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THE JICARILLA APACHE NATION WATER LEASE PROJECT

**Presentation at the Animas and San
Juan Watersheds Conference
June 21, 2023**

**Colleen Cunningham, New Mexico
Interstate Stream Commission**

**Jacob Mazzone, Jicarilla Apache
Nation**

**Joe Trungale, The Nature
Conservancy**



The JAN Water Lease Project

First of its kind agreement between a Tribal Nation (JAN), a state agency (NMISC), and a non-profit (TNC).



Water was obtained for up to 10 yrs from the JAN through a lease agreement with the NMISC and TNC.



NMISC obtained a permit to release up to 20,000 AF (20 kaf) of water annually from Navajo Reservoir into the San Juan River beginning in 2023.



Funding to date has been provided by the New Mexico legislature, private donors, and a grant from the NM Office of the Natural Resources Trustee.

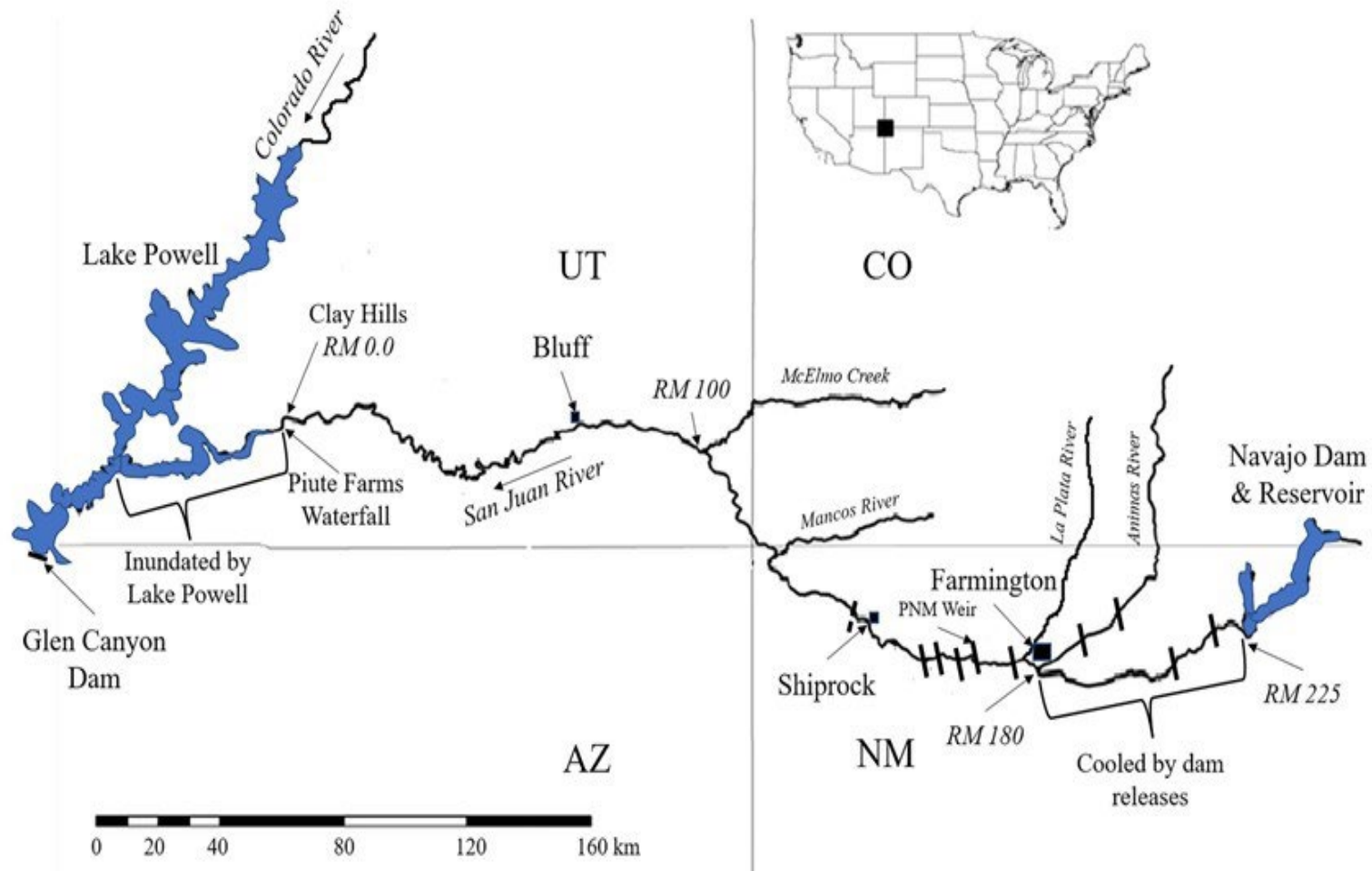


Lease partners are committed to seeking funding for the duration of the lease.



The JAN Water Lease Project

- Leased water will be released from Navajo Reservoir to the San Juan River in New Mexico to meet the purposes of the Strategic Water Reserve.
- The leased water was previously diverted by PNM for its San Juan Generating Station coal-fire power plant.
- Parties to the agreement sought to identify alternative uses of this water to provide the most benefit to the endangered Colorado Pikeminnow (CPM) and the threatened Razorback Sucker (RBS).



THE SAN JUAN RIVER BASIN



Goals for 2023

- **Develop process to determine best use of lease water in 2023 for CPM and RBS (2023 Release Decision; Done).**
- **Identify potential future applications of lease water.**
- **Develop a monitoring program.**
- **Continue to secure funding for the remainder of the lease agreement.**
- **Develop tribal engagement efforts that can implemented by JAN and TNC as funding becomes available.**

Approach to Determine 2023 Release Decision

A Technical Team consisting of representatives of the NMISC, JAN, and TNC was assembled to identify alternative uses for this water.



The Team elicited input from 14 experts in hydrology, geomorphology, and fisheries with direct knowledge of the San Juan River.



The Team conferred with BOR hydrologist to better understand dam operations.



2023 Decision by NMISC based on current collective understanding of the system, supported by literature and expert judgment.

