



ESPA Managed Recharge Program Background & History

Idaho Water Users Association

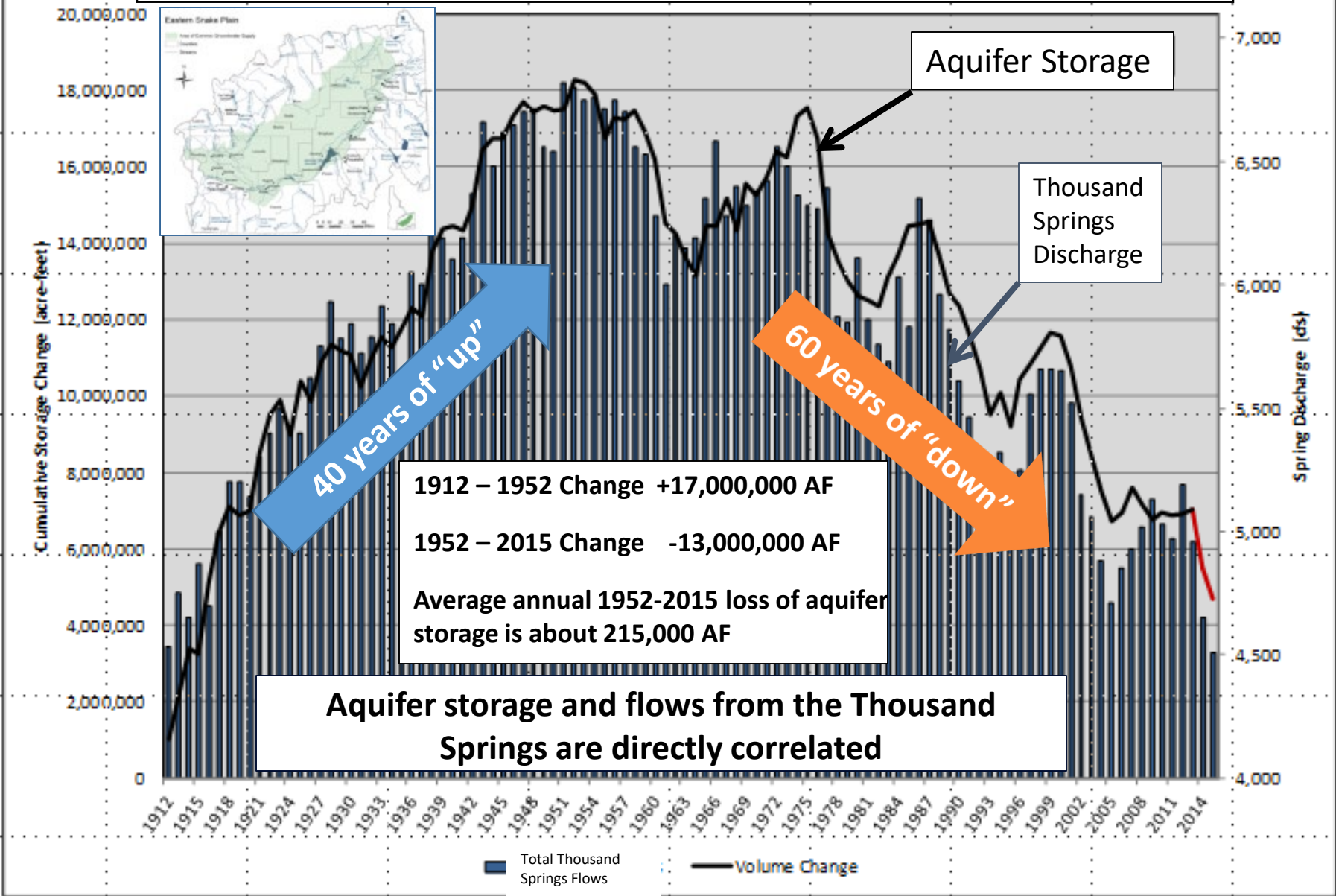
January 21, 2020



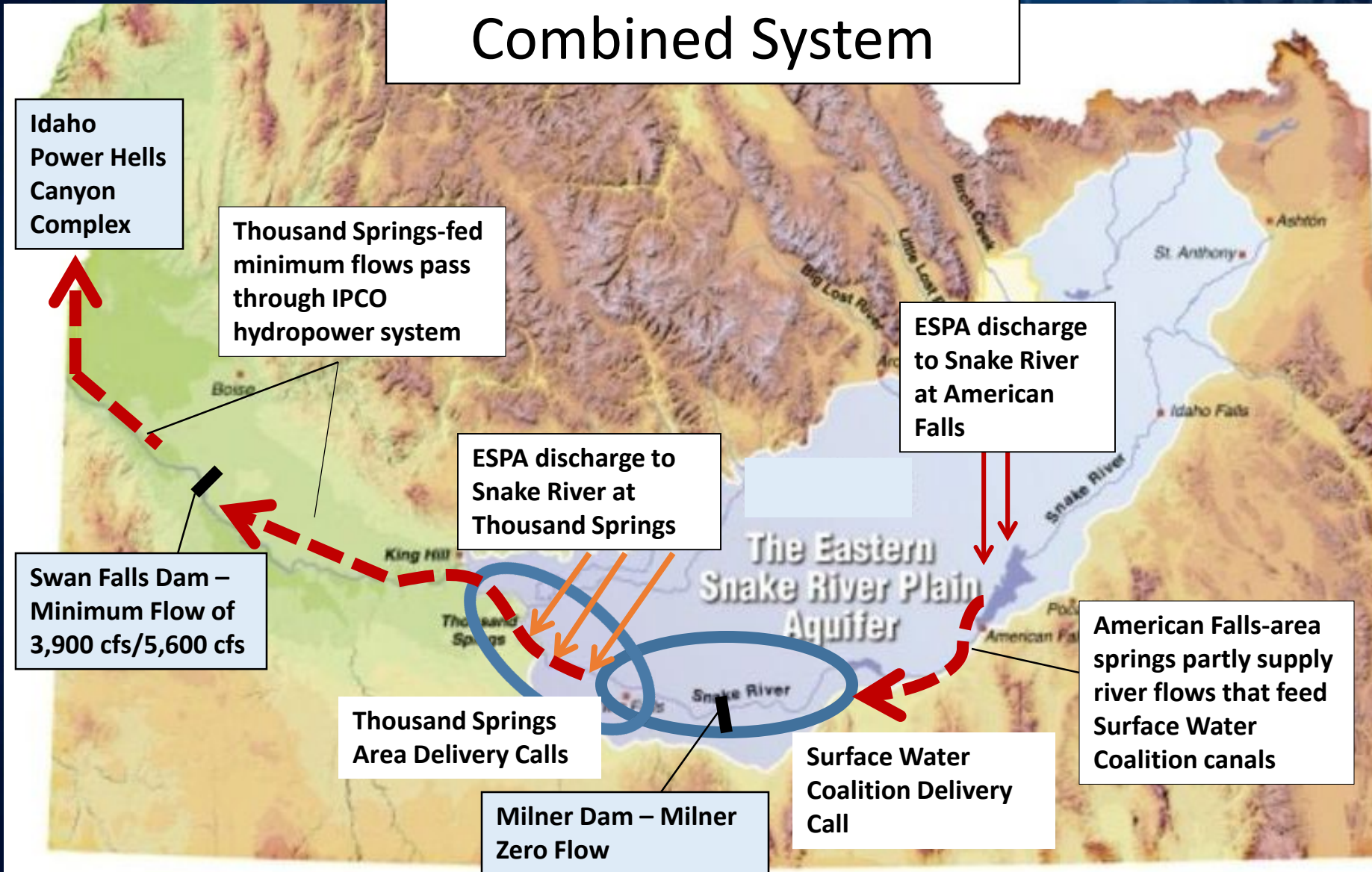
Recharge Terms

- **Natural Recharge**
 - Rain and snow infiltrating into ground water aquifers
- **Managed (or Artificial) Recharge**
 - Intentional placement of water into a ground water aquifer
 - In ESPA managed recharge is done through un-lined canals, recharge/spill basins, and injection wells
- **Incidental Aquifer Recharge**
 - Unintentional placement of water into an aquifer resulting from normal water deliveries for irrigation or other uses (canal losses)
- **Aquifer Storage and Recovery (ASR)**
 - currently no ASR in Idaho
 - ASR usually treats underground water storage the same as surface water storage: 1-for 1 input and withdrawal
 - in states that have ASR, a closed ground water system is normally required (which the ESPA is not)

