



IDAHO DEPARTMENT OF
WATER RESOURCES

Idaho Department of Water Resources 2023 Annual Report



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IDAHO DEPARTMENT OF WATER RESOURCES

The Idaho Department of Water Resources (IDWR) Director’s Annual Report fulfills the requirement of Idaho Code §42-1704:

“The director [of the Idaho Department of Water Resources] shall make and render to the governor, annually, or oftener, if required, full and true reports of the work performed by the department, which reports shall contain any recommendations he may have to make in reference to legislation affecting the department.”

The Director’s Annual Report is an overview of the Idaho Department of Water Resources’ programs, activities, and accomplishments during the 2023 Fiscal Year (FY23), which began on July 1, 2022, and ended on June 30, 2023. This report also includes updates on significant activities that occurred during the Summer of 2023 to the end of September 2023.

For more information on the activities and programs presented in this Annual Report, scan the QR code below with your smartphone, or visit IDWR’s website at: <https://idwr.idaho.gov/>



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List of Abbreviations

Abbreviation	Definition
AADF	Adjusted Average Daily Flow
API	Application Programming Interface
ARPA	American Rescue Plan Act
BRBA	Bear River Basin Adjudication
CAP-SSSE	Community Assistance Program - State Support Services Element
CAV	Community Assistant Visits
CFPRBA	Clark Fork - Pend Orielle River Basin Adjudication
CU	Consumptive Use
DOE	U.S. Department of Energy
EAP	Emergency Action Plan

EC	Eddy Covariance
EO	Executive Order
ESPA	Eastern Snake Plain Aquifer
ESPAM	Eastern Snake Plain Aquifer Model
ET	Evapotranspiration
FEMA	Federal Emergency Management Agency
FY	Fiscal Year
GIS	Geographic Information System
GTS	Geospatial Technology Section
GWMA	Groundwater Management Area
HHPD	High Hazard Potential Dams
IDWR	Idaho Department of Water Resources
IWRB	Idaho Water Resource Board
JFA	Joint Funding Agreement
JPL	Jet Propulsion Laboratory
METRIC	Mapping EvapoTranspiration at high Resolution with Internalized Calibration
MHAFB	Mountain Home Air Force Base
MTAC	Modeling Technical Advisory Committee
NASA	National Aeronautics and Space Administration
NRCS	Natural Resources Conservation Service
NFIP	National Flood Insurance Program
OITS	Office of Information Technology Services
PRBA	Palouse River Basin Adjudication
PRISM	Parameter elevation Regressions on Independent Slopes Model
QA	Quality Assurance
SCA	Stream Channel Alteration
SEP	Supplemental Environmental Project
SFIG	Swan Falls Implementation Group
SFTWG	Swan Falls Technical Working Group
SRBA	Snake River Basin Adjudication
SWC	Surface Water Coalition
U of I	University of Idaho
USGS	U.S. Geological Survey
USDM	U.S. Drought Monitor
WIIN	Water Infrastructure Investment for the Nation Act
WSB	Water Supply Bank
WY	Water Year



Agency Overview

Our Mission

To serve Idahoans by ensuring their water is conserved and available to sustain Idaho's economy, ecosystems, and resulting quality of life.

Our Vision

To achieve excellence in water management through innovation, efficiency, planning, and communication.

Our Commitment

- Sustain Idaho's Water Resources for the public good.
- Serve our customers responsively.
- Balance competing interests consistent with Idaho law.
- Be forward-looking and innovative.
- Deliver uncompromising ethical behavior.
- Communicate early, honestly, and completely.
- Return to the taxpayer an honest day's time and effort.

Photo of Silver Creek located in Blaine County. Image courtesy of Mat Weaver, IDWR.

Fiscal Year 2023 Highlights

In addition to the Department's FY23 efforts in achieving its performance benchmarks and strategic objectives, the following activities and events occurred in FY23.

Revised Surface Water Coalition Delivery Call Methodology

On July 19, 2023, former Department Director Gary Spackman issued the 6th Amended *Methodology for Determining Material Injury to Reasonable In-Season Demand and Reasonable Carryover in the Surface Water Coalition Delivery Call* (Methodology). The Methodology is a court-approved process used by the Department to determine the material injury to senior surface water users from junior groundwater pumpers in the ongoing Surface Water Coalition (SWC) delivery call proceedings. The former Director updated the Methodology to incorporate new climate and hydrologic data and to ensure adequate protection for senior water users from injury. The former Director amended critical components of the Methodology, including:

- The climate, hydrologic, and demand data used by the Methodology to determine injury,
- The “base line year,”
- The SWC’s “reasonable carryover” storage volumes, and
- The process by which the Eastern Snake Plain Aquifer Model (ESPAM 2.2) is used to calculate curtailment priority date.

Revisions to the Methodology’s modeling process, chief among which was going from a “steady state” to “transient” deployment, results in significantly more senior curtailment dates than predicted by previous versions of the Methodology. Due to the impact on the delivery call proceedings that resulted from the amended Methodology, the junior ground water pumpers appealed the decision to the Snake River Basin Adjudication District Court. The court’s decision was still pending as of the completion date of this Director’s Report.

Governor Little’s Water Summit

At the request of Gov. Little, and in coordination with his office and the office of Lt. Gov. Scott Bedke, the Idaho Water Resource Board (Board or IWRB) held a Water Summit at the State Capitol in August 2023. The summit brought water users together from across the state to identify and address key water resource management topics affecting the state. The summit featured past and future projects funded through Gov. Little’s ‘Leading Idaho’ and ‘Idaho First’ initiatives, that along with support from the Idaho Legislature, dedicated nearly \$450 million to the IWRB to carry out water sustainability, aging water infrastructure, and flood management projects over several years.



Highlighted issues included cloud seeding, climate change, water sustainability projects, and aging infrastructure needs. Highlighted regions included the Mountain Home Plateau, the Eastern Snake River Plain, the Palouse Basin, the Big Wood River Basin, and the Treasure Valley. The summit was an invaluable opportunity for the Governor, IDWR, the IWRB, legislators, and water users to come together to share information, ideas, and priorities.

Eastern Snake Plain Aquifer Advisory Committee

In November 2016, the Director designated the Eastern Snake Plain Aquifer (ESPA) Groundwater Management Area (GWMA) in recognition of the aquifer's ongoing declines in storage content and water levels. Despite much concerted effort to stop declines in the aquifer, water levels in the Spring of 2023 were at or below all-time lows dating back to the 1950s. As a result, Gov. Little directed the Department to form an advisory committee made up of ground and surface water users to work with the Department to draft a management plan for the ESPA GWMA that would stabilize and recover the valuable resource.

The Advisory Committee held its first meeting in September 2023 in Pocatello and met regularly thereafter with the objective of completing and submitting a draft plan to the Director by December 31, 2024.

New Appointments to the Idaho Water Resource Board

At the end of March, the Idaho Legislature approved Gov. Little's appointments of Marc Gibbs of Grace and Pat McMahon of Sun Valley to four-year terms on the IWRB. The Legislature also confirmed the reappointments of Board Chairman Jeff Raybould of St. Anthony, Board Vice Chair and Finance Committee Chair Jo Ann Cole-Hansen of Lewiston, and Dale Van Stone of Hope to four-year terms.

Marc Gibbs is a farmer in Grace. He served seven terms in the Idaho House of Representatives and chaired the House Resources and Conservation Committee. He also served on the Idaho Fish and Game Commission from 1999-2006. Mr. Gibbs has a bachelor's degree from Utah State University.

Pat McMahon has been general manager of the Sun Valley Water and Sewer District for 34 years. He is active with the Sun Valley Youth Hockey Association and is a former City of Sun Valley firefighter. Mr. McMahon has an economics degree from Loyola University in Chicago and an MBA from the Foster School of Business at the University of Washington.

IWRB Financial Programs

The Idaho Legislature, through House Bill 769 (2022), approved significant appropriations to be used by the IWRB for water projects and expenditures for loans or grants to address water sustainability, rehabilitate or improve aging water infrastructure, or support flood management. The Legislature permanently allocated \$1 million annually to fund the Board's Flood Management Grant program and appropriated \$75 million from the General Fund to the IWRB to be used for large water projects. The Legislature also set aside \$250 million of the State's American Rescue Plan Act (ARPA) funds to support water projects managed by the Board that qualify under the federal guidance. The Legislature appropriated \$100 million from the ARPA State and Local Fiscal Recovery Fund for use by the Board in FY23, and an additional \$50 million to be allocated to the Board annually through FY26. Where possible, the Board will use ARPA funding in lieu of state funds previously appropriated for priority water projects, freeing up state monies for additional, future water projects.

In response to direction from the Governor and Legislature, the IWRB approved a total of \$26 million in funding for statewide water projects to mitigate and repair flood damage (\$1 million) and replace and upgrade aging water infrastructure (\$25 million) in FY23. The Board also approved a spending plan for the ARPA funds that includes support for high-priority sustainability projects such as the Anderson Ranch Dam Raise, Mountain Home Air Force Base Resiliency/Pipeline, and ESPA Recharge Infrastructure Projects.

Commencement of Claims Taking in the Bear River Basin Adjudication

On June 15, 2021, the 5th Judicial District Court issued a commencement order for the Bear River Basin Adjudication (BRBA). Following commencement, IDWR established the Preston field office for BRBA claims taking and hired full-time staff to receive and process claims. In FY23, the Department sent notice to 6,700 property owners in Basin 11. The Department will send future notice to property owners in Basins 13, 15, and 17 in stages and anticipates the entire process will take approximately a decade to conclude.

Grand View – Bruneau Groundwater Management Plan

In April 2023, the former Director issued an order approving the final Grand View – Bruneau GWMA Management Plan. The Grand View – Bruneau GWMA was designated in 1982 in response to an increase in groundwater withdrawals from the area’s geothermal aquifer system, and concurrent declines in groundwater levels and spring flows. In early 2021, the Department established a 12-member advisory committee comprised of local water users and the public, to assist with developing and drafting the management plan. Prior to the Director approving the plan, the Department released the draft Grand View – Bruneau GWMA Management Plan to the public in September 2022 and held public meetings in December 2022 to gather public comment on the plan. The primary goal of the management plan is to identify and implement management practices and strategies that will promote aquifer stabilization.

Treasure Valley Ground Water Model

In January 2023, the Department launched the new Treasure Valley Groundwater Flow Model. The 5-year model development project was a collaboration between IDWR and the USGS, and jointly funded by the IWRB and the USGS. Prior to model rollout, the Department held quarterly Treasure Valley MTAC meetings to solicit input on model development from stakeholder representatives. In March, a training class for groundwater modelers on how to run scenarios with the new model was held at the USGS Idaho Water Science Center in Boise.

In April, IDWR and the IWRB contracted with Brown and Caldwell to simulate and evaluate managed aquifer recharge scenarios using the new Treasure Valley Groundwater Flow Model. The one-year study will evaluate the potential effects of eight managed aquifer scenarios on the Treasure Valley hydrologic system.

A Transition in Leadership

Director Spackman’s Retirement

Director Gary Spackman (2012 – 2023) retired at the end of August after 38 years of dedicated service protecting Idaho’s water resources. Director Spackman began working for IDWR in 1985 as a Senior Water Resource Agent. Gary received promotions throughout his career, which resulted in increasing responsibilities within the agency. During his tenure, Gary served as a section manager, region manager, bureau chief, and administrator. His final promotion came in 2009, when Governor Otter appointed him Director—a position he held for eleven years.



Former Director Spackman in Alaska on a recent fishing trip. Gary often shared his salmon and halibut catch with staff at IDWR. We wish him many more trips to Alaska! Photo courtesy of Mat Weaver, IDWR.

Regardless of Gary's other duties, assignments, or job titles, he always served as a hearing officer for the Department. This was perhaps the job for which he held the most passion. As a hearing officer, Gary presided over many important administrative cases that came before the Department, including minimum stream flow water right applications, water use matters of regional and then local public interest, and the conjunctive administration of surface and ground water.

Gary grew up near Franklin, ID. After high school, he attended Utah State University and received his bachelor's degree in agricultural and irrigation engineering in 1979. In 1983 he earned a J.D. in Law from Brigham Young University. Gary worked for a private law firm in southeastern Idaho prior to beginning employment with IDWR. He is a registered professional civil engineer.

"I have great fondness for the water user community, particularly the farmers and ranchers of the State of Idaho. They are genuinely concerned about their neighbors across the fence and demonstrate an ethic unique to the agricultural community. Some of my best water user friendships are the product of mutual respect developed during water controversies."

- Gary Spackman

Those who know Gary understand he is a hardworking, thoughtful, fair, and humble man. He might read of his education, work, and accomplishments above and shake his head at the formality of honoring his time with IDWR. Rather, Gary might prefer his own resume, highlighting what he believes, and many water users agree, to be his best attributes:

Gary Spackman, Retired Bureaucrat:

1. Raised on a small dairy farm.
2. Can build a square haystack that won't fall down in the winter.
3. Can build a straight barbed wire fence.
4. Drew the night irrigation shift because I could always wake up to change the water.
5. Can find a leaking gopher hole in a ditch with a shovel in the dark.

The Department appreciates Director Spackman's long career as a devoted public servant and will greatly miss his leadership, wisdom, and mindful candor. We wish him all the best in retirement.

