

# Lower Colorado River Basin: Water Market Update and Outlook

February 2021

# Agenda

- Overview of Colorado River Entitlements
- Colorado River Shortage Projections and Impacts
- Arizona Water Transactions and Market Outlook
- California Water Transactions and Market Outlook
- Questions

38.2%: 119.29  
51.25%: 108.98  
61.6%: 99.19

Lower Colorado River Basin Water Market Update

# OVERVIEW OF COLORADO RIVER ENTITLEMENTS

# 1922 Colorado River Compact

- Upper Basin: 7.5 million AF
  - Colorado: 3.86 MAF
  - Utah: 1.71 MAF
  - Wyoming: 1.04 MAF
  - New Mexico: 0.84 MAF
  - Arizona: 0.05 MAF
- Lower Basin: 7.5 million AF
  - **California: 4.40 MAF**
  - **Arizona: 2.80 MAF**
  - Nevada: 0.30 MAF



# Colorado River Entitlements in California

Priority	Entity	Amount (MAF)
1	PVID (Valley) <sup>1</sup>	
2	Yuma Project	
3a	Imperial & Coachella	
3b	PVID (Mesa)	
Subtotal, P1-P3		3.850
4	MWD <sup>2,3</sup>	0.550
Subtotal, P1-P4		4.400
5	MWD Surplus <sup>4</sup>	0.662
6	IID/CVWD/PVID Surplus	0.300
7	Agricultural Surplus	Any other unused



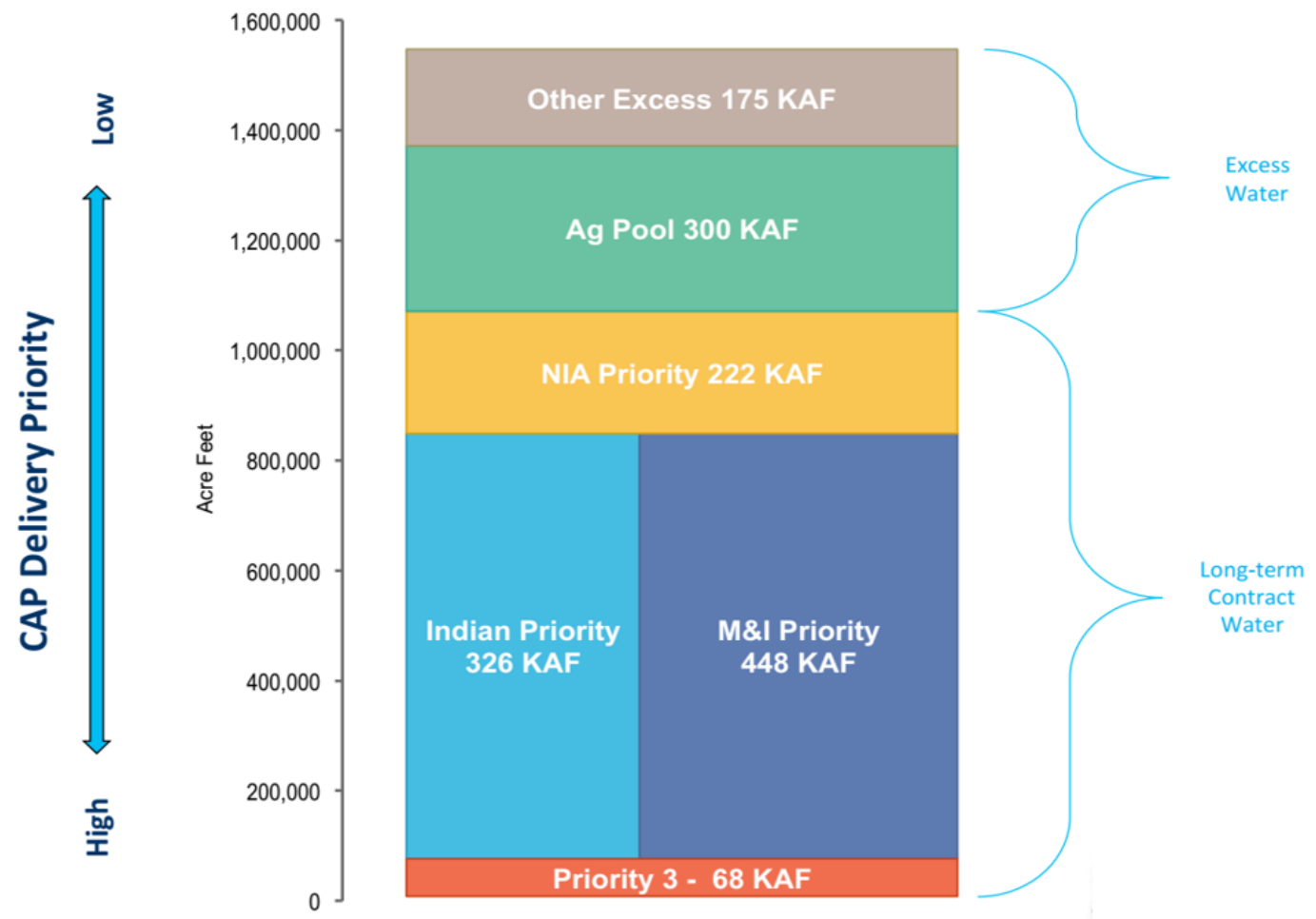
1. PVID and Yuma Project entitlements are not limited to a specific quantity but are estimated to total 420,000 AF.
2. MWD assumes losses or gains from water use by unquantified parties above or below 420,000 AF, respectively.
3. MWD can acquire Colorado River water from PVID without objection by IID or CVWD (2003 Quantification Settlement Agreement).
4. Priority 5-7 are surplus entitlements to any unused portion of priority 1-4 entitlements.



