



AGENDA

IDAHO WATER RESOURCE BOARD

Brad Little
Governor

Roger W. Chase
Chairman
Pocatello
District 4

Jeff Raybould
Vice-Chairman
St. Anthony
At Large

Vacant
Secretary
At Large

Peter Van Der Meulen
Hailey
At Large

Albert Barker
Boise
District 2

Vacant
District 3

Dale Van Stone
Hope
District 1

Jo Ann Cole-Hansen
Lewiston
At Large

Board Meeting No. 1-21

WORK SESSION

Wednesday, January 20, 2021

1:00 p.m. (MST)

Water Center

Conference Rooms 602 C & D / Zoom Online

322 E. Front St.

BOISE

(This meeting will be conducted using guidance in response to the public health emergency caused by the COVID-19 pandemic. Masks are required & in person attendance is limited. Call or email if you have questions: jennifer.strange@idwr.idaho.gov)

Board Members & the Public may participate via Zoom

[Click here to join our Zoom Meeting](#)

Dial in Option: 1(253) 215-8782

Meeting ID: 966 7960 6430 Passcode: 808873

1. Roll Call
2. Presentation on Federal Issues by Mark Limbaugh
3. Boise River Feasibility Study/Anderson Ranch Dam Raise
4. Big Lost Basin Groundwater Investigations
 - a. Big Lost Basin DOE Funded Investigation Update
 - b. Water Level Trend Update
5. ESPA & Wood River Model Updates
6. Treasure Valley Groundwater Model Update
7. Water Supply Outlook
8. Potential Legislation of Interest
9. Administrative Rules Update
10. Non-Action Items for Discussion
11. Executive Session: Board will meet pursuant to Idaho Code §74-206(1) subsection (f) to communicate with legal counsel regarding legal ramifications of and legal options for pending litigation, or controversies not yet being litigated but imminently likely to be litigated. Topic: IWRB Water Right Applications 01-10613, 21-7577, 21-7578, 21-7580, and 21-13160. And meet pursuant to Idaho Code § 74-206(1) subsection (d) to consider records that are exempt from disclosure. Topics: Anderson Ranch Dam Raise and Draft Legislation to create Idaho Code §42-1765B. Executive Session is closed to the public.
12. Adjourn

* 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 online. 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
From: Brian Patton
Date: January 8, 2021
Re: Update from Mark Limbaugh



Mark Limbaugh of the Ferguson Group will provide a report on accomplishments on federal issues on behalf of the IWRB over the past year, as well as what to expect on federal issues from the upcoming administration and congress.

Idaho Water Resource Board Federal Affairs Report

January 20, 2021



- FY2021/FY2022 Appropriations
- FY 2021 WaterSMART – WIIN Act Funding Update
- Water Infrastructure Bills – 116th Congress
- IWRB 2020 Accomplishments
- IWRB Priorities 2021

Appropriations FY2021/2022



- FY2021 Spending Bills Enacted End of December
 - Army Corps of Engineers funding increased by \$145M over FY2020 funding levels
 - Bureau of Reclamation funding increased by \$11M over FY2020 funding levels

- Additional Funding Provided – Reclamation

- Water conservation and delivery - \$255.1M
 - WIIN Act water storage funded \$134M
 - Critical feasible conveyance repairs - >\$8M
 - Water conservation/banking or infrastructure in drought prone areas (priority Colorado River Basin) - \$40M
 - Snowpack modeling data processing - \$3M
 - Great Plains aquifer recharge and recovery - \$20M
- Rural Water Projects - \$114.7M
- Environmental restoration and compliance \$42.5M
 - WIIN Act projects - \$40M
- Fish passage - \$11.4M

Appropriations FY2021/2022



- Additional Funding Provided – WaterSMART
 - Water and Energy Conservation Grants - \$55M
 - Title XVI - \$63.6M
 - WIIN Act reuse projects - \$20M
 - WCFSP - \$2.1M
 - Cooperative Watershed - \$4.2M
 - Basin Studies - \$2.4M (+ \$7M from Spending Plan)
 - Drought Response - \$4M (+\$10.5M from Spending Plan)

Appropriations FY2021/2022



- Additional Funding Provided – WIIN Act Sec. 4007
 - WIIN Projects Named in FY2020 Appropriations Bill
 - Boise River Basin Feasibility Study - \$2.88M
 - Boise Storage Project was deemed feasible before January 1, 2021 for construction funding eligibility
 - Construction project was recommended by the Interior Secretary and was named in the FY 2021 appropriations bill - \$10M Federal share
 - WIIN Act Sec. 4007 Funding Available
 - \$418M authorized and appropriated storage funding – FY2020
 - \$254.6M allocated to WIIN Act projects through FY2021
 - \$134M additional appropriation in FY2021
 - Total of \$297.4M now available for FY2022 allocations

- Consolidated Appropriations Act of 2020
 - Water Resources Development Act (WRDA) 2020
 - Groundwater recharge
 - S. 1570/HR 2871 aquifer recharge provisions
 - Aging federal infrastructure funding/financing
 - Aging infrastructure account – revolving (federal projects)
 - WaterSMART program reauthorization
 - Broadened participation/projects
 - ASO Program Authorization
 - Reclamation in coordinating role

IWRB Accomplishments - 2020



- Aquifer Recharge
 - S. 1570/H.R. 2871 Aquifer Recharge Flexibility Act
 - Enacted into law in HR 133 omnibus spending bill
- Water Supply Infrastructure
 - WIIN Act Water Storage Funding
 - FY 2021 – Boise River Basin study named in HR 133 omnibus spending bill to receive \$2.8M in additional funding to Reclamation to complete study
 - FY 2021 – Construction of Anderson Ranch Reservoir raise was determined feasible and was recommended for \$10M in funding under WIIN Act in HR 133 omnibus spending bill

- IWRB – 2021 and Beyond
 - Water Supply Infrastructure Development
 - Boise River Basin – Anderson Ranch Raise
 - “Construction” must commence by December 31, 2021 to receive WIIN Act funding (\$10M)
 - Look for New Partnership Opportunities with Reclamation
 - Studies and Projects – New Storage and Aquifer Recharge
 - Island Park Reservoir Project
 - Other Priorities

- IWRB – 2021 and Beyond
 - New Federal Water Infrastructure Funding
 - WIIN Act Extension (or Substitute) Legislation
 - WaterSMART Grants – Future IWRB Studies/Projects
 - Additional Funding Sources – Infrastructure Stimulus
 - Reclamation Access to WIFIA Loan Program (EPA)
 - NRCS – EQIP and RCPP Partnership Opportunities
 - Flood Control Manual Study – Ririe Reservoir
 - December 2020 – Completed Phase I
 - Decision Point for Commencement of Phase II
 - 2021 Washington DC “Virtual” Outreach

Questions

Mark Limbaugh
The Ferguson Group LLC
1901 Pennsylvania Avenue, NW, Suite 700
Washington, DC 20006
(202) 331-8500

MLimbaugh@tfgnet.com
www.thefergusongroup.com

Memorandum



To: Idaho Water Resource Board
From: Cynthia Bridge Clark and Emily Skoro
Date: January 20, 2021
Re: Boise River Feasibility Study & Anderson Ranch Dam Raise

REQUESTED ACTION: Consider two resolutions regarding the Anderson Ranch Dam Raise Project – 1) authorize a contract for financial advisor services, and 2) address potential impacts to protected river reaches on Lime Creek and the South Fork of the Boise River.

The following is a status report on the Boise River Feasibility Study (study) and the Anderson Ranch Dam Raise alternative.

Project Concept

The Idaho Water Resource Board (IWRB) partnered with the Bureau of Reclamation (Reclamation) to complete a feasibility study of new surface water storage within the Boise River Drainage (study). The study initially included an evaluation of small raises of the three large dams on the Boise River system (Anderson Ranch, Arrowrock, and Lucky Peak Dams) and was later focused on a raise of Anderson Ranch Dam. The preferred concept is a 6-foot dam raise resulting in approximately 29,000 acre-feet of storage capacity.

The study was authorized under the Water Infrastructure Improvements for the Nation Act (WIIN Act, P.L. 114-322). General requirements under the WIIN Act include:

- Continuing authority only applies to projects determined to be feasible before January 1, 2021. Additionally, projects can only receive federal funds if the project is designated by name in Federal appropriations legislation.
- Reclamation must secure agreement(s) with project partner(s) providing for upfront funding of the non-Federal share of the capital costs, or post-authorization costs, of the project.
- The WIIN Act requires the project to be under construction by December 16, 2021. The term “construction”, as defined by Reclamation, means the designing, materials engineering and testing, surveying, and building of water storage including additions to existing water storage and construction of new storage facilities, exclusive of any Federal statutory or regulatory obligations relating to any permit, review, approval, or other such requirement. Reclamation is currently clarifying the details of this requirement.

In 2019, the Idaho Legislature passed House Joint Memorial 4 (HJM004) and House Bill No. 285 (HB285). HJM004 was passed to support the raising of Anderson Ranch Dam as one of the priorities for the State of Idaho in the interest of promoting additional water security. HB285 provided a \$20,000,000 General Fund transfer to the Water Management account to address the fiscal impact of HJM004.

Project Status

Final Environmental Impact Statement/Final Feasibility Study/Record of Decision

Reclamation issued a Draft Environmental Impact Statement (DEIS) and Draft Feasibility Report (DFR) on July 31, 2020. The DEIS and DFR identified a 6-foot raise of Anderson Ranch Dam as the preferred alternative. In October 2020, Reclamation submitted the Final Feasibility Report (FFR) for feasibility determination. In December 2020, the Secretary of the Interior determined the study's recommended plan to be feasible in accordance with the WIIN Act. Reclamation plans to release the Final Environmental Impact Statement (FEIS) in May 2021 and to issue its decision on the alternatives presented in the FEIS in a Record of Decision (ROD).

IWRB/Reclamation Contracting

In accordance with resolution no. 19-2020, passed by the IWRB on November 19, 2020, IWRB will enter into an agreement or contract with Reclamation for construction of the raise, use of water, and operations and maintenance for the new storage. This includes providing for all of the upfront funds necessary to pay the non-federal share of the project costs. When allocating the non-federal portion of the space, the IWRB will enter into sub-contracts with interested water users.

Reclamation will not begin formal negotiations until after the ROD is issued and must receive authorization to negotiate with the IWRB through a Basis of Negotiation (BON). Reclamation staff is preparing the BON and coordinating with IDWR/IWRB staff as needed. IDWR staff is actively developing the contract framework in preparation for negotiations. In addition, terms of the agreement will influence the sub-contracts with water users; therefore, the IWRB will work closely with water users in preparation of the agreement.

Water User/IWRB Contracting

The IWRB anticipates entering into sub-contracts with water users interested in the new storage space. Staff is developing a water user contract solicitation process to facilitate open and transparent coordination with potential spaceholders. This may be issued as a request for proposals (RFP) to the public. Staff is currently working to clarify project details and criteria for selection and contracting in coordination with the IWRB and the public. Given the short project timeline, the RFP will likely be issued around March 2021.

Project Financing and Financial Advisor

There are several options for financing the Anderson Ranch Dam raise, though the IWRB anticipates issuing bonds to help fund the non-Federal portion of the project costs. Given the aggressive timeline to develop a plan for financing the project, in coordination with interested water users, staff recommend contracting with a financial advisor to analyze the financing alternatives available to the IWRB and to coordinate with all parties, including bond counsel. A draft resolution is attached for the IWRB's consideration and will be discussed at the January IWRB meeting.

Lime Creek and the South Fork Boise River

The IWRB adopted the Comprehensive State Water Plan: South Fork Boise River Sub-Basin Plan in June of 1990. The Sub-Basin Plan was then readopted in January of 1996. Through the analysis and development of the Sub-Basin Plan, Lime Creek from its mouth to its headwaters and all tributaries on the north side of Lime Creek was designated as a Natural River. The South Fork of the Boise River from Anderson Ranch Dam downstream to Black Canyon Creek was designated as a Recreational River.

Reclamation completed a feasibility study and DEIS which considered impacts to Lime Creek and the South Fork of the Boise River downstream of Anderson Ranch Dam. The findings and a resolution addressing potential impacts to the protected river reaches will be discussed at the January IWRB meeting.

Water Right

Staff filed a water right permit application on June 7, 2019 for the additional 29,000 AF of storage water that a 6-foot dam raise would generate (Water Right Number 63-34753). A number of protests were filed on the application and preliminary discussion meetings were held with the protestants to better understand the basis of each protest and to discuss the details of the project. Additional project information is now available with the publication of the Feasibility Study and DEIS. Staff will continue discussions with the protestants throughout the spring and summer.

Tentative Schedule -The following is an estimated timeline for milestones in the next 12-months:

<u>12-Month Milestones</u>	<u>Date</u>
Issue Water User Contract Solicitation	March 2021
Reclamation FEIS Release	May 2021
Reclamation Issue ROD	August 2021
Execute Water User Contracts	August 2021
Execute Reclamation/IWRB Water Use Contract	Sep/Oct 2021
Initiate Construction (Project Final Design)	December 2021
WIIN Act Expiration	December 16, 2021

REQUIRED ACTIONS:

1. Consider a resolution authorizing execution of a contract with Municipal Capital Markets Group, Inc. for financial advisor services.
2. Consider a resolution addressing potential impacts to protected river reaches on Lime Creek and the South Fork Boise River resulting from the project.

ATTACHMENTS

1. Resolution authorizing contract with Financial Advisor. A resolution addressing the protected river reaches will be presented at the IWRB meeting.
2. Bureau of Reclamation – Project Update Memo

BEFORE THE IDAHO WATER RESOURCE BOARD

IN THE MATTER OF THE ANDERSON RANCH
DAM RAISE

RESOLUTION TO CONTRACT WITH A
FINANCIAL ADVISOR TO DEVELOP AND
ADMINISTER A FINANCING PLAN FOR THE
NON-FEDERAL PROJECT COSTS

1 WHEREAS, on October 24, 2017, the Idaho Water Resource Board (IWRB) passed a resolution
2 authorizing its chairman to execute the necessary agreements with the U.S. Bureau of Reclamation
3 (Reclamation) and to contribute the necessary fifty percent (50%) non-federal cost-share to carry out the
4 Boise River Basin Feasibility Study (feasibility study); and

5
6 WHEREAS, through a resolution signed and dated July 27, 2018, IWRB authorized Reclamation to
7 focus the feasibility study analyses on a raise of the Anderson Ranch Dam (Project); and

8
9 WHEREAS, the Water Infrastructure Improvements for the Nation Act (WIIN Act, P.L. 114-322)
10 provided authority for the feasibility study. Pursuant to the WIIN Act, the Project was deemed feasible by
11 the Secretary of the Interior and designated by name in Federal appropriations legislation in December
12 2020; and

13
14 WHEREAS, the WIIN Act requires Reclamation secure agreement(s) with partner(s) providing for
15 upfront funding for the non-Federal share of the capital costs, or post-authorization costs, of the project;
16 and

17
18 WHEREAS, in 2019 the Idaho Legislature passed House Joint Memorial 4 (HJM004) to support efforts
19 to designate the raising of Anderson Ranch Dam as one of the priorities for the State of Idaho in the interest of
20 promoting additional water security; and

21
22 WHEREAS, in 2019 the Idaho House of Representatives passed House Bill No. 285 that provided a
23 \$20,000,000 General Fund transfer to address the fiscal impact of HJM004; and

24
25 WHEREAS, implementation of a process to obtain future project funding is necessary at this time.
26 Currently, the IWRB anticipates issuing bonds to help fund the non-Federal portion of the Project costs.

27
28 WHEREAS, the IWRB will need a financial advisor to analyze financing alternatives available to the
29 Board for a single or multiple financing (the Borrowing) and recommend a financing mechanism taking
30 into account the Board's policy considerations and desires. In coordination with the IWRB, a financial
31 advisor will develop a financing plan, facilitate the Borrowing and coordinate with all parties including
32 bond counsel, the underwriter, and water using entities among other critical activities; and

33
34 WHEREAS, the IWRB has received an exemption from competition allowing the IWRB to contract
35 with Municipal Capital Markets Group, Inc. (MCM) for financial advisor services.

36
37 WHEREAS, the financial advisor will be compensated for IWRB approved out-of-pocket expenses

38 from proceeds of the Borrowing, or by the IWRB, if the IWRB elects to discontinue or if the project is not
39 funded. However, the financial advisor will require quarterly payments for regular or customary financial
40 that will be subtracted from the final payment at completion of Borrowing; and
41

42 NOW THEREFORE BE IT RESOLVED the IWRB authorizes the Chairman or his designee to enter into
43 a contract with MCM for financial advisor services.
44

45 NOW THEREFORE BE IT FURTHER RESOLVED that the IWRB authorizes the expenditure of
46 \$150,000, not to exceed actual costs, from the Water Management Account for financial services
47 associated with a raise of Anderson Ranch Dam.
48

49 NOW THEREFORE BE IT FURTHER RESOLVED that any expenses incurred for financial services from
50 Water Management Account will be reimbursed from any bond issuance.
51

52 DATED this 21st day of January 2021.

Chairman
Idaho Water Resource Board

ATTEST _____
Secretary



United States Department of the Interior

BUREAU OF RECLAMATION

Snake River Area Office

230 Collins Road

Boise, ID 83702-4520



IN REPLY REFER TO:

SRA-1308

2.2.4.21

VIA ELECTRONIC MAIL ONLY

Mr. Roger Chase
Chairman
Idaho Water Resource Board
322 East Front Street
Boise, ID 83702

Ms. Melanie Paquin
Area Manager
Snake River Area Office
230 Collins Road
Boise, ID 83702

Subject: Boise River Basin Feasibility Study Status Update, Boise Project, Idaho

Dear Mr. Chase and Ms. Paquin:

This status update is being sent in preparation for the Idaho Water Resource Board (IWRB) meeting on January 20, 2021.

The IWRB and the Bureau of Reclamation have partnered to complete a feasibility study of new surface water storage options on the Boise River (Study). The Study initially included an evaluation of small raises of the three large dams on the Boise River system: Anderson Ranch, Arrowrock and Lucky Peak Dams, and is now focused on Anderson Ranch Dam. Authorized under Water Infrastructure Improvements for the Nation (WIIN) Act of 2016, the Study focuses on a 6-foot raise of Anderson Ranch Dam in Idaho, resulting in approximately 29,000 acre-feet of new storage space.

Current Status

Recent project activities include:

- December 2020 – The Secretary of the Interior determined the Study's recommended plan to be feasible in accordance with the WIIN Act.
- December 2020 – Reclamation transmitted the Final Feasibility Report to Congress.
- December 2020 – Fiscal Year 2021 Appropriations legislation secured \$12.88 million in WIIN Act funding to finalize the Study and associated environmental compliance, and to initiate construction activities, including final design.

Ongoing project activities include:

- Reclamation and IWRB project sub-team to plan water right and water contracting processes.
- Reclamation continues to work toward finalizing the Final Environmental Impact Statement (EIS) with a Record of Decision expected in the summer of 2021.

Upcoming project activities include:

Key Milestones

Nov. 2017 – Jan. 2019	Reclamation completed initial screening of the three potential dam raise alternatives and developed a project management plan.
July 27, 2018	IWRB passed a resolution supporting the narrowed focus of the Study to a raise at Anderson Ranch Dam.
August 28, 2018	Reclamation and IWRB hosted a Legislative Infrastructure Tour to discuss large water infrastructure projects in Idaho with representatives from Idaho's Congressional delegation.
November 8, 2018	Reclamation and IWRB hosted an informational public open house on the Study in Boise, Idaho.
December 3-7, 2018	Reclamation conducted a Value Planning Study with a final Accountability Report received in February 2019.
December 25, 2018	Reclamation awarded an Indefinite Delivery/Indefinite Quality contract for architect and engineering services to Sundance-EA Joint Venture (Consultant) to complete the Study and environmental compliance activities.
April 30, 2019	Consultant submitted land, structure, infrastructure, and real estate impact assessment (Rim Analysis) for Anderson Ranch Reservoir.
June 7, 2019	IWRB filed a water right permit application for the potential additional storage (Water Right No. 63-34753).
June 19, 2019	Reclamation's Technical Service Center completed feasibility-level design and cost estimates completed for Anderson Ranch Dam raise.
August 9, 2019	Reclamation published the Notice of Intent for an EIS in the Federal Register.
August 27-29, 2019	Reclamation conducted Public Scoping Open Houses in Pine, Boise, and Mountain Home, Idaho.
February 3-7, 2020	Reclamation completed the Design, Estimate, and Construction review of the feasibility-level designs.
April 6-10, 2020	Reclamation completed the Peer Review of the Water Operations Technical Memorandum.
July 31, 2020	Reclamation released the DEIS and Draft Feasibility Report.
October 30, 2020	Reclamation initiated formal Endangered Species Act consultation with NOAA Fisheries and submitted its biological assessment.

Key Critical Path Milestones

Winter/Spring 2021	Receive USFWS and NOAA Fisheries Biological Opinions
Spring 2021	Publish Final EIS
Summer 2021	Issue Record of Decision
Fall 2021	Initiate construction activities

Thank you for this opportunity to provide an update on the Boise River Basin Feasibility Study Project. If you have any questions, please contact me at 208-378-5360 or via email at ckeith@usbr.gov.

Sincerely,

Chris Keith
Project Manager

Memorandum

To: Idaho Water Resource Board (IWRB)
From: Neeley Miller
Date: January 11, 2021
Re: Big Lost Basin Groundwater Investigations



IDWR staff will provide an update on the Big Lost Basin Groundwater Investigations.

The background of the slide is a wide-angle photograph of a winter landscape. In the foreground, a river flows through a field, with large chunks of ice floating in the water. The surrounding fields are covered in dry, brown grass and patches of snow. In the distance, a range of mountains is visible, with their peaks covered in a thick layer of snow under a blue sky with scattered clouds.

Big Lost Hydrologic Investigation Update

Presented by Craig Tesch, P.G.

January 20, 2021

IWRB SEP #2 – ESPA & Big Lost

- Department of Energy Supplemental Environmental Project (DOE SEP)
- Project approved by IDEQ
- Funding & Length = \$2.068 million for 3 years (July 2018 - Oct 2021)
- Divided evenly between two main components
 1. Expanding the ESPA monitoring network
 2. Characterizing the surface and groundwater hydrology of the Big Lost River basin

Characterize the Big Lost Basin

Objectives:

- Collect information to help characterize basin hydrology
 - Concerns about declining groundwater levels and streamflow
 - Last comprehensive study was 50 years ago (Crosthwaite et al., 1970)
- Quantify groundwater-surface water interactions between the Big Lost River and aquifer
- Help develop new water right accounting program
- Improve ESPAM and the INL groundwater model
- Provide data foundation for future models



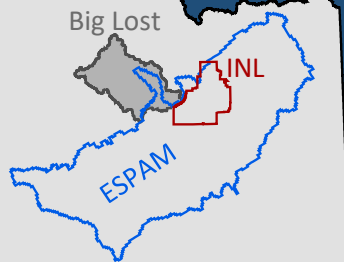
Mackay Reservoir



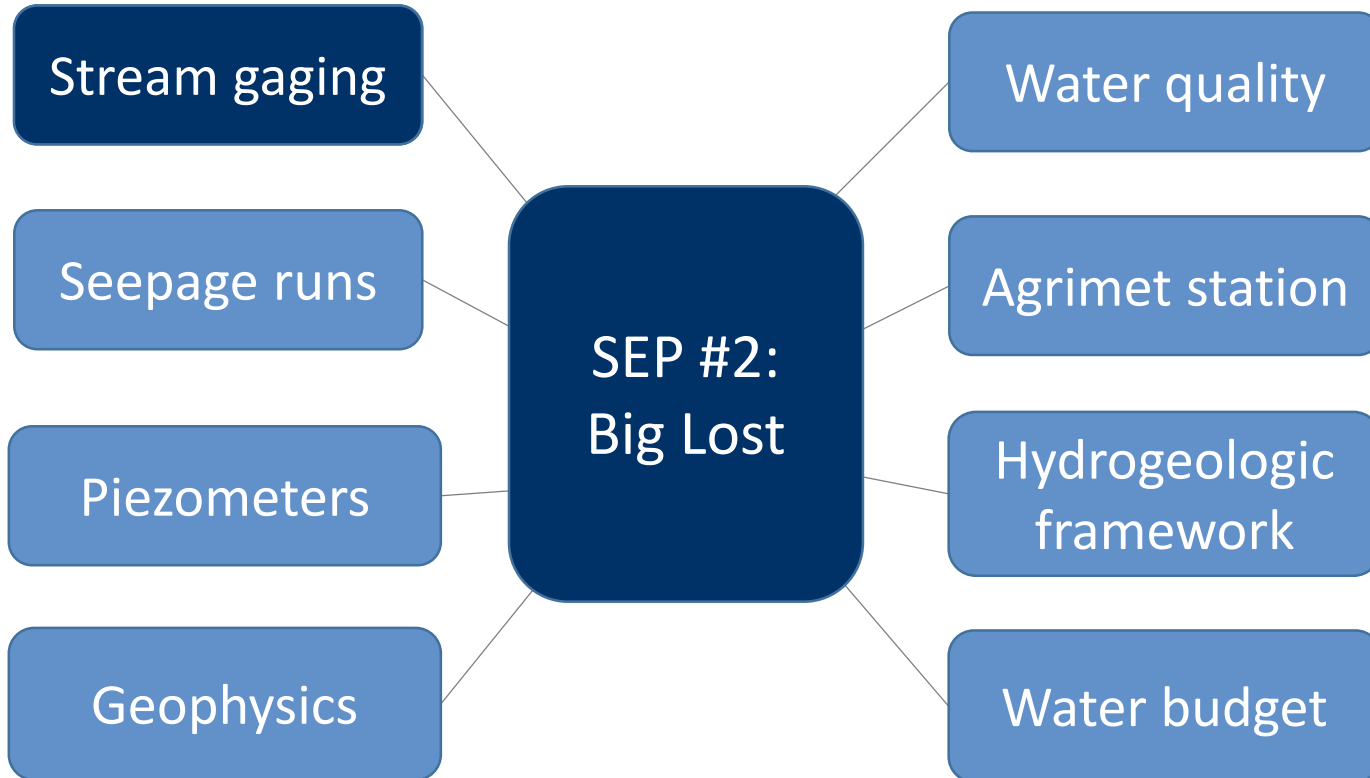
Mt. Borah: 12,667'



Big Lost Basin

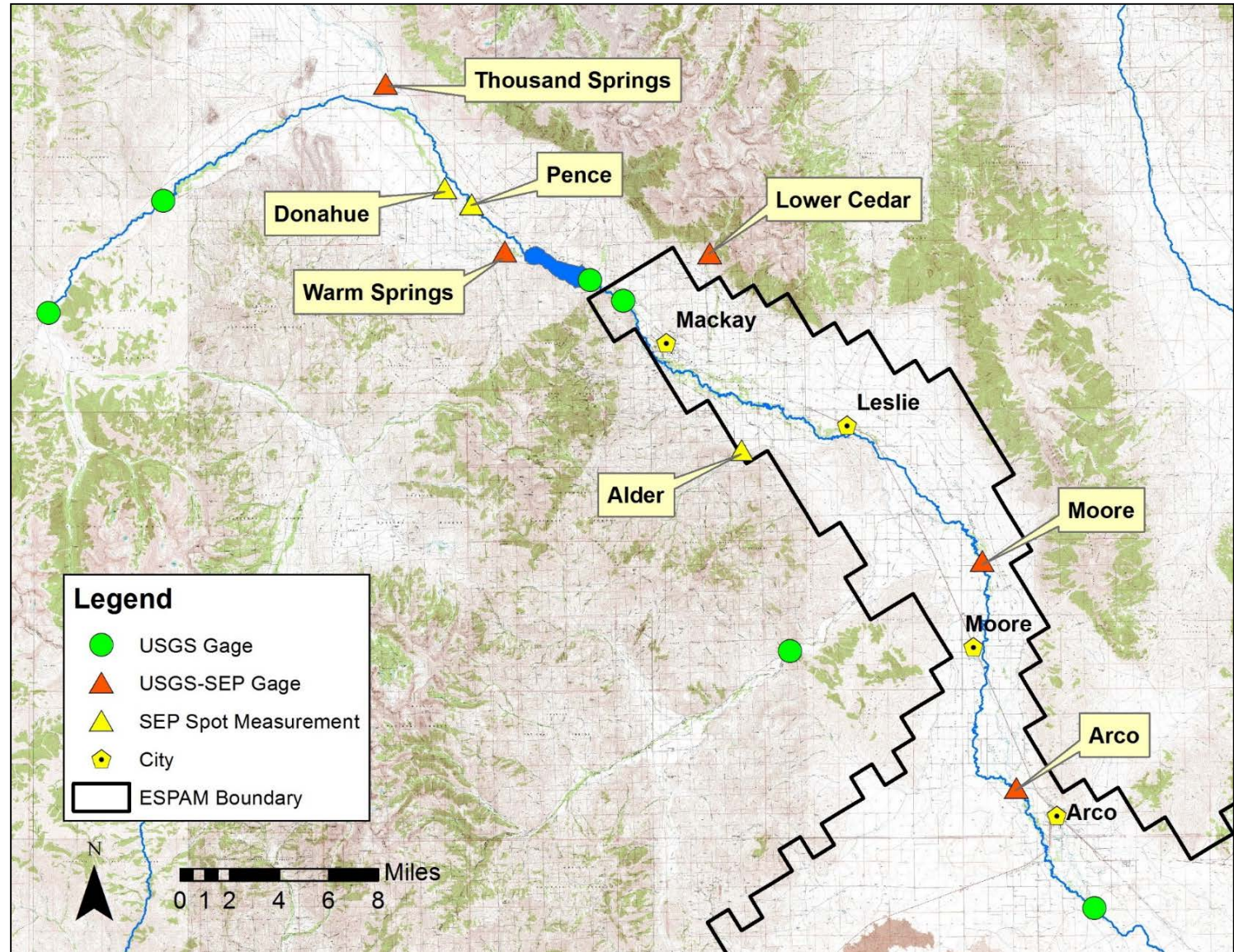


Big Lost Project Components



Stream Gaging

- 6 existing gages
- 5 new gages
- 3 new spot measurement locations



Warm Springs Creek



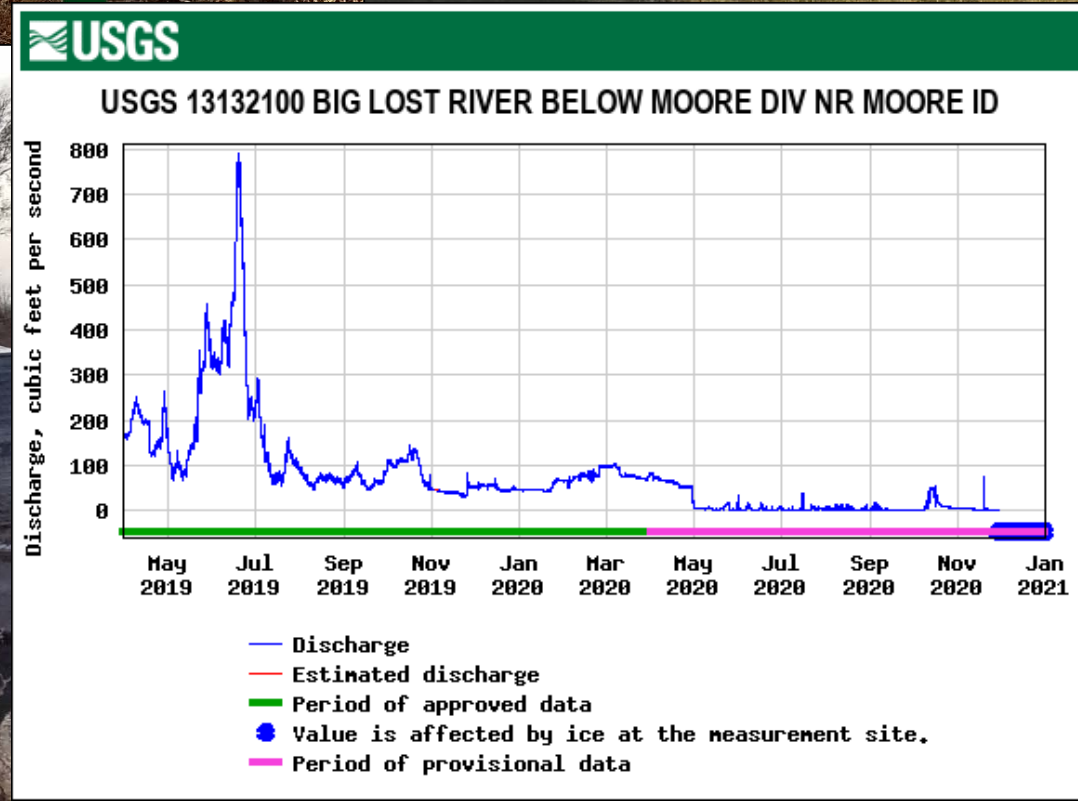
Thousand Springs Creek



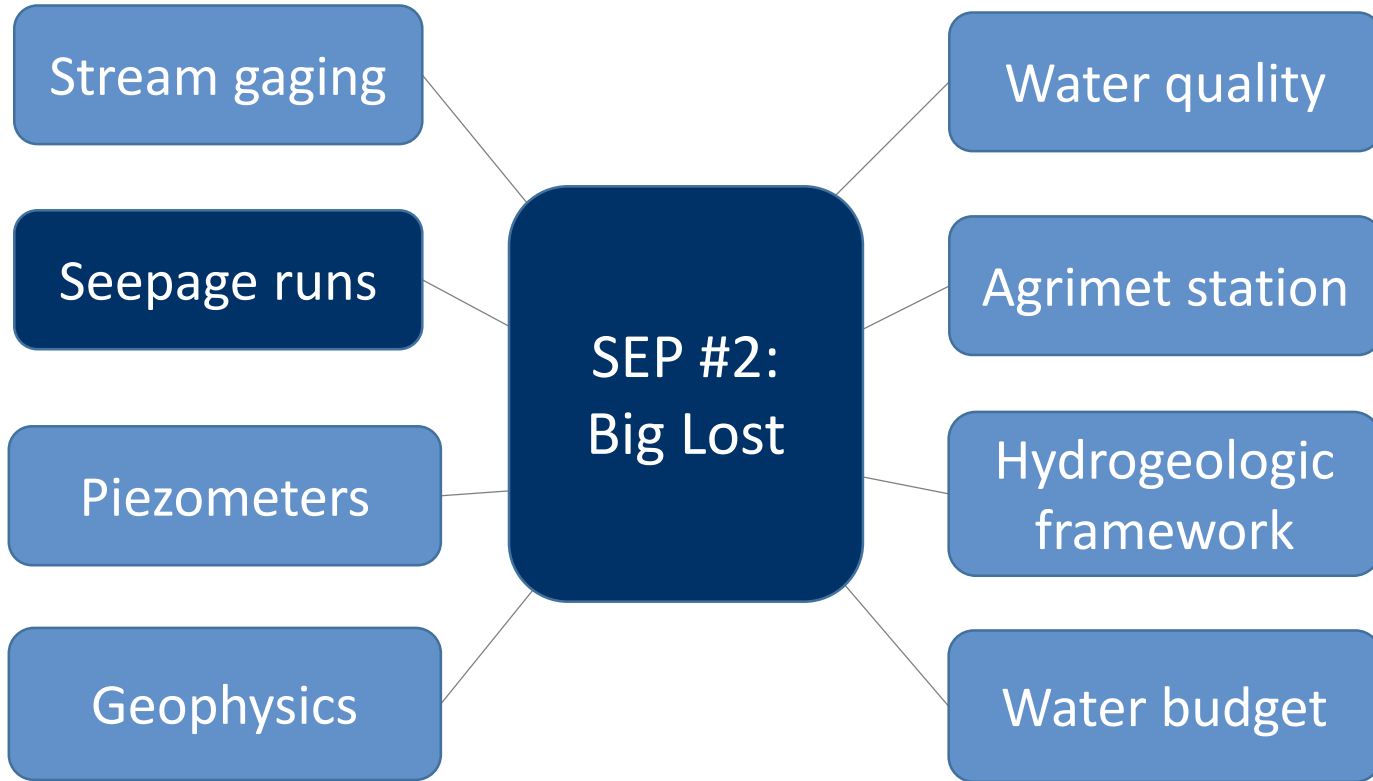
Arco Diversion



Moore Diversion



Big Lost Project Components





Seepage Study: Overview

Objective:

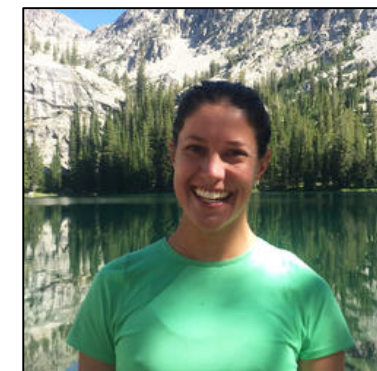
- Characterize river gains and losses

Methods:

- Measure streamflow, tributaries, and diversions from below Mackay Reservoir to Arco gage
- USGS and IDWR teams

4 events:

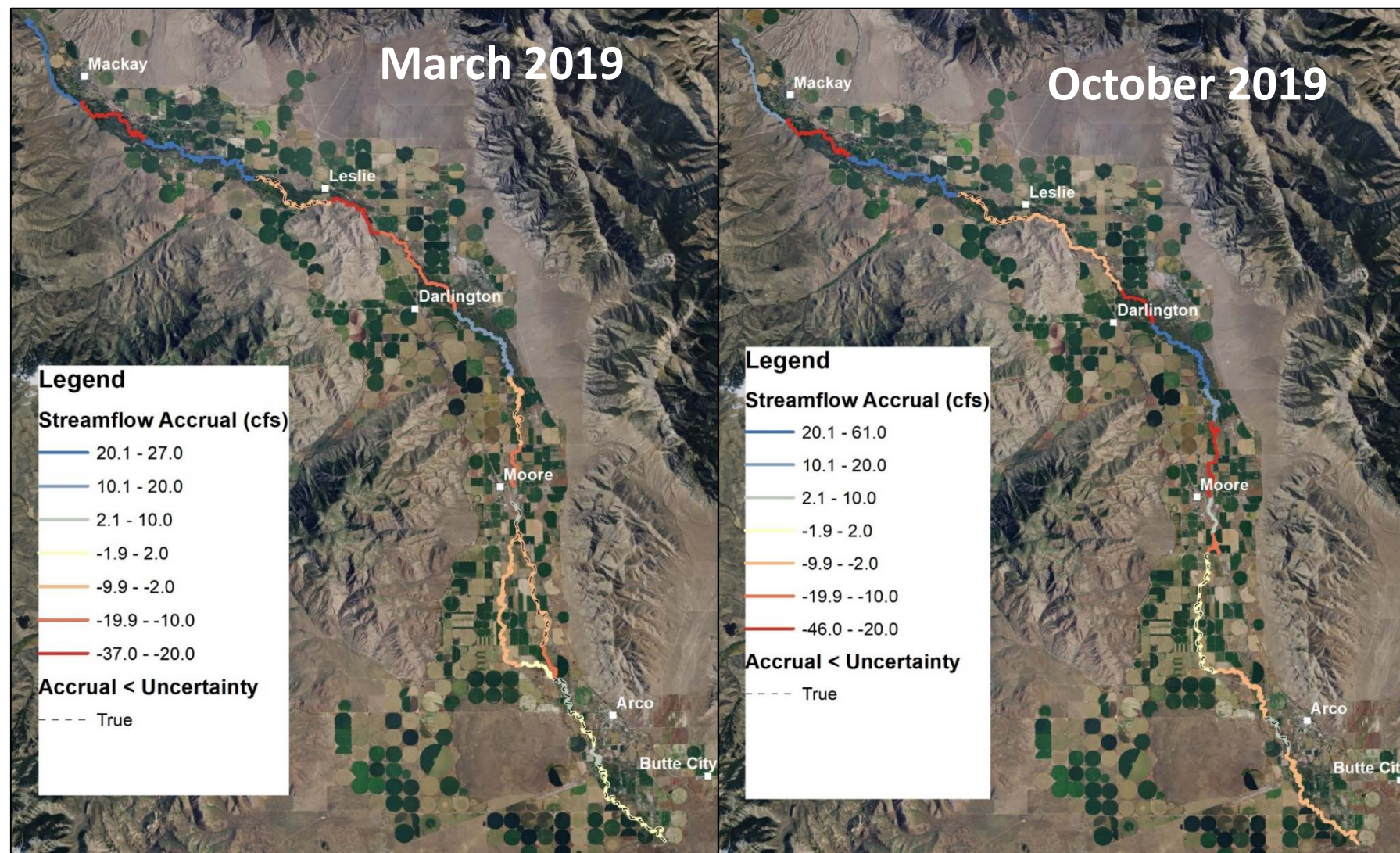
- March 2019
- October 2019
- October 2020
- March 2021 (planned)



Lauren Zinsser, USGS

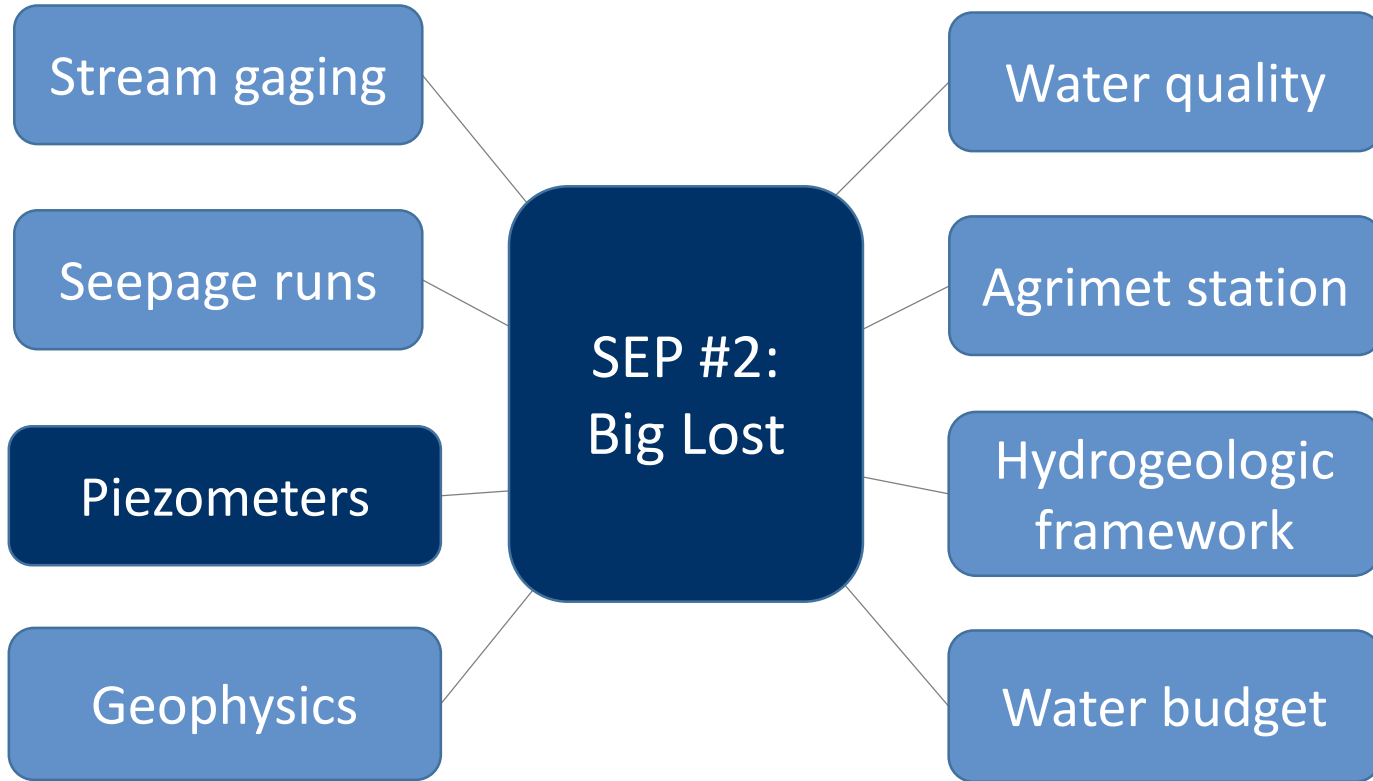
Seepage Study: Preliminary Results

- Big losses and gains around Mackay
- Big losses in Darlington Sinks
- Big gains at Moore Diversion
- Small changes around Arco



****Provisional data subject to revision**

Big Lost Project Components

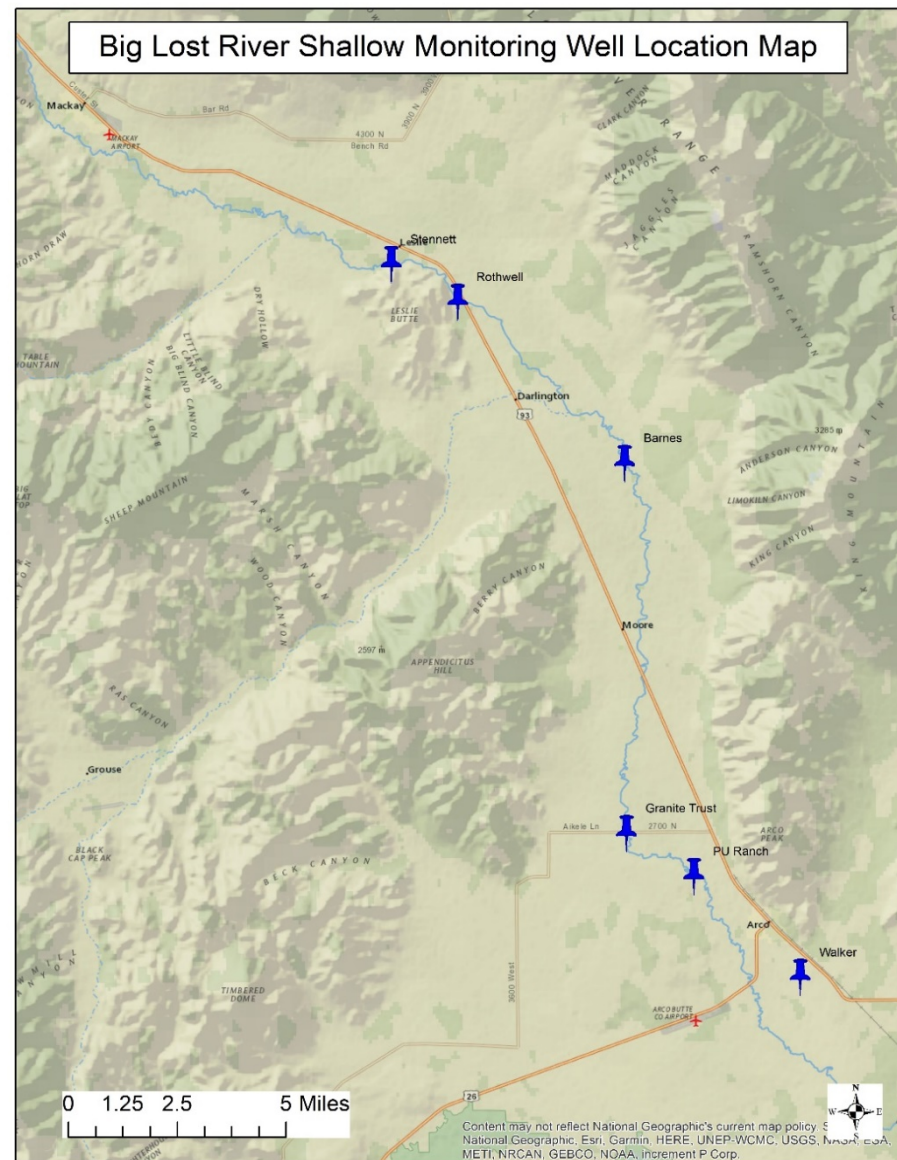


Piezometer Installation

- 2" wells drilled and installed near the river to monitor shallow groundwater levels
- 6 sites with 3 piezometers per site
 - 20', 40', and 60' depths targeted at each site
 - 4 sites on private land, 1 IDFG, 1 BLM



Dennis Owsley, IDWR





Barnes Site



Granite Trust Site

Lithology

0-3' Silty brown topsoil.

3-28' Sands and gravel.

SS [5]: Small gravel in a medium/fine sand (80% recovery)

SS [10]: Small gravel in a medium/fine sand (80% recovery)

SS [15]: Gravel in a medium fine sand (70% recovery)

SS [20]: Saturated gravel in a fine sand/silt matrix (60% recovery)

SS [25]: Gravel in a medium sand matrix with some clay (40% recovery)

28-38' Sands with gravel.

SS [30]: Medium sand with large gravel (60% recovery)

SS [35]: Coarse to medium sand, minor gravel (40% recovery)

38-42' Gravels and sand.

SS [40]: No sample, cobble blocking spoon

42-48' Medium sands.

SS [45]: Medium to fine sand with some rounded gravels (60% recovery)

48-58' Gravel with sand.

SS [50]: Poorly sorted gravel in medium sand matrix (50% recovery)

SS [55]: Fine gravels in coarse sand (50% recovery)

58-60' Sands, medium to fine.

SS [60]: Medium to fine sand grading into silt (80% recovery)

Construction Details

Granite Trust 20 -- D0082989

10' Schedule 40 2" PVC screen [10-20']

10' Schedule 40 2" PVC casing [+2.5-10']

Sand pack: 325 lbs. poured [8-20']

Well seal: 150 lbs. bentonite chips poured [surface-8']

DTW = 17.9' BLS

Granite Trust 40 -- D0082990

10' Schedule 40 2" PVC screen [30-40']

10' Schedule 40 2" PVC casing [+2.5-30']

Sand pack: 250 lbs. poured [28-40']

Well seal: 400 lbs bentonite chips poured [surface-28']

DTW = 17.8' BLS

Granite Trust 60 -- D0082991

10' Schedule 40 2" PVC screen [50-60']

10' Schedule 40 2" PVC casing [+2.5-50']

Sand pack: 200 lbs poured [45-60']

Well seal: 540 lbs cement through tremie [surface-45']

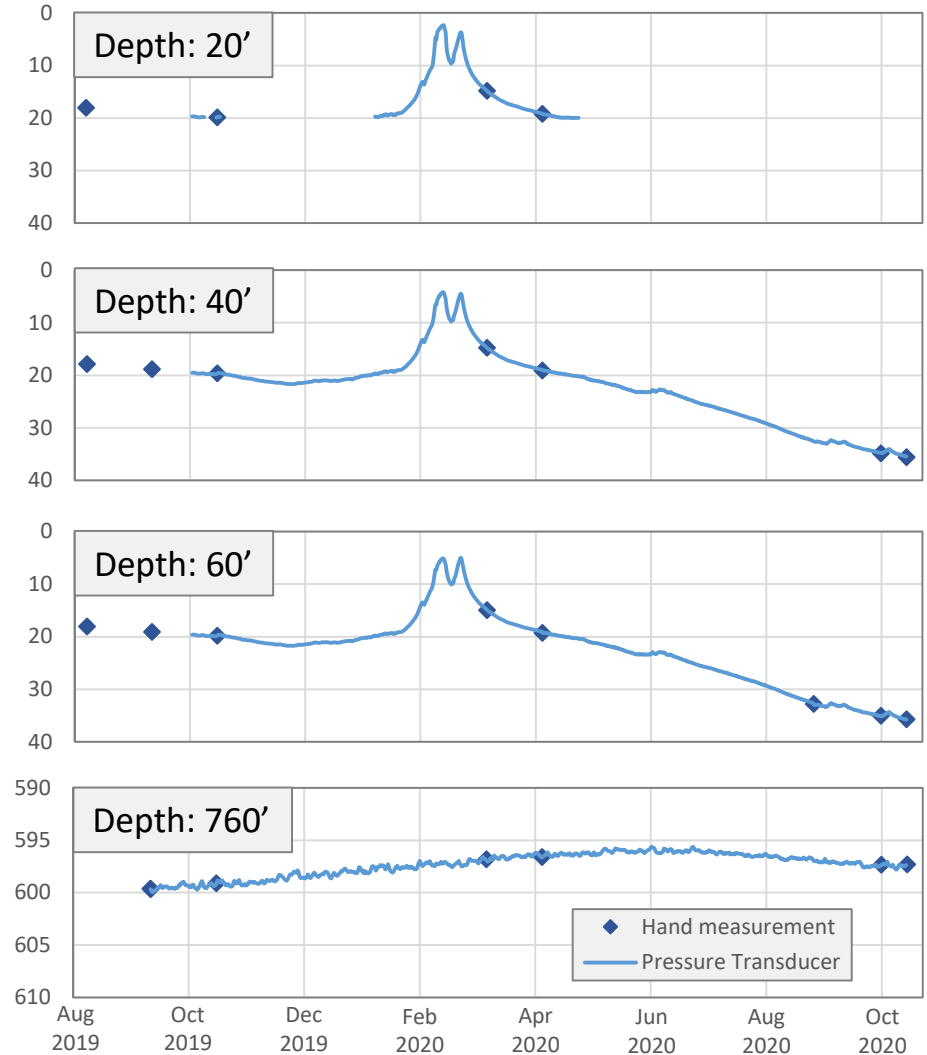
DTW = 18' BLS



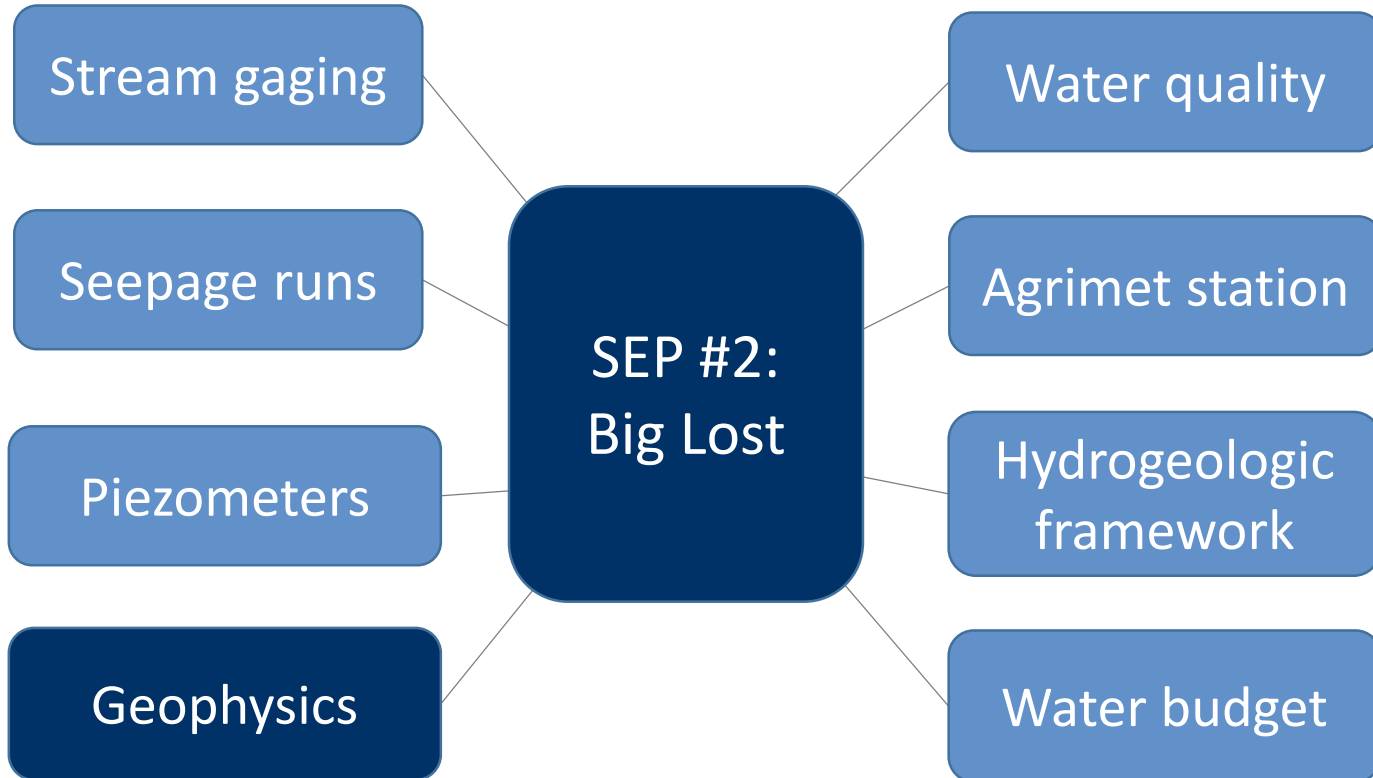
Site Location Information
Lat: 43.666 Long: -113.365
PLS: T04N R26E Section 21

Wells drilled with hollow-stem auger
by HazTech Drilling Inc (No. 470)
Start date: August 2, 2019 End date: August 3, 2019

Depth to water (feet below ground surface)



Big Lost Project Components



Borehole Geophysics

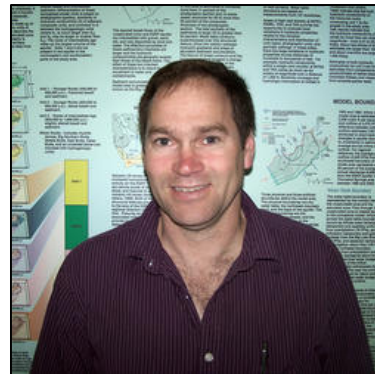


City

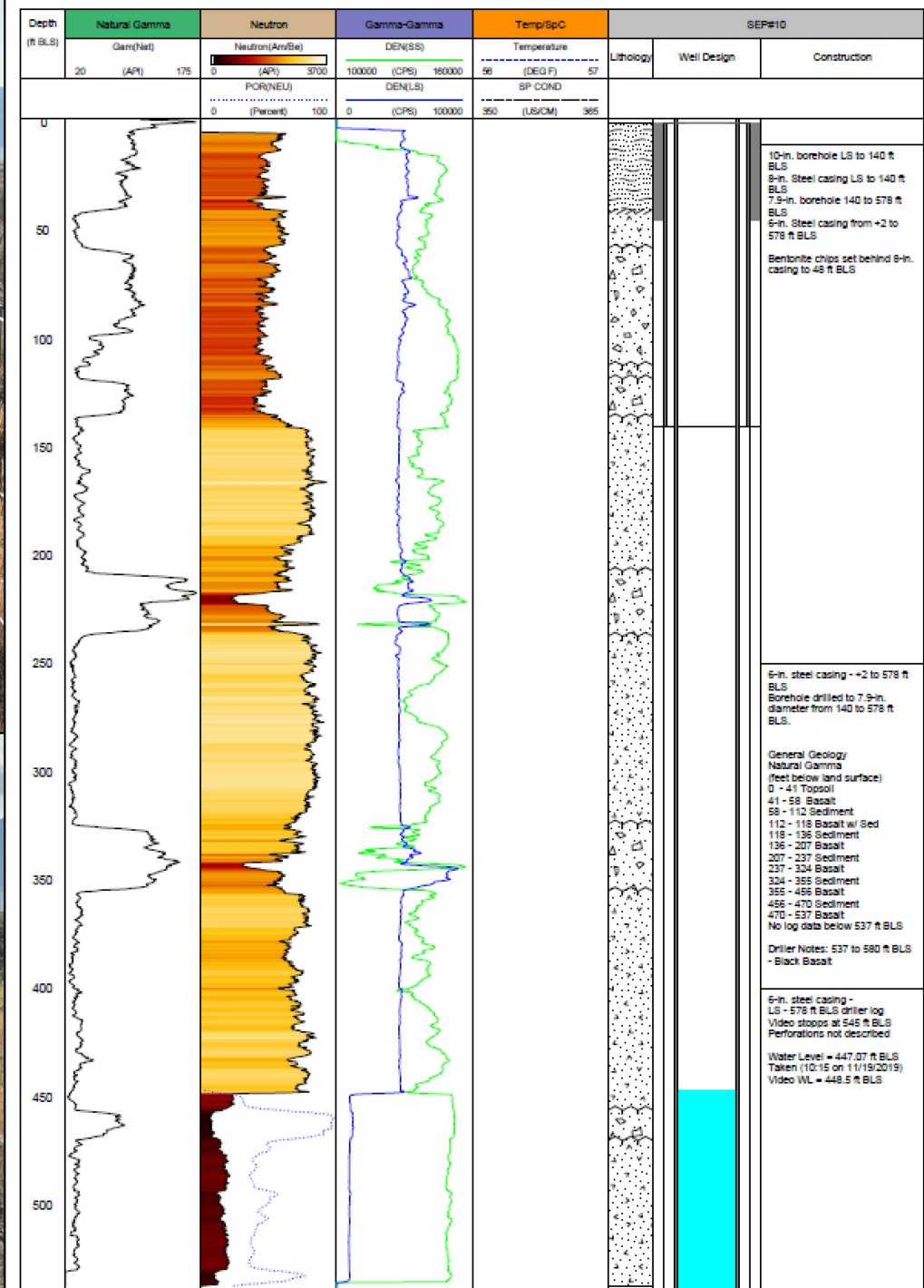
- 10 wells logged for geophysical parameters
 - neutron, natural gamma, density, specific conductivity, temperature
- Downhole videos taken at most sites
- Helps define water-bearing units and investigate spatial continuity of confining units



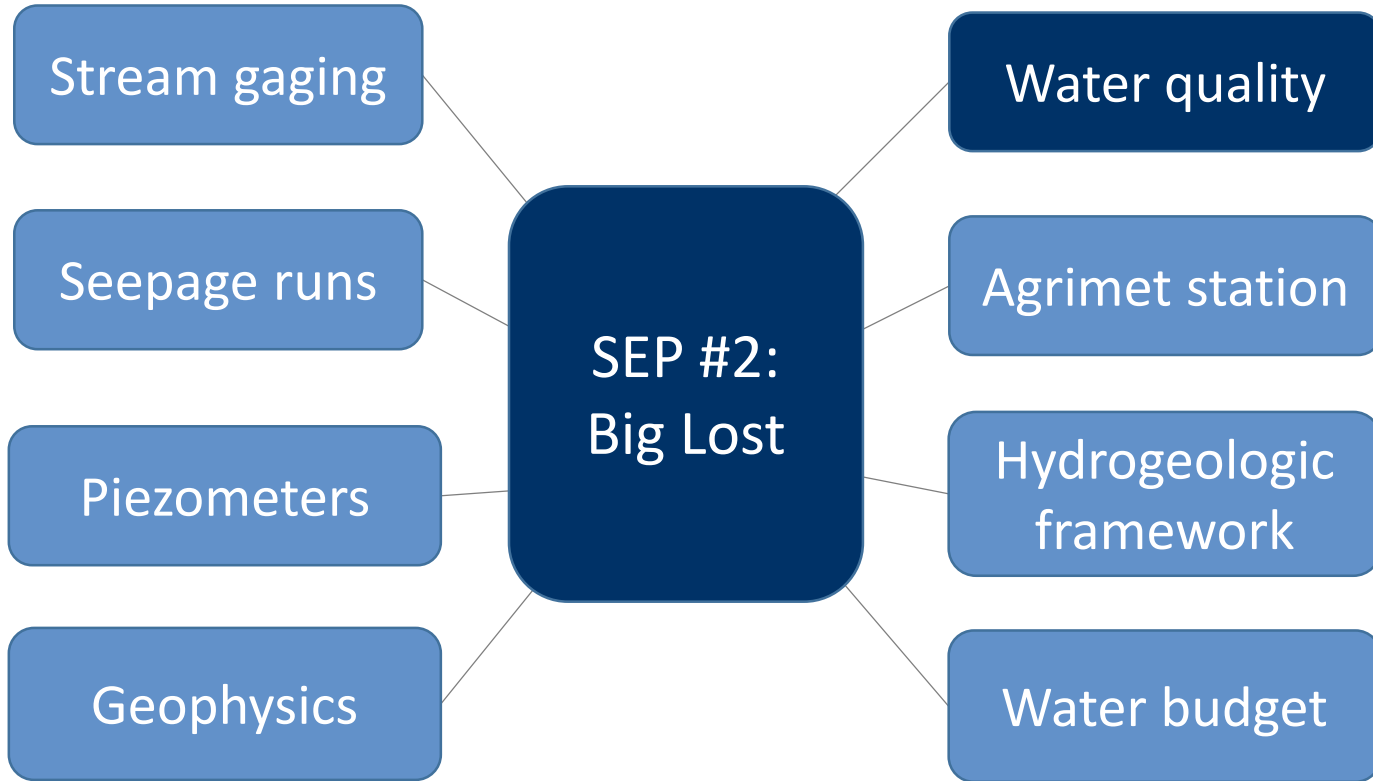
Brian Twining, USGS



Roy Bartholomay, USGS



Big Lost Project Components



Water Quality Study Goals

- Explore ground and surface water quality:
 1. Determine if water quality issues are present
 2. Set water quality baseline for future projects
 3. Provide water quality data to enhance INL model
- IDWR-produced report by end of 2021



Gus Womeldorph, IDWR

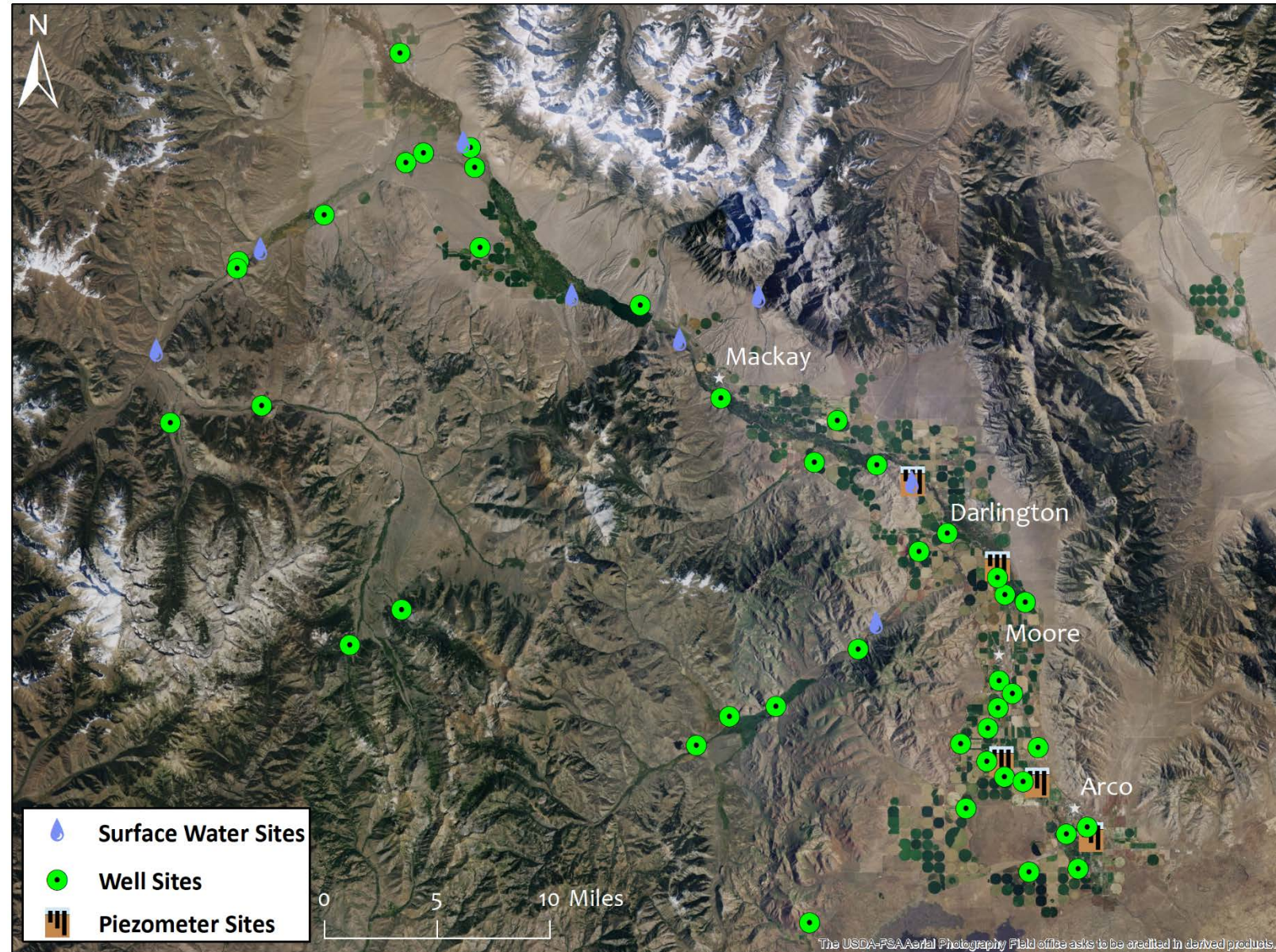


Amy Steimke, IDWR

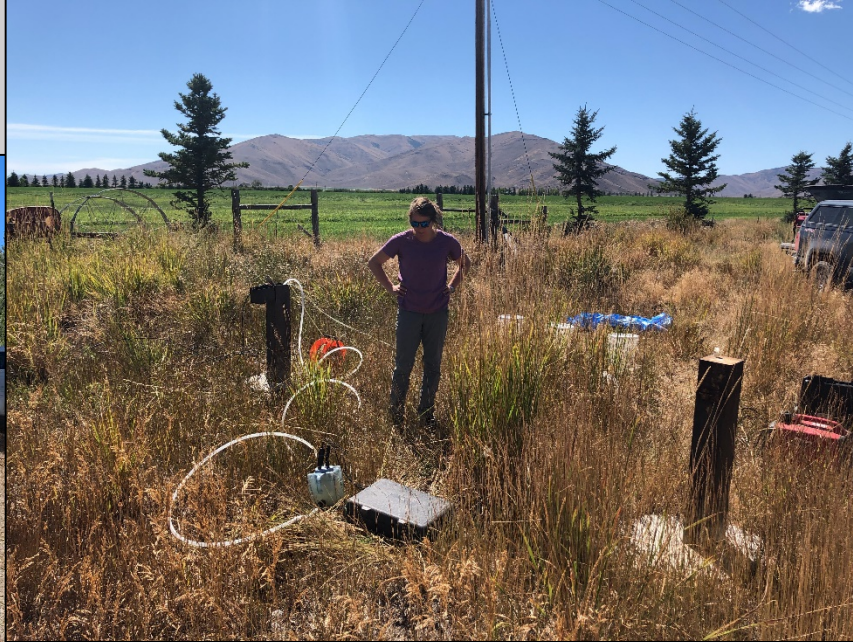


Sampling Campaign

- Occurred in September 2020
- 2 IDWR staff, 2 contracted IBL staff
- 58 total sites sampled
 - 42 domestic/general use wells
 - 8 piezometers
 - 8 surface water sites
- Samples analyzed for 22 analytes, plus field parameters



