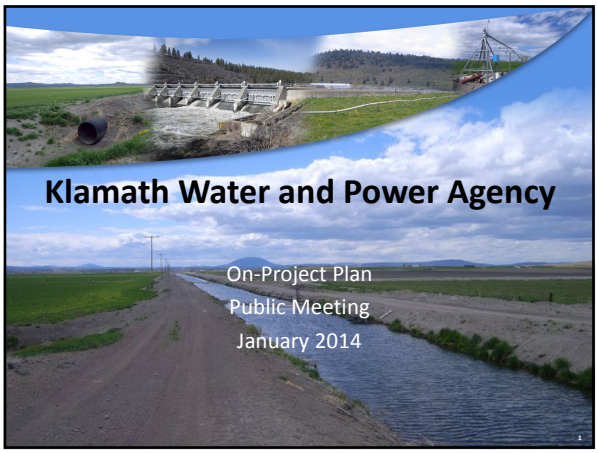


Purpose

- On-Project Plan (OPP)
  - *Background*
  - *Status*
  - *Schedule*
- Not Klamath Adjudication
- Not Klamath Basin Restoration Agreement
- Not 2014 water user program

KWAPA 2

Agenda/Overview

- Introductions
- Background
- OPP Advisory Committee (OPPAC)
- Goals and objectives
- Technical memorandums (TMs) approach
- Proposed Program
- Environmental review
- Project schedule
- Questions and discussion

KWAPA 3

Introductions

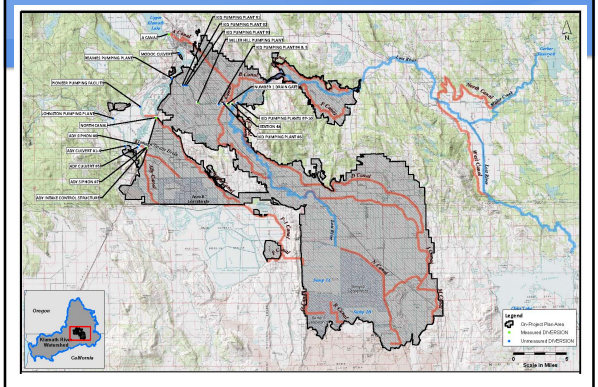
- Klamath Water and Power Agency (KWAPA)
  - *Hollie Cannon (KWAPA Executive Director)*
- Klamath Water Users Association (KWUA)
  - *Greg Addington (KWUA Executive Director)*
- Project Team
  - *Marc Van Camp (MBK Engineers)*
  - *Mark Oliver (CH2M HILL)*
  - *Dan Keppen (Keppen and Associates)*
  - *Mark Deutschman (HEI)*
  - *Bill Ganong (Legal)*
  - *Paul Simmons (Legal)*

KWAPA 4

OPP Background: Klamath Basin Restoration Agreement

- Provides firm water supply for the OPP Area
  - *Protects the OPPA water supply from instream water rights*
  - *ESA coverage*
  - Sustainable agricultural and refuge operations
- Funding for the OPP (development, implementation and administration)
- OPP purpose "***align water supply and demand***"

KWAPA 5



KWAPA 6

Historic Hydrology
May 1

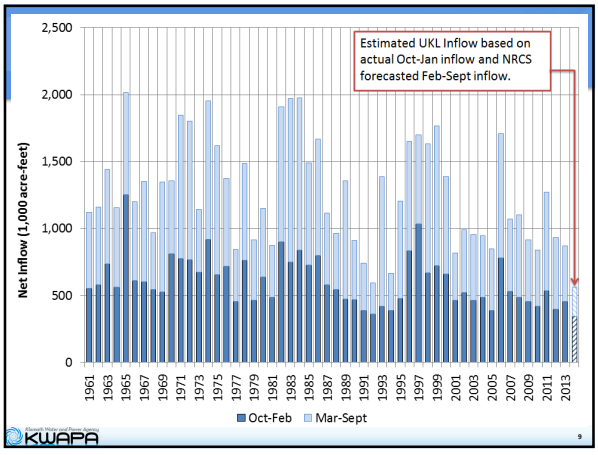
Year	Snow Pack (SWE %)	Precipitation (% Avg)	Klamath Project Surface Water Deliveries (% 400 TAF)
			Estimates
1992	1%	68%	95%
1994	19%	54%	100%
***2001**	**22%**	**57%**	**20%**
2002-2007	70%-196%	71%-137%	71%-98%
2008	178%	109%	90%
2009	105%	89%	**100%**
***2010**	**110%**	**81%**	**47%**
2011	210%	126%	100%
2012	96%	96%	90%
***2013**	**28%**	**87%**	**83%**