# Colorado River Entitlements in Arizona

Priority	Example Owners	Approx. Consumptive Use (AF)
1	Tribes (On-river), Yuma County Water Users' Assn, North Gila Valley ID, Various Private Owners	500,000
2	Wildlife Refuges	20,000
3	Yuma Mesa IDD, Wellton-Mohawk IDD, Unit B IDD, Yuma ID, North Gila Valley ID	460,000
4	Central Arizona Project, Mohave Valley IDD, Cibola Valley IDD, Municipal Providers, Various Private Owners	1,700,000

# CAP Priority System



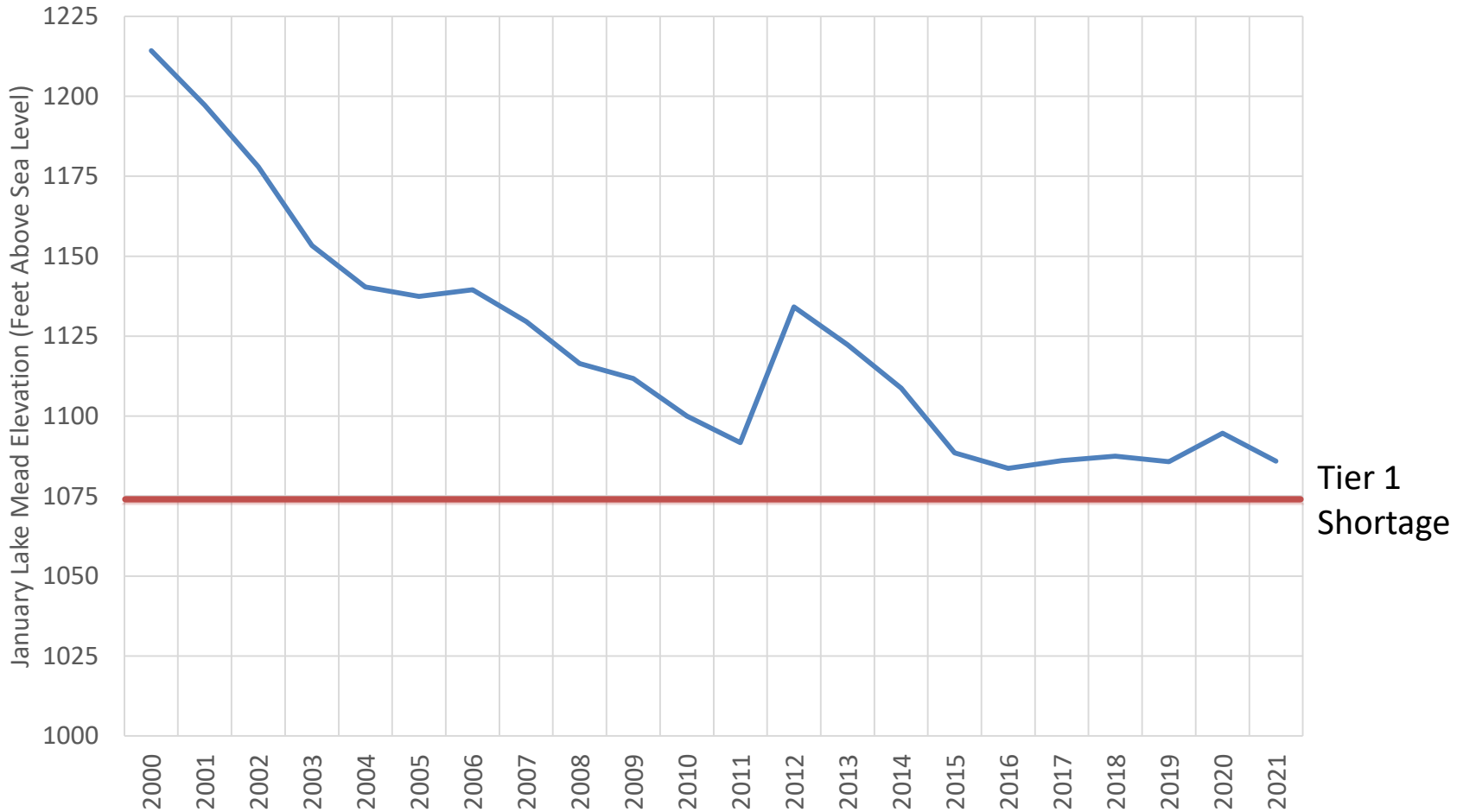
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# COLORADO RIVER SHORTAGE PROJECTIONS AND IMPACTS

