ANNUAL REPORT 2022

1110 W. WASHINGTON STREET, SUITE 310, PHOENIX, AZ 85007
Our Mission
To safeguard the health, safety and economic welfare of the public by protecting, conserving and enhancing Arizona’s water supplies in a bold, thoughtful and innovative manner.

Our Vision
Protecting and enhancing Arizona’s water supplies for current and future generations.

Our Values

- **Quality**: We commit to the highest standards of technical expertise and professionalism.
- **Vigilance**: We are vigilant in protecting the State’s water rights and supplies.
- **Empowerment**: We encourage our employees to grow and become problem solvers.
- **Integrity**: We act with integrity.
- **Leadership & Collaboration**: We engage with Arizona’s water community and provide leadership in developing innovative solutions to conserve and augment the State’s water supplies.
- **Continuous Improvement**: We strive to innovate, streamline processes, add value and increase productivity.
- **Confidence**: We build confidence by providing timely services and accurate information, and by promoting consensus-based options that create water resiliency.
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Dear Governor Ducey, President Fann, and Speaker Bowers:

It is a privilege to submit to you the Arizona Department of Water Resources’ Annual Report for Fiscal Year 2022 as required by Arizona Revised Statute § 45-111. This report includes an overview of the Department's activities and accomplishments between July 1, 2021, and June 30, 2022.

It is our primary mission to ensure that Arizona has long-term, reliable water supplies that help support our State’s continued economic prosperity.

I am pleased to report that ADWR has responded with resolve and professionalism to the challenges presented during FY 2022, notably on the Colorado River system, as well as to the opportunities, including the on-going efforts to augment Arizona’s water supplies.

We have made great progress in our efforts to encourage water conservation, especially regarding the mandatory conservation requirements spelled out in the State’s landmark 1980 Groundwater Management Act. And we have successfully taken on the challenges presented by the pandemic to improve our customer service in many respects, including in our busy Wells section.

As you know, our greatest immediate challenge is to the Colorado River system, which provides up to 40 percent of Arizona’s water supply.

Lake Mead and Lake Powell today are at historically low surface levels as a result of chronic over-use of supplies and two consecutive years of low runoff from the Western slope of the Rockies. The latter is due largely to the on-going epic drought, now exceeding two decades, that portends a drier and hotter future to which we must adapt.

Arizona and our Colorado River system partners have taken several significant steps in recent years to stabilize the system, including implementation of the 2007 Guidelines, the Minute 323 agreement with the Republic of Mexico, and the 2019 Drought Contingency Plan.

In FY 2022, we redoubled those efforts.

In December 2021, the three Lower Basin States of Arizona, California and Nevada, along with our partners in the water-using community, joined to implement the “500+ Plan,” which aims to add at least 500,000 acre-feet of additional water to Lake Mead in both 2022 and 2023 by facilitating actions to conserve water across the Lower Colorado River Basin.
As part of that plan, water agencies in California, Nevada and Arizona and the Bureau of Reclamation committed to investing up to $200 million in water-conserving projects at Lake Mead over the next two years. In all, our cooperative actions since 2014 to store water in Lake Mead have added 70 feet to the reservoir.

In May, the focus turned to Lake Powell, where low surface levels are raising concerns about operational uncertainty, including the ability to produce power through the turbines of Glen Canyon Dam.

As a result, the Lower Basin States agreed to temporarily leave 480,000 acre-feet of this year's projected 7.48 million acre-foot release to Lake Mead in Lake Powell. The Upper Basin States, meanwhile, agreed to release 500,000 acre-feet from Flaming Gorge Reservoir in Wyoming into Lake Powell.

Despite these conservation efforts, Lake Mead is expected to fall into a Tier 2 shortage stage in FY 2023. For Arizona, that would mean a 592,000 acre-foot delivery shortfall, as compared to the 512,000 acre-foot shortage in 2022. For the most part, that means less water for Central Arizona Project water users.

Not all the water news is quite so grim. Bringing the Active Management Area Management Plans - an essential part of Arizona's landmark Groundwater Management Act - back onto schedule has been a top priority for ADWR in FY 2022 following delays sparked by the Great Recession of 2008-2010.

Thanks to the hard work of our Active Management Area team, ADWR intends to adopt all five of the Fifth Management Plans, or “5MPs” by the end of calendar year 2022. Under this timeline, the conservation requirements in all 5MPs will become effective on January 1, 2025.

ADWR collects enormous volumes of data regarding water each year. As a result, we bear a commensurate obligation to make that data as easily accessible to the public as possible. Several ADWR divisions, like the Adjudications section, are using rapidly evolving technology like Power BI software to present our accumulated data in ways that are understandable to the public.

For example, in December 2021, Adjudications released a subflow zone report on a portion of the Verde River watershed. The report was intended to assist the Court in distinguishing between subflow and other underground
water consistent with Arizona law. The report includes maps showing the proposed subflow zone.

With the assistance of the Department's IT group, Adjudications created an interactive map that is now available on the Department's website. The map allows the public to zoom into the areas covered by the proposed subflow zone and readily examine details.

As a result of these Power BI interactive maps and other tools, our stores of data are becoming less and less the exclusive domain of engineers and hydrologists, and are increasingly accessible to the general public.

By the same token, I am proud of my Department's commitment to improving our public services on all levels. That includes making all Public Records readily available to those members of the public, including the media, that request them. And it includes the work of our regulatory divisions. Chief among them is our Wells section, which has seen a substantial increase in well-drilling in recent years.

Since at least 2016, the volume of Notices of Intention (NOI) to Drill, Deepen, Modify, Replace and Abandon well applications processed has increased annually – from 3,158 in 2016-2017 to more than 4,200 in 2020-2021. Despite that volume increase, the Section continues to meet its AMS goal, maintaining an average of 4.26 calendar days to process applications for FY 2021-2022.

Two other ADWR divisions that interact regularly with the public -- Community Water Systems and Groundwater Permitting -- also added online services that streamline and speed up interactions with the public.

In February 2022, Secretary of the Interior Deb Haaland and Assistant Secretary for Water and Science Tanya Trujillo traveled from Washington, D.C. for a two-day visit to Arizona that included a roundtable discussion on water issues at the offices of the Arizona Department of Water Resources. At that meeting, I underscored the importance of resolving tribal water-rights claims.

I would be remiss in this message if I did not congratulate ADWR’s chief attorney, Ken Slowinski, who in 2020 was awarded the prestigious Michael J. Brophy Distinguished Service Award by the State Bar of Arizona’s Environmental & Natural Resources Law Section. Ken is the first attorney who has spent his entire career in public service to receive the Brophy award.

Because of virus restrictions, Ken did not receive his award until April 2022 – barely more than two months before his July 2022 retirement. A font of institutional water-law knowledge, Ken will be greatly missed.

Overall, the past year has been one of significant challenges that required rapidly developed and bold solutions. I am happy to report that ADWR has met those challenges head-on and will continue to do so.

Sincerely,

Tom Buschatzke
Collaborative Efforts on the Colorado

In 2022, the Colorado River system is currently operating in a “Tier 1” status, requiring the State to take further actions by contributing 512,000 acre-feet of Arizona’s 2.8 million acre-foot annual entitlement to Lake Mead. This contribution is coming entirely from the Central Arizona Project system.

Based on the current hydrology, there is a very high likelihood of Tier 2 reductions in 2023 and 2024. We are prepared for these conditions, thanks in large part to Arizona’s unique collaborative efforts among water leaders including tribes, cities, agriculture, industry and environmental organizations that developed innovative conservation and mitigation programs as part of the implementation of the Drought Contingency Plan (DCP).

The DCP was approved by the Arizona Legislature and signed by Governor Ducey in early 2019 and almost immediately demonstrated its value. Its implementation offset potentially deeper cuts in Arizona’s Colorado River allocation beyond the 192,000 acre-feet that the State annually has stored in Lake Mead for several years.

The actions taken by Arizona’s water-community stakeholders, Legislature and by Governor Ducey help manage the immediate risk to supplies on the Colorado River, providing time while we develop new rules and programs to sustain the river after 2026, when new operational guidelines are to take effect.

As we face the prospect of a hotter and drier future, we are confident that with our long history of successful collaboration among our diverse stakeholders – including agriculture, tribes, cities, environment, and industry – we will continue to find innovative and effective solutions to sustain Arizona’s Colorado River supply.
Key Events Timeline

(2016) Arizona Develops DCP Plus
Arizona developed an implementation plan, referred to as DCP Plus, that allowed for the conservation of additional water in Lake Mead.

Gov. Ducey signed House Joint Resolution 2002, authorizing the Director of ADWR to execute the forbearance agreement if it meets certain conditions and if the final form of Minute 32x does not harm Arizona water users.

(2017) Phoenix Council Approves Partnership Agreement
Phoenix City Council approved an agreement with tribal, state, federal and philanthropic leaders to help protect the Colorado River & the water levels in Lake Mead.

(2017) Arizona Joins Colorado River Basin States In Finalizing Minute 323
Representatives of the United States and the Colorado River Basin States celebrated the “entry into force” of the Minute 323 agreement deemed essential to the System’s future.

(2017) Arizona Joins U.S. & Mexico Representatives In Finalizing Minute 323
ADWR Director Buschatzke joins United States and the Republic of Mexico in finalizing Minute 32x – now, Minute 323 - to cooperate in the management of a more stable Colorado River system.

(2018) Reclamation Joined in the Effort to Finalize DCP
U.S. Bureau of Reclamation on May 9 joined in the effort to finalize DCP.

(2015) Lower Basin States & Reclamation Develop DCP
Three Lower Basin States of CA, NV, & AZ (represented by ADWR), along with the U.S. Bureau of Reclamation developed a Drought Contingency Plan.

(2017) IBWC Group Reaches An Agreement On Minute 32x
The negotiating group reached tentative agreement on draft Minute 32x that continues the provisions of Minute 319 through 2026.

(2017) ADWR Enters into Partnership
ADWR entered into a partnership with the U.S. Bureau of Reclamation; the Gila River Indian Community; the City of Phoenix; and the Walton Family Foundation to help stabilize Lake Mead water levels identified in DCP Plus.

(2017) Partnership Agreement Signed Into Action
The five participants in a historic effort to help stabilize Lake Mead water levels made their agreement formal at a signing ceremony on July 14.

ADWR Director Buschatzke discusses Arizona’s philosophy on preparing for long-term drought and how it focuses on developing and improving the tools necessary to combat the effects of lengthy dry spells.

(2018) ADWR & CAWCD Issue Statement on DCP:
ADWR and the Central Arizona Water Conservation District (CAWCD) jointly released a statement vowing to commit “to bringing DCP to closure in Arizona by addressing a broad range of issues that respect the concerns of all stakeholders across the State.”

(2018) ADWR & CAP Hold Public Hearing with Reclamation
On June 28, ADWR Director Buschatzke and CAP General Manager Ted Cooke co-sponsored a public hearing on the plan to finalize DCP with the participation of Bureau Commissioner Burman and her staff.
The Department of Interior accepted the recommendations provided by the Basin States and ensured that they will be implemented.

On March 19, the seven Colorado River Basin states signed a Letter to Congress encouraging swift and necessary congressional action on drought plans.

Passed by Congress on April 8, the Colorado River Drought Contingency Plan Authorization Act enjoyed the support of all 14 of the Colorado River Basin States senators, and was approved by acclamation by both houses.

On May 20, representatives of the Colorado River Basin States, the Commissioner of the U.S. Bureau of Reclamation, and the Assistant Secretary for Water & Science for the Department of the Interior signed the final DCP document putting it into effect.

ADWR and CAWCD reconvened the DCP Steering Committee delegates to form the Arizona Reconsultation Committee. This committee will develop an Arizona perspective on the reconsultation of the Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead, known as the 2007 Guidelines.

The 500+ Plan agreement, aims to add 500,000 acre-feet of additional water to Lake Mead in both 2022 and 2023 by facilitating actions to conserve water across the Lower Colorado River Basin. The additional water would add about 16 feet total to the reservoir’s level, which continues to reach record low levels.

On January 31, Gov. Ducey and the Arizona Legislature signed off on a multi-state drought plan (AZDCP) which authorized Director Buschatzke to sign the DCP sign on behalf of the State.

