Idaho's Managed Aquifer Recharge Program

Columbia Basin Sustainable Water Coalition

Wesley Hipke
IDWR Water Projects Section Supervisor

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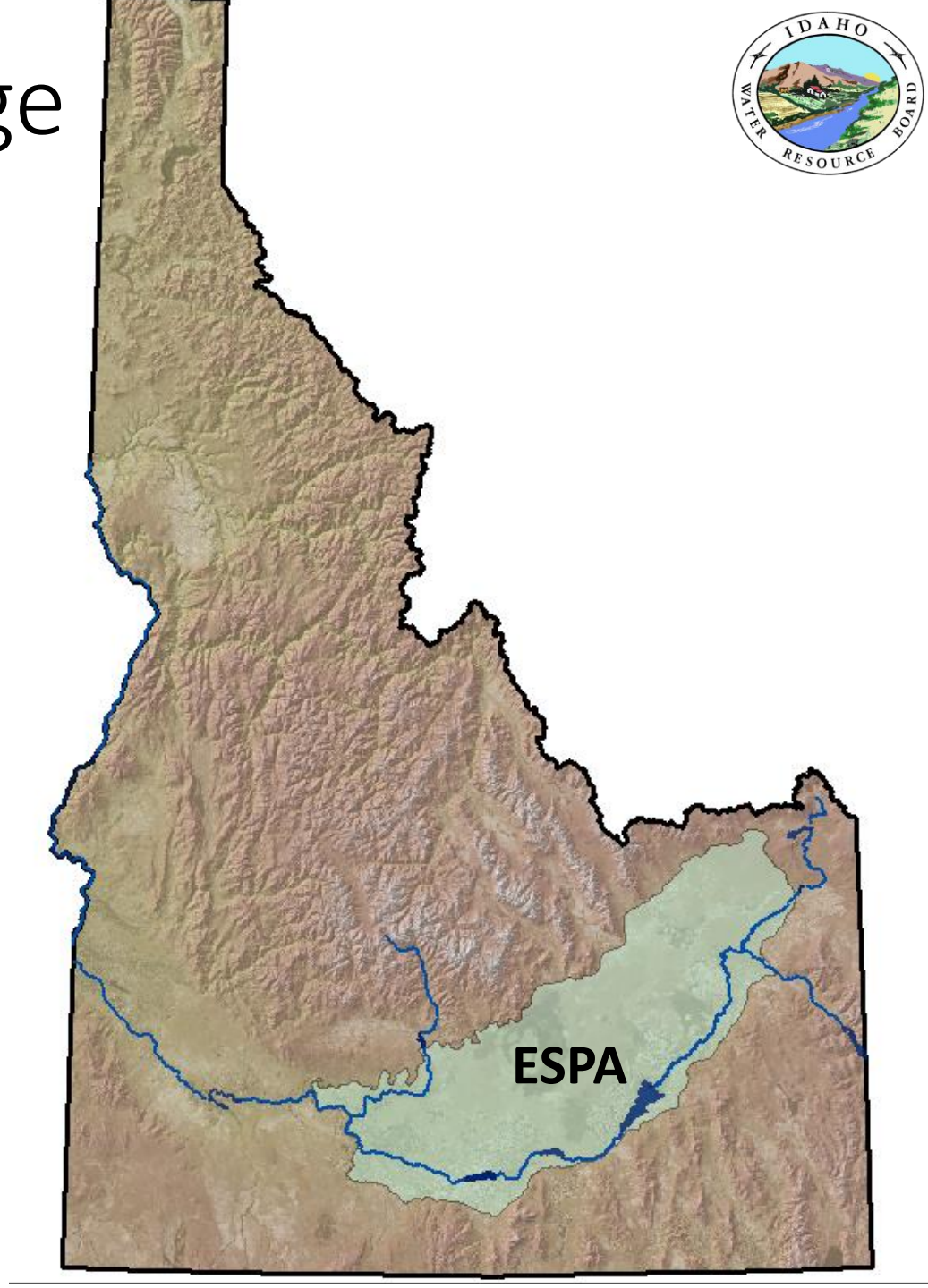
IWRB Managed Aquifer Recharge

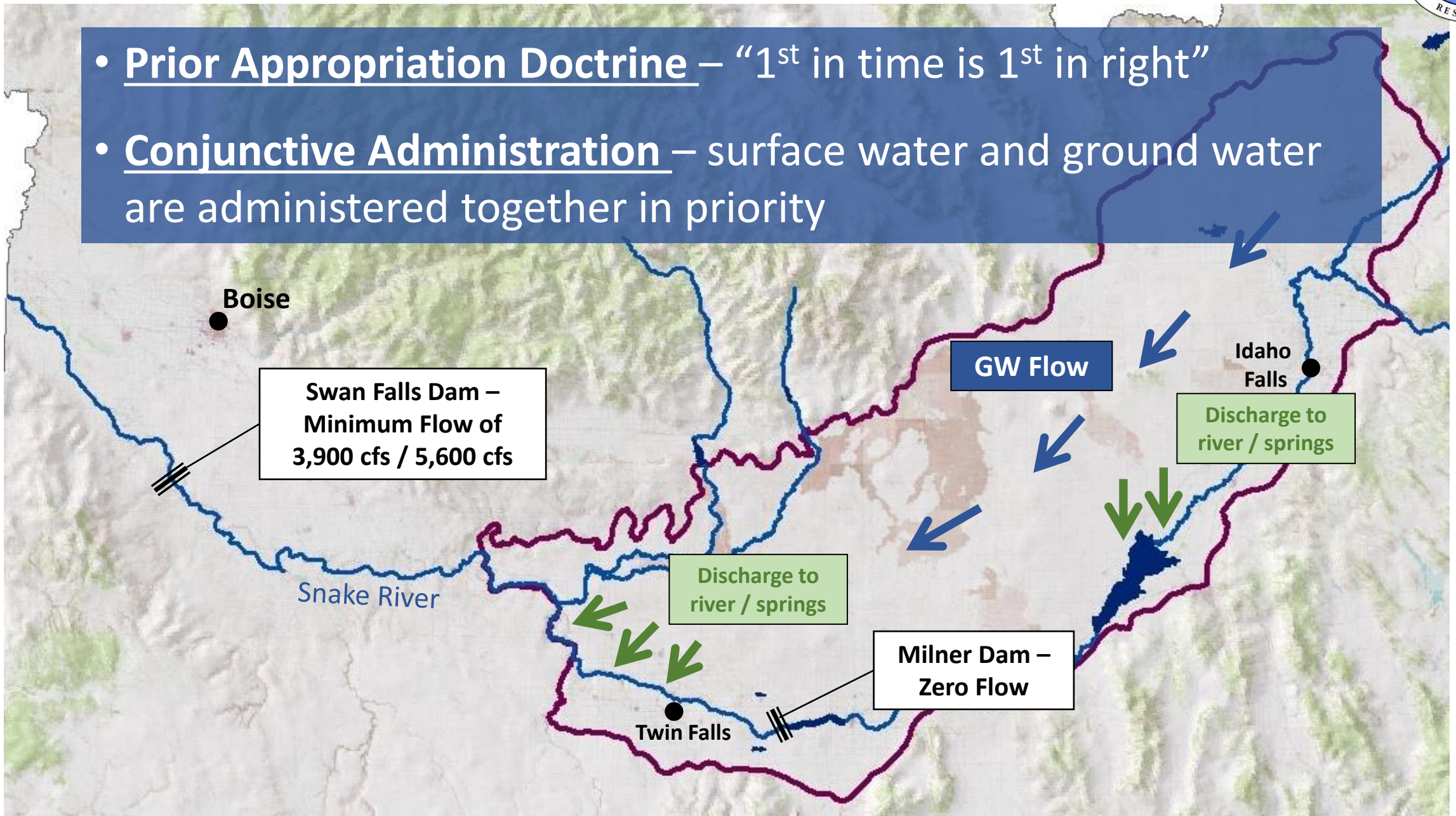
Eastern Snake Plain Aquifer

- ESPA is one of the Largest and most Productive Aquifers in the World - 10,800 mi^2
- 20% to 33% of Idaho's Economic Output (~ $10 B/yr)
- ~ 2.1 million irrigated acres (~ 60% of Idaho's total)
- Aquaculture Facilities (75% of the nations trout), Milk Production (3rd largest in the US) and Agricultural Processing (Cliff Bar, Chobani, etc…)
- ~ 50% of Idaho's power needs are met from the ESPA-Snake River system