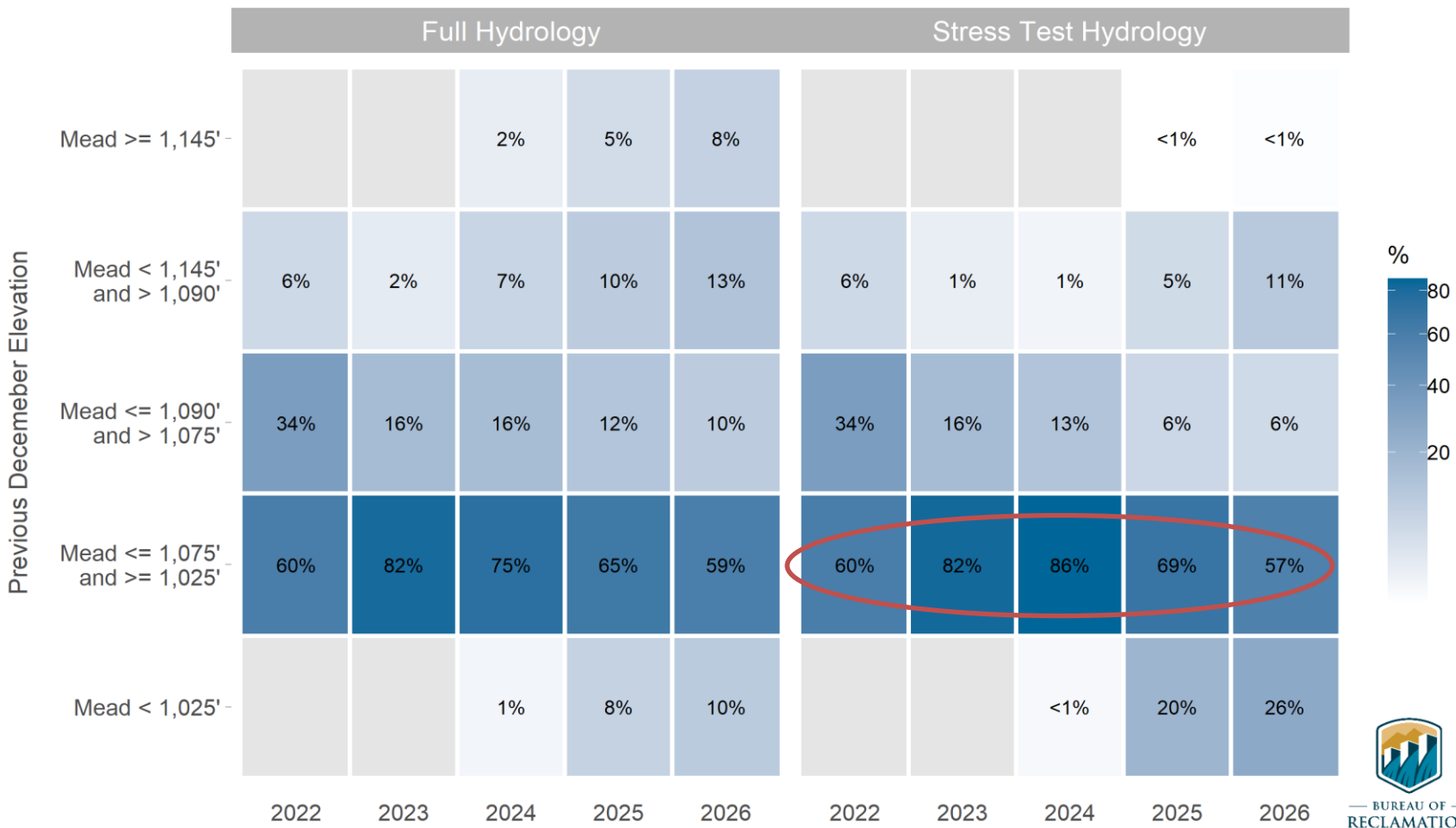


# Historic Lake Mead Elevations



# Lake Mead Elevation Projections

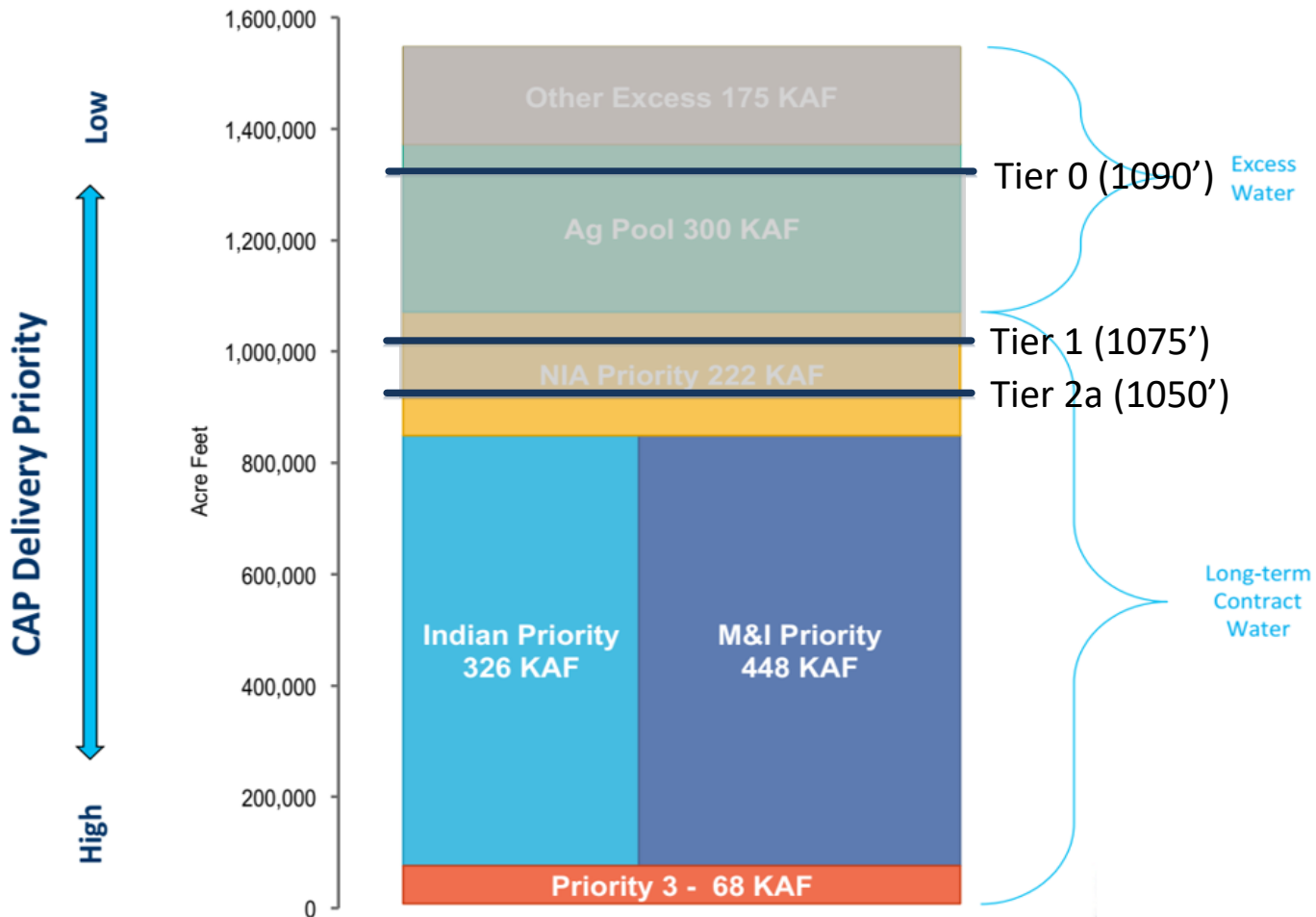
Lake Mead Conditions from January 2021 CRSS  
Percent of Traces in each Elevation Range



# Colorado River Shortage Reductions

Lake Mead Elevation	Shortage Tier	Arizona Reductions (AF)	Nevada Reductions (AF)	California Reductions (AF)
1075-1090	Tier 0	192,000	8,000	0
1050-1075	Tier 1	512,000	21,000	0
1045-1050	Tier 2a	592,000	25,000	0
1040-1045	Tier 2b	640,000	27,000	200,000
1035-1040	Tier 2b	640,000	27,000	250,000
1030-1035	Tier 2b	640,000	27,000	300,000
1025-1030	Tier 2b	640,000	27,000	350,000
