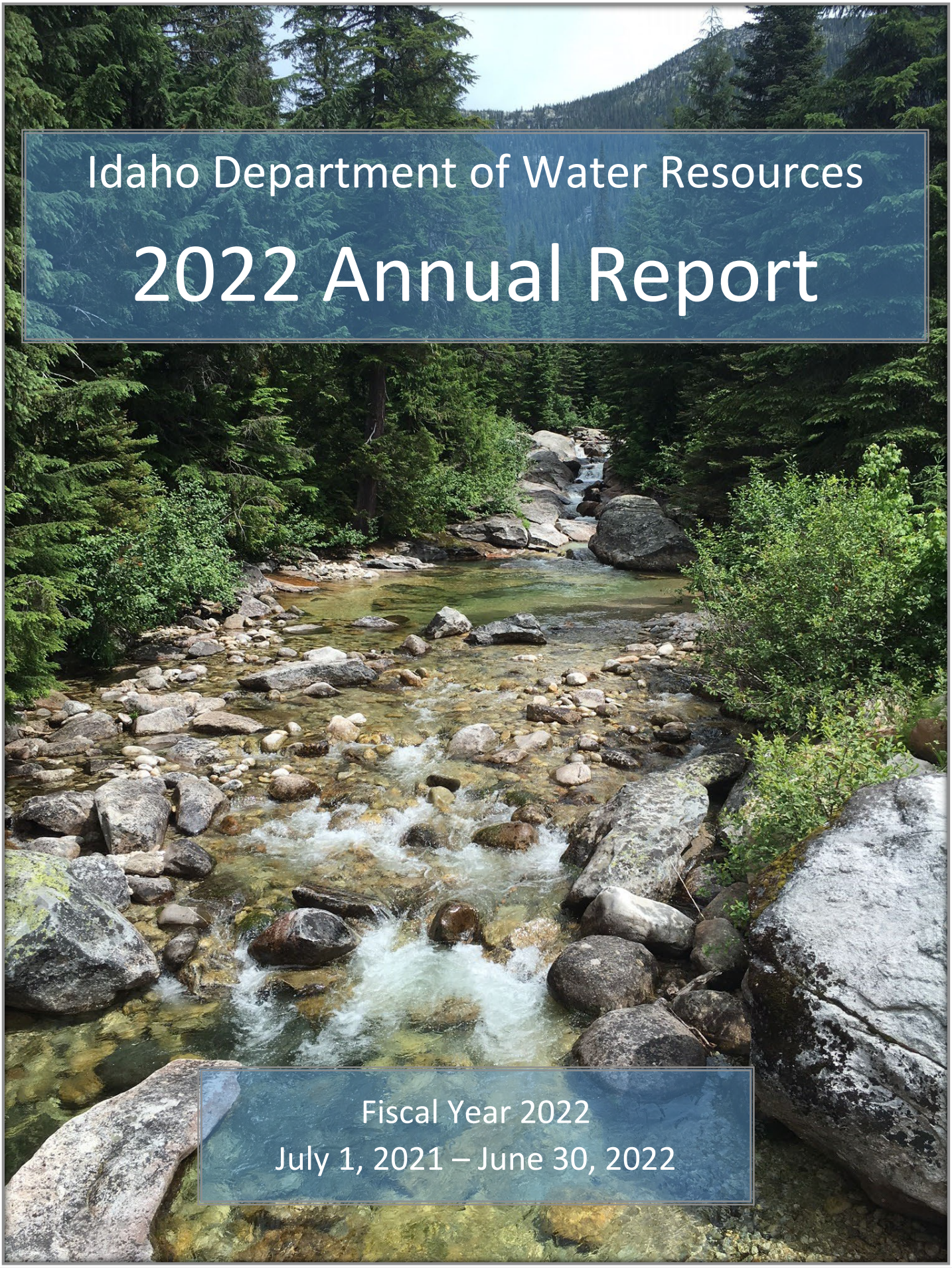


Idaho Department of Water Resources

2022 Annual Report

Fiscal Year 2022

July 1, 2021 – June 30, 2022

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."

This report is an overview of the Idaho Department of Water Resources' programs, activities, and accomplishments during the 2022 Fiscal Year (FY22), which began on July 1, 2021, and ended on June 30, 2022, and includes updates on significant activities that occurred through the 2022 irrigation season.

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/

Cover photo of the upper Pack River, courtesy of J. Carlson, IDWR.

Contents

Agency Overview

Director Gary Spackman
(2009 – Present)

Deputy Director Mathew Weaver
(2013 – Present)

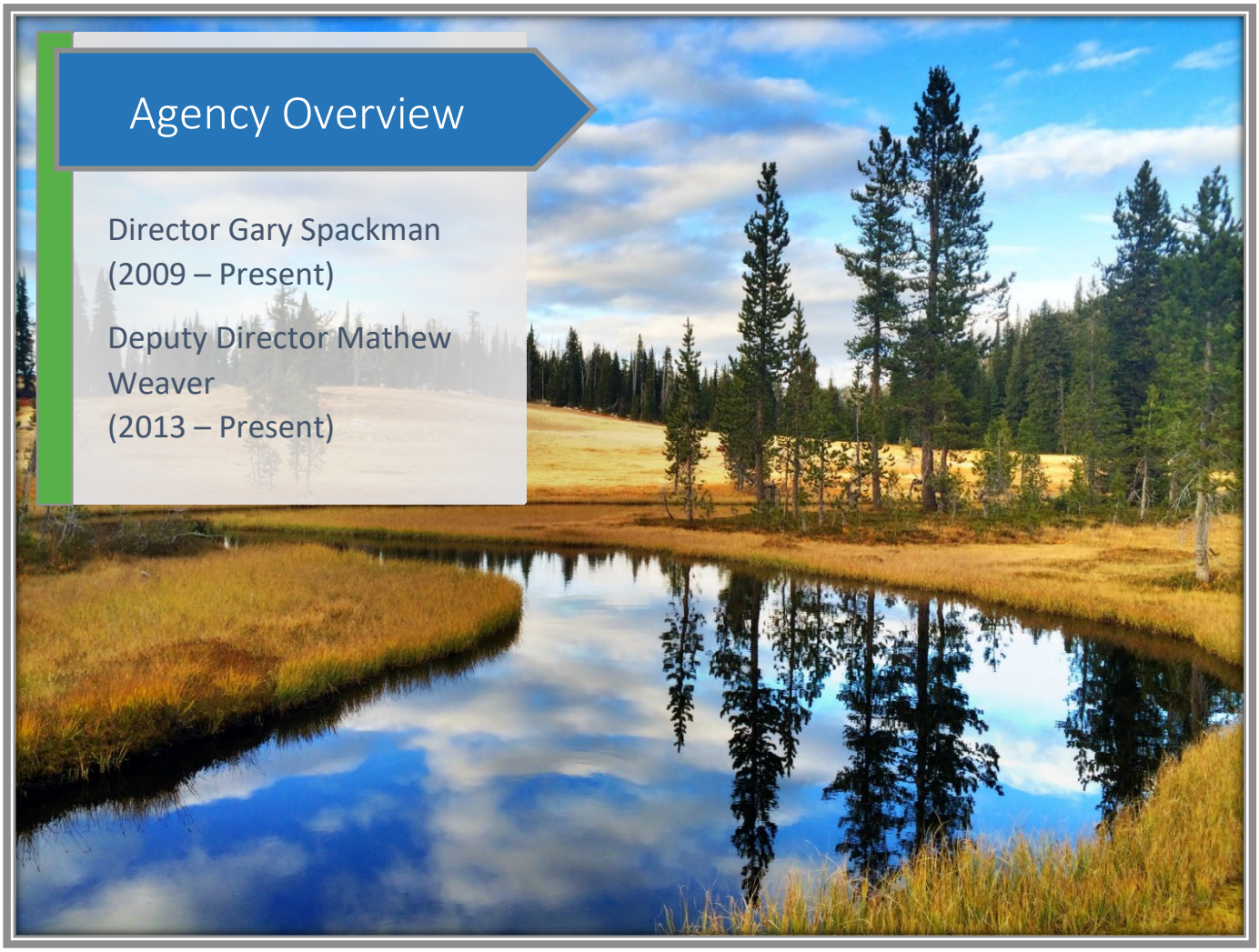


Photo of Boulder Creek Meadows, courtesy of Mat Weaver, IDWR.

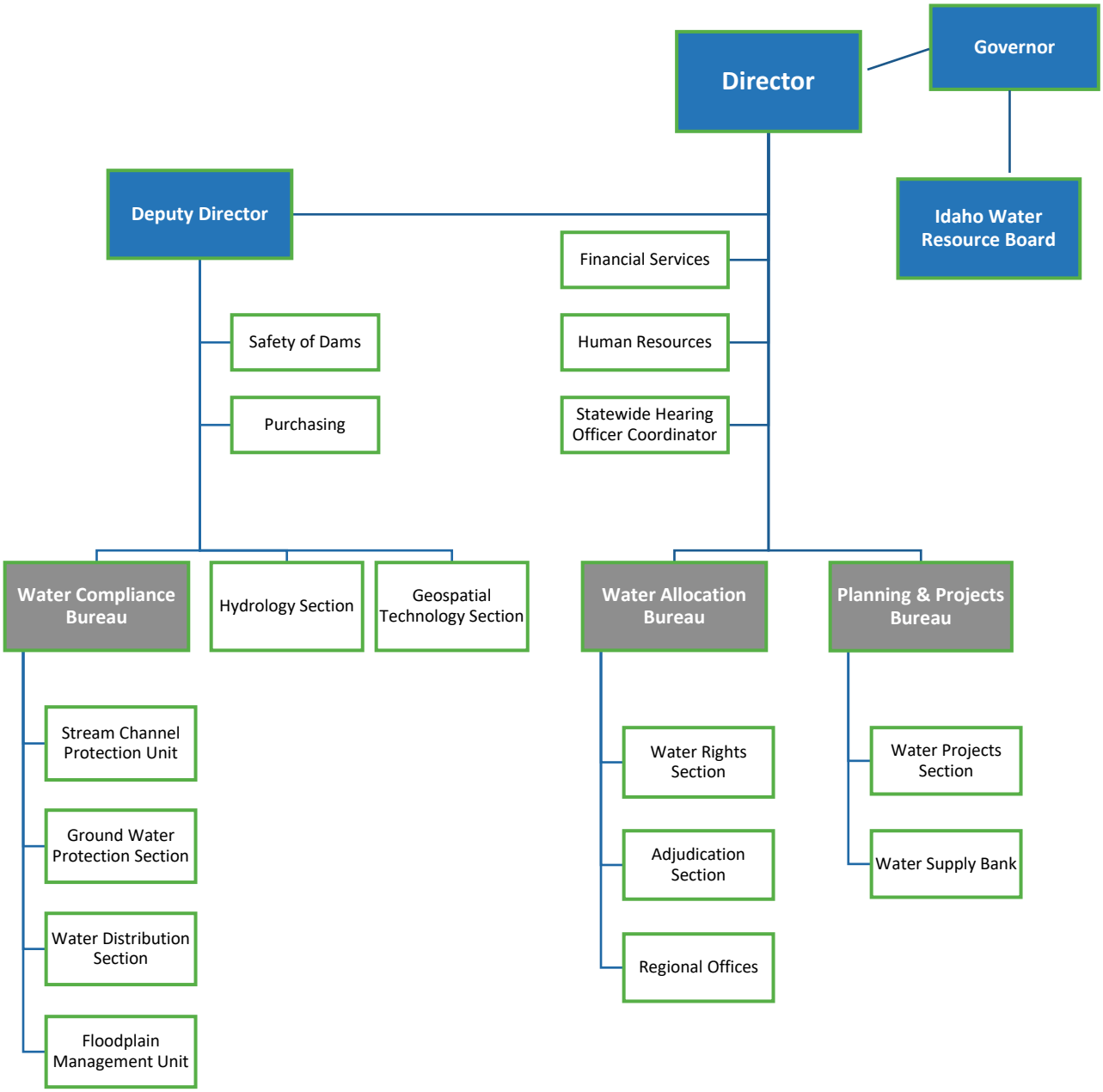
IDWR's Commitment:

- 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.

Mission:
To serve the citizens of Idaho by ensuring that water is conserved and available for the sustainability of Idaho's economy, ecosystems, and resulting quality of life.

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

Fiscal Year 2022 Organization Chart



Fiscal Year 2022 Highlights

In Fiscal Year 2022 (FY22), the Idaho Department of Water Resources (IDWR or Department) and Idaho Water Resource Board (IWRB or Board) received the largest amount of state funding in the agencies' history, due to a large budget surplus and the Idaho Legislature's allocation of American Rescue Plan Act (ARPA) funds from the federal government. The bulk of those funds were allocated to the Idaho Water Resource Board for specific large water infrastructure projects and to increase capacity for recharging the Eastern Snake Plain Aquifer, the largest ground water resource in the state of Idaho.

In the 2022 Legislative session, Idaho lawmakers allocated $250 million in ARPA funds to the Board as part of IDWR's FY23 budget. Governor Little in his "Leading Idaho" budget, recommended allocating $100 million in ARPA funds to the Board in FY23, and $50 million each year, over the next 3 years ($250 million total), for major water infrastructure projects.

Following the direction of the Idaho Legislature, the Board created a new statewide grant program for major water infrastructure projects and aging infrastructure projects. In its 2022 September meeting, the Board authorized $12.5 million in grant funding for 12 aging infrastructure projects statewide. The Board will continue funding major water projects in the coming year through a competitive grant program, applying detailed evaluation criteria to ensure that all water projects receive an equal consideration statewide.

The Department and Board officials realize that the availability of ARPA and state surplus funds creates a historic, once-in-a-generation opportunity to fund large water projects statewide. The agencies are humbled by the opportunity and take our fiduciary duty very seriously.

The Department also received funds to hire an additional 15 full time positions in FY23 to address an increasing workload statewide. Idaho experienced major population growth in recent years and was the second fastest growing state in the last decade with a 17.3% change in population between 2010 and 2020[1]. The extra workload caused by population growth strained IDWR's ability to complete required tasks, particularly water right filings, well drilling applications, and questions from new residents.

For example, rapid population growth in the Northern Idaho region, doubled the water right application workload for the Department in the Coeur d'Alene office. Additionally, the Clark Fork - Pend Oreille River Basin Adjudication (CFPRBA) commenced in June 2021, with 26,929 notices sent to property owners between September 2021 and September 2022. As a result of the population growth and commencement of the CFPRBA in 2021, the northern office received 640 applications for permit, triple the number of applications for permit received in FY20, which was 213. The northern regional manager reported receiving more than 100 phone calls a day on busy days, more than 140 customer walk-ins a month, and more than 1,200 well-drilling applications since June of 2022.

While contending with the increased workload caused by population growth, IDWR also had to cope with staff retirements. Between January 2021 and December 2022, 14 staff retired from IDWR. The loss

[1] Counts, America. *Census.gov Library; America Counts: Stories Behind the Numbers; Idaho: 2020 Census*. 25 August 2021. Webpage. 26 January 2023.

of experience, institutional knowledge, and diversity in age and education level in the workplace is challenging for IDWR. However, the Department also views retirement as an opportunity for promotion and growth among younger staff in the Department and encouragement to review and adjust workflow functions. The Department is grateful for the years of service, work, and accomplishments of its retired staff and wishes them all the best in this next chapter of their lives.

The Department's other important milestones in the last year include:

- Implementing the first year of a new management plan for ground water users in the Big Wood River Ground Water Management Area (BWGWMA), including the Bellevue Triangle area, in south-central Idaho. The ground water management plan was signed by 10 Big Wood Basin surface and ground water organizations in January 2022. The plan requires detailed mitigation measures and a reduction in land irrigated with ground water. In connection with the management plan, IDWR also issued a moratorium order on processing new water right applications for surface and ground water in the Big Wood River Ground Water Management Area.

- Issuing an amended moratorium order in October 2022, suspending the processing of new water right applications for surface and ground water in the Snake River Basin. The order designates a moratorium area extending to the east, upstream from the Murphy gage at Swan Falls Dam to the Upper Snake region, and includes the mainstem Snake River, Snake River tributaries and ground water aquifers in the basin. The order protects existing surface water and ground water users in the Snake River Basin and determines that the Snake River, its tributaries, and ground water aquifers are fully appropriated, except in limited circumstances.

Blaine County's Silver Creek on a smokey day. Silver Creek is within Water District 37 and the BWGWMA. Photo courtesy of Clinton Barnes, IDWR.

- Executing a comprehensive voluntary settlement agreement among water users in the Lemhi River Basin after two years of negotiations, with the assistance of water law attorneys/mediators Clive Strong and Norm Semanko. The Department is assisting Lemhi water users to apply for water rights to legalize the historic practice of diverting high spring water flows.

- Finalizing the Swan Falls Implementation Group Charter between the State of Idaho, the Attorney General, and Idaho Power Company. The Swan Falls Implementation Group re-convened after a 7-year hiatus and signed a collaborative group charter to work on solutions to maintain statutory minimum winter and summer flows on the Murphy gage at Swan Falls Dam. The Implementation Group is concerned about sustaining those minimum flows (3,900 cfs in March-November and 5,600 cfs in December-February). Department hydrologists with the Swan Falls Technical Working Group are tracking Snake River water flows at the Murphy gage in real time, 24/7, year-round.

- Adjudicating the Clark Fork-Pend Oreille River Basin water rights. The Department launched Phase 3 of the Northern Idaho Adjudications in September 2021 when it sent out 5,000 notices to property owners in the Priest River drainage. From September 2021 through November 2022, IDWR sent 21,000 notices and received a total of 4,780 water right claims from water users throughout the Priest, Clark Fork, and Pend Oreille River drainages. In the last year, Department staff hosted small, informational outreach events and held a three-day workshop in Sandpoint in May to answer questions and help water users file water right claims.

- Opening a new field office in Preston, Idaho, to receive and review water right claims in the Bear River Basin Adjudication (BRBA). In June 2021, Judge Eric Wildman issued an order commencing the Bear River Basin Adjudication. As of early December 2022, the Preston office has four staff members and has conducted two public information meetings on the BRBA in Montpelier, Idaho. In January 2023, IDWR will send notice to 3,000 Bear River basin property owners that water right claims must be filed for existing water rights. IDWR expects the Bear River Basin Adjudication to generate up to 14,000 water right claims and last about ten years.