KWAPA 7

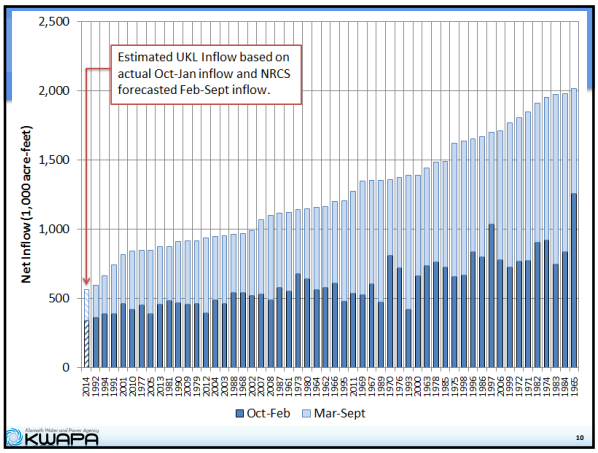
2013 Water Year

- Available water (UKL storage + snowpack)
  - *Worse than 2001 and 2010*
- Reclamation estimated – 100,000 TAF deficit
- Actual water delivered – (286 TAF + 20 TAF)
  - *Nearly 4 times what we had in 2001* and more than 100 TAF more than 2010*
- Mitigation – 64,000 AF ground water pumped
  10,000 AF from land idled (7,300 acres)
- Refuge – 20,000 – 30,000 AF by end of Dec

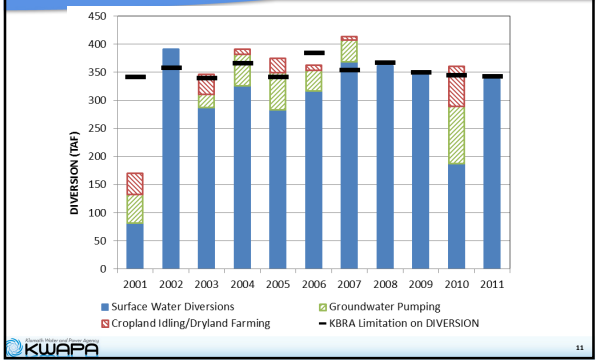
KWAPA 8



KWAPA 9



Comparison of March through October Historical Deliveries to DIVERSION



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
- 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

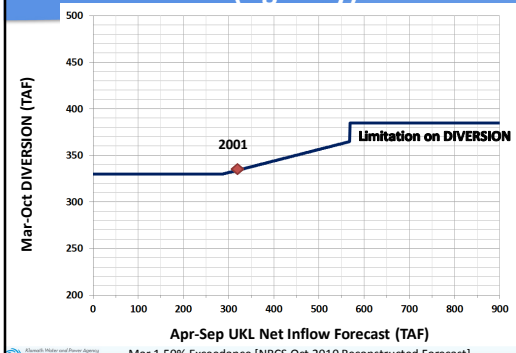
KWAPA 12

Goals and Objectives of the OPP

- Maintain **long-term viability** of Klamath Reclamation Project agriculture
- **Minimize reductions/avoid involuntary, 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, depending on actual hydrologic conditions**
- Consider cost effectiveness of alternatives to the overall Klamath Basin economy and **minimize third-party impacts**
- **Avoid "adverse impacts"** on groundwater (defined as 6% change in flow of certain springs)
- 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)

