Strategic Planning Session

IS THE SACRAMENTO VALLEY PREPARED FOR THE NEXT DROUGHT?

JANUARY 30, 2013

LUNDBERG FAMILY FARMS

Schedule for Today

- Overview of drought
- Local agency perspectives
- Agency/Company authority
- Discussion
- How do we prepare for next drought?

Goals for Today

- Bring additional awareness and focus to drought assessment and planning
- Facilitate water resources managers and Board members thinking on how they can better be prepared for drought
- How can NCWA assist in preparing for the next drought

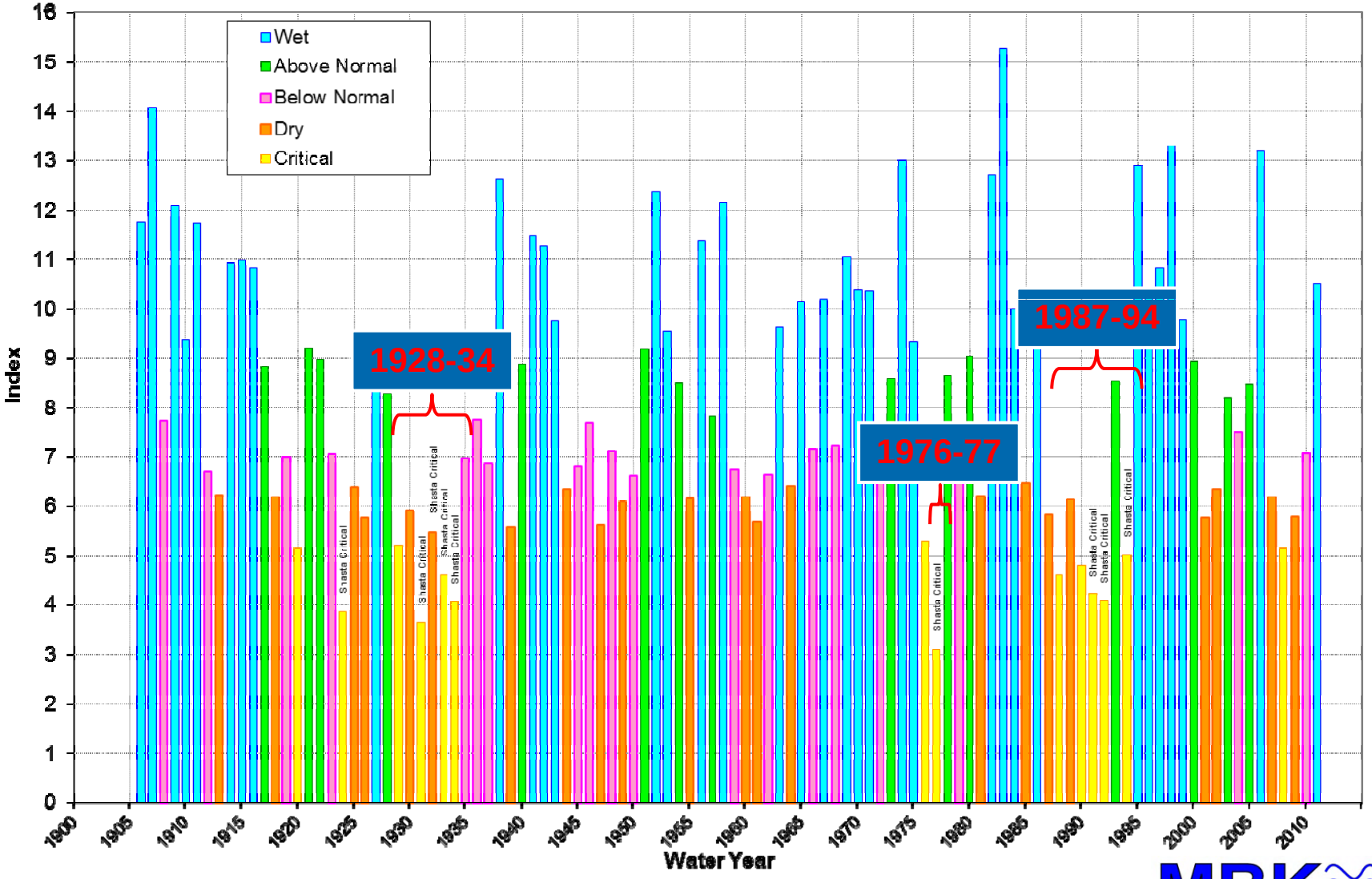
What is a Drought?

- A prolonged period of dryness
- A prolonged or chronic shortage or lack of water

The Sacramento Valley: Allocating Water in Times of Shortage

- Surface Storage Indexes
- Direct Diversion Limitations
  - Inflow Triggers
  - Water Right Conditions
    - Priorities
    - Term 91
- Groundwater Limitations

Sacramento Valley Water Year Type Index (40-30-30)
1906 - 2011
Based on Observed Unimpaired Runoff



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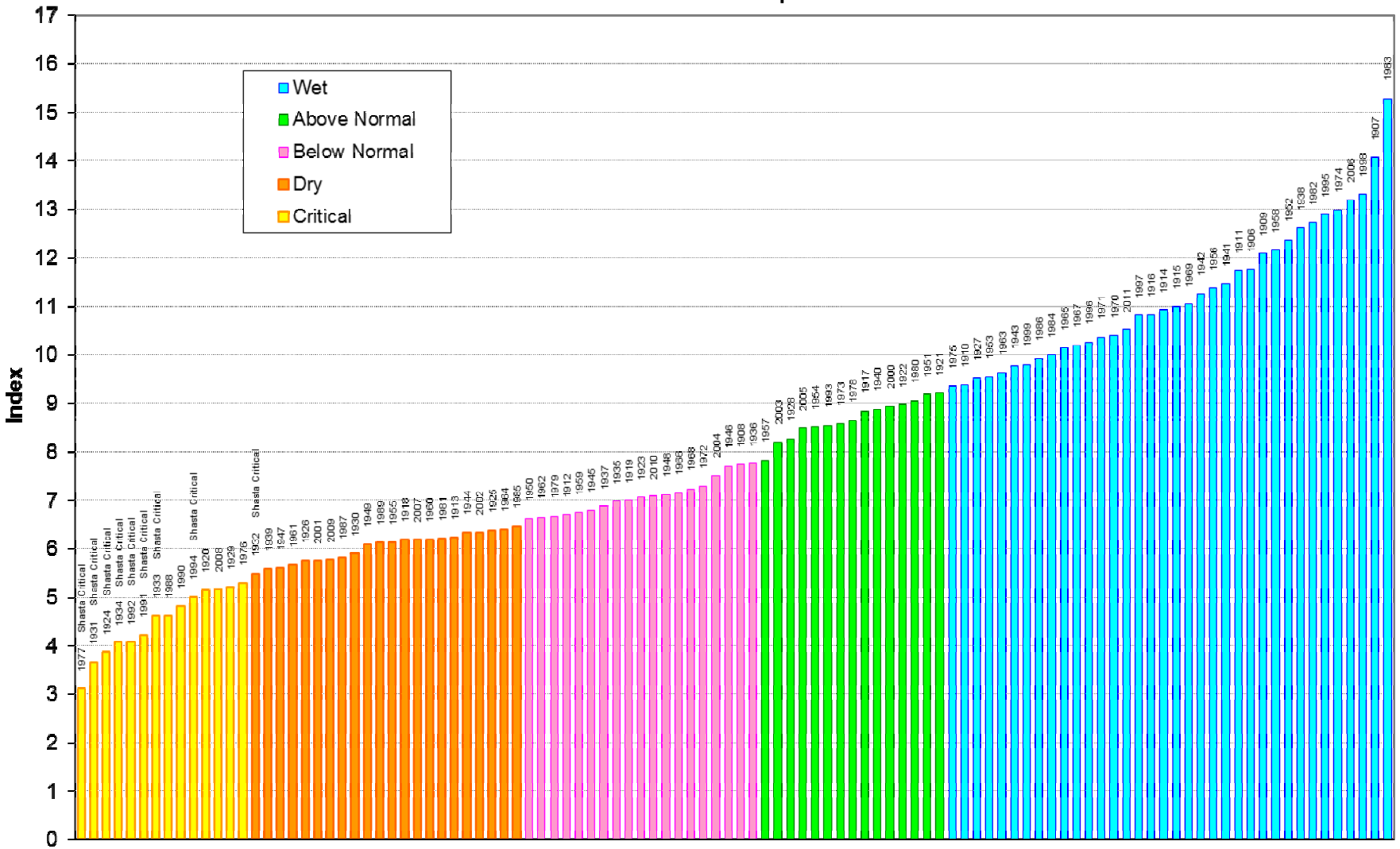
Sacramento Valley Year Type Index (40-30-30)
1906-2011 Sorted
Based on Observed Unimpaired Runoff



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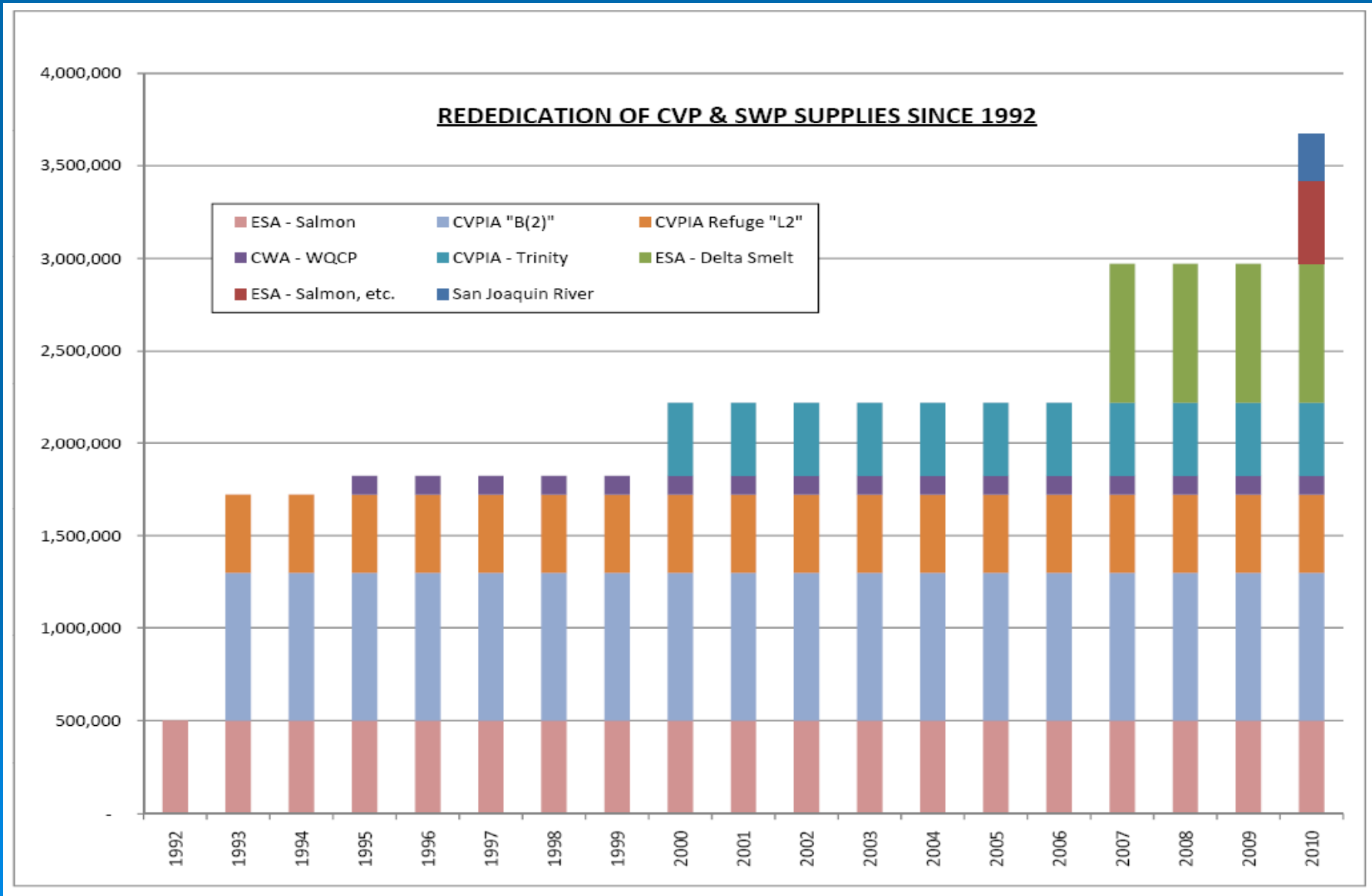
Motivating Factors & Pressures – External to Region



SWRCB Flow Report

- Increased Delta Outflow – 1.1 maf (50%) or 480 taf (40%)
- Reduce Carryover Storage
  - 2.2 maf (50%)
  - 1.0 maf (40%)
- Increase Groundwater Extractions
  - 250 taf → 1.0 maf (50%)
  - 100 taf (40%)

Debilitates California's Ability to Prepare for and Serve Water During Drought

BDCP Flows

- "Proportional Watershed Flow" (Scenario 7a)
- *Protecting Upstream Water Users:* State and U.S. governments will make sure implementation of BDCP will not result in adverse effects on the water rights of those in the watershed of the Delta, nor will it impose any obligations on water users upstream of the Delta to supplement flows in and through the Delta. (Governor Statement July 25, 2012)

1976-77 Drought

- Very short, but focused drought
- Reduced flows throughout the Valley
- No deliveries in certain districts
- CVP Water Service Contracts – 25%
- CVP Water Right Settlement Contracts – 75%
- SWP Exchange Contracts – 50%

1988-1992 Drought

- CVP Water Service Contracts – 25% (91/93)
- CVP Water Right Settlement Contracts – 75% (91/92/94)
- SWP Exchange Contracts – 50% (91/92)
- Significantly reduced deliveries in certain districts

1988-1992 Drought

- 23 counties declared drought emergencies
- Governor creates drought water bank
- ESA scrutiny (i.e., GCID, ACID)
- SWRCB D-1630 (never adopted)
- Water quality scrutiny

2007-2009 Drought

- CVP Water Service Contracts – 40% (08,09)
- In June 2008 the Governor issued an executive order proclaiming a condition of statewide drought and a state of emergency in nine Central Valley counties
- In February 2009 the Governor proclaimed a state of emergency for nine Central Valley counties and in June 2009 the Governor issued an executive order proclaiming a condition of statewide drought
- DWR creates 2009 Drought Water Bank

2012

- Significant lack of precipitation early in year led to serious discussions about shortage allocations
- March relief with late winter and spring snows

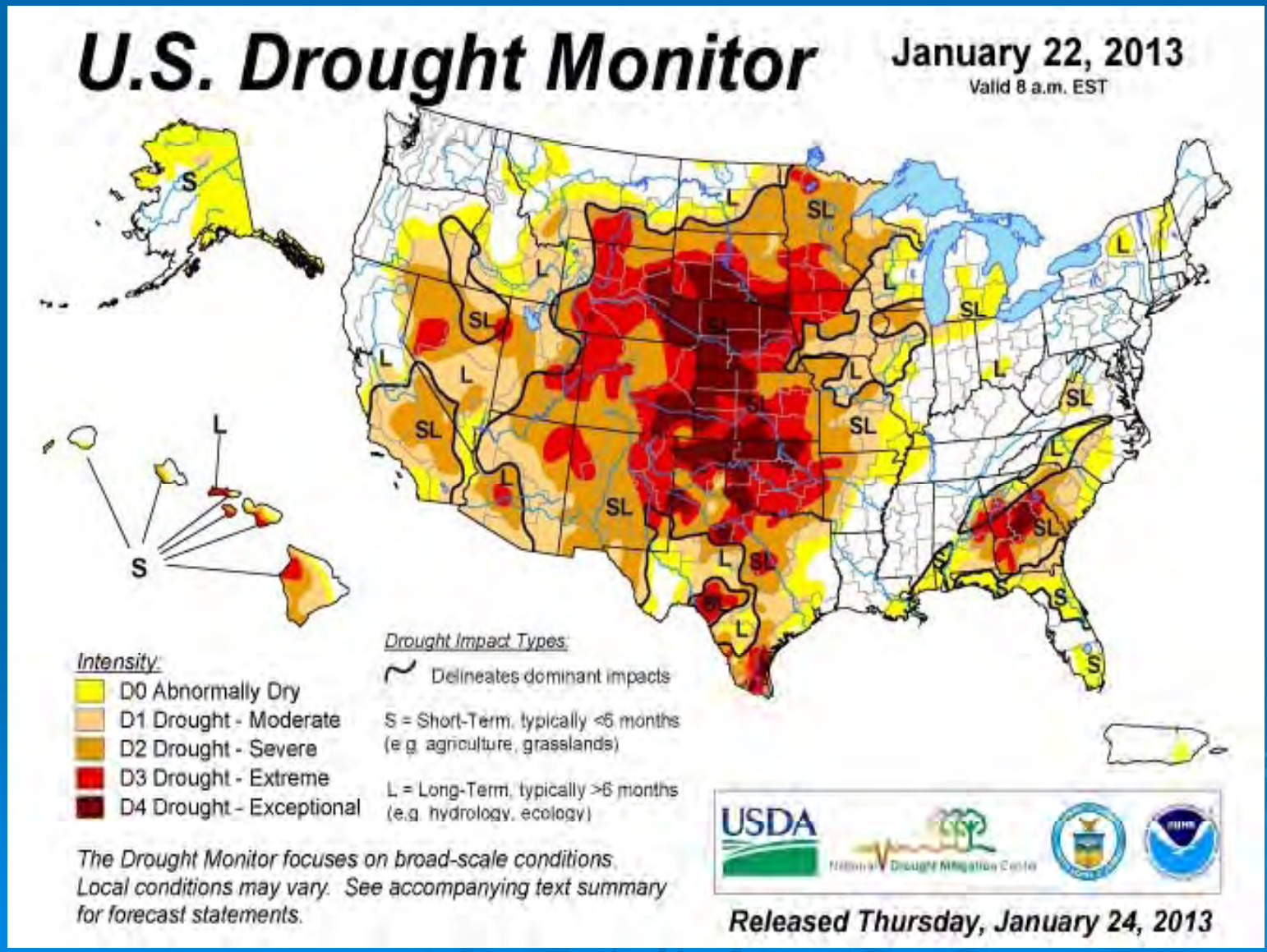
Federal/State Responses to Drought

- 1998- National Drought Policy Act
- 2000- National Drought Policy Commission Report
- 2000- Governor's Critical Water Shortage Contingency Plan
- 2003- USGAO report on meeting the challenges of expected shortages
- 2007- California State Board of Food and Agriculture

Federal/State Responses to Drought

- 2008-2009 – Governor issues Executive Orders and Emergency Proclamations
- 2009 – Water Bond contains $455,000 for drought relief
- 2010 – California Drought Contingency Plan
- 2012 – DWR Climate Change Handbook
- 2013 – President Acknowledges country's drought in inaugural address

U.S. Drought - 2013



Current California Conditions (Snow Survey)

- 93% of average water content
- Lake Oroville – 75% (113% average)
- Shasta Lake – 76% (111% average)
- SWP – 40% to Contractors South of Delta

What is Changing?