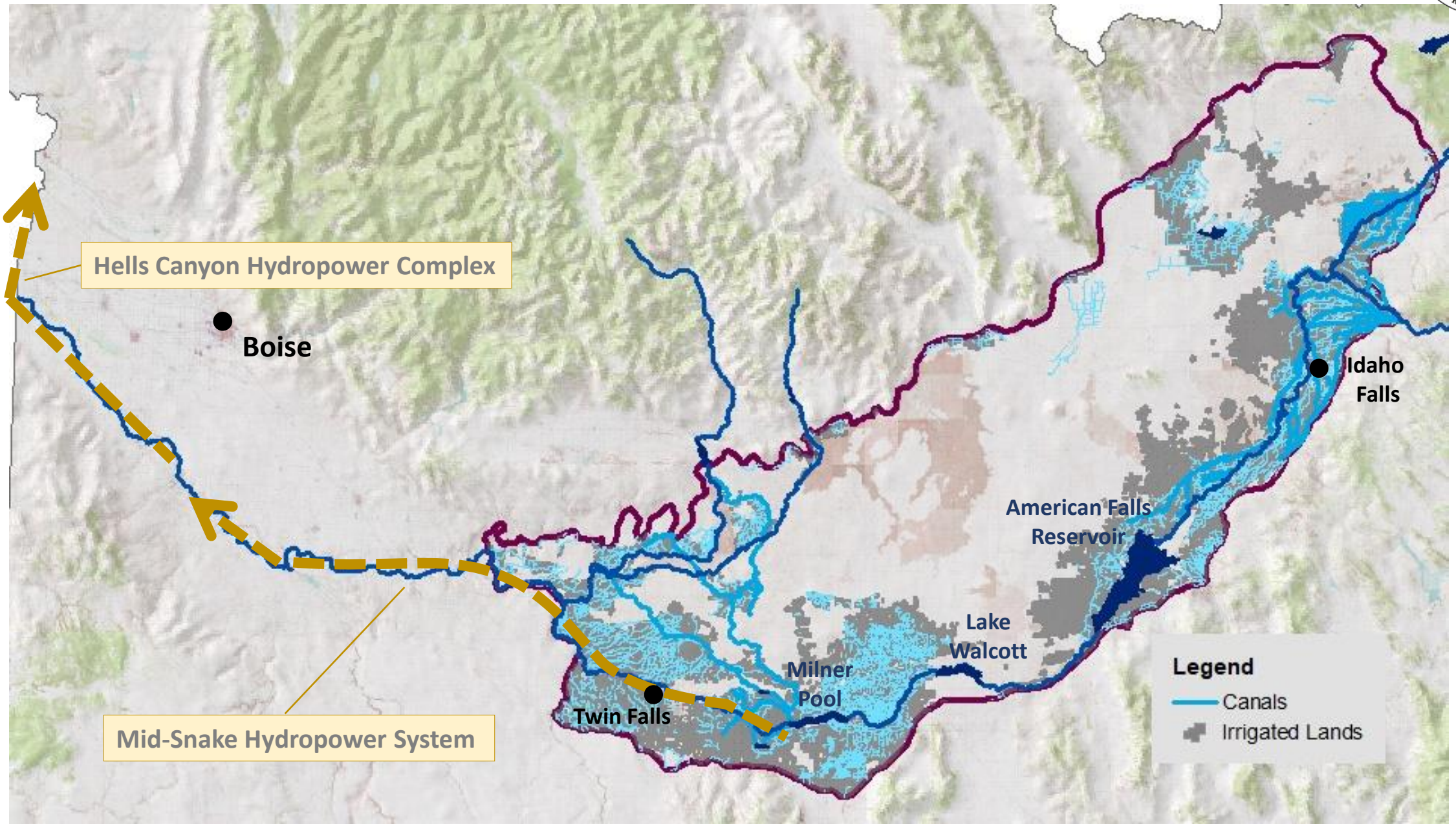


Water Flow and Administration

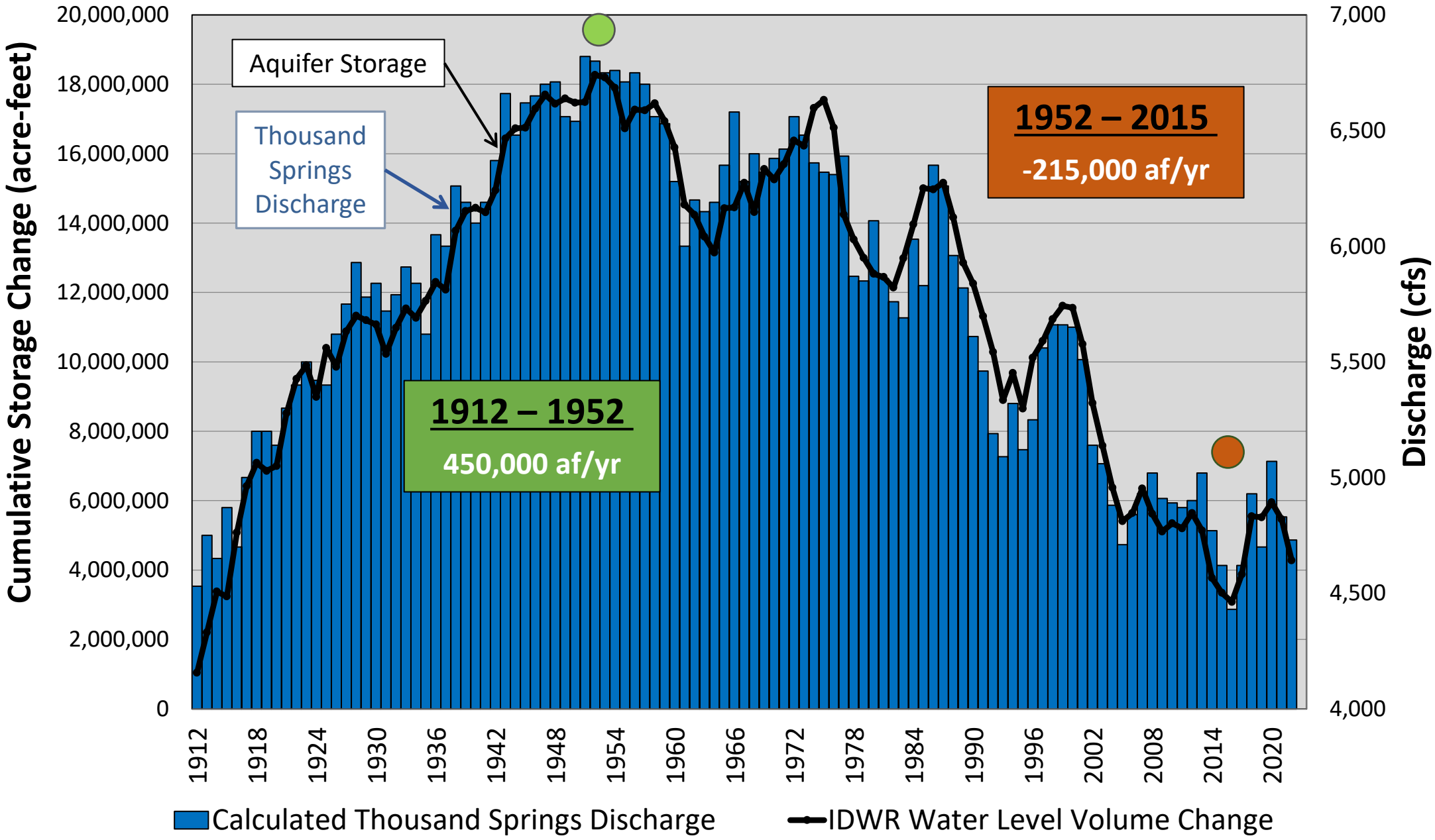
- **Prior Appropriation Doctrine** – "1st in time is 1st in right"
- **Conjunctive Administration** – surface water and ground water are administered together in priority



Interaction of Uses



ESPA Aquifer Storage & Springs Discharge



Solving the Problem

ESPA Comprehensive Aquifer Management Plan

"Sustain the economic viability and social and environmental health of the Eastern Snake Plain by adaptively managing a balance between water use and supplies."

- Stakeholder process with all major water users
- Designed to add **600,000 af/yr** to the ESPA water budget
- 2009 - adopted by IWRB & added to the State Water Plan

Key Components / Goals

✓ **Aquifer Recharge**	250,000 af/yr avg.
✓ **Demand Reduction**	240,000 af/yr.
✓ **GW-to-SW Conversions**	100,000 af/yr.
✓ **Cloud Seeding**	

Implementation of a Management Plan

- Clear Understanding of the Problem
  - Physical Limitations
  - Legal Limitations
- Funding
- Stakeholder Agreement
- Monitoring
- Adaptive Management

ESPA Managed Recharge Program

- **Problem** – Stabilize the ESPA
  - **Physical Limitations** – Recharge Capacity?
  - **Legal Limitations -** Water Rights
- **Funding**
  - State of Idaho
- **Stakeholder Agreement**
  - ESPA CAMP
- **Monitoring**
  - Add to existing monitoring
- **Adaptive Management**

ESPA Managed Recharge Program

Water Availability:

Snake River and major tributaries

- Range 130Kaf - 5.5Maf 1.2 Maf avg,
  Usually, winter and spring runoff

Funding:

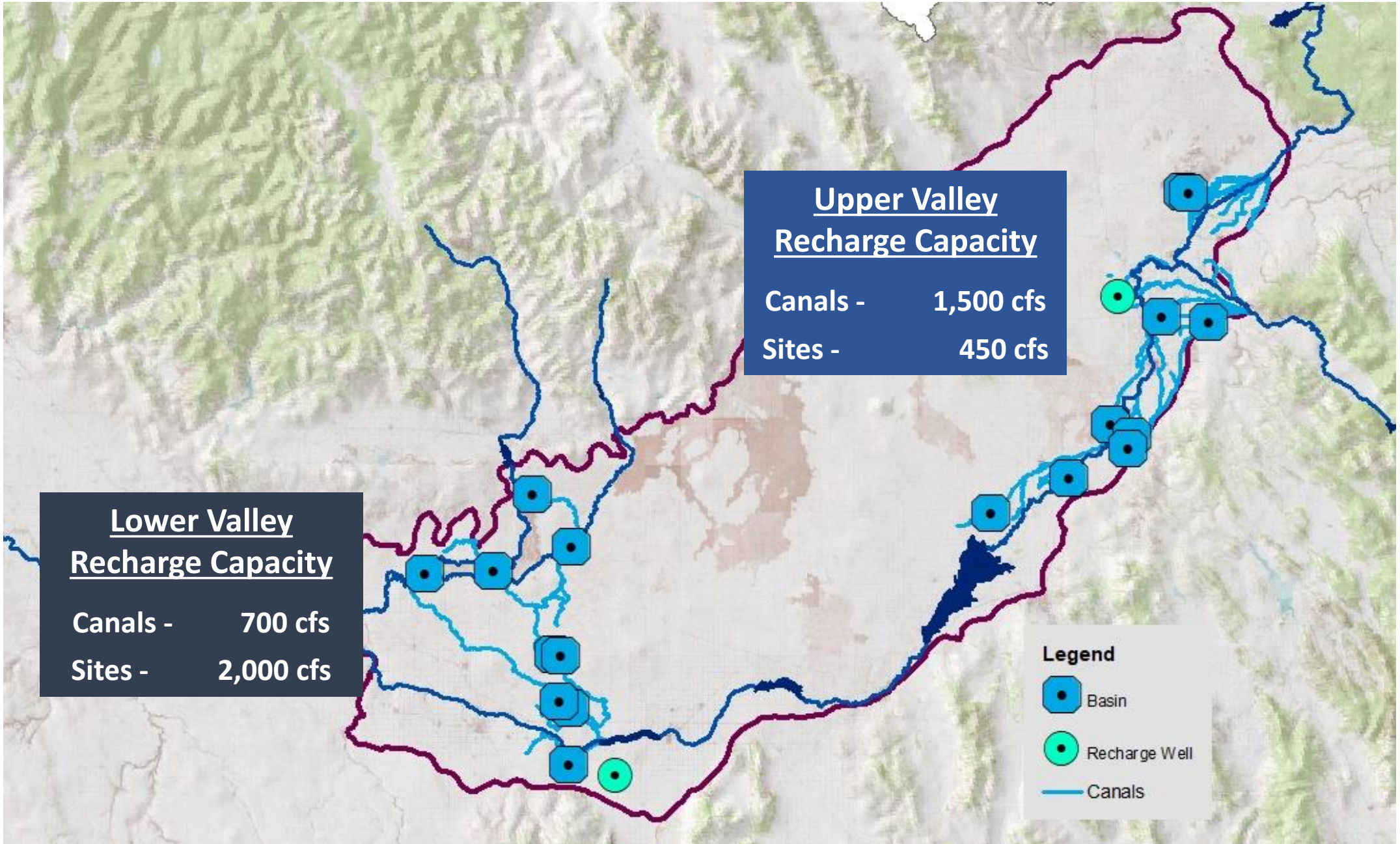
State of Idaho - aquifer stabilization throughout Idaho

- ~$10 M

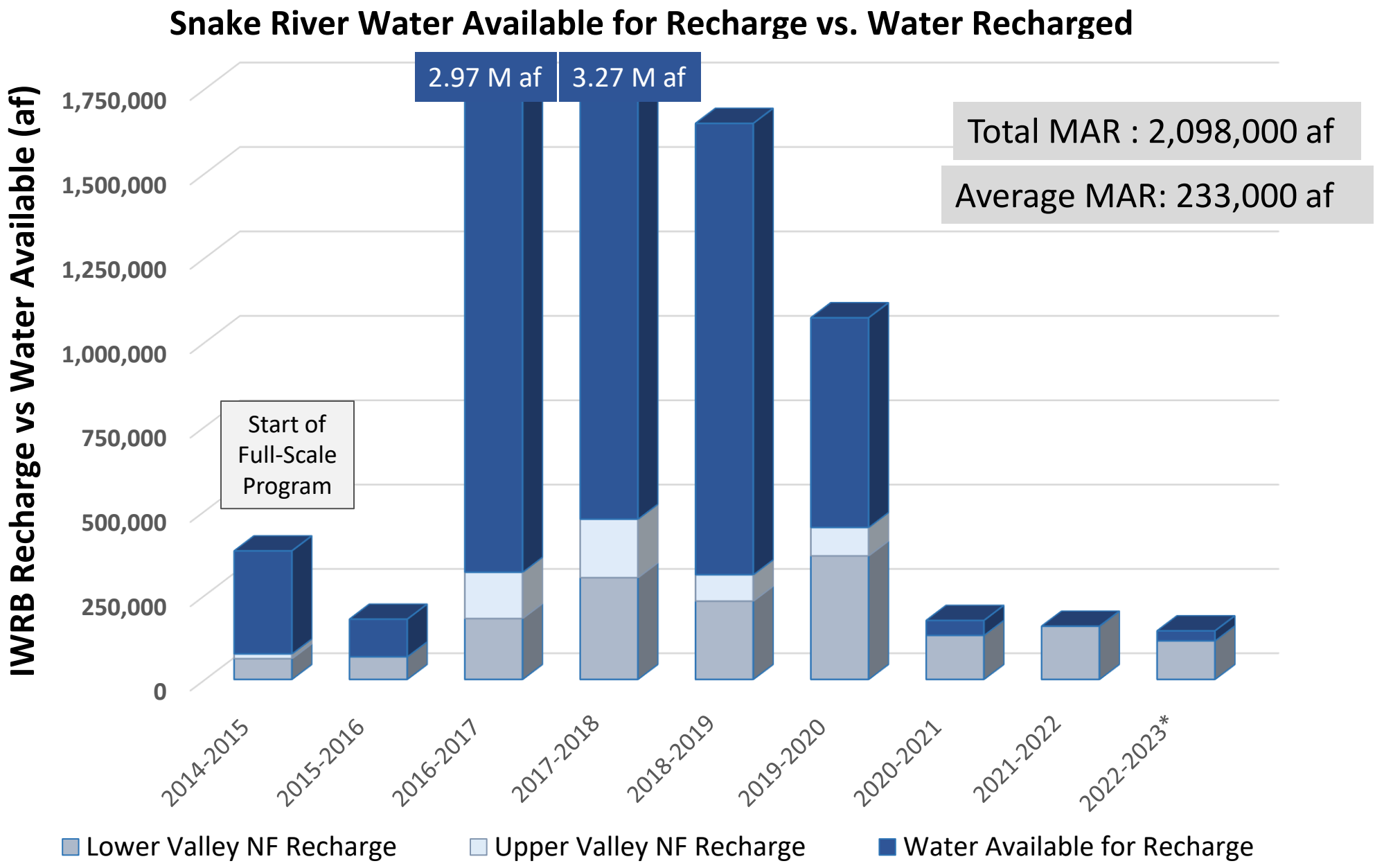
Initial Priorities:

- Increase Recharge Capacity
- Monitoring

ESPA IWRB Recharge Sites



IWRB Recharge



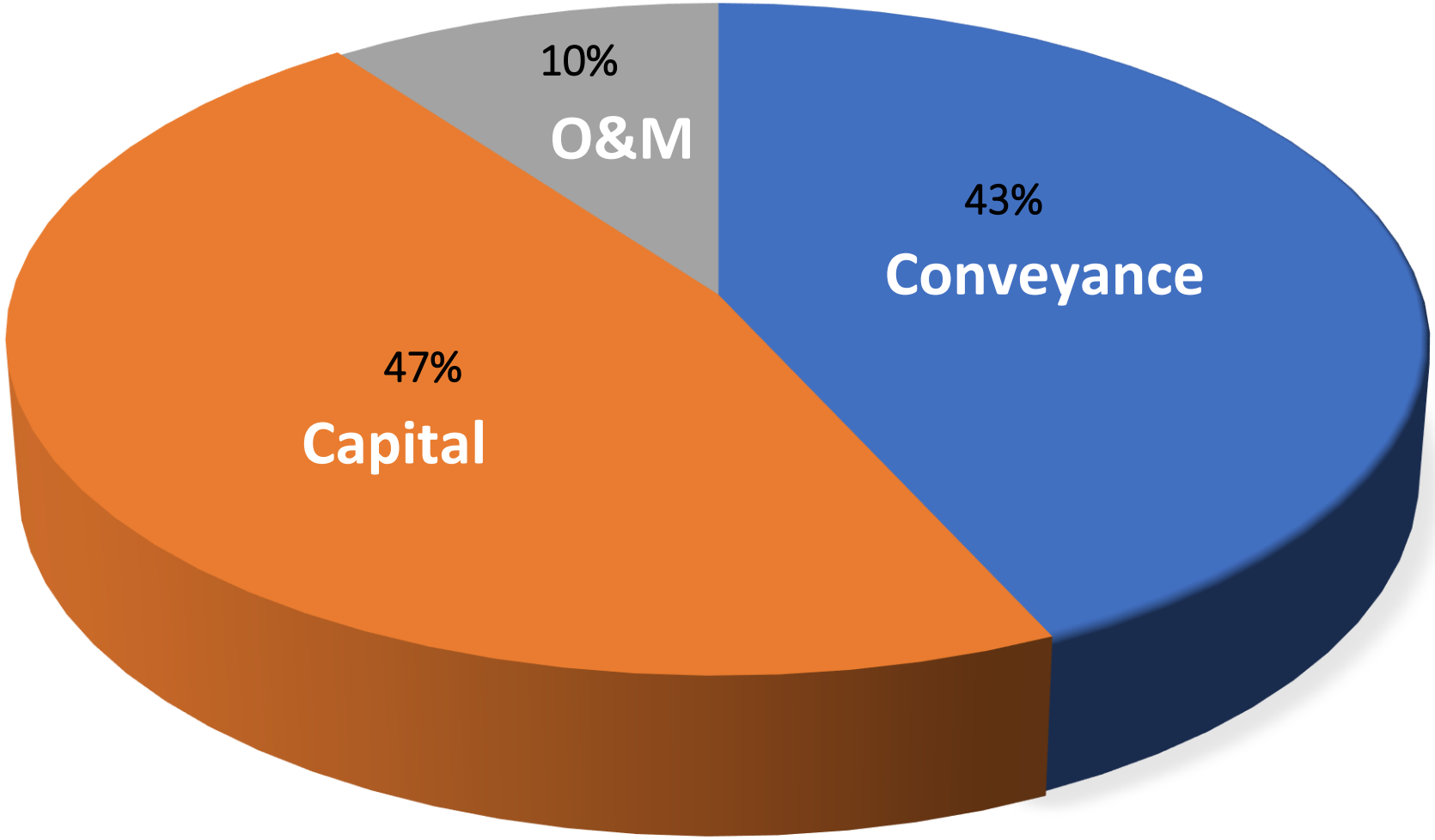
ESPA Recharge Program Expenditures

2014-2022

TOTAL - $34,828, 579

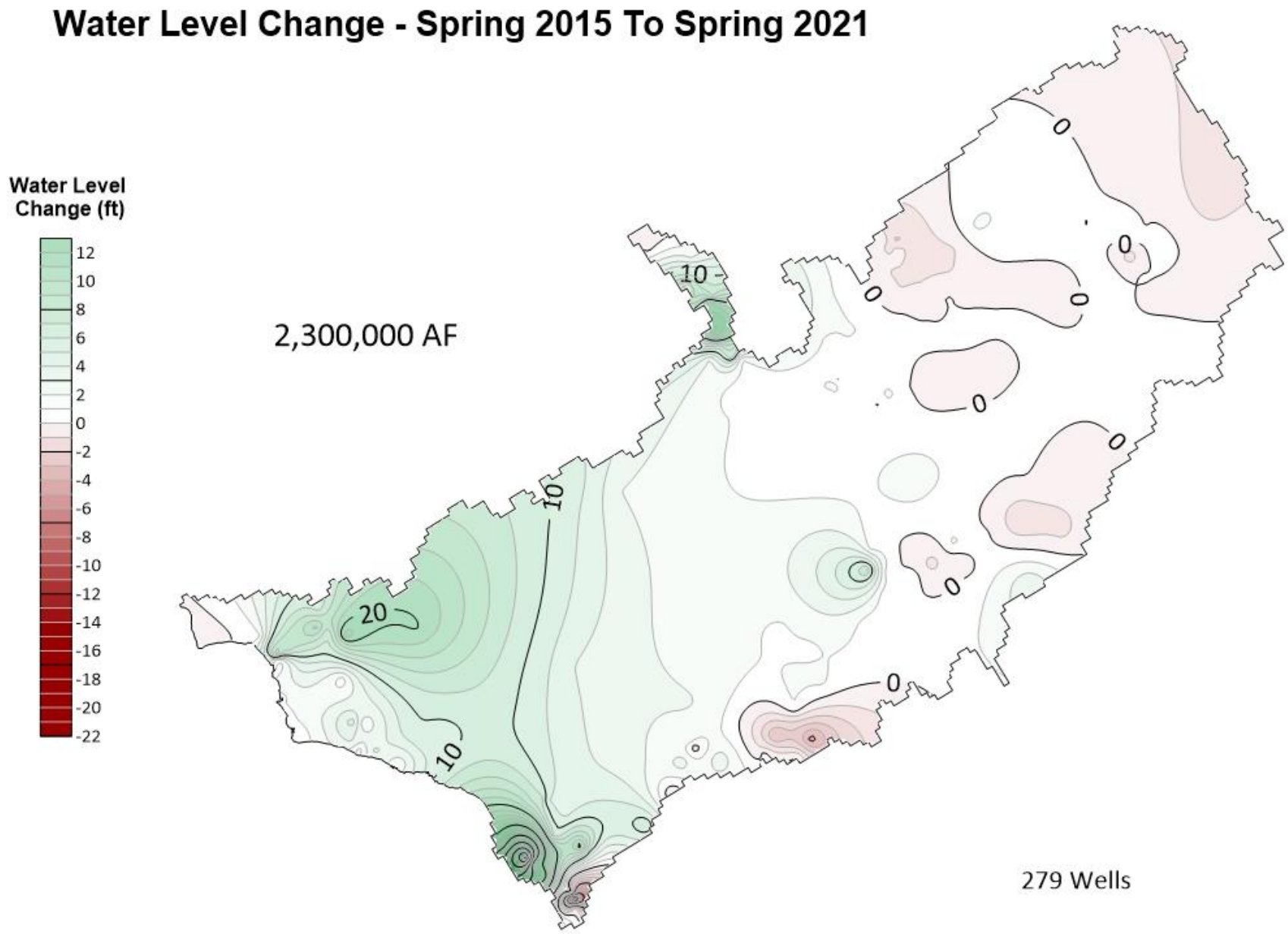
Average Yearly Cost:

Capital	$1.8 M
Conveyance	$1.7 M
O&M	$392 K

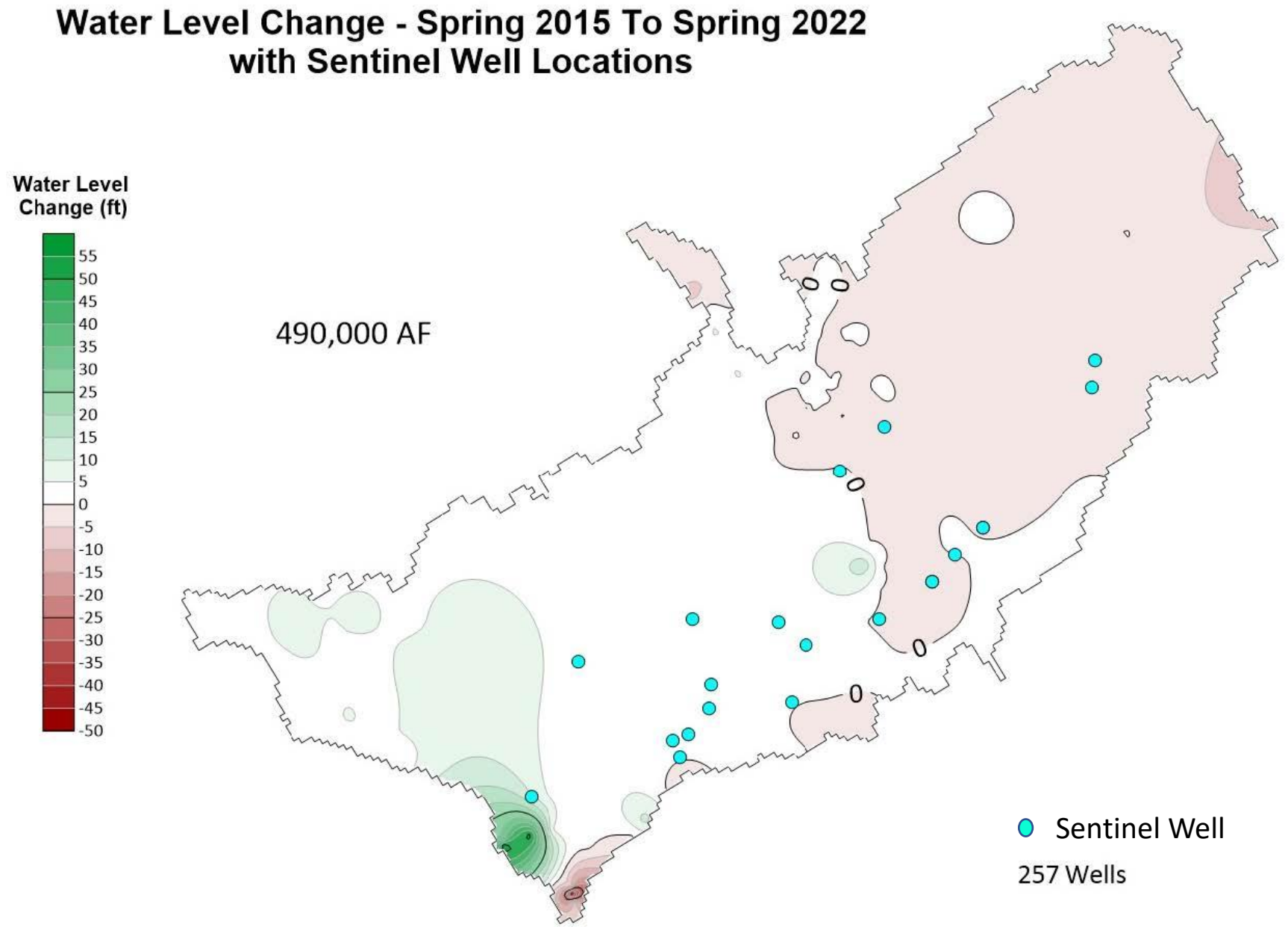


MAR Conveyance Cost per Acre-Foot: $7.70

Impacts to the Aquifer



Impacts to the Aquifer



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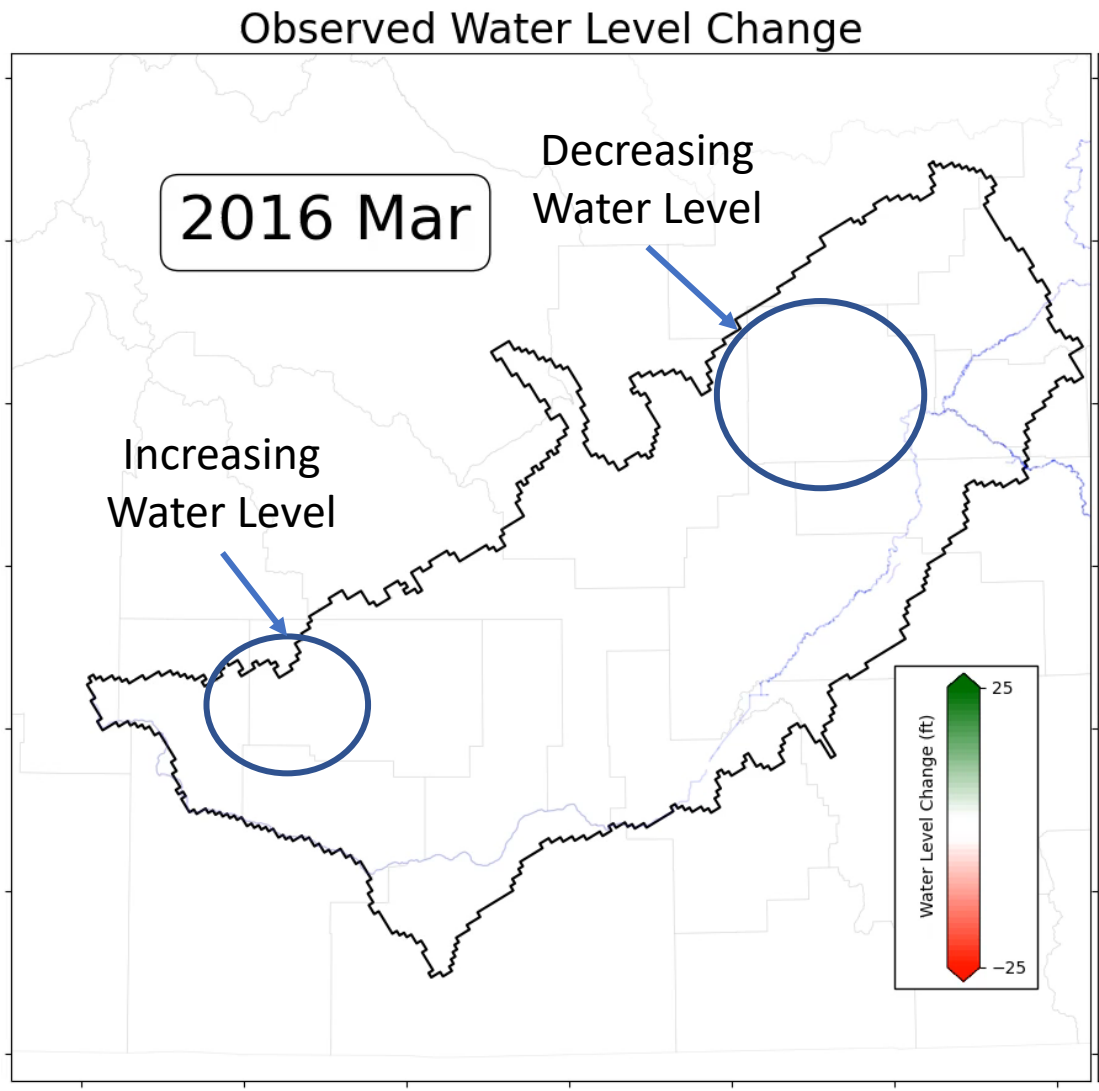

