AGENDA

IDAHO WATER RESOURCE BOARD

Joint Aquifer Stabilization & Planning Committee
Meeting No. 6-19

November 13, 2019 at 1:00 p.m.
Water Center
Conference Room 602 B, C & D
322 E. Front St.
BOISE

1. Introductions and Attendance
2. ESPA CAMP Progress Report
    a. Update on Schedule and ESPA CAMP Targets
    b. Aquifer Storage Presentation
3. ESPA CAMP Stakeholder Comment
    a. City of Twin Falls
    b. Upper Valley Surface Water Users
4. Draft Report Conclusions
5. Final Draft Report
6. Adjourn

Committee Members: Bert Stevenson (Chair), Al Barker, Jeff Raybould, Roger Chase and Vince Alberdi

Committee Members: Jeff Raybould (Chair), Bert Stevenson, Al Barker, Pete Van Der Meulen and Jo Ann Cole-Hansen

* Action Item: A vote regarding this item may be made this meeting. Identifying an item as an action item on the agenda does not require a vote to be taken on the item.

Americans with Disabilities

The meeting will be held in facilities that meet the accessibility requirements of the Americans with Disabilities Act. If you require special accommodations to attend, participate in, or understand the meeting, please make advance arrangements by contacting Department staff by email jennifer.strange@idwr.idaho.gov or by phone at (208) 287-4800.

Memorandum

To: Idaho Water Resource Board (IWRB)

From: Neeley Miller, Planning & Projects Bureau

Date: November 5, 2019

Re: ESPA CAMP progress report

Background

In 2006 Idaho Legislature passed Idaho SCR 136 which requested the Idaho Water Resource Board (IWRB) prepare and submit a comprehensive aquifer management plan (CAMP) for the Eastern Snake Plain Aquifer (ESPA). By 2007, the IWRB appointed an advisory committee to prepare and recommend a plan. The IWRB and the Advisory Committee worked together to develop and submit the ESPA CAMP to the 2009 Idaho Legislature where it became effective as of the Idaho State Water Plan upon adoption of HB 264.

Legislative Request for a Plan Review

On May 8, 2019 the IWRB received a letter from Idaho House Speaker Scott Bedke requesting the IWRB complete a 10-year review of the ESPA CAMP and to submit appropriate planning recommendations to the Legislature and the Governor's office by the start of the next regular legislative session. Since the IWRB received the letter from Speaker Scott Bedke they have received several additional letters regarding the ESPA CAMP 10-year review (see attached letters).

Process & Schedule - Joint Aquifer Stabilization & Planning Committee meetings

Staff is completing the ESPA CAMP 10-year review through a series of Joint Aquifer Stabilization & Planning Committee meetings beginning in June and continuing through the present.

ESPA CAMP Targets

ESPA CAMP Hydrologic Targets		
Action	**Phase 1 Target (KAF)**	**Long-Term Target (KAF)**
Aquifer Recharge	100*	150 – 250*
Demand Reduction	95	250 - 350
Ground Water to Surface Water Conversion	100	100
Weather Modification/Cloud Seeding	50	No Target
TOTAL	**200 – 300**	**600**

**In 2016 SCR 136 provided legislative approval to increase the phase 1 recharge goal from 100 KAF to 250 KAF on an average annual basis prior to 2019, pursuant to the requirement of the Swan Falls Re-Affirmation Agreement.*

Progress Towards ESPA CAMP Hydrologic Targets		
Action		**Acre-Feet**
IWRB Managed Recharge	Existing Average Annual Capacity	202,000
Demand Reduction		
IGWA-SWC Settlement	2016-2018 Average	239,967
SWID-SWC Settlement	2016-2018 Average	6,421
Ground Water to Surface Water Conversions		
SWID Conversions	2016-2018 Average	78,875
A&B ID Conversions	2016-2018 Average	8,340
Weather Modification/Cloud Seeding		TBD*
Other Annual Activities		
Storage Water from SWC Cities Settlement	Annual Contribution for recharge if not needed by SWC	7,650
SWID Recharge	In addition to IWRB Recharge; 2016-2018 Average	10,894
TOTAL AVERAGE ANNUAL		**554,147**
Opportunistic Activities - Wet Years Only		
Storage Water from SWC-IGWA Settlement	*50, 000 AF contributed for recharge if not needed by SWC*	*50,000*
IGWA Private Recharge	*IGWA-SWC Settlement; 2016-2018 avg.*	*145,130*

**Measured by average annual increase in unregulated runoff; currently estimated to be approximately 537,000 acre-feet annually across the ESPA. Efforts are currently underway to determine where the additional water supply is used.*

Draft Report Conclusions

Decreases in aquifer water levels in the ESPA (loss of approx. 13,000,000 acre-feet between 1952 and 2015) have resulted in declining spring flows from the ESPA, resulting in numerous water use conflicts that had the potential to disrupt the economic productivity of the region. The ESPA CAMP established a long-term program for aquifer management.

Without a funding mechanism to provide resources for projects the implementation process was limited for the first several years and consisted of 1) leveraging Federal Funds to the extent possible, and 2) IWRB developed Pilot Recharge Program. Funding from the Legislature, combined with the actions agreed to in the SWC settlements, have led to ESPA CAMP implementation becoming more fully realized over the past few years.

Major management actions proposed in the CAMP have been implemented:

- Aquifer Recharge – The IWRB with state funding and Legislative direction (SCR 136, 2016) is implementing a managed recharge program with a target of 250,000 AF on an average annual basis.
- Demand Reduction – ground water users agreed to reduce use by 240,000 AF in 2015 SWC-IGWA Settlement Agreement
- Ground Water-to-Surface Water Conversions – some projects counted toward 240,000 AF reduction; others are separate including 79,000 AF in SWID and 8,000 AF in ABID
- Cloud Seeding – cooperative program put into place as joint venture between Idaho Power, State, and Water Users in Upper Snake and Wood (and Boise) Basins

Other actions contributing to ESPA Aquifer Management:

- IGWA-SWC Settlement Agreement – IGWA provides 50,000 AF of storage water to SWC every year -- If not needed by SWC, it is to be used for aquifer management
- Cities-SWC-IGWA Settlement Agreement – ESPA Cities agreed to provide 7,650 AF of storage every year to aquifer management
- Others – food processors, SWID, ABID agreements

Combined, these actions result in over a 550,000 acre-foot water budget change towards the long-term goal of 600,000 acre-feet. Water level trends are in the right direction and demonstrate the plan is working. Aquifer storage (& spring flows/discharges) rose significantly in recent years due to a number of factors. A portion of the observed rise was due to State sponsored managed recharge and reduced groundwater pumping associated with the IGWA-SWC Settlement Agreement, and a larger portion of the increase was due to the exceptional precipitation the region received from 2016-2018.

The Snake River upstream from Milner Dam is the water source for nearly all of the State's ESPA managed recharge program, and tends to run in cycles with several wet years in a row (for example 2009-2012 and 2017-2019), followed by several dry years in a row (for example 2013-2016). For this reason, a minimum of a 10-year average is needed to account for recharge volumes in wet years when the average annual target of 250,000 acre-feet will be exceeded, and in dry years when the average annual target of 250,000 acre-feet will not be met.

The IWRB has stated it will not seek to use storage water for managed recharge in order to avoid putting additional pressure on the Upper Snake Reservoir System. However, several agreements require their involved parties to provide storage water for aquifer management. In some cases, the parties to these agreements choose to have the IWRB recharge it for convenience. The parties could choose other means of using that storage water for aquifer management. For this reason, any storage water provided for recharge pursuant to the various settlement agreements should not be counted toward the IWRB's 250,000 acre-foot average annual goal.

"Private Recharge" is being done with a variety of water sources, including 1) Storage water leased through Upper Snake Rental Pool, 2) Natural flow irrigation rights leased through Water Supply Bank, 3) Natural flow recharge rights help by irrigation districts and canal companies, and/or 4) Temporary water use approvals during large flows. Through § 42-1737, the IWRB must approve any recharge project proposing new use of natural flows in an average amount greater than 10,000 acre-feet per year. As "private recharge" makes use of various water supply sources, it is unclear whether any "private recharge" efforts proposed or currently underway meet the threshold outlined in § 42-1737. To date, no proposals pursuant to § 42-1737 have been presented before the IWRB. Since "private recharge" is done pursuant to the provisions of the IGWA-SWC Settlement, it should be considered separate from the State's 250,000 acre-foot average annual recharge program

Draft Report Recommendations

- The IWRB estimates the current long-term managed recharge capacity is at 202,000 acre-feet annually. We do not yet have the capacity to average 250,000 acre-feet. We need to build more capacity to recharge more water during the wet years in order to offset the minimal recharge that will occur in dry years. The IWRB recommends continued funding to support the recharge program.
- IWRB recommends the development of a recharge advisory committee that could be tasked with addressing questions such as average annual calculations and how to integrate other interests in the recharge program.
- The IWRB recommends submission of another progress report to the Legislature in 5 years on aquifer management actions, aquifer storage change, and provide appropriate planning recommendations. The IWRB will also report to the public annually on progress towards aquifer storage change and progress towards ESPA CAMP hydrologic targets.
- May need to amend ESPA CAMP to include updated implementation section.

IDAHO WATER RESOURCE BOARD

November 4, 2019

Scott Bedke, Speaker of the House
Idaho House of Representatives
State Capitol
P.O. Box 83720
Boise, ID, 83720

RE: ESPA CAMP Water Management Actions

Dear Speaker Bedke,

On May 8, 2019, House Speaker Scott Bedke sent a letter to the Idaho Water Resource Board, requesting a 10-year progress report on a wide array of water management actions focused on stabilizing and recovering the Eastern Snake Plain Aquifer (ESPA) in Southern Idaho. The initiatives were detailed in the 2009 ESPA Comprehensive Aquifer Management Plan, adopted the following year by the Idaho Legislature and incorporated into the State Water Plan.

I am pleased to report that substantial progress has been made in meeting ESPA CAMP hydrologic targets outlined in the ESPA comprehensive aquifer management plan (CAMP). Most importantly, ESPA water levels have been increasing and responding to the multi-pronged stabilization and recovery strategy. From the spring of 2015 to the spring of 2019, state hydrologists reported that ESPA water levels rose by 1.8 million acre-feet, the largest increase documented in the last 60 years.

Overall, the ESPA CAMP envisioned that a mix of stabilization and recovery strategies would result in a net increase of 600,000 acre-feet of water into the aquifer by the year 2030. As of the fall of 20019 the ESPA water budget has been increased by an average of 554,000 acre-feet on an annual basis. The most significant initiatives include: the Board's ESPA Managed Aquifer Recharge Program, a 240,000 acre-feet annual reduction in consumptive water use by ground water users across the ESPA via the 2015 historic water settlement, ground water-to-surface water conversions, Cloud Seeding, and other measures.

Restoring the ESPA to sustainable levels is a goal that has broad public support from water users across the ESPA and stakeholders in the Snake River Basin. It should be noted that the 2015 historic water settlement was a

milestone that required a massive commitment by ground water users with junior water rights to reduce their water use by 240,000 acre-feet per year. The long-term agreement ended years of intense litigation that could have curtailed water use on countless acres of farmland in the ESPA region and caused economic havoc.

Legislative investment brings results. The Board's ESPA Managed Aquifer Recharge Program started to make an impact when the Idaho Legislature made a significant investment in ESPA restoration activities in 2014, with the passage of HB 547, providing $5 million annually to the Board for statewide aquifer stabilization. SCR 136 in 2016 directed the Board to develop a managed recharge program of 250,000 acre-feet per year on an average annual basis.