- Urban growth
- More permanent plantings
- Fall water for rice decomposition
- Irrigation technology
- Flow Requirements
- Others…..

Panelists

- Cache Creek etc.
  - Tim O'Halloran - Yolo CFCWCD
- Sacramento River
  - Thad Bettner - Glenn Colusa Irrigation District
  - Lewis Bair – RD 108
  - Jeff Sutton – Tehama Colusa Canal Authority
  - Dan Ruiz – Westside Water District
- Feather River
  - Ted Trimble – Western Canal
- Yuba River
  - Curt Aikens - Yuba County Water Agency
- Agency/Company Authority
  - Kevin O'Brien – Downey Brand

Questions for Panelists

- What happens to your surface water rights during dry and critically dry years?
- How does your agency/area make up for the reduction in surface supplies?
- What efforts have you taken to manage groundwater supplies in your area?
- How did landowners in your area (both within and outside your jurisdiction) respond during the last several droughts?
- What are the new demands on your water supplies since the last drought (i.e., urbanization, new cropping patterns)?
- What measures have you taken to address these new demands and to meet the various water needs in the next drought?

What efforts should Northern California and NCWA undertake to help meet water supply needs in the next prolonged drought?

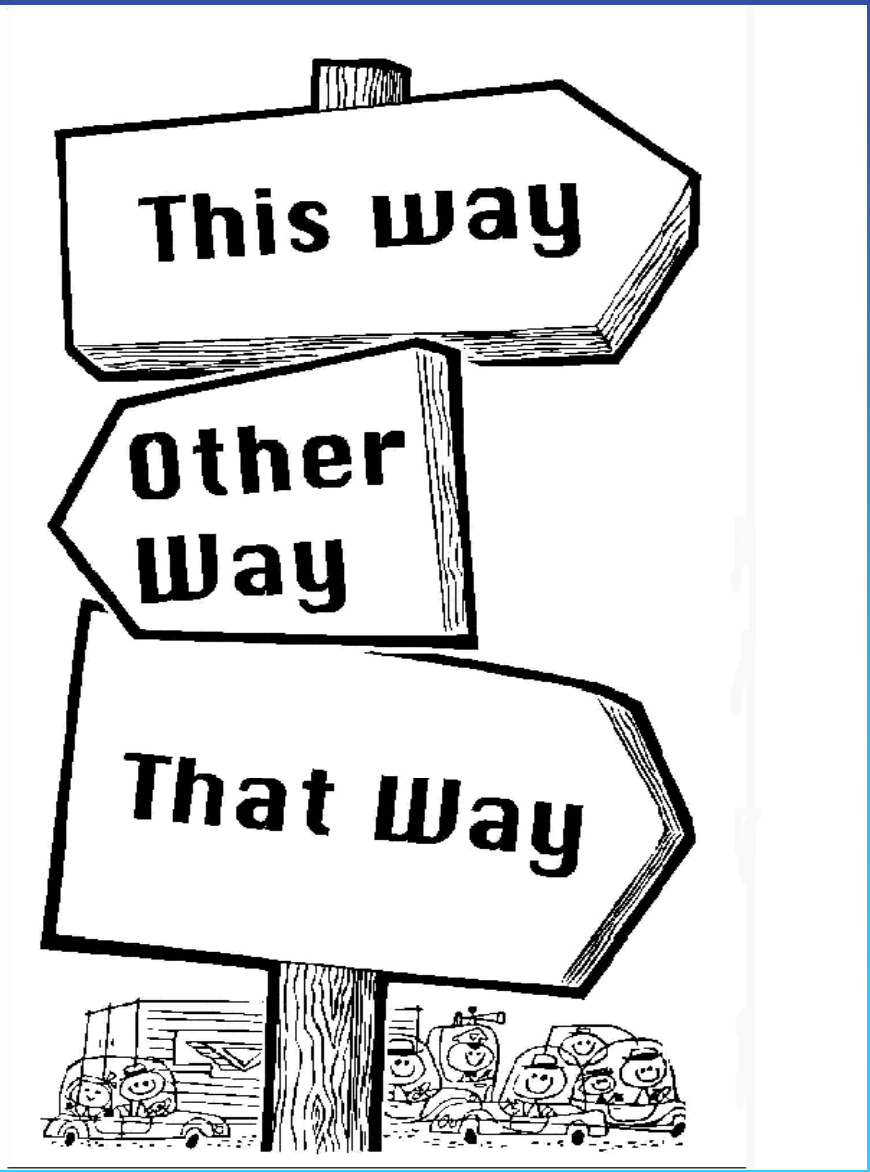
Ensuring Reliability: Planning for Drought - Planning for Change!

NCWA Strategic Planning Session
Lundberg Family Farms, Richvale

January 30, 2013

Tim O'Halloran
www.ycfcwcd.org

Change Happens!!!



Change Happens!!!

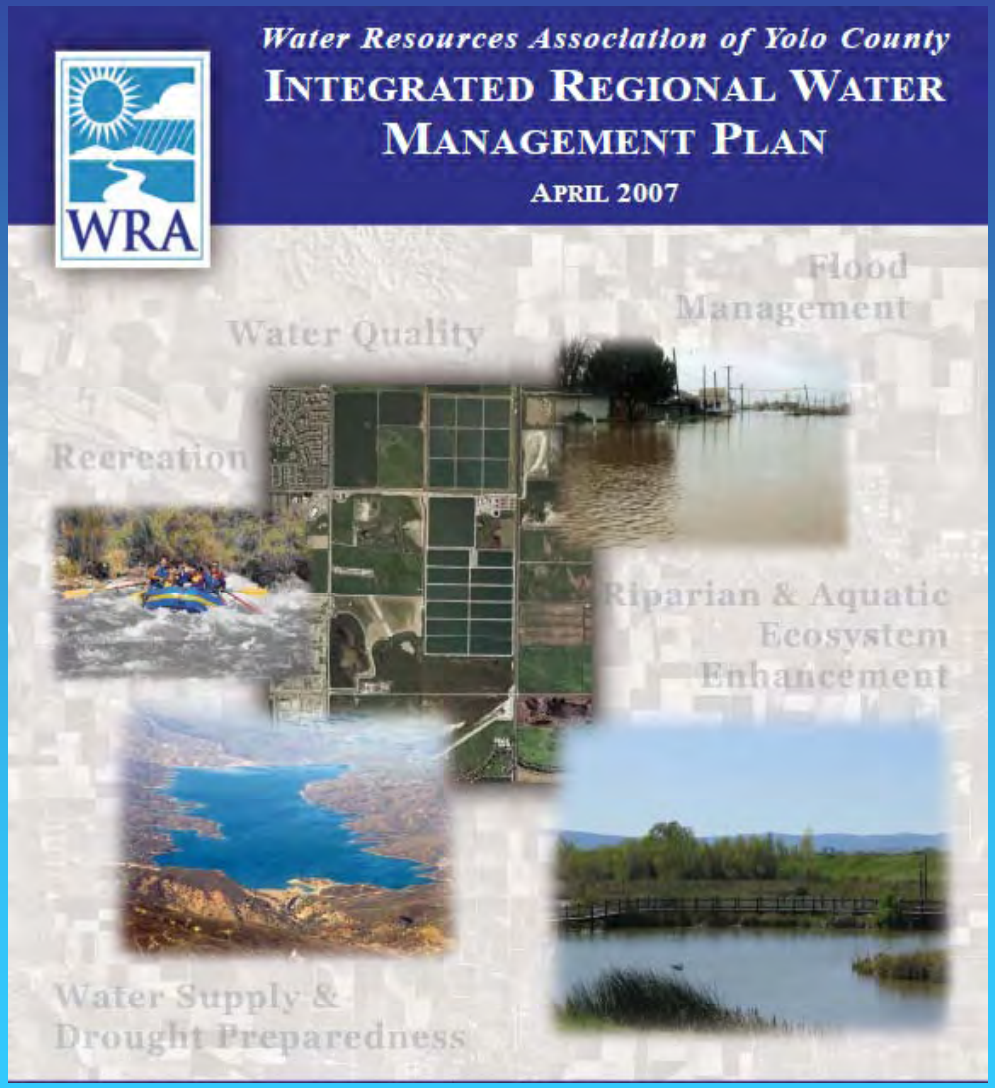
- Regulatory
- Economic
- Technology
- Societal
- Land Use
- Climate

The Basic Equation:

Supply = Demand

Clear Lake and Cache Creek Watershed

Integrated Regional Water Management Plan



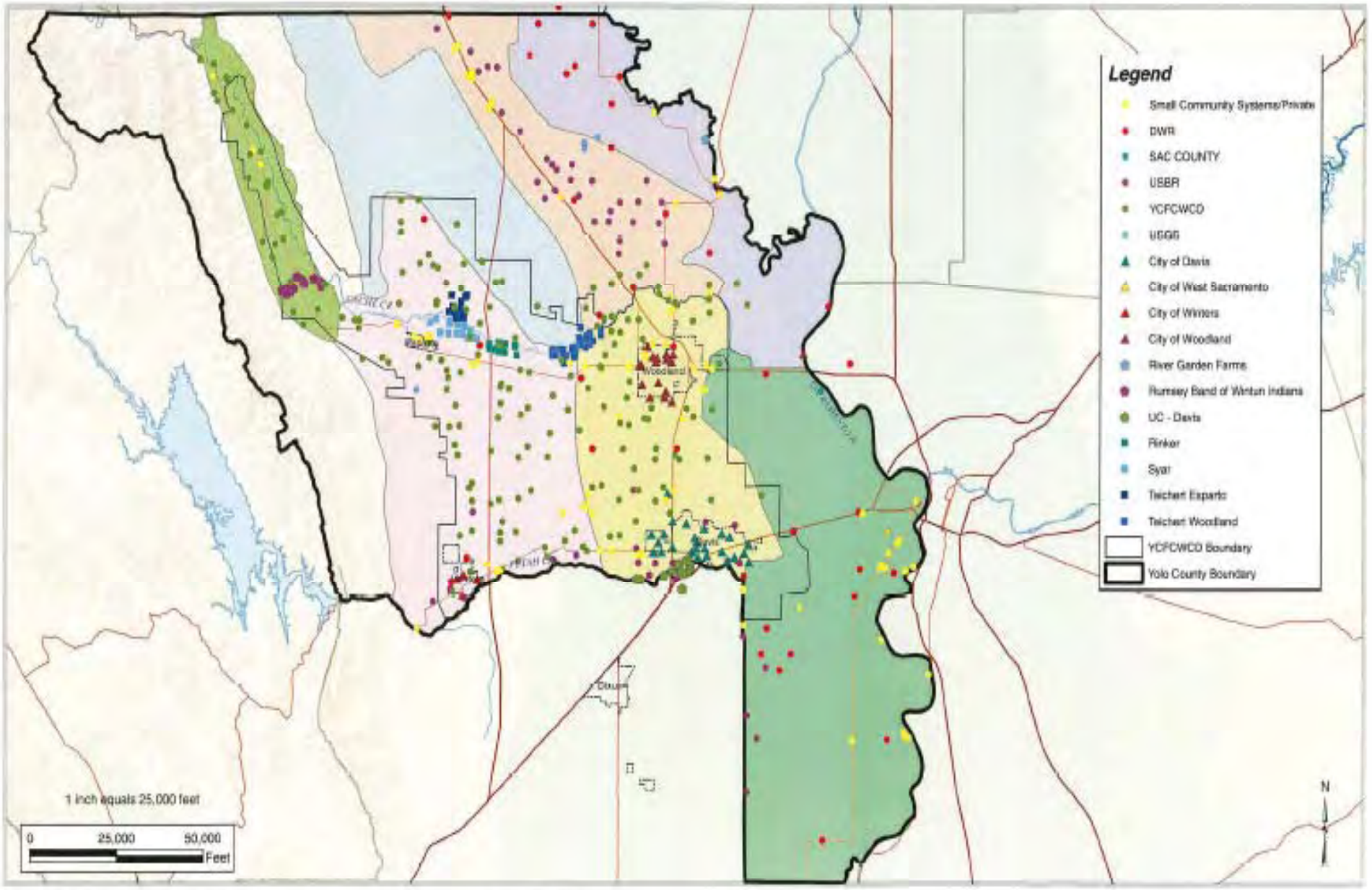
- ✓ Water Supply & Drought Preparedness
- ✓ Water Quality
- ✓ Storm Drainage and Flood Control
- ✓ Aquatic Ecosystem Enhancement
- ✓ Recreation

IRWMP Foundational Actions

Integrated Regional Water Management Plan

- **Groundwater Monitoring**
- **Surface Water Monitoring**
- **Subsidence Monitoring**
- **Groundwater Modeling**
- **WEAP Climate Change Model**
- **Environmental and Aquatic Habitat**
- **Topographic Mapping (LiDAR)**

- **Water Resource Information Database**
- **SCADA Network Enhancement**



Yolo County Groundwater Monitoring Program

Yolo County Water Resources Information Database - Windows Internet Explorer

http://wrid.facilitiesmap.com/

Favorites | Yolo County Water Reso... | Google

Yolo County Water Resources Information Database

register | lost password | plugin | downloads

authorized user login

username

password

submit

user options

- Register New Account
- Lost Password Recovery
- MapGuide Plugin Download
- Other Downloads

