

# Bay-Delta Conservation Plan (BDCP): Overview and Supply and Demand Reliability Assessment

Presented by:

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Special Meeting of the  
Imported Water Committee  
November 14, 2013

# Today's Agenda

- ▶ Review Objectives
- ▶ Demand and supply analysis
- ▶ BDCP Update
- ▶ Presentation by Resources Secretary  
John Laird



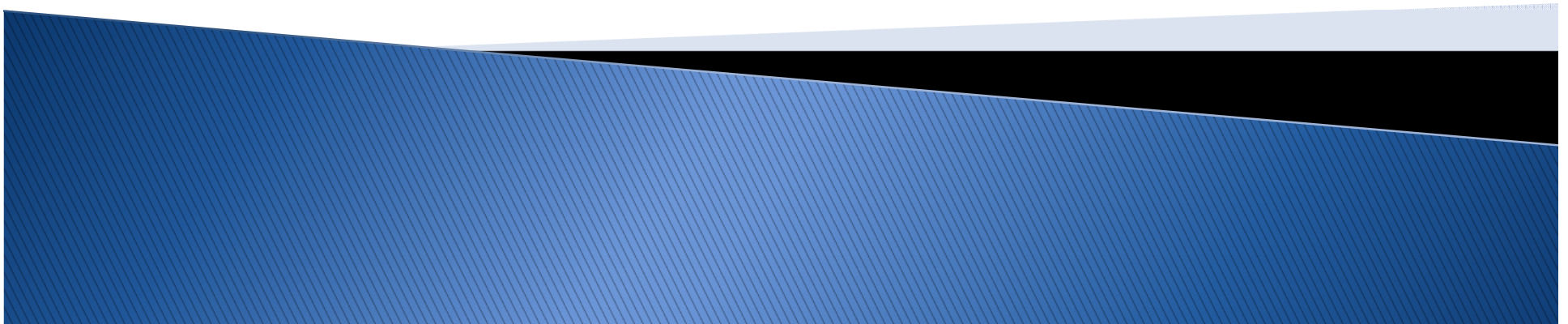
# Water Authority Multi-Disciplinary Internal Review

- ▶ Commenced in June
- ▶ Objective: Provide Water Authority Board with assessment of which Delta fix proposal most consistent with and best advances
  - Board's Bay-Delta Policy Principles
  - Reliability and diversification goals in Water Authority's 2010 UWMP
- ▶ Four options
  1. BDCP preferred alternative (9,000 cfs)
  2. BDCP Plus (DVF) (6,000 cfs)
  3. Portfolio Alternative (NRDC) (3,000 cfs)
  4. No action

# Water Authority Multi-Disciplinary Internal Review (cont.)

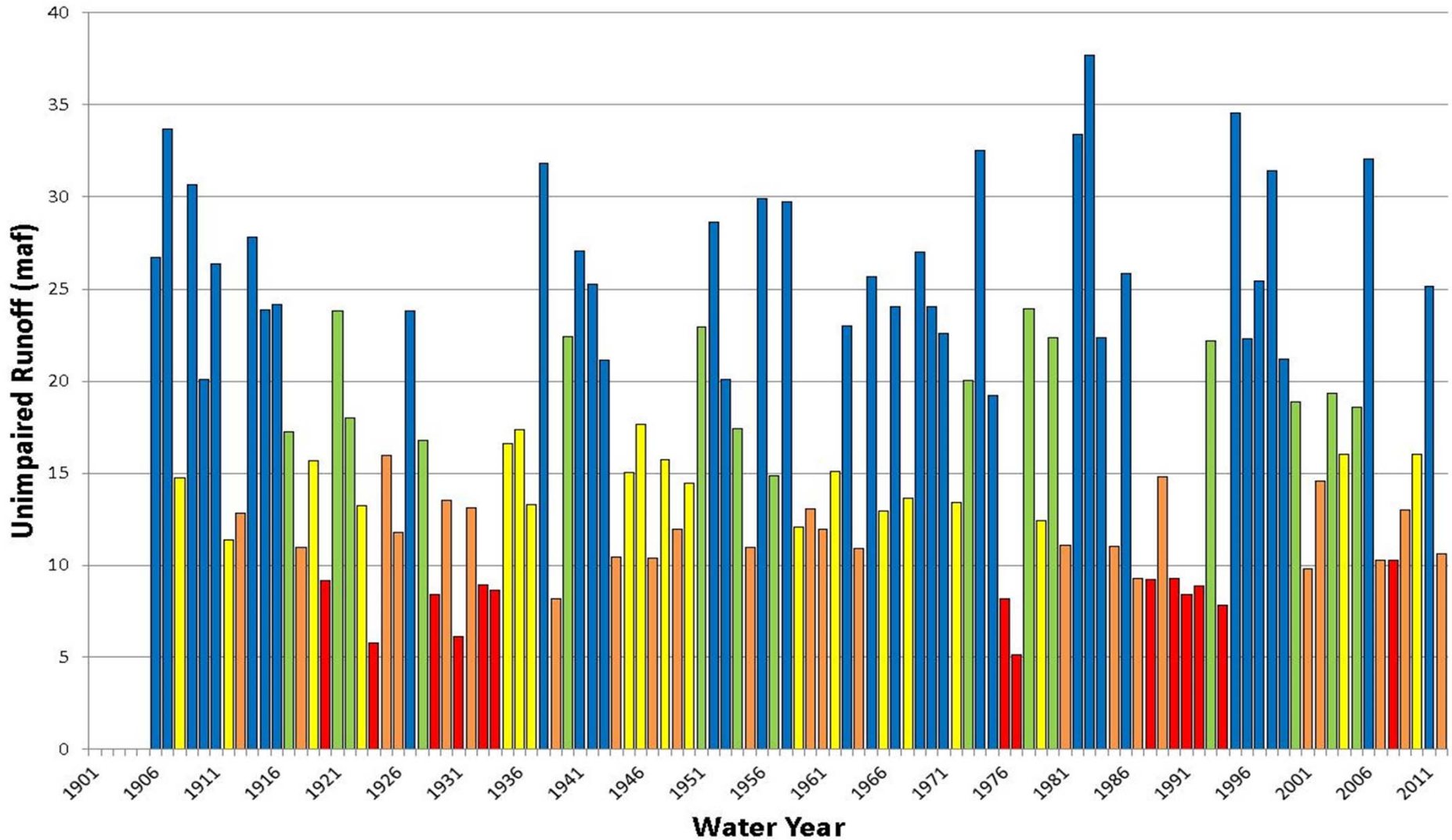
- ▶ Scope of review driven by BDCP timeline and available resources
- ▶ High-level review based on perspective of a recipient and purchaser of Delta exports
  - Review based on available published data with professional judgment
  - Not intended to recreate modeling results
- ▶ Deliverables:
  1. Comment letter through BDCP environmental review process
  2. Assessment of project reliability, financing and impact on rates, including risk assessment for Board consideration