Domestic sites

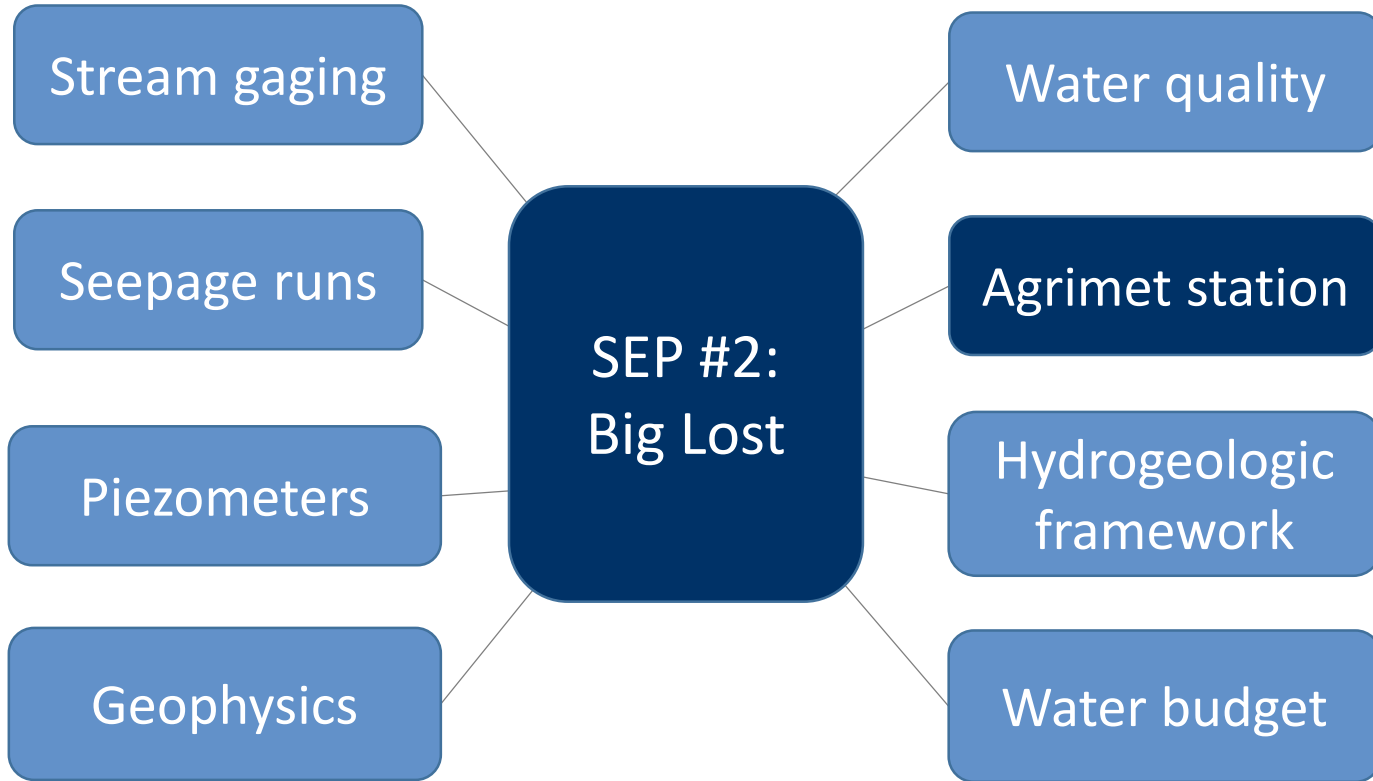


Piezometers

Surface water sites

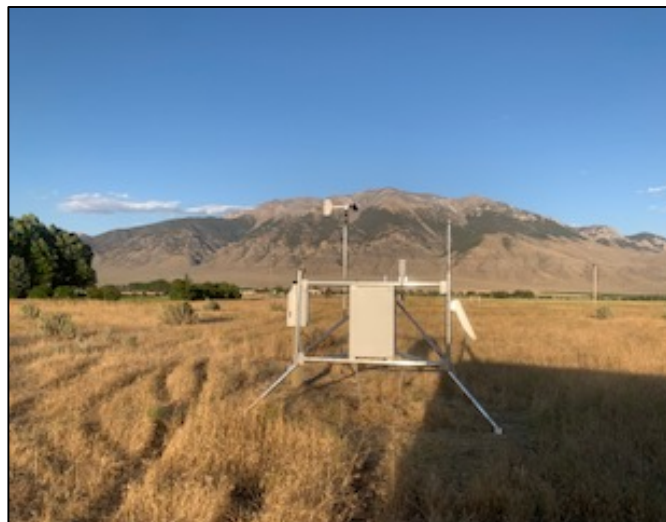


Big Lost Project Components



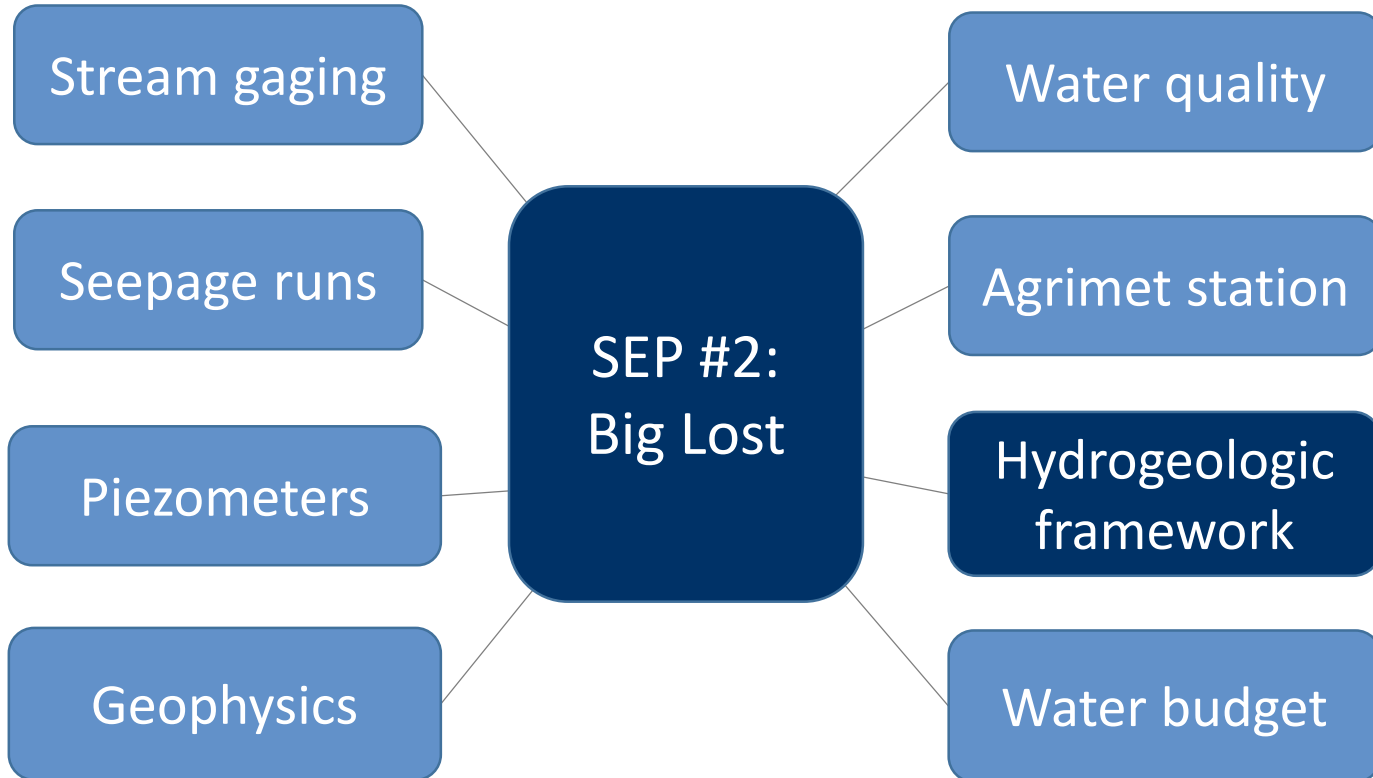
Agrimet weather station

- Installed near Moore, Sept 2019
- Real-time weather data
 - Wind, temp, precip, soil temp, humidity
- Data useful for water budget/model work



Agrimet station

Big Lost Project Components



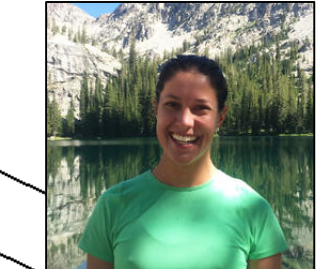
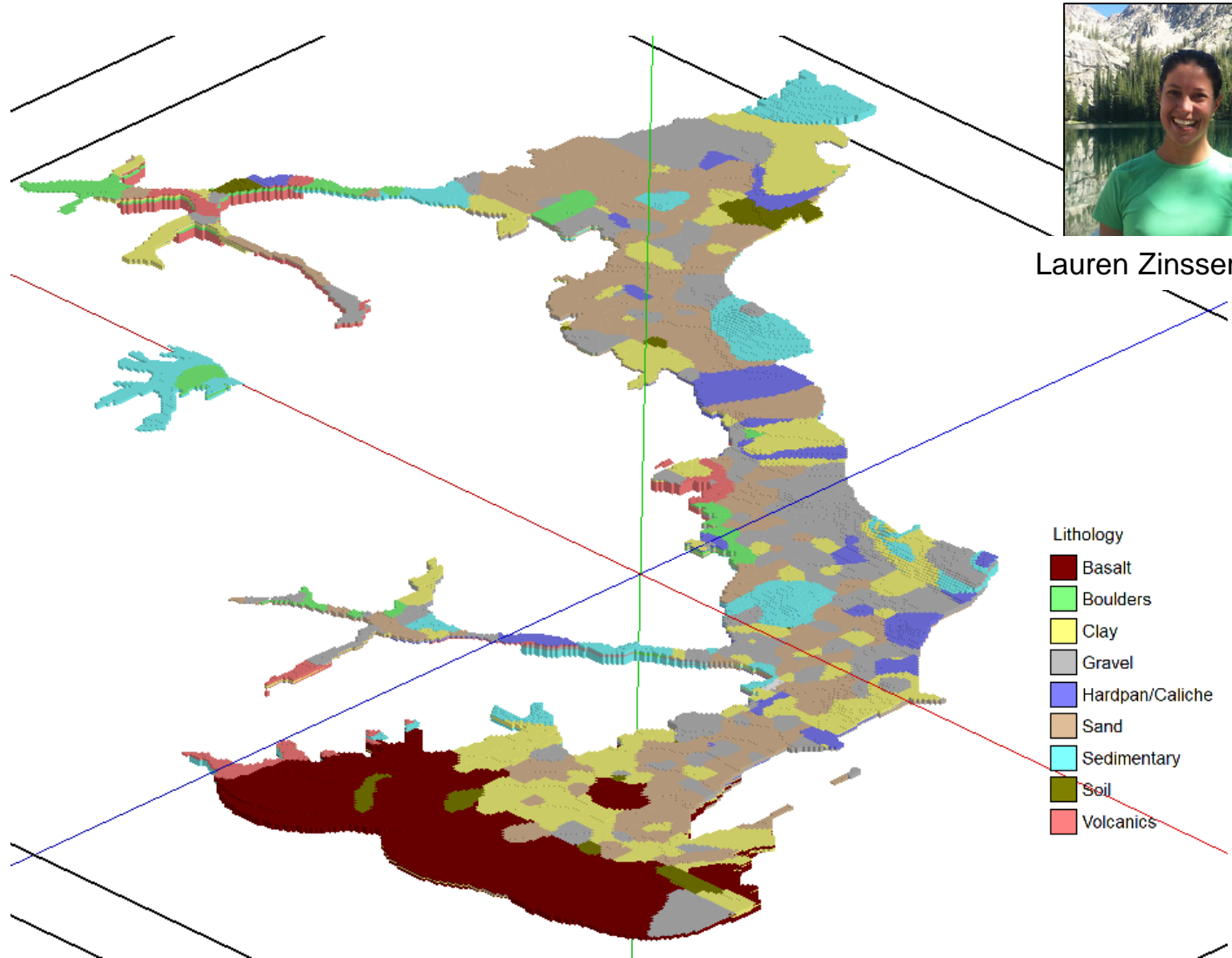
Hydrogeologic Framework: Overview

Objective:

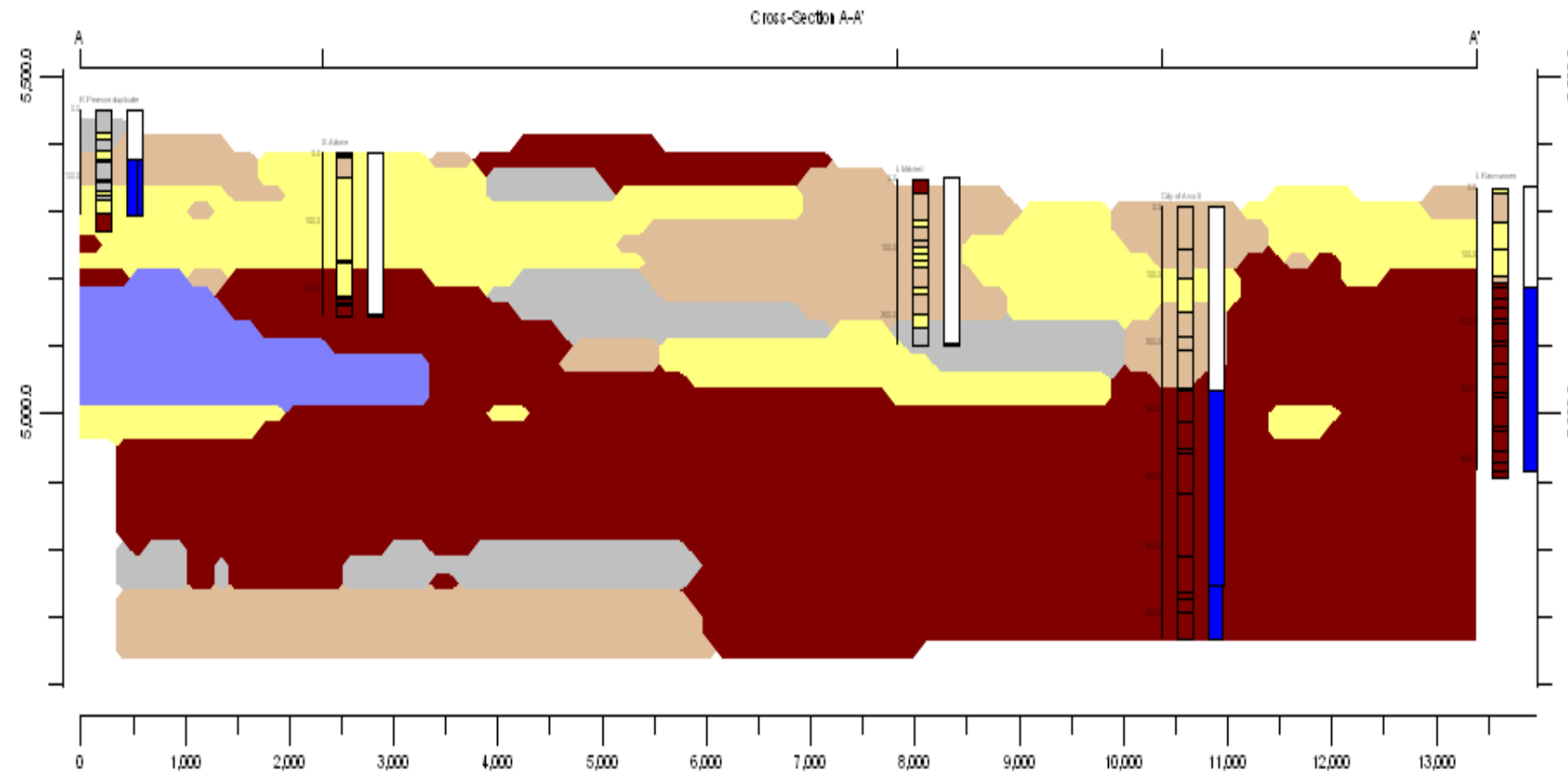
- Develop conceptual framework for groundwater occurrence and movement

Components:

- Literature review
- Borehole geophysics
- Digitize and interpret ~600 driller's logs
- Develop 3D lithology model of hydrogeologic units



Lauren Zinsser, USGS

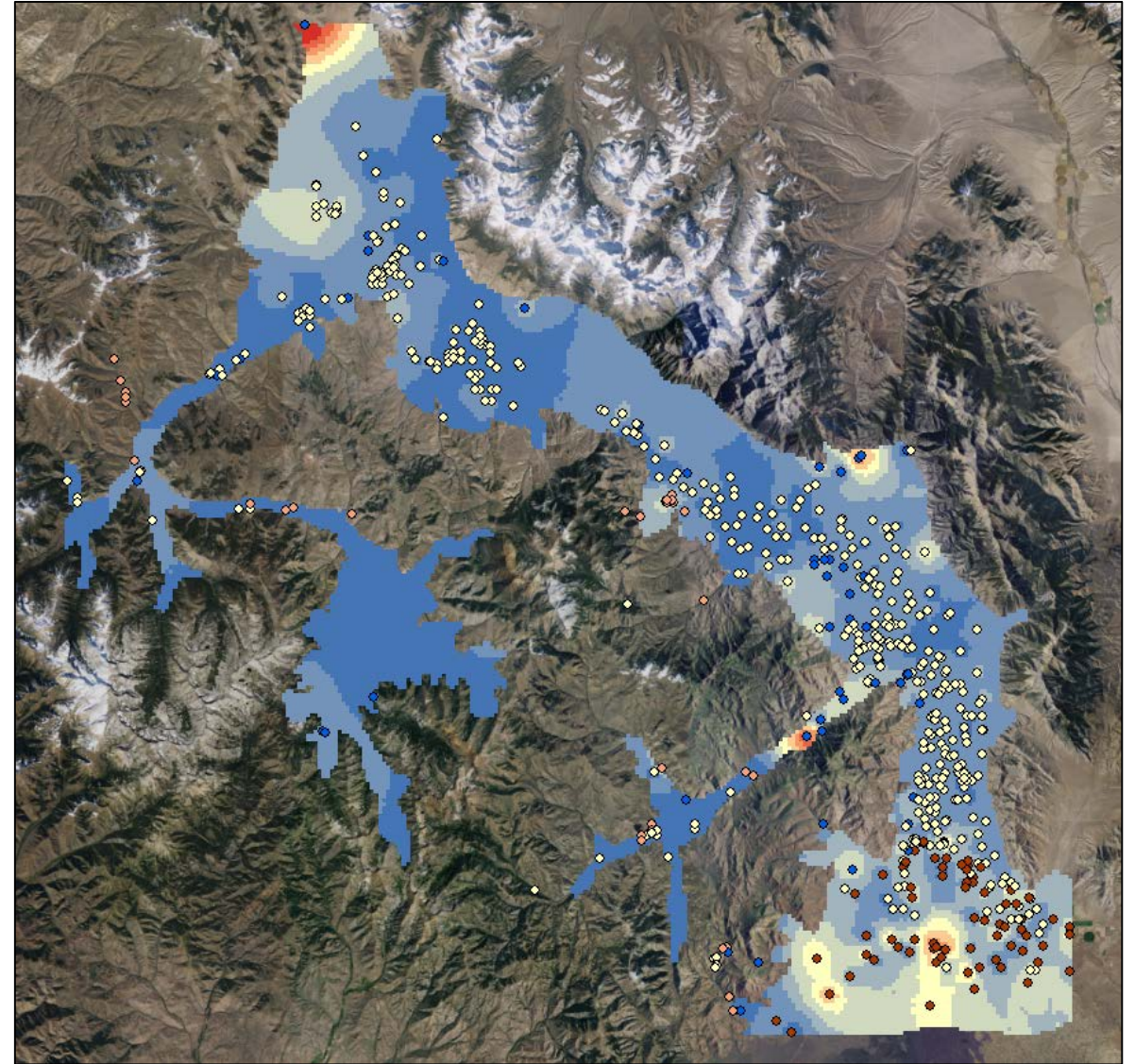
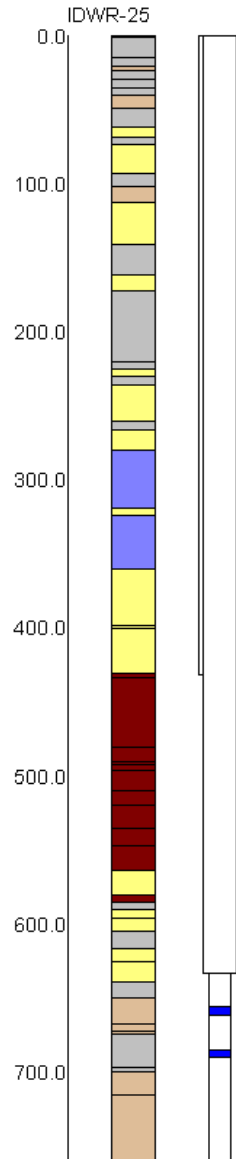


Hydrogeologic Framework: Lithology Model

- Built in RockWorks from interpreted driller's logs
- Use model to represent and understand local and regional scale hydrogeologic units, groundwater occurrence and controls

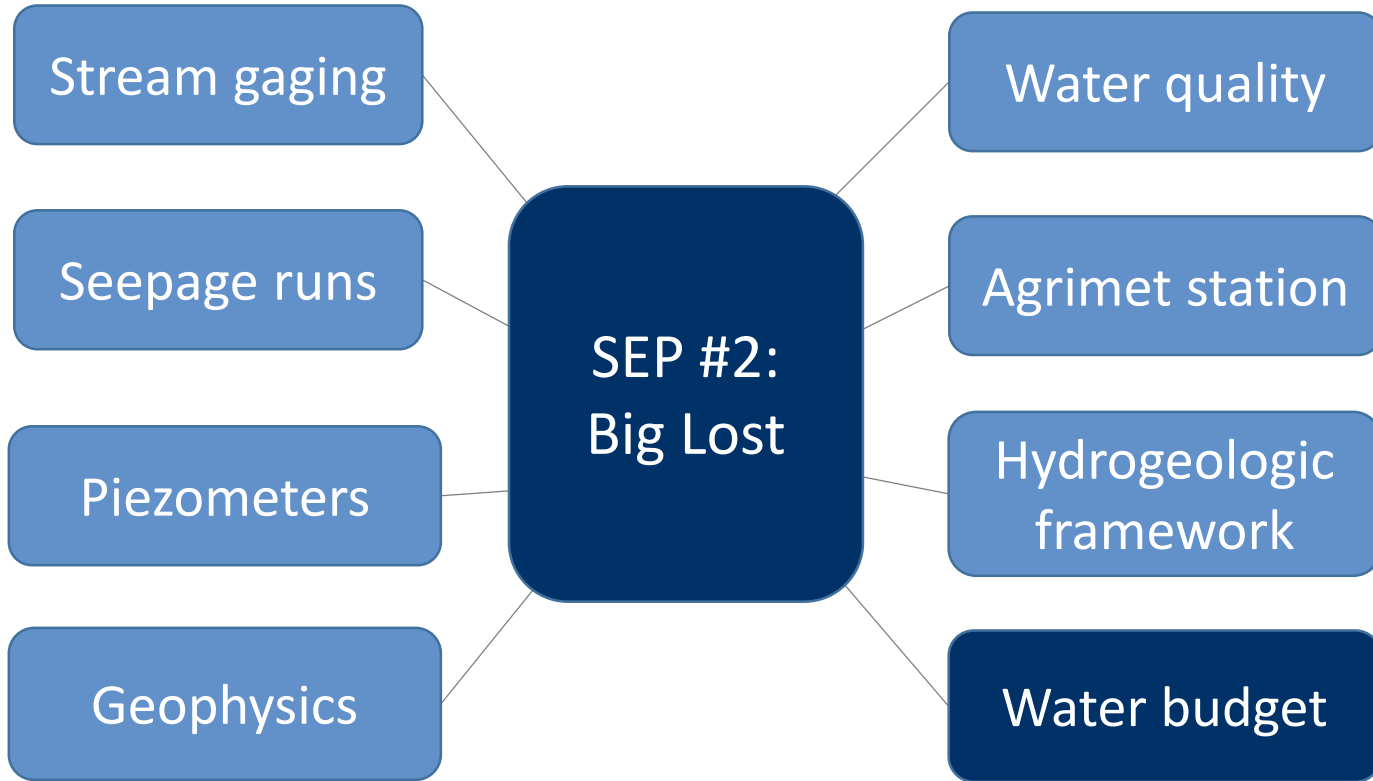
Hydrogeologic Framework: Driller's Log Database

- Digitized and interpreted over 600 driller's logs
- Compiled into RockWorks database
- Includes:
 - Location
 - Lithology
 - Well construction
- Used to understand:
 - Depth to water
 - Bedrock intercepts
 - Relationship between hydrogeologic units and aquifer



****Provisional data subject to revision**

Big Lost Project Components



Water Budget Goals

- Estimate groundwater budgets (inflow and outflow)
- Assess groundwater sustainability
- Inform other work
 - ESPA and INL numerical groundwater flow models
 - Water right accounting and decision making
 - Future models
- Identify perceived data gaps
- Provide any recommendations for future data collection and hydrogeologic investigations



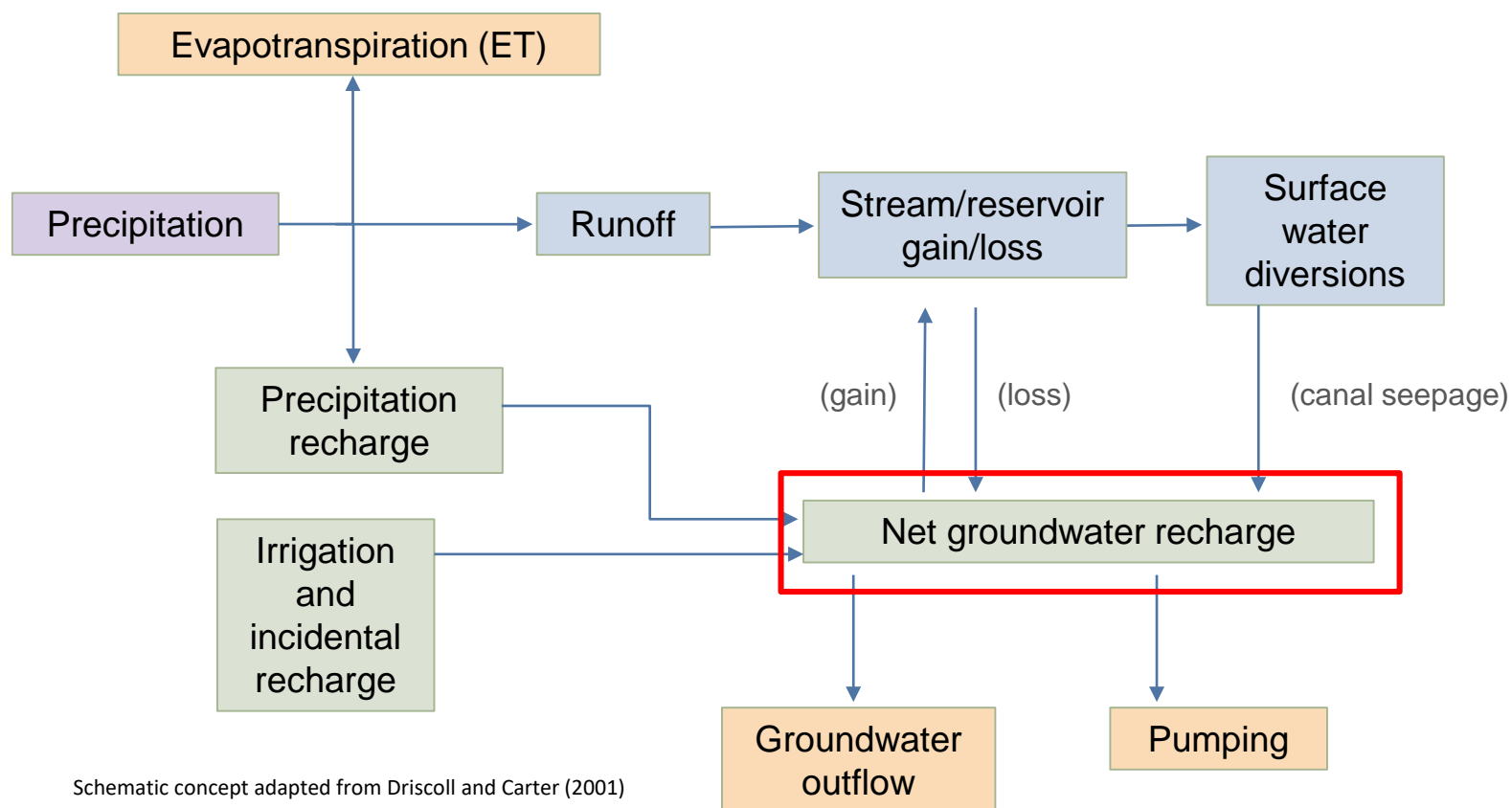
North Fork of the Big Lost River, Idaho
Photo credit: Alexis Clark (IGS)



Alexis Clark, IGS



Simplified water budget



Schematic concept adapted from Driscoll and Carter (2001)

- 3 subareas
- Full basin extent (in yellow)
- 2000-2019 timeframe: average
- 2017: “wet” year
- 2014: “dry” year



A 3-part series in cooperation with the United States Geological Survey, the Idaho Geological Survey, and the Idaho Department of Water Resources

Hydrogeologic investigations in the Big Lost River Valley, ID

Scientific Investigations Report

U.S. Department of the Interior
U.S. Geological Survey

Surface Water + Hydrogeology + Water Budget = 3-part USGS Scientific Investigations Report (SIR)



Chapter 1: Summary of Seepage Investigations in the Big Lost River Valley, Idaho, 2019-2021



Scientific Investigations Report

U.S. Department of the Interior
U.S. Geological Survey



Chapter 2: Hydrogeologic Framework of the Big Lost River Valley Aquifer System, Idaho



Scientific Investigations Report

U.S. Department of the Interior
U.S. Geological Survey



Chapter 3: Ground-Water Budget for the Big Lost River Valley Aquifer System, Idaho, 2000-2019



Scientific Investigations Report

U.S. Department of the Interior
U.S. Geological Survey

Final Reports

(due December 31, 2021)

- USGS three-part report
- IDWR water quality report
- IDWR drilling report
- IWRB DOE comprehensive report

Future Model Foundation

- DOE SEP data, infrastructure, and final reports
- IDWR on-going data collection

A large photograph of a river flowing through a valley with mountains in the background. The word "Questions?" is overlaid in large black text. In the foreground, there are people and a small orange boat on the river, and tall grasses on the banks.

Questions?