≤1025	Tier 3	720,000	30,000	350,000

# CAP Shortage Reductions



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# ARIZONA WATER TRANSACTIONS AND MARKET OUTLOOK

# System Conservation Transactions

- **Yuma Mesa IDD:** Conserved a total of 21,500 AF between 2014 and 2016 through fallowing for an average price of \$155/AF.
- **Colorado River Indian Tribes:** Committed to conserving a total of 195,000 AF through fallowing between 2016 and 2022 for an average price of \$240/AF.
- **CAP Tribes:** Conserved a total of 65,000 AF between 2015 and 2019 for an average price of \$195/AF. CAP water was stored in Lake Mead instead of underground storage in Central Arizona.



# Permanent Transfers

- **GSC Farm-Queen Creek, 2018:** Latest attempt to transfer Fourth Priority mainstem rights into Central Arizona.
  - Price: \$10,000/AF for each AF approved for transfer.
  - ADWR’s Initial Recommendation: 1,078 AF of the total 2,083 AF of historic consumptive use may be transferred.
  - ADWR’s Latest Recommendation: 2,033 AF of the total 2,083 AF may be transferred.
- **Western Water-Ehrenberg, 2019:** On-river transfer from agricultural to urban use.
  - Price: \$9,900/AF of historic consumptive use.
  - Volume: 60 AF of historic consumptive use.