Volume Change of Water Stored Within the Eastern Snake Plain Aquifer and Thousand Springs Total Discharge



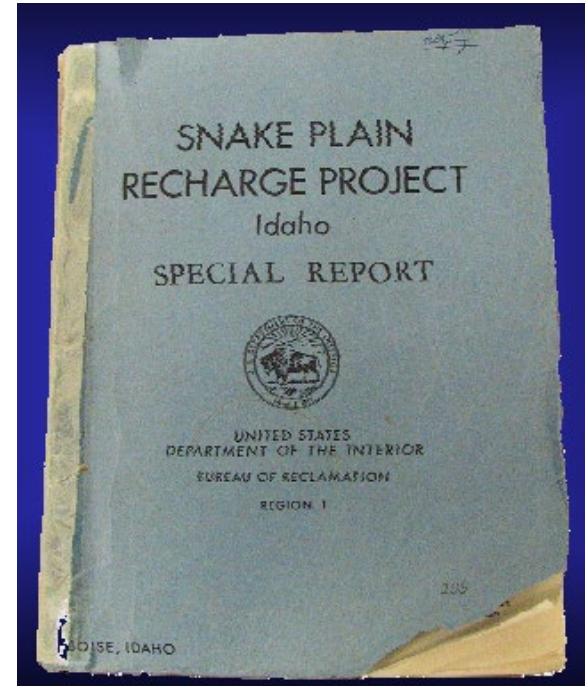
Combined System





1962 – U.S. Bureau of Reclamation Issues Report on Possible Recharge Project

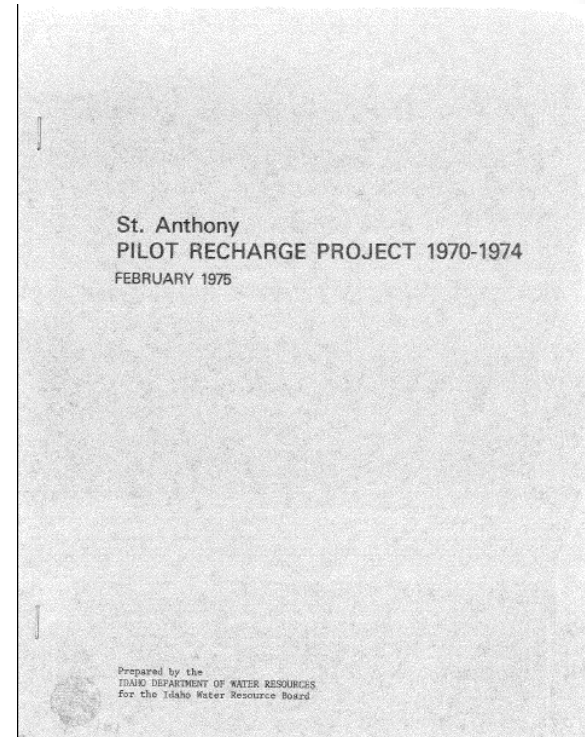
- U.S. Bureau of Reclamation (BOR) looked at using the aquifer as a water storage system to provide irrigation and flood control benefits
- BOR's plan was to recharge water as far up-slope as possible in the Henrys Fork area.
- BOR recognized the difficulty in undertaking a large-scale recharge project because of the inability to assess ground water users that benefit from aquifer recharge.





1970-1974 – Idaho Water Resource Board (IWRB) undertakes pilot recharge project at St. Anthony

