012 data are provisional and subject to change*



# Upper Klamath Lake Algal Bloom Dynamics



[illegible]

# OPPortunities

*Bringing You the Latest News on the OPP*

Volume I, Issue 4

## Welcome to OPPortunities!

You are reading the fourth edition of a series of newsletters that will be issued periodically over the course of the next two years.

The focus will be exclusively on providing updates on how the On-Project Plan (OPP) is coming together.

## Inside this issue:

**TM 4 Summary 3**

**TM 5 Summary 5**

**TM 6 Summary 6**

## Who's Doing the Work?

The OPP is being prepared by consultants working for the Klamath Water and Power Agency (KWAPA), which was formed in 2008 as a product of discussions among local irrigators, districts, and others in the community. KWAPA consists of public agency members in Oregon and California, all of whom are contractors of the Bureau of Reclamation and provide water delivery within areas of the Klamath Reclamation Project.

KWAPA is an intergovernmental agency under Oregon law and a joint exercise of powers agency under California law.

## OPP Moves into Important Third Phase of Development

The Klamath Water and Power Agency (KWAPA) has compiled and analyzed critical background information in the ongoing development of the On-Project Plan (OPP), which is intended to align long-term water supply and demand for the On Project Plan Area (OPPA) of the Klamath Irrigation Project. OPP formulation has now moved into the critical third phase of a four phase development process, and important decisions will soon need to be made.

"In recent months, we have developed key components of the OPP that have led to an estimate of the amount of water needed to align water supply with demand," said Marc Van Camp, of KWAPA's OPP consulting team. "Now we have the

tools and data to better evaluate and recommend alternatives to address this supplemental need."

Much of the information developed in the first two phases of the OPP development has a strong technical and legal flavor, and was developed by the OPP consulting team, working in collaboration with the On-Project Plan Advisory Committee (OPPAC). As the OPP further develops, input from OPPAC—which is made up of representatives from Klamath Irrigation Project districts and water companies—will become even more important.

"We are looking for strong input from OPPAC and the public to identify categories of

options and how to evaluate and rank those options," said Mark Oliver, the consulting team's representative from CH2M HILL. "We need their help to guide our efforts."

This issue of *OPPortunities* will focus on completion of the foundational phases of the OPP, and tee up the critical issues and decisions that will be required to complete the final two phases of this project.

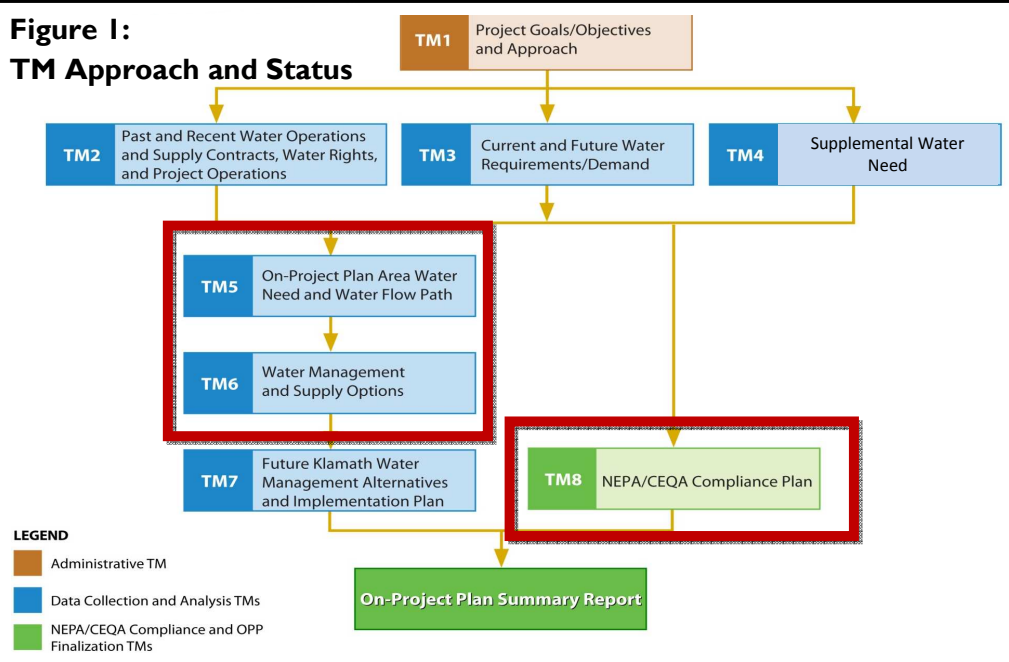
## "Tech Memo" Approach to Developing the OPP

The OPP is being developed on a "build-as-you-go" approach to accommodate input from its irrigation constituents, partners,

.....Continued on Page 2

**Figure 1:**

## TM Approach and Status



### The OPP Work Group

Hollie Cannon (KWAPA)  
 Greg Addington (KWUA)  
 Julie Matthews (KWAPA)  
 Ed Bair (KWAPA and Klamath Basin Improvement District)  
 John Crawford (Tulelake Irrigation District)  
 Bill Ganong (KWAPA Legal Counsel)  
 Paul Simmons (KWUA Legal Counsel)  
 Marc Van Camp (Consultant Team—MBK Engineers)  
 Mark Deutschman (Consultant Team—Houston Engineering, Inc.)  
 Dan Keppen (Consultant Team—Dan Keppen & Associates, Inc.)  
 Mark Oliver (Consultant)

**“Supplemental water need** is a conservative or high estimate of the quantity of water projected to be needed above the Limitation on DIVERSION to satisfy the water demand within the OPPA.”

### What is NEPA?

The National Environmental Policy Act (NEPA) is a federal environmental law that establishes procedural requirements for all federal government agencies to identify the environmental effects of proposed federal agency actions.

### What is CEQA?

CEQA, or the California Environmental Quality Act, is a statute that requires California state and local agencies to identify the significant environmental impacts of new projects and to avoid or mitigate those impacts, if feasible.

## Technical Memo Approach to Developing the OPP

### TMs and OPP Development Phases Explained (Cont'd from Pg 1)

and OPP stakeholders. To support this, the OPP is being developed through a series of Technical Memorandums (TMs) that will build upon one another and culminate in a summary document.

From a communications perspective, the TM-based approach provides a useful tool to generate consistent, timely and focused updates to stakeholders on progress being made on the OPP.

The OPP Work Group last fall completed TM 1, which was unanimously approved by the OPPAC in September. TM 2 and TM 3 were reviewed by OPPAC on March 22, 2012 and are now finalized. TM 4 was finalized in July after incorporating changes suggested by Reclamation, the U.S. Fish and Wildlife Service, and OPPAC on June 27, 2012.

OPPAC members are listed in the inset box on Page 6 of this newsletter. You can see TMs 1, 2, 3 and 4 in their entirety by going to [www.kwapa.org](http://www.kwapa.org).

**We're on the web!**  
[www.kwapa.org](http://www.kwapa.org)

### OPP Development

The development of the OPP is divided into four distinct phases to assist in the overall planning and resource allocation effort.

**Phase 1** - the preparation of TM 1 – was completed last fall. TM 1 identified the project goals and objectives and approach for development of the

OPP. The background and development of the Klamath Basin Restoration Agreement (KBRA), together with the need for the OPP, are also summarized in TM 1.

**Phase 2** included the work necessary to complete the foundational TM 2 and TM 3 documents, as well as TM 4, which identified supplemental water needs (see inset box on this page for definition) of the OPPA. TM 2 described the water supply and operations for the OPPA. It provides background information on:

- Klamath Project History
- On-Project Plan
- Adjudication and Reclamation Contracts
- Klamath Basin Hydrology
- Water Quality
- Water Supply & Facilities
- Operations Relative to the OPPA
- Groundwater Resources
- Water Supply and Demand Reduction Options

TM 3 addressed current and future water demands associated with current and anticipated future cropping patterns and agricultural land use. It also identified potential changes in cropping patterns within the OPPA and anticipates resulting water needs.

This phase also included the initial efforts for developing TM 5 – Surface Water Flow Path of the OPPA and TM 8 – NEPA/CEQA Compliance Plan.

Incorporated into the development of TM 8 will be ongoing efforts to assess the level of detail and complexity of NEPA/CEQA compliance with the

Bureau of Reclamation to implement the OPP (see inset box, this page, for more on NEPA/CEQA).

Also, as an ongoing effort, Phase 2 included outreach efforts and implementation of an agreed upon communication plan.

**Phase 3** includes the completion of TM 5 and continuation of TM 8, as well as the initiation and completion of TM 6—Water Management and Supply Options. TM 7—Future Water Management Alternatives and the OPP Summary Report will be initiated in Phase 3.

“Phase 3 also includes continued meetings of the OPPAC and associated OPP Work Group, as well as stakeholder and responsible agency meetings,” said Dan Keppen, a member of the OPP consulting team.

Phase 3 began in April and key technical work is scheduled to be complete by the end of 2012.

**Phase 4** is scheduled to start in January 2013 and finish in July 2013.

Since the last edition of *OPPortunities*, TM 4 has been completed. TM 5 has been drafted and an initial review has been made by the Work Group. TM 5 is scheduled to be provided to the OPPAC by the end of September. Each of these important developments will be further described in this newsletter, and a brief summary of the water management and supply options identified in the initial stages of TM 6 will also be provided.



## TM 4: Supplemental Water Need of the On-Project Plan Area

TM 4 is the fourth in a series of technical memoranda to develop the OPP for KWAPA. This TM has two basic purposes.

First, it provides a conservative estimate of the amount of water needed to align water supply with demand in the OPPA. This is the “supplemental water need”, and an estimate was developed in light of the “Limitation on DIVERSION” of Klamath River and Upper Klamath Lake water provided in the Klamath Basin Restoration Agreement (KBRA) and described in TM 2. Subsequent TMs will evaluate and recommend the options and combinations of options in the form of alternatives to address this supplemental water need.

