



# ARIZONA FLOODPLAIN MANAGEMENT ASSOCIATION

Volume 48, Number 1  
Spring 2024 Newsletter

## Spring Conference Keynote Speaker: **Ari Gunzburg**

Be prepared to hang on to your seats!

Our keynote speaker for the Spring 2024 Conference is Ari Gunzburg, who is an award-winning speaker, writer, and high performance coach. He presents themes of growth through adversity, positive mindset, and persistence. Mr. Gunzburg will energize the audience and provide the tools to unlock our own everyday greatness. He will approach the achievable using The 5 Keys To Greatness, an easy-to-remember framework he developed and wrote about in his award-winning motivational book, "The Little Book of Greatness".

## Arizona's 1905 Flooding: a Cumulative Whopper [Erinanne Saffell, PhD, Arizona State Climatologist](#)

Way back—when Arizona was still a territory—destructive floods happened every month the first four months of 1905. These months were also the wettest combined January to April on record, not only in Arizona, but also in Colorado and New Mexico. Significant flow from precipitation in the Arizona Territory ultimately funneled into the Colorado River at Yuma, reaching its highest stage that year on March 20. This article outlines the high water flows in Arizona from January to April 1905.

January 1905 was much warmer than normal but also wetter than normal. Pinal Ranch received 9 inches of precipitation, the most for any of the 50 weather stations recording across Arizona that month. Two winter storms passed through the territory, January 9-12 and then January 16-18. Northern counties received above average snowfall that began to melt quickly. Some rail lines and bridges were damaged from flooding, which delayed transportation about 10 days. Temperatures turned much colder by the end of the month.

Maximum Daily Discharge January 1905			
	Verde River at McDowell, AZ	Salt River at Roosevelt, AZ	Gila River at Dome, AZ
January 11-17	10,060 cfs	12,300 cfs	26,000 cfs
Total Monthly Runoff	87,250 ac-ft	99,060 ac-ft	189,200 ac-ft

Maximum daily and total monthly discharges from USGS records, January 1905.

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### Upcoming Events:

**2024 AFMA Fall Conference**  
Prescott ~ October 29-31

**2024 ASFPM Conference**  
Salt Lake City, Utah  
June 23-27

**2024 Flood Management Association (FMA) Conference**  
Las Vegas, Nevada  
September 3-6

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**AFMA Chair, Katherine Fish****Views from the Chair**

Last year, I was elected to the Association of State Floodplain Managers Board of Directors as the Region 9 Director, so I now represent Arizona, California, Nevada, and Hawaii at ASFPM Board meetings and during the National Conference. In February, I attended the annual Board Retreat in Madison, Wisconsin. The purpose of the retreat was to discuss applicable policies, such as FEMA's new pricing system (RR 2.0), NFIP Reauthorization, and FEMA Mapping Priorities. We also discussed the CRS redesign, CFM program updates, and the goals and objectives of ASFPM. It was valuable for me to be able to talk about these topics and have the dedicated time to fully consider the impacts on our floodplain managers and residents.

When discussing the goals and objectives of ASFPM for 2024, we were asked to look at the previous year's list and choose one item that was important to us in each of the 3 overarching goals. The full list of goals can be found here:

[https://asfpm-library.s3.us-west-2.amazonaws.com/ASFPM\\_Pubs/ASFPM\\_FY24\\_Goals\\_Objectives.pdf](https://asfpm-library.s3.us-west-2.amazonaws.com/ASFPM_Pubs/ASFPM_FY24_Goals_Objectives.pdf)



The three core goals are: 1) identify and address critical issues facing flood loss reduction in the nation, 2) refine existing programs and services to improve floodplain management in the nation, and 3) increase the effectiveness and efficiency of the ASFPM operations, management, Board of Directors, and policy committees.

Goal 1 priority: I chose "Promote mapping of areas that are unsafe for development through the refinement of floodway methodology and identifying other areas of highest flood risk, including a coastal component, and develop the corresponding regulatory framework". In my experience, the need for defining the floodway methodology when using a two-dimensional model, as well as putting the regulations into place, is extremely important for Arizona and the other states in Region 9.

Goal 2 priority: I chose "Increase accessibility to existing mitigation funding through simplifying the application process, expediting individual property mitigation, technical assistance (including grant preparation and planning) to small and/or impoverished communities, and increased engagement between FEMA regions, state agencies, and local jurisdictions". When considering the core goal of "refine existing programs and services...." I felt this goal was most important, especially to those communities where one person wears many hats including that of Floodplain Manager. Increased access to funding and a simpler process may provide that person with the ability to complete a much-needed project in their community.