In the photos above, Water Rights and Adjudication staff tour important sites within the Bear River basin in preparation for the Bear River Basin Adjudication, September 2022. Photos courtesy of Shelley Keen, IDWR.

- Issuing of drought declarations for 34 counties in southern Idaho in April 2022. During January through March, Southern Idaho snowpacks flat-lined. In contrast, during April through June, the weather was cool and wet. The Boise River reservoir system fill to nearly 100%. Unfortunately, the precipitation wasn't enough to fill the Snake River reservoir system. Thankfully, the cool, wet spring extended the irrigation season in water-short areas of Southern Idaho.

- Reducing Department Rules contained in Chapter 37 of the Idaho Administrative Code as part of the Governor's Zero-Based Regulation Executive Order 2020-01. The Department streamlined rules in five subject areas - Water Supply Bank, Drilling for Geothermal Resources, Mine Tailings Impoundment Structures, Safety of Dams, and Well Driller Licensing. Rule language was reduced by 4,559 words or 15.5% overall in those five areas.

- Implementing necessary steps to reduce the Department's reliance on paper records. In March 2022, the Department began accepting electronically filed documents. In August 2022, the Department transitioned its digital content management system from PC Docs to Laserfiche. Next steps will include developing a records retention schedule for paper documents converted to digital formats.

Idaho Water Year in Review

Water Year (WT-YR) 2022, September 30, 2021 – October 1, 2022

Conditions Statewide

Drought

During WT-YR 2022 northern Idaho and the Payette and Boise River basins recovered from the exceptional spring drought of 2021. In September 2022, drought conditions returned to the central mountain region of Idaho, mainly due to an abnormally dry and hot summer. Moderate drought continued across the rest of southern Idaho in 2022. Table 1 on the following page, lists the 2022 April-September runoff percentiles estimated by the Northwest River Forecast Center (NWRFC) for various stream locations in Idaho. The 50th percentile identifies median runoff. According to the United States Drought Monitor (USDM), hydrologic drought occurs when runoff falls below the 20th percentile. Table 1 ranks drought according to USDM standards. Note that Abnormally Dry is not considered a drought category, but an early warning that a region is approaching drought status. The Teton River is the only river that suffered extreme drought. The severe drought categories along the Henry's Fork River and mainstem of the Snake River are all in locations that impact ground water recharge of the Eastern Snake Plain Aquifer, which lost approximately 1,300,000 acre-feet of water between spring 2021 and spring 2022.

Precipitation

In the first three months of WT-YR 2022, precipitation was above normal across the state. Precipitation ranged from 162% of normal in the Birch Creek, Medicine Lodge Creek, Beaver Creek, and Camas Creek basins to 110% of normal in the Weiser River Basin. The next three months (Jan-Mar) saw the snowpack mostly stop growing in southern Idaho as precipitation slowed down dramatically (see Figure 1 on the

following page). By April 1, snowpack was only 60% of median in the Boise River Basin and 70% of median in the Upper Snake River and Bear River basins. Due to minimal storage in the reservoir system from the previous year, a major drought was predicted across Idaho. At the end of April, the Governor declared all counties in southern Idaho below Idaho County to be in drought, allowing irrigators to use the emergency water right transfer process in southern Idaho.

A dramatic change in spring weather conditions rescued Idaho from exceptional and extreme drought. Precipitation in northern Idaho exceeded 130% of normal. Southern Idaho saw precipitation return to near normal conditions.

Table 1 Hydrologic Drought in Idaho based on USDM categorization of NWRFC estimates of runoff in April-September of 2022.

River	Percentile	Drought Status
Kootenay River at Leonia	61	
Clark Fork River at Cabinet Gorge Dam	48	
Priest River	56	
Pend Oreille River at Albeni Falls Dam	55	
Spokane River at Spokane	59	
Clearwater River at Spaulding	68	
Salmon River at Whitebird	39	
Weiser River at Weiser	20	Moderate Drought
Payette River at Horsehoe Bend	29	Abnormally Dry
Boise River at Lucky Peak Dam	32	
Wood River below Magic Dam	27	Abnormally Dry
Little Lost River near Carey	29	Abnormally Dry
Big Lost River below Mackay Dam	29	Abnormally Dry
Fall River near Chester	19	Moderate Drought
Teton River near St. Anthony	8	Severe Drought
Henry's Fork River at St. Anthony	16	Moderate Drought
Henry's Fork River at Rexburg	3	Extreme Drought
Snake River at Heise	25	Abnormally Dry
Snake River at Shelley	15	Moderate Drought
Snake River below American Falls	6	Severe Drought
Snake River at King Hill	7	Severe Drought
Snake River at Swan Falls Dam	7	Severe Drought
Snake River at Hells Canyon	19	Moderate Drought
Salmon Falls Creek at San Jacinto	32	
Bruneau River at Hot Springs	33	
Owyhee River below Owyhee Dam	31	

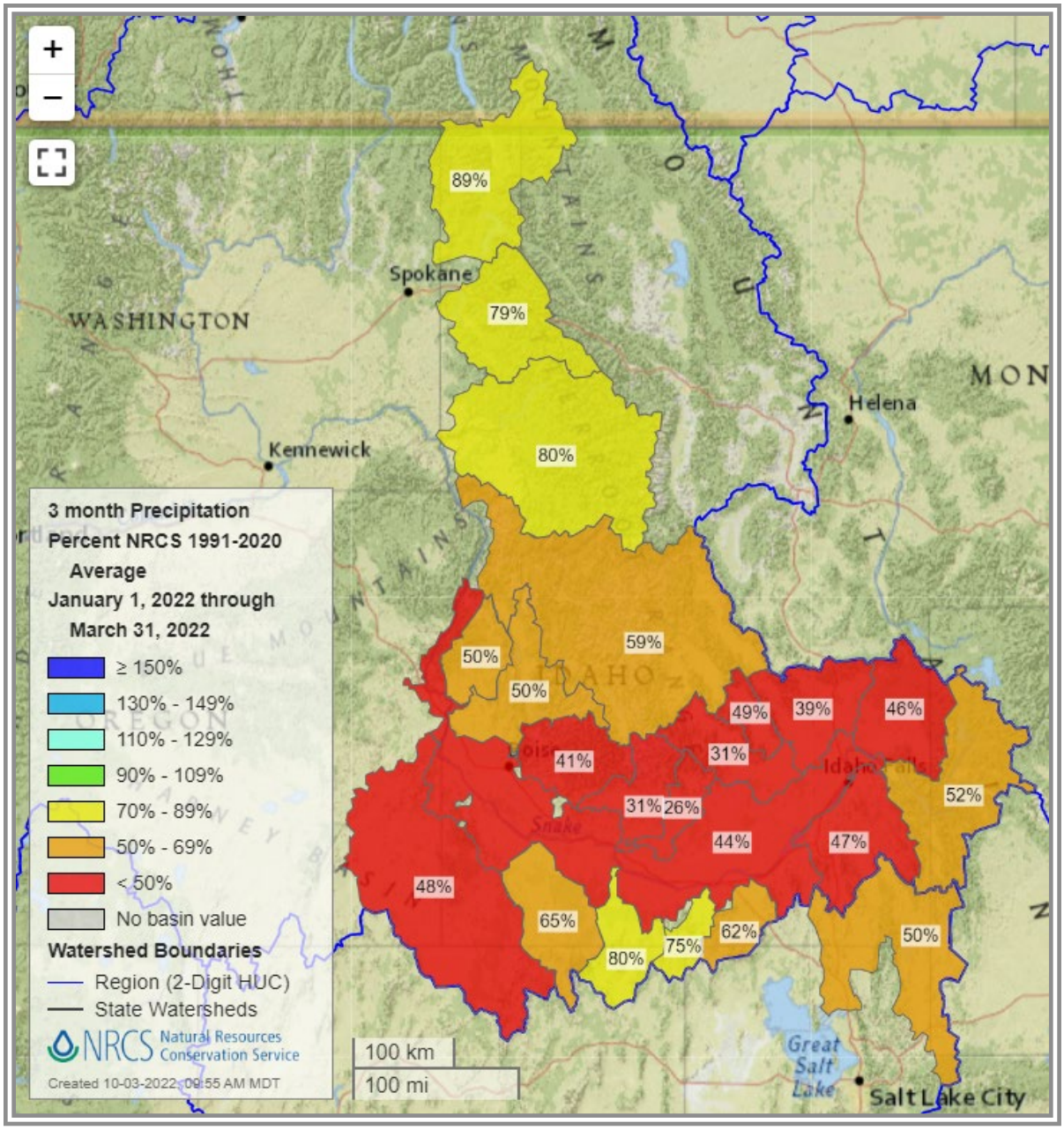


Figure 1. The 3-month percent of normal precipitation for basins in southern Idaho, January 1, 2022 – March 31, 2022. There was a dire lack of precipitation during the peak winter months of January, February, and March, when precipitation was minimal in southern Idaho and below normal in northern Idaho.

Temperature

The noteworthy story of WT-YR 2022 was the abnormally cool weather in April, May, and June. Figure 2 on the following page compares (a) temperature percentiles and (b) precipitation percentiles for Idaho. Note that areas from northern Idaho down to the Boise basin saw precipitation in the top 10th percentile, but nearly the whole state saw temperatures below the 10th percentile. In much of the state, April was cooler than March, a rare phenomenon. The cool weather delayed crop water demand and

runoff, allowing reservoir storage to partially recover and keep drought conditions at moderate levels across the southern portion of the state.

After a cool spring, summer temperatures switched to extreme heat. August and September temperatures set new records across most of Idaho where temperatures have been recorded since 1895. This extreme heat brought moderate drought back to the Boise basin, which had recovered from drought during the spring due to below average temperatures and above average precipitation.

(a). (b).

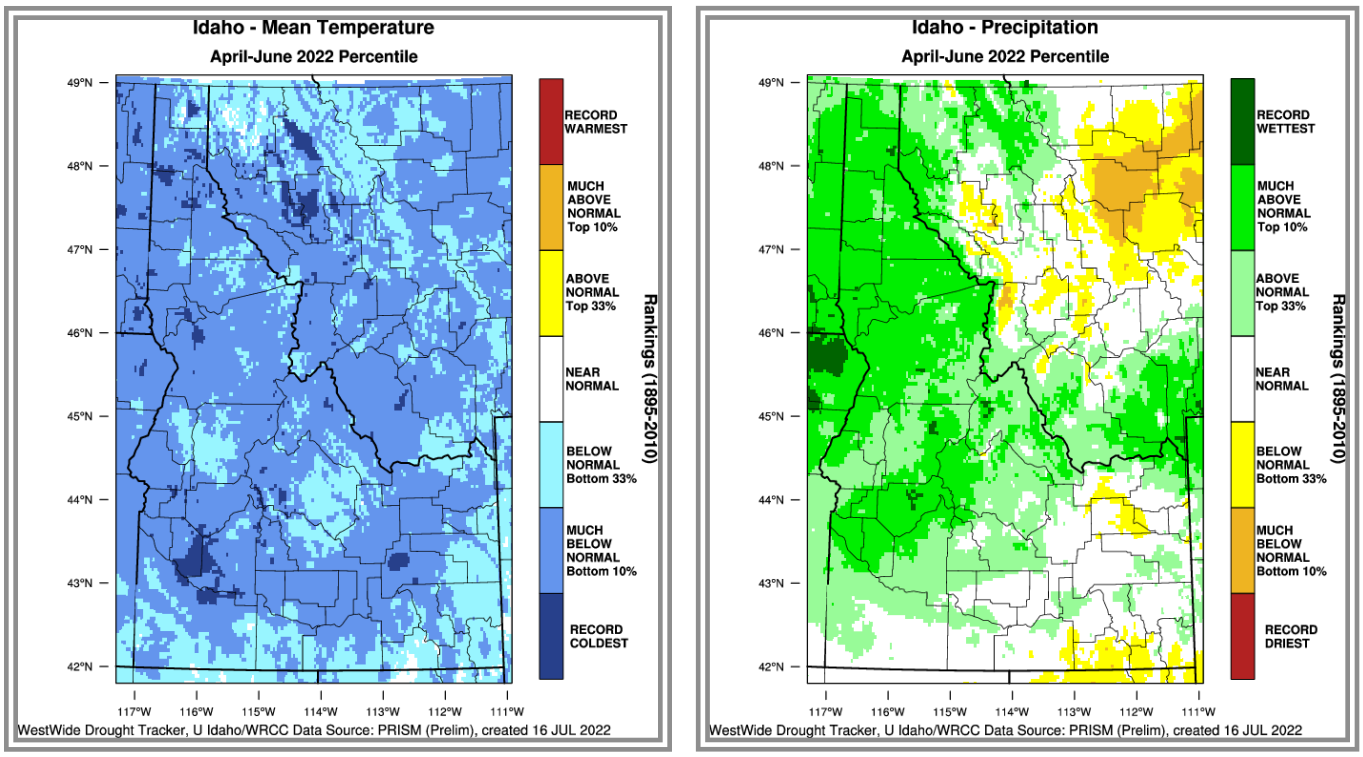


Figure 2. Drought as represented by (a) mean temperature percentiles and (b) precipitation percentiles in the State of Idaho during Spring (April - June) of 2022, by the United States Drought Monitor.

Outlook for Water Year 2023

Water Year 2023 is starting off with severely depleted reservoir storage everywhere in the state except in the Boise and Payette River basins. For much of southern Idaho, WT-YR 2022 was the second consecutive year of drought, with the Big Wood and Big Lost River basins experiencing a third consecutive year of drought. The National Oceanic Atmospheric Administration's (NOAA) Drought Termination and Amelioration Tool indicates that southeastern Idaho has around a 33% probability of recovery from drought by April 1, 2023. However, if we look at conditions in the Pacific Ocean, NOAA indicates another La Niña has formed over the tropical Pacific. While La Niñas tend to indicate wetter than normal conditions in the Pacific Northwest, since the 1980s, southern Idaho has witnessed a phenomenon where successive La Niñas result in less snowpack by April 1st than the preceding La Niña (see Figure 3). Based on this pattern, southern Idaho has a high likelihood of being in a drought for at least another year, with potential for extreme drought.

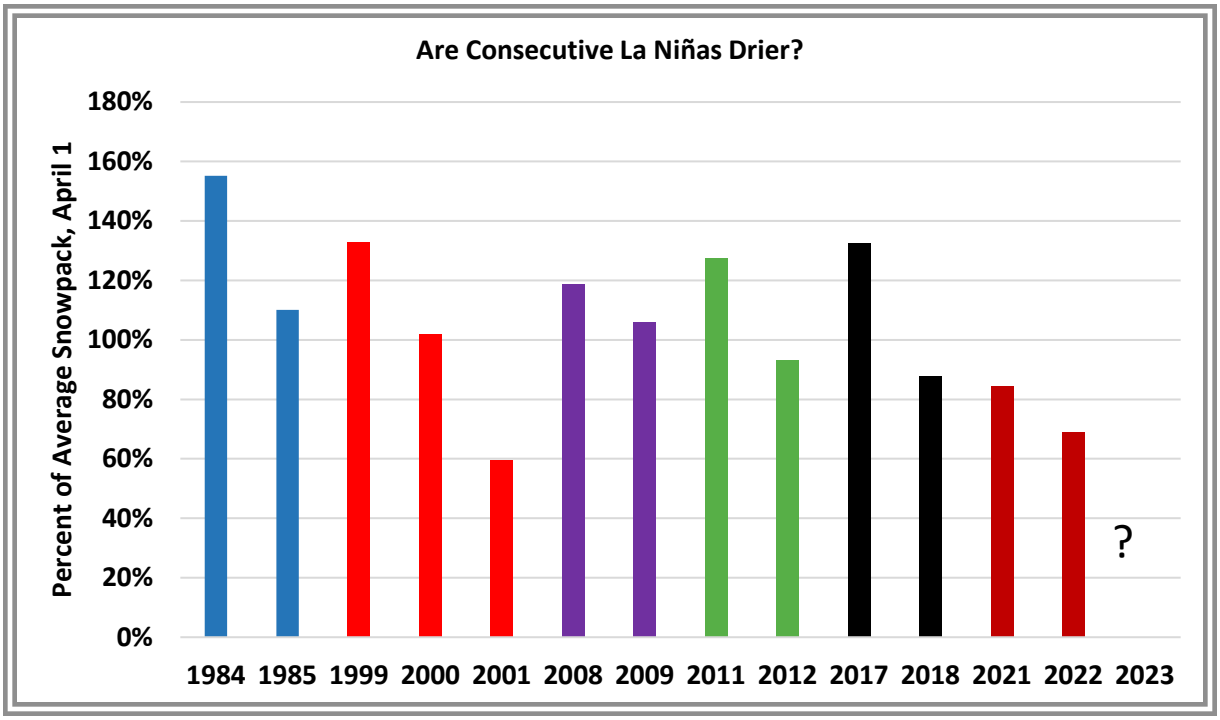


Figure 3. Each year the snowpack during consecutive La Niña winters has declined from the previous year's snowpack. In the figure, above La Niña conditions are defined by the Oceanic Niño Index for the October, November, December period.

Conditions in the Middle Snake River Basin

Water-Year 2022 started with a wetter than normal (114% of median) October through December. However, from January 8 until April 8, due to a lack of storms coming off the Pacific Ocean, very little snow accumulated in the mountains. Figure 4 below, compares the snow water equivalent (SWE) in the Middle Snake River basin between WT-YR 2021 (yellow line) and WT-YR 2022 (black line). The Middle Snake River basin is defined as the portion of the basin below the USGS gage near King Hill and above Hells Canyon Dam. The median peak snowpack, in Figure 4, is marked by the green "x". Median snowpack in the Middle Snake River basin typically occurs on March 28 at 18.8 inches. Snow Water Equivalent is often used as a measure of snowpack.