# Supply and Demand Reliability Assessment



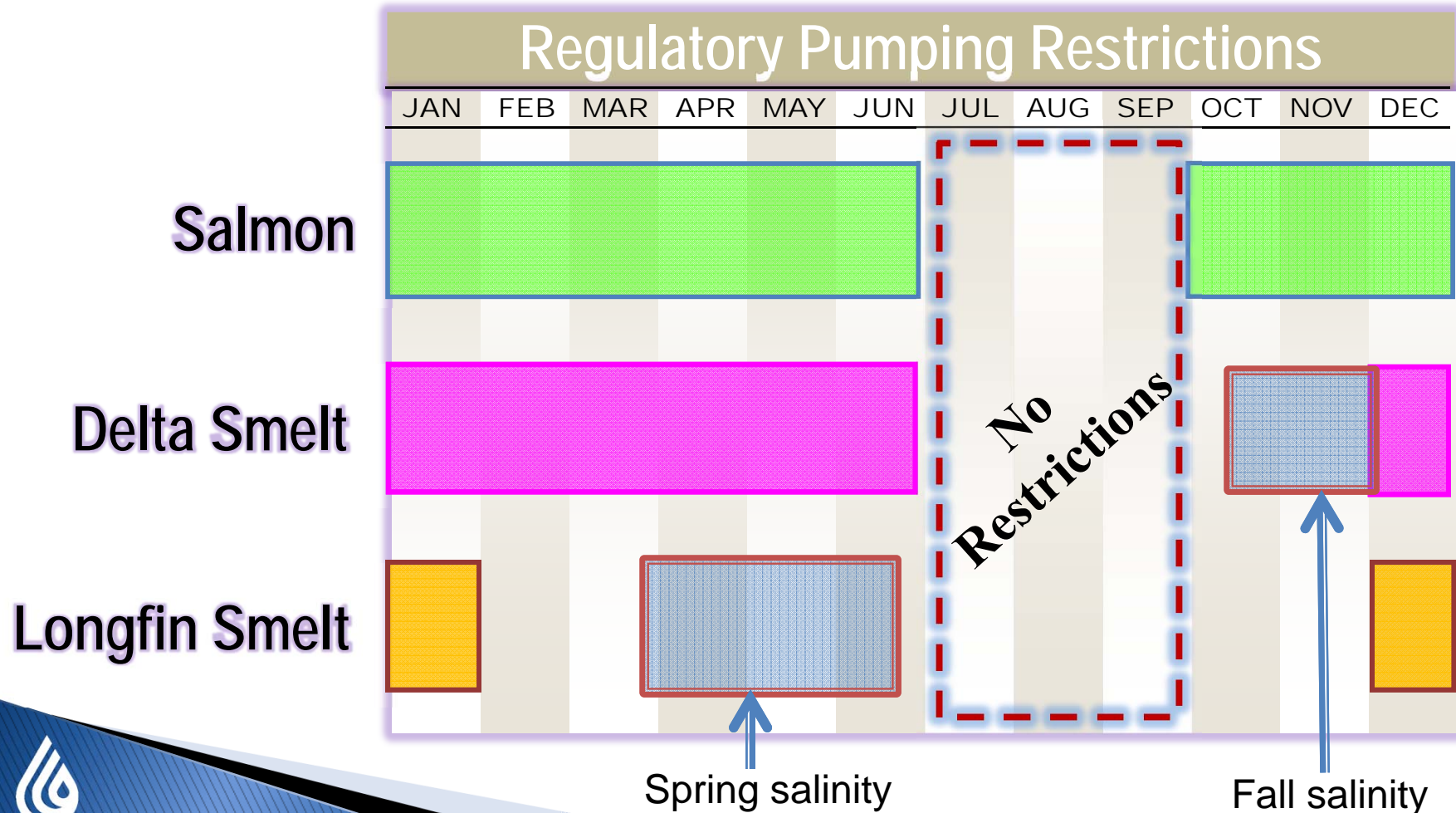
# Annual Run-Off Variations

## Sacramento River Unimpaired Runoff Since 1906

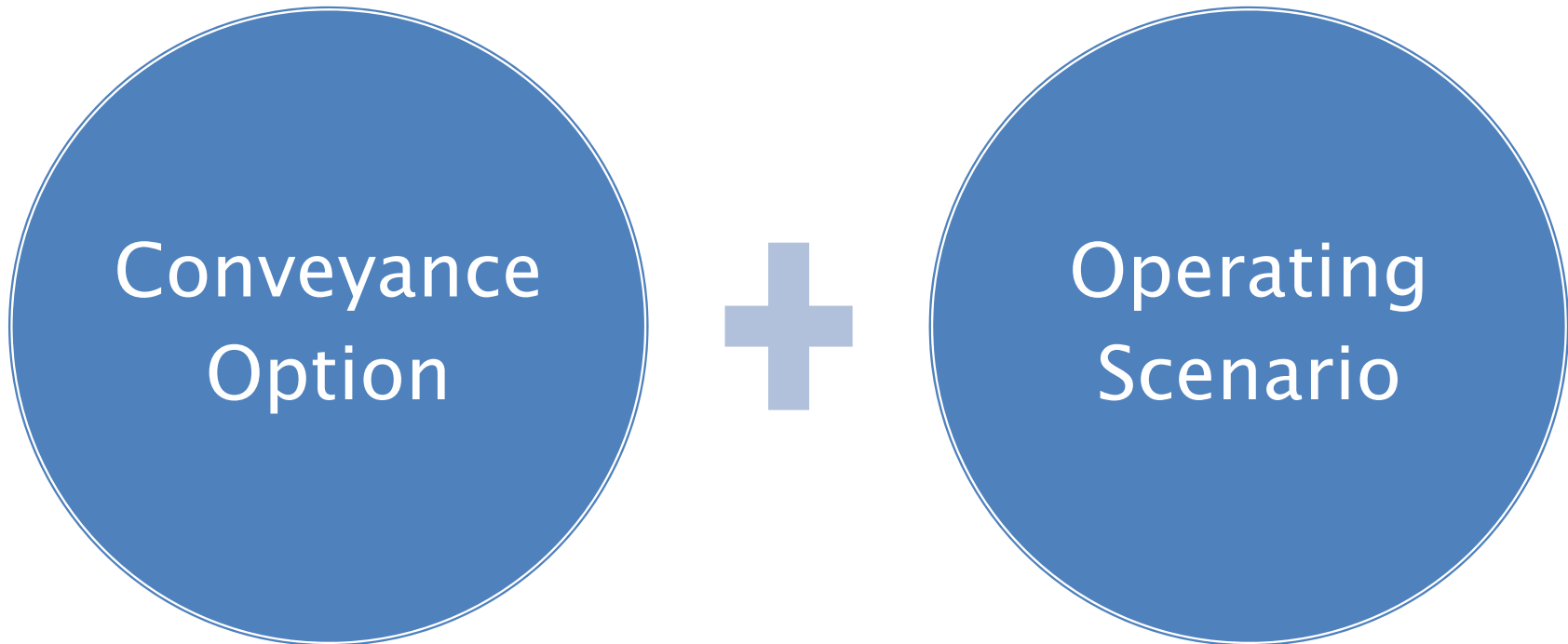


# Pumping Flexibility Reduced

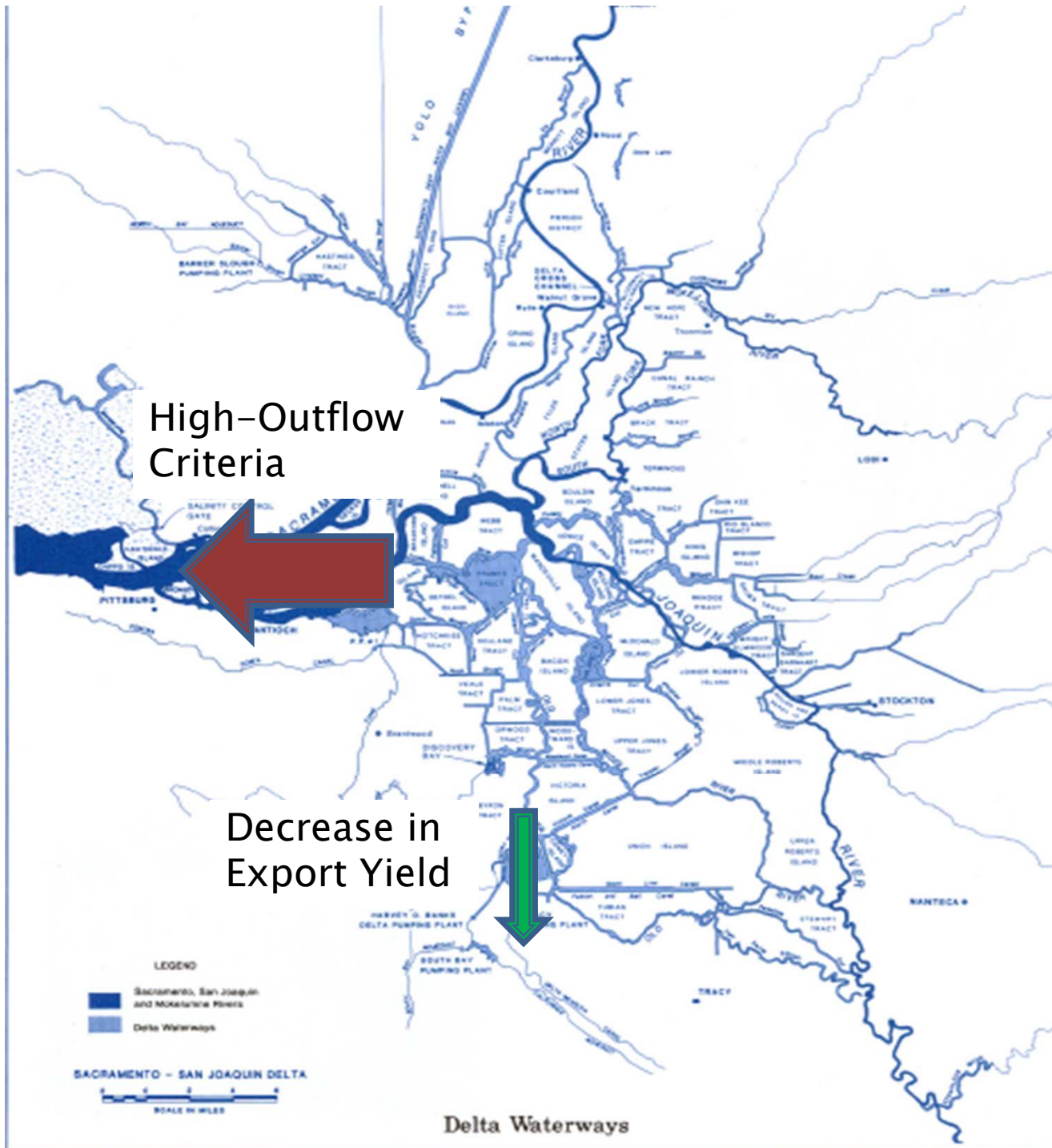
