ARIZONA WATER ATLAS

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Overview

- Arizona Water Atlas purpose, process, organization, data sources and status
- Water Supply and Demand Data
- Web navigation
- Next Steps

Atlas Purpose

- Assist local and regional planning efforts by providing needed water resource data and information-outside AMA
- Provide general public information
- Compile recent data and information in one location
  - Data compiled by Planning areas → GW Basins → Community
  - 84 unique data sets
- Identify data gaps
- Identify water resource issues (surveys & partnerships)
- Initiate development and maintenance of a statewide water resource database and interactive web portal

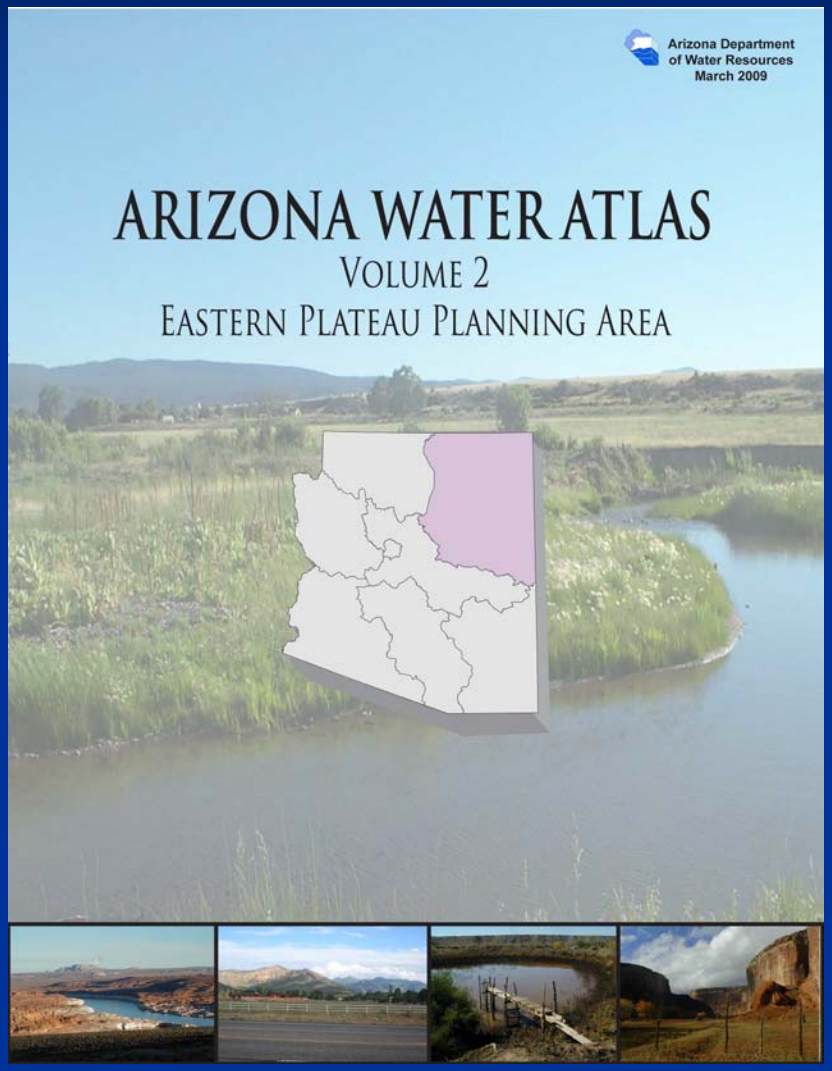
Atlas Process

- Director initiated and supported
- Co-managers (w/different skill sets) and small, skilled, creative, dedicated team
- 1+ years scoping and data gathering (consistency)
- Elevation of project to “mission critical” and “performance measure” status ensured support
- Public/stakeholder notification and outreach
- Improving technical capabilities

Atlas Organization

- "Planning Area"
  - organizational concept that provides a regional perspective on water supply, demand and issues
  - Composed of groundwater basins
- Active Management Areas (AMAs)
- Central Highlands
- Eastern Plateau
- Lower Colorado River
- Southeastern Arizona
- Upper Colorado River
- Western Plateau