President Trump signs Colorado River DCP Authorization Act, clearing path to finalize historic agreement on April 16.

Colorado River Basin representatives and the U.S. Bureau of Reclamation Commissioner attended U.S. Senate and House hearings that examined DCP.

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Adjudication Support

Arizona’s general stream adjudication began in 1974. Its purpose is to address water rights in two major portions of the State: the Gila River system and the Little Colorado River system. Together these adjudications will determine the nature, extent, and relative priority of water rights claimed by tens of thousands of water users based on both state and federal law for approximately two-thirds of Arizona. These complex and lengthy processes are conducted in the Superior Courts for Maricopa and Apache counties.

By statute, ADWR serves as the technical advisor to the adjudication court. The Adjudications Division investigates claims for water rights, publishes comprehensive Hydrographic Survey Reports for watersheds and federal reservations, and prepares technical reports on other matters as requested by the adjudication court. In FY 2022, ADWR developed more than 75 reports and maps for the court, provided expert testimony at multiple hearings, and conducted field investigations of various water uses in several areas of the state.

ADWR continues to actively manage a database of more than 100,000 individual water rights claims to support the adjudication process. ADWR processes, maintains and updates information related to Statements of Claimant (SOCs) filed by water users. The program mails New Use Summons to new water users to notify them that the adjudication proceedings are underway and to provide information about how to participate in the court process. In FY 2022, ADWR mailed more than 2,160 New Use Summons and additional educational information to persons who may have initiated new water uses within the last year.

This new “subflow zone” map shows the boundary of the Verde River & the San Pedro River watershed
The Adjudications Division continues to implement process improvements and increased efficiencies to meet the growing complexities of the adjudication proceedings. Using these principles, the Adjudications program has improved the use of technology to streamline processes, including the following advancements in FY 2022:

- In response to increased funding, the Division hired 2 additional investigation teams and several supporting staff positions. These positions will allow the Division to better meet the needs of the Court.
- Upgraded GIS systems (ESRI Enterprise) to provide better ability to analyze and present data.
- Released an interactive online map showing existing and proposed subflow zones to better inform and educate the public and customers.
- Verified over 11,722 individual SOC forms, ensuring that information on the scanned SOC matches the contents of the database;
- Obtained new software to correct minor address variations, allowing large mailings to reach more of their intended recipients.
- Issued technical reports on the proposed subflow zone delineation for the Verde River and a potential de minimis classification for certain domestic water uses in the Verde River watershed.
Gila River Adjudication
In FY 2022, ADWR continued to provide technical support for ongoing court proceedings surrounding the legal concept of subflow in the San Pedro River watershed. In conjunction with this work, Adjudications staff testified regarding the practical aspects and challenges of delineating the vertical extent of the subflow zone.

Adjudications staff continued their work on subflow zone mapping for the Verde River watershed and submitted the first of two reports on the proposed subflow zone delineation in December, 2021. The second Verde subflow zone delineation report is due in April, 2023.

Adjudications staff continued to participate in meetings with water right claimants and objecting parties to assist in the resolution of various contested cases. In FY 2022, more than 75 court-ordered actions were completed. ADWR staff reviewed more than 40 abstracts and provided numerous reports and maps for the Special Master regarding individual proposed water rights.

Little Colorado River Adjudication
The ADWR Adjudications Division also continued its effort to investigate water rights claims and water uses in preparation of a Preliminary Hydrographic Survey Report (PHSR) for the Lower Little Colorado River system (LLCR) subwatershed. The PHSR will provide water users and interested parties with an opportunity to review and comment on ADWR’s investigation results. The LLCR PHSR was originally due to the court in FY 2022. However, the Court vacated this deadline and requested that ADWR instead focus on preparing a subflow zone report for the LLCR watershed.
The Arizona Department of Water Resources (ADWR) is responsible for ensuring Arizona has dependable long-term water supplies. Since it was established by the Legislature in 1980, ADWR administers the State's water laws, except those related to water quality, explores methods of augmenting water supplies to meet demand, and develops and implements policies that promote water conservation. ADWR is responsible for supervising and controlling jurisdictional dams and reservoirs in the State to protect life and property. Additionally, the Director negotiates with agencies and governments outside Arizona in matters related to water. For example, the Director is authorized, for and on behalf of the State of Arizona, to consult, advise, and cooperate with the Secretary of the Interior on issues related to the Colorado River.

## Department Operations

### Budget Fiscal Year 2022

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ADWR continues to implement continuous improvements agency-wide, seeking opportunities to improve upon services and exceed our customers’ expectations.

One example of these cyclic improvements at ADWR is the Well Capping Breakthrough Project started in 2019. As a result of continuous process monitoring within subset processes of well-capping, this year, ADWR further reduced the number of open wells, achieving an 87.5% reduction to date and exceeding the original target of 85%.

As with any structured problem-solving process, identifying root causes in the well-capping process improvement effort has led to ongoing improvements. In FY 2022, the Well Capping Team improved upon the inventory tracking of temporary well caps, the well capping process workflows and the customer notification process for newly-discovered open wells.
As ADWR moves forward in our Arizona Management System journey, ADWR is committed to seeking out opportunities for improvement within our processes to meet and exceed our customers’ expectations.

- 21% decrease in calls fielded by Groundwater Permitting and Wells by implementing an automated voice recording system that improves customer service and helps meet licensing time frame requirements.
- Through ADWR’s consistent proactiveness with drought planning, the Drought and Conservation team assisted in preparing the 2021-2025 Federal Strategic Action Plan for the Intermountain West Drought Early Warning System.
- Conversion of notices for well-capping into an existing online portal for customers. This reduces a tedious, time consuming paper process while improving customer communication and reducing potentially hazardous open wells.
- Conversion of pump installation reports to an online platform allowing digitized reports to be readily available for ADWR customers to access at any time.
The outreach mission of ADWR is to ensure that the largest possible audience is receiving up-to-date information about Arizona's hydrology, including Colorado River supplies, surface water and groundwater, the condition of the State's watersheds, summer monsoon and winter storm activity, and more. Further, ADWR is the repository of one of the nation's most comprehensive databases on ground subsidence and earth fissures. ADWR is committed to ensuring that the public is aware of such resources and can easily access them. In pursuit of that mission, the ADWR communications team employs a wide array of media platforms.

Our communications team produces a weekly ADWR newsletter – Arizona Water News – that includes timely information on the latest water-related developments in the State. In less than six years, Arizona Water News has increased from 100 subscribers in 2016 to 13,059 in FY 2021. In addition, ADWR's online blog, also known as Arizona Water News, features more in-depth stories on water topics and continues to attract readers from Arizona, the Southwest, and multiple countries across the world. We continue to expand our presence on social media aggressively. Since the launch in June 2016 of ADWR's Facebook Page, it has organically reached over 81,071 readers and viewers. In addition, ADWR's YouTube channel has received over 20,967 views and over 2,200 hours watched. During FY 2021, ADWR's Twitter account received over 475,100 impressions.
Website Page Views
Twitter Impressions
Public Meetings
News Articles
Public Records Requests

The ADWR Public Records Team is responsible for the review, redaction, and production of documents responsive to public records requests (PRRs). This team is made up of staff from the Legal and Communications Division.

In order to provide a standard level of service, the Public Records Team has set certain time frames for each step of the PRR process. The goal of the department is to respond to requests within 5, 10, or 80 business days, depending on the size of the request. With the help of various Department programs, ADWR processed 462 PRRs in FY2022 with an average response time of 7.79 business days. In total, the Public Records Team has reviewed 54,231 pages of records.

ADWR’s average response time:
- 6 days for small requests (1-50 pages)
- 6.36 days for medium requests (51 - 300 pages)
- 11 days for large requests (301+ pages)

Highlights
- Met AMS goal for Medium and Large request. Average response time for medium requests is 6.36 business days and 11 business days for large
- Publish live reporting for Public Records requests.

Requests by Request Type

- Public: 307
- CSR: 20
- Media: 12

Total Documents Reviewed By Request Size

- Small
- Medium
- Large
“Flexibility to manage water supplies and adaptation to drought conditions are part of Arizona’s history and will continue to be a key management strategy now and in the future...”

ADWR Director Tom Buschatzke
Office of Data Management

The Office of Enterprise Data Management’s (OEDM) mission is to move ADWR toward a culture of enterprise-wide data management by instituting best practices that provide clarity, confidence and consistency in the data the Department collects, creates, and supplies. Additionally, staff in this office work with the water resource and supporting staff to develop more efficient ways to manage data so that these professionals have more time to perform the mission of the agency.

Prior to 2021, the Drought Program staff created a useful interactive dashboard that is accessible on the ADWR webpage. This dashboard allows anyone to examine the U.S. Drought Monitor data for Arizona in new and various ways back to the year 2000. However, the data used in this dashboard had to be retrieved and manipulated monthly to update drought conditions. In 2021, OEDM staff worked with Drought team members to reduce the amount of data needed to create the dashboard. More importantly, OEDM staff, with the help of IT, created an automated process to extract, transform, and load the drought data directly into the ADWR Data Warehouse. The process that formerly took one to two hours now takes seconds and is done every week, automatically. This improved process reduces the risk of data errors, ensures data will be loaded even during staff turnover, and most importantly, frees up staff time so that the Drought team can work on other valuable program-related tasks.

- Number of data sets in the ADWR Data Warehouse: 9 (Data Warehouse was started in 2018)
- Number of dashboards on the ADWR website: 8 (Since 2018)
- Number of consecutive years of water use in the data warehouse: 37

During 2022, ADWR implemented Phase 1 of its agency-wide Data Quality Program, which is based on a strategy created by ASET for all Arizona state agencies. While the ASET plan indicates what data quality best practices to implement, it is left to each agency to determine how to implement the practices. In order to minimize the time impact on the business yet still return value, OEDM designed a plan to convert one or more existing standard work documents into data quality plans by incorporating data quality objectives, simple data quality rules and a quality check log into the standard work. Documentation on how to cleanse the data is also included.
OEDM staff then follows up with each business unit six months later to ensure these data quality practices are still being used. To date, every division has had at least one business unit participate in the program and thirteen data quality plans have been created. Having these Phase 1 activities memorialized in standard work preserves institutional knowledge in the event of staff turnover, and prepares the agency for Phase II activities. Also, the use of standard work in conjunction with Enterprise Data Management (EDM) data quality practices is one of many examples of how AMS and EDM practices complement each other and create a very powerful partnership.

Metrics Related to the Phase 1 Data Quality Program:

- 100% of ADWR Divisions had one or more participating business units
- 13 Data Quality Plans created for critical data
- 38 Data quality sessions held with 11 different business units
Finally, the manager of OEDM, Lisa Williams, was a member of the two-person team, led by the State Data Management Architect, Jeff Wolkove from ASET, that conducted an in-depth Data Management Maturity Assessment (Assessment) for ADHS. Health Services recognized a couple of years ago that it could benefit from an Assessment, but the onset of the COVID-19 pandemic delayed that effort until January 2022. The Assessment team conducted pre-assessment workshops to prepare staff, and then held approximately 14 hours of assessment workshops with 61 attendees over four consecutive mornings. The team also conducted fourteen interviews with directorate and other upper management level staff. After that, the team reviewed work products for confirmation of implementation of various practices and wrote a final report containing seven project recommendations and 45 specific practice implementation recommendations, which were presented to the directorate and upper management staff. The report includes an implementation sequence which can serve as a roadmap, for the next two to three years, to move ADHS closer to achieving its goal of being a data-driven agency. Also, DHS saved $140,000 by having the Assessment conducted by state employees, rather than hiring a consultant to do this work.

**Assessment Related Metrics**

- 61 Assessment workshop attendees
- 41 specific data management recommendations
- 14 Executive interviews held
- Evaluated ADHS Implementation of 268 specific data management practices

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**Drought in Arizona (2000-Present)**

Drought Level Definitions: 
- **D0**: No Drought
- **D1**: Abnormally Dry
- **D2**: Moderate Drought
- **D3**: Severe Drought
- **D4**: Extreme Drought
- **D5**: Exceptional Drought

![Drought Level Definitions](image)

- **Occurrence of Each Drought Level**
- **Average Yearly Drought Levels**
- **Weekly Drought Levels (sq. mi)**
- **Yearly Drought Levels (sq. mi)**
- **Year**

![Drought Level Occurrence](image)

![Drought Level Average](image)

![Drought Level Weekly](image)
Legal – Compliance Enforcement

In FY 2022, ADWR's Compliance Enforcement staff worked with various Department sections and programs to investigate public complaints, potential violations of statutes and rules, and general compliance issues impacting the State’s water resources. The agency-wide coordination, led by the Compliance Enforcement Coordinator, enabled an efficient and effective process to promptly address public complaints, concerns, and potential violations.