Window restricted even during wet years



# Two Major Elements that Influence Delta Export Yields







Correlation  
between  
Delta Outflow  
Criteria and  
resulting  
Supply Export  
Yield

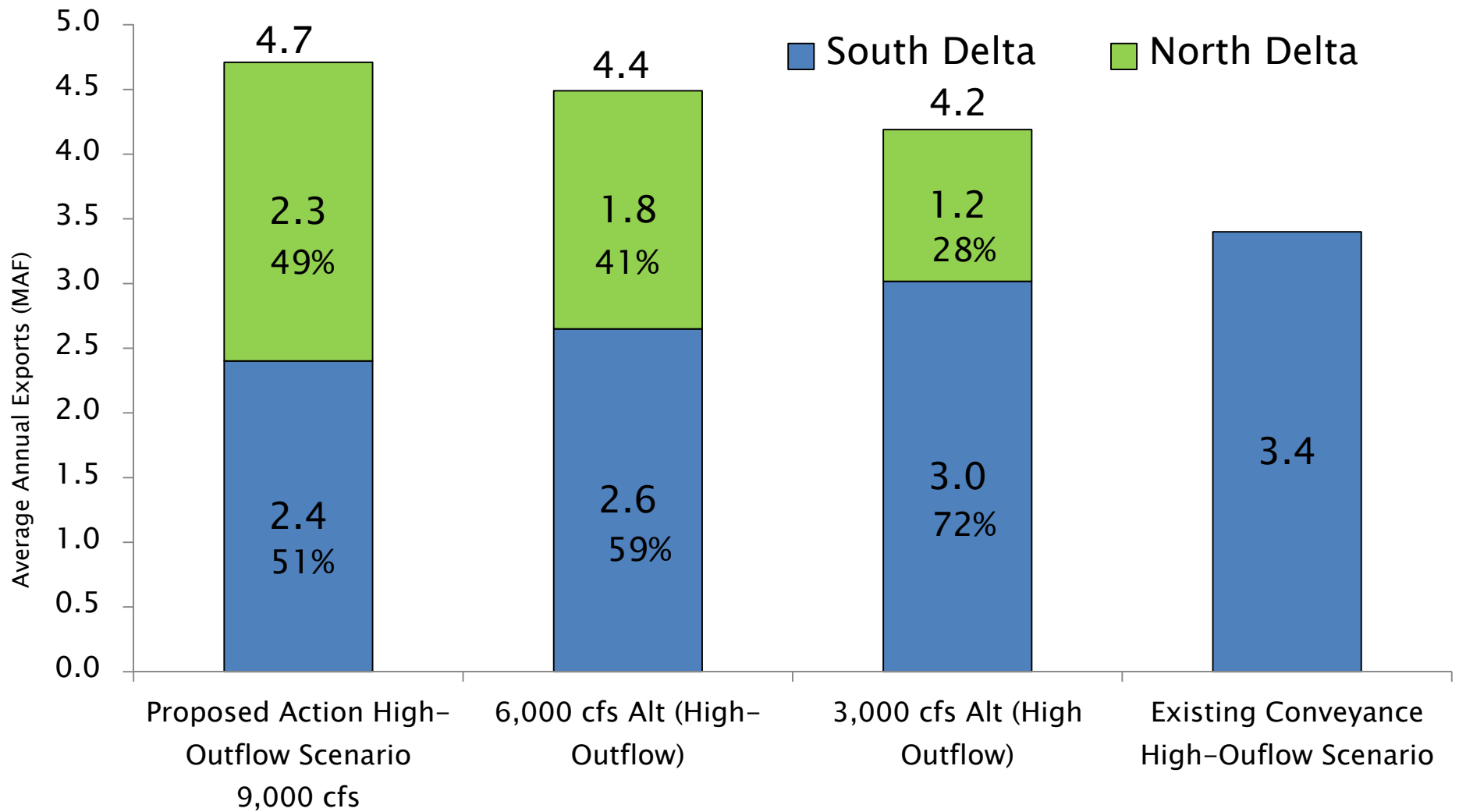
High-Outflow  
Criteria =  
Decrease in  
Export Yield