Since that time, the Board has been working at a rapid pace to partner with canal companies and irrigation districts across the ESPA region to send water flows into recharge basins during the winter months, pursuant to the Board's recharge water rights. Today, the Board works with more than 15 entities to send recharge flows into the ESPA at more than 25 recharge basins/sites. Knowing that southern Idaho can be subject to drought, the Board works to exceed the annual goal of 250,000 acre-feet in wet years, understanding there will not be enough water to reach 250,000 acre-feet of recharge in dry years.

To date, the Board has received $54 million from the Idaho Legislature to cover the costs of aquifer-sustainability initiatives. From these funds, $29M has been used for the ESPA Managed Recharge Program, $3.5M for Cloud Seeding (in partnership with Idaho Power and water users), and $2M for aquifer monitoring and modeling. In addition, $9.1M has been used from these funds for non-ESPA efforts, including the Treasure Valley Aquifer Groundwater Flow Model.

Active public involvement and input continues on the Board's ESPA sustainability initiatives. At the conclusion of the ESPA CAMP in 2009, it was expected that an Implementation Committee would provide public feedback and guide the plan moving forward. The initial thought was that water users would be assessed to fund plan implementation. Those assessments were never implemented, and the committee was phased out without funding or a mission.

Even so, the Board invites ongoing public feedback from a wide array of stakeholders on ESPA sustainability initiatives in its regular meetings and subcommittee meetings. Over the last six months, as the Board has worked to compile this 10-year progress report, it has invited public feedback and comment from all stakeholder groups in the ESPA region. The overarching message is "stay the course."

Looking ahead, the Board is pleased to report on the substantial progress achieved thus far on ESPA sustainability. There is still more work to be done. Spring users point out that while some springs like Box Canyon are showing increased flows, others have not. The Board is carefully monitoring aquifer-retention rates related to managed recharge sites to ensure the state is getting the most "bang for the buck." The Board also is tracking the impact of ESPA-restoration activities on the Southern Idaho economy, fisheries and water quality.

Idaho's leadership on restoring the ESPA to sustainable levels is one of the bright spots related to aquifer management nationwide. Everyone in the ESPA region depends on a sustainable supply of water moving forward into the future. While southern Idaho is a desert, visionary leadership and investment for generations have created a robust, diverse agricultural economy that depends on thoughtful planning and smart water management.

The Board appreciates the trust and support of the Idaho Legislature Governor Little and former Governor Otter. We are committed to restoring the ESPA to sustainable levels while striving to optimize outcomes for all water users and the environment.

Sincerely,

Roger Chase
Chairman
Idaho Water Resource Board

Cc: Governor Brad Little
Senate Pro Tem Brent Hill
Paul Arrington, Idaho Water Users Association
Rep. Marc Gibbs, Chairman, House Resources & Conservation Committee
House Resources & Conservation Committee members
Sen. Lee Heider, Chairman, Senate Resources & Environment Committee
Senate Resources & Environment Committee
Sen. Steve Bair, Chairman, Senate Finance Committee
Idaho Water Resource Board members
Director Gary Spackman
Deputy Director Mat Weaver
Brian Patton, Idaho Water Resource Board Executive Officer

Memorandum

To: Idaho Water Resource Board (IWRB)

From: Neeley Miller

Date: November 5, 2019

Re: ESPA Aquifer Storage

Mike McVay will provide the Committee with a presentation on ESPA Aquifer Storage.

IDAHO
Water Resource Board

ESPA Storage Changes and Aquifer Management

Presented by Mike McVay, P.E., P.G.

November 13, 2019

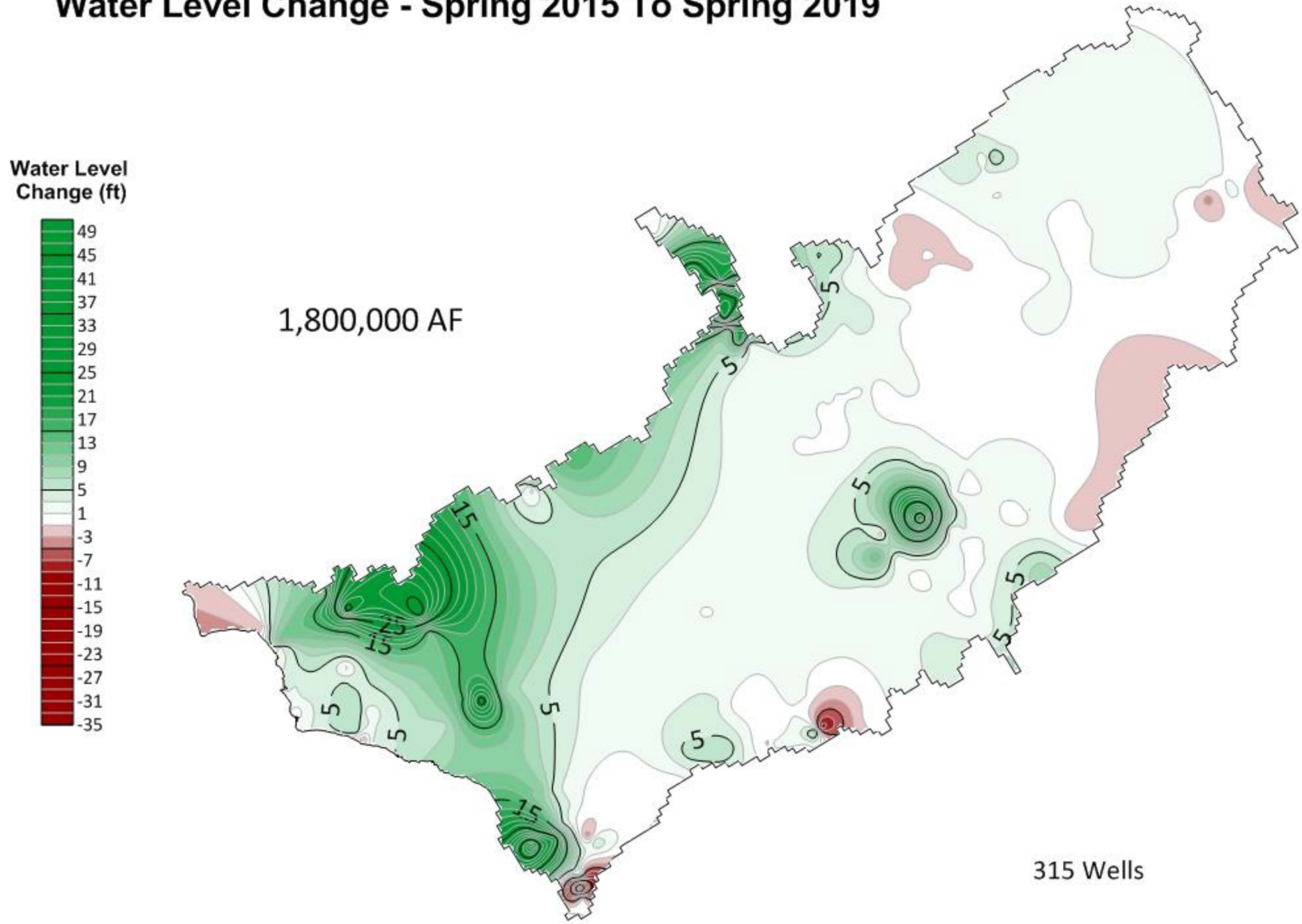
Aquifer Storage Change and Management Activities: 2015-2019

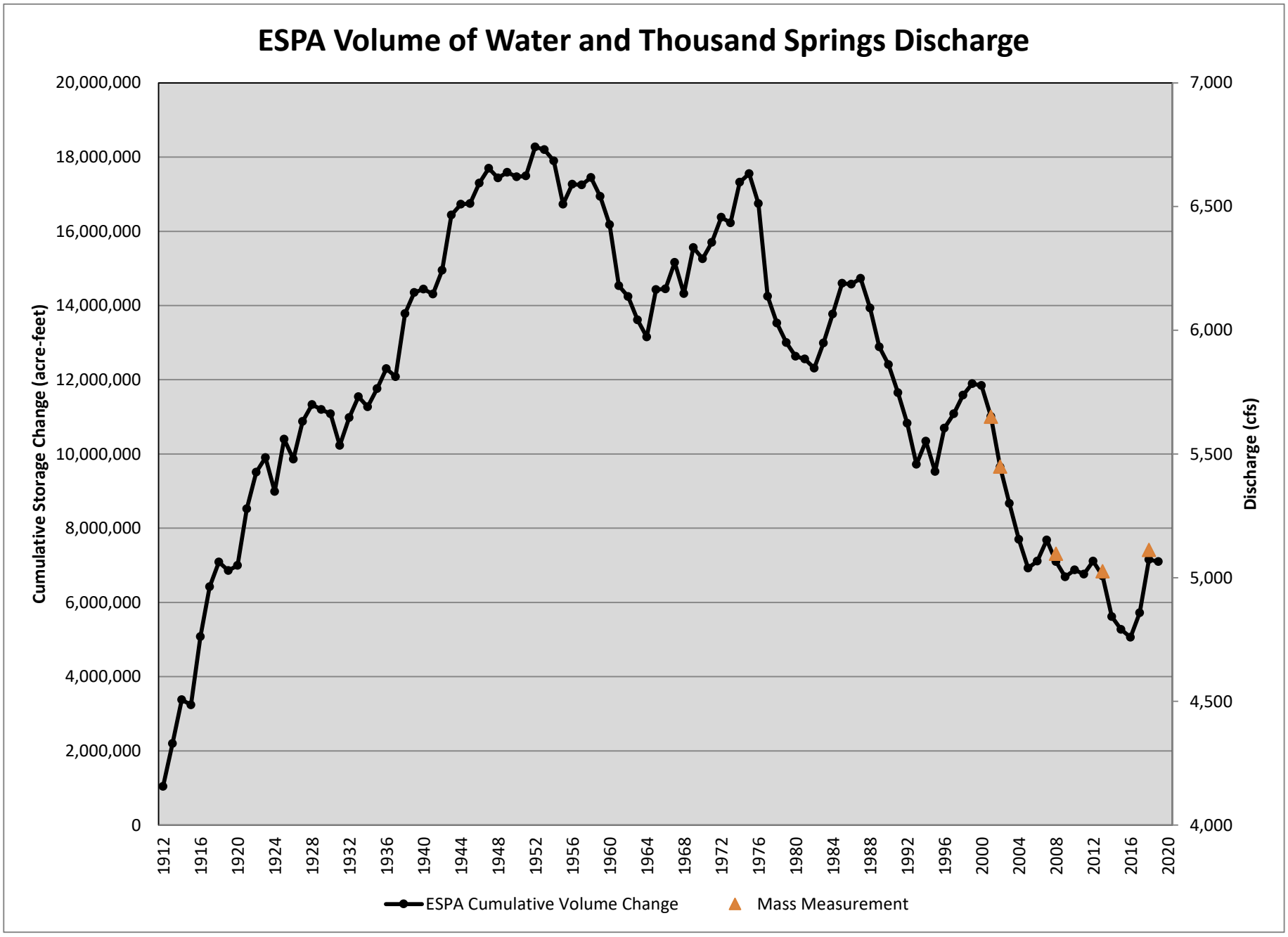
- Aquifer storage changes have been calculated using water levels. This process has been presented in the past.
- Impacts to aquifer storage due to management activities have been modeled using data from different sources.
  - State managed recharge program.
  - Private recharge, groundwater reductions, CREP, and conversions.
- There are uncertainties associated with each data source, and some uncertainties are large.
  - Measurement, location, and timing of some activities.