ADWR's Compliance Enforcement staff responded to an increased volume of water-related public complaints and concerns during FY 2022. Often, the Department partnered with other local and State agencies, such as the Arizona Department of Environmental Quality, to review and resolve these complaints and concerns. In December 2021, a Compliance Enforcement Specialist position was created and filled to meet the Department’s growing compliance needs.
Colorado River Management

The Colorado River is critical to the State of Arizona, serving approximately 40 percent of the state’s annual water demands. ADWR is responsible for the protection and comprehensive management of Arizona’s annual Colorado River apportionment, which totals 2.8 million acre-feet. The ADWR Director represents Arizona on matters related to the Colorado River and is authorized to consult, advise, and cooperate with the Secretary of the Interior. The Colorado River Management Section (CRM) supports the Director through technical work and analysis such as hydrologic modeling and staffing a variety of working groups organized for the management and monitoring of the Colorado River and associated environmental resources.
Entitlement Oversight

ADWR monitors entitlements of Colorado River water in the mainstream region of the River, as well as water deliveries through the Central Arizona Project (CAP) to irrigation districts, agricultural producers, and municipalities. ADWR makes recommendations to the Bureau of Reclamation (Reclamation) on proposed Colorado River entitlement assignments and transfers.

In FY 2022 ADWR completed four recommendations, which were sent to Reclamation for action to either assign or transfer a Colorado River entitlement or to make a service area boundary adjustment.

First Declared Shortage

In August 2021, Reclamation declared the first-ever shortage condition on the lower Colorado River. The Tier 1 Shortage, as defined by the 2007 Interim Guidelines and the 2019 Drought Contingency Plan (DCP), required Arizona to reduce its water apportionment by 512,000 acre-feet. The Arizona DCP included mitigation resources for water users impacted by the Tier 1 Shortage, including both wet-water mitigation and financial mitigation. Those mitigation resources were used for CAP water users with lower priority pool contracts.
Planning and Operations

ADWR collaborates with the United States, the Republic of Mexico, other Colorado River Basin States, and intrastate entities to address and prepare for Arizona’s long-term water needs. CRM staff model the impacts of management strategies – including DCP implementation, basin-wide hydrologic conditions and water demands throughout the basin. DCP implementation within Arizona continues through notable agreements, including the Colorado River Indian Tribes System Conservation Agreement and the Groundwater and Irrigation Efficiency Fund Agreement. Grants from the Groundwater and Irrigation Efficiency Fund Agreement set forth the framework under which ADWR will fund projects by the qualified irrigation districts to construct and rehabilitate wells and related infrastructure for the efficient and effective withdrawal and delivery of groundwater. These projects will facilitate the transition from surface water to groundwater.

In FY 2022 ADWR disbursed $3,758,924 to four irrigation districts. An additional $1,123,717 was disbursed to two irrigation districts as beneficiaries of American Rescue Plan Act funding programs.

<table>
<thead>
<tr>
<th>Arizona 500+ Plan Activity Included in the April 24-Month Study (volumes in AF)</th>
<th>2021 (Provisional)</th>
<th>2022 (Projected)</th>
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<tr>
<td>Gila River Indian Community</td>
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<tr>
<td>Colorado River Indian Tribes</td>
<td>4,685</td>
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<tr>
<td>CAP ICS delivery offset</td>
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<tr>
<td>Total Arizona Conservation Activity Included in the April 24-Month Study</td>
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<table>
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<tr>
<th>Additional 500+ Plan Activity Planned (volumes in AF) (as of April 26, 2022)</th>
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<tr>
<td>Colorado River Indian Tribes</td>
<td>4,685</td>
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<tr>
<td>Mohave Valley Irrigation and Drainage District</td>
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<tr>
<td>Yuma Mesa Irrigation and Drainage District</td>
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<tr>
<td>Phoenix, Scottsdale, Gilbert, Mesa, El Mirage, Tempe, Surprise, Glendale, Metro Water, Queen Creek Irrigation and Drainage District, Harquahala Valley Irrigation and Drainage District</td>
<td>35,506</td>
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<td>Total Additional 500+ Plan Activity Planned</td>
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<table>
<thead>
<tr>
<th>Total Arizona 500+ Plan Activity - Modeled and Planned</th>
<th>2021 and 2022</th>
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<tbody>
<tr>
<td>45,086</td>
<td>213,952</td>
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| Total Arizona 500+ Plan Activity - Modeled and Planned (2021 and 2022) | 259038 |
For the second year, ADWR held, with the Central Arizona Water Conservation District (CAWCD), a joint public briefing regarding the anticipated Shortage Condition for calendar year 2023. The May 6, 2022 hybrid briefing was viewed in real-time by approximately 1,000 people and the recording has since been viewed by hundreds more.

In December 2021, at the annual Colorado River Water Users Association (CRWUA) conference, ADWR executed a Memorandum of Understanding (MOU) with the United States, CAWCD, the Metropolitan Water District of Southern California, Southern Nevada Water Authority (SNWA), and the Colorado River Commission of Nevada to conserve an additional 500,000 acre-feet of water in Lake Mead in 2022 and 2023. The MOU also included funding commitments totaling $200 million, with $40 million from ADWR. The “500+ Plan” was initiated in August 2021 when projections from Reclamation’s 24-month study triggered an adaptive management provision in the DCP. The Lower Basin States came together quickly to execute a plan to protect Lake Mead elevations. Since then, Arizona has worked diligently with water users to conserve additional water with the following guiding principles: that the water be conserved voluntarily, with compensation, for a limited duration, and that it remain in Lake Mead for the benefit of the system. Arizona contributed more than 260,000 acre-feet towards the 500+ Plan goal as of April 2022.

### 500+ Plan Funding Commitments - Millions of Dollars

<table>
<thead>
<tr>
<th>Organization</th>
<th>Dollars</th>
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<tbody>
<tr>
<td>United States (BOR)</td>
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<tr>
<td>Arizona</td>
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<td>Central Arizona Project (AZ)</td>
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<td>Southern Nevada Water Authority (NV)</td>
<td>$20</td>
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<tr>
<td>Metropolitan Water District of Southern California (CA)</td>
<td>$20</td>
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<tr>
<td><strong>Total 500+ Plan Funding Commitments - Millions of Dollars</strong></td>
<td><strong>$200</strong></td>
</tr>
</tbody>
</table>

During CRWUA, ADWR also executed a “Resolution to Protect the Sustainability of the Colorado River” with the State of California through the Colorado River Board of California, SNWA, Bonneville Environmental Foundation and Business for Water Stewardship, and Environmental Defense Fund, Inc. The signatories resolved to “collaborate and coordinate to take action collectively and separately to seek effective consensus-based solutions... that improve the resilience of the basin to a warmer and drier climate in order to protect the long-term sustainability of the Colorado River system.”
In April 2022, in response to modeling projections showing Lake Powell elevations approaching minimum power pool (3,490’ msl) the U.S. Department of the Interior Assistant Secretary for Water and Science, Tanya Trujillo, issued a letter to the seven Basin States’ Governor’s Representatives requesting input on a proposal to hold back a total of nearly 500,000 acre-feet in Lake Powell that was scheduled to be released to Lake Mead in 2022. The Basin States responded with a letter and on May 3, 2022, Assistant Secretary Trujillo issued her decision to amend the 2022 scheduled Lake Powell release down from 7.48 million acre-feet to 7.00 million acre-feet. The water will remain in Lake Powell, but will be accounted for as if it were in Lake Mead for purposes of determining 2023 Shortage. The Upper Basin States, meanwhile, are taking a coordinated action: Reclamation approved the release of 500,000 acre-feet from Flaming Gorge Reservoir in Wyoming down to Lake Powell to protect critical elevations.

**Binational Negotiations**

Arizona continues to participate in activities associated with the provisions of Minute 323 to the 1944 Water Treaty, executed by the United States and Mexico in September 2017. ADWR is active in binational cooperation under Minute 323 and provides staffing for environmental, hydrology, and salinity work groups, among others.

In-person meetings resumed in FY 2022 following the lack of meetings due to COVID-19. Director Buschatzke traveled to Mexico City, Mexico in April 2022 for a Minute Oversight Group meeting to discuss potential 500+ Plan analogous activities in Mexico. The Binational Environmental Work Group succeeded in initiating 2022 environmental water deliveries for the Colorado River Delta. Flows were initiated on May 1, 2022 and are anticipated to continue through mid-September. The implementation of a desalination project would require the specific agreement of the two governments by means of a minute to the Treaty.
Colorado River Basin Salinity Control Program

The Colorado River Basin Salinity Control Program focuses on improving Colorado River water quality for water users by promoting efforts to reduce salinity levels in the Colorado River. These efforts mitigate environmental and economic impacts due to increased salt concentrations in the Colorado River Basin. ADWR fields one of three Arizona representatives appointed by the Governor to represent the State in the Salinity Control Program Forum. In FY 2022, ADWR delivered an updated dataset to the Forum for use in its next iteration of the Salinity Economic Impact Model as well as continued to provide technical expertise and policy guidance to proposed and existing Salinity Control Programs.

Glen Canyon Dam Adaptive Management Program

ADWR represents the State of Arizona in the Glen Canyon Dam Adaptive Management Program (GCDAMP). As a federal advisory committee, the GCDAMP was established in 1997 to facilitate compliance with the Grand Canyon Protection Act of 1992 and furthered through the issuance of the Long-Term Experimental and Management Plan Record of Decision (LTEMP ROD) in 2016. As the Governor’s representative, ADWR provides policy guidance and technical expertise to the GCDAMP while representing Arizona’s interests. The GCDAMP implemented late spring “bug flows” in May and June 2022. These experimental low, steady weekend flows from Glen Canyon Dam are intended to promote aquatic food base and mimic other natural processes in Glen and Grand Canyons.

Lower Colorado River Multi-Species Conservation Program

The Lower Colorado River Multi-Species Conservation Program (LCR MSCP) provides 50 years of environmental compliance coverage for diversions of Colorado River water, primarily through the implementation of a Habitat Conservation Plan. The LCR MSCP was created to balance the use of Colorado River water resources with the conservation of native species and their habitats. ADWR represents the State of Arizona on the MSCP’s Steering Committee. On March 2, 2022, Reclamation transmitted a Biological Assessment to the U.S. Fish and Wildlife Service (USFWS) on behalf of itself and Endangered Species Act Section 10 state permittees requesting reconsultation on the LCR MSCP and to increase the reduction in flow coverage between Hoover Dam and Davis Dam (Reach 2) from 845,000 afy to 1,574,000 afy and between Davis Dam and Parker Dam (Reach 3) from 860,000 afy to 1,574,000 afy. On April 8, 2022, the USFWS formally reinitiated consultation and began to prepare a Biological Opinion (BiOp). A final BiOp is anticipated by the first quarter of FY 2023.
“It is essential that our state continues to play a prominent role protecting Arizona’s Colorado River Supply, managing operation and allocation issues and protecting Arizona’s groundwater and surface water supplies for future generations.”

ADWR Director Tom Buschatzke
The Governor’s Water Augmentation, Innovation, and Conservation Council (Council) is a forum for discussion of water issues. It brings together a diverse group of stakeholders from across the State, along with policymakers, to raise, analyze, discuss, and vet what are often difficult and complex issues, as directed by the Governor, to ensure a sustainable water future.

The Council continues the legacy of cooperative long-term strategic water planning in Arizona. Through the Council and its committees, stakeholders across the water-use sectors are encouraged to confront issues and to work collaboratively to identify and develop solutions to challenges faced by water users throughout the State.

The Council is tasked with identifying and recommending opportunities for water augmentation, innovation, and conservation. The Council is also charged with providing guidance to the Director of ADWR on issues upon the Director’s request.