# Decision-Tree Process as Identified in the BDCP EIR/EIS

- ▶ Combines differing spring and fall outflow criteria to derive four possible outcomes
- ▶ Permit would cover all four outcomes
- ▶ One would be selected for initial operations

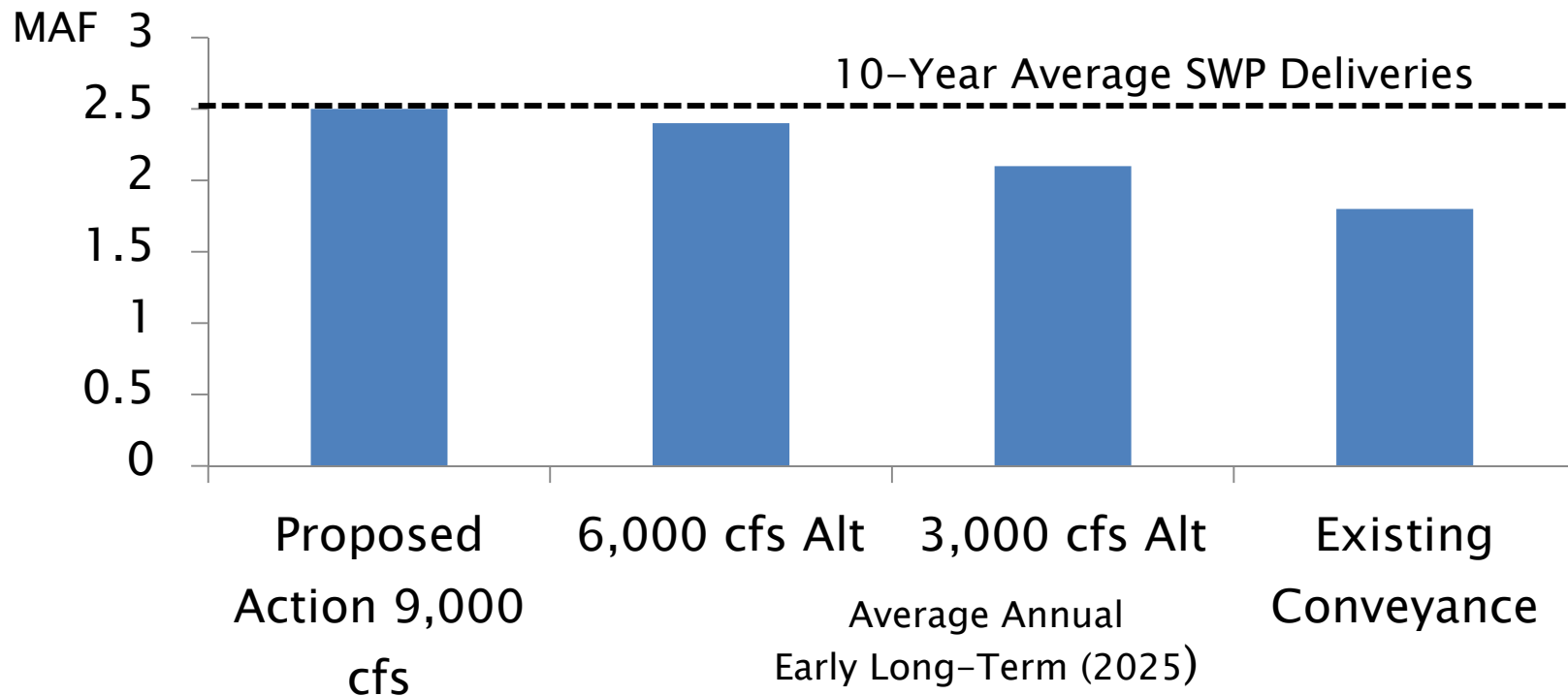
Delta Outflow	Water Operations Scenarios			
	H1 (low outflow scenario)	H2	H3	H4 (high outflow scenario)
Spring	D-1641	Enhanced spring outflow requirement	D-1641	Enhanced spring outflow requirement
Fall	D-1641	D-1641	FWS Biological Opinion (Dec 2008)	FWS Biological Opinion (Dec 2008)

# BDCP Alternatives – Estimated Export Yields under High Outflow Scenario



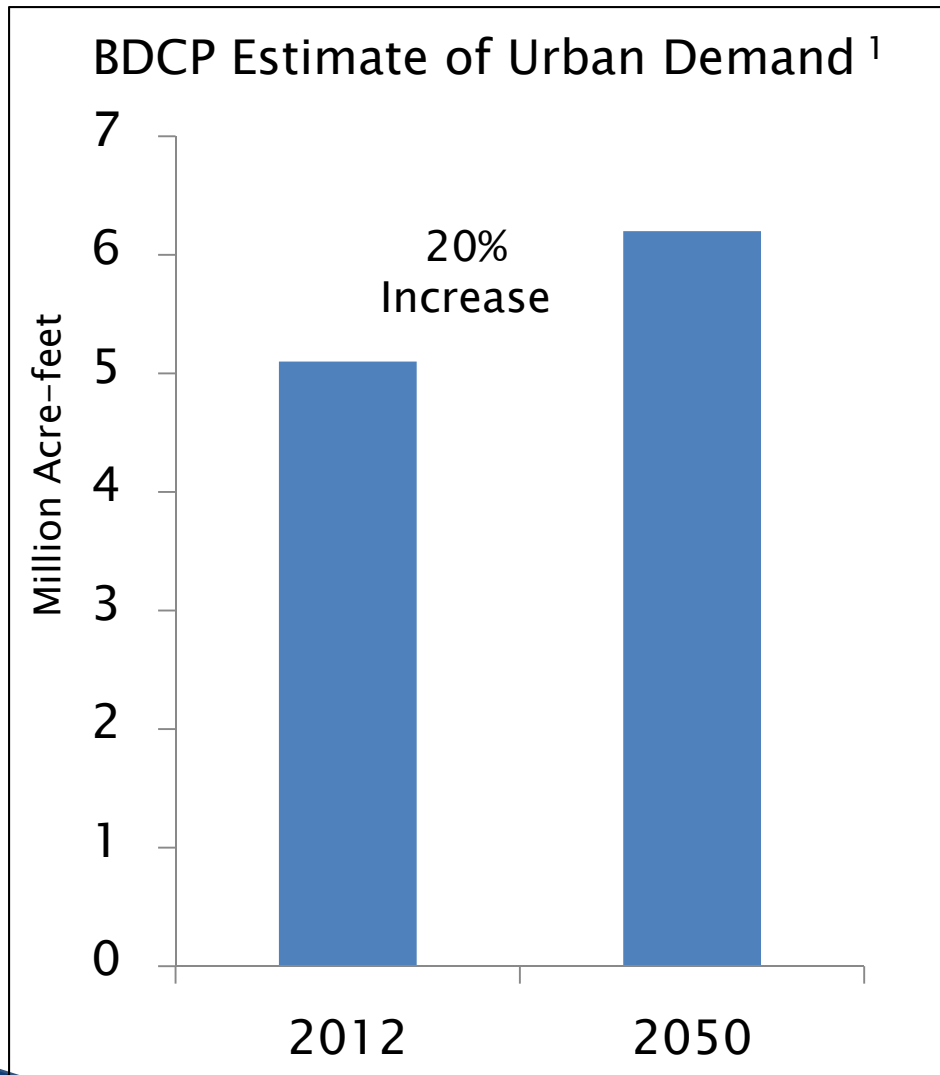
Average Annual Exports  
Early Long-Term (2025)

