

5 MP Ag Subgroup

September 5, 2019



Agenda

- I. Introduction and Meeting Logistics
- II. Overview of Agricultural Conservation Programs and Historical Data
- III. Discussion of Future Analyses
- IV. Future Meetings
- V. Closing Remarks



Meeting Logistics

- * Meetings are open to anyone who would like to participate.
- * We are looking for feedback and to learn from participants' expertise.
- * We are expecting an open and collaborative process, including opportunity to challenge ideas in a transparent manner.



Management Plans

A.R.S. § 45-563 (A)

“The director shall develop a management plan for each initial active management area for each of five management periods... and shall adopt the plans only after public hearings... The plans shall include a continuing mandatory conservation program... designed to achieve reductions in withdrawals of groundwater.”

Management Plans Work Group

ADWR-led stakeholder forum for the development of the 5th Management Plans

- * Goals:
 - * Assess existing conservation programs
 - * Update existing management strategies
 - * Develop new management strategies



Timeline

4MP

Phoenix
AMA
Adoption

Pinal
AMA
Adoption

Santa
Cruz
AMA
Adoption

2019

2021

202_?

202_?

MPWG

Drafting
Plans

Adopting
Plans

5MP



Overview of Agricultural Conservation Programs and Historical Data



Management Plans

A.R.S. § 45-563 (A)

“The director shall develop a management plan for each initial active management area for each of five management periods... and shall adopt the plans only after public hearings... The plans shall include a continuing mandatory conservation program... designed to achieve reductions in withdrawals of groundwater.”



Statutory Requirements - Summary

A.R.S. § 45-564 et seq.	1MP	2MP	3MP	4MP	5MP
Calculate Water Duty	💧	💧	💧	💧	💧
Municipal GPCD Reduction	💧	💧	💧	💧	💧
Municipal Lost & Unaccounted for Water	💧	💧	💧	💧	💧
General Industrial Conservation	💧	💧	💧	💧	💧
Conservation for Untreated Providers		💧	💧	💧	💧
Conservation for Small Providers		💧	💧	💧	💧
Municipal Non-Per Capita Conservation		💧	💧	💧	💧
Incentives for Augmentation/Recharge		💧	💧	💧	💧
Assessment of Water Quality		💧	💧	💧	💧
Program for Conservation Assistance		💧	💧	💧	💧
Historical Natural Recharge		💧	💧	💧	💧
May Reduce Highest 25% of Water Duties			💧	💧	💧
Agricultural Historic Cropping Program			💧	💧	💧
Agricultural BMP Program			💧	💧	💧
Option for Alternative Agricultural Programs			💧	💧	💧
May Establish Cropped Acreage Program			💧	💧	💧
May Include Program for GFR Purchase & Retirement			💧	💧	💧
Recommendations to AWBA/for well locations			💧	💧	💧



Conservation Programs

A.R.S. § 45-563(A): “... The plans shall include a continuing mandatory conservation program for all persons withdrawing, distributing or receiving groundwater designed to achieve reductions in withdrawals of groundwater.”

- * Programs for Three Sectors:

- * Agricultural (Chapter 4)

- * Base Program
 - * Historic Cropping Program
 - * Best Management Practices Program (BMP)

- * Municipal (Chapter 5)

- * GPCD Program
 - * Non-Per Capita Program (NPCCP)

- * Industrial (Chapter 6)

- * General Requirements
 - * Specific Subsector Programs

- * Conservation Programs include:

- * Regulatory requirements related to water use
 - * Reporting requirements
 - * Conservation targets
 - * Flexibility provisions
 - * Compliance provisions



Conservation Progress Report

As a part of the 4MP, ADWR will periodically (at least every 3 years) publish an analysis of each AMA's progress toward its goal.

- * Expand scope of report required under A.R.S. § 45-563.01 to include analysis of:
 - * Effectiveness of Conservation Programs in all 3 sectors
 - * Progress toward the goal in each of the 5 AMAs
- * Transparency
 - * Communicating success or need for improvement
 - * Tracking and ensuring progress of each AMA toward its goal
 - * Sharing underlying data and methodology



Agricultural Base Program

Components of the Base Program:

- * **Water Duty** - The amount of water in acre-feet per acre that is reasonable to apply to irrigated land in a farm unit (A.R.S 45-402).
 - *
$$\frac{\text{Total Irrigation Requirement}}{\text{Assigned Irrigation Efficiency}} = \text{Water Duty}$$
- * **Water duty acres** - The highest number of acres irrigated at any one year between 1975 – 1979 and are used for calculating the allotment for a given IGFR
 - * Multiply the water duty by the water duty acres to get the maximum annual groundwater allotment for each IGFR in the Base Program
- * Each IGFR in the Base Program also has a **flexibility account** in which they can accrue credits or debits based on annual water use.



