AGENDA

IDAHO WATER RESOURCE BOARD

Finance Committee Meeting No. 5-22
Thursday September 8, 2022
1:00 p.m. (MT)

Aquifer Stabilization Committee Meeting No. 3-22
Upon Adjournment of Finance Committee

Water Center
Conference Rooms 602 C&D / Online Zoom Meeting
322 E. Front St.
BOISE

Board Members & the Public may participate via Zoom
Click here to join our Zoom Meeting
Dial in Option: 1(253) 215-8782
Meeting ID: 833 8003 6927 Passcode: 166818

Finance Committee Meeting No. 5-22

1. Introductions and Attendance
2. Regional Water Sustainability Criteria*
3. Aging Infrastructure Funding Recommendations*
4. Other Items
5. Adjourn

Committee Members: Chair Jo Ann Cole-Hansen, Jeff Raybould, Dean Stevenson, and Dale Van Stone.

Aquifer Stabilization Committee Meeting No. 3-22

1. Introductions and Attendance
2. Milner to King Hill Spring Discharge Calculation
3. ESPA Recharge Program Project Development Plan
4. ESPA Recharge Infrastructure Funding Recommendations*
5. Other Items
6. Adjourn

Committee Members: Chair Dean Stevenson, Al Barker, Pete Van Der Meulen, and Brian Olmstead

* 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
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Phone: (208) 287-4800 Fax: (208) 287-6700 Website: idwr.idaho.gov/IWRB/

IDAHO Department of Water Resources

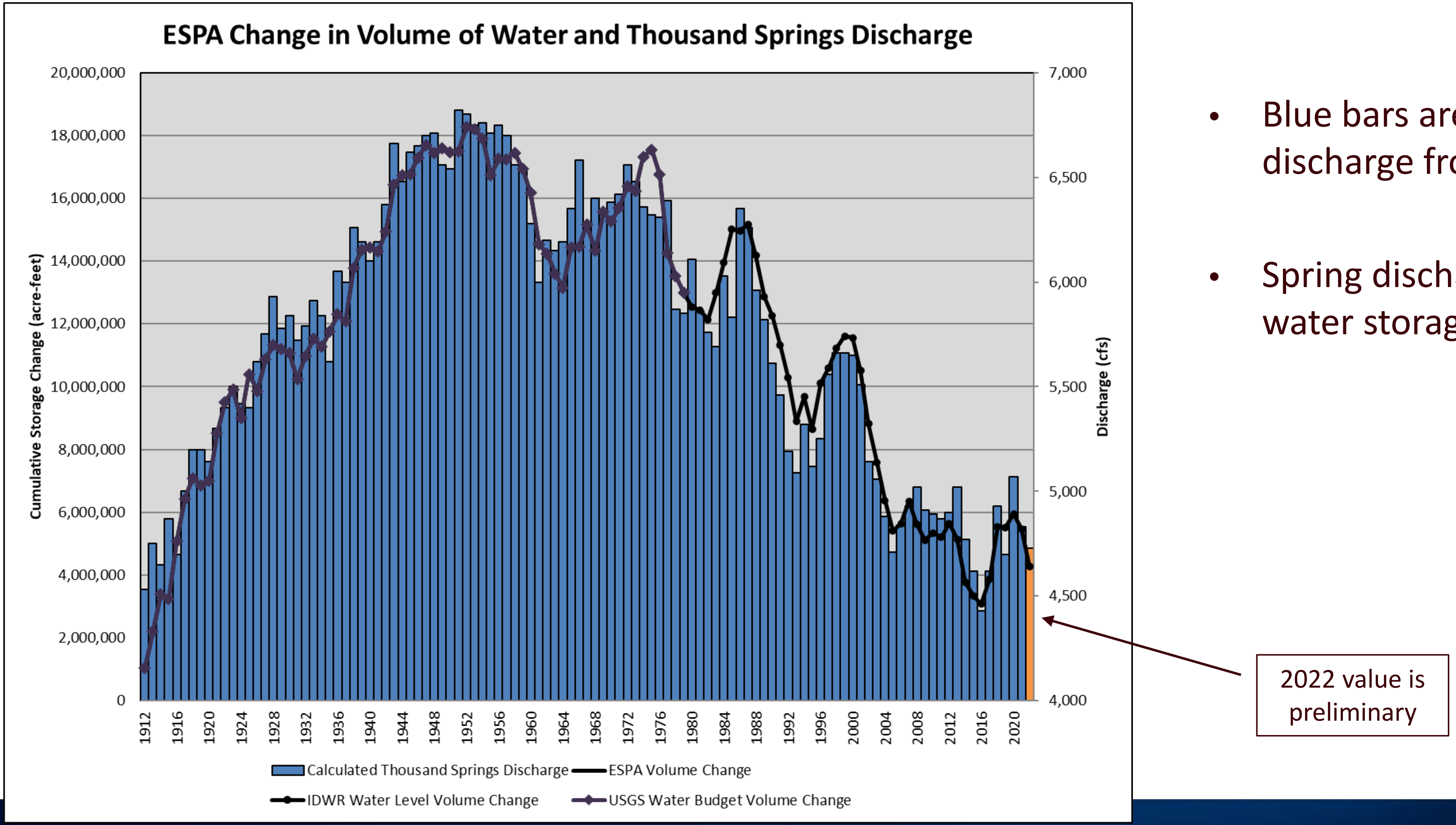
Updating the Milner to King Hill Spring Discharge Calculation

Presented by: Matt Anders

Date: 9/8/2022

IDAHO Department of Water Resources

Spring Discharge – 1912 to 2022



- Blue bars are the calculated discharge from Thousand Springs.
- Spring discharge is an indicator of water storage in the ESPA.

IDAHO Department of Water Resources

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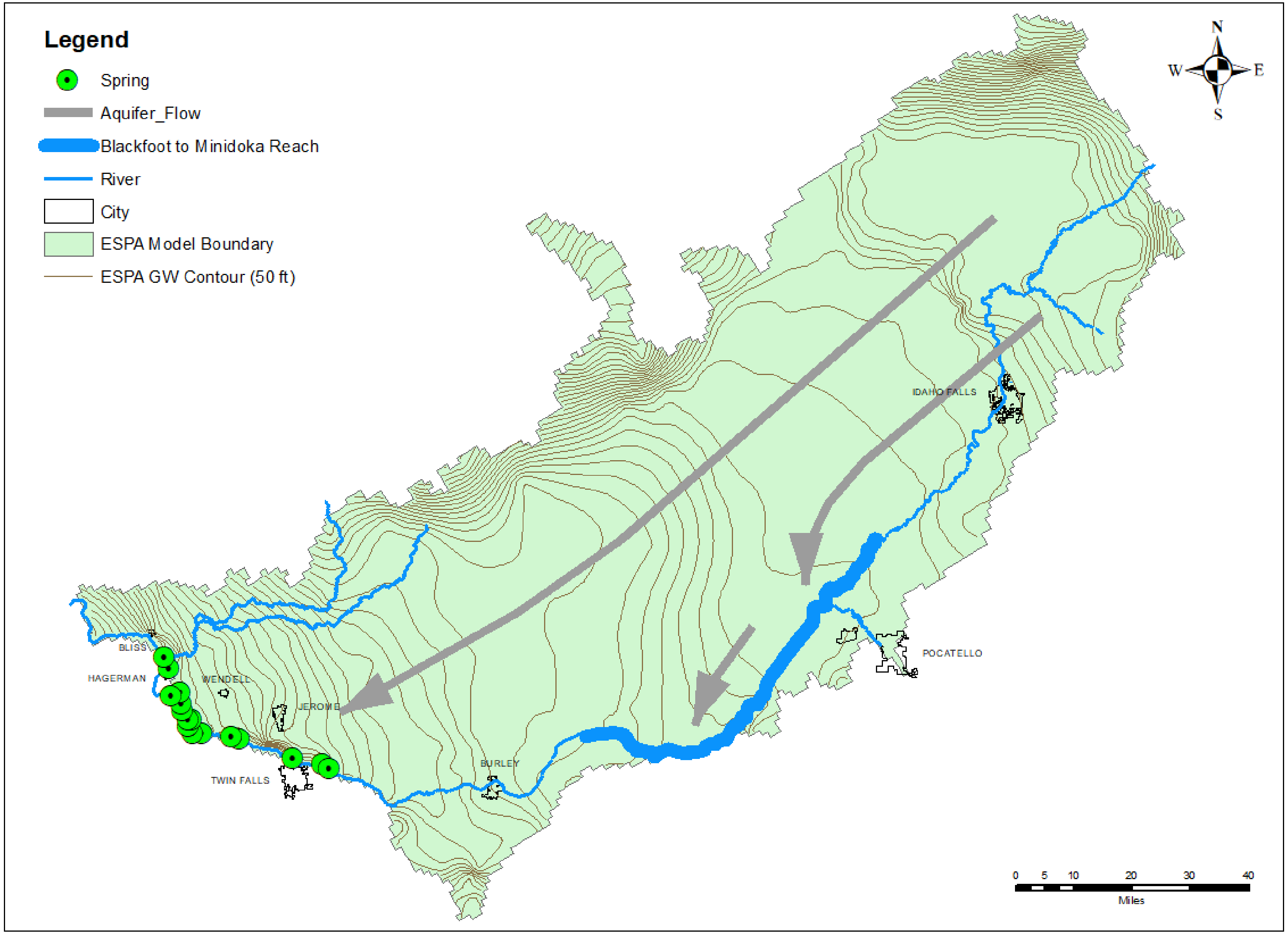
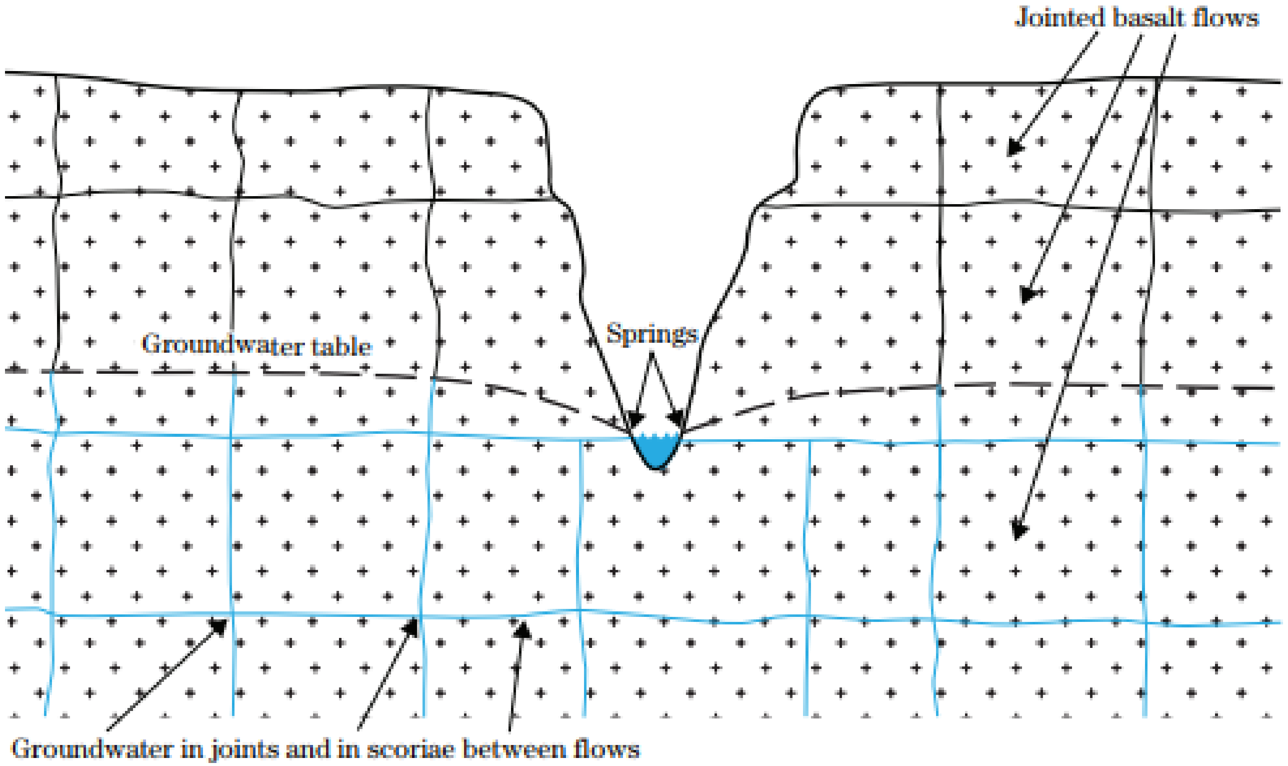
Discharge from ESPA



Spring Discharge on ESPA



- Springs occur when the groundwater table intersects the land surface or canyon wall.
- Discharge from springs is controlled by the water level in the ESPA.
- Higher water levels in the aquifer increase discharge at springs, and vice versa.

Total Spring Discharge is Difficult to Measure

- Example 1: Easy to Measure
- Road access
- Flow becomes concentrated in a single channel.

Total Spring Discharge is Difficult to Measure

- Example 2: Harder to Measure
- Limited road access
- Brush in channel
- Possible seepage into hillside.

