IDAHO WATER RESOURCE BOARD

MEETING NO. 1 - 17
January 23-24, 2017
BOISE

Ron Abramovich, Natural Resources Conservation Service Hydrologist, takes a snow core sample at Mores Creek Summit with Rex Barrie, Water District 63 Water Master; and Mark Zirschky, Pioneer Irrigation Superintendent.

Photo Credit: Ron Abramovich, NRCS

Idaho Water Center
Boise, Idaho

MEDIA

AGENDA

IDAHO WATER RESOURCE BOARD

Work Session for Board Meeting No. 1-17
January 23, 2017
8:00 a.m.
Idaho Water Center
Conference Rooms B, C & D
322 East Front Street
BOISE

1. Roll Call
2. Water Supply Update
3. Columbia River Regional Issues – Jim Yost
4. Recharge
5. RCPP Grant Funding
6. Water Supply Bank
7. ESPA Settlement Report
8. MHAFB Water Sustainability Project
9. Water Transactions
10. Weiser River – Lost Valley Reservoir Measurement Project
11. Priest Lake Water Management Study
12. BOR Regional Director and Area Manager-2:30 p.m.
13. Boise River Feasibility Study
14. Island Park Reservoir
15. Treasure Valley Ground Water Model Update

** The Board will break for lunch at approximately 11:45 a.m.*

Americans with Disabilities

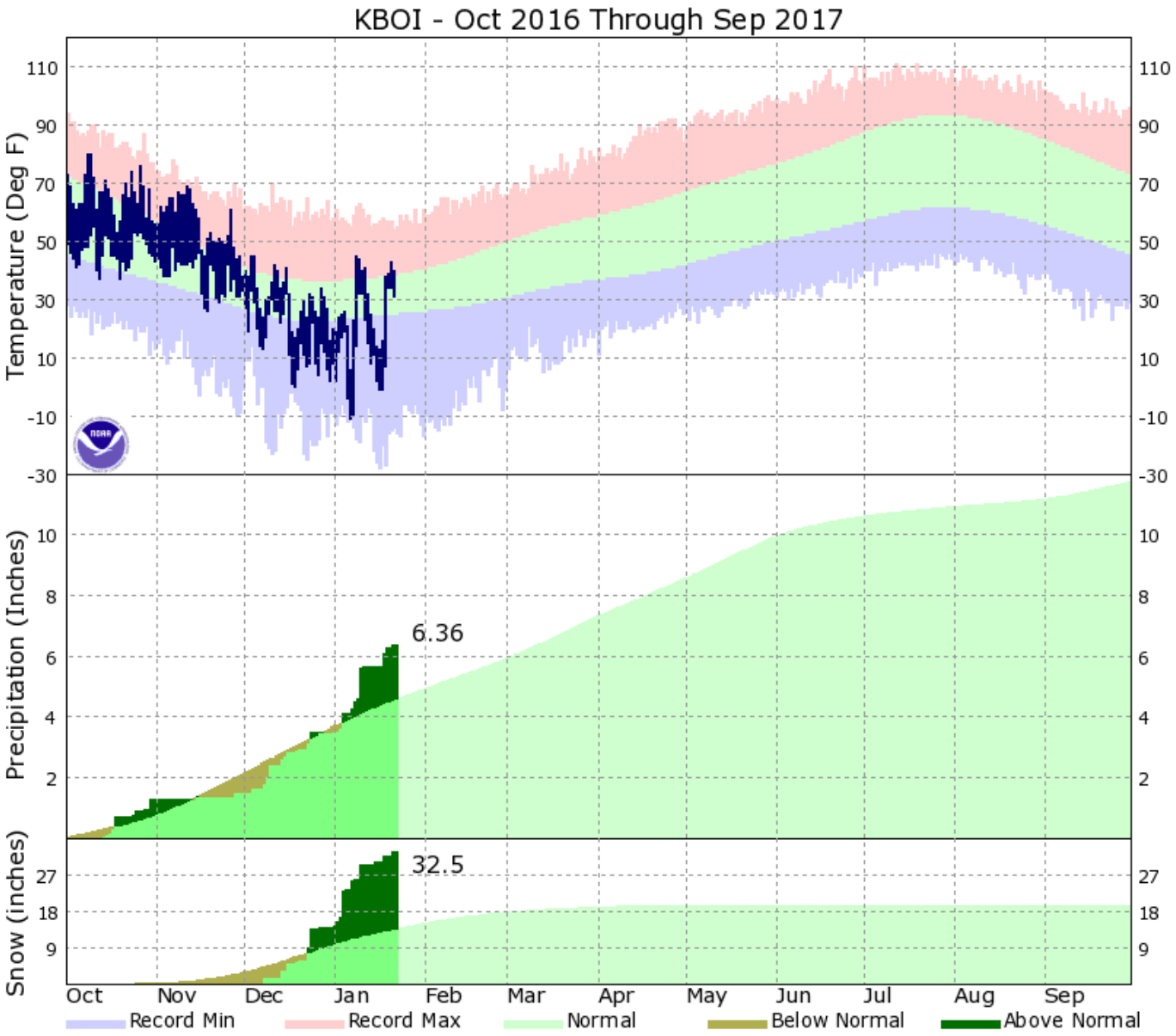
The meeting will be held in facilities that meet the accessibility requirements of the Americans with Disabilities Act. If you require special accommodations to attend, participate in, or understand the meeting, please make advance arrangements by contacting Department staff by email nikki.regent@idwr.idaho.gov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