“The types of options we expect to evaluate include conservation and efficiency, storage, groundwater substitution, demand management, as well as other concepts,” said Mr. Van Camp.

The second purpose of TM 4 is to provide a level of guidance to the OPPA entities and KWAPA when operating in light of the limitations noted above. This TM evaluates past dry year diversions in order to arrive at estimates of deliveries that would distribute the available Klamath River and Upper Klamath Lake water supply during the summer irrigation period.

“By distributing the Limitation on DIVERSION by month and

using an average dry year demand by month, an estimate of the monthly quantity of supplemental water supply necessary to align water supply with demand within the OPPA was calculated,” said Mr. Van Camp.

For the purposes of this TM, the March through October (summer period) supplemental water need was the main area of focus. However, the November through February (winter period) Limitation on DIVERSION was also addressed for both agriculture and the Lower Klamath National Wildlife Refuge.

The objective of the analysis, using historic hydrology, was to estimate the maximum supplemental water need that may occur under the Limitation on DIVERSION.

“Calculation of a maximum seasonal supplemental water need provides an estimate of the quantity and magnitude of supplemental water needed for future planning efforts and development of the OPP,” said Mr. Van Camp.

The OPP will be developed to adequately address the maximum expected March through October supplemental water need or series of supplemental water needs that may occur during a given time period.

TM 4 describes the methodology used to estimate the maximum supplemental water need for the March through October season, which was determined to be approximately 100 TAF. However, identifying the total seasonal supplemental water

### Settlement Points of Diversion

As defined in the KBRA, Settlement Points of Diversion are specific points at which water from Upper Klamath Lake (UKL) or the Klamath River is diverted to beneficial use. They include A-Canal on UKL, specified structures on the Lost River Diversion Channel, and specified structures on the Klamath River and Lake Ewauna.

.....Continued on Page 4



**Figure 2.** Members of the OPP work group met in September 2011 with national wildlife refuge managers to discuss water management challenges at the Lower Klamath National Wildlife Refuge.

### OPP Mission Statement

***Develop, through an open, transparent, and collaborative interdistrict approach, an integrated plan that provides a strategy with various options for aligning water supply and demand consistent with the KBRA to preserve the On Project Plan Area agricultural, industrial, and municipal economies, and environmental resources.***

## TM 4—Supplemental Water Need of the On-Project Plan Area (*Cont'd from Pg 3*)

need may not be entirely adequate for the development of the OPP and future planning efforts in complying with the Limitation on DIVERSION. Therefore, an analysis of the supplemental water need on a monthly basis to help define potential operations and planning efforts was performed.

Evaluation of seasonal and monthly historical diversions for the Klamath Project showed significant variability in diversions. For planning purposes, then, the historical pattern of diversions was assumed, and monthly cumulative diversions calculated.

Based on these assumptions, TM 4 provides estimated maximum monthly and seasonal supplemental water need for the OPPA. Due to

the variability in historical diversions, a "Dry Year Average" representing the six driest years on record was calculated.

"This dry year template was used to identify an average historical monthly diversion pattern during dry years," says Mr. Van Camp.

The Dry Year Average cumulative percentage was combined with the Limitation on DIVERSION to develop a seasonal "Diversion Guide".

"This Guide is for planning purposes only," Mr. Van Camp emphasized. "It provides a pattern of water historically diverted during dry year types that can be compared to the Limitation on DIVERSION for future

operation and planning efforts."

Figure 3 (below) shows what the estimated supplemental water need would be for 1961-2010 time period, if the Limitation on DIVERSION provisions of the KBRA were in place.

TM 4 also evaluated the November through February (winter water period) Limitation on DIVERSION.

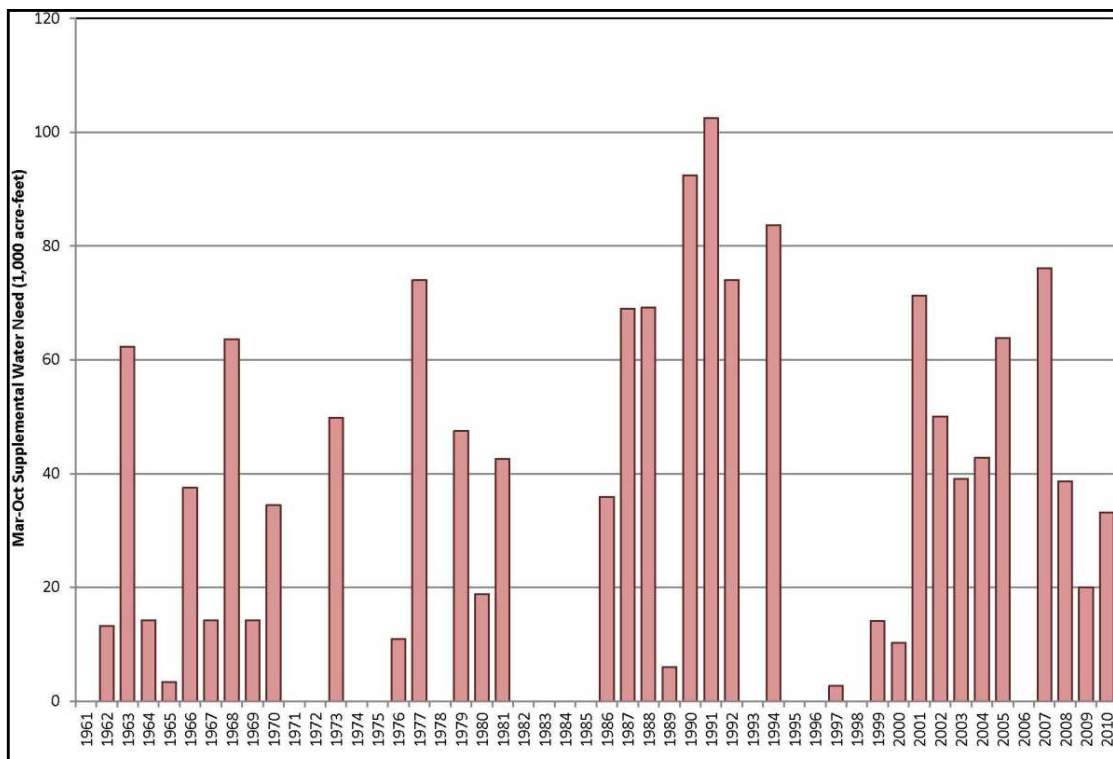
"Historical diversions show that in recent years, supplemental water would not have been required to meet demand in winter months," said Mr. Van Camp.

The refuge allocation during the summer period ranges between 48-60 TAF and the initial winter refuge allocation is 35 TAF. No supple-

mental water requirement was calculated in TM 4 for the refuge.

Results presented in TM 4 show the maximum monthly shortage for agriculture may be on the order of 45 TAF to 55 TAF for a given month. This maximum supplemental water need would have occurred in the past operations in April, May, June or July had the Limitation on DIVERSION been in place. This represents a worst case March through October monthly supplemental water need for the reasons previously identified.

Now that the water demand challenges have been identified and defined, OPPAC will be asked to evaluate the water management and supply options that satisfy these demands. TM 6 marks the beginning of that effort (see page 6).



**FIGURE 3—Maximum Estimated March through October Supplemental Water Need**



## TM 5: Surface Water Flow Path of the On-Project Plan Area

The purpose of TM 5 is to document the existing surface water flow paths in the OPPA. This TM will support the development of TM 6 –Water Management and Supply Options (see page 6).

A flow path shows how water flows through a drainage / delivery system and can assist in identifying characteristics such as direction, quantity and quality of water flows.

“Developing a flow path is useful, especially as an educational tool,” said Mark Deutschman, with Houston Engineers, Inc. “It should help us as we move forward with TM 6 and the development of the OPP.”

Previous studies—including a 1998 water user analysis by Davids Engineering and a 2003 Hydrologic Assessment by the Irrigation Training and Research Center (ITRC)

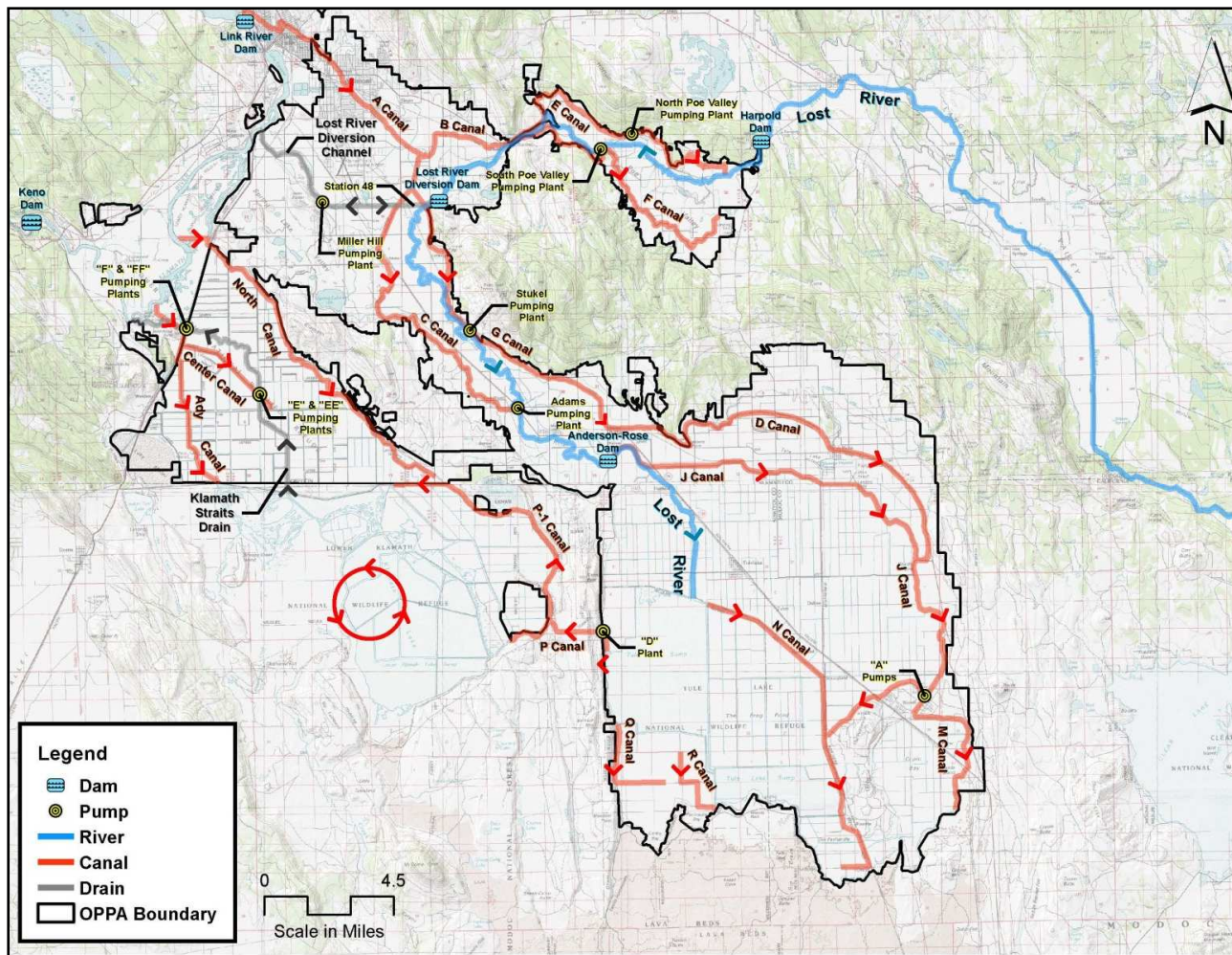
were used, in part, to develop the flow path for the OPPA.