Planning Area Volume Organization



- Overview of entire planning area
  - Geography
  - Hydrology
  - Climate
  - Environmental Conditions
  - Population, Growth and Water Use
  - Water Supply
  - Cultural Water Demand
    - Sector/Community/Site
  - Water Resource Issues

Planning Area Volume Organization

- Detailed Basin water resource characteristics: maps, tables
  - Geography
  - Land Ownership
  - Climate
  - Surface Water Conditions
  - Perennial/Intermittent Streams and Springs
    - location, spring discharge > 1 gpm
  - Groundwater Conditions
    - Major aquifers, recharge, flow direction, well yields, water levels and water level changes, selected hydrographs




Planning Area Volume Organization

Basins (cont.)

- Water Quality
  - Drinking Water Standards exceedences
  - Impaired water and effluent dependent reaches
  - Contamination sites
- Cultural Water Demands
  - Population (1980-2030)
  - Groundwater and non-groundwater demand by sector (1971-2005 as 5-year average)
  - Effluent generation and disposal method
  - *(Unable to quantify riparian/ecosystem demand)*
- Water Adequacy/Assured Water Supply Determinations

Atlas Data Sources

- Over 60 data sources including:
  - Federal, state, university, NGOs, cities, industry, irrigation districts, etc.
  - USGS streamgage, springs
  - AZGF perennial, intermittent streams
  - ADWR groundwater levels and yields
  - USGS Water Use Contract
    - Annual municipal, industrial, agricultural basin use
  - Hydrologic and Planning Studies
    - USGS, USBOR, ADWR, consultants
  - Arizona Drought Preparedness Plan (2004)
    - Water use data and issues identification

Arizona Water Atlas Data Sources (cont.)

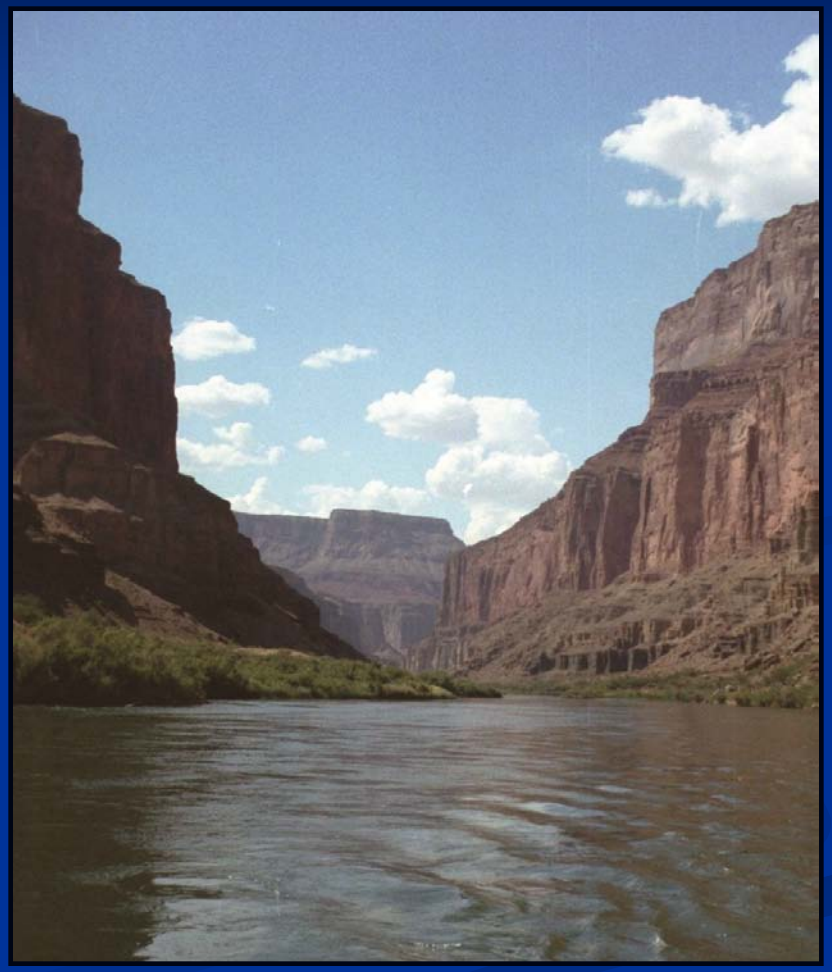
- CWS annual water use reports and water supply, conservation and drought plans (2006 & 2007)
- AMA Assessments-4th Mgt. Plan precursor
- Wastewater Data
  - Clean Water Needs Survey – WIFA
  - ADEQ files
  - EPA
  - Reports, surveys,

  personal communication,

  web search, etc.