Idaho Water Supply 2017

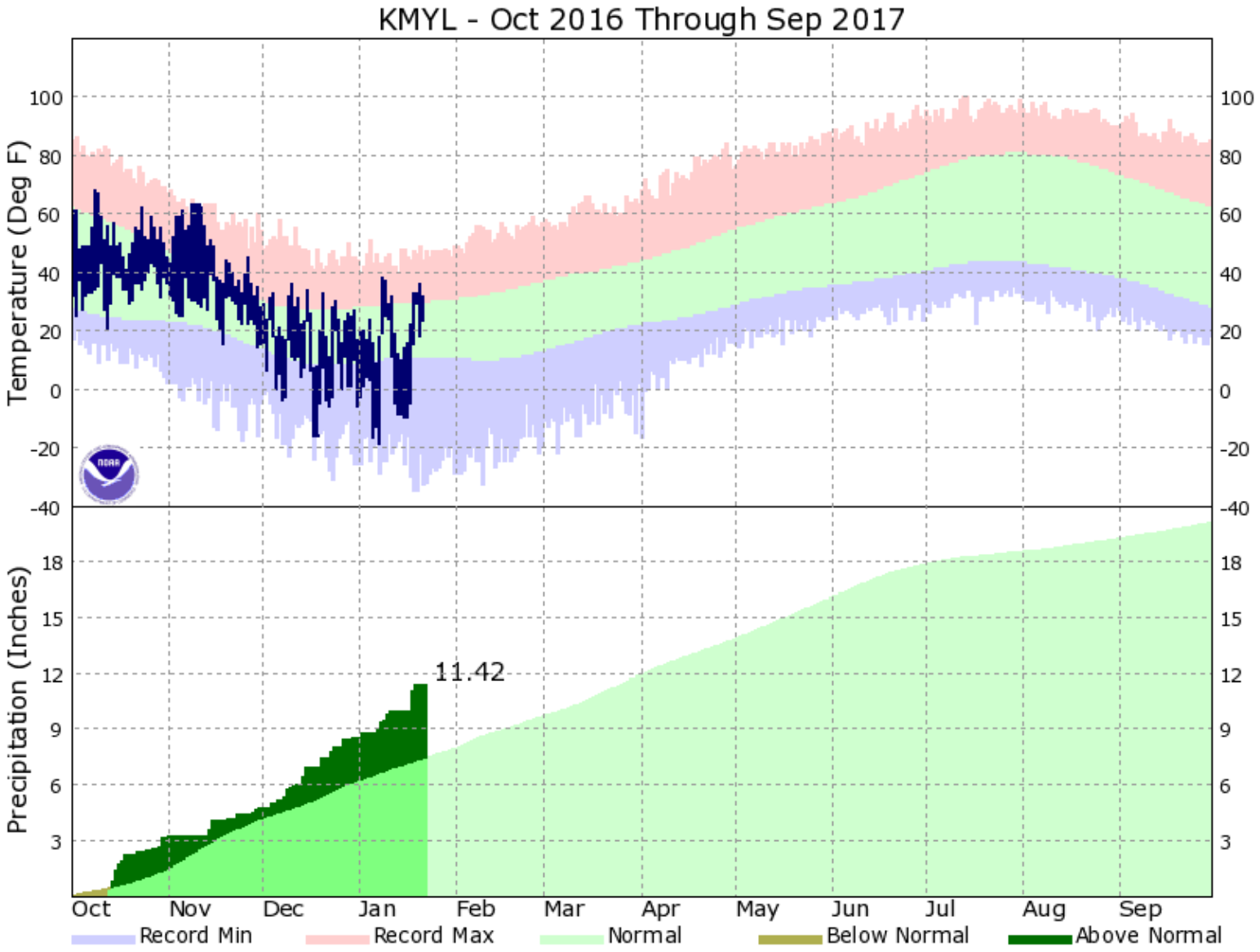
David Hoekema, Hydrologist at IDWR

Phil Mount (@philmount) | Twitter

Temperature and Precipitation at Boise



Temperature and Precipitation at McCall

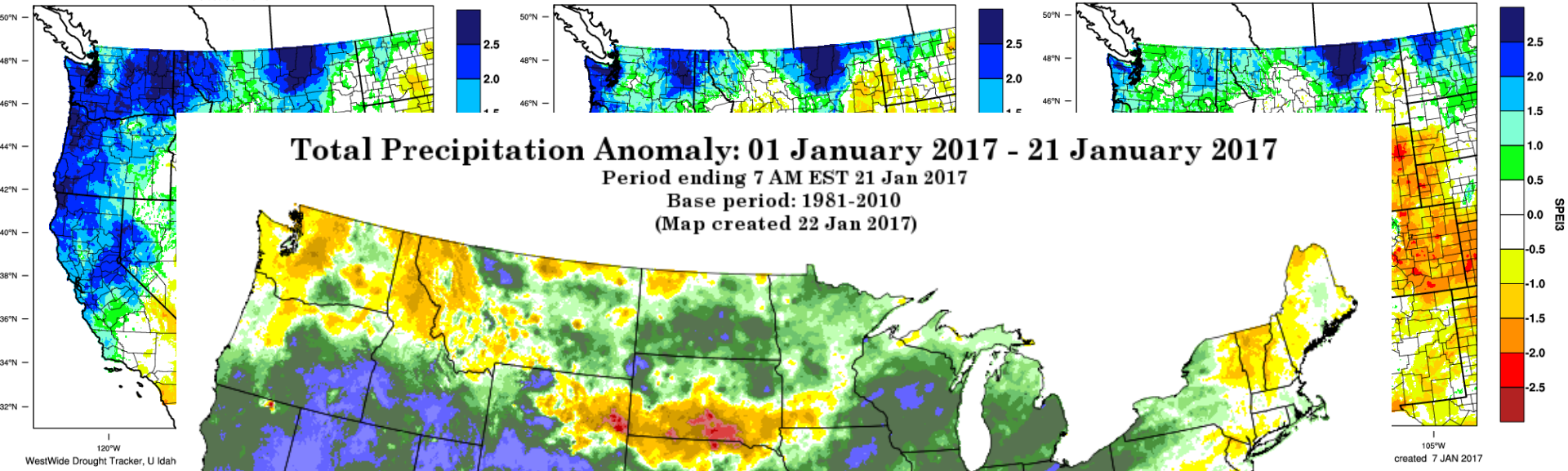


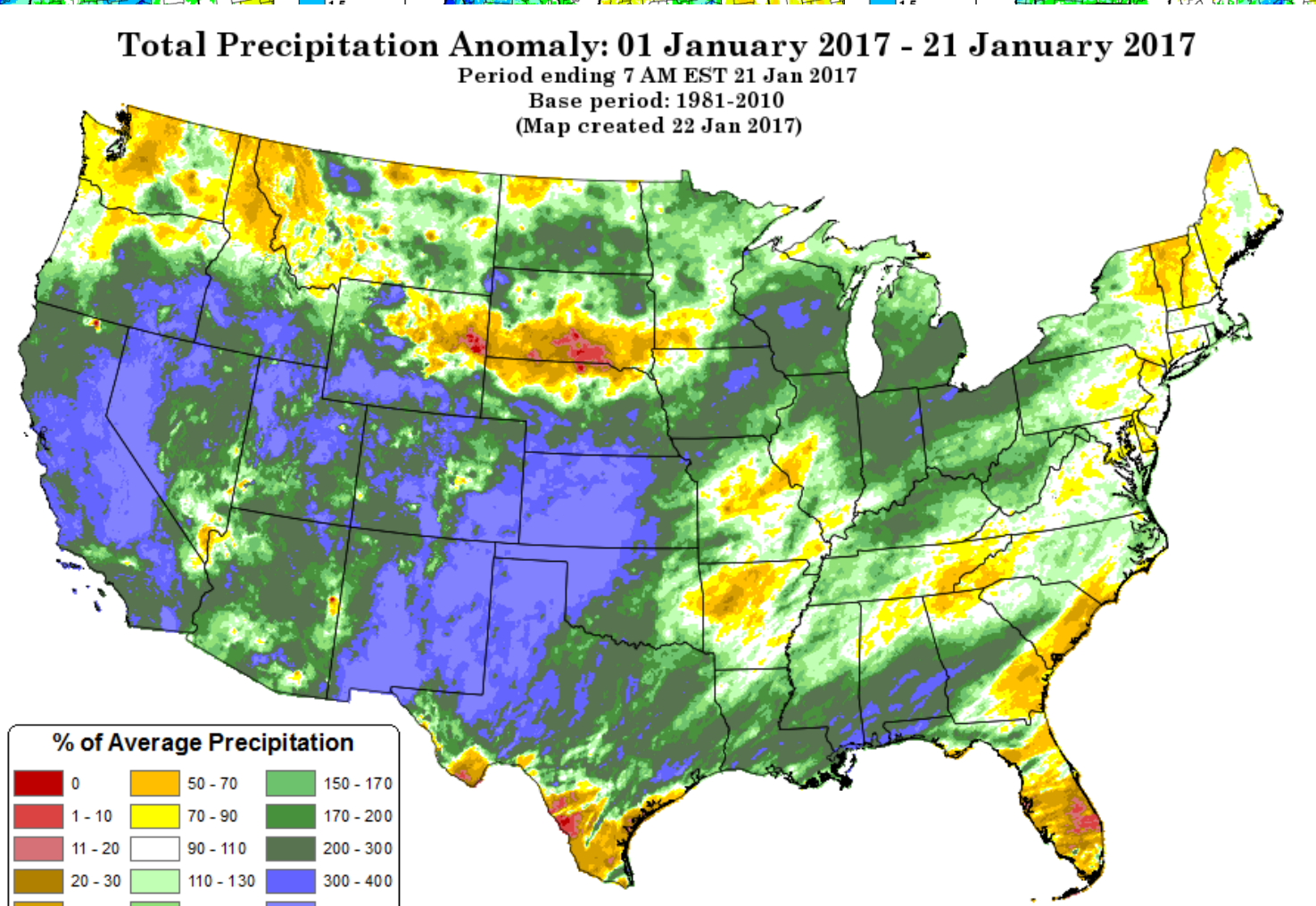
Precipitation & Evaporation

October 2016: SPEI 1

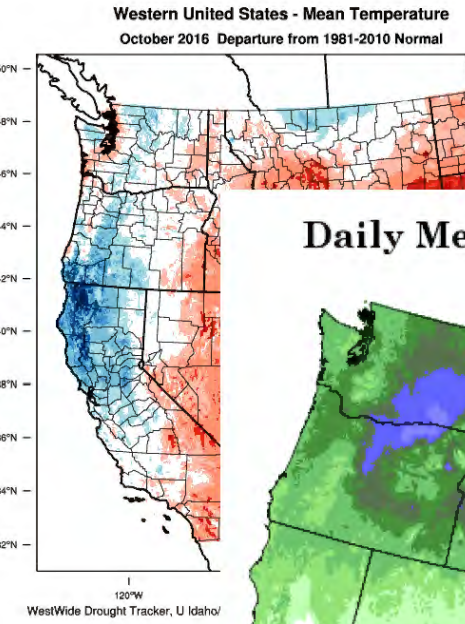
Oct-Nov 2016: SPEI 2

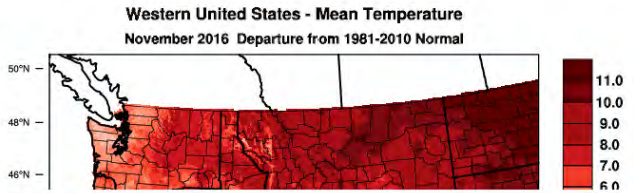
Oct-Dec 2016: SPEI 3

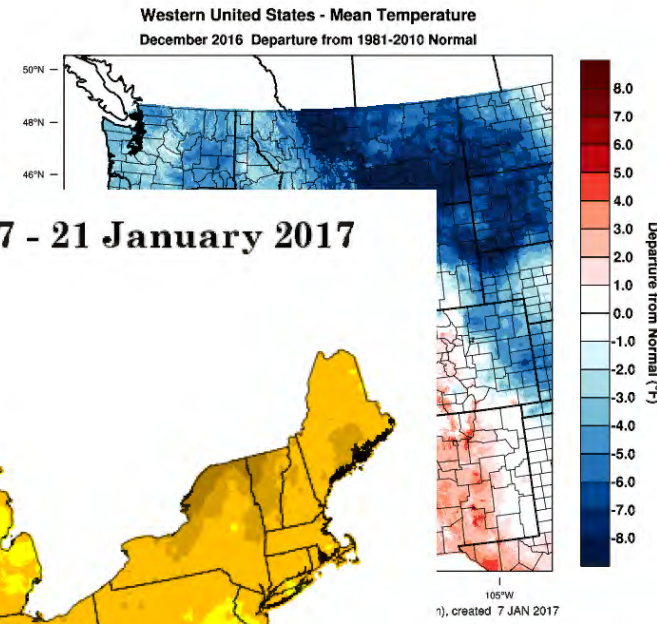


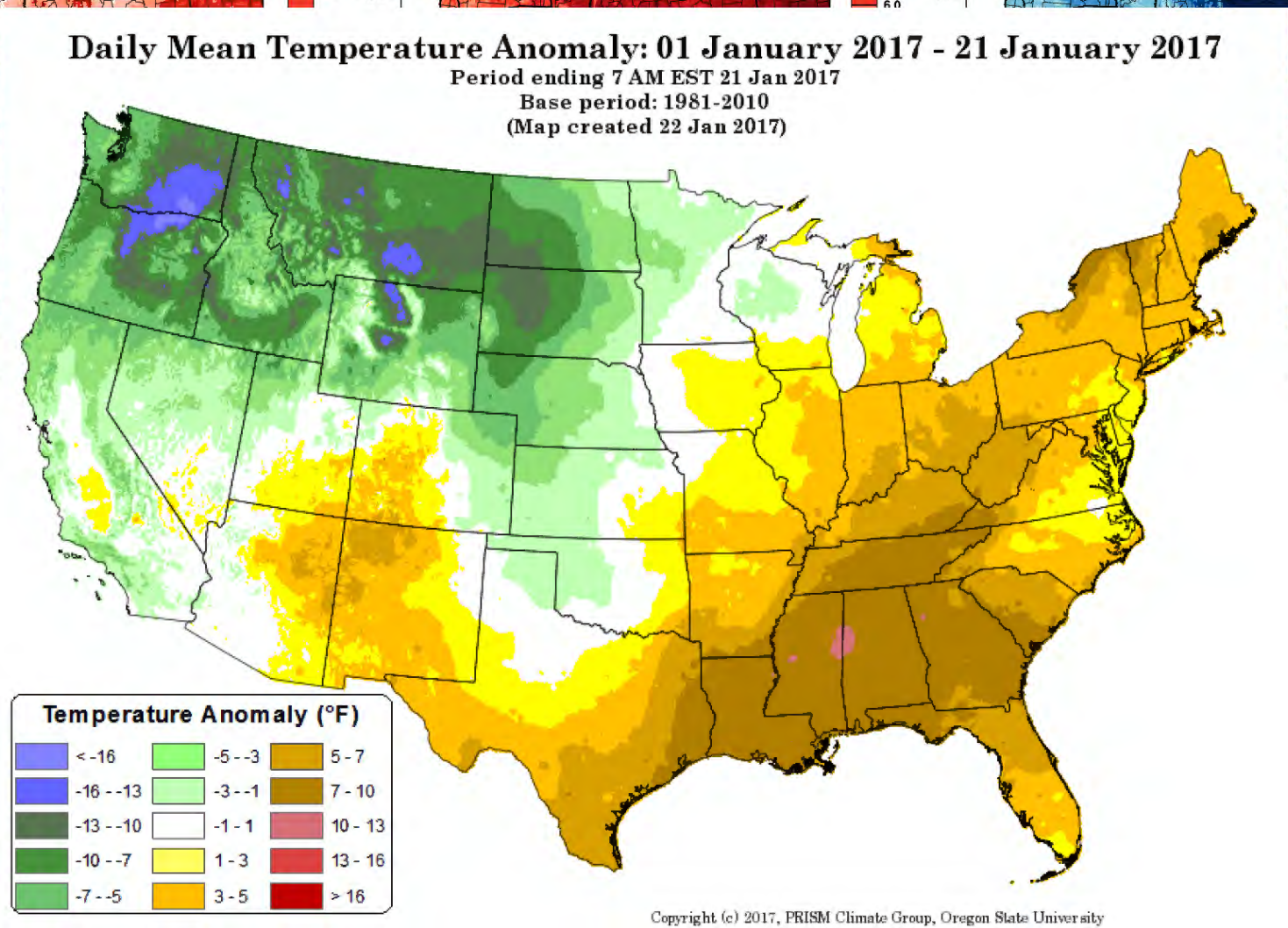


Temperature

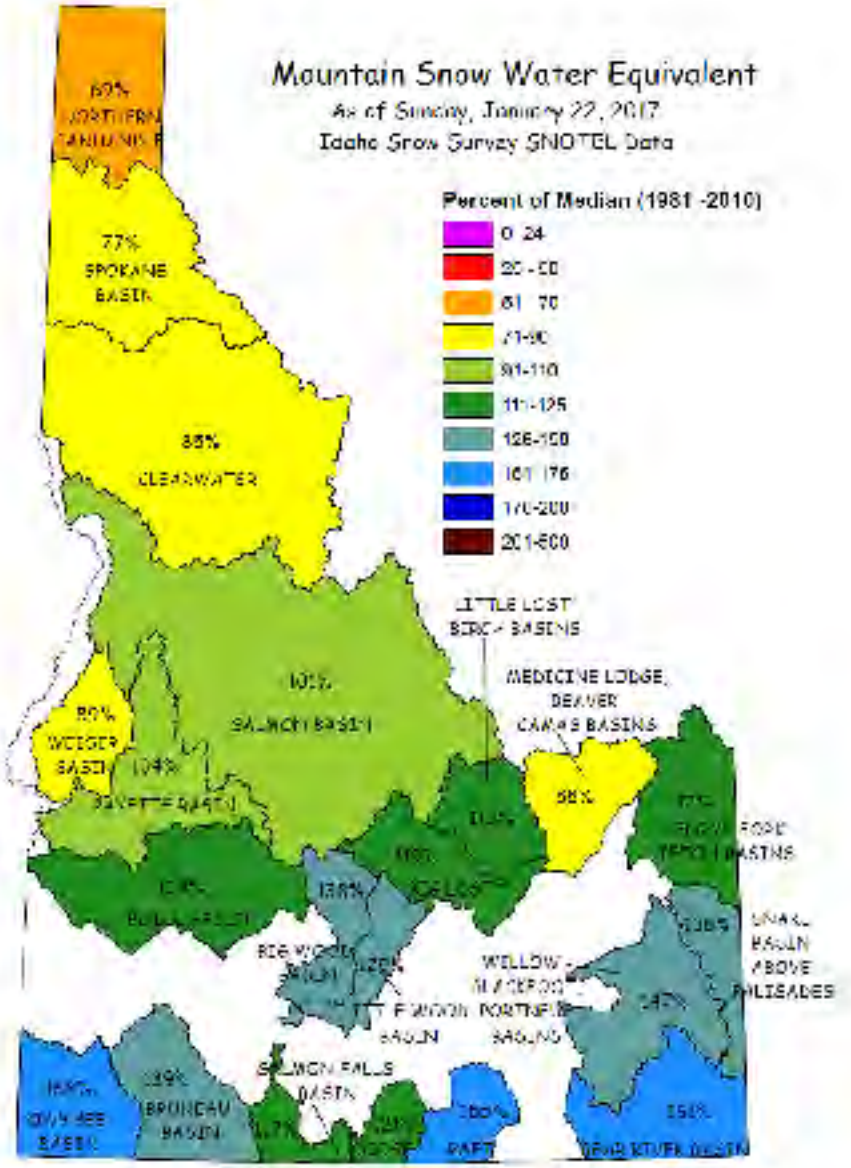




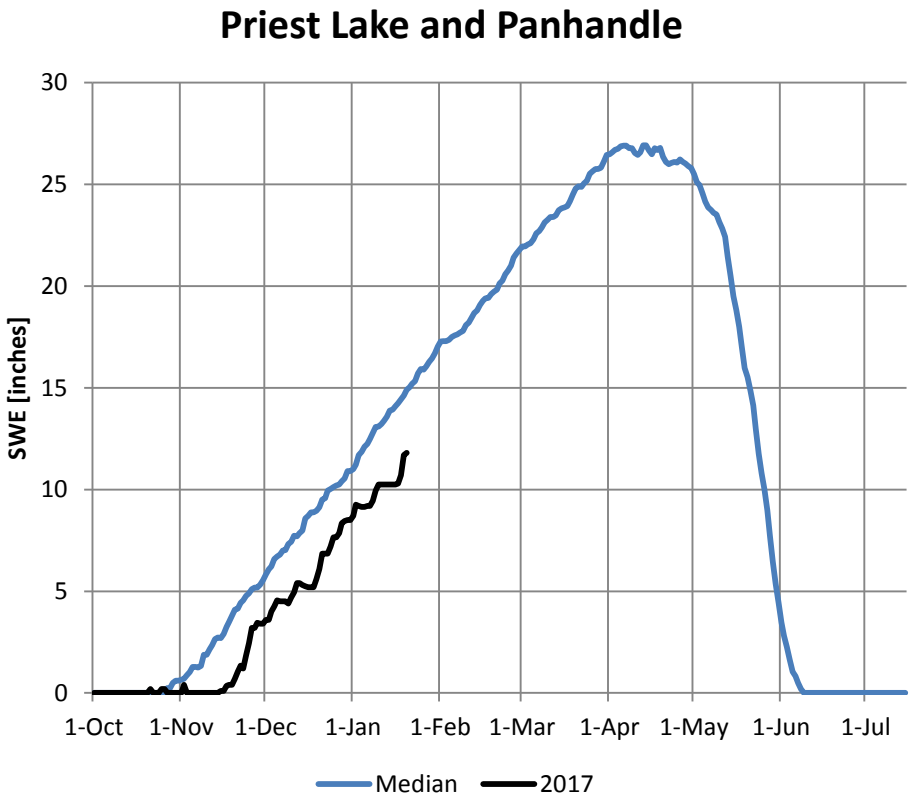


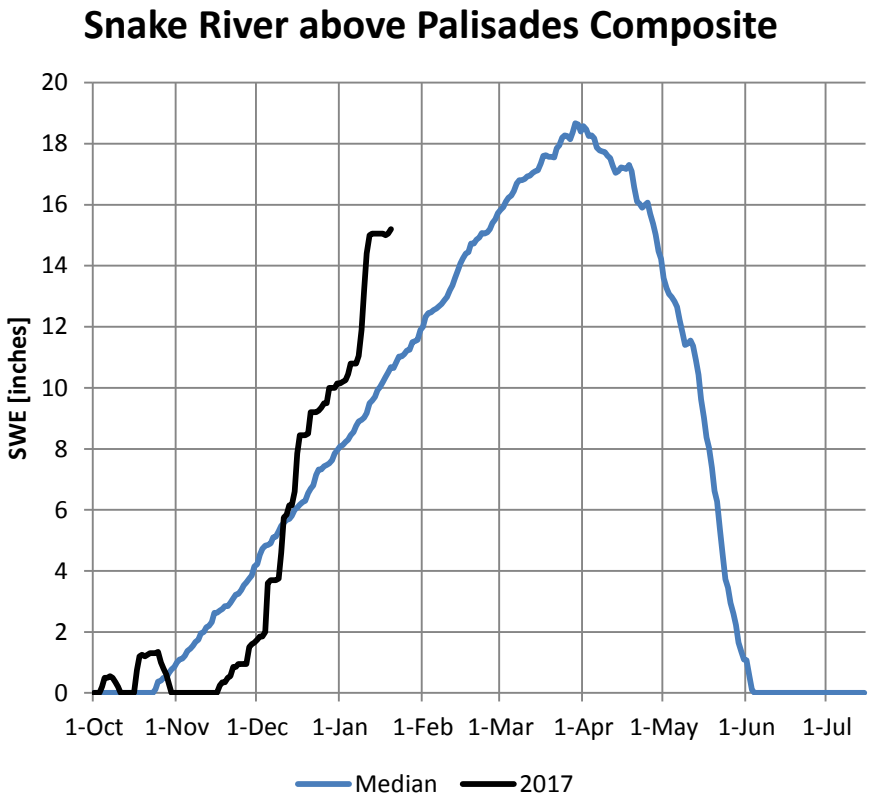


Percent of Normal Snowpack

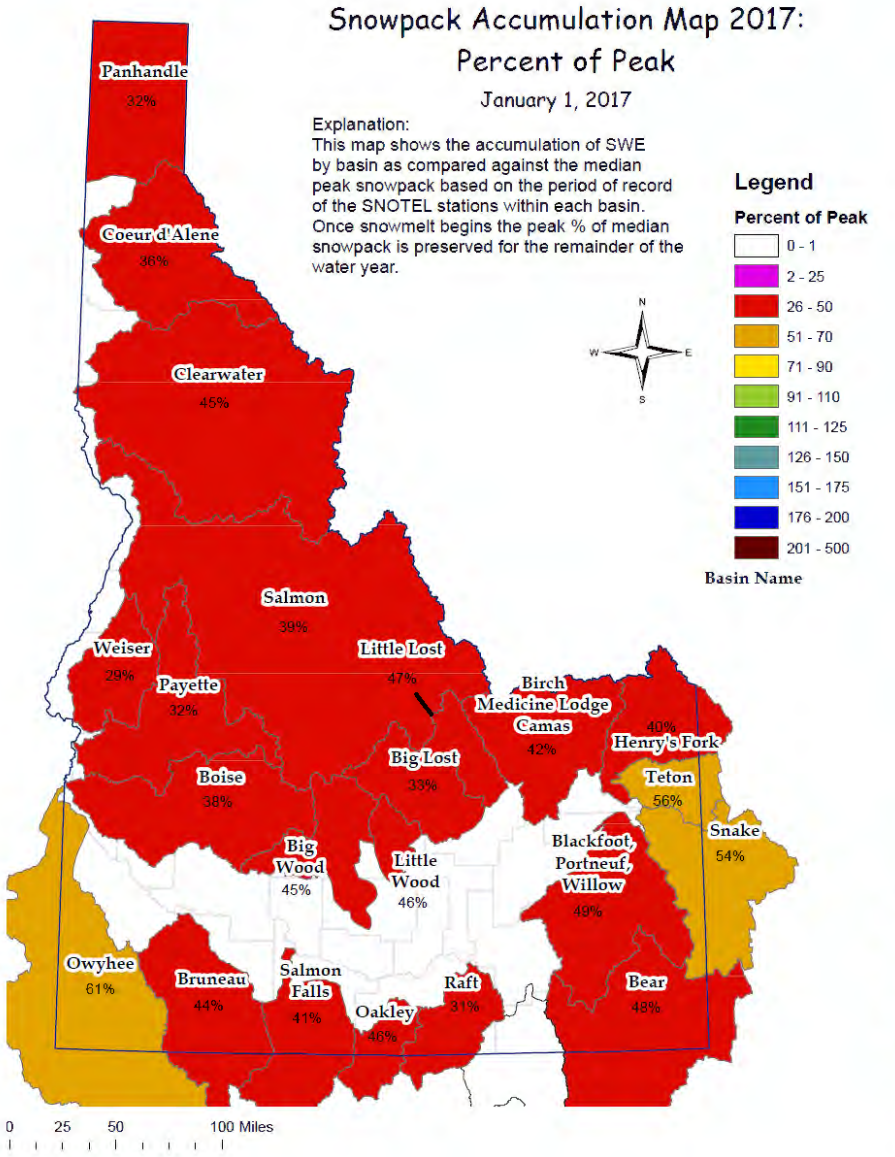


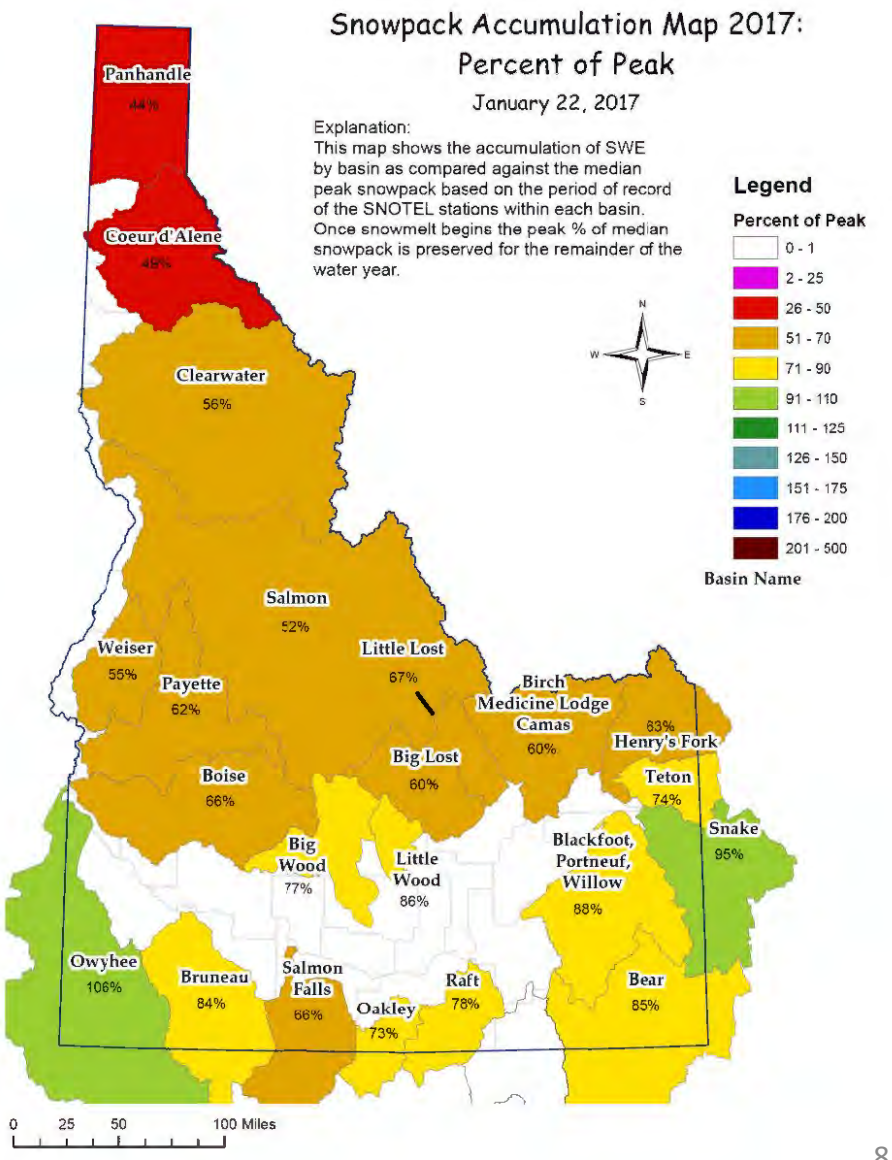
Snow Accumulation



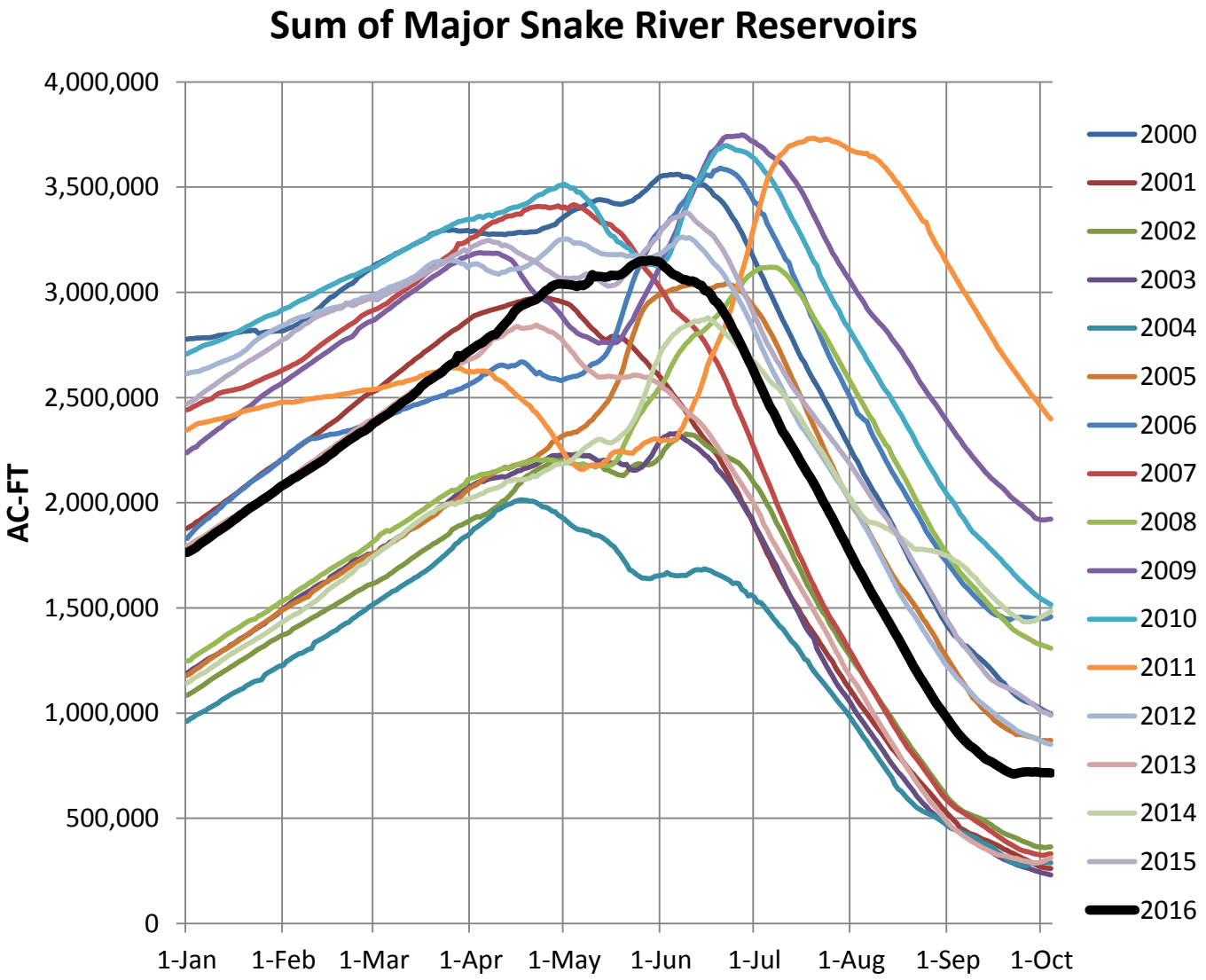


Snow Accumulation

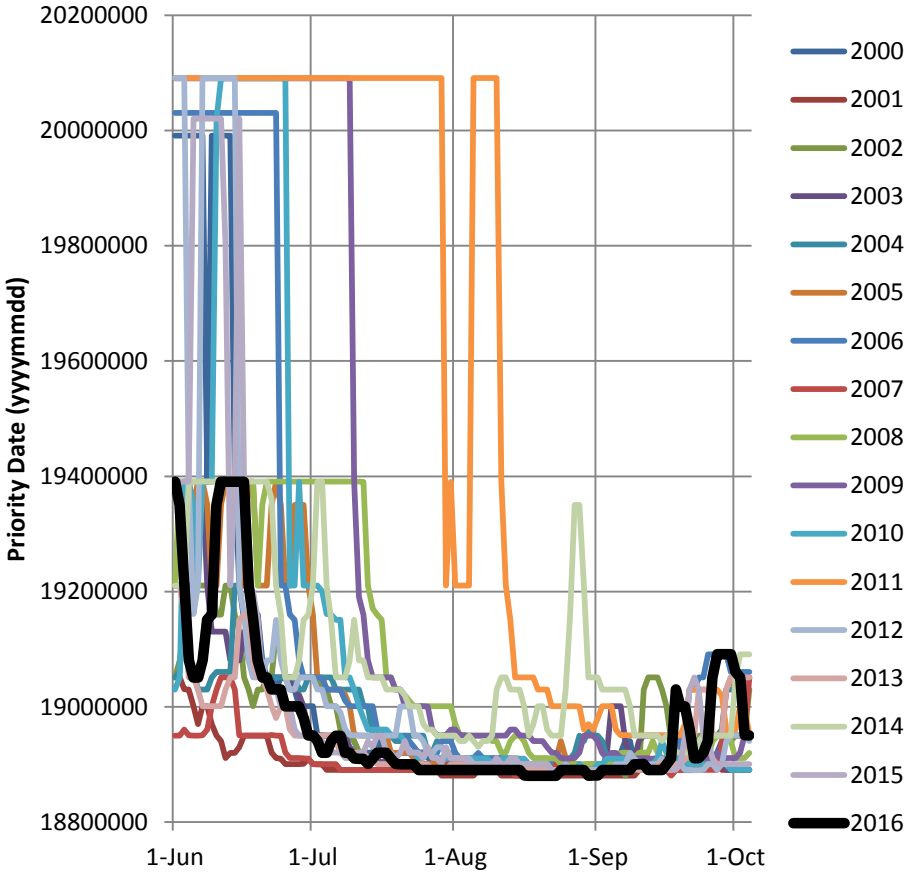




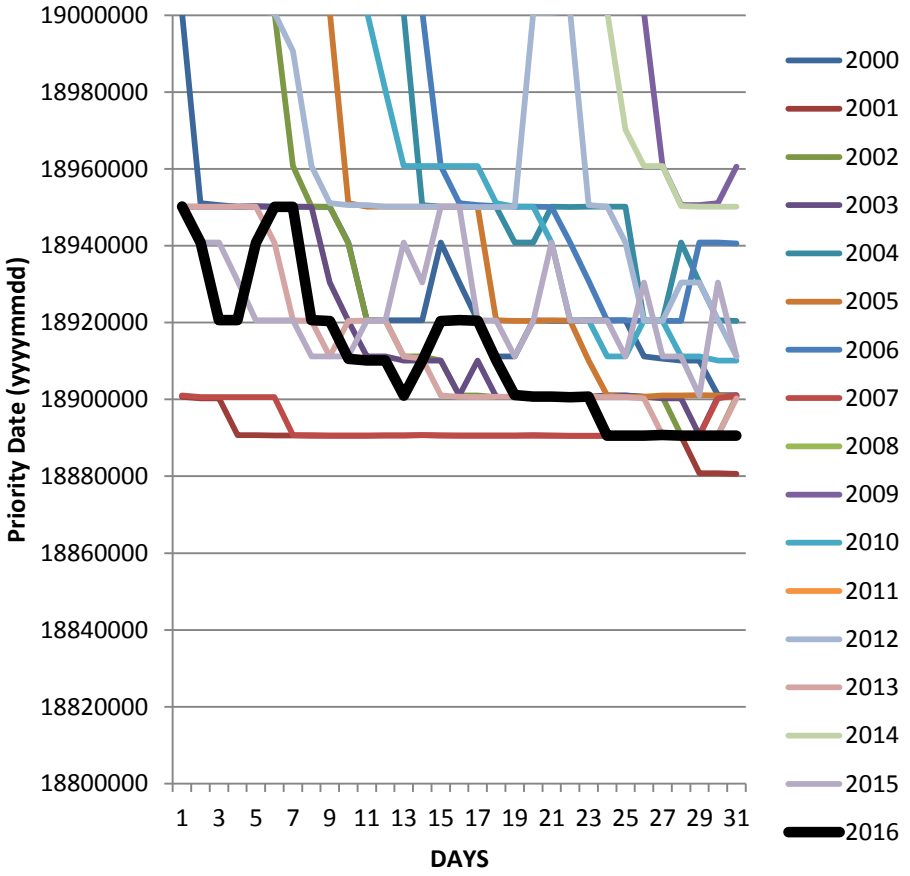
Reservoir and Water Supply Conditions

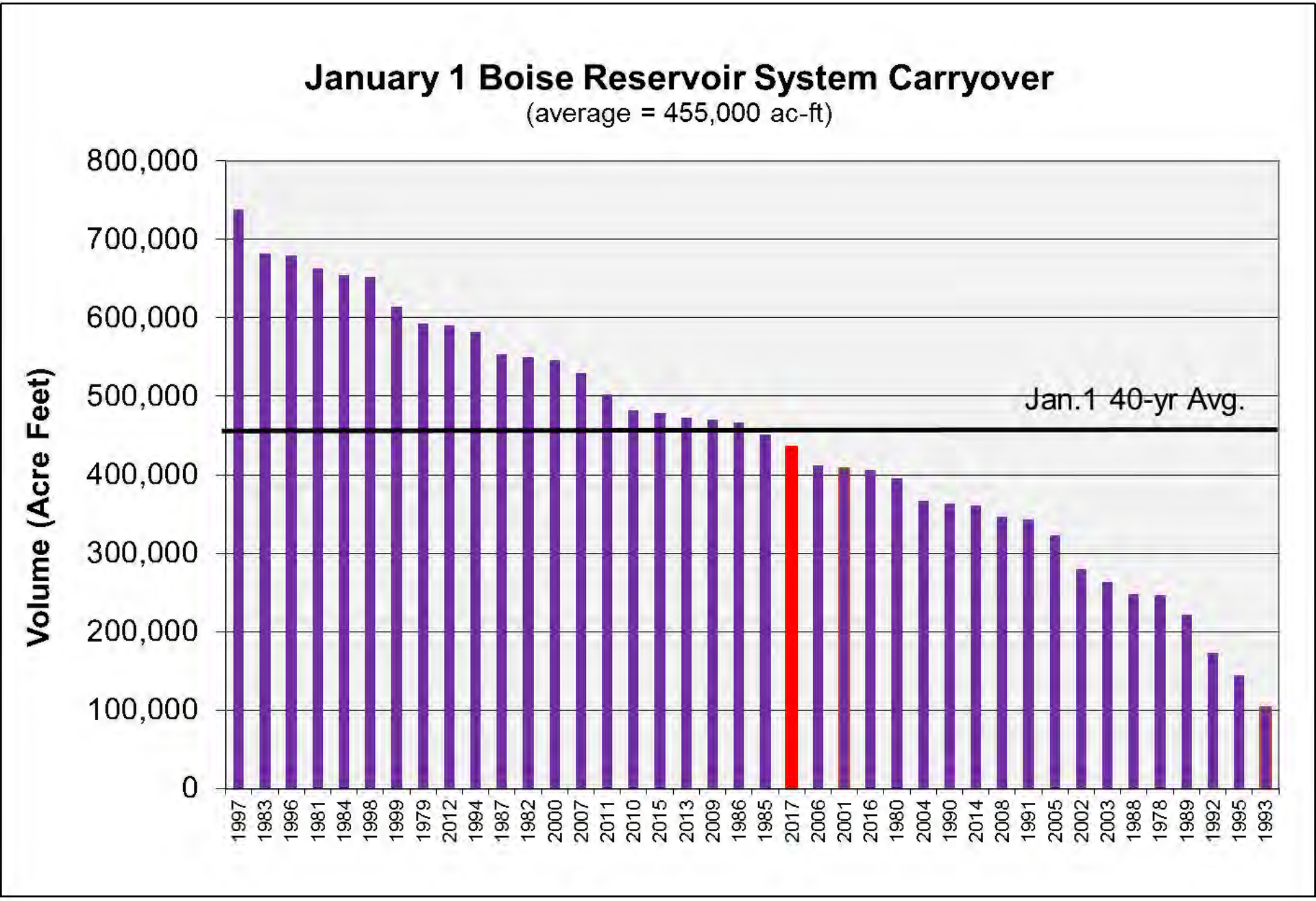

Sum of Major Snake River Reservoirs
AC-FT
4,000,000
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
1-Oct
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