Goal 3 priority: I chose "Refine and update the Regional and Chapter Director roles, as identified in the 02/02/2010 Policy and Procedures Manual, to more effectively use the Director's time and fulfill the ASFPM goals and mission. Align this objective with the 2020 ASFPM Strategic Plan". This was chosen from a

*(continued on Page 3)*

Jack Moody, Vice Chair

## Life is a Rollercoaster—but isn't that just a Hydrograph?

They say that life is a roller coaster, but when you look at one, isn't it really just a hydrograph? As you go up, you are full of anticipation and afraid of what is to come. Then you hit the peak and the excitement begins. To quote my good friend and a former AFMA Newsletter Editor, Sherrick Campbell, "Everything is a hydrograph". And when you look around at the world, it is true; I see hydrographs everywhere. For example, the distribution of scores on a test are called a Bell Curve, but wait, it is just a hydrograph. How about the price of an Uber at the end of a ball game? If you leave just a few minutes early, the price isn't too bad, but if you wait until the game ends, it is very high, peaking just a few minutes later. That time between the end of the game and the peak price of your ride is known as the Lag Time and it is directly related to the Time of Concentration, or the time it takes to get from the most distant seat to the Uber pick-up point. And if you wait until after the peak time, the price goes down and is more affordable. A **hydrograph**, I tell you!



Another example of a hydrograph in life was the first round of COVID-19 we faced in 2020. As the "hydrograph" rose and we were worried about the "peak discharge" overwhelming the healthcare system, we were asked to help *flatten the curve*. *Flattening the Curve* was just a sort of "detention basin" that helped to mitigate the "flow" to the hospitals. In hindsight, we see that when we flattened the curve, we helped mitigate the overcrowding of the hospitals, although the volume basically remained the same. Wasn't that really just hydrograph attenuation?

And finally, I remember many years ago when my wife was in labor with one of my children and the monitor was graphing her contractions. The graph showed minimal activity for a while, followed by a rapid increase to a peak, then a trailing limb of decreasing activity. Doesn't that sound familiar? During one of the peaks, I very excitedly pointed out to my wife "*hey look, that is just a hydrograph, isn't that cool.*" Well, she didn't think that was "*cool*"; she wasn't even amused by my comment — and maybe a little annoyed. I hear about that to this day. The takeaway from that is, if you are in a labor room with someone about to experience the miracle of birth, you'd best not talk about hydrographs or make even the slightest hydrologic reference. After all, we have our whole lives for them to realize what nerds we are.

Thank you again for this opportunity to serve AFMA as the Vice Chair. If you have any ideas or recommendations for the association, or would like to be more involved with AFMA, please email me at [jack.moody@westwoodps.com](mailto:jack.moody@westwoodps.com) or call (480) 840-7708.

## Chair Report *(continued from page 2)*

more personal perspective than the other two since the overall goal is about the ASFPM administration. ASFPM has provided some training on what it means to be a board member and the responsibilities associated but I felt more information was necessary for me to effectively represent communities in Region 9.

Additionally, I want to share what I learned about the CFM exam. In 2023, 1,200 people took the exam and 56% passed the first time. ASFPM has been working hard to provide additional training for people who want to take the CFM exam. On the ASFPM Training Center there is an option for Online Training. Under On-Demand learning are several courses (some free, some at a cost) including "The Official Guide to Becoming a CFM" and "NFIP 101: Introduction to Floodplain Management". These two courses are free and will be valuable to anyone preparing to take the CFM exam. There are also a few other courses that you may find useful, and be sure to check back because more are coming.

Jean Marie Rieck, Secretary

## **Fun Facts about Burrowing Owls in Arizona's Floodplains**

The western burrowing owl is also called the “rattlesnake owl” because the young buzz that sounds like a rattlesnake when disturbed. They are seen during daylight hours and use underground burrows for nesting and escape. They are found in urbanized areas where frequent conflicts occur between owls and development, and although adapted to human presence, they can also go unnoticed due to their secretive nature.