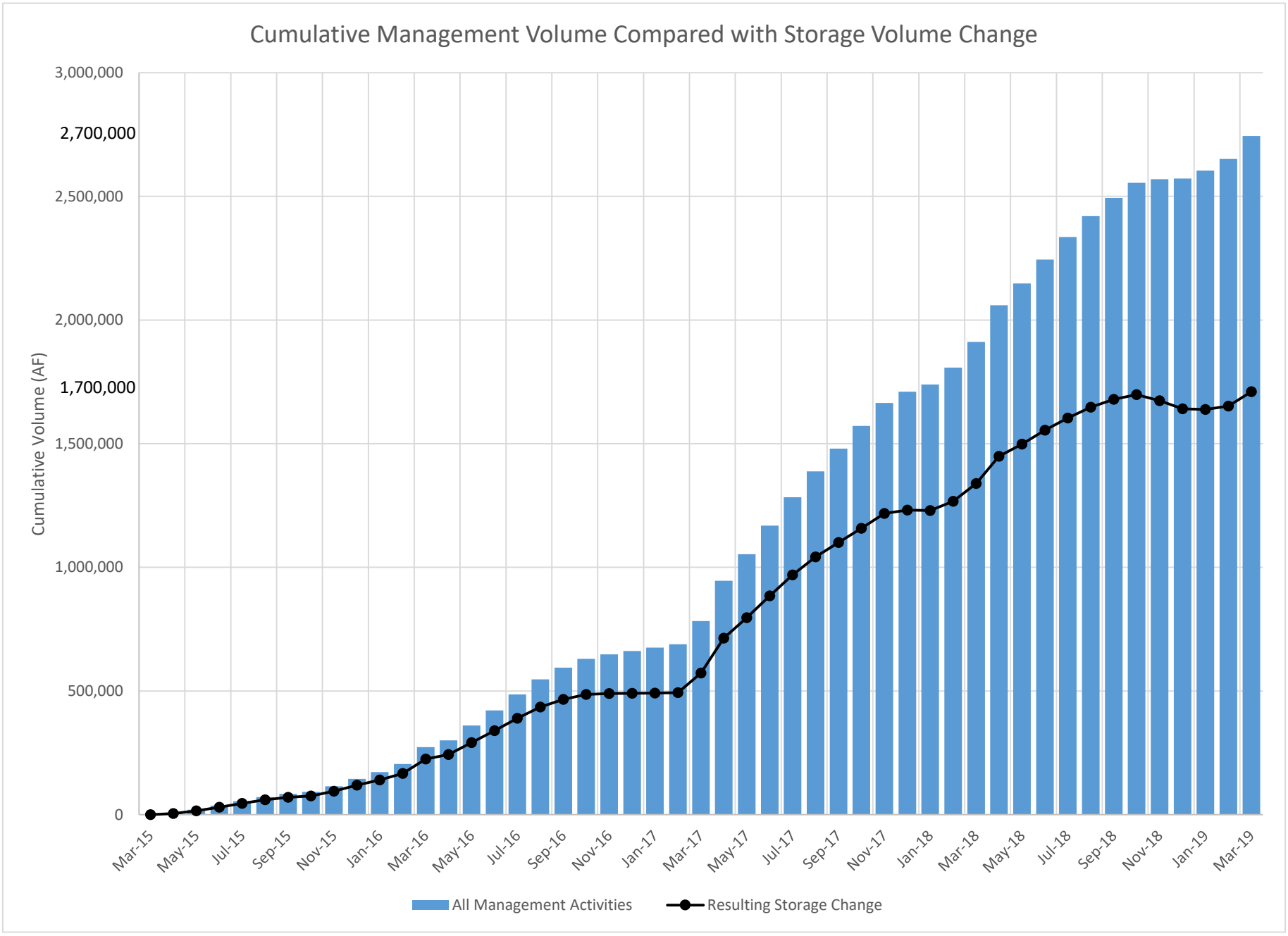
Aquifer Storage Change Evaluation

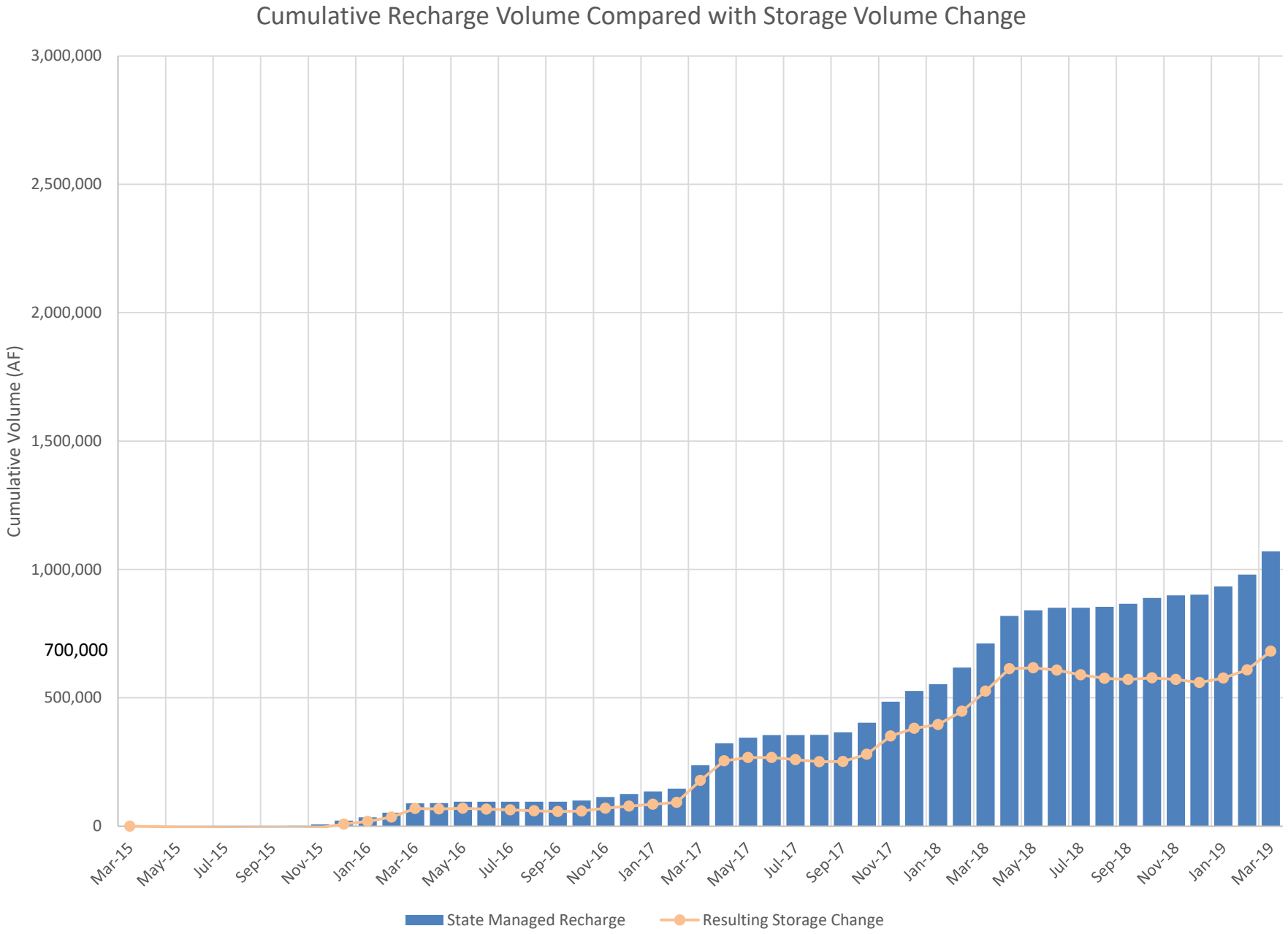
- Acknowledgment of these uncertainties and unknowns is not meant as criticism.
- This analysis is NOT a confirmation, acceptance, or blessing of the private data by the State.
- These results should be viewed more as a “gut check.”

Water Level Change - Spring 2015 To Spring 2019



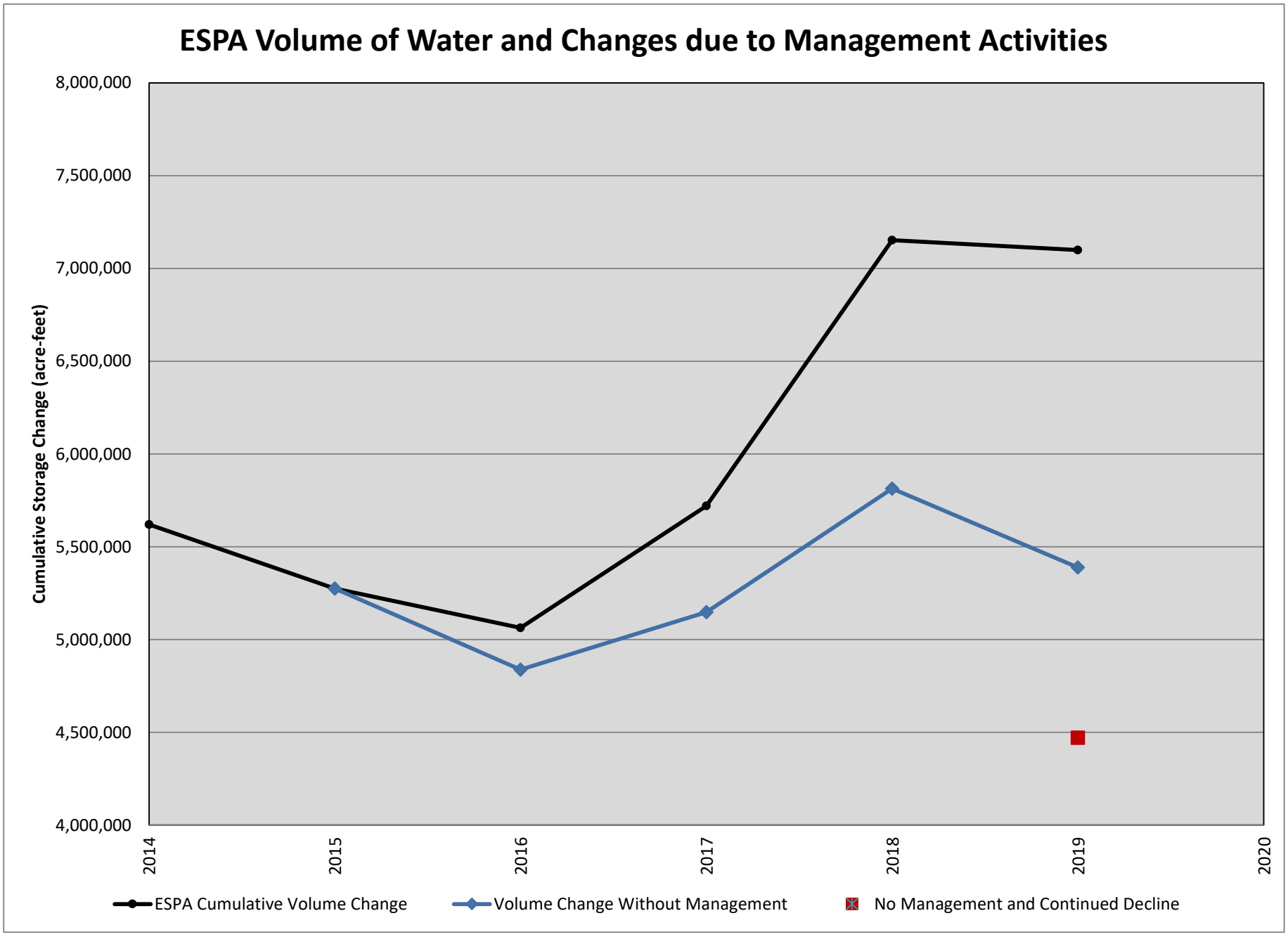

ESPA Volume of Water and Thousand Springs Discharge
Cumulative Storage Change (acre-feet)
Discharge (cfs)
20,000,000
18,000,000
16,000,000
14,000,000
12,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2,000,000
0
7,000
6,500
6,000
5,500
5,000
4,500
4,000
1912
1916
1920
1924
1928
1932
1936
1940
1944
1948
1952
1956
1960
1964
1968
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
2012
2016
2020
ESPA Cumulative Volume Change
Mass Measurement