# CRIT Proposed Legislation

- **CRIT's Colorado River Rights:** First priority (highly reliable) entitlement to divert 662,000 AF.
- **Current Place of Use:** CRIT's lands in Arizona.
- **Proposed Legislation:** Authorization by the US Congress to lease, exchange, or store a portion of CRIT's consumptive use off the reservation (including in Central Arizona) for terms of up to 100 years.
- **Potential Volume:** ~150,000 AF per year.
- **Market Impact:** Significant "new" water supply potentially available to support growth and development in Central Arizona.

Lower Colorado River Basin Water Market Update

# CALIFORNIA WATER TRANSACTIONS AND MARKET OUTLOOK

# PVID-MWD Following Programs

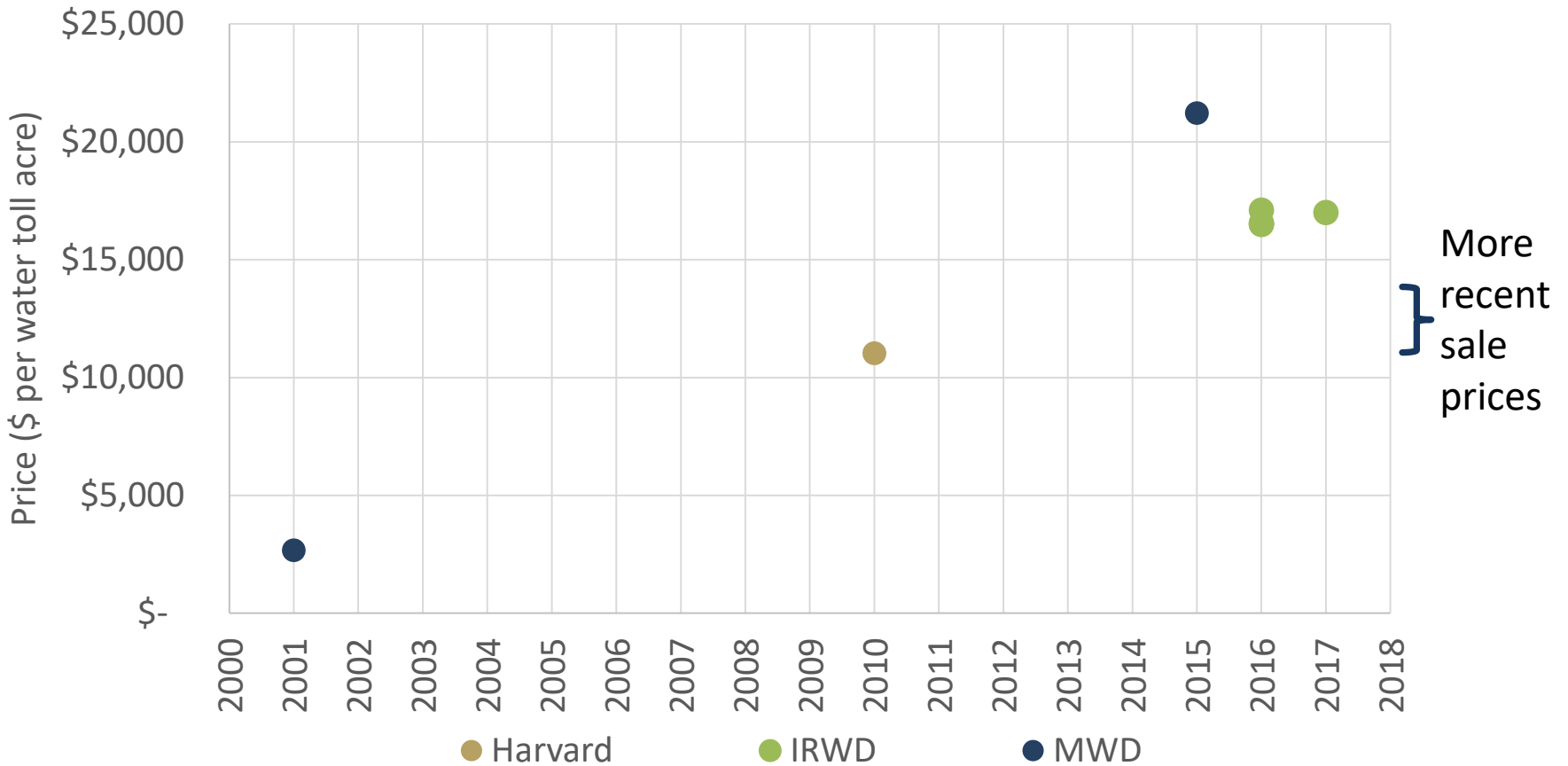
## Long-Term Program (2004)