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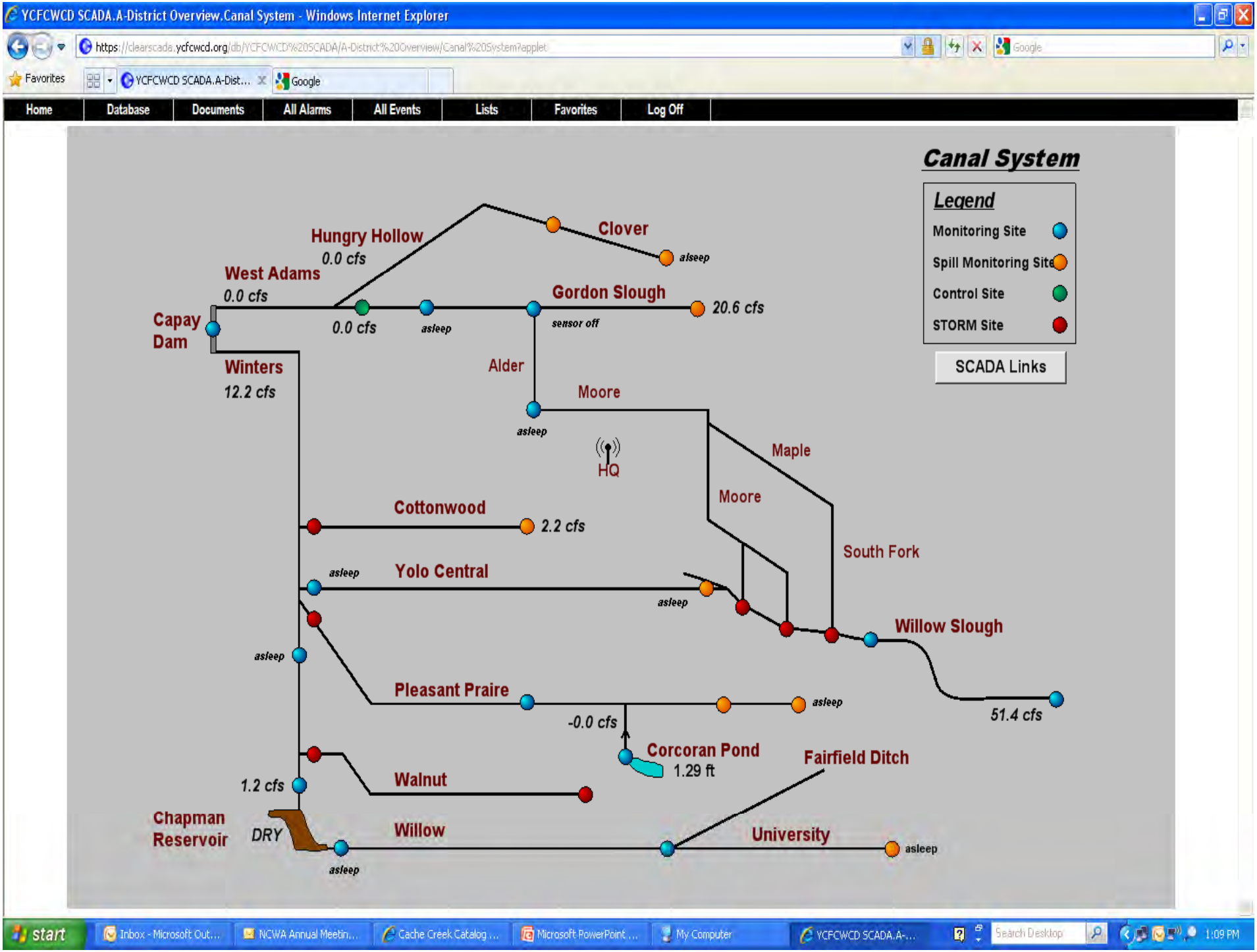
YCFCWCD SCADA.A-District Overview.Canal System - Windows Internet Explorer
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Favorites
YCFCWCD SCADA.A-Dist...
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Home
Database
Documents
All Alarms
All Events
Lists
Favorites
Log Off
Canal System
Legend
Monitoring Site
Spill Monitoring Site
Control Site
STORM Site
SCADA Links
Hungry Hollow
0.0 cfs
Clover
asleep
West Adams
0.0 cfs
Gordon Slough
20.6 cfs
Capay Dam
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asleep
sensor off
Winters
12.2 cfs
Alder
Moore
asleep
HQ
Maple
Moore
Cottonwood
2.2 cfs
South Fork
asleep
Yolo Central
asleep
Willow Slough
asleep
Pleasant Praire
asleep
51.4 cfs
-0.0 cfs
Corcoran Pond
1.29 ft
Fairfield Ditch
1.2 cfs
Walnut
Chapman Reservoir
DRY
Willow
University
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Cache Creek Catalog ...
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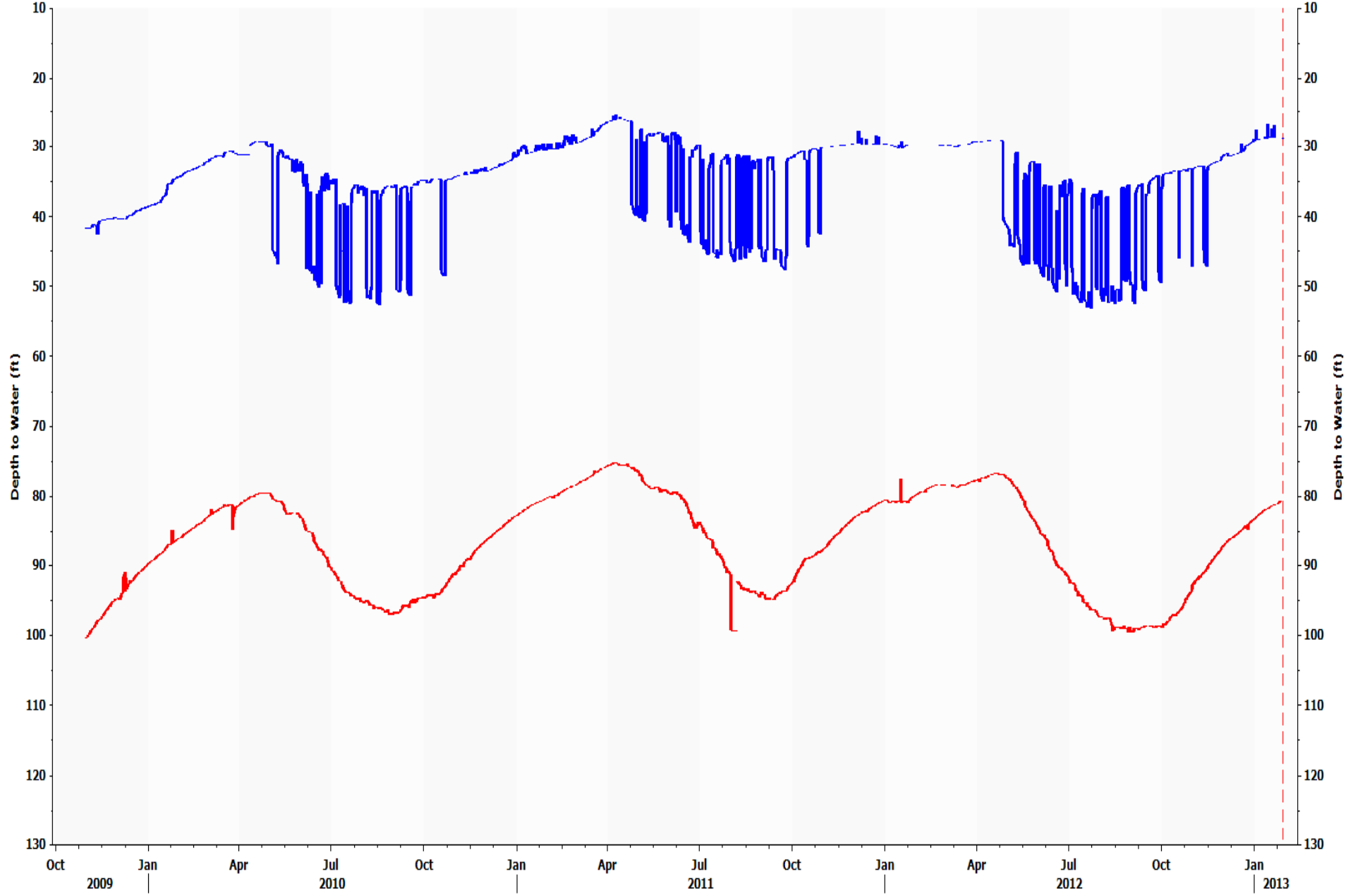
Monitoring Wells



Trace	Axis	Ruler	Latest Value
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Syar Well Depth to Water (Trace resample interval is smaller than screen resolution - displaying mi...	Depth to Water (ft) (10 - 130)	-	1/28/2013 6:19:21.608 PM 28.75

Water Rate Schedule as a Foundational Action

Overall Goals of New Variable Rate Schedule

- Prop 218 compliance
- Rate stabilization with hydrologic uncertainty
- Infrastructure and operational sustainability
- Recognize and encourage conjunctive use

2012 YCFCWCD Agricultural Water Allocation and Rates Worksheet

CASE	Total Storage (acre-feet)			Remainder left in Storage (acre-feet)			Forecast Delivery Losses	Projected Water Sales (acre-feet)			Water Allocation (af/acre)			Rate $	Projected Revenue $ (millions)		
1	40,000	to	90,000	20,000	to	20,000	45%	11,000	to	38,500	0.16	to	0.55	$40.00	$0.44	to	$1.54
2	90,001	to	140,000	20,000	to	20,000	40%	42,001	to	72,000	0.60	to	1.03	$35.00	$1.47	to	$2.52
3	140,001	to	190,000	20,000	to	20,000	35%	78,001	to	110,500	1.11	to	1.58	$30.00	$2.34	to	$3.32
4	190,001	to	250,000	20,000	to	20,000	30%	119,001	to	161,000	1.70	to	2.30	$24.00	$2.86	to	$3.86
5	250,001	to	310,000	20,000	to	80,000	25%	172,501	to	172,501	No Allocation		No Allocation	$22.00	$3.80	to	$3.80
6	310,001	to	450,000	80,000	to	220,000	25%	172,501	to	172,501	No Allocation		No Allocation	$20.00	$3.45	to	$3.45
Actual	164,000			20,000			35%	93,600			1.34			$30.00	$2.81		

BUDGET SCENARIOS

Case 1	Low End	High End
Budget	$4.35	$4.35
- Water Sales (ag)	$0.44	$1.54
- Water Sales (non-ag)	$0.19	$0.19
- Hydroelectric	$0.02	$0.06
- Property Tax	$0.88	$0.88
- Water Availability	$0.00	$0.00
- Reserves used	$2.82	$1.68
Balance	$0.00	$0.00
Remaining Reserves	-$0.82	$0.32

Case 2	Low End	High End
Budget	$4.35	$4.35
- Water Sales (ag)	$1.47	$2.52
- Water Sales (non-ag)	$0.19	$0.19
- Hydroelectric	$0.15	$0.25
- Property Tax	$0.88	$0.88
- Water Availability	$0.00	$0.00
- Reserves used	$1.66	$0.51
Balance	$0.00	$0.00
Remaining Reserves	$0.34	$1.49

Case 3	Low End	High End
Budget	$4.35	$4.35
- Water Sales (ag)	$2.34	$3.32
- Water Sales (non-ag)	$0.19	$0.19
- Hydroelectric	$0.25	$0.35
- Property Tax	$0.88	$0.88
- Water Availability	$0.00	$0.00
- Reserves used	$0.69	-$0.39
Balance	$0.00	$0.00
Remaining Reserves	$1.31	$2.39

Case 4	Low End	High End
Budget	$4.35	$4.35
- Water Sales (ag)	$2.86	$3.86
- Water Sales (non-ag)	$0.19	$0.19
- Hydroelectric	$0.30	$0.45
- Property Tax	$0.88	$0.88
- Water Availability	$0.00	$0.00
- Reserves used	$0.12	-$1.03
Balance	$0.00	$0.00
Remaining Reserves	$1.88	$3.03

Case 5	Low End	High End
Budget	$4.35	$4.35
- Water Sales (ag)	$3.80	$3.80
- Water Sales (non-ag)	$0.19	$0.19
- Hydroelectric	$0.45	$0.45
- Property Tax	$0.88	$0.88
- Water Availability	$0.00	$0.00
- Reserves used	-$0.97	-$0.97
Balance	$0.00	$0.00
Remaining Reserves	$2.97	$2.97

Case 6	Low End	High End
Budget	$4.35	$4.35
- Water Sales (ag)	$3.45	$3.45
- Water Sales (non-ag)	$0.19	$0.19
- Hydroelectric	$0.45	$0.45
- Property Tax	$0.88	$0.88
- Water Availability	$0.00	$0.00
- Reserves used	-$0.62	-$0.62
Balance	$0.00	$0.00
Remaining Reserves	$2.62	$2.62

INFORMATION MANAGEMENT DISCUSSION WITH SACRAMENTO VALLEY WATER MANAGERS

- ✓ ***We are "Resource Managers"***
- ✓ ***Establish "Credibility"***
- ✓ ***"Understand" the data***

Thank You

Contact Information:

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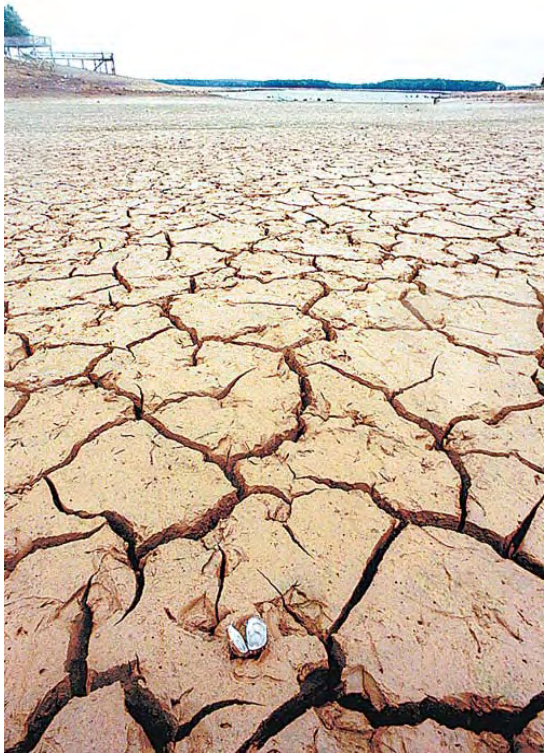
Drought Assessment & Planning