Cumulative Management Volume Compared with Storage Volume Change
Cumulative Volume (AF)
3,000,000
2,700,000
2,500,000
2,000,000
1,700,000
1,500,000
1,000,000
500,000
0
Mar-15
May-15
Jul-15
Sep-15
Nov-15
Jan-16
Mar-16
May-16
Jul-16
Sep-16
Nov-16
Jan-17
Mar-17
May-17
Jul-17
Sep-17
Nov-17
Jan-18
Mar-18
May-18
Jul-18
Sep-18
Nov-18
Jan-19
Mar-19
All Management Activities
Resulting Storage Change


Cumulative Recharge Volume Compared with Storage Volume Change
Cumulative Volume (AF)
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
700,000
500,000
0
Mar-15
May-15
Jul-15
Sep-15
Nov-15
Jan-16
Mar-16
May-16
Jul-16
Sep-16
Nov-16
Jan-17
Mar-17
May-17
Jul-17
Sep-17
Nov-17
Jan-18
Mar-18
May-18
Jul-18
Sep-18
Nov-18
Jan-19
Mar-19
State Managed Recharge
Resulting Storage Change

How Does Management Impact Total Volume Change?

- Modeled storage change due to management is very close to total calculated storage change.
- Concluding all of the total storage change is due to management activities may over simplify aquifer storage changes.
- Storage changes are the result of several factors, and these factors are not independent of each other.


ESPA Volume of Water and Changes due to Management Activities
8,000,000
7,500,000
7,000,000
6,500,000
6,000,000
5,500,000
5,000,000
4,500,000
4,000,000
Cumulative Storage Change (acre-feet)
2014
2015
2016
2017
2018
2019
2020
ESPA Cumulative Volume Change
Volume Change Without Management
No Management and Continued Decline

Synopsis

- Management activities are having a significant impact on the volume of water stored in the aquifer.
- There are uncertainties incorporated in the estimate of benefits.
- The storage-volume changes from 2015-2019 are the result of both weather/water supply and management activities.

Discussion

P.O. Box 1907 203 Main Ave. E Twin Falls, Idaho 83303-1907 Fax: (208) 736-2293

ENGINEERING *208-735-7265*

November 13, 2019

Idaho Water Resource Board
Joint Aquifer Stabilization & Planning Committee
Water Center
322 E. Front St.
Boise, ID 83702

RE: CITY OF TWIN FALLS STAKEHOLDER COMMENTS

Chairman and members of the Board. Thank you for this opportunity to address you today. My name is Jason Brown, I am an environmental engineer for the City of Twin Falls. My comments today are provided on behalf of the City of Twin Falls, and should not be interpreted to represent other municipal entities or groups.

In addition, I am a Board Member of the Southern Idaho Water Quality Coalition representing the City of Twin Falls, which has been mentioned in previous meetings and is an important part of the long-term objective to protect and improve water quality in the Middle Snake River. My comments today are not intended to represent the position of the Southern Idaho Water Quality Coalition, but those of the City of Twin Falls. Over the past several months, you have heard from many stakeholders regarding their concerns and interests with respect to the ESPA recharge efforts. Thank you for letting us share our perspective on ESPA CAMP.

As one of the original ESPA CAMP members, aquifer recharge and aquifer stability is important to the City. The City utilizes the Blue Lake Springs, which is directly connected to the ESPA, as our primary drinking water source and to assist in arsenic compliance purposes. Additionally, The City is one of the largest shareholders in the Twin Falls Canal Company system and ensuring a reliable surface water supply is equally important. The City utilizes surface water for irrigation purposes to help minimize the demands on our drinking water system for irrigation.

Over the past 15 years the City has made a concerted effort to reduce our water demands on the ESPA. Through long term planning efforts to convert from groundwater irrigation to surface water irrigation (through pressurized irrigation) within the City. Coupling this conversion to surface water irrigation with our conservation efforts within the community has effectively reduced our demand on the aquifer. In fact, our maximum day water demand has decreased from 34 MGD (104 acre-ft/day) to approximately 25 MGD (76 acre-ft/day), all while we continue to observe significant growth in Southern Idaho.

We want to applaud the Board's efforts to date to stabilize and improve aquifer health, and encourage you to continue these endeavors. Stable groundwater supply has been central to our efforts to successfully recruit new food companies like Chobani and Clif Bar. These companies in turn support the agricultural economy of our region and are important contributors to the City's economic vitality. We also support the State Water Plan that refers to the stabilization of river flows in the Snake River. These flows are critical to protecting the value our citizens derive from the Snake River through domestic uses, recreational experiences, and scenic attractions.

The State Water Plan states "sustaining Snake River minimum stream flows downstream of the ESPA may require short-term and long-term adaptive management measures". The Plan goes on to state "the triggers should be used to initiate adaptive management measures that address the cause – or impacts – of any unacceptable decline in Snake River flows downstream of the ESPA." Although the City relies upon the ESPA for its drinking water supplies, the City is also keenly interested in the flows and health of the Snake River. Water quality is an important factor to consider in any decision-making, particularly since the City and other stakeholders are moving through the process to revise the Mid-Snake Total Phosphorus TMDL.

The main point I wish to bring to your attention today is our concern over the stated goal to maximize recharge up and to a point where the flow of the Snake River below Milner is at zero discharge for a prolonged period of time. In the Snake River Basin section of the State Water Plan, it states "Milner zero minimum stream flow is not a target or goal to be achieved, and many not necessarily be desirable." One of the guiding principles of CAMP was to consider other uses and avoid impacting such uses in implementing actions to attain the CAMP goals. One of our primary concerns is the impacts flow reductions will have on water quality, and how reduced flows will affect waste load allocations under the TMDL and our NPDES permit.

Minimizing flows in the Snake River at times that historically have not been done, could have a significant impact on the City and its NPDES permit. The ability for the City to discharge into the Snake River is based upon the flow of the receiving body, particularly low flow scenarios. Taking Milner to zero flow in the winter months for long periods of time could adversely impact the City ability to discharge into the river and could potentially exacerbate water quality issues in the Middle Snake River.

Our concern is that the impacts of this action are currently unknown and require caution in long term implementation. Although a zero discharge below Milner has occurred on occasion for short periods of time during the irrigation season, several irrigation returns contribute to the flow before it reaches the City of Twin Falls mitigating the complete diversion at Milner Dam. A prolonged diversion period during the non-irrigation season which could result in months of zero flow below Milner is without precedent, and would occur at a time with no irrigation return flows. Our recommendation would be to apply an adaptive management strategy that would adjust stream flows over Milner Dam during the winter months depending upon conditions through review and advice from a technical working group. This approach would allow for the early detection of potential adverse water quality impacts below Milner Dam. Such detection allows for adjustments to be made prior to experiencing widespread adverse impacts. So, our simple request is for the Department to use a phased approach over several years to allow for a complete understanding of the impacts of this new program.

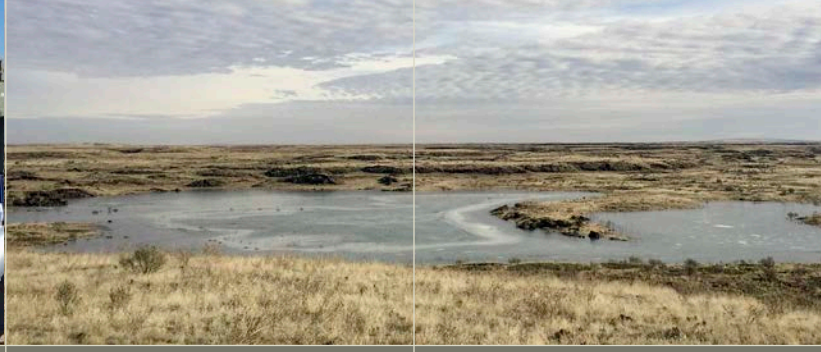
In addition, the City encourages the Department to invest in a broad suite of monitoring efforts to ensure that all chemical, physical and biological impacts are accounted for in this phased deployment of the new recharge program. The Snake River below Milner is a complex river system and understanding the impacts of the program should include multi-jurisdictional expertise in the monitoring effort.

Our hope is that the Board will champion these recommendations in its implementation of the recharge program. Finding the right balance of recharge to improve aquifer supplies while not harming interests in the Snake River is no doubt a difficult and complex task. However, since CAMP has several stated goals to protect these interests, we stand ready to participate in future discussions and will provide whatever technical assistance we can offer in this effort. This is the primary reason why the City supports the continuation of working groups as forum to discuss current and future impacts to users that may not have been anticipated in the initial discussions. Adaptive management, if necessary, should be evaluated and recommended by the stakeholders, and having that participation is critical to the future success of the Board's various programs to protect and sustain the ESPA. Thank you for the opportunity to provide our comments to you.