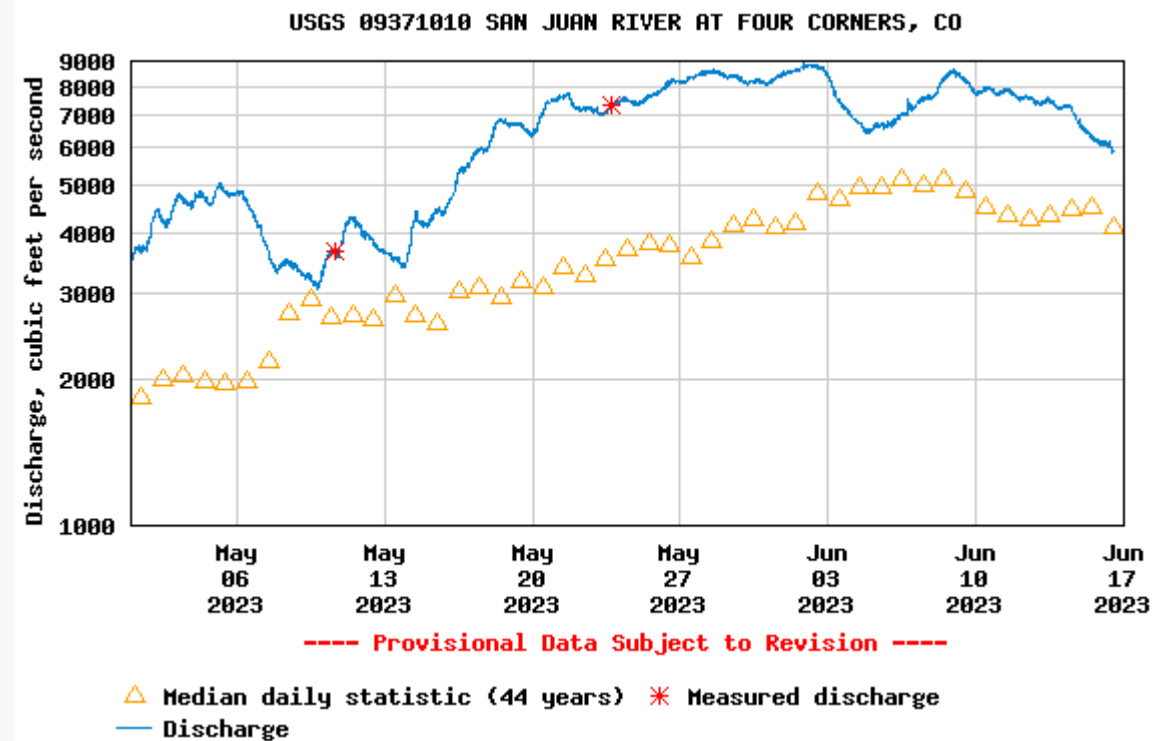
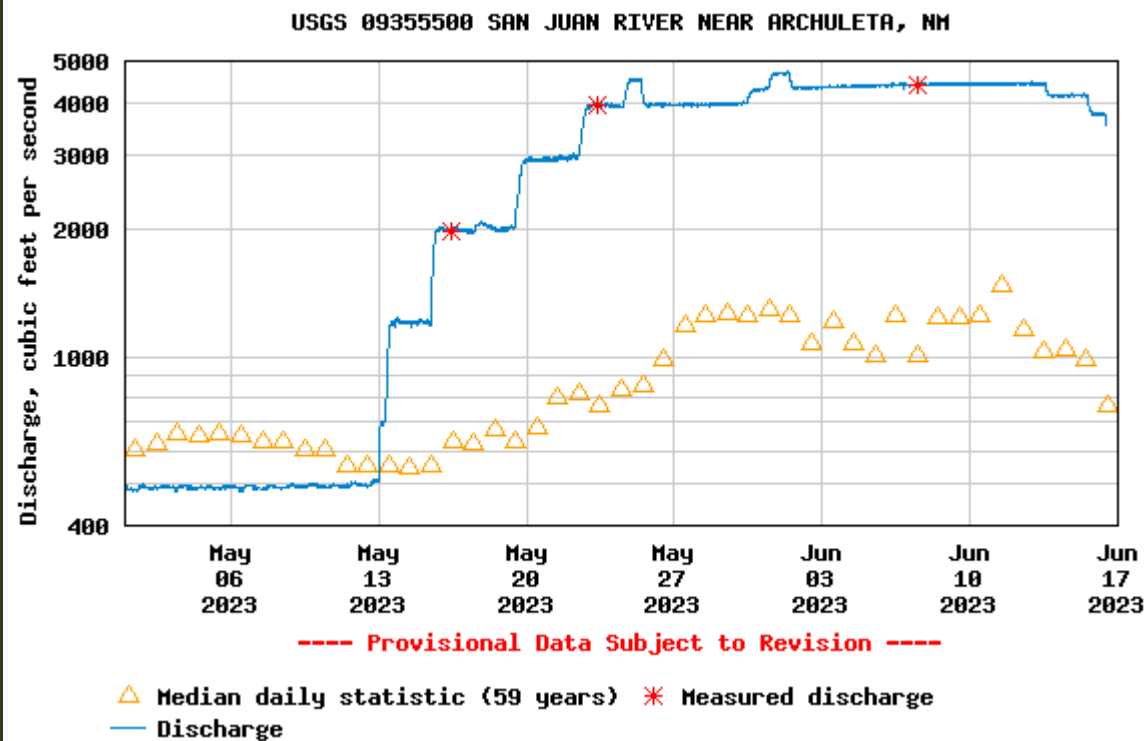
Flow Release Options

Winter Releases (Jan-May) - High magnitude/short duration flushing flow

2023 Release Decision

- Apply the 20 kaf to the spring peak release that Reclamation is conducting this year.
- Add 2 additional days at peak release to enable or exceed the flow targets established by the San Juan River Basin Recovery Implementation Program (SJRIP).
- Concurrence was obtained from the SJRIP Office regarding the biological benefits of the planned action for 2023.
- If there is water remaining after supplementing peak releases, it may be used to test baseflow augmentation or other experiments.

Current Spring Hydrology



What we hope to learn...



Implementation – practical matters related to the release.



Adaptive Management – monitor and incorporate what we learn into subsequent years' decisions.