Suitable habitat consists of dry, treeless areas in short grasslands, desert scrub or prairie plains. Common associated plant species are creosote bush, rabbit-brush, saltbush, and mesquite. They may nest in human-modified areas such as abandoned lots, developing urban areas, golf courses, airports, agricultural fields, irrigation canals, storm drains, roadsides and parking lots. They do not dig their own burrows; instead, they raise their young in burrows abandoned by badgers, coyotes, skunks, kangaroo rats and ground squirrels. They range from the Mississippi River to the Pacific Ocean, north into Canada and south into Mexico.



### Western Burrowing Owl Population Trends

- Their use of underground burrows makes them susceptible to impacts from ground disturbing activities and development.
- In addition to development encroaching on owl habitat, they are suffering from climate change and drought conditions.
- With the Southwest's often prolonged dry/hot months, less vegetation is growing that supports the insects and rodents that they feed on.
- Burrowing owls also face threats from pesticides, shootings, entanglements in fences and other manmade hazards.
- Modern agricultural practices have displaced the prairie dogs and ground squirrels that burrowing owls depend on for nesting burrows.
- Conservation groups are mindful and cognizant of long term survival and relocation strategies for this species to help make sure that their numbers do not continue to fall.

### Laws and Regulations Pertaining to Western Burrowing Owls

- Protected by the Migratory Bird Treaty Act which prohibits “take” and harming of the species.
- Listed as a “bird of conservation concern” by the U.S. Fish and Wildlife Service.
- Protected by Arizona state law (ARS Title 17) and listed as a species of concern in the state.
- Despite federal protections under the Migratory Bird Treaty Act, burrowing owls remain threatened by land and floodplain development.

### Relocation Options in Arizona

- As more open desert, floodplains, and farmland is developed, burrowing owls are being relocated to new sites.
- BUT, as metro Phoenix continues to grow, some owls have to be relocated multiple times.
- During relocation, owls are captured and transported to a care facility where they are held until a new location in the wild has been designated and artificial burrows have been installed.

*(continued on page 6)*

Elizabeth Rockwell, Associate Member Representative

## Spring 2024 Conference Details

For the Conference Chair of AFMA, the year is broken up into four main sections of time: the three months leading up to the Spring Conference, the three months leading up to the Fall Conference, and then the two sets of three months in between. Currently, I am in the midst of the three months leading up to the Spring Conference, and my schedule is filled with scheduling calls, menu selection emails, and plenty of editing to prepare the conference's program. The Spring 2024 AFMA Conference will be held in the central region on May 1<sup>st</sup> – 3<sup>rd</sup> in the heart of downtown Chandler, at the Crowne Plaza Phoenix-Chandler Golf Resort (formerly the San Marcos). The conference will start with a selection of free-to-attend classes on Wednesday, May 1<sup>st</sup>, roll into a full day of presentations on Thursday, and finish with a half-day of presentations on Friday, followed by an afternoon field trip.



The Wednesday class schedule will have four concurrent sessions, with a class for every interest. In the first concurrent session, the all-day course “2D Flooding Hazards” Science and Preparedness” will be taught by the University of Hawaii’s National Disaster Preparedness Center and will be a great class to enhance your understanding of flood science, risk assessment and preparedness strategies. In the second concurrent session, the morning includes JE Fuller staff Peter Acton and Nate Vaughn will be teaching “A Comprehensive Overview to the Green-Ampt Infiltration Method”. In this class you can learn about recent improvements in infiltration methodologies in the western US, and recommended implementation methods. In the afternoon, you can get a different overview, this time on QGIS in the class “Overview & Introduction to QGIS”. You’ll definitely need a laptop for this one, so make sure to bring it along. For the third concurrent session, you can get a refresher on all things floodplain related with “Floodplain 101” taught by a tag-team crew from the Arizona Department of Water Resources (ADWR) and the AFMA Programs & Policies Committee. In the afternoon, put that knowledge to use, and take the CFM exam. Pre-registration for the exam is required, so make sure to register on ASFPM’s website under the “CFM Certification Program” tab. Lastly, we will be hosting FEMA Office Hours as the fourth concurrent session, where you can schedule an hour-long appointment to talk directly with ADWR and FEMA Region IX representatives. Appointments must be scheduled ahead of time with Mike Shelton of ADWR.

On Wednesday, as the classes conclude around 5:00 PM, you’ll be on your own for happy hour and dinner. There is no need to worry, as downtown Chandler has a plethora of options for you to check out and do a little bit of networking. Our first recommendation would be hitting the San Tan Brewery just a few steps from the Conference. At the conclusion of your class, head over to enjoy a beverage or an appetizer with a peer or two. Pedal Haus Brewery is another great option. You can then hit The Brickyard Downtown for dinner or The Uncommon if you’re in the mood for some fun and games. Don’t stay out too late on Wednesday night, though, because Thursday morning you’ll need to be up bright and early!