In Figure 4, we see that the snowpack peaked in 2021 (yellow line) on March 27 at 87% of the median snowpack (based on the hydroclimatic normal from 1991-2020). The 2021 snowpack disappeared rapidly due to exceptionally dry spring conditions. Runoff on the Middle Snake River basin was only 57% of normal for April through September. In contrast, 2022 saw a much lower snowpack that peaked on March 16 at 69% of normal. However, spring rains and cool weather significantly delayed runoff. Runoff reached 75% of normal on the Weiser River, 86% of normal on the Payette River, and 80% of normal on the Boise River during the April through September period. The cool spring weather also delayed snowmelt and crop water demand allowing most reservoir systems on both the Boise and Payette Rivers to fill. Precipitation from April to June was 142% of normal in the Payette Basin and 152% of normal in the Boise Basin. However, drought recovery failed to occur in the Owyhee basin where precipitation was only 92% of normal, and the Owyhee Reservoir ended the season with less storage than the year before.

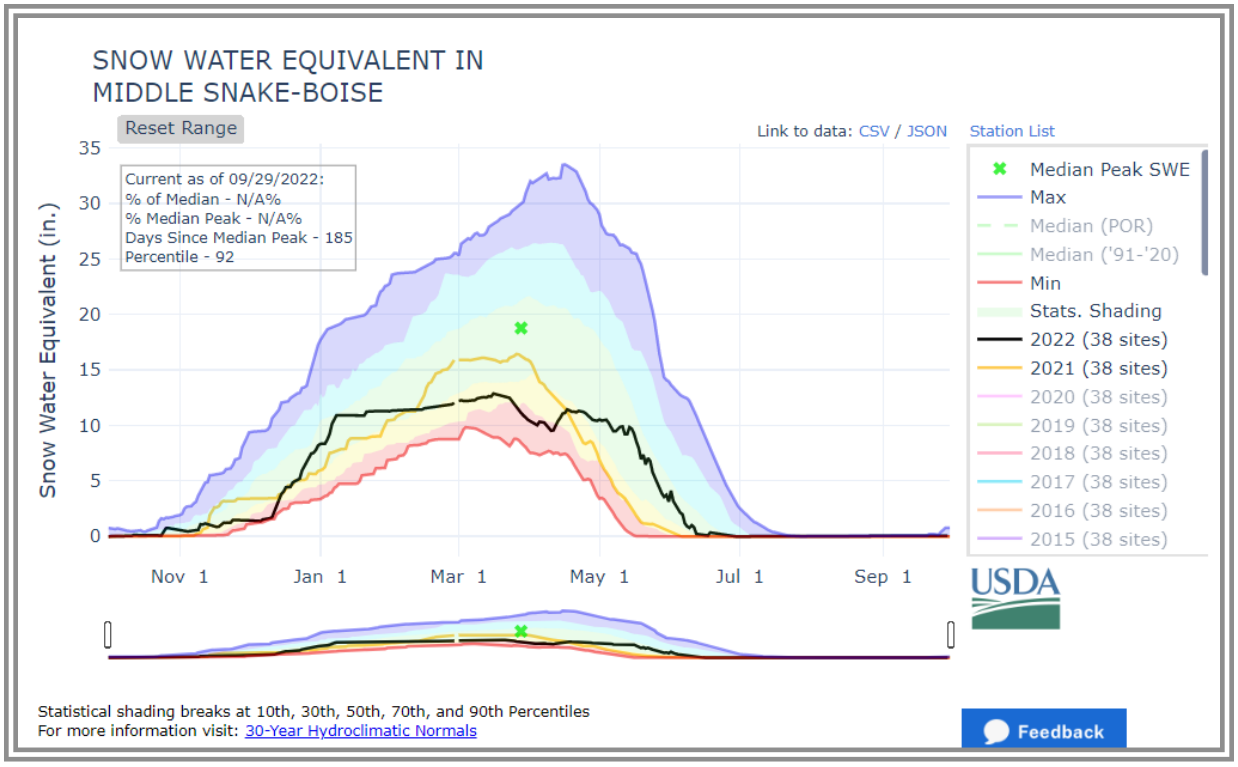


Figure 4. Snow Water Equivalent for the Middle Snake River basin showing the plateau in snow accumulation between January 8, the snowmelt initiated in mid-March, and the brief increase in snowpack starting around April 8th when spring precipitation increased.

Conditions in the Upper Snake River Basin

While Snowpack in the Upper Snake River basin between the Heise gage and King Hill only reached 75% of median, snowpack in the headwaters of the Snake River above the Heise gage reached 83% of median. As shown in Figure 4 below, SWE in the headwaters of the Snake River basin peaked on March 24, 2022 (black line) at 14.7 inches and then began to melt, but spring precipitation and unusually cool weather caused a second peak in the snowpack (17 inches on April 24). After the second peak, the Snake River basin snowpack above the Heise gage was much closer to last year's peak (purple line in Figure 5), which was just 0.4 inches greater (84% in 2021 versus 83% in 2022). However, the second peak in 2022 occurred about a month later than the peak in 2021. While the difference in runoff between the two years is only 5% of normal, (68% in 2021 versus 73% in 2022), the delayed runoff and delayed irrigation demand during WT-YR 2022 allowed reservoir system fill to reach last year's levels by early July, despite starting with 1.3 million acre-feet less reservoir storage.

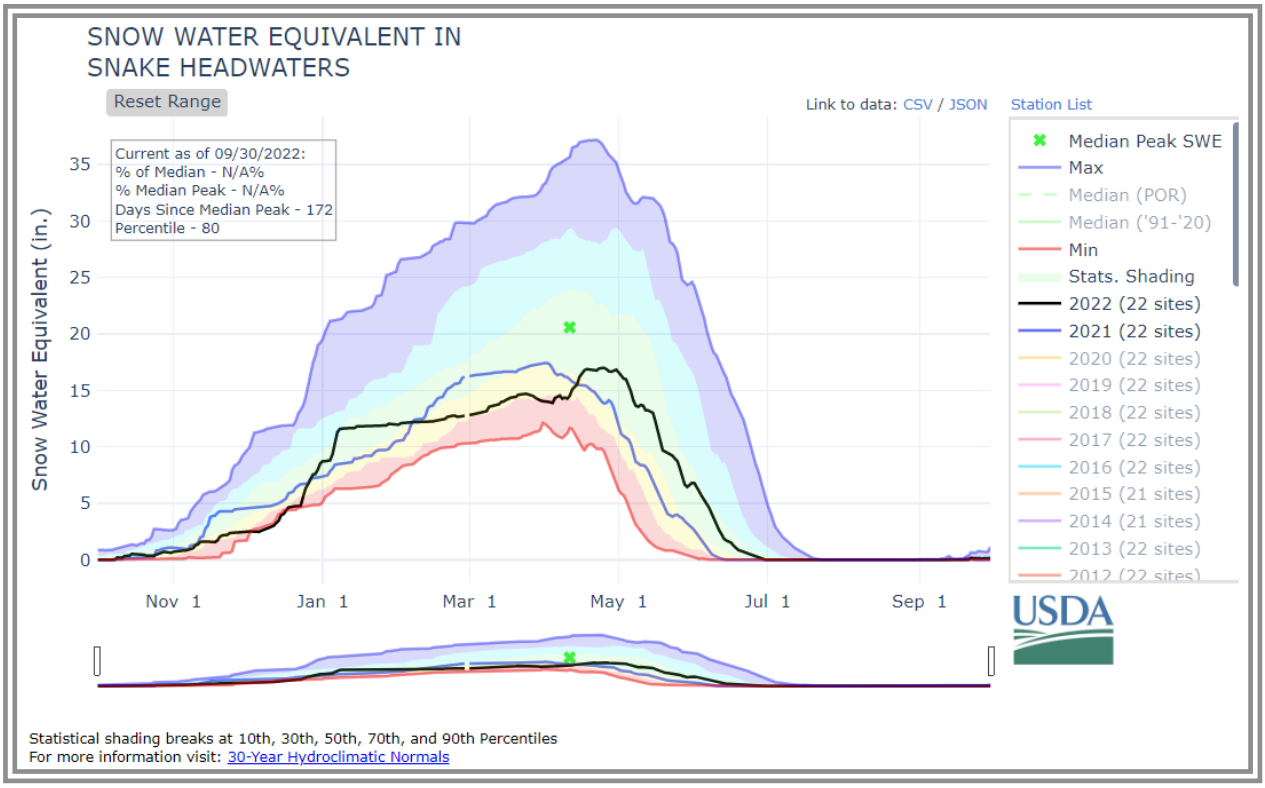


Figure 5. Snow water equivalent graph for the Snake River basin headwaters WT-YR 2022 (black line), WT-YR 2021 (purple line) compared to median peak snowpack (green x) and historical percentiles from 1991-2020 represented by the shaded background.

The Boise River at the west side of Arrowrock Reservoir in September 2022. Photo courtesy of Tito Sanabria, IDWR.

Water Allocation Bureau

Bureau Chief Shelley Keen

Water Rights Program

Adjudication Program

Regional & Field Offices

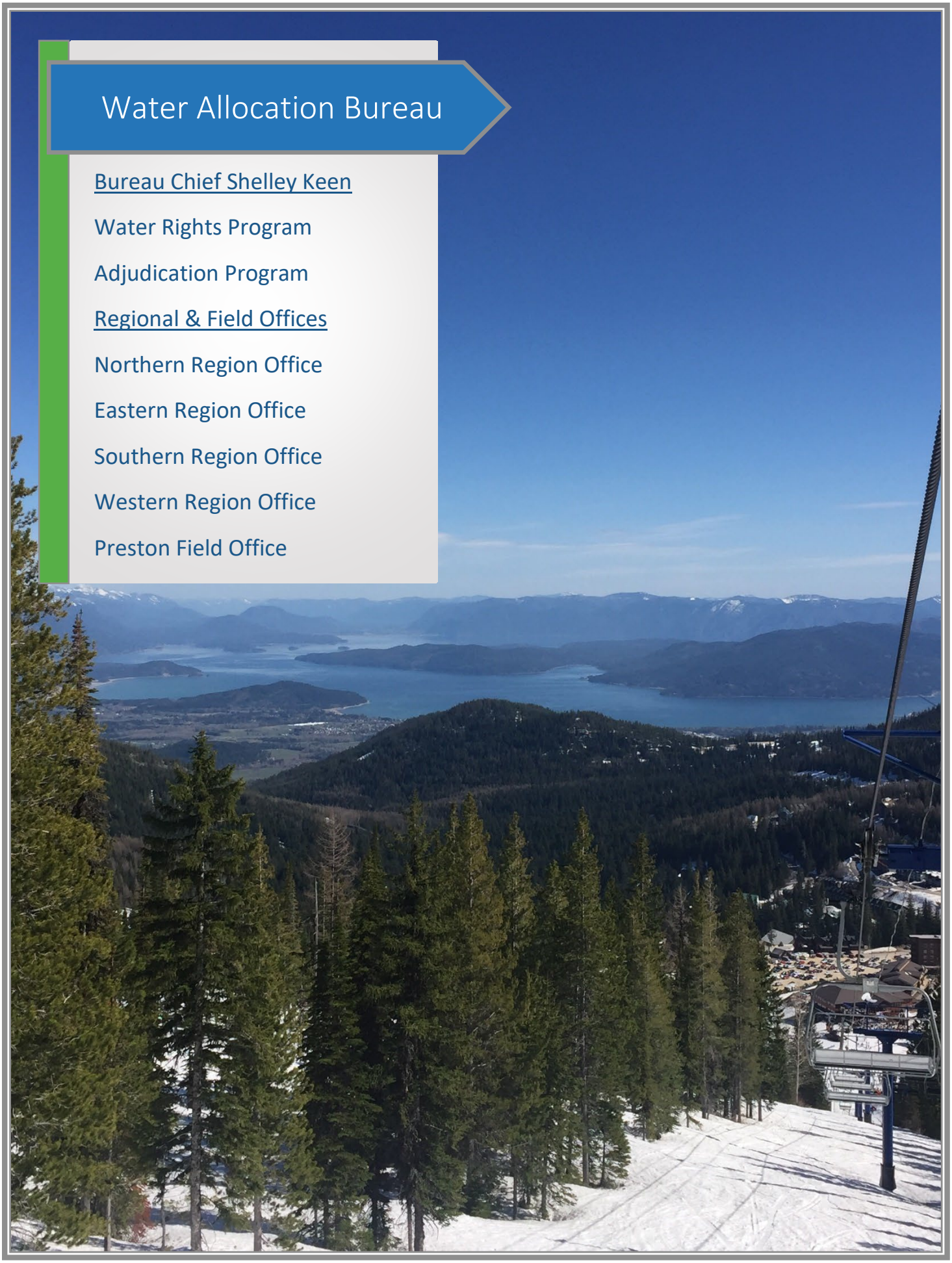
Northern Region Office

Eastern Region Office

Southern Region Office

Western Region Office

Preston Field Office



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. Water Resource Agents and Technical Records Specialists 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 FY22, the Water Rights Program received 4,840 incoming filings of the above listed items. For the last ten years, Water Rights has exerted effort to reduce its pending workload and processing times. After declining from FY12 through FY20, the end-of-year overall pending workload in the Water Rights program increased in FY21 and FY22. The FY22 increases in the end-of-year workload was driven by mainly by four factors -- an increase in the number of applications for new water right permits, an increase in the number of water right ownership change notices, the need to address Water Supply Bank rentals and other drought-related filings, and staffing vacancies in multiple IDWR offices.

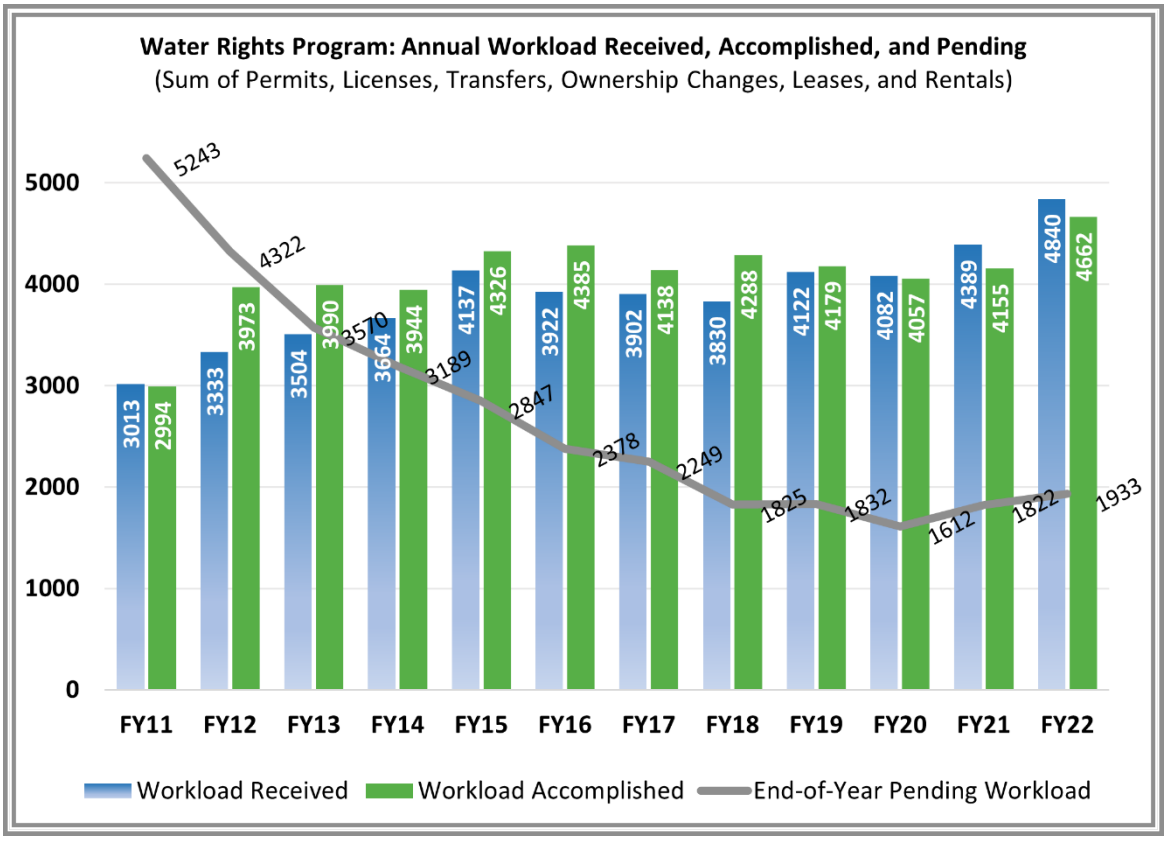


Figure 6. Water Rights Program annual workload history.

Allocations Bureau cover photo: A view of Lake Pend Oreille, seen from the ski slopes. The Clark Fork – Pend Oreille Adjudication commenced in 2021, launching Phase 3 of the Northern Idaho Adjudications. Photo courtesy of Adam Frederick, IDWR.

Applications for Permit

Applications for permit seek water rights for new beneficial uses of water and are the first step to acquiring a water right license. The number of applications for permit is an indicator of economic activity in Idaho. In FY22, IDWR received 982 applications for permit, up nearly 88% from the previous year. The increase in applications for permit 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 717 applications, up nearly 41% from the previous year. At the end of FY22, 596 applications for permit were pending review and disposition. Pending, protested applications for permit are included in the end of year workload and were reduced by 7% in FY22.