# Comparison of SWP Estimated Average Deliveries to 2001–2010 Avg



- ▶ Historic benchmark for comparison
  - Weighted to pre-2008 Smelt restrictions
  - One way to compare future yields to less restrictive operation

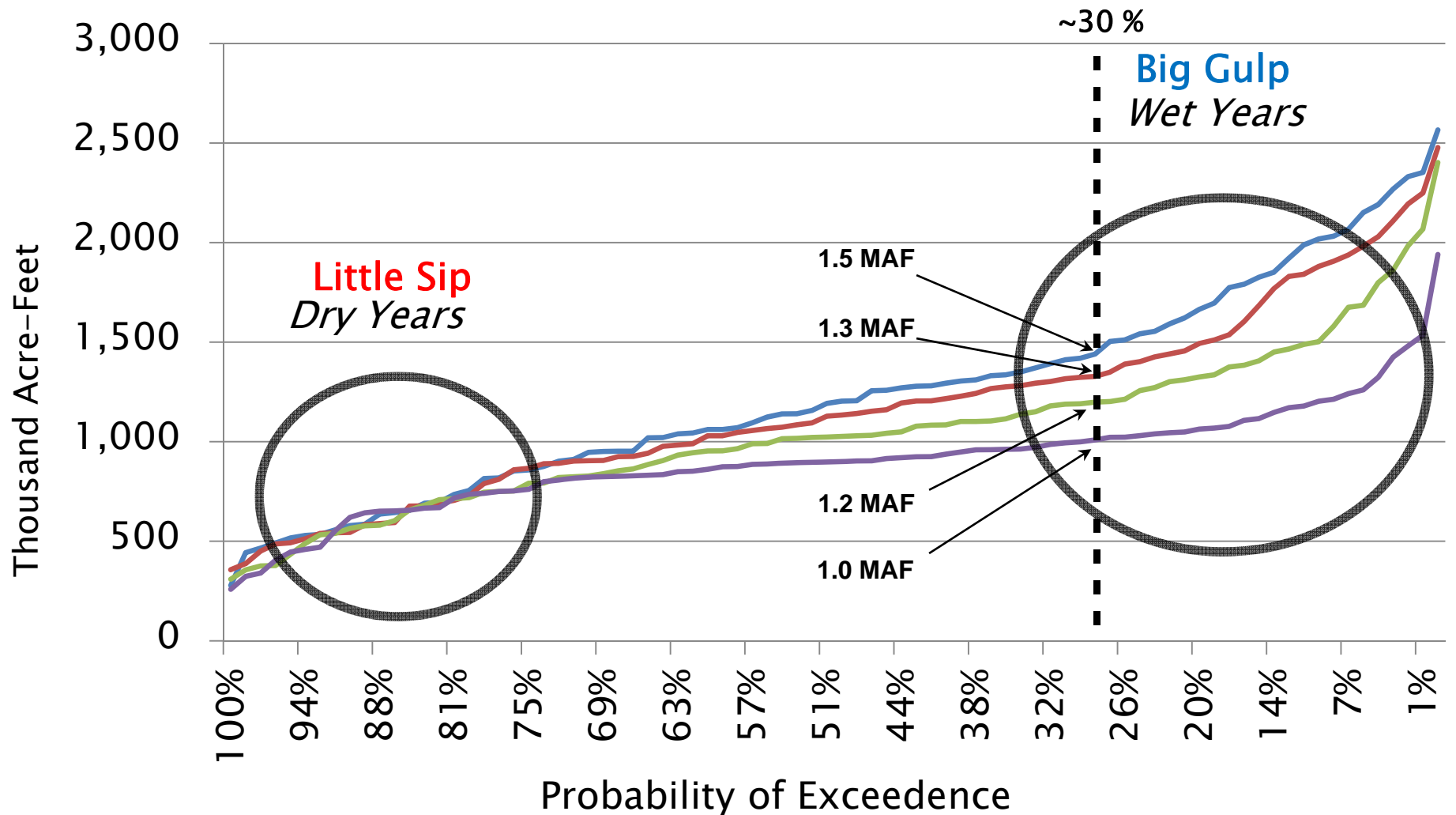
# Estimating SWP Contractor Demand



<sup>1</sup> BDCP Chapter 9 Appendix 9A

- ▶ BDCP forecasted demand
  - 36 urban agencies using econometric model
    - Considered UWMP local supplies and storage
  - Agricultural water use
    - UC Davis SWAP Model
    - Economic, land values, market conditions and supply availability and price linked to water use
- ▶ CUWA Agency Survey
  - 2010 to 2030
  - Increasing imported water demand and local supplies

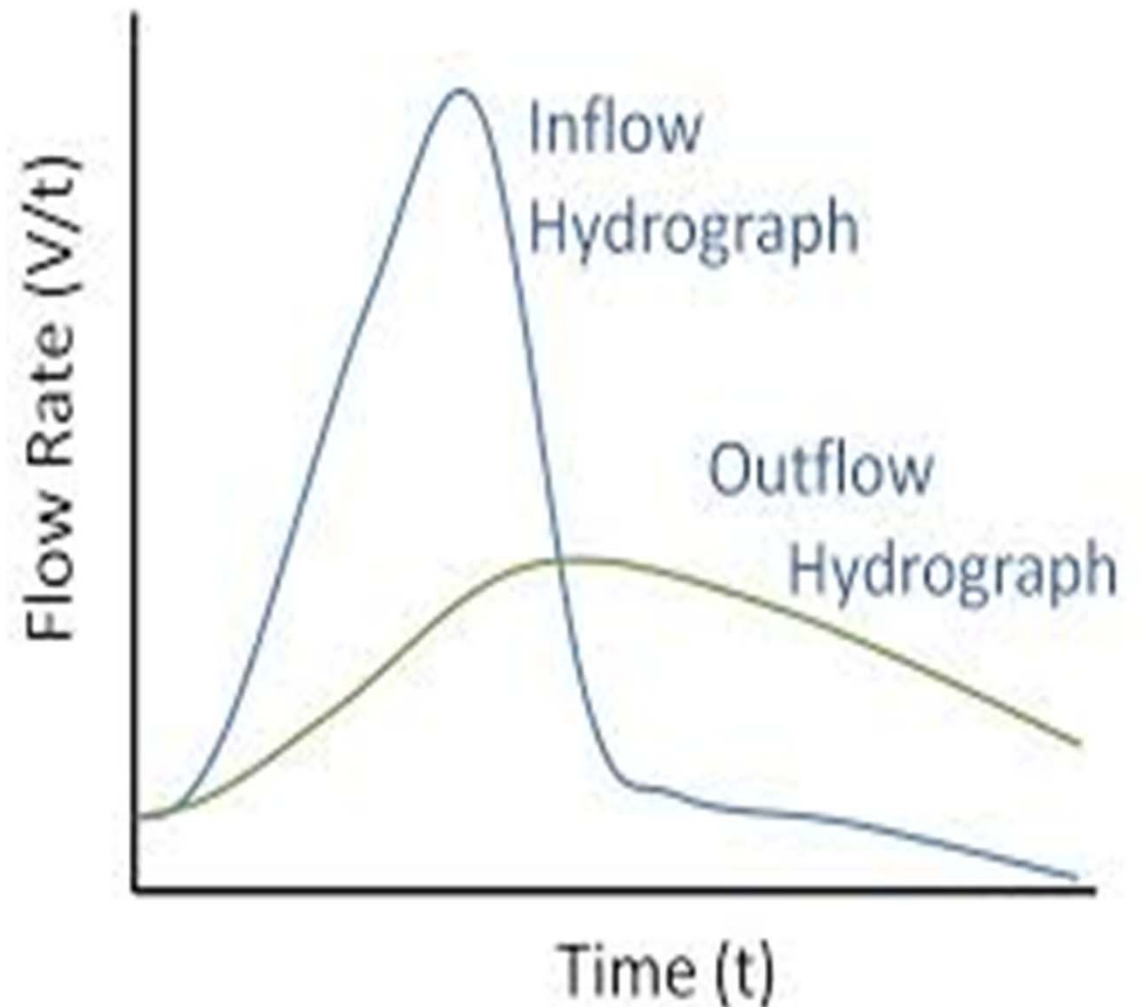
# Estimated MWD SWP Deliveries – Percent Frequency (High Outflow Scenario)