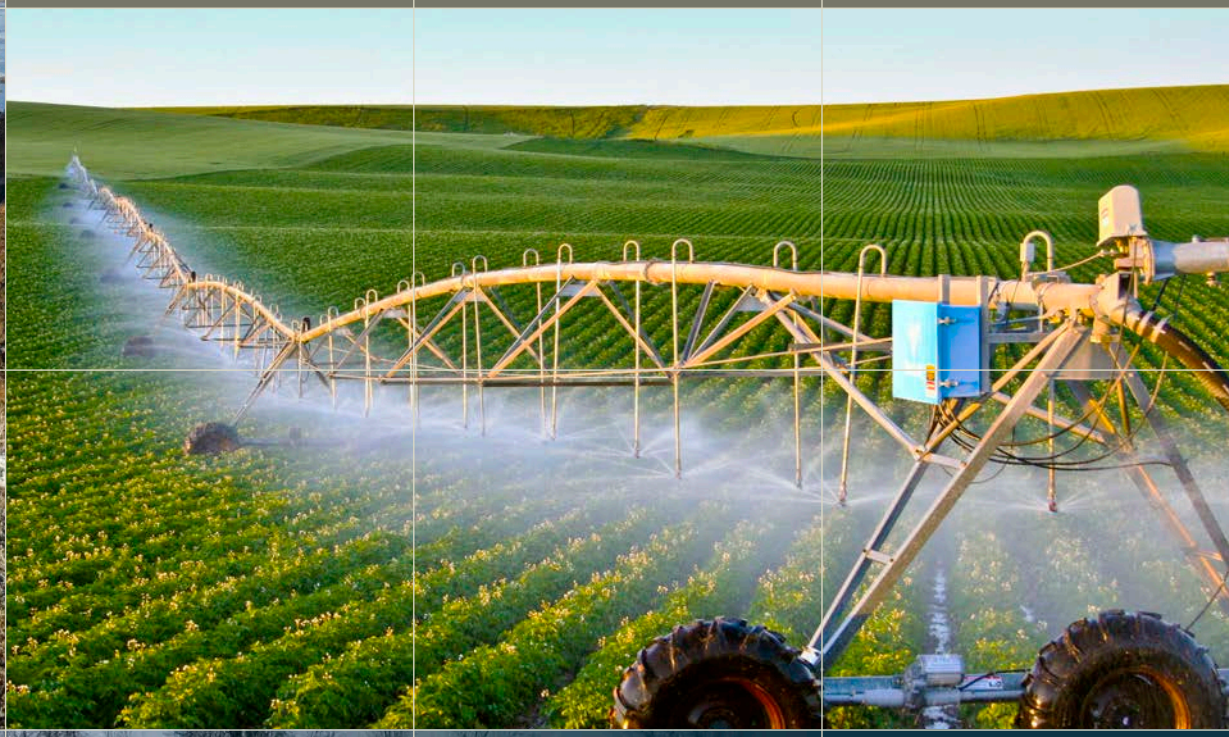
Sincerely,

Jason Brown
Environmental Engineer
City of Twin Falls

cc: Mark Holtzen, City of Twin Falls
Brian Patton, IDWR- Boise

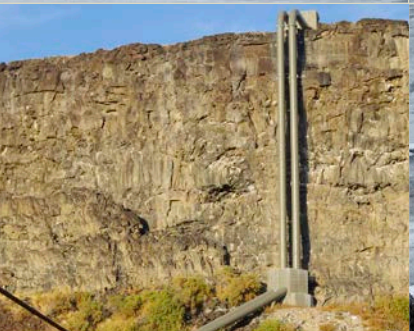



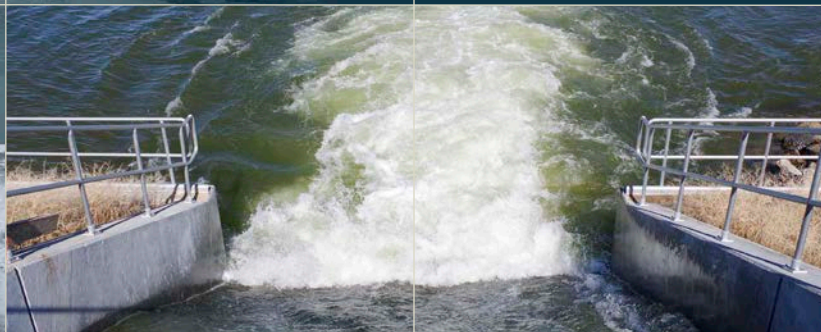
Restoring the Eastern Snake Plain Aquifer


A 10-year Progress Report on Sustainability Initiatives recommended in the ESPA Comprehensive Aquifer Management Plan

IDAHO WATER RESOURCE BOARD



Contents

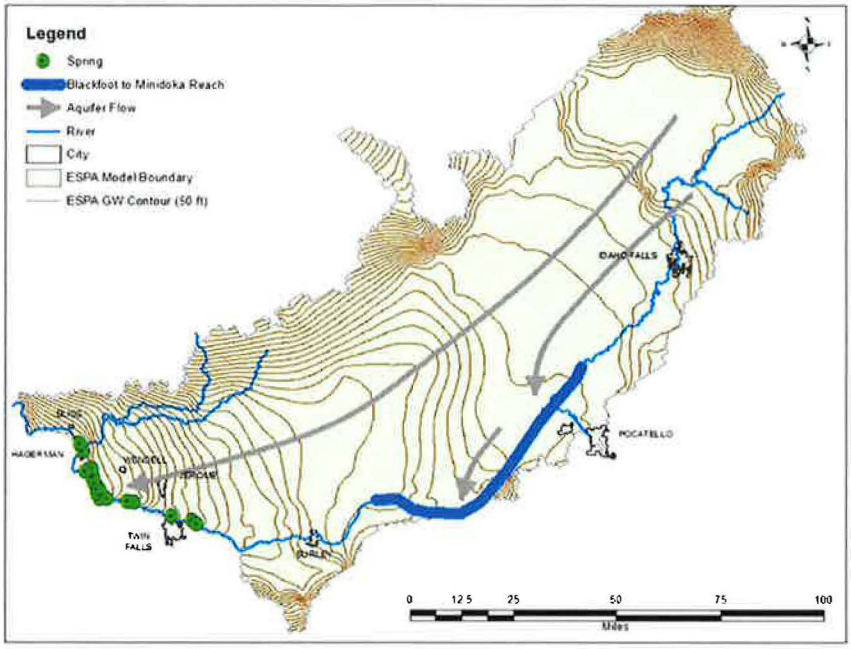
Appendices can be found at https://idwr.idaho.gov/

Legislative Request for a Plan Review

On May 8, 2019 the Idaho Water Resource Board (IWRB) received a letter from Idaho House Speaker Scott Bedke requesting the IWRB complete a 10-year review of the Eastern Snake Plain Aquifer (ESPA) Comprehensive Aquifer Management Plan (CAMP) implementation progress and to submit appropriate planning recommendations to the Legislature and the Governor's office by the start of the next regular legislative session. The IWRB is completing the review through the following steps:

- Inventorying aquifer management actions including those done by the State and by others
- Reporting on aquifer levels, spring flows, and reach gain responses
- Reporting on finances provided by State for aquifer management
- Conducting the review in open, transparent manner through sub-committee meetings
- Seeking stakeholder input

The Eastern Snake Plain Aquifer



The ESPA region produces roughly a quarter of all goods and services within the State of Idaho resulting in an estimated value of billions annually. Water is a critical element for this productivity.

The ESPA primarily discharges to the Snake River through springs in two reaches of the river: Near Blackfoot to Neeley and Kimberly to King Hill (also known as Thousand Springs). Discharge from these springs is controlled by the water level in the ESPA. Higher water levels in the aquifer increase discharge at springs, and vice versa.

Decreases in aquifer water levels in the ESPA (loss of approx. 13,000,000 acre-feet between 1952 and 2015) have resulted in declining spring flows from the ESPA, resulting in numerous water use conflicts that had the potential to disrupt the economic productivity of the region. In 2006 the Idaho Legislature requested the IWRB complete a Comprehensive Aquifer Management Plan for the Eastern Snake Plain Aquifer.

Eastern Snake Plain Aquifer Comprehensive Aquifer Management Plan (ESPA CAMP)

In 2007 the IWRB appointed an advisory committee to prepare and recommend a plan. The IWRB and the Advisory Committee worked together to develop and submit the ESPA CAMP to the 2009 Idaho Legislature where it became effective as a part B of the Idaho State Water Plan upon adoption of HB 264. Funding for Phase 1 actions was proposed to be established through water user assessments, though the approach did not receive support and was never implemented. The Plan established a long-term program for stabilizing and recovering the ESPA through a phased approach to implementation, together with an adaptive management process to allow for adjustments in management as implementation proceeds. The long-term target of the plan is to incrementally achieve a net water budget change of 600,000 acre-feet annually by the year 2030 through implementing a mix of management actions:

ESPA CAMP Hydrologic Targets		
Action	**Phase 1 Target (KAF)**	**Long-Term Target (KAF)**
Aquifer Recharge	100*	150 – 250*
Demand Reduction	95	250 - 350
Ground Water to Surface	100	100

DRAFT

Water Conversion		
Weather Modification/Cloud Seeding	50	No Target
TOTAL	**200 – 300**	**600**

**In 2016 SCR 136 provided legislative approval to increase the phase 1 recharge goal from 100 KAF to 250 KAF on an average annual basis prior to 2019, pursuant to the requirement of the Swan Falls Re-Affirmation Agreement.*

Legal Settlements

In June 2015 a settlement agreement was entered into between groundwater users and surface water users to end water conflict over of the ESPA. The settlement was entered into between several large canal companies known collectively as the Surface Water Coalition (SWC) and a large group of groundwater irrigation entities represented by Idaho Ground Water Appropriators, Inc. (IGWA). The primary objectives of the settlement are to 1) mitigate injury to the SWC, 2) provide a "safe harbor" from curtailment to participating groundwater users, 3) stabilize the ESPA to protect and preserve water supplies for both surface and ground water users, and 4) minimize economic impacts to individual water users and the economy of the State of Idaho arising from water supply shortages.

The settlement requires ground water users to: a) reduce their diversions from the ESPA by 240,000 acre-feet annually—a reduction of about 12 and 13 percent over historic water use; b) lease and deliver to the SWC 50,000 acre-feet of storage water annually; c) continue delivering surface water to certain lands historically irrigated with groundwater; d) not irrigate sooner than April 1 or later than October 31; and e) install meters on all groundwater wells by 2018.

The settlement has been approved by Idaho Department of Water Resources (IDWR) as a mitigation plan, protecting groundwater users from curtailment so long as they comply with the terms of the settlement. In addition, the State of Idaho committed to permanently recharge 250,000 acre-feet into the ESPA on an annual average basis. This commitment was confirmed in 2016 by a joint legislative resolution along with the appropriation of necessary funding.

The settlement was a major step forward in reaching ESPA recovery goals. The recovery goal requires that the water level in the ESPA be returned to the average water level from 1991-2001 by the year 2026. In the interim, the ESPA water level must be stabilized at the 2015 level by 2020 and increased to a point halfway between the 2015 level and the ultimate recovery goal by 2023. If these benchmarks or the recovery goal are not achieved, groundwater users will be required to take adaptive measures to achieve the goal. A series of 20 "sentinel wells" with a track record of groundwater level measurements are being utilized to measure progress.

IGWA's obligation to reduce water diversions by 240,000 acre-feet annually is being implemented on a local level by each of the participating districts. Each district has been allocated a portion of the 240,000 acre-feet based on the amount of water its members have diverted historically, and has developed and implemented its own plan for meeting its share of the reduction. A variety of tools are being employed, including pumping reductions, end gun removals, crop rotations, fallowing, conversion from groundwater to surface water irrigation, and recharge.

A few groundwater entities have settlements separate from the IGWA-SWC Settlement. Southwest Irrigation District (SWID), A&B Irrigation District each developed their own settlement agreements with the SWC, the Cities on the ESPA, and a group of industries.

Implementation Progress

The ESPA CAMP Plan recommended the development of an Implementation Committee. Based on the idea that water users would be assessed to pay for implementation of the CAMP. Funds would then be deposited into an IWRB account and the Implementation Committee would help the IWRB prioritize spending and build stakeholder support for management actions. The Advisory Committee that helped develop the CAMP was largely continued over as the Implementation Committee, and throughout 2009 worked to develop the water user funding assessment legislation. The assessment legislation ultimately failed to pass in the 2010 Legislature, and the Implementation Committee struggled because of uncertainty related to the proposed funding mechanism.

Without a funding mechanism to provide resources for projects the implementation process was limited for the first several years and consisted of 1) leveraging Federal Funds to the extent possible, and 2) IWRB developed Pilot Recharge Program.

In 2014 the Legislature passed HB 547 which provided up to $5M annually from the Cigarette Tax to the IWRB to be used for "Statewide Aquifer Stabilization. The IWRB began receiving an additional annual appropriation of $5M from the General Fund in 2016, which is distributed to the IWRB's Secondary Aquifer Fund through the IDWR budget bill, to be used for "Water Sustainability" and "Aquifer Management." Funding from the Legislature, combined with the actions agreed to in the SWC settlements, have led to ESPA CAMP implementation becoming more fully realized over the past few years.