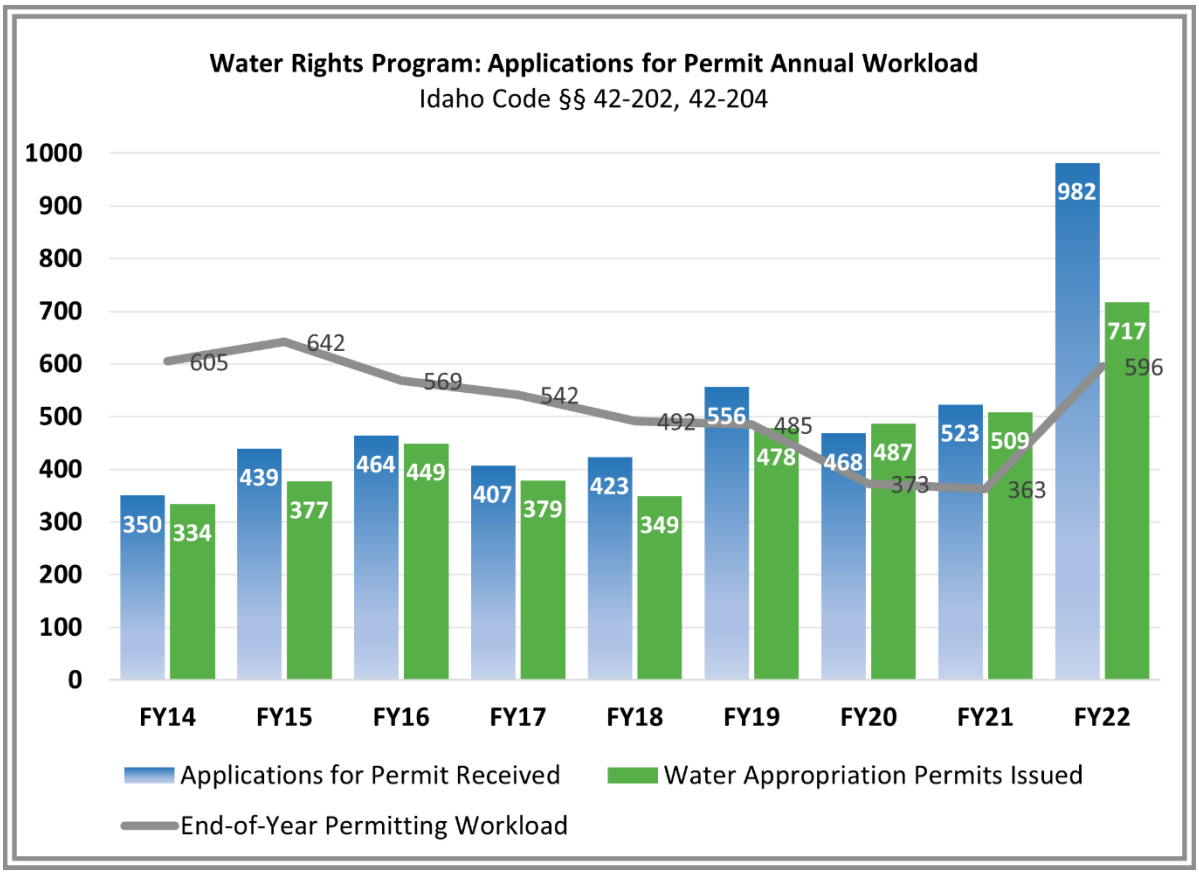


Figure 7. Water Rights Program applications for permit annual workload history.

Transfer Applications

A transfer application proposes to change an element of an existing water right, such as the place of use or nature of use. Transfers reconfigure existing water rights where new water rights cannot be issued and are significant in eastern and southern Idaho. Like applications for permit, transfer applications are indicators of economic activity. In FY22, IDWR received 260 transfer applications and resolved 253 transfer applications, most of which came from eastern Idaho. The number of new transfer applications received in FY22 decreased by 7% compared to the previous fiscal year. Water Rights staff's steady output in transfer processing resulted in a small (3%) decline in end-of-year pending workload.

Water Right Licensing

A water right license confirms the elements of a new water right and establishes the water right as real property. Water right licenses increase property value and are security to lenders and investors for operating loans or investment capital. In the past, IDWR assigned water right licensing a lesser priority compared to the processing of applications for permit, applications for transfers, and Water Supply Bank rentals. As a result, in 2011, the unresolved licensing workload grew to 3,500. In the same year, the Idaho Supreme Court ruled that a water right does not become real property until IDWR issues a license. This ruling resulted in a renewed urgency to complete the licensing process and eliminate the backlog.

From FY11 to FY21, Water Rights staff reduced the water right licensing backlog by about 15% per year. In FY22, the backlog increased by 8%. The Department issued 241 water right licenses, the lowest annual total since FY11. The reduced output is attributable mainly to three factors – the need to focus on permitting instead of licensing in northern Idaho, the need to focus on the Water Supply Bank and other drought-related programs in southern Idaho, and an unusually high number of staffing vacancies in multiple IDWR offices.

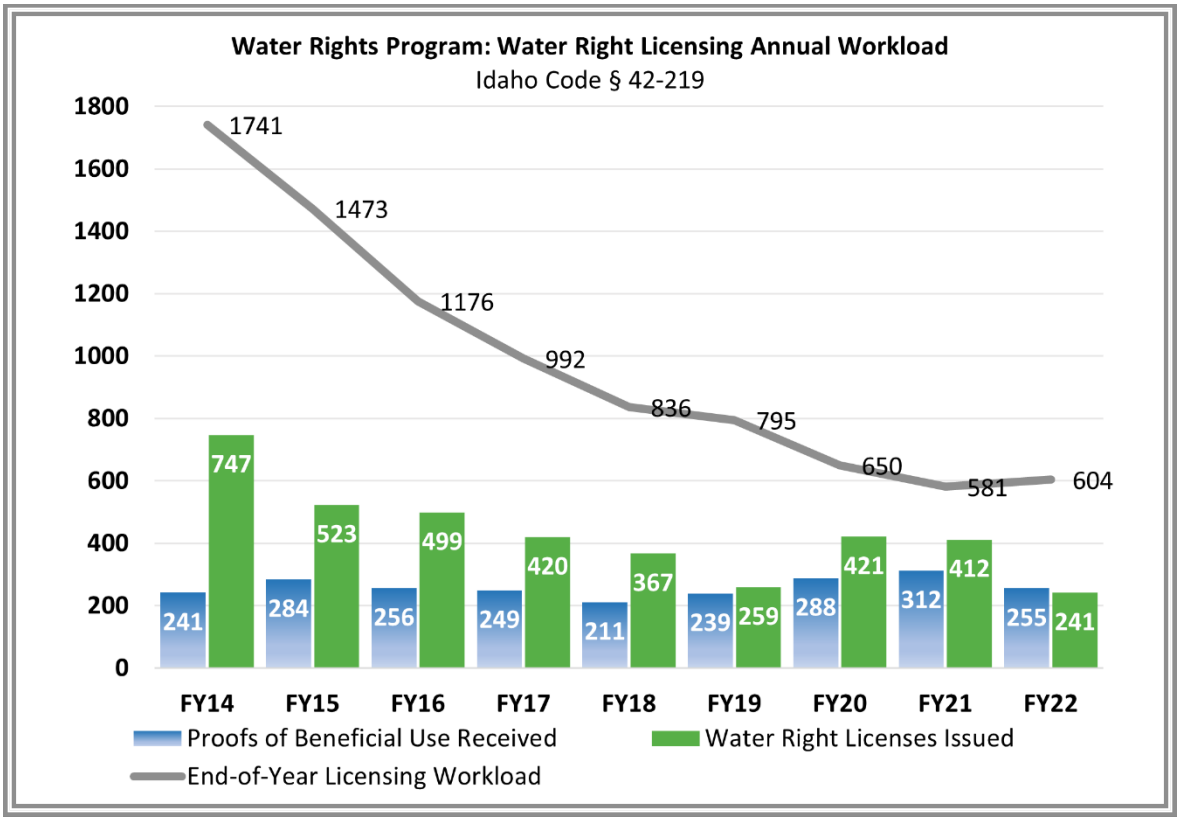


Figure 8. Water Rights Program water right licensing annual workload history.

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 organizing new water districts, holding water district meetings, establishing ground water management areas, and responding to delivery calls. Water right ownership changes represent real

property transactions. The steady increase in the number of ownership change requests over the last five years aligns with population growth and related activity in Idaho's real estate market. Figure 9 below, shows the number of water right ownership change notices received by the Water Rights program since FY14. In FY22, IDWR received 3,072 ownership change notices, a nearly 5% increase from the previous year. Staff processed 3,224 ownership changes, leaving a pending workload of 473 ownership change notices. Looking ahead, the trend of annual increases in ownership change notices is likely to continue as more water rights are adjudicated and more permits are issued.

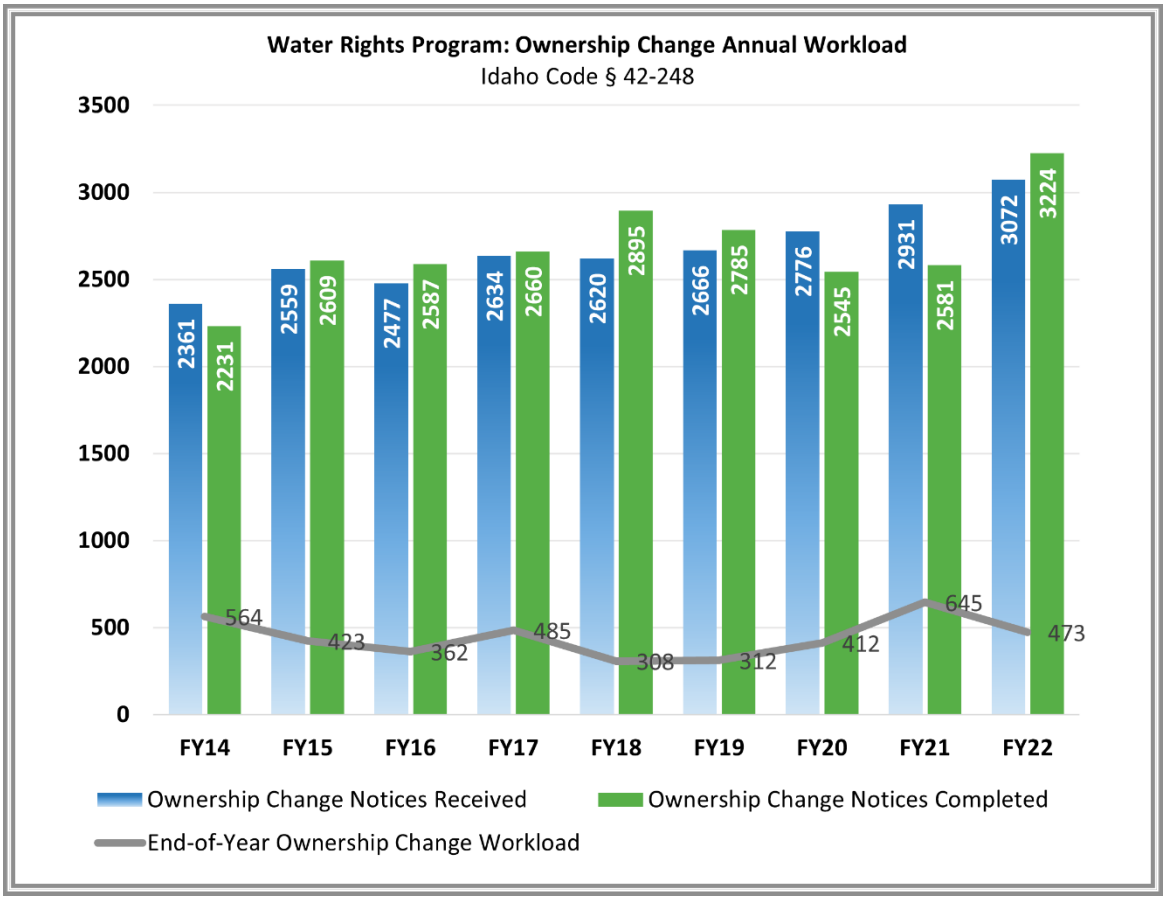


Figure 9. Water Rights Program Ownership Change annual workload history.

Temporary Approvals & Changes

Originally, temporary approvals were approved for short-term projects with a maximum allowance of five acre-feet of water annually. The 2017 Legislature changed Idaho Code § 42-202A to remove the annual volume restriction for temporary approvals that proposed flood damage prevention, ground water recharge, and ground water or surface water remediation. In the two years that followed, there was a substantial increase in the number of temporary approvals issued by the Department. Starting in FY20, the number of temporary approvals has leveled. In FY22 IDWR issued 145 temporary approvals.

In addition to temporary approvals, IDWR authorizes temporary changes to existing water rights allowing water users to adjust their water use to meet drought conditions. In FY22, the Governor and IDWR's Director issued a single drought declaration for 34 southern Idaho counties that generated 48

temporary water right changes. While negligible in wet years, this program can require substantial effort from IDWR staff in dry years, requiring IDWR to temporarily divert resources from other programs, such as water right licensing. In FY22, IDWR issued 48 temporary changes, double the number in FY21.

Adjudication Program

A general adjudication of water rights determines, by court decree, the existing water rights within a river basin and officially records them. When initiating an adjudication, Idaho courts have prioritized the determination of non-de minimis water rights and allowed the adjudication of de minimis domestic and stockwater uses to be deferred. Following the completion of an adjudication of non-de minimis water rights, the decrees of the court will comprise a complete list of water rights in the adjudicated basin. 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, IDWR can also estimate how much water is available for future water resource development. Adjudication staff work in IDWR's State Office, Northern Region Office, and Preston Field Office. IDWR's FY22 adjudication efforts are described below.

Active Adjudications:

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

In addition to claims-taking and recommendations, IDWR's Adjudication program experienced two notable events FY22. First, in November 2021 the United States petitioned the Adjudication court to adjudicate deferred de minimis domestic and stockwater claims in the SRBA. If successful, the United States' petition could result in the filing of tens of thousands of additional water right claims in the SRBA. In November 2022 the SRBA Court stayed all litigation related to the United States' petition through December 31, 2023.

Second, in June IDWR opened a satellite office in Preston. Adjudication staff in the Preston office will begin taking claims in the BRBA in January 2023. Figure 10 on the following page, illustrates the adjudication status of Idaho's primary basins.

FY22 Adjudication Performance Metrics (July 2021–June 2022)

Claims received	3,035
Recommendations submitted to the court	2,303
Number of active claims awaiting the director's report	3,010

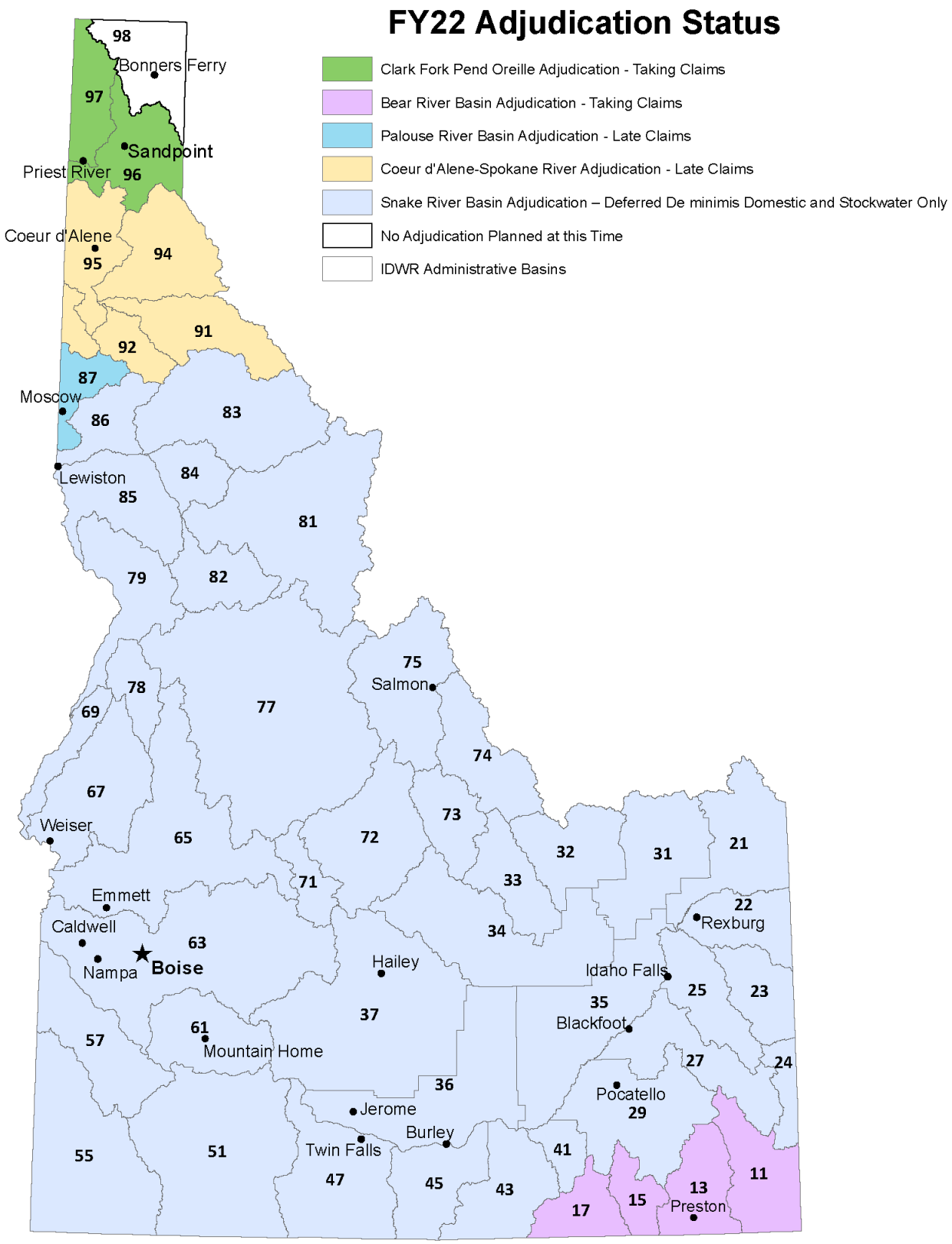


Figure 10. The FY22 status of each active adjudication in Idaho.