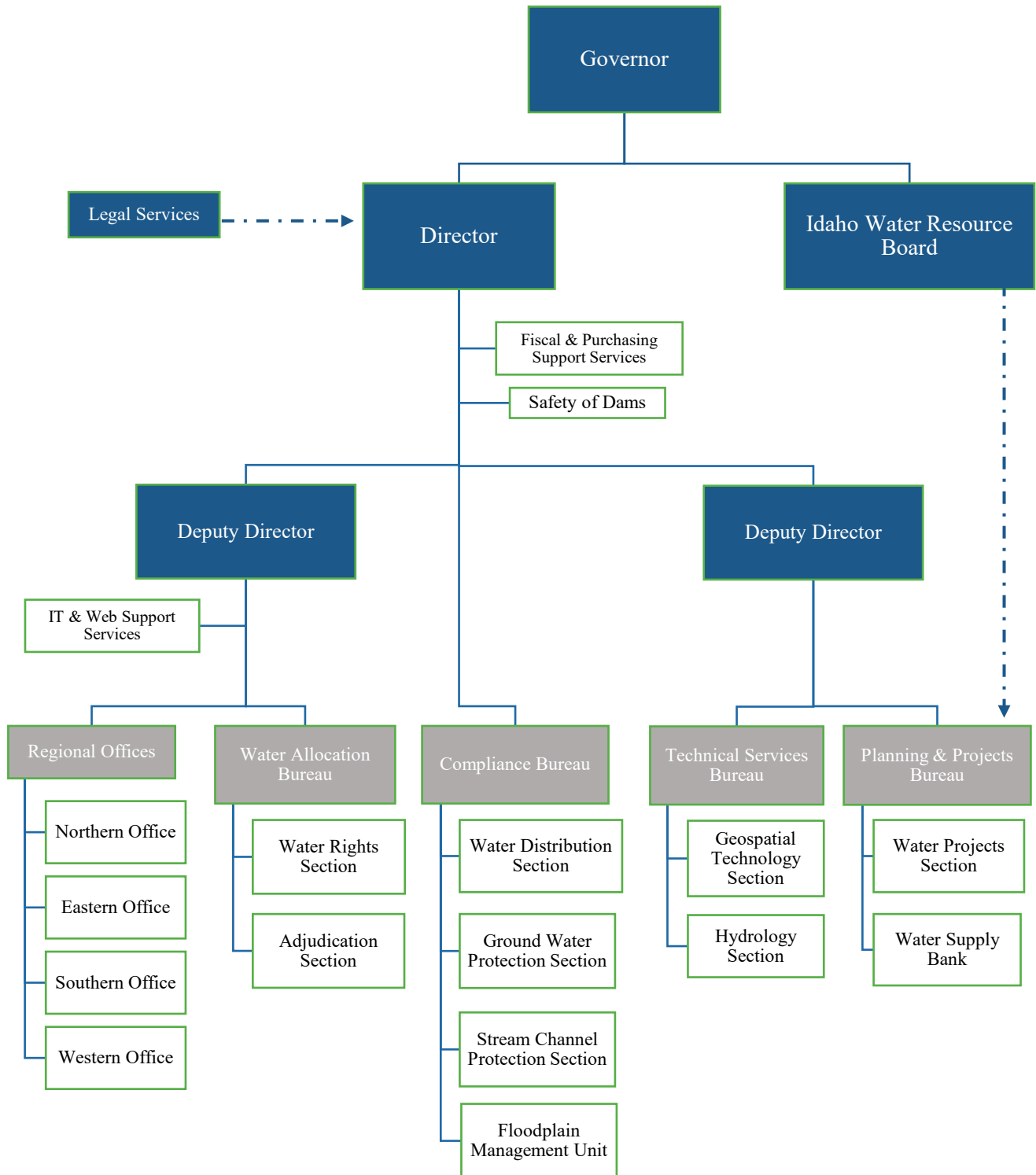
A New Director and Agency Reorganization

Governor Brad Little appointed Mathew Weaver Director of IDWR in September 2023 following former Director Gary Spackman's retirement in August. Prior to his appointment, he served as the Deputy Director for more than ten years. In addition to leading the Department, Director Weaver directly manages the Water Compliance Bureau, the Safety of Dams Program, and the Support Services group while also serving as the agency's presiding officer.

In his first few months, the Director appointed two new Deputy Directors and reorganized the agency under the new executive leadership team. Brian Patton was appointed Deputy Director overseeing the Water Planning and Projects and Technical Services bureaus and continuing to serve as the Board's Executive Manager. Shelley Keen was appointed as the second Deputy, overseeing the Water Allocations Bureau, regional operations, and coordinating agency IT services.

The organizational chart on the following page depicts the current agency structure.

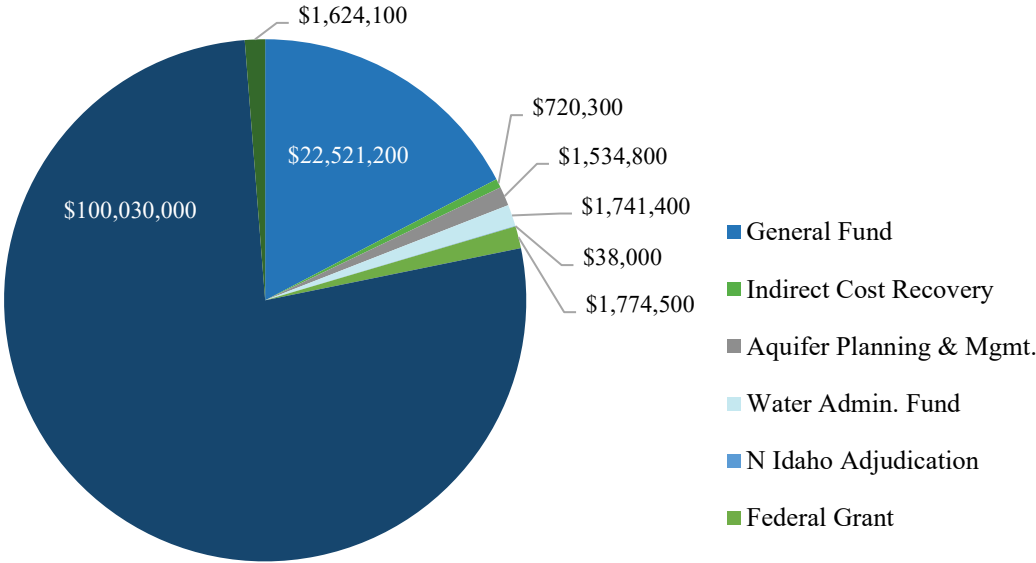
IDWR Organization Chart



Fiscal Year 2023 Revenue & Expenditure

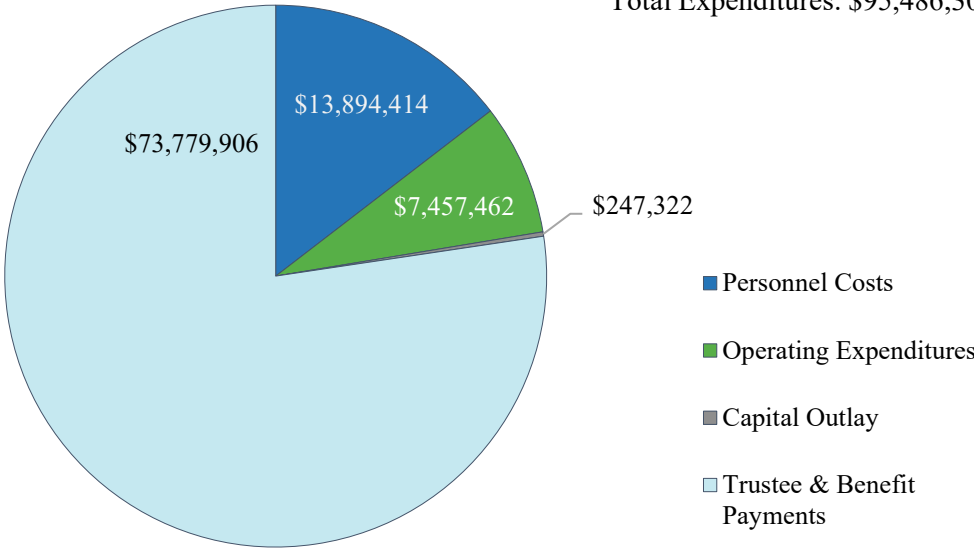
IDWR FY23 Appropriation

Total Revenue: \$129,984,300



IDWR FY23 Expenditures

Total Expenditures: \$95,486,300



For more information on the Department’s revenue and expenditures, see [IDWR’s FY23 Performance Report](#).

Idaho Water Year in Review

2023 Water Year (October 1st – September 30th)

In Water Year (WY) 2023, southern Idaho transitioned out of drought and Idahoans experienced the State’s coldest winter since the 1980s. Idaho’s climate is driven in part by the El Niño-Southern Oscillation climate pattern, which transitions between El Niño (hot/dry) and La Niña (cold/wet) climate patterns. During WY 2023, La Niña conditions persisted for the third consecutive year, bringing frigid air during the winter months into most of the western United States. Only western Oregon, western Washington, northern Idaho, and southern California experienced above normal temperatures. During the 2023 WY the typical La Niña pattern failed to materialize, and storm tracts centered on central and southern California bringing record levels of snow into the Sierra Nevada mountains, Great Basin, and Rocky Mountains of Colorado. Some storms in the Great Basin and Colorado Plateau pushed up into the southern portion of the Snake River basin.

Unusually cool conditions in March and April delayed snowmelt. However, temperatures were warmer than normal in May, causing rapid snowmelt and runoff percentiles statewide in the pluvial range (see Table 1 on the following page). The Bear River set new records for May runoff, both at the headwaters on the Wyoming/Utah border and at the outlet to Great Salt Lake near Corrine, UT. As shown in Table 1, only the Kootenai basin, which cuts through the far northeast corner of the Idaho panhandle, saw extreme drought at the water-year scale. In August, remnants of California’s Hurricane Hilary brought significant moisture into the southern portion of the state, increasing base flows in those areas.

Table 1. The Table on the following page shows Water-Year 2023 drought status and monthly streamflow percentiles for unregulated flow based on Natural Resources Conservation Service (NRCS) data. Drought status is based on percentiles recommended by the U.S. Drought Monitor (USDM). The legend below shows drought categorization based on USDM standards and pluvial descriptions established to mirror drought descriptions. “N/R” indicates “No Record”.

Legend: USDM Drought Categorization
Exceptional Drought
Extreme Drought
Severe Drought
Moderate Drought
Drier than Normal
Normal
Wetter than Normal
Moderate Pluvial
Severe Pluvial
Extreme Pluvial
Exceptional Pluvial

Table 1. WY 2023 Streamflow Percentiles & Drought Status														
Location	Percentil	Drought Status	Monthly Streamflow Percentiles											
			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Bear River at WY/UT Stateline	92	Severe Pluvial	30	28	35	54	71	44	41	100	81	72	89	90
Bear River nr Corrine	86	Moderate Pluvial	8	0	25	36	11	61	86	100	86	78	83	86
Big Lost blw Mackay Dam	81	Moderate Pluvial	6	13	14	8	4	6	44	83	84	75	91	85
Boise River at Lucky Peak Dam	69	Normal	16	18	49	46	8	9	41	91	59	46	72	66
Bruneau River at Hot Springs	71	Wetter than Normal	0	0	4	25	0	26	63	87	64	64	49	54
Burnt River nr Hereford	83	Moderate Pluvial	43	33	31	30	14	2	59	98	68	54	89	88
Clearwater River at Spaulding	34	Normal	28	36	44	49	24	7	19	86	18	11	36	44
Fall River nr Squirrel	30	Drier than Normal	0	0	6	5	6	35	5	59	41	35	16	6
Henrys Fork at Ashton	57	Normal	7	10	12	6	1	6	3	77	52	56	69	28
Libby Reservoir Inflow, Kootenai	5	Extreme Drought	40	14	20	34	6	0	11	85	0	2	0	5
Little Lost blw Wet Creek	88	Moderate Pluvial	5	16	67	54	38	12	2	78	51	55	77	77
Malheur River nr Drewsey	97	Extreme Pluvial	25	62	44	29	4	4	98	98	68	62	55	79
Oakley Reservoir Inflow	70	Wetter than Normal	5	11	24	39	N/R	61	39	83	74	69	73	86
Owyhee River at Rome	85	Moderate Pluvial	11	14	22	51	5	42	86	82	77	74	70	73
Payette River at Horseshoe Bend	48	Normal	20	27	51	32	11	15	22	91	31	29	65	40
Pend Oreille Lake Inflow	15	Moderate Drought	12	15	N/R	N/R	15	3	12	78	7	8	12	23
Portneuf River at Pocatello	89	Moderate Pluvial	20	20	1	3	0	8	54	91	96	75	76	81
Powder River nr Sumpter	75	Wetter than Normal	16	20	12	9	2	2	42	98	77	32	70	18
Priest River nr Priest River, ID	21	Drier than Normal	13	17	N/R	N/R	N/R	6	21	73	1	4	22	14
Salmon Falls Creek at San Jacinto	89	Moderate Pluvial	8	19	12	39	9	33	55	94	90	78	74	88
Salmon River at Whitebird	48	Normal	20	16	23	26	8	4	25	88	35	33	56	64
Snake River at Heise	53	Normal	12	7	14	8	6	19	13	90	46	46	53	55
Snake River at Shelley	60	Normal	10	46	34	33	18	26	26	88	67	23	30	31
Snake River below American Falls	48	Normal	2	15	13	12	3	10	8	79	48	27	47	37
Spokane River nr Post Falls	25	Drier than Normal	94	99	0	42	18	5	17	60	12	7	25	21
Teton River nr Driggs	66	Normal	5	2	30	28	59	11	67	93	79	41	49	48
Weiser River at Weiser	70	Wetter than Normal	8	11	45	62	8	47	70	90	40	30	44	49
Willow Creek at Ririe	68	Normal	5	10	22	17	10	5	16	86	65	60	83	89
Wood River blw Magic Dam	85	Moderate Pluvial	11	26	13	27	1	2	45	95	88	67	92	94

Temperature & Precipitation Trends

In WY 2023, Idaho's average annual temperature and precipitation were near average statewide. Figures 1-4 on this page and the following page, illustrate Idaho's temperature and precipitation values for WY 2023. As estimated by the Parameter Elevation Regressions on Independent Slopes Model (PRISM), Idaho's annual average water-year temperature, from 1895 to 2023, is 45.8 °F. Idaho's average annual temperature in WY 2023 was 45.7 °F, just slightly below average. Idaho's annual average water-year precipitation, estimated by PRISM is 17.0 inches. In WY 2023 precipitation was 102% of average at 17.3 inches.

Temperatures were below the 90th percentile in March and April. The warmest months were May, July, and August, which were right at the 10th percentile of the climate record. The wettest months on a percentile basis were December, March and August, and only July had precipitation percentiles below the 10th percentile on the dry scale. While statewide conditions were close to average, strong temperature and precipitation trends existed across the state. Regionally, southern Idaho was wet and cold, while northern Idaho was warm and dry. A comparison of the National Centers for Environmental Information's (NCEI) ten climate divisions in Idaho illustrates the precipitation and temperature gradient across the state (see Figures 2 and 4).

Figure 2. WY 2023 mean temperature percentile rankings by NCEI climate divisions.