However, new and updated reports that could provide further information for this effort are limited.

“There is great uncertainty relative to the reliability of the available data,” said Mr. Van Camp. “We will develop a sub-regional level of quantitative and qualitative analysis to determine if additional,

detailed analysis is possible and useful for the development of TM 6.”

In addition, a review of current surface water flows at key locations within the OPPA has been made. This review of recent operations provides a general understanding of how changes in operations have and may continue to occur as a result of operation considerations including increased power costs.



**FIGURE 4—Water Flow Path of the On-Project Plan Area**

## TM 6: Water Management and Supply Options

Using the information developed in TMs 2,3,4 and 5, water management and supply options are now being developed by the OPP consulting team and OPPAC.

Nine criteria have been proposed to evaluate and rank potential management measures. All criteria must be satisfied for an option to be advanced.

"Failure to satisfy even one of the criteria will deem that option infeasible," said Mr. Oliver.

Criteria that will be used to evaluate a given option's feasibility include the following:

- Ability to reduce diversions in a way that is consistent with OPP's goal of maintaining a reliable water supply.
- Sustainability of agriculture.
- Consistency with legal, regulatory and contractual requirements.
- Affordability. "Options must be cost-effective, such that they are consistent with funding availability," said Mr. Van Camp.
- Durability. Administrative requirements must be reasonable and not overly burdensome.
- Flexibility. Projects and programs must have the capability to be adjustable over time.
- Equitability. The program must provide for equal and fair treatment of all growers and water districts, including ensuring willing participation.
- Protection afforded water rights. Options in no way can impact existing water rights.
- Environmental and other third party / community impacts or benefits.

Anticipated category of options to be evaluated under these criteria include the following:

- Conservation and efficiency (automation and canal lining)
- Groundwater / conjunctive water management
- Increased storage / reoperation
- Demand reduction (crop idling / shifting / leasing)
- Other (i.e. water transfers)

The best options and alternatives that survive the screening process will become apparent in the coming months, with leadership from the OPPAC.

Once these alternatives are developed, federal and state environmental review will be



**Figure 5.** The Klamath On-Project Plan Advisory Committee (OPPAC) is made of representatives from Klamath Irrigation Project irrigation districts, improvement districts and water companies. OPPAC assists with the development of the OPP using an open, transparent, and collaborative inter-district approach. Recent OPPAC meetings were conducted at KWAPA on June 27 and September 10, 2012. OPPAC will play a key role in the development of TMs 6 and 7.

### **On-Project Plan Advisory Committee**

**Bob Flowers - Ady  
District Improvement  
Company**

**Shane McDonald -  
Enterprise Irrigation  
District**

**Ed Bair - Klamath  
Basin Improvement  
District**

**Luther Horsley -  
Klamath Drainage  
District**

**Rocky Liskey -  
Klamath Hills District  
Improvement Co.**

**Dave Cacka - Klamath  
Irrigation District**

**Luke Robison - Malin  
Irrigation District**

**Curt Mullis - Pioneer  
District Improvement  
Company**

**Gary Derry - Shasta  
View Irrigation District**

**Pat Patterson - Sunny  
Side Irrigation District**

**Earl Danosky -  
Tulelake Irrigation  
District**

**David Jensen - Van  
Brimmer Ditch  
Company**

**Steve Kandra -  
Westside  
Improvement District**



**KLAMATH WATER  
AND POWER  
AGENCY**

735 Commercial Street  
Suite 4000  
P.O. Box 1282  
Klamath Falls, OR 97601

Phone: 541-850-2503  
Fax: 541-883-8893  
E-mail: [info@kwapa.org](mailto:info@kwapa.org)

**We're on the web!  
[www.kwapa.org](http://www.kwapa.org)**



**Working together towards locally based solutions to energy issues, water management issues  
and coordination in other areas to the benefit of the whole community.**

**The Klamath Water and Power Agency (KWAPA) is a joint powers / inter-governmental agency whose members are water agencies within the Klamath Reclamation Project.**

**KWAPA provides programs to align water supply and demand, generally within the Klamath Project. We seek to reduce power costs for irrigators in the Klamath Project.**

**KWAPA is working to obtain and provide transmission and delivery of Federal preference power for eligible On-Project and Off-Project Power Users and investigate power generation that would offset power costs.**

**Background and Development of the Klamath Basin Restoration Agreement**

Representatives of diverse communities in the Klamath Basin, working with federal, state, and county governments, and with other interested organizations, developed the Klamath Basin Restoration Agreement (KBRA) to rebuild fisheries, sustain agricultural communities, and resolve longstanding disputes related to the allocation of water resources. KWAPA and its member entities are parties to the KBRA. Relevant key provisions of the KBRA related to water supply include the following:

- An ultimate limitation on diversions (DIVERSION is a term in the KBRA defined as the total amount of water from the Klamath system diverted from specific Upper Klamath Lake and Klamath River diversion facilities).
- Reliability and certainty regarding water that will be available for a sustainable agricultural community and national wildlife refuges.

For more information on the KBRA, go to <http://kwua.org/kbra>.

**OPP Goals and Objectives**

- **Meet commitments specified in the KBRA**
- **Maintain long - term sustainability of Klamath Reclamation Project agriculture**
- **Minimize reductions in irrigated agriculture in the On-Project Plan Area (OPPA) and avoid any uncompensated reduction in irrigated agriculture**
- **Ensure equitable treatment among districts, avoid impacts on district operations, and seek opportunities for improved water management operations within and across districts**
- **Develop fair, equitable, and transparent strategies for aligning water supply and demand**
- **Consider cost effectiveness of alternatives to the overall Klamath Basin economy and minimize third - party impacts**
- **Avoid adverse impacts on groundwater as a result of OPP implementation or administration**
- **Use groundwater in a long - term and sustainable manner, and address all relevant in - basin groundwater management objectives, including identifying and addressing potential impacts on areas directly adjacent to the OPPA**





# KWAPA



On-Project Plan  
Status Report for  
KBCC  
November 14, 2012  
Julie Matthews, KWAPA

# KBRA and the OPP

- KBRA specifies the OPP to be developed by KWAPA (KBRA Section 15.2)
- **Purpose** of the OPP is to “***align water supply and demand***”
- Key provisions:
  - *Stable Klamath River water supply*
  - *Sustainable agricultural and refuge operations*