Water Compliance Bureau

Bureau Chief Tim Luke

Water Distribution Section

Ground Water Protection Section

Enforcement Unit

Stream Channel Protection Unit

Floodplain Management Unit

Water Distribution Section

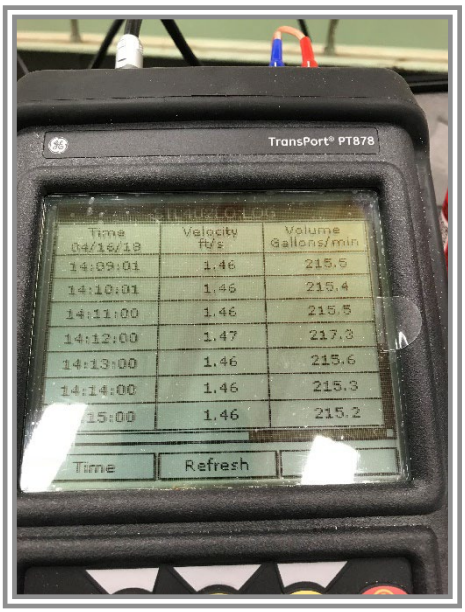
The Water Distribution Section supervises the distribution of water within Idaho water districts, especially when there is insufficient water to satisfy all water rights. The Water Distribution Section has two programs to fulfill this responsibility. The Water Measurement Program supports the control and measurement of water diversion systems. The Water Districts Program assists water districts, water measurement districts, and ground water districts.

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. The Department issued one measurement order in FY22 for the Thomas Fork drainage (Water District 11F), a tributary to the Bear River.

Three new flow meters were tested and approved in FY22. Distribution staff continue to refine the process associated with third-party testing of flow meters for inclusion on IDWR's List of Approved Closed Conduit Flow Meters. Consistent and coordinated evaluation of test results is critical to IDWR's flow meter certification program.

The use of ESRI's mobile data collection application Survey123, continued in nine water districts and one water measurement district. During spring and fall of each year, Department staff use Survey123 to collect measurement data and the operational status of wells and measuring devices from over six thousand diversions. These data are then checked for quality and accuracy before migration into several of IDWR's databases where they are available for use by IDWR staff and the public.



Photos, left: A closed conduit flow meter (white middle section) installed to measure ground water diversion from a well in the Burley area. Right: Readings from a flow meter showing flow data captured every 60 seconds. Photos courtesy of IDWR Compliance Bureau.

Water Compliance Bureau cover photos: Top left- a Drilling rig in Northern Idaho, courtesy of Scott Potter, IDWR; Bottom- Boise Diversion Dam, courtesy of Mathew Weaver, IDWR.

Water Districts Program

The Water Districts Program supervises the distribution of water within water districts in accordance with Chapter 6, Title 42, Idaho Code, which requires IDWR to create state water districts for public streams or water supplies for which the courts have decreed water rights.

About 100 active water districts and sub-districts exist across Idaho. Some districts include thousands of water users and others only a handful. Regardless of size, each active water district employs a watermaster who oversees water distribution within the district. The primary responsibility of all Idaho watermasters is to ensure waters of the State of Idaho are diverted and distributed to users in adherence to Idaho water law and the prior appropriation doctrine. The watermaster's primary duties are daily water distribution, record keeping, measurement, and general district management.

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

- Creating new water districts or combining, modifying, or abolishing existing districts to facilitate improved water measurement and delivery.
- Advising water districts on proper district operation.
- Training watermasters through publications and one-on-one or group training sessions.
- Guiding, instructing, or assisting watermasters regarding water delivery, water right regulation, and resolution of water disputes.
- Ordering installation of measuring devices and controlling works to ensure watermasters can properly distribute and record the amount of water delivered and assisting water users with compliance of such orders.

The Department created or modified three water districts in FY22, including creation of Water District 55B (Jordan Creek and tributaries), expansion of Water District 110 (Mud Lake Area within the ESPA), and modification of Water District 140 (Oakley Fan Area within the ESPA) to remove sub-districts. The Department initiated the final expansion of Water District 170 to include both surface water and ground water rights in Basin 75, which is the last of the Upper Salmon River basins to be included in Water District 170 in accordance with the Wild and Scenic Rivers Agreement between Idaho and the United States. An order expanding Water District 170 was issued in August 2022. This same order established one new water district, modified or combined several existing water districts, and designated all water districts in Basin 75 as Water District 170 sub-districts.

In July 2021, IDWR Compliance Bureau and regional staff assisted Water District 37 (Big and Little Wood Rivers and tributaries, including ground water), with ground water curtailment efforts necessitated by the Director's June 28, 2021, order curtailing ground water rights in the Bellevue Triangle area to increase the supply of water to senior water right holders in the Silver Creek and Little Wood River drainages. Distribution staff also assisted Portneuf River Basin water districts during FY22 with interim watermaster services to regulate junior priority surface water rights with senior priority surface water rights delivered from the Snake River.

Typically, water distribution staff conduct one-on-one group training sessions for watermasters. Extreme drought conditions persisted across the state requiring Distribution staff to reprioritize regular work assignments. The Department did not conduct group training sessions in FY22. Instead, staff trained or

assisted watermasters individually across the state. The Department trained or assisted watermasters in Water Districts 29D, 29H, 33, 34, 36A, 37 37O, 65D, 74W, 74Z, and the Malad Water Measurement District.

Ground Water Protection Section

The Ground Water Protection Section regulates well construction and well driller licensing in Idaho via four programs: 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.

The overall number of well construction permits issued has steadily increased over the last five years. The surge in growth and development across Idaho, particularly new home construction, has contributed to this increase. In FY22, the Department received over 4,900 well construction permit applications, a 4% increase from the previous year (see Figure 11 below). Over 80% of well construction permits issued each year are for domestic use wells. Department staff inspected 26.5% of newly drilled wells in FY22.

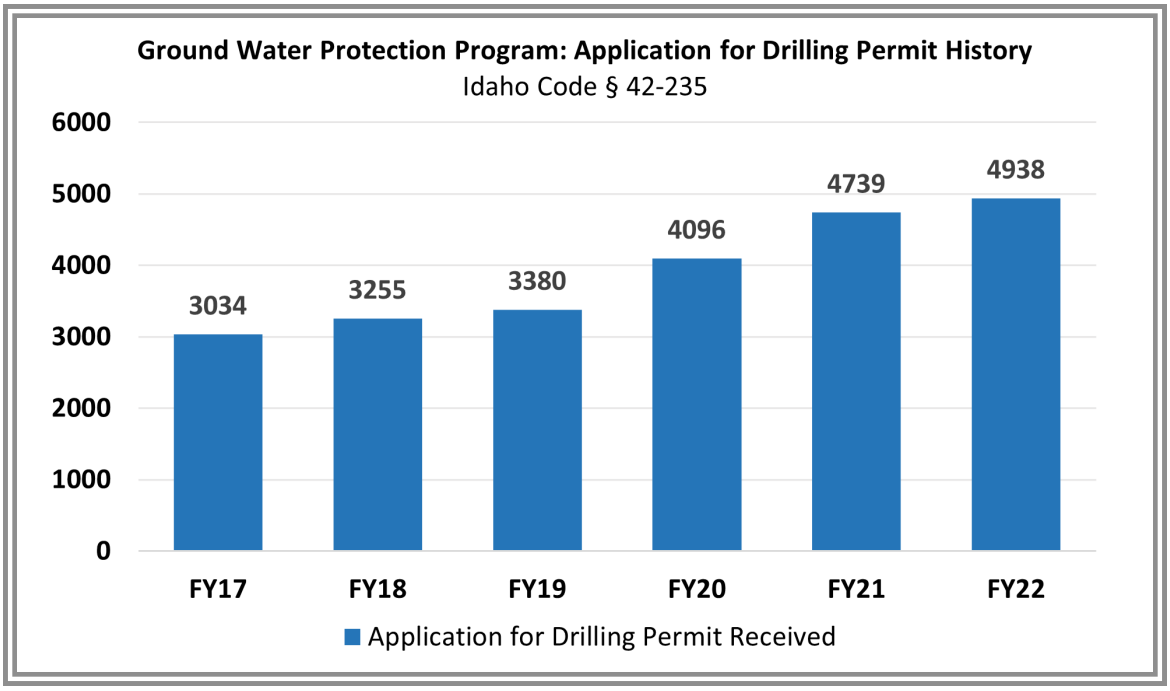


Figure 11. Ground Water Protection Program history of Applications for Drilling Permit received.

Driller Licensing Program

The Driller Licensing Program regulates the licensing of well drillers. The program is consistent with the Well Driller Licensing Rules (IDAPA 37.03.10), which establish the requirements and procedures for obtaining and renewing authorization to drill wells. Driller Licensing Program staff review and process

licensing applications, organize and present required continuing education seminars, and coordinate well driller annual license renewal.

The Department renews driller and operator licenses every two years, with roughly half of the total state licenses renewed in alternating years. The total number of active driller and operator licenses has increased by about 18% to 20% over the past three to four years.

Underground Injection Control Program

The Underground Injection Control (UIC) program, delegated to IDWR by the US Environmental Protection Agency (EPA) in 1985, regulates the construction, operation, and decommissioning of all injection wells in Idaho. Injection wells are most 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. Approximately 18,500 are shallow wells, less than 18 feet deep, and the remaining wells are 18 feet deep or greater.

During FY22, UIC staff approved 55 new and renewal deep injection well applications and processed 877 shallow injection well inventories, approximately 78% more than in FY21. The increase of shallow injection well inventories is due to bulk data submittals from local communities who partner with IDWR to track and record shallow injection wells. Some of the shallow wells were installed and inventoried prior to FY22, but not recorded with IDWR until FY22. Nonetheless, the significant increase of shallow injection wells over the past several years is largely attributed to increased population growth and development over the past several years. Figure 12 below, illustrates the UIC program workload history. Before approving construction, modification, or continued use of a deep injection well, UIC staff review the application, conduct a field visit (if necessary), and publish notices of the project.

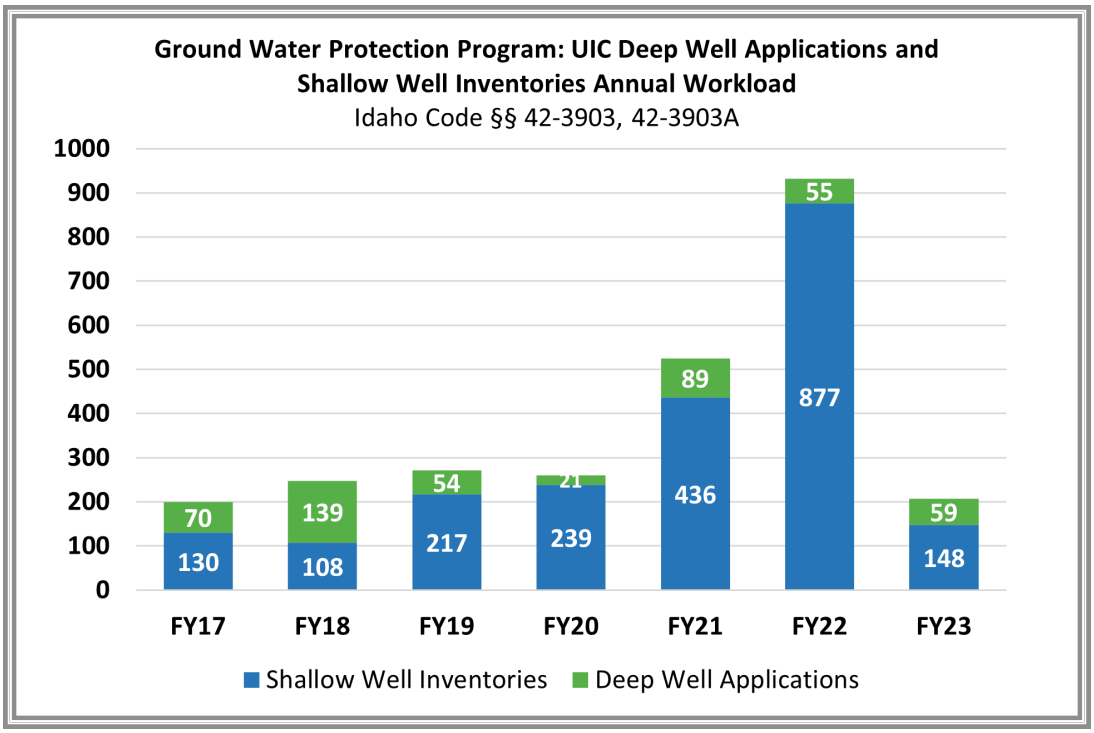


Figure 12. Ground Water Protection Program total deep and shallow injection well applications.

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

In FY22 enforcement staff investigated 95 new cases. The new cases originated from various sources, including public complaints, watermaster referrals, and IDWR discoveries. The Department resolved or closed 82 cases in FY22 (both new and unresolved cases from previous years). The Department issued an NOV in 20 of the 82 cases and resolved 15 NOVs by executing consent agreements with the NOV recipients to ensure future compliance. The Department collected a total of $71,561 in penalties in FY22. Most penalties collected were associated with the unauthorized use of water.

Stream Channel Protection Unit

The Stream Channel Protection Unit evaluates potential alterations to stream channels to protect water quality, fish and wildlife habitat, aquatic life, recreation, and aesthetic beauty. In accordance with Idaho Code §42-3801 and the Idaho Stream Channel Protection Act requirements, the Stream Channel Protection Unit approves or denies proposed work below the ordinary high-water mark (generally, the streambed and stream bank) of continuously flowing streams.

Stream Channel Protection permits are issued for two different types of applications: Joint Application for Stream Channel Alteration Permits (Joint Applications) and Letter Permits for Recreational Mining (Letter Permits).

Joint Application for Stream Channel Alteration Permits

The Department developed the Joint Application for Permits form and process in conjunction with the Idaho Department of Lands and the US Army Corps of Engineers because these agencies also have jurisdictional permitting programs related to the protection of streams and wetlands. An applicant can complete a single application and submit copies to each agency for subsequent approval. The Stream Channel Protection Unit generally issues a decision within 60-90 days (the timeline varies depending on the project's complexity and the number of parties affected by the project).

A stream channel restoration project in Pahsimero Valley. Photo courtesy of Cass Jones, IDWR.

The Stream Channel Protection Unit received 333 Joint Applications in FY22, up from 324 applications received in FY21. The Department issued 250 stream channel alteration permits in FY22. The variation in applications received and permits issued represents withdrawn applications and applications where no permit was required.

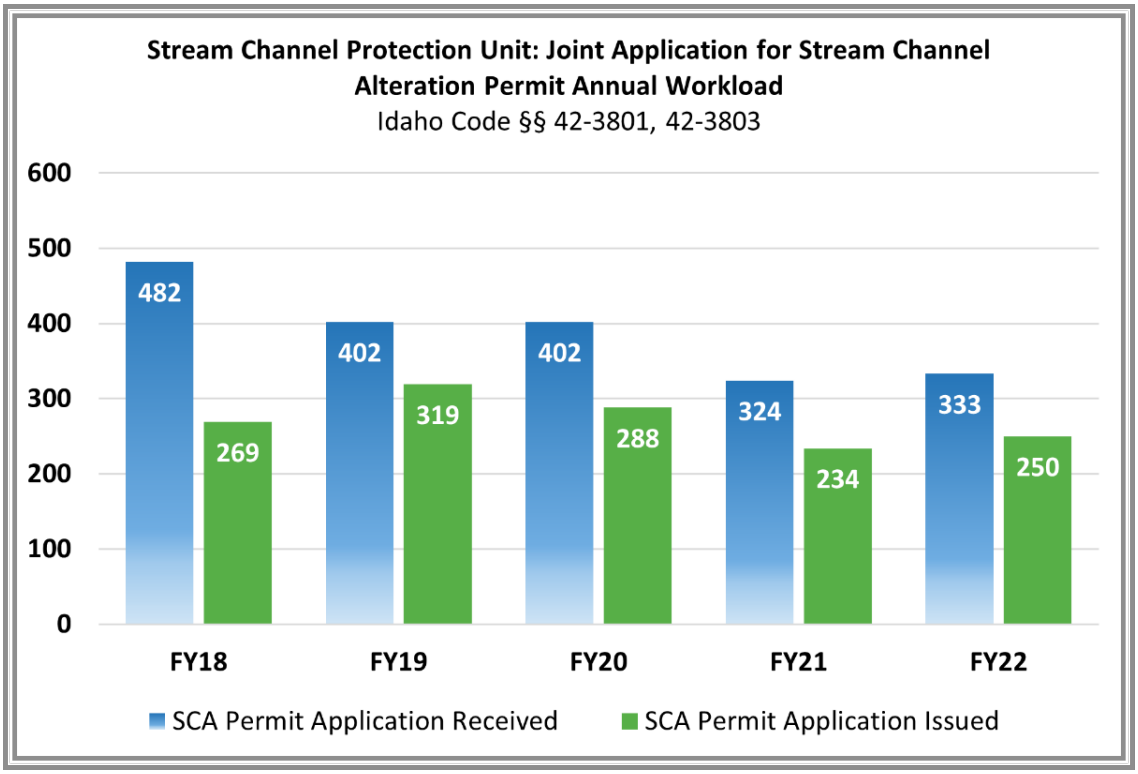


Figure 13. Stream Channel Protection Unit Joint Applications for Stream Channel Alteration Permit History. The number of incoming applications in FY18 -FY20 are higher due to flooding events in 2017 and 2018.

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. Completed and signed Letter Permits are considered authorized by IDWR upon receipt of the permit and fee. By signing the Letter Permit, the applicant acknowledges they have read and understood the Recreational Mining Stream Channel Alteration instruction booklet and will act in compliance with the stated instructions and rules. In FY22, IDWR issued 237 Recreational Mining Letter Permits.

Floodplain Management Unit

The Floodplain Management Unit is a single employee unit administered by the State National Flood Insurance Program (NFIP) Coordinator. The State NFIP Coordinator administers the NFIP via the Community Assistance Program – State Support Services Element (CAP-SSSE), a cooperative agreement grant from FEMA. The Floodplain Management Unit hosted nine floodplain-related workshops throughout the state in FY22. The workshops build state and local community floodplain management

expertise and capability and help reduce flood loss across Idaho communities. The workshops also fulfill the requirements of Idaho Code §§ 46-1020 through 46-1024.

The NFIP has two programs, the Regular program, and the Emergency program. In the Regular program communities are required to implement comprehensive floodplain management and are entitled to federal flood insurance. Within the Regular program is a voluntary incentive program called the Community Rating System (CRS). Communities may participate in the CRS program when they have exceeded NFIP's minimum requirements. Under the Emergency program, a community is required to adopt minimum floodplain management standards to obtain limited flood insurance coverage. Communities in the Emergency program are converted to the Regular program upon completing a Flood Insurance Study (FIS) and issuance of Flood Insurance Rate Maps (FIRMs), or upon determination that the community has no special flood areas.