— Proposed Action — 6,000 cfs — 3,000 cfs — Existing Conveyance

# Balancing Supply and Demand

- ▶ The Importance of Storage
  - Key to managing hydrologic cycle
  - Regulates inflow to demand
- ▶ Dry year imported reliability = *yield + stored water*
  - MWD Storage
  - WA Carryover storage
  - New SWP storage?



# MWD Storage Reserve Levels

With Range of 2013 Uncertainty

Emergency Storage      Dry-Year Storage



Source: October 7, 2013 MWD Water Planning and Stewardship Committee



# Water Authority's 2010 UWMP Reliability Planning Process

## 1. Reliability Assessment

- Required under UWMP Act
- Identifies resource mix to meet forecasted demands
- Resource mix includes verifiable local projects

## 2. Scenario Planning

- Develop “what if” supply scenarios based on risks
- Identify adaptive management strategies to manage risks
- Strategies include additional planned projects

### ▶ Water Authority's BDCP supply reliability analysis takes similar approach

- Reliability assessment w/verifiable supplies – “big gulp, little sip” (today's report)
- Scenario planning risk assessment (early 2014)



# 2010 UWMP Verifiable Supplies

- ▶ Utilized in supply reliability assessment
- ▶ Help ensure compliance with laws linking water availability and land–use approval (SB 610/221)
  - Adequate documentation and substantial evidence
  - Planning decisions cannot be based on “paper water”
- ▶ Used for supply, facilities, environmental and financial planning
  - Reduces implementation risks that could jeopardize future supply reliability or adversely affect other planning efforts

2010 UWMP Supply Project Categorization	
Category	Project Example
Verifiable	Carlsbad Seawater Desalination
Planned	Proposed Camp Pendleton Seawater Desalination
Conceptual	City of San Diego San Pasqual Basin Proposal

# Reliability Assessment – MWD Service Area Estimated Local Supplies and Demands on MWD (2025)

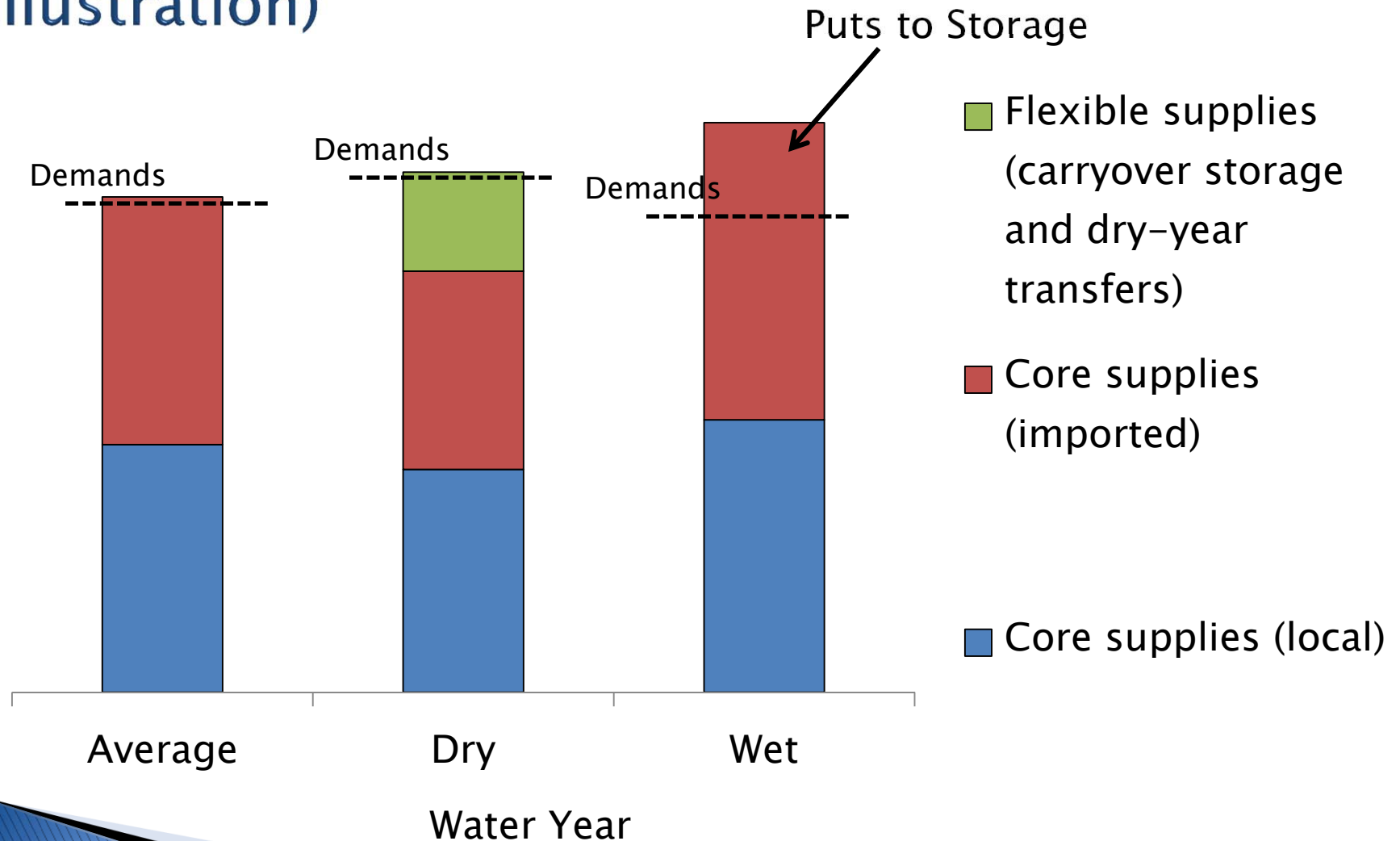
	Normal (MAF)	Dry (MAF)
Regional Demands w/ Conservation	4.36	4.39
“Verifiable” Local Supplies <sup>1</sup>	2.68	2.50
<i>MWD RUWMP</i>	<i>2.52</i>	<i>2.36</i>
<i>Plus MWD Member Agencies’ UWMPs</i>	<i>0.16</i>	<i>0.14</i>
Resulting Demands on MWD	1.68	1.89

<sup>1</sup>Includes Water Authority’s QSA transfer supplies (280,000AF)

Note: MWD 2010 RUWMP and MWD’s member agencies 2010 UWMPs also identified potential and conceptual local projects, that if implemented, could result in a much greater amount of local supply development.