Idaho Statewide
12-Month Summary of Mean Temperature for WY 2023

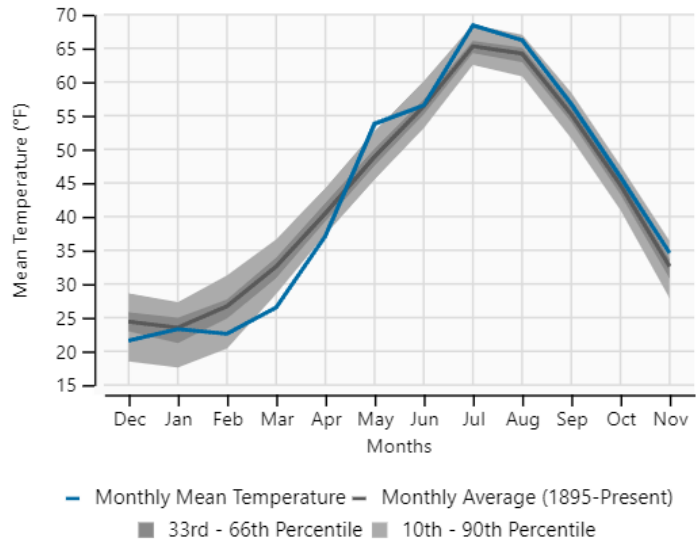
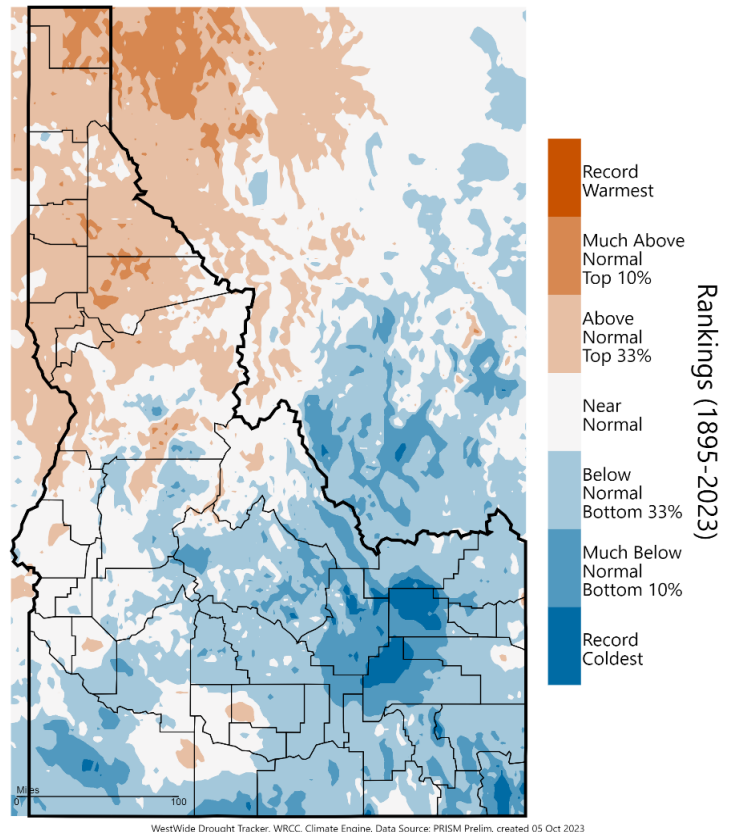


Figure 1. Above, WY 2023 monthly mean temperature departures from historical monthly average conditions, showing the unusually cool temperatures from November to April and warmer conditions from May through September.

Idaho - Mean Temperature
October 2022 - September 2023, Percentile



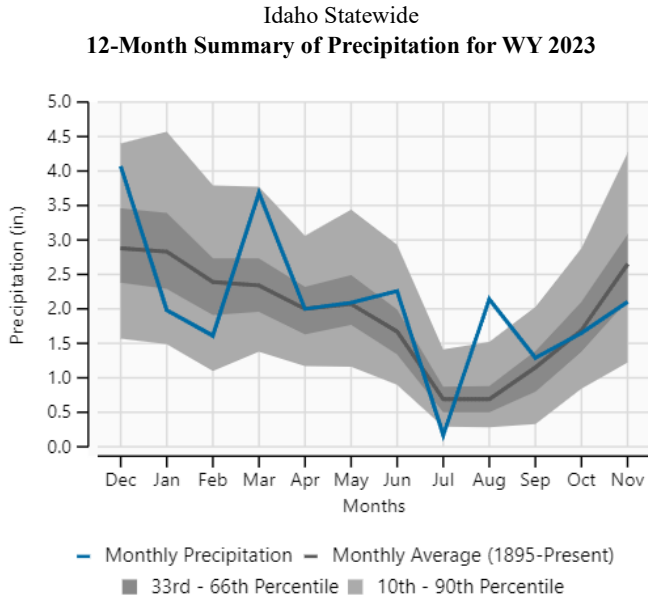


Figure 3. Above, WY 2023 monthly precipitation departures from the historical average.

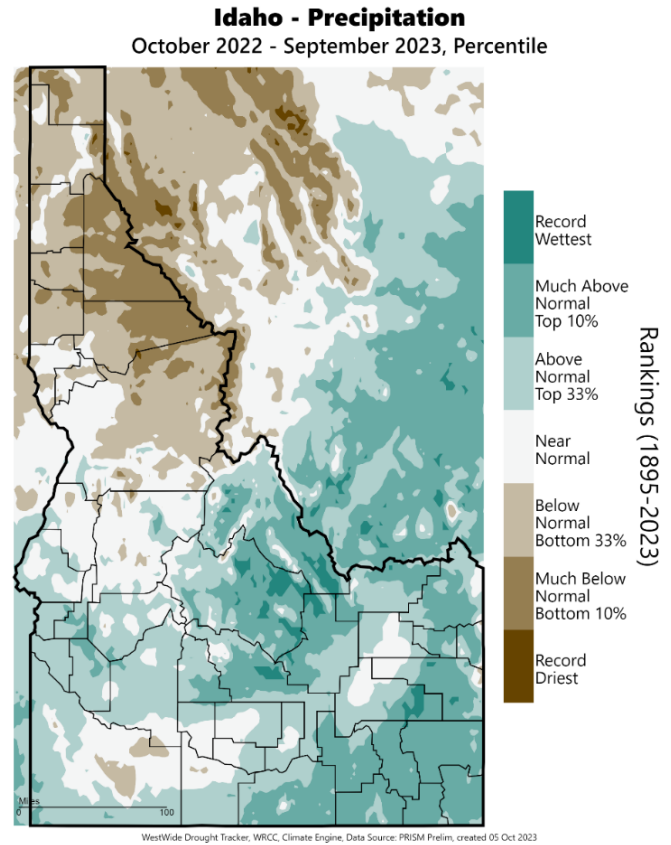


Figure 4. WY 2023 precipitation percentile rankings by NCEI climate divisions.

Snowpack Trends by Basin

Idaho’s snowpack had two peaks in most basins. The first peak occurred around April 8 or 9 and the second peak occurred around April 27. Figure 5 on the following page shows peak Snow Water Equivalent (SWE) as a percentage of the median peak SWE from 1991-2020. Record SWE was set at seven SNOTEL¹ stations in the Snake and Bear River basins, with nine stations recording the second highest peak SWE for the period on record. The greatest snowpack occurred along Idaho’s southern border from the Owyhee basin to the Bear River basin. On April 8, the combined SWE for the Willow Creek, Blackfoot River, and Portneuf River basins set a new, annual peak record with 179% of median peak SWE. The Oxford Springs SNOTEL station, which has a 40-year measurement record and is located at the headwaters of Marsh Creek and the Malad River, recorded a record breaking snowpack that was 243% of median peak SWE. Notice that the four basins with the lowest peak SWE are in northern Idaho and include the Kootenai-Pend Orielle (88%), Spokane (95%), Clearwater (100%), and Salmon River basins (113%). In southern Idaho, the two basins with the lowest peak SWE were the Payette (117%) and the Headwaters of the Snake River (118%).

¹ SNOTEL stations are operated by the NRCS to monitor and measure snow in the western United States. The acronym refers to SNOTEL Telemetry, as the stations’ data is transmitted wirelessly from the location of measurement to a data collection hub at one of the NRCS offices.

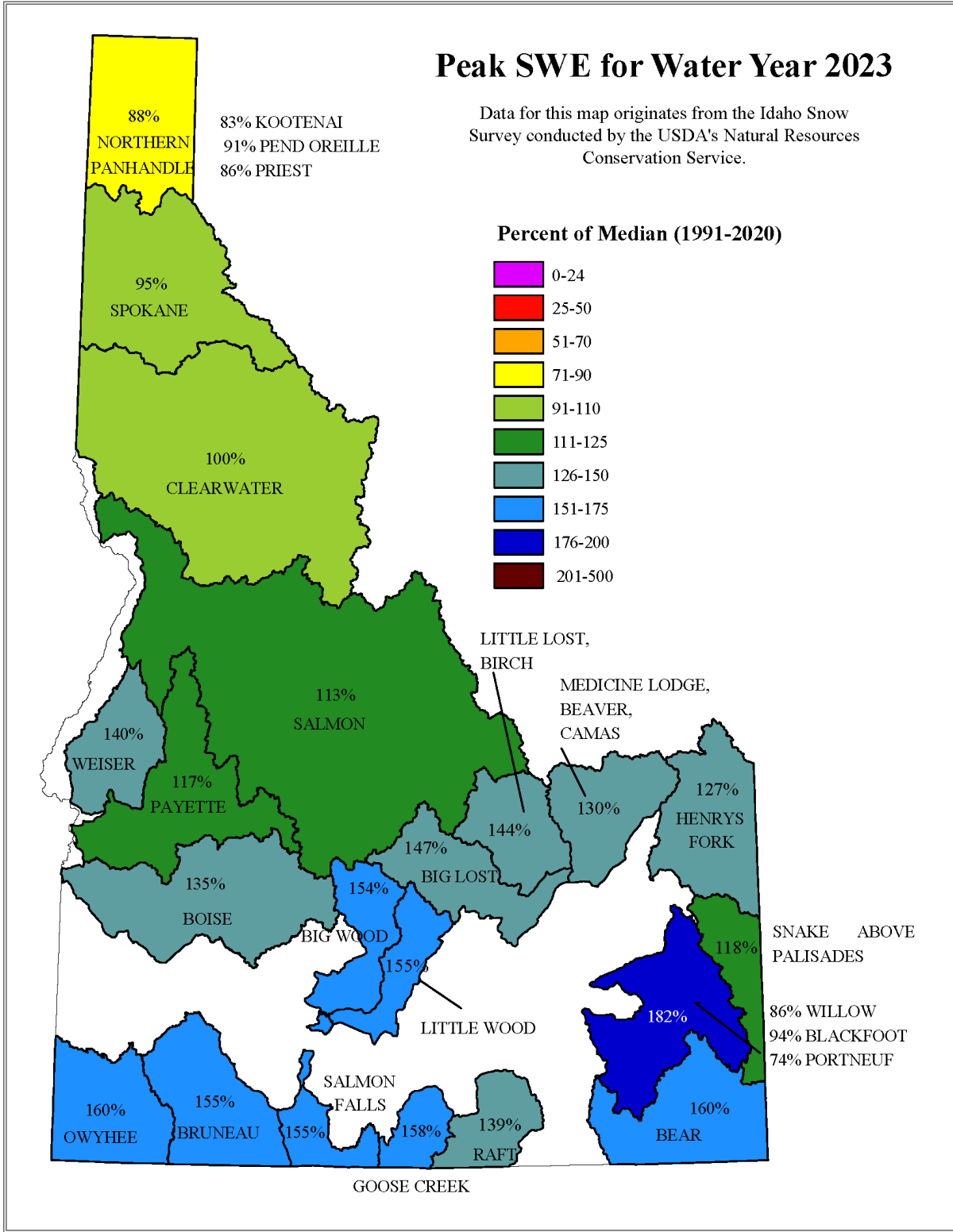


Figure 5. The peak SWE by basin as compared against the median peak SWE from 1991 to 2020. Data for this map is supplied by the Idaho Snow Survey conducted by the Natural Resource Conservation Service which is part of the United States Department of Agriculture.



The Water Allocation Bureau addresses all administrative water right proposals and recommends elements of water rights during a water right adjudication. The Water Allocation Bureau’s work represents the Department’s primary responsibility to supervise the appropriation and allotment of water for beneficial use. The Bureau is comprised of the Water Rights Section and Adjudication Section.

Bureau Chief Angela Hansen
Water Rights Section
Adjudication Section

Cover photo of the Middle Fork Boise River near Atlanta. Image courtesy of Shelley Keen, IDWR.

Water Rights Program

The Water Rights Program (Water Rights) oversees all aspects of water right permitting, licensing, and transferring. Water Rights also archives all current state water right records in hard copy and digital formats and maintains a water rights database. Water Rights employees work out of the State Office in Boise and the four regional offices to process:

- New water rights (applications for permit)
- Water right transfers and exchanges
- Ownership changes
- Water right licenses
- Temporary water uses
- Temporary changes of water rights

In FY23, the Water Rights Program received 4,580 filings of the above listed items. For the last ten years, Water Rights has exerted an effort to reduce its pending workload and processing times. After declining from FY14 through FY20, the end-of-year overall pending workload in the Water Rights program increased in FY21 and FY22 but decreased once again in FY23. The FY23 decreases in end-of-year workload was driven by three factors, a decrease in the number of water right ownership change notices, a decrease in the number of Water Supply Bank rentals and other drought-related filings, and increases in the number of items accomplished including permits and licenses issued, transfers resolved, and Water Supply Bank lease and rental applications resolved.

To learn more about water rights in Idaho, visit [IDWR's About Water Rights](#) webpage.