Priorities on the Upper Snake River



Priorities on the Upper Snake in July




January 1 Boise Reservoir System Carryover
(average = 455,000 ac-ft)
Volume (Acre Feet)
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
Jan.1 40-yr Avg.
1997
1983
1996
1981
1984
1998
1999
1979
2012
1994
1987
1982
2000
2007
2011
2010
2015
2013
2009
1986
1985
2017
2006
2001
2016
1980
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2002
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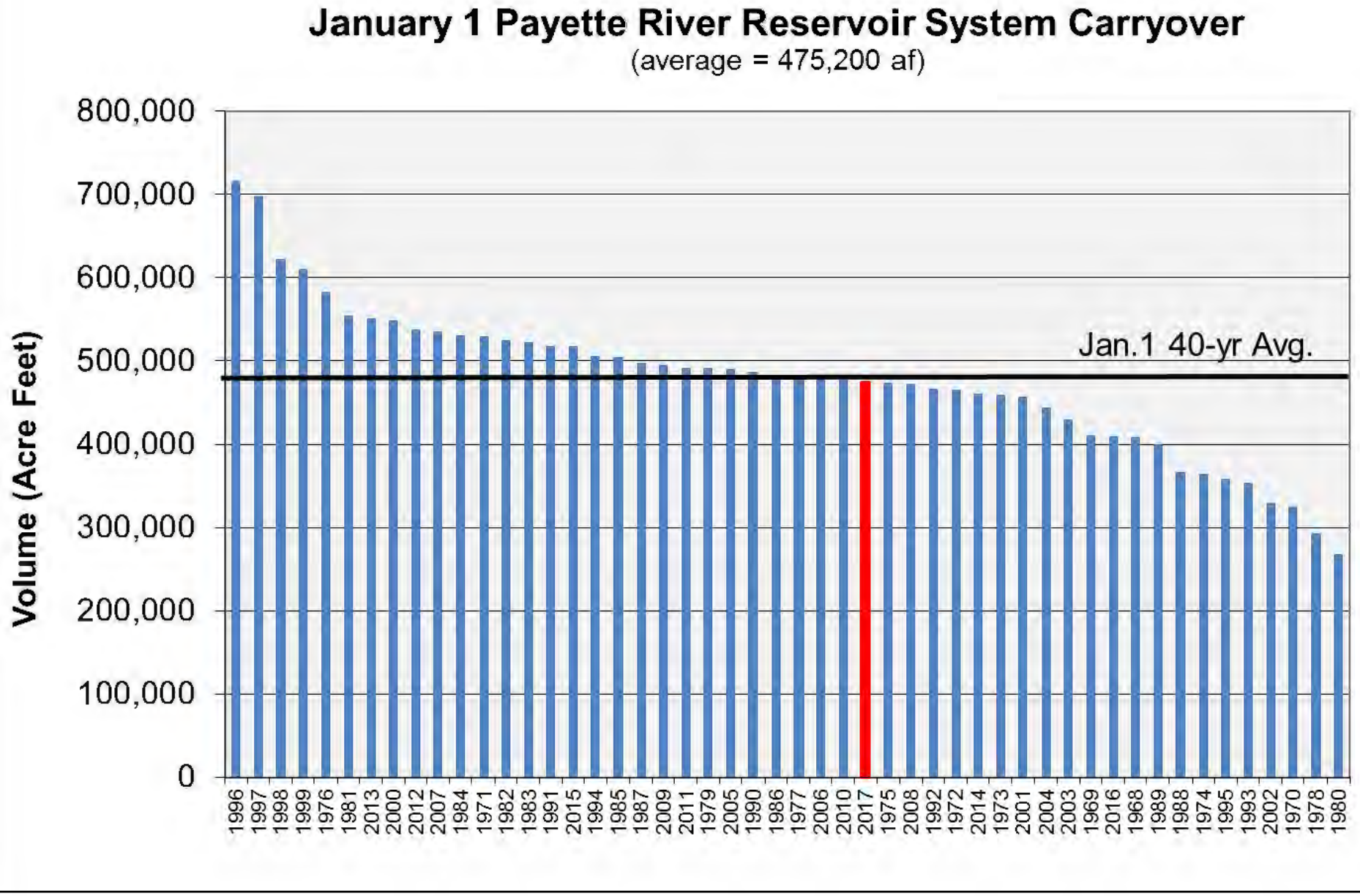
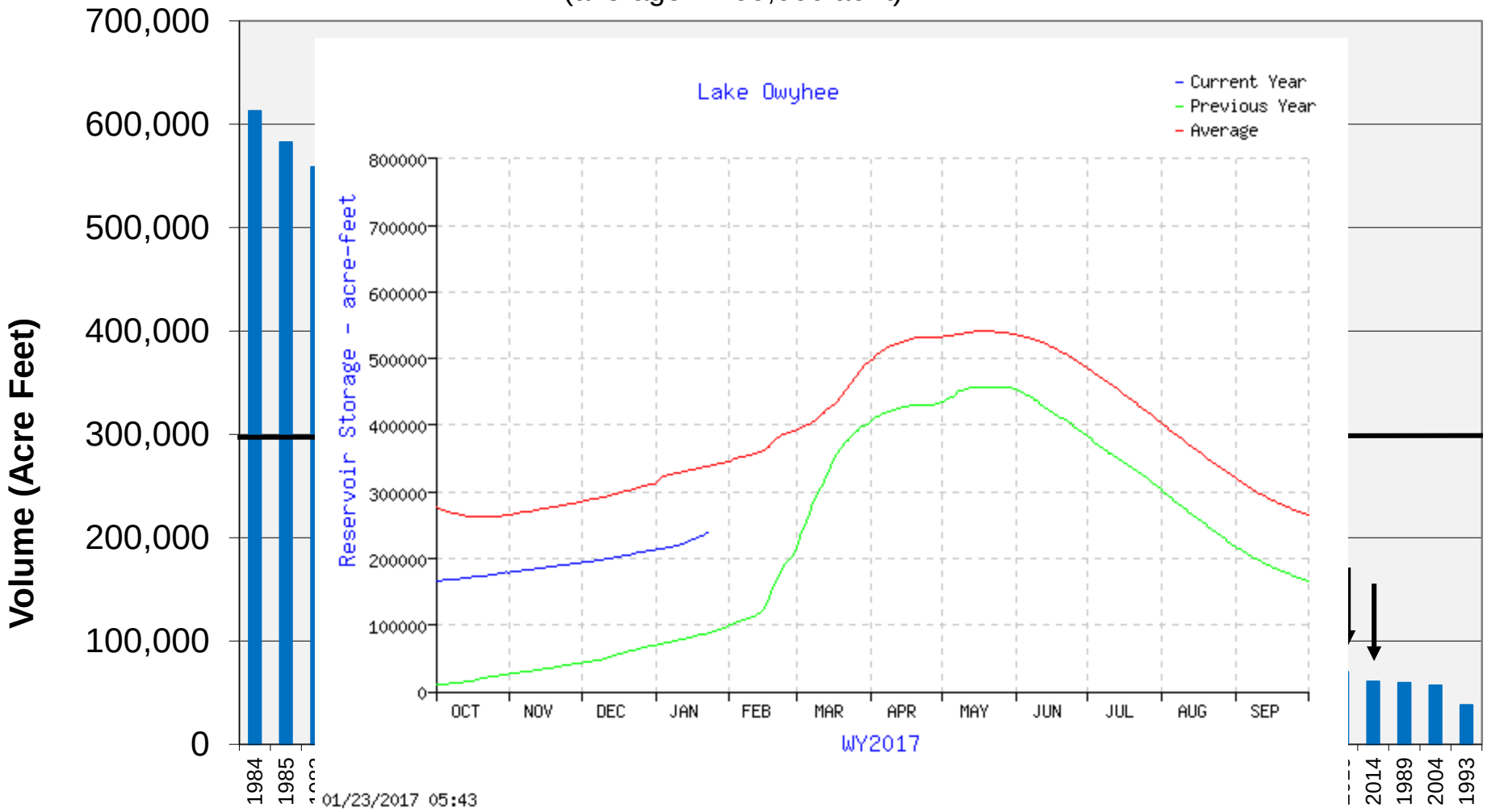
1988
1978
1989
1992
1995
1993


January 1 Payette River Reservoir System Carryover
(average = 475,200 af)
Volume (Acre Feet)
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
Jan.1 40-yr Avg.
1996 1997 1998 1999 1976 1981 2013 2000 2012 2007 1984 1971 1982 1983 1991 2015 1994 1985 1987 2009 2011 1979 2005 1990 1986 1977 2006 2010 2017 1975 2008 1992 1972 2014 1973 2001 2004 2003 1969 2016 1968 1989 1988 1974 1995 1993 2002 1970 1978 1980

January 1 Owyhee Reservoir Carryover

(average = 299,000 ac-ft)



Winter Storage Accumulation on Track

As of November 8, 2016: Projected change in reservoir storage from Fall 2016 to target levels in Spring 2017 which is when the runoff period starts for the streamflow forecasts.

	Oct 31 storage KAF	Observed Nov 30 storage KAF	Observed Dec 31 storage KAF	Projected Jan 31 Storage KAF	Projected Feb 28 storage KAF	Projected Mar 31 storage KAF	Estimated change in storage KAF
Boise Reservoir System	422.0	466.0	501.2	---	---	800	378
Magic Reservoir	65.0	78.2	83.5	---	---	105	40
Little Wood Reservoir	12.4	17.2	20.2	---	24	---	12
Mackay Reservoir	14.7	28.2	34.0	---	---	40	25
Jackson & Palisades Reservoir System	800.0	976.0	1086.7	---	---	1300	500
Oakley Reservoir	11.5	13.8	16.2	---	22	---	11
Salmon Falls Reservoir	35.0	36.8	39.3	---	50	---	15
Lake Owyhee	179.0	193.9	212.9	260	---	---	81
Bear Lake	440.0	446.8	459.1	---	---	500	60

Other basins, Spokane, Clearwater, Salmon, Weiser, Payette and Bruneau basins, the surface agricultural irrigation demand is not known or relevant. For the Henrys Fork basin, recent diversion data has not been loaded in our AWDB streamflow database.

Winter Storage Accumulation on Track

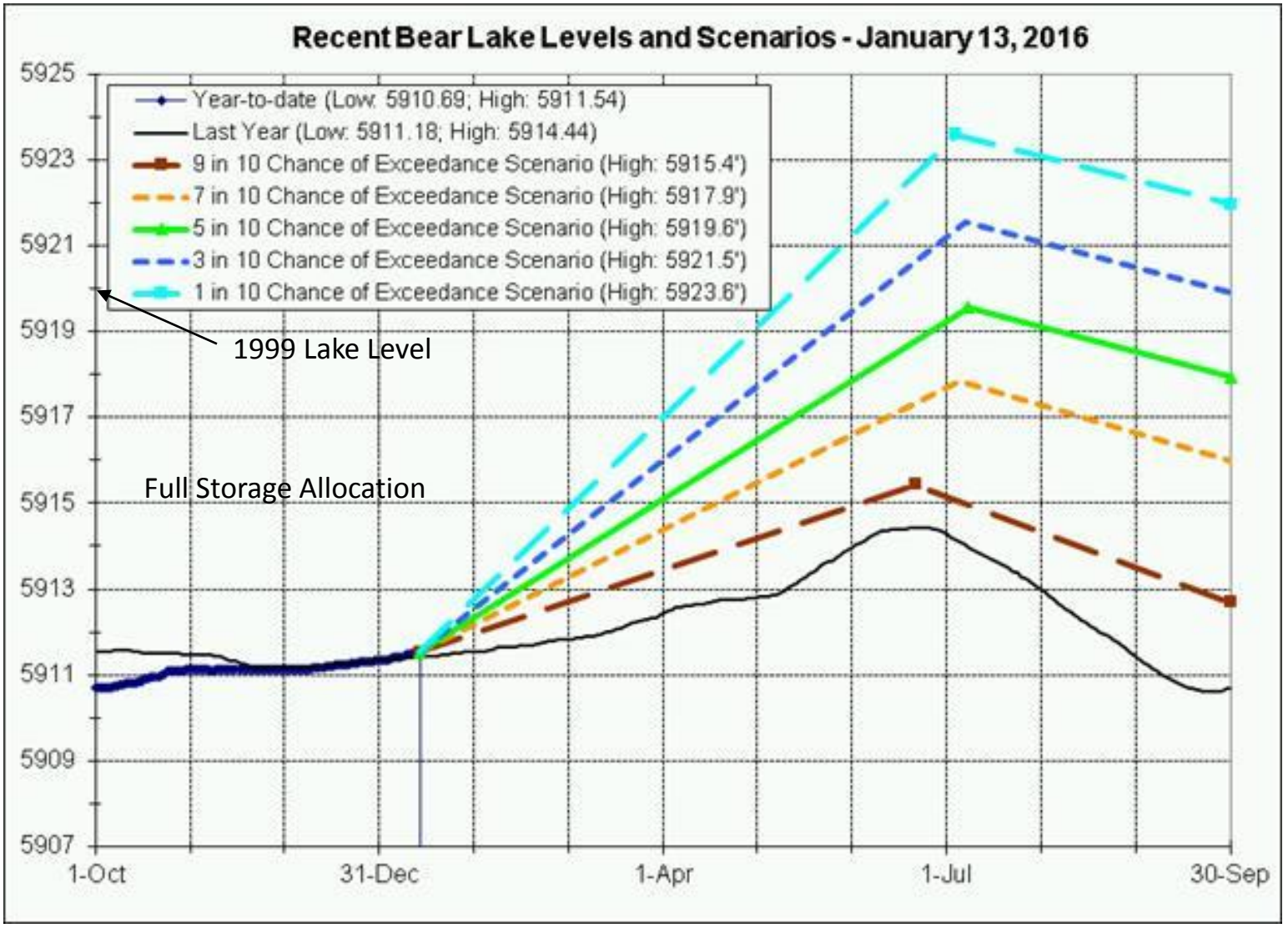
Summary Table: Amount of streamflow needed in 2017 for adequate surface irrigation supplies.

Created November 8, 2016

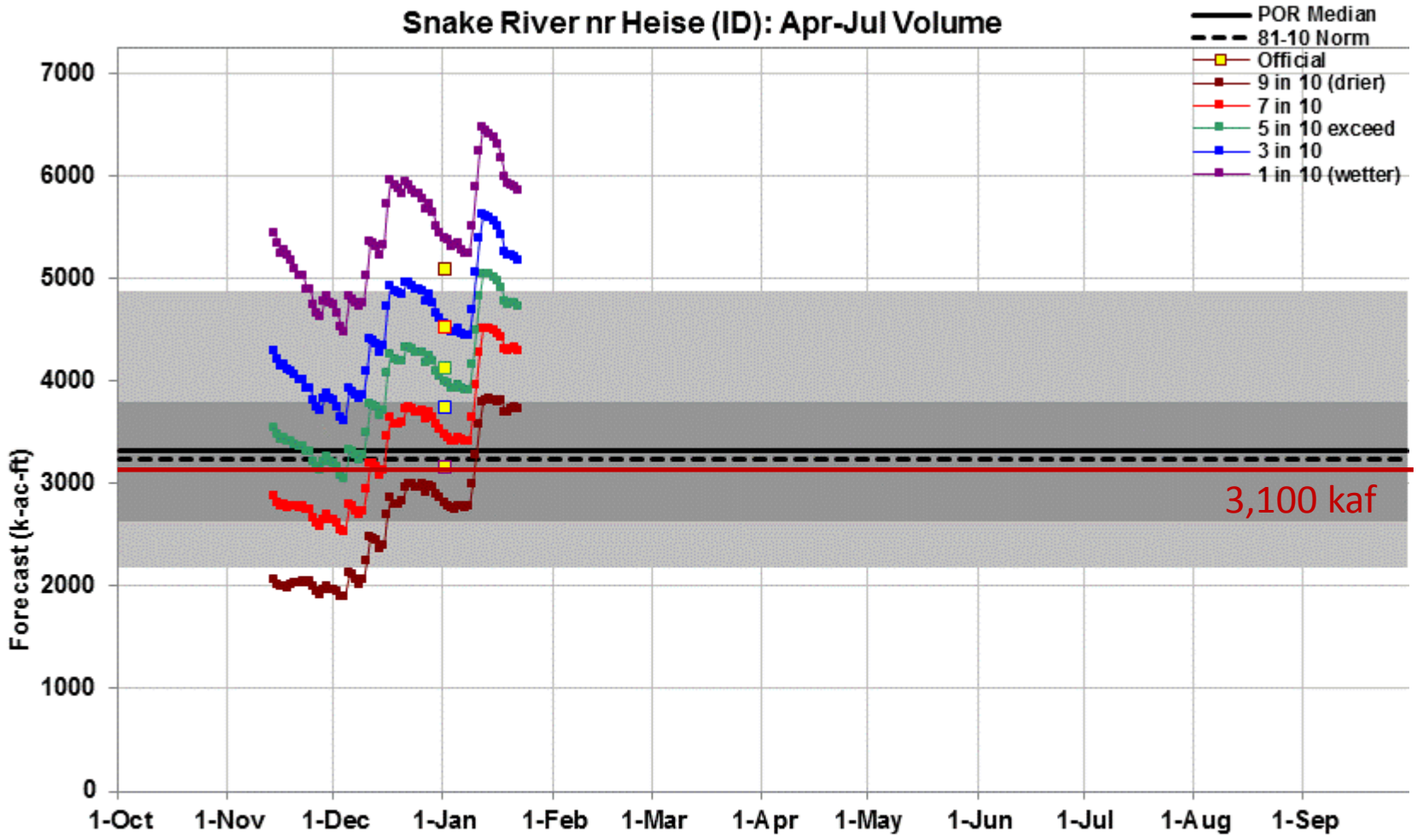
Fall reservoir carryover storage is used to project spring reservoir storage levels based on current conditions and recent trends. Then, by knowing the adequate irrigation water supply needed in your basin, the projected spring reservoir volumes are subtracted from the adequate irrigation supply to determine the volume of streamflow to marginally meet adequate surface irrigation supplies in 2017.

	Column 2 - Column 3 = Column 4			**Col4/Col6 X 100= Col 5**				
Column 1 Basin	2 Amount needed for adequate irrigation water supply KAF	3 Projected end of month reservoir storage (Jan, Feb or Mar) KAF	**4 2017 streamflow volume needed for adequate water supply KAF**	**5 % of average streamflow to meet adequate irrigation supply in 2017 KAF**	6 1981-2010 average streamflow KAF	7 Streamflow runoff period used in the analysis	9 2016 Streamflow Runoff KAF	/ % of average
Boise	1500	800	**700**	**51%**	1360	Apr-Sep	1255	92%
Big Wood	275	105	**170**	**64%**	265	Apr-Sep	186	70%
Little Wood	60	24	**36**	**39%**	92	**Mar-Sep**	66.4	72%
Big Lost	180	40	**140**	**93%**	150	Apr-Sep	119.4	80%
Little Lost	40	---	**40**	**118%**	34	Apr-Sep	26.9	79%
Teton	85	---	**85**	**44%**	193	Apr-Sep	140	73%
Snake (Heise)	4,400	1300	**3100**	**82%**	3,780	Apr-Sep	3000	79%
Oakley	50	22	**28**	**90%**	31	**Mar-Sep**	27.4	88%
Salmon Falls	110	50	**60**	**71%**	85	**Mar-Sep**	109	128%
Owyhee	575	260	**315**	**47%**	665	**Feb-Sep**	545	82%
Bear River	280	500	**0**	**0%**	205	Apr-Sep	145.5	71%

Bear Lake Forecast



NRCS—Adequate Supply

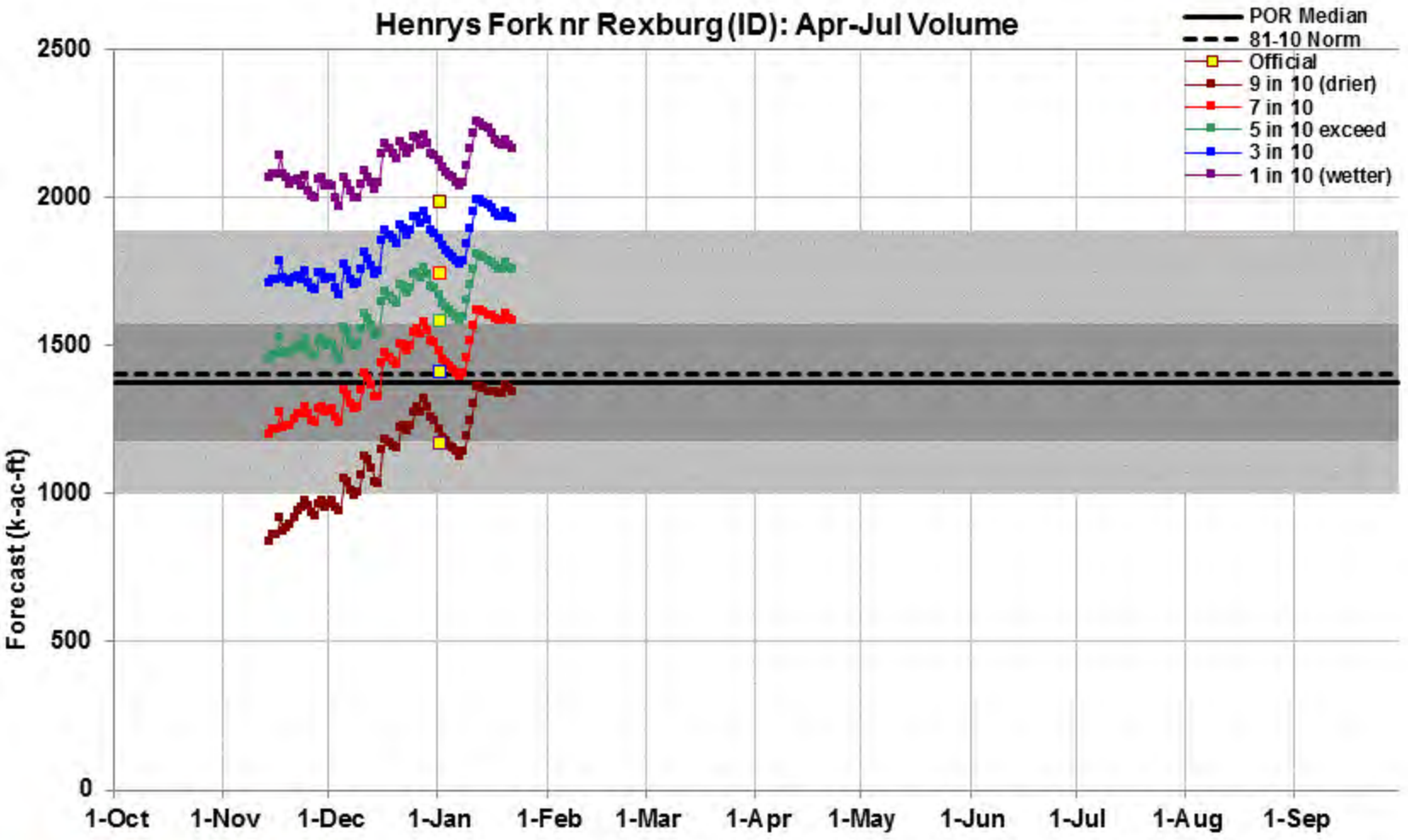


Created 7:52 Jan 22 2017

NRCS

This is an automated product based solely on SNOTEL data, provisional data are subject to change. This product is a statistically based guidance forecast combining indices of snowpack and precipitation. **Yellow squares** are the official outlooks. **Gray background** is the historical period of record variability. This product does not consider climate information such as El Nino or short range weather forecasts, or a variety of other factors considered in the official forecasts. This product is not meant to replace or supercede the official forecasts produced in coordination with the National Weather Service. Science Contact: Cara.s.McCarthy@por.usda.gov wwwwcc.nrcs.usda.gov/wsf/daily_forecasts.html