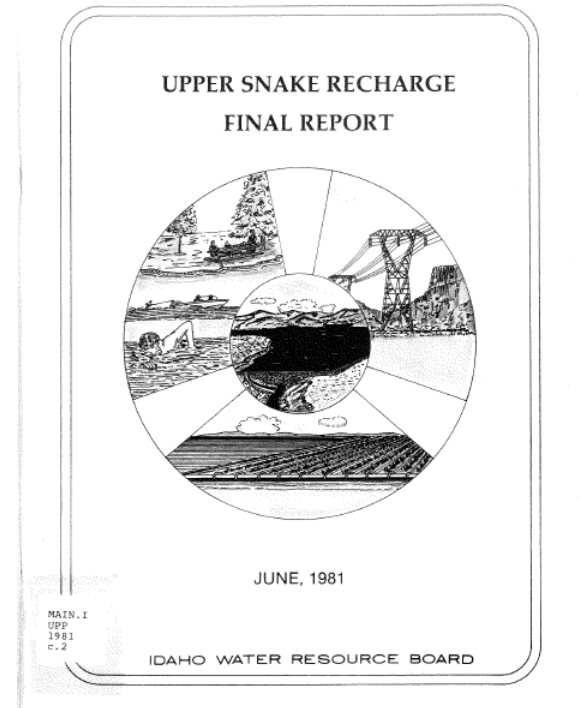
- Purpose was to investigate the feasibility of implementing a recharge project as proposed by BOR in 1962.
- A total of 16,200 AF was diverted into the Egin Lakes area during 1973 and 1974 under a temporary water right permit.
- Testing showed seepage rates at Egin Lakes to be approximately $\frac{1}{2}$ foot/day, so large land areas needed for large-scale project
- Egin Lakes still used by FMID as part of Water Board's recharge program

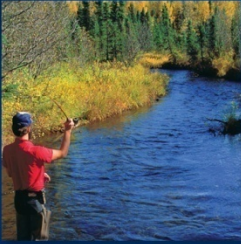




1981 – IWRB Upper Snake Recharge Report

- Estimated costs for developing Egin Lakes site into a large-scale recharge project –
 - \$579,000 (1980 dollars) for a 400 cfs project
 - \$12 .1 million (1980 dollars) for a 2,000 cfs project
- The IWRB recognized potential conflicts with hydropower water rights
- Study did not look at Blackfoot-Idaho Falls area due to the short return time of water to the Snake River
- Study did not look at the Thousand Springs area due efforts to create recharge district for that area





1978-1980 – Legislation Creating the Lower Snake River Aquifer Recharge District

- Initial plan proposed by LSRARD was to develop recharge basins at numerous locations along Northside, Milner-Gooding, and Big Wood canal systems
- LSRARD's small assessment base, primarily the Hagerman Valley, has limited its effectiveness
- Acquired water right permits for recharge with a 1980 priority date
- Constructed Shoshone recharge site
- Accomplished about 84,700 acre-feet of recharge between 1980 and 1999 (numbers may be incomplete)
- LSRARD continues to be valuable partner



Shoshone recharge site in use – spring 2012



1992-1997 - Southwest Irrigation District – High Plains Ground Water Recharge Demonstration Project

- Joint project between Southwest Irrigation District and federal government.
- Project consisted of 13 injection wells located between Murtaugh and Oakley.
- Water supply was leased from the Upper Snake Rental Pool and some flood water from small tributaries.
- Total project capital cost was \$3.53 million, of which 75% was paid by the federal government and 25% by Southwest.
- Between 1992 and 1997 a total of 23,154 AF of recharge was accomplished. After 1997, federal involvement ceased and the project was turned over to Southwest.
- Southwest uses system and participates in Water Board program

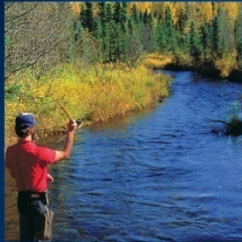


1995 – 2000: IWRB & WD01 Program

- The 1995 Legislature appropriated \$945,000 to the IWRB for recharge. IWRB delegated the program to Water District 1. Funds were used to pay delivery costs for running recharge water through canals and to lease storage water from rental pool.
- Natural flow diversions for recharge were made under the irrigation water rights of the participating canals.