The Council’s committees, where much of the work of the Council is accomplished, include Council members as well as non-Council members. Participation in the committee meetings is open to the public. The Council’s committees work to identify and discuss issues and to develop, evaluate, and prioritize recommendations for the Council to consider.

Meetings were held virtually due to the ongoing pandemic, enabling continued expanded participation through the online Committee meetings and attendance at Council meetings. Conference room capacity and distance are no longer limiting factors; committee members logged on from every corner of Arizona, from tribal nations, and even from other states. Meeting materials and recordings can be accessed from ADWR’s Council web page.

Despite the impact of the pandemic, the Council and Committees made considerable progress during FY 2022. The Post-2025 Active Management Areas (AMAs) Committee of the Council was the focus of much of the Council’s work in FY 2021-22, working intensively the first half of the year to finish exploring challenges identified the year prior and develop recommendations before the legislative session began. A set of near-term recommendations was provided to the Council at the November meeting.

“Sustainable water supplies are essential to the economic vitality and quality of life for Arizona and its citizens. The proactive measures taken by the State of Arizona have resulted in a current state of resiliency with respect to its water supplies... it is important for the work of the Governor’s Water Initiative to be continued and expanded through creation of a new Council with a long-term focus on water augmentation, innovation and conservation.”

(Executive Order 2019-02)
The Desalination Committee, formed initially under the Governor’s Water Augmentation Council in 2016, completed its work and made its final recommendations to Council at the September meeting. The committee concluded that brackish, or poor quality, groundwater required no policy changes to enable its use and that it should continue to be regulated as it currently is, as groundwater. The Desalination will be on hiatus until recalled by the Council.

The Non-AMA Groundwater Committee discussed the potential for augmentation of groundwater aquifers through enhanced stormwater recharge, conservation and efficiency practices, and options for rural groundwater management, including irrigation non-expansion areas and rural management areas, a proposal that was submitted to the legislature in 2022.

The Long-Term Water Augmentation Committee highlighted the need for comprehensive, statewide water augmentation planning. Committee members researched and discussed financing opportunities and needs for water augmentation and efficiency projects, recommending to the Council that the State commit additional funds to build on the $200 million funding set aside for the Drought Mitigation Board established in 2021 by SB 1822.

The Council and committees largely paused their work in the second half of FY 2022, as Arizona’s water community turned its focus to a historically water-intensive legislative session and Colorado River shortage. At his final State of the State address in January, Governor Ducey announced a proposal to provide $1 billion in funding for augmentation, innovation, and efficiency projects.

As FY 2022 closes, the impacts of the drought are increasingly evident. Yet Arizona continues to grow its communities and economy, thanks to smart policy, planning, and investment. The Governor’s Water Council can play a significant role in continuing that legacy in the years to come.
Drought Program

Arizona experienced two severe and sustained droughts in the first half of the 20th century, one in the 1900s and one in the 1950s. Arizona is experiencing a third modern-era drought that began in the mid-1990s prompting a Drought Emergency Declaration, which has been in effect since 1999.

In 2003, a Governor’s Drought Task Force was created to establish a flexible framework to refine Arizona’s drought monitoring process, an understanding of drought impacts, and mechanisms for limiting future vulnerability. The Arizona Drought Preparedness Plan was developed and adopted in 2004 and established the Drought Monitoring Technical Committee (MTC), the Interagency Coordinating Group (ICG), and Local Drought Impact Groups (LDIGs). Furthermore, the plan requires the Drought Program to compile all related drought activities and efforts for the water year (October 1st-September 30th) in the Arizona Drought Preparedness Annual Report (ADPAR).

ADWR’s Drought Program provides drought resources to the public and facilitates the meetings and activities of the MTC and ICG. The MTC meets on a quarterly basis and is responsible for gathering drought, climate and weather data, and preparing the short- and long-term drought status reports, which are disseminated to resource managers, decision-makers, and the public. During FY 2022, the Drought Program Coordinator hosted a drought technical expert stakeholder meeting to discuss drought impact reporting in Arizona, during the meeting, challenges and opportunities were identified and communication between drought technical experts was enhanced, leading to more informed decision making and outreach. This meeting also led the ADWR Field Services team to identify new drought impact reporting tools that will be tested for ground observations.

Since 2006, the ICG has met biannually to advise the Governor on drought status, impacts, and necessary preparedness and response actions. Since its inception, the ICG has continued to recommend to the Governor to maintain the Drought Declaration currently in place. During the Spring 2022 ICG meeting, for the first time, ADWR hosted two presentations about impacts of drought on hydropower, from the Irrigation and Electrical Districts of Arizona and the Western Area Power Administration.

During FY 2022, the Drought Program Coordinator participated in a focus group for the development of the National Oceanic and Atmospheric Administration's (NOAA) National Integrated Drought Information System (NIDIS) Intermountain West (IMW) Region Drought Early Warning System (DEWS) 2020-2025 Strategic Plan, enhancing State of Arizona participation on national level drought efforts. The Coordinator also participated as a panel member and presenter in the 2022 Drought Learning Network (DLN) Annual Meeting in New Mexico. The DLN is a peer-to-peer knowledge exchange between climate service providers and resource managers. The main goal of the DLN is to gather and share lessons learned from drought events to improve responses to future droughts.
Additionally, during FY 2022, ADWR received contract deliverables from University of Arizona researchers which included research modules about drought impacts on Arizona agriculture, as well as on lake reservoirs (Lake Mead and Lake Powell) and Arizona State and National Parks’ visitation and economies. The Coordinator started a project to collect and disseminate tribal climate and drought emergency management resources. Furthermore, the Coordinator participated in various outreach opportunities to spread awareness about drought status in Arizona.

**ADWR Drought Presentations & Outreach during FY 2022**

**Events and presentations:**
- 7/16/21 – Northern Arizona Municipal Water Users Association (NAMWUA) Board of Members
- 9/15/21 – Arizona State University, Hydroengineering Graduate Student Seminar
- 12/2/21 – Southwest Drought Learning Network, Drought Impact Reporting Workshop
- 6/7/22 - 6/8/22 – Drought Learning Network Annual Meeting presentations and panel discussion

**ADWR Drought Program-related articles:**
- 1/27/22 - The Drought Monitoring Technical Committee: Tracking Drought is a Year-round Project
- 12/7/21 - Real “No Brainer”: Drought Interagency Coordinating Group Recommends Continued Declaration
- 7/30/21 - Monsoon 2021: So Far, It’s Been Wet, Wild and a Valuable Part of Arizona’s Moisture Mix
- 7/16/21 - The Drought Preparedness Annual Report: An Invaluable Resource During Arizona’s Dry Spell
Conservation Program

ADWR's Conservation Program offers conservation assistance, outreach, and education, as well as information on conservation resources and regulations. The program encourages and promotes the wise and efficient use of water through the development and distribution of conservation resources and tools. It provides water conservation assistance to individuals and communities, collaboration with regional and national conservation partners, and participation in outreach activities.

During FY 2022, Conservation staff updated and published the Prescott, Santa Cruz, and Tucson AMA Low Water Use & Drought Tolerant Plant Lists (LWUPLs) for their respective SMPs. The LWUPLs were developed by plant experts and are used to regulate groundwater used for landscaping in public medians and rights-of-way irrigated by groundwater in the AMAs, as described in the AMA MPs. The updated LWUPLs now include definitions and information to help guide stakeholders toward botanical resources.

Conservation and Data Management staff will work together toward producing LWUPL spreadsheets that can be shared with interested stakeholders in accessible formats (ie. xmls and csv). The spreadsheets will include the information in the updated lists as well as botanical characteristics. They also will allow anyone interested to search for plants on the LWUPL for all AMAs according to desired characteristics.

Conservation staff worked in collaboration with the Arizona Municipal Water Users Association (AMWUA) and the Phoenix AMA Landscape Technical Advisory Committee (LTAC) to review the Phoenix LWUPL. The Phoenix LTAC comprises a diverse range of industry representatives from across the AMA who have a vested interest in sustainable plants and field experience or familiarity with how plants perform in public medians and rights-of-way. During FY 2022, the Phoenix LWUPL was reviewed; the next steps include processing the Phoenix LTAC’s applications for plant species removal and/or addition, finalizing the Phoenix LWUPL for the SMP, and publishing for regulated stakeholders.

The month of April was designated Water Awareness Month (WAM) through Executive Order 2008-19 in 2008. During April 2022, Conservation, AMA, and Communication staff organized seven WAM webinars.
ADWR Conservation Outreach Events during FY 2021

- Virtual Summer Camp – Drought & Conservation, July 16, 2021
- 2022 WinterFest at Black Canyon City, January 29, 2022
- Rillito Heirloom Farmers Market, February 6, 2022
- Tres Rios Nature Festival, February 26-27, 2022
- Arizona Game & Fish Outdoor Expo, April 2-3, 2022
- WAM Webinar: Hydrologic Science to Support Arizona’s Water Management Decisions: Emerging Approaches from the USGS Arizona Water Science Center, April 5, 2022
- WAM Webinar: Saving Water in your Home, Yard, or Business with EPA WaterSense, April 6, 2022
- WAM Webinar: We Water People with Grand Canyon National Park Service, April 12, 2022
- WAM Webinar: Colorado Basin River Forecasting Center and the Science of Forecasting Streamflow, April 13, 2022
- WAM Webinar: History of SRP, April 19, 2022
- WAM Webinar: H2OMG! Summer is Here at Arizona State Parks!, April 20, 2022
- WAM Webinar: Arizona Tourism & Water-Based Recreation, April 27, 2022
- Phoenix Herpetological Society Summer Camp Presentation, June 1, 2022
“Arizona has a long history of collaboration and innovation in managing its water supplies.”

ADWR Director Tom Buschatzke
Community Water System

The Community Water Systems (CWS) Program regulates water providers across the State that serve water to at least 15 service connections or 25 year-round residents. In FY 2022, approximately 750 water systems serving 6.7 million Arizonans were active within the program. CWSs within the program are required to submit a 5-year System Water Plan and an Annual Water Use report to ADWR. These reporting requirements were part of a larger set of recommendations made in 2004 by the Governor's Drought Task Force, established by Executive Order 2003-12 on March 20, 2003. The recommendations were intended to reduce water providers' vulnerability to drought and ensure they are prepared to mitigate and respond to drought or water shortage conditions. ADWR assists water providers in meeting these requirements through web-based resources, online reporting tools, and phone consultations.

The data collected through the program provides a means for ADWR to gather water use data both inside and outside AMAs to better plan for Arizona's water future. To improve the data collection process, a new online system water plan reporting tool was released for customer use in FY 2022. This system allowed customers to digitally complete reports, minimized the number of physical files submitted to the department, and reduced staff time for data entry. Collected data from the system water plans were then utilized to complete the first update to the Community Water Systems Interactive Map. The service area and water system data included in the map are used by a variety of stakeholders including emergency dispatch teams, local governments, universities, and other state agencies.

![Community Water Systems GIS Map](image)
Rural Planning (Rural Water Studies)

The Rural Programs Unit of ADWR's Statewide Planning Section provides resources to areas of the State located outside of AMAs. This section carries on work initiated as part of the 1999 Rural Watershed Initiative, providing citizen organizations and local governments with technical information, administrative support, and agency information on water issues.

ADWR’s regional planning activities in FY 2022 included data collection and technical studies of specific areas throughout the State. These activities were conducted by ADWR and by the U.S. Geological Survey (USGS) through contractual agreements.

ADWR provided funding to the USGS in FY 2022 for the following:

- **Agricultural irrigation field verification in the Willcox, Hualapai, and Sacramento groundwater basins; and the San Simon sub-basin as part of the Arizona Water Use program.** The goal is to collect and estimate annual water withdrawals for the categories of irrigation, municipal, mining, thermoelectric-power, and drainage uses. The USGS compiles the data for these categories for groundwater basins outside of Active Management Areas.

- **Hydrologic data collection in support of improving the understanding of the hydrologic system of the Middle Verde River watershed.** USGS water-level monitoring compliments information collected by ADWR Field Services Program and provides a critical record of groundwater conditions for understanding both climate and human impacts on the groundwater-flow system (USGS FY 2021-2023 Workplan). ADWR partners with the City of Cottonwood to provide a 50/50 cost share.