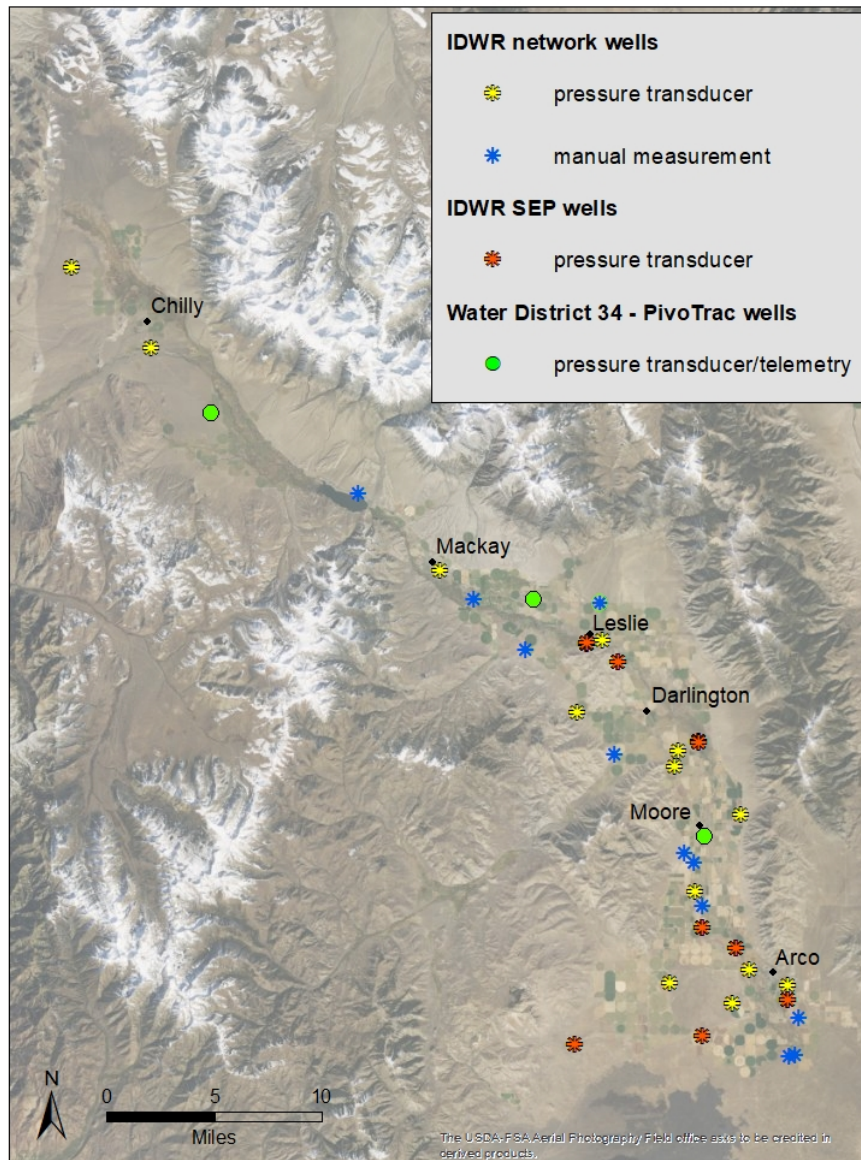
Big Lost Groundwater Level Trends

Jennifer Sukow, P.E., P.G., Idaho Department of Water Resources

Presented to Idaho Water Resource Board

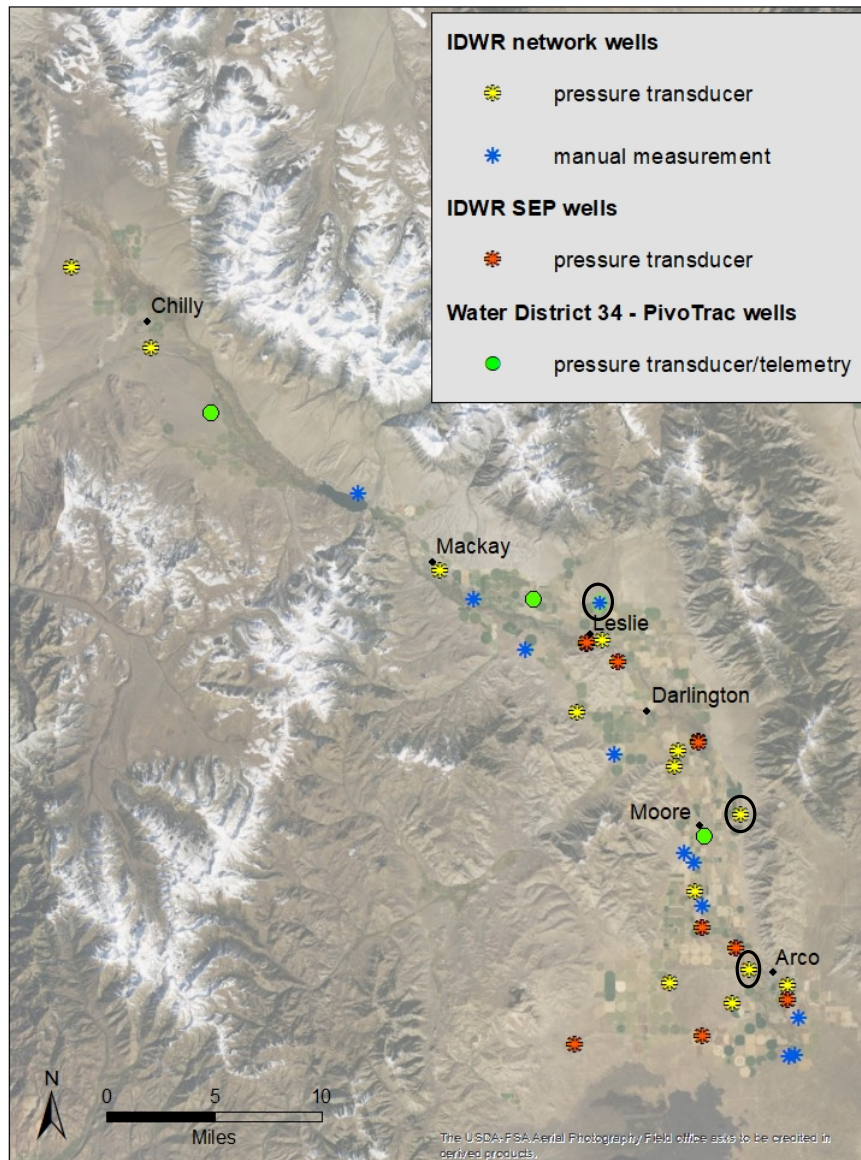
January 20, 2021

IDWR groundwater level monitoring network



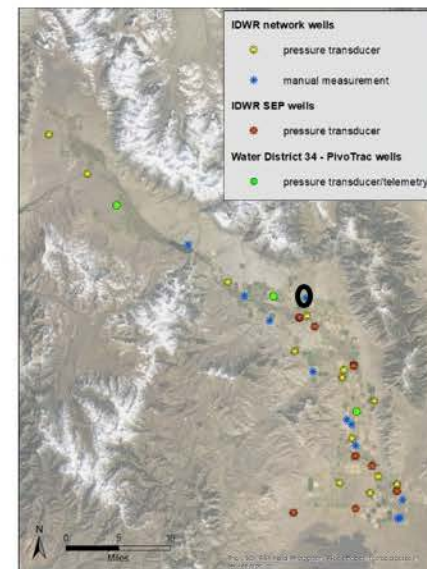
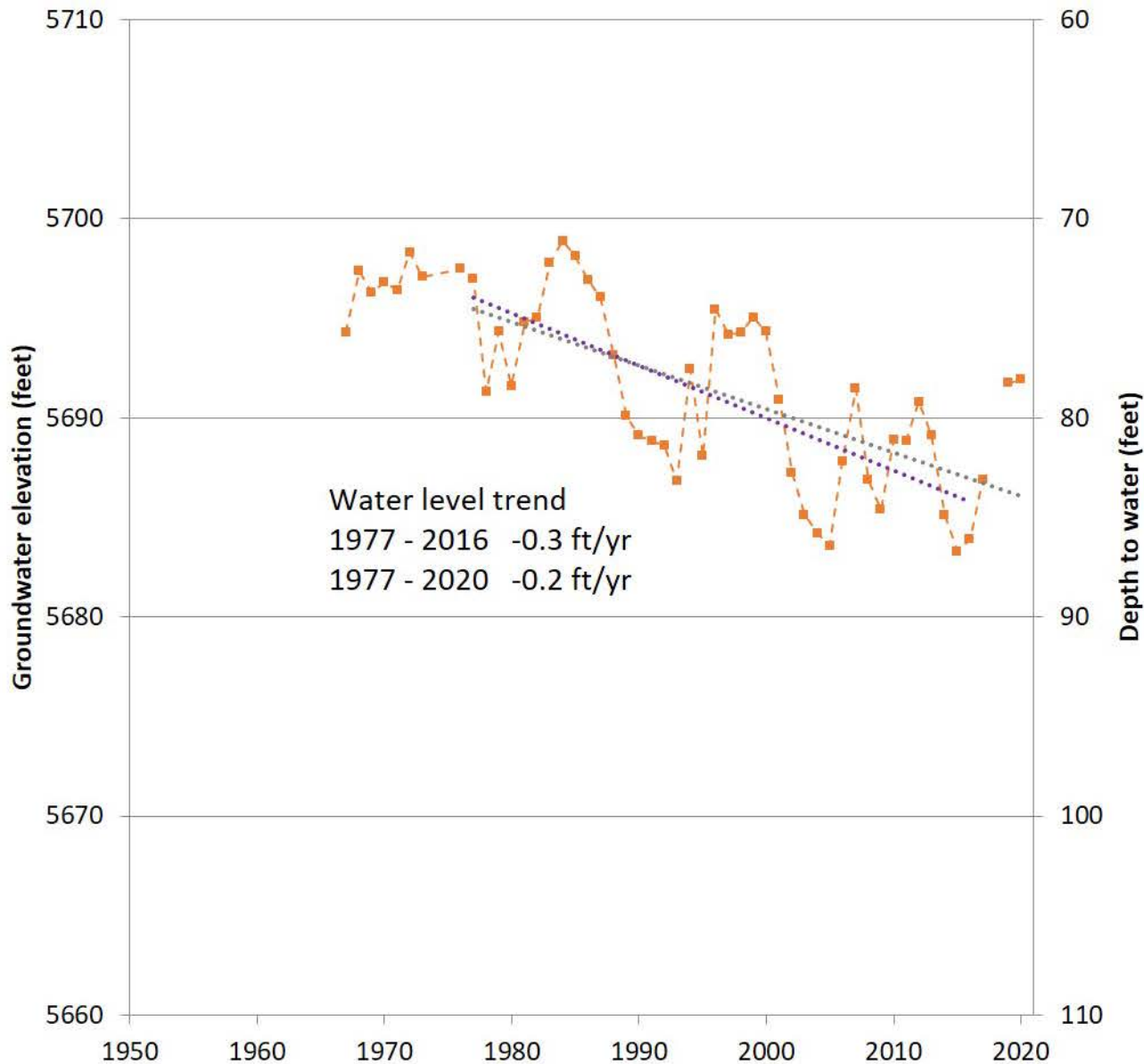
- Ongoing water level monitoring by IDWR at 45 wells
 - 25 network wells
 - 14 continuous
 - 10 spring/fall
 - 1 spring/fall by IDWR; continuous by PivoTrac for Water District 34
 - 20 SEP wells
 - 2 deep wells
 - 6 x 3-well clusters of shallow wells near river
- PivoTrac monitors 3 other wells on behalf of Water District 34

Water level trends at selected wells

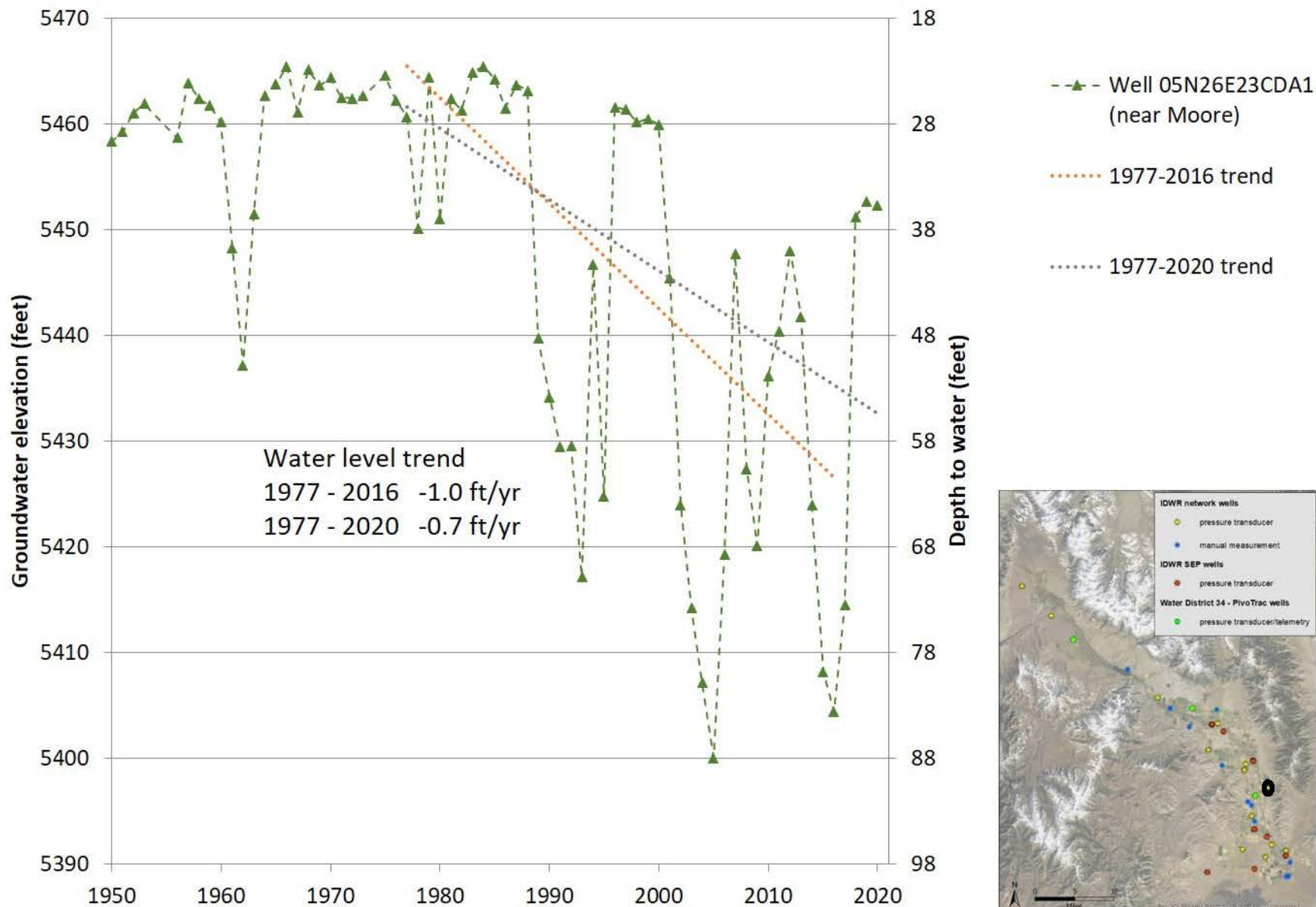


- Representative wells with long history
- Continuous measurement in recent years
- Updated previous water level trend analyses (1977-2016) through 2020 using Mann Kendall trend test
 - Helsel et al., 2006
<https://pubs.usgs.gov/sir/2005/5275/>

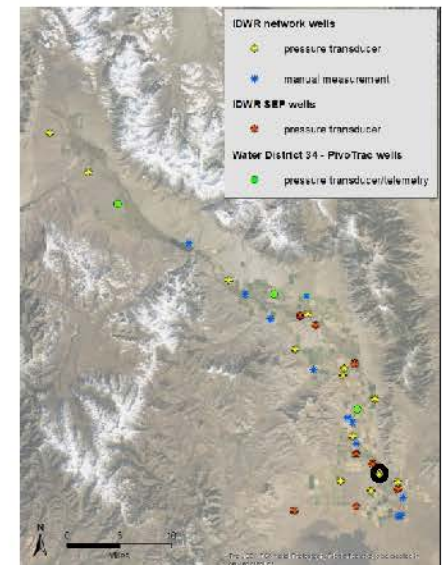
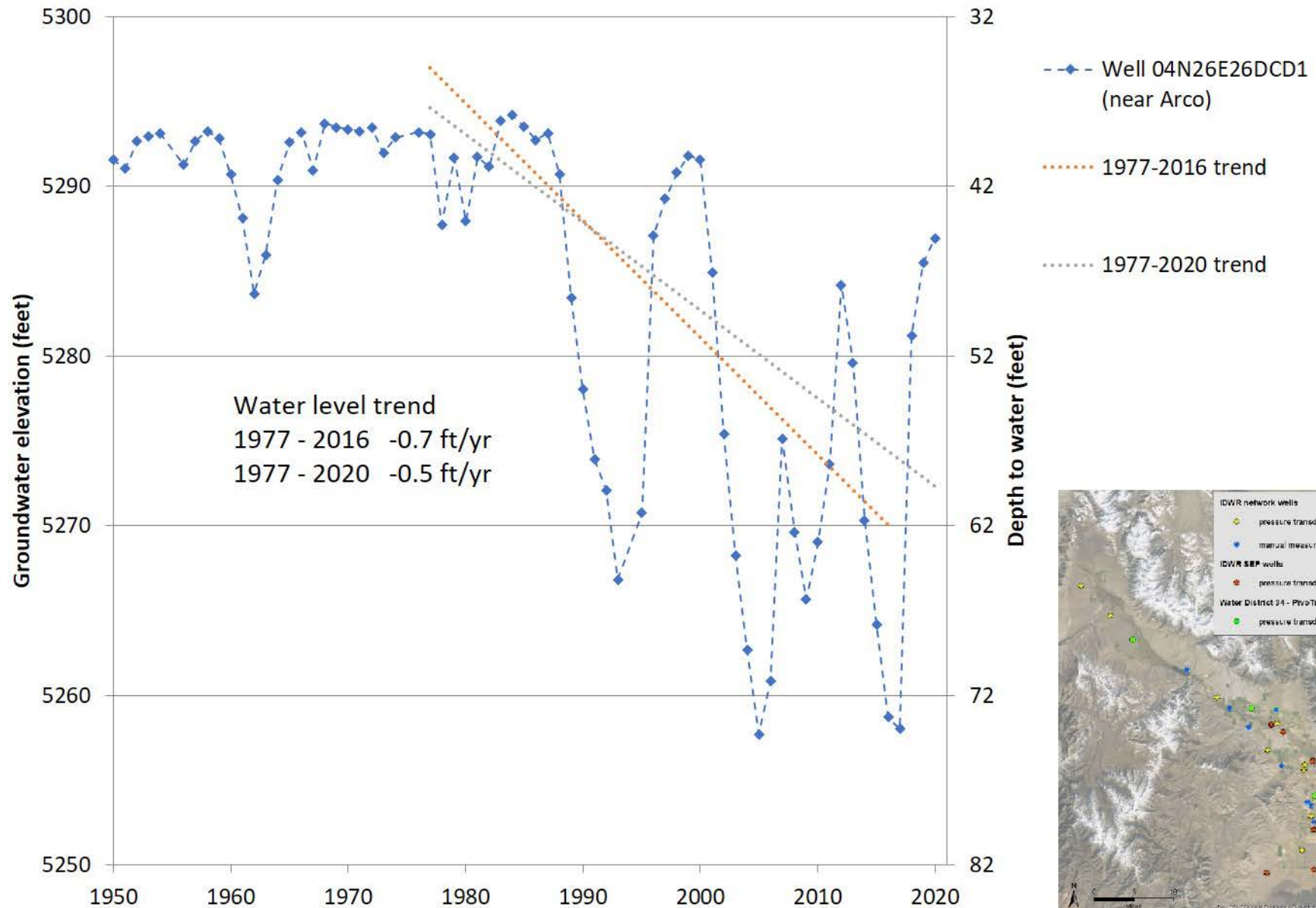
Spring groundwater level measurements updated through April 2020



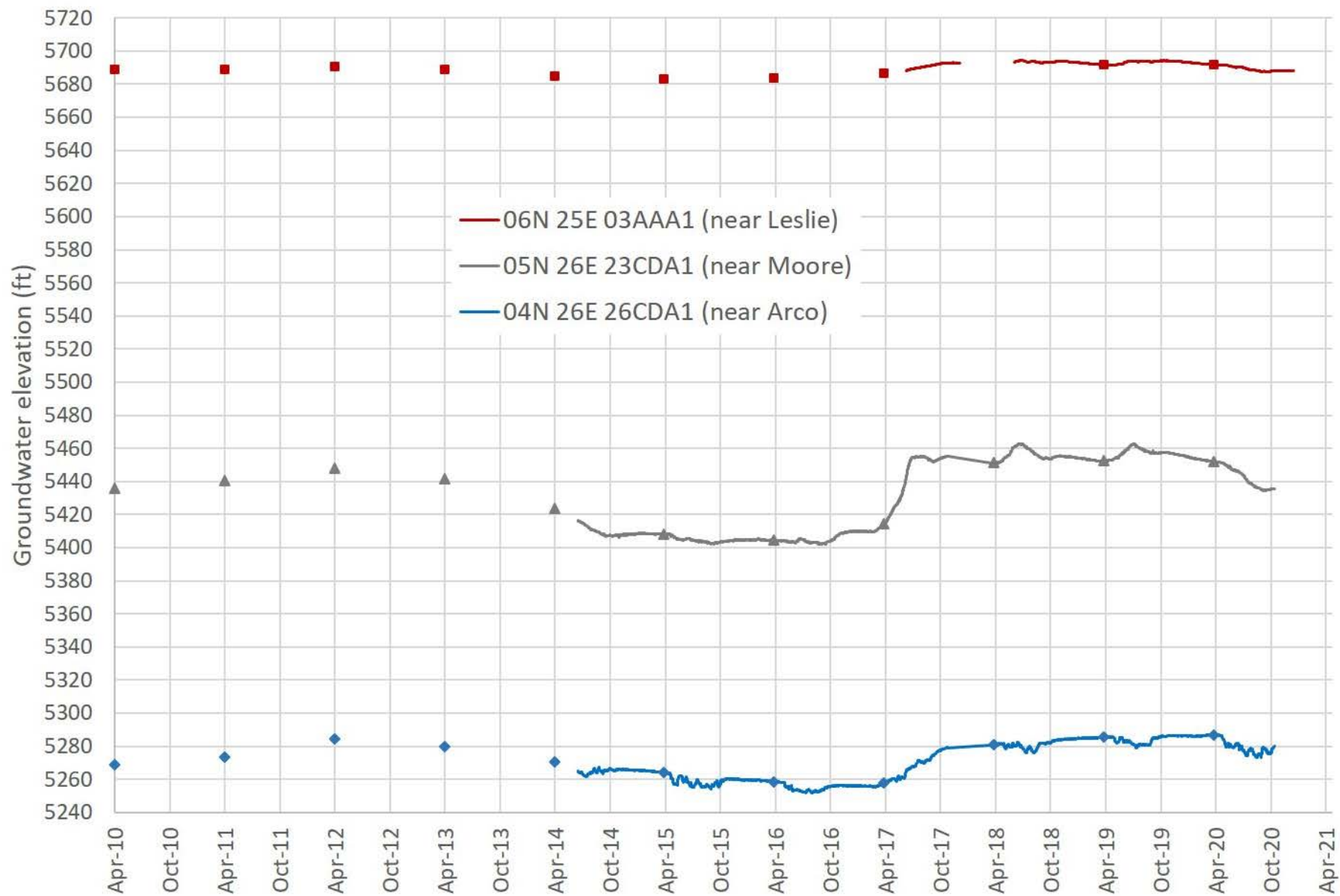
Spring groundwater level measurements updated through April 2020



Spring groundwater level measurements updated through April 2020



Recent continuous monitoring



Summary and conclusions

- Groundwater levels recovered between the spring of 2016 and spring of 2020, but are still lower than in the 1970s and 1980s
- Statistical analyses indicate there is still a long-term declining trend in groundwater levels
 - Average rate of long-term decline is less for 1977-2020 than for 1977-2016, but is still significant
- Groundwater levels declined between April 2020 and October 2020 following low snowfall during winter of 2019-2020
 - March 30, 2020 snow water equivalent in Big Lost basin was 71% of median
- Future groundwater level trends will depend on both weather and consumptive use of water

QUESTIONS?

Memorandum

To: Idaho Water Resource Board (IWRB)
From: Neeley Miller
Date: January 11, 2021
Re: ESPA and Wood River Model Update



IDWR staff will provide an update on the ESPA and Wood River modeling efforts.



Groundwater flow modeling update

Presented to the Idaho Water Resource Board by Sean Vincent
January 20, 2021



Overview

- Modeling staff
- Wood River Valley
 - Data collection initiatives
 - Model version 1.1
- ESPAM version 2.2
- Treasure Valley

Modeling Staff Changes

- Allan Wylie retired November 2019
- Jennifer Sukow assumed lead modeler role
- Noah Stewart-Maddox hired October 2020



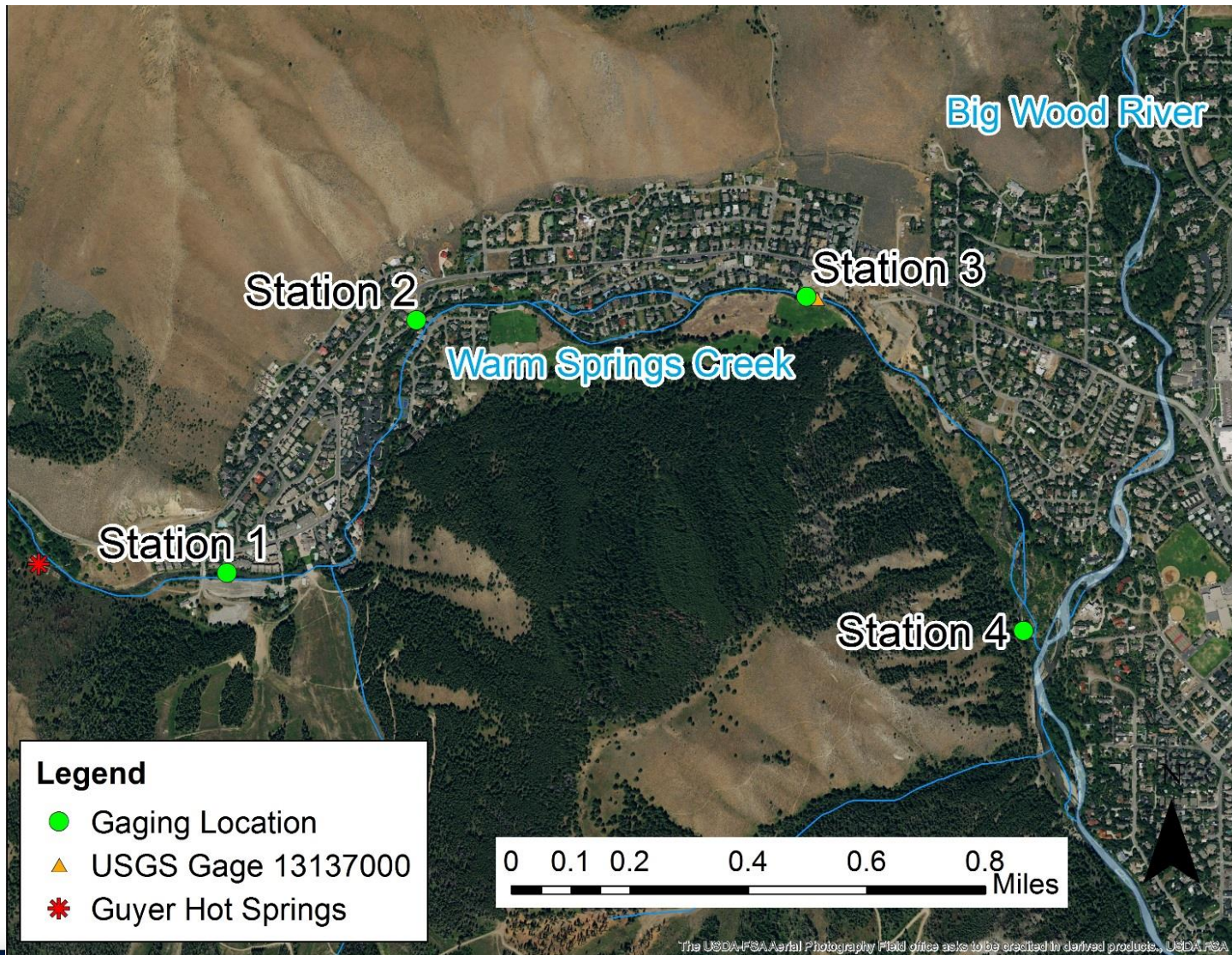
Update on Wood River Valley Groundwater Flow Model Project

Presented to the Idaho Water Resource Board by Sean Vincent
January 20, 2021

Seepage Surveys

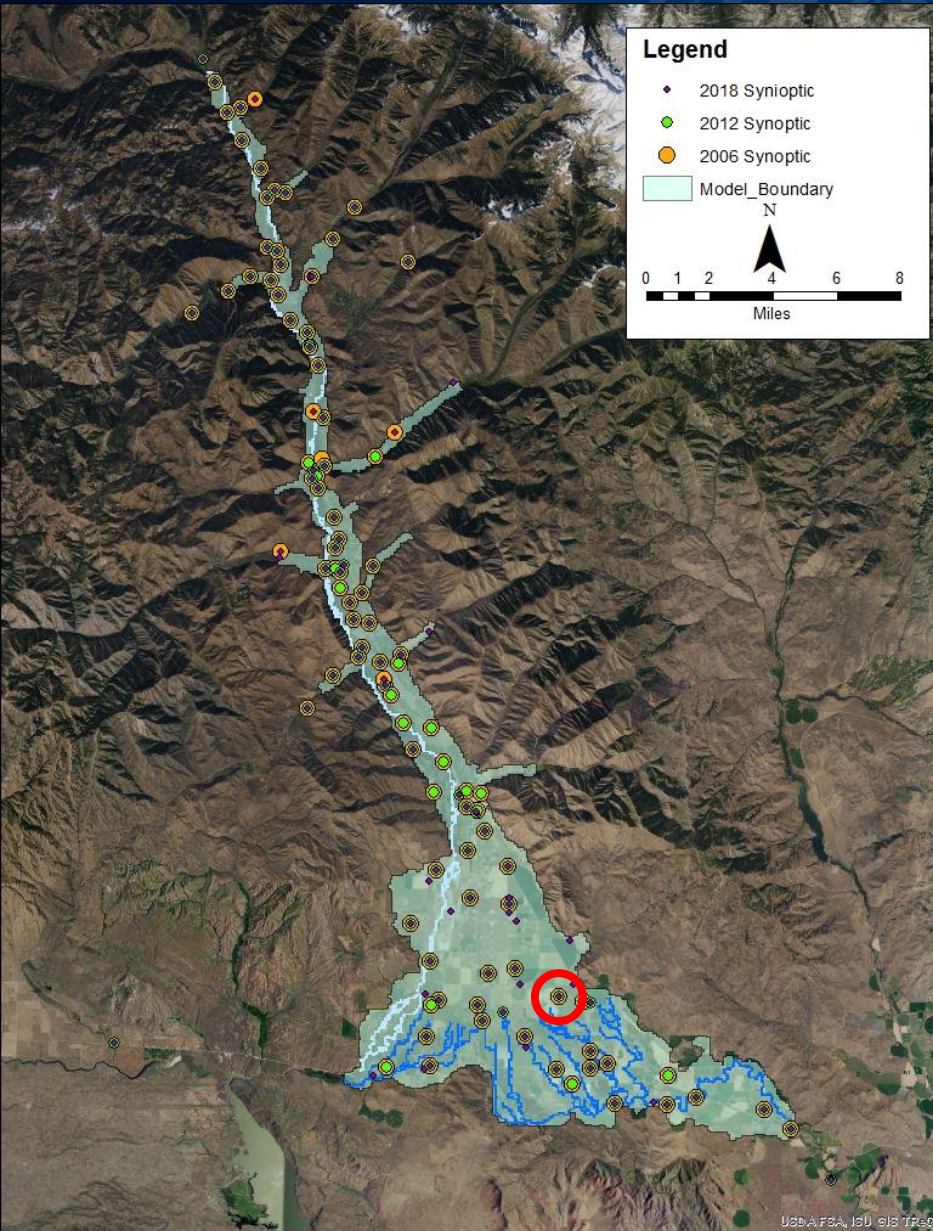
- Quantify reach gains for use in the model
- Hydrology Section staff conducted surveys on two tributary streams during early part of November 2018

Warm Springs Creek Seepage Survey



Trail Creek Streamflow Measurements

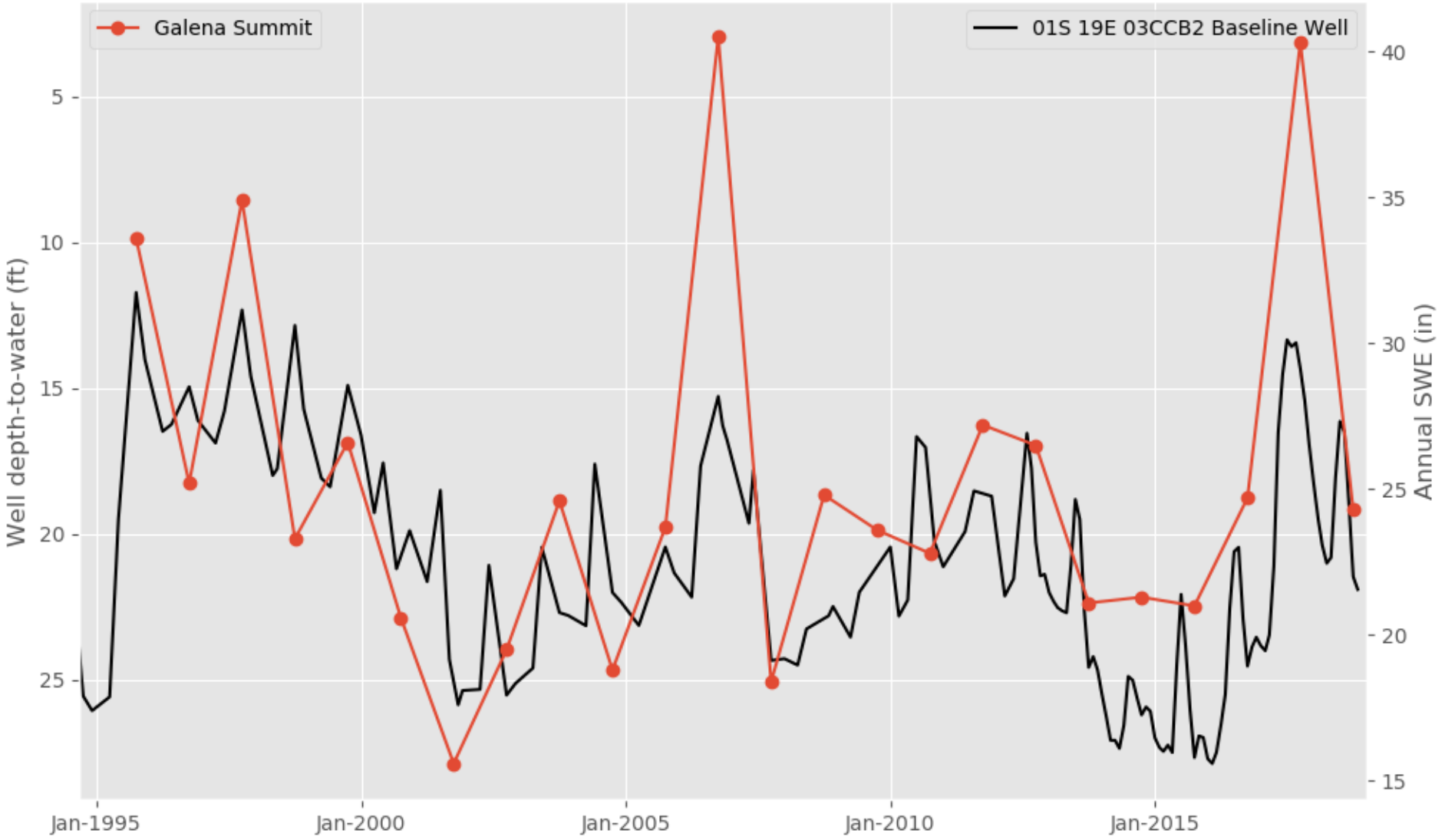




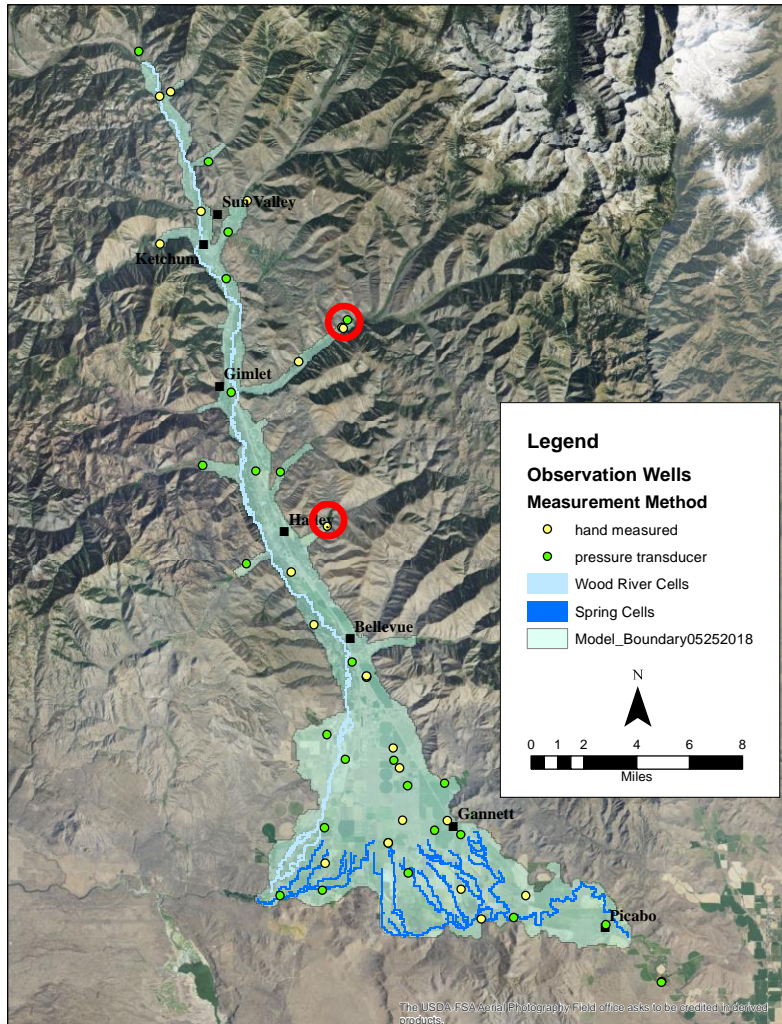
Fall 2018 Mass Measurement

- October 22 – 26
- 105 wells
- 79 wells also measured in 2006 mass measurement
- 83 wells also measured in 2012 mass measurement