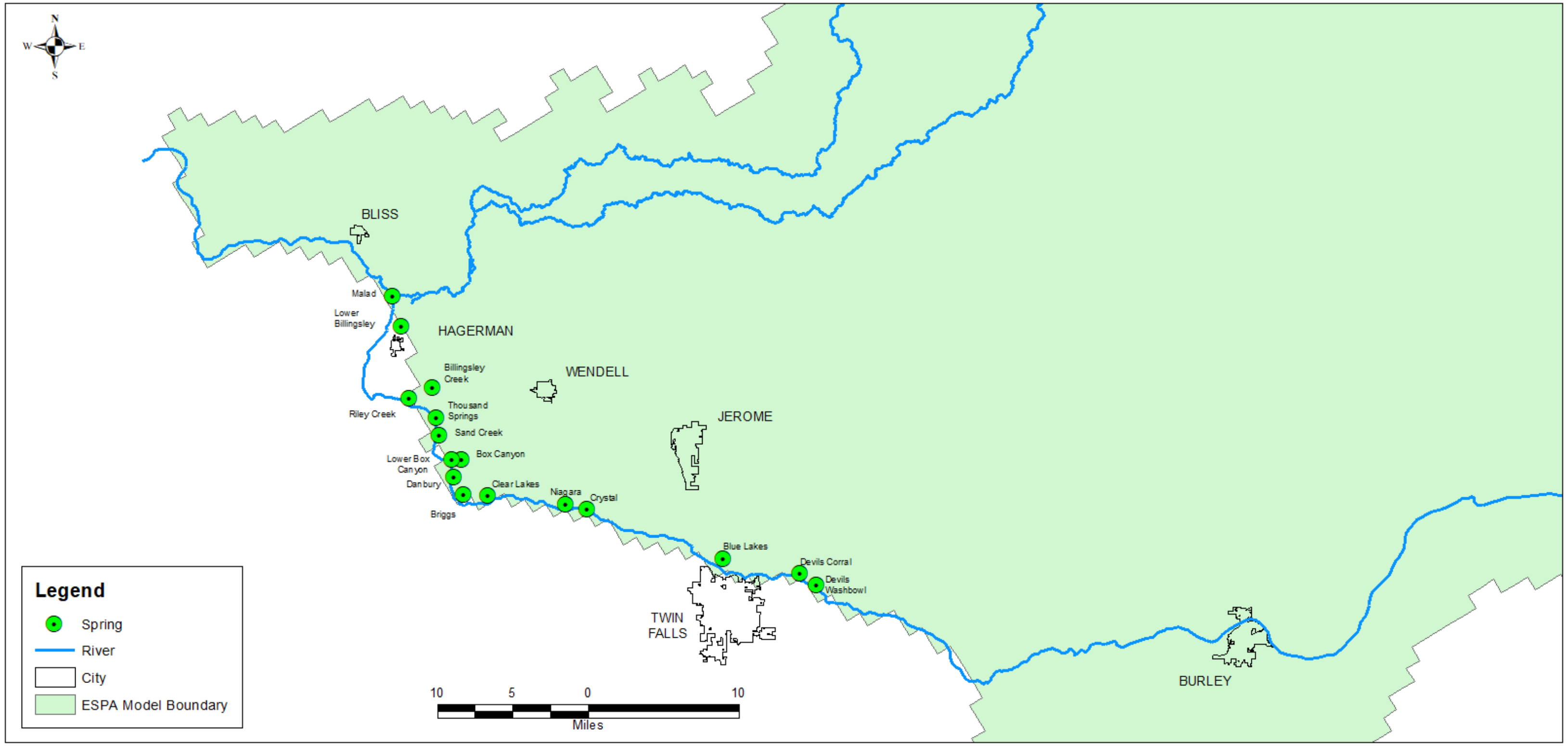
Total Spring Discharge is Difficult to Measure

- Example 3: Hard to Measure and Unmeasurable
- River access
- Only measurable during low river flow.
- Possible discharge directly into Snake River.

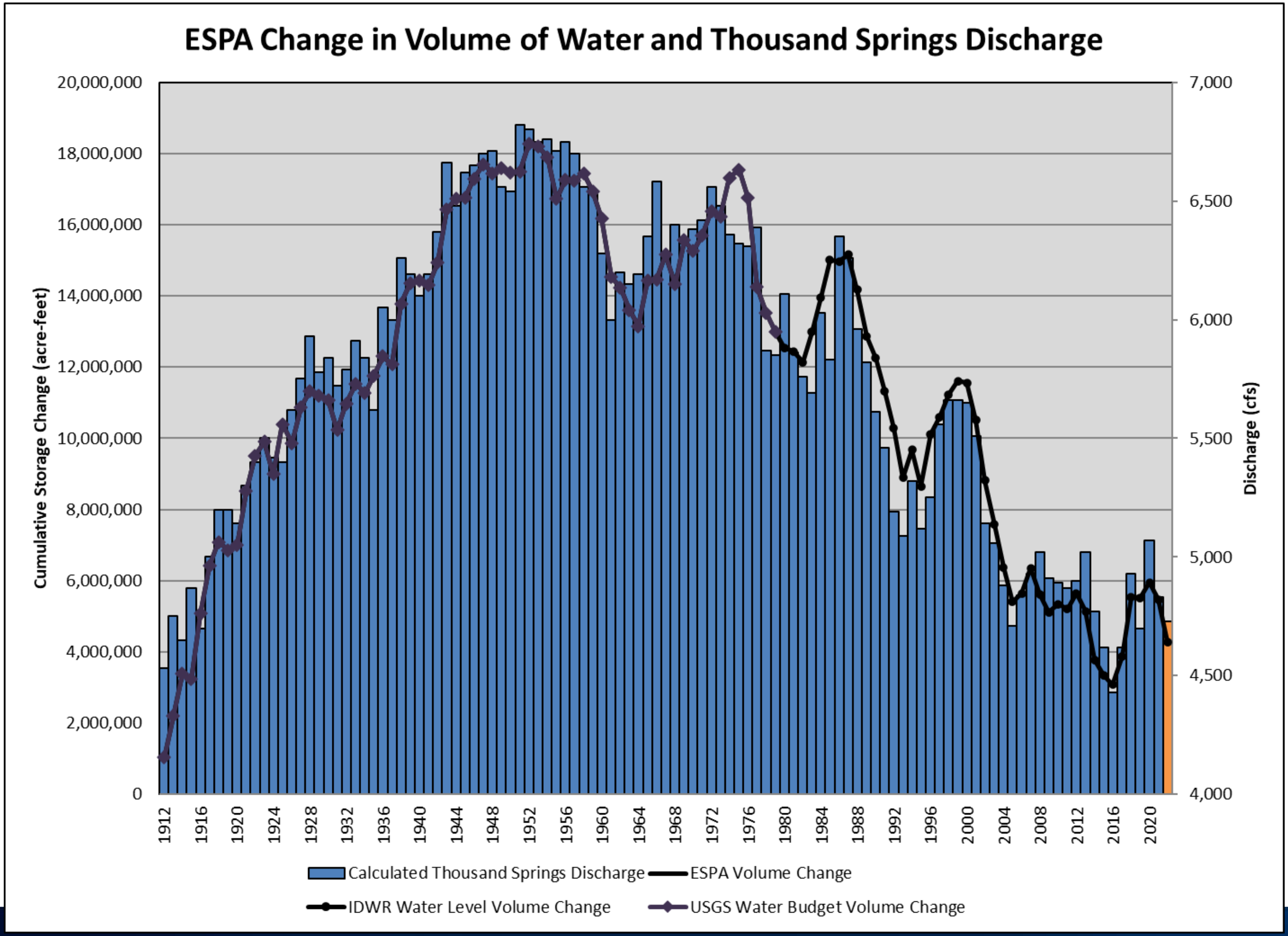
Current Calculation Method

- The current method was developed in 1995 (Kjelstrom) using data available at that time.

  - Total Spring Discharge = Actual Measurements (Measurable) + Statistical Estimates (Unmeasurable)



Spring Discharge – 1912 to 2022

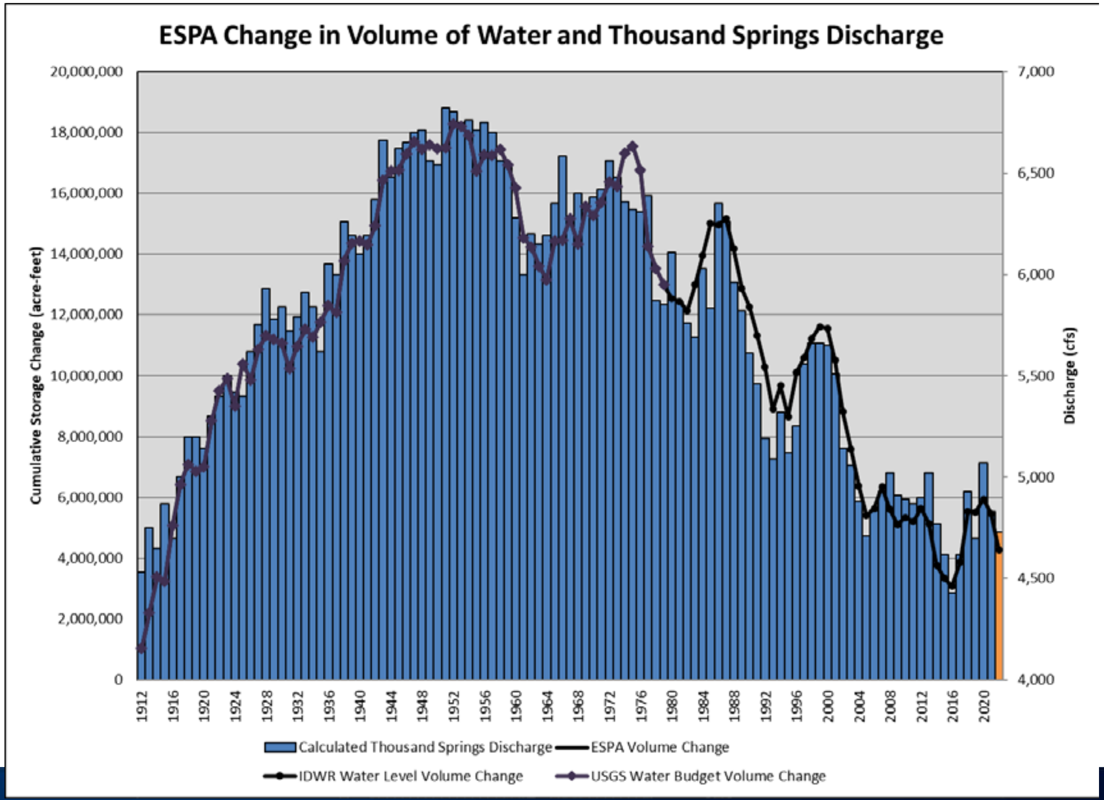


- Blue bars are the calculated discharge from Thousand Springs.
- Spring discharge is an indicator of water storage in the ESPA.

Need to Update the Calculation Method

- The current method was developed in 1995 (Kjelstrom) using data available at that time.
  - Total Spring Discharge = Actual Measurements (Measurable) + Statistical Estimates (Unmeasurable)

- The accuracy of the method is uncertain due to:
  - Changes in spring discharge due to continued decline in the aquifer.
  - The statistical portion of the method has not been updated with data collected since 1995.



Proposed Project - Methods

- Spring Discharge Statistical Method
  - Use actual measurements of springs plus statistical estimates for unmeasurable springs to calculate the discharge from the springs.
    - Spring Discharge = Actual Measurements (Measurable) + Statistical Estimates (Unmeasurable)
- Snake River Water Balance Method
  - Calculate the spring discharge in the Snake River between Milner Dam and King Hill.
    - Spring Discharge = Snake River at King Hill – Snake River at Milner – Tributary Inflow + Diversions + Reservoir Change in Contents – Return Flow

Proposed Project – Tasks

1) Collect Data
   - Existing discharge measurements for springs and Snake River since 1995.
   - New discharge measurements for springs in January, March, July, and November for four years.
2) Select Method
   - Assess the statistical method.
   - Assess the water balance method.
   - USGS recommendation.
3) Refine and Expand Selected Method.
   - Implement an automated method to estimate spring discharge and integrate new data as they are collected.
   - Reports, presentations, and publications.

Proposed Project – Timeline

FY23 Task 1	FY24 Task 1 & 2
Gather existing and collect new discharge measurements.	Collect discharge measurements. USGS assess and recommend a method.
Total $140,000	Total $182,000

FY25 Task 1 & 3	FY26 Task 1 & 3	FY27 Task 1 & 3
Collect discharge measurements. Refine the selected method.	Collect discharge measurements.	Collect discharge measurements. Implement an automated method to estimate spring discharge and integrate new data.

End Project

- Progress:
  - Evaluated the current method.
  - Determined if there is a better method.
  - Collected additional data about a prominent section of the Snake River.

Proposed Project – Budget

Cost Share	Partner	FY23	FY24	FY25	FY26	FY27	Total
40%	USGS	$56,000	$73,000	$69,000	$70,000	$44,000	$312,000
60%	IWRB	$84,000	$109,000	$103,000	$106,000	$67,000	$469,000
	Total	$140,000	$182,000	$172,000	$176,000	$111,000	$781,000

↑ (FY25)

USGS
Recommendation

Questions

ESPA Managed Recharge Program Future Development

Aquifer Stabilization Committee Meeting

Wesley Hipke

Water Projects Section Supervisor

September 8, 2021

Background - ESPA Camp

How to meet the physical goals & objectives:

- Improving aquifer levels (stabilization & potential enhancement).
- Increasing gains in some river reaches.
- Increasing water supply certainty for all users.
- Decreasing demand for litigation and administrative remedies.