- **Streamflow gaging station funding for the Santa Cruz River near Lochiel and for Chevelon Creek near Winslow.** Data from the Lochiel gage supports Santa Cruz AMA water monitoring by understanding natural changes to runoff and flow in the Santa Cruz River. Because flood recharge is significant to the Santa Cruz AMA’s water supply and groundwater levels, the Lochiel streamflow record helps to isolate the influence of water use/management decisions in Mexico from natural changes resulting from drought and climate change. The Chevelon Creek gage supports the C Aquifer Monitoring Program for the Coconino aquifer that supplies water to northeastern Arizona. ADWR partners with the USGS, City of Flagstaff, Navajo Nation, APS, and the Coconino Plateau Watershed Partnership to provide funding for these critical streamgages.
The Arizona Legislature has annually provided funding to ADWR for Rural Water Studies since FY 2000. In recent years, those funds have been used for a variety of hydrogeologic monitoring purposes in rural areas in addition to cooperative data collection efforts with the USGS. The funding also supports ADWR personnel and water resources data collection and investigations that assist ADWR as well as rural communities with long-term planning and management programs. These data collection efforts are part of an expanded monitoring strategy identified in Arizona’s Strategic Vision for Water Supply Sustainability and support science-based water management policies and decisions.

ADWR Rural Water Studies along with financial support from the Bureau of Reclamation, Cochise County, Sierra Vista, and The Nature Conservancy provided support to the Upper San Pedro Partnership for development of a web-based hydrologic information portal (WHIP). The project was completed and launched in FY 2022. The portal provides access to hydrologic information from the Upper San Pedro Basin including regional groundwater, river flow, springs, precipitation, and reference data related to sustainable groundwater use, the San Pedro River, and the San Pedro Riparian National Conservation Area.
ADWR actively participates with rural water groups including rural watershed partnerships, municipal water users, and other entities that represent water interests within Arizona. ADWR provides technical support, policy information, and departmental assistance as requested to these groups and attends multiple meetings per month with the associated governing bodies, executive committees, and technical advisory committees.

Additionally, ADWR supports the efforts of local Partnerships to develop sustainable regional solutions to water supply issues, including efforts to obtain funding to achieve their goals. In FY 2022, ADWR provided guidance and letters of support to the Bureau of Reclamation for WaterSmart grant applicants and technical assistance with grant applications. Applications included the Coconino Plateau Watershed Partnership for completion of the Coconino and Redwall-Muav Aquifer Modeling Project.
Groundwater Management

AMAs & INAs

The 1980 Arizona Groundwater Management Act (GMA) recognized the need to provide long-term management and conservation of the State’s finite groundwater resources to support the wellbeing and livelihood of Arizona’s growing population. Areas with heavy reliance on groundwater were identified and designated as Active Management Areas (AMAs), in which the highest degree of groundwater regulation in the State is currently imposed. These regulations include a prohibition on new irrigation acres, mandatory water conservation programs and annual water-use reporting requirements. Irrigation Non-expansion Areas (INAs) were established in some rural farming areas with the intent of preserving existing irrigation of cultivated lands but under a lower level of regulation than the AMAs.
The GMA established management goals for the AMAs that recognized the unique character of each AMA and its water users. In addition, the GMA requires ADWR to adopt and implement a series of five Management Plans, each unique to a particular AMA, between 1980 and 2025. The plans include mandatory conservation requirements for agricultural, municipal, and industrial water users and are intended to become progressively more rigorous with each plan.

The AMA Section is responsible for administering the GMA, specifically the management of groundwater use and the enforcement of the GMA requirements within the AMAs and INAs. These activities include:

- Managing and monitoring municipal, industrial and agricultural conservation programs;
- Managing and administering the annual water-use reporting processes, which include processing, entering and analyzing over 6,000 annual water-use reports;
- Providing customer service to individuals and entities on groundwater use and management;
- Collaborating with stakeholders as well as presenting to various organizations and entities on groundwater management and use;
- Addressing customer inquiries and clarifying groundwater rules and regulations.
- Accepting, processing and managing conveyance applications to transfer ownership of groundwater rights.

![Industrial Demand by Subsector](image)
Municipal Provider Information

Provider Name: CITY OF PEORIA
Water Right Number: 54-002029-0001
Active Management Area: PHOENIX
Right Type: LARGE MUNICIPAL PROVIDER
Conservation Program: MODIFIED NON PER CAPITA (MNPCP)
Designated Provider?: Yes
Service Area Population: 159,621K

2020 Supply by Water Type

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<tr>
<td>Groundwater</td>
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Demand Over Time

Irrigation Acres by Year

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<th>Irrigation Acres by Year</th>
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<td>2005</td>
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Quantity by Water Type and Year

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<tr>
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<tr>
<td>2007</td>
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<tr>
<td>2006</td>
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</tr>
<tr>
<td>2005</td>
<td>0.0M</td>
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</tbody>
</table>
**Management Plans Effort**

The fourth management period is defined in statute as 2010 through 2020, and the intent of the GMA was that each of the five management plans should be effective in the corresponding management period. After the 2008 recession, however, the management plans fell behind schedule. In 2019, ADWR created several positions dedicated to the management plans and set a goal of completing the remaining Fourth Management Plans (4MPs) by the end of 2020. ADWR met that goal with the adoption of the Phoenix, Pinal, and Santa Cruz AMAs 4MPs, and the conservation requirements in those plans will become effective January 1, 2023.

At the same time, ADWR began the research and development needed for the Fifth Management Plans (5MPs) with the creation of the 5MP Work Group (MPWG), which held its first meeting in July 2019.

From July 2019 to the end of 2021, ADWR led 39 public meetings of the MPWG and its subgroups, working through the analysis of mandatory conservation programs from previous management plans and the development of updated and new conservation requirements in response to those analyses. The results of those development discussions are detailed on the 5MPs Concepts webpage, which includes an overview of the proposal for each program being updated, relevant supporting information and interactive data, links to meetings where the concepts were discussed, and stakeholder comments received on each concept. Draft regulatory language was also published to this page in September 2021 to allow additional stakeholder review and comment.

ADWR published *initial drafts of the 5MPs* in January 2022. In addition to substantial updates to the conservation programs contained in these plans, these drafts also reflect significant structure and content improvements. These changes are intended to build on the transparency success of the 5MPs Concepts page by:

- Moving previously static data online, allowing for corrections and updates;
- Referencing other sources of information that will be continually updated, such as hydrologic models;
- Adding an Executive Summary that allows for easier navigation and reference to more detailed information in the plans;
- Including additional information on how AMA staff provide customer support and how stakeholders can engage with water issues in that AMA.
Alongside the draft 5MPs, ADWR also published online dashboards and datasets, which provide detailed, interactive data for each sector. This allows greater access to data in a usable format, as well as access to raw data that was previously only available by public records request. As an additional supplement to the 5MPs, ADWR published the “Overdraft, Safe-Yield, and the Management Goals in Arizona’s Active Management Areas Report”, which provides a detailed method for the analysis of overdraft and describes the status of each AMA with regard to its management goal.

The legal adoption process for a management plan must be conducted separately for each AMA and includes public notice, a public comment period, a hearing, findings describing any revisions, and notice to rightsholders of conservation requirements. ADWR held hearings on 5MP for the Tucson AMA on April 26, 2022, for the Prescott AMA on May 31, 2022, and will hold the 5MP hearing for the Pinal AMA on June 28, 2022. Hearings are in the process of being planned for the other AMAs, and ADWR intends to adopt all five 5MPs by the end of calendar year 2022. Under this timeline, the conservation requirements in all 5MPs will become effective on January 1, 2025.
**Additional AMA Achievements During Fiscal Year 2022**

The AMA team, in collaboration with ADWR’s IT Division, updated and expanded the AMA Annual Water Use Online Reporting Tool to include online reporting for those regulated under the Agricultural Best Management Practices (BMP) conservation program. The Online Reporting Tool is beneficial to both customer and ADWR as information can be entered easier and quicker, and the data reported is entered directly into the ADWR database, eliminating the need for manual data entry, saving valuable staff time, and reducing human error.

In January 2019, the sum of $2,000,000 was appropriated by SB1227 from the State General Fund to the Department as part of Arizona’s Drought Contingency Plan (DCP) legislation for the purpose of providing grant monies to support groundwater conservation and reduce groundwater withdrawals in the Active Management Areas. This fund is referred to as the Groundwater Conservation Grant (Grant).

The Grant process is administered through the Department’s Water Management Assistant Program (WMAP). However, the distribution of the Grant money is tracked separately from the general WMAP fund, which is generated by groundwater withdrawal fees. The WMAP Coordinator is responsible for administering the Grant and WMAP activities, including overseeing the Grant process, reviewing applications, drafting contracts, and maintaining communication between the Department and grantees. The Grant process and schedule can be viewed on the WMAP page on the Department website.

The Grant fund may be allocated to programs and projects located within the five AMAs that demonstrate the ability to conserve groundwater either directly or indirectly. The money is divided among the AMAs on a per-capita basis, with a minimum amount of $150,000 for AMAs with smaller populations:

- Phoenix AMA: $1,245,000
- Tucson AMA: $305,000
- Pinal AMA: $150,000
- Prescott AMA: $150,000
- Santa Cruz AMA: $150,000

In December 2020, the Department’s WMAP Coordinator provided an informational presentation to the Council on the development and timeline of the grant application process. By the closing date of February 14, 2021, the Department received a total of 38 grant applications covering a variety of groundwater conservation topics. The Director selected 18 projects to receive funding after considering recommendations from the respective Groundwater Users Advisory Councils (GUACs). The selected projects and funding awarded can be viewed on the WMAP page on the Department website. At this stage, 17 contracts have been executed. One applicant withdrew its application.
The Maricopa-Stanfield Irrigation and Drainage District project forfeited its award of $59,000, which was redistributed to the Arizona Water Company project in the Pinal AMA.

Pursuant to Executive Order 2019-02, the Council is tasked with assessing the long-term impacts of conservation projects funded with this Grant. Once the projects have been completed and their groundwater savings determined, the Council will have the opportunity to evaluate the projects and their conservation impact.

In addition to the Groundwater Conservation Grants, the WMAP also facilitates and funds 10 projects with the WMAP fund.

The WMAP coordinator and intern have also worked to develop a PowerBI dashboard for the program consisting of four pages. The first page represents the unobligated fund balance and WMAP fees collected in the five AMAs.

The second page of the dashboard represents the WMAP projects in each AMA, indicating how much they were awarded and how many deliverables they have submitted. The third page representing the Groundwater Conservation Grant projects provides similar information for those projects.
The AMA Section further updated our AMA Data webpage as part of an agency-wide effort to increase transparency and improve public access to ADWR data. The webpage currently includes six interactive dashboards. These include a dashboard for each sector, agricultural, municipal, industrial, as well as a dashboard each for data related to overdraft and recharge. Each dashboard has several tabs with data that can be filtered in several ways including, depending on the dashboard, by year, AMA, conservation program, subsector, right, and/or water type. The source data for these dashboards have been updated and published to the website allowing interested parties to download and access data immediately, where previously a Public Records Request would have been required. Sector-specific dashboards were developed to allow interested stakeholders to explore water use data and conservation programs in the AMAs at greater detail than has been previously available. The sector dashboards publish and update much of the data that was traditionally contained within the management plans. By publishing and updating this data continuously, stakeholders can access the most current data available, whereas data published in the management plans would become out of date nearly immediately.

Similarly, the AMA section published a new webpage for the mandatory conservation programs for the Industrial sector. This page contains information about each conservation program, guidance documentation, and answers to frequently asked questions. The Industrial page joins previously created Municipal and Agricultural sector webpages and continues our efforts at increasing awareness of our regulatory programs.

The AMA section received over 215 conveyance applications since the start of the fiscal year and has occurred concurrently with significant staff turnover in our Conveyance Specialist position. Despite these challenges, we have been able to begin slowly addressing our conveyance backlog through redistribution of AMA staff time, a refocused effort on cross-training and implementation of new processes centering on efficiency and productivity. Stability in the section is critical to our continued progress and remains a challenge going forward.