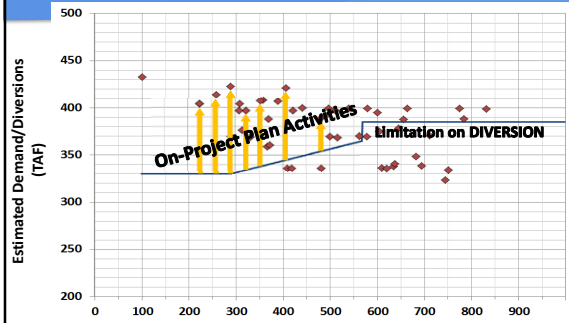
KWAPA 13

Future Limitation on Project Diversion of Klamath Water (Ag Only)



KWAPA Mar 1 50% Exceedance [NRCS Oct 2010 Reconstructed Forecast] 14

Estimated On-Project Plan Activities (1961-2000)



KWAPA Mar 1 50% Exceedance [NRCS Oct 2010 Reconstructed Forecast] 15

On-Project Plan Summary of Efforts Technical Memorandums

- Sept 2011: TM 1 – Goals and objectives
- Apr 2012: TM 2 – Water supply and operations
- Apr 2012: TM 3 – Water requirements/demands
- Jul 2012: TM 4 – Supplemental water need
- Jan 2013: TM 5 – Surface water flow path
- Mar 2013: TM 6 – Options
- Nov 2013: Draft TM 7 – Proposed Program and Implementation/Administration Stages of the OPP
- Jan 2014: Draft Summary Report

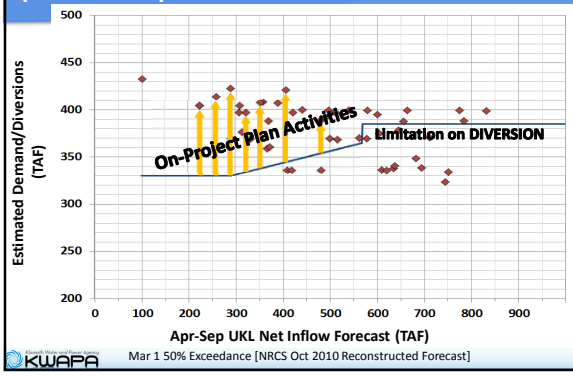
KWAPA 16

On-Project Plan Summary of Efforts Coordination and Outreach

- Aug 24, 2011: OPPAC No. 1
- Sep 22, 2011: OPPAC No. 2
- Nov 16, 2011: OPPAC No. 3
- Dec 2011: Public meetings
- Mar 22, 2012: OPPAC No. 4
- Jun 27, 2012: OPPAC No. 5
- Sep 10, 2012: OPPAC No. 6
- Dec 18, 2012: OPPAC No. 7
- Feb 27, 2013: OPPAC No. 8
- Mar 2013: Public meetings
- Apr 17, 2013: OPPAC No. 9
- Jul 27, 2013: OPPAC No. 10
- Nov 13, 2013: OPPAC No. 11
- Jan 2014: Public meetings

KWAPA 17

Estimated On-Project Plan Activities (1961-2000)



KWAPA Mar 1 50% Exceedance [NRCS Oct 2010 Reconstructed Forecast] 18

Technical Memorandum 6 Water Management and Supply Options

- Option categories to align water supply and demand:
  - *Water conservation and efficiency*
  - *Storage*
  - *Groundwater*
  - *Other*
  - *Demand management*

KWAPA 19

Feasible Options Included in the OPP

- Water conservation and efficiency
  - *Recirculation projects; TID/Sump 1A and LKNWR/KSD*
- Groundwater
  - *Utilize USGS model to ensure long-term sustainability*
- Other
  - *Facilitate existing activities that reduce DIVERSION*
- Demand management
  - *Permanent arrangement, infrequently implemented*

KWAPA 20

Storage NOT a Feasible Option for the OPP

- Opportunities are limited/unreliable:
  - *Minimal water availability*
  - *Complex and protracted regulatory process (environmental impacts, agency/public concerns, etc.)*
  - *Unable to implement by March 2022*
  - *High costs*
- Projects/opportunities should be further pursued assuming funding and partners can be identified (but not as part of OPP)