# Work Group

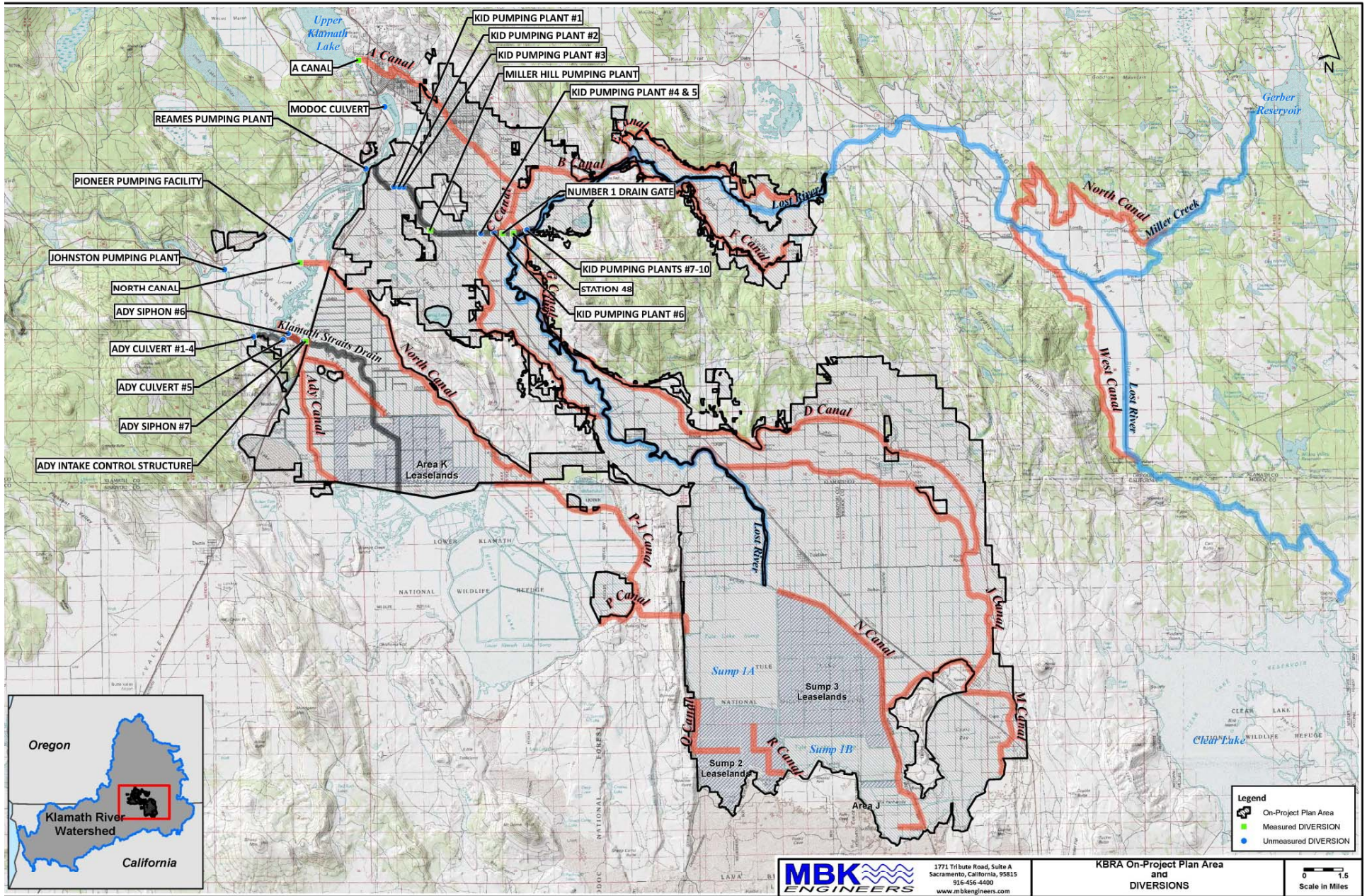
## ● Project Consultant Team

- *Marc Van Camp (MBK Engineers) Lead*
- *Mark Oliver (CH2M HILL)*
- *Mark Deutschman (Houston Engineering)*
- *Dan Keppen (Keppen and Associates)*
- *Bill Ganong (Legal KWAPA) Oregon*
- *Paul Simmons (Legal KWAPA) California*

## ● Additional Members

- *Hollie Cannon (KWAPA)*
- *Cathy Waters (KWAPA)*
- *Greg Addington (KWUA)*
- *Ed Bair (KBID)*
- *John Crawford (TID)*





# On Project Plan Area



# OPP Advisory Committee (OPPAC)

## Multidistrict advisory committee providing input, policy direction, and guidance

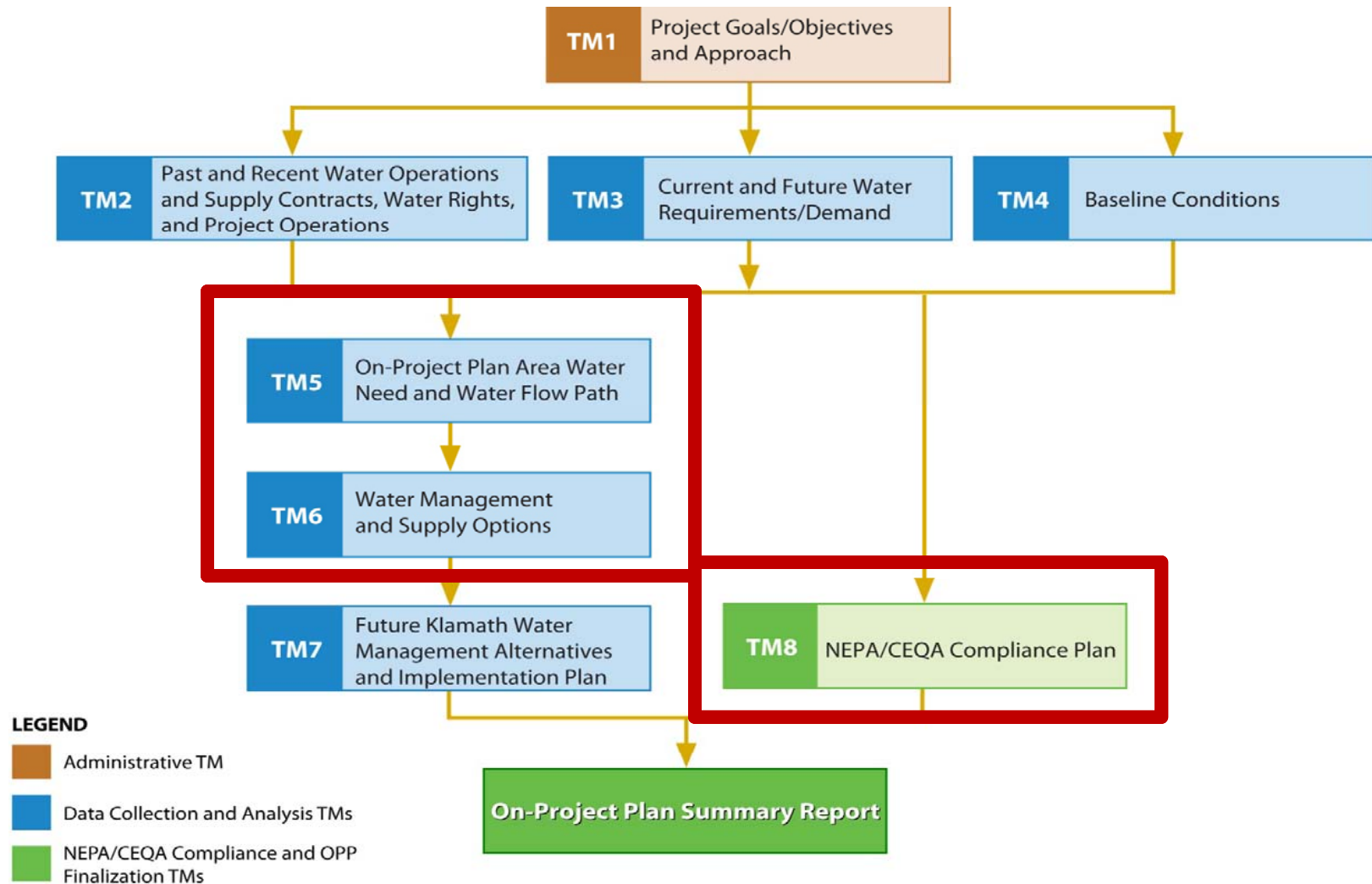
- Ady District Improvement Company
- Enterprise Irrigation District
- Klamath Basin Improvement District
- Klamath Drainage District
- Klamath Hills District Improvement Company
- Klamath Irrigation District
- Malin Irrigation District
- Pine Grove Irrigation District
- Pioneer District Improvement Company
- Poe Valley Improvement District
- Shasta View Irrigation District
- Sunnyside Irrigation District
- Tulelake Irrigation District
- Van Brimmer Ditch Company
- Westside Improvement District



# Goals and Objectives of the OPP

- Maintain **long-term sustainability** of Klamath Reclamation Project agriculture
- **Minimize reductions/avoid uncompensated reductions** in irrigated agriculture
- Ensure **equitable treatment**/avoid operational impacts on districts - seek opportunities for improved water management (within and across districts)
- Develop fair, equitable, and transparent strategies for **aligning water supply and demand**
- Consider cost effectiveness of alternatives to the overall Klamath Basin economy and **minimize third-party impacts**
- **Avoid adverse impacts** on groundwater
- Use groundwater in a **long-term and sustainable manner**, and address all relevant in-basin groundwater management objectives within and adjacent to the On-Project Plan Area (OPPA)

# Technical Memo(TM) Approach and Status



# Potential Menu of Options/Alternatives

TM6 – Work on this Tech Memo is now happening.

- Potential options include the following:
  - *Conservation (e.g., canal lining/system improvement)*
  - *Groundwater*
  - *Additional storage*
  - *Demand reduction (e.g., temporary idling or crop shifting)*
- Use options to develop alternatives
  - *Alternatives are flexible to respond to given year conditions*
- Options are to be voluntary and compensated

# Project Schedule

- Public Informational Meetings** are held during each phase
- Multiple **OPPAC Meetings** are held during each phase
- Responsible Agency Meeting** are held intermittently

- Phase 1 (June 2011- completed August 2011)
  - *OPP Goals and Objectives (TM1)*
- Phase 2 (to be completed July 2012)
  - *Water Supply (TM2), Demand (TM3), Baseline Conditions (TM 4)*
- Phase 3 (to be completed end of 2012)
  - *Water Flow Path (TM5), Management Options (TM6) NEPA/CEQA (TM8) to begin*
- Phase 4 (to be completed July 2014)
  - *Management Alternatives (TM7) July 2013,*
  - *NEPA/CEQA, EIS/EIR (TM8) Final OPP completion date: JULY 2014*

## More Info...

### *Contact Information:*

Visit [www.kwapa.org](http://www.kwapa.org)

Email: [julie.matthews@kwapa.org](mailto:julie.matthews@kwapa.org)



**DRAFT**  
**Status Report and Workplan for Implementing Klamath Basin  
Restoration Agreement**

November 14, 2012

**Introduction**

This is an updated draft list of the tasks to implement the Klamath Basin Restoration Agreement. The purpose is to track the status of the tasks to implement the Restoration Agreement.

The Restoration Agreement includes a number of commitments, obligations, program design provisions, and understandings that are not included in the tasks for specific actions below.