Groundwater levels track snowpack



Wood River Monitoring Well Network



- Added 3 wells during 2018
 - 1 well in Quigley Canyon
 - 2 wells in East Fork drainage
- 50 total wells
 - 28 have transducers
 - 22 measured by hand at least twice a year

WRV Model Recalibration

- Version 1.0 documented in 2016
- Version 1.1 documented in 2019
 - incorporates high frequency head and flow measurements collected between 2011 and 2014 and extends calibration period to 20 years (Jan 1995 - Dec 2014)

WRV Model Final Reports

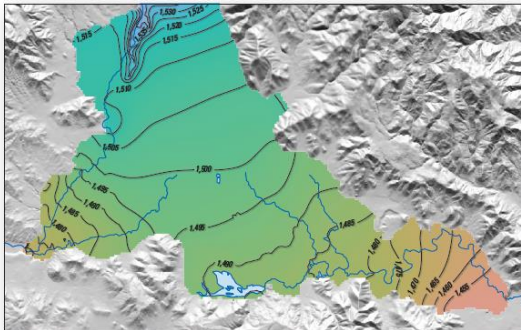
Version 1.0 - 2016

Version 1.1 - 2019



Prepared in cooperation with the Idaho Department of Water Resources

Groundwater-Flow Model for the Wood River Valley Aquifer System, South-Central Idaho



Scientific Investigations Report 2016–5080

U.S. Department of the Interior
U.S. Geological Survey

Groundwater-Flow Model for the Wood River Valley Aquifer System, Version 1.1

Idaho Department of Water Resources
Allan Wylie, Jennifer Sukow, Mike McVay, and James Bartolino



Model Recalibration

- Version 1.0 documented in 2016
- Version 1.1 incorporates high frequency head and flow measurements collected between 2011 and 2014 and extends calibration period to 20 years (Jan 1995 - Dec 2014)
- Updated model used to evaluate predictive uncertainty and rerun the curtailment scenario

IDWR Analyses with Version 1.1

Curtailment Scenario

Groundwater-Flow Model for the Wood River Valley
Aquifer System, Version 1.1
Simulated Curtailment of Groundwater Use

Idaho Department of Water Resources
Jennifer Sukow
July 31, 2019



Uncertainty Analysis

Wood River Valley Aquifer Model
Version 1.1
Uncertainty Analysis

Idaho Department of Water Resources
Allan Wylie



A scenic photograph of a river flowing through a lush green valley. The river is in the center, surrounded by dense green foliage and trees. In the background, a mountain with a rocky peak is visible under a clear sky. The overall scene is peaceful and natural.

Thank You!



Update on the Eastern Snake Plain Aquifer Model

Presented to the Idaho Water Resource Board by Sean Vincent
January 20, 2021

ESPAM Recalibration

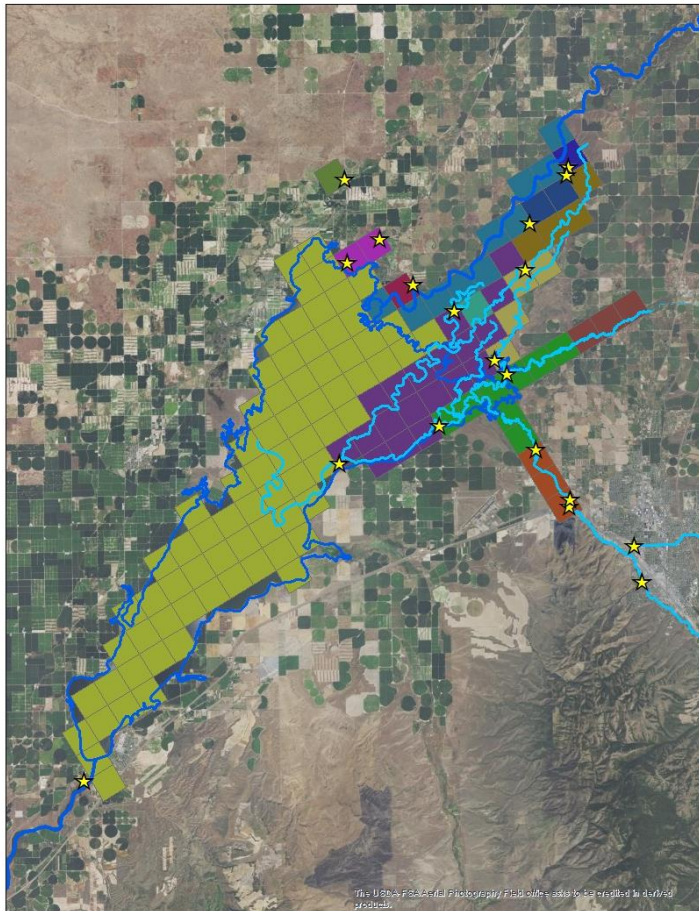
- ESHMC agreed by consensus to adopt latest calibration run as new model version 2.2
- In the process of developing documenting new model version
- Will roll out the new model with publication of the final report

Model refinements - representation of the near Blackfoot to Neeley reach

ESPAM2.2 near Blackfoot to Neeley

134 model cells

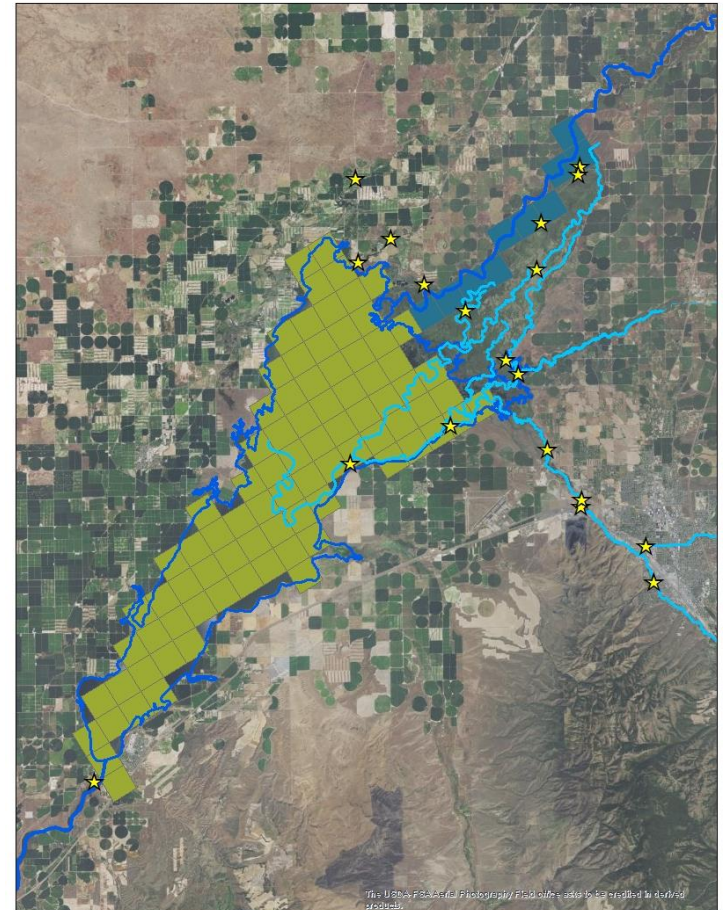
13 subreach conductance values



ESPAM2.1 near Blackfoot to Neeley

96 model cells

2 subreach conductance values

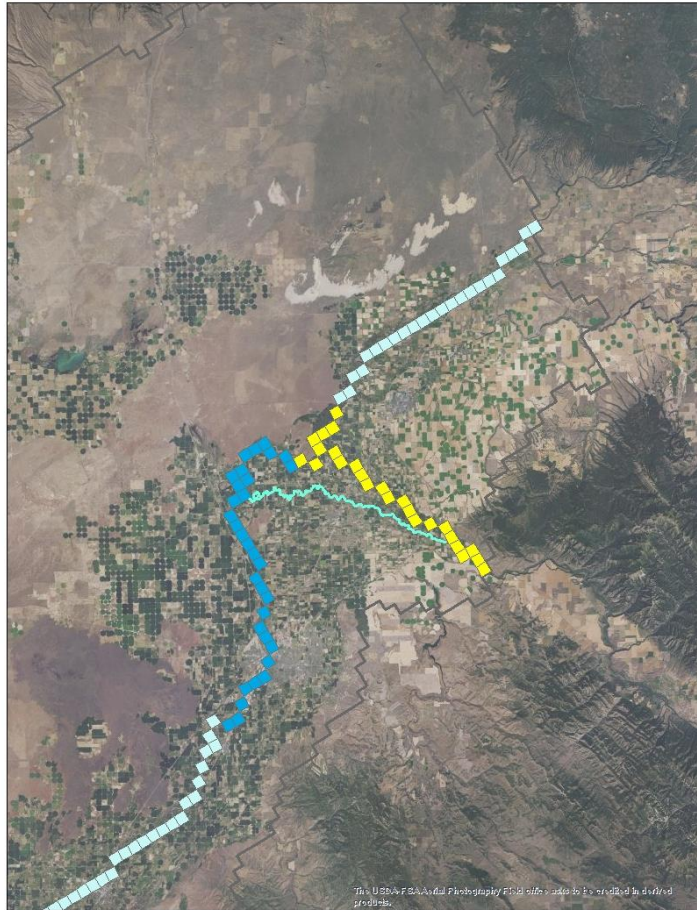


Model refinements - representation of the Heise to Shelley reach

ESPAM2.2 Heise to Shelley

2 subreach conductance values

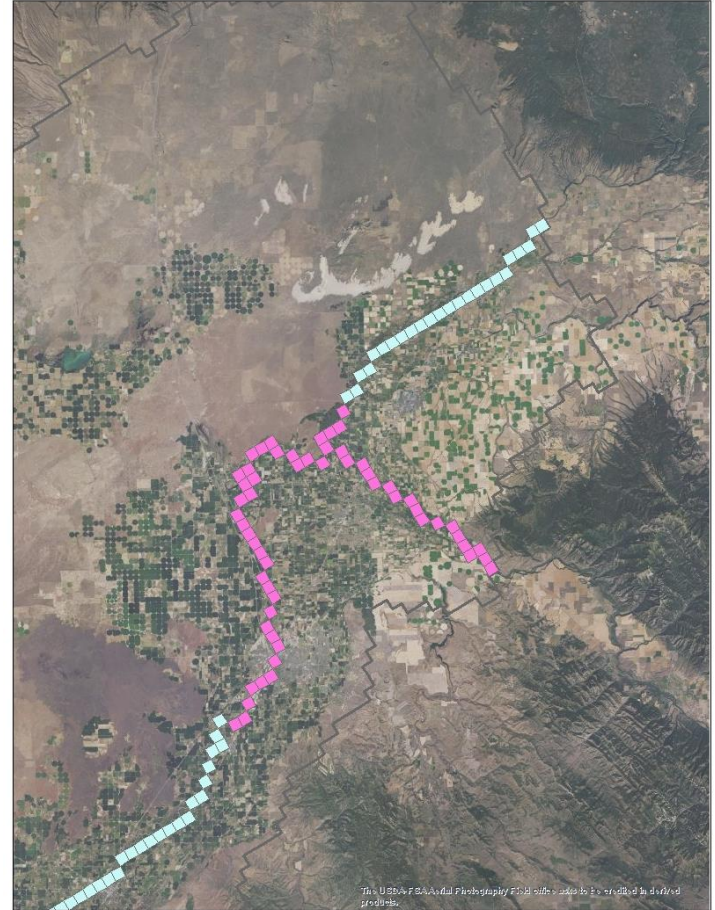
Dry Bed seepage represented separately



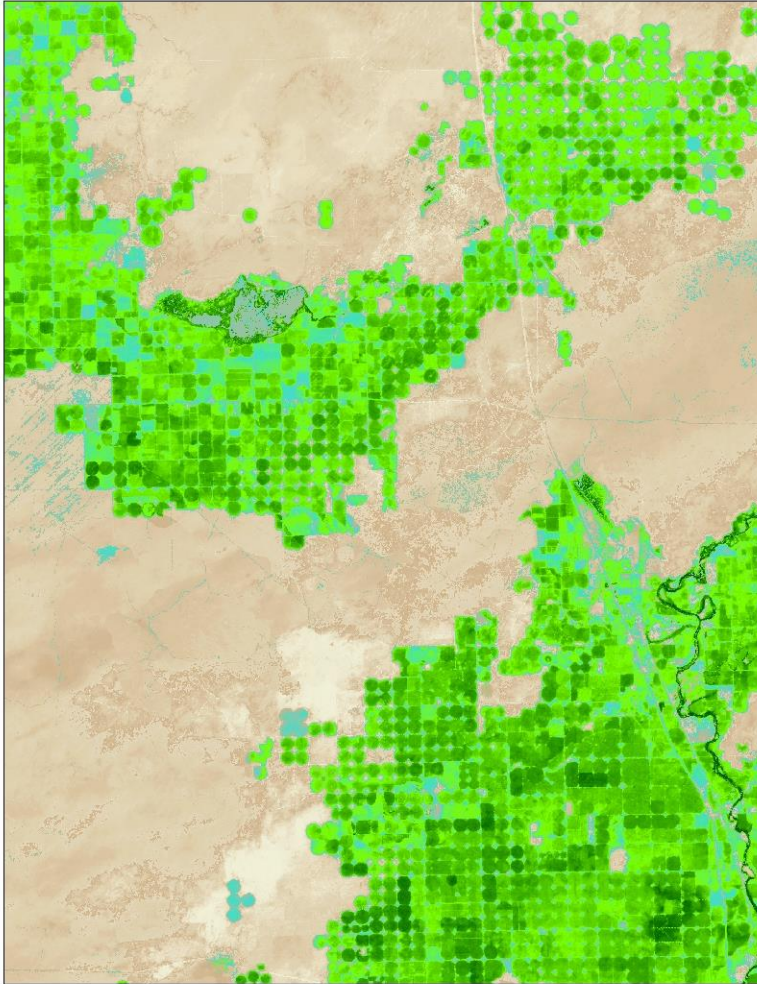
ESPAM2.1 Heise to Shelley

One conductance value

Dry Bed seepage lumped into reach gain



Model refinements - METRIC evapotranspiration

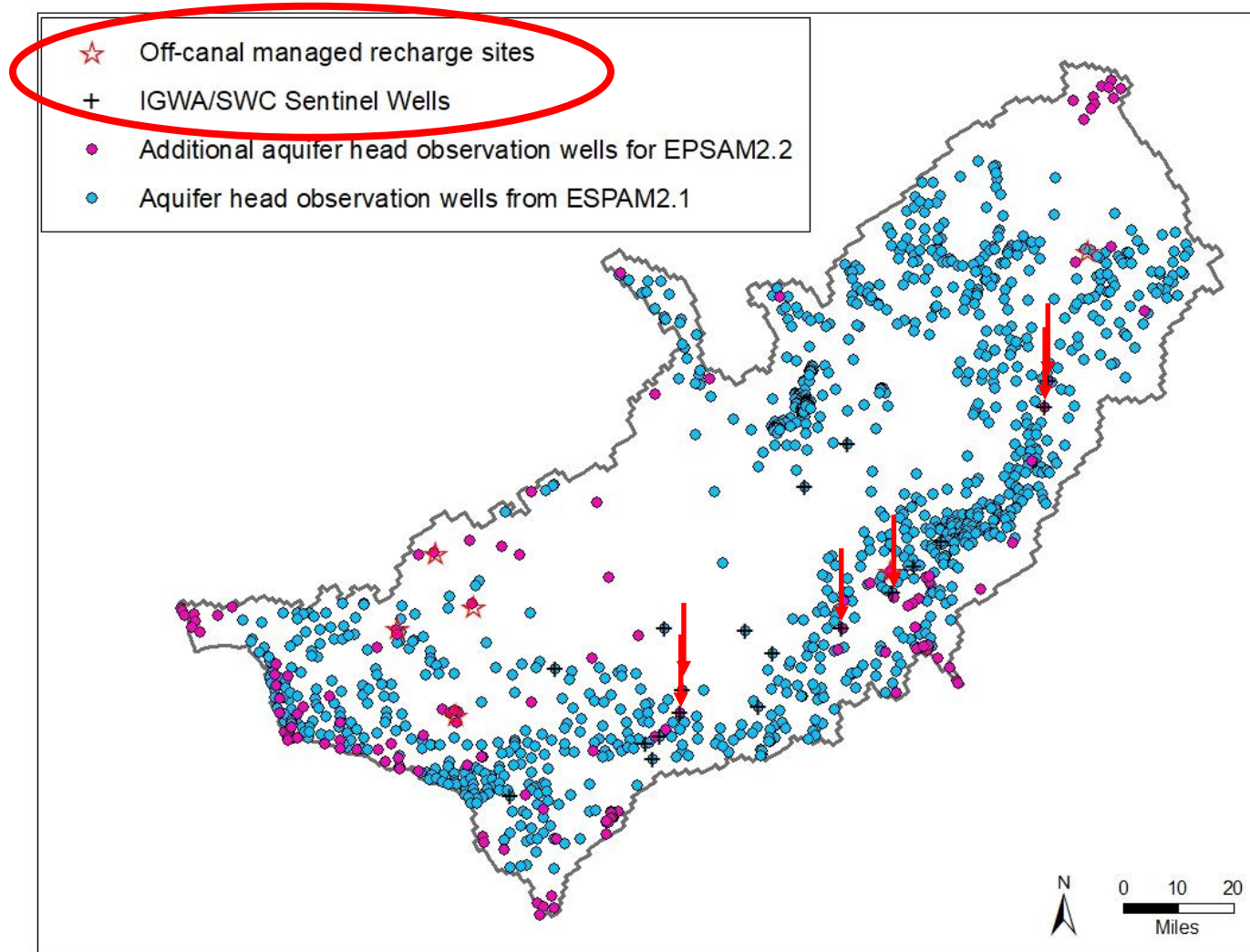


- ESPAM2.2
 - METRIC ET for 15 irrigation seasons
 - METRIC ET used directly
 - Comparison of METRIC/ET_{Idaho} for 9 years used to calculate range of ET adjustment factors
- ESPAM2.1
 - Comparison of METRIC/ET_{Idaho} for 2 years used to calculate initial ET adjustment factors
 - METRIC ET not used directly

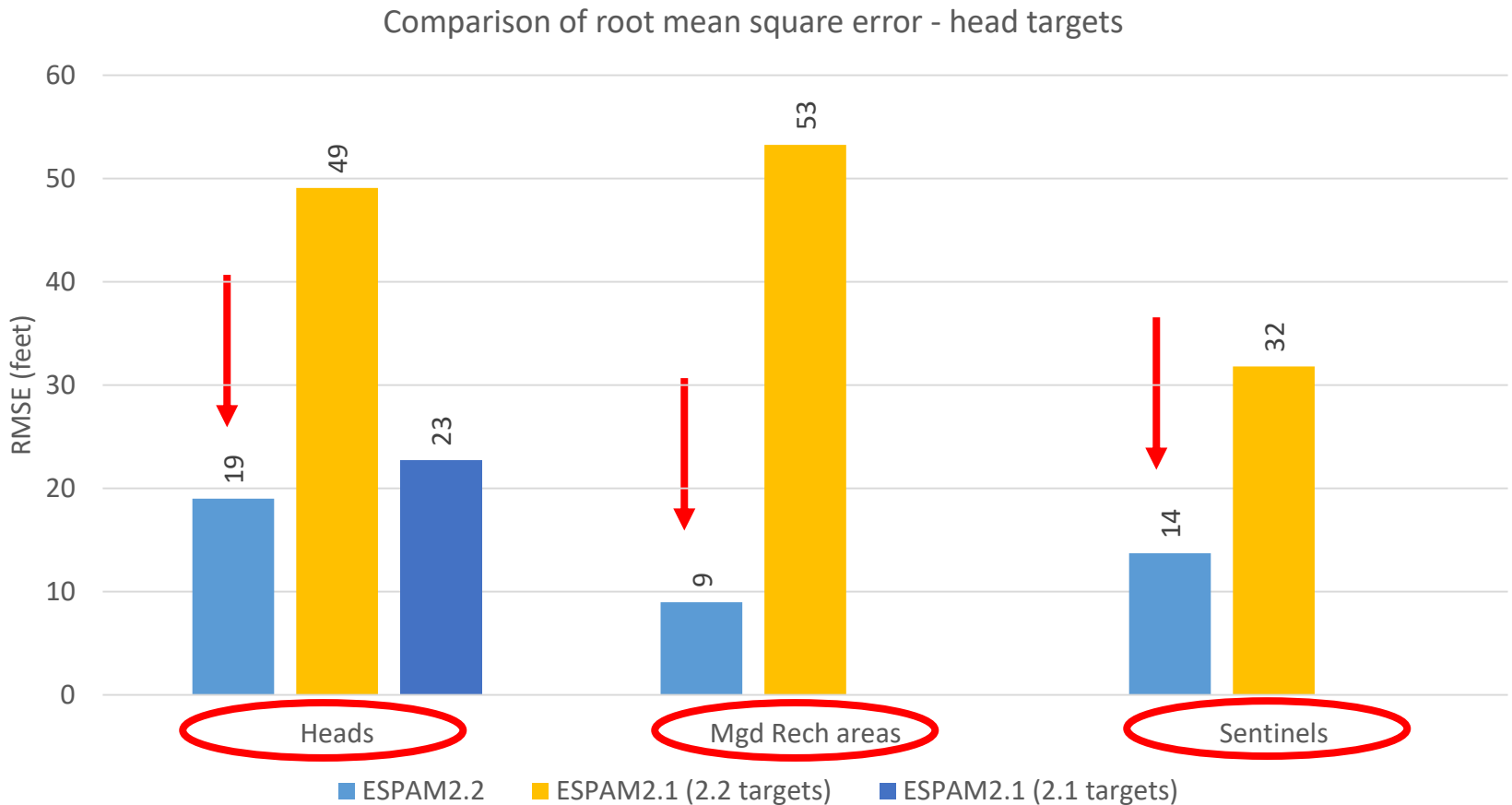
Model refinements - extended calibration period

- ▶ Extended model calibration period to include water years 2009 through 2018
 - ▶ Additional variation in climate, water supply, and water use
 - ▶ Early years of the new era of managed recharge projects
 - ▶ Early years of the SWC/IGWA settlement agreement
 - ▶ New aquifer-head observation locations associated with the IWRB managed recharge program, SEP-funded well construction, and collaboration with water users
 - ▶ New return flow measurement sites established in collaboration with water users
 - ▶ New reach gain measurement locations established in collaboration with the Shoshone-Bannock Tribes
 - ▶ 10 years of additional data collected as part of IDWR and IWRB's ongoing ESPA monitoring program
- ▶ Calibration period increased from 23.5 years to 33.5 years
- ▶ Weighted calibration targets increased from 51,679 to 76,331 observations

Model refinements - new head observation locations

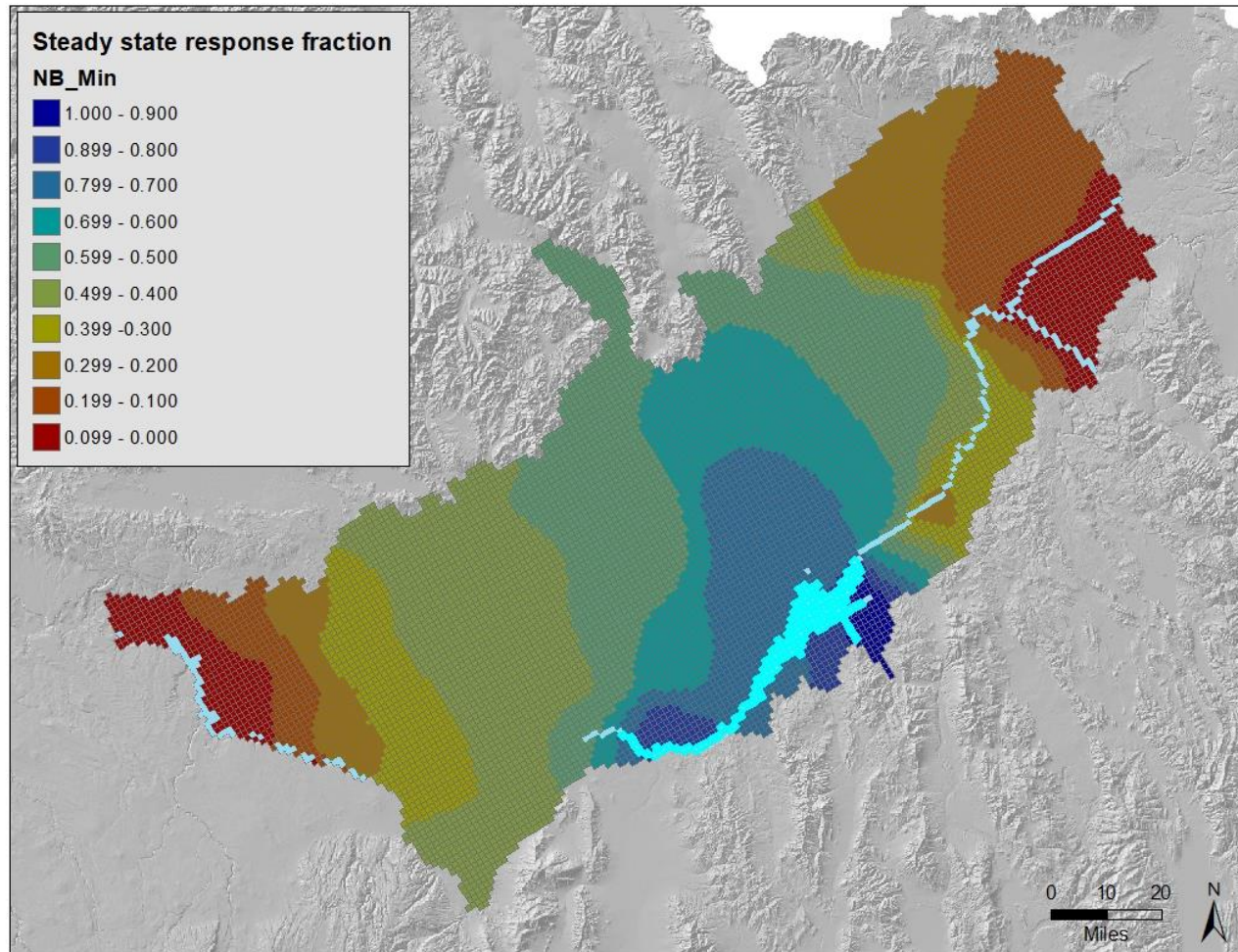


Comparison of model versions - calibration statistics



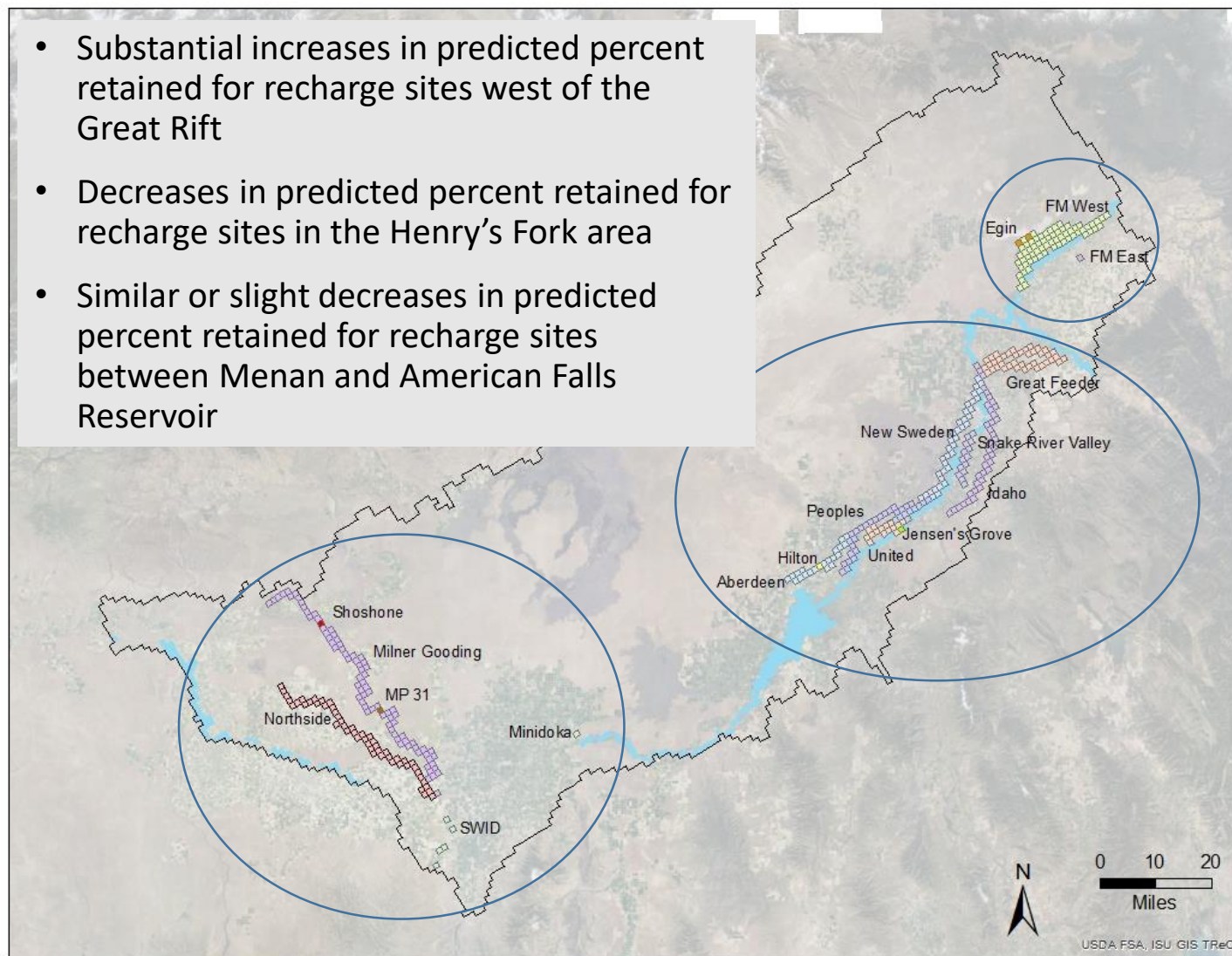
$$RMSE = \sqrt{1/(n-1) \sum_{i=1}^n (O_i - P_i)^2}$$

Proposed ESPAM 2.2 SSRF – near Blackfoot to Minidoka

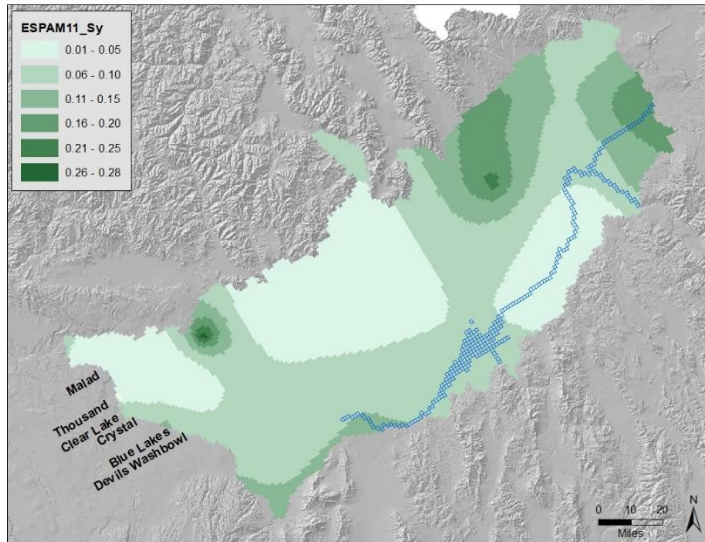


Summary of changes from ESPAM2.1 predictions

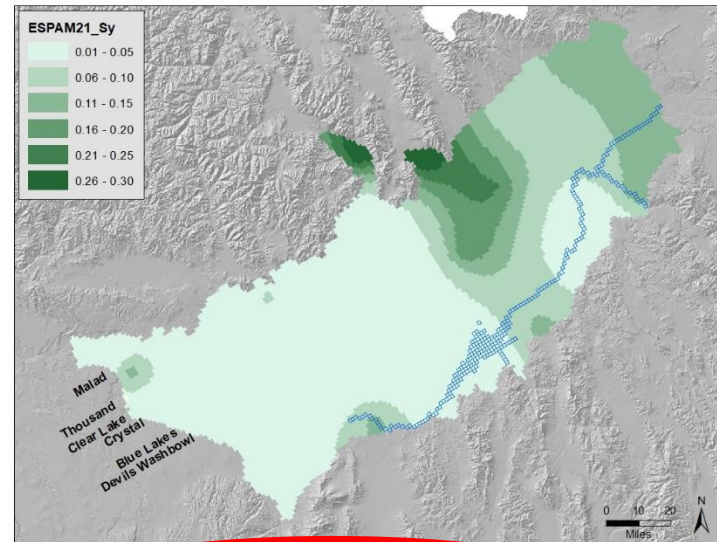
- Substantial increases in predicted percent retained for recharge sites west of the Great Rift
- Decreases in predicted percent retained for recharge sites in the Henry's Fork area
- Similar or slight decreases in predicted percent retained for recharge sites between Menan and American Falls Reservoir



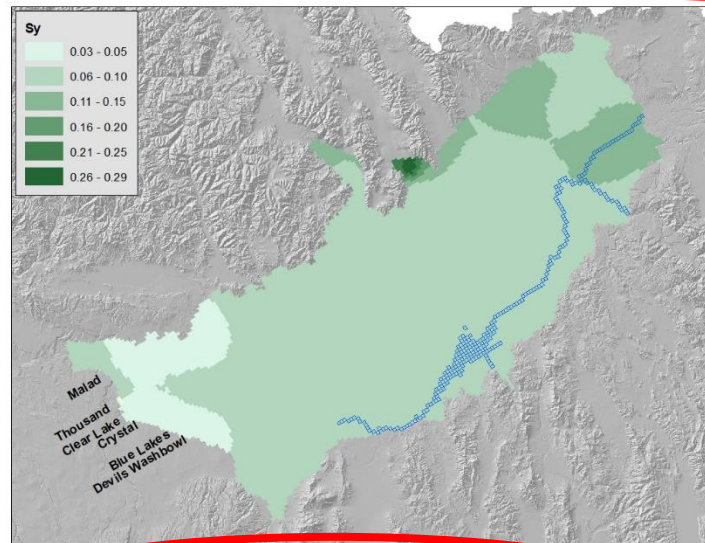
Specific yield



ESPAM1.1 mean Sy = 0.072 (0.071)



ESPAM2.1 mean Sy = 0.059



ESPAM2.2 mean Sy = 0.075

ESPAM Summary

- Completed first ESPAM recalibration since 2013
- Better calibrated with 10 years additional data
 - Maintain status of ESPAM as best available science
- There will be changes to predictions that were made with previous model
 - More confidence in predictions with the new model

Thank You!