Managed Recharge a Major Component

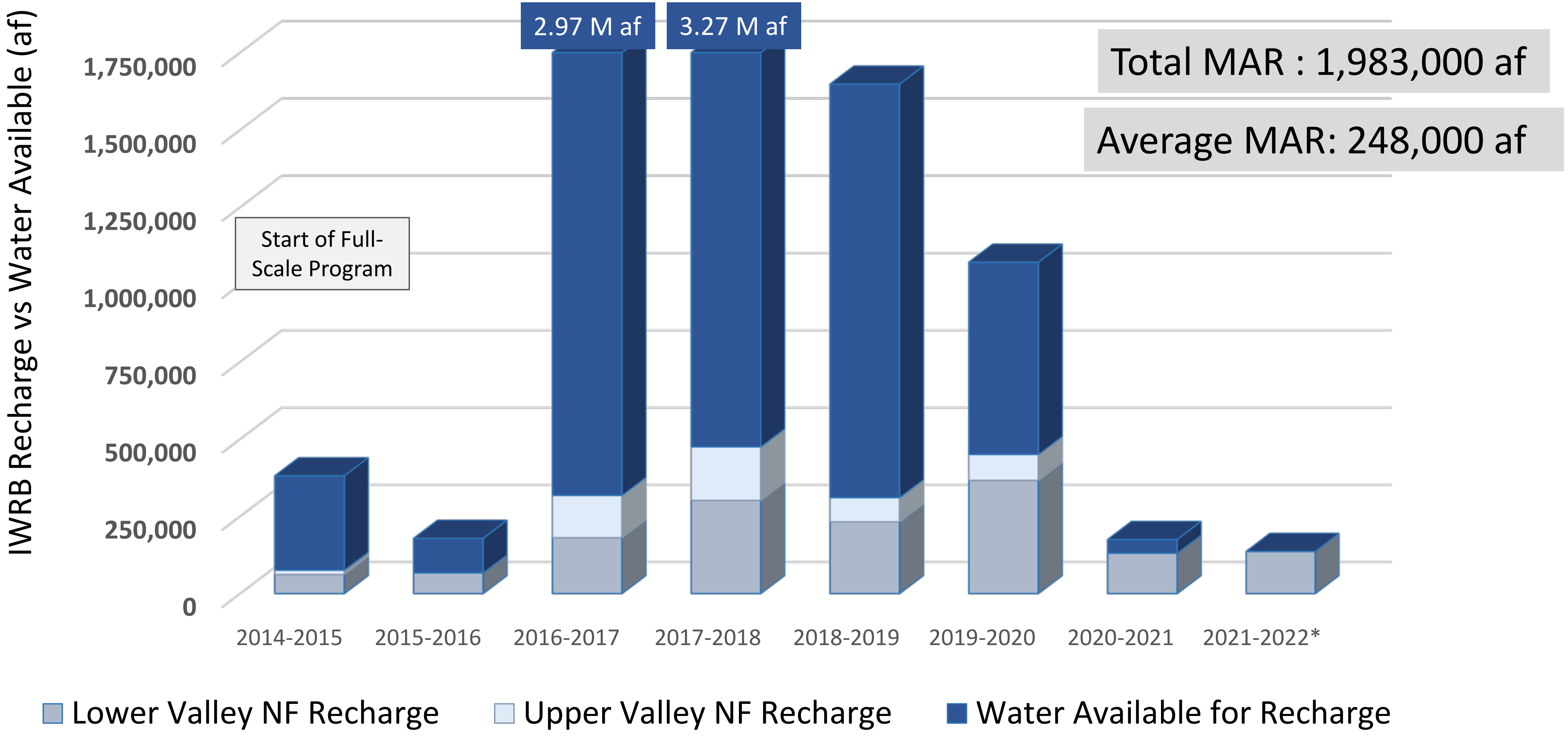
ESPA Managed Recharge Program - Goals

Senate Concurrent Res. No. 136 - 2016

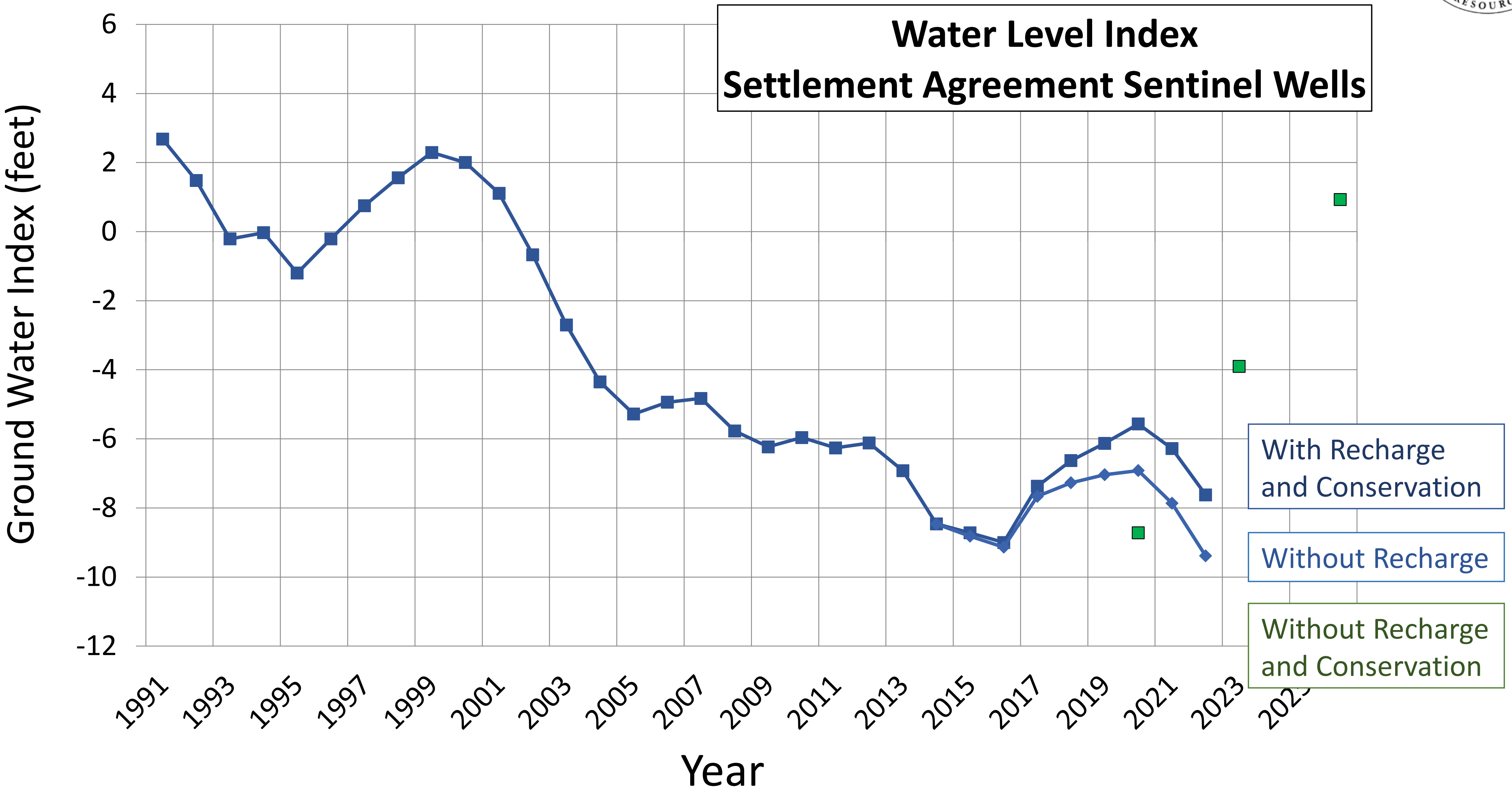
- The State recognizes the need for managed recharge of the ESPA and resolves that the State establish a managed recharge goal of 250,000 af/year on average across the ESPA."
- the State to develop managed recharge capacity to achieve 250,000 af/year on average on or before Dec. 31, 2024."
- Increase the 100,000 af/year average ESPA CAMP Phase I target for state funded managed recharge to 250,000 af/year average recharge across the ESPA."

IWRB Natural Flow (NF) Recharge

Snake River Water Available for Recharge vs. Water Recharged

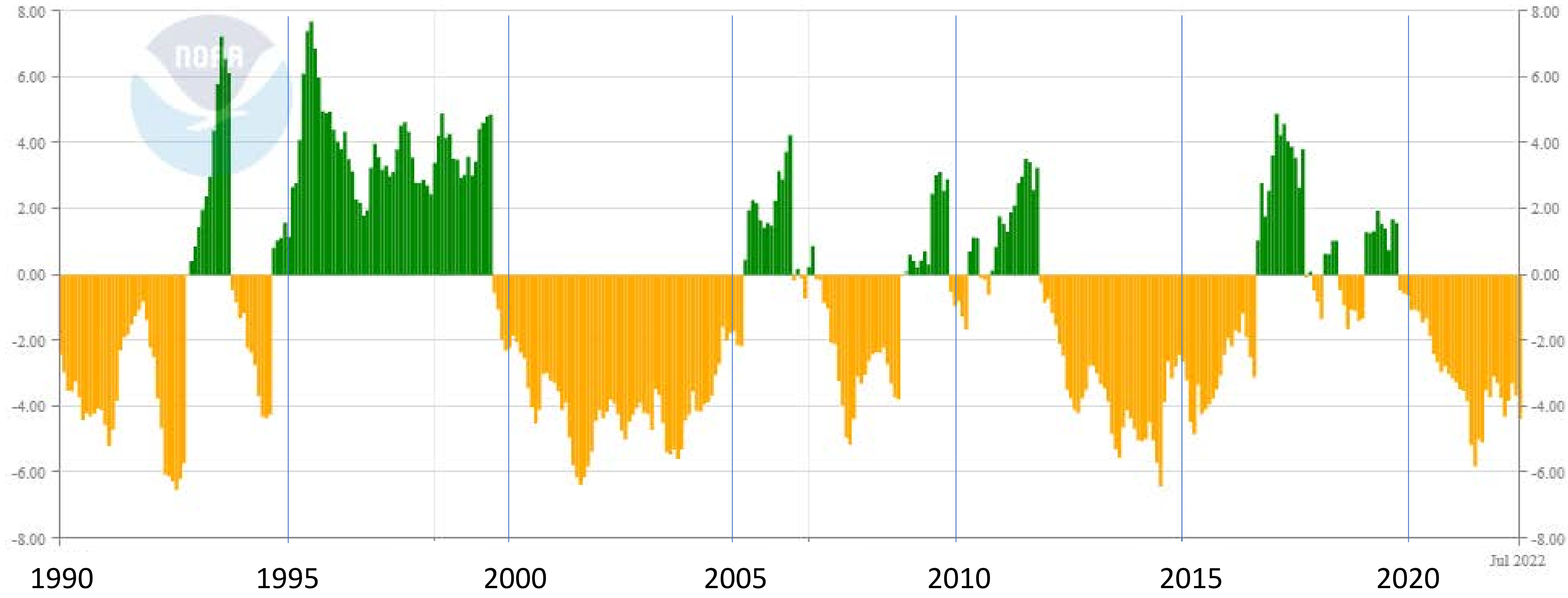


Impact to the Aquifer

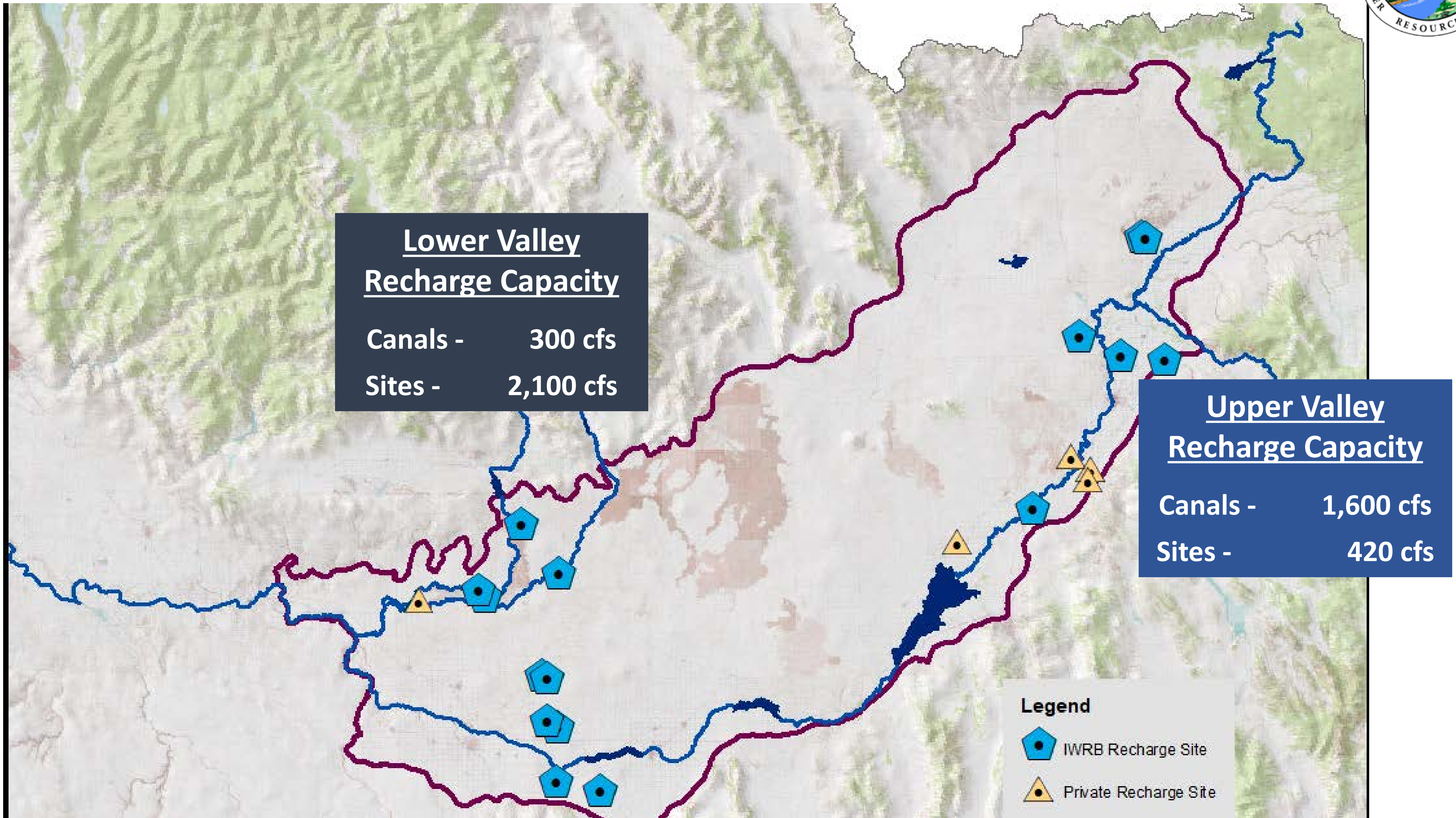


Wet / Dry Periods

Idaho, Climate Division 9 Palmer Drought Severity Index (PDSI)