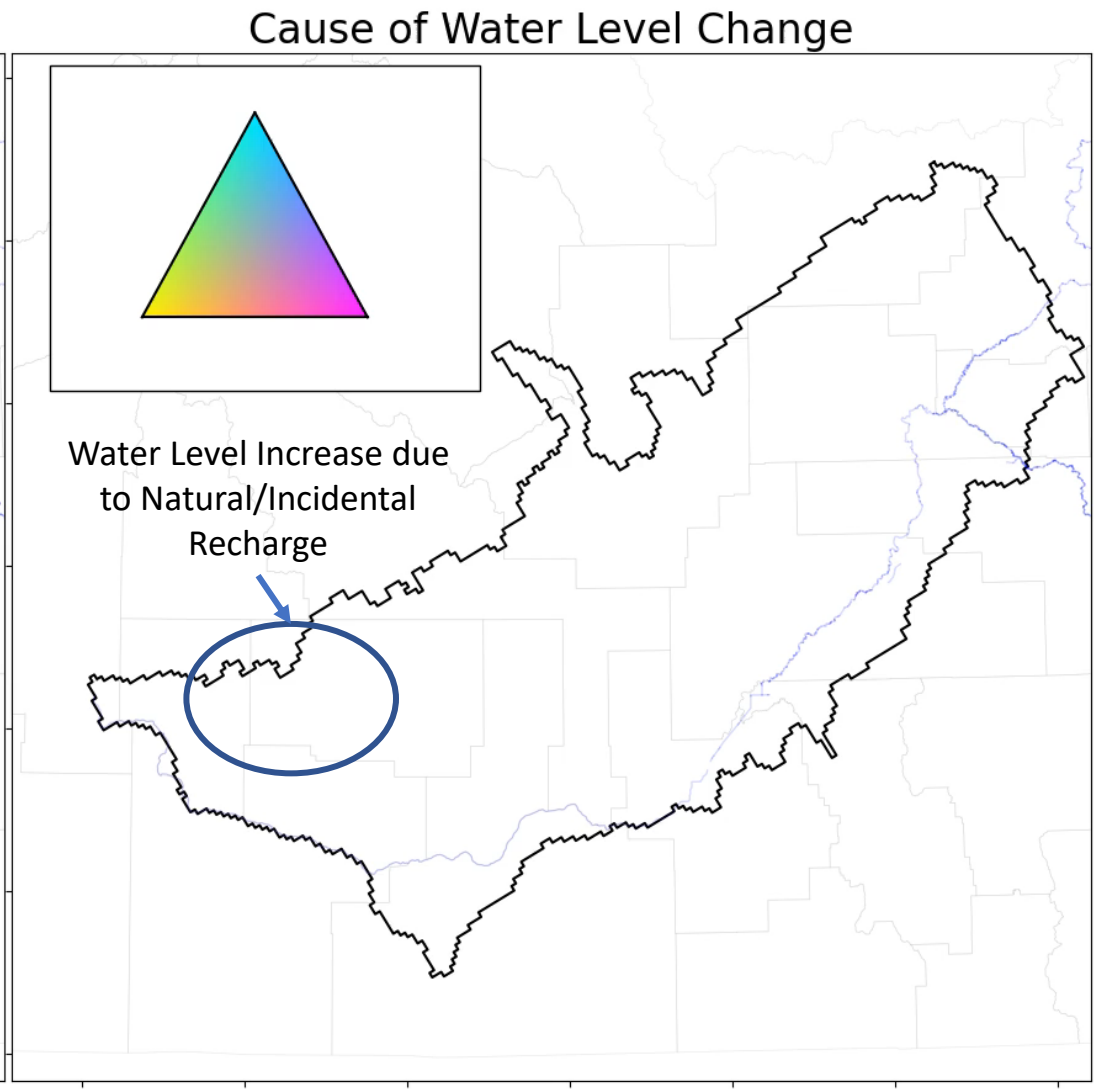

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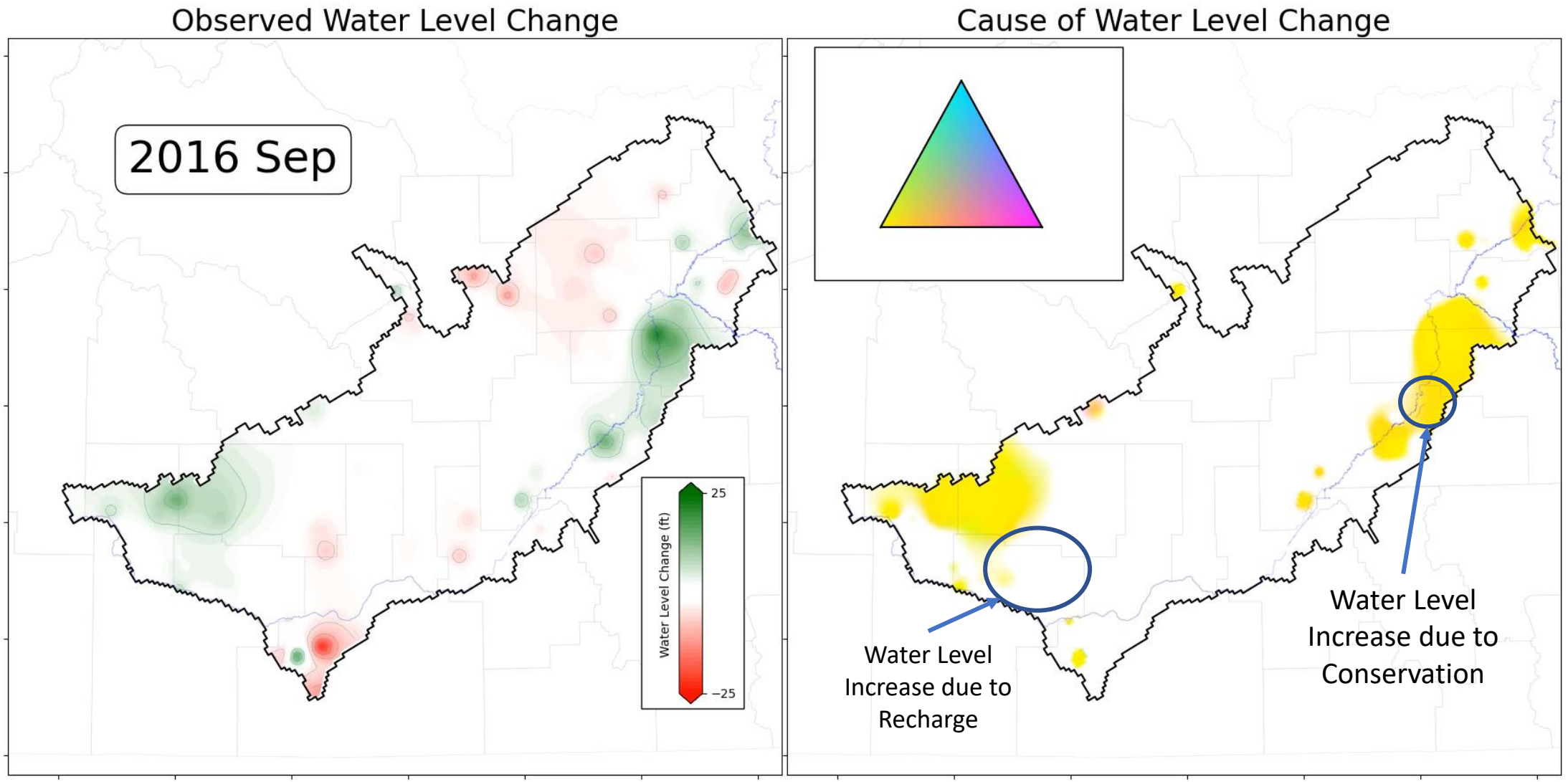