Flows – flows observed at the downstream gages associated with releases.



Physical – distribution, connectivity, and quality of backwaters.



Biological – larval/YOY fish persistence in the backwaters.

Monitoring Program

Availability of low/zero velocity backwater habitat hypothesized to be a limiting factor for rearing of larval fish into juveniles

Backwater areas created by high spring peak flows and filled in during summer monsoons

Some backwaters become disconnected at low baseflows (<500 cfs), others may be reconnected at higher baseflows (500-1,000 cfs)

2021: July 8th vs. August 5th



507 cfs



370 cfs

Monitoring Program – Measurement Equipment

Two Water level Loggers (backwater and main channel) will be installed at 8-10 sites on the San Juan River downstream of Farmington.

Water surface elevation and corresponding flow needed to maintain connectivity will support future release decisions.

Duration of connectivity will be incorporated into fishery response model.



Monitoring Program – Adaptive Management



Opportunity to design experiments and collect multiple years of data



Consideration of confounding factors (antecedent peak flows, monsoon events, etc.)



Potential for baseflow augmentation in subsequent years (vary magnitude and duration).



Goal is to produce the biggest bang (ecological benefit) for the buck (optimal release pattern)



<https://www.usbr.gov/uc/water/crsp/cs/nvd.htm>

QUESTIONS

Table 1. The Technical Team

Name	Affiliation
Colleen Cunningham	New Mexico Interstate Stream Commission, Santa Fe, NM
Jacob Mazzone	Jicarilla Apache Nation, Dulce, NM
Rich Valdez	New Mexico Interstate Stream Commission—Consultant, Logan, UT
Katie Kennedy	The Nature Conservancy, North America Region
Joe Trungale	The Nature Conservancy, Colorado River Program
Anthony (AJ) Keith	Stillwater Sciences, Colorado River Program – Consultant, Boulder, CO