NRCS—Adequate Supply



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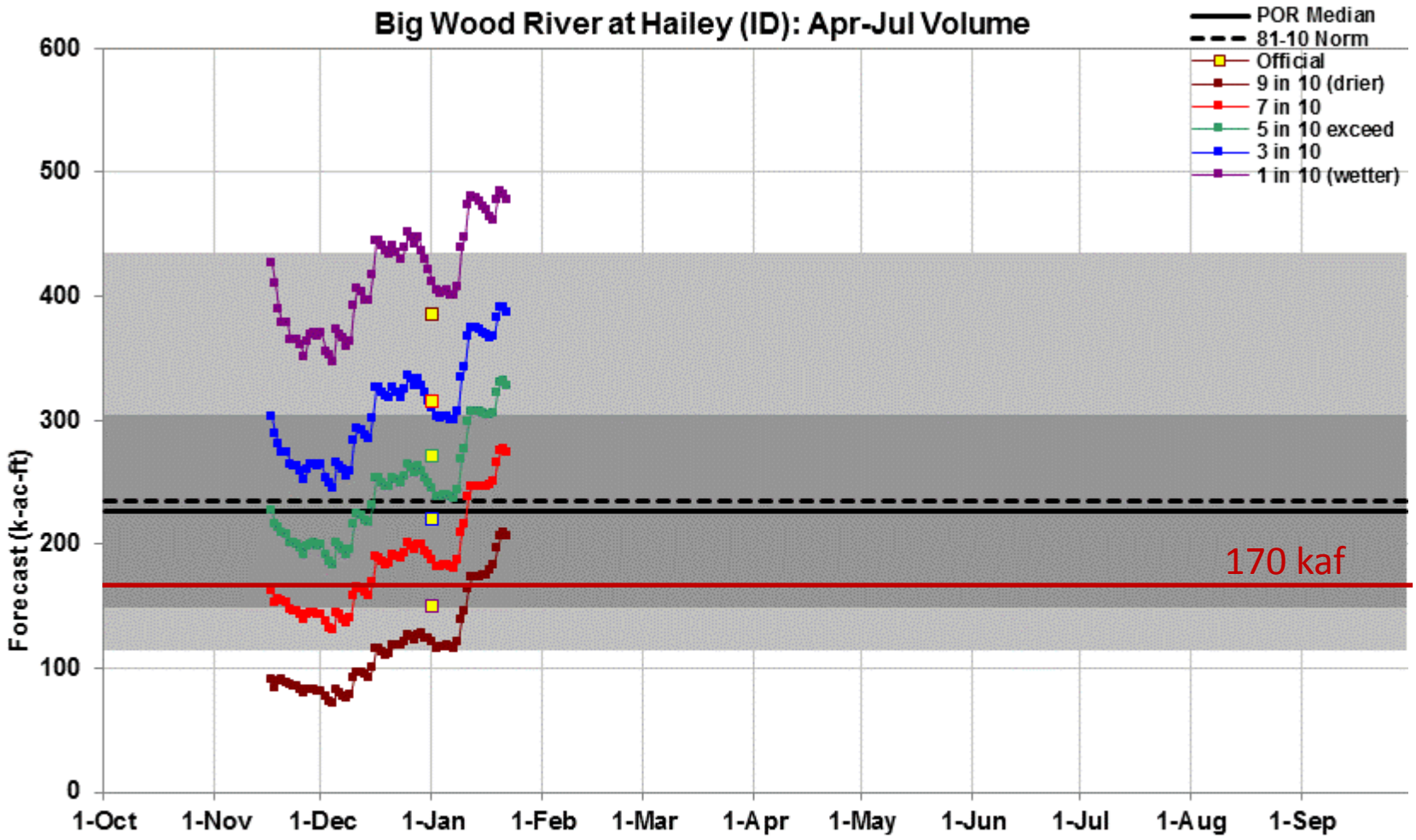

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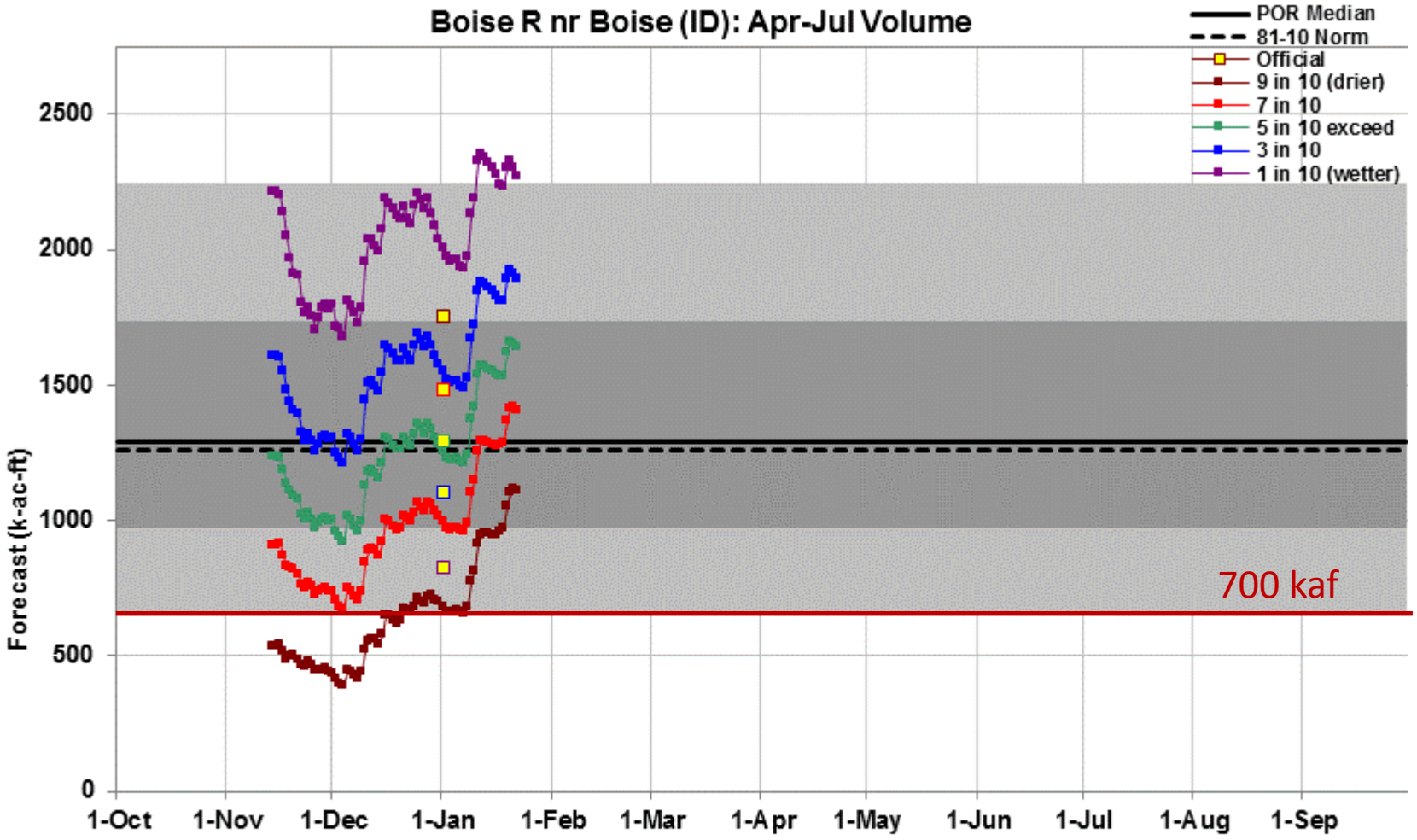

Created 7:58 Jan 22 2017

NRCS

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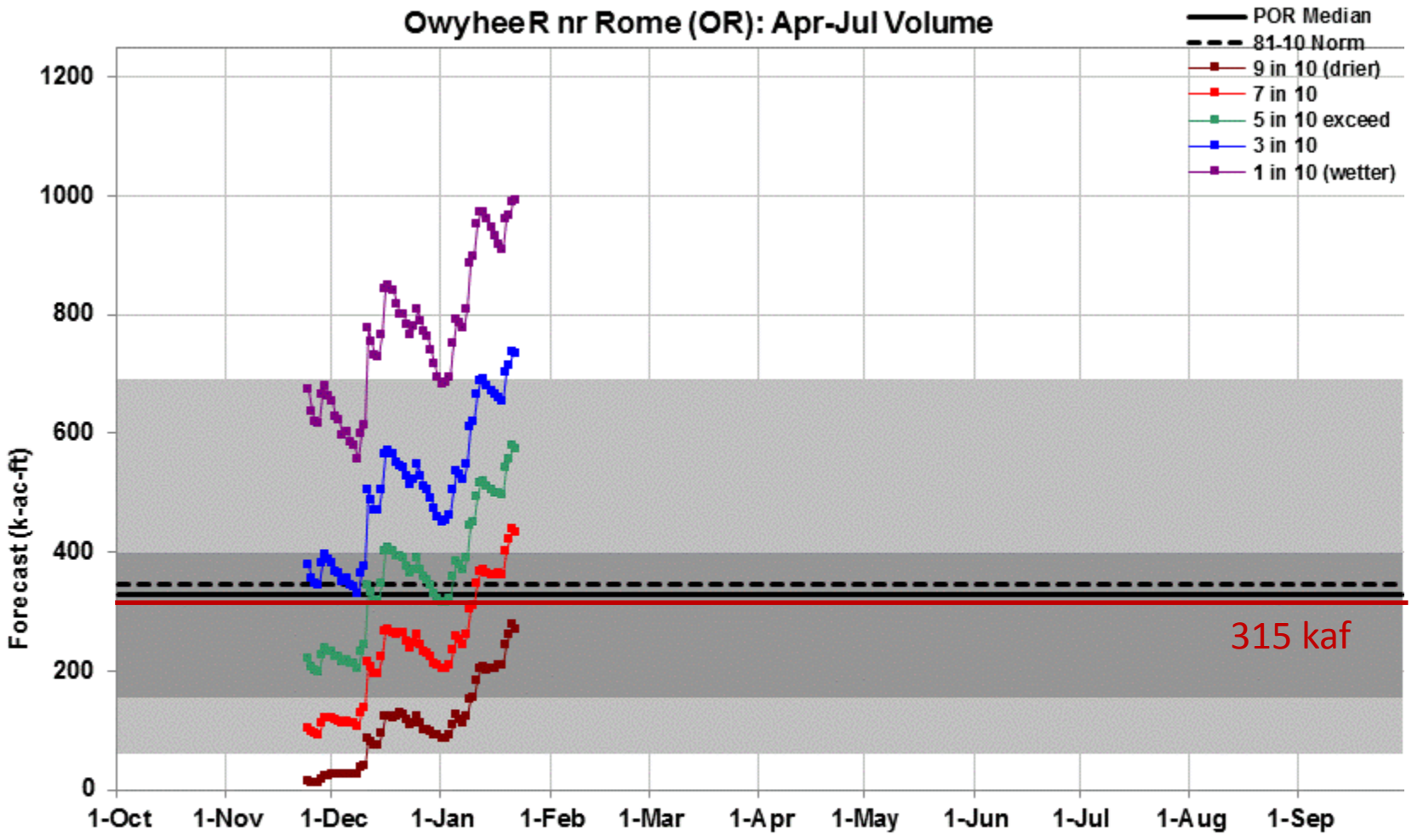

Created 7:57 Jan 22 2017

NRCS

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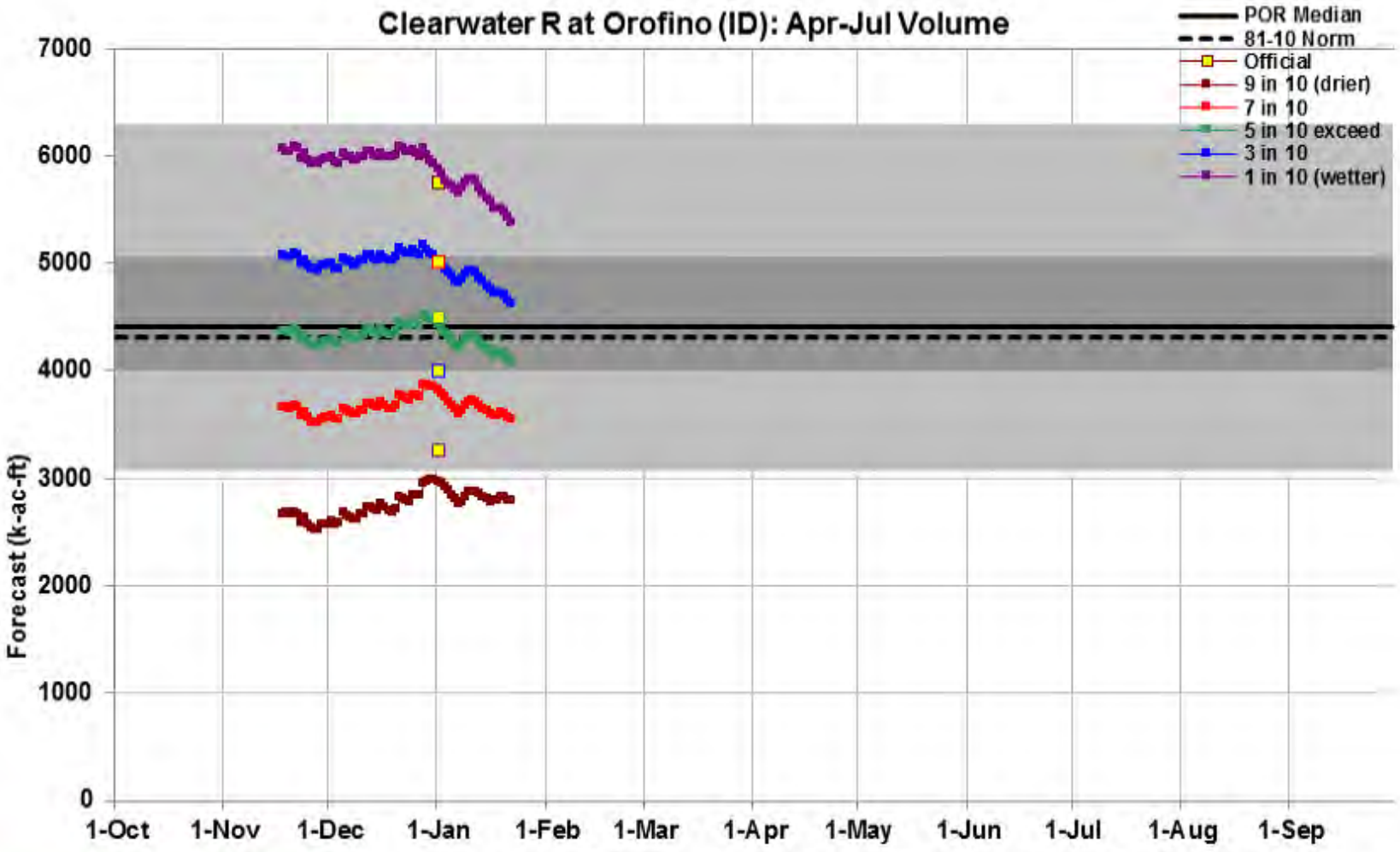

Created 8:07 Jan 22 2017

NRCS

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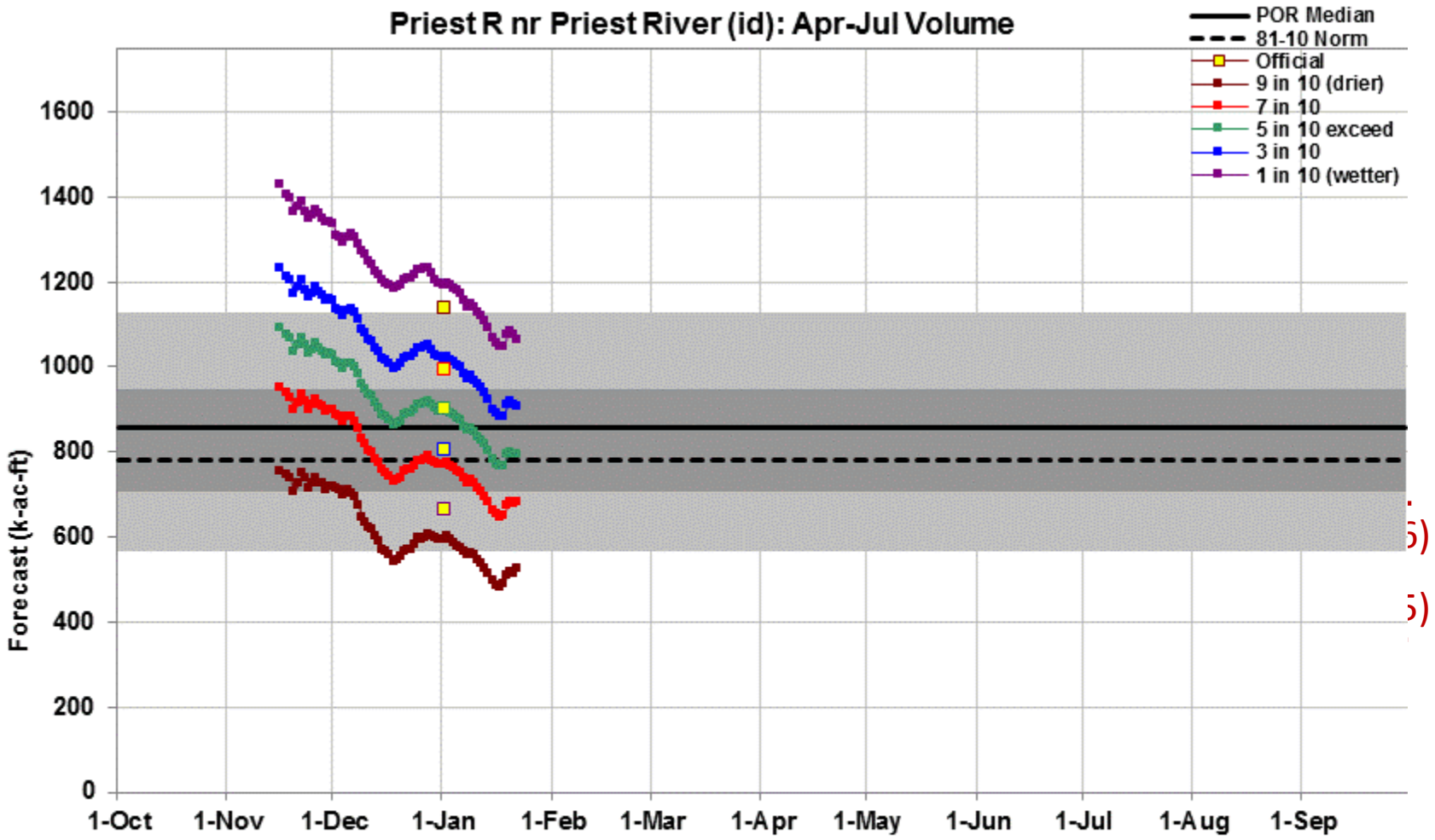