At the end of FY22, there were 174 Idaho communities participating in the Regular program and three communities participating in the Emergency program. Currently, 11 communities have adopted standards above the NFIP minimum requirements and participate in the CRS program. During FY22, the State NFIP Coordinator completed floodplain regulatory audits for nine communities and performed floodplain ordinance reviews and related outreach for an additional six communities.

Safety of Dams Program

The Department regulates approximately 400 water storage dams and nearly 20 mine tailings impoundment structures in Idaho, with a focus on public safety as mandated by statute. The Safety of Dams program is overseen by IDWR's Deputy Director with program staff operating in four regional offices. The Western Region office in Boise manages the program's efforts. Currently, a vacancy exists in the Northern Region Office in Coeur d'Alene.

Statutory language currently defines all dams subject to regulation by 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 that are experiencing rapid growth and downstream development.

Safety of Dams Program duties include:

- Reviewing and approving design plans and specifications for dam construction and repair.
- Performing regular inspections of both new and existing dams.
- Issuing Certificate(s) of Approval for water and mine tailings impoundments that have been determined suitable to impound water or mine tailings.
- Consulting with dam owners and county emergency personnel to help ensure Emergency Action Plans (EAPs) are accurate and up to date.
- Ensuring all existing mine tailings impoundment structures are adequately bonded.
- Offering engineering recommendations within the scope of established program duties.
- Documenting and archiving design and inspection information related to dams, mine tailings structures, and other related water storage projects.

Dam Inspections

The Department inspects each dam and mine tailings impoundment structure at least once every five years, or more frequently depending on the dam's hazard classification, physical condition, and history of recommended maintenance and repair. Regular inspection and careful review of construction plans and specifications fulfill the requirements of Idaho Codes §§ 42-1709 through 42-1221 and help ensure life and property are protected from a catastrophic dam failure. The Department prioritizes inspections of dams, reservoirs, and mine tailings impoundments having the greatest perceived impact to life and property.

Dam Safety staff has inspected 577 dams in Idaho since FY16. Fewer inspections were performed in FY20 and FY21 due to personnel turnover in two regional offices and travel challenges and disruption related to the COVID-19 pandemic. In FY22, Dam Safety staff inspected 87 dams.

Other Dam Safety Activities

At the end of calendar year 2022, IDWR is expected to release a final Risk Analysis Report which evaluated seven existing, non-federal, high hazard potential dams in Idaho. This effort is a result of a FEMA grant to fund a preliminary risk analysis and evaluate the corresponding benefit(s) of recommended risk reduction measures for the benefit of public safety.

Dam Safety staff also maintains a library of Emergency Action Plans (EAP) for high hazard potential dams. Although the dam owner is responsible for preparing a site-specific EAP for their respective dam(s), IDWR tracks which project dams have an EAP and which of those that are currently accurate. At the end of FY22, 58.7% of EAPs for high hazard dams were up to date.

Dworshak Dam on the North Fork Clearwater River. Photo Courtesy of Tito Sanabria, IDWR.

Idaho Water Resource Board

Chairman
Jeff Raybould

Vice Chairman
Roger Chase

Secretary
Jo Ann Cole-Hansen

Members
Peter Van Der Meulen
Albert Barker
Dale Van Stone
Dean Stevenson
Brian Olmstead

Idaho Water Resource Board

In 1965 the Idaho legislature created the Idaho Water Resource Board (IWRB or Board) as a separate agency with their own staff. In 1974 the Board and the existing Department of Water Administration were combined to form the present Idaho Department of Water Resources.

The 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. Current members of the IWRB are Jeff Raybould, chairman; Jo Ann Cole-Hansen, secretary; Peter Van Der Meulen, Albert Barker, Dale Van Stone, Dean Stevenson, and Brian Olmstead. Vice Chairman Roger Chase retired from the Board in November 2022.

Projects & Programs

The Board's programs are divided into two general categories: (1) planning for Idaho's future water needs and (2) constructing projects and implementing programs to satisfy those future water needs. The Board holds several state monetary accounts in trust for funding water projects and improvements within the state.

During its 2022 session, the Idaho legislature appropriated $75 million to the Board to “be used for expenditures, loans, or grants for water projects, including studies to address water sustainability, rehabilitate or improve aging water infrastructure or support flood management.”

Pursuant to House Bill 769, the Board developed criteria for determining eligibility and distributing financial assistance on a statewide competitive basis through loans and grants to entities interested in pursuing eligible rehabilitative or improvement projects for aging water infrastructure. At its September 2022 meeting in Hailey, Idaho, the Board authorized $12.5 million in grant funding for 12 aging infrastructure projects and approved six low-interest loans totaling $18.1 million to assist irrigation entities with aging infrastructure projects. The Board has invited more grant applications for aging infrastructure projects and set a deadline in early December 2022 to review applications. More aging infrastructure grants will be awarded during the Board’s January 2023 meeting.

Idaho Water Resource Board cover photos: Top right- Board members listen to a presentation during a tour of the Milner-Gooding Bifurcation project. Bottom- The Little Camas Reservoir, toured by the Board in July 2022. Photos courtesy of Steve Stuebner, IDWR Media Coordinator.

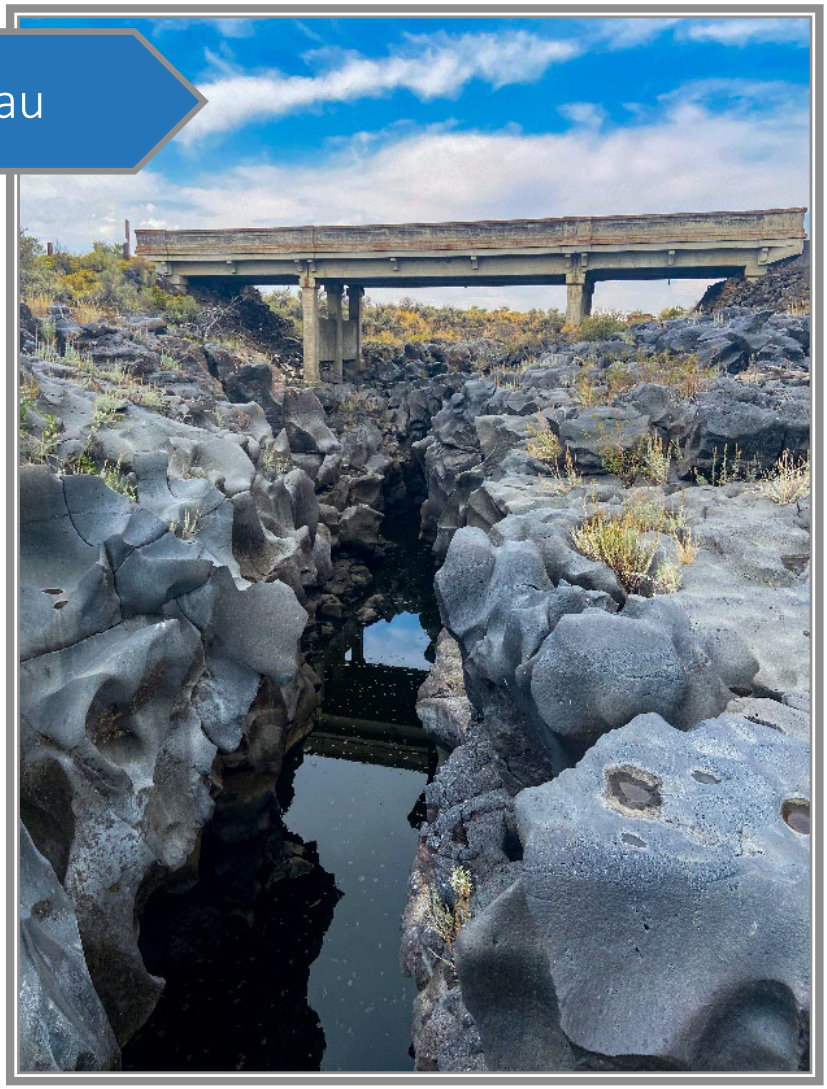
Planning & Projects Bureau

Bureau Chief Brian Patton

Water Projects Section

Water Supply Bank

Idaho Water Resource Board



Water Projects Section

The Planning and Projects Bureau implements and manages projects approved by the Board. The Board is charged with implementing several water sustainability projects across the state, including managed recharge of the Eastern Snake Plain Aquifer (ESPA), the Anderson Ranch Reservoir Enlargement, the Priest Lake Water Management Project, the Mountain Home Air Force Base Sustainable Water Project, Cloud Seeding and others.

The 2022 Idaho Legislature allocated specific earmarks from ARPA funding of $90 million for the Anderson Ranch Reservoir Enlargement project; $30 million for the Mountain Home Air Force Base Sustainable Water Supply project; and $75 million for Eastern Snake Plain Aquifer recharge in the Upper Snake River Valley. In September 2022, the Board authorized spending $72.9 million to pay for the state's share of the cost to raise Anderson Ranch Dam; $8.3 million for two, new Upper Snake Basin aquifer-recharge projects; and $5 million for the initial costs associated with design and contracting the Mountain Home Air Force Base project.

Anderson Ranch Reservoir Enlargement

The Anderson Ranch Reservoir Enlargement project is a partnership between the IWRB and the US Bureau of Reclamation (BoR) under the federal Water Infrastructure Investment for the Nation (WIIN) Act. The project intends to expand Anderson Ranch Reservoir storage by 29,000 acre-feet. In December 2020, the Secretary of Interior determined the project to be feasible. The FY21 Appropriations Legislation secured $12.88 million in WIIN Act funding for the project. The Board and BoR participated in cost-share contract negotiations through summer 2021. The Board agreed to fund the non-federal share of upfront capital cost as required by the WIIN Act and signed the final Cost-Share Agreement with the BoR in November 2021. Final design of the project is underway and is expected to be completed by 2028.

Managed Recharge of the Eastern Snake Plain Aquifer (ESPA)

Since 2015, when management of the ESPA began in earnest, approximately 1.98 million acre-feet of water have been added to ground water storage in the ESPA. IWRB recharge efforts and other management actions have increased the total outflow from Thousand Springs, and increased the Sentinel Well Index by about 2.5 ft. The success of managed recharge in the ESPA has encouraged the Board to evaluate and develop recharge plans for the upper and lower valley ESPA.

In FY22, recharge efforts ended sooner than in previous years due to early demand for irrigation water as a direct result of lower-than-normal snowpack during winter 2021-2022. During the 2021-2022 recharge season, the IWRB recharged 157,586 acre-feet of water into the ESPA. Despite the dry year, recent development of additional recharge infrastructure enabled the Board to recharge a considerable amount of water to the ESPA, when compared to the similar winter of 2015-2016 when the Board recharged only 75,000 acre-feet of water.

Mountain Home Air Force Base Sustainable Water Project

In cooperation with the US Air Force, this project will deliver an ongoing water supply for the Mountain Home Air Force Base (Base) while replacing Base withdrawals of the declining Mountain Home Aquifer. In May 2021, the project MOU was executed between the Board, the Governor's Office, and the US Air Force. This was formalized in September 2022 as a Memorandum of Agreement between the Board, on

Planning & Projects Bureau cover photos: Top right- Big Wood River at Black Magic Canyon, courtesy of Mathew Weaver, IDWR; Middle left- IDWR Planning staff meet with water users at Pratt Creek, courtesy of John Loffredo, IDWR; Bottom- Wilson Canyon Recharge site, courtesy of Tito Sanabria, IDWR.

behalf of the State of Idaho, and the Air Force. The Board's monetary contribution to the project will fund the construction of a pipeline from CJ Strike Reservoir to the Base. The Air Force will fund construction for a water treatment facility. The Mountain Home Air Force Base project is expected to be completed by January 2026.

Priest Lake Water Management Project

The Priest Lake Water Management project intends to better manage water in Priest Lake to keep the lake full, maintain flows downstream in the Priest River, and allow for ongoing navigation access to Upper Priest Lake. Construction to build a new 1,500 ft breakwater and deepen the Thorofare channel was complete in April 2021. Construction of the Priest Lake outlet dam has experienced some delays but is expected to be completed in spring of 2023.

Ongoing Planning and Programs

The IWRB is responsible to plan for the conservation, development, use, and management of water resources in the state of Idaho. Planning is accomplished through three primary programs:

- The Idaho State Water Plan - Contains policies that are the guiding framework for development, management, and use of Idaho's water resources.
- Comprehensive Basin Planning - Inventorying and assessing regional water resources in a specific river basin, waterway, aquifer, or geologic area so that the values are protected.
- Comprehensive Aquifer Planning - Addressing future water needs and proactively avoiding conflicts over competing water needs in the future.

Cloud Seeding

In 2009, the ESPA Comprehensive Management Plan and draft Treasure Valley Comprehensive Management Plan identified cloud seeding as an aquifer stabilization and recovery strategy. Recognizing the program will be a unique and innovative opportunity to support sustainable water supplies, the 2021 Idaho Legislature passed House Bill (HB) 266, creating Chapter 43 on Cloud Seeding and giving the IWRB authority to authorize, develop, and sponsor cloud seeding projects in Idaho. The Board has developed criteria for the authorization of cloud seeding programs and approved $2.85 million in funding for FY22 cloud seeding operation and maintenance costs.

Water Transaction Program

The Water Transaction program is implemented in the Upper Salmon River Basin and secures water needed for Endangered Species Act-listed fish recovery while keeping the irrigated, agriculture-based economy intact. The Water Transaction 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 habitat. Since the program's inception in 2003, it has restored over 682 cfs of flow to tributaries that provide habitat for endangered and threatened fish species. The Bonneville Power Administration funds most of the program.

Water Supply Bank

The Board has the authority to operate the Idaho Water Supply Bank (WSB or Bank). The Bank's purpose is to encourage the highest beneficial use of water, provide sources of adequate water supplies to benefit new and supplemental water uses, and accrue a source of funding for improving efficiency of water user facilities. The Bank is essentially 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.

Bank operations require a collaboration between the Planning & Projects and Allocation Bureaus at IDWR. A Water Supply Bank Coordinator and Specialist, housed in the Planning & Projects Bureau, oversees and administers the program on behalf of the Board. Water Rights staff assist in program operations by processing lease and rental applications. The WSB is funded by lease application fees and a 10% administrative surcharge on rental transactions. In FY22, IDWR received 129 rental applications and 170 lease applications.

Technical Services

Deputy Director Mathew Weaver

Hydrology Section

Geospatial Technology Section

Hydrology Section

Department hydrologists develop, maintain, and operate ground water flow and reservoir operations models to support water resource management and conjunctive administration of surface and ground water resources. Hydrology Section staff collect hydrologic data through several programs 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 water by accounting for the delivery of reservoir storage and natural streamflow, according to Idaho's water right priority system. Finally, the Hydrology Section conducts basin characterization projects to support Idaho Water Resource Board initiatives and ground water-flow model development.

The basin models, studies, and data collection programs developed and implemented by the Hydrology Section are used to predict water supplies for the upcoming irrigation season, plan for improved utilization of water resources, and quantify the effects of drought, recharge, and pumping on aquifer water levels and river flows. Fiscal Year 2022 Hydrology Section highlights are listed below:

IWRB Aquifer Recharge and Cloud Seeding Programs

The Hydrology Section continued to support the IWRB's Managed Recharge Program by applying the Eastern Snake Plain Aquifer Model (ESPAM) to evaluate hydrologic impacts resulting from aquifer restoration activities and by estimating changes in the volume of ground water stored within the ESPA. For the IWRB's Cloud Seeding Program, Hydrology staff began work to modify a river and reservoir operations model for the Upper Snake River basin that was developed by the US Bureau of Reclamation using the Riverware modeling platform.

Department of Energy Supplemental Environmental Projects

Hydrology Section staff continued work on two Supplemental Environmental Project (SEP) grants from the US Department of Energy at the Idaho National Laboratory.

The SEP #2 grant has two components: 1) ground water quality characterization on the eastern Snake Plain, and 2) a study of surface and ground water resources in the Big Lost River basin. Activities during FY22 included overseeing the drilling and sampling of nine new monitoring wells on the eastern Snake Plain and development of project reports. The United States Geological Survey (USGS) published the Big Lost River basin hydrogeologic characterization and seepage survey reports in September 2021.

The SEP #3 grant involves characterizing the hydrogeology of the Raft River basin. SEP #3 tasks completed by Hydrology Section staff during FY22 included: 1) overseeing the drilling of 12 new monitoring wells, 2) expanding the surface water monitoring network to include nine new streamflow absence/presence sensors, 3) overseeing the generation of irrigated lands datasets, 4) estimation of evapotranspiration for the study area using remote sensing data, and 5) reviewing and interpreting an additional 540 well logs to help develop a 3D geologic model.

Mountain Home Project

In February 2022, IDWR and IWRB signed a Joint Funding Agreement (JFA) with the USGS to initiate a four-year project to characterize the surface and ground water hydrology of the Mountain Home plateau. This JFA includes the development of a conceptual hydrogeologic framework and a ground

Technical Services cover photos: Top- Bear River Land classification analysis used in determining depletion estimates for the Bear River Compact; Background image courtesy of USDA's Farm Production and Conservation Business Center (FPAC-BC) Geospatial Enterprise Operations (GEO) Branch and IDWR's GTS section; Bottom left- Snowy mountains above the Treasure Valley, courtesy of Steve Visosky, IDWR; Bottom right- IDWR Hydrologist, Collin Macheel operating an ADCP flow measuring device to collect streamflow data, courtesy of Tito Sanabria, IDWR.

water budget for the study area. Additional work planned for the project includes well drilling, ground water level mass measurement events, and monitoring network improvements.

Eastern Snake Plain Aquifer Model (ESPAM)

The current version of the ESPAM was applied by Hydrology staff during the 2022 irrigation season to determine pumping curtailment dates for the methodology that was established in response to the Surface Water Coalition water delivery call. At the request of the Swan Falls Implementation Group, the ESPAM was recently applied to quantify the impacts of trust water rights on streamflow in the Snake River. Furthermore, at the request of the Board, the ESPAM was applied to evaluate the impacts of IWRB-sponsored aquifer recharge, private recharge, and ground water pumping reductions. Finally, the ESPAM was applied to evaluate the cumulative impacts of ESPA water right transfers approved through water year 2021 on reach gains in the Snake River.