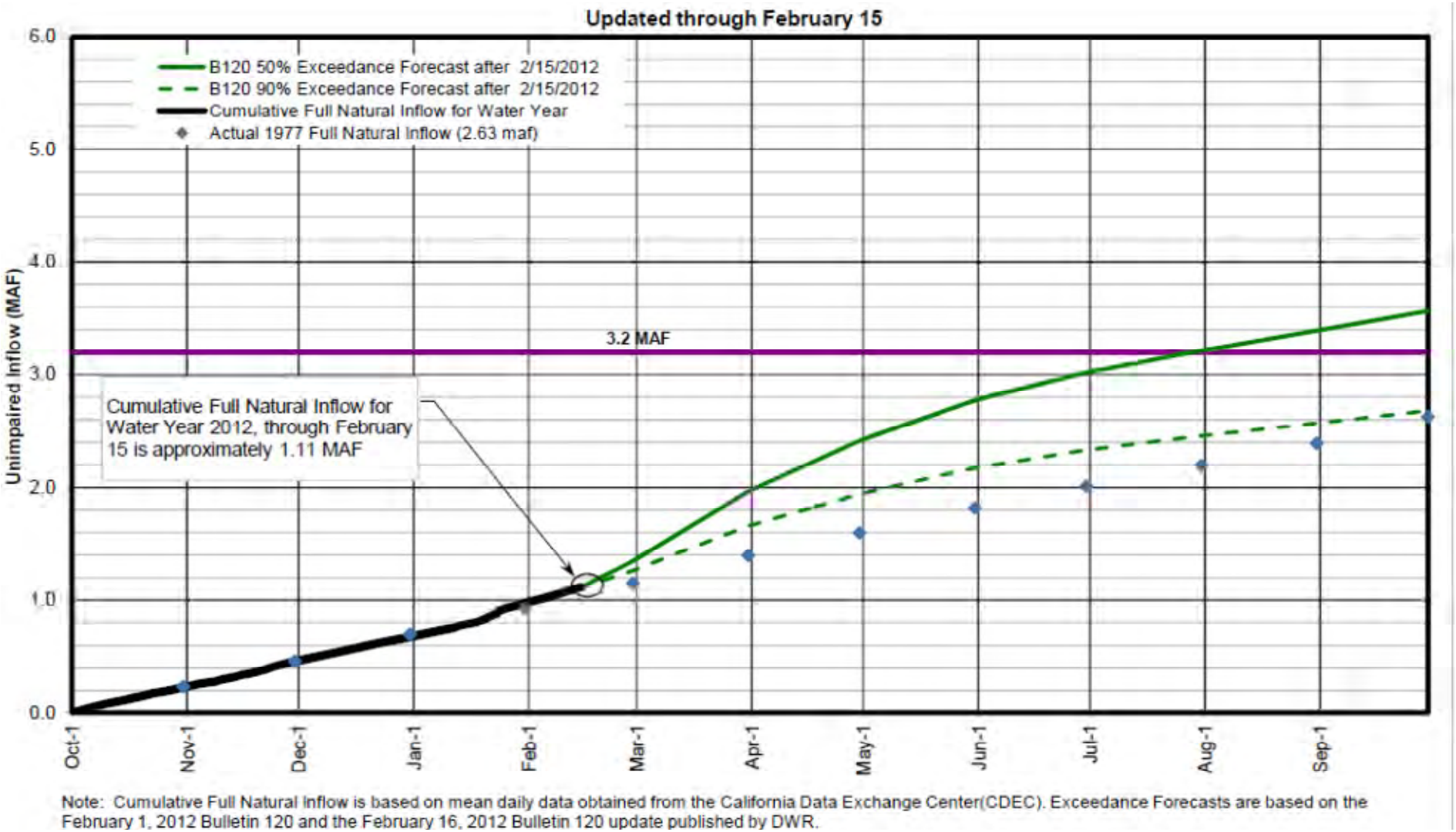
Glenn-Colusa Irrigation District



Thaddeus L. Bettner

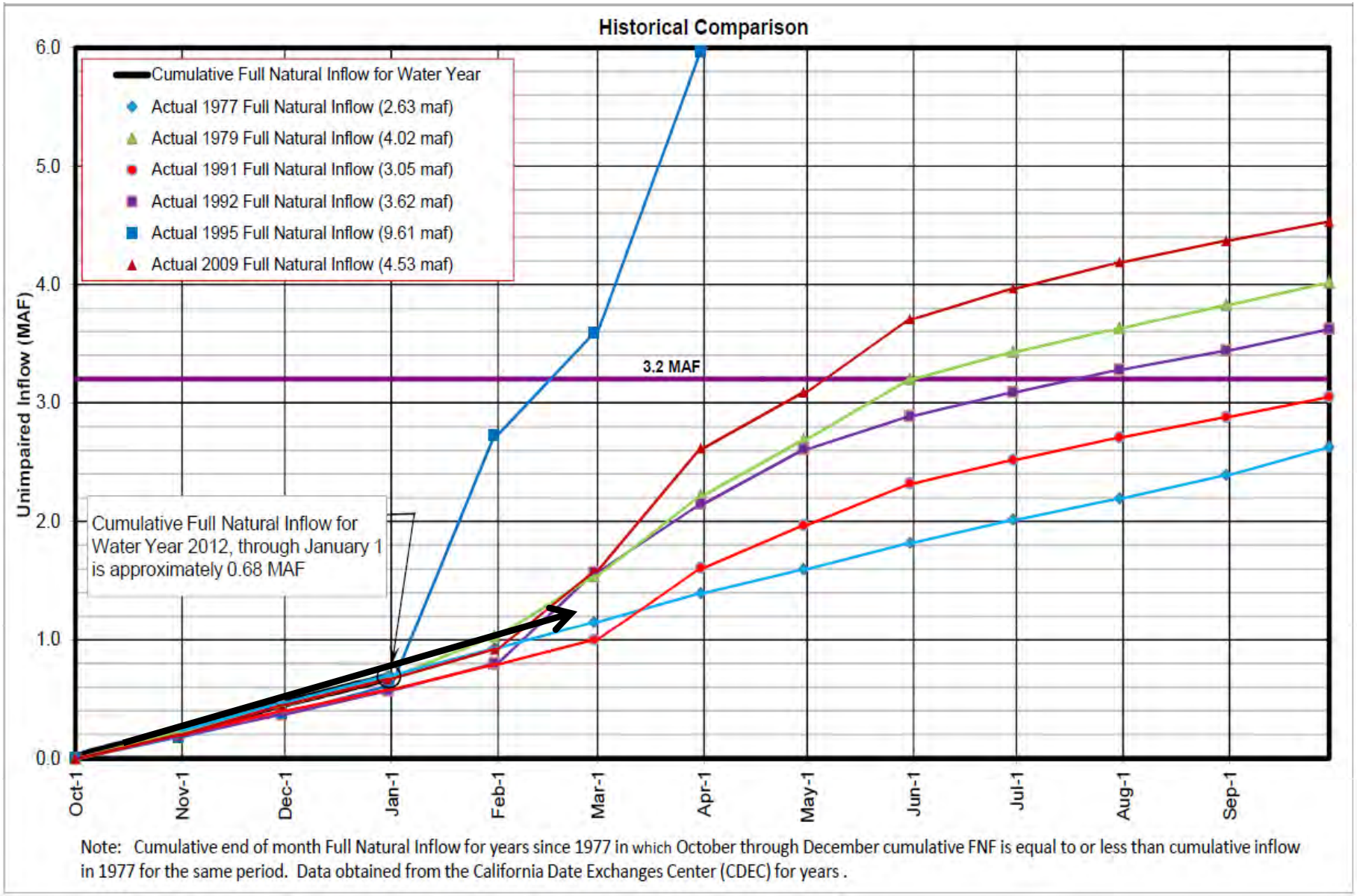
January 31, 2013

2012 Inflow to Shasta



Note: Cumulative Full Natural Inflow is based on mean daily data obtained from the California Data Exchange Center(CDEC). Exceedance Forecasts are based on the February 1, 2012 Bulletin 120 and the February 16, 2012 Bulletin 120 update published by DWR.

Historical Comparison of Sacramento Natural Inflow

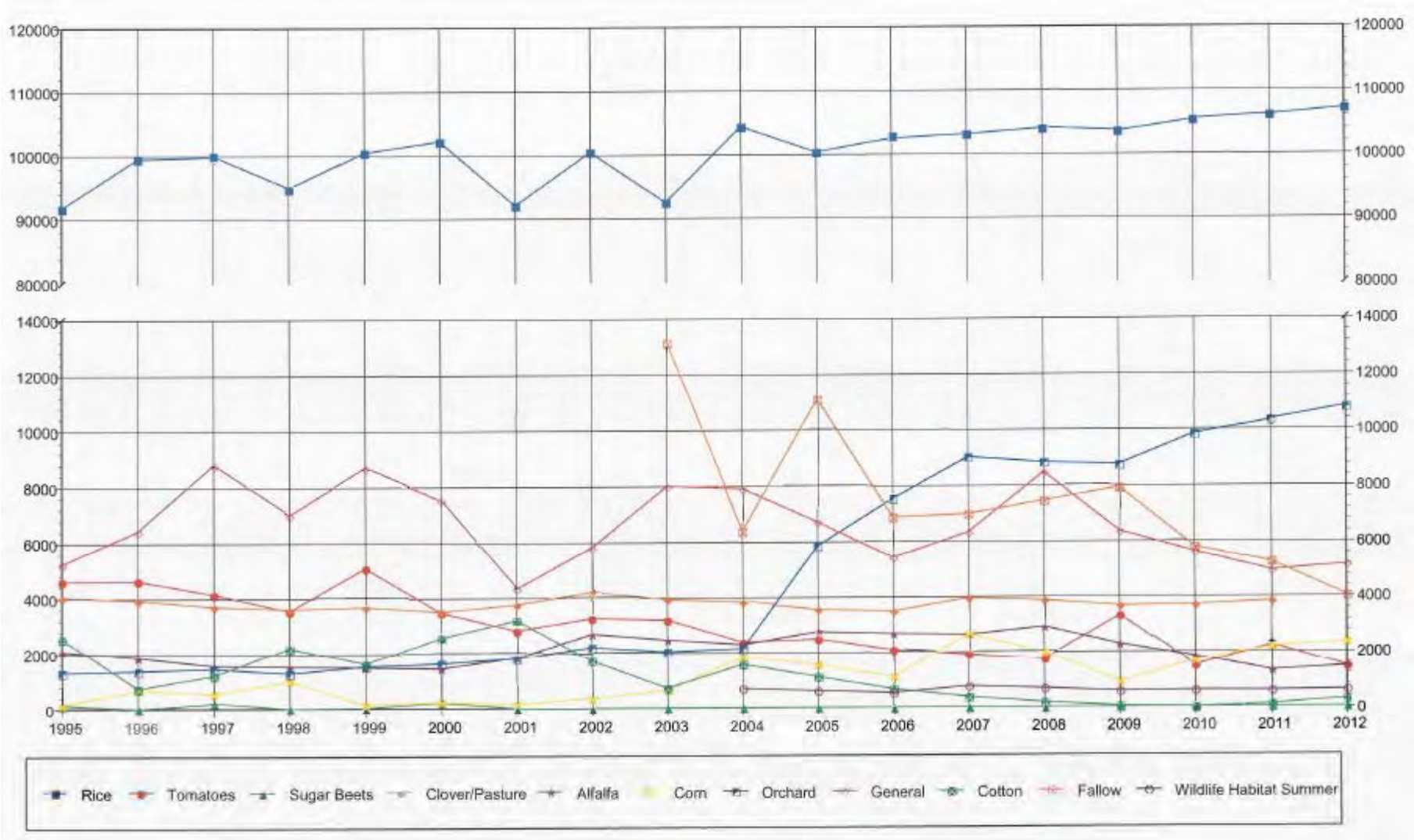


Note: Cumulative end of month Full Natural Inflow for years since 1977 in which October through December cumulative FNF is equal to or less than cumulative inflow in 1977 for the same period. Data obtained from the California Date Exchanges Center (CDEC) for years .

2012 Drought Action Plan

- Developed New Allocation Policy
- Developed Methods to Deal with Shortages
- Implemented Conservation Measures
- Calculated Rate Impacts

GCID Cropped Acreage



Available Water Supply

- Settlement Contracts require a 25% reduction in base and Project water supplies, if Shasta annual inflow is less than 3.2 million acre-feet
- GCID Settlement Contract of 825,000 acre-feet will be reduced to 618,750 acre-feet
- GCID contract water usage in 2012 was 696,000 acre-feet
- SHORTAGES WILL EXIST

Allocation by Irrigable Acre

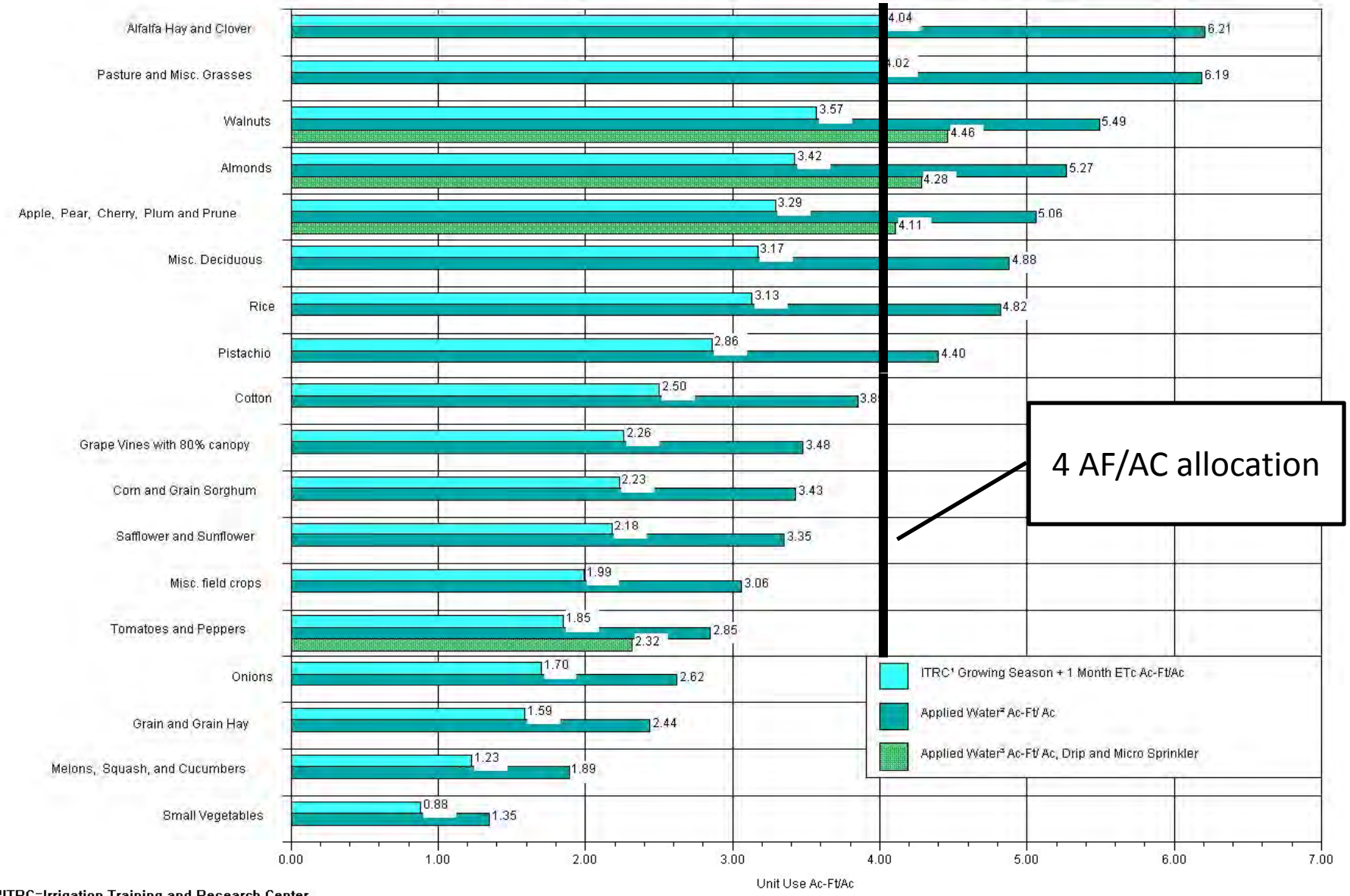
Acre-Feet		
Gross Water Supply Available:		
Contract Base Supply	720,000	
Less 25% Deficiency	180,000	
Maximum Base Supply Diversion		540,000
Contract Project Water	105,000	
Less 25% Deficiency	26,250	
Maximum Project Water Supply		78,750
Total Contract Water Available:		618,750
Subtract Drain Outflow	100,000	
		518,750
Add Recycled/Reused	150,000	
		668,750
Subtract 17% System Loss	113,688	
Total Amount of Water Available:		555,063
Divided by Irrigable Acreage	138,825	
Final Water Allocation per Irrigable Acre:		**4.00**

2012 Allocation Process

1. First Allocation - acre-foot per irrigable acre basis.
2. Water not used in the First Allocation - applied to Second Allocation to crops still needing supply.
3. Landowners still short were required to identify additional supply or fallowing.
4. Applications compared to recent years to demonstrate consistent water use patterns.
5. IT RAINED, INFLOW UP – PROGRAM TERMINATED

GLENN-COLUSA IRRIGATION DISTRICT

COMPARISON OF CROP EVAPOTRANSPIRATION VS. APPLIED WATER DEMAND



¹ITRC=Irrigation Training and Research Center
²Applied Water = ITRC Growing Season + 1 Month ETc / 0.65
³Applied Water = ITRC Growing Season + 1 Month ETc / 0.80

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Options to Meet Shortages Remaining After Secondary Allocation

- Reduce planted acres on original application
- Allocation from another GCID grower (internal transfer)
- Pump groundwater
- Purchase District pumped groundwater (quantity and price to be determined by the Board)
- Purchase groundwater from another GCID well owner (this option will require wheeling services by the District)

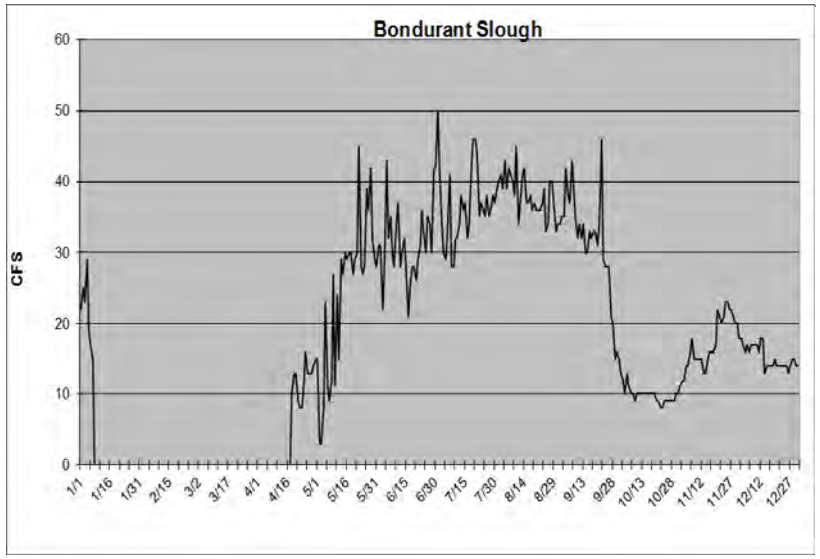
Critical Year Conservation Measures

- **General water management:**
  - Water must be effectively managed to prevent waste of water
  - Water orders must be placed by 1 pm the day prior to delivery
  - No non-crop water available until after October 31

- **Rice field management:**
  - Flooding depth limited to 6 inches at field high point
  - Spilling allowed through notched weir board until July 1
  - NO SPILL – July 1 through end of irrigation season

- **Rice field drainage:**
  - 2 re-floods allowed prior to July 1
  - Terminate field delivery 7 days prior to draining field
  - Provide 24-hours notice prior to draining field
  - PCA verifiable recommendation required for drainage due to crop stress

Drain Outflow Monitoring



- Outflow sites measure flow from major drainage watershed areas
- Provides accurate data needed for water balance calculations
- Allows for monitoring conservation field spillage

Critical Year Financial Impact

Rescheduled Water Costs	$49,500
Increased Energy Cost	$61,000
Lost Revenue from Fallowing	$744,302
Lost Revenue from the In-Basin Transfer Program and Others	$66,000
Impact on the 2011-2012 Budget:	**$920,802**

GCID Drought Contingency Reserve will be used to cover the financial impact of the critical year

Drought Scenario – Future Goals

- Revise Allocation Process
- Set Critical Year Rates and Budget
- Better Define Critical Year Supply Alternatives
- Allow for Water Transfers
  1. Internally
  2. In Basin/Regionally
  3. Out of Valley

Revise Critical Year Allocation Process

- GCID Rules & Regs #6 - Allocation
- Question
  - Keep allocations based on irrigable acre basis and crop unit duties (water code 22252.3), OR
  - Change allocation process to assessed acreage (water code 22250)

(154,000 assessed vs. 131,000 irrigated acres)

Set Critical Year Rates & Budget

- Historic Rate Setting
  - Assessments, Standby charges and Crop Duty per acre
- Critical Year
  - Allocate and Charge by Assessed Acres
  - Charge by AF

(154,000 assessed vs. 131,000 irrigated acres)

Better Define Critical Year Supply Alternatives

- Internal Allocation Transfers
- Landowner Groundwater Wells
- District Groundwater Wells
- Landowner - Landowner Groundwater Transfer (requires wheeling services by the District)

Transfers

- Internal Transfers
- Surplus Water – WC 22259
  - Need to Satisfy all internal demands first
- Transfers Out
  - Landowner common lands in other Districts
  - Colusa Basin Drain Mutual Water Company
  - SRSC Districts
  - TCCA Districts
  - Refuges
  - Out of Valley

Questions?