Created 7:45 Jan 22 2017

NRCS

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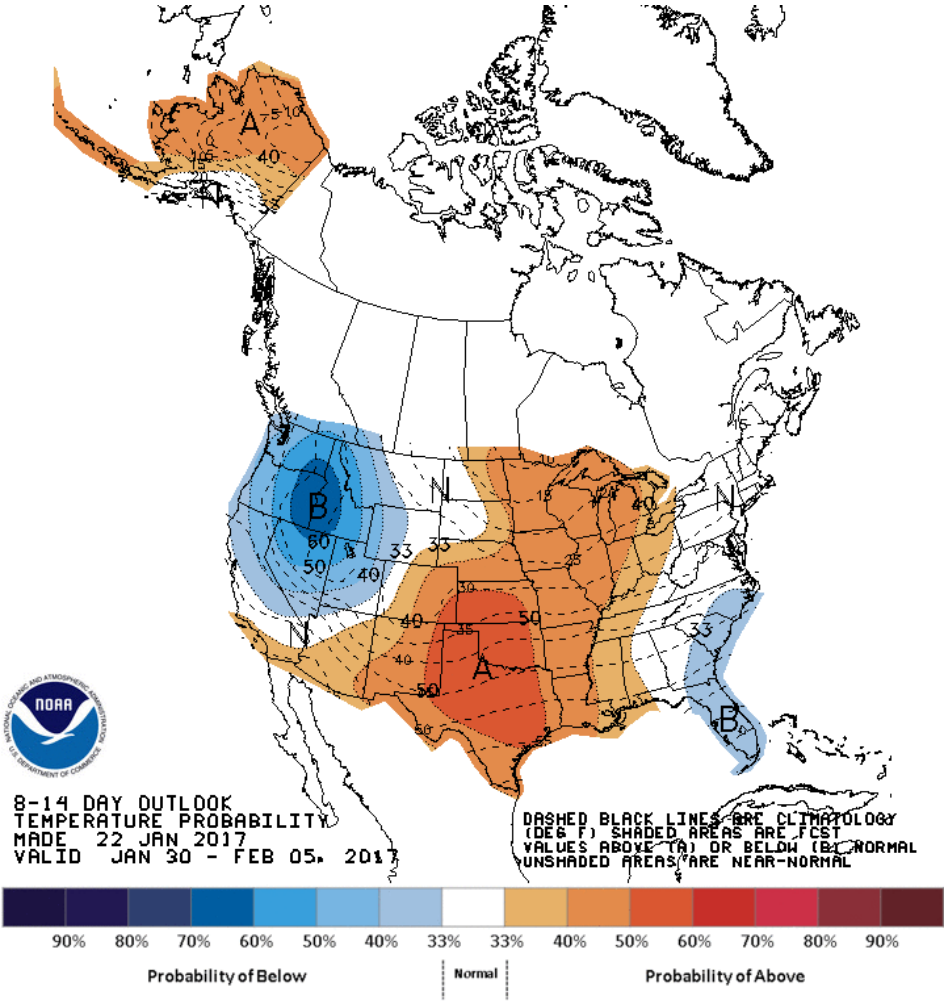
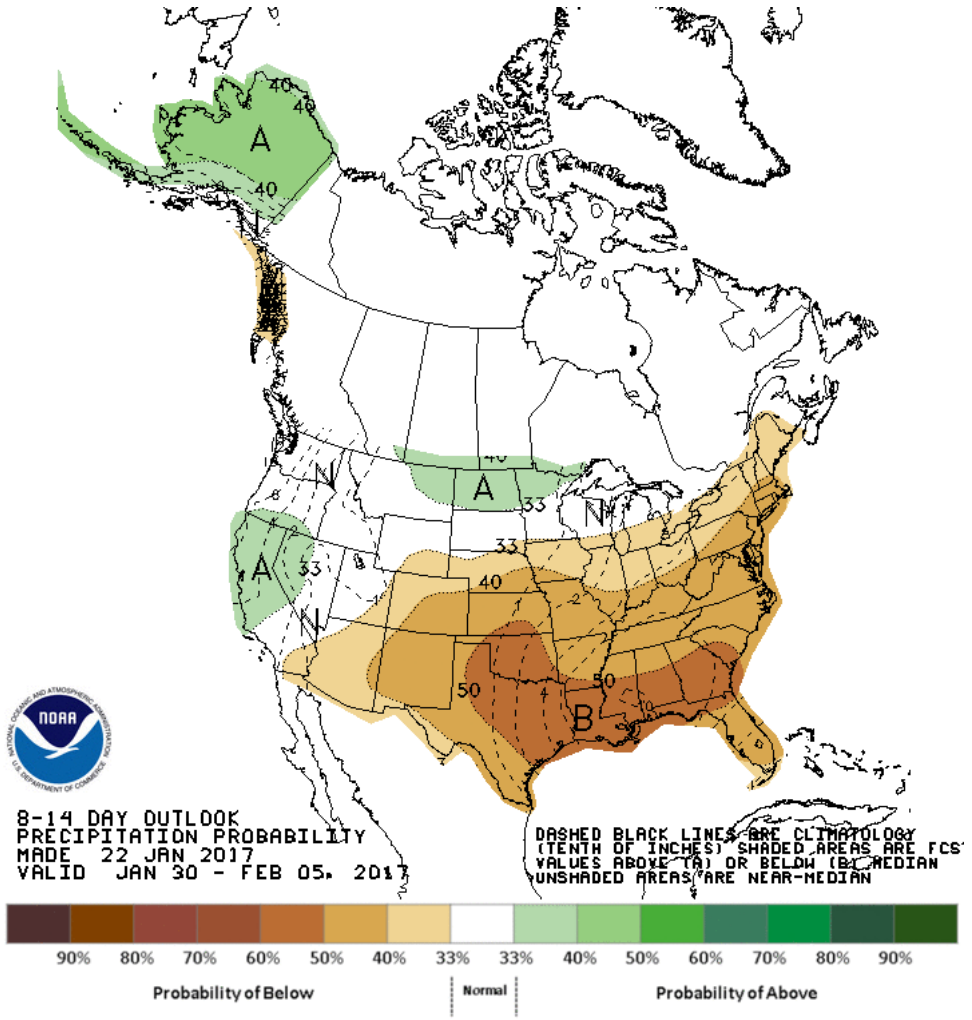
Projected Climate

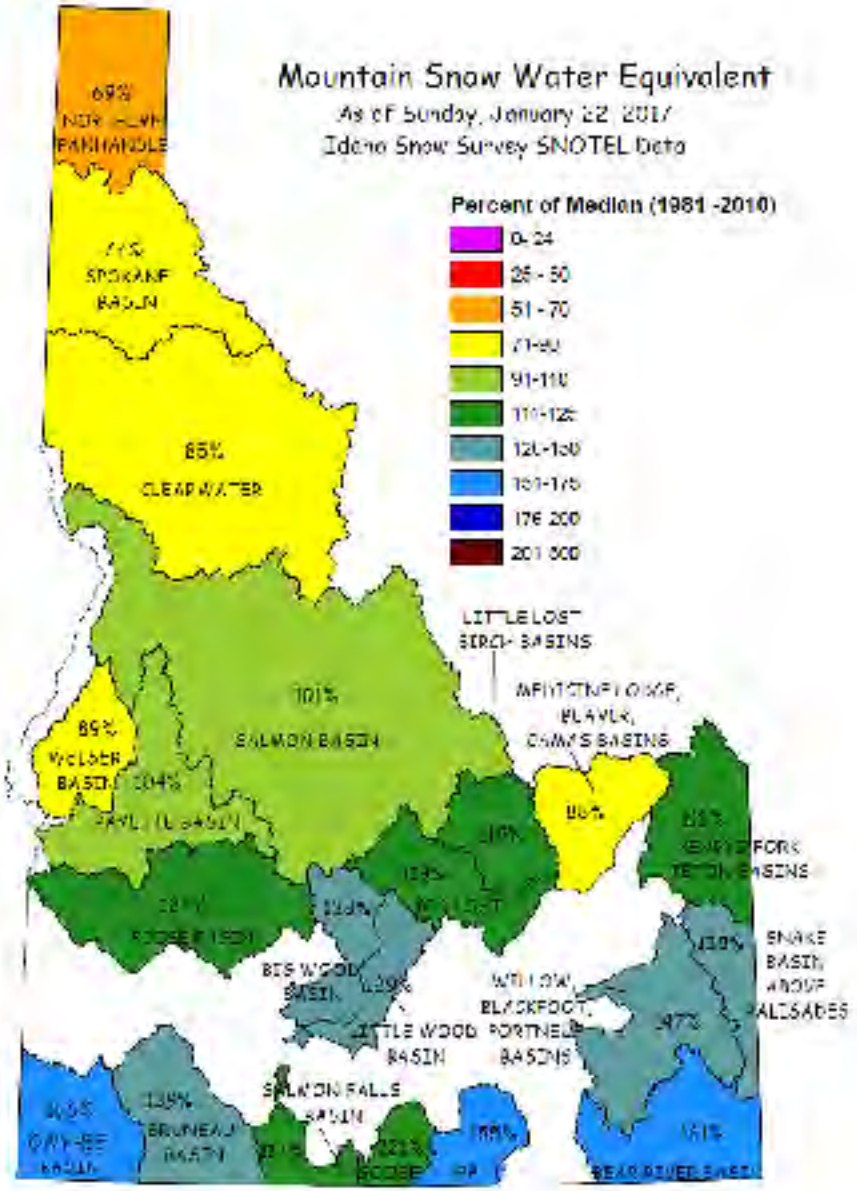
Temperature



Precipitation



Conclusions & Questions



IDAHO
Water Resource Board

ESPA Managed Recharge Program Update

Wesley Hipke

January 23, 2017

ESPA Managed Recharge Program

- IWRB Managed Recharge Update – 2016/2017
- IWRB Managed Recharge Projection
- IWRB Infrastructure Project Updates

IWRB ESPA Managed Recharge – Lower Valley

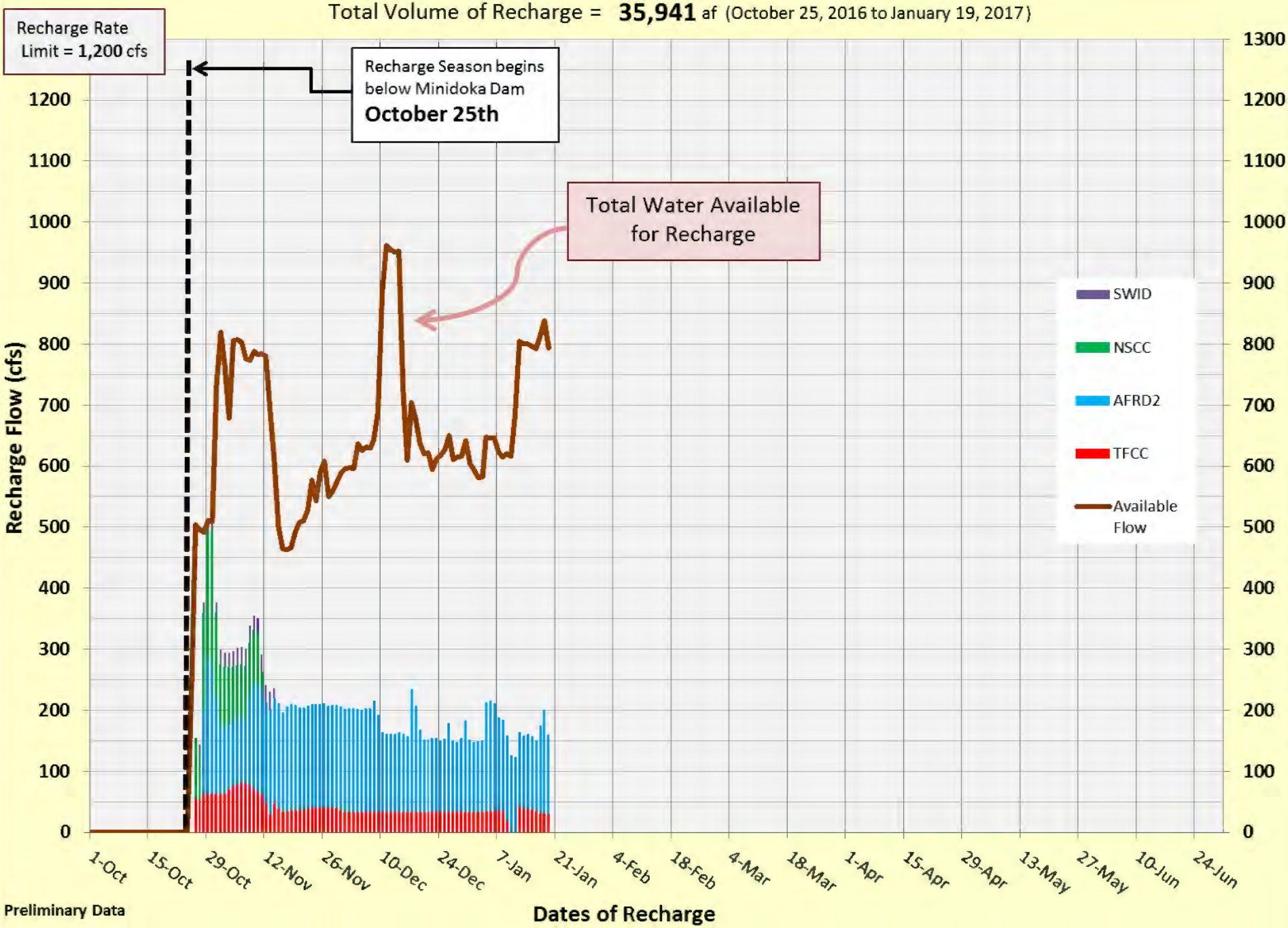
Recharge Summary (Oct 26th – Jan 19th)

- Recharge Right in Priority = 87 days
- IWRB Recharge = 86 days
- Total Recharged = 35,941 af *
- Average Daily Recharge Rate = 170 cfs

*Preliminary Data

Total IWRB Managed Recharge Rates During 2016 - 2017 Season

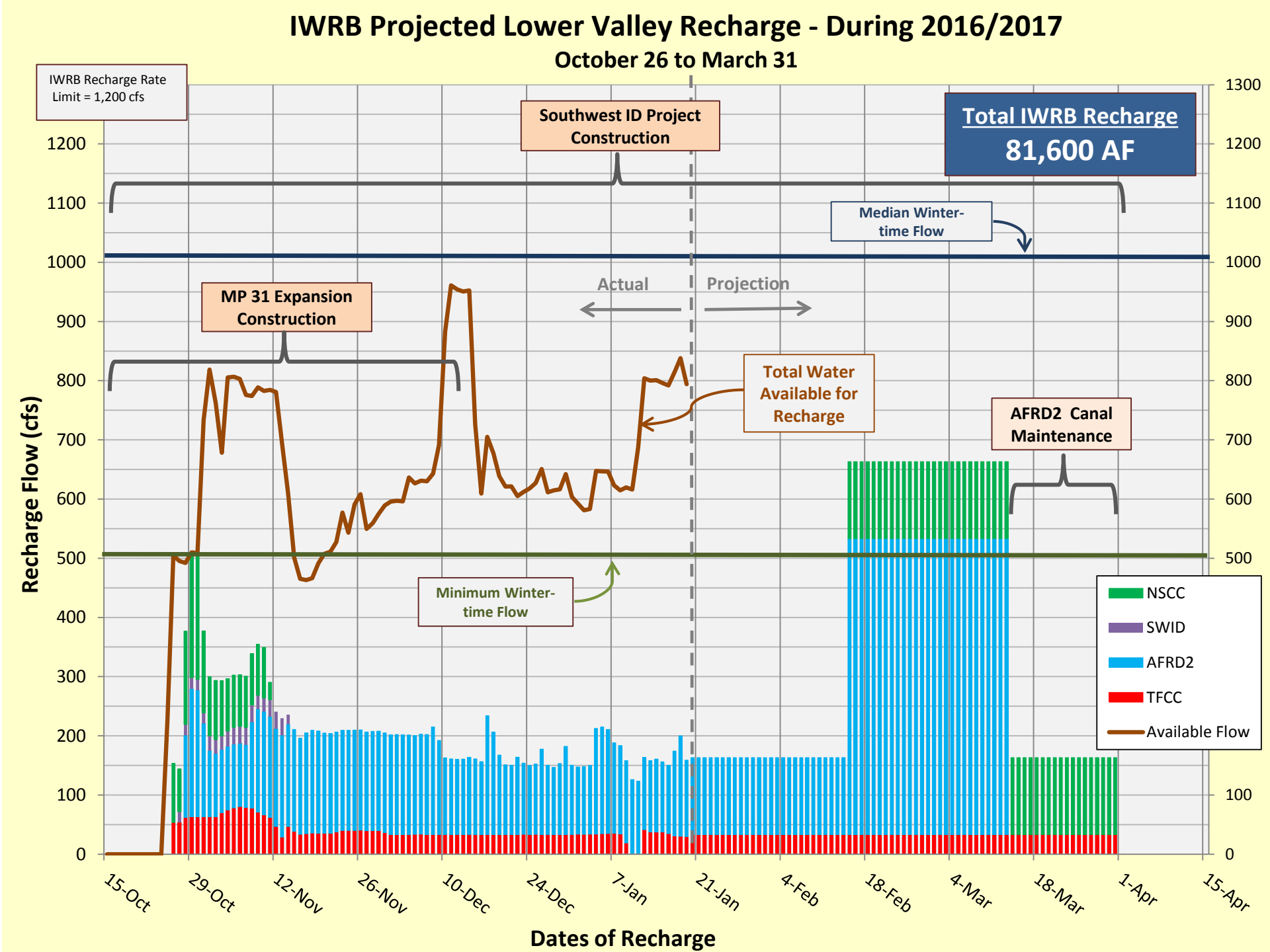
Total Volume of Recharge = **35,941** af (October 25, 2016 to January 19, 2017)



Preliminary Data

ESPA Managed Recharge Program

- IWRB Managed Recharge Update – 2016/2017
- IWRB Managed Recharge Projection
- IWRB Infrastructure Project Updates


IWRB Projected Lower Valley Recharge - During 2016/2017
October 26 to March 31
IWRB Recharge Rate Limit = 1,200 cfs
Southwest ID Project Construction
Total IWRB Recharge
81,600 AF
Median Winter-time Flow
Actual
Projection
MP 31 Expansion Construction
Total Water Available for Recharge
AFRD2 Canal Maintenance
Minimum Winter-time Flow
NSCC
SWID
AFRD2
TFCC
Available Flow
Recharge Flow (cfs)
Dates of Recharge
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
15-Oct
29-Oct
12-Nov
26-Nov
10-Dec
24-Dec
7-Jan
21-Jan
4-Feb
18-Feb
4-Mar
18-Mar
1-Apr
15-Apr

Water Availability for Recharge - Spring

- **Lower Valley Potential Issues**
  - **Projected – 660 cfs available**
  - **Freezing Conditions**
  - **Ice build up in the canals**
- **Upper Valley Potential Issues**
  - **Unknown Volume, Duration, Timing**
  - **Freezing Conditions**
  - **Snow build up in the canals**

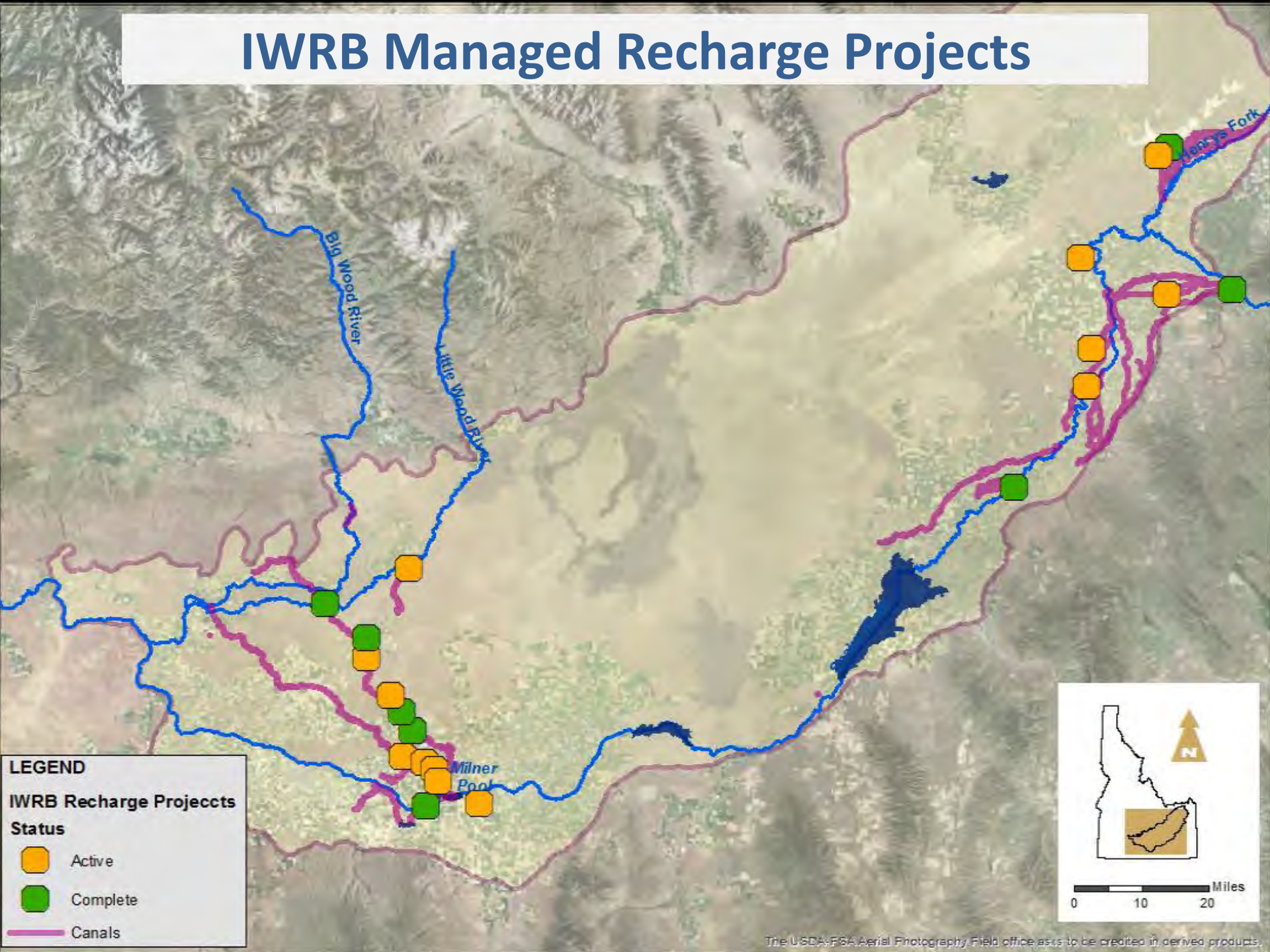
Preparations for Spring Recharge

- **Lower Valley**
  - **Working with Canal Partners to divert more water when potential harm from ice and freezing conditions are no longer a concern**
- **Upper Valley**
  - **Working with USBR to keep abreast of developments**
  - **Ongoing conversations with USBR concerning Winter Water Savings agreements with canals**
  - **Prepared a draft conveyance contract for Recharge Partners**

ESPA Managed Recharge Program

- **IWRB Managed Recharge Update – 2016/2017**
- **IWRB Managed Recharge Projection**
- **IWRB Infrastructure Project Updates**

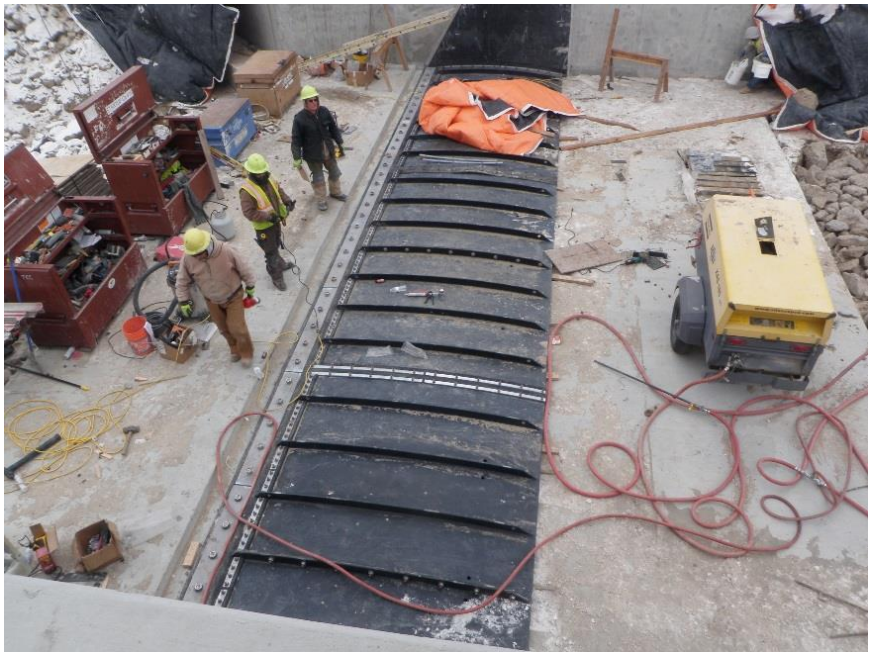
IWRB Managed Recharge Projects



MP 31 Recharge Site Expansion

New Headgate and Check Dam **200 ➡ 500+ cfs**

- **IWRB Cost -** Design , Construction, and Oversight **$2,000,000**
- **Major Construction Complete** **Dec 15, 2016**