**Summary**

- The Parties to the agreements have made good progress on establishing the coordination and oversight organizations called for in the Restoration Agreement and implementing many of the near-term KBRA actions.
- The Drought Plan Lead Entity has completed the Drought Plan and it is under review by the Department of the Interior.
- The Klamath Water and Power Agency is on schedule in developing the On Project Plan.
- Funding is not available for the development of the Fisheries and Monitoring Plan.
- Implementation of the KBRA plans will likely be delayed until funding is available; in some cases passage of the Federal authorizing legislation will also be needed.

**Klamath Basin Restoration Agreement**

**General Provisions**

**Form Klamath Basin Coordinating Council and Interim Advisory Council** (see Appendix D).

1. Develop protocols. (Completed on October 7, 2010)
2. Prepare FACA Charter for KBAC and TAT.
  - 2.1. KBAC members have provided comments.
  - 2.2. DOI is preparing a FACA charter.

3. Form TAT
  - 3.1. Identify Interim TAT representatives. First meeting was on February 24, 2011.
  - 3.2. Develop workplan and schedule when funding for Environmental Water program is available.
4. Develop procedures to add new Parties (Sections 1.1.3, 7.2.2, and 38).
  - 4.1. Discussed with KBCC/Interim KBAC at first meeting at July 2011.
  - 4.2. KBRA Amendments would add Klamath Basin Power Alliance as Party.
5. Prepare public information and involvement plan.
  - 5.1. Established website to provide access to all implementation materials.
  - 5.2. KBRA meetings are notices on website.
  - 5.3. Completed communications protocols and communications plan and posted on website.

**Adopt workplan and schedule for implementation of Klamath Basin Settlement Agreement.** (See Appendix C-1)

The KBCC is using this document to track implementation; it is revised and reviewed at each meeting.

**Legislation (Section 3.1.1.B)**

1. Authorizing legislation has been introduced in the Senate and House of Representatives.
2. Parties are assisting legislative offices and committees working on the legislation.
3. Parties are coordinating activities to support authorizing legislation.

**Funding**

1. Non-Federal Parties support funding for Agreement (Section 3.2.4.B.ii).
2. Relevant Federal agencies implement funding (Section 4).
  - 2.1. Federal Team worked on FY 2013 budget that included \$16 million for KBRA implementation.
3. Develop procedures for specific funds (Section 14.3) [the Parties will develop a schedule and workplan to implement the following tasks when the authorizing legislation has been enacted].
  - 3.1. On-Project and Power for Water Management (Section 14.3.1)
    - 3.1.1. Develop administrative provisions (BOR)
    - 3.1.2. KWAPA and Management Entity submit expenditure plan.
  - 3.2. Water Use Retirement and Off-Project Reliance (Section 14.3.2)

- 3.2.1. [FWS] Develop administrative provisions.
  - 3.2.2. UBT and UKWUA submit expenditure plan.
- 3.3. Klamath Drought Fund (Section 14.3.3)
  - 3.3.1. Reclamation develop contract with National Fish and Wildlife Foundation.
  - 3.3.2. National Fish and Wildlife Foundation develop administrative provisions.
    - 3.3.2.1. Enforcement Entity submits expenditure plan [date].
    - 3.3.2.2. Enforcement Entity submits annual report [annual date].
- 4. Periodically adopt and recommend a successor to budget in C-2 (Section 4.1.2.A and B).
  - 4.1. In June 2011, the KBRA Non-Federal Parties revised the estimated costs for KBRA activities. The cost estimates were reduced 18 percent from the 2010 KBRA. The revised cost estimates also shifted a number of costs to later years; this reduced the cost estimates in the first seven years by 38 percent.
- 5. Klamath Basin Restoration Agreement Fund (Section 4.2)
  - 5.1. Establish Fund to receive non-federal funding.
  - 5.2. Establish committee to design and implement fund raising program.
  - 5.3. Designate manager and procedures for disbursement and accounting.
  - 5.4. Implementation has been delayed pending authorizing legislation.

### **Coordination and Oversight**

- 1. KBCC will adopt procedures to report on the status of performance of each obligation under the Agreement and identify issues to be resolved (Section 5.1). Ongoing
- 2. KBCC track the progress of all components in real-time (Section 5.4.2.A). Ongoing
- 3. KBCC prepared Second Annual Report in March 2012 (Section 5.4.2.B).

### **Fisheries Programs**

#### **Fisheries Restoration Program**

- 1. Fish Managers prepare Fisheries Restoration Phase I Plan (Section 10.1).
  - 1.1. Fish managers prepared outline for December 15, 2010 meeting, sought KBCC comments and finalized outline and approach.
  - 1.2. Fish Managers adopted outline and approach on February 9, 2011.
  - 1.3. Federal Team working on identifying funding to develop a scope of work and budget for preparing plan.
  - 1.4. Draft Phase I Plan was due on February 18, 2011; there is no budget for the Plan so Fish Managers have requested an extension until 18 months after funding is available.

#### **Fishery Program funding and reporting**

1. Fish Managers establish process to determine Fisheries Program funding needs (Section 13.1 and 13.3). [the Parties will develop a schedule and workplan to implement the following tasks when the authorizing legislation has been enacted].
  - 1.1. Convene meeting of Fish Managers to determine initial budget and develop funding plan (see Section 13.1).
    - 1.1.1. Develop procedures for annual funding (see Sections 13.2, 13.3 and 13.5).
      - 1.1.1.1.[Fill in steps and schedule after Restoration and Monitoring Plan is complete]
2. Annual Reporting on funding and implementation (Section 13.4)
  - 2.1.1.1.Prepare draft report [fill in steps and schedule after Restoration and Monitoring Plan is complete]
  - 2.2. Fishery Managers review.
  - 2.3. Final report to KBAC.

### **Fisheries Monitoring Plan**

The Monitoring Plan under Section 12 is being developed in coordination with the Fisheries Restoration Plan.

### **Fisheries Reintroduction Plan**

1. Oregon Plan (Section 11.3)
  - 1.1. ODFW and Klamath Tribes, in collaboration with Tribes and other Fish Managers initiate plan development when funding is available, but no later than State Concurrence of an Affirmative Declaration by Secretary of Interior under KHSa Section 3.3.
    - 1.1.1. [Fill in steps and schedule later]
  - 1.2. Seek input from interested Parties and others with technical expertise.
  - 1.3. Complete Phase I Plan within 12 months.
2. California Plan (Section 11.4)
  - 2.1. CDFG, in collaboration with other Fish Managers initiate when State Concurrence of an Affirmative Declaration by Secretary of Interior under KHSa Section 3.3.
    - 2.1.1. [Fill in steps and schedule closer to 2012]
  - 2.2. Seek input from other Parties and public.
  - 2.3. Complete plan within 24 months.

### **Water Resources**

**File validation actions** (Section 15.3.1.B): Completed.

**Collaboration on Irrigation Diversions and Environmental Water.**

1. KWAPA complete analysis of historical data by February 18, 2011 (based on availability of funding). (Section 15.1.1.A.ii.a)
  - 1.1. This analysis was included as part of the Drought Plan
2. KWAPA, in cooperation with others, develop predictive techniques for use by TAT. (Section 15.1.1.A.ii.b).
  - 2.1. [Fill in steps and schedule]
3. KWAPA participates in TAT activities. (Section 15.1.1.A.ii.c)
  - 3.1. KWAPA is represented on the interim TAT; implementation has been delayed pending authorizing legislation for water programs.

#### **Collaboration to benefit agriculture and Wildlife Refuges.**

1. FWS and KPWA working on interim actions under 15.1.2.J to resolve outstanding issues related to water rights for the Refuges.
2. Other provisions will be pursued on a schedule that will allow implementation when Appendix E-1 becomes effective (not a near-term activity). (Section 15.1.2.C)

#### **On-Project Plan**

1. KWAPA preparing draft On-Project Plan within 18 months of funding available. (Section 15.2.2.B.i)
  - 1.1. Funding under the Enhancement Act authority and funding.
  - 1.2. KWAPA present workplan and schedule on April 7, 2011.
  - 1.3. Preparation of On-Project Plan:
    - 1.3.1. Project began in 2011; completion date for plan is July 31, 2013, with NEPA and CEQA review complete on July 31, 2014.
2. Reclamation evaluates and approves plan within 60 days of completion of any environmental review. (Section 15.2.2.B.i)
  - 1.1. [Potential activity for FY 2013]
2. KWAPA adopts plan within 45 days of Reclamation approval and provides notice to Parties. (Section 15.2.2.B.i)

#### **Groundwater Technical Investigations**

1. USGS, in cooperation with OWRD, initiates groundwater investigations pursuant to workplan in Appendix E-2. (Section 15.2.4.B).
  - 1.1. Parts of the study have been completed, other sections are awaiting funding (See Appendix E-2 for workplan)
  - 1.2. Complete as expeditiously as possible to inform On-Project Plan.



2. KWAPA will meet with OWRD and other interested Parties at least once during development of On-Project Plan and at least 30 days prior to completion of On-Project Plan (Section 15.2.4.B.iv.a)

### **Klamath Basin Adjudication Process**

1. KPWU and Klamath Tribes file amended stipulations by May 18, 2010 (Section 15.3.2.B). These Parties sent notice on May 19, 2010 that this action would be delayed.
  - 1.1. OWRD will prepare a Final Order of Determination for the Upper Klamath Basin water rights adjudication process this fall. A status report is on the November 14, 2012 KBCC meeting agenda.

### **D Pumping Plant Costs**

1. Reclamation, with TID, LKNWR reviewed cost allocation in Section 15.4.2.A by February 18, 2011.
  - 1.1. Initial review complete.

### **Klamath Reclamation Project operations**

1. The Secretary will consult with Project contracts and establish a process to analyze costs by February 18, 2011. (Section 15.4.7).
  - 1.1. Review complete.