Agricultural Base Program Water Duties

A.R.S. § 45-568(A)(2)

“The director may adjust the highest twenty-five per cent of the final irrigation water duties established within an area of similar farming conditions pursuant to section 45-567 by reducing each water duty in an amount up to five per cent, except that, in making the adjustment, no water duty may be reduced to an amount less than the greater of the following:

(a) The highest water duty within the lowest seventy-five per cent of the water duties computed within the area of similar farming conditions for the fourth management period

(b) A water duty computed for the farm unit under this paragraph using an irrigation efficiency of eighty per cent.”



Agricultural Base Program Water Duties

This is an example of the corresponding statute from the proposed 4MP

AMA	Number of rights adjusted (% total in the Base Program)	Maximum change in allotment (% total)
Phoenix	219 (11%)	-6,216 AF (-1.0%)
Pinal	123 (11%)	-3,092 AF (-0.5%)
Santa Cruz	1 (-26%)	-5 AF (negligible)

Allotment = Water Duty x Water Duty Acres

Water Duty = Irrigation Requirement / Irrigation Efficiency

Irrigation Requirement = Consumptive Use + Other Needs + Leaching Allowance



Agricultural BMP Program

A.R.S. § 45-568.02(G)

“The director shall include... a best management practices program... in lieu of complying with an irrigation water duty and a maximum annual groundwater allotment. The program shall be designed to achieve conservation that is at least equivalent to that required under [the Base Program].”



Best Management Practices Program

- * Farm operator agrees to implement approved BMPs on their farm relating to water conveyance, Irrigation systems, and efficient water & soil management practices.
- * Must implement and report on practices annually, in addition to adhering to water use reporting requirements, under BMP farm unit number.
- * No annual allotment to adhere to, therefore the water duty & flexibility account provisions are irrelevant to IGRs while enrolled in the BMP Program.

AMA	Number of IGRs Enrolled in the BMP Program	Irrigation Acres Enrolled in the BMP Program
Phoenix	172	26,700
Pinal	312	83,481
Total	484	110,181



Agricultural BMP Program

Provision	3MP & Adopted 4MPs	Proposed for Remaining 4MPs
Points target and structure	10 total points ✓ At least 1 point/category ✓ At least 2 points in Category 2 ✓ No more than 3 points/category	12 total points ✓ At least 1 point/category ✓ At least 2 points in Category 2 ✓ No more than 4 points/category
Points values	No changes	Changes made in Categories 1 & 2 (See Appendix 4B)



Agricultural BMP Program

	AF/Irrigation Acre			% Total Irrigation Acres	% of Total Ag Water Use
	Base	BMP	% difference	BMP	BMP
Phoenix AMA	4.7	5.1	10%	20%	22%
Pinal AMA	3.1	4.0	29%	35%	42%
Total All AMAs	3.7	4.3	15%	27%	30%



Other Programs

- * Historic Cropping Program
 - * A.R.S. § 45-568.02(A)
- * Requirements for Districts
 - * Lining canals or limiting lost water to 10% or less



Overview of Historical Agricultural Data



Reporting Requirements

- * Non-exempt wells (>35 gpm) inside AMAs and INAs must meter well pumpage.
- * Users subject to reporting requirements must submit Annual Water Withdrawal and Use Reports –
 - Due March 31st each year
- * Volume of groundwater pumped by well
- * Report movement of water
 - * Types and Volumes of Water Delivered/Received
 - * Types and Volumes of Water Stored/Recovered
 - * Generation/Discharge of Effluent
- * Report types of end use
- * Additional information related to conservation requirements or any other information the director deems necessary