NCWA Drought Workshop

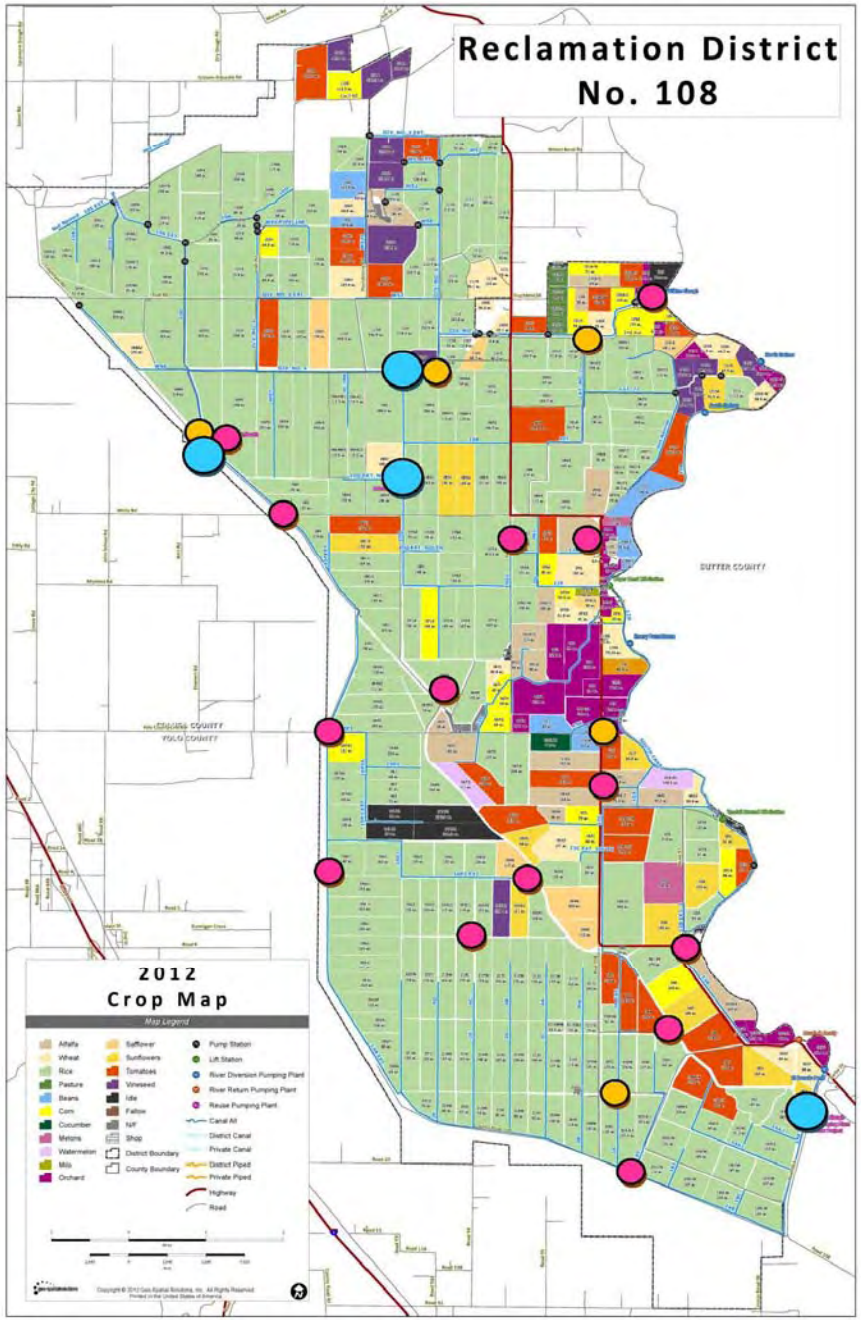
Reclamation District No. 108

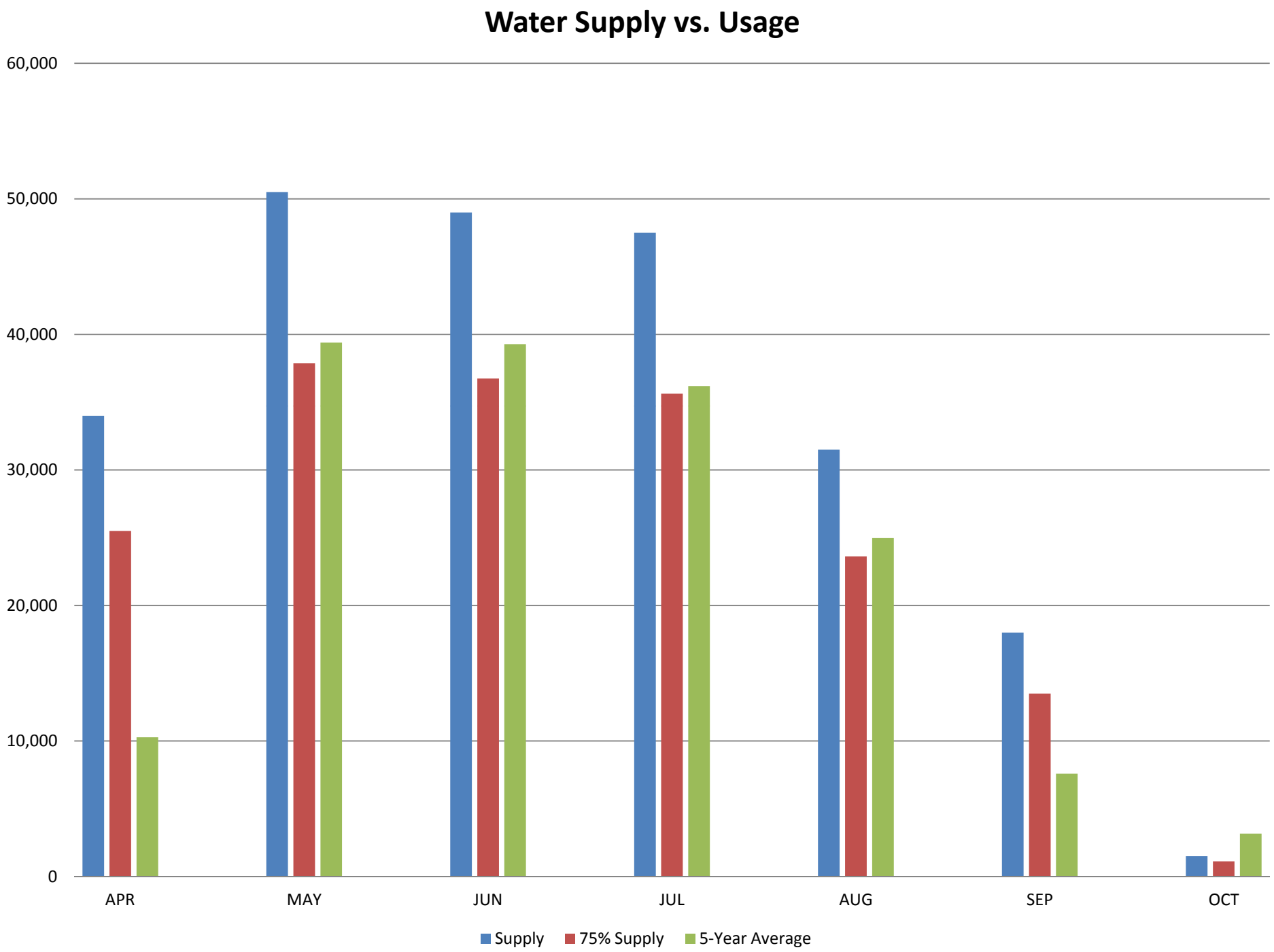
Discussion Topics

- Background, setting and resources
- Managing Drainage Water
- Groundwater Development
- Water Transfers

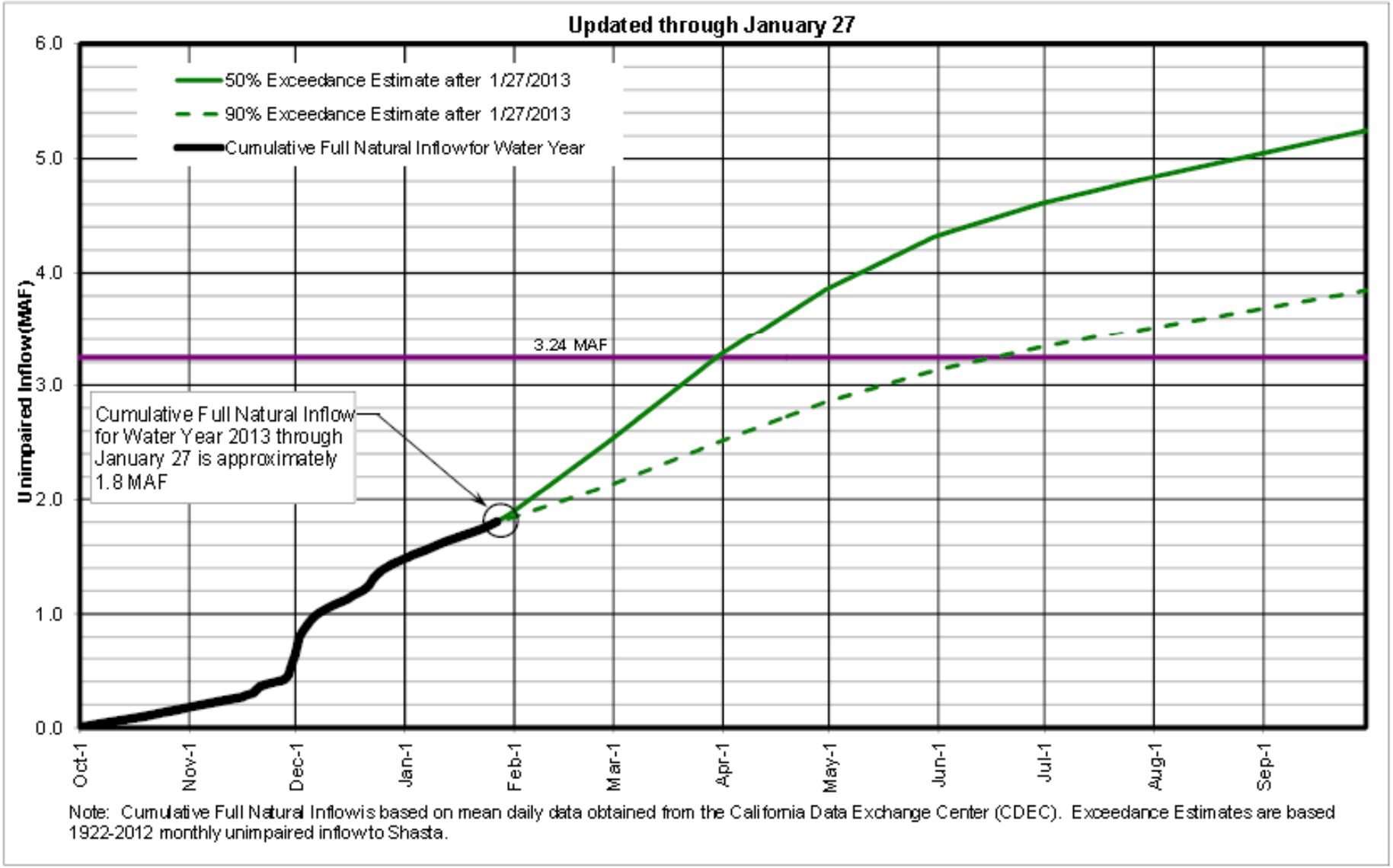
RD 108

- Background
  - Formed in 1870
  - Senior Water Rights
  - Settlement contract
    - 25% maximum cut
  - Unique physical setting
    - Leveed basin
    - 400 miles of drains
    - Pretty flat




Water Supply vs. Usage
60,000
50,000
40,000
30,000
20,000
10,000
0
APR
MAY
JUN
JUL
AUG
SEP
OCT
Supply
75% Supply
5-Year Average

ESTIMATED CUMULATIVE FULL NATURAL INFLOW TO SHASTA LAKE
WATER YEAR 2013



Note: Cumulative Full Natural Inflowis based on mean daily data obtained from the California Data Exchange Center (CDEC). Exceedance Estimates are based 1922-2012 monthly unimpaired inflowto Shasta.

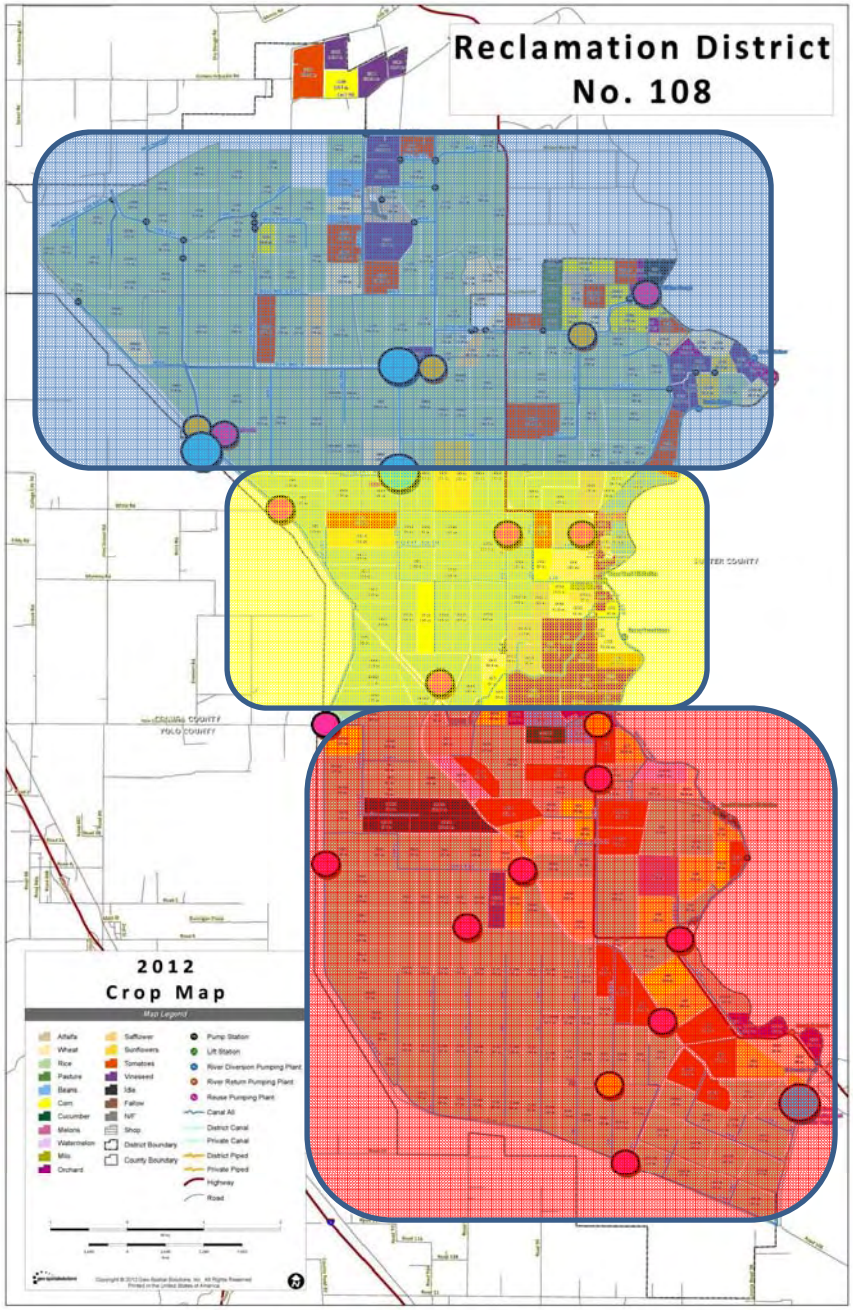
MBK *ENGINEERS*
1/28/2013

Drainage Program

Significant Investment and Program Change in Last 5-years

- Expansion of 1970's reuse facilities ($1M)
- Tailwater incentive program ½ cfs/100 ac.