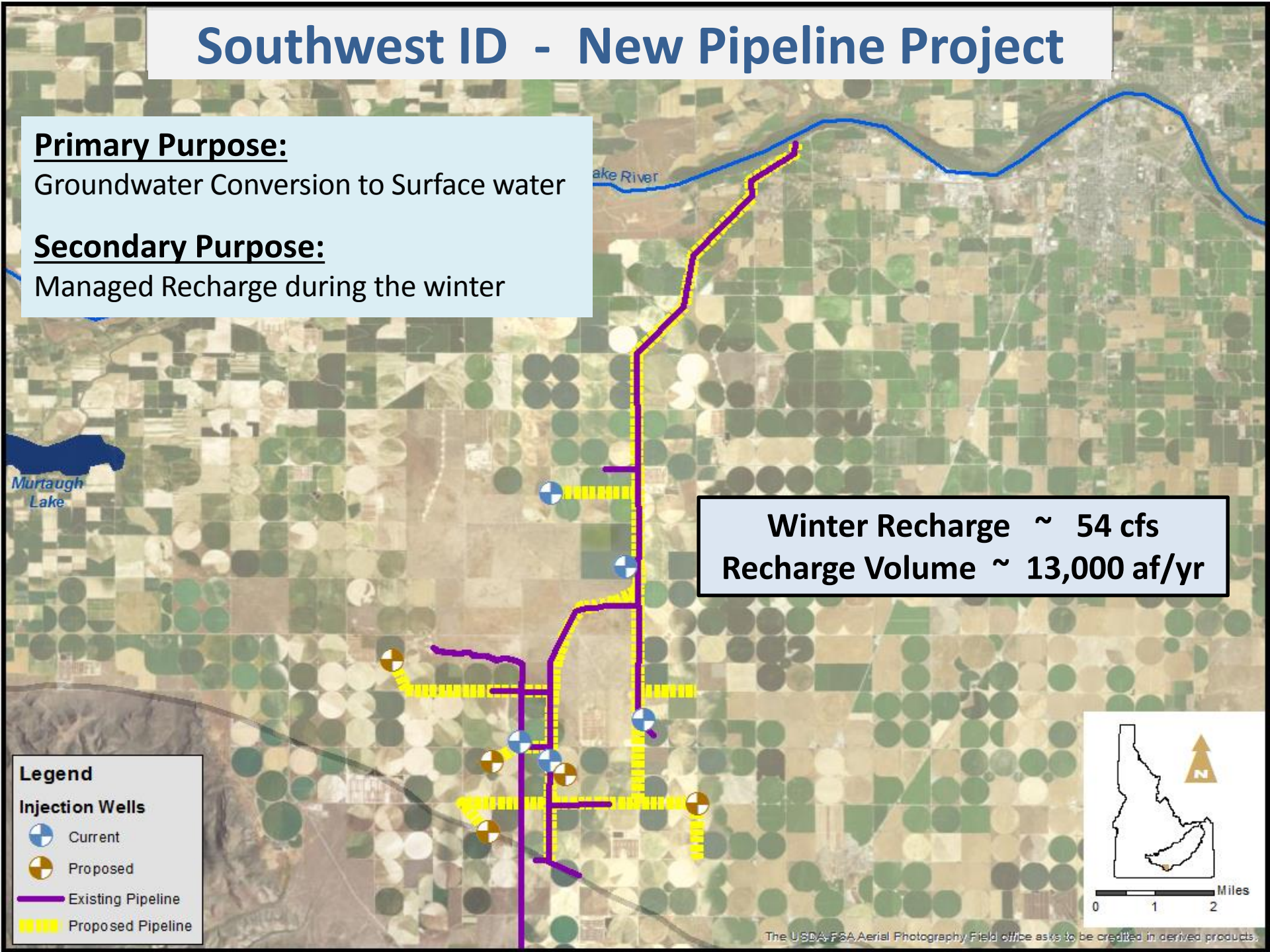


MP 31 Recharge Site Expansion

Southwest ID - New Pipeline Project

Primary Purpose:
Groundwater Conversion to Surface water

Secondary Purpose:
Managed Recharge during the winter



SWID / Buckhorn Pipeline – Winter Recharge

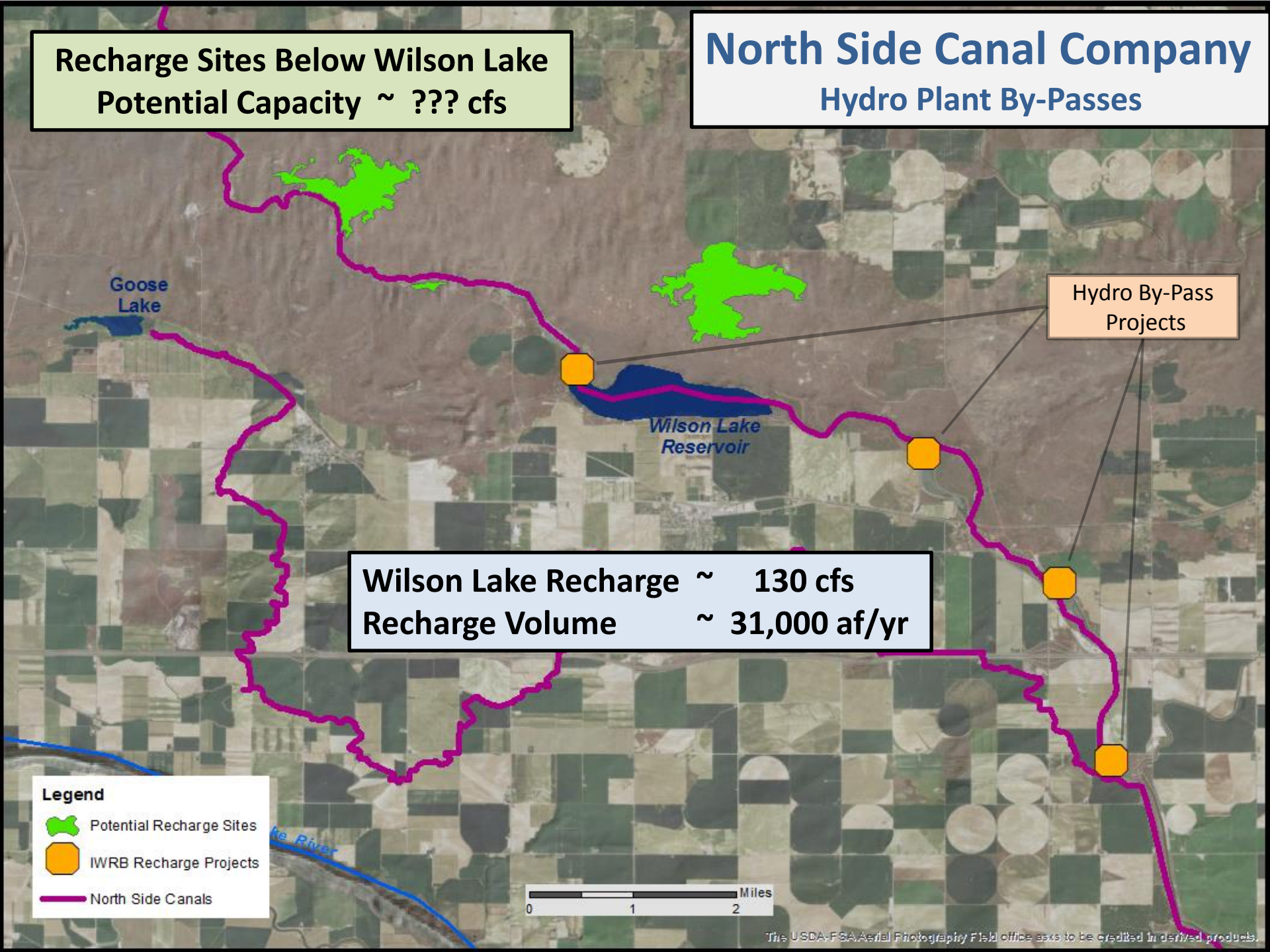
Winter Delivery to Injection Wells	**54 cfs**
• **New Pipeline Cost**	**~$15,000,000**
• **IWRB Cost -** Winter Recharge Design and Construction	**$600,000**
• **Construction Schedule**	
• **Start**	**Sept 2016**
• **80% of Pipe Installed**	**Jan 2017**
• **Construction of Pump Station**	**Started in Jan 2017**
• **Scheduled Completion**	**April 2017**

SWID / Buckhorn Pipeline – Winter Recharge

North Side Canal Company

Hydro Plant By-Passes

Recharge Sites Below Wilson Lake
Potential Capacity ~ ??? cfs



Wilson Lake Recharge ~ 130 cfs
Recharge Volume ~ 31,000 af/yr

North Side Canal - Wilson Lake Winter Recharge

Hydro Plant By-Passes **130 cfs**

- **IWRB Cost -** Design and Construction **$5,000,000**
- **Schedule**
  - **NSCC Re-evaluating Project to Minimize Cost & FERC Involvement**
    - **NSCC, ENEL, & IDA West Meeting** **Jan 17, 2017**
    - **NSCC, CH2M, & IWRB Staff Meeting** **end of Jan 2017**
  - **Design & Construction – Tentative Schedule**
    - **Complete Design** **Mar 2017**
    - **Bid Solicitation** **Apr 2017**
    - **Major Construction** **Fall/Winter 2017**

ESPA Recharge Site Evaluations

Richfield Site - **$46,100**

- Survey Complete 36-46 acres — Dec 2017
- Meeting consultant and Big Wood CC — Feb 2017

South Fork Sites (6 sites) - **$166,000**

- Contracts — Jan 2017
- Evaluation Complete — May/June 2017

Quayles Lake EA/Preliminary Evaluation - **$20,000**

- EA/ Evaluation complete — Spring 2017

New Sweden System Evaluation - **$39,000**

- Preliminary Survey complete — Jan 2017
- Full Evaluation Proposal — Feb 2017

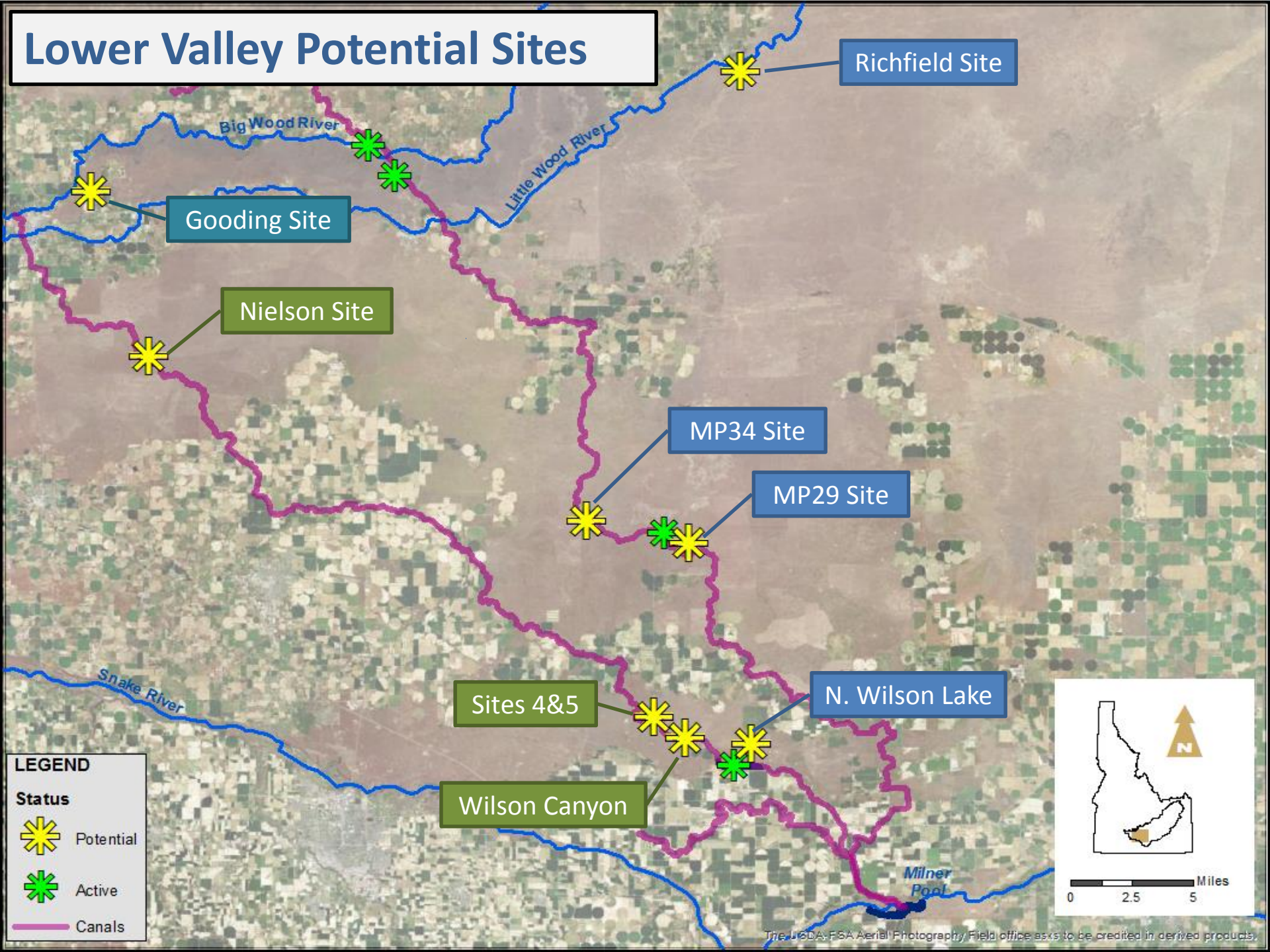
Butte Market Lake Recharge Site & System Evaluation - **$39,000**

- Preliminary ranking of potential sites complete — Jan 2017
- Proposal for recharge site and infrastructure development — Spring 2017

Woodville Canal Site - **$17,000**

- Proposal for recharge site and infrastructure development — Spring 2017

Lower Valley Potential Sites




Questions

Memorandum

To: Idaho Water Resource Board

From: Wesley Hipke

Date: January 13th, 2017

Re: ESPA Managed Recharge Program Status Report

I. 2016/2017 Recharge Season Summary

The IWRB recharge water right came into priority (turned "on") on October 25th downstream of Minidoka Dam. With the assistance of its partners, the IWRB has been conducting managed recharge consistently since October 26th. Above Minidoka Dam the IWRB recharge water right has not come into priority. The priority of the water right above Minidoka Dam is largely dependent on the senior 2,700 cfs unsubordinated water right at Minidoka Dam and the senior water rights for the filling of the reservoir system.

IWRB managed recharge for the 2016/2017 Season started on October 26th in the Lower Valley and has been delivered continuously since then. A summary of the recharge activities for the entities in the Lower Valley this season is provided below, in Table 1, and depicted in Figure 1 (as of January 12th, 2017):

- **Twin Falls Canal Company** (TFCC) – stopped irrigation deliveries on October 24th. After conducting normal maintenance including cleaning the weir at the measurement gage TFCC began IWRB recharge on October 26th and has conducted recharge almost continuously to date (77 days). Recharge was stopped for a couple of days (January 10th and 11th) due to snow melt flowing into Murtaugh Lake. TFCC has diverted 34 cfs (median value) and plans to continue recharge until the start of the irrigation season.

- **American Falls Reservoir District 2** (AFRD2) – began IWRB managed recharge on October 28th after conducting required canal maintenance. AFRD2 has conducted recharge continuously, diverting 158 cfs (median value) for 77 days. Freezing conditions and construction of the new check dam and headgates at the MP31 Recharge Site have limited the volume of recharge AFRD2 has been able to conduct this season. Due to ice forming on the canal below the MP28 hydroplant the diversion rate was reduced from around 170 cfs to approximately 120 cfs on December 10th. These sub-freezing conditions continued through the month of December preventing AFRD2 from increasing recharge diversion once construction at the MP31 Recharge Site was completed (mid-December). The Milner-Gooding canal will be closely monitored to

determine when recharge flows can be increased safely to utilize the new infrastructure at the MP31 Recharge Site. AFRD2 is currently planning to end recharge mid-March to perform required canal maintenance.

- **Southwest Irrigation District** (SWID) –conducted IWRB managed recharge for 19 days, beginning on October 26th (24 cfs, median value) from their Cassia pipeline system (diverting from the Milner Pool). Recharge was discontinued due to freezing conditions and work on the pump stations related to the installation of the new Buckhorn pipeline. At this time, SWID is not planning to conduct IWRB managed recharge in the spring, however, that could change as the construction of the pipeline progresses this winter.

- **North Side Canal Company** (NSCC) – started conducting IWRB managed recharge on October 26th utilizing their main canal and Wilson Lake (89 cfs, median value) for 17 days. NSCC shut down due to freezing conditions but plans to begin IWRB managed recharge utilizing their canal system and Wilson Lake as soon as freezing conditions are no longer a concern to the canal infrastructure.

Table 1. ESPA IWRB Managed Recharge from Oct. 26th, 2016 to Jan. 12th, 2017

ESPA Area	Canal System	Median Recharge Rate (cfs)	Days Recharged	Volume Recharged[1] (af)
Lower Valley	Twin Falls Canal Company	34	77	6,403
	American Falls Reservoir District No. 2 (Milner-Gooding Canal)	158	77	22,711
	Southwest Irrigation District	24	19	902
	North Side Canal Company	89	17	3,628
			TOTAL	**33,644**

[1] Recharge Volumes are preliminary and subject to change upon verification of the number of days and volumes delivered.

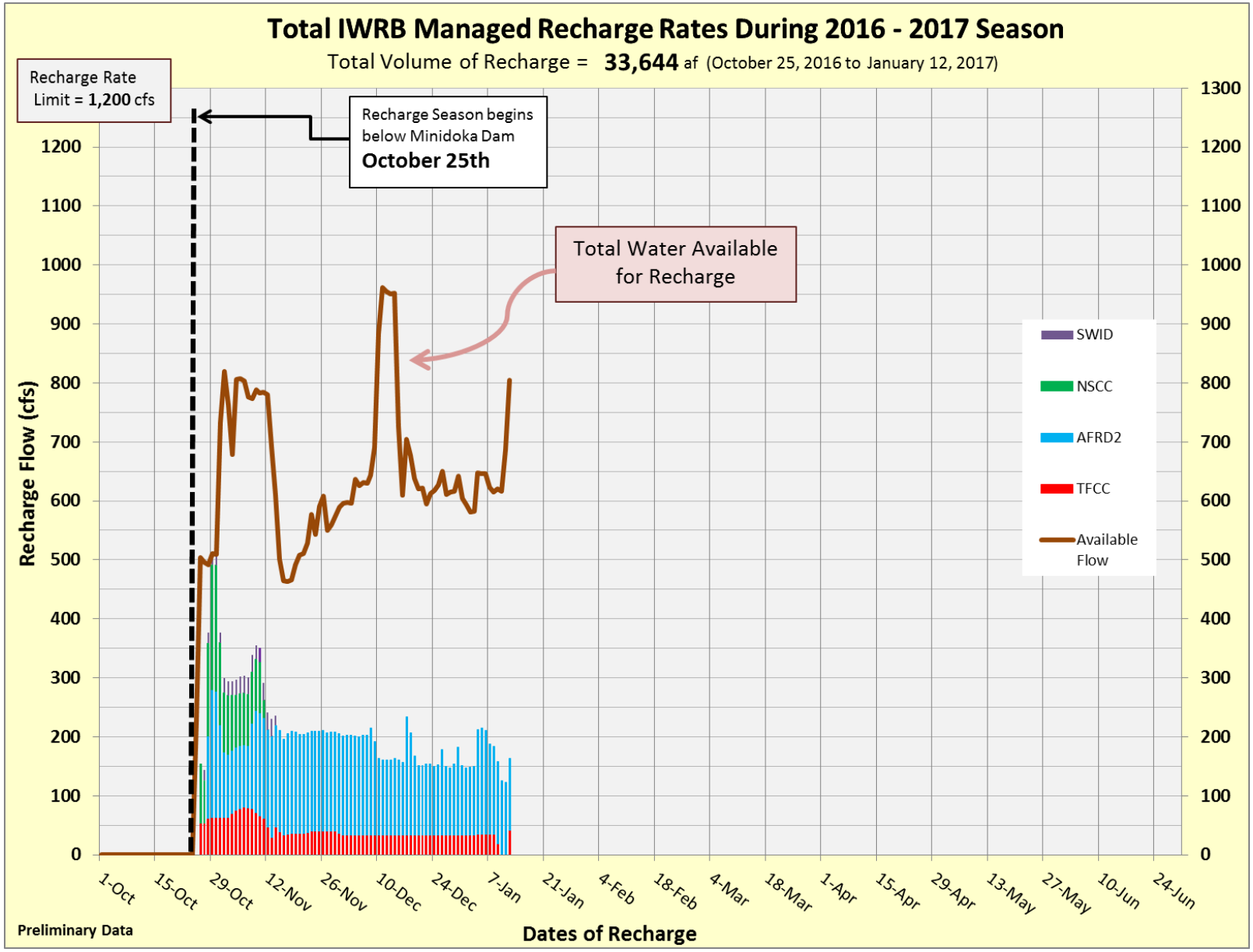


Figure 1. IWRB 2016-2017 Manage Recharge

II. 2016/2017 Recharge Season Projections

Last September it was predicted that water available for managed recharge in the Lower Valley would be limited to the minimum 500 cfs below Minidoka Dam and water would not be available for recharge above Minidoka Dam. The volume of water remaining in the reservoir system after the 2016 irrigation season was low at 26% of full (58% of average and 70% of 2015). With the reservoir system low and a normal precipitation weather forecast, the prediction for water available for recharge above the minimum was low.

December and the first part of January have proven to be above normal precipitation with the snow pack in Easter Idaho between 127% and 140% (as of January 9th). This increases the potential for excess water being available for managed recharge. However, there are a lot of variable that can effect if the Bureau of Reclamation will release water for flood control considering the reservoir system, at the time of this memo, is at 52% full.

In the Lower Valley the projection shown in Figure 2 assumes that there will be sufficient water available to meet the potential capacity that will be available in the Lower Valley. The potential managed recharge capacity takes into account the IWRB's partner maintenance and construction schedules. The projection also assumes that freezing conditions that limit the delivery of managed recharge will have subsided by the middle of February.

The potential for water being available for managed recharge in the Upper Valley will be closely monitored to take advantage of that opportunity if it occurs.

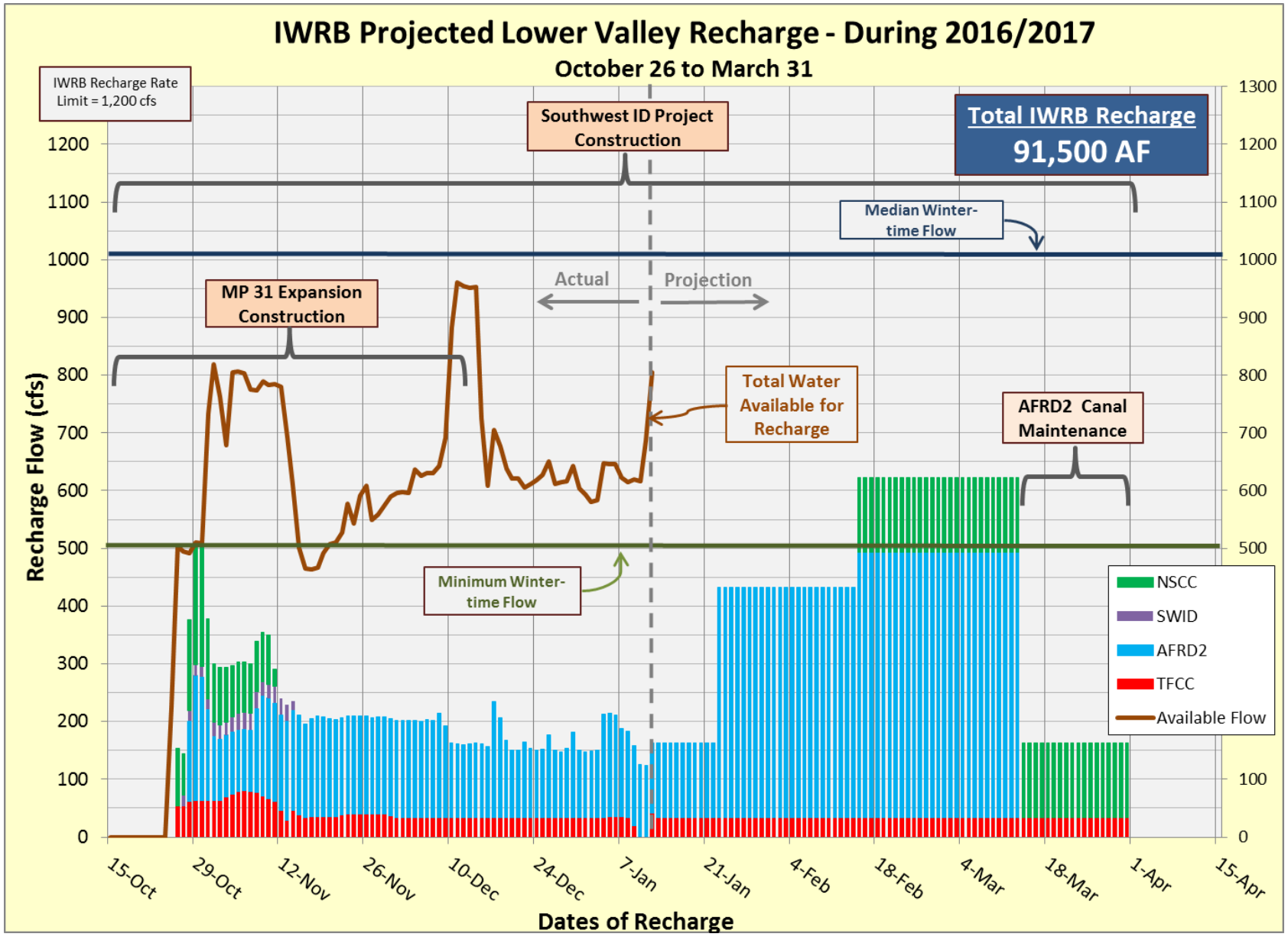


Figure 2. Actual IWRB Recharge in the Lower Valley from Oct. 26th to Jan. 12th, projected recharge from Jan 13th to Mar. 31st.