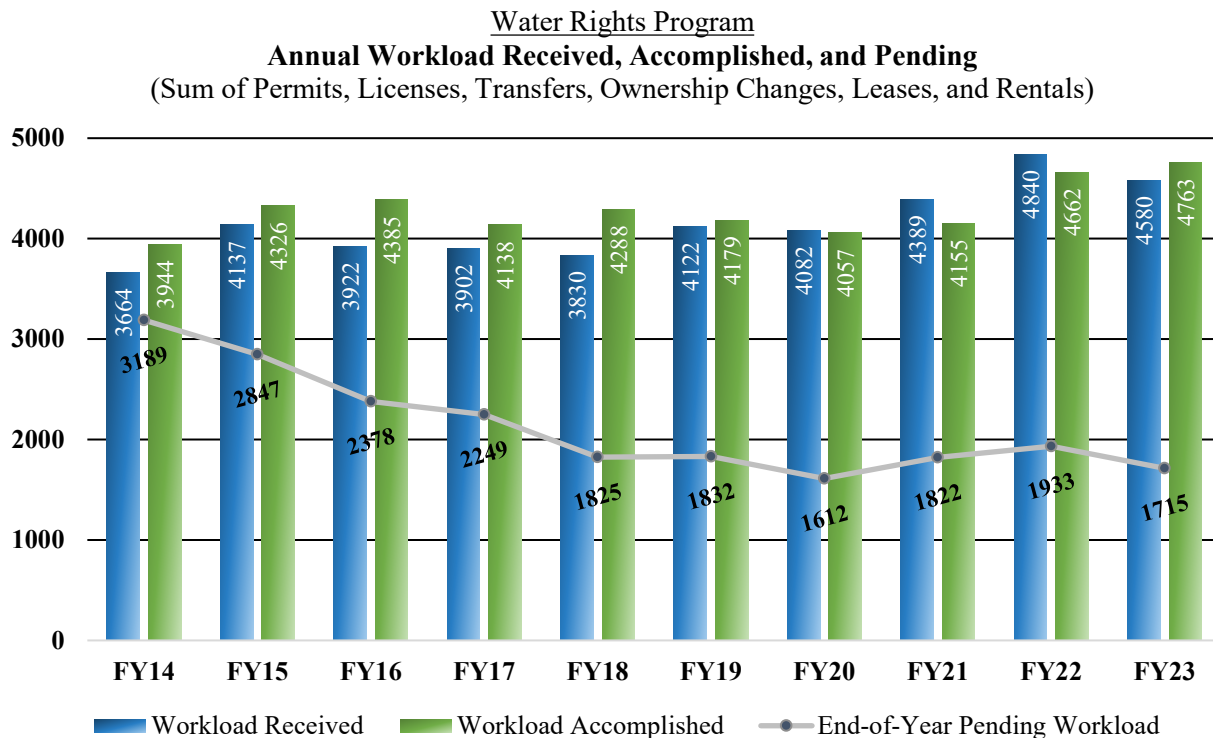


Figure 6. Water Rights Program Annual Workload over the last ten fiscal years.

Applications for Permit

A person wishing to establish a new use of water must file an application for permit. In FY23, IDWR received 1,101 applications for permit, up 12% from the previous year and 110% from FY21. The increase in applications for permit over the last two years grew mainly in northern Idaho, driven by population growth and by ongoing water right adjudications causing water users to discover they were not in compliance with mandatory permitting requirements. Department staff issued permits on 1,104 applications, up 54% from the previous year. At the end of FY23, 555 applications for permit were pending review and disposition.

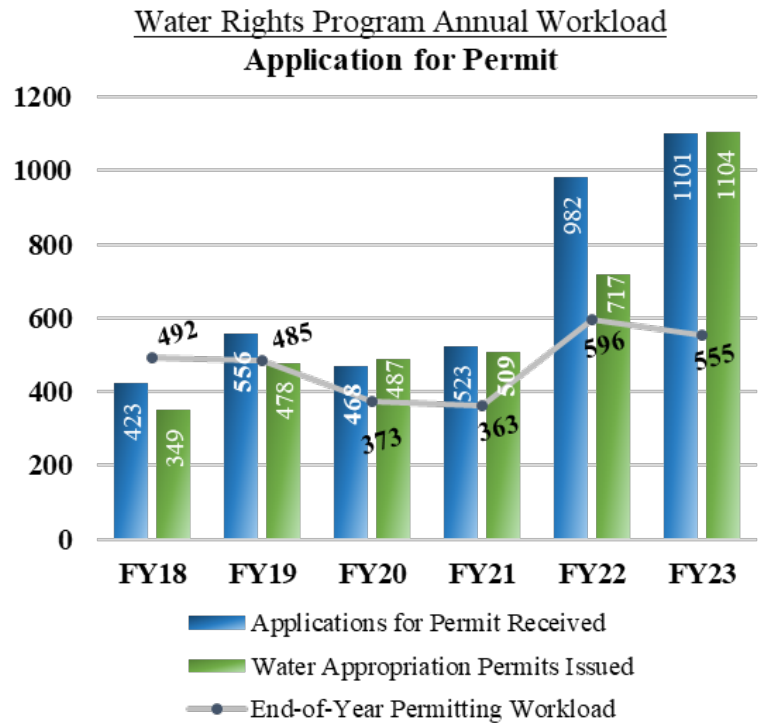


Figure 7. Water Rights Program Applications for Permit Annual Workload.

Transfer Applications

To change an element of an existing water right, such as the place of use, a water user must file a transfer application. Transfers are common where new water rights cannot be issued due to a moratorium or other limitation. In FY23, IDWR received 281 transfer applications and resolved 267 transfer applications, most of which came from eastern Idaho. The number of new transfer applications received in FY23 increased by 8% compared to the previous fiscal year.

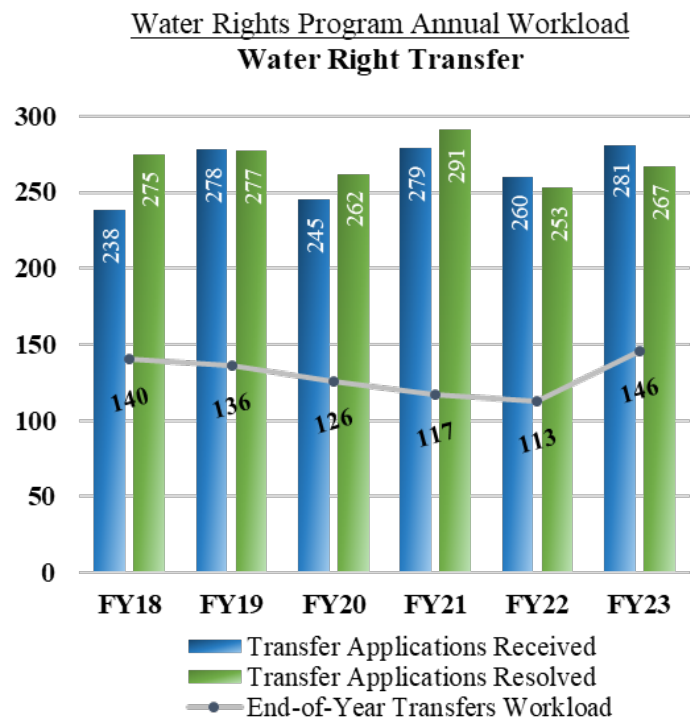


Figure 8. Water Rights Program water right transfers annual workload.

Water Right Licensing

A water right license permanently establishes the water use authorized under a water right permit as real property. Water right licenses can increase property value. From FY11 to FY21, Water Rights staff reduced the water right licensing backlog by about 15% per year. From FY21 to FY23, the backlog increased by 7%. In FY23, the Department issued 326 water right licenses, a 35% increase from FY22. At the end of FY23, 623 permits were pending licensing.

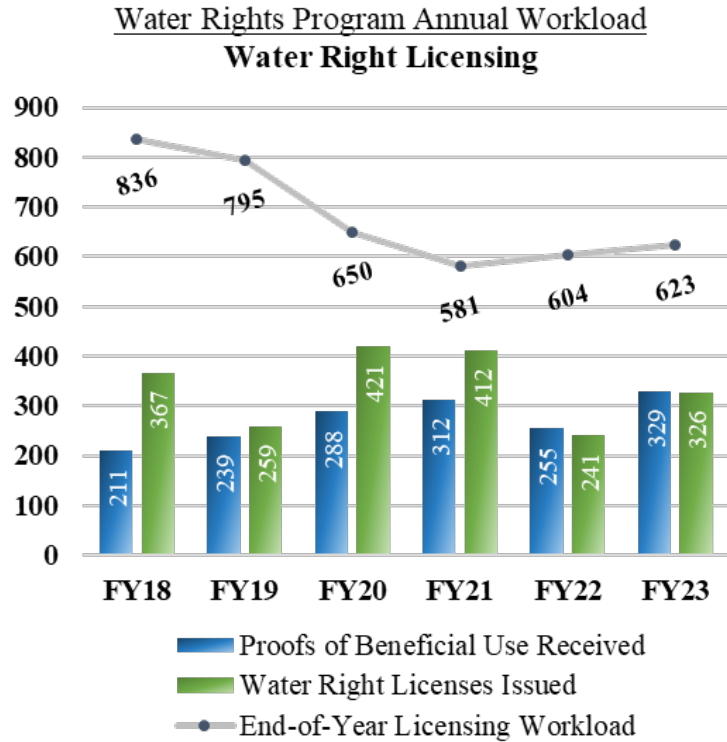


Figure 9. Water Rights Program water right licensing annual workload.

Ownership Changes

Maintaining current water right ownership records is critical to water right administration. Current ownership records enable IDWR to communicate with water users about matters affecting their water rights, such as administration. Water right ownership changes represent real property transactions. In FY23, IDWR received 2,641 ownership change notices, a 14% decrease from the previous year. Staff processed 2,750 ownership changes, leaving a pending workload of 278 ownership change notices, the lowest end-of-year pending workload in the past 13 years.

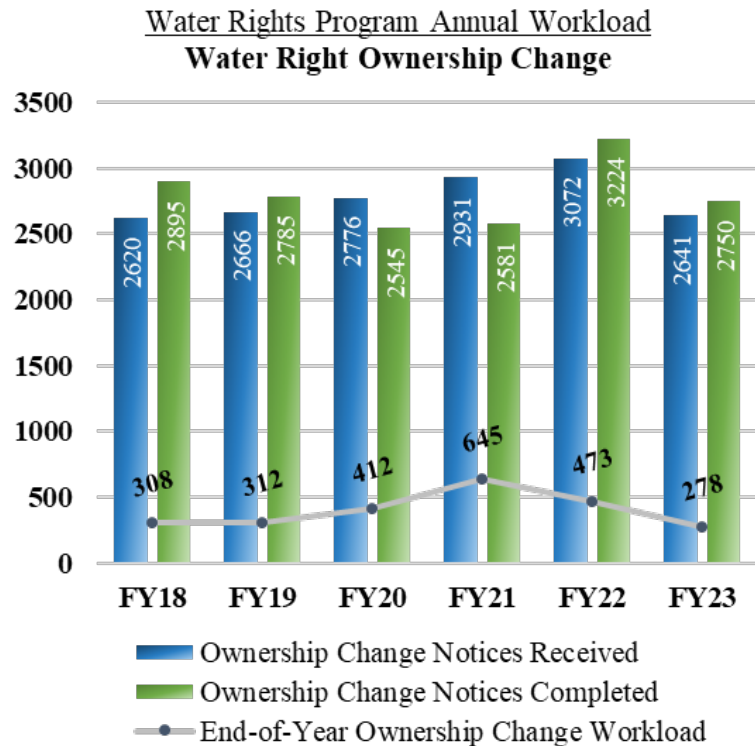


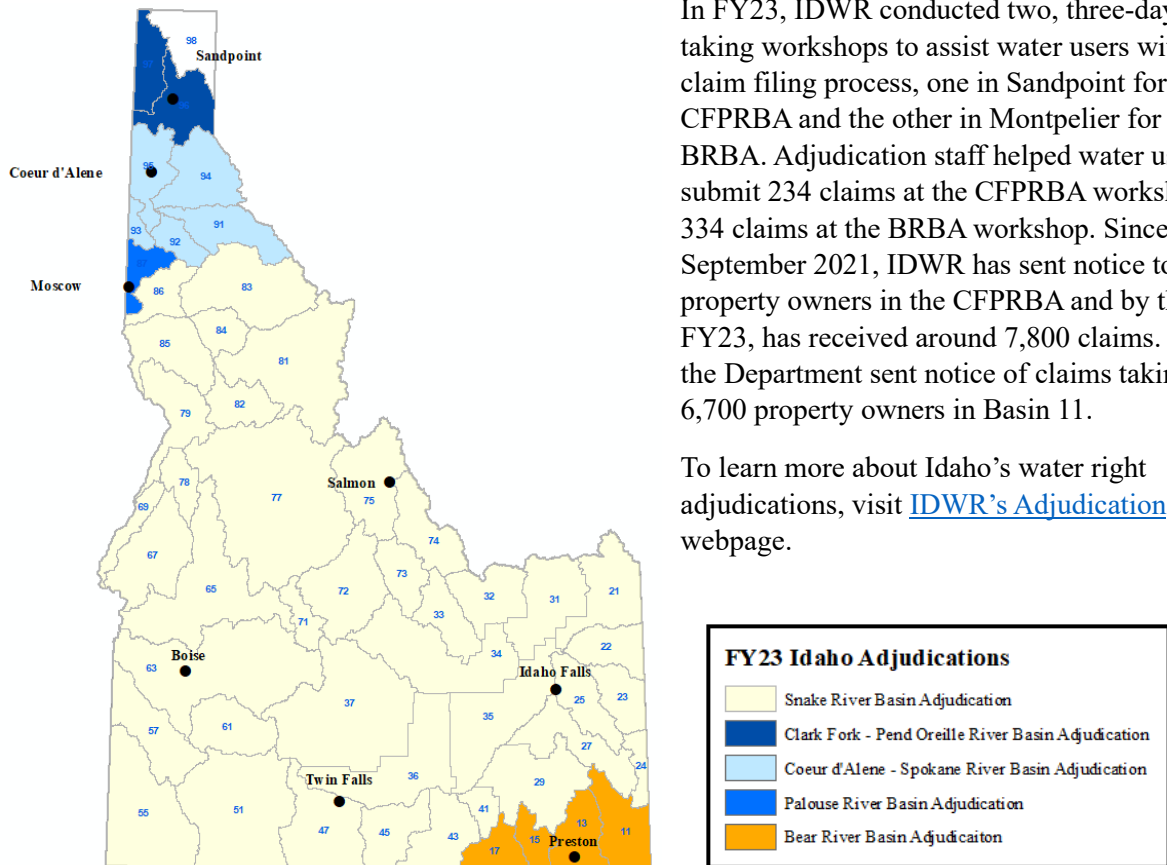
Figure 10. Water Rights Program ownership change annual workload.

Adjudication Program

A general adjudication of water rights determines, by court decree, the elements of existing water rights within a river basin. Following the completion of an adjudication, the decrees of the court comprise a complete list of water rights in the adjudicated basin, which is legally and practically necessary to administer water rights in priority. During times of water shortage, the list of adjudicated water rights establishes which water right holders are entitled to the limited water supply. Additionally, the water right compilation roughly estimates total water use in a basin. By more accurately estimating total water use in Idaho, the Department can also estimate how much water is available for future water resource development. The Department's FY23 adjudication efforts are described below.