Major management actions proposed in the CAMP have been implemented:

- Aquifer Recharge – The IWRB with state funding and Legislative direction (SCR 136, 2016) is implementing a managed recharge program with a target of 250,000 AF on an average annual basis.
- Demand Reduction – groundwater users are implementing240,000 AF reduction per IGWA-SWC Settlement Agreement
- Ground Water-to-Surface Water Conversions – installed by water users where it makes sense; some projects counted toward 240,000 AF reduction; others are separate including 85,000 AF in SWID and 8,000 AF in ABID
- Cloud Seeding – cooperative program put into place as joint venture between Idaho Power, State, and Water Users

Combined these actions result in over a 550,000 acre-foot annual water budget change towards the long-term goal of 600,000 acre-feet.

Progress Towards ESPA CAMP Hydrologic Targets		
Action		**Acre-Feet**
IWRB Managed Recharge	Existing Average Annual Capacity	202,000
Demand Reduction		
IGWA-SWC Settlement	2016-2018 Average	239,967
SWID-SWC Settlement	2016-2018 Average	6,421
Ground Water to Surface Water Conversions		
SWID Conversions	2016-2018 Average	78,875
A&B ID Conversions	2016-2018 Average	8,340
Weather Modification/Cloud Seeding	2016-2018 Average	TBD*
Other Annual Activities		
Storage Water from SWC Cities Settlement	Annual Contribution for recharge if not needed by SWC	7,650
SWID Recharge	In addition to IWRB Recharge; 2016-2018 Average	10,894
TOTAL AVERAGE ANNUAL		**554,147**
Opportunistic Activities - Wet Years Only		
Storage Water from SWC-IGWA Settlement	*50, 000 AF contributed for recharge if not needed by SWC*	*50,000*
IGWA Private Recharge	*IGWA-SWC Settlement; 2016-2018 avg.*	*145,130*

**Measured by average annual increase in unregulated runoff; currently estimated to be approximately 537,000 acre-feet annually across the ESPA. Efforts are currently underway to determine where the additional water supply is used.*

Progression of Managed Recharge Program after Passage of the CAMP

After legislative approval of the CAMP in 2009, the IWRB proceeded with a managed recharge pilot program. This pilot program ran until 2014. The pilot program struggled with funding issues as a dedicated, ongoing funding source had not yet been identified. However, in some years the pilot program managed to reach 100,000 acre-feet of recharge, primarily due to 2009-2012 all being above-average water years. In other years very little was recharged, with an average of 73,002

acre-feet per year during the 2009-2014 period. The IWRB used this pilot program to figure out how an ongoing managed recharge program would fit with operational constraints like water right administration, Snake River reservoir operations, canal operations, canal maintenance and repair schedules, recharge locations and retention on recharged water in the aquifer, and water quality issues.

Current Status of the Managed Recharge Program

The current status of the ESPA Managed Recharge program can be summarized by two different metrics: 1) average annual volume of recharge accomplished since the CAMP was approved in 2009, and 2) current long-term average annual capacity for recharge. Each will be discussed.

Average Annual Volume of Recharge since the CAMP was Approved in 2009

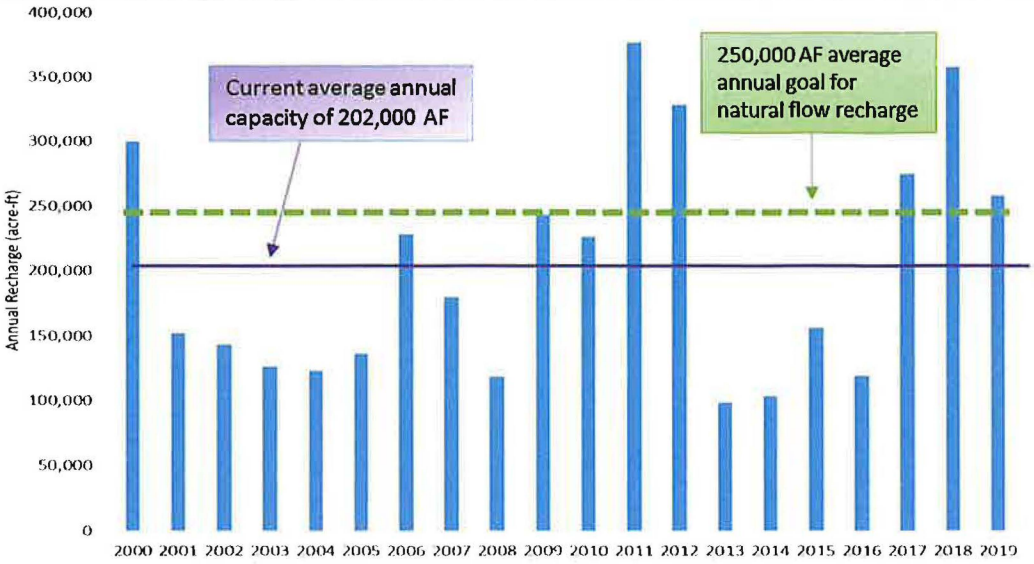
While this is a useful metric, is does not reflect the true current status of the managed recharge program as this was operated as a pilot program from 2009 to 2014, and large-scale infrastructure construction to increase capacity did not begin until 2014.

Recharge Season (fall through spring)	Natural Flow Recharge Volume (acre-feet)
2009-2010	79,894
2010-2011	61,588
2011-2012	143,839
2012-2013	32,435
2013-2014	3,867
2014-2015	69,201
2015-2016	66,897
2016-2017	317,714
2017-2018	474,839
2018-2019	310,132
2009-2019 Natural Flow Average Annual Volume	**156,041**

Current Long-Term Average Annual Capacity for Managed Recharge

As construction to increase capacity has been ongoing since 2014, this metric provides a better picture of the current status of the recharge program. Because the available water supply from the Snake River for managed recharge runs in cycles with several wet years in row followed by several dry years in a row, the average annual capacity must be considered over a long period of time to account for both wet and dry cycles. The recharge program capacity must be sized to average 250,000 acre-feet per year, even though the recharge volume will be substantially less in dry years. This means that more than 250,000 acre-feet must be recharged in wet years to reach an average annual of 250,000 acre-feet per year.

The following chart shows the current average annual natural flow recharge volume if our current capacity had been in place since the year 2000. The IWRB estimates the current long-term capacity at 202,000 acre-feet annually. In other words, over a 20-year period, we do not yet have the capacity to average 250,000 acre-feet. We need to build more capacity to recharge more water during the wet years in order to offset the minimal recharge that will occur in dry years.



If current level of capacity has been in place in 2000, the natural-flow recharge from 2000 to 2019 would have averaged approximately 202,000 AF per year

The IWRB estimates that an additional 300 cfs of capacity will be needed in the Magic Valley region, and an additional 200 cfs will be needed in Eastern Idaho upstream from American Falls Reservoir. There are three projects currently in development that should provide the needed capacity in the Magic Valley region: the Wilson Canyon Recharge Site on the North Side Canal, the Mile Post 29 Recharge Site on the Milner Gooding Canal, and the Mid-Snake Recharge Wells Project at the A&B Irrigation District. In the region upstream from American Falls Reservoir, the Egin Recharge Site Expansion is currently under development, and should provide about 50 cfs of additional capacity. The IWRB is undertaking investigations to determine the best options for developing the remaining needed capacity upstream from American Falls Reservoir.

Average Annual Volume Definition for Managed Recharge

Neither the CAMP, the Swan Falls Re-Affirmation Agreement, nor SCR136 identified how to define the average annual for the purpose of managed aquifer recharge. The Snake River upstream from Milner Dam is the water source for nearly all of the State's ESPA managed recharge program, and tends to run in cycles with several wet years in a row (for example 2009-2012 and 2017-2019), followed by several dry years in a row (for example 2013-2016). For this reason, a minimum of a 10-year average is needed to account for recharge volumes in wet years when the average annual target of 250,000 acre-feet will be exceeded, and in dry years when the average annual target of 250,000 acre-feet will not be met.

Storage Water Use for Managed Recharge

The IWRB has stated it will not seek to use storage water for managed recharge in order to avoid putting additional pressure on the Upper Snake Reservoir System. However, several private agreements require their involved parties to provide storage water for aquifer management. In some cases, the parties to these agreements choose to have the IWRB recharge it for convenience. The parties could choose other means of using that storage water for aquifer management. For this reason, any storage water provided for recharge pursuant to the various settlement agreements should not be counted toward the IWRB's 250,000 acre-foot average annual goal.

Role of "Private Recharge" by Others

The SWC-IGWA Settlement Agreement allows IGWA Ground Water Districts to offset their required reductions with managed recharge. This creates a market for managed recharge by private or 3rd parties to recharge on behalf of the Ground Water Districts or other groups of ground water pumpers. "Private Recharge" is being done with a variety of water sources, including 1) Storage water leased through Upper Snake Rental Pool, 2) Natural flow irrigation rights leased through

Water Supply Bank, 3) Natural flow recharge rights help by irrigation districts and canal companies, and/or 4) Temporary water use approvals during large flows. Through § 42-1737, the IWRB must approve any recharge project proposing new use of natural flows in an average amount greater than 10,000 acre-feet per year. As "private recharge" makes use of various water supply sources, it is unclear whether any "private recharge" efforts proposed or currently underway meet the threshold outlined in § 42-1737. To date, no proposals pursuant to § 42-1737 have been presented before the IWRB. Since "private recharge" is done pursuant to the provisions of the IGWA-SWC Settlement, it should be considered separate from the State's 250,000 acre-foot average annual recharge program

Recharge Recommendations

The IWRB recognizes that the ESPA Managed Recharge is a very large undertaking by the State of Idaho involving countless stakeholders and costing tens of millions of dollars. For this reason the IWRB recognizes that the creation of a Managed Recharge Program Advisory Committee may be warranted. An initial task for the Recharge Program Advisory Committee would be to provide recommendations to the IWRB regarding balancing the use of winter-time Snake River flows for managed recharge

Weather Modification (Cloud Seeding)

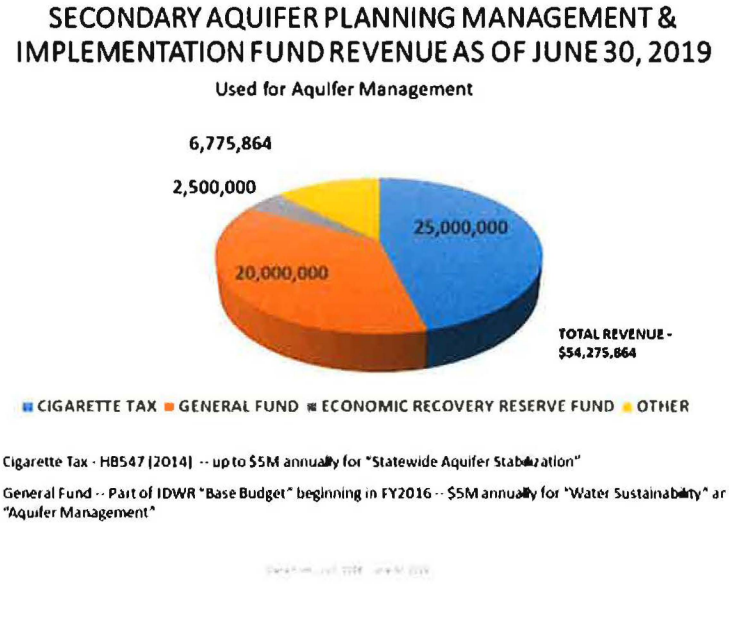
The ESPA CAMP provided for implementation of Weather modification, more commonly referred to as cloud seeding, as a management strategy to augment water supply. Unlike other strategies intended to use existing water supply to change the net aquifer water budget, winter cloud seeding is the only ESPA CAMP strategy that increases surface water supply by targeting high elevation winter storm systems to enhance the snowpack. Runoff resulting from the enhanced snowpack can be captured in storage reservoirs, and prolongs river flow during the summer and fall to fill natural flow water rights- thereby decreasing dependence on storage water and improving carryover in reservoirs. This additional supply supports all beneficial uses including irrigation, hydropower, managed aquifer recharge, fish and wildlife, and water quality. It also reduces the need to use ground water by providing surface water for surface-to-ground water conversion projects, a direct benefit to the ESPA.