III. ESPA Recharge Program Projects and Buildout Activities

A number of projects have been undertaken to enhance the IWRB's ability to recharge in the ESPA. The following summary is a brief overview of the projects the IWRB is currently undertaking to meet the managed recharge goal of an average 250,000 af/yr.

For managed recharge projects involving infrastructure improvements to which the IWRB provided funding, a Memorandum of Intent (MOI) was developed to establish a long-term agreement (twenty years) between the IWRB and the entity implementing the project. The MOI acknowledges: 1) the IWRB provided financial assistance for a project; and 2) the entity agrees to deliver the IWRB's recharge water as compensation for financial assistance from the IWRB.

ESPA Managed Recharge Infrastructure Project Summary

In the Lower Valley, the IWRB is currently working with various canal companies to complete additional construction projects totaling almost $6 million this fiscal year (July 2016 through June 2017). The IWRB is also investing over $1.5 million to evaluate, design, and construct potential managed recharge related projects in the Upper Valley over the next year. Initial evaluations in the Upper Valley are required to determine the managed recharge potential and will likely lead to additional construction projects within the next two years.

A summary and status of the current projects in the Lower Valley and Upper Valley are included in Tables 2 and 3, respectively. IWRB staff with the assistance of Hydrology staff are gathering preliminary elevation data for potential managed recharge sites below Wilson Lake on the North Side canal and on the Milner-Gooding Canal. This data will assist in determining which potential sites will require further evaluation.

Table 2. IWRB ESPA Managed Recharge Projects - Lower Valley						
IWRB Partner	**Project Name**	**Project Type**	**Status**	**Approved Funds**	**Scheduled Completion**	**Description /** Key Items
AFRD2	Dietrich Drop Hydro Plant Winter By-pass	Design / Construction	On Hold	$1,500,000	Fall/Winter 2017	**Winter recharge by-pass of the Dietrich Drop Hydro plant** • AFRD2 assessing alternatives for by-passing the hydroplant
AFRD2	MP31 Expansion	Design / Construction	Complete	$2,000,000	December 2016	**New check dam and headgate to the recharge site** • Testing of the new infrastructure delayed due to freezing issues in the Milner-Gooding Canal

North Side CC	Hydro Plants (4) Improvements for Winter By-pass	Design / Construction	Active	$5,074,581	Fall/Winter 2017	**Winter recharge by-pass of the hydro plants between the Milner Pool and Wilson Lake**
						• Design 80% complete.
						• NSCC waiting on response from FERC
						• Tentative schedule:
						  o Design complete – April 2017
						  o Construction Bid – May/June 2017

Southwest ID	Buckhorn Pipeline	Construction	Active	$600,000	April 2017	**$15 million dollar new pipeline - IWRB funding recharge related infrastructure** • 80% of pipeline installed • Start construction of pumping station – January 2017
Big Wood CC	Richfield Recharge Site	Evaluation	Active	$46,100	January 2017	**Survey and analysis of the potential site** • Big Wood CC and IWRB Staff will meet to discuss feasibility of potential site – Jan/Feb 2017 • If Big Wood CC decides to move forward with the site next step will be to obtain a proposal & cost estimated for developing the site.

Table 3. IWRB ESPA Managed Recharge Projects - Upper Valley						
IWRB Partner	**Project Name**	**Project Type**	**Status**	**Approved Funds**	**Scheduled Completion**	**Description /** Key Items
South Fork canal companies	South Fork Managed Recharge Site Evaluations	Evaluation	Contracting	$166,000	Spring/Summer 2017	**Working with Great Feeder, Farmers Friend, & Enterprize canals to evaluate potential recharge sites in the South Fork area** • Finish contracting with partners – Tentative Jan 2017 • Tentative Completion – May/June 2017 • Next step – determine what sites to construct and obtain proposals & cost estimates.
Fremont-Madison ID	Quayles Lake EA/Evaluation	Evaluation	Active	$20,000	Spring 2017	**Preliminary evaluation and EA for the Quayles Lake recharge area** • Next step – proposals & cost estimates for developing the site
New Sweden ID	New Sweden Preliminary Canal System Survey	Evaluation	Active	$39,000	January 2017	**Preliminary survey of the New Sweden system and hydraulic modeling** • Preliminary survey and modeling for necessary data to develop the system evaluation • Feb 2017 - Submit full proposal to evaluate the New Sweden canal system and managed recharge potential
Butte Market Lake Co.	Managed Recharge Canal System Evaluation	Evaluation	Active	$39,000	Spring 2017	**Evaluation of potential recharge sites and canal infrastructure improvements** • Preliminary ranking of potential sites complete • Next step – determine what sites / infrastructure to construct and obtain proposals & cost estimates.
Woodville CC	Managed Recharge Site Evaluation	Evaluation	Active	$17,000	Spring 2017	**Evaluation of potential recharge site** • Next step – determination to construct and obtain proposals & cost estimates.

TO: Idaho Water Resource Board

FROM: Neeley Miller, IDWR Planning and Projects Bureau

DATE: January 13, 2017

RE: Regional Conservation Partnership Program (RCPP)

ESPA RCPP

The Regional Conservation Partnership Program (RCPP) replaced the Agricultural Water Enhancement Program (AWEP) in the 2014 Farm Bill. The RCPP encourages partners to join in efforts with producers to increase the restoration and sustainable use of soil, water, wildlife and related natural resources on regional or watershed scales.

The Board submitted an RCPP funding proposal in September 2016 focused on stabilization of the Eastern Snake Plain Aquifer (ESPA). The Board's RCPP proposal requested Natural Resources Conservation Service (NRCS) Environmental Quality Incentives Program (EQIP) funds to target high priority actions identified by the State of Idaho to stabilize and recover ground water levels in the ESPA and stabilize and recover spring discharges from the ESPA to help maintain the minimum stream flows in the Snake River.

The Board's RCPP proposal included several collaborating partners: : Idaho Department of Water Resources, Trout Unlimited, Wood River Land Trust, The Nature Conservancy, Idaho Department of Fish and Game, Ag Spring, Idaho Ground Water Appropriators, Ducks Unlimited, MillerCoors, General Mills, and Idaho Soil and Water Conservation Commission. These partners committed to providing financial assistance and technical assistance for RCPP projects. These entities all provided letters of support for the RCPP proposal.

In December NRCS announced that the Board RCPP proposal would receive funding in the amount of $5,177,185 million for 2018 through 2020. The projects outlined within the Board's proposal to support the State of Idaho's on-going efforts to stabilize and recover the ESPA include: 1) Ground to Surface Water Conversions, 2) End Gun Removal/Conversion to Dryland, 3) Fallowing, 4) Flood Irrigation Enhancements.

This spring Board staff plans to coordinate with NRCS staff to develop a Memorandum of Understanding (MOU) between the Board and NRCS. Additionally, Board staff will work with collaborating partners and NRCS to develop a timeline for sign-up, ranking and obligation of funds. At this point it looks like sign-ups will be held in fall of 2017.

Attachment(s):
1) NRCS funding news release
2) Capital Press article on RCPP funding
3) NRCS map showing distribution of RCPP projects nationwide.

USDA
United States Department of Agriculture

News Release

Natural Resources Conservation Service
9173 W. Barnes Drive, Suite C
Boise, ID 83709
Voice 208.685.6976
Web: http://www.nrcs.usda.gov

Release No. 17-3

Contact:
Mindi Rambo, Public Affairs Specialist, 208-378-5720

USDA Invests $225 Million in Innovative Conservation Partnerships Nationwide
Idaho receives funding for three projects

BOISE, Idaho, Dec. 21, 2016 –Agriculture Secretary Tom Vilsack has announced that 88 high-impact projects across the country will receive $225 million in federal funding as part of the USDA's Regional Conservation Partnership Program (RCPP). In addition, partners have proposed to contribute up to an additional $500 million to improve the nation's water quality, combat drought, enhance soil health, support wildlife habitat and protect agricultural viability.

With the announcement, the USDA's Natural Resources Conservation Service (NRCS) is investing a total of $825 million in 286 projects, bringing together more than 2,000 conservation partners who have committed an estimated $1.4 billion in financial and technical assistance. By 2018, NRCS and its partners, including Indian tribes, nonprofit organizations, state and local governments, private industry, water districts, universities and many others, will have invested at least $2.4 billion through RCPP, which was created by the 2014 Farm Bill.

RCPP offers new opportunities for the NRCS, conservation partners and agricultural producers to work together to harness innovation, expand the conservation mission, and demonstrate the value and efficacy of voluntary, private lands conservation. The program is increasing investment in conservation from a diversity of partners, leading to cleaner and more abundant water, improved soil and air quality, enhanced wildlife habitat and stronger rural economies.

USDA-NRCS is investing $5,177,185 in the Idaho Eastern Snake River Plain Aquifer Stabilization Project. In partnership with NRCS, the Idaho Water Resource Board and local organizations will implement four actions to stabilize and recover ground water levels in the Eastern Snake River Plain Aquifer. Those actions include: ground to surface water conversions; end gun removal/conversion to dryland; fallowing; and flood irrigation enhancements. The project will benefit agriculture, industry and municipalities on the Eastern Snake River Plain.

The importance of water in Idaho cannot be overstated," said Curtis Elke, NRCS state conservationist for Idaho. "We are excited to be working with the Idaho Water Resource Board and their partners on this project to help recharge and stabilize the Eastern Snake River Plain Aquifer, which is essential to the people of this state."

NRCS is also investing $719,100 in the Portneuf River Fish Passage and Water Management Project. The Portneuf River provides an important habitat for salmonid fish and is a significant source of irrigation water for the Shoshone Bannock Tribes and Fort Hall Irrigation Project. In order to meet the area's irrigation needs, the Bureau of Indian Affairs has been reconstructing a rock check dam immediately downstream of the pumping station annually to adjust the water level as necessary. This rock dam is the greatest obstruction to fish movement in the Lower Portneuf River and is a labor-intensive and difficult way to regulate the main channel water flow. Through this project, the Shoshone-Bannock Tribes and partners will construct a fish passage channel and an irrigation check structure. Fish passage access will normalize feeding patterns and allow access to better habitats, increasing fish survivability rates overall. In addition, the ability to better manage river flow will make more water available for the Tribal Water Bank leasing program, increasing drought resiliency and providing greater regional water security.

"We are proud to be able to assist the Shone Bannock Tribes and their partners with this fish passage project which has far reaching benefits for the tribes and their neighbors in Southeastern Idaho," Elke said.

The third RCPP project funded in Idaho is the Teton Valley Soil, Water and Wildlife Project. NRCS will invest $825,490 to help a group of four partners led by the Friends of the Teton River address growing concerns related to the loss of agriculture and associated wildlife habitat in Teton Valley. The project is designed to assist the partners in implementing market-based solutions to address water quality and quantity issues that impact farmers and wildlife populations.

"This project is a prime example of Idahoans coming together to preserve their agricultural roots and natural resources for the benefit of future generations," Elke said.

#

Mindi Rambo
Public Affairs Specialist
Natural Resources Conservation Service
United States Department of Agriculture
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Capital Press
The West's Ag Website

Grant to provide relief to IGWA settlement participants

Three Eastern Idaho agricultural projects recently received USDA grant funding through the Natural Resources Conservation Service's Regional Conservation Partnership Program.

John O'Connell • **Capital Press**
Published on December 23, 2016 1:59PM

Bob Andrel/Idaho Department of Fish and Game White-faced ibises feed in a flood-irrigated pasture in the Mud Lake area of Eastern Idaho. USDA's Natural Resources Conservation Service recently awarded three grants for Eastern Idaho agricultural projects, including one encompassing an effort to retain flood irrigation near the lake to benefit wildlife and boost the aquifer. #

IDAHO FALLS, Idaho — A nearly $5.18 million grant recently awarded by USDA's Natural Resources Conservation Service should provide relief for Eastern Snake Plain groundwater users, who have agreed to cut back on irrigation to reverse declines to their aquifer.

The Idaho Eastern Snake River Plain Aquifer Stabilization Project was among three Eastern Idaho efforts NRCS supported with Regional Conservation Partnership Program funds.

"The $5 million, I think that's as much as we've gotten in quite a while, and the things (NRCS) is really concentrating on are some of our high priorities," said Idaho Water Resource Board Chairman Roger Chase.

Nationally, NRCS funded 286 projects, for a combined $825 million investment.

The Snake River project provides incentives for drying farm ground or removing pivot end-guns, "soft" conversions of sprinklers from groundwater to surface water, installing well flow meters and improving infrastructure to retain flood irrigation to bolster the aquifer and benefit wildlife.

Lynn Tominaga, executive director of Idaho Ground Water Appropriators Inc., expects the bulk of the grant will go toward flow meters and end-gun removal. Tominaga said about 3,500 of the roughly 4,900 wells on the plain are now metered, and all wells will be required to have the devices by 2018. Tominaga said IGWA also received $1.6 million toward installing flow meters last year from the Bureau of Reclamation and plans to request additional funds toward meters from NRCS in its next spending cycle.

Tominaga believes the grant will go a long way toward helping his members meet terms of a 2015 water call settlement agreement with the Surface Water Coalition, requiring well irrigators to reduce water use by 12 percent annually on average.

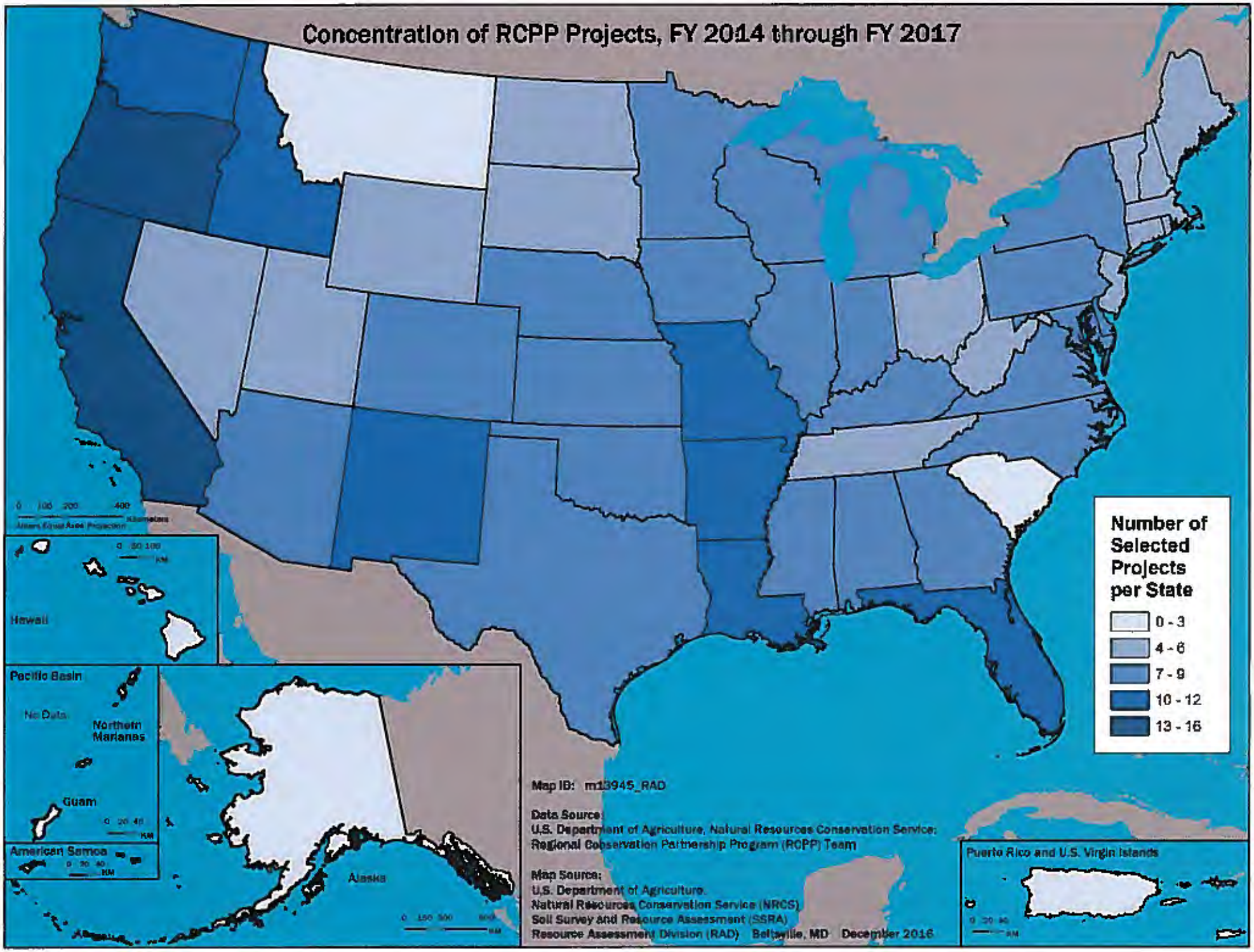
Neeley Miller, senior water resource planner with the Idaho Department of Water Resources, said terms of the programs must still be negotiated. He noted partner organizations have also made contributions, including $900,000 in in-kind monitoring and measurement by his department, $225,000 toward acquiring water for soft conversions and $4 million toward installing flow meters by IGWA, $30,000 in financial and technical assistance by the Idaho Department of Fish and Game, $15,000 in technical assistance by the Nature Conservancy, $7,500 in technical assistance by the Wood River Land Trust and $6,000 in technical assistance by Ducks Unlimited.

The Fish and Game Department and Ducks Unlimited will assist with a project to help growers upgrade flood irrigation systems, targeting the Mud Lake and Market Lake areas. Sal Palazzolo, Fish and Game's public lands coordinator, said flooded fields provide critical feeding habitat for water fowl, including the white-faced ibis.

However, flood irrigation is rapidly disappearing, as growers convert to sprinklers. The two lakes are also in an area where flood waters that seep into the aquifer are retained for an especially long period.

NRCS also awarded $719,000 to the Shoshone-Bannock Tribes to improve a Portneuf River dam, which should aid in both fish passage and irrigation management, and $825,000 for projects involving Friends of the Teton River, the Teton Regional Land Trust and the Teton Water Users Association. The groups plan to acquire agricultural land conservation easements to protect farms from development. The grant will also support projects aimed at improving stream and river water quality and promoting no-till farming.

"It's really about working with farmers who want to stay on their land and finding ways we can support them," said Joselin Matkins, the land trust's executive director.


Concentration of RCPP Projects, FY 2014 through FY 2017
Number of Selected Projects per State
0 - 3
4 - 6
7 - 9
10 - 12
13 - 16
Hawaii
Pacific Basin
No Data
Northern Marianas
Guam
American Samoa
Alaska
Puerto Rico and U.S. Virgin Islands
Map ID: m13945_RAD
Data Source:
U.S. Department of Agriculture, Natural Resources Conservation Service;
Regional Conservation Partnership Program (RCPP) Team
Map Source:
U.S. Department of Agriculture
Natural Resources Conservation Service (NRCS)
Soil Survey and Resource Assessment (SSRA)
Resource Assessment Division (RAD) Beltsville, MD December 2016

SEE TAB 10 IN THE MEETING MATERIALS SECTION

TO: Idaho Water Resource Board

FROM: Brian Ragan, Water Distribution Section

DATE: January 23, 2017

RE: Surface Water Coalition and Idaho Ground Water Association Settlement Agreement Update

A year ago almost to the day you were updated on the status of the Settlement Agreement ("Agreement") executed on October 19, 2015 between the Surface Water Coalition ("SWC") and the Idaho Ground Water Association ("IGWA"). This memo provides an opportunity to again update the Board on the current status of the Agreement. The focus of this presentation will be on the following topics: **(1)** ground water level data collection and monitoring in the sentinel wells; **(2)** public data interface tools such as WMIS Online and Hydro-Online; **(3)** Technical Working Group ("TWG") meeting; **(4)** Steering Committee ("SC") meeting; **(5)** Ground Water Districts ("GWD") reduction efforts and recharge; and **(6)** the installation of measuring devices required by IDWR's 2016 Measurement Order.

Topic One: Ground Water Level Data Collection and Monitoring

Starting in March 2016, IDWR staff has manually collected monthly ground water level measurements in 18 of the 20 sentinel wells identified in the Agreement. The other two sentinel wells were and will continue to be manually measured quarterly by the USGS, after which IDWR imports the data into its internal database. Additionally, 16 of the 20 sentinel wells have been instrumented with electronic data logging devices which record the instantaneous water level in the well twice per day which can then be retrieved during a site visit. Of the four wells not currently instrumented, three cannot by physically instrumented as constructed and the other one owned by the USGS. The USGS reports to IDWR that the sentinel owned by them will be instrumented this year.

Topic Two: WMIS Online and Hydro-Online

In February 2016, IDWR was asked by the IGWA, member ground water districts, and their technical consultants to improve the availability and public acquisition of annual volumetric ground water diversion data for wells on the ESPA currently stored in IDWR's Water Measurement Information System ("WMIS"). In particular, they wanted the ability to query, view, and download data in a public facing mapping application with the ability to overlay other IDWR data such as water rights, administrative boundaries, and aerial imagery. Over the course of several months, IDWR staff from various programs coordinated with the IGWA users to determine how this mapping application would look and work. This mapping application end product entitled "Water Measurement Map" went live on IDWR's website in mid-summer of 2016 and is seeing increased use by IGWA members, consultants, and water district hydrographers.

Hydro-online is a database maintained by IDWR which holds ground water level ("GWL") data for over 27,000 wells (1,100 measured regularly) including all 20 sentinel wells identified in the Agreement. Like WMIS on-line, this database has a public facing mapping application where users can view, query, and download data for analysis. Unlike WMIS on-line however, this database and mapping application has existed in various forms for more than a decade, but has recently been upgraded to what is currently seen on IDWR's website.