Atlas Status

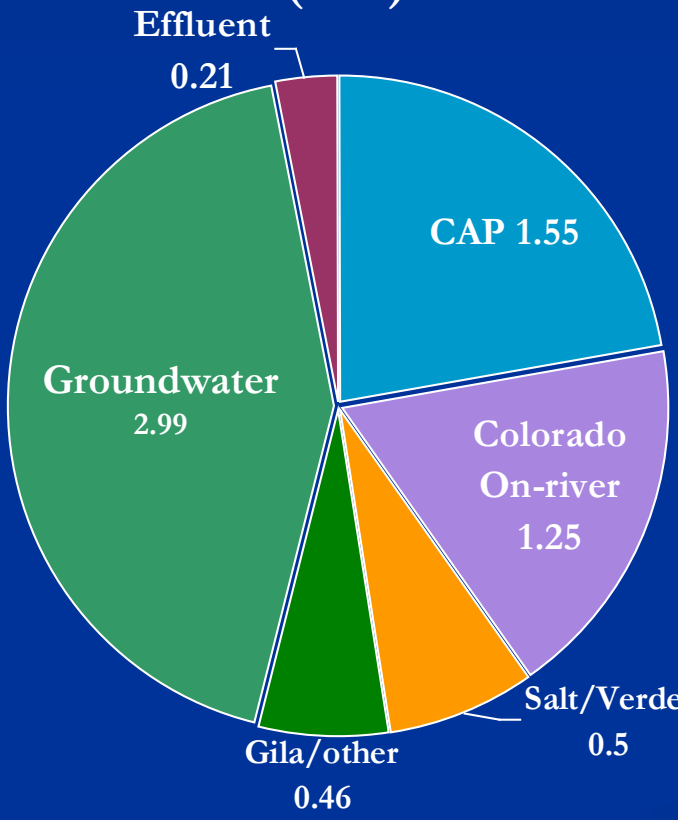
- Volumes 2-7 (non-AMA) final and posted on web (web-format)
- Volume 8 AMA draft; final 2/2010
- Volume 1 Executive Summary
  - Statewide overview, background, data sources and methods
  - Draft will be substantially reorganized: 4/2010



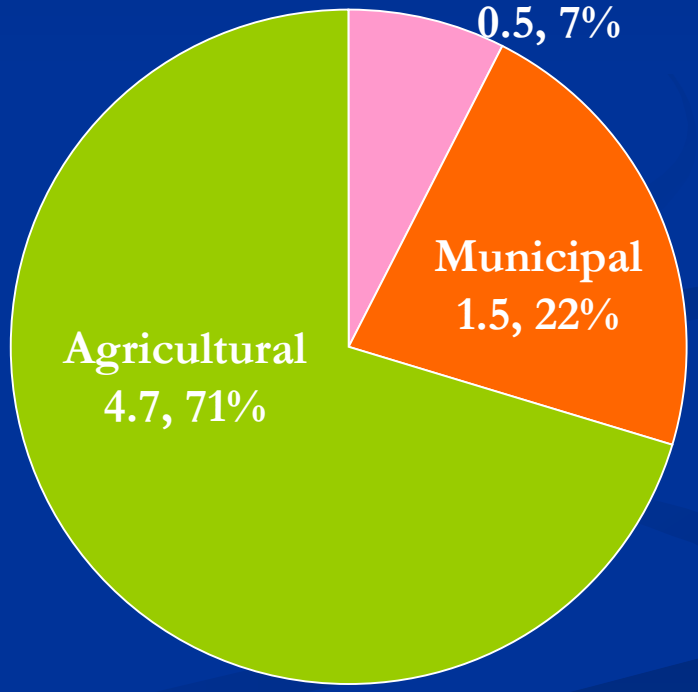
Arizona Water Supply & Demand

Colorado River on-river diversions are 2.046 Maf of which 0.75 Maf is returned to the system for other use.
Assumes all well pumpage is groundwater, except for accounting surface wells along the Colorado River.
Demand does not include CAP long-term storage and system losses (approximately 0.3 Maf) or environmental demands on the Colorado River (approximately 0.02 Maf)