### **OPWAS negotiations.**

1. OPWAS Parties Negotiate OPWAS. (Section 16.2)
  - 1.1. OPWAS Parties will provide steps and schedule to develop OPWAS when funding is available.
  - 1.2. Deadline for OPWAS was February 18, 2012, OPWAS Parties requested extension.
  - 1.3. a Final Order of Determination for the Upper Klamath Basin water rights adjudication process
2. As part of OPWAS, develop Water Use Retirement Program.

### **Power Resources**

1. KWAPA and UKWUA have formed the Management Entity (known as the Klamath Basin Power Alliance or KBPA) and developed operating protocols by December 1, 2010. (Section 17.4.1)
2. KBPA adopted administrative guidelines by January 15, 2011. (Section 17.4.3).
  - 2.1. KBPA has adopted guidelines on accounting policies, purchasing procedures and board of directors manual.
  - 2.2. KBPA has developed a communications plan.

- 2.3. Other guidelines are pending the availability of funding for completion of the power sales contract between Reclamation and BPA.
3. KBPA will identify eligible customers (Section 17.3)
  - 3.1. Status report provided at February 24<sup>th</sup> meeting
  - 3.2. KBPA provided draft eligibility criteria for on-project and off-project at the September 2011 KBCC meeting.
  - 3.3. KBRA amendments address proposed changes in eligibility.
4. KBPA will develop system to distribute funds to eligible customers (Section 17.4.4).
  - 4.1. KBPA will develop a program with PacifiCorp, implementation is delayed because funding for the interim power program is not available.
  - 4.2. Support necessary Regulatory Approvals.
5. KBPA to implementation Interim Power Program (Section 17.5).
  - 5.1. Funding is not available for the implementation of the interim power program.
  - 5.2. Irrigators in California are paying full tariff; irrigators in Oregon are phasing into full tariff in 2013.
  - 5.3. Power from PacifiCorp under prior arrangement was 0.3 cents per kilowatt-hour. California tariff rate is 11 cents per kilowatt-hour, full tariff in Oregon will be 9 cents per kilowatt-hour.
6. Reclamation negotiating contract with BPA for Federal power (Section 17.6)
  - 6.1. Reclamation working on interconnection agreement with BPA.
  - 6.2. KBRA has contracted to develop information for the power interconnection agreements.
    - 6.2.1. Contractor analyzing loads and cost information.
    - 6.2.2. Analysis of BPA power costs compared to PacifiCorp power (on hold because of lack of funds).
7. KBPA preparing financial and engineering plan. (Section 17.7.2).
  - 7.1. Reclamation entered into cooperative agreement to conduct financial and engineering plan.
  - 7.2. Cal Poly biomass study.
    - 7.2.1. Study found that farm residue supplies were not sufficient for power production.
  - 7.3. National Renewable Energy Lab conducting studies on other alternatives.
    - 7.3.1. Backscatter radar site studies found:
      - 7.3.1.1. Wind projects would likely raise concerns about bird strikes given location near wildlife refuges.
      - 7.3.1.2. Solar would require large investments to achieve affordable power targets.
      - 7.3.1.3. Biomass study found concerns about that amount of juniper available that is not considered old growth and concerns about the long-term availability of tax credits.

7.3.2. Analysis of geothermal options and alternatives outside the basin is on hold pending direction from KBAO to NREL.

8. KBPA has responsibility to implement renewable resource project and conservation when funding is available.

**Williamson River Delta:** Support monitoring (Section 18.2.1)

**Agency Lake and Barnes Ranch**

1. Reclamation and FWS completed transfer agreement and are working to transfer Reclamation lands. (Section 18.2.2.B)
  - 1.1. Reclamation and FWS completed transfer agreement.
  - 1.2. Reclamation transferring data and documentation.
  - 1.3. [Fill in steps and schedule]
2. FWS is working to complete a study by March 31, 2012 on options identified in Section 18.2.2.C.
  - 2.1. FWS is having area mapped using LIDAR system which will give new detailed elevation and cover data. Scheduled to be completed spring 2011.
  - 2.2. FWS has received preliminary Engineering surveys detailing the inadequacies of the dikes surrounding the Barnes-Agency ranches. The draft engineering assessment states: the dikes are not built to engineering specifications and are subject to catastrophic failure if used to contain water. Estimates to replace dikes may be cost-prohibitive. Final assessment to be completed fall 2011.
3. FWS would commence environmental analysis within 60 days of Affirmative Determination by Secretary.

**Wood River Wetland**

1. BLM working to complete study by March 31, 2012 (Section 18.2.3).
  - 1.1. Contractors are working on studies.
  - 1.2. BLM provided briefing to KBCC at September 2011 meeting.
2. BLM would commence environmental analysis within 60 days of Affirmative Determination by Secretary. [KBRA assumed 2012]

**Future Storage**

1. Reclamation is working on study and will provide progress reports every six months. (Section 18.3.1)

**Develop Drought Plan.** (Section 19.2)

1. Lead Entity prepared draft Drought Plan and distributed to KBRA Parties and the public.
2. KBCC review and public comment at April 7, 2011 KBCC meeting.
3. Lead Entity completed plan in July 2011.
  - 3.1. No Party issued a Dispute Initiation Notice within the 30 day review period.
4. Lead Entity submitted adopted Drought Plan to Department of the Interior on August 29, 2011.
5. Department of the Interior is working on a review of the Plan. Under KBRA Sections 19.2.3.D and E the review the Drought Plan will address the following issues: 1) complete any necessary environmental review, 2) ensure that the provisions of Section 19.2.2 regarding the content of the plan had been addressed, and 3) make a decision on whether to provide Federal funding to implement the Drought Plan, including providing funding for the Klamath Drought Fund under Section 14.3.3.
6. There is no funding for implementing the Drought Plan. The revised cost estimates assumed that the Interim Flow and Lake Level Program would provide assistance to Project irrigators while the On-Project Plan was being implemented.

**Prepare Emergency Response Plan.**

1. Reclamation and KWAPA are Lead Parties for developing a draft Emergency Plan by February 18, 2011. (Section 19.3). KWAPA does not have funding to work on the plan and has requested an extension until 12 months after funding is available.
2. Review material from Klamath County Emergency Response Plan and fill in additional steps to prepare draft.
3. KBRA amendments clarify that Reclamation will address emergencies at facilities that affect water supplies for KBRA.

**Climate Change**

1. OWRD and CDFG, in coordination with Water Managers and Fish Managers are Co-Lead Parties.
2. Co-Lead Parties initiated assessment in February, 2012s
3. Co-Lead Parties will provide status report at November 14, 2012 KBCC meeting.

### **Off-Project Reliance Program**

1. UKWUA to complete plan prior to OWRD determination that the WURP purposes have been achieved under Section 16.2.2.F.

### **Interim Flow and Lake Level Program** [Implementation delayed pending authorizing legislation]

1. The Secretary will plan and implement a water leasing and purchase program under Section 20.4.
2. The Interim Flow and Lake Level program (IFLLP) will require Reclamation to receive new authority in order to administer this program. Additionally, KWAPA will need to agree to the TAT being incorporated in their existing process.
  - 2.1. [Fill in steps and schedule].
  - 2.2. Take into account recommendations of TAT.
3. The Secretary will provide updates to the Parties and stakeholders.
4. OWRD actions to protect Environmental Water (Section 20.5.2)
5. Parties will support petition by PacifiCorp to SWRCB to dedicate Environmental Water to instream use (Section 20.5.3).

### **State TMDLs**

Parties support development and implementation of appropriate TMDLs (Section 20.5.4.B). This is the responsibility of the individual Parties and not a KBCC workplan item.

### **Regulatory Assurances**

**Fish Entrainment Alleviation** [these activities are related to Facilities Removal under the KHSA; they would be implemented if a decision to remove the four PacifiCorp dams is made].

1. Reclamation will evaluate methods and locations and construct facilities (Section 21.1.3.A)
  - 1.1. Reclamation working with Denver engineering office to develop strategies.
  - 1.2. [Reclamation will update steps and schedule]
2. Reclamation evaluates measures to prevent adverse impacts in Klamath Straights Drain. (Section 21.1.3.B)
  - 2.1. [Fill in steps and schedule]

### **Endangered Species Act (Section 22)**



1. Federal agencies will consult with FWS and NMFS on Barnes Range/Agency Lake, Wood River Wetlands Project, and Off-Project Water Use Retirement Program. (Section 22.1.1). Services need to prepare to implement this action.
  - 1.1. [Fill in steps and schedule]
2. Reclamation, at an appropriate time in consultation with KWAPA, will request reinitiation of consultation. (Section 22.1.2) [Implementation on standby.]
3. [Need to discuss schedule for General Conservation Plan and Habitat Conservation Plan. Budget assumes action beginning in 2013](Section 22.2)

### **Bald and Golden Eagle and Migratory Bird Protection (Section 23)**

1. The actions under Section 23 are expected to occur on a schedule related to the potential removal of the Klamath River dams. KBRA Parties will develop a workplan.

### **California Laws (Section 24)**

1. California Endangered Species Act: DFG will evaluate the necessity for incidental take coverage following concurrence with an affirmative Secretarial Determination, by the Governor of California. Within 90 days of such concurrence, DFG will advise the Parties of its determination and recommend specific procedures for obtaining any necessary coverage.
2. California Fully Protected Species: DFG will initiate discussions with legislative staff and key stakeholders, including interested Parties, regarding the scope and methods of proposed legislation, beginning in March 2011.