Ongoing water quality monitoring 25 locations

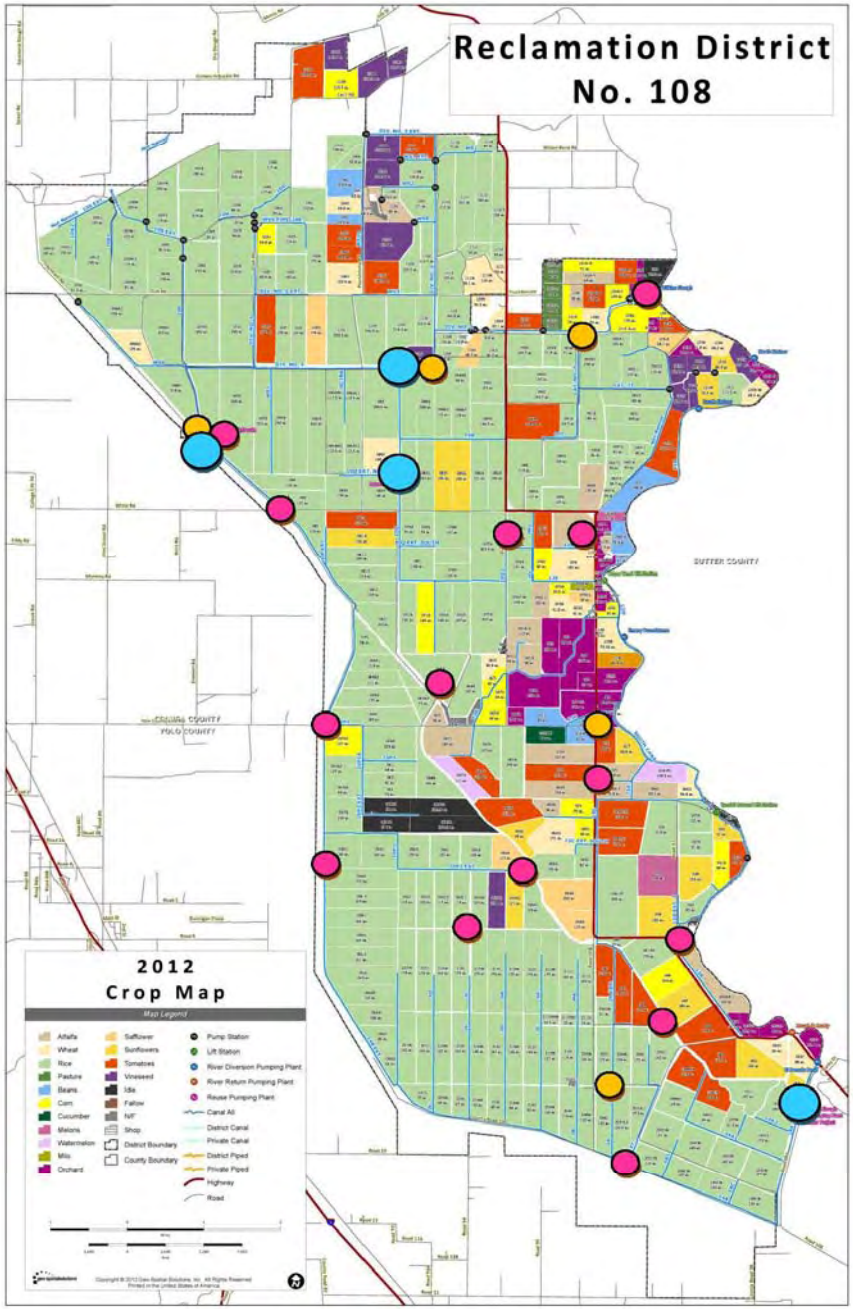


Groundwater Program

- 14 dedicated multi-completion monitoring wells (still expanding)
- 5 production wells (3 last year)

Cautious Development

- AB303 Investigation
- Adjacent Subsidence



Water Transfers

- Transfer Policy
  - Prioritizes In Basin and Ag to Ag Transfers
- Functional In-Basin Project Water Transfer Program
  - Possible in 100% years, but very limited in 75% years
- Very Few Out of Basin Transfers
  - Idling/crop shifting has little viability with Delta conveyance limitations and favorable crop prices
  - Very little groundwater capacity and comfort

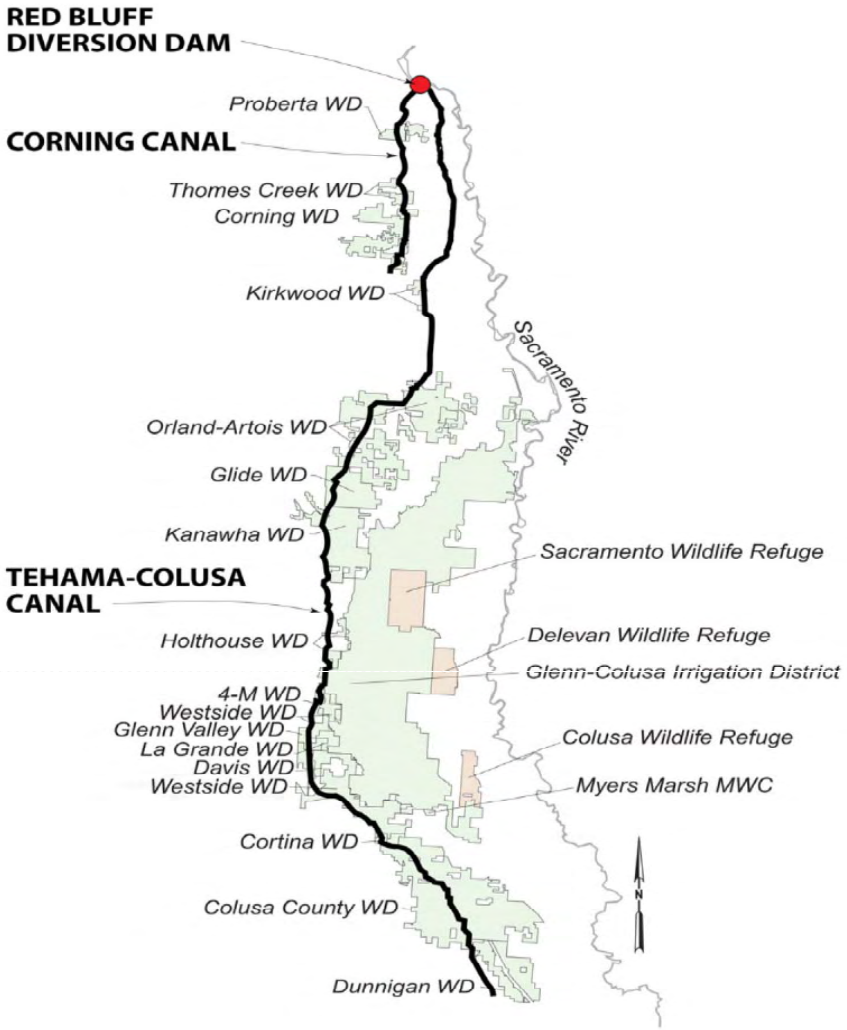
Questions?

Tehama-Colusa Canal Authority Drought Planning and Assessment

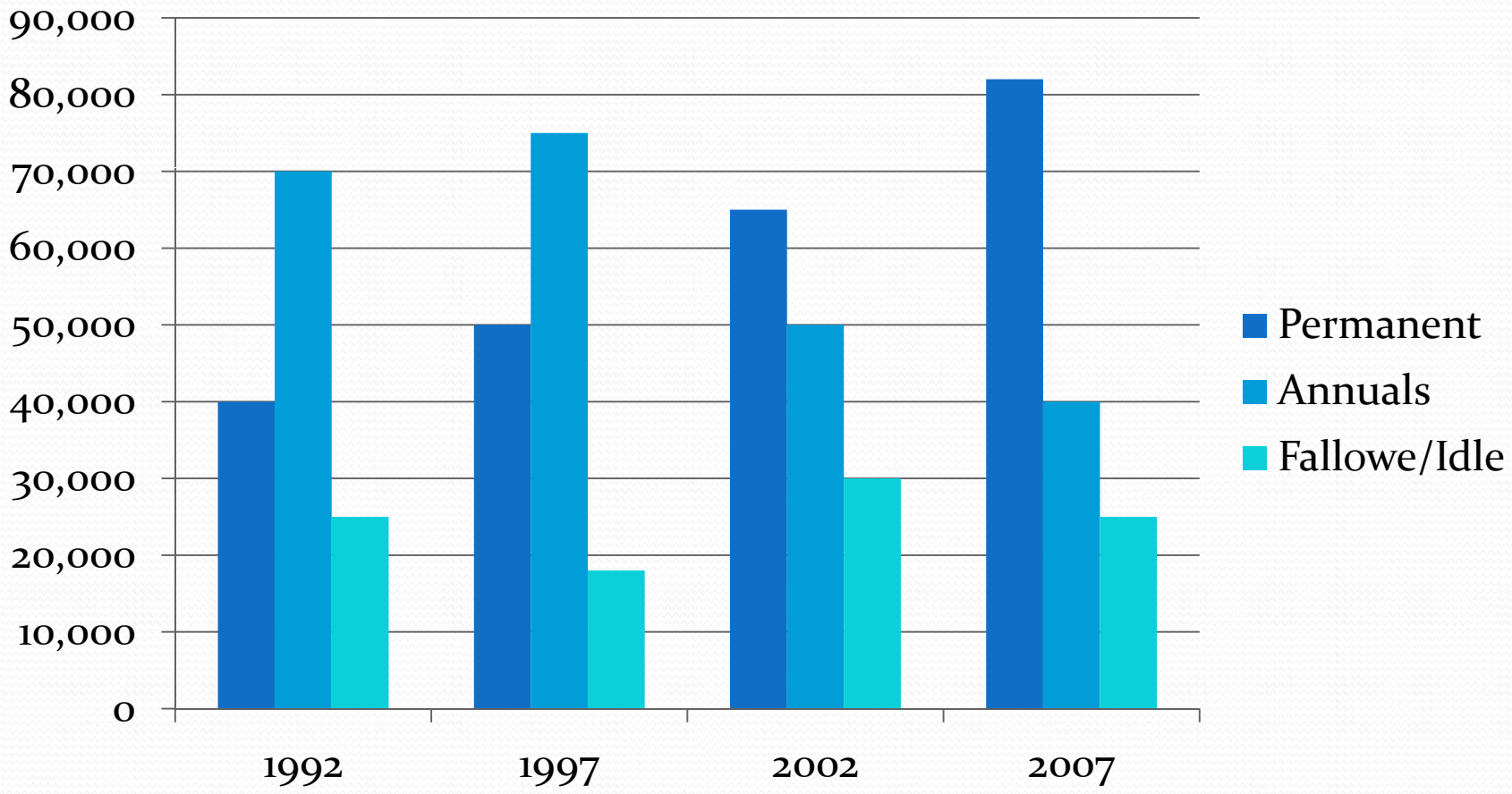
Jeffrey P. Sutton
General Manager
Tehama-Colusa Canal Authority
P. O. Box 1025
Willows, CA 95988
(530) 934-2125

Tehama-Colusa Canal Authority

- Operate & Maintain Sacramento Canals Unit of the Central Valley Project
  - Tehama Colusa Canal (110 miles)
  - Corning Canal (22 miles)
  - Funks Reservoir
  - Red Bluff Diversion Facilities
- Serves 17 Water Districts with CVP water service contracts throughout a four county service area(Tehama, Glenn, Colusa, and Yolo County)
- Total TCCA District Contract amounts = 318,700 acre feet
- Irrigation to 150,000 acres
  - almonds
  - pistachios
  - walnuts
  - prunes
  - olives
  - rice
  - tomatoes



Crop Type in the TCCA Service Area



Impacts to CVP Water Supply Reliability

- Central Valley Project Improvement Act (800,000 af, refuge water)
- Trinity Record of Decision
- SWRCB Bay Delta Water Quality Plans
- Central Valley Project OCAP Biological Opinions by NMFS and USFWS (2006 and 2009)

Historical CVP Agricultural Water Allocations

YEAR	NOD	SOD	
1977	25	25	C
77-89	100	100	4D & 1C
1990	50	50	C
91	50	50	C
92	25	25	C
93	100	50	AN
94	35	35	C
95	100	100	W
96	100	95	W
97	90	90	W
98	100	100	W
99	100	70	W
2000	100	65	AN
1	60	49	D
2	100	70	D
3	100	75	AN
4	100	70	BN
5	100	85	AN
6	100	100	W
7	100	50	D
8	40*	40	C
9	40**	10	D
10	100***	45	BN
11	100	80	W
12	100****	40	D

C= CRITICAL
D=DRY
W=WET
AN=ABOVE NORMAL
BN= BELOW NORMAL

* = Decrease of 5% on 6-3-2008
** = Started at 5%; Increase to 40% on 5-22-2009
*** = Started at 0%; Increase to 50% on 3-16-2010; Increase to 100% on 4-15-2010
**** = Started at 30% on 2-22-2012; Increase to 100% on 4-13-2012

TCCA Water Shortage Tools

- 3f water (Sacramento River surplus flows, Black Butte)
- In-district grower transfers (move water to permanent crops)
- In-basin Project Water transfers (5-year accelerated water transfer document). CVPIA Section 3405(a)(1)(M)
- Groundwater- Warren Act Contracts (5-year TC wide Warren Act Contract; limited availability and water quality concerns)
- Shasta critical years- idling/groundwater substitution transfers

Water Transfer Challenges/Impacts

- Timing (2009 experience)
- Environmental/Administrative requirements, federal, state, and local (NEPA, CEQA, DWR, USBR, USFWS)
- Third Party impact issues
- Increased costs of water
- Increased per acre foot TCCA conveyance charge
- Reduced Project power generation; increased power costs to Project users

Additional Threats to Water Supply Reliability

- Delta Stewardship Council - Delta Plan
- SWRCB Bay Delta Water Quality Plan Update
- Bay Delta Conservation Plan
- Endangered Species Act (USFWS & NMFS BO RPAs)
- Other ???

Opportunities to Reduce Drought Impacts

- Improved communications with USBR regarding water allocation announcements
- Streamlining of the environmental/ regulatory/ administrative process for water transfers (federal, state, and local agreements)
- Integrated Regional Water Management Planning
- New surface storage – Sites Reservoir
- Area of Origin
- Sacramento Valley Preservation Act

Questions?

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Westside Water District

Dan Ruiz, General Manager

5005 State Highway 20

Williams, CA

Westside Water District
Drought Response Plan

14,896 Acres - 65,000AF Contract

	Permanent crops	Total water use
2003	5,765 acres	35,000 AF
2012	10,442 acres	29,500 AF

Drought Tools

TCCA Reduced Allocation:

- 3F Water
- Warren Act Water
- In-Basin Transfers (SRSC & TCCA)
- Crop Consolidation (Protect High Value Crops)
- Dry Year Supplements

Drought Tools

Shasta Critical:

- Crop Idle/Groundwater Substitution Transfers
- Common Landowner Transfers
- Hope and Pray

Policy

- Survey Landowners needs and pain level
- Board Approval
- Working with USBR to receive timely notifications of allocations

Fiscal Impacts and Tools Available

- Price Effect of Reduced Water
  - Under collect TCCA Assessment, Retro-Restoration Charge and District O&M Charge
- Appropriate Reserves Established
  - Drought Reserve
  - TCCA Assessment Reserve

		30% Allocation	15,750 AF 30% Allocation	28,000 AF 100% Allocation
USBR Rate			$ 31.93	$ 31.93
Retroactive Restoration Fund Charge (Fiscal Years 2008-2010)			4.62	$ 2.60
DISTRICT O&M COMPONENT			1.10	1.10
TCCA CONVEYANCE ASSESSMENT				
Westside's T-C Assessment Rate	$ 396,682		25.19	14.17
CCWD Transfer Fee			Not Applicable	(1.44)
TRINITY PUD ASSESSMENT			0.05	0.05
RESTORATION FUND FEE			$9.39	9.39
WATER CHARGE PER ACRE-FOOT			**$ 72.28**	**$ 57.80**
		Projected Revenue	**$ 1,138,300**	**$ 1,618,400**

Landowner Behavior

- Seeking additional relationships with neighboring Districts
- Very apprehensive to buy expensive water, 2009 example
- Landowner's increasing flexibility of groundwater supplements (500 gpm)

Questions?

Western Canal Water District

NCWA DROUGHT PLANNING SESSION

LUNDBERG FAMILY FARMS, RICHVALE
JANUARY 30, 2013

TED TRIMBLE, GENERAL MANAGER

Water Supply

Diversion Agreement with Department of Water Resources

WCWD

295,000 AF March – October

- 150,000 AF Natural Flow (subject to reduction)
- 145,000 AF Stored Water (not subject to reduction)

Joint Water Board (BWD, BWGWD, RID, SEWD)

- 555,000 AF March – October (subject to reduction)
- 50,000 AF Sunset Pumping Plant (SEWD)

WCWD and Joint Water Board

- Winter Water November – February "unquantified" period subject to beneficial use

Contract Reduction Provisions

WCWD and Joint Water Board

Subject to up to 50% reduction of 'Natural Flow' in any one year or 100% reduction in any series of seven consecutive years

Example:

- 1991 and 1992 "Natural Flow Supply' was reduced 50%
- No reduction was allowed in following five years
- 1998 would have been the next allowable reduction year

Deficiencies

Two provisions:

1) Forecasted April – July unimpaired runoff to Lake Oroville for the current water year is equal to or less than 600,000 AF (avg 1.75 MAF)

2) Total accumulated actual deficiencies of unimpaired runoff to Lake Oroville below 2.5 MAF in the immediately prior water year or series of consecutive prior water years each of which had runoff of less than 2.5 MAF, together with the predicted deficiency below 2.5 MAF for the current year, exceed 400,000 AF

Deficiencies

Example:

1989 – 3.687 MAF unimpaired runoff

*1990 – **2.171 MAF** unimpaired runoff (deficit 329 KAF)*

*1991 – **2.056 MAF** unimpaired runoff **(deficit 443 KAF)***

*1992 – **1.897 MAF** unimpaired runoff **(deficit 602 KAF)***

1993 – 5.713 MAF unimpaired runoff

1994 – 1.891 MAF unimpaired runoff (deficit 608 KAF)

1995 – 9.279 MAF unimpaired runoff

Approach to Deficiencies

WCWD

During deficiencies the district allocates water on a pro-rated basis i.e. 3 AF per irrigable acre

Landowner

Groundwater

- Plentiful groundwater availability – full basin
- No District owned groundwater wells
- Approximately 140 landowner owned deep wells

Idling
Tailwater Recovery Pumps

Changes Since Last Drought

Increase in planted acreage  20%

- "Right to Farm"
- Increase in commodity prices
- Increase in dedicated wetland habitat

Increased diversions

- Rice straw decomposition
- Waterfowl habitat
- Re-flood events due to herbicide application restrictions

Water Transfers

Water transfers are a difficult option during drought

Groundwater Substitution

Butte County Ordinance-Chapter 33 (1996)

- Lengthy and expensive process
- Unpopular locally and politically charged
- Untested

Glenn County Ordinance No. 1237 (2012)

- Less complicated but only 30% of District
- Untested

Water Transfers

Crop Idling

- Limited water supply during drought
- Unmet local demand (prorated distribution)
- In basin transfers possible

Institutional Barriers

- Highly regulated by Department of Water Resources
- Unreasonable restrictions
- Time consuming due to bureaucratic red tape
- Environmental compliance

Tools for Dealing with Drought

Agricultural Water Management Plan – SBx7-7

Groundwater Management Plan – AB3030/SB1938

WCWD Water Shortage Allocation Policy

Local, Regional and Statewide Cooperation and Communication

Water Advisory and Technical Committees

PRAY FOR RAIN!!