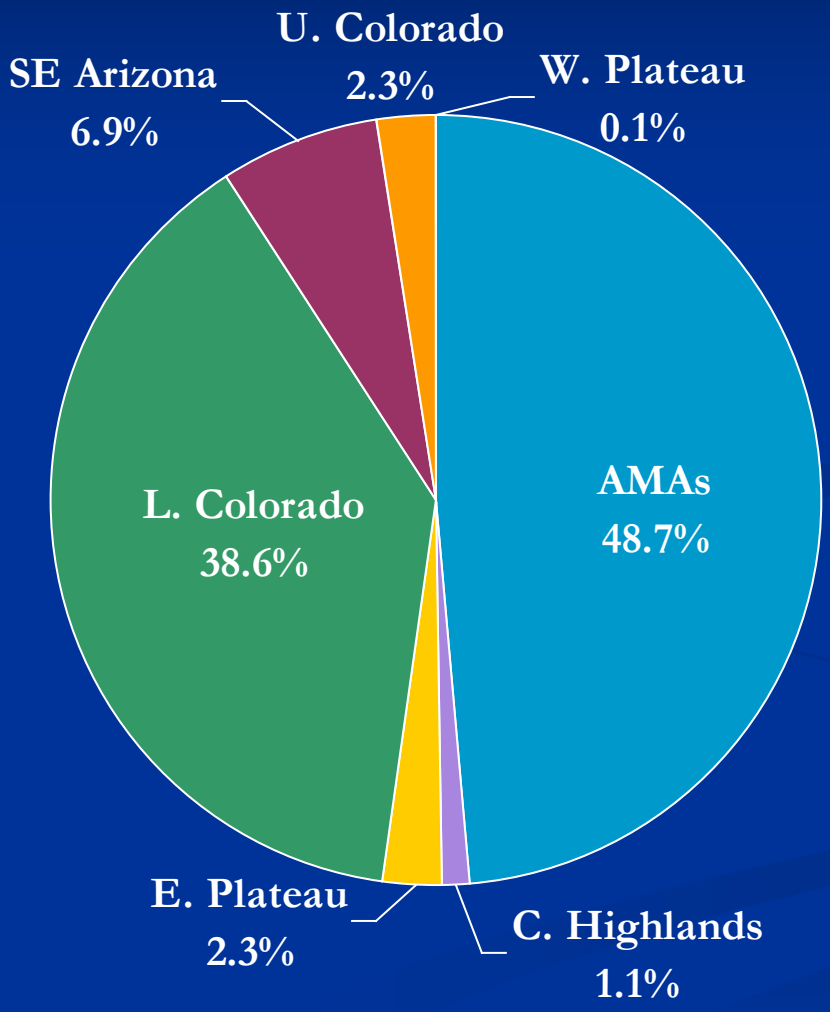
WATER SUPPLIES 2001-2005 (Maf)