The average amount of water, or increased unregulated runoff, resulting from winter cloud seeding activities across the ESPA is estimated to be over 537,000 acre-feet annually, with an average increase in total snowpack of approximately 5% in the Henry's Fork, 8% in the Upper Snake River, and over 10% in the Wood River basins. Efforts are underway refine these estimates with improved data collection and modeling tools, and to determine where this additional water supply is used. The total increase in average unregulated runoff if the program is developed to "full buildout" capacity is estimated to be at least 240,000 additional acre-feet in the Upper Snake and Wood River basins (full buildout would result in 777,000 acre-feet total across the ESPA). However, continued program growth is largely dependent upon support for ongoing program refinement and stakeholder participation.

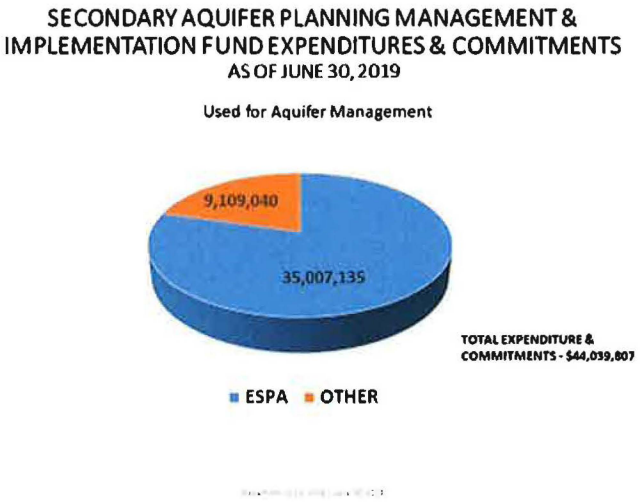
Funding

The IWRB has established a predictable process for developing their Secondary Aquifer Fund budget, and for the use of the combined amount received from the Cigarette Tax (HB 547), General Fund (annual IDWR budget bill) and accrued interest. In the spring, the IWRB's Finance Committee convenes to discuss the upcoming year's priorities with staff, and develop a Secondary Aquifer Fund budget to recommend to the full IWRB for adoption at their regularly scheduled May meeting.

As of June 2019, the IWRB has received a total of over $54M in the Secondary Aquifer Fund. Approximately $35M has been either committed/expended on the



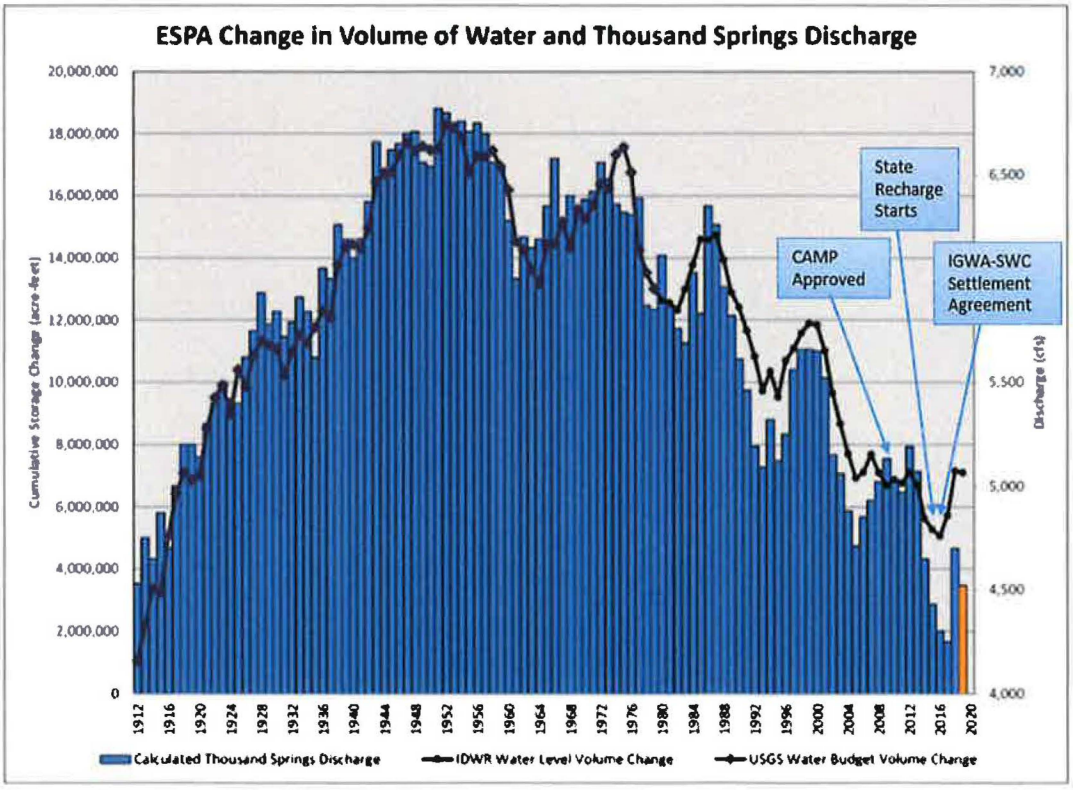
ESPA, with over $29M of that allocated towards the ESPA Managed Recharge program, $3.5M towards Cloud Seeding program, and over $2M towards aquifer monitoring and modeling. Of the $29M authorized for the Managed Recharge program, about $19M has been spent on recharge infrastructure, approximately $9.5M allocated towards recharge operations-maintenance-conveyance, and almost $1M for recharge monitoring. In addition, $9.1M has been used from these funds for non-ESPA efforts, including the Treasure Valley Aquifer Groundwater Flow Model. The IWRB recognizes the Cigarette Tax revenue is declining and the IWRB is near the end of the priority for distribution from this source. Therefore, the IWRB is planning for its share from that revenue source to decrease over time.

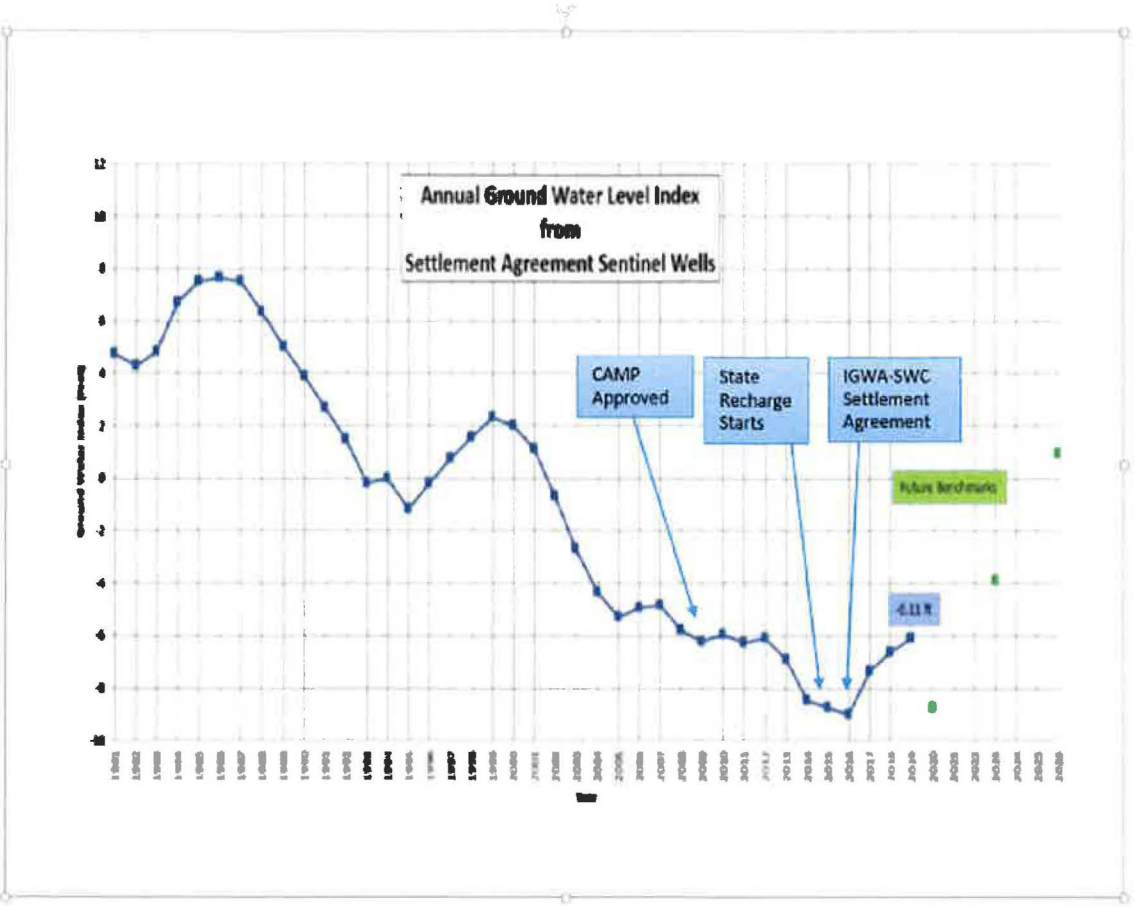


Aquifer Storage Results

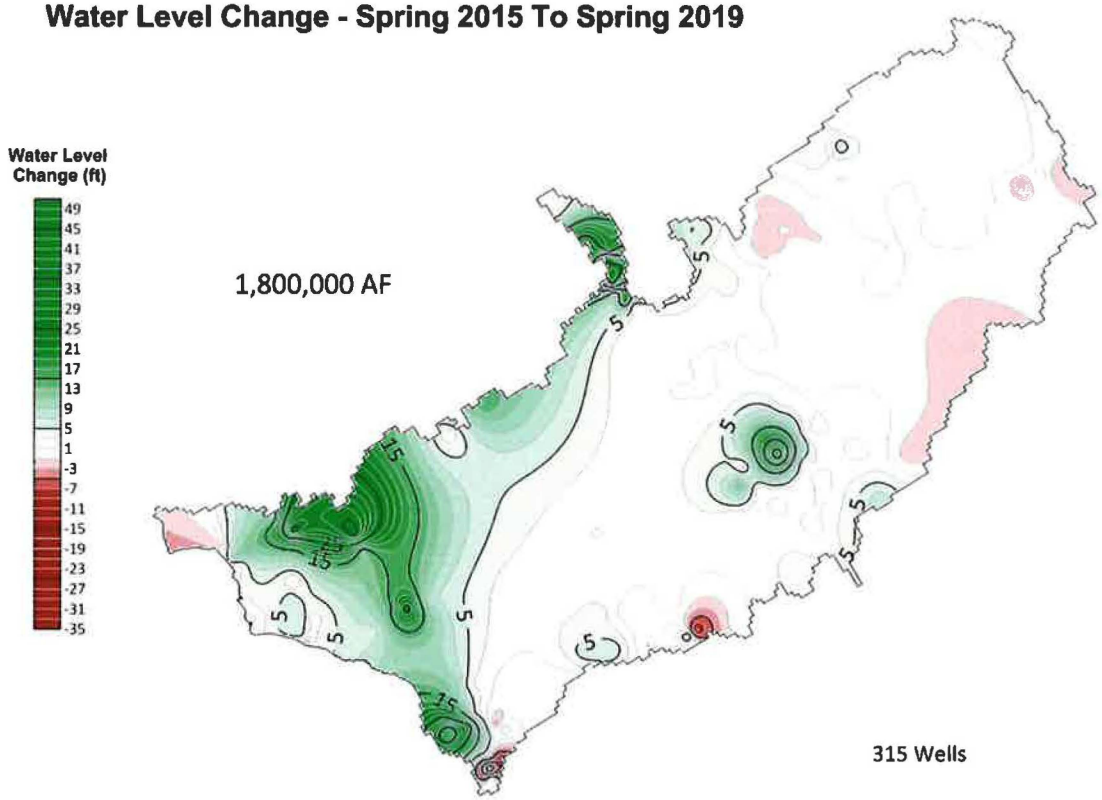
Changes in aquifer water levels reflect changes in the amount of water stored in an aquifer. Water levels in the eastern Snake Plain aquifer (ESPA) indicate a long-term downward trend in aquifer storage since the late 1950's. Although there have been short periods of water-level recovery over this period, the water levels never recover to previous peak levels.