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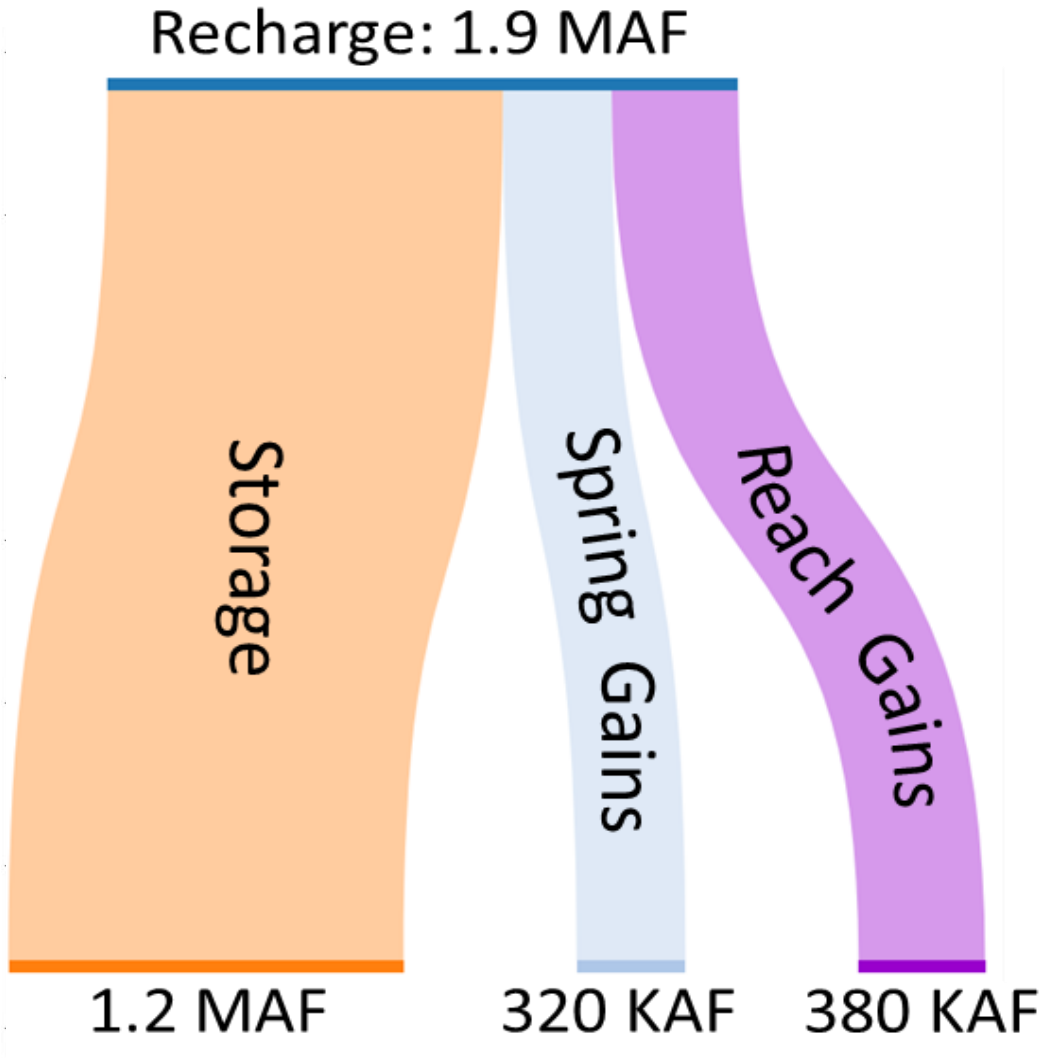
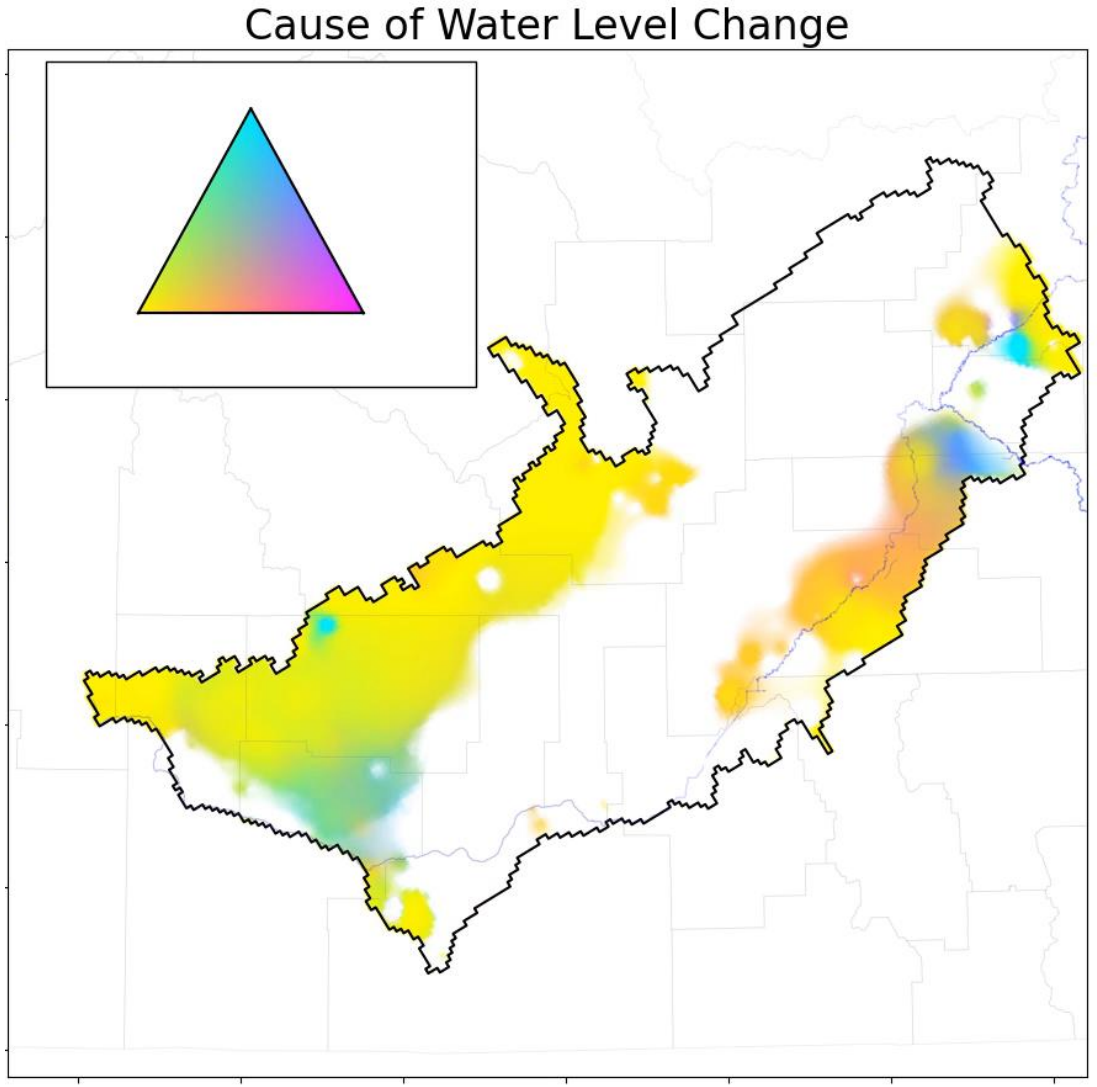
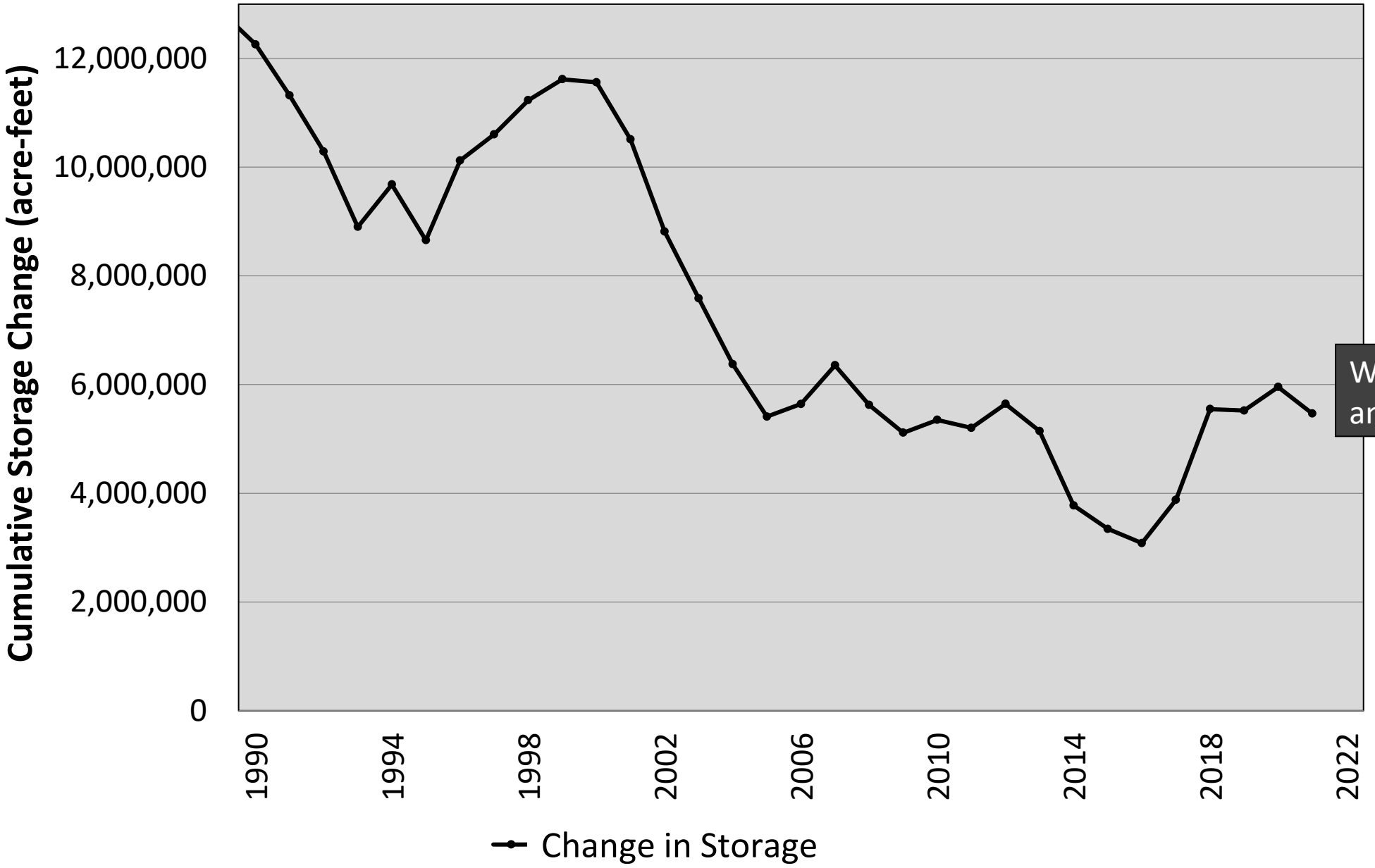




ESPA Aquifer Storage



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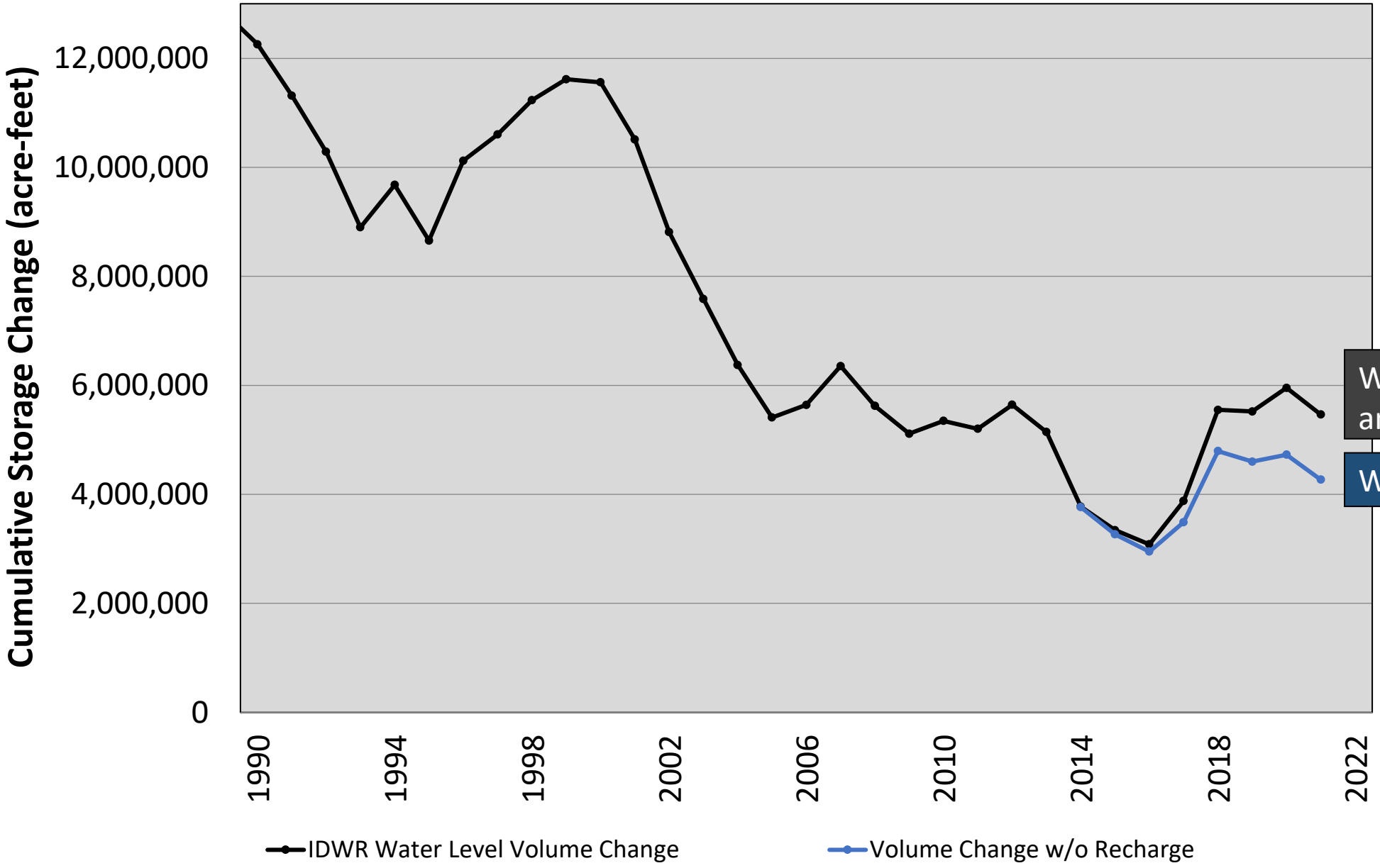