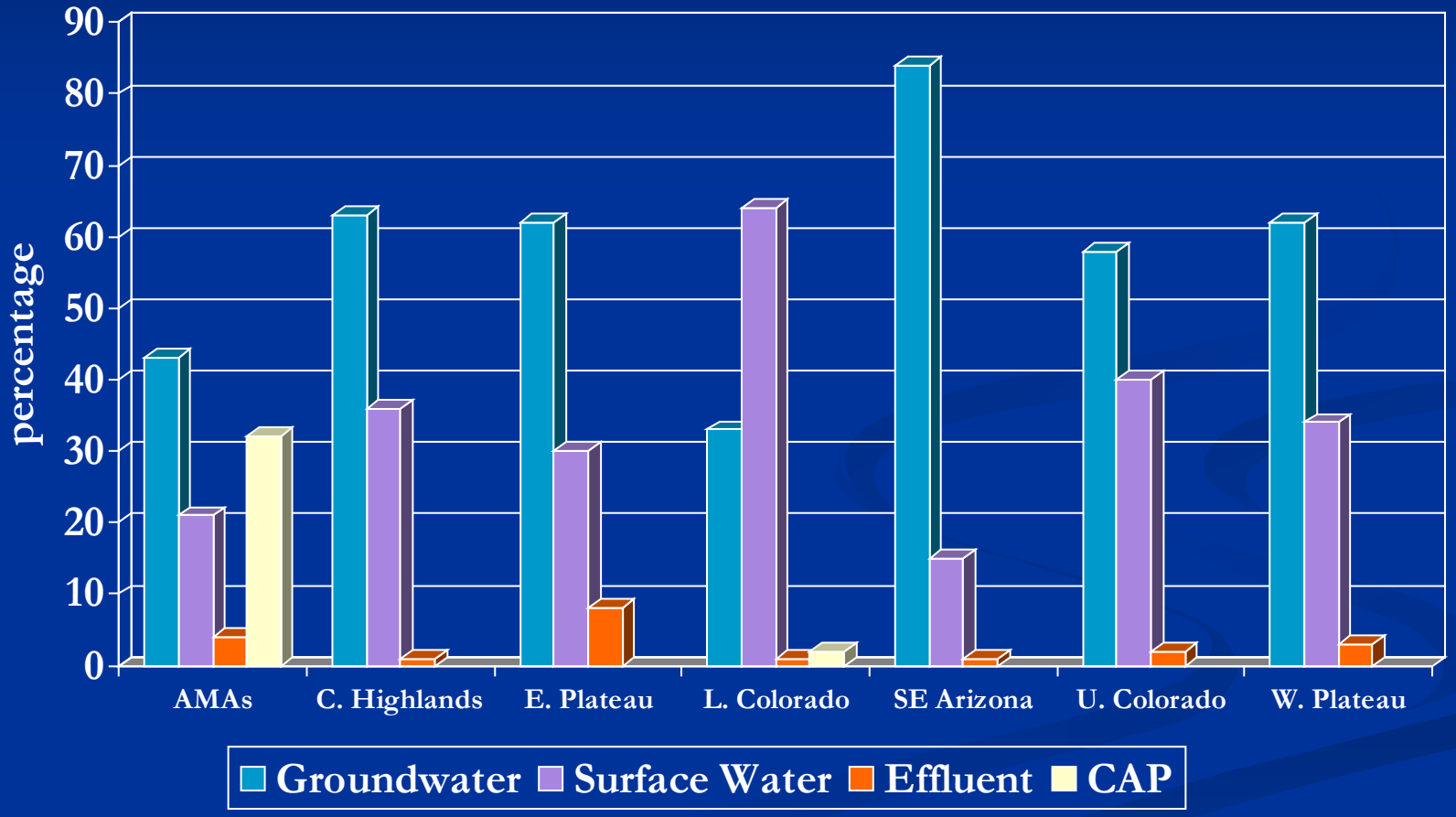
SECTOR DEMAND 2001-2005 (Maf)