KWAPA 21

On-Project Plan Proposed Program

22

Overview of On-Project Plan Proposed Program

- "Proposed Program" is the "action" of the OPP
- Three stages of the OPP
  - *Development and Adoption (Mar 2014)*
  - *Implementation of Proposed Program (2015-2021)*
  - *Administration of Proposed Program (2022 and beyond)*

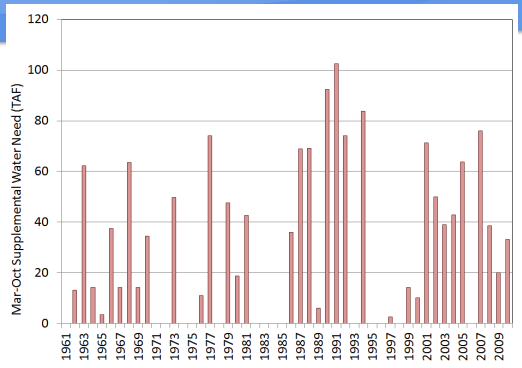
KWAPA 23

Summary of Proposed Program

- Permanent program to align water supply and demand in light of the Limitation on DIVERSION
  - *Meet supplemental water need (0 – 100 TAF)*
  - *No supplemental water need in 50% of years*
  - *Avoid uncompensated shortages to water users*

KWAPA 24

Supplemental Water Need



KWAPA 25

Summary of Proposed Program Cont.

- "Blocks" were developed to provide a suggested approach to guide the implementation of the Proposed Program
- Target quantities identified for each Block:
  - *Block A: Water Conservation and Other Selected Measures (past and future) – (20 TAF)*
  - *Blocks B: Groundwater I – (50 TAF)*
  - *Block C: Groundwater II – (25 TAF)*
  - *Block D: Demand Management (last resort) – (30 TAF)*

KWAPA 26

Key Elements – Measurement and Monitoring

- Implement/improve surface and groundwater measurement and monitoring
  - *Coordinate/collaborate*
    - USBR
    - USGS
    - OWRD
    - DWR
    - Others
- Adjust Proposed Program as/if necessary

KWAPA 27

Key Elements – Block A

- Pursue water conservation and efficiency projects and other measures
  - *Identify existing conservation*
  - *Potential yield (reduced Klamath River DIVERSION) as a result of recirculation projects*
  - *Additional efforts (permanent switch to groundwater)*
- Target quantity (up to 20 TAF) based on TMs 5 and 6

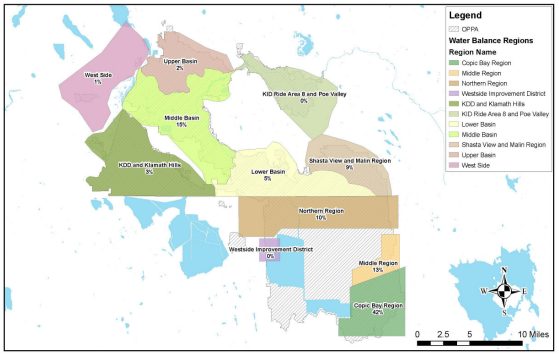
KWAPA 28

Key Elements – Blocks B and C

- Facilitate use of groundwater while avoiding "Adverse Impact" and meet goals of sustainable management
  - *No more than 6% reduction in spring flow (KBRA)*
  - *Will require contractual agreements with willing participants*
- Target quantity (up to 75 TAF) based on USGS Model
  - *Drawdown limitation pursuant to OWRD guidelines*
  - *Existing capacity*
  - *Regional Distribution*

KWAPA 29

Optimal Groundwater Pumping Distribution Based on the USGS Groundwater Model



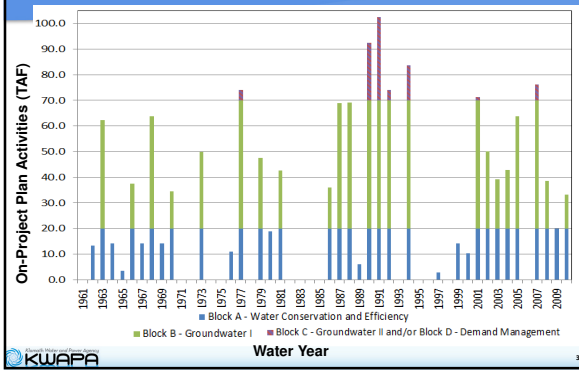
KWAPA 30

Key Elements – Block D

- Temporary land idling as a "last resort"
- "Toggle" Block D with C, as necessary, to facilitate sustainable groundwater pumping
- Contractual agreements required with willing participants
- Target quantity (up to 30 TAF)