### **Oregon Laws (Section 25)**

1. ODFW will determine schedule in coordination with potential facilities removal.

## **Counties Program**

### **Klamath County**

1. Klamath County will develop and adopt Klamath County Program by June 30, 2012. (Section 27.2).
  - 1.1. Klamath County has requested a delay in this action until after an Affirmative Secretarial Determination under the KHSA.
2. Non-Federal Parties seek funding by July 1, 2012 [fill in new schedule if there is an Affirmative Secretarial Determination under the KHSA]. (Section 27.3)

3. Non-Federal Parties support funding for property tax impacts to be dispersed by July 1, 2016.

## **Tribal Program**

### **Tribal Participation in Fisheries and Other Programs**

1. Tribes implement fisheries capacity building and conservation management programs (Section 32).
  - 1.1. [Fill in steps and schedule when funding is available]

### **Economic Revitalization**

1. Non-Federal Parties support funding. Fill in when funding is available. (Section 33.1)
2. Klamath Tribes' implementation of Mazama Forest Project. Fill in when funding is available. (Section 33.2)

### **Klamath Tribes' Interim Fishing Site**

1. Klamath Tribes had an interim fishery in 2012. (Section 34)

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**DECISION MEMORANDUM**

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**TO:** KBRA PARTIES  
**FROM:** EDWARD W. SHEETS, FACILITATOR  
**SUBJECT:** APPROVE REVISIONS TO KBCC COMMUNICATIONS PROTOCOLS  
**DATE:** NOVEMBER 14, 2012

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### **Summary**

The proposed revisions to the KBCC Communications Protocols clarify the process for the review and approval of external documents.

### **Background**

The Communication Protocols were adopted by the KBCC on February 24, 2011. They describe a general process for review and approval of external documents. While this process appears to have worked well in the past, it was not possible to get comments and approval on documents from all Parties. Therefore, the Communications Committee is recommending clarifications to the process.

### **Proposed Changes**

The proposed changes would direct the facilitator to distribute all drafts of external documents (press releases, annual reports, etc.) to all Parties to the KBRA and KHSa with a clear deadline for providing comments. The facilitator would seek approval of the external communication from the KBCC representatives under Section 5.1 of the KBCC Protocols that describe the process to address voting matters that require a super majority of designated representatives. Any communications involving the KHSa would also require approval by PacifiCorp. This would avoid any confusion on the process for review and approval.

The proposed changes also clarify that if approval of an external communication is needed between KBCC meetings, the facilitator would follow the procedures in Section 5.3 of the KBCC Protocols regarding time-sensitive actions.

A copy of the proposed changes and a copy of the KBCC Protocols are attached.

## Klamath Basin Coordination Council Communications Protocols

Adopted: February 24, 2011

Revised: November 14, 2012

### Communications by Klamath Settlement Parties

**Objective:** Communications should facilitate implementation of Klamath Basin Settlements.

**Coordination:** The Klamath Settlement Parties intend to coordinate communications regarding implementation of the settlement agreements within the scope of activities of the Klamath Basin Coordinating Council (KBCC) and/or the Klamath Basin Advisory Council (KBAC).

**KBCC and KBAC communications:** The facilitator will distribute draft press releases, draft annual reports, and other external documents regarding the KBCC and/or KBAC to all the Klamath Settlement Parties for review and will provide a clear deadline for comments. The facilitator will seek approval of all external documents by the KBCC representatives under Section 5.1 of the Klamath Basin Coordinating Council Protocols regarding voting matters. Any communication that addresses the Klamath Hydroelectric Settlement Agreement must also be approved by PacifiCorp. When communications are needed between KBCC meetings, the facilitator will seek electronic approval from the KBCC representatives under Section 5.3 of the KBCC protocols regarding procedures for time-sensitive actions before release to the press. As a matter of courtesy, contacts listed in a press release related to the Klamath should be notified and provide approval of being listed as a contact, prior to release.

When a Party is communicating on behalf of all Parties they should follow the talking points or other communications materials that have been agreed to by Parties to the KBRA and KHSa.

**Communications by individual organizations:** Parties may initiate external communications (press releases, letters to the editor, opinion articles, etc) about their individual position on issues related to the scope of activity of the KBCC and/or KBAC; Parties that plan to independently communicate to external organizations should provide prior notice to other Klamath Settlement Parties to the maximum extent possible. Such notice is intended to: 1) improve coordination of communications; 2) avoid surprises; and 3) reduce the risk of actions that other Parties may view as inconsistent with the settlements. The Klamath Parties understand that Parties will not be able to provide such prior notice when responding to press inquires or communications from non-parties.

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## **KBCC and KBAC Meetings**

**Public notice of meetings and distribution of meeting materials:** The facilitator will send notices for the time and location of KBCC and KBAC meetings to a public distribution list and press distribution list. The facilitator will also post meeting information on the website. The facilitator will post draft agendas on the website prior to meetings and all materials from each meeting within five working days after the meeting.

KBRA Parties may participate in KBCC meetings by conference phone. KBCC representatives may vote on KBCC decisions by phone. Each Public Agency Party will follow applicable public notice provisions if they participate by phone. Each Public Agency Party, where applicable, will post at their primary office a notice stating the location where they will call into the meeting so the public can observe their participation and post a copy of the agenda on the door of the room where they will participate.

**KBCC conference calls:** The KBCC may utilize conference calls to address time-sensitive information or issues between regular meetings. Given the limitations on the Klamath conference line, participation on KBCC conference calls will be limited to KBRA Parties.

The facilitator will make best efforts to provide notice for KBCC conference calls, including any requests by KBRA Parties to provide notice under applicable requirements. The KBCC will provide locations at public facilities for the public to listen to the conference call. In addition, individual KBCC Parties will follow any applicable open meeting requirements regarding their participation on conference calls. Each Public Agency Party, where applicable, will post at their primary office a notice stating the location where they will call into the meeting so the public can observe their participation and post a copy of the agenda on the door of the room where they will participate.



# Klamath Basin Coordinating Council Protocols

Adopted on October 7, 2010

## 1. **Purpose**

The Klamath Basin Coordinating Council (KBCC) is the coordinating body for all Parties to the Klamath Basin Restoration Agreement (Restoration Agreement). Its purpose is to coordinate continued collaboration, cooperation, and consultation among Parties and others in the implementation of the Restoration Agreement, including related provisions of the Klamath Hydroelectric Settlement Agreement. The purposes, roles, and responsibilities for the KBCC are described in more detail in Appendix D-1, subsections I and II, of the Restoration Agreement.

The KBCC provides general oversight and administration, including activity and program coordination, information sharing, priority setting, fund seeking, and dispute resolution related to implementation of the Restoration Agreement. The KBCC makes decisions to implement certain provisions as specified in the Restoration Agreement. The KBCC also serves as the forum for public involvement in implementation of the Restoration Agreement.

The KBCC does not provide advice or recommendations to Federal Agency Parties. Under the Restoration Agreement, any advice or recommendations to Federal Agency Parties would be made by the Klamath Basin Advisory Council (KBAC) as described in Appendix D-1, subsections I and III, of the Restoration Agreement. The operation of the KBAC will be subject to the requirements of the Federal Advisory Committee Act.

## 2. **Definitions**

Terms used in these protocols shall have the same definitions as provided in the Restoration Agreement. We restate the definitions of certain terms used extensively in these protocols. Further, these protocols add three new defined terms: Consensus Matters, Non-Voting Matters, and Voting Matters.

**Consensus Matters** shall mean: those matters where the Restoration Agreement requires Consensus.

**Non-Voting Matters** shall mean: those matters that arise in the course of coordination and oversight that do not require a vote, such as reviewing progress in implementation of the Agreement.

**Notice** shall mean: written notice pursuant to the requirements and procedures of Restoration Agreement Section 7.1.

**Parties** shall mean: the signatories of this Agreement from among the entities listed in the Restoration Agreement Section 1.1.1 and, with respect to Federal Agency Parties, as

provided in Section 1.1.2. Additional entities may become Parties after the Effective Date as provided in Section 1.1.3, 7.2.2, 37, and 38 of the Restoration Agreement.

**Parties Related to Klamath Reclamation Project** shall mean: Tullake Irrigation District, Klamath Irrigation District, Klamath Drainage District, Klamath Basin Improvement District, Ady District Improvement Company, Enterprise Irrigation District, Malin Irrigation District, Midland District Improvement Company, Pioneer District Improvement Company, Shasta View Irrigation District, Sunnyside Irrigation District, Don Johnston & Son, Bradley S. Luscombe, Randolph Walthall and Jane Walthall as trustees under declaration of trust dated 1995, and Inter-County Property Company which acquired title as Inter-County Title Company, Reames Golf and Country Club, Winema Hunting Lodge, Inc., Van Brimmer Ditch Company, Collins Products, LLC, Plevna District Improvement Company and Klamath Water and Power Agency.

**Voting Matters** are: those matters where the Restoration Agreement requires a vote but not Consensus.

### **3. Organization**

#### **3.1. Membership Generally**

All Parties to the Restoration Agreement are members of the KBCC.

#### **3.2. Representation for Voting Matters**

While all Parties may participate in KBCC meetings, only designated representatives of the Parties shall be voting members, as specified in Table 1 below, for any voting matters. Designated representatives shall seek the individual views of their member Parties to ensure effective representation in voting matters.

**Table 1. Party Membership and Representation for the KBCC**

<b>Parties</b>	<b>Representation</b>	<b>Constituent Entities</b>
Department of the Interior	1	FWS, BLM, BOR, BIA
Department of Agriculture	1	USFS
Department of Commerce	1	NOAA/NMFS
State of Oregon	1	ODEQ, ODFW, OWRD
State of California	1	CDFG
Klamath Tribes	1	
Yurok Tribe	1	
Karuk Tribe	1	
Klamath County	1	
Humboldt County	1	
Parties related to Klamath Reclamation Project	2	
Off-Project Representative	1	
Conservation /Restoration Groups	2	
Commercial Fishing Industry	1	
<b>Total</b>	<b>16</b>	

### **3.3. Designation of Representatives for Voting Matters**

Each Party will designate its representative pursuant to its own rules for this purpose, although the KBCC will develop a procedure to address the circumstance where a Party is not able to select its representative.

Each Party on the KBCC will provide to the Facilitator written notification of its designated representative to the KBCC. Each Party may also designate an alternate representative. The Facilitator will maintain a record of representatives and any alternates.