Update on Treasure Valley Groundwater Flow Model Project

Presented to the Idaho Water Resource Board by Sean Vincent
January 20, 2021

Project description

- Developing transient groundwater flow model
- Builds on steady-state TVHP model
- Collaboration w/ U.S. Geological Survey
- 5 year project w/ 4 overlapping phases
 - Phase 1 project initiation (complete)
 - Phase 2 data collection = (ongoing beyond project completion)
 - Phase 3 hydrogeologic framework (complete)
 - Phase 4 model development (ongoing)

Model Development

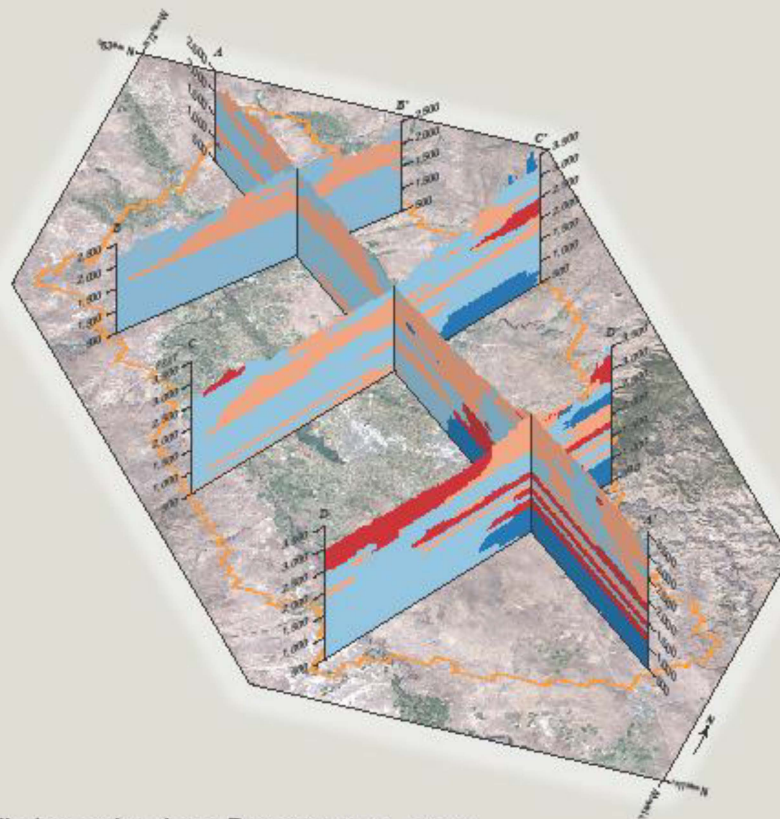


Progress since last update

- USGS published Hydrogeologic Framework Report Jan 2020

Prepared in cooperation with the Idaho Water Resource Board and the Idaho Department of Water Resources

Hydrogeologic Framework of the Treasure Valley and Surrounding Area, Idaho and Oregon



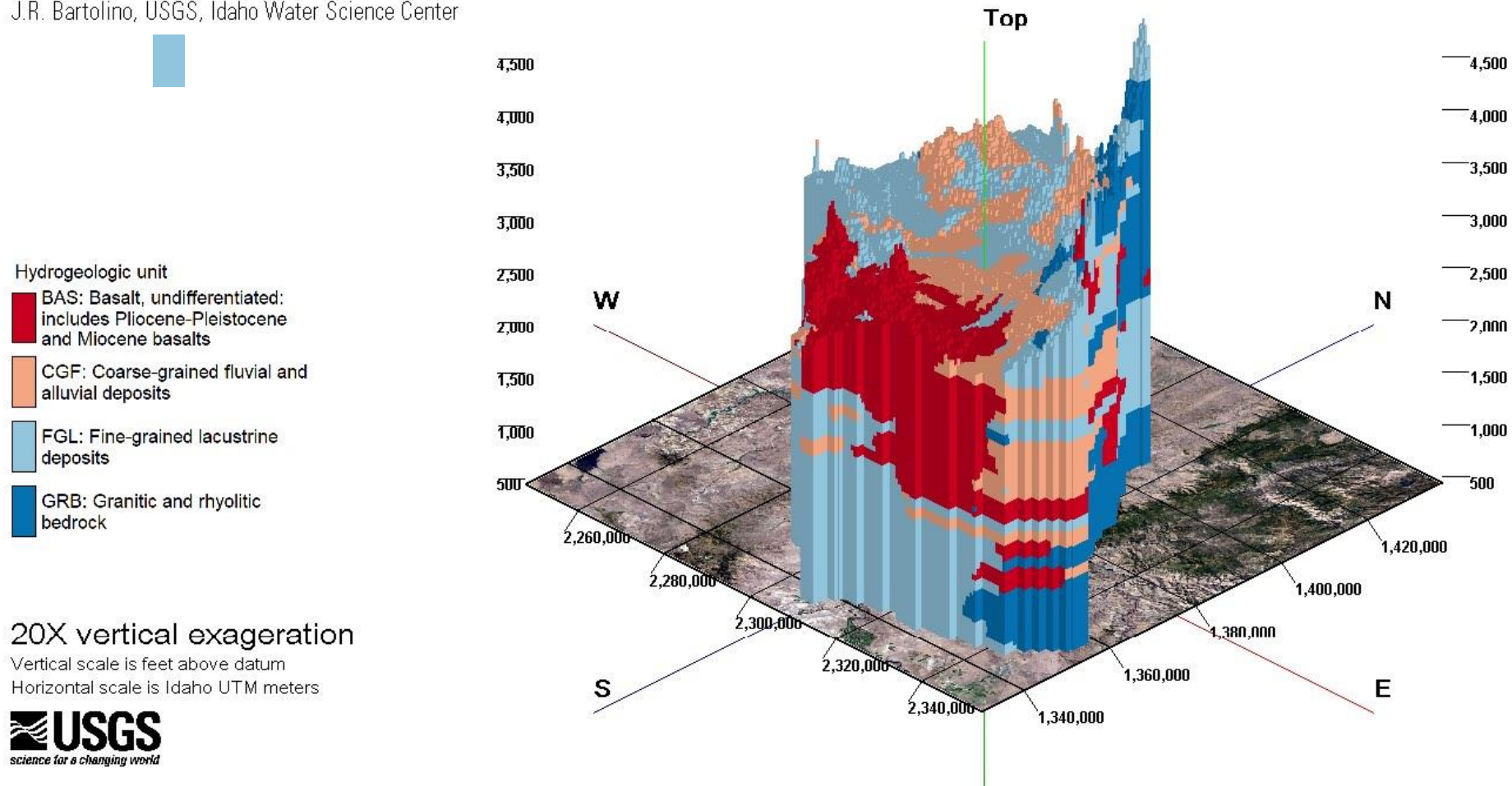
Scientific Investigations Report 2019–5138
Version 1.1, January 2020

U.S. Department of the Interior
U.S. Geological Survey

Geologic Model

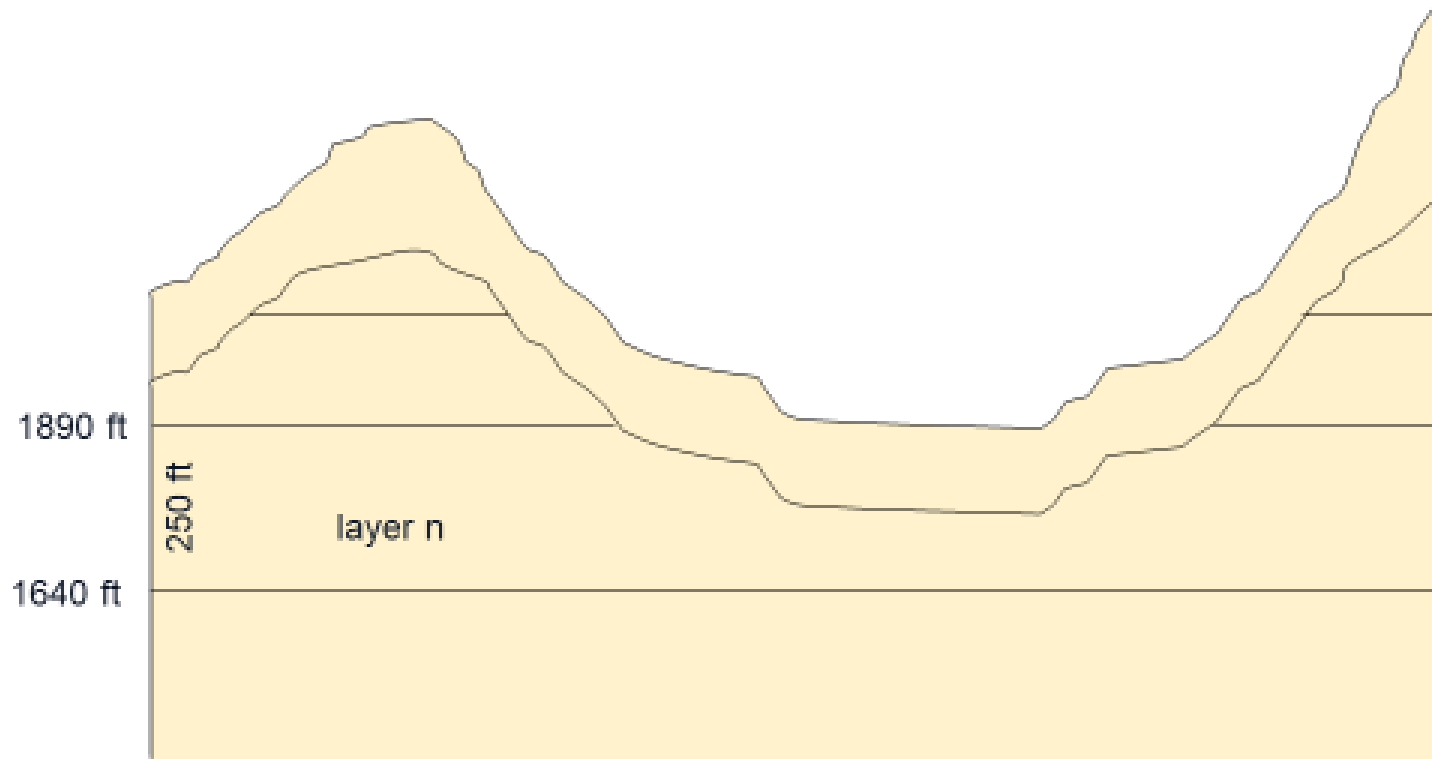
Hydrogeologic Framework of the Treasure Valley and Surrounding Area, Idaho and Oregon

J.R. Bartolino, USGS, Idaho Water Science Center



6-layer model w/ layering based on geology and vertical water level gradients





Flow model
layer

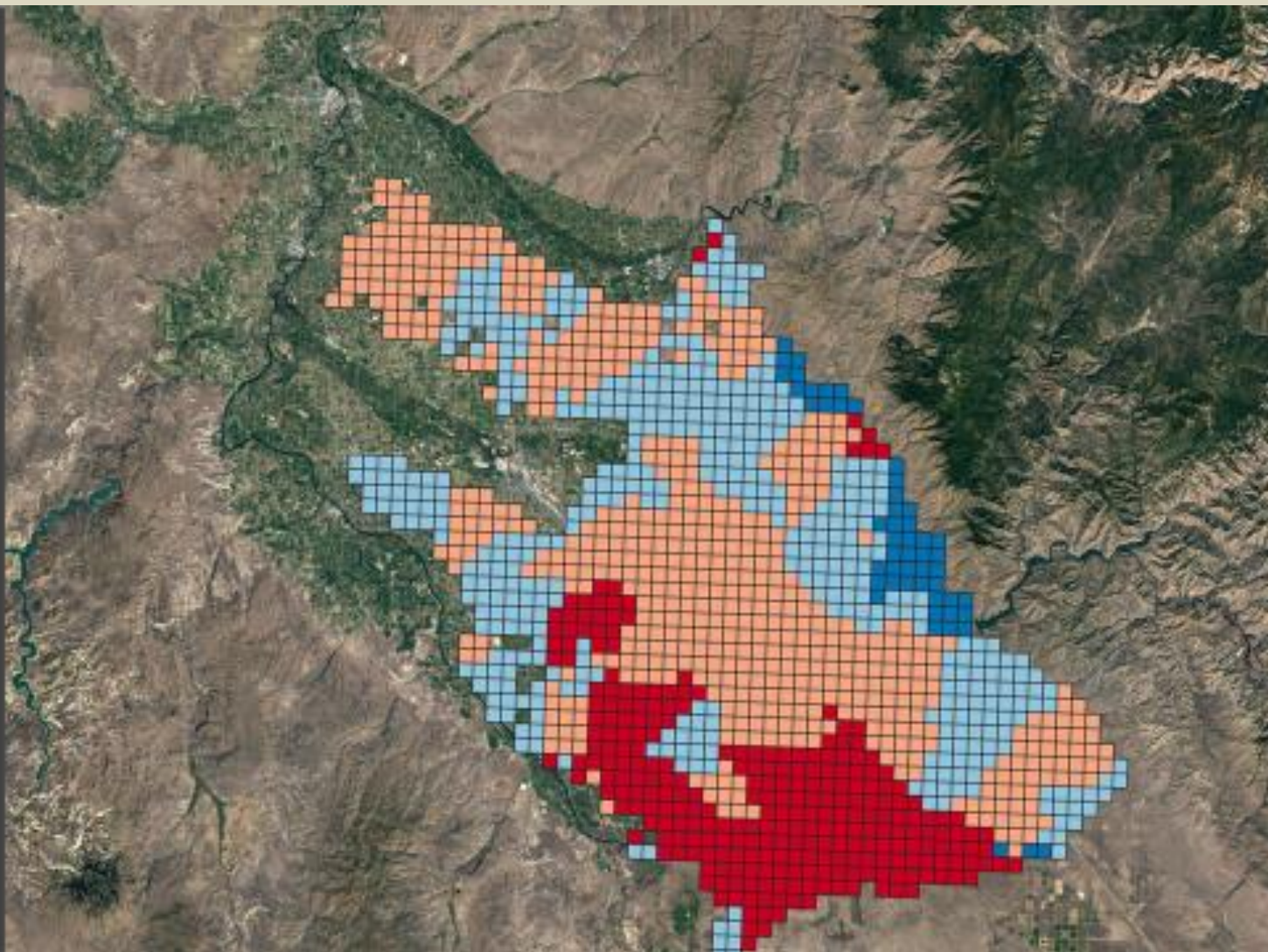


Model Layer 3

Lithology Mapped to Grid: Layer 3

Hydrogeologic unit

-  BAS: Basalt, undifferentiated:
Includes Pliocene-Pleistocene
and Miocene basalts
-  CGF: Coarse-grained fluvial and
alluvial deposits
-  FGL: Fine-grained lacustrine
deposits
-  GRB: Granitic and rhyolitic
bedrock



Progress since January 24, 2019 update

- USGS published Hydrogeologic Framework Report January 2020
- U of I Kimberly finished ET mapping work for 30 years and updated the MTAC June 2020

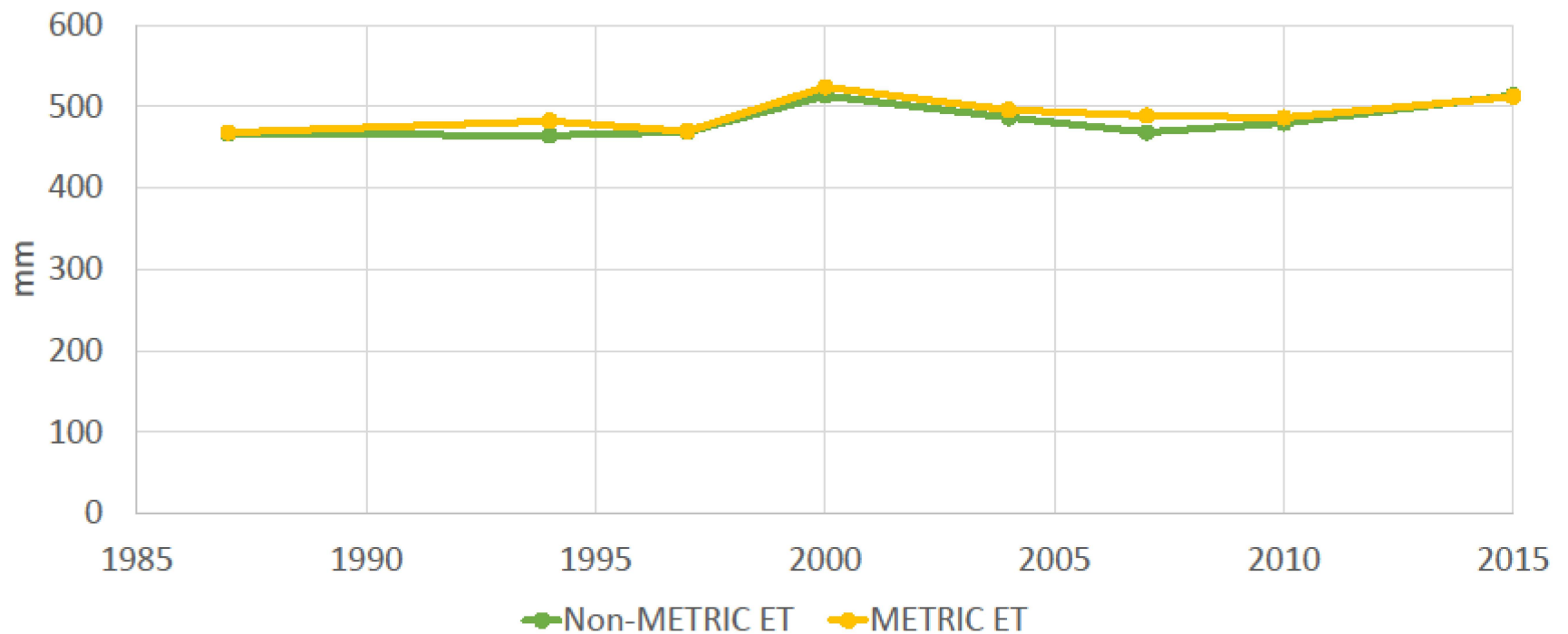
Evapotranspiration Determination Method

Year	Method	Year	Method	Year	Method
1986	non-METRIC	1996	non-METRIC	2006	non-METRIC
1987	METRIC	1997	METRIC	2007	METRIC
1988	non-METRIC	1998	non-METRIC	2008	non-METRIC
1989	non-METRIC	1999	non-METRIC	2009	non-METRIC
1990	non-METRIC	2000	METRIC	2010	METRIC
1991	non-METRIC	2001	non-METRIC	2011	non-METRIC
1992	non-METRIC	2002	non-METRIC	2012	non-METRIC
1993	non-METRIC	2003	non-METRIC	2013	non-METRIC
1994	METRIC	2004	METRIC	2014	non-METRIC
1995	non-METRIC	2005	non-METRIC	2015	METRIC

8 METRIC years (over 100 images); 22 nonMETRIC years

Seasonal ET

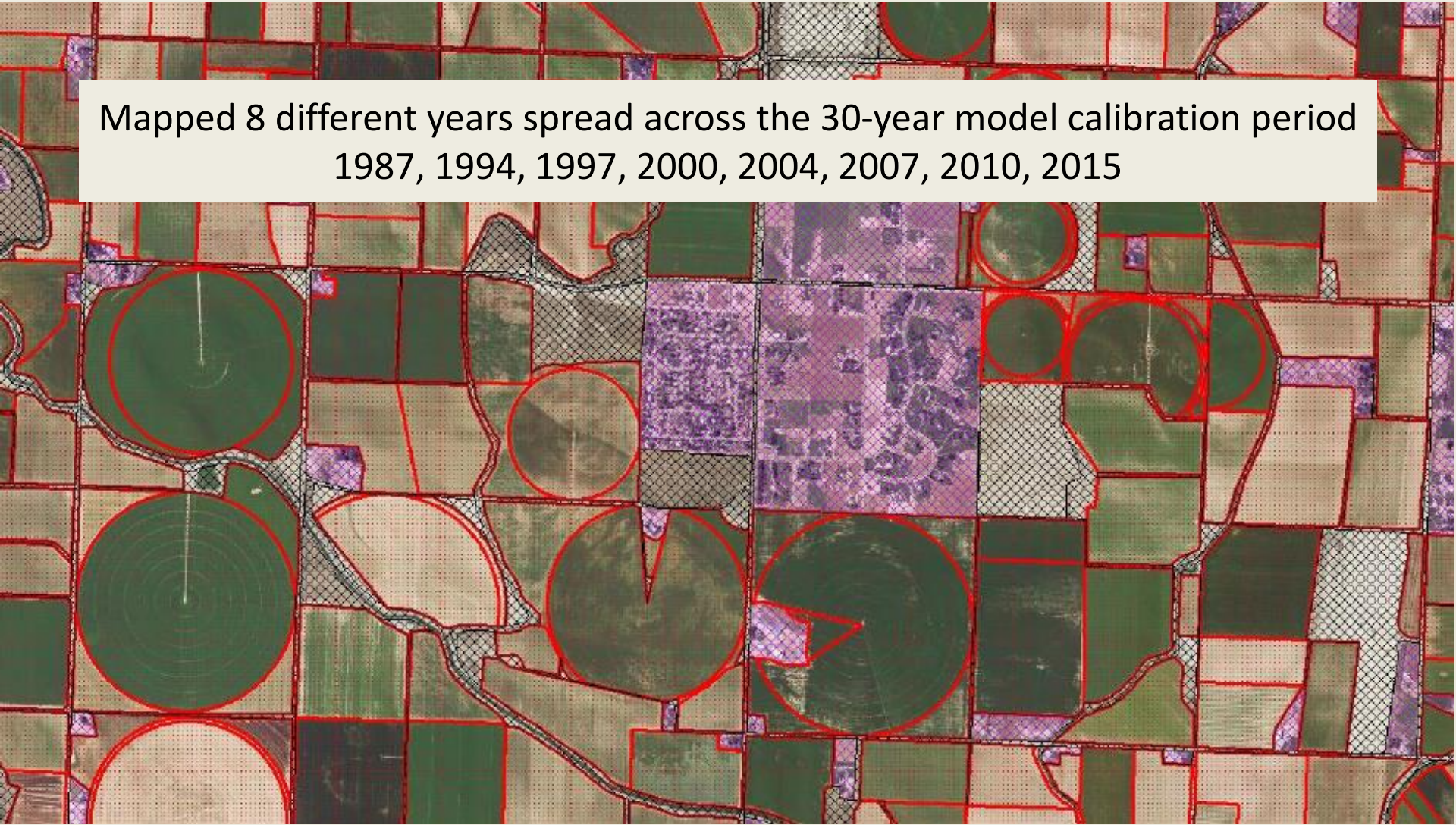
Treasure Valley Model Domain



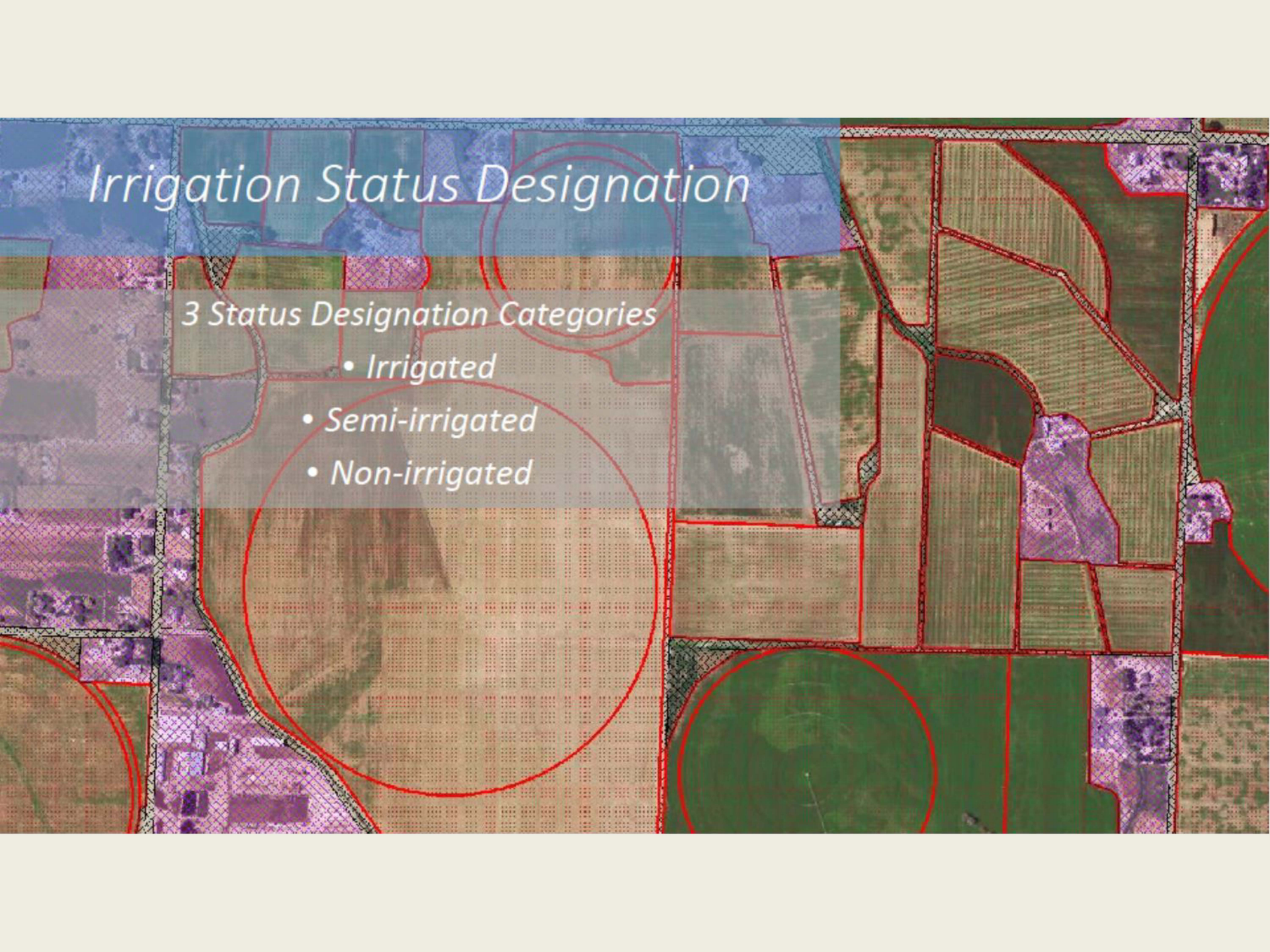
Progress since January 24, 2019 update

- USGS published Hydrogeologic Framework Report January 2020
- U of I Kimberly finished ET mapping work for 30 years and updated the MTAC June 2020
- IWRRI/IDWR completed land use maps for all 8 METRIC ET years June 2020

Mapped 8 different years spread across the 30-year model calibration period
1987, 1994, 1997, 2000, 2004, 2007, 2010, 2015



Irrigation Status Designation

An aerial photograph of a rural landscape, likely agricultural, with various fields and roads. The map is overlaid with a semi-transparent grey rectangle containing text. The background is a composite of different colors and patterns: blue for water or wetlands, green for fields, brown for bare earth or dry fields, and purple for certain types of land use. Red lines outline specific areas of interest.

3 Status Designation Categories

- *Irrigated*
- *Semi-irrigated*
- *Non-irrigated*

Acres of Irrigated Land Use for 2015

STATUS 2015



- Irrigated - 422,857 Acres
- Semi-irrigated - 193,788 Acres
- Non-irrigated - 837,519 Acres

Progress since January 24, 2019 update

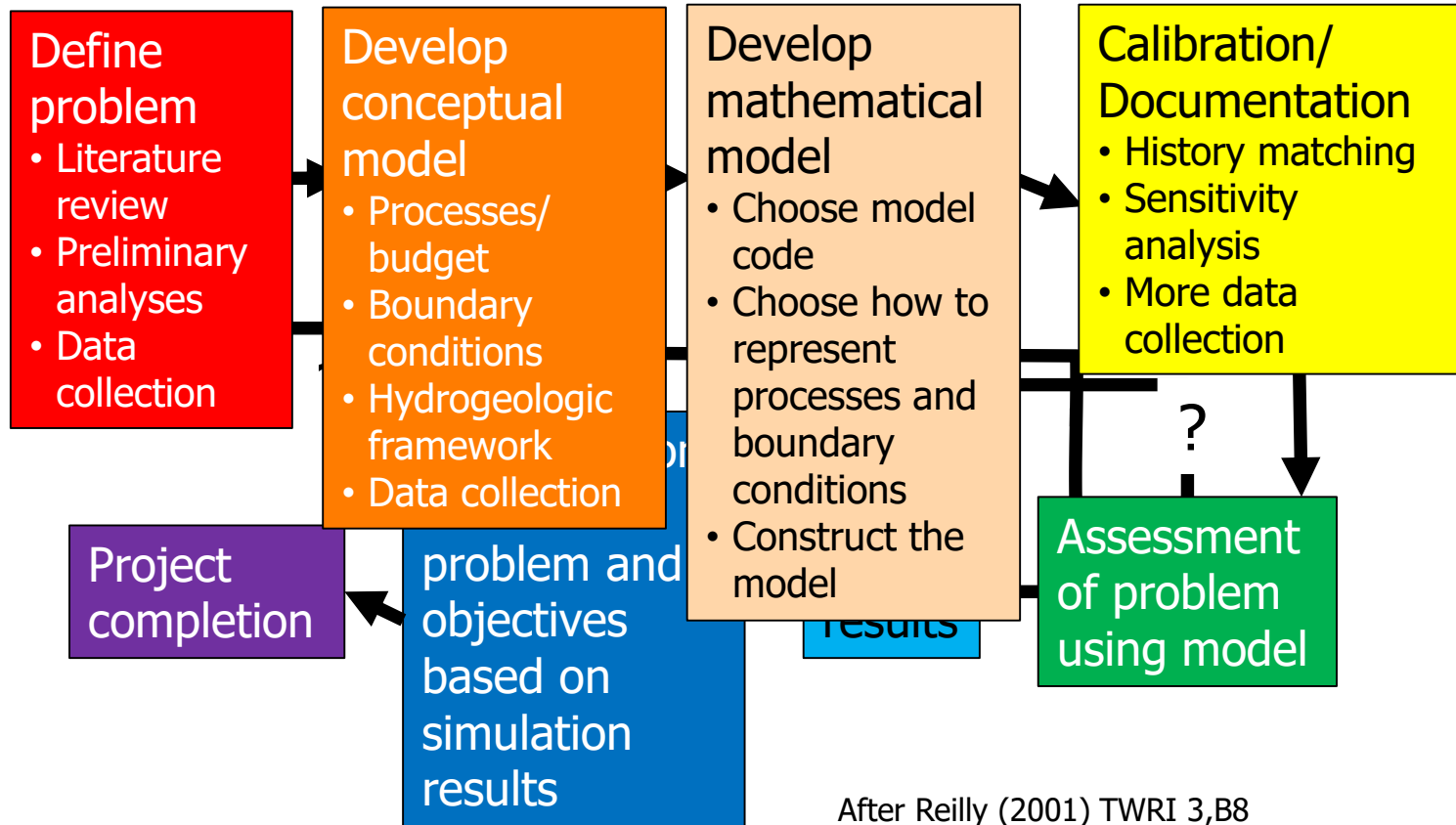
- USGS published Hydrogeologic Framework Report January 2020
- U of I Kimberly finished ET mapping work for 30 years and updated the MTAC June 2020
- IWRRI/IDWR completed land use maps for all 8 METRIC ET years June 2020
- Held eight quarterly MTAC meetings

A group of people are seated around a large conference table in a meeting room. A man in a blue vest and pink shirt is gesturing with his right hand while speaking to the group. Two projection screens are visible at the front of the room. The left screen displays the word "tients" and lists statistics: "400 wells with e WL msmts 15", "4,000 wells in atabase,", and "6,000 1986-". The right screen is titled "Water-level monitoring" and lists bullet points: "10 multi-level wells", "200 7x network wells", "17,000 of network monitoring wells", "About 1400 wells with 1 of them 10 min", "2000-2011", "About 40,000 wells in 2000 database", and "About 10,000 2000-2011". The room has a drop ceiling with fluorescent lights and a patterned carpet.