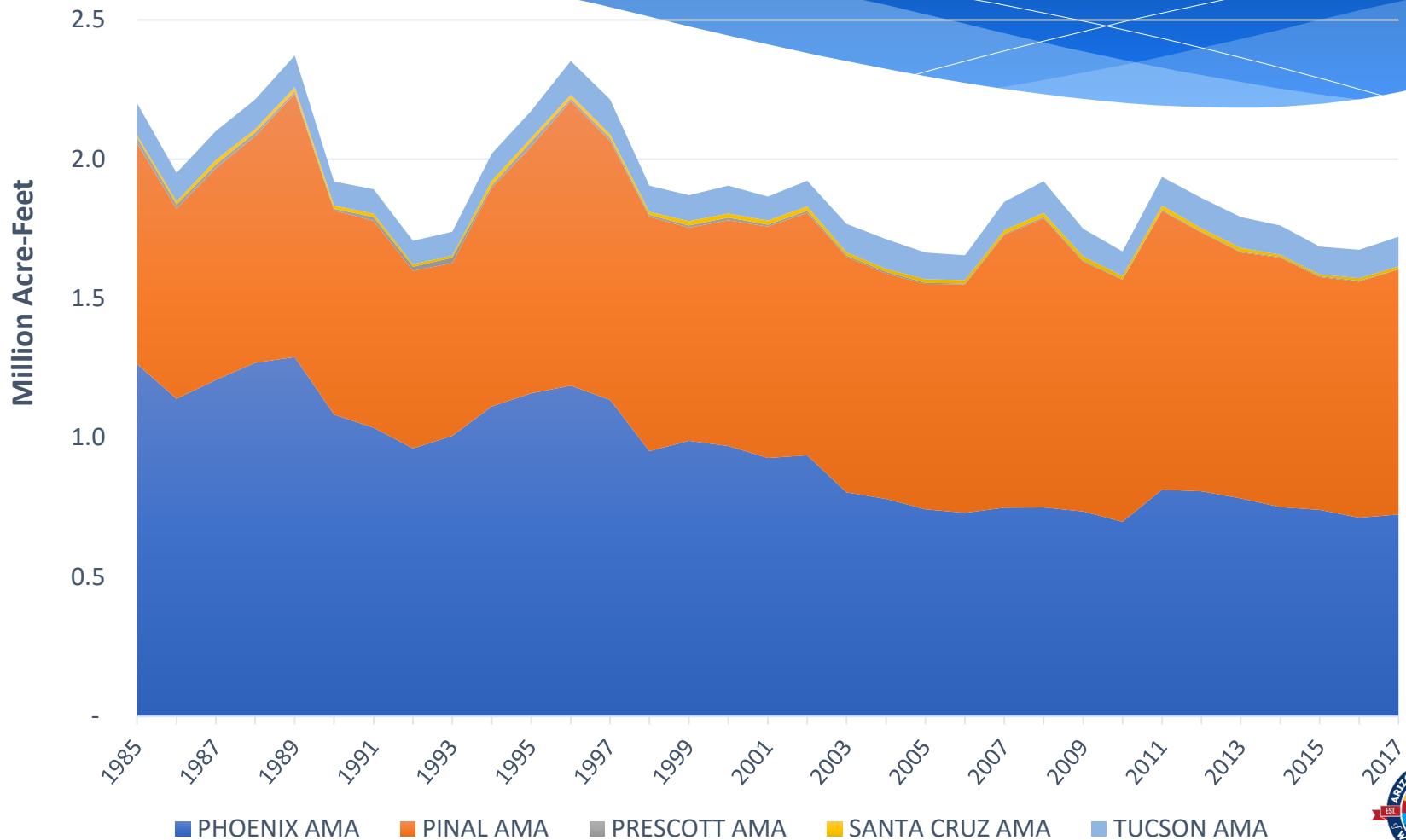
Agricultural Data – Reporting Entities

Water use data reported to ADWR comes from:

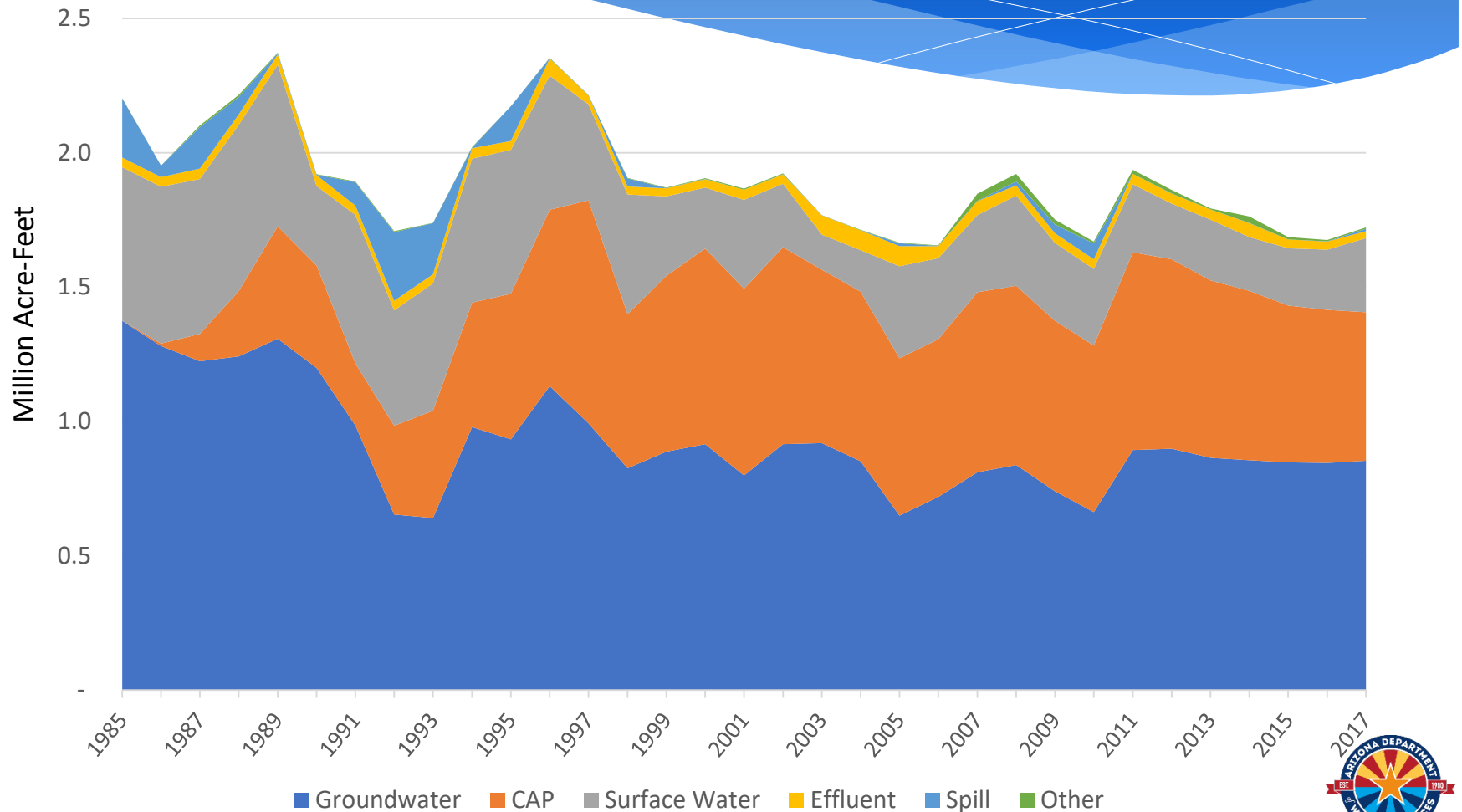
- * Irrigation rights greater than 10 irrigation acres
- * BMP Farm Units
 - * Can be made up of multiple Irrigation Rights, but only submit one report
- * Irrigation Districts
 - * Some districts report on behalf of their right holders



Total Agricultural Water Use by AMA



Total Agricultural Water Use by Source



Discussion of Future Analyses



Management Plans Work Group

- * Work Group
 - * The MPWG is an ADWR-led stakeholder forum for the development of the Fifth Management Plans
 - * Goals:
 - * Assess existing conservation programs
 - * Update existing management strategies
 - * Develop new management strategies



Additional Analyses and Data

- * Do we need additional data?
 - * USGS
 - * Cropscape
 - * Farm Bureau
 - * NRCS
 - * Any data on Irrigation Method?
 - * Other voluntarily supplied information
- * Potential Analyses
 - * Looking at changes in water use patterns after a farm joins the BMP program
 - * Future: AF/acre use on actively irrigated acres



Future Meetings



Future Meetings

- * Frequency?
- * Next Dates?
- * Topics?
- * Other Subgroups
 - * Industrial: 1pm on September 9, 2019
 - * Safe-Yield: 1pm on September 23, 2019
- * Next MPWG meeting: 2pm on December 4, 2019



Questions?

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Management Plans Work Group:
new.azwater.gov/5MP

Full Text of Management Plans:
new.azwater.gov/ama/management-plans