# Dry-Year Supply Reliability Planning: Combine Core and Flexible Resources (Illustration)

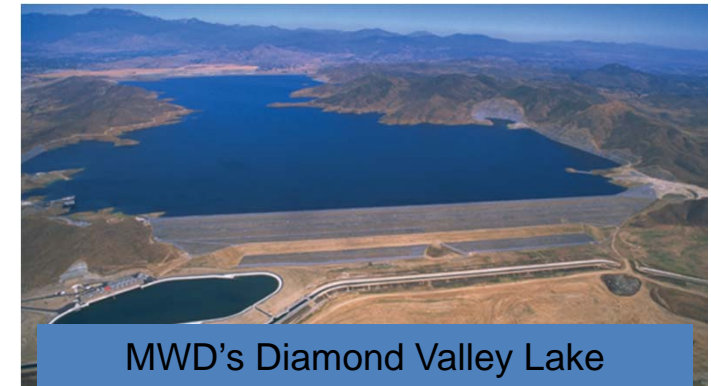


# BDCP Alternative Supply Reliability Assessment: “Big Gulp, Little Sip”

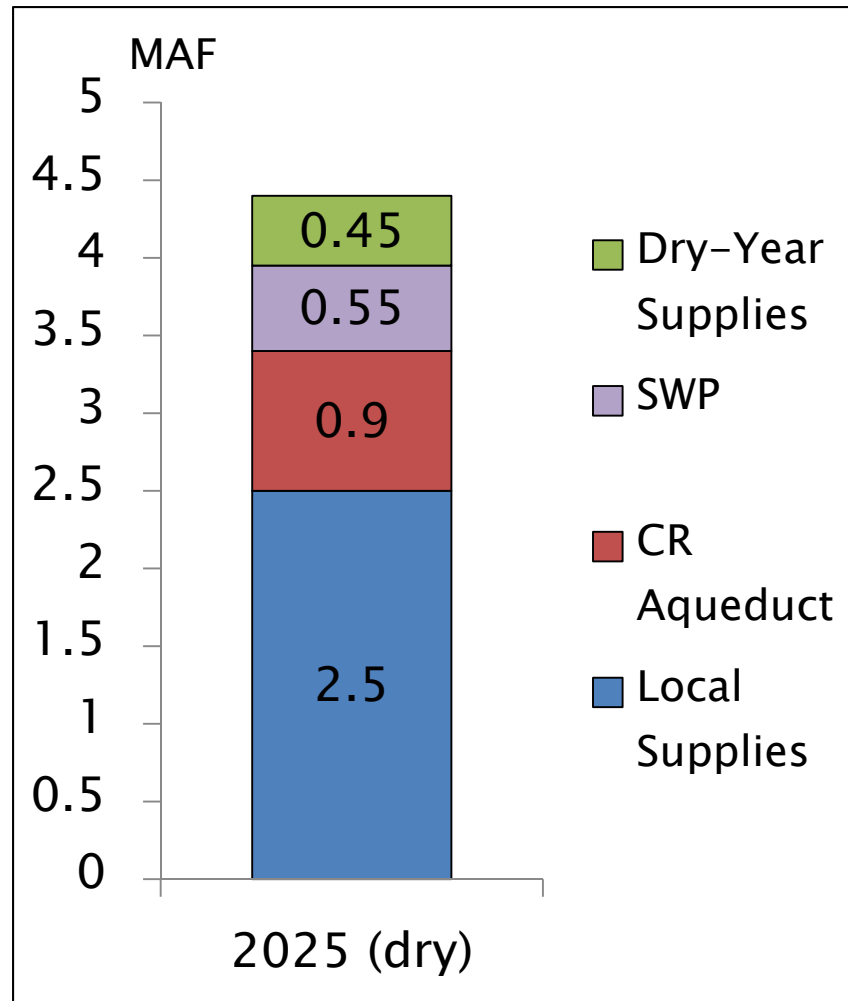
- ▶ Addresses one of Board’s Policy Principles that the Delta solution should:

*“Improve the ability of water–users to divert water from the Delta during wet periods, when impacts on fish ecosystem are lower and water quality is higher”*

- ▶ From the perspective of best managing shortage risk
  - Inability to model MWD system puts and takes to storage
  - Evaluated frequency and volume of wet–year deliveries for puts into storage



# Dry-year Scenario MWD Service Area: “Little Sip” SWP Supplies



- ▶ Similar scenario for all Delta alternatives
- ▶ Estimated dry-year SWP yield
- ▶ Utilize approximately 450,000 dry-year supplies
  - Storage and dry-year transfers
  - Meet MWD dry-year demands of 1.9 MAF without allocations

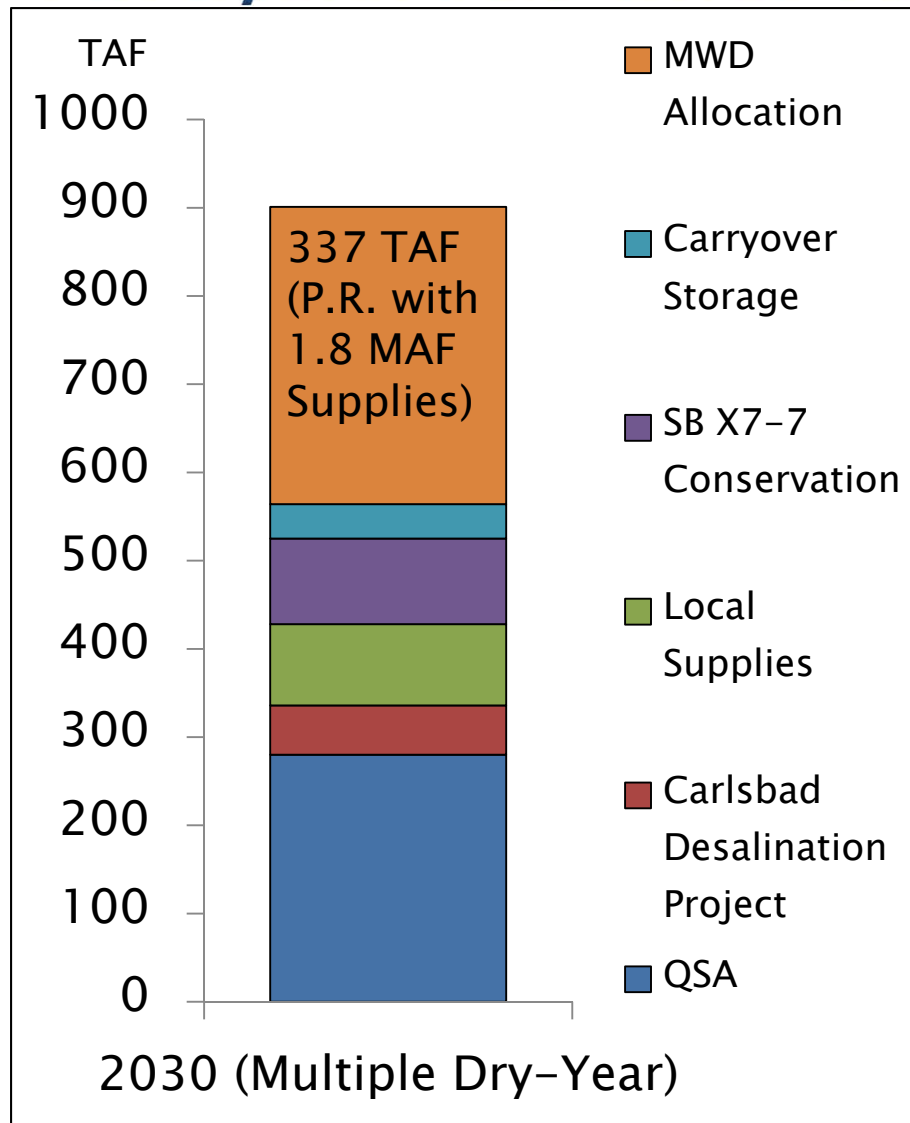
# Estimated Frequency of 1.5 MAF of SWP Deliveries to MWD: “Big Gulp”