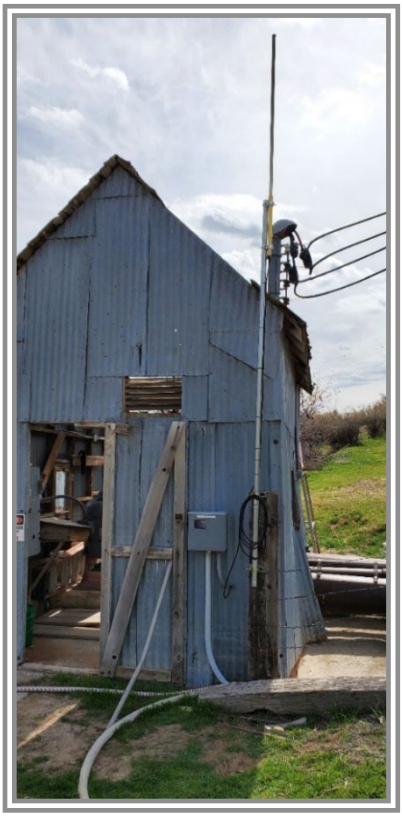
Hydrology staff also worked with the Eastern Snake Hydrologic Modeling Committee to develop priorities for recalibrating and upgrading the current version of the model and for implementing the next version of the model.

Treasure Valley Ground Water Flow Model

The Department held quarterly meetings of the Treasure Valley Modeling Technical Advisory Committee to solicit input on model development from stakeholder representatives. The five-year model development project is a collaboration between IDWR and the USGS. The project is jointly funded by the Idaho Water Resource Board and the USGS. The new Treasure Valley model has been calibrated and the documentation is scheduled to be published in February 2023.

Big Lost River Basin Ground Water Model

The three-year model development project was initiated in May 2022 and is another collaboration between IDWR and the USGS. The project is jointly funded by the Board and the USGS. The Department conducted the first of two synoptic ground water level measurements in the basin in April 2022. The ground water level data is the foundational information to assess the health of the aquifer and calibrate the new model. A modeling technical advisory committee was formed, and the first meeting will be held in November 2022.



Hydrologic Data Collection Programs

Hydrologic data collection is an essential and ongoing activity for both state and regional office staff. Last year, Hydrology Section employees collected hydrologic data at more than 1,500 sites statewide. The Eastern Snake Plain Spring and Return Flow Monitoring Network, which supports the ESPA model, was recently expanded and now includes 117 real-time, telemetered stream and agricultural return flow sites. The Statewide Ground Water Quality Monitoring Program sampled 256 wells in FY22. The Geothermal Monitoring Program Network includes 42 geothermal wells,

The photo on the right is of a telemetry station at the Water District 02 Indian Cove Monitoring site. IDWR's telemetry stations record and transmit data wirelessly, allowing for an extensive monitoring network and allocation of staff resources and time from in-field data collection to other Hydrologic work. Photo courtesy of Tito Sanabria, IDWR.

and the Statewide Water Level Monitoring Program was expanded this year to include 970 monitoring wells.

The Department published three aquifer monitoring reports in FY22, thereby fulfilling Goal 2, Objective 5 in the IDWR FY22-25 Strategic Plan related to summarizing data and ground water conditions in priority areas. These reports summarized conditions in the Malad Valley Ground Water Management Area (McVay, August 2021), Marsh Valley (Sukow, October 2021), and the Big Lost River Basin (Womeldorph, February 2022).

Swan Falls Technical Working Group and Forecast Tool

There was a high level of interest this summer on the Adjusted Average Daily Flow (AADF) computations for the Snake River near Murphy gage below Swan Falls dam. The calculations are performed by Hydrology staff and distributed to members of the Swan Falls Technical Working Group (TWG), IDWR management, and Board members. In addition to computing and distributing AADF information throughout the critical low-flow period, Hydrology staff maintained the AADF webpage on IDWR's website and presented computations and flow forecasts at meetings of the TWG and the Swan Falls Implementation Group.

Hydrology staff updated the Swan Falls Forecast Tool with response functions from the latest version of the ESPAM and worked with stakeholder representatives to complete documentation of the forecast tool. The tool predicts the flow rate in the Snake River at the Murphy gaging station during the upcoming irrigation season using surface water supply indices, managed recharge volumes, and ground water level measurements from the previous season.

The Swan Falls Implementation Group requested analyses of the impacts on the AADF of trust water rights, Surface Water Coalition Settlement Agreement mitigation activities, and IWRB managed recharge. Hydrology staff partially completed the requested analyses, drafted memoranda from the TWG to the Swan Falls Implementation Group explaining the results of the analyses, and solicited input on the results from other TWG participants. The analyses are anticipated to be completed in FY23.

Water Right Accounting

Accounting of storage and natural flow water rights was challenging last year because natural flow rates were below normal and storage space did not completely fill in some basins. Accounting staff spent considerable time responding to requests from water users for reservoir allocation and priority date projections. Accounting work done by Hydrology staff during FY22 includes:

- Completed final accounting for the 2021 irrigation season and presented the results at annual meetings for Water Districts 11, 34, 63, and 65.
- Implemented rotation credit for Water District 34.
- Implemented an enhanced version of the Boise River basin water right accounting that includes water rights with points of diversion in the tributaries above Lucky Peak Dam, and the Refill 1 and Refill 2 water rights.
- Coordinated with the Office of Information Technology Services and Water District 01 personnel to complete conversion of the storage program for the Upper Snake River basin from Fortran to C#.

Geospatial Technology Section

Geospatial Information System (GIS) software tools assist IDWR employees in analyzing and assessing water rights, determining IDWR administrative boundaries, locating wells, and collecting field data with mobile devices. Nearly all IDWR's data has a spatial component. The Geospatial Technology Section (GTS) supports spatial data creation and analyses, and creates GIS-based tools, maps, and applications used within IDWR and by the public.

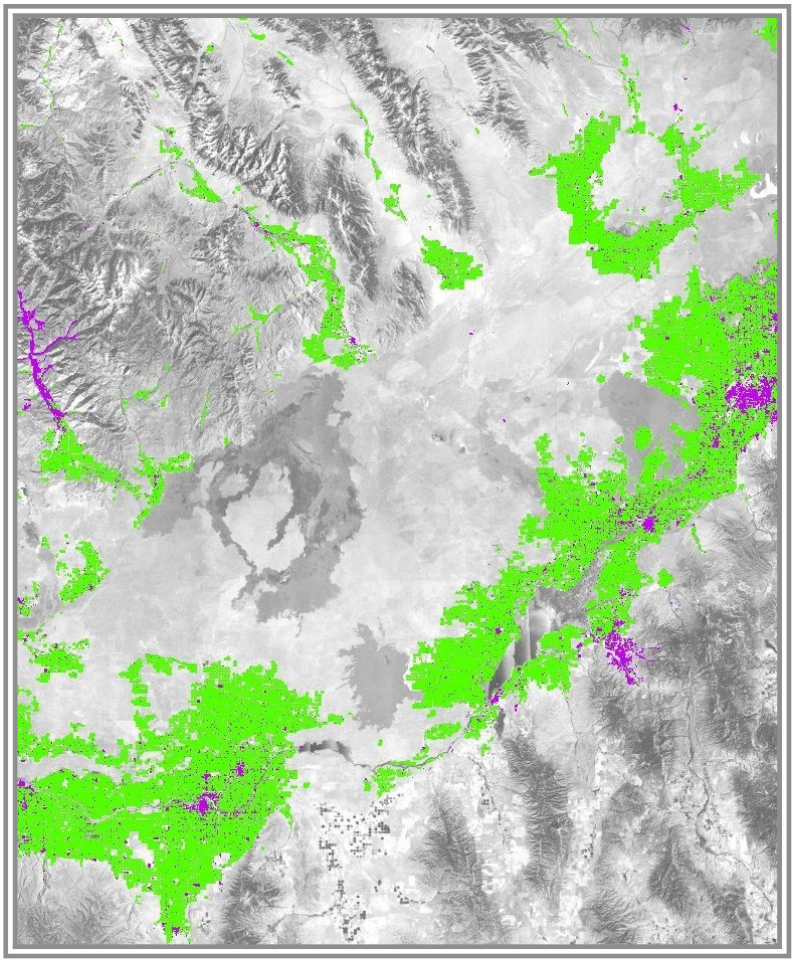
The Geospatial Technology Section serves department data through the Idaho Department of Water Resources GIS Data Hub, which is available from the IDWR home page. Digital data is available through IDWR's GIS Data Hub as downloadable data, interactive maps, and web services that can be added to existing GIS applications.

In addition to day-to-day support, GTS staff work on small to large-scale GIS projects to assist the Department. Geospatial Technology staff also develop and support data access tools for the public. Below is a summary of projects completed, initiated, and ongoing in FY22:

Land Use Classification

Maps of irrigated, semi-irrigated, and non-irrigated lands are essential for water right processing, ground water modeling, transfers, compliance inquiries, legal issues, and water use assessments. Irrigation status mapping for the ESPA is an ongoing effort that requires multiple years of data. This classification effort includes all or portions of Bannock, Bingham, Blaine, Bonneville, Butte, Camas, Cassia, Clark, Custer, Elmore, Fremont, Gooding, Jefferson, Jerome, Lincoln, Madison, Minidoka, Power, and Twin Falls counties, and is traditionally digitized by hand digitization. As of FY22, irrigation maps for the ESPA are complete for 2012 to 2017.

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



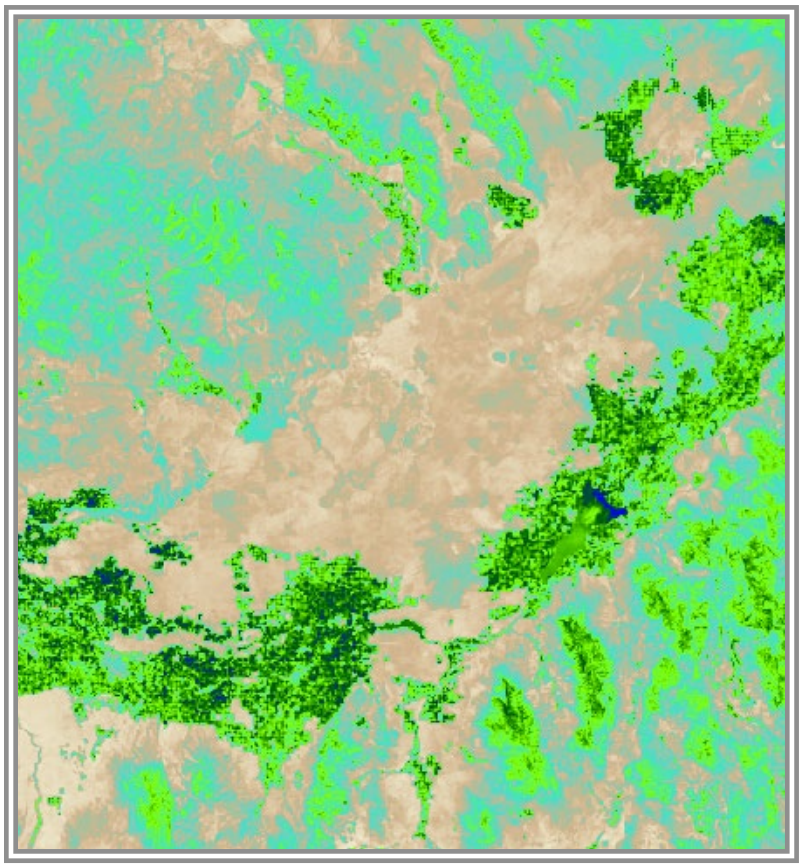
The image above is of the Snake River plain, overlain with the irrigated lands analysis; Background image courtesy of USDA's Farm Production and Conservation Business Center (FPAC-BC) Geospatial Enterprise Operations (GEO) Branch and IDWR's Geospatial Section.

the traditional hand digitization method. Geospatial Technology staff are working with other Department staff to determine which applications or areas within the state require traditional hand-digitized land use and which are best served using random forest modeling.

In FY22, GTS staff received internal requests from the Hydrology Section for land use data on the Malad Basin, Mountain Home area, the Big Lost Basin, the Raft River Valley and the Bruneau Grandview area. Geospatial staff supplied completed land use data of the Mountain Home area, two years of land use data for the Malad Basin, four years of land use data for the Raft River Valley, and two years of land use data for the Bruneau-Grandview area.

Evapotranspiration (ET) Near Real Time (NRT)

The Department and the University of Idaho (U of I) worked from 2000 to 2005 under a grant from the National Aeronautics and Space Administration (NASA) to develop procedures for mapping ET from Landsat data and applying ET data to water resource problems. The **M**apping **E**vapo**T**ranspiration at high **R**esolution with **I**nternalized **C**alibration (METRIC) energy balance model produces maps of ET using Landsat images. Landsat imagery is essential for METRIC because it is the only operational satellite that collects thermal data with a pixel size small enough to map individual agricultural fields. Landsat thermal data are crucial to compute the surface temperature required in ET computations. The Department uses Landsat-based evapotranspiration data in hydrology, water resources planning, and water administration.



*The image above is a map of evapotranspiration (ET) derived from Landsat images and the energy balance model called **M**apping **E**vapo**T**ranspiraion using high **R**esolution and **I**nternalized **C**alibration (METRIC). Image courtesy of IDWR's Geospatial Technology Section.*

In FY20, IDWR initiated a two-year process, in partnership with the U of I, to internalize the annual development of near-real-time METRIC data for all major irrigated areas on the Snake River Plain. In 2021 and 2022, IDWR worked to independently develop and publish these critical data sets for its use and public use.

Columbia River Basin OpenET Evapotranspiration Project (2021 Funding)

The GTS received funding from NASA's Western Water Application Office (WWAO) to collaborate with the Oregon Water Resources Department, the Washington Department of Ecology, and the Desert Research Institute to:

- Review consistent ET summary information throughout the Columbia River Basin,
- Improve ET data accessibility and useability by summarizing field-level ET data for irrigated lands at field and watershed scales, and
- Gain Agency confidence in OpenET, NASA-based ET, and irrigation status information.

Geospatial Technology staff currently processes METRIC ET data for department use. With the funding from NASA, GTS staff are comparing IDWR METRIC ET data with OpenET models and producing summary reports on the findings. Geospatial Technology staff are also working with the OpenET team to improve their irrigated land classifications, and test OpenET data in water management activities.

Bear River Basin Support

Idaho, Utah, and Wyoming are members of the Bear River Compact. A goal of the Compact is to accomplish an equitable apportionment of the waters of the Bear River among the compact states. An amended Bear River compact was ratified by congress in 1980 and established depletion amounts to which states were entitled. At an interval determined by the Bear River Commission, GTS staff review and determine changes in depletions due to new irrigation development, supplemental irrigation, and municipal and industrial water uses. To support depletion analysis, a digital GIS layer consisting of six classes, including irrigated and non-irrigated lands, is required. In FY22 GTS staff used remotely sensed data and coordinated with the states in the Bear River Compact to create a digital land use layer (see the Technical Services cover page, Bear River land use image, pg. 38). Hydrologists, technical staff, and commission members use this digital land use layer to determine depletion amounts.

Evapotranspiration (ET) analysis is vital in determining depletion amounts. As new tools and data are available, coordination on ET analysis and best practices is required. The Department's ET Analyst supports Bear River Compact members with ET analysis and information.

GIS Tools Upgrades

Accurate and timely spatial information is critical for water management in Idaho. To enhance spatial information support for IDWR staff, the GTS section implemented Esri's Portal for ArcGIS Enterprise. The Portal streamlines sharing of spatial data with IDWR and the public and better integrates online, cloud and mobile tools. One of the online resources is the GIS Data Hub which gives the public access to IDWR GIS data. The GIS Data Hub was updated in 2022 for the following reasons:

1. Infrastructure Modernization – The new hub is built on a more contemporary framework that supports additional data sharing and collaboration features compared to the old Map and GIS Data Hub framework.
2. Accessibility – The new site is better organized, has consistent branding, clearer language, and a reactive user interface. The search functionality is greatly improved; users can now search for public datasets using the built-in search widgets rather than needing to scroll.