Active Adjudications:

- Northern Idaho Adjudications:
 - Phase 1: Coeur d'Alene- Spokane River Basin Adjudication (CSRBA)
 - Phase 2: Palouse River Basin Adjudication (PRBA)
 - Phase 3: Clark Fork- Pend Oreille River Basin Adjudication (CFPRBA)
- Bear River Basin Adjudication (BRBA)
- Snake River Basin Adjudication (SRBA)—deferred de minimis claims only.



In FY23, IDWR conducted two, three-day claims-taking workshops to assist water users with the claim filing process, one in Sandpoint for the CFPRBA and the other in Montpelier for the BRBA. Adjudication staff helped water users submit 234 claims at the CFPRBA workshop and 334 claims at the BRBA workshop. Since September 2021, IDWR has sent notice to 27,000 property owners in the CFPRBA and by the end of FY23, has received around 7,800 claims. In FY23, the Department sent notice of claims taking to 6,700 property owners in Basin 11.

To learn more about Idaho's water right adjudications, visit [IDWR's Adjudication](#) webpage.

Figure 11. Idaho's current adjudication activity.

Water Compliance Bureau



The Water Compliance Bureau administers programs that protect state water resources and ensures the distribution and use of the state's water resources are fair and equitable in accordance with vested water rights and Idaho law. The Compliance Bureau is comprised of the Water Distribution Section, Ground Water Protection Section, and Stream Channel Protection Section. Additionally, the Bureau includes a National Floodplain Insurance Program Manager and an Enforcement Coordinator who supports multiple regulatory programs across the Department.

Bureau Chief Tim Luke

Water Distribution Section

Ground Water Protection Section

Stream Channel Protection Section

Floodplain Management Unit

Enforcement Unit

Cover photo: Canal diversion. Image courtesy of Mat Weaver, IDWR.

Water Distribution Section

The Water Distribution Section supports and directs state watermasters to ensure proper distribution of water within Idaho water districts. This supervisory role is particularly important when there is insufficient water to satisfy all water rights. The Water Distribution Section has two programs to fulfill this responsibility, the Water Measurement Program and the Water Districts Program.

Water Measurement Program

The Water Measurement Program establishes, maintains, and implements state water measurement and reporting standards. Water Distribution staff work directly with water districts and water measurement districts to implement measurement requirements and reporting procedures.

When required by the Director of the Department, water users must install and maintain approved devices to measure the amount of water diverted under valid water rights. In FY23, the Department issued one measurement order requiring the installation of nearly 300 controlling works and measuring devices within Administrative Basin 75, which includes the Salmon River and tributaries near Salmon and North Fork, Idaho. Basin 75 was the last of the Upper Salmon River basins to be included in Water District 170 in support of the [Wild and Scenic Rivers Agreement](#).

The Water Measurement Program helps ensure water diversion data are collected, archived, and accessible through web applications or other digital platforms. Program staff continue to promote and support the use of automated data collection platforms. Currently, the automated data transfer process is used on over 7,200 diversions, primarily for groundwater annual volume diversion data, including nearly 5,000 wells within the Eastern Snake Plain Aquifer. Most of the daily surface water diversion data are entered directly into the repository database by watermasters. The [Water Diversion Measurement Network](#) on the Department's website allows public access to daily diversion data, annual volume diversion data, and telemetered diversion data. In FY23, program staff developed data collection surveys for 16 water districts and one water measurement district.

Statewide, there are thousands of measuring devices relied upon for crucial water diversion data. Program staff dedicate considerable time and effort to ensure the required measuring devices are properly maintained or repaired when necessary. In FY23, program staff conducted field inventories to evaluate compliance with prior measurement orders in the Lemhi River, Malad River, and Weiser River basins.



A groundwater irrigation well with an installed flow meter located on the Eastern Snake River plain. Image courtesy of the Water Distribution Section.

Water Districts Program

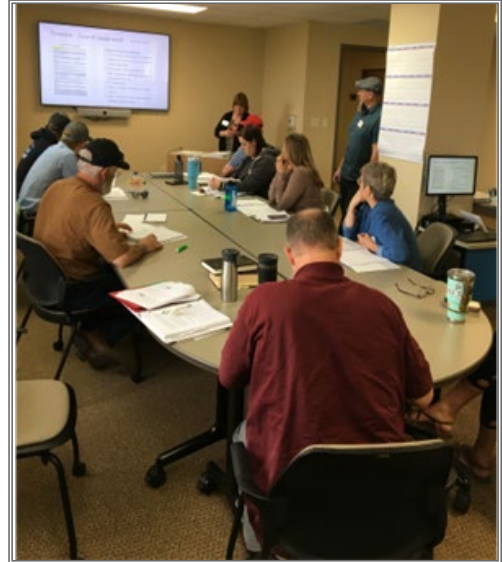
The Water Districts Program supervises the distribution of water within water districts in accordance with Chapter 6, Title 42, Idaho Code. The Department is legally required to create state water districts for public water supplies after the courts have adjudicated the water rights and related priorities of appropriation in a basin.

There are 98 active water districts and sub-districts across Idaho. Some districts include thousands of water users and others only a handful. Water districts elect watermasters to work closely with the Department to distribute water within the district. Watermasters ensure water users divert water consistent with Idaho law, the elements of recorded water rights, and the prior appropriation doctrine. The watermaster's day-to-day duties include delivering water to authorized diversions, measuring and recording the amount of water delivered, and ensuring water is not being diverted without a valid water right.

The Water Districts Program supports and supervises water districts and watermasters with the following activities:

- Creating new water districts and combining, modifying, or abolishing existing districts to facilitate improved water measurement and delivery.
- Advising and instructing water district staff on required administrative practices.
- Training watermasters through one-on-one or group training sessions.
- Supporting and instructing watermasters regarding water delivery, water right interpretation, and resolution of water disputes.
- Requiring the installation of measuring devices and controlling works to ensure watermasters can properly distribute and record the amount of water delivered.

In FY23, the Water Districts Program created, expanded, or modified five water districts in the Upper Salmon River Administrative Basin 75. This accomplishment was an important step to meet agency obligations under the Wild and Scenic Rivers Agreement. Additionally, in FY23, the Water Districts Program held six watermaster training workshops. Program staff are currently initiating the process of including groundwater diversions within the Portneuf River drainage (Administrative Basin 29) into one or more new or existing water districts.



Water District Program staff conduct a watermaster training in Twin Falls, May 2023. Image courtesy of the Water District Program.



A recently installed headgate used by a watermaster to control a diversion on the Portneuf River. Image courtesy of the Water District Program.

Groundwater Protection Section

The Ground Water Protection Section regulates well construction and well driller licensing in Idaho through four programs: the Well Construction Program, Underground Injection Control Program, Geothermal Resources Program, and Driller Licensing Program.

Well Construction Program

The Well Construction Program supervises the construction, modification, and decommissioning (abandonment) of all non-geothermal wells, including domestic, commercial, irrigation, municipal, industrial, and monitoring wells.

In FY23, the Department processed 4,651 well construction permit applications. While this represents a 5.8% decline from the preceding year, the numbers remain elevated as illustrated in Figure 12, below. It's worth noting that 88.6% of the FY23 well construction permits issued were designated for domestic purposes, a record high for recent years. In FY23, Department personnel conducted inspections on 29.1% of newly drilled wells. The percentage of wells inspected was also a record high for recent fiscal years.

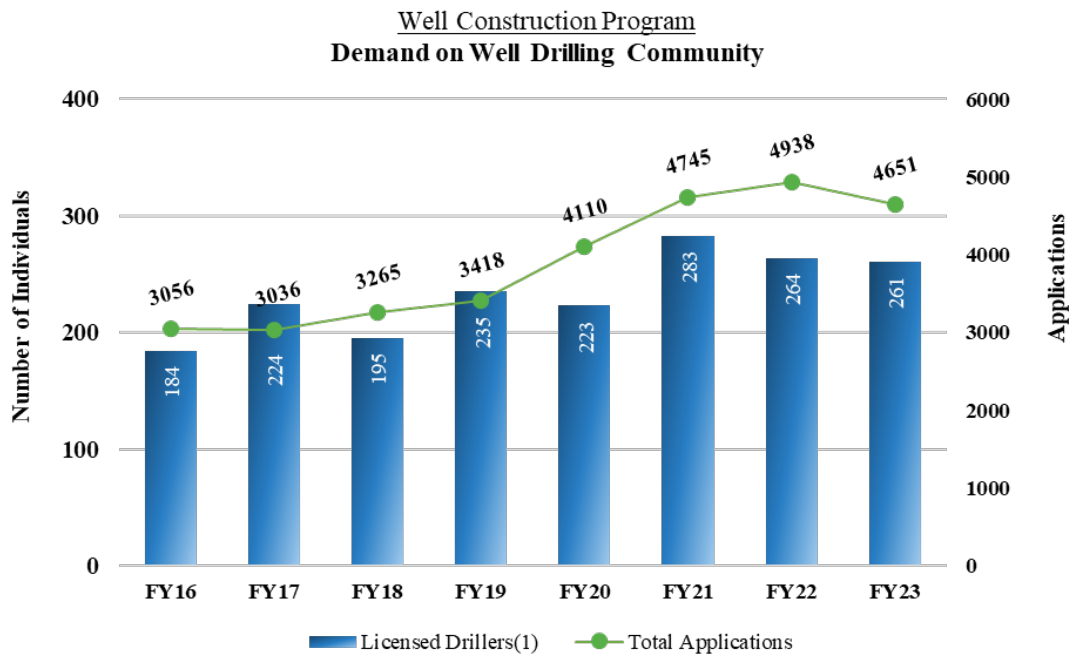


Figure 12. Well construction program annual workload and demand on the well drilling community.

Driller Licensing Program

The Driller Licensing Program regulates the licensing of well drillers consistent with the Well Driller Licensing Rules (IDAPA 37.03.10). Driller Licensing Program staff review and process licensing applications, organize and present required continuing education seminars, and coordinate well driller annual license renewals.

The Department renews driller and operator licenses every two years, with roughly half of the total state licenses renewed in alternating years. The Department issued 261 driller and operator licenses during FY23. As shown in Figure 12, the number of licensed drillers in the state has increased slightly over the past eight years while the number of well construction applications received has increased significantly. The increased demand for wells and relatively static level of licensed drillers has increased customer wait time for wells. The increased well construction backlog is a function of increased demand and a limited number of well drilling rigs operated by licensed drillers.

In FY23, staff completed the negotiated rule-making process for the Well Driller Licensing Rules and Drilling for Geothermal Resources Rules pursuant to the Governor’s Zero-Based Regulation Executive Order 2020-01 (ZBR EO). The Idaho Legislature adopted both rule chapters during the 2023 legislative session. The Department reduced the Driller Licensing and Geothermal Rules by 30% and 23%, respectively.

Underground Injection Control Program

The Underground Injection Control (UIC) program, delegated to IDWR by the U.S. Environmental Protection Agency (EPA) in 1985, regulates the construction, operation, and decommissioning of all injection wells in Idaho. Injection wells are mostly used to dispose of or store excess stormwater, agricultural water, and facility heating/cooling water. Currently, there are nearly 21,000 active injection wells on record with IDWR.

During FY23, UIC staff approved 157 new and renewal deep injection well applications, an increase of 185% over FY22, and processed 336 shallow injection well inventories, a decrease of 62% from the previous fiscal year. Figure 13 illustrates the UIC program workload history.

In FY23, program staff initiated the negotiated rule making process for the UIC rules in accordance with the Governor’s ZBR EO. The Department decided to delay publication of updated UIC rules to obtain additional input from stakeholders regarding potential injection and re-use of municipal and industrial wastewater to Idaho’s underground drinking water source aquifers.

Underground Injection Control Program Annual Workload
Deep Injection Well Applications & Shallow Well Inventories

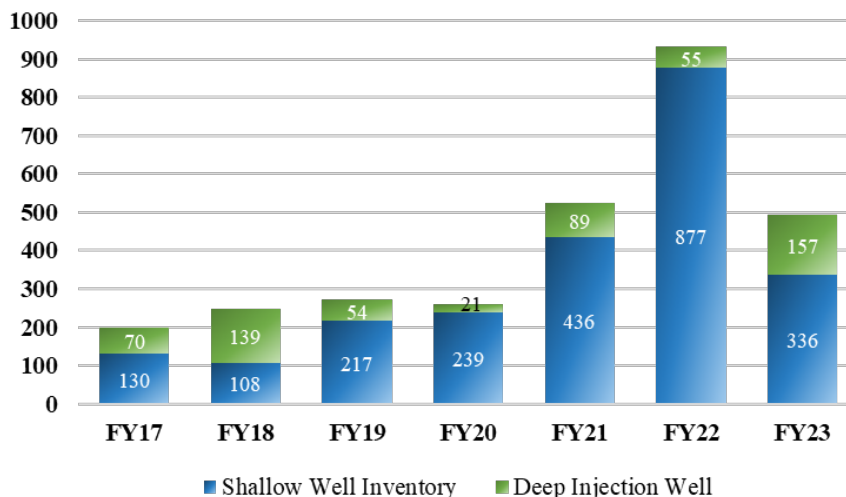


Figure 13. UIC Program Annual Workload

Enforcement Unit

The Enforcement Unit ensures consistency in regulatory activities prescribed by state law. The unit works with state and regional office employees to resolve complaints and violations in all IDWR regulatory programs statewide, including water use and water rights, water distribution, well driller licensing, well construction, stream channel alteration, suction dredge mining, underground injection control, and safety of dams. The Enforcement Unit coordinates or initiates enforcement activities, including addressing complaints from the public, conducting investigations, issuing notices of violation (NOV), and conducting compliance conferences to resolve violations. The Enforcement Unit consists of one dedicated Program Coordinator.

Investigations

The Enforcement Program Coordinator and other Department staff investigated 115 new cases during FY23. The new cases originated from various sources, including public complaints, watermaster referrals, and IDWR discoveries. In FY23, the Department resolved or closed 76 new cases and unresolved cases from previous years. The Department issued 17 NOVs in FY23 and another 6 NOVs in the first quarter of FY24. In FY23 and in the first quarter of FY24, the Department resolved 21 NOVs by executing consent agreements with NOV recipients to ensure future compliance. The Department collected a total of \$13,660 in penalties in FY23 and another \$22,060 in the first quarter of FY24. Most penalties collected were associated with the unauthorized use of water. Figure 14 below shows the number of investigations initiated, NOVs issued and resolved, and penalties collected from FY19 through FY23.