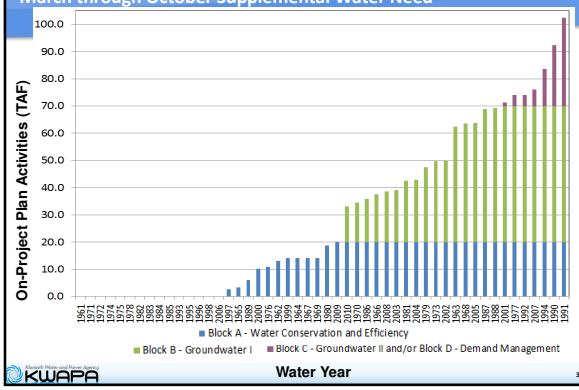
KWAPA 31

Anticipated Ability of Proposed Program Blocks to Meet Estimated March through October Supplemental Water Need



KWAPA 32

Anticipated Ability of Proposed Program Blocks to Meet Estimated March through October Supplemental Water Need



KWAPA 33

Proposed Program

- Implementation (2015 – 2021)
  - *Blocks*
  - *Agreements*
  - *Measurement/monitoring*
- Administration (2022 and beyond)
  - *Determination of/meeting supplemental water need*
  - *Measurement/monitoring*
  - *Adaptive management*

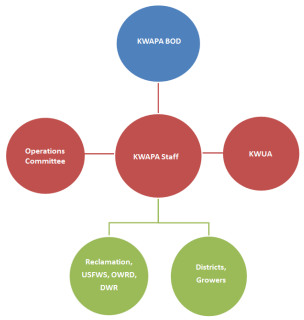
Implementation (2015-2021) Key Activities

- Confirm range of Block A
- Determine/verify appropriate quantities of Blocks B-D are obtained
- Review and document "lessons learned" to support adaptive management

Implementation (2015-2021) Contractual Agreements

- Enter perpetual contractual agreements to ensure flexibility
  - *Willing participants*
  - *Bid/offer process*
  - *Key contract terms*
  - *Upfront payment*

Administration (2022 and beyond) Structure



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Administration (2022 and beyond) Annual Activities

- Identify supplemental water need (if any)
  - *Limitation on DIVERSION and applicable refuge allocation*
  - *Estimating demand*
- Determine which Blocks to use
- Identify contracts to "call" upon
- Monitoring DIVERSION and Limitation on DIVERSION
- Avoidance of "Adverse Impact"
- Reporting
- Adaptive management

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Example Year – Starting Conditions

- Hydrologic conditions
  - *Previous two years dry and each required groundwater pumping*
  - *Prior year monitoring indicates groundwater levels are low*
- To be confirmed during Implementation Stage
  - *Block A contribution*
  - *Contracts with willing participants in place*

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Example Year Cont. – Determine/Meet Supplemental Water Need

- Operations Committee estimates supplemental water need
  - *TM 4 identifies a supplemental water need*
  - *Knowledge of Operations Committee and Block A allows for a reduction in TM 4 estimate*
- Actions to meet supplemental water need
  - *Groundwater*
  - *Demand management*
- Measure/monitor & report

KWAPA 40

Funding/Schedule (Section 4.5/Section 2.7)

- "*…KWAPA cannot implement the Proposed Program absent sufficient funds to do so*" (as described in KBRA Section 15.2.2)
- Schedule is dependent on available funding

KWAPA 41

Environmental Review

- Implementation of OPP requires federal and state environmental review
  - *California Environmental Quality Act (KWAPA)*
  - *National Environmental Policy Act (Reclamation)*
- Initial scoping meeting proposed for early 2014
- To be completed in mid to late 2015

KWAPA 42


Questions and Discussion
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