- Initial Year: 2005
- Term: 35 Years
- Economics:
  - Upfront: \$3,170/ac enrolled
  - Annual: \$602/ac fallowed
  - Escalation: 2.5% annually
- Participation – Valley Lands:
  - Enrollment: 26,500 acres
  - Annual fallowing: 6,000-26,500 acres at MWD option

## Emergency Program (2009)

- Initial Year: 2009
- Term: 2 Years
- Economics: \$1,665/ac annually.
- Participation: Up to 13,350 additional acres of Valley lands.

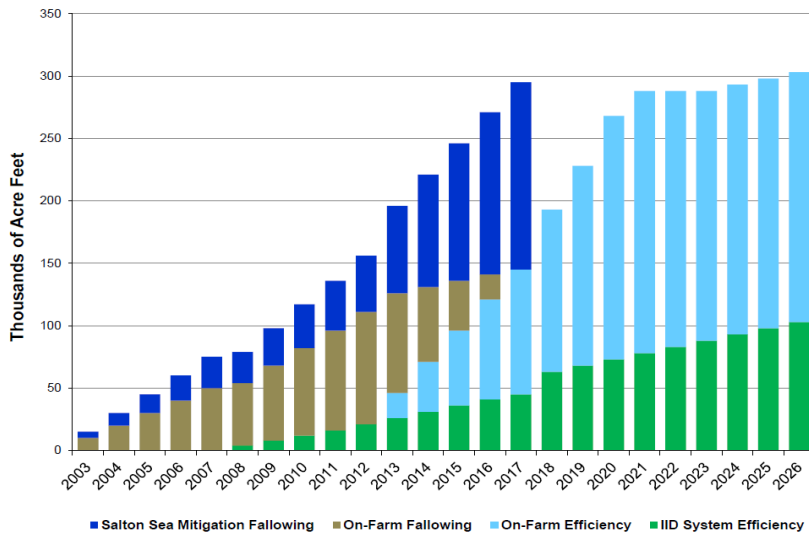
# PVID Land & Water Values



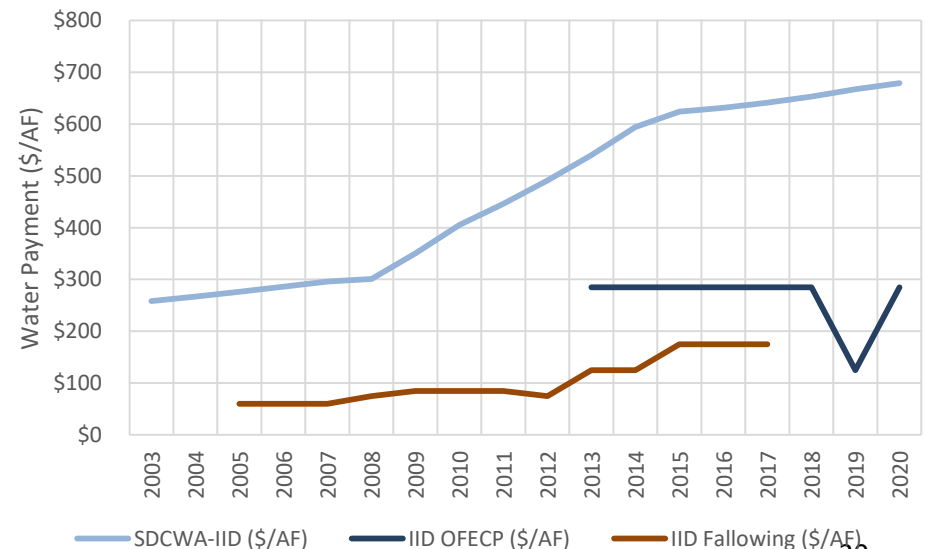
# IID-SDCWA Water Transfer Agreement

- **Overview:** As a component of the 2003 Colorado River Quantification Settlement Agreement, IID agreed to transfer up to 200,000 AF per year for up to 75 years to SDCWA through a combination of land fallowing and efficiency-based water conservation measures.
- **On-Farm Conservation:** Ramps up to 200,000 AF per year in 2021.
- **Delivery:** Wheeled to San Diego through Metropolitan's system.
- **Price:** IID receives \$679/AF in 2020. Through 2034, the price is escalated based on the GDP deflator.

IID QSA Water Transfer Schedule (2003-2026)  
Revised Fourth Amendment - IID/SDCWA Transfer Agreement, Exhibit 1