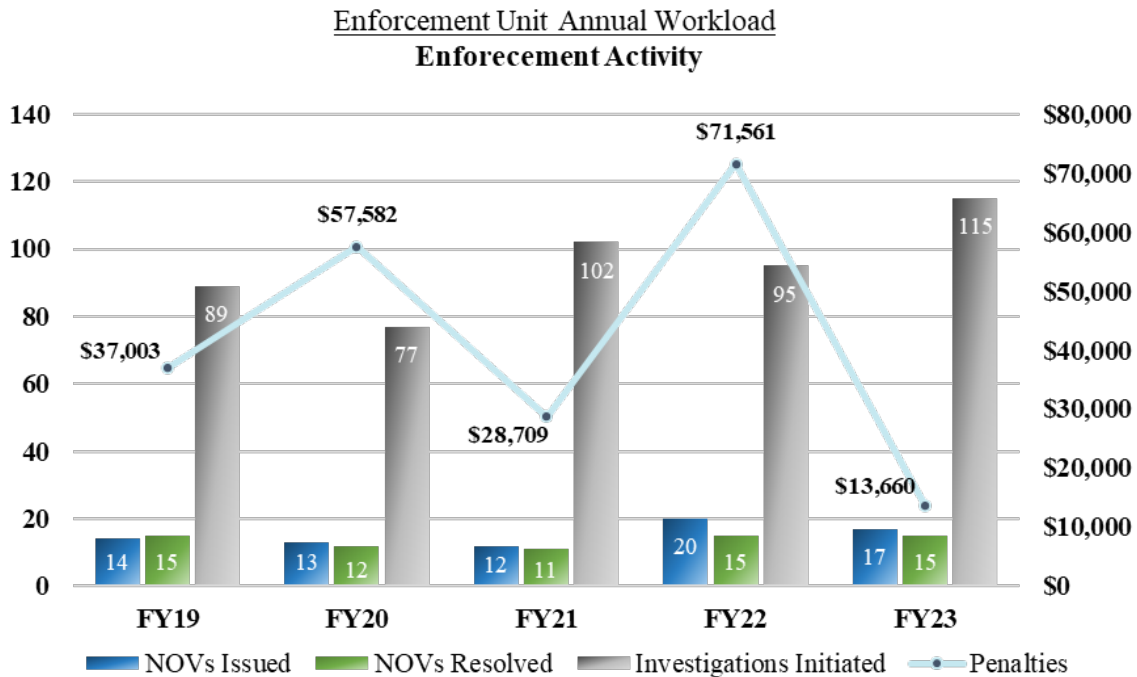


Figure 14. Enforcement Unit Annual Workload.

Stream Channel Protection Section

In accordance with Idaho Code §42-3801, the Stream Channel Protection Section evaluates proposed alterations to stream channels to protect water quality, fish and wildlife habitat, aquatic life, recreation, and aesthetic beauty.

IDWR issues two types of stream channel alteration permits: the Joint Application for Stream Channel Alteration Permit (Joint Application) and Letter Permits for Recreational Mining (Letter Permit).

Joint Application for Stream Channel Alteration Permit

The Department uses the Joint Application form in coordination with the Idaho Department of Lands and the U.S. Army Corps of Engineers to permit most regulated stream channel alterations. In FY23, program staff approved approximately 82% of all projects meeting minimum standards criteria within 60 days of application receipt and conducted pre- or post-construction inspections for about one-third of the total approved projects. The following figure summarizes the number of Joint Applications received and issued for the last five fiscal years. The variation in applications received and permits issued represents withdrawn applications and applications where no permit was required.

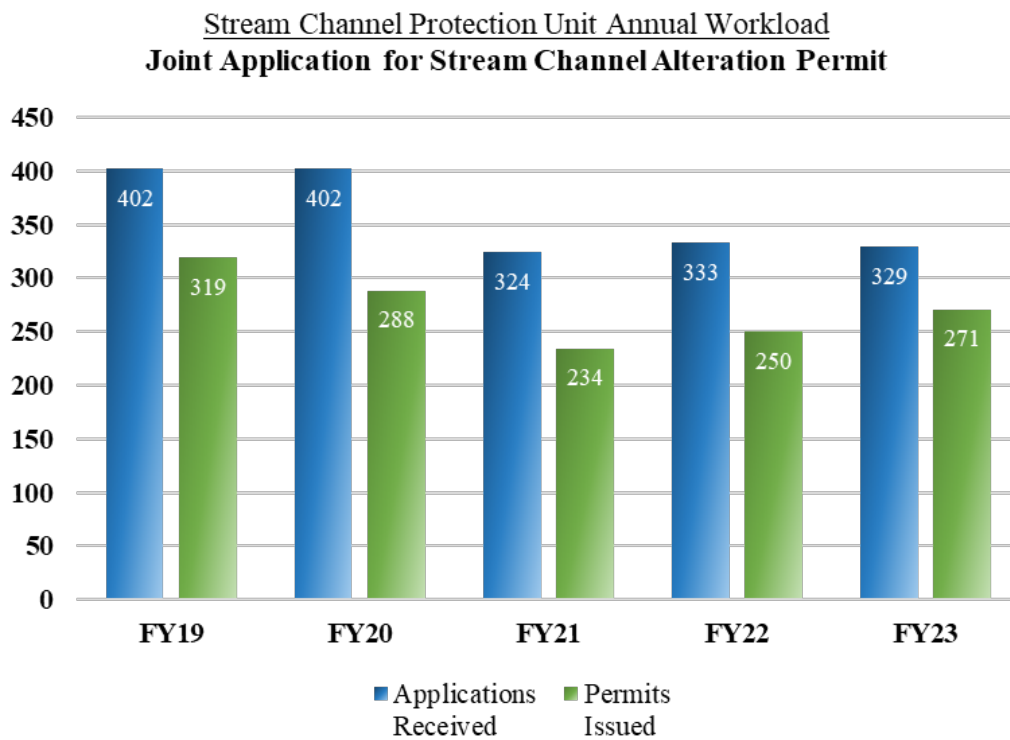


Figure 15. The number of incoming applications in FY19-FY20 are higher due to flooding events in 2017 and 2018.



The images on the left were taken in March 2023 during an Idaho Fish and Game sponsored tour of proposed and current stream channel restoration work in the Upper Pahsimeroi River basin. The image on the far-left shows stream bank erosion that can lead to significant property loss without proper stream restoration work. The image on the right is of recently constructed beaver dam analogs which help reduce erosion from high flows and improve bank stability by promoting riparian growth. Photos courtesy of John Loffredo, IDWR.

Letter Permit for Recreational Mining

The Stream Channel Protection Act regulates the use of recreational mining equipment, primarily suction dredges, in perennial streams. The Department requires miners to obtain a Letter Permit from IDWR before altering any portion of the streambed. In FY23, IDWR issued 238 Recreational Mining Letter Permits.

Floodplain Management Unit

The Floodplain Management Unit is administered by the State National Flood Insurance Program (NFIP) Manager, who is responsible for coordinating Idaho’s program consistent with federal rule. The State NFIP Manager administers the NFIP via the Community Assistance Program – State Support Services Element (CAP-SSSE), a cooperative agreement grant from FEMA with a 75% Federal and 25% State cost share.

More than 170 local communities in Idaho participate in the NFIP. In FY23, the NFIP Manager responded to approximately 600 technical assistance requests and completed nine training opportunities across the state. Additionally, the NFIP Manager reduced the number of open backlogged Community Assistant Visits (CAV) by 74% between July 2022 and November 2023.

Safety of Dams Program

The Department regulates approximately 400 water storage dams and nearly 20 mine tailings impoundment structures in Idaho, focusing on ensuring public safety. Under Idaho Code, public and private dams are subject to state regulation, noting that non-federal privately owned dams occupy most of IDWR dam safety time and effort. The Safety of Dams program is overseen by IDWR’s Director with program staff operating in four regional offices. The Western Region office in Boise manages the program’s efforts.

Statutory language currently defines all dams subject to regulation by the dam’s height, storage capacity, and hazard potential. The hazard classification assigned to each dam represents the potential consequences of a sudden failure and uncontrolled release of water. Hazard classification is divided into three broad categories: Low, Significant, and High, with the latter representing a worst-case outcome (i.e., loss of human life). Determining the proper hazard classification for new and existing dams is an

important responsibility, especially in those geographic areas experiencing rapid growth and downstream development.

Dam Inspections

The Department inspects each regulated dam or mine tailings impoundment structure at least once every five years, or more frequently depending on the dam’s hazard classification, physical condition, age, and history of recommended maintenance and repair. On average approximately 113 dams are scheduled for inspection annually. The Department prioritizes inspections of dams, reservoirs, and mine tailings impoundments having the greatest perceived impact on life and property. In FY23, IDWR inspected 91 dams statewide and issued an equal number of inspection reports and storage certificates.

Other Dam Safety Activities

In FY19 IDWR participated in the three-year Rehabilitation of High Hazard Potential Dams (HHPD) funding opportunity offered by FEMA through the National Dam Safety Program. The Department used the grant to fund a preliminary risk analysis of seven existing, non-federal, high hazard potential dams in Idaho and an evaluation of corresponding benefit(s) of recommended risk reduction measures for the benefit of public safety. In November 2022, IDWR released a final Risk Analysis Report which identifies and prioritizes recommended risk reduction measures for the seven dams, individually and in aggregate, to reduce risk for the benefit of public safety. Dam owners can use the information in the report to support their efforts when applying for funding assistance.

Dam Safety staff also maintain a library of Emergency Action Plans (EAP) for high-hazard dams. Well-crafted and up to date EAPs can significantly mitigate the consequences of a dam failure. The Department considers an EAP current if it has been prepared or updated within the past two years. At the end of FY23, IDWR considered 43% of EAPs for high-hazard dams “up to date.”



Stibnite Mine in Valley County. Stibnite’s mine tailings impoundment structure is included in the nearly 20 impoundment structures inspected by IDWR Dam Safety staff. Photo courtesy of Angie Hansen, IDWR.



Planning & Projects Bureau

The Planning & Projects Bureau implements and manages projects assigned by the Idaho Water Resource Board. The Board is responsible for planning the conservation, development, use, and management of water resources in the state of Idaho. The Planning & Projects Bureau works closely with the Technical Services Bureau to effectively plan for, implement, and manage water sustainability projects and programs on behalf of the Board.

Bureau Chief Cynthia Bridge-Clark

Water Projects Section

Water Supply Bank

Cover photo: Looking downstream from Anderson Ranch Reservoir. Photo courtesy of Tito Sanabria, IDWR

Idaho Water Resource Board

The Idaho Water Resource Board (Board) has specifically mandated functions and responsibilities, including establishing long-term vision and policy, and implementing water projects on behalf of the state. The Director supports the Board as needed and assigns IDWR employees to help carry out its duties. The Department and the Board interact in a level working relationship and collaborate on court appeals, administrative rules adoption, policy development, water bank administration, and water right negotiations with the Federal government and Indian Tribes.

The Board maintains the Idaho State Water Plan which contains policies that are the guiding framework for the development, management, and use of Idaho’s water resources. The Board also holds several state monetary accounts in trust for funding water projects and improvements throughout the state.



Current IWRB members from left to right, top row: Patrick McMahon, Albert Barker, Brian Olmstead, Dale Van Stone. Bottom row, left to right: Marcus Gibbs, Vice Chair Jo Ann Cole Hansen, Chairman Jeff Raybould, Dean Stevenson. Image courtesy of IDWR.

Water Projects Section

The Water Projects Section, within the Planning & Projects Bureau, implements IWRB programs, projects, and supports initiatives as directed by the Governor and the Idaho Legislature. A selection of high-priority IWRB activities are referenced below.

IWRB Financial Program - Water Project Loans

The Board’s Water Project Loan Program supports development of the state’s water resources by financing the construction of water projects. Projects eligible for financing include new construction or rehabilitation of existing water projects. The table below outlines IWRB issued loans in FY23.

Table 2. FY23 IWRB Water Project Loans.

FY23 IWRB Water Project Loans		
Date	Entity	Loan Amount
Jul-22	Boise Warm Springs Water District	\$2,810,000
Sep-22	Falls Irrigation District	\$8,894,500
Sep-22	Enterprize Canal	\$3,588,856
Sep-22	Barber Pool Hydro	\$850,670
Sep-22	Bannock Feeder Canal	\$335,110
Sep-22	SE Idaho Canal Co.	\$58,074
Sep-22	Chester Canal Co.	\$34,895
Sep-22	Cloverdale Ridge Water	\$92,615
Nov-22	Raft River Recharge	\$14,111,000
Nov-22	Blaine County Canal	\$1,500,000
Nov-22	North Side Pumping Co.	\$1,200,000
Jan-23	King Hill Irrigation Dist	\$500,000
Jan-23	North Side Canal Co.	\$5,000,000
Mar-23	Boise City Canal Co.	\$200,000
May-23	Conant Creek	\$90,000
Total Funds Requested		\$39,265,720

IWRB Financial Program - Water Project Grants

The Board offers two grant programs through a competitive application process: Flood Management Grants, and Aging Infrastructure Grants. Flood Management Grants fund flood management projects, flood damage reduction, or repair of flood damaged stream channels. The Board operates the program on a \$1 million-dollar annual budget and grants funding for up to 50% of the project cost, limited to \$200,000. Table 3 below outlines the Board’s FY23 Flood Management Grants awarded funding. Aging Infrastructure Grants, shown in Tables 4 and 5, are awarded twice per year and offer funding for the rehabilitation and repair of irrigation water storage and delivery systems. The Board’s annual funding budget is \$25 million with a cap of \$2 million per project and up to 33% in grant funding.

Table 3. FY23 IWRB Flood Management Grants.

FY23 IWRB Flood Management Grants		
Entity	Total Project Costs	Awarded Funding
Goose Creek Flood Project	\$535,536	\$200,000
City of Lewiston Flood Project	\$212,705	\$106,352
Madison County Flood Control Diversion Project	\$252,784	\$126,392
Boise River FCD 10 Flood Maintenance Project	\$250,000	\$125,000
Madison County Teton River Splitter Gate Project	\$95,717	\$47,859
Twin Lakes FCD 17 Debris Removal Project	\$16,000	\$8,000
Squaw Creek Ditch Company Flood Project	\$250,000	\$125,000
Riverside Water & Sewer District Project	\$440,388	\$200,000
ESPAR & Madison County Flood Diversion Project	\$99,600	\$47,300
Clearwater SWCD Garden Creek Project	\$176,458	\$84,085
Total Funds Requested	\$2,329,188	\$1,069,988

Table 4. IWRB Aging Infrastructure Grants - 1st round of awards.