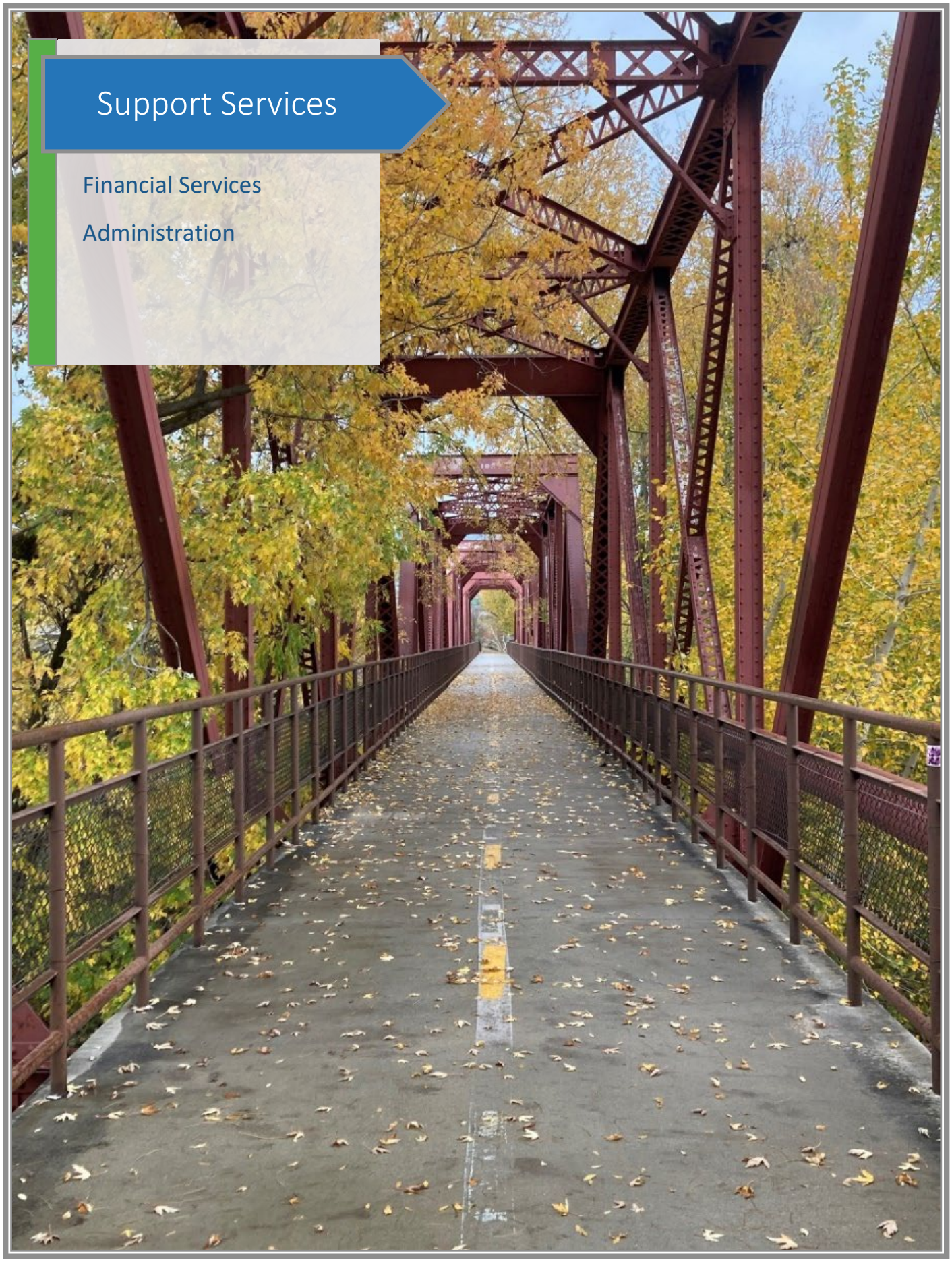
3. ArcGIS Online Integration – The old site required meticulous HTML edits every time a new dataset was added. Now public-facing datasets are added to the site's Data page automatically.

The image above is a screen shot of IDWR's new, online GIS data hub. Visit IDWR GIS Data to learn more. Photo courtesy of IDWR's Geospatial Technology Section.

Support Services

Financial Services

Administration



Financial Summary

In FY22, 74% of IDWR's budget came from the State of Idaho General Fund. The Department dedicated funds and federal funding sources made up the remaining 26%.

The graphs below show IDWR's FY22 appropriations and expenditures. The Department's annual appropriation does not include the three funds continuously appropriated to the Idaho Water Resource Board; the graphs below do not include information relating to these three funds.

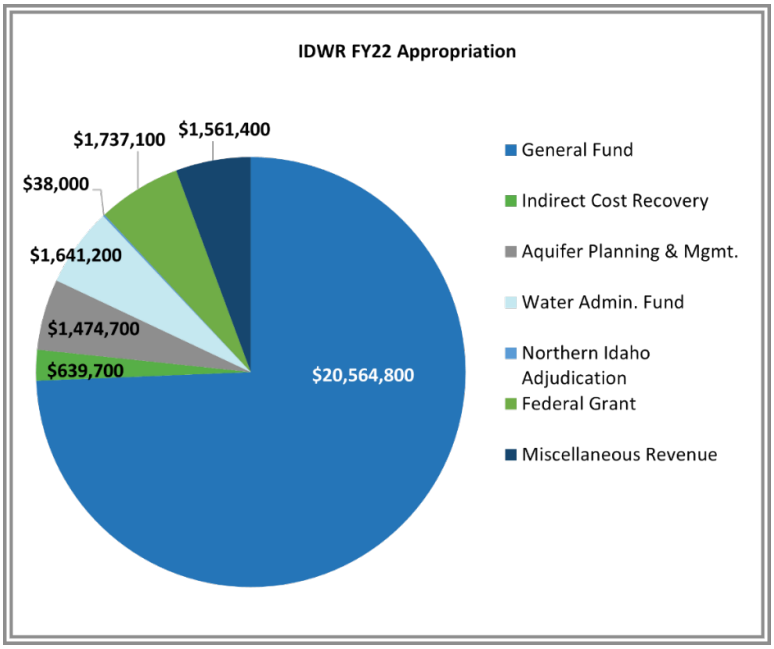


Figure 14. FY22 Department Appropriation.

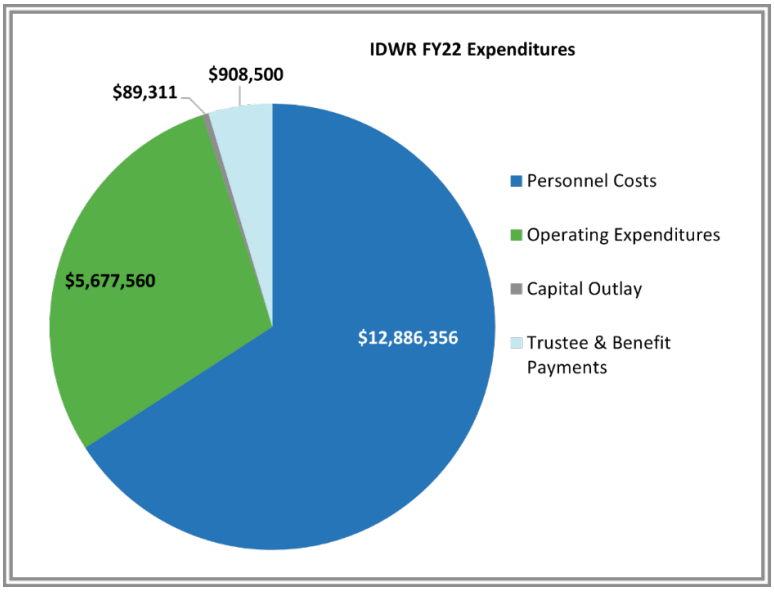


Figure 15. FY22 Department Expenditures.

Rulemaking

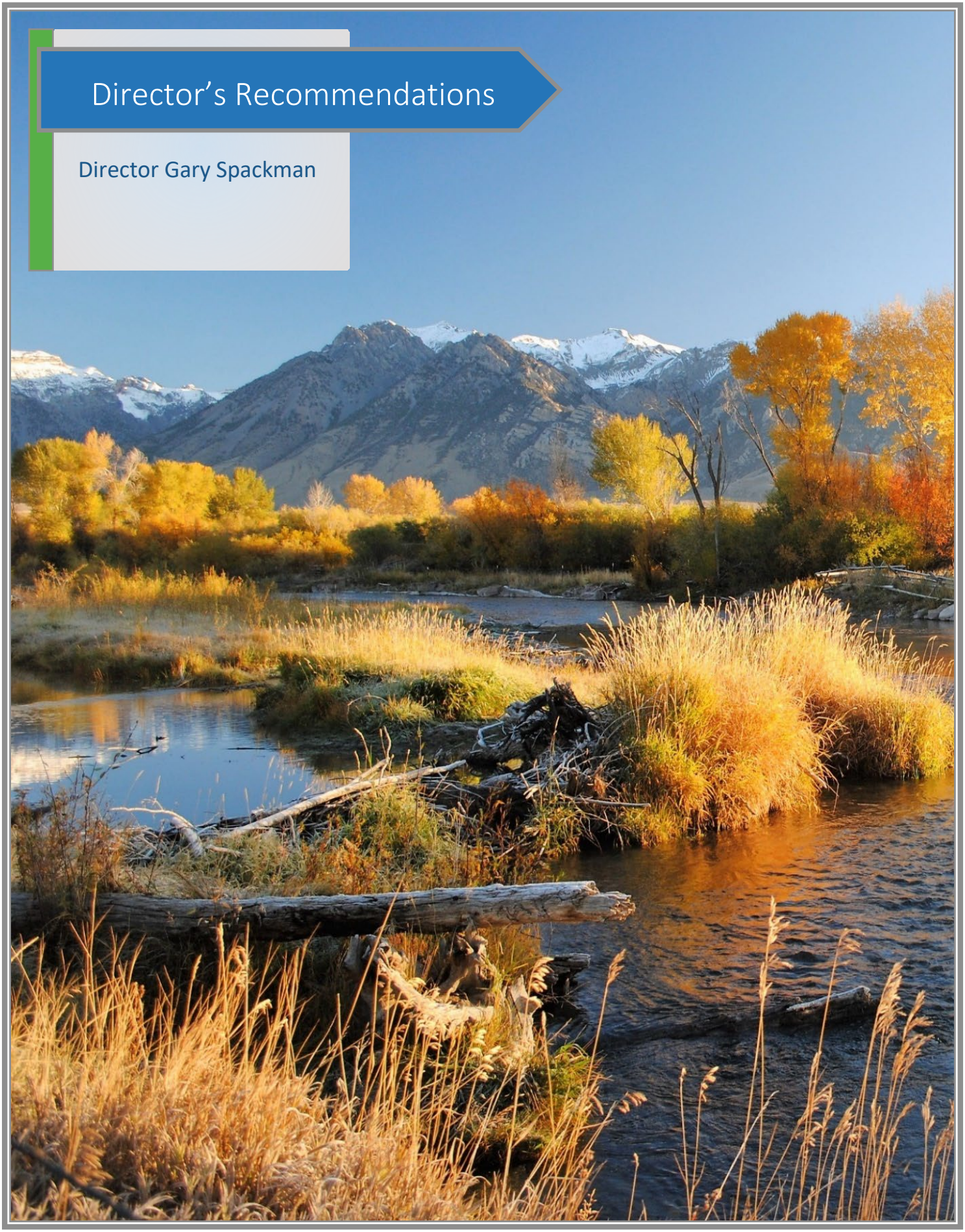
Administrative actions of IDWR and IWRB are governed by Idaho Administrative Code, Chapter 37. All administrative rules are presented for authorization and negotiated rulemaking as part of the IDWR and IWRB's plan to review each rule every five years consistent with the Governor's Executive Order 2020-01, Zero-Based Regulation. In both 2020 and 2021, the Idaho Legislature adjourned without passing a "going home bill" that would reauthorize all of Idaho's administrative rules. As a result, in 2021, the Department and Board adopted all fee and non-fee rules as temporary rules to ensure their effectiveness. The Department then reestablished the temporary fee and non-fee rules as permanent rules by again publishing them as Proposed, and then as Pending Rules, and submitting to the 2022 Legislature for review and approval. In March 2022, the Legislature authorized IDWR's Fee and Non-Fee Rules, Rules of Procedure (IDAPA 37.01.01), and Stream Channel Alterations Rule 61 – Minimum Standards for Suction Dredges and Non-Powered Sluice Equipment (IDAPA 37.03.07.61).

In FY22, the Department completed rulemaking activities, reduced rule language by 4,559 words or 15.5% overall, and held 11 public or negotiated rule making meetings for public participation and comment on the Pending Rules listed below.

- IDAPA 37.02.03 Water Supply Bank Rules
- IDAPA 37.03.04 Drilling for Geothermal Resources Rules
- IDAPA 37.03.05 Mine Tailings Impoundment Structure Rules
- IDAPA 37.03.06 Safety of Dams Rules
- IDAPA 37.03.10 Well Driller Licensing Rules

Director's Recommendations

Director Gary Spackman



Director's Recommendations

Long-Term Funding for Water Projects

In IDWR's FY2019 Annual Report, the Director stated: "The State of Idaho must adopt and execute a steady source of long-term funding for water projects." The 2022 Idaho Legislature appropriated $75 million in state general funds and another $250 million of federal money for legacy water projects in Idaho. The federal money appropriation was divided up into four yearly payments: $100 million in FY2023, and $50 million in the three succeeding years of FY2024-FY2026. As described in this report (FY2022), federal money has been dedicated to the Anderson Ranch Dam raise and the Mountain Home Air Force Base water supply project.

The 2023 Idaho Legislature may approve additional funding for water projects. This additional appropriation is a visionary action by the Idaho Legislature to fund necessary ongoing and future water projects in the state of Idaho.

If Idaho will continue to construct and operate water projects to protect and sustain its water resources, Idaho can likely avoid water shortages in the future. In addition, as stated in a past annual report (FY2019): "[I]n a future interstate dispute about water, the amount of water allocated to the state of Idaho might be diminished if other [downstream] states have more fully developed their water resources."

Employees to Address Workload

During FY2022, workloads increased across nearly all Department programs. These additional workloads were borne by an employee count that remained approximately static since 2009.

The FY2020 Annual Report stated: "The state cannot expect water managers to timely perform these duties when the increase in activity overwhelms reasonable gains in efficiency."

After significant outreach to legislators and members of the executive branch, the 2022 legislature approved the hiring of 15 new fulltime positions at the Department and funded the positions. Since the beginning of FY2023 in July 2022, IDWR has zealously sought to hire additional staff. During the period between approval and hiring, the Department expects some possible backsliding in Department production until the positions are filled and the new employees are trained.

Because of continuing increases in Idaho population growth and related water right activity, the Department may have to seek future enhancements in staffing.

Employee Compensation

The following language from FY2020 remains pertinent:

"IDWR is confronted with increasing scrutiny of its technical and legal analysis and processes. In the 1980s, two-page orders containing minimal to no technical analysis were commonplace. Now, IDWR's orders must exhaustively analyze technical and legal issues. Even then, most orders are challenged through the courts. Contested cases are also more common and require trained hearing officers to conduct a competent hearing, insulate themselves for objectivity and fairness, and write defensible decisions. In short, the work of IDWR is less clerical or ministerial and more technical and scientific every

year. The Department must be able to hire and retain competent staff to complete IDWR's ever more complex workload. The value of these staff cannot be underestimated. More liberal funding of salaries for the technical and scientific positions upon whom IDWR heavily depends on is vital."

The 2022 legislature generously appropriated money for increases in Department employees' salaries. The Department granted pay raises of 6-14% to all Department employees. Nonetheless, inflation has eaten most of the increases granted to employees in FY2022. As a result, additional money must be appropriated to retain existing employees and attract new talent.

Establish Alternative Process for Resolving Conjunctive Management Disputes

The FY2022 Annual Report discussed the need for a more efficient method of jointly administering ground water and surface water. As background, the FY2022 stated the following about joint administration in the Big Wood River and Little Wood River Basins:

> Because of significant drought conditions, IDWR determined senior priority surface water rights could be injured by depletions to surface water streams caused by ground water pumping. The Director asserted authority under Idaho Code §42-237a.g and initiated a contested case to determine whether ground water rights and surface water rights should be jointly administered. After conducting a hearing in June 2021, the Director issued a curtailment order on June 28, 2021, requiring curtailment of junior priority ground water rights. The Director's order prompted additional negotiations, a short-term settlement was executed, and a longer-term management plan may finally be negotiated.

Ground water users in the Wood River Valley appealed the Director's exercise of authority under Idaho Code §42-237a.g. District Judge Eric Wildman affirmed the Director's authority to initiate a contested case for joint administration under Idaho Code §42-237a.g, but required the Director to designate an area of common ground water supply prior to administration of water rights. Judge Wildman's decision is on appeal to the Idaho Supreme Court.

Requiring designation of an area of common ground water supply prior to jointly administration water rights will result in long delays during which senior water rights will continue to be injured. When the ground water rights were brought into a water district with surface water rights because of the hydraulic connection between the two sources of water, designation of an area of common ground water supply is an unnecessary redundancy that frustrates the timely administration of water rights.

Bear River Adjudication

The 2020 Idaho Legislature authorized the commencement of the Bear River Adjudication to adjudicate all water rights within the Bear River Basin. The 2021 Idaho Legislature appropriated money to partially finance the Bear River Adjudication. The Bear River Adjudication will be an approximate ten-year effort and cost about one million dollars per year.

As stated previously, in June 2021, the Adjudication Court issued an order authorizing the commencement of the Bear River Adjudication. The 2022 legislature funded five positions for the Bear River Adjudication. The 2023 legislature is poised to fund another three positions for full staffing of the Bear River Adjudication. In early 2023, IDWR should begin notifying water users of the requirement to file claims.

Trust Water Rights

The future multi-year flows of the Snake River at the Murphy Gage, located just downstream from Swan Falls Dam, are projected to decline, and probably violate the Swan Falls minimum flows at Murphy Gage. The State of Idaho needs to be proactive to prevent a violation of the minimum flows. Many trust water rights (rights authorizing diversion of water placed in trust by Idaho Power) were limited to a term of years.

The Department employs a model to predict when the Swan Falls minimum flows may be violated. Upon predicting a violation of the Swan Falls minimum flows, the Department should notify the holders of term trust water rights that the term of the water is expired, and the water right will be revoked unless the holder of the water right mitigates for diversion. Other action, including legislation, may be necessary to protect the Swan Falls minimum flows.

Surface Water Coalition Delivery Call

In 2015, holders of ground water rights bearing junior priority dates and holders of surface water rights bearing senior priority dates held by seven irrigation water delivery entities executed an agreement establishing the rights and obligations of the parties. The agreement was intended to supplant strict curtailment of water rights. The Department approved the agreement as a mitigation plan.

In 2016, the Director issued an order titled “Fourth Amended Methodology Order.” The Fourth Amended Methodology Order establishes procedures to predict/determine annually whether there is a demand shortfall for the Snake River senior priority water rights, and, if so, establishes procedures for curtailments of junior priority diversions to compensate for depletions to the senior priority water right holders caused by ground water pumping. The 2015 settlement agreement, adopted as a mitigation plan, has protected junior ground water users from curtailment. Because IDWR must employ the best evolving data and science supporting the determination of a demand shortfall and related curtailments, Department technical staff analyzed the underlying data, computations, and technical conclusions of the Fourth Methodology Order.

The Fourth Methodology Order must be amended to represent the most current data and improved scientific analysis. The amendment will likely increase the mitigation obligation or curtailment of ground water pumpers borne by the holders of junior priority water rights. The holders of both ground water and surface water rights must negotiate amendments to the 2015 settlement agreement that will protect senior surface water rights and diminish the threat of annual curtailments under strict application of the prior appropriation doctrine.

-Director Gary Spackman

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Photo courtesy of John Loffredo, IDWR.

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