From WD01 Records:

| | Natural Flow | Storage Water | Total |
|------|--------------|---------------|---------|
| 1995 | 66,585 | 71,091 | 138,676 |
| 1996 | 135,687 | 33,314 | 169,001 |
| 1997 | 214,780 | -- | 214,780 |
| 1998 | 189,696 | 10,991 | 200,687 |
| 1999 | 137,162 | 15,361 | 152,523 |
| 2000 | 66,278 | 3,361 | 69,639 |



1998-1999: IWRB acquires recharge water rights

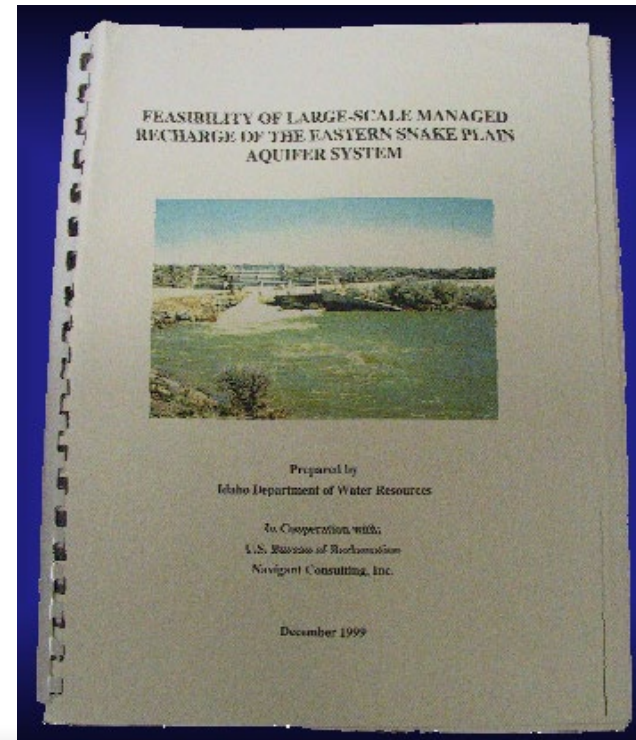
- During the 1995-2000 WD01/IWRB recharge effort it became clear that water rights for recharge needed to be clarified. In 1998 IWRB applied for 20 water rights for recharge from Snake River, but applications were put on hold due to protests from environmental groups, Fish & Game, Bureau of Reclamation, Idaho Power, and others.
- Due to inability to make full beneficial use of its water right permits for recharge, LSRARD conveys water rights 01-7054 (1,200 cfs) and 37-7842 (800 cfs) to IWRB in 1999.
- Two of the 1998-priority applications in the Lower Valley have been permitted (01-7142 & 01-10609)

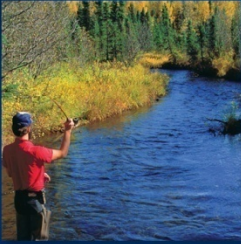




1999: IWRB Issues ESPA Managed Recharge Feasibility Report

- Report evaluated the feasibility of implementing managed recharge.
- Various scenarios were evaluated for different parts of the ESPA in regard to water level and spring discharge responses.
- Report over-estimated infiltration rates and under-estimated construction costs.





2008: Milner Hydropower License Issued

- Water right license issued for Milner Dam Hydropower Project by Director Tuthill
- Decision clarified that hydropower generation at Milner Dam was subordinate to managed recharge diversions at or above Milner Dam
- Due to conflicting conditions on the Snake River recharge water right permit (01-7054) and the Milner Dam hydropower water right permit, recharge was administered as if it was junior to Milner Dam hydropower until this licensing decision
- Various legal actions continued until 2010, but Director's decision was upheld