The continuation of the COVID-19 pandemic and corresponding social distancing requirements presented challenges and opportunities for AMA staff during the peak of the Annual Reporting Season, which is the busiest time of year for the section. The team improved on last year’s efforts to migrate as many annual reporting processes as possible to a virtual format and implemented several new standard procedures, allowing the section to limit the required time in the office while providing prompt, courteous, and responsive customer service.
### Phoenix AMA

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Applicant</th>
<th>Contractual Term</th>
<th>Funding Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arizona Project WET</td>
<td>University of Arizona - Arizona Project WET</td>
<td>11/30/2020 – 11/30/2022</td>
<td>$100,000</td>
</tr>
<tr>
<td>Residential Water Use Phase II</td>
<td>City of Phoenix</td>
<td>2/4/2021 – 2/1/2023</td>
<td>$139,000</td>
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<tr>
<td>Smartscape Professional Landscape Training</td>
<td>University of Arizona</td>
<td>7/1/2021 – 6/30/2023</td>
<td>$93,930</td>
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<tr>
<td>Water Conservation Management Program (WCMP)</td>
<td>East Maricopa Natural Resources Conservation District (NRCD)</td>
<td>8/27/2021 – 12/31/2023</td>
<td>$216,00</td>
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<tr>
<td>Water-Use It Wisely</td>
<td>City of Mesa</td>
<td>12/8/2021 – 9/30/2022</td>
<td>$50,000</td>
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<tr>
<td>Xeriscape Demonstration Garden</td>
<td>City of Surprise</td>
<td>10/1/2019 – 6/30/2022</td>
<td>$200,000</td>
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<td><strong>Total Funding</strong></td>
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<td></td>
<td><strong>$798,930</strong></td>
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### Tucson AMA

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<thead>
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<th>Applicant</th>
<th>Contractual Term</th>
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<tbody>
<tr>
<td>Arizona Project WET</td>
<td>University of Arizona</td>
<td>8/26/2021 – 11/30/2022</td>
<td>$44,100</td>
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<td><strong>Total Funding</strong></td>
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<td><strong>$44,100</strong></td>
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### Pinal AMA

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Applicant</th>
<th>Contractual Term</th>
<th>Funding Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irrigation Management Service (IMS)</td>
<td>University of Arizona - Pinal Natural Resources Conservation Districts (NRCDs)</td>
<td>4/22/2021 – 4/30/2022</td>
<td>$120,000</td>
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<tr>
<td>Natural Resources Education Center (NREC)</td>
<td>Pinal Natural Resources Conservation Districts (NRCDs)</td>
<td>10/18/2021 – 10/31/2022</td>
<td>$30,000</td>
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<tr>
<td>Pinal County Water Augmentation Authority (PCWAA)</td>
<td>Pinal County Water Augmentation Authority (PCWAA)</td>
<td>In Statute</td>
<td>$200,000</td>
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<td><strong>Total Funding</strong></td>
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<td><strong>$350,000</strong></td>
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</table>
## Grant Recipients:

**Phoenix AMA**  
(Funding Available $1,245,000)

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Applicant</th>
<th>Contractual Term</th>
<th>Funding Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using Project-Based STEM Education to Enhance Groundwater Conservation in</td>
<td>University of Arizona - Arizona Project WET</td>
<td>1/21/2021 – 10/31/2024</td>
<td>$195,855</td>
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<tr>
<td>Maricopa County Schools</td>
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<tr>
<td>Northern Avenue Lateral Surface Water Capacity Restoration</td>
<td>Maricopa Water District</td>
<td>7/1/2021 – 7/31/2025</td>
<td>$251,500</td>
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<tr>
<td>El Mirage Water Conservation Program</td>
<td>City of El Mirage</td>
<td>1/19/2021 – 1/19/2026</td>
<td>$150,000</td>
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<tr>
<td>Water Efficiency Audits for HOA Common Areas and Other Irrigation Customers</td>
<td>Gary Woodard - Water Resources Consulting</td>
<td>11/13/2020 – 12/31/2022</td>
<td>$120,000</td>
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<tr>
<td>in the Phoenix AMA</td>
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<tr>
<td>Bringing the Groundwater System to Light through an Educational Outreach</td>
<td>Esser Design, L.L.C.</td>
<td>2/16/2021 – 10/31/2022</td>
<td>$250,000</td>
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<tr>
<td>Campaign/Video Series Targeting Youth and Adults</td>
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<tr>
<td>Pecan to New Magma Reclaim Water Line</td>
<td>EPCOR Water</td>
<td>9/22/2021 – 8/31/2025</td>
<td>$250,000</td>
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<tr>
<td>Leak Detection Equipment Replacement Project</td>
<td>Arizona Water Company</td>
<td>3/26/2021 – 3/31/2026</td>
<td>$60,000</td>
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**Total Funding**  
(Remaining $32,355 to be paid with withdrawal fees)  
$1,277,355

**Tucson AMA**  
(Funding Available $305,000)

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<tr>
<th>Project Name</th>
<th>Applicant</th>
<th>Contractual Term</th>
<th>Funding Awarded</th>
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<tbody>
<tr>
<td>Expanding a Water Loss Control Program throughout Tucson Water’s Distribution System</td>
<td>City of Tucson</td>
<td>2/11/2021 – 6/30/2024</td>
<td>$249,908</td>
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<tr>
<td>Automated Gate for Marana Road Canal</td>
<td>Cortaro-Marana Irrigation District</td>
<td>1/6/2021 – 5/31/2024</td>
<td>$30,092</td>
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<tr>
<td>Marana Water Citizens’ Water Academy</td>
<td>Town of Marana</td>
<td>5/5/2021 – 5/31/2023</td>
<td>$25,000</td>
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**Total Funding**  
$305,000
## Pinal AMA
(Funding Available $150,000)

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Applicant</th>
<th>Contractual Term</th>
<th>Funding Awarded</th>
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<tbody>
<tr>
<td>Using Project-Based STEM Education to Enhance Groundwater Conservation in Pinal County Schools</td>
<td>University of Arizona, Arizona Project WET</td>
<td>1/20/2021 – 10/31/2024</td>
<td>$43,681</td>
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## Prescott AMA
(Funding Available $150,000)

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<tr>
<td>SR 89 Stormwater Recharge Pilot Project</td>
<td>Arizona Department of Transportation</td>
<td>3/26/2021 – 5/31/2024</td>
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## Santa Cruz AMA
(Funding Available $150,000)

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<th>Project Name</th>
<th>Applicant</th>
<th>Contractual Term</th>
<th>Funding Awarded</th>
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</thead>
<tbody>
<tr>
<td>Water Conservation Education and Technology</td>
<td>City of Nogales</td>
<td>3/29/2021 – 4/30/2023</td>
<td>$56,647</td>
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<tr>
<td>(Remaining $11,938 to be paid with withdrawal fees)</td>
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</tbody>
</table>
“...We can collaboratively find pathways forward to equitably meet all of our needs.”

ADWR Director Tom Buschatzke
Surface Water

Through the Surface Water Program, ADWR issues permits, certificates, and claims to the use of surface water within the State of Arizona, with the exception of the Lower Colorado River. Additionally, the program processes ownership transfers for surface water rights and claims, manages and maintains the surface water right registry and other Departmental records, and provides technical assistance to private, State, and Federal entities in surface water matters.

The Surface Water Section collaborates with ADWR’s Adjudications Division to ensure the legal basis of right is correctly represented in water right abstracts prepared for the Adjudication Court. As the Adjudication Court hearings and proceedings have ramped up, the work in the section has directly increased to support it. This includes large surges in the number of applications received. In CY 2021, the section experienced an 88.4 percent increase from CY 2020 in the total number of applications filed since the start of the Little Colorado River Adjudication, San Pedro and Verde River Watershed contested case hearings, and Subflow Technical Reports.

In FY 2022, the Surface Water Section developed and rolled out the process, forms, website page, and database changes necessary to implement A.R.S. § 45-189.01, allowing a person who is entitled to use of water to file a notice of a plan to conserve water without loss of their right to that water, and A.R.S. §§ 45-172.01 and 45-172.02, allowing a person who owns acres of land that may be irrigated to permanently retire acres that are either flood damaged or inefficient and substitute for those acres the same number of acres in the same farm unit by notifying the director. These new statutes enable and promote conservation and efficient use of Arizona’s surface water supplies, helping support instream flows and riparian needs.

Section staff conduct field inspections to assess if a surface water right application meets requirements and that the information is correct, as well as to verify statements of continuing use for stockpond water rights. During the inspections, staff walk the site, taking measurements, photographing reservoirs and structures, and completing documentation. The information gathered before and during an inspection is compiled into a field inspection report that is provided to the applicant and maintained in the Department’s files. In FY 2022, staff conducted 31 field inspections.

In FY 2022, the Surface Water team initiated in-depth stockpond analysis utilizing satellite, aerial, terrestrial, and drone platforms. Terrain is computed into a 3D map aerial overview, and post-processing produces the stockpond capacity, along with spectacular imagery. The information streams generated through updated spatial data analysis of field inspected sites, development of current change analysis, and production of geospatial data will enable ADWR to better share robust and complex data in ways that are easily accessible, meaningful, and usable by other agencies and the public.
The Groundwater Permitting and Wells Section (Section) is responsible for issuing groundwater withdrawal permits and processing Notice of Intention (NOI) to Drill, Deepen, Modify, Replace and Abandon well applications. The Section processes the highest number of applications with the shortest time frames.

The Section must perform an administrative review for completeness of the applications and determine whether to grant or deny a drilling authority within 15 calendar days. The Section’s Arizona Management System (AMS) goal for processing NOI applications is 6 calendar days or less. The Section continues to meet the AMS goal, maintaining an average of 4.26 calendar days for FY 2021-2022.

- In recent years, the number of NOI applications received has increased annually, and this year the Section is once again anticipating meeting or exceeding last year’s volume.
- The Section also receives the highest customer service / public assistance volume, averaging 873 calls a month.
- The Section is responsible for administering the Arizona Well Drillers Exam to people interested in becoming Arizona Licensed Well Drillers and maintaining their license. Thirteen people took the Well Drillers Exam in 2021-2022. Additionally, on May 9, 2022, the Section issued 231 Renewal Notices to active Arizona Licensed Well Drillers.
- The Section also processes what is referred to as “after-filing documents.” For example, once a well has been drilled, deepened, modified, replaced, or abandoned, or if a change of well information or ownership is required, the well driller or well owner must submit the appropriate forms to the Department. These documents ensure ADWR has accurate and updated well owner and well information. In FY 2021-2022, the Section entered data from 11,335 after-filing documents into the Department’s publicly accessible Wells55 database. The number of after-filing documents processed by the Section in this fiscal year increased 141.60% over last. Although there are no timeframes associated with the documents, staff process these forms as quickly as possible to ensure the Department’s other programs and the public have access to current and correct information.
- Once the NOIs, groundwater withdrawal permits, and after-filing documents are processed, the Section scans the documents to the Department’s imaged records for immediate internal and public access. The Section also manages and maintains the database and the registry of 226,578+ wells of record in Arizona. Including the Groundwater Withdrawal Permits.
• In September, the Section collaborated with ADWR’s ITD Division to create an Online Portal for Pump Completion Reports (Online Portal). A well owner must submit a Pump Completion Report within 30 days after the installation of pumping equipment to their well. Once a Pump Completion Report is filed through the Online Portal, the information is populated on the Department’s Wells55 database. The Pump Completion Report is then uploaded to the imaged records and instantly available for customer review. The new online portal streamlined the process and reduced costs for both customers and staff.

• The Section assisted the Arizona Department of Environmental Quality (ADEQ) in identifying 200 old orphan oil and gas wells that may have been converted to water production wells. According to ADEQ, the old oil and gas wells are missing proper “plugged and abandoned” documentation, and ADEQ is proposing to have the wells plugged and abandoned correctly. Research was required to confirm if the Department had documentation indicating the wells were converted to water production wells and registered with the Department to eliminate the risk of plugging and abandoning active water wells registered with the Department.

• Although ADWR staff have been encouraged to telework during the pandemic, the Groundwater Permitting and Wells staff continued to work onsite three days a week to process physical applications and documents, ensuring all timeframes have been met.
Assured & Adequate Water Supply

ADWR's Assured and Adequate Water Supply Program administers the assured water supply requirements within the State's five Active Management Areas (AMA) and the adequate water supply requirements outside of the AMAs. These requirements are designed to provide consumer protection for buyers of homes in new subdivisions within the State.