IWRB Projects and Recharge Sites



Developing Future Capacity

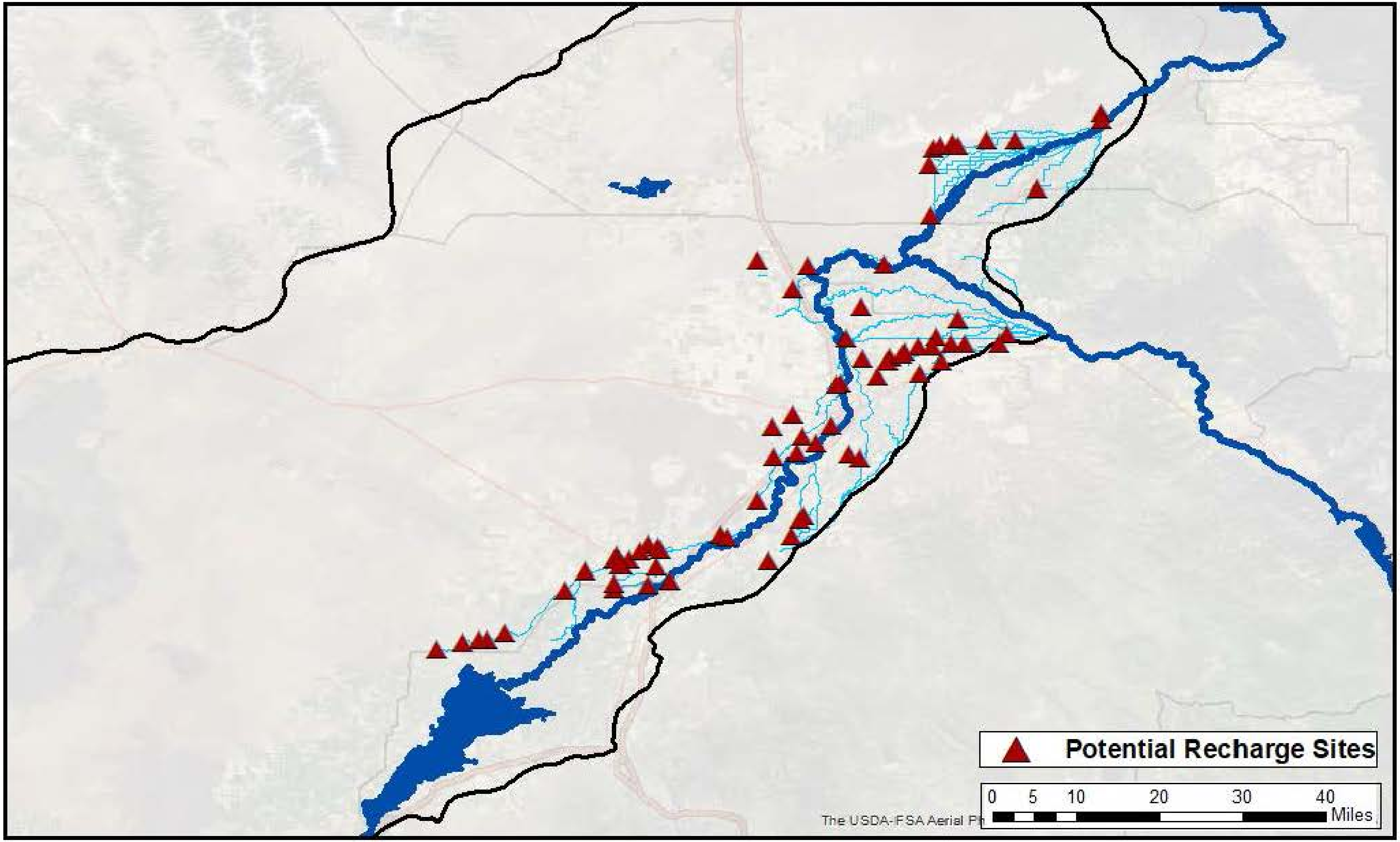
Upper Valley

- Develop more off-site capacity
- Short, Medium, and Long-term aquifer response

Lower Valley

- Opportunistic
- Diversify Locations

Known Potential Recharge Sites



Locating Recharge Sites

Water Availability

- Upper Valley - Available only during “wet” years
- When available large volumes

Ability to Recharge Aquifer

- Infiltration rate
- Depth to water
- Subsurface Geology

Delivery of Water

- Canal Capacity
- Construct Delivery System

Type of Benefit for Potential Recharge Sites

Tier I: Short-Term Benefit

- 1.5 years or less - 50% of the Recharge Water returns
- 10% or more of the Recharged Water returns within 4 months

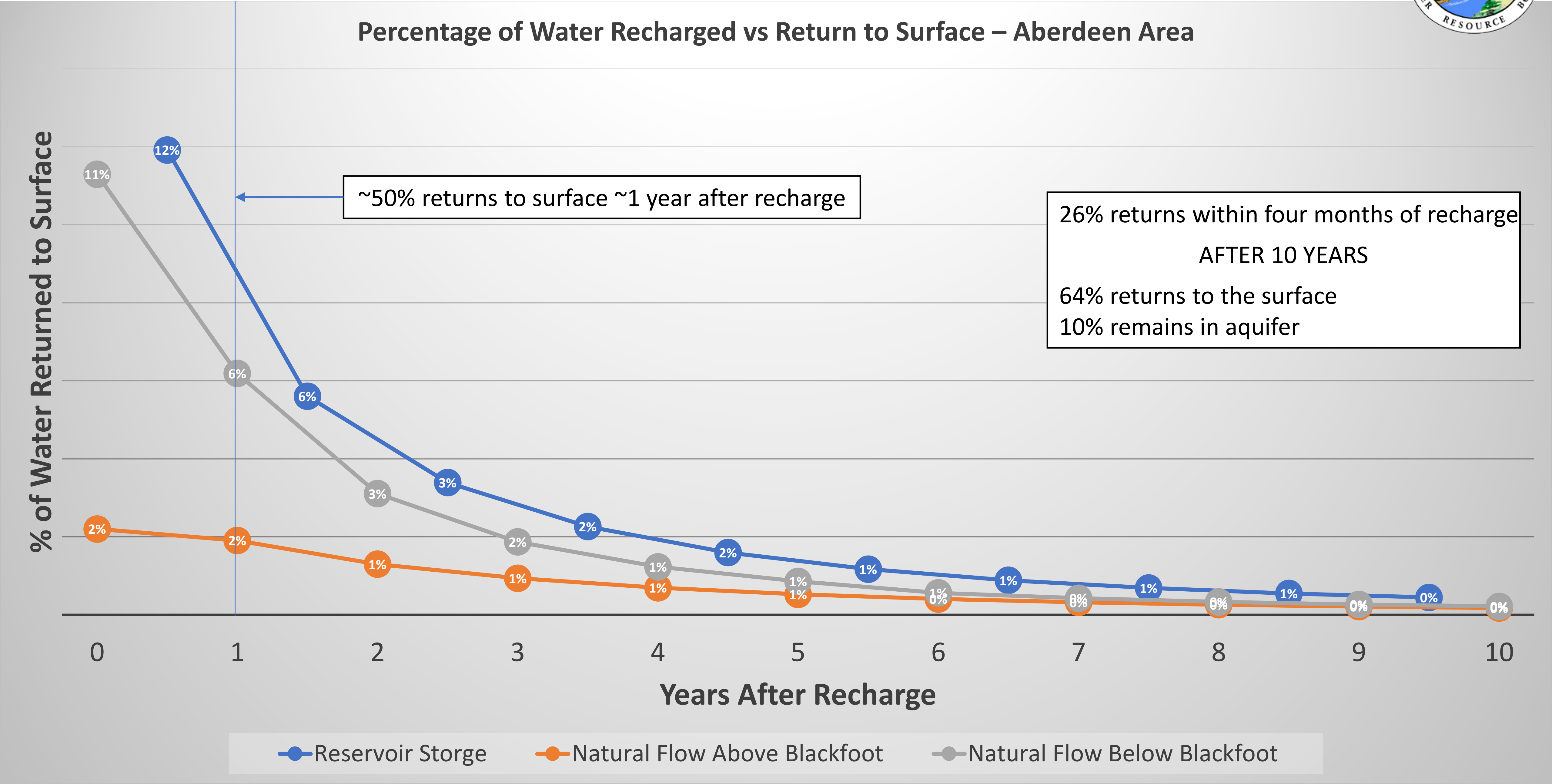
Tier II: Mid-Range Benefit

- 1.5 to 2 years - 50% of the Recharge Water to returns
- 5% to 10% of the Recharged Water returns within 4 months

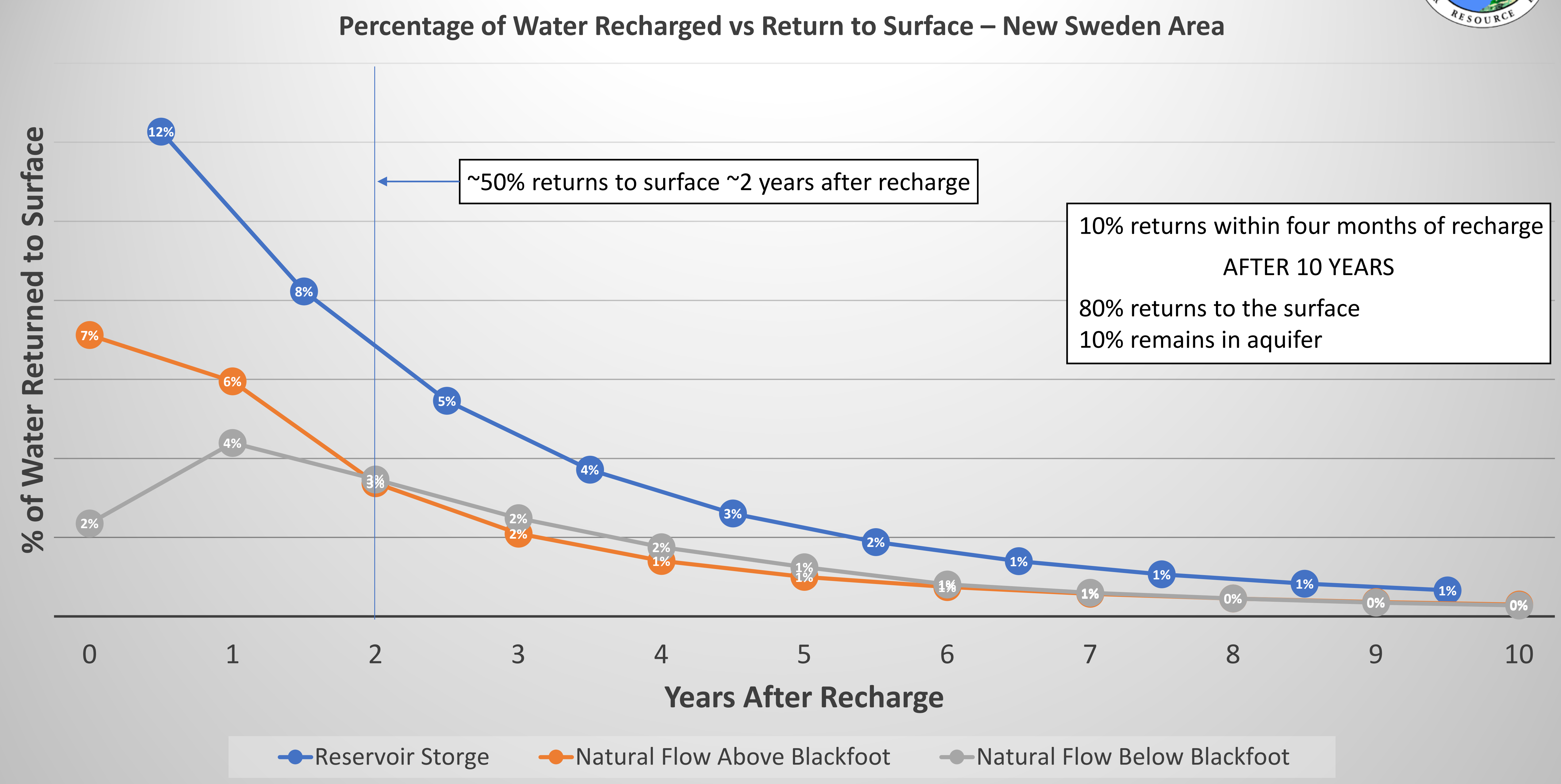
Tier III: Long-Term Benefit

- 2 years or more s 50% of the Recharge Water to returns
- Less than 5% of the Recharged Water returns within 4 months