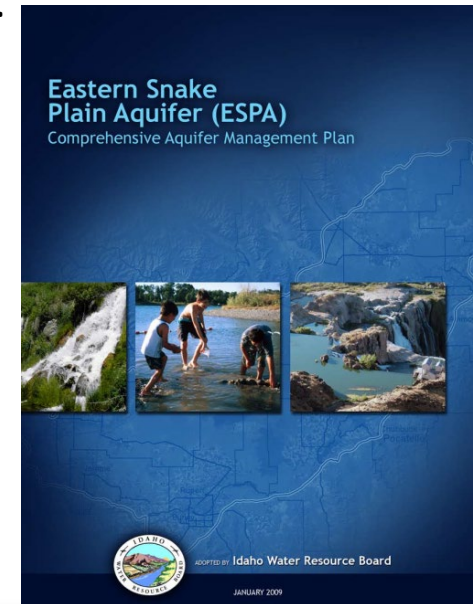


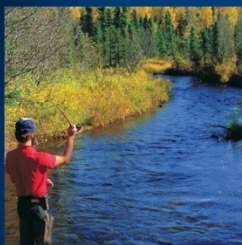
Milner Dam – Lower end of WD01



2009 -ESPA Comprehensive Aquifer Management Plan

- CAMP adopted by the Idaho Water Resource Board, approved by Legislature, and signed into law by Governor as part of State Water Plan
- Includes average annual targets for managed recharge of 100,000 acre-feet/year for years 1-10, and 250,000 acre-feet/year after year 10
- Also includes other aquifer management strategies:
 - GW-SW conversion projects
 - Demand reduction
 - Cloud seeding
- Clarified that recharge and other management actions are for aquifer stabilization and management
- CAMP funding system was not put into place





2009 - Swan Falls Re-Affirmation Agreement

- Agreement between State of Idaho and Idaho Power Company
- Confirms that ESPA managed recharge is allowed under the original Swan Falls Agreement
- Places limits on amount of recharge by state based on ESPA CAMP:
 - Average annual of 175,000 AF through 2018 (unless changed by legislature)
 - Average annual of 250,000 AF beginning in 2019
- Requires Water Board to approve recharge projects of certain threshold proposed by others
- Requires state to assist Idaho Power in rate proceedings before PUC if recharge diversions lead to reduced hydropower generation and higher energy rates
- If Water Board proposes to increase recharge beyond these limits legislative approval must be obtained – public policy decision regarding diversions from river vs. maintaining river flows for hydropower generation
- Signed by Water Board, Governor, and approved by Legislature in 2009

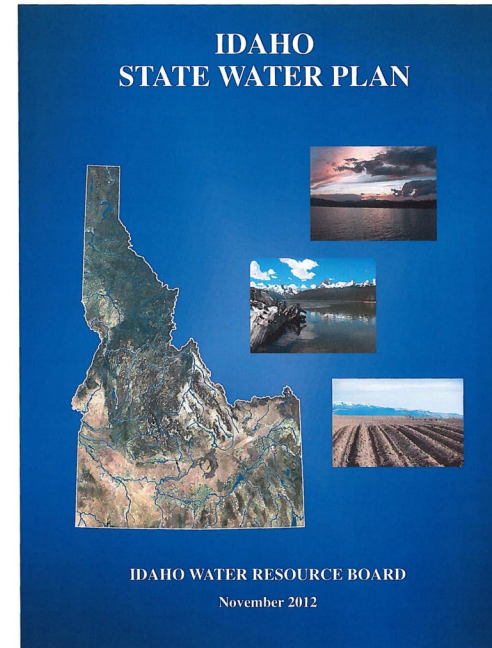


Swan Falls Dam



2012 State Water Plan

- 2012 State Water Plan included CAMP recharge goals as implementation strategies for Policy 4D (Conjunctive Management of ESPA and the Snake River) and Policy 4E (Snake River Basin New Storage)
- Adopted by IWRB in 2012
- Through non-action by Legislature it became effective in 2013





Legislative Funding

- The 2014 Legislature passed HB 547 which provided up to \$5M annually from the Cigarette Tax for “Statewide Aquifer Stabilization”
- Funds deposited into the Secondary Aquifer Fund
- Since aquifer management is at the end of the uses for the Cigarette tax, we expect to see revenues from this source diminish over time
- With these funds, IWRB ramped up recharge program with “winter recharge” in winter of 2014-2015 – recharged 75,000 AF



Senate Concurrent Resolution 136 (2016)

- Directed IWRB to develop program of ESPA Managed Recharge of 250,000 AF on average annual basis
- Directed IWRB to develop needed capacity by 2024
- Provided Legislative approval to increase the Phase 1 CAMP recharge goal from 100,000 AF to 250,000 AF on average annual basis prior to 2019, pursuant to Swan Falls Re-Affirmation Agreement
- Companion to:
 - ✓ SCR138 (2016) – IGWA-SWC Settlement
 - ✓ HCR10 (2019) – Cities-SWC-IGWA Settlement
 - ✓ SCR135 (2016) – Statewide aquifer stabilization