IWRB Aging Infrastructure Grants Round 1 Awards (September 2022)		
Entity - Project	Total Project Cost	Awarded Funding
Bannock Feeder - Diversion Replacement	\$885,110	\$250,000
Big Lost - Dam Repair	\$9,082,856	\$2,000,000
Boise Project Board of Control - New York Canal Lining	\$7,330,000	\$2,418,900
Chester Canal & Irrigation Company - Diversion Headgate	\$129,238	\$29,725
Dalton Gardens Irrigation District - Delivery Improvements	\$69,000	\$23,460
Enterprize Canal Company - Converting Canal to Pipeline	\$8,291,597	\$2,736,227
Falls Irrigation District - Pump Station Rehab	\$9,095,000	\$200,588
Fremont Madison Irrigation District - Upgrades to Diversion Structures	\$232,874	\$58,200
King Hill Irrigation District - Pump Station & Closed Conduit	\$6,154,187	\$1,980,259
Nampa-Meridian Irrigation District - Ridenbaugh Canal Modernization	\$9,637,000	\$1,820,048
North Side Pumping Company #2 - pump station/canal abandonment	\$4,138,388	\$951,800
Water District 63 - Monitoring System Upgrades	\$133,883	\$30,793
Total Funds Requested	\$55,179,133	\$12,500,000

Table 5. IWRB Aging Infrastructure Grants - 2nd round of awards.

IWRB Aging Infrastructure Grants Round 2 Awards (January 2023)		
Entity - Project	Total Project Cost	Awarded Funding
WRV Board Of Control - Diversion 45 Rehab	\$1,030,024	\$309,000
Falls Irrigation District - Pump Station Rehab	\$9,095,000	\$2,000,000
Cub River Irrigation Company - Pump Station Project	\$5,951,000	\$1,000,000
Nampa Meridian Irrigation District - Modernize Canal Diversion	\$13,388,370	\$1,866,116
Curran Ditch Users Association - Pipeline Project	\$70,000	\$16,100
HFF Conant Creek - Canal Lining & Automation	\$2,172,444	\$499,145
Island Ward Canal Co. - Replace Main Diversion Headgate & Automation	\$47,781	\$11,945
Northside Canal Co. - Canal Lining	\$7,342,600	\$2,000,000
King Hill Irrigation District - Cold Springs Pipe Project	\$2,773,364	\$828,501
Twin Falls Canal Co. – Highline Canal Lining	\$818,490	\$245,547
Big Lost Irrigation District - Canal Lining	\$3,100,000	\$900,000
Boise City Canal Co. - Headgate Modernization	\$366,000	\$122,000
Hat Butte Mutual Canal Co. - Pipeline Project	\$282,025	\$78,965
Solenberger Ditch Co. - Headgate Replace & Relocation	\$9,000	\$3,000
Sunnydell Irrigation District - Diversion Structure Modernization	\$107,940	\$30,233
Twin Falls Canal Co - Measure Box Improvements (Rubicon)	\$146,791	\$44,037
Burley Irrigation District - Replace F Waste Structure	\$2,700,000	\$891,000
Hayden Lake Irrigation District - Replace & Relocate Main Pipeline	\$6,180,000	\$1,654,411
Total Funds Requested	\$55,580,829	\$12,500,000

Managed Recharge of the Eastern Snake Plain Aquifer (ESPA)

Managed Recharge was identified as a strategy to support aquifer stabilization in the 2009 ESPA Comprehensive Management Plan and was subsequently supported through legislative direction and appropriations. Managed recharge involves delivery of surface water to targeted areas for seepage or injection into the aquifer. The intent is to improve water supply resiliency by reducing declining groundwater levels and using the aquifer to store water. To build out a recharge program, the IWRB developed recharge water rights, infrastructure to facilitate diversion of water through canals to dedicated recharge sites, and partnerships with irrigation entities to route recharge water through existing water delivery systems.

Under the IWRB’s direction and through partnerships with water user entities, over 2,200 cfs of recharge capacity has been developed throughout the ESPA. Since 2015, when the Idaho Legislature directed the IWRB to build out a large-scale program, approximately 2.13 million acre-feet of water has been added to groundwater storage in the ESPA. The Board’s recharge efforts and other management actions have increased the total outflow from Thousand Springs and raised aquifer water levels.

In FY23, limited water was available for recharge due to low carryover in the reservoir system and a normal snowpack in most of the mountains surrounding the ESPA during winter 2022/2023. As a result, the Board recharged 146,943 acre-feet of water into the ESPA.

Cloud Seeding Program

The 2021 Idaho Legislature passed House Bill 266, which created Idaho Code § 42-4301, recognizing the benefits of augmenting water supplied through Cloud Seeding and giving the Board authority to authorize, develop, and sponsor cloud seeding projects in Idaho. Since then, the IWRB has continued its support and development of the collaborative cloud seeding program in the Upper Snake River, Wood River, and Boise River basins. The collaborative program is a partnership between the Board, local stakeholders, and the Idaho Power Company, in which the group collectively funds, plans, and performs

cloud seeding operations in different basins. In FY23, the Board approved \$5.3 million to support program operations, capital costs, and coordinated research efforts. During that time, the Board also finished a statewide assessment of cloud seeding opportunities. Following the state-wide assessment, the Board initiated detailed analyses of cloud seeding potential in the Lemhi River and Bear River basins.

Water Transactions Program

The Board implements a Water Transaction program in the Upper Salmon River Basin to secure instream flow needed for the recovery of Endangered Species Act-listed fish. The program emphasizes obtaining flow while keeping the local irrigated, agriculture-based economy intact. The program uses permanent acquisitions, leases, investments in efficiency, and other market-based incentives that enable and assist landowners who wish to restore flows to existing habitats. Since the program's inception in 2003, the Board has restored over 751 cfs of flow to tributaries that provide habitat for endangered and threatened fish species. In 2023, there were 45 active water transactions on 26 separate streams administered cooperatively by the Water Transactions Program and six water districts across a 6,300 square-mile area.

Anderson Ranch Dam Raise

This project is a partnership between the IWRB and the U.S. Bureau of Reclamation (Reclamation) authorized under the federal Water Infrastructure Investment for the Nation (WIIN) Act. The project includes a six-foot raise of the Anderson Ranch Dam and associated modifications around the reservoir rim, resulting in an increase of approximately 29,000 acre-feet of surface water storage. The IWRB and Reclamation entered into a cost-share contract in 2021 to move the project ahead. The FY21 Federal Appropriations Legislation secured \$12.88 million in WIIN Act funding for the project. In accordance with the Idaho Legislature's 2022 House Bill 769, the IWRB authorized the expenditure of \$72.9 million from the ARPA State Fiscal Recovery Fund to meet the non-federal cost-share obligation.

Throughout FY23, Reclamation worked on environmental compliance and project design, which are scheduled to conclude in fall 2024. Construction is scheduled to commence soon after with expected project completion in 2029.

Mountain Home Air Force Base (MHAFB) Water Resilience Project

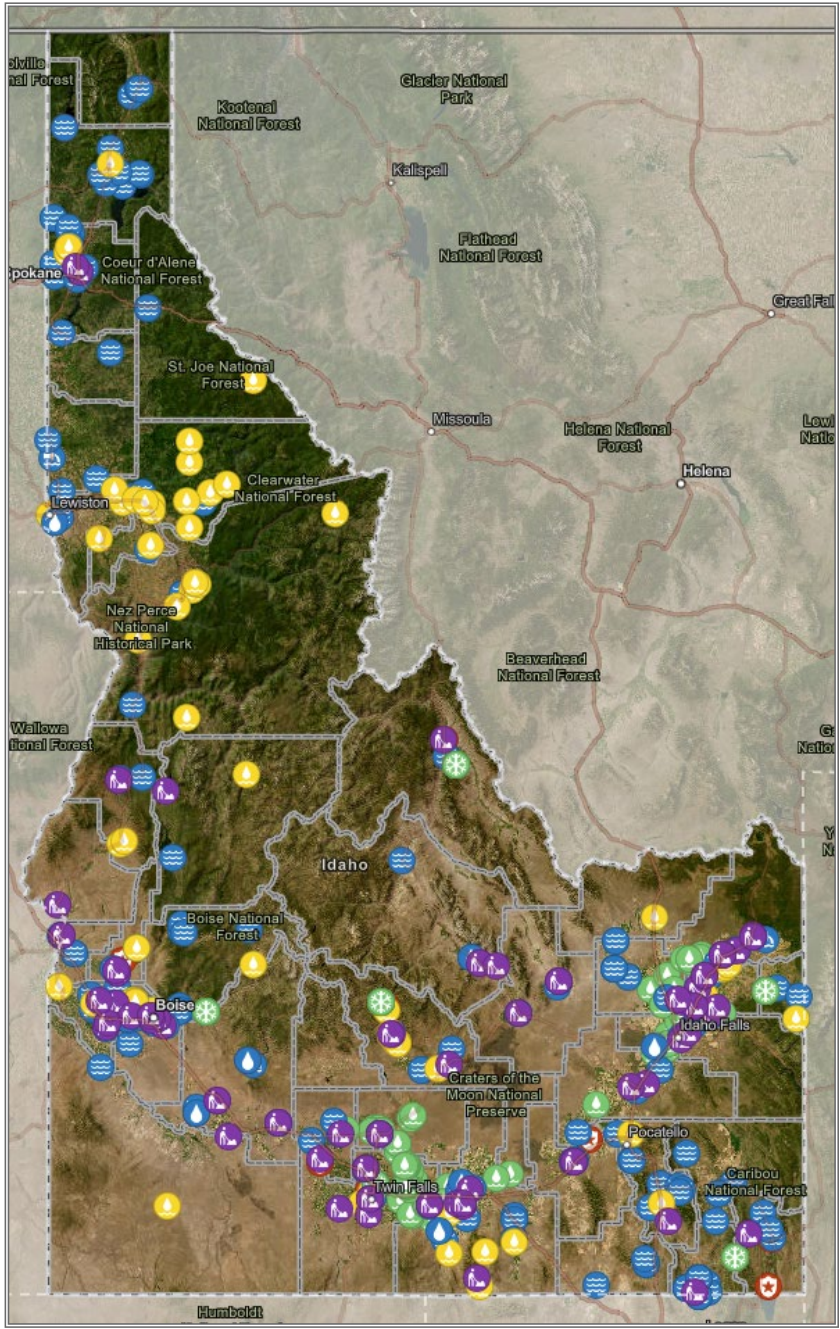
The Governor's office, State Legislature, and the IWRB are committed to supporting the MHAFB as a \$1 billion annual economic generator in the local Idaho economy. The MHAFB currently relies on groundwater from the Mountain Home Aquifer, a critical declining aquifer. In cooperation with the U.S. Air Force, this project will deliver an alternate water supply for the base from the Snake River while offsetting groundwater withdrawals from the aquifer. The IWRB is developing a water inlet, pump station and transmission pipeline to bring Snake River water from CJ Strike Reservoir to MHAFB. The U.S. Air Force is constructing a water treatment facility to receive the surface water supplied by the State of Idaho.

House Bill 769 appropriated ARPA State Fiscal Recovery Funds to support this project. Preliminary cost estimates for the transmission system to the Base are \$61 million. In FY23, the board authorized the expenditure of \$5 million of ARPA funds to initiate development and design activities, The project is expected to be complete by January 2026.

Water Supply Bank

The Board has the authority to operate the Idaho Water Supply Bank (WSB or Bank). The Bank is a water exchange market, operated by the Board to assist in marketing natural flow water rights and storage water rights in Idaho reservoirs. It is a mechanism by which water rights that are not being used can be made available for use by others through the lease and rental process.

The WSB is funded by lease application fees and a 10% administrative surcharge on rental transactions. In FY23, IDWR received 104 rental applications and 124 lease applications, and processed 130 rental applications and 186 lease applications, with a median processing time of 27 days.



For more information on the IWRB's programs and projects, visit the [IWRB webpage](#).

Figure 16. The map above illustrates the locations of the IWRB's current projects and programs. To learn more, visit <https://idwr.idaho.gov/iwrbl/>.

Technical Services Bureau



The Technical Services Bureau was formed in 2023 and combines the previous stand-alone Hydrology Section and Geospatial Technology Section. The Hydrology Section collects, stores, and analyzes hydrologic data for IDWR and the state of Idaho. The Geospatial Technology Section supports spatial data creation and analyses, and develops tools, maps, and applications used within IDWR and by the public. The work of both Sections supports the administration, management, planning, and protection of Idaho's water resources.

Bureau Chief Matt Anders
Hydrology Section
Geospatial Technology Section

Cover photo: The road to Williams Peak, Sawtooth Mountains. Image courtesy of Denise Lauerman.

Hydrology Section

Hydrology Section (Hydrology) staff collect, process, and analyze hydrologic data to help monitor and characterize the state's aquifers and river systems, and to support watermasters and water districts in the administration and delivery of reservoir storage and natural streamflow in accordance with Idaho's water right priority system. Hydrology also plans, executes, and manages studies, projects, and programs to support specific IDWR and IWRB initiatives. Finally, Hydrology develops, maintains, and operates groundwater flow and reservoir operations models to support water resource management and conjunctive administration of surface and groundwater resources. In combination, Hydrology staff use hydrologic data, project findings, and models to predict water supplies for the upcoming irrigation season, plan for improved use of water resources, and quantify the effects of drought, recharge, and pumping on aquifer water levels and river flows.

The following is a summary of the Hydrology Section's FY23 activities.

Hydrologic Data Collection

Hydrologic data collection is an essential and ongoing activity for both state and regional office staff. In FY23, Hydrology staff completed the following activities:

- Collected hydrologic data at more than 1,500 sites statewide.
- Expanded the Spring and Return Flow Monitoring Network to include 109 real-time stream and agricultural return flow sites.
- Collected water quality samples from 233 [Statewide Ground Water Quality Monitoring Program](#) wells.
- Expanded the [Statewide Water Level Monitoring Program](#) network to 964 routinely monitored wells, including 42 low temperature geothermal wells.
- Measured more than 1,000 additional wells as part of synoptic measurement events in the Big Lost River Basin (123 wells), Mountain Home Plateau (119 wells), and Eastern Snake River Plain Aquifer (792 wells).



Tito Sanabria, IDWR's telemetry expert, installs telemetry at a data collection station in Salmon, Idaho. Image courtesy of Tito Sanabria, IDWR.