Western Canal Water District

Website & Webcam:

www.westerncanal.com

Email:

Ted@westerncanal.com

YCWA Drought Planning

DaleKolke, DWR

Are We Prepared for the Next Drought?

NCWA Strategic Planning Session

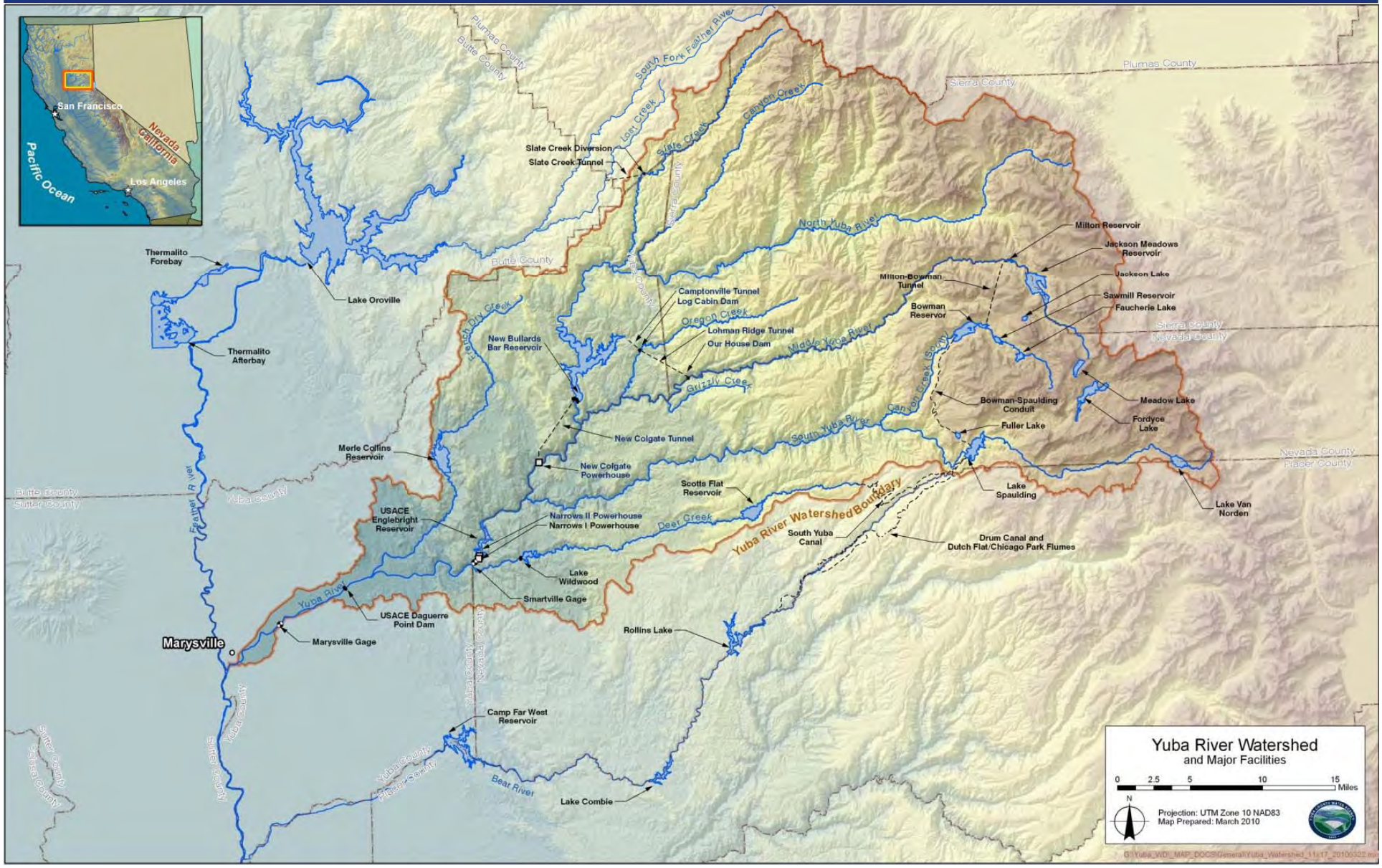
January 30, 2013

Lundberg Family Farms, Richvale

Yuba County Water Agency

- Created in 1959 by State Legislature as a stand-alone government entity
- Driving forces for creation included flood management and water supply
- YCWA Board of Directors
  - 5 County Supervisor members
  - 2 At large members
  - Effectively address county-wide water resource issues
- Territory includes all of Yuba County
- Coincident political and hydrologic boundaries

Yuba River Watershed



Yuba River Watershed

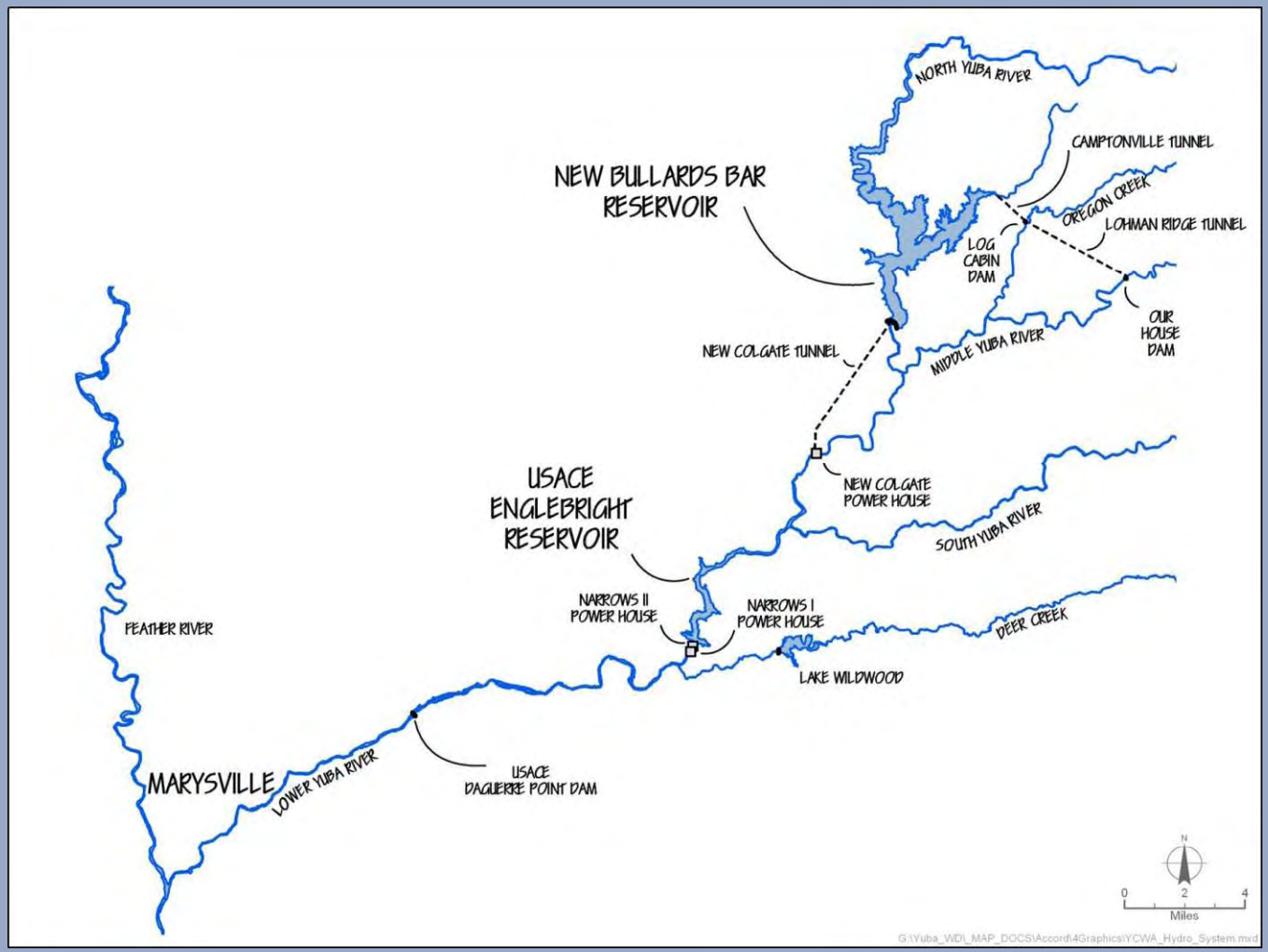
- Yuba Watershed
  - 1340 square miles
- Highest yielding Sacramento Valley watershed
  - Yuba River – 1,957 AF/sq mile
  - American River – 1392 AF/sq mile
  - Feather River – 1,253/sq mile
- Yuba unimpaired flow
  - Low 370 TAF
  - Average 2,400 TAF
  - High 4,400 TAF
- Instream flows set by reservoir storage and year type

YCWA Storage and Diversion

New Bullards Bar Dam

Gary W. Rose

YCWA Storage and Diversion

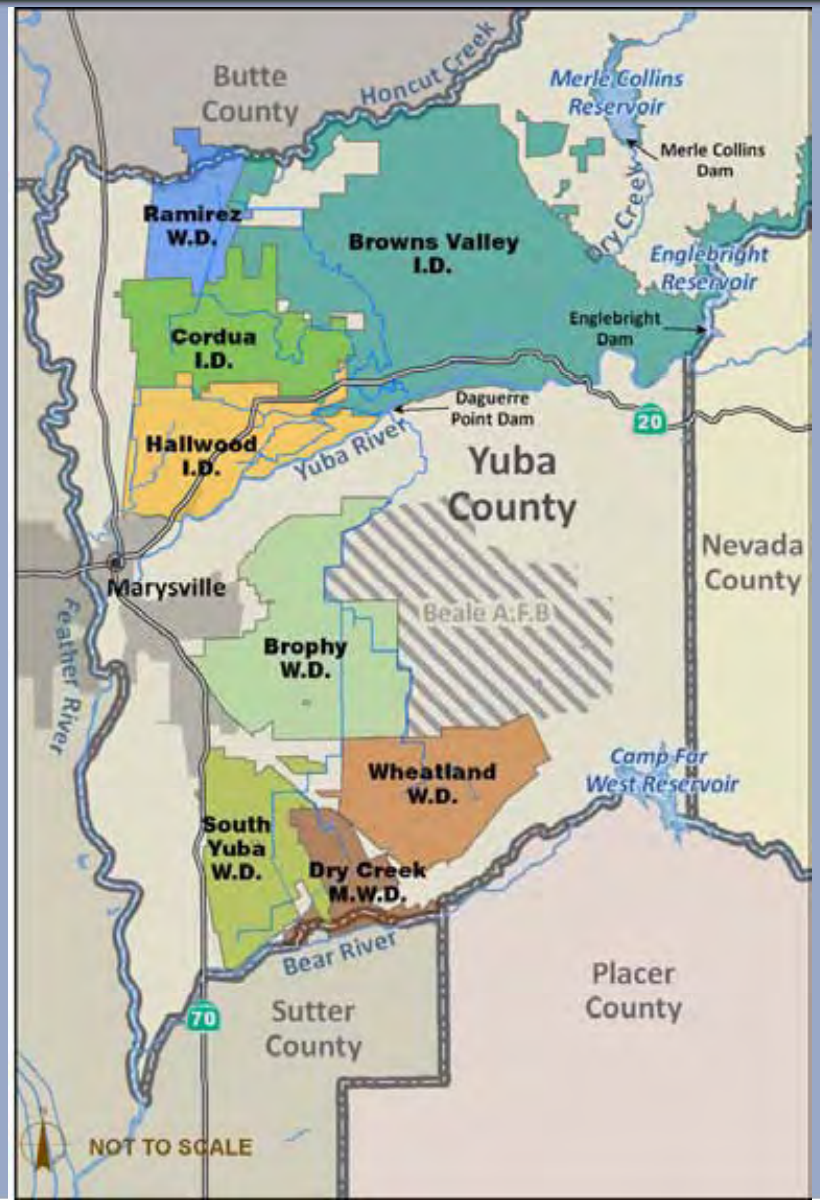


YCWA Storage and Diversion

Corp of Engineers - Daguerre Point Dam

YCWA Water Supply and Use

YCWA Member Units



YCWA Water Supply and Use

Surface Water Deliveries

YCWA Member Unit	Acre Feet
Brophy WD	77,706
Brown Valley ID	18,476
Cordua ID	61,765
Dry Creek MWC	11,592
Hallwood ID	59,046
Ramirez WD	22,167
South Yuba WD	39,097
Wheatland WD	13,937
Total Water Deliveries	303,787

2011

YCWA Water Supply and Use

Crops Receiving Surface Water

Crop Category	Acreage
Citrus and subtropical	300
Deciduous fruit and nuts	10,300
Field crops	600
Grain and hay	1,300
Pasture	9,500
Rice	37,500

DWR, 2005

YCWA Water Supply and Use

- As of 2010, all eight of our member units are served by surface water from the Yuba River
- Agricultural areas outside of the member units still dependent on groundwater
- Municipal and industrial supply provided by groundwater

YCWA Water Supply and Use

- YCWA Project Water Benefits
  - Alleviated groundwater overdraft in the South Yuba subbasin
  - Improved water reliability for both surface water and groundwater users
  - Provided ability to conjunctively manage surface and groundwater supplies for local and statewide use through water transfers

YCWA Water Supply and Use

- Changes since last droughts
  - agricultural demand for surface water has increase significantly
    - Ramirez Water District - 1978
    - South Yuba and Brophy Water WDs – 1983
    - Dry Creek MWC – 1998
    - Wheatland WD – 2010
  - Instream flow requirements have increased demands on surface water
  - Urban growth has increased groundwater demand

YCWA Water Management Actions

- Lower Yuba River Accord
  - Created to protect and improve local water reliability
  - Achieving coequal goals
    - Reliable water supply - during dry years supplemented by groundwater pumping
    - Yuba River health – more water available for instream flows
  - Several elements are specifically meant to help achieve reliable supplies during drought
    - Integrated water management
    - Active conjunctive use
    - Collaborative mechanisms to achieve multiple objectives

YCWA Water Management Actions

- Integrated Water Management
  - Groundwater fully integrated into the water supply, not just a fall back during very dry periods
  - Surface water flow schedules designed by biologists
  - Surface water shortages determined by knowing what we could provide in supplemental supply from groundwater – GW storage, pumping capacity
  - A learning process, but transition helped water reliability

YCWA Water Management Actions

- Active Conjunctive Use
  - Makes groundwater a working supply
  - When drought and surface water shortages occur, the "system" is up and running
  - Provides funding to maintain a ready GW supply
    - Monitoring
    - Infrastructure maintenance – wells, pumps
    - Third party outreach
    - Technical support
  - Makes transition to groundwater use routine, resulting in
    - Reduced fear of drought impacts
    - Improved understanding of basin, better planning
    - Broad support from landowners – installed, maintained wells

YCWA Water Management Actions

- Collaborative mechanisms to achieve multiple objectives
  - From the realization that nothing will come from just holding on to what you have; water will just get regulated away
  - Instead, shift the discussion from win/lose to one that meets multiple objectives
  - Key is to work together to find solutions