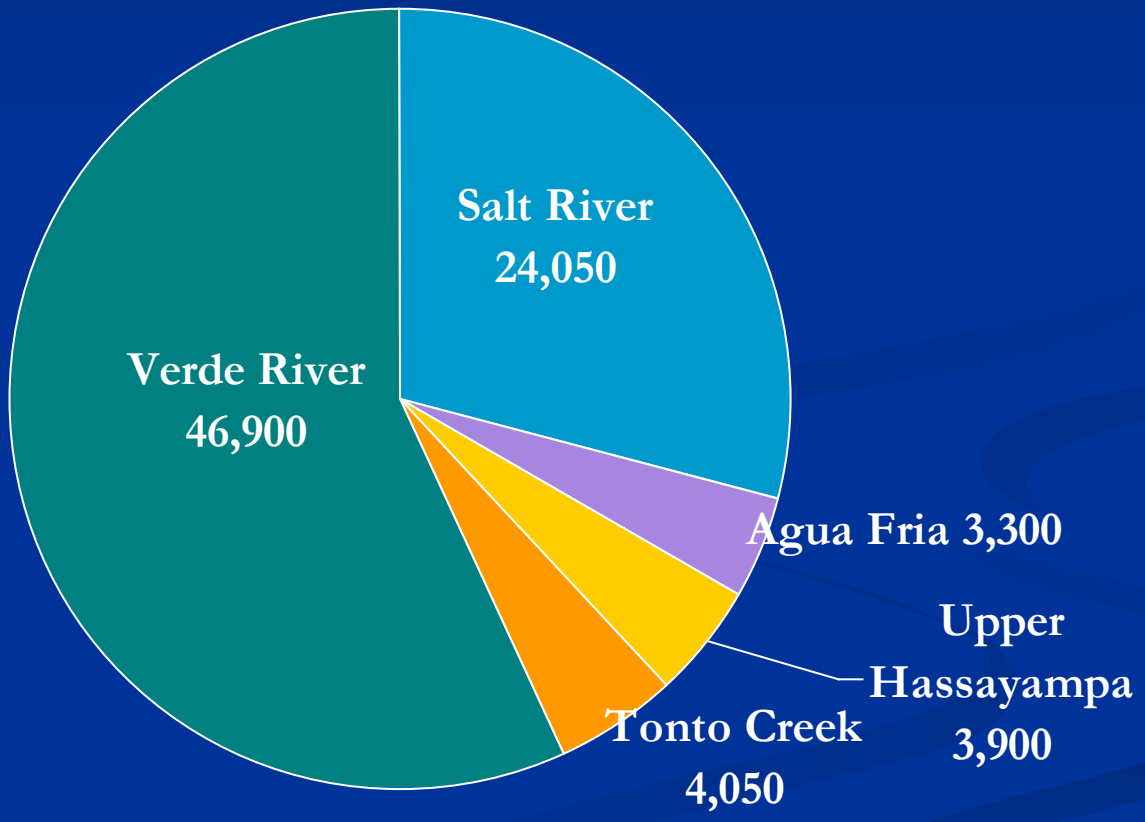
Planning Area Water Demand (2001-2005)



Planning Area Water Supplies as a Percentage of Demand



Central Highlands Basin Demand (2001-2005) in acre-feet



Water Providers in the Little Colorado River Plateau Basin serving 450 acre-feet or more water per year in 2006

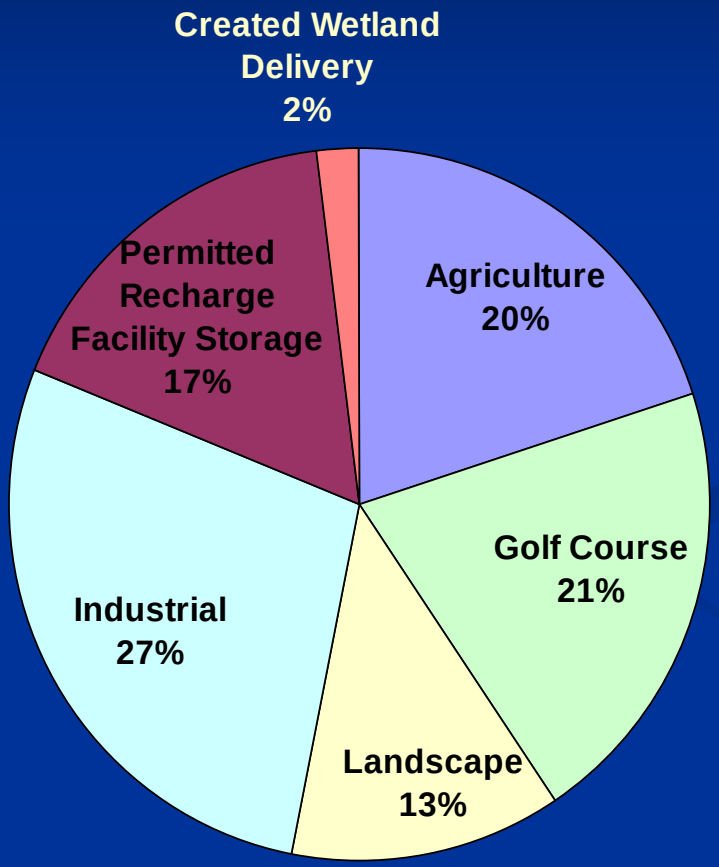
Water Provider	1991 (AF)	2000 (AF)	2006 (AF)
Arizona Water Company-Lakeside	597	897	792
Arizona Water Company-Overgaard	183	337	503
Doney Park Water	455	737	781
Eager Municipal Water	680	781	668
Flagstaff, City of	8,172	9,927	8,485
Holbrook, City of	NA	NA	790
Page Municipal	2,740	2,740	2,250
St. Johns Municipal	NA	NA	662
Snowflake, Town of	872	1,323	1,416
Taylor, Town of	445	721	870
Winslow Municipal	NA	NA	3,744