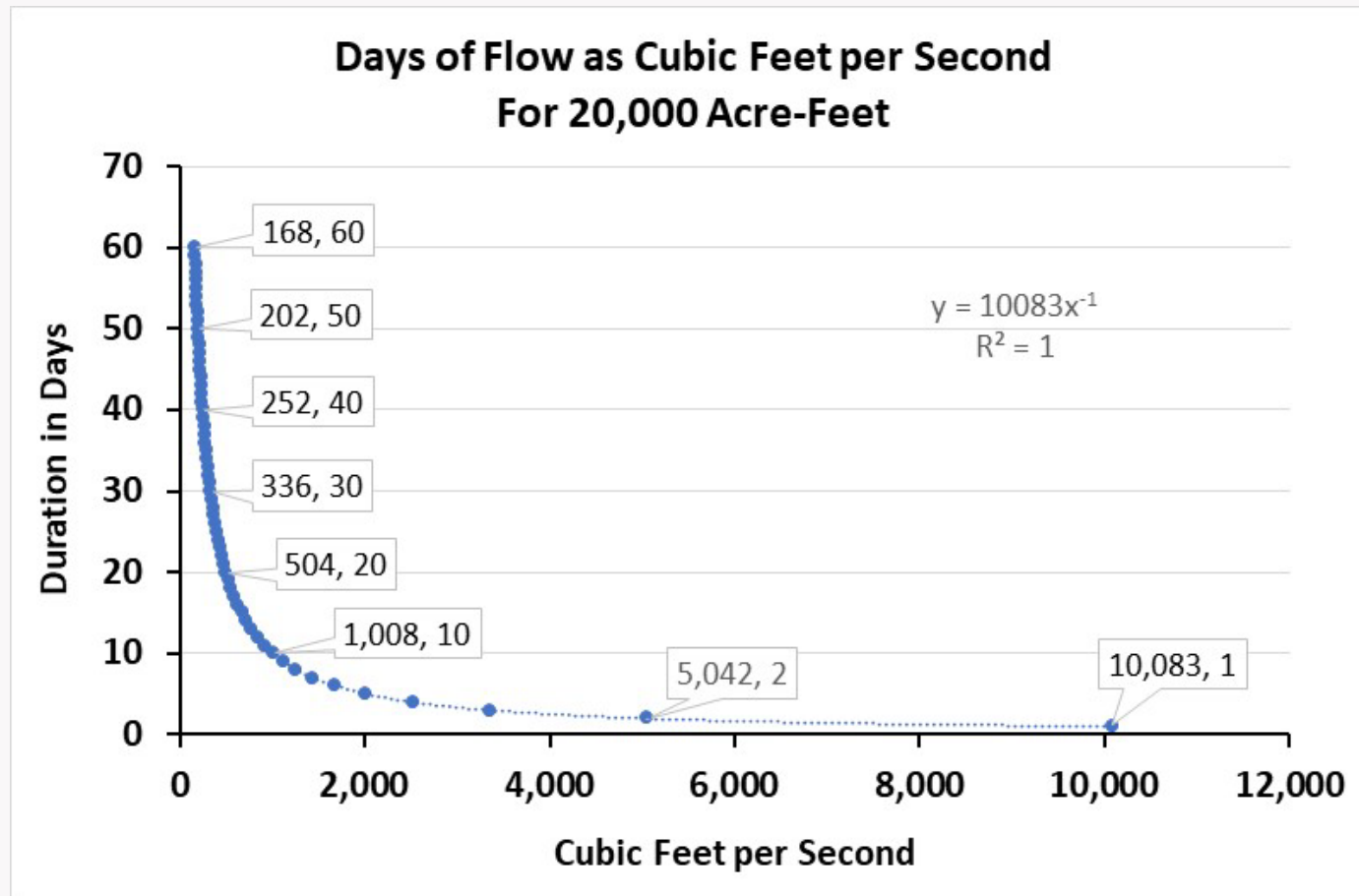
Table 2. Technical Experts

Name	Affiliation
Bill Miller	Miller Ecological Consultants, Bozeman, MT
James Whitney, Blake Hansen	Pittsburg State University, Pittsburg, KS
Keith Gido	Kansas State University, Manhattan, KS
Nate Franssen	U.S. Fish and Wildlife Service, Ecological Services, Albuquerque, NM
John Pitlick	University of Colorado, Boulder, CO
Mark McKinstry	U.S. Bureau of Reclamation, Salt Lake City, UT
Brian Westfall	Keller-Bliesner Engineering, Logan, UT
Vince Lamarra and Dan Lamarra	Ecosystems Research Institute, Logan, UT
Matt Zeigler	New Mexico Department of Game and Fish, Santa Fe, NM
Casey Pennock	Utah State University, Logan, UT
Scott Durst	U.S. Fish and Wildlife Service, San Juan Recovery Program, Albuquerque, NM
Michael Farrington	American Southwest Ichthyological Researchers, Albuquerque, NM

Appendix: 20,000 AF to CFS per day

Days	CFS	Days	CFS	Days	CFS	Days	CFS	Days	CFS
1	10,083	21	480	41	246	61	165	81	124
2	5,042	22	458	42	240	62	163	82	123