Project Status

- Currently in the last step of the last phase of work (model calibration/documentation)
 - Iterative and time-consuming process

The modeling process



Project Status

- Currently in last step of the last phase of work (model calibration/documentation)
 - Iterative and time-consuming process
- On track for calibrated model by end of 2021 but may need several additional months to complete documentation
 - Working on no-cost Joint Funding Agreement (contract) extension with the USGS
- Plan to continue model refinement work w/ the MTAC

Questions?



Memorandum

To: Idaho Water Resource Board (IWRB)
From: Neeley Miller
Date: January 11, 2021
Re: Treasure Valley Groundwater Model Update



IDWR staff will provide an update on the efforts to develop a Treasure Valley Groundwater Model.

Memorandum

To: Idaho Water Resource Board (IWRB)

From: Neeley Miller

Date: January 11, 2021

Re: Water Supply Update



IDWR staff will provide an Idaho Water Supply update presentation.

January 2021: Idaho Water Supply

David Hoekema, Idaho Department of Water Resources, January 20, 2020



Drought of 2020

U.S. Drought Monitor Idaho

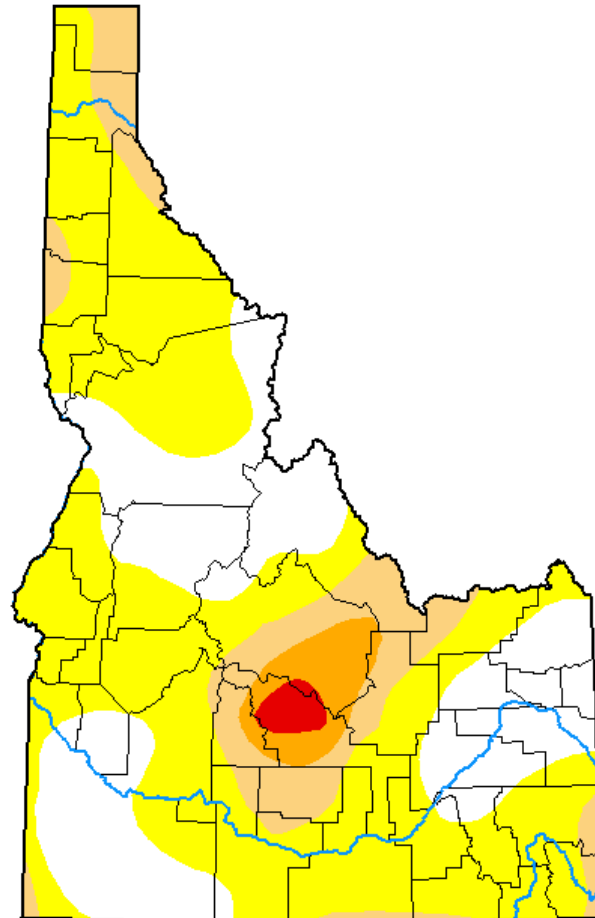
September 29, 2020

(Released Thursday, Oct. 1, 2020)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	29.22	70.78	17.04	4.43	0.96	0.00
Last Week 09-22-2020	32.88	67.12	16.60	4.43	0.96	0.00
3 Months Ago 06-30-2020	71.40	28.60	9.31	2.37	0.00	0.00
Start of Calendar Year 12-31-2019	35.67	64.33	10.68	0.00	0.00	0.00
Start of Water Year 10-01-2019	95.38	4.62	2.72	0.00	0.00	0.00
One Year Ago 10-01-2019	95.38	4.62	2.72	0.00	0.00	0.00



Intensity:

None	D2 Severe Drought
D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate Drought	D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:

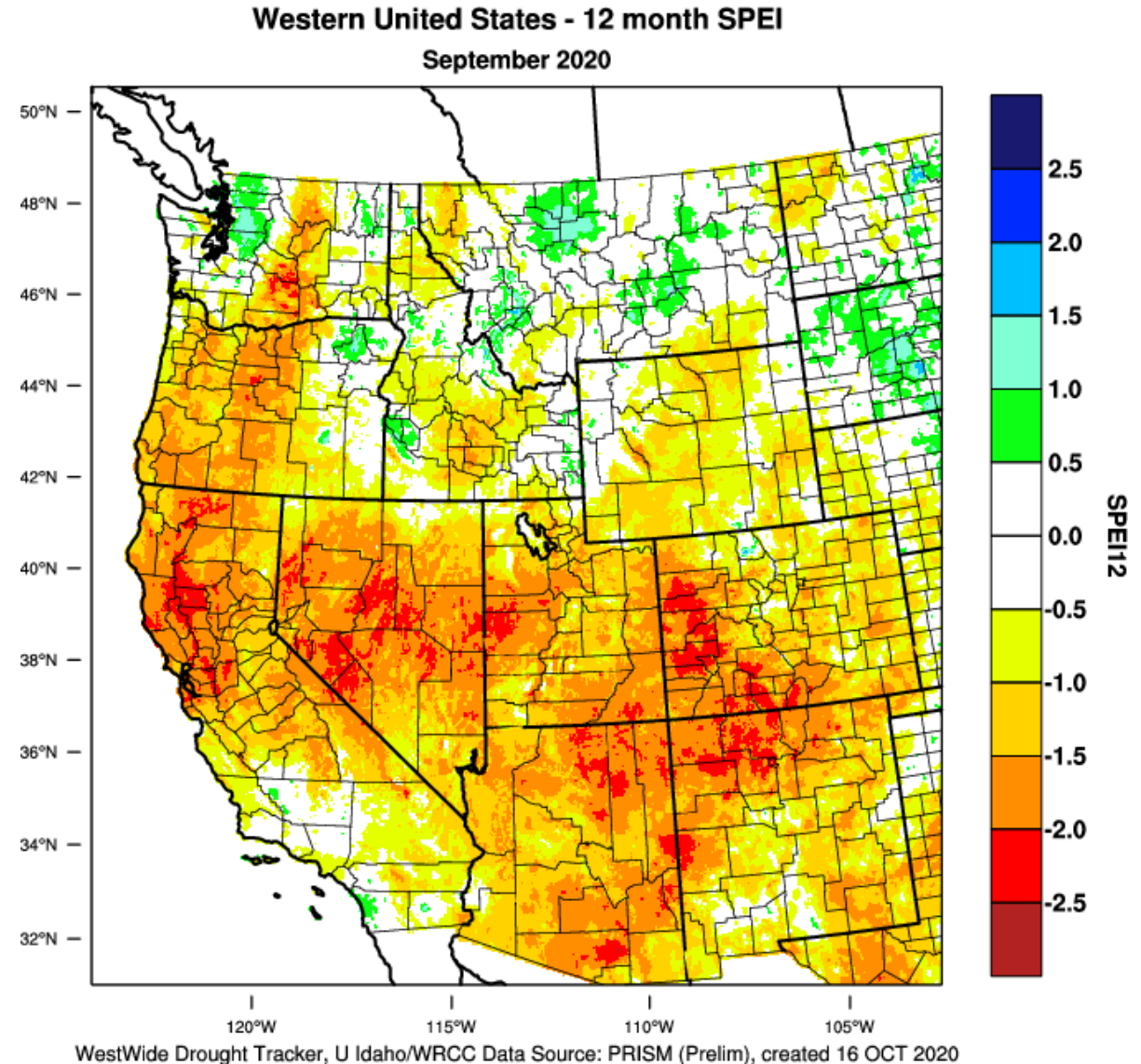
Brad Rippey
U.S. Department of Agriculture



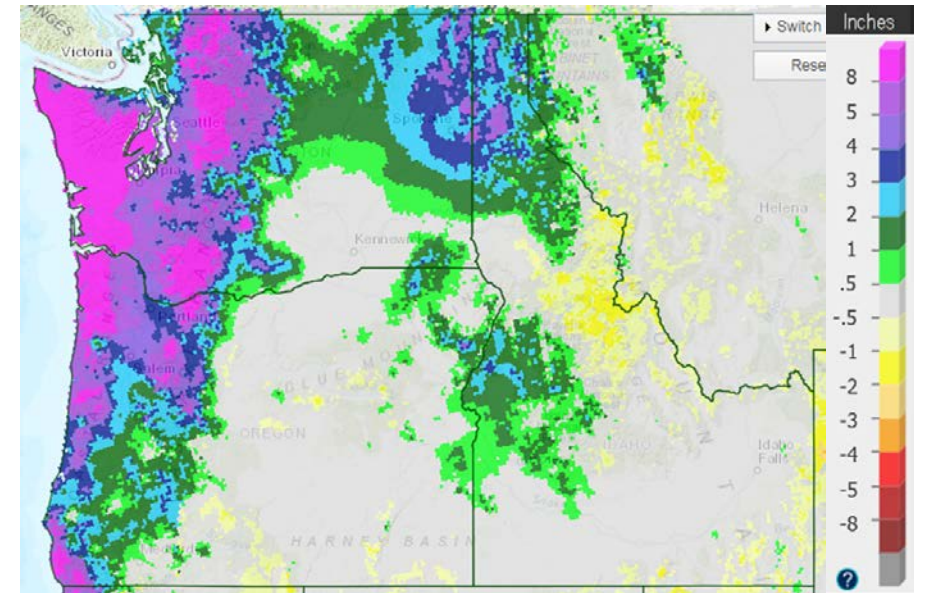
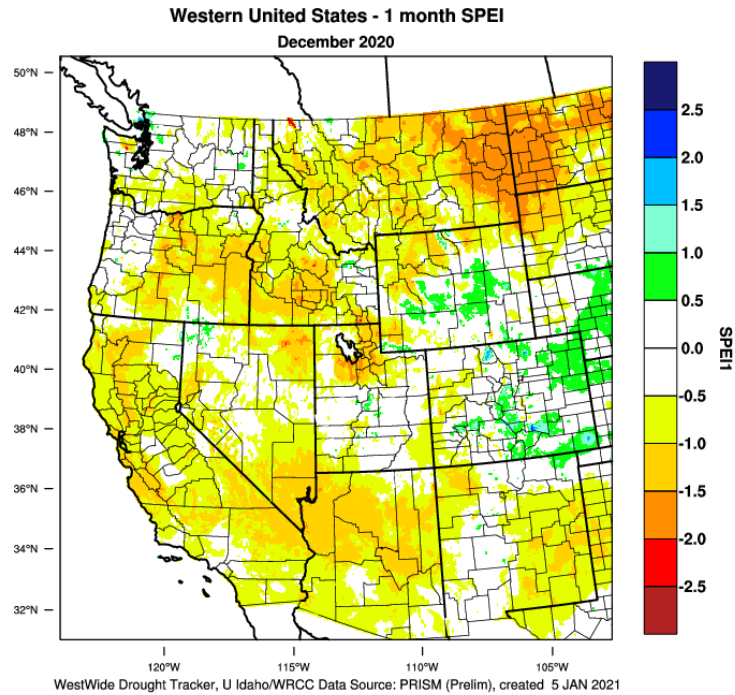
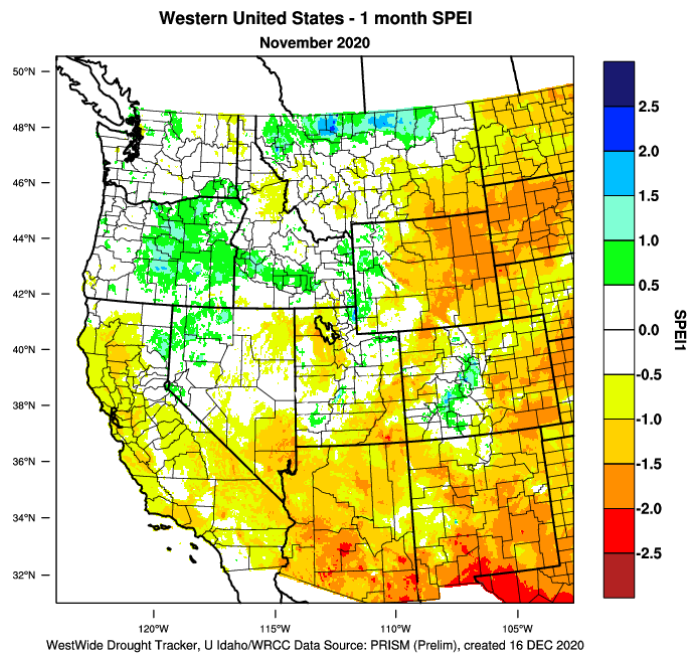
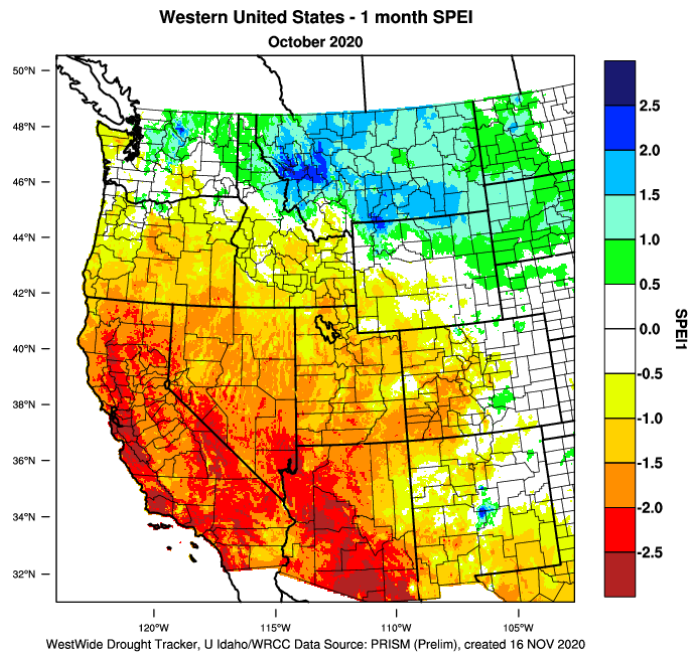
droughtmonitor.unl.edu

Drought of 2020

April-July Runoff Percentiles				
Basin	Forecast	Observed	Obs-For	Drought Category
North Idaho				
Priest Lake	53	49	-4	
Pend Oreille	47	51	4	
Spokane	41	39	-2	
Clearwater	51	54	3	
Salmon	36	52	16	
<u>Average</u>	46	49	3	
Central Mountains				
Weiser	31	24	-7	Abnormally Dry
Payette	26	28	2	Abnormally Dry
Boise	26	20	-6	Moderate Drought
Big Wood	14	8	-6	Severe Drought
Little Wood	22	15	-7	Moderate Drought
Big Lost	26	12	-14	Moderate Drought
Little Lost	35	23	-12	Abnormally Dry
Camas Ck	51	42	-9	
<u>Average</u>	29	22	-7	
Eastern Idaho				
Henry's Fork	49	37	-12	
Snake River	53	55	2	
<u>Average</u>	51	46	-5	
Southern Idaho				
Bear River	51	41	-10	
Blackfoot		49	49	
Portneuf	34	43	9	
Oakely	52	37	-15	
Salmon Falls	46	41	-5	
Owyhee	35	31	-4	
<u>Average</u>	44	39	-5	

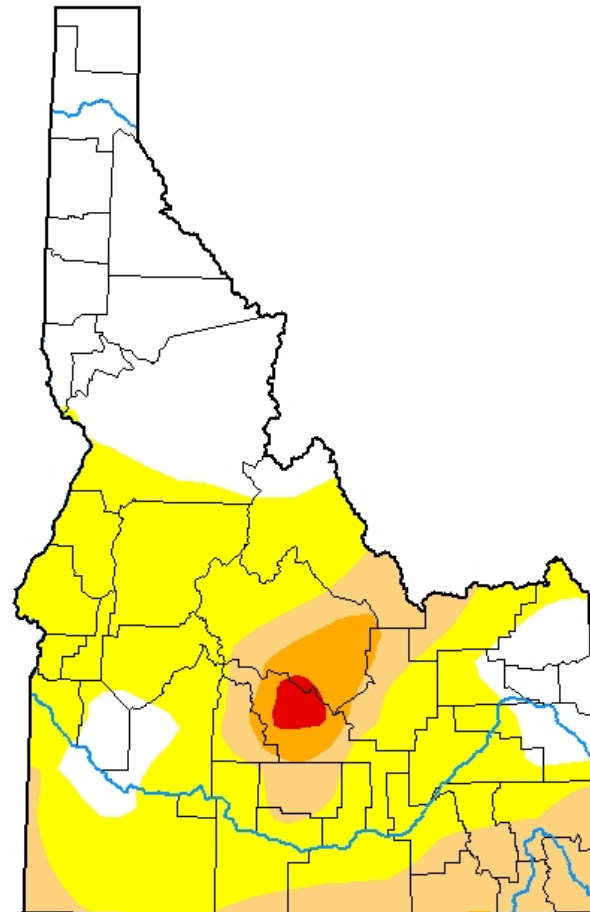


Water Year to-date



January 2021 Drought Update

U.S. Drought Monitor Idaho



January 12, 2021
(Released Thursday, Jan. 14, 2021)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	32.47	67.53	20.63	4.24	0.77	0.00
Last Week <i>01-05-2021</i>	32.47	67.53	20.63	4.24	0.77	0.00
3 Months Ago <i>10-13-2020</i>	21.87	78.13	21.01	4.55	0.96	0.00
Start of Calendar Year <i>12-29-2020</i>	37.41	62.59	20.67	4.24	0.77	0.00
Start of Water Year <i>09-29-2020</i>	29.22	70.78	17.04	4.43	0.96	0.00
One Year Ago <i>01-14-2020</i>	38.72	61.28	16.06	0.00	0.00	0.00

Intensity:

None	D2 Severe Drought
D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate Drought	D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:

Deborah Bathke
National Drought Mitigation Center



droughtmonitor.unl.edu

January 2021 Forecasts

January (April-July) Forecasts & Percentiles NRCS				
Basin	Forecast	% Median	Percentile	Drought Category
North Idaho	[kaf]	[1981-2010]	POR	
Kootenai River at Leonia	7,400	116	55	
Priest River nr Priest River	705	93	35	
Pend Oreille Lake inflow	12,200	108	44	
Spokane River nr Post Falls	2,450	102	41	
Clearwater at Spalding	6,770	100	39	
Salmon River at White Bird	--	--	--	
<u>Average</u>		101	43	
Central Mountains				
Weiser River nr Weiser	--	--	--	
Payette River nr Horseshoe Bend	--	--	--	
Boise River nr Boise	1,100	97	34	
Big Wood	--	--	--	
Little Wood	--	--	--	
Big Lost	--	--	--	
Little Lost	--	--	--	
Camas Ck	--	--	--	
<u>Average</u>		97	34	
Eastern Idaho				
Henrys Fork nr Ashton	400	79	25	Abnormally Dry
Falls River nr Ashton			42	
Teton River nr St Anthony			49	
Snake River nr Heise	2,770	95	35	
<u>Average</u>		87	38	
Southern Idaho				
Bear River blw Stewart Dam	27	23	14	Moderate Drought
Blackfoot	--	--	--	
Portneuf River at Topaz	--	--	--	
Oakely	17.6	73	31	
Salmon Falls	43	54	25	Abnormally Dry
Bruneau River nr Hot Springs	165	59	24	Abnormally Dry
Owhyee River nr Rome	193	47	28	Abnormally Dry
<u>Average</u>		51	24	

January 19th Forecasts & Percentiles NWRFC			
Basin	Forecast	Percentile	Drought Category
North Idaho	[kaf]	POR	
Kootenai River at Leonia	8,093	44	
Priest River nr Priest River	742,00	38	
Pend Oreille Lake inflow	12,399	38	
Couder D'Alene Lake	2,456	40	
Clearwater at Spalding	6,778	35	
Salmon River at White Bird	4,593	29	Abnormally Dry
<u>Average</u>		37	
Central Mountains			
Weiser River nr Weiser	319	38	
Payette River nr Horseshoe Bend	1,429	38	
Boise River nr Boise	1,100	35	
Big Wood	88.9	29	Abnormally Dry
Little Wood	39.2	29	Abnormally Dry
Big Lost	99.9	19	Moderate Drought
Little Lost	--	--	
Camas Ck	--	--	
<u>Average</u>		31	
Eastern Idaho			
Henrys Fork at St Anthony	692	35	
Falls River nr Ashton	309	35	
Teton River nr St Anthony	395	34	
Snake River nr Heise	3,052	31	
<u>Average</u>		34	
Southern Idaho			
Bear River blw Stewart Dam	--	--	
Blackfoot	--	--	
Portneuf River at Topaz	54.4	21	Abnormally Dry
Oakely Dam	--	--	
Salmon Falls nr San Jacinto	30.9	18	Moderate Drought
Bruneau River nr Hot Springs	88.2	13	Moderate Drought
Owhyee River nr Rome	164	27	Abnormally Dry
<u>Average</u>		20	

SNOW WATER EQUIVALENT IN CLEARWATER

Reset Range

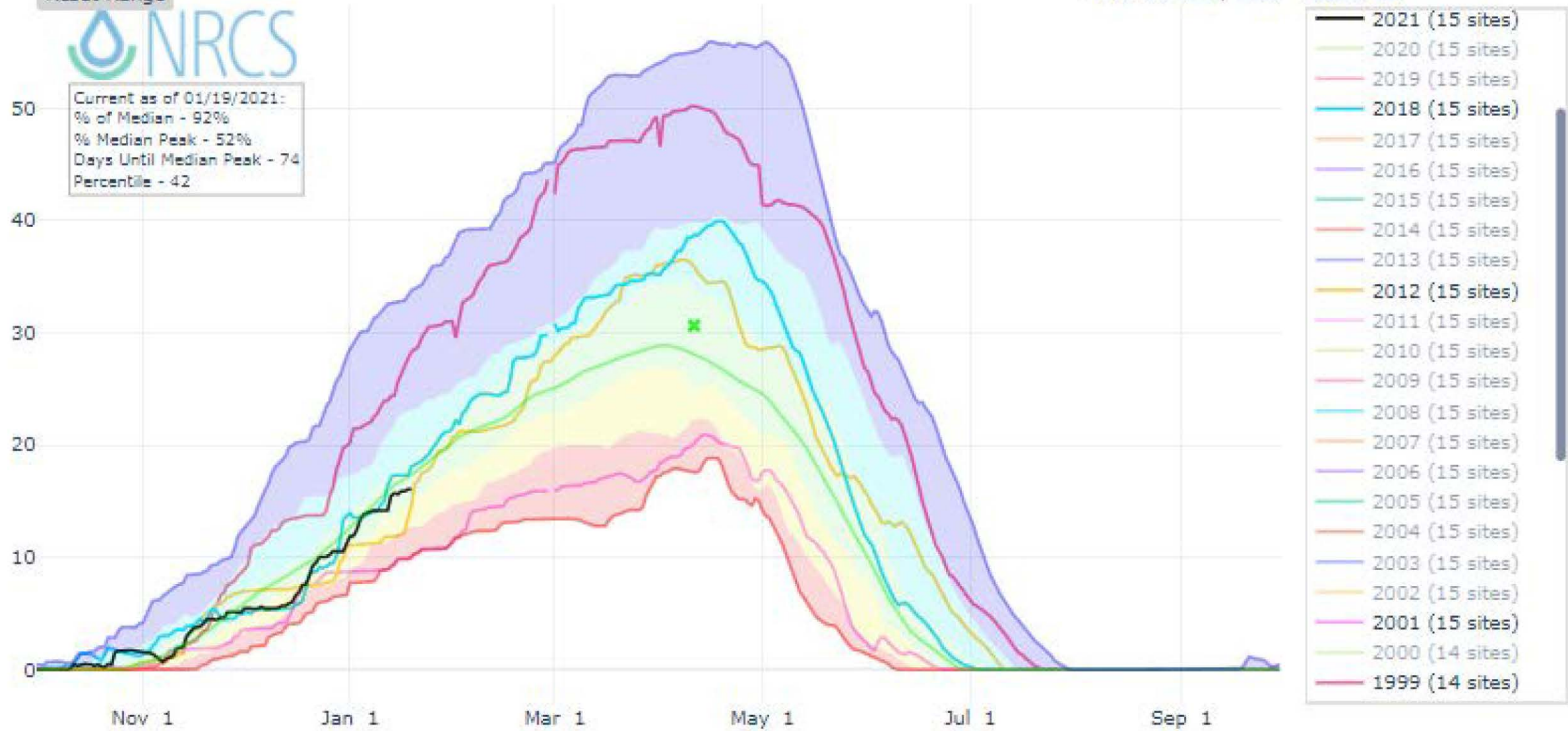


Current as of 01/19/2021:
% of Median - 92%
% Median Peak - 52%
Days Until Median Peak - 74
Percentile - 42

[Link to data: CSV / JSON](#)

Station List

Snow Water Equivalent (in.)

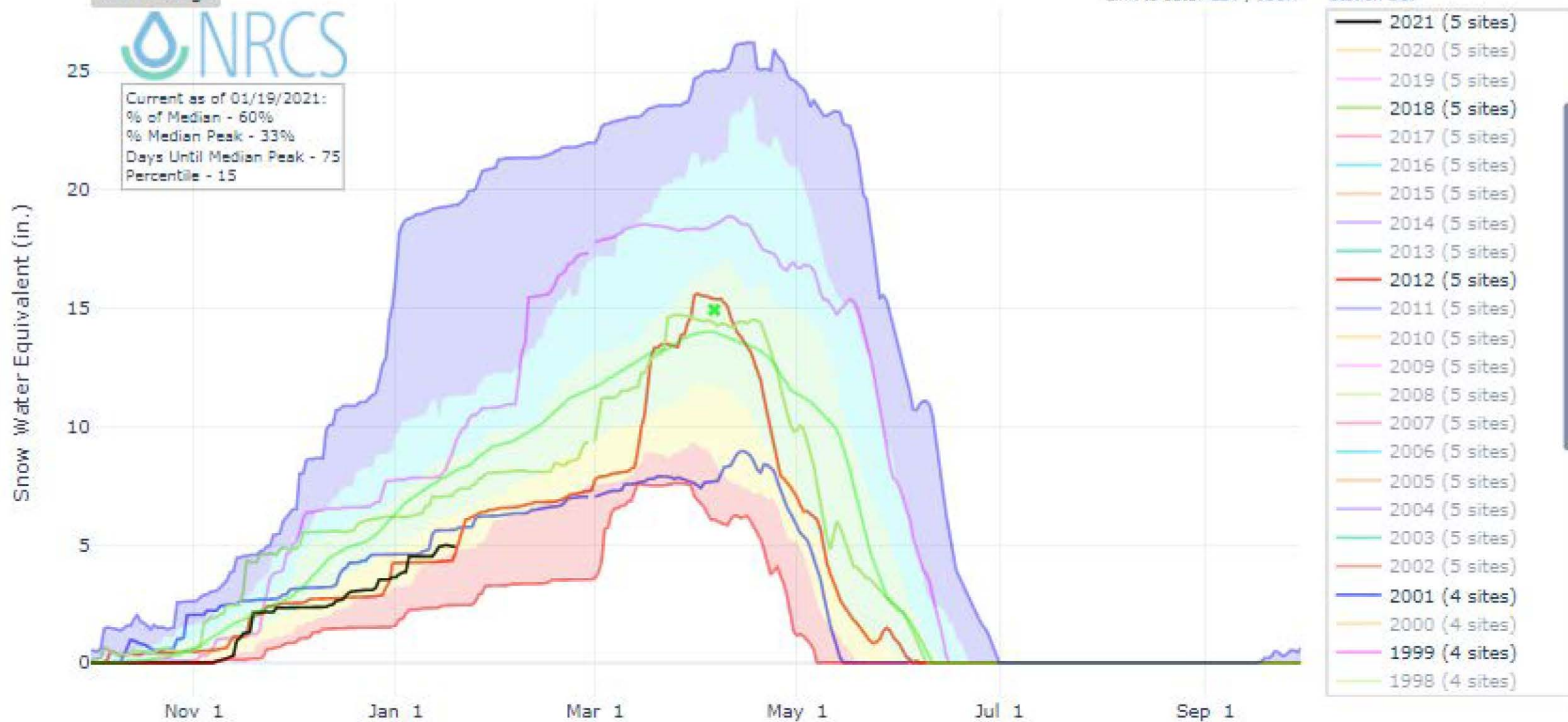


SNOW WATER EQUIVALENT IN BIG LOST

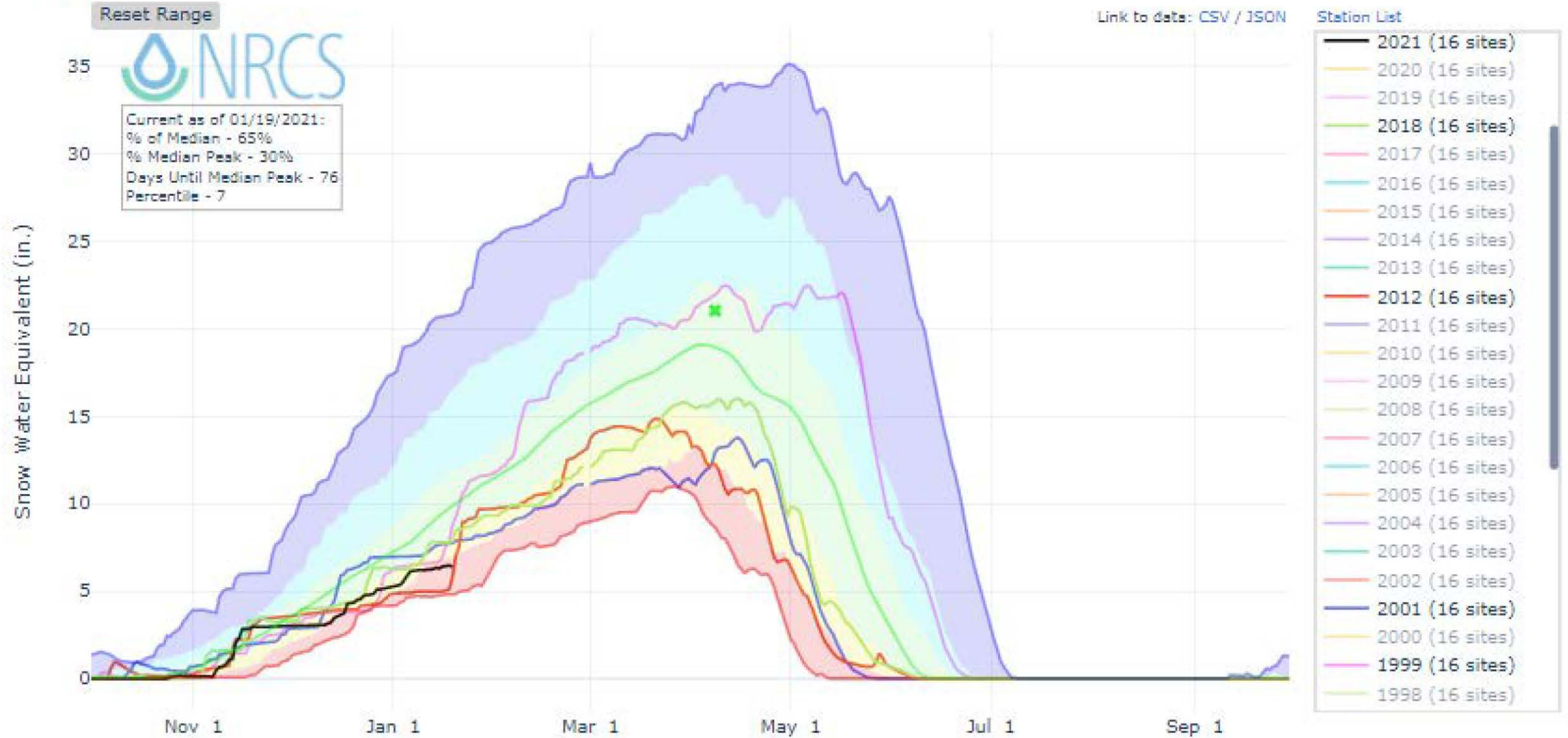
Reset Range

[Link to data: CSV / JSON](#)