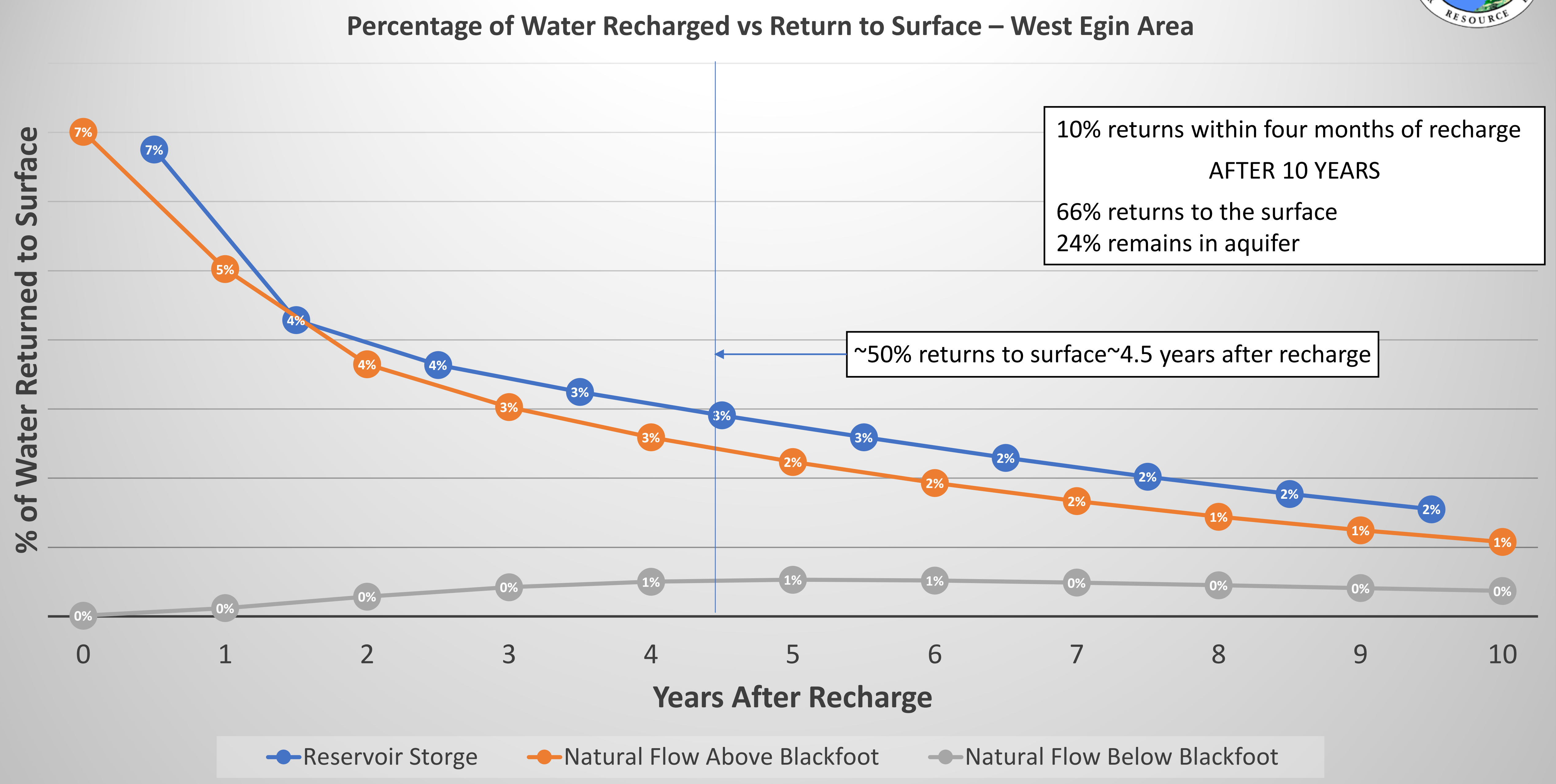
Tier I - Potential Recharge Sites



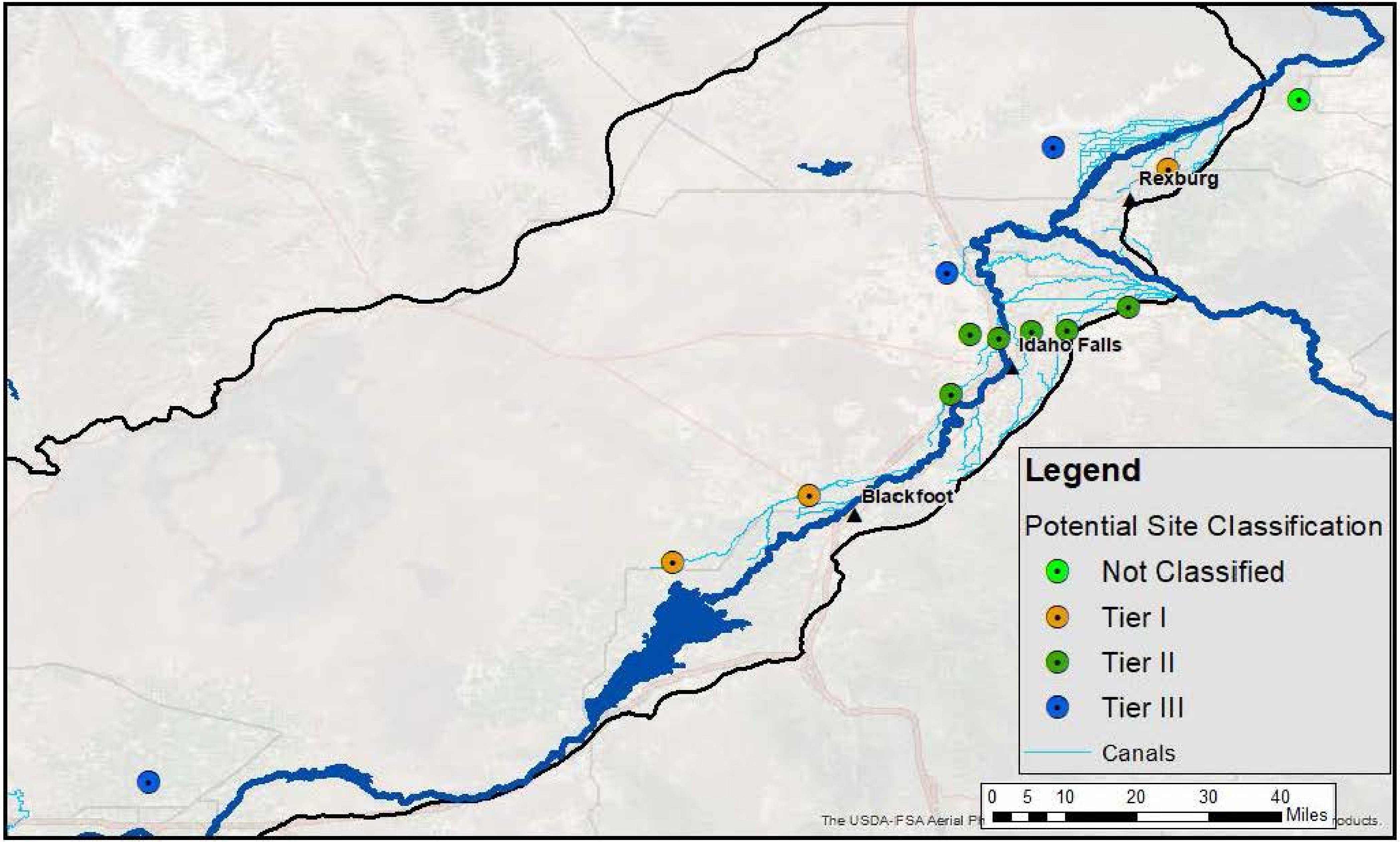
Tier II - Potential Recharge Sites



Tier III - Potential Recharge Sites



Potential Recharge Projects



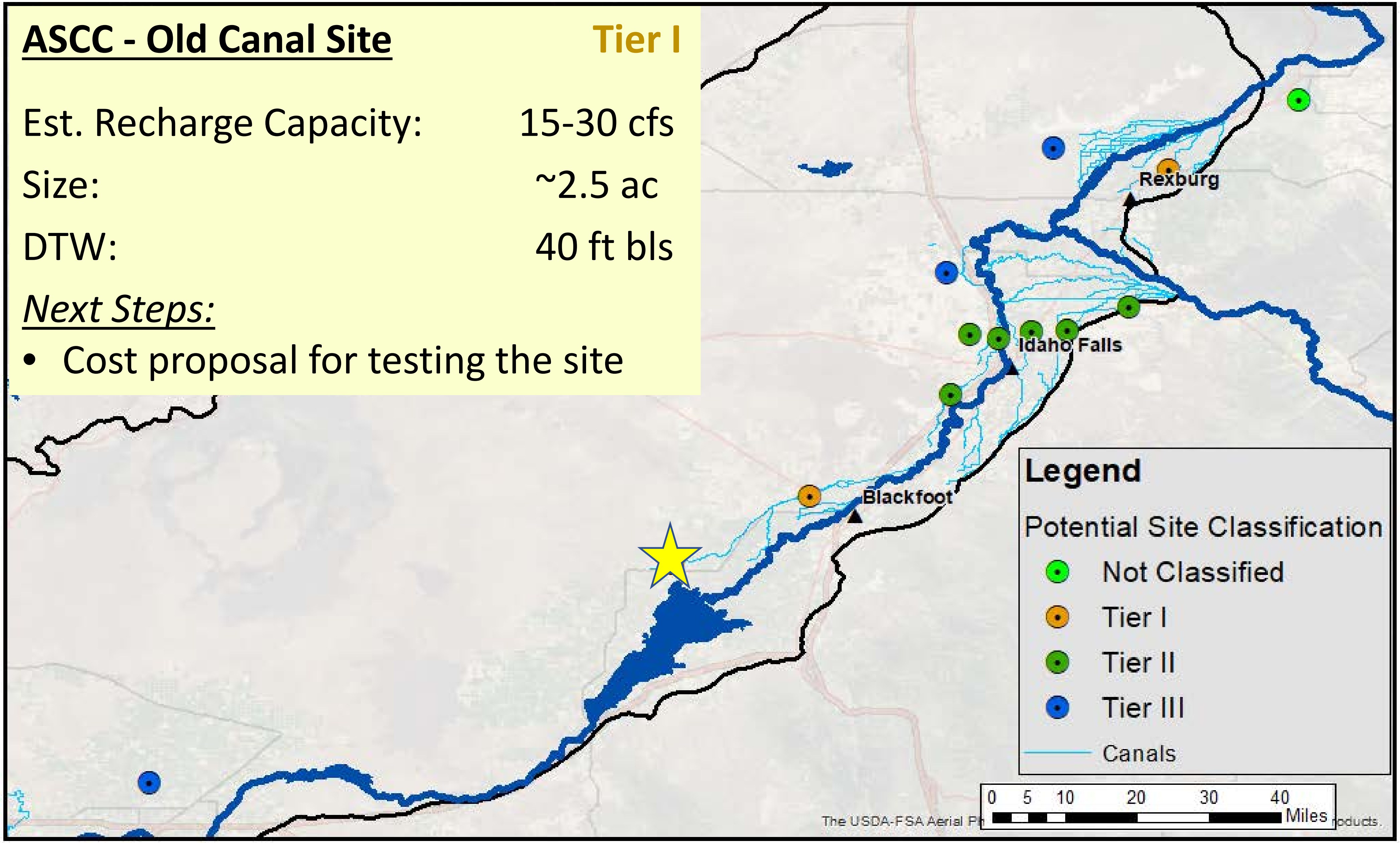
Potential Recharge Projects

<u>ASCC - Old Canal Site</u> **Tier I**

Est. Recharge Capacity:	15-30 cfs
Size:	~2.5 ac
DTW:	40 ft bls

<u>Next Steps:</u>

- Cost proposal for testing the site



Potential Recharge Projects

Peoples Canal: **Tier I**

Moreland Pits –

Est. Recharge Capacity: 19 cfs (?)