As the sun rises on Thursday morning at approximately 5:38 AM, you’ll be lacing up your running (or walking shoes) and warming up with a quick walk over to the San Marcos Golf Course for the first annual AFMA Scholarship 5K Run/Walk. Runners and walkers alike will assemble at the starting line beginning at 5:30 and at 6:00 AM, the race begins. The race loop meanders through the back-nine holes of the San Marcos golf course, allowing you to inhale the smell of fresh cut grass, stretch your legs, and prepare yourself for the next two days of conference activities, all while raising money for the AFMA Scholarship, which supports Arizona students studying civil engineering, watershed management, and other water resource related fields.

On Thursday, the conference officially kicks off at 8:30 AM, with a Local Welcome from the Mayor of the City of Chandler. The rest of the day will be filled with technical presentations on a range of topics. When you have free time during a break, make sure to check out the Silent Auction tables to bid on items to raise even more for the scholarship.

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## Burrowing Owls *(continued from page 4)*

- Artificial burrows typically consist of an in-ground upside-down 55-gallon bucket that has been cut in half with tubes that loop up to the ground surface. Meshed wire, cable ties, steel wire, cinder blocks and rebar may also be used to mimic natural tunnels and nests.
- Floodplain Projects Involving Burrowing Owl Relocations
- During construction of the Paseo de las Iglesias Santa Cruz River Bank Protection Project, Pima County Flood Control District called in experts to relocate a pair of western burrowing owls that were discovered nesting on the bank of the Santa Cruz River.
- 16 new artificial burrows were constructed using plastic buckets, tubing, and PVC pipes to mimic natural burrows. These burrows were then covered in rock to provide additional protection to the habitat entrances.
- Since work on the Paseo de las Iglesias Project finished, multiple owls have returned to the area.
- Floodplain management projects like this can continue with help of burrowing owl relocation experts to mitigate potential impacts to this charismatic protected species.



### Sources:

Arizona Game and Fish Department, Phoenix, AZ, Arizona Burrowing Owl Working Group. *Burrowing Owl Clearance Protocol*. Arizona Game and Fish Department. Arizona Revised Statutes, 17-235, Migratory Birds, and 17-236, *Taking birds; possession or raptors*. Phoenix, Arizona. 2009.

Torquer, E. *Burrowing owls' habitat losses have wildlife experts working to relocate them*. Cronkite News: Website: <https://cronkitenews.azpbs.org/2022/05/06/burrowing-owls-habitat-arizona-artificial-burrows-endangered-species>. 2022.

Stone, E. *Burrowing owls are losing their habitat to growth, but there is hope for the quirky bird*. Arizona Republic. Website: <https://www.azcentral.com/story/news/local/arizona-environment/2020/03/24/arizona-burrowing-owls-face-threats-development-but-theres-hope/4968877002>. 2020.

Walton, E. *Pima County Flood Control restores burrowing owl habitat*. Tucson News Now. Website: <https://www.kold.com/story/35530399/pima-co-flood-control-restores-burrowing-owl-habitat>. 2017.

The conference dinner will wrap up the day with table-by-table Jeopardy trivia. Make sure to sit with your team, get

## Spring Conference Details *(continued from page 5)*



your buzzer ready, and prepare to answer with a question. After breakfast Friday morning, the last plenary session of conference starts. The final two presentations of the day will prepare you for the afternoon field trip, which includes visits to the Paso Vista Recreational Area and Landfill and the Gilbert Regional Park at Higley/Ocotillo. Driving instructions are on the AFMA website, and as always, carpooling is highly encouraged.

Looking at the rest of the year, we are already planning the Fall 2024 AFMA Conference Tuesday-Thursday, October 29-31 in the northern region at the Prescott Resort & Conference Center. Plan ahead now for this slight change in the norm, with the conference starting on Tuesday rather than Wednesday, in an effort to get everyone home in time for Halloween to trick-or-treat.

Thank you again for this opportunity to serve AFMA. If you have any suggestions, ideas, or are interested in presenting at a future conference, please contact me at (602)-506-5460 or [Elizabeth.Rockwell@maricopa.gov](mailto:Elizabeth.Rockwell@maricopa.gov).