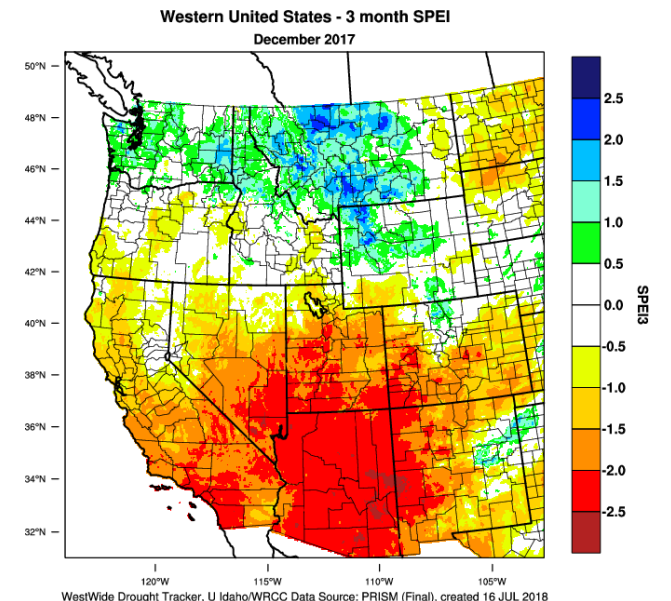
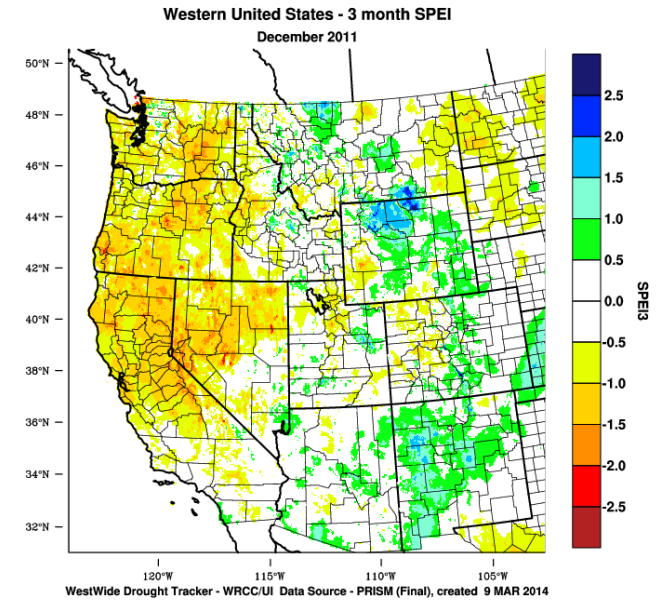
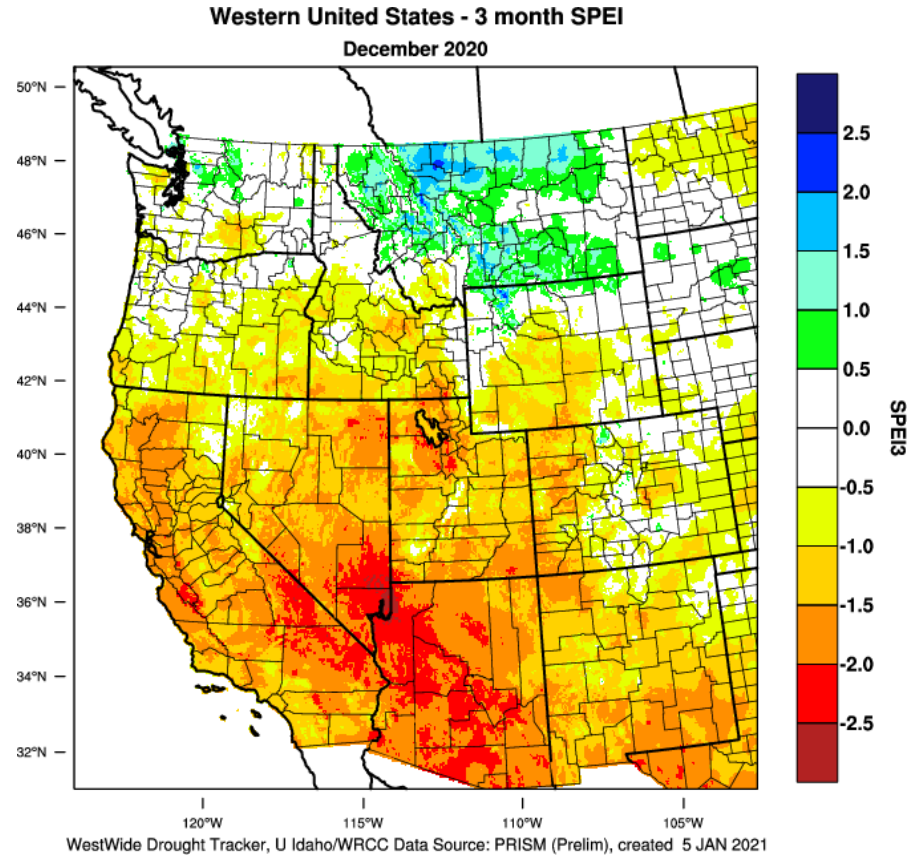
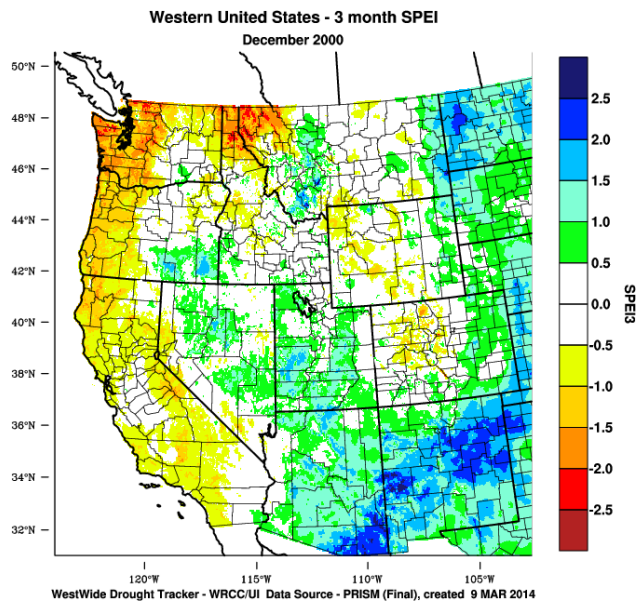
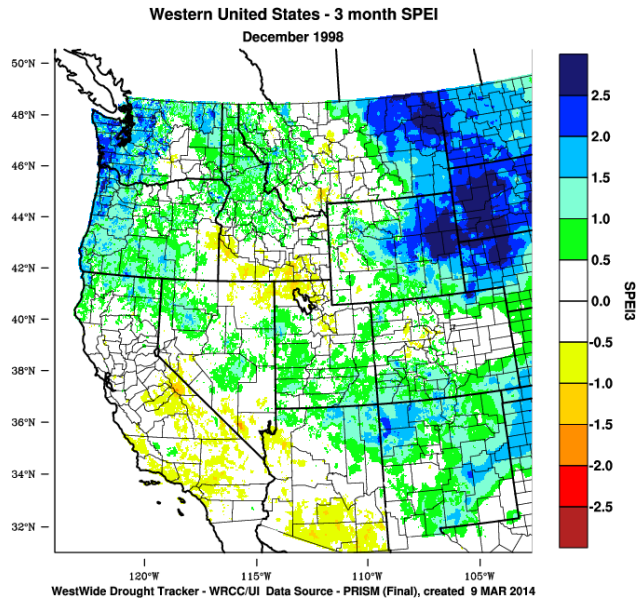
Station List



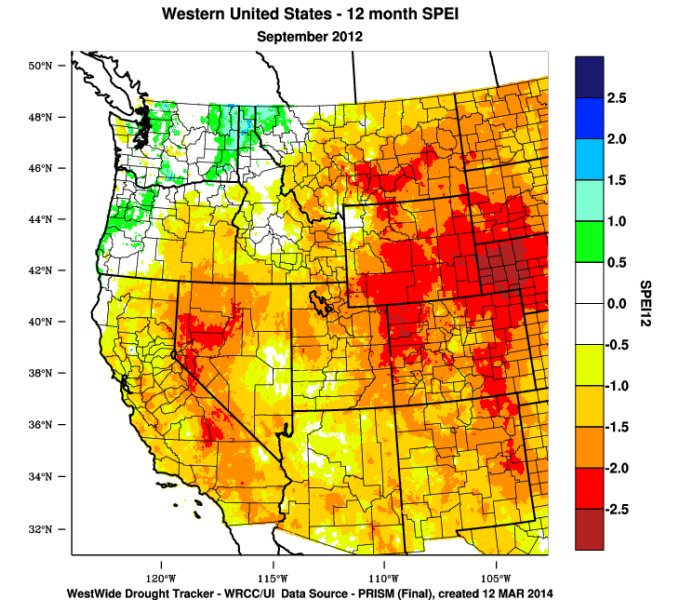
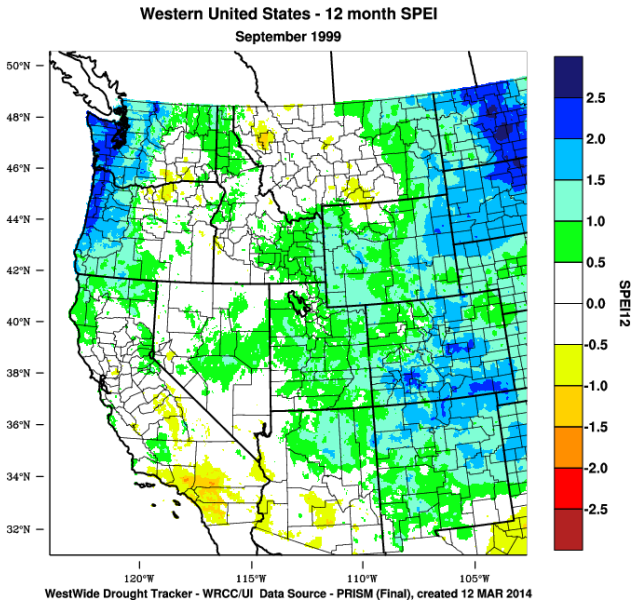
SNOW WATER EQUIVALENT IN BEAR



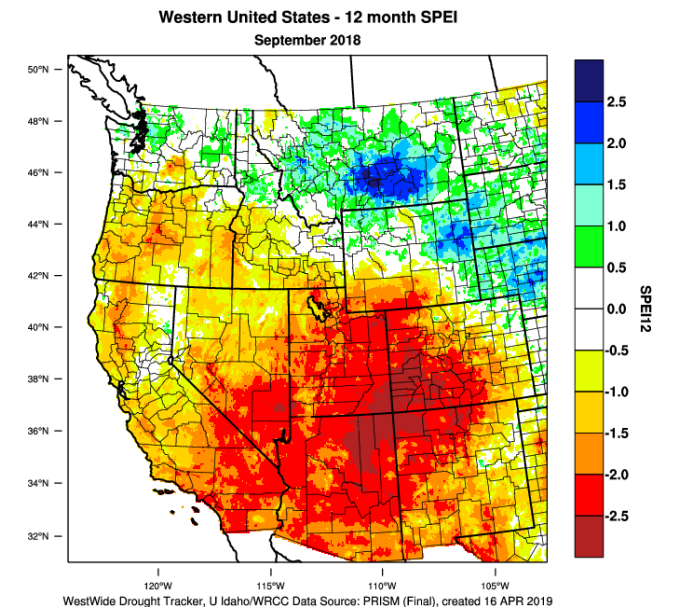
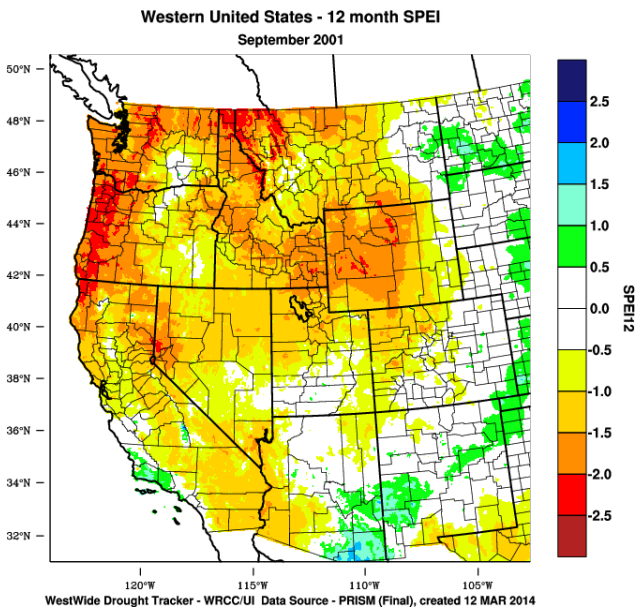
Years with Similar Snowpack



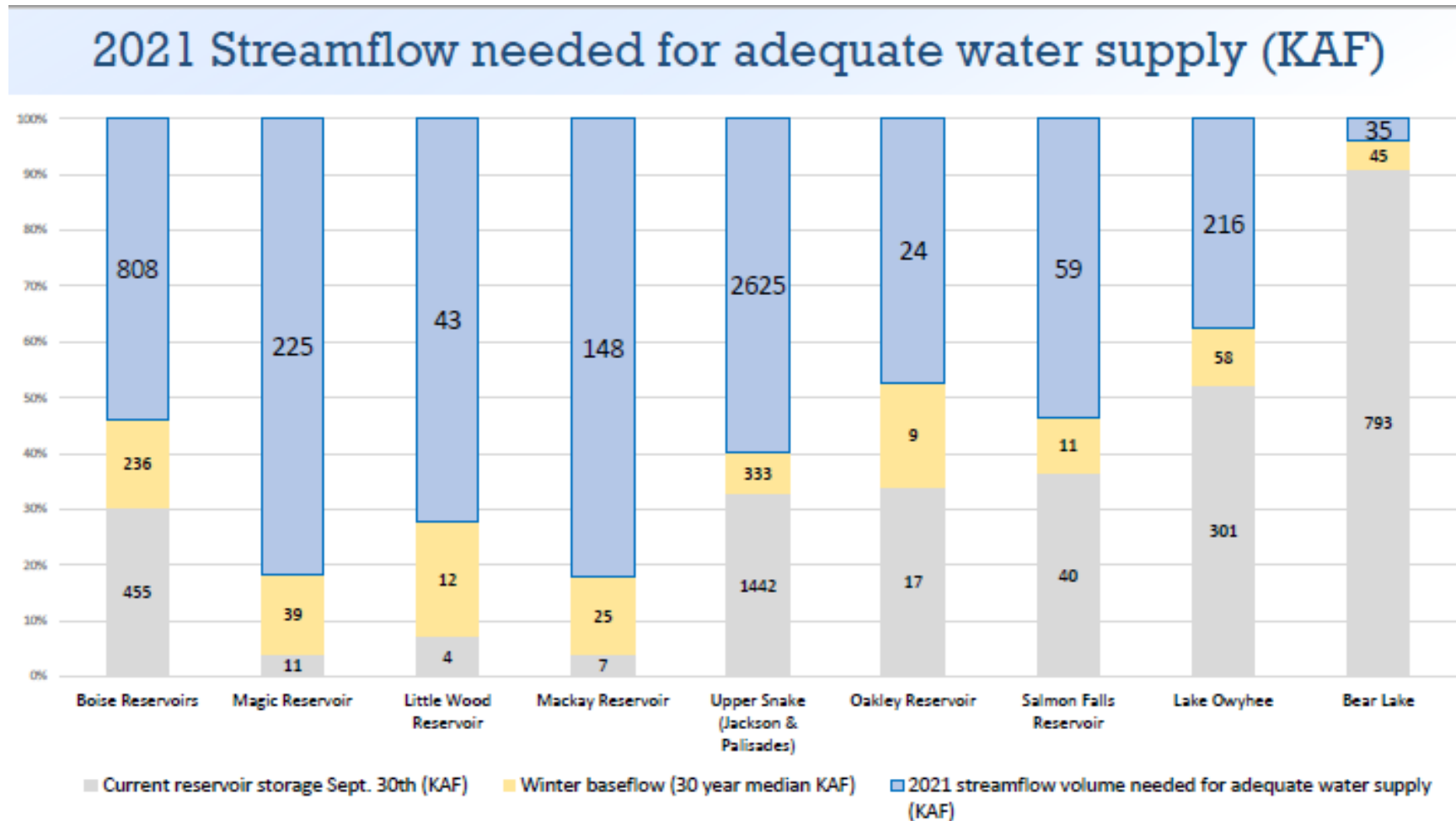
Years with Similar Snowpack



?

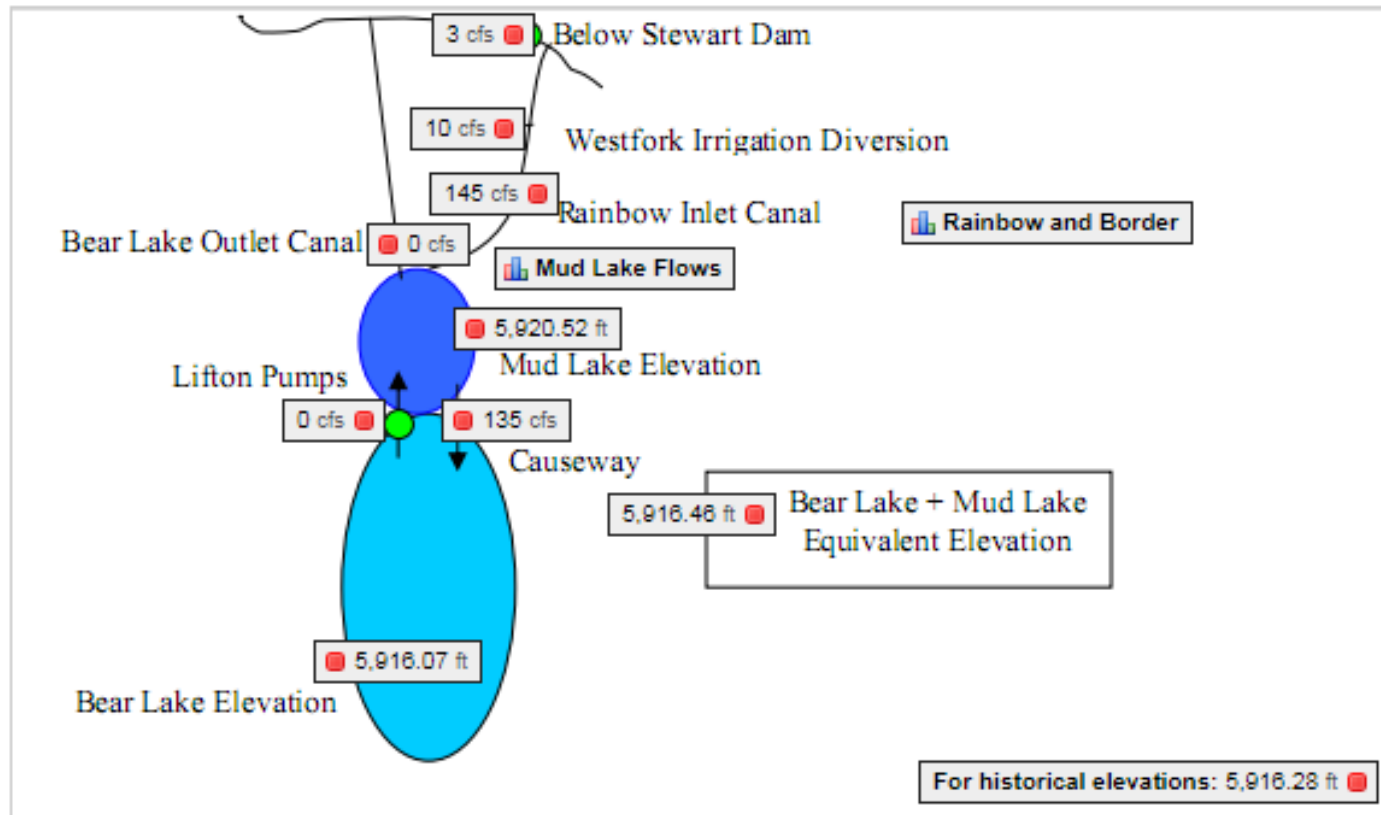


2021 Streamflow needed



2021 Bear Lake will receive a full allocation

Bear Lake Area



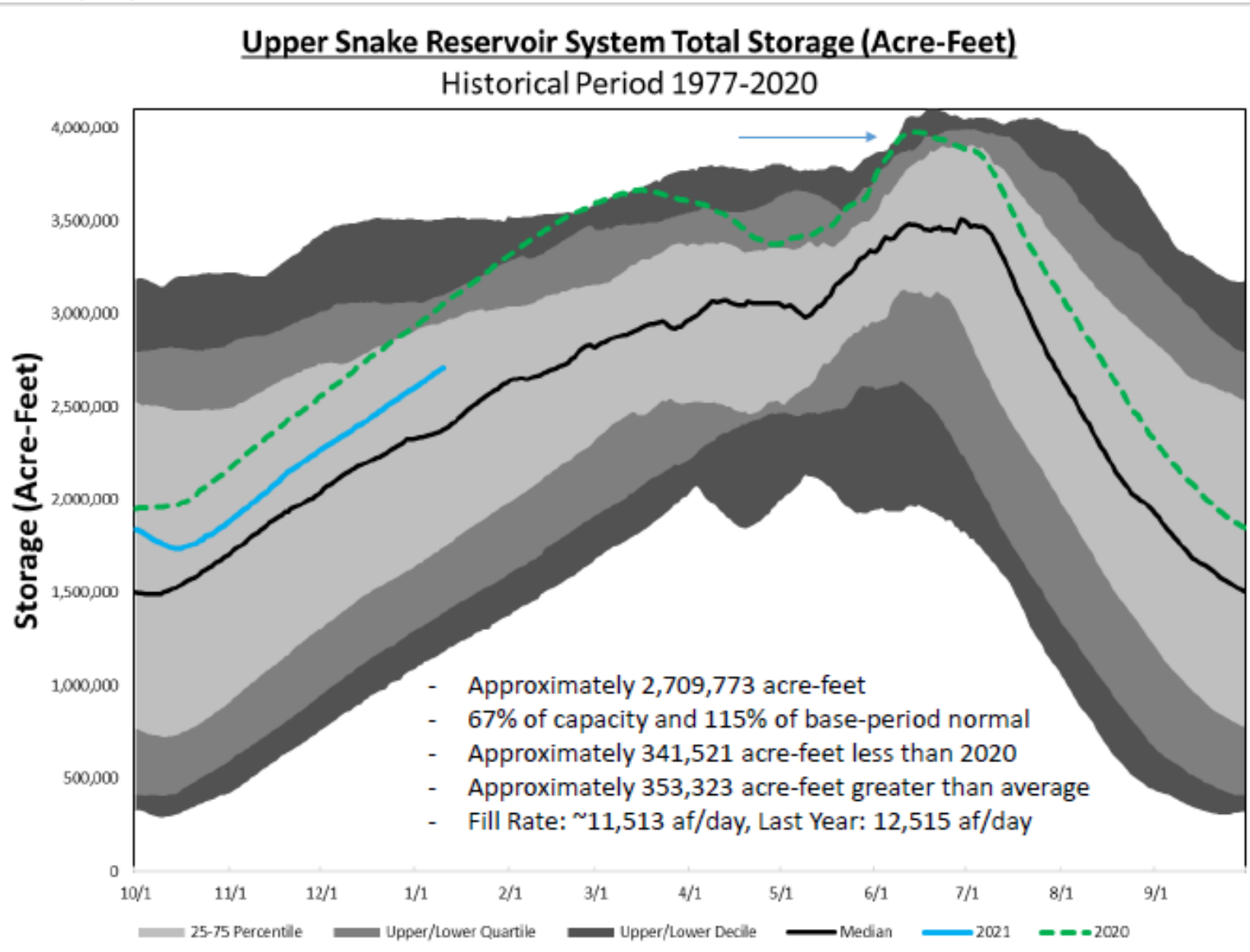
If the elevation is greater than 5914.70' then a full allocation. Current elevation is 5916.46'

2021 Streamflow needed

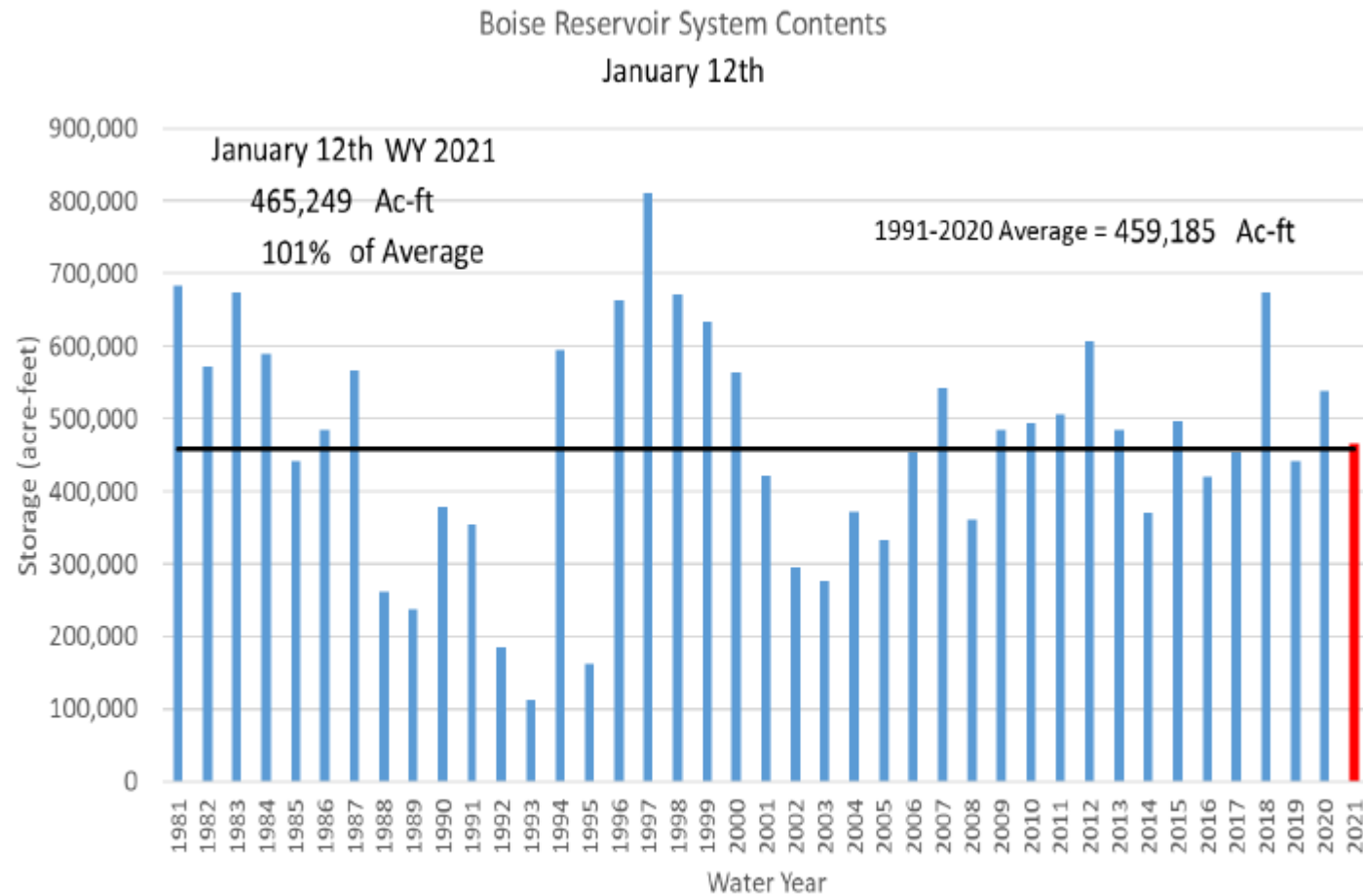


Legend
grey-forecast
orange-winter
blue-reservoir

2021 Upper Snake

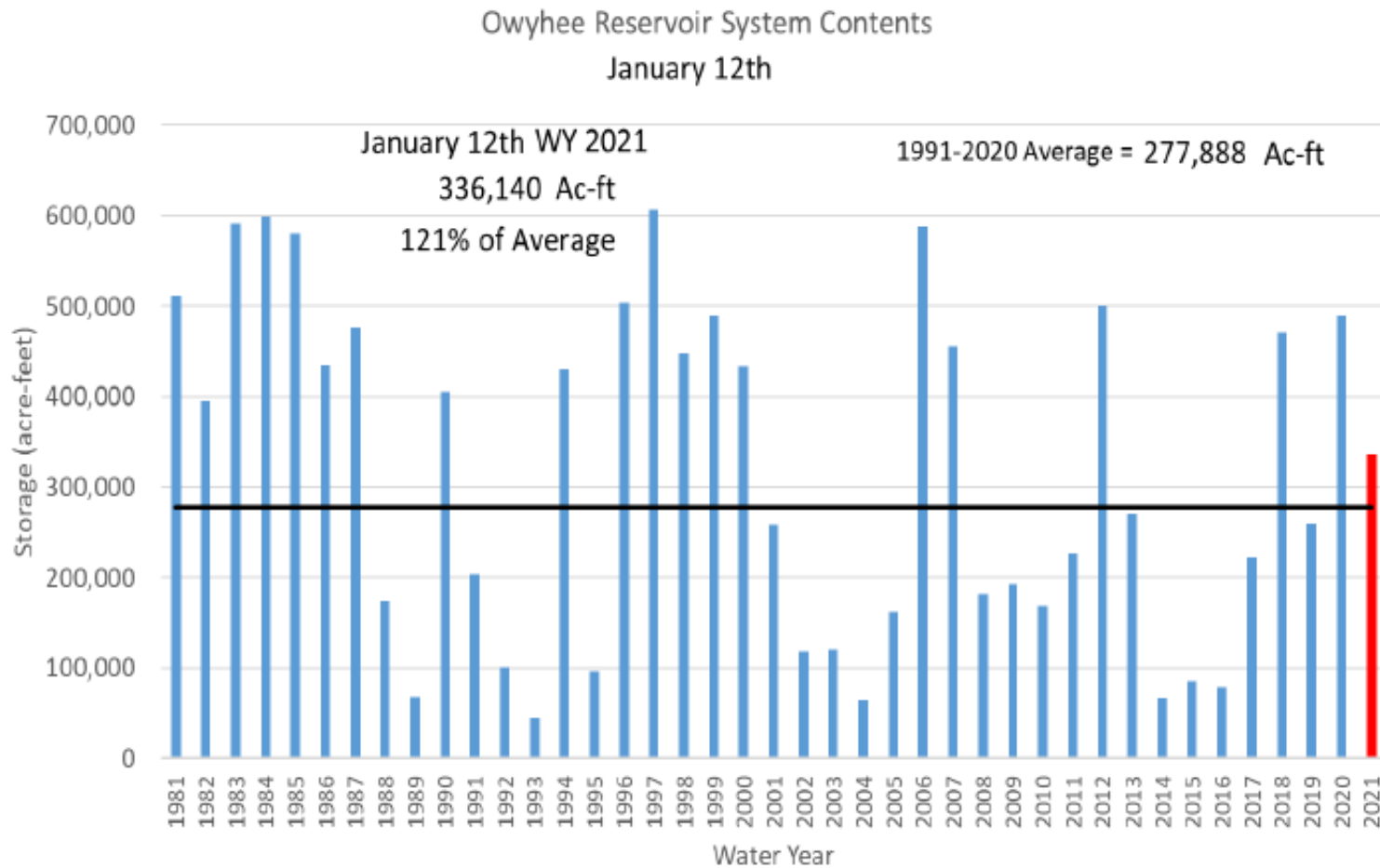


2021 Boise River



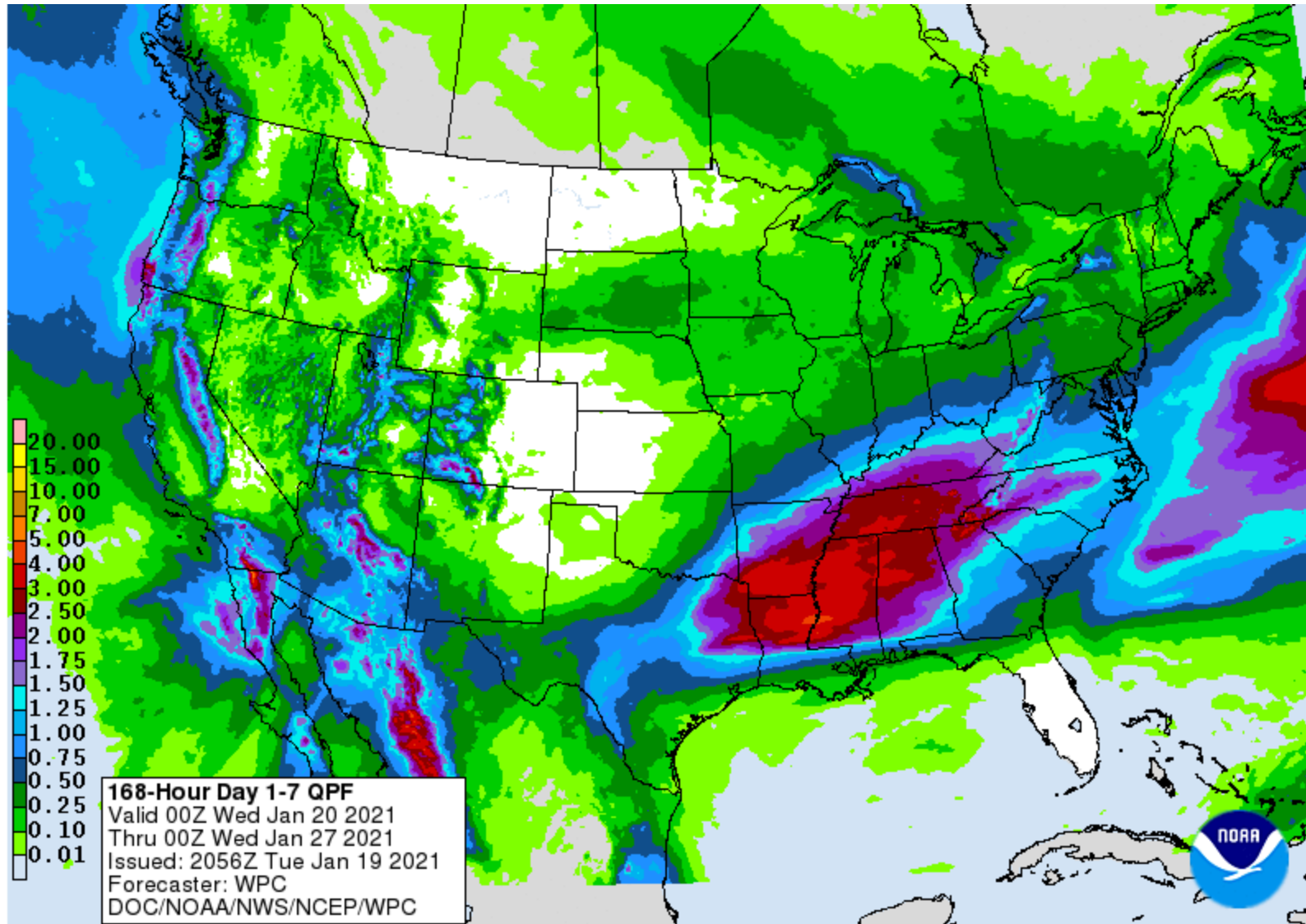
RECLAMATION

Boise Reservoir System



RECLAMATION

7-day Precipitation Forecast



Memorandum

To: Idaho Water Resource Board
From: Brian Patton
Date: January 8, 2021
Re: Potential Legislation of Interest



Garrick Baxter of the Attorney General's office will discuss potential legislation of interest to the Water Resource Board.

Memorandum

To: Idaho Water Resource Board
From: Brian Patton
Date: January 8, 2021
Re: Administrative Rules Update



Mat Weaver, IDWR Deputy Director, will provide an update on the administrative rules process in which IDWR and the IWRB are currently involved.