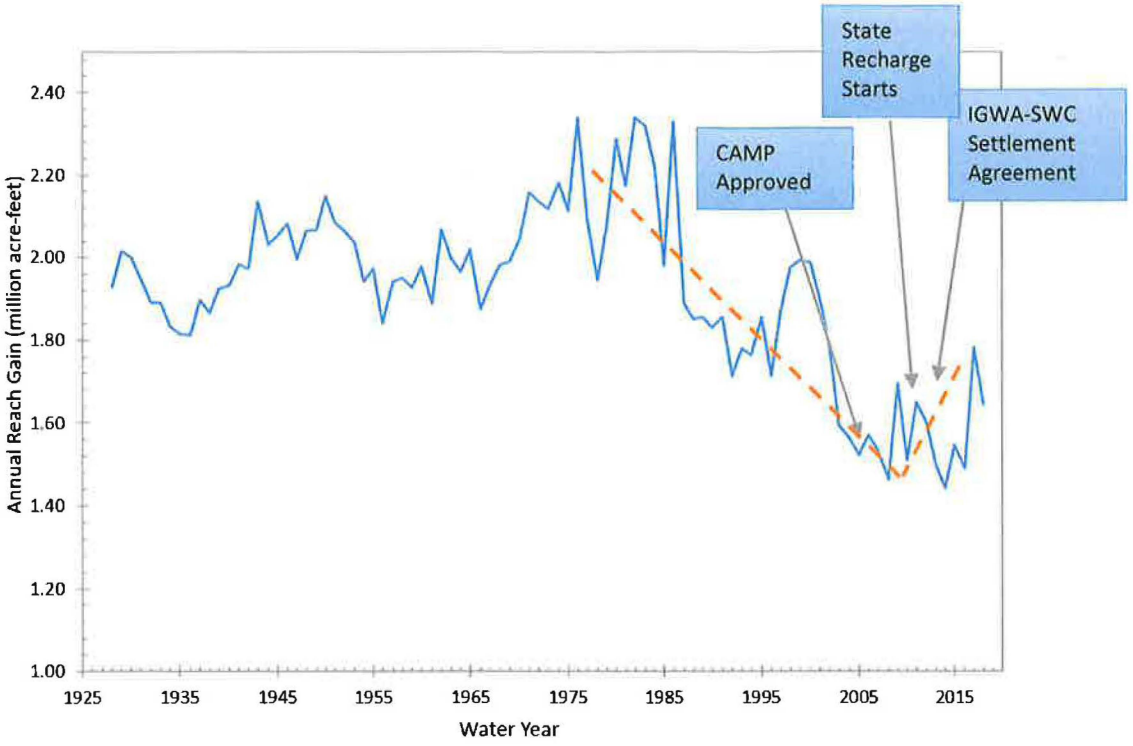
Aquifer storage rose significantly from 2016-2018 due to a number of factors. A portion of the observed rise was due to State sponsored managed recharge and reduced groundwater pumping associated with the IGWA-SWC Settlement Agreement; and a larger portion of the increase was due to the exceptional precipitation the region received from 2016-2018. Although precipitation was above average from 2018-2019, there was less precipitation than in previous two years. This relative reduction in precipitation resulted in a slight decrease in aquifer storage as compared to the previous two years. It is important to consider that this reduction is in comparison to two exceptional years, and aquifer storage has increased substantially since 2015. This reduction in storage is not an indication that management activities are ineffective, but instead a reflection of the fact that aquifer-storage gains in the ESPA are temporary given the fact that the aquifer "leaks" though springs, river gains, and agricultural consumptive use. The nature of the system produces undulations in aquifer storage due to weather, and the goal of management activities is to produce a long-term upward trend.





Water Level Change - Spring 2015 To Spring 2019





Near Blackfoot to Minidoka Reach Gains – 1928 to 2018

Conclusions

Decreases in aquifer water levels in the ESPA (loss of approx. 13,000,000 acre-feet between 1952 and 2015) have resulted in declining spring flows from the ESPA, resulting in numerous water use conflicts that had the potential to disrupt the economic productivity of the region. The ESPA CAMP established a long-term program for aquifer management.

Without a funding mechanism to provide resources for projects the implementation process was limited for the first several years and consisted of 1) leveraging Federal Funds to the extent possible, and 2) IWRB developed Pilot Recharge Program. Funding from the Legislature, combined with the actions agreed to in the SWC settlements, have led to ESPA CAMP implementation becoming more fully realized over the past few years.

Major management actions proposed in the CAMP have been implemented:

- Aquifer Recharge – The IWRB with state funding and Legislative direction (SCR 136, 2016) is implementing a managed recharge program with a target of 250,000 AF on an average annual basis.
- Demand Reduction – ground water users agreed to reduce use by 240,000 AF in 2015 SWC-IGWA Settlement Agreement
- Ground Water-to-Surface Water Conversions – some projects counted toward 240,000 AF reduction; others are separate including 79,000 AF in SWID and 8,000 AF in ABID
- Cloud Seeding – cooperative program put into place as joint venture between Idaho Power, State, and Water Users in Upper Snake and Wood (and Boise) Basins

Other actions contributing to ESPA Aquifer Management:

- IGWA-SWC Settlement Agreement – IGWA provides 50,000 AF of storage water to SWC every year -- If not needed by SWC, it is to be used for aquifer management
- Cities-SWC-IGWA Settlement Agreement – ESPA Cities agreed to provide 7,650 AF of storage every year to aquifer management
- Others – food processors, SWID, ABID agreements

Combined, these actions result in over a 550,000 acre-foot water budget change towards the long-term goal of 600,000 acre-feet. Water level trends are in the right direction and demonstrate the plan is working. Aquifer storage (& spring flows/discharges) rose significantly in recent years due to a number of factors. A portion of the observed rise was due to State sponsored managed recharge and reduced groundwater pumping associated with the IGWA-SWC Settlement Agreement, and a larger portion of the increase was due to the exceptional precipitation the region received from 2016-2018.

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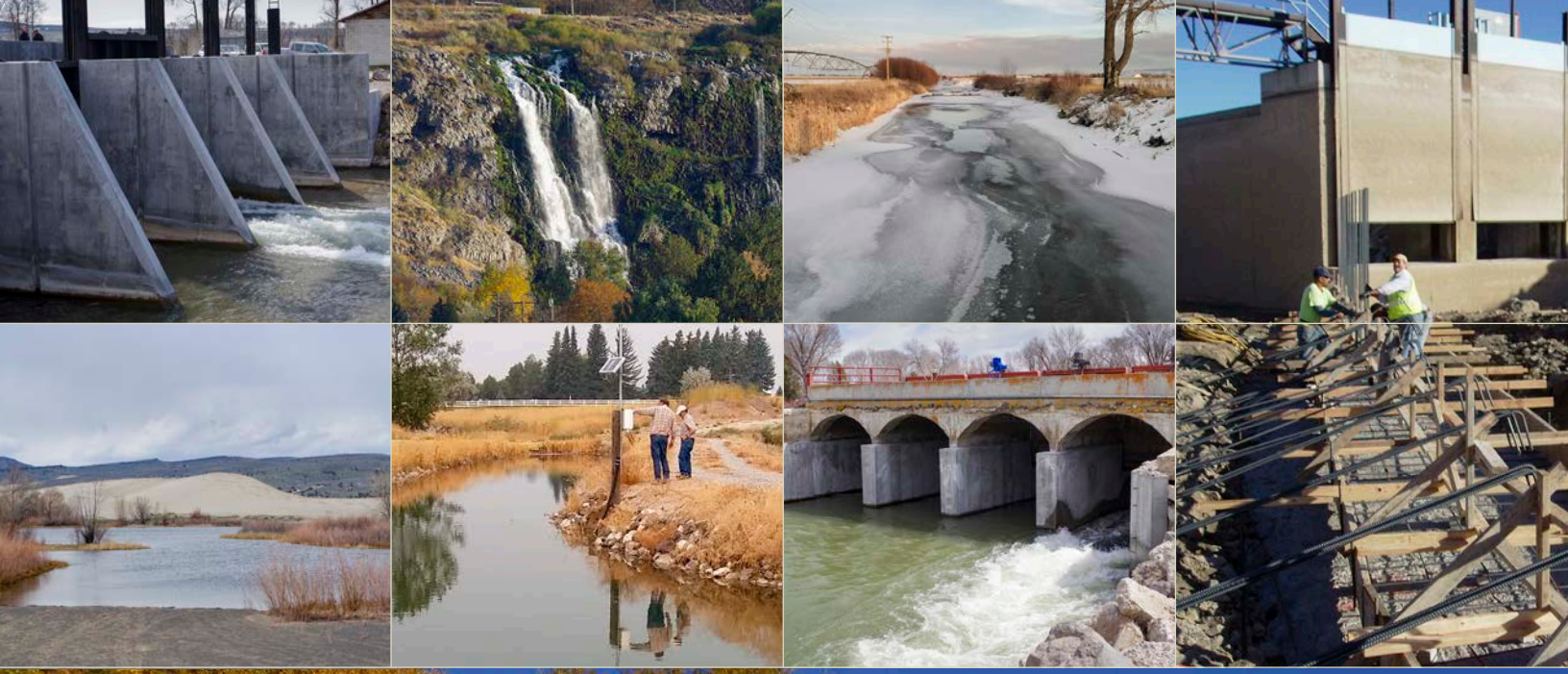
Recommendations

- The IWRB estimates the current long-term managed recharge capacity is at 202,000 acre-feet annually. We do not yet have the capacity to average 250,000 acre-feet. We need to build more capacity to recharge more water during the wet years in order to offset the minimal recharge that will occur in dry years. The IWRB recommends continued funding to support the recharge program.
- IWRB recommends the development of a recharge advisory committee that could be tasked with addressing questions such as average annual calculations and how to integrate other interests in the recharge program.
- The IWRB recommends submission of another progress report to the Legislature in 5 years on aquifer management actions, aquifer storage change, and provide appropriate planning recommendations. The IWRB will also report to the public annually on progress towards aquifer storage change and progress towards ESPA CAMP hydrologic targets.
- May need to amend ESPA CAMP to include updated implementation section.



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