John Carr - Northern Region Representative

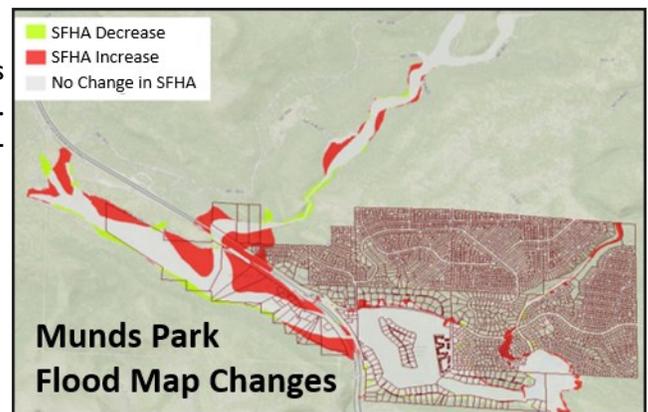
## Munds Park Remapping Project Update

On July 20, 2023, the Federal Emergency Management Agency (FEMA) delivered updated preliminary flood maps. The maps identified the revised flood hazards in the Munds Park drainage area.

To help inform the public about the new preliminary flood maps, the County and FEMA hosted a [Flood Risk Open House](#) on September 18, 2023. For those unable to attend in person, a virtual Flood Risk Open House, which provided an overview, was held on September 13, 2023.

Before the new Flood Insurance Rate Maps (FIRMs) can become effective, there will be a 90-day appeal period. During that time, residents or businesses with supporting technical and scientific information, such as detailed hydraulic or hydrologic data, could appeal the flood risk information on the preliminary maps and provide comments. This period started on January 24, 2024, and will end on April 22, 2024. Residents can email appeals, comments, and questions to [FEMAFloodMap@coconino.az.gov](mailto:FEMAFloodMap@coconino.az.gov) or call 928-679-8881.

Once the appeal period ends and FEMA addresses all appeals and comments, the flood maps will be finalized and issued. The new flood maps are targeted to become effective by early 2025.



Geoff Brownell - Central Region Representative

## Precision vs. Accuracy

It strikes me that two adjacent surface water and roadway teams in my office, while all civil engineers, are different in some profound ways. Roadway engineers deal in accuracy and they design elements to a hundredth of a foot. These elements generally get built with similar accuracy. They are meticulous in their cut/fill balances, vertical curves, tapers, transitions.

Don't get me wrong, we surface water engineers do, too, when it comes to improvement projects and construction documents, but we certainly do not in the flood hazard/floodplain management business. I always say we live in a gray world, a world where we must be comfortable with being wrong because we always are. So much so that it is one of the primary core skills to be successful in surface water: knowing that precision does not equal accuracy.

This concept of precision vs. accuracy can be difficult for new graduates to comprehend. I cringe when I see a peak flow or water surface elevation reported precisely—not accurately—to two decimal points. I nip this in the bud quickly, because a successful practitioner of all things surface water must be comfortable operating in the gray. We all know not every engineer (or planner, or administrator) is comfortable with this. It's a true skill that sometimes goes against our most ingrained instincts. That said, I find it helpful to remember what we are ultimately doing. We are not calculating peak flows and water surface elevations as the ultimate goal; those efforts are a means to an end. Instead, we are assessing flood hazards to protect the public. In that we should be building in forgiveness in design. We should be testing input parameters for sensitivity. We should be assessing relative risk. But most importantly, we should recognize that we will always be somewhat wrong.

Linda Potter - Chair, Programs & Policies

## The Future of Flood Risk Data: Part 2

The Fall 2023 newsletter contained an article introducing the Future of Flood Risk Data (FFRD). This FEMA initiative will change how the nation looks at flood risks, including a change from binary to graduated risk analyses. We will continue to monitor and report on this important change.