3	3,361	23	438	43	234	63	160	83	121
4	2,521	24	420	44	229	64	158	84	120
5	2,017	25	403	45	224	65	155	85	119
6	1,681	26	388	46	219	66	153	86	117
7	1,440	27	373	47	215	67	150	87	116
8	1,260	28	360	48	210	68	148	88	115
9	1,120	29	348	49	206	69	146	89	113
10	1,008	30	336	50	202	70	144	90	112
11	917	31	325	51	198	71	142	91	111
12	840	32	315	52	194	72	140	92	110
13	776	33	306	53	190	73	138	93	108
14	720	34	297	54	187	74	136	94	107
15	672	35	288	55	183	75	134	95	106
16	630	36	280	56	180	76	133	96	105
17	593	37	273	57	177	77	131	97	104
18	560	38	265	58	174	78	129	98	103
19	531	39	259	59	171	79	128	99	102
20	504	40	252	60	168	80	126	100	101

Appendix: 20,000 AF to CFS per day



Interviews with Basin Experts

1. Recommend release of 20,000 acre-feet in 2023 to maximize benefits to native species ?
2. What would your recommendation be in subsequent years under different conditions?
3. Rationale for recommendation?
4. Current or ongoing research/data?
5. Benefits to the target species of alternative release?
6. Other experts?