Arizona’s Assured Water Supply program is designed to preserve groundwater resources and promote long-term water supply planning. Established by the Groundwater Management Code of 1980, the Assured Water Supply Program requires that new developments and designated providers within AMAs demonstrate an assured water supply. In areas outside AMAs, the Adequate Water Supply Program requires developers to either demonstrate an adequate supply or disclose an inadequate supply to potential buyers before sale. Rules associated with the programs encourage renewable supplies, such as reclaimed water, surface water, or Colorado River water delivered via the Central Arizona Project.

The Assured Water Supply requirements mandate that developers of new subdivisions in AMAs demonstrate to ADWR that there is a 100-year assured water supply for their subdivision before obtaining plat approval or selling lots. A developer can comply with this requirement by demonstrating that the water supply for the subdivision meets the criteria in ADWR's rules for a 100-year assured water supply, which results in ADWR issuing a Certificate of Assured Water Supply for the subdivision, or by obtaining a commitment of water service from a water provider that has been designated by ADWR as having a 100-year assured water supply.

One of the requirements for demonstrating an assured water supply is that any groundwater use by the subdivision or water provider must be consistent with the AMA's management goal. This requirement is designed to preserve groundwater supplies in the AMAs by requiring new subdivisions to rely primarily on renewable supplies, such as Central Arizona Project water, effluent, or surface water. In the Phoenix, Pinal and Tucson AMAs, a subdivision or water provider can meet this requirement by becoming a member of the Central Arizona Groundwater Replenishment District, which replenishes groundwater used by its members with renewable water supplies.

The adequate water supply requirements mandate that developers of new subdivisions outside of AMAs apply for and obtain a water report from ADWR determining whether there is a 100-year adequate water supply for the subdivision and disclose the report to prospective buyers or obtain a commitment of water service from a water provider designated by ADWR as having an adequate water supply. In most areas outside of AMAs, there is no requirement that the developer demonstrates that a 100-year adequate water supply exists for the subdivision before obtaining plat approval or selling lots.

However, as a result of legislation enacted by the Arizona Legislature in 2007, cities, towns and counties outside of AMAs are authorized to enact an ordinance requiring that developers of new subdivisions demonstrate to ADWR that there is a 100-year adequate water supply for the subdivision. Another option is to obtain a commitment of water service from a water provider that ADWR has designated as having a 100-year adequate water supply before obtaining plat approval or selling lots. Some local jurisdictions, including Cochise County, Yuma County, Clarkdale and Patagonia, require a 100-year water adequacy determination from ADWR before completing the final plat approval process. Unlike the assured water supply program, the adequate water supply program does not require the use of renewable water supplies or replenishment of groundwater use by new subdivisions.
The staff hosted 35 pre-application meetings with potential applicants. During the year, 200 determinations were completed. Issued determinations included 50 Certificates of Assured Water Supply, with 61 total conveyances of Certificates of Assured Water Supply; two Water Reports for subdivisions outside of the Active Management Areas; 15 new Analyses of Assured Water Supply with extensions to 25 existing Analyses of Assured Water Supply. Additionally, one Decision and Order for a Designation of Adequate Water Supply two Modifications (renewals) of Designations of Assured Water Supply were issued. In terms of the impact on the growth of our State, these determinations represent the potential for over 100,000 homes in 150 communities and subdivisions being constructed throughout the State.

The Assured Water Supply team also processed 31 new applications to extinguish grandfathered groundwater rights for extinguishment credits and 29 applications for the conveyance of existing credits. Extinguishment credits help developers comply with the AMA management goal through exchanging groundwater rights for credits that can be pledged to certificates or designated water providers. In 2022, staff processed applications that resulted in extinguishing grandfathered groundwater rights on 893.85 acres in exchange for 5,017.34 credits. In all, 21,055.58 total credits were pledged to Assured Water Supply determinations to help achieve safe yield.
Underground Water Storage, Savings & Replenishment Program

The Underground Water Storage, Savings, & Replenishment (Recharge) Program promotes the use of renewable water supplies, particularly Arizona’s entitlement to Colorado River water, while preserving groundwater through a flexible and effective regulatory program for the underground storage, savings, and replenishment of water. The goals of the Recharge Program are:

To promote the use of renewable supplies; augment the water supply; help reduce groundwater overdraft; provide for the efficient use of all water resources by allowing water to be “transported” by storing water in one location but recovering a like quantity elsewhere; and, to accommodate seasonal demand for water through recharge and recovery.

Permits and Totals

The Recharge team issued the following Underground Storage Facility (USF), Water Storage (WS), Groundwater Savings Facility (GSF), and Recovery Well (RW) permits in FY 2022:

- 8 USF permits were modified or renewed
- 32 WS permits were issued, modified, or renewed
- 1 new GSF permit was issued for a maximum savings of 2,240 acre-feet per year of groundwater in the Pinal AMA
- 15 Recovery Well (RW) permits were issued or modified

Total reported volume of water delivered for storage in the reporting year 2021:

- Delivered 745,000 acre-feet of renewable water supplies to active facilities

Long-Term Storage Credits

- 166 long-term storage accounts were updated and certified in FY 2022.
- These accounts hold long-term storage credit (LTSC) balances ranging from a few credits to over a million credits, with almost 13.5 million acre-feet of credits stored throughout the four AMAs since the inception of the Recharge Program.
- A total of 50 long-term storage credit transfers were processed in FY 2022.
- Review of 2021 Annual Report data and calculation of LTSCs in all three AMAs was completed for the Arizona Water Banking Authority by the June 30, 2022 deadline.
Recovered Water

A Recovery Well (RW) Permit allows the permit holder to recover long-term storage credits or recover stored water annually. The impact of recovering stored water in the proposed location must not damage other land and water users. An impact analysis is required under certain circumstances. A total of 15 permits, comprising 732 wells, were issued or modified in FY 2022.
Hydrology

The Hydrology Division collects and analyzes statewide water resources data, maintains a groundwater database, and develops and updates groundwater models. The Hydrology Division consists of two sections: Groundwater Modeling and Field Services.

Groundwater Modeling

The primary responsibility of the Groundwater Modeling Section is to develop, update, and document regional groundwater flow models within the five AMAs and other selected areas in the State. ADWR uses regional groundwater flow models to evaluate current conditions and simulate possible future scenarios. ADWR groundwater models are important tools used internally and by outside parties to support water management policies and decisions.

Also, the Groundwater Modeling staff reviews hydrologic studies and groundwater flow models produced by others outside of ADWR on behalf of ADWR programs, supports other programs at ADWR, and performs geographic information systems (GIS) analysis of hydrologic data.

Highlights

1. Prepared and delivered several presentations to the State Legislature regarding groundwater conditions in La Paz and Mohave counties.
2. Represented ADWR on the hydrologic and modeling aspects of the Pinal Stakeholder Group's proposed revisions to the Pinal AMA model 100-year projections.
3. Calibrated and completed a 3rd-party review of the steady-state simulation for the new Phoenix AMA groundwater model.
4. Developed an AMS process flow to guide the development of the San Pedro groundwater model, with the intention of applying this tool to other models.
5. Embraced the telework model that was initiated during the pandemic with continued remote work and highly effective virtual communication and collaboration.

In FY 2022, the Groundwater Modeling section has struggled to retain existing and attract new highly-technical and specialized staff that are required to perform the mission. In response to this challenge, the section is actively recruiting, focusing on retaining existing staff, and taking advantage of AMS tools to streamline work wherever possible.
Field Services

The Field Services Section’s main responsibilities include collecting, analyzing and interpreting hydrologic data. Field Services also prepares and publishes numerous reports and maps based on the data and information collected in the field. Field Services is comprised of the Basic Data Unit, Automated Groundwater Monitoring Unit and the Geophysics/Surveying Unit.

Basic Data staff collect groundwater-level data from wells and conduct well inventories throughout the State. They also collect stream flow and discharge data. Collected data is recorded and found online in the Department’s Groundwater Site Inventory (GWSI) database, which is maintained by Field Services staff (GWSI Web).

The Automated Groundwater Monitoring Unit deploys and maintains automated groundwater monitoring devices in wells that record water levels on a predefined frequency on a continuous basis. Some of these wells are equipped with telemetry systems that transmit real-time data to ADWR via satellite. Collected data is also recorded and found online in the GWSI database.

The Geophysics/Surveying Unit collects and processes data and interprets land subsidence and aquifer storage in order to better manage the State’s water resources.

Highlights

• In cooperation with other ADWR staff, field staff continue to work identifying, reporting, notifying, and capping open (uncapped) wells within the state. Staff identified 22, temporarily capped 9, and permanently capped 41 open wells.

• Prepared quarterly reports for Drought Monitoring Technical Committee, reporting on drought index wells and provided hydrologic contribution to Governor’s Arizona Drought Annual Report.


• Created a Field Services webpage link for the Groundwater Level Change application (Water Level Change, developed by the ASU Kyl Center for Water Policy at Morrison Institute. This app can be used to find out how groundwater levels in Arizona’s sub-basins have changed over time. The data for the tool are derived from the ADWR Hydrology Publications (e-Library) Open-File Reports (OFR), Statewide Groundwater Level Changes reports.

• Conducted 2853 index well site visits, collecting 2594 water level measurements at over 1,800 index wells across the State, inputting water level data into GWSI (GWSI Web).

• Completed basin sweeps in Western Planning Area (WPA): Butler Valley, Harquahala, McMullen Valley, Ranegras Plain, and Tiger Wash groundwater basins collecting over 290 water levels, depth to water measurements. Collected over 180 water-level measurements during basin sweep in the Verde River Basin and Prescott AMA.
• Developed and published Depth-To-Water (DTW) dashboard on the Hydrology web page under the Depth to Water Statistics link. The interactive dashboard provides summary statistics about water levels in AZ's basins and sub-basins (Depth To Water Data).

• Continued to reduce the number of “unable to measure” (UTM) water levels at index wells as part of the AMS process.

• Worked with 3rd Party Water Level Portal (3rd Party Water Level Data Portal) entities to add over 400 water levels to GWSI.

• Continued to collect quarterly streamflow data in the Santa Cruz AMA and the Verde River.

• Completed standard operations and maintenance site visits at over 130 well sites with automated monitoring equipment three times each this fiscal year. Collected and uploaded into GWSI over 110,000 daily water levels from automated monitoring sites, inputting water level data into GWSI (GWSI Web).

• Repaired automated monitoring device equipment at over 20 sites statewide.

• Installed 2 new transducer monitoring sites in the Coconino Plateau groundwater basin.

• Completed GNSS surveys in the following areas: Big Chino, Willcox, Douglas INA, San Simon Valley Sub-basin, Pinal AMA, Phoenix AMA, Tucson AMA, and Ranegas Plain.

• Updated and published over 50 new land-subsidence maps, bringing the total number of maps available in ADWR's Hydrology eLibrary to more than 550 land subsidence maps.

• Collected over 200 gravity measurements in Pinal AMA.
Engineering

The mission of the Engineering Division is to minimize the risk of loss of life and property resulting from flooding or dam failure by providing jurisdictional oversight for dams, and by providing technical and regulatory support for floodplain management programs across the State of Arizona. The Engineering Division consists of two programs – Flood Warning and Floodplain Management, and Dam Safety.