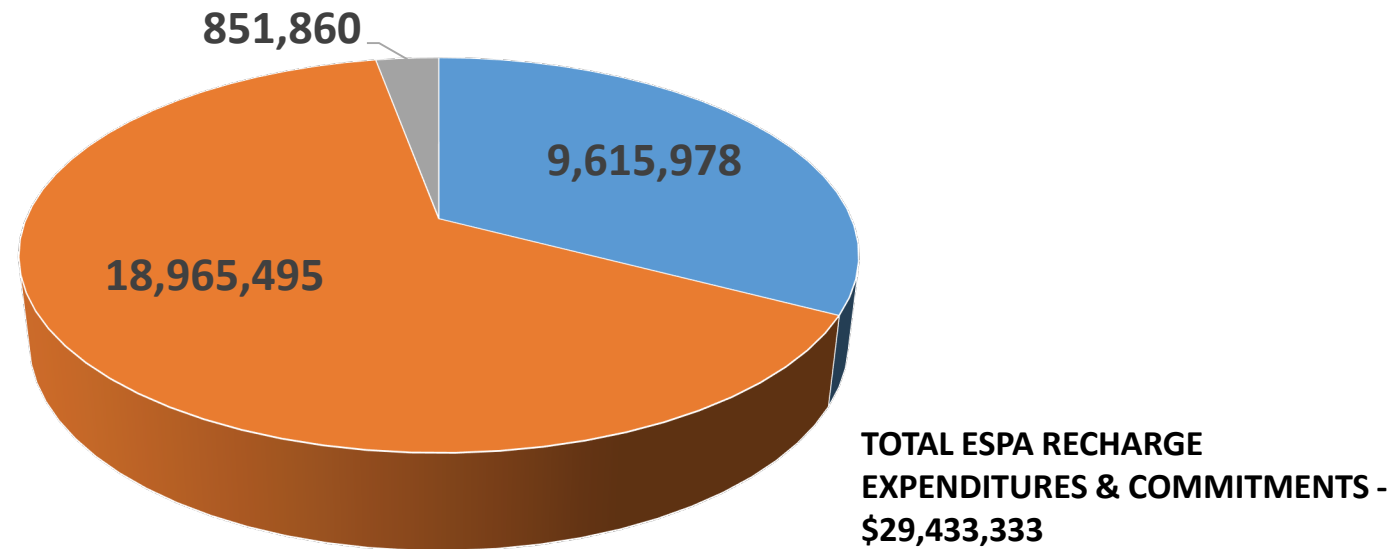
Legislative Funding Continued

- Beginning in FY 2016 \$5M annually from General Fund has been provided for “Water Sustainability” and “Aquifer Management”
- Funds are deposited into the Secondary Aquifer Fund
- Together with the amount received from the Cigarette Tax and accrued interest, IWRB sets a budget for the use of these funds every year

SECONDARY AQUIFER FUND

ESPA RECHARGE EXPENDITURES & COMMITMENTS

AS OF JUNE 30, 2019



■ O&M/CONVEYANCE ■ INVESTIGATIONS/INFRASTRUCTURE ■ MONITORING



Settlement Agreements

- IGWA-SWC Settlement Agreement commits parties to support State's ESPA managed recharge program of 250,000 AF
- Cities-SWC-IGWA Settlement Agreement commits parties to support state's ESPA managed recharge program including support for continued state funding





Actual ESPA Recharge Volumes Since Passage of SCR136 in 2016

| Recharge Season | Natural Flow (AF) | Donated/Contracted Storage Water (AF) | Total (AF) |
|-----------------|-------------------|---------------------------------------|------------|
| 2016/2017 | 317,714 | -- | 317,417 |
| 2017/2018 | 475,746 | 60,255 | 536,001 |
| 2018/2019 | 309,308 | 53,769 | 363,077 |





Public Law 115-141 (2018)

- Modifies headgate closure requirements of Palisades spaceholders so they can open headgates and deliver recharge water in high flow years.
- *“SEC. 204. Notwithstanding any other provision of law, during the period from November 1 through April 30, water users may use their diversion structures for the purpose of recharging the Eastern Snake Plain Aquifer, when the Secretary, in consultation with the Advisory Committee and Water District 1 watermaster, determines there is water available in excess of that needed to satisfy existing Minidoka Project storage and hydropower rights and ensure operational flexibility.”*