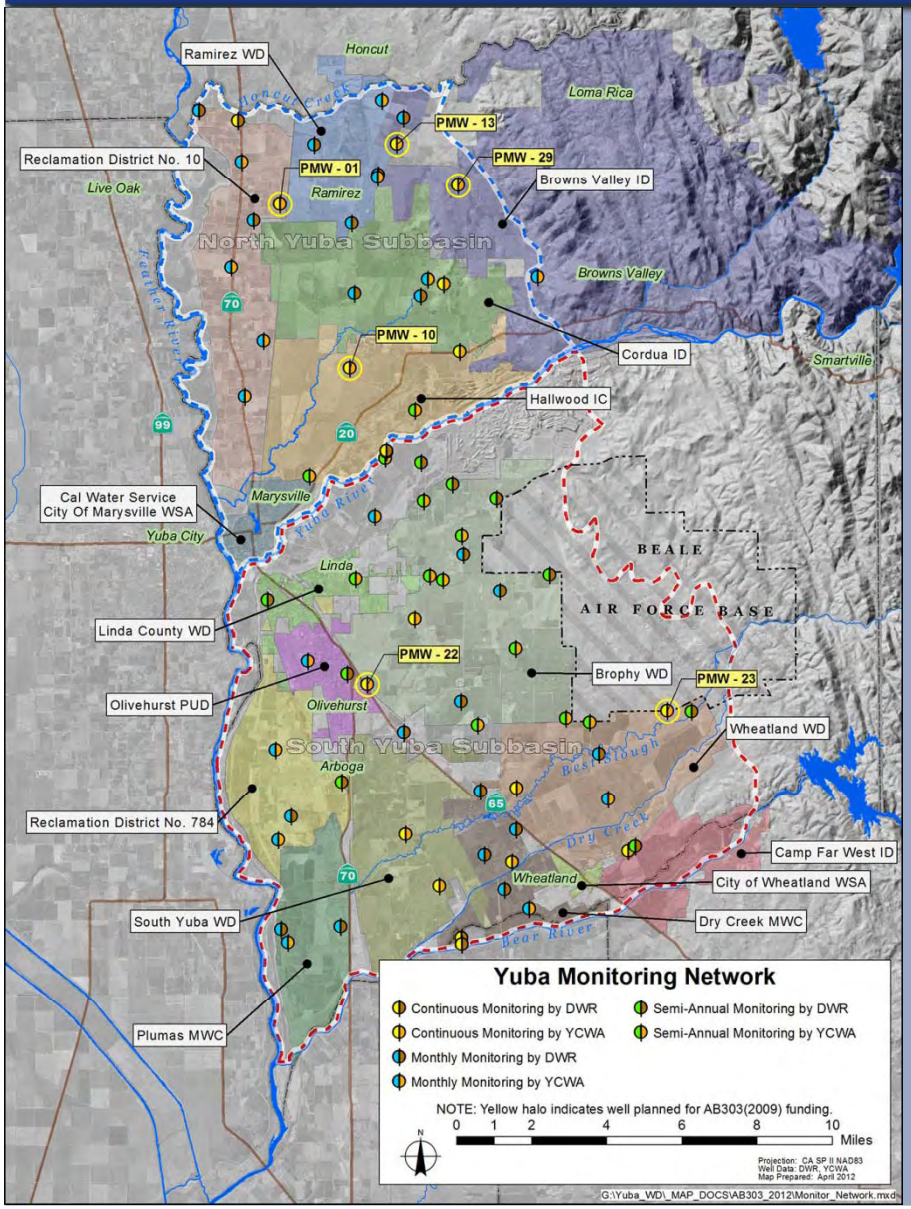
YCWA Water Management Actions

- Collaborative Process: Conference Year
  - Worst case scenario flow schedule
  - Low probability of occurrence (1%), but must be planned for due to severe impacts on supply
  - Regulatory constraints are relaxed in exchange for defined limits on surface supply (250 TAF), which can be made up with GW pumping
  - Reduces need to operate under inflexible curtailment plans that might unnecessarily impact supplies in less severe drought years

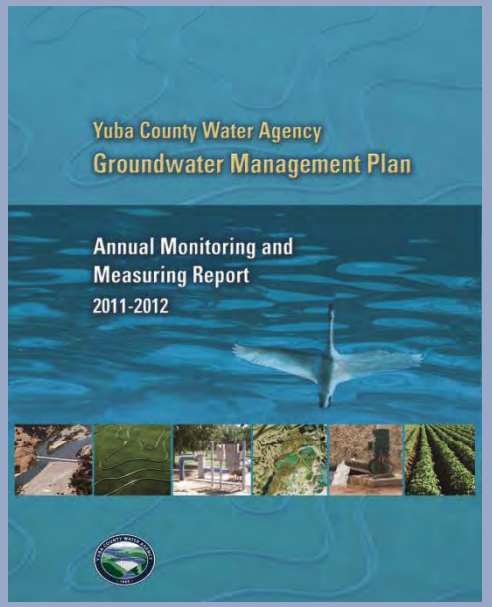
Efforts to Better Prepare

- Policies and procedures for water allocations
  - YCWA Member Unit supply contracts contain curtailment clauses based on:
    - Water rights
    - Base and supplemental supply quantities
    - Contact date priorities
  - Complicated and difficult to apply
  - Goal is to develop policies and procedures to smooth implementation of any necessary water supply allocations and curtailments
  - “A work in progress”

Efforts to Better Prepare



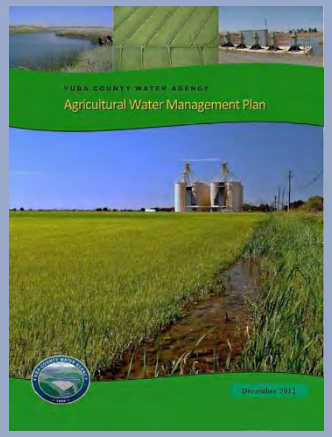
- Groundwater Monitoring
  - Annual monitoring and measurement reports
  - CASGEM monitoring entity
  - Constructed 6 new dedicated monitoring wells during 2012



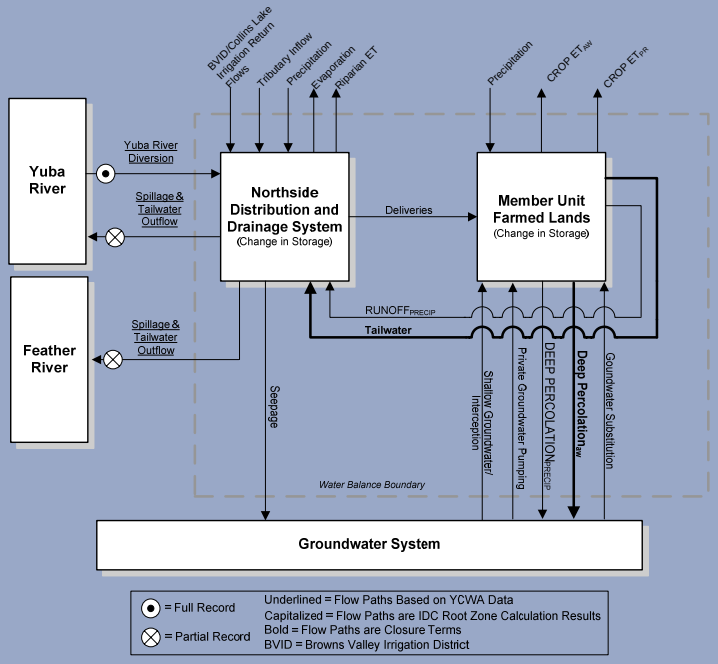
Efforts to Better Prepare

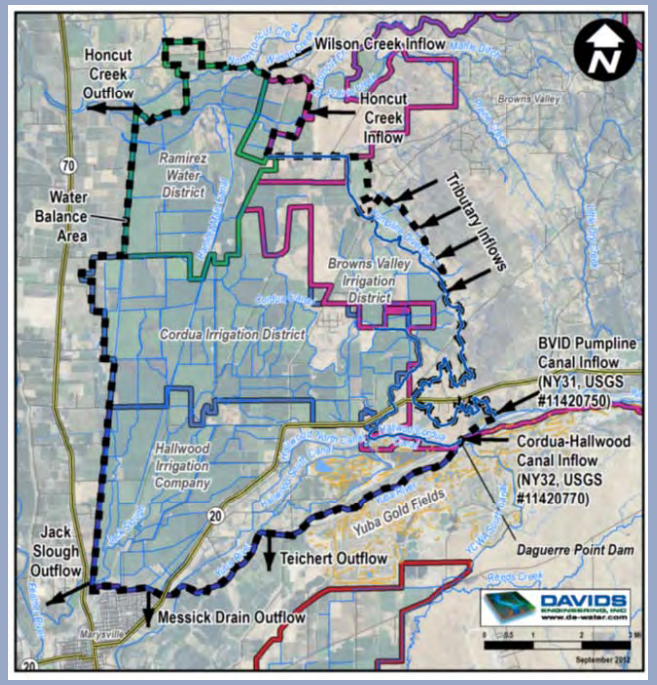
- Groundwater Management Plan Update
  - Reflects major research work *Hydrogeologic Understanding*
  - Information new water management activities
    - Wheatland Canal
    - New monitoring wells
    - Accord implementation
    - Groundwater adaptive management tool
    - FERC relicensing
  - Refined basin management objectives
  - Added three new BMOs
    - Stakeholder communication
    - Local control of GW basin
    - Improving basin understanding

Efforts to Better Prepare

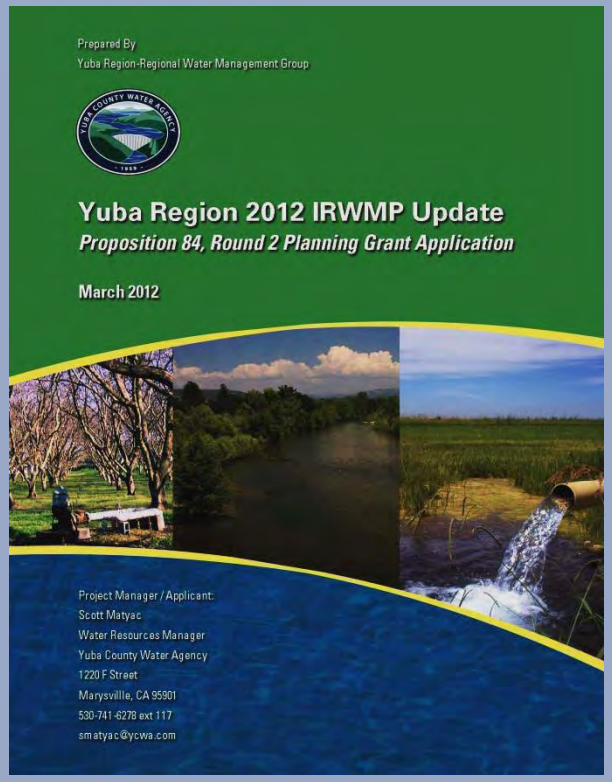


- Agricultural Water Management Plan
  - Water balance
  - EWMP evaluation
  - Water measurement compliance documentation
  - YCWA Measurement Improvement Plan



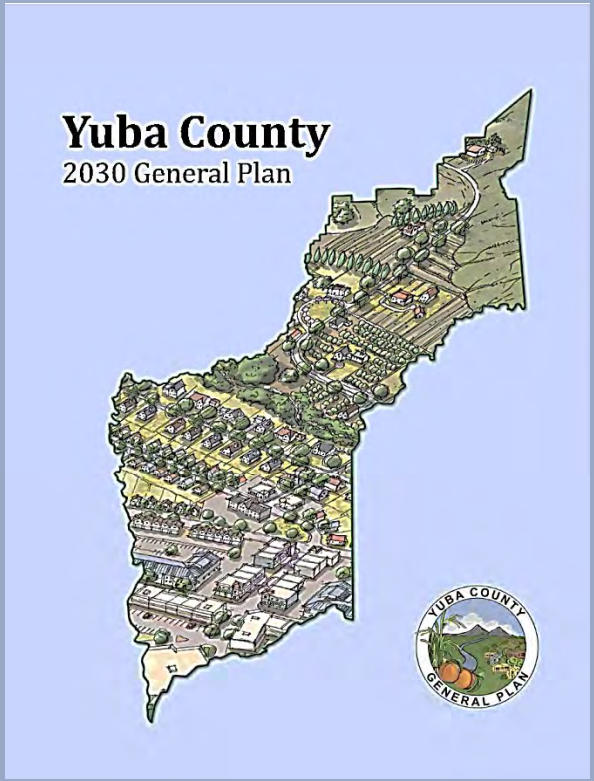


Efforts to Better Prepare



- IRWMP Update
  - Legislatively required updates
  - Build regional capacity to field competitive projects
  - Begin aggressive recruitment process
  - Design and implement appropriate governance system
  - Create practical nexus between planning and water management

Efforts to Better Prepare



- Yuba County General Plan Update
  - Active engagement with county land use planners
  - Provided and interpreted water planning and management documents
  - Review and comment on natural resource element documents of the General Plan

YCWA Drought Planning

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Water Service Issues During Drought

January 30, 2012

Joe Schofield

DOWNEY BRAND ATTORNEYS LLP

Lawyers who see possibilities®

District Authority to Allocate Water Shortages

General rule for irrigation districts: "All water distributed for irrigation purposes shall ... be apportioned ratably to each landowner [in proportion to] the last assessment against his land ... for district purposes."

- Water Code § 22250

Apparently does not apply if no assessment.

District Authority to Allocate Water Shortages

- In upholding similar rule by the Railroad Commission, the Cal. Supreme Court held:

"It would be most unjust and very injurious . . . to hold that in times of shortage the older consumers could have a full supply and the later none. [Such] a rule would mean, as to later consumers, not only that their crops for the year would be lost, but that their orchards or plantings would be destroyed, when by prorating the water the orchards and plantings of all would be preserved with some impairment of crops for the time, but no serious permanent injury."

  - *Butte County Water Users,* 185 Cal. 218 (1921)

District Authority to Allocate Water Shortages

When irrigation districts charge for water, "the use of water shall be distributed equitably as determined by the board among those offering to make the required payment."

– Water Code § 22252

District Authority to Allocate Water Shortages

Despite requirement to distribute in proportion to assessment, irrigation districts have following authority to affect apportionment:

- By unanimous vote of all board members, fix date prior to which applications for water for ensuing season must be received (rules for changing date apply)
- May require cash deposit for each acre applied for (up to full water charge)
- If shortage materializes, district may give preference to or only serve lands for which apps were received
  - Water Code § 22252.1

District Authority to Allocate Water Shortages

Despite requirement to distribute in proportion to assessment, irrigation districts have following authority to affect apportionment:

- Board may fix annual water requirements for specific crop types
- May refuse to provide water to anyone exceeding these requirements, or may fix penalties

  – Water Code § 22252.3

District Authority to Allocate Water Shortages

Water Districts must apportion irrigation water ratably in proportion to last assessment. Water Code § 35420

However, water districts may also:

- Require applications for water, fix app deadline and require deposit § 35450-35452
- In case of water shortage, give preference to or serve only the land for which applications were timely filed; if water still short, proportionate reductions. § 35453-54
- If water inadequate for all application land, proportionate cuts may be made (if water charges make up more than half of district revenue)
- If no meters, may establish crop duty limits

District Authority to Allocate Water Shortages

- Reclamation District boards have the general authority to adopt rules for the distribution of water
  - Water Code § 50911

District Authority to Allocate Water Shortages

When districts have flexibility under governing statutes, allocations may differentiate between different user groups only if based upon a reasonable classification

- *Swanson v. Marin Mun. Water Dist.,* 56 Cal.App.3d 512 (1976)

Water Companies

"Stockholders in corporations organized chiefly to acquire and distribute water have a right to the proportionate distribution of such water at the time the stock is acquired and may individually enforce that right."

– *De Boni Corp. v. Del Norte Water Co.,* 200 Cal.App.4th 1163, 1170 (2011)

Water Companies

In cases of shortage, “the duty of the water company is to supply such water as it has, fairly apportioned between its consumers.”

– *Leavitt v. Lassen Irr. Co.,* 157 Cal. 82, 106 (1909)

Water Companies

The water company's articles and bylaws are of critical importance in justifying distribution during shortage. A significant body of law holds these documents constitute a contract between the corporation's shareholders and the corporation.

Water Companies

Recent case concerned challenge to mutual water company's shortage allocation, which was in proportion to the number of shares owned in the company after a threshold domestic water share. Though farmers with more irrigable acres got a lower percentage of water, the allocation was upheld because it was neutral in that it applied to all shareholders.

– *De Boni Corp. v. Del Norte Water Co.*

Water Shortage Emergency

The board of any public or private supplier that provides water for human consumption, sanitation or fire purposes has authority to declare shortage emergency. Water Code § 350-359.

- Basis for an emergency declaration:
  - Ordinary water requirements cannot be satisfied without depleting the distributor's water supply to the extent there would be insufficient water for human consumption, sanitation, and fire protection.

Water Shortage Emergency

- Once declaration of emergency is adopted, after a hearing the board may adopt such regulations and restrictions on the delivery of water and the consumption within said area of water supplied for public use as will in the board's sound discretion conserve the water supply for the greatest public benefit with particular regard to domestic use, sanitation, and fire protection.

Water Shortage Emergency

The emergency regulations:

- may also establish priorities in use of water for other purposes (e.g., irrigation) and provide for the allocation, distribution, and delivery of water for such other purposes, without discrimination between consumers using water for the same purpose or purposes; and
- these regulations supersede any law establishing rights of individual customers to receive either specific or proportionate amounts of water.

Water Code §§ 354, 357

Moratoriums on New Connections

- Moratoriums on new connections during drought are generally upheld even in absence of an immediate water shortage emergency
- Providers need not wait until its supplies are actually depleted before taking strong steps to conserve

Moratoriums: A Taking?

- Potential water use has not been recognized as a compensable property right by California courts
  - "[A] potential water user does not possess any absolute right to be afforded water service." *Swanson v. Marin Mun. Water Dist.*, 56 Cal.App.3d 512 (1976)

Water Transfers for Surplus Water

"If its board deems it to be for the best interests of the district, a district may enter into a contract for the lease or sale of any surplus water or use of surplus water not then necessary for use within the district, for use either within or without the district."

- Water Code § 22259 (irrigation districts)

Water Transfers for Surplus Water

"If its board deems it to be for the best interests of the district, a district may enter into a contract for the lease, sale, or use of any surplus water not then necessary for use within the district, for use either within or without the district."

- Water Code § 35425 (water districts)

Water Transfers for Surplus Water

A district may transfer such of its property as the board determines is no longer necessary for district operations.

- Water Code § 50931 (reclamation districts)

Protections for Transferers

- Water Code § 1016(b). After the term of a water transfer agreement, the transferee or beneficiary shall not: Claim any right to a continued supply of water as a result of the transfer, based on water shortage emergency or unforeseen or unforeseeable increases in demand or any other cause.