Dam Safety

The mission of the Dam Safety Program is to maximize the protection of human life and property against dam failure by providing regulatory oversight for jurisdictional dams in Arizona (250+ dams) through reviewing and approving permits for construction of new dams and repairs to existing dams, inspecting dams and working with dam owners to remediate safety deficiencies.
1) Focus on High Hazard Potential Dams classified as “Unsafe”: The Dam Safety Section focused on helping dam owners start the process of assessing the existing condition, and developing mitigation measures to address safety deficiencies at high hazard potential dams that have been designated as unsafe. To this end:

a) The Arizona Game & Fish Department has hired an engineering consultant to assess Black Canyon Dam in Navajo County. This is a high hazard potential, unsafe dam. Sixty-five percent of the cost for this phase is from a FEMA grant awarded to ADWR. The Dam Repair Fund at ADWR is funding the remaining 35 percent.

b) A similar arrangement with the City of Show Low has allowed that dam owner to retain the services of an engineering consultant to assess the hydrologic and hydraulic adequacy of Jacques Dam in Navajo County. The City of Show Low lies downstream from this dam.

c) ADWR entered into an IGA for an amount not to exceed $150,000 with Navajo County to stabilize a breach in Millett Swale Dam. The funds are also being used for Navajo County to hire an engineering consultant to develop downstream inundation maps to assist local first responders to plan emergency actions in the event of flows from the stabilized breach.

d) ADWR has entered into discussions with Cochise County to address safety concerns at Leslie Canyon Water Users Association Dam. This privately-owned dam was built without review and approval by ADWR. Cochise County is negotiating with the dam owner to take over ownership of the dam. The County has retained a consultant to develop concepts and designs to reduce the storage in the reservoir in order to reduce the downstream risk.
2) Dam Safety Inspections: During FY 2022, ADWR staff inspected all of the 108 high hazard potential dams under ADWR’s jurisdiction. The use of the Huddle Board Metrics and Daily Huddles were instrumental in staff achieving this goal. Monthly targets for inspections were established at the start of the year and then monitored in an easy-to-read visual format. This process allowed for early identification and addressing potential problems that developed during the year. In addition, Staff is also on track to inspect Significant Hazard dams on a 3-year cycle as required by our rules. Staff also initiated actions to inspect all low and very low hazard dams on a 5-year cycle as required by our rules.

The dam engineering community recognizes safety inspections by knowledgeable and experienced individuals are key tools in identifying and managing risk associated with dams, particularly at a time when aging infrastructure is a known problem in Arizona and across the country. These dam safety inspections allow staff to identify safety deficiencies at dams as well as downstream hazard creep that can change the downstream hazard potential classification of a dam.

3) Dam Safety Applications & Construction Oversight: Staff continues to work with dam owners seeking to construct new dams or seeking to repair/modify existing jurisdictional dams. Our activities included regulatory oversight during construction, review and approval of applications to construct, modify, or remove jurisdictional dams, and pre-applications reviews. Pre-application reviews allow Department staff and the dam owners and their engineering consultants to interact early in the design phase so that both parties develop a good understanding of the project requirements and constraints.

a) During this year, staff was involved in pre-application reviews for McMicken Dam, Powerline Flood Retarding Structure (FRS), Vineyard FRS, and Guadalupe FRS.

b) Staff reviewed and approved applications to construct a new spillway at Buckeye FRS No. 1. This application review was completed within Licensing time frames. This is a high hazard, unsafe dam. Once this phase of construction is completed, we anticipate that the dam will no longer be classified as unsafe. Construction has recently started on this project, and staff is providing regulatory oversight.

c) Construction of the McMicken Dam Rehabilitation Project, Phase 1, started in September 2021. The project consists of a new 1900-ft-long emergency spillway and new principal outlet structure. Since the start of construction, the Department has received 71 construction submittals and request-for information with an average review and response time of 1.5 days and 1.0 days, respectively, easily beating the specification requirements of 5-day review timeframes. This is important in order to help the dam owner and construction contractor avoid costly delays in construction.

4) Staff Training: Technical training is vitally important so that staff keeps abreast with technical and regulatory developments in the field of dam engineering. The Dam Safety Section continues to focus on increasing opportunities for staff training. These training opportunities included both technical sessions related to dam safety, as well as internal training related to our work and AMS.

a) Staff attended and moderated a session at the annual conference for the Association of State Dam Safety Officials in Nashville, TN in September 2021. Staff also attended the Arizona Geo-Institute 2021 Southwest Symposium, and the ASDSO Western Conference in Salt Lake City, UT.
b) Staff attended various online training webinars organized by ASDSO and USSD. These webinars are presented by industry leaders in the fields of dam safety and dam engineering.

c) ADWR Staff was invited to join the ASU Center for Bio-Mediated and Bio-Inspired Geotechnics as a partner. This NSF funded Engineering Center serves as a nexus for two transformative trends in engineering: biologically-based design and sustainability.

d) Internal training sessions included field training on dam safety inspections and construction oversight for new employees, and refresher training on administrative and AMS elements for new and existing employees.

5) AMS-Related Activities:

a) Staff performed two audits of the file naming convention and file plan as a part of the Digital 5S process, and adjusted the filing system accordingly. The audit results revealed that the file naming convention and file plan was being met on more than 90 percent of the audited files.

b) As part of our efforts for continuous improvement, staff coordinated with dam safety staff from other states to understand the best available demonstrated options to store and access digital data for dam engineering.

c) Staff participated in Phase 1 and Phase 2 Data Quality meetings with the Office of Enterprise Data Management. Recommendations from these meetings have been employed to improve the data quality of the Dam Safety DocuShare Covered Information System. Staff has identified the issues with the DocuShare system and started coordination with the ITD to enact a multi-phase approach to enhance the performance, serviceability and data quality of the Dam Safety DocuShare record keeping system.

Flood Warning & Floodplain Management

Flood Warning and Floodplain Management programs reduce risk to life and property by assisting local flood control and floodplain management efforts. The Flood Warning program coordinates with local communities, and state and federal agencies for the planning, design, construction and operation of flood warning systems. In addition, it operates and maintains field equipment, and hosts the statewide flood warning website (afws.org). The Floodplain Management program coordinates the National Flood Insurance Program (NFIP) in Arizona, assists local communities participating in the NFIP through the implementation of the federally funded Community Assistance and cooperating Technical Partners programs, and publishes state criteria for floodplain delineations at the local level.
ADWR received two grants from the Federal Emergency Management Agency: Community Assistance Program – State Support Services Element (CAP-SSSE) grant, and a Cooperating Technical Partners (CTP) grant. Together, these grants support over 2.5 FTEs in the Floodplain Management program. Both grants have primary objectives to assist local communities in Arizona with their floodplain mapping and management programs, and for ADWR to serve as a liaison between these local communities and FEMA.

a) Staff led Community Assistance Visits (CAVs) and Community Assistance Contacts (CACs) with 17 NFIP communities in the State. These community contacts allow ADWR staff to interact with floodplain management staff from the local communities, provide communities with the latest information on the NFIP, audit the communities’ floodplain management programs, and provide the communities with information on available funding and training opportunities at the State and Federal levels.

b) Staff conducted three training workshops on key elements of the NFIP. These training sessions were well-attended, and the audience typically includes local floodplain administrators, community building officials, consultants, and registered land surveyors. These sessions were virtual partly due to the lingering pandemic, but also to allow floodplain management professionals from remote communities to take advantage of this training without incurring travel expenses.

c) In other community outreach activities, ADWR staff provided General Technical Assistance related to floodplain management to several NFIP communities in the State. Much of this assistance was related to flood-after-fire requests for assistance after an active monsoon season. Other outreach activities included our participation in Discovery with Navajo County. The intent of Discovery is to identify local and regional flood hazards and floodplain mapping needs. The communities in the County can use this information to develop hazard mitigation plans and build resilience against flooding.

d) As the lead State agency providing flood warning services in Arizona, staff coordinated with county flood control districts, NOAA and other partners on flood warning and the Arizona Flood Warning System. In addition, Staff performed routine maintenance on ADWR-owned flood warning equipment located in Graham County, Greenlee County, Apache County, Pima County and Yuma County.

e) ADWR staff assisted the Arizona Department of Emergency and Military Affairs (DEMA) by serving on the Hazard Mitigation Grant Program’s Review and Ranking Panel to review grant applications submitted by various stakeholders. This panel reviews proposals by communities for the FEMA grants under Pre-Disaster Mitigation, Flood Mitigation Assistance, Hazard Mitigation Grant, and Hazard Mitigation Grant Program - Post Fire programs.

f) Staff reviewed the Cochise County Hazard Mitigation Plan update and provided comments to DEMA and Cochise County. The Hazard Mitigation Plan evaluates the County’s natural risk profile and identifies policies, actions, projects, and tools that, in the long term, will reduce the potential for future flood-related losses across the County.
Tribal Water Settlement Negotiations

ADWR represents the State of Arizona in negotiations for the settlement of tribal water rights claims. Eleven of Arizona’s 22 federally recognized Indian tribes have outstanding water rights claims. Resolution of these claims through settlement rather than litigation is a priority for the State of Arizona. Settlement avoids the significant costs associated with litigation and generally results in benefits for both tribal and non-tribal water users, including greater certainty regarding available water supplies.

During FY 2022, the following tribal settlement activities occurred:

**Hualapai Tribe**

The Bill Williams River Water Rights Settlement Act of 2014 approved a settlement of the Hualapai Tribe’s water rights claims in the Bill Williams River Watershed between the Tribe, the United States and Freeport Minerals Corporation (“Freeport”). The settlement did not settle the Tribe’s other water rights claims in the state, including its claims to groundwater and Colorado River water for its main reservation.

The Hualapai Tribe, the State of Arizona, the Central Arizona Project, the Salt River Project and Freeport agreed to the terms of a comprehensive settlement of the Tribe’s water rights claims in 2016. Federal legislation approving the settlement was introduced in Congress in 2016, 2017 and 2019, but the legislation was not enacted into law, due in part to concerns raised by the United States Department of the Interior (DOI) regarding several provisions in the settlement. During FY 2022, the parties resolved the concerns raised by DOI by making several changes to the settlement. Legislation approving the revised settlement was introduced in both the Senate (S. 4104) and the House of Representatives (H.R. 7633) on April 28, 2022. A hearing on the H.R. 7633 was held before the House Committee on Natural Resources, Subcommittee on Water, Oceans, and Wildlife, on May 12, 2022. Director Buschatzke submitted written testimony to the Subcommittee in support of the settlement. ADWR will continue to provide support for this settlement.

**Navajo Nation & Hopi Tribe**

Several meetings between representatives of the Navajo Nation, the Hopi Tribe, ADWR, the U.S. and several non-tribal State water users were held during FY 2022 for the purpose of discussing a settlement of the Navajo Nation’s and Hopi Tribe’s water rights claims. ADWR anticipates that settlement discussions will continue during the next fiscal year. The settlement discussions will be confidential.

**Tohono O’odham Nation**

Federal legislation enacted in 1982, 1986 and 2004 settled the Tohono O’odham Nation’s water rights claims for some, but not all, of the Nation’s lands. Discussions to settle the Nation’s remaining water rights claims have been ongoing for a number of years, and have included representatives of the Nation, ADWR, the U.S. and several non-tribal State water users. On August 5, 2021, Director Buschatzke met with Chairman Norris and members of the Nation’s Water Resources Committee in Sells, Arizona to discuss the status of settlement discussions. ADWR anticipates that settlement discussions will continue during the next fiscal year. The settlement discussions will be confidential.
Tonto Apache Tribe

Several meetings between representatives of the Tonto Apache Tribe, ADWR, the U.S. and several non-tribal State water users were held during FY 2022 to discuss settlement of the Tribe’s water rights claims. ADWR anticipates that these settlement discussions will continue during the next fiscal year. The settlement discussions will be confidential.

White Mountain Apache Tribe

In 2010, Congress approved a water rights quantification agreement (Agreement) resolving the White Mountain Apache Tribe’s water rights claims (Public Law 111–291). Although the Agreement was approved by Congress, the Agreement will not become enforceable until certain conditions are met, including the issuance of a Record of Decision by the Secretary of the Interior approving construction of Miner Flat Dam and other infrastructure to allow for the diversion, storage and delivery of water to the Tribe’s Reservation. In 2019, Congress extended the deadline for the settlement to become enforceable from April 30, 2021, to April 30, 2023, because of delays in designing Miner Flat Dam. On November 4, 2021, legislation was introduced in both the Senate (S. 3168) and the House of Representatives (H.R. 5880) extending the deadline for the settlement to become enforceable from April 30, 2023, to April 30, 2025, and increasing the amount of federal monies authorized to be appropriated for construction of the dam and other water infrastructure.

Yavapai–Apache Nation

Discussions to settle the Yavapai-Apache Nation’s water rights claims have been ongoing for several years, and have included representatives of the Nation, ADWR, the U.S. and non-tribal State water users. ADWR anticipates that these settlement discussions will continue during the next fiscal year. The settlement discussions will be confidential.
Map of Adjudicated Watersheds in Indian Reservations