Water Right Accounting

Despite below-normal reservoir storage at the start of winter 2022/2023, the majority of reservoir storage water rights and many natural flow water rights were satisfied statewide during the 2023 irrigation season. Reservoirs reached or nearly reached storage capacity due to significant snowpack accumulation in most basins. Hydrology staff accomplished the following water right accounting work in FY23:

- Completed and presented final accounting for the 2022 irrigation season for Water Districts 11, 34, 63, and 65.
- Supported water users in determining real-time reservoir allocation and priority date projections.
- Commenced activities to replace the water right accounting Microsoft Access Databases with a workflow program.

Supplemental Environmental Projects

In FY23, Hydrology Section staff worked on two different Supplemental Environmental Project (SEP) grants from the U.S. Department of Energy (DOE) at the Idaho National Laboratory.

The Department completed the first SEP grant in FY23. The grant had two components: 1) groundwater quality characterization on the eastern Snake Plain, and 2) a study of surface and groundwater resources in the Big Lost River basin. Hydrology staff prepared and submitted the final, comprehensive report for the first SEP grant to the DOE in December 2022.

The second SEP grant is ongoing and involves characterizing the hydrogeology of the Raft River basin. In FY23, Hydrology staff completed the following tasks for the second SEP grant:

- Oversaw the geophysical logging of 12 new monitoring wells.
- Developed a contract to install pumps in the new wells.
- Developed evapotranspiration estimates and aquifer water budgets for the study area.
- Managed the development of a draft hydrogeologic framework report.

Hydrologic Characterization Projects

Camas Prairie Basin Hydrologic Characterization Project

In March 2023, IDWR and IWRB signed a Joint Funding Agreement (JFA) with the US Geological Survey (USGS) to initiate a 4.5-year long project to characterize the surface and groundwater hydrology of the Camas Prairie basin. The scope of work involves streamflow monitoring, spring and fall synoptic water level measurement events, developing a hydrogeologic framework, and developing water budgets for the multi-layer aquifer system and Magic Reservoir. Since signing the JFA, IDWR has measured flows in Camas Creek tributaries six times and awarded a contract to drill and install five new monitoring wells in the basin.

Mountain Home Plateau Hydrologic Characterization Project

In February 2022, IDWR and IWRB signed a JFA with the USGS to initiate a four-year project to characterize the surface and groundwater hydrology of the Mountain Home plateau. This JFA includes development of a conceptual hydrogeologic framework and an aquifer water budget for the study area. Activities during FY23 included:

- Facilitated a Mountain Home Plateau geology field trip for scientists from IDWR, the USGS, and the Idaho Geological Survey.
- Participated with the USGS on a synoptic groundwater level monitoring event of 155 wells.
- Awarded a contract to install five monitoring wells during spring 2024.

Portneuf River Basin Hydrologic Characterization Project

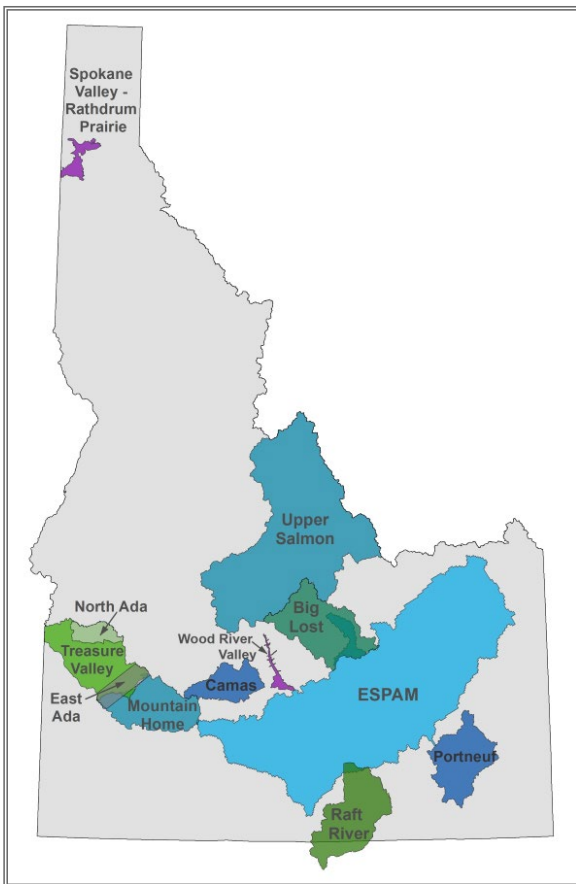
In March 2023, IDWR initiated a 4.5-year project to characterize the surface and groundwater hydrology of the Portneuf River basin. Project activities in the study area will include streamflow measurements, synoptic groundwater level monitoring events, installation of new monitoring wells, and development of a hydrogeologic framework and aquifer water budget. In FY23, Hydrology staff completed the following activities:

- Added nine new wells to the groundwater monitoring network.
- Delineated aquifer boundaries to support the development of a hydrogeologic framework.
- Met with the USGS to develop JFAs for stream gaging and water budget development.

Hydrologic Model Development, Recalibration, and Implementation

Big Lost River Basin Groundwater Flow Model

In collaboration with the USGS, IDWR initiated the development of a groundwater flow model for the Big Lost River basin in May 2022. The Department conducted two synoptic groundwater level measurement events, first in April 2022, and again in November 2022. The groundwater level data is used to build and calibrate the new model. A Modeling Technical Advisory Committee was formed, and meetings were held in November 2022, February 2023, and May 2023.



For more information on Hydrology Section projects, see the [Hydrology Projects](#) webpage on IDWR's website.

Figure 17. This map illustrates locations of current Hydrology Section projects. Visit the [Hydrology Projects](#) webpage for more information.

Geospatial Technology Section

Geographic Information System (GIS) software tools assist IDWR employees in analyzing and assessing water rights, determining IDWR administrative boundaries, locating wells, and collecting field data. GIS data and tools are foundational to many of the Department's core duties and responsibilities. The Geospatial Technology Section (GTS) supports spatial data creation and analysis, and creates GIS-based tools, data, maps, and applications used within the Department and by the public. GTS staff work on small to large-scale GIS projects to assist the Department. In addition to day-to-day support, GTS staff also develop and support data access tools for IDWR staff and the public.

The GTS serves department data through the [Idaho Department of Water Resources GIS Data Hub](#), which is available from the IDWR home page. The Data Hub serves downloadable data, interactive maps, and web services that can be added to applications.

Below is a summary of GTS projects completed, initiated, and ongoing in FY23.

Evapotranspiration (ET) Related Projects

The Department uses satellite-based Evapotranspiration (ET) data in hydrology, water resources planning, and water administration. Evapotranspiration data is also a large component of water budgets built into IDWR groundwater models and other projects. Due to the expansion of hydrologic work in Idaho, the need for ET data is increasing. As a result, GTS is working on several ET-related projects.

Satellite-based ET Data Creation

GTS staff produce satellite-based ET data for the Eastern Snake Plain following each growing season and additional data as needed for hydrologic projects. In FY23, GTS published ET data covering the Eastern Snake Plane for the 2021 growing season and ET data covering the Mountain Home Plateau for the 2010 growing season. To accelerate data production, GTS staff wrote specialized code to automate some of the manual portions of the modeling process. In FY24, GTS will publish ET data covering the Eastern Snake Plane for the 2022 growing season.

Evapotranspiration Ground Truthing Measurement Project

While the importance of accurate ET data is rising, there is uncertainty about which ET modeling approaches work best in Idaho. To address this uncertainty, in FY23, GTS and Hydrology Section staff began planning a project to gather ET and consumptive use (CU) data to guide future modeling decisions. Consumptive use is defined as the amount of ET attributable to irrigation water.

With funding from the IWRB, the Department developed a 4-year project to install and operate three eddy covariance (EC) stations on agricultural land on the eastern Snake Plain. Data from the EC stations will be used to ground truth ET estimates and potentially refine and recalibrate METRIC ET for use in the Eastern Snake Plain Aquifer Model (ESPAM) water budget and other IDWR applications. In FY24, GTS and Hydrology staff will request proposals to install the EC stations, select measurement sites and a contractor, and begin collecting data. Data collection will continue for three growing seasons, and the project will conclude in the fall of 2027. Staff will compare the ground truth data to satellite-based estimates of ET, including manually calibrated METRIC and all models available from the OpenET project.

Evapotranspiration Idaho Technical Transfer

The Department and the public have relied on the University of Idaho's (U of I) crop water need data distributed through the [U of I's ET Idaho website](#), since 2007. In FY21, IDWR and the U of I embarked on a multi-year effort to update the crop water need data and the code for producing the data. In FY23, the new code and data were finalized, and the educational aspect of the project was completed. The Department will host the new dataset and future updates on a website currently under development and expected to be publicly available during FY24.

GIS Development & Integration Projects

Geospatial Information Systems have become an integral part of IDWR's business. The Department evolved from basic GIS desktop software training for a small group of 20 Water Resource Agents in 1997 to the common, everyday use of desktop software supported by custom applications by over 100 IDWR staff as well as regular public access of maps, applications, and data on the IDWR Maps & GIS Data Hub. GIS development and integration projects allow the Department to create, share, and distribute data and analysis with its staff, water user stakeholder groups, and the wider public as well as better support IDWR's business operations. The GTS has several large projects in FY23 supporting GIS use by IDWR staff and the public.

Field Survey Lifecycle

Field data collection is an essential component of many IDWR programs. The GTS supports the use of mobile data collection applications, such as ArcGIS Survey123 and ArcGIS Field Maps, for field surveys.

In FY23, GTS staff assessed IDWR's field survey data collection support needs, including data transfer and backup, beginning with five IDWR sections. This assessment resulted in the development of a Field Survey Lifecycle policy process from survey creation, through data transfer, to survey deletion (see figure A).

GTS staff implemented new data management strategies and best practices, leveraging technological advancements, in implementing the Field Survey Lifecycle. The new strategies and practices reduced costs and increased efficiency for the Department. For example, removal of inactive surveys reduced cloud storage costs by over 80%, standardized survey templates streamlined data QA processes, and reduced the amount of staff time spent creating surveys. In FY24, GTS staff will continue to implement the new Field Survey Lifecycle across additional IDWR Sections.



Figure 18. Enhancements to the Field Survey Lifecycle

Trust Water Application Development

Trust water rights are surface and groundwater rights in the Trust Water Area of the Snake River basin that divert water previously appropriated under hydropower rights held in trust by the State. In FY23, the Swan Falls Implementation Group requested a web accessible application that allows users to evaluate the spatial location, distribution, and concentration of trust water right points of diversion in the Trust Water Area in relation to the implementation of the 2015 Swan Falls Settlement Agreement. In FY23, GTS staff completed a draft application for testing and limited user review. Development continues as GTS staff incorporates user feedback. The final product is scheduled for publication in FY24.

Application Upgrades

Geospatial Technology staff upgrade GIS related applications and Application Programming Interfaces (APIs), but often in the background, to maintain compatibility with other emerging technologies, avoid security issues with older software frameworks, and to take advantage of features that improve efficiency. In FY23, the Department assessed several of its GTS supported APIs. As a result, GTS staff decommissioned two APIs through tool rewrites and upgraded four additional APIs or applications to achieve compatibility with the most recent Esri platform. In FY24, GTS staff will upgrade at least two of the Department's fourteen ASP.Net applications and APIs to Net 6 or newer.

Migration from Esri's ArcGIS Desktop to ArcGIS Pro

Esri's ArcGIS Desktop is IDWR's current desktop GIS software suite that allows users to create maps, perform spatial analysis and manage data. Esri has announced that ArcGIS Desktop will enter Mature Support in March 2024 and will be retired March 1, 2026. To resolve any issues including security vulnerabilities, bugs, and compatibility, Esri recommends moving to ArcGIS Pro. In FY23, GTS staff evaluated IDWR's ArcGIS Pro licensing needs and transitioned from an ArcGIS Desktop concurrent licensing model to the ArcGIS Pro's user-based licensing model. In FY24, GTS staff will begin upgrading IDWR custom applications, including WREdit, to ArcGIS Pro based technologies.

Installation of ArcGIS Enterprise Base Deployment

Previously, IDWR used a traditional deployment of ArcGIS Enterprise with a stand-alone instance of ArcGIS Server. Esri's modern method for maintaining and delivering GIS web services adds Portal for ArcGIS to ArcGIS Server. This configuration is referred to as a base deployment of ArcGIS Enterprise. By implementing the base deployment of ArcGIS Enterprise, IDWR will be able to serve sensitive information to restricted users via web services that cannot be public. GTS staff completed the installation of the base deployment of ArcGIS Enterprise and re-published previously available datasets through ArcGIS Enterprise in FY23. For FY24, GTS staff will identify additional high-value datasets for publication.

Land Use Classification

Maps of irrigated, semi-irrigated, and non-irrigated lands are essential for water right processing, groundwater modeling, water right transfers, compliance inquiries, legal issues, and water use assessments. For the ESPA, irrigation status mapping is traditionally hand-digitized and is an ongoing effort requiring multiple years of data from 12 eastern and central Idaho counties. In FY23, GTS staff completed an irrigated land use classification of the ESPA for 2017. Additionally, GTS staff hand-digitized land use classifications in support of the Bear River Compact Depletion Study and the Bear River Basin Adjudication for the year 2019. Geospatial Technology staff developed an automated method of classifying irrigation status using random forest modeling. The random forest model is an ensemble

machine learning method for classification that combines the predictions from many decision trees. It uses remotely sensed data from Sentinel and Landsat satellites and training data from areas with known irrigation status. The random forest approach requires much less staff time than the traditional hand digitization method. In FY23, GTS staff used the random forest approach to complete land use classifications of the ESPA for the year 2016, Malad area for the year 2017, Mountain Home area for the year 2010, and the Raft River area for the years 2000 and 2013.

Historical Imagery Georectification in the Bear River Basin Adjudication

To support taking claims and determining recommendations for the Bear River Basin Adjudication, GTS staff geo-rectify historical images with recent images downloaded from the USGS EarthExplorer website. The historical images assist Adjudication staff in determining whether beneficial use occurred at the time and place indicated on a water right claim. The historical images are individually geo-rectified, mosaiced together by year and IDWR Administrative Basin, and published for use by staff. The example images below illustrate the development of agriculture and land use change in the Montpelier area between 1953 and 2021. In FY23, GTS staff downloaded and processed over 500 historical aerial images in the Bear River Basin for the years of 1954, 1959, 1966, 1968, and 1970. In FY24, additional images from 1966, 1967, & 1969 will be processed and added to the collection.