#### **3.3.1. Klamath Reclamation Project**

One representative for the Parties Related to the Klamath Reclamation Project will be an employee or agent of Klamath Water and Power Agency (KWAPA), and another will be an employee or agent of Klamath Water Users Association (KWUA), which may alternately designate a Party related to the Klamath Reclamation Project. Such designation may be changed by a majority of the Parties Related to the Klamath Reclamation Project as defined in Section 2 above.

#### **3.3.2. New Parties**

The KBCC will determine appropriate representation for any additional entities that may become Parties after the Effective Date as provided in Section 7.2.2 of the Restoration Agreement.

### **3.4. Delegation for Purpose of Non-Voting and Consensus Matters**

With respect to any matter on which the Restoration Agreement provides for consensus of all Parties, any Party may delegate to another Party the authority to act on its behalf. Any such delegation shall be in writing and will remain in effect according to its terms or until revoked.

### **3.5. Committees**

The KBCC may establish committees as it deems appropriate to address specific issues on a standing or *ad hoc* basis, and to assist in the implementation of the Restoration Agreement, including the separate but related Hydroelectric Settlement. Each such committee will provide advice or recommendations to the KBCC. Each such committee may establish its own operating protocols.

## **4. Roles and Responsibilities**

### **4.1. Coordination and Oversight**

The Restoration Agreement establishes the following roles and responsibilities for the KBCC:

- tracking and reporting progress in implementation;
- providing approvals as specified in the Restoration Agreement;
- facilitating the resolution of disputes among or between the Parties,
- promoting collaboration and coordination among Parties and other entities in the Klamath Basin;
- assisting in the prioritization of programs and projects;
- seeking grants and other funding;
- reporting program expenditures;
- establishing protocols and procedures;
- developing an annual workplan.

#### **4.2. Dispute Resolution**

The KBCC is the forum to facilitate dispute resolution in implementation of the Restoration Agreement, pursuant to the procedures and requirements specified in Section 6 of the Restoration Agreement.

#### **4.3. Public Participation**

The KBCC will encourage public participation in the implementation of the Restoration Agreement. It will hear and consider public comments at plenary or committee meetings, as provided in Section 6 of these protocols.

#### **4.4. Coordination with other Resource Management Processes**

The KBCC will coordinate the implementation of the Restoration Agreement with regulatory actions, such as Biological Opinions and Recovery Plans under the Endangered Species Act, and with other watershed groups within the entire Klamath River Basin (e.g., Trinity River Working Group, Upper Klamath Basin Working Group, and resource conservation districts). The KBCC will promote basin-wide solutions and approaches.

#### **4.5. Reservation of Authorities**

As provided in Section 2.2 of the Restoration Agreement, these protocols are not intended, and will not be construed, to modify or waive any legal right, obligation, or authority of any Party. The KBCC does not have governmental power; nor does its existence or activities modify the authorities under Applicable Law of any federal, state, tribal, or local government.

## **5. Operations.**

### **5.1. Procedures for Voting Matters**

The KBCC or Facilitator will develop a decision memorandum and a schedule for any decision that requires Voting. The Facilitator will provide Notice, including these materials, to all Parties at least seven calendar days prior to the meeting when the Voting Matter will be discussed.

A quorum will be a majority of the designated representatives.

Only designated representatives will vote on those matters which the Restoration Agreement specifies for this procedure, although all Parties may participate in the discussion.

Except for matters under Section 15.3.8.B. of the Restoration Agreement, a decision in a Voting Matter requires the support of  $\frac{3}{4}$  of the KBCC representatives who comprised the quorum.

The KBCC does not provide advice or recommendations to Federal Agency Parties. Under the Restoration Agreement, any advice or recommendations to Federal Agency Parties would be made by the Klamath Basin Advisory Council (KBAC) as described in Appendix D-1, subsections I and III, of the Restoration Agreement. The operation of the KBAC will be subject to the requirements of the Federal Advisory Committee Act.

With respect to matters under Section 15.3.8.B of the Restoration Agreement, the decision process is described in Section 15.3.8.B and Appendix D-1, Section II.D on pages D.5 and D.6 of the Restoration Agreement.

Parties that do not support a vote may prepare a minority report. All reports shall become part of the record.

### **5.2. Procedures for Consensus Matters**

Certain actions under the Restoration Agreement, including amendments under Section 7.2 and the addition of a New Party under Section 7.2.2, require the Consensus in written form of all Parties.

The KBCC or Facilitator will develop a decision memorandum and a schedule for any decision that requires Consensus.

For amendments of the Restoration Agreement under Section 7.2 and the addition of a New Party under Section 7.2.2, the Facilitator will provide Notice, including the decision memorandum, to all Parties at least 14 calendar days prior to the meeting when the Consensus Matter will be discussed. A consensus of all the



Parties exists for these matters if all Parties submit a written approval to the Facilitator by the deadline established in the decision memorandum.

### **5.3. Procedures for Time-Sensitive Actions**

If a time-sensitive issue arises that requires action by the KBCC under the Voting Matter or Consensus Matter procedure on a schedule that does not allow the normal Agenda review schedule, Notice, or other process provisions in this Protocol, the Facilitator shall provide at least 72 hours notice when scheduling a conference call or meeting to address the time-sensitive issue.

### **5.4. Procedures for Administrative Matters**

If a Voting Matter arises during a meeting of the KBCC, a vote may be taken at that meeting if the matter is administrative in nature. A vote of the KBCC will be taken to as to whether the matter is administrative. Any action on any such matter will be subject to reconsideration at the next KBCC meeting at the request of any Party.

### **5.5. Procedures for Non-Voting Matters**

#### **5.5.1. Generally**

The KBCC or Facilitator will provide Notice at least seven days prior to the meeting when a Non-Voting Matter will be discussed.

#### **5.5.2. Involving Hydroelectric Settlement**

The KBCC may consider how to coordinate implementation of the Restoration Agreement and the Hydroelectric Settlement. Any discussion of the implementation of the Hydroelectric Settlement will be a Non-Voting Matter. The KBCC will provide Notice to PacifiCorp, which may participate in any such discussion.

### **5.6. No Advice to Federal Agencies**

Actions and reviews by the KBCC under Sections 5.1 through 5.5 do not provide advice or recommendations to Federal Agency Parties. Under the Restoration Agreement, any advice or recommendations to Federal Agency Parties would be made by the Klamath Basin Advisory Council (KBAC) as described in Appendix D-1, subsections I and III, of the Restoration Agreement. The operation of the KBAC will be subject to the requirements of the Federal Advisory Committee Act.

### **5.7. Facilitation**

The KBCC agrees to use facilitation. Subject to the availability of funding, the facilitator will be independent of the Parties.

#### **5.7.1. Facilitator's Tasks**

The Facilitator will actively manage the effort in a neutral and fair manner. The Facilitator will develop draft agendas, chair discussions, enforce the protocols, provide process oversight, help to resolve disputes, and otherwise work to build consensus. The Facilitator will handle meeting logistics, meeting notes and follow-up on action items.

#### **5.7.2. Process Management**

The Facilitator is responsible for overseeing the development and implementation of the workplan. If actions in the Restoration Agreement miss a deadline, the Facilitator will work with the Parties to get back on schedule. If these efforts are not successful, the Facilitator will seek assistance from the KBCC.

### **5.8. Meetings**

#### **5.8.1. Agendas**

The Facilitator will distribute a draft written agenda at least a week prior to a meeting of the KBCC. After consultation with KBCC representatives, the Facilitator will finalize the agenda at least three business days in advance of such a meeting. Each agenda will identify items for discussion and decision, materials for consideration, and any other relevant information. KBCC Representatives may request a time certain for an agenda item to accommodate schedules.

#### **5.8.2. Schedule**

The Facilitator will notice and schedule KBCC meetings three weeks in advance. The scheduling of meeting will attempt to accommodate participation of all KBCC Representatives for Voting Matters and otherwise for all KBCC members.

The KBCC shall hold periodic or episodic meetings of all Parties on Non-Voting Matters such as coordination and oversight matters that do not require a vote, including reviewing the progress of implementation of the Agreement.

#### **5.8.3. Record Keeping**

A record of all meetings will be kept to concisely identify all topics of

discussion, decisions reached, matters carried over, action items, and schedule. The Facilitator will prepare and keep the written record of all KBCC meetings and post it on the website.

#### **5.9. Initial Adoption and Amendment to the Protocols.**

Initial adoption and any subsequent amendment of these protocols will be a Voting Matter. These protocols are subordinate to the Restoration Agreement, including Appendix D, and may not constitute or affect an amendment to that agreement.

### **6. Public Involvement**

#### **6.1. Public Information**

The KBCC shall maintain a list of interested parties and will notify the distribution list via email regarding future meetings, pending decisions, and information and reports prepared by the KBCC. It will provide notices to local papers regarding KBCC meetings. The KBCC shall also maintain a website to provide information to the public.

#### **6.2. Public Comment at KBCC Meetings**

The KBCC will provide an opportunity for public comment by anyone attending a meeting. Public comment will be scheduled: 1) at the beginning of the meeting for general comments and requests to comment as part of specific agenda items, 2) prior to KBCC action on Voting Matters and Consensus Matters, and 3) at the end of each meeting. The facilitator may limit the amount of time allotted overall or for each speaker, as the Facilitator determines to be reasonably necessary.

#### **6.3. Public Comment on KBCC Plans**

The Restoration Agreement includes public review and comment in the development of several plans. In those cases the KBCC will develop a schedule to provide for public review and comment prior to a decision.

### **7. Funding**

As provided in Section 5.3 of the Restoration Agreement, the Non-Federal Parties will support authorizations and appropriations in the amount estimated in Appendix C-2 of the Restoration Agreement to fund the coordination and oversight functions of the KBCC, including facilitation, for the first ten years after the Effective Date.

These Protocols were adopted by the Klamath Basin Coordinating Council on October 7, 2010 in Klamath Falls, Oregon.