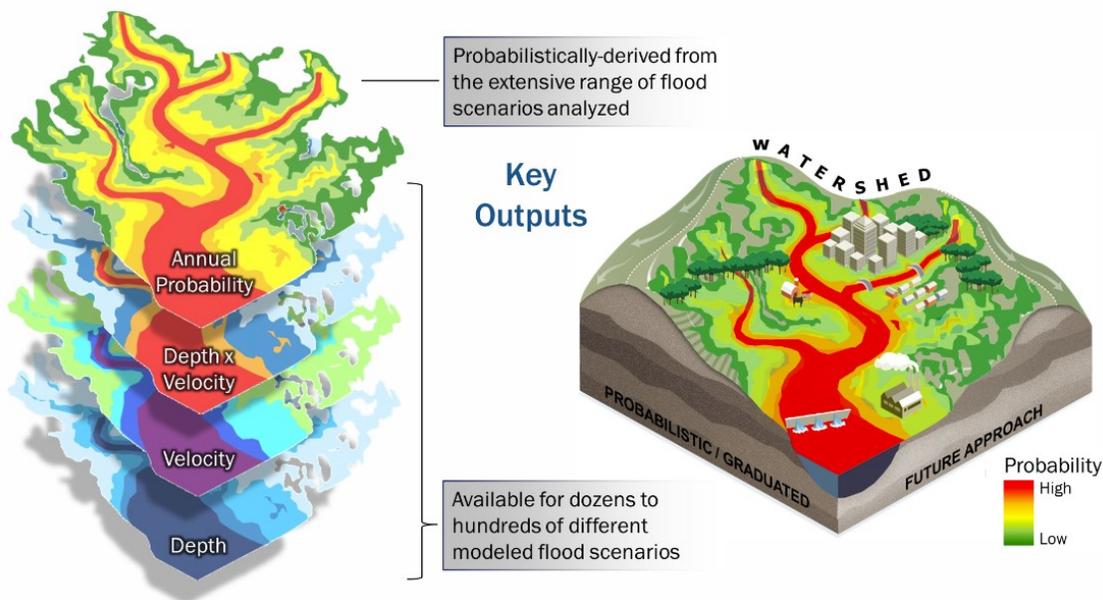
Got questions? Representatives from FEMA will attend our Spring 2024 Conference to introduce the topic in person. Please plan on attending!



Links to additional information on FFRD may be found at:

USACE Hydraulic Engineering Center [FEMA's Future of Flood Risk Data Initiative \(army.mil\)](https://www.army.mil).

FEMA's fact sheet: [The Future of Flood Risk Data \(FFRD\) | FEMA.gov](https://www.fema.gov)



### New Initiatives for the Committee

Coming soon to a community near you! We will be re-instating the Traveling Road Show with the help of ADWR representatives. This program seeks to deliver pertinent information on floodplain administration, community risks, and assistance programs to communities. A new portion of the Road Show will be devoted to funding sources for technical assistance and mitigation improvements.

### Programs and Policies Committee Members

The Programs and Policies committee meets monthly and is made up of the following AFMA members: Linda Potter (Chair), Christian Aguirre, Justin Beeler, Andrew Chill, Christian Harvey, Tim Murphy, and Greg Rodzenko. Please contact any one of us with your questions and ideas.

## The 1905 Flooding *(continued from page 1)*

The wet February of 1905 caused three flooding events along the Verde, Salt, and Gila rivers. According to a 1905 USGS report, the February rain events “gave a character to these floods not unlike that of streams in the eastern part of the country” (USGS). The Gila River at the Dome station was normally dry 10 months of the year, so peak discharge of 82,000 cfs on February 8 was exceptionally large.

Maximum Daily Discharge February 1905			
	Verde River at McDowell, AZ	Salt River at Roosevelt, AZ	Gila River at Dome, AZ
February 4-8	32,970 cfs	31,400 cfs	82,000 cfs
February 17-19	9,767 cfs	21,550 cfs	24,800 cfs
February 21-28	21,050 cfs	27,550 cfs	45,200 cfs
Total Monthly Runoff	428,100 ac-ft	455,800 ac-ft	680,300 ac-ft

*Maximum daily and total monthly discharges from USGS records, February 1905.*

Above average precipitation continued in March 1905 after four storms impacted the state. A good amount of snow was observed on the Superstition Mountains after the last storm event that month, as well above average amounts of snow in Prescott and northern counties.

Maximum Daily Discharge March 1905			
	Verde River at McDowell, AZ	Salt River at Roosevelt, AZ	Gila River at Dome, AZ
March 1-3	25,130 cfs	17,100 cfs	34,000 cfs
March 13-16	25,500 cfs	38,700 cfs	39,000 cfs
March 17-19	29,410 cfs	39,800 cfs	62,000 cfs
March 20-22	10,630 cfs	44,400 cfs	95,000 cfs
Total Monthly Runoff	539,990 ac-ft	940,800 ac-ft	1,020,000 ac-ft

*Maximum daily and total monthly discharges from USGS records, March 1905.*

April was another cold month in 1905. High winds and thunderstorms impacted some crops in April, with frost and cold temperatures delaying blooms and germination in northern and central counties. Storms would hit during the middle of April, causing additional flooding and damage. Most notably, the Arizona Dam would be destroyed by the April floods, to be replaced by the new Granite Reef Diversion Dam in 1908 (<https://www.srpnet.com/grid-water-management/water-management/granite-reef-diversion-dam>).