Alternative	Frequency
Proposed Action (9,000 cfs)	30% (3 out of 10 years)
6,000 cfs	20% (2 out of 10 years)
3,000 cfs	10% (1 out of 10 years)
Existing Conveyance	1% (1 out of 100 years)

- ▶ “Big gulp” critical to replenishing storage reserves
- ▶ 1.5 MAF is an indicator of wet-year delivery
  - Allows MWD and Water Authority to put supplies into storage
- ▶ Delta conveyance facility improves ability to provide wet-year deliveries into storage compared with existing conveyance



# Water Authority's 2010 UWMP Dry-Year Analysis: Assumes Allocations from MWD



- ▶ Use of 2010 UWMP consistent with Delta Policy Principles
- ▶ MWD allocating supplies based on preferential rights
  - Assume 1.8 MAF available for allocation
- ▶ Verifiable local supplies
- ▶ Use of Water Authority's carryover storage
- ▶ No shortages anticipated



# Water Authority's 2010 UWMP Dry-Year Scenario – Reliability Assessment (cont.)

	Supplies (AF)
MWD Total Dry-Year Supplies	1,800,000
Projected MWD Core Supplies	1,450,000
<i>Colorado River Aqueduct</i>	<i>900,000</i>
<i>Estimated SWP (90% exceedence)</i>	<i>550,000</i>
MWD Flexible (Dry-Year supplies)	350,000

- ▶ MWD would require approximately 350,000 AF or more from dry-year supplies
  - ▶ Less than 350,000AF could result in Water Authority shortages
- ▶ Dry-year supplies consist of storage and transfers
- ▶ Multiple dry-years increase likelihood of shortages

# Reliability Assessment Summary

- ▶ Adequate MWD and Water Authority dry-year supplies are key to supply reliability
  - Dry year reliability of SWP supplies needs to be seen as relationship between yield and stored water
- ▶ Frequency and volume of wet-year SWP deliveries is critical to replenishing storage
- ▶ A North Delta conveyance facility provides best opportunity to ensure “big gulp”
  - Addresses Water Authority’s policy principle
  - Larger conveyance size provide more opportunities to put SWP supplies into storage



# BDCP Update

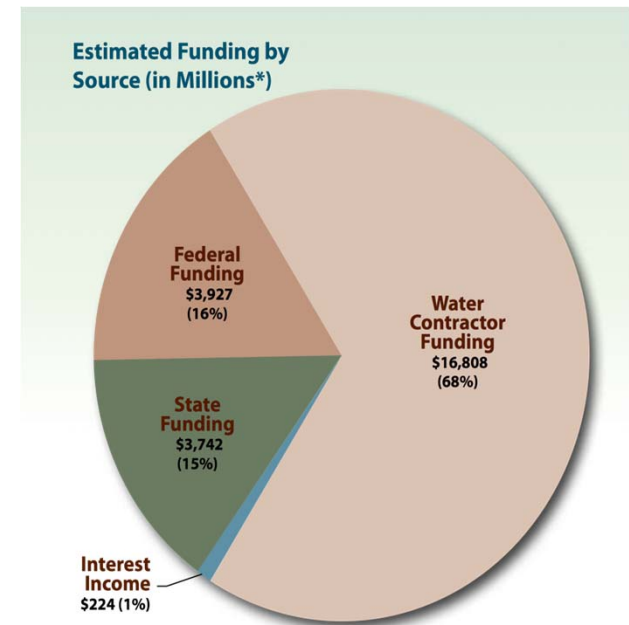
- ▶ New release date for public draft BDCP and EIR/EIS
  - December 13, 2013 for 120 days of formal review
  - Public meetings to be held during January and February
  - *“No final decisions have been made regarding going forward with the BDCP or in selecting an alternative; those decisions will only occur after completion of the EIR/EIS processes”*

# Revised Capital Costs

- ▶ November 12, Resources revised capital costs (2012\$), reflective of alignment change announced in August
  - 3,000 cfs, single tunnel: \$8.6B
  - 3,000 cfs, dual tunnel: \$10.8B
  - 9,000 cfs, dual tunnel: 14.5B
- ▶ September 16 – corrected version (present value)
  - 3,000 cfs – \$9.2B
  - 9,000 cfs – \$12.2B
- ▶ September 11 (2012\$)
  - 3,000 cfs– \$8.5B
  - 9,000 cfs – 14.5B

# Area of Concern – Who Pays?

- ▶ Public financing and cost allocation among beneficiaries not yet finalized
- ▶ Cost allocation negotiations under way – wide range of possible outcomes
- ▶ Cost impact to MWD could range widely – for example:
  - 25% of the cost under status quo cost sharing
  - > 50% of the cost based on “\$1.5 B Agricultural Partner”
  - Additional risk exposure if there are cost overruns, poor participation, defaults or public financing does not materialize



# BDCP Alternatives Review & Analysis: Completed Activities

Meeting	Imported Water Committee/Board Activity	
7/25/2013	Provide input on scope of proposed Water Authority analysis of BDCP alternatives; provide input on policy questions to be addressed	✓
8/8/2013 Special Meeting	Overview of Bay-Delta and proposals for Delta fix, including description of alternatives	✓
8/22/2013	Review of technical analysis – demand assumptions; alternative project yield assumptions; projected costs	✓
9/12/2013 Special Meeting	BDCP economic study on cost-benefit of BDCP preferred alternative	✓
9/26/2013	Review of technical analysis (cont.), including yield review	✓
10/24/2013	Information: Review of technical analysis (cont.), including baselines; BDCP timeline and processes impacting implementation	✓

# BDCP Alternatives Review & Analysis: Upcoming Activities

Meeting	Imported Water Committee/Board Activity
11/14/2013 Special Meeting	Supply and demand evaluation and analysis
1/9/2014 Special Meeting	Identification of BDCP Physical features, facilities, and geotechnical issues; supply/demand scenario planning risk assessment; BDCP governance
1/23/2014	Preliminary cost estimates and risk assessment to Water Authority; cost allocation negotiations status; highlights of substantive changes to EIR/EIS; preliminary issue identification
2/13/2014 Special Meeting	Engineering assessment of BDCP cost estimates; risk assessment to Water Authority
2/27/2014	Identification of issues to be addressed in the EIR/EIS comment letter – present draft comment letter
3/13/2014 Special Meeting	Continuing review of draft EIR/EIS comment letter
3/27/2014	Action: Consider action on final EIR/EIS comment letter
4/24/2014	Revise BDCP schedule; discuss outstanding policy issues; timeline for future board meetings