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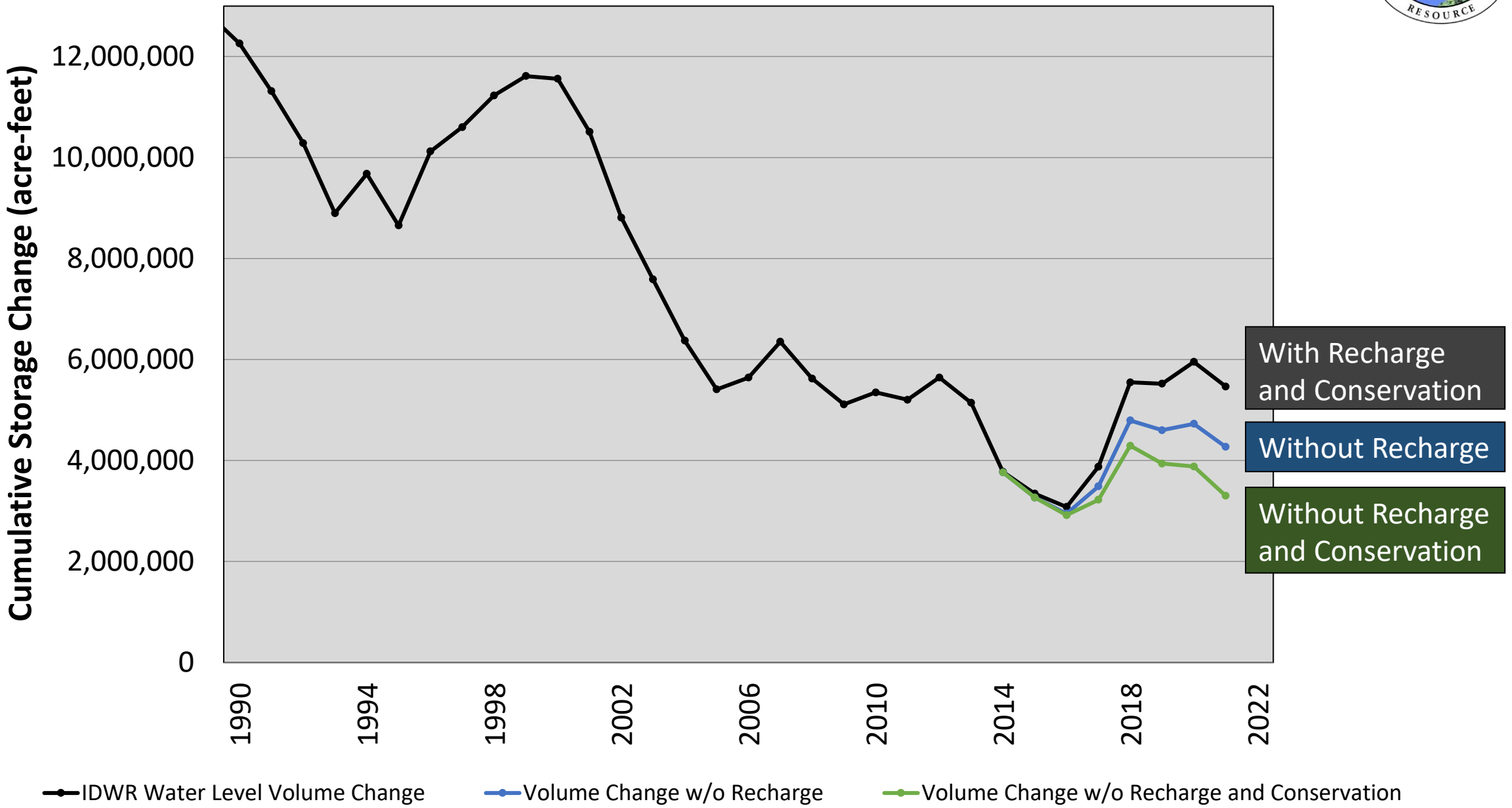
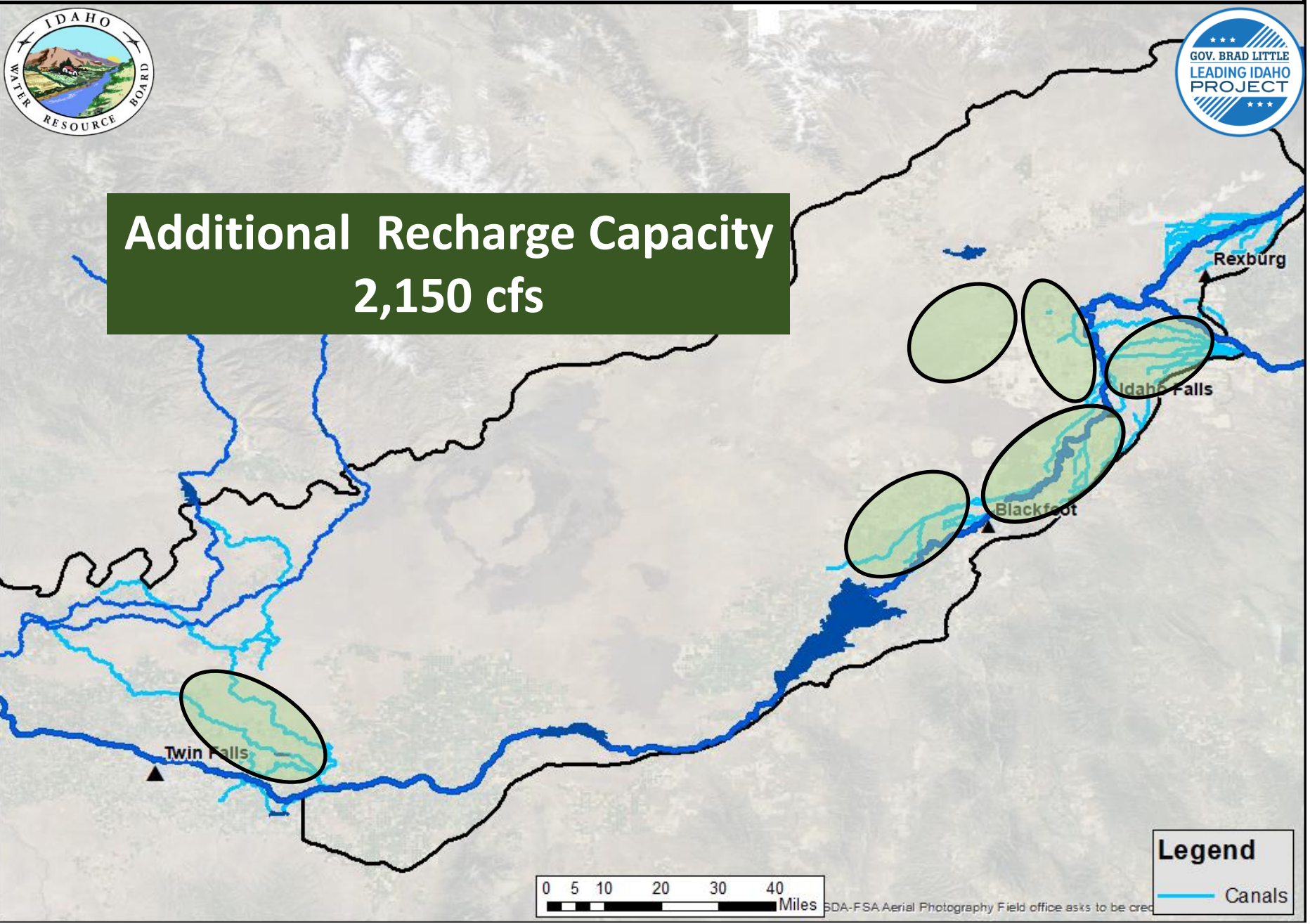


IWRB Max Recharge Program Build-Out



Max IWRB Recharge Buildout

- Est. Capital Cost - $700 M
- Conveyance Fees - Avg. 4 M ($1M to $12M)
- O & M Cost - ??

Changes in aquifer management have significantly improved aquifer conditions

Lessons Learned:

- The goal: actively managing the water resources to mitigate decades of decline - does not happen overnight.
- If possible, build in flexibility to optimize management strategies to handle changing conditions – natural and political.
- Developing the monitoring and tools to assess the impact and effectiveness of the Program.

Questions