Maximum Daily Discharge April 1905			
	Verde River at McDowell, AZ	Salt River at Roosevelt, AZ	Gila River at Dome, AZ
April 12-19	32,140 cfs	45,470 cfs	64,000 cfs
Total Monthly Runoff	311,000 ac-ft	746,800 ac-ft	768,200 ac-ft

*Maximum daily and total monthly discharges from USGS records, April 1905.*

Spring flooding often caused substantial damage across Arizona, both as a territory and a young state. Records from 1862-1953 show the recurrence interval for 40,000 cfs in both the Salt and Verde rivers was approximately 5-6 years.

*(continued on page 10)*

Laurie Miller – Newsletter

## The Devil is in the Details

The excellent article submitted by our State Climatologist describes in detail the miserable winter and spring flooding of 1905. As noted, it wasn't just one big flood but a whole season of them. But within that time period, flooding of note did occur, and here are a couple of the more famous ones.



The capitol of Arizona Territory flooded in 1905; at the time the event was called either the Cave Creek flood or the Verde River flood. But that was not the first—nor the last—time Cave Creek visited the Capitol. Finally, after another major flood in 1921, Cave Creek Dam was constructed and eventually replaced by Cave Buttes Dam.



The 1905 flooding is credited for resurrecting California's current Salton Sea. The Salton Sink in the Imperial Valley had historically been dry, but in 1905 the swollen Colorado River overtopped an irrigation canal under construction. The sink filled up, and the Salton Sea was reborn. It continues to be an important natural resource for Southern California.



*I love when the wildlife is color-coordinated.*

## The 1905 Flooding *(continued from page 9)*

Interestingly, the individual events from Spring 1905 were not exceptionally large. In comparison to the February 1891 Great Flood event, individual events in Spring 1905 had smaller discharges for both the Salt and Verde rivers than the February 1891 event. What was unusual was that event after event for four continuous months built a coupled January-April mean discharge in 1905 (Salt: 9,417 cfs, Verde 5,784 cfs) larger than the January-April 1891 mean discharge (Salt: 6,467 cfs, Verde: 5,341 cfs).

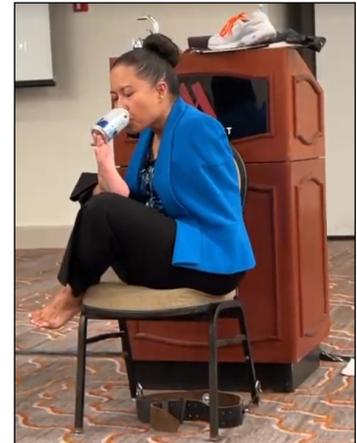
January 1905 could never compare to January 1993, and April 1905 slid to 3<sup>rd</sup> wettest April following 1926 (now the wettest) and 1941 (now 2<sup>nd</sup> wettest). However, February 1905 and March 1905 still stand as the wettest individual February and March in Arizona (1895-present).

### *Background information:*

Moore, W. L.. U.S. Department of Agriculture, Climate and Crop Service of the Weather Bureau, Arizona Section. *Annual report for 1905*. 1906.

Murphy, E. C., et. al. U.S. Department of the Interior, United States Geological Survey. *Destructive floods in the United States in 1905*. 1906.

Smith, W. and Heckler, W. U.S. Geologic Survey and Arizona State Land Department. *Compilation of Flood Data in Arizona 1862-1953*. August 1955.



Keynote speaker Jessica Cox demonstrates drinking a soda with aplomb.



Kyle, on the other hand, demonstrates that some problems have more than one solution.



Wow, Ryan. That drink is pink enough to make even Barbie blush.



Wednesday's class of studious students.

## **AFMA Fall 2024 Conference, October 29-31, 2024**

### **Prescott Resort & Conference Center**

1500 AZ-69  
Prescott, AZ 86301



### **ARIZONA FLOODPLAIN MANAGEMENT ASSOCIATION**

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