Source: Community Water System 2006 Annual Reports, USGS 2005

Effluent use by reporting facilities (c. 2006)

Planning Area	% Reporting Facilities	Volume Generated (af)	Direct Use (af)	Permitted Recharge Storage (af)	Created Wetland Delivery (af)	Disposal (af)	% Rep. Use
Eastern Plateau	83%	36,100	14,900	0	2,700	18,500	49%
Southeastern Arizona	86%	10,600	1,670	2,000	0	6,930	35%
Upper Colorado River	53%	8,700	3,400	0	0	5,300	39%
Central Highlands	48%	9,300	1,200	300	426	7,374	21%
Western Plateau	71%	2,200	300	0	0	1,900	14%
Lower Colorado River	58%	16,700	1,600	0	0	15,100	10%
Active Management Areas	43%	419,346	200,700	34,000	1,350	183,296	56%
Phoenix AMA	*42%*	*315,000*	*177,200*	*13,100*	*1,350*	*123,350*	*61%*
Pinal AMA	*33%*	*6,900*	*4,800*	*600*	*0*	*1,500*	*78%*
Prescott AMA	*67%*	*6,900*	*2,700*	*3,600*	*0*	*600*	*91%*
Santa Cruz AMA	*50%*	*16,311*	*0*	*0*	*0*	*16,311*	*0%*
Tucson AMA	*42%*	*74,235*	*16,000*	*16,700*	*0*	*41,535*	*44%*
Arizona Total	53%	502,946	223,770	36,300	4,476	238,400	53%

Percentage of Effluent Use by Type



% Golf Course Supply (2006)

- Phoenix AMA – 23%
- Pinal AMA – 21%
- Prescott AMA – 70%
- Santa Cruz AMA – 3% (remediated water)
- Tucson AMA – 48%

Web Navigation

ADWR Main Page
http://www.azwater.gov/azdwr/default.aspx

Overview Content (Southeastern Arizona)
http://www.azwater.gov/AzDWR/StatewidePlanning/WaterAtlas/SEArizona/PlanningAreaOverview/Hydrology.htm
http://www.azwater.gov/AzDWR/StatewidePlanning/WaterAtlas/SEArizona/PlanningAreaOverview/CulturalWaterDemand.htm

Springs (Verde River Basin)
http://www.azwater.gov/AzDWR/StatewidePlanning/WaterAtlas/CentralHighlands/Springs/VerdeRiver.htm

Groundwater Conditions (Harquahala Basin)
http://www.azwater.gov/AzDWR/StatewidePlanning/WaterAtlas/LowerColoradoRiver/Groundwater/Harquahala.htm

Cultural Water Demand (Little Colorado River Basin)
http://www.azwater.gov/AzDWR/StatewidePlanning/WaterAtlas/EasternPlateau/Cultural/LittleColoradoRiver.htm

Adequacy (Sacramento Valley Basin
http://www.azwater.gov/AzDWR/StatewidePlanning/WaterAtlas/UpperColoradoRiver/Adequacy/SacramentoValley.htm

Next Steps

- Volume 9: Resource Sustainability Assessment - 12/2010
  - Interpret and evaluate Atlas findings to support major water management decision processes.
  - Atlas-based vulnerability evaluations to determine resource sustainability e.g.
    - Limited physical supplies
    - Supply sensitivity to drought or other shortage
    - Competition with environmental demands or potential for impact
    - Legal constraints
    - Water quality conditions
    - Vulnerability ranking; e.g. short-term v. long-term sustainability
  - Integrate regional/local water planning studies

Next Steps

- Integrated database to be updated regularly (some features more often than others; e.g. cultural demand annually)
- Interactive website with access to Atlas database & links to others
- Timeframe?

Questions?

Aravaipa Canyon Wilderness