Size: 40+ ac

DTW: 40 ft bls

Next Steps:

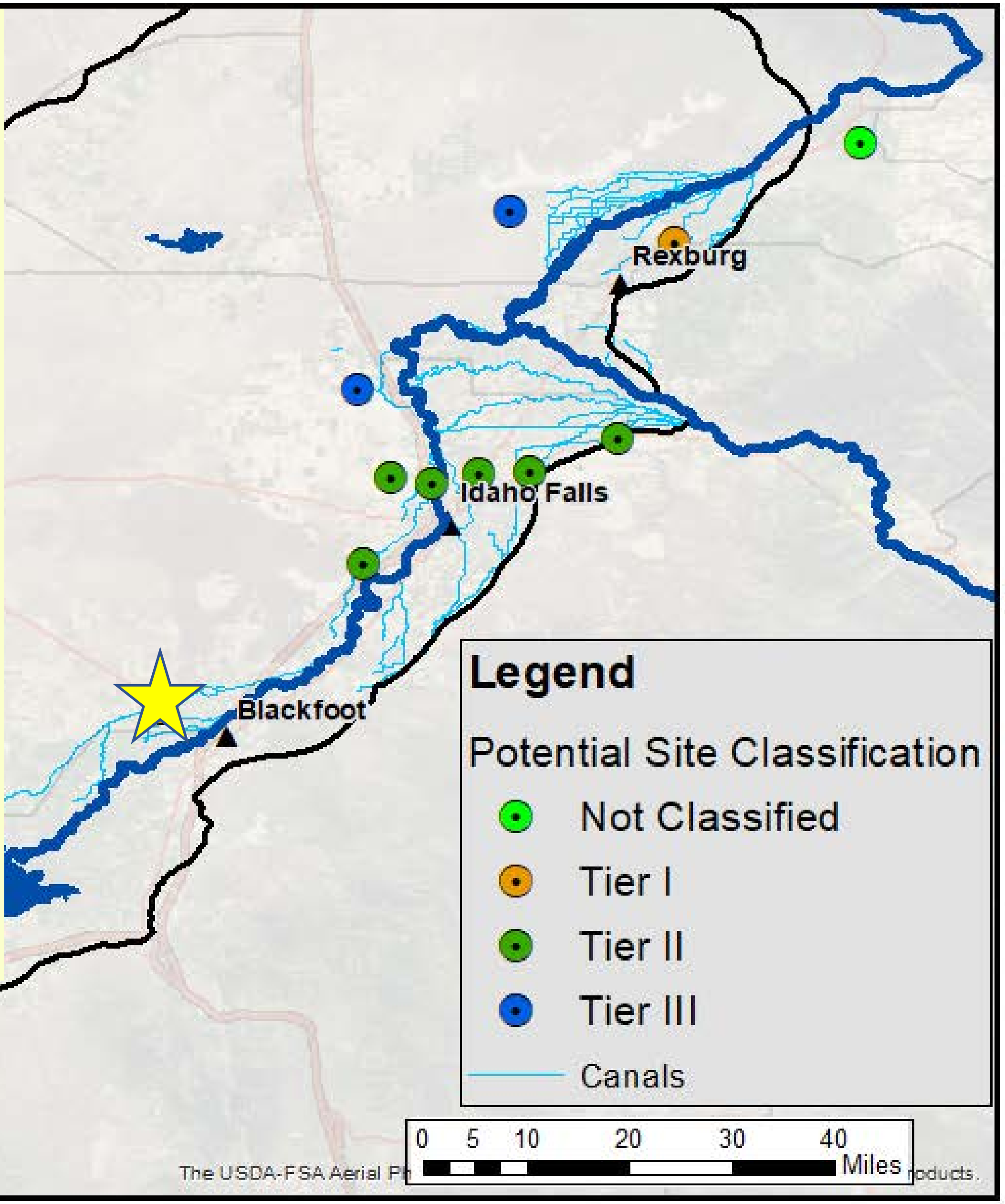
- Cost proposal for testing the site

Conversion Pipeline –

~2,000 ac

Next Steps:

- Obtain Engineering Report



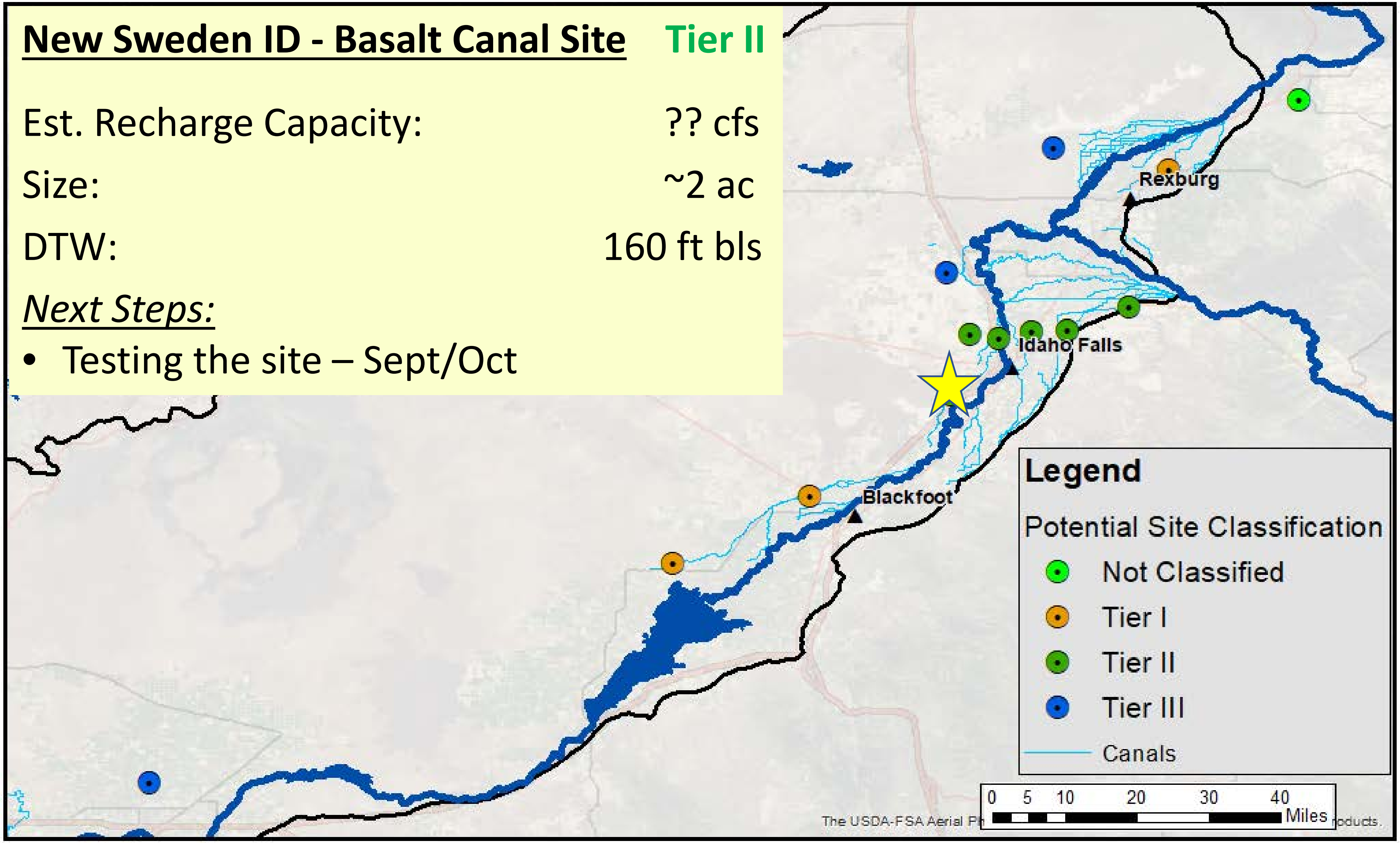
Potential Recharge Projects

New Sweden ID - Basalt Canal Site — Tier II

Est. Recharge Capacity:	?? cfs
Size:	~2 ac
DTW:	160 ft bls

Next Steps:

- Testing the site – Sept/Oct



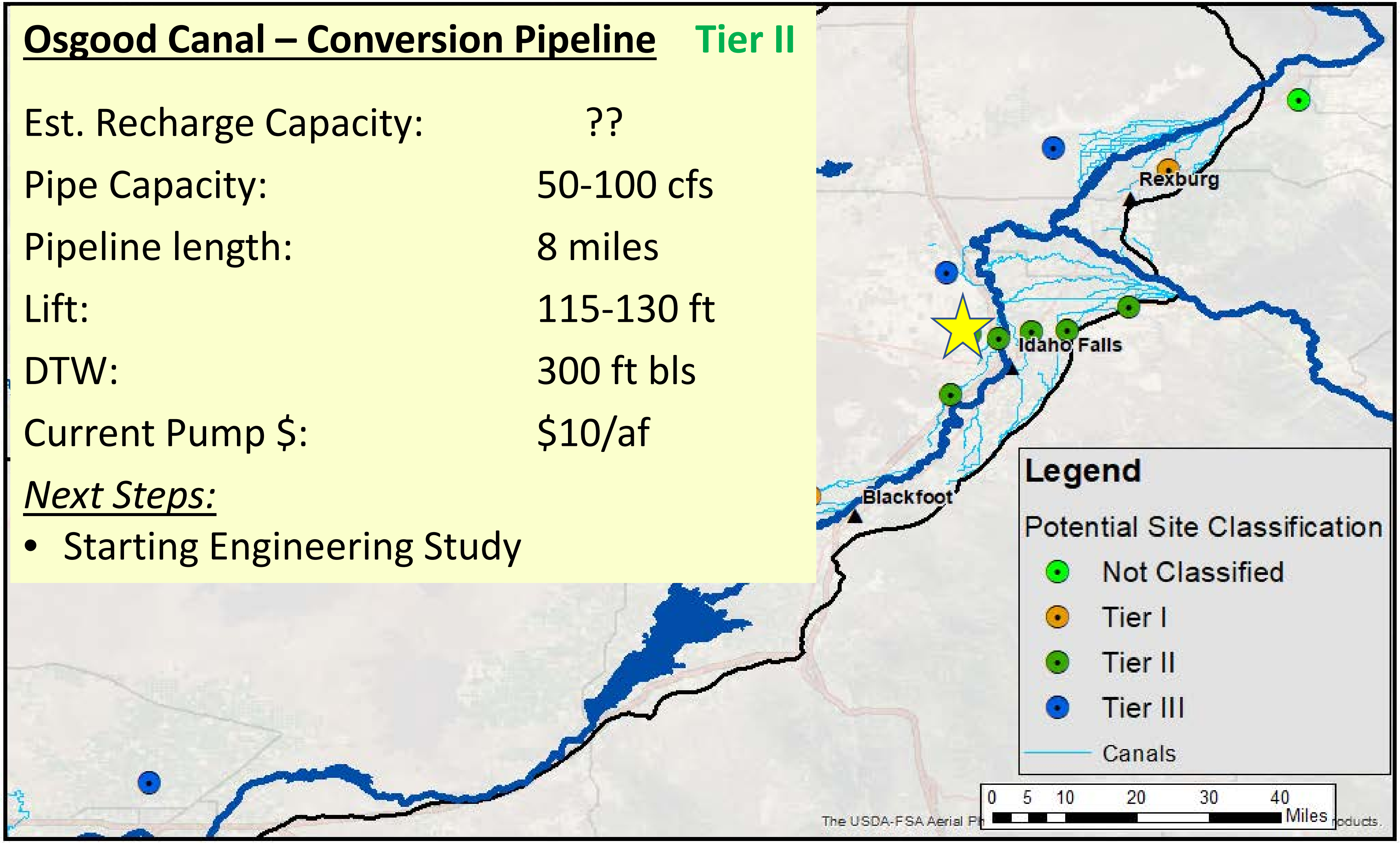
Potential Recharge Projects

Osgood Canal – Conversion Pipeline Tier II

Est. Recharge Capacity:	??
Pipe Capacity:	50-100 cfs
Pipeline length:	8 miles
Lift:	115-130 ft
DTW:	300 ft bls
Current Pump $:	$10/af

Next Steps:

- Starting Engineering Study



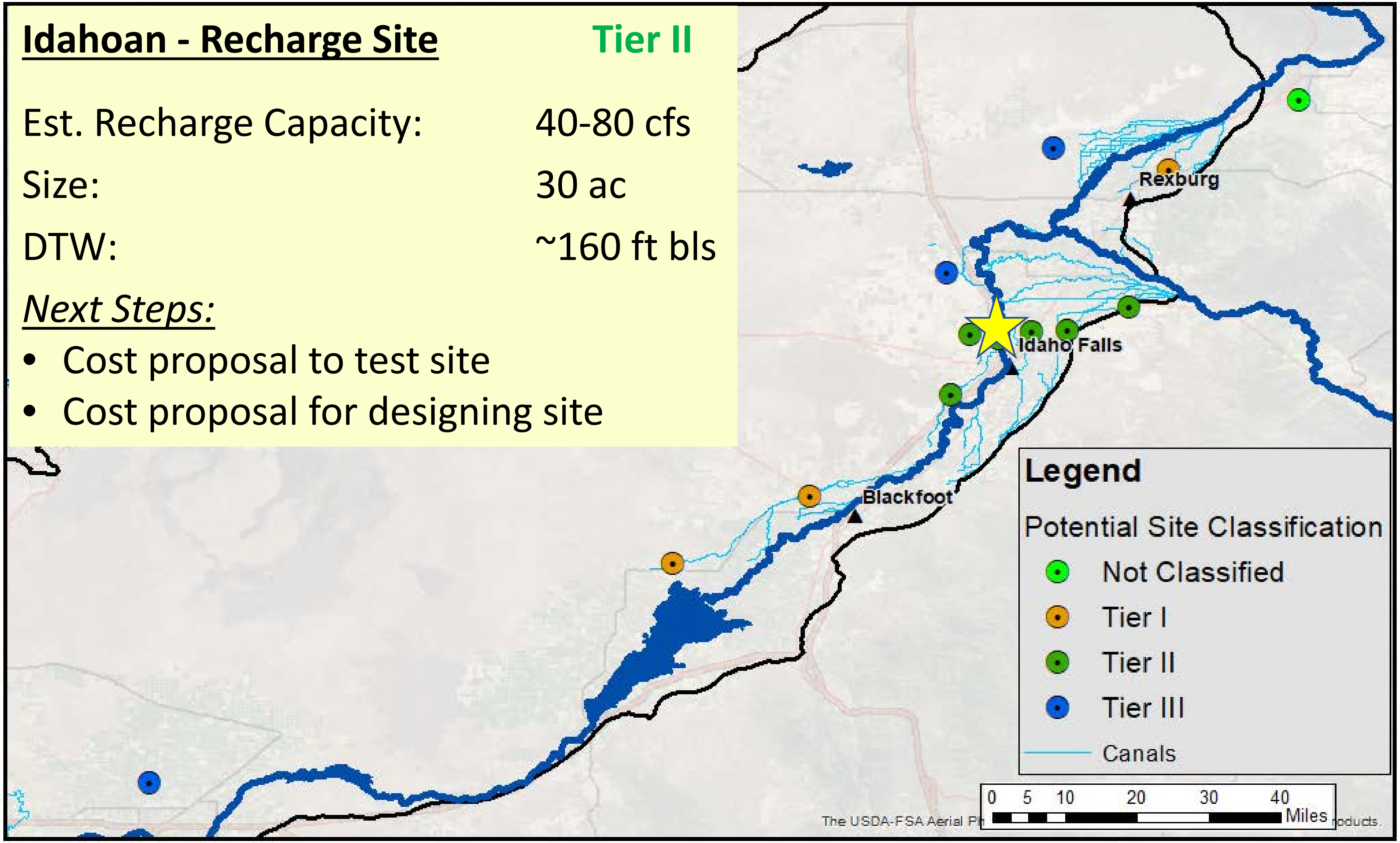
Potential Recharge Projects

Idahoan - Recharge Site **Tier II**

Est. Recharge Capacity:	40-80 cfs
Size:	30 ac
DTW:	~160 ft bls

Next Steps:

- Cost proposal to test site
- Cost proposal for designing site



Potential Recharge Projects

Progressive ID: **Tier II**

Riker Pit –

Est. Recharge Capacity:	15 cfs
Size:	3 ac
DTW:	~120 ft bls

Next Steps:

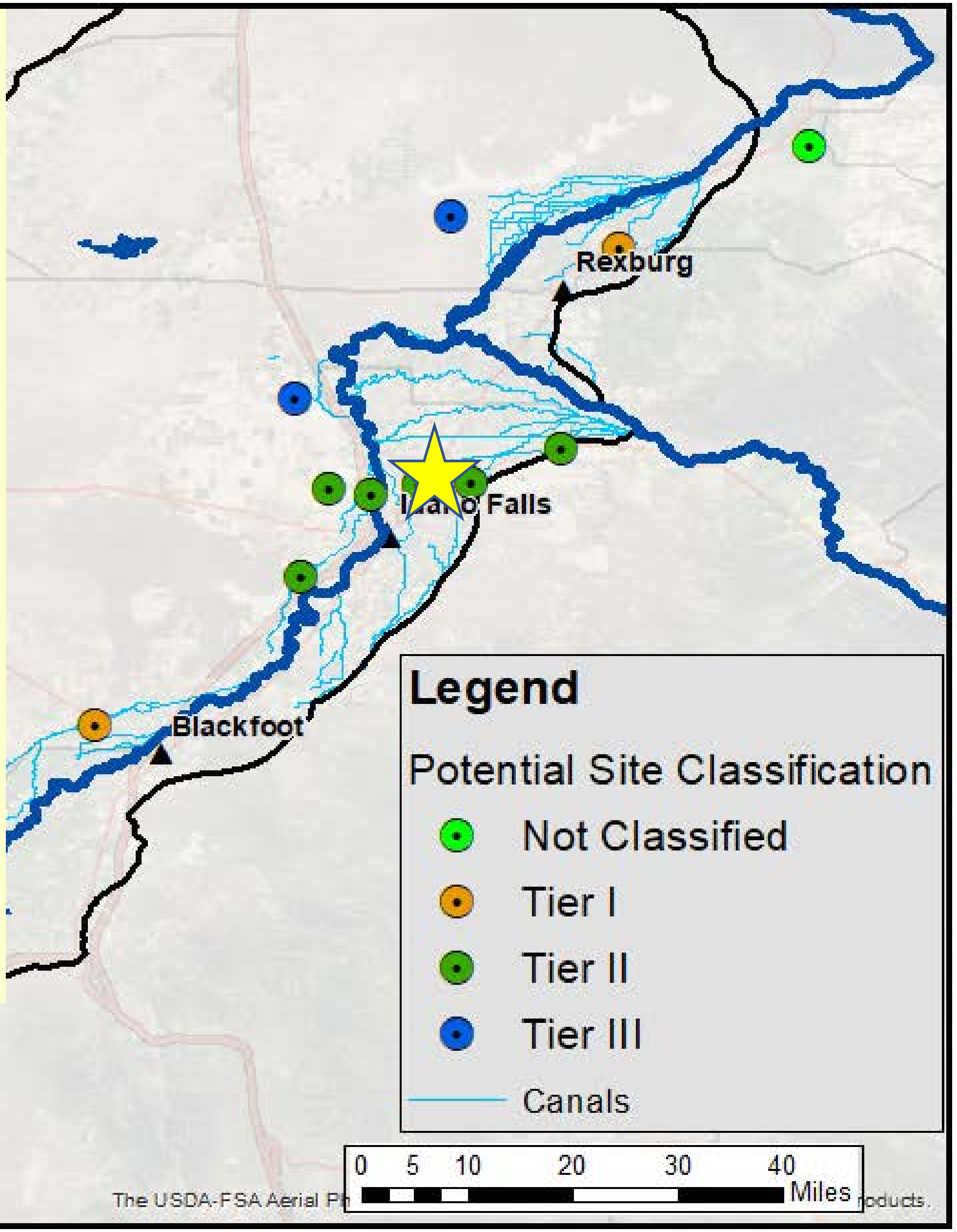
- Cost proposal for testing the site

Potential Recharge Wells –

Est. Recharge Capacity:	+5 cfs/well

Next Steps:

- Cost proposal for test well



Potential Recharge Projects

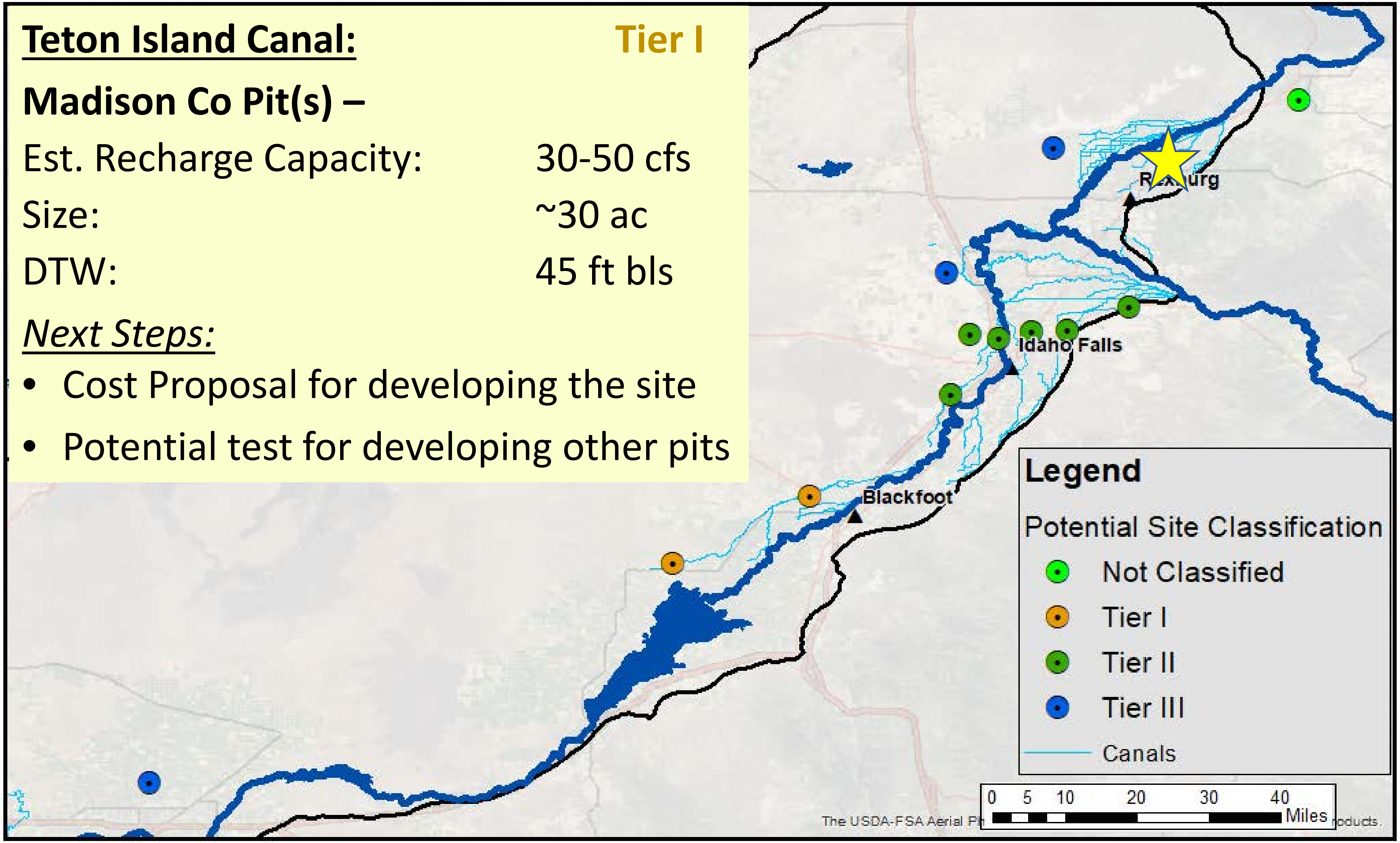
<u>Teton Island Canal:</u> **Tier I**

Madison Co Pit(s) –

Est. Recharge Capacity:	30-50 cfs
Size:	~30 ac
DTW:	45 ft bls

<u>Next Steps:</u>

- Cost Proposal for developing the site
- Potential test for developing other pits



Potential Recharge Projects

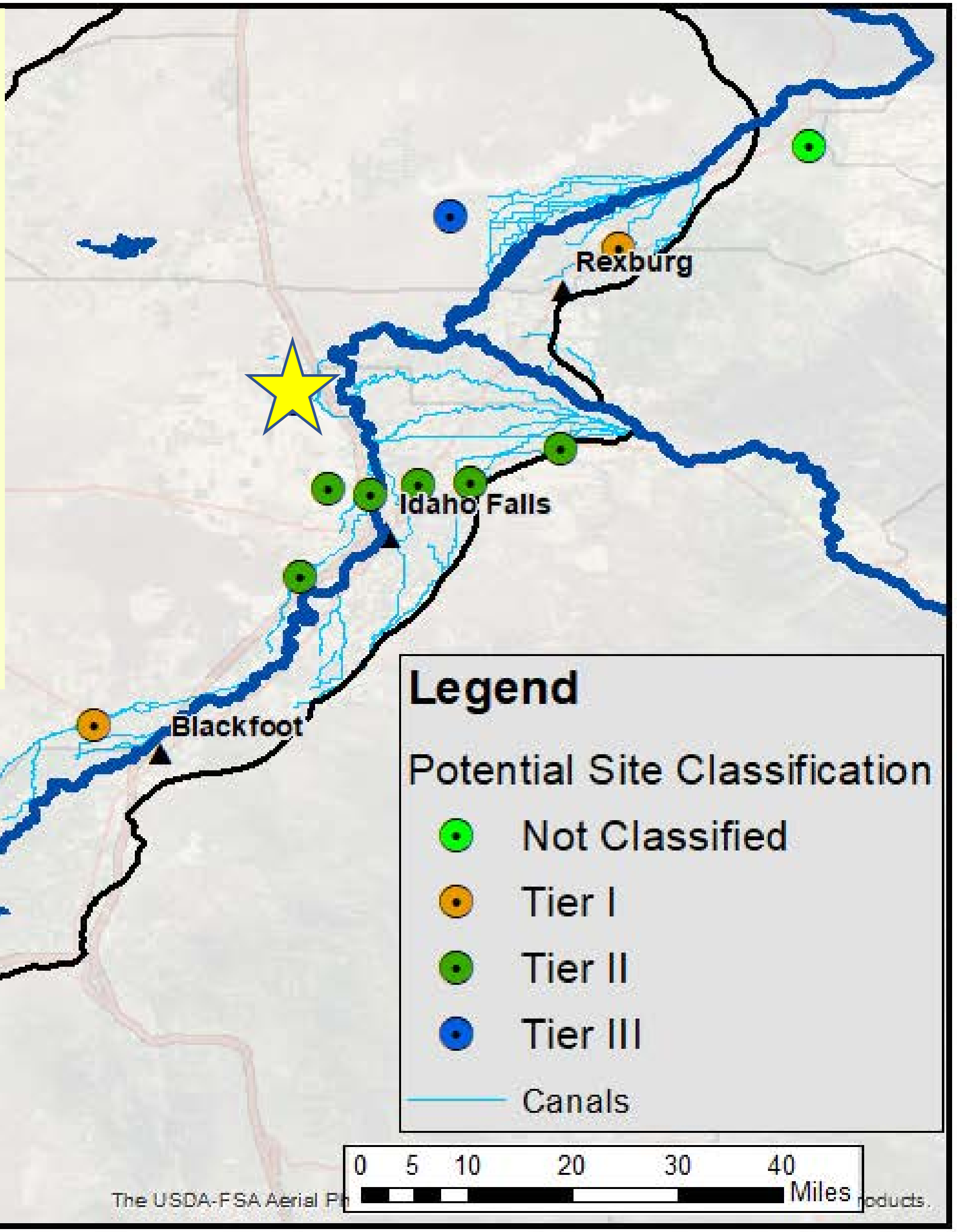
Butte Market Lake Canal: **Tier III**

Poitevin Injection Well Field –

Est. Recharge Capacity:	50-100 cfs
Size:	5-10 wells
DTW:	220 ft bls

Next Steps:

- Cost proposal for developing the well field(s)



Potential Recharge Projects

Enterprize Canal: **Tier II**

Swan Hwy Site –

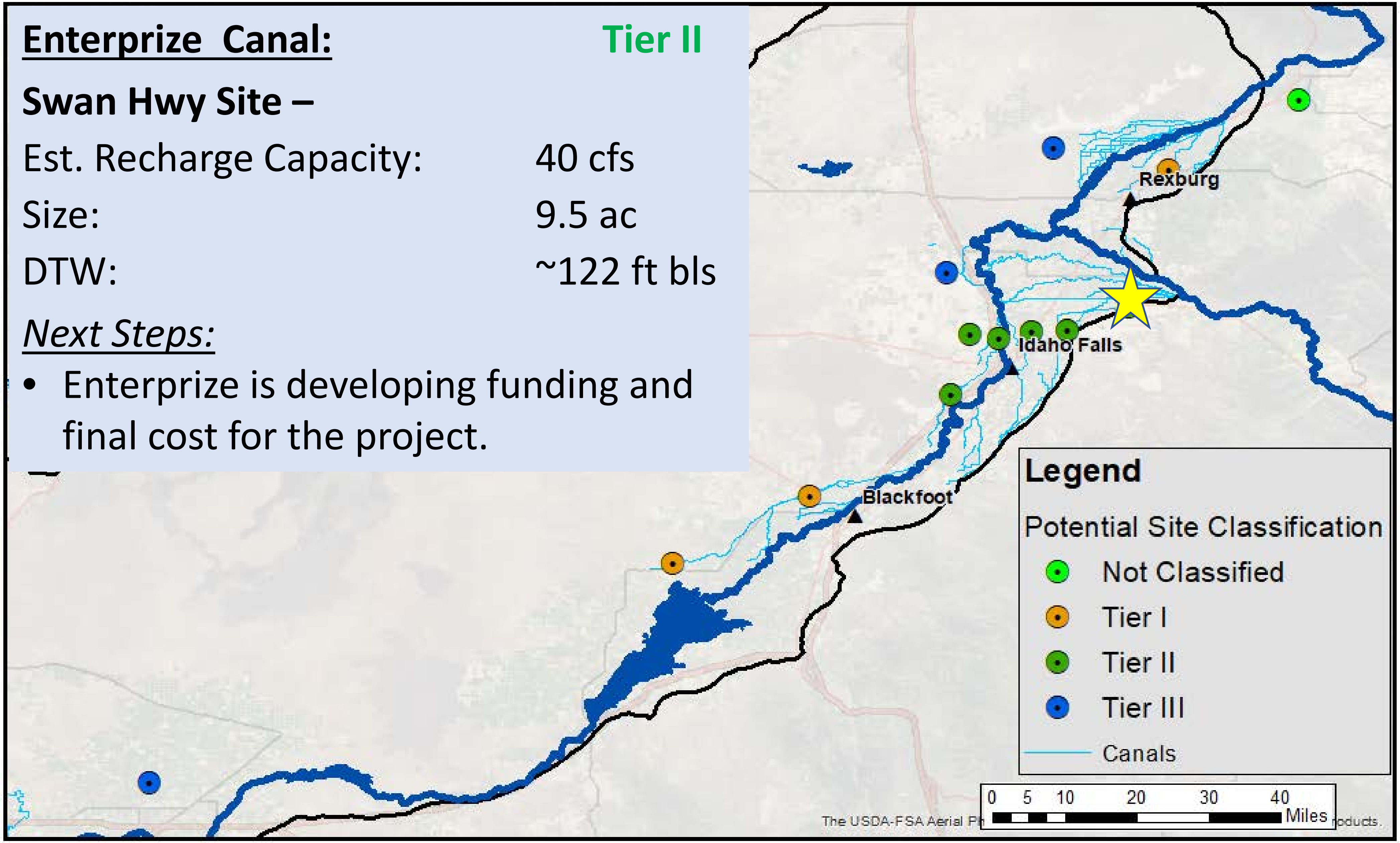
Est. Recharge Capacity: 40 cfs

Size: 9.5 ac

DTW: ~122 ft bls

Next Steps:

- Enterprize is developing funding and final cost for the project.



Potential Recharge Projects

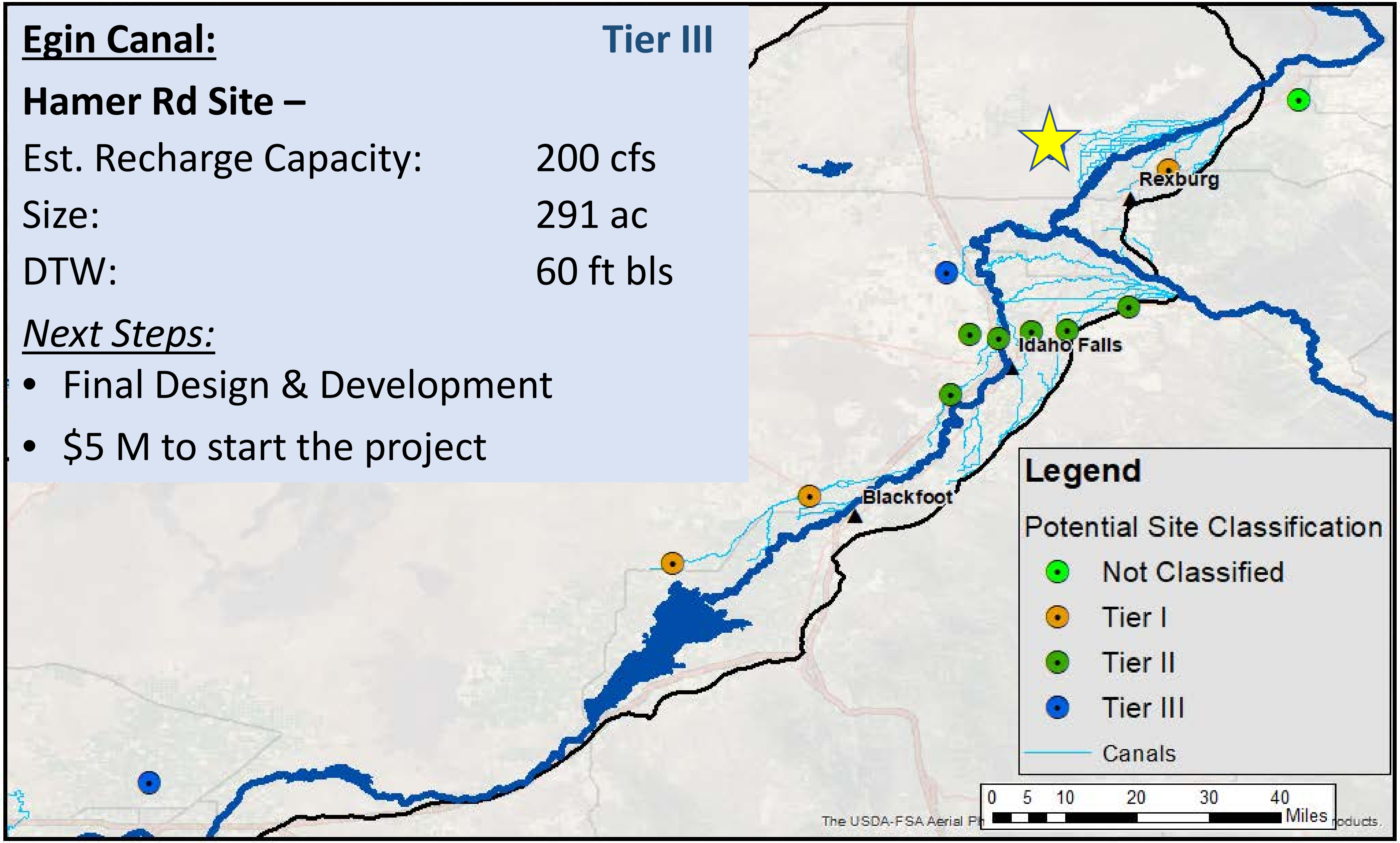
<u>Egin Canal:</u> **Tier III**

Hamer Rd Site –

Est. Recharge Capacity:	200 cfs
Size:	291 ac
DTW:	60 ft bls

<u>Next Steps:</u>

- Final Design & Development
- $5 M to start the project



Potential Recharge Projects

Minidoka ID: **Tier III**

Goyne Sump Site –

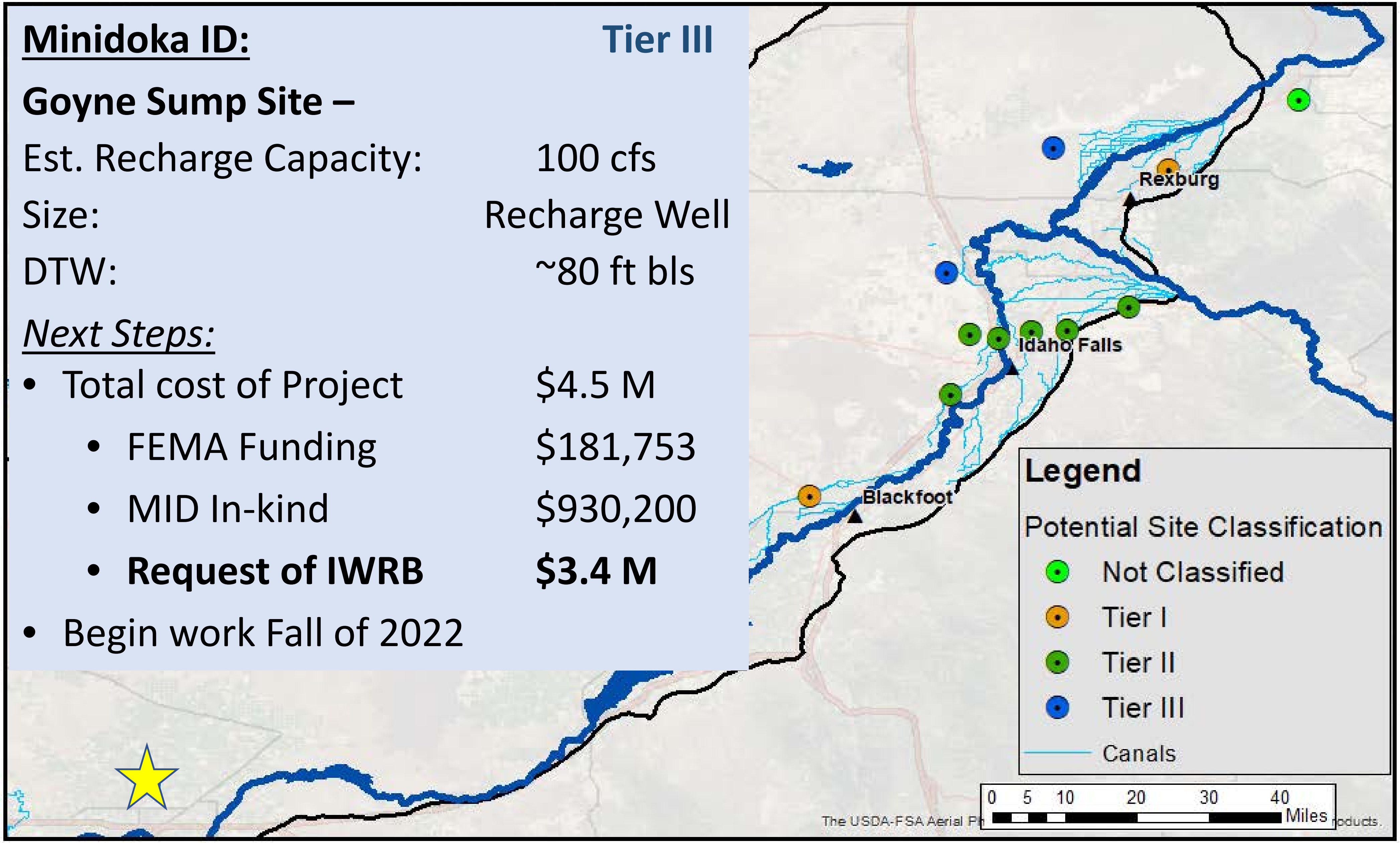
Est. Recharge Capacity: 100 cfs

Size: Recharge Well

DTW: ~80 ft bls

Next Steps:

- Total cost of Project $4.5 M
    - FEMA Funding $181,753
    - MID In-kind $930,200
    - **Request of IWRB** **$3.4 M**
- Begin work Fall of 2022



Questions

Impacts to the Aquifer