Managed Recharge Infrastructure Update

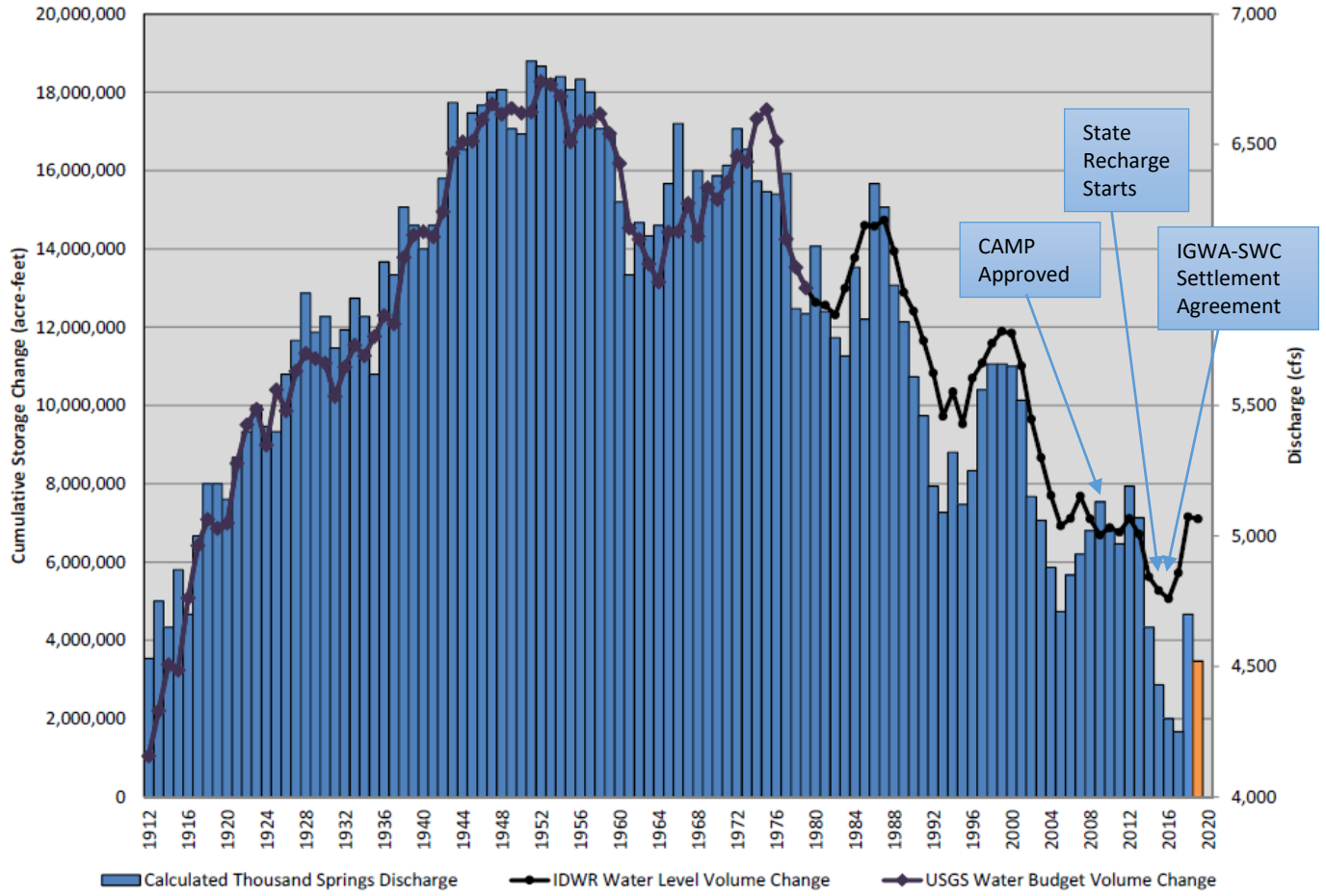
Four projects underway to increase capacity:

- Wilson Canyon on North Side Canal
 - Mile Post 29 on Milner Gooding Canal
 - ABID recharge
 - Egin Bench Recharge Site Expansion
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- These should finish building out capacity assuming all available flow is used during low-to-medium flow years



Construction on the Wilson Canyon Recharge Site

ESPA Change in Volume of Water and Thousand Springs Discharge



Questions?