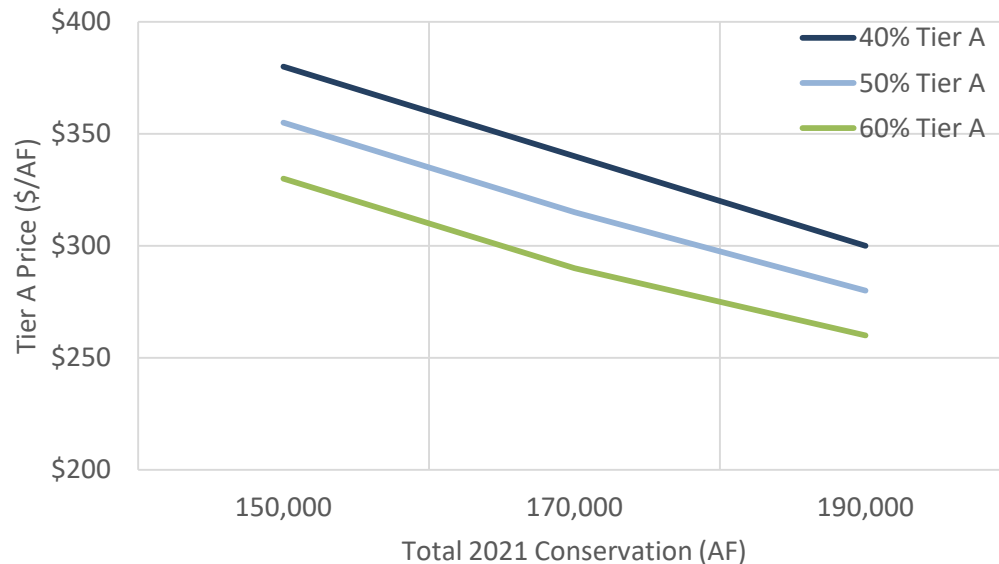
Water Transfer Payments, 2003-2020





# IID On-Farm Efficiency Program Update

- **Enrollment:** Remains year-to-year.
- **Base Rate:** Increased to \$290/AF for 2021 (first increase since program began).
- **Total Budget and Volume:** Total spend of \$39.6M for 137,000 AF.
- **Conservation Measures:** Two tiers established to address potential oversubscription:
  - Tier A (Base Rate): Drip, tailwater return, sprinklers.
  - Tier B (50% of Base Rate): Field reconfiguration, land leveling.
  - Not Eligible: Minor management or physical improvements on their own.



## Lower Colorado River Water Market Outlook

- **Colorado River Shortage:** A real challenge looming on the very near horizon. Central Arizona agriculture will be impacted first.
- **Near-Term Water Market Opportunities:** Short-run fallowing and on-farm conservation programs providing conservation in Lake Mead can enhance farm revenues.
- **Long-Term Water Market Opportunities:** While challenging, long-term water transfers to off-river urban centers are likely to continue, but only through lengthy political processes.



Thank you

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