Topic Three: TWG Meeting Summary

Most recently, the TWG met by conference call on November 9, 2016. The call was attended by the consultants and legal counsel for the SWC and IGWA as well as IDWR staff. The agenda items discussed were (1) sentinel wells instrumentation and data; (2) WMIS on-line usage and training material/workshops;

(3) IGWA/GWD methods for establishing three-year baseline and measurement of reduction in use; (4) Performance Report summary format (spreadsheet or tool or pro forma). A brief discussion related to agenda item 1 covered the concept of sending the GWL transducer data to IDWR via a telemetry network to allow near real-time viewing. This was not deemed necessary by the TWG parties as the data, collected twice a day, does not fluctuate much over this timeframe and this data is already available on a monthly basis.

A topic requiring further consideration and action by the TWG is the proposal to reduce the frequency of collecting manual GWL measurements from monthly to quarterly. The TWG meeting will discuss this topic at a future meeting after reviewing the existing data then, if supported, sent to the SC for formal authorization.

Topic Four: **Steering Committee Meeting Summary**

A meeting was hosted in Burley, Idaho on November 30, 2016, by the SC which is informally comprised of one or two representatives from each of the members in the SWC and IGWA. The agenda items discussed were (1) State sponsored recharge efforts; (2) sentinel well measurement efforts and results; (3) WMIS on-line usage and enhancements; (4) Department status report on Methodology Order; and (5) agreement implementation reports by each ground water district.

I attended this meeting with several other Board members and Department staff and I can report that the meeting was quite positive and well received by both IGWA and the SWC. During the implementation reports, as each member of IGWA described the efforts undertaken by their district to comply with the agreement and be fair to their constituents, it was clear how seriously they are taking this all the while recognizing "we are all in this together". It was also clear they recognize it is in the best interest of the State of Idaho that the ultimate goal of replenishing ground water volumes in the East Snake Plain Aquifer be achieved. In response to IGWA's implementation report, members of the SWC made it a point to acknowledge the efforts undertaken and to recognize these efforts were not undertaken by IGWA easily.

Topic Five: **GWD Reduction Efforts**

IGWA's implementation report during the SC meeting carried a "general" sense that they met their reduction goals in 2016, however no actual data was presented. This topic was brought up by several IGWA speakers and although they had confidence in their reduction efforts, they were cautious to celebrate before the actual water usage data was analyzed. It is IDWR's understanding IGWA's consultants are currently analyzing the 2016 water usage and will be preparing a report with their findings which will be ready in late January or early February.

Topic Six: **Measuring Device Installation Progress**

During IGWA implementation report at the SC meeting discussed above, each water district gave an approximate percentage of their users who have installed flowmeters. Although the numbers are not yet finalized, at the SC meeting some ground water districts reported installed percentages as high as 50% to 70%, while some were as low as 10%. IGWA and the GWDs are compiling final meter installation numbers for 2016 and plan to include the information in their reduction effort reports due soon. IDWR is also performing queries on the 2016 WMIS data to get numbers of installed flow meters.

In addition, I recently saw a copy of a letter of support from the IWRB to the US Bureau of Reclamation regarding the North Snake GWD grant application for measurement devices under the WaterSMART Water & Energy Efficiency grant program from USBR. This application, and the IWRB's support letter, is similar to successful WaterSMART grant applications that were awarded to Jefferson-Clark, Bonneville-Jefferson, and Bingham GWDs last year.

IDAHO Water Resource Board

Mountain Home Air Force Base (MHAFB) Water Supply and Pipeline Project

Idaho Water Resource Board Meeting January 23rd , 2017

Randall A. Broesch P.E. • Water Projects Section• Staff Engineer

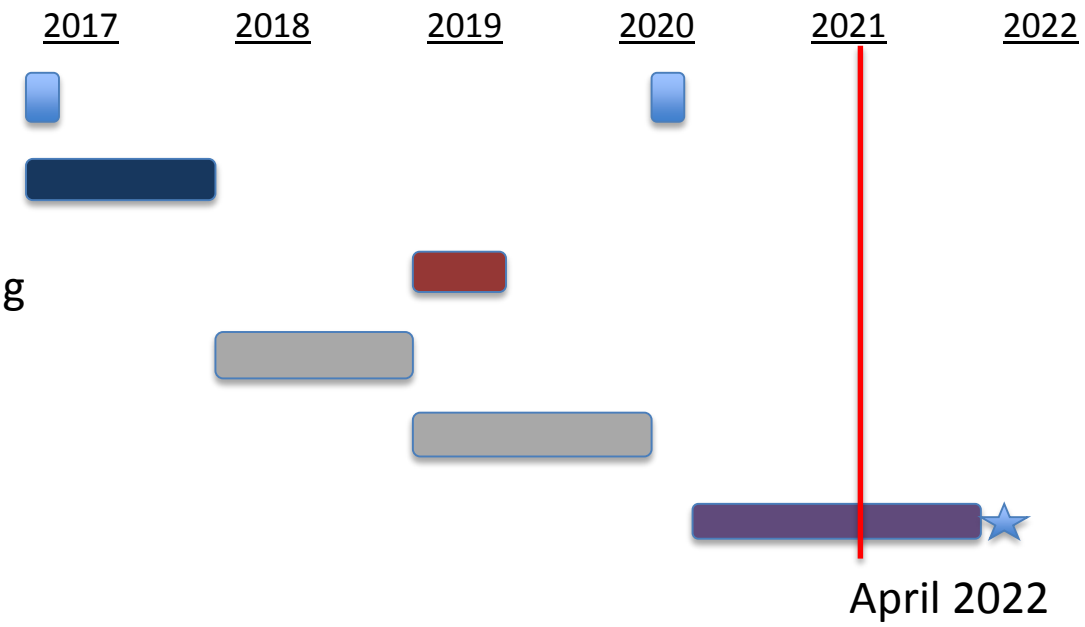
IDAHO
Water Resource Board

MHAFB Water Supply & Pipeline Project

Recap of Last Meeting

- Solicitation for Owner's Advisor
- Delivery Method Selection & Schedule
- Preparation and Negotiations of the Water Utility Service Agreement
- Environmental Assessment

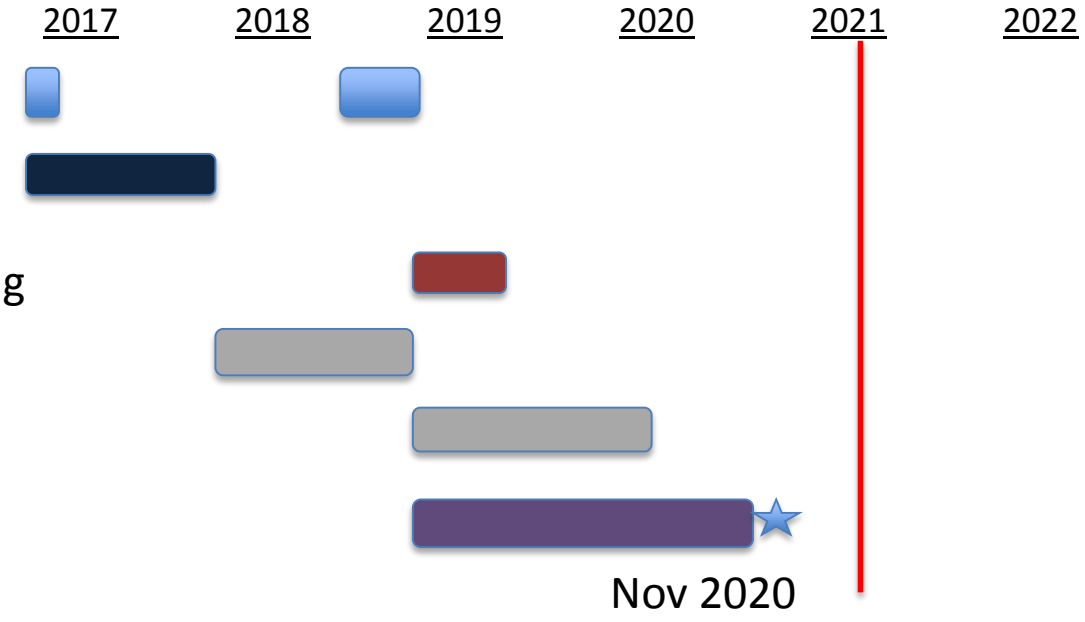
MHAFB Water Supply & Pipeline Project



Traditional Design-Bid-Build

Project Deadline

MHAFB Water Supply & Pipeline Project



MHAFB Water Supply & Pipeline Project

Project Goals

- Support a critical national defense installation so they may continue with their military missions
- Reduce the usage and dependence on groundwater supplies in the Mountain Home Groundwater Management Area
- Protect a $1 Billion annual economic generator for the State of Idaho and economic support to the surrounding communities of Elmore County and the City of Mountain Home

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Water Resource Board

MHAFB Water Supply & Pipeline Project

Work In Progress

- Environmental Assessment (EA) Conducted by MHAFB
  - Kick Off Meeting December 6, 2016
  - Pre-Scoping Meeting January 17, 2017
  - Submittal of BLM Application January 20, 2017

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MHAFB Water Supply & Pipeline Project

Work In Progress

- Water Utility Service Agreement
  - Preparation of a draft agreement
  - Completion Date for the Draft Agreement will be July
  - In time for Initiating the Financial Package for the Construction

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MHAFB Water Supply & Pipeline Project

Work In Progress

- Owner's Advisor Request for Proposals (RFP)
  - RFP Noticed on November 30th
  - Deadline for Submittals January 18, 2017

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MHAFB Water Supply & Pipeline Project

Respondents to the RFP for Owner's Advisor

MWH now part of Stantec

SPF WATER ENGINEERING

Brown AND Caldwell

carollo
Engineers...Working Wonders With Water®

MHAFB Water Supply & Pipeline Project

Owner's Advisor Tasks

- Prepare Facility Plan Report
- Pilot Study/Treatment Technology Selections
- Geotechnical Investigations
- Utility Identification
- Oversight of the Selected Project Delivery Method

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MHAFB Water Supply & Pipeline Project

Steps Ahead

- Owner Advisor's Resolution and Notice to Proceed
- Preparation of Conceptual Documents
- Preparation of the Environmental Assessment
- Preparation of the Draft Water Utility Service Agreement
- Endorsement of the Project Delivery Selection

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Water Resource Board

MHAFB Water Supply & Pipeline Project

Considerations or Questions?

Memorandum

To: Idaho Water Resource Board

From: Randy Broesch

Date: January 12, 2017

Re: Mountain Home Air Force Base Water Sustainability Project

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The following is a status report on the Mountain Home Air Force Base (MHAFB) Water Sustainability Project (Project).

Project Concept

The MHAFB currently relies on groundwater for its water supply, but diverts its water from a critical declining aquifer. The Idaho Water Resource Board (Board) intends to develop a pipeline and water treatment facility to deliver water from the Snake River to the MHAFB as an alternate water supply to their existing use of groundwater. In 2014, with support from the Governor and Idaho State Legislature, the Board purchased senior Snake River water rights from the Simplot Corporation to provide a water supply to the MHAFB. The surface water will be diverted out of the C.J. Strike Reservoir and delivered to the MHAFB where it will be treated and used for Domestic Commercial Municipal and Industrial (DCMI) purposes on the base. The Board is expected to retain the senior water rights and enter into a water utility service agreement with the MHAFB for the delivery of the DCMI water. The Board will undertake the financing, design, construction, and maintenance methods to bring the project to fruition. The Governor's office, the State Legislature, and the Board recognize and are committed to supporting the MHFAB as a $1 Billion annual economic generator in the local Idaho economy.

Project Status

Staff is coordinating regularly with the MHAFB, City of Mountain Home (City), and the Idaho Department of Environmental Quality (IDEQ).

MHAFB-The Core Action Group composed of IWRB and MHAFB Staff continues to meet regularly to exchange project information for the environmental assessment and to define administrative, legal, and financial processes necessary to enter into a water utility service agreement.

City of Mountain Home-Board Members met with the City on August 29th to discuss potential participation in the project. The City expressed its desire to be part of the project, and its intent to continue seeking ways to finance and purchase Snake River water rights in order to secure its participation in the project. Staff intends to meet with the City by early February to discuss the project with the City's new Public Works Director.

IDEQ-Staff has been coordinating with IDEQ to identify project requirements and processes to deliver the proposed project. IDEQ has highlighted the need to develop a facility plan report, identify raw water characteristics for the C.J. Strike Reservoir, complete a pilot study, and prepare a preliminary engineering report. The completion of these items will lead to the design and construction of the proposed project. IDEQ continues to support Staff by providing technical guidance for the procurement of the Owner's Advisor.

Project Delivery Model- Staff has been researching available project delivery types that can accommodate a complex project with a sensitive time constraint. Project delivery models we are currently researching can be categorized into 2 types: 1. Conventional design-bid-build and 2. Collaborative project delivery types

(methods under this category include an array of design-build delivery types). At the November Board meeting, Staff presented timelines for each delivery method. The preliminary timelines indicate that all of the collaborative delivery models can meet the schedule for the project. Staff is working on a decision matrix that will be used to ultimately select which collaborative delivery model best suits the needs of the project. A recommended collaborative delivery model will be presented to the Board for concurrence at the March Board meeting.

Owner's Advisor-At the September and November Board meetings, the Board endorsed a proposal by Staff to procure an Owner's Advisor to provide technical and project management support through implementation of the Project. The Owner's Advisor is expected to have expertise in the fields of water treatment and various delivery model executions in order to oversee the planning, design, and construction phases of the proposed project. A Request for Proposals (RFP) was issued on November 30th with a submittal deadline of January 18th. The current plan is to select and issue a notice to proceed to the Owner's Advisor by the end of February or the first part of March.

Environmental Assessment-The IWRB holds the water right and is developing the infrastructure to convey water across federal land. Therefore, the IWRB is required to submit an application to the Bureau of Land Management (BLM) to secure an easement for the project. The MHAFB rules require an Environmental Assessment (EA) be completed as the recipient of the IWRB's water. To expedite the EA process, the MHAFB and the BLM entered into a cooperative agreement to co-lead the EA for the project, and the MHAFB has hired a private consultant to prepare the EA for the two co-leading agencies. A kickoff meeting for the EA was held on December 6th and a scoping meeting is scheduled for January 17th from 4-6 pm at the City of Mountain Home Public Library. In preparation for the scoping meeting, IWRB Staff has contacted property owners along the pipeline alignments being considered in the EA and provided notice of the upcoming scoping meeting.

Water Utility Service Agreement-Staff and the Board's Financial Advisor have initiated discussions with the MHAFB to determine how connection charges, commodity charges, and lease terms will be structured between the MHAFB and the IWRB. The group has also discussed schedule expectations and the need to coordinate the schedule with the Board's financing package for the design and construction of the project. The group is meeting regularly to expedite a draft agreement.

Schedule -The following is an estimated timeline for milestones in the next 6-months:

6-Month Milestones	**Date**
Award Owner's Advisor	February 2017
Begin Preparing the Facility Plan Report	March 2017
Begin Pilot Study	June 2017
Begin Project Financing Process	August 2017

REQUIRED ACTIONS: In March, staff will seek a funding resolution from the Board to finance the Owner's Advisor.

SEE TAB 9 IN THE MEETING MATERIALS SECTION

SEE TAB 12 IN THE MEETING MATERIALS SECTION

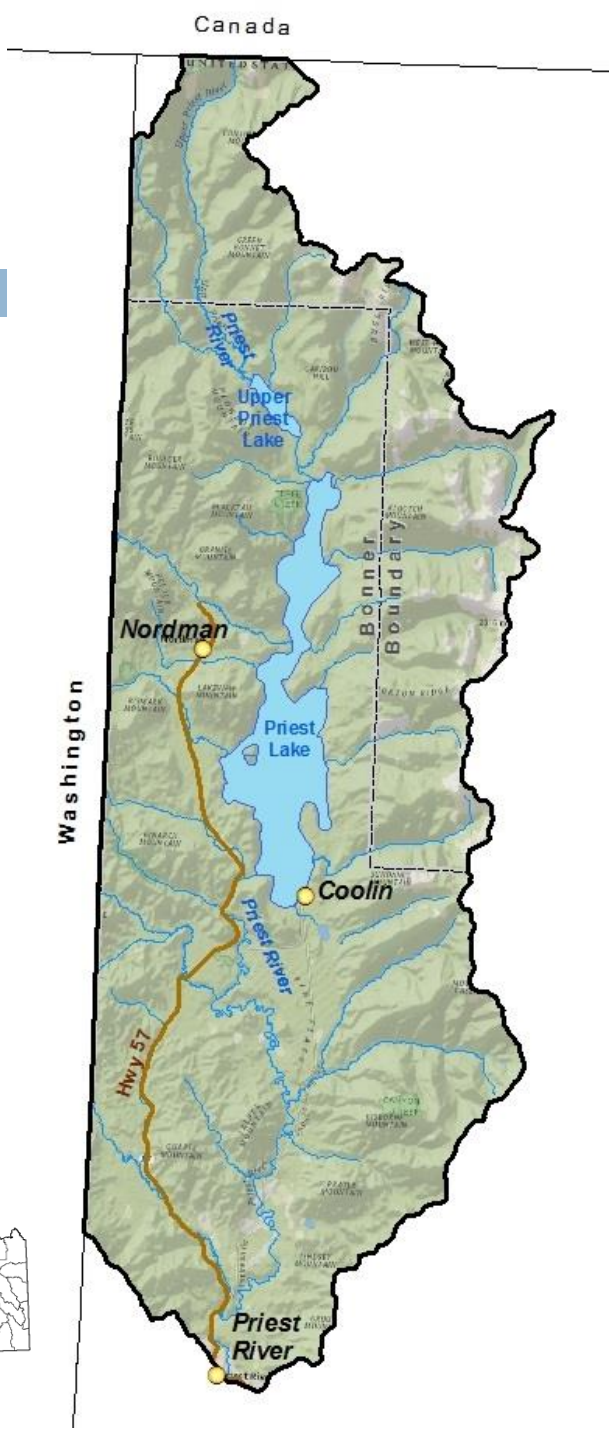
Priest Lake Water Management Study

January 23, 2017

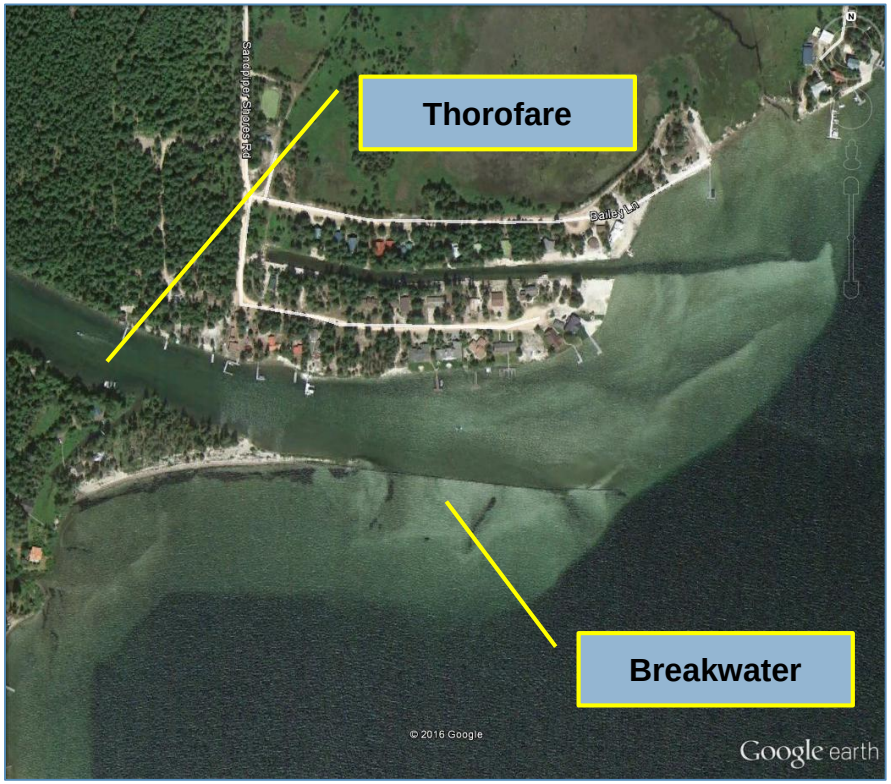
Neeley Miller

Priest Lake System

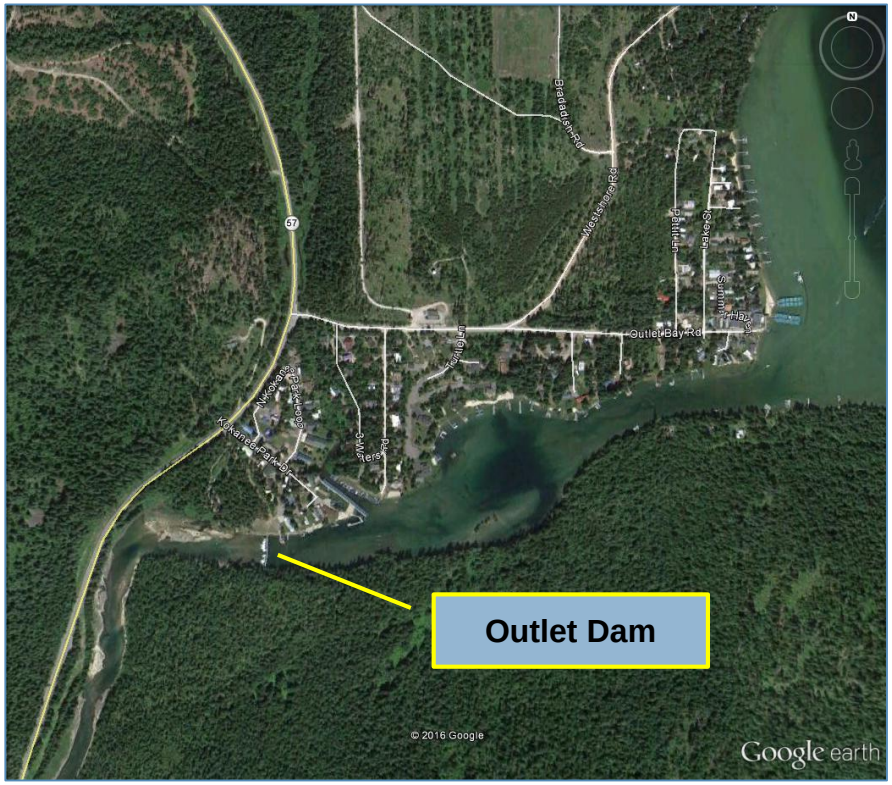
- Priest River Basin
  - 913 sq miles
  - Straddles ID, WA, British Columbia
- Upper Priest Lake
  - 3.3 miles long
  - 1,352 acre surface area
  - 48.2 ft mean depth
- Thorofare
  - Connects upper and lower lakes
  - 2.7 miles long
- Lower Priest Lake
  - 18 miles long
  - 23,680 acre surface area
  - 94.5 ft mean depth
- Priest River
  - Flows 45.5 miles from outlet to confluence with Pend Oreille River near City of Priest River



Priest Lake System – Primary Features



Thorofare and Breakwater Structure



Outlet Dam

Priest Lake Water Management Study

- **Problems:**
  - 2015 and 2016 dry-year conditions made it difficult to maintain required summer lake levels and downstream flows
  - 2017 is on-track to be another dry-year in the Priest River Basin
  - The Thorofare is at times inaccessible due to sedimentation

- **Actions:**
  - IWRB authorized expenditure of up to $300,000 to initiate the Priest Lake Water Management Study
  - RFP issued in Fall of 2016
  - IWRB Funded new gage (12393501) four miles downstream from Outlet dam
  - Consultant selected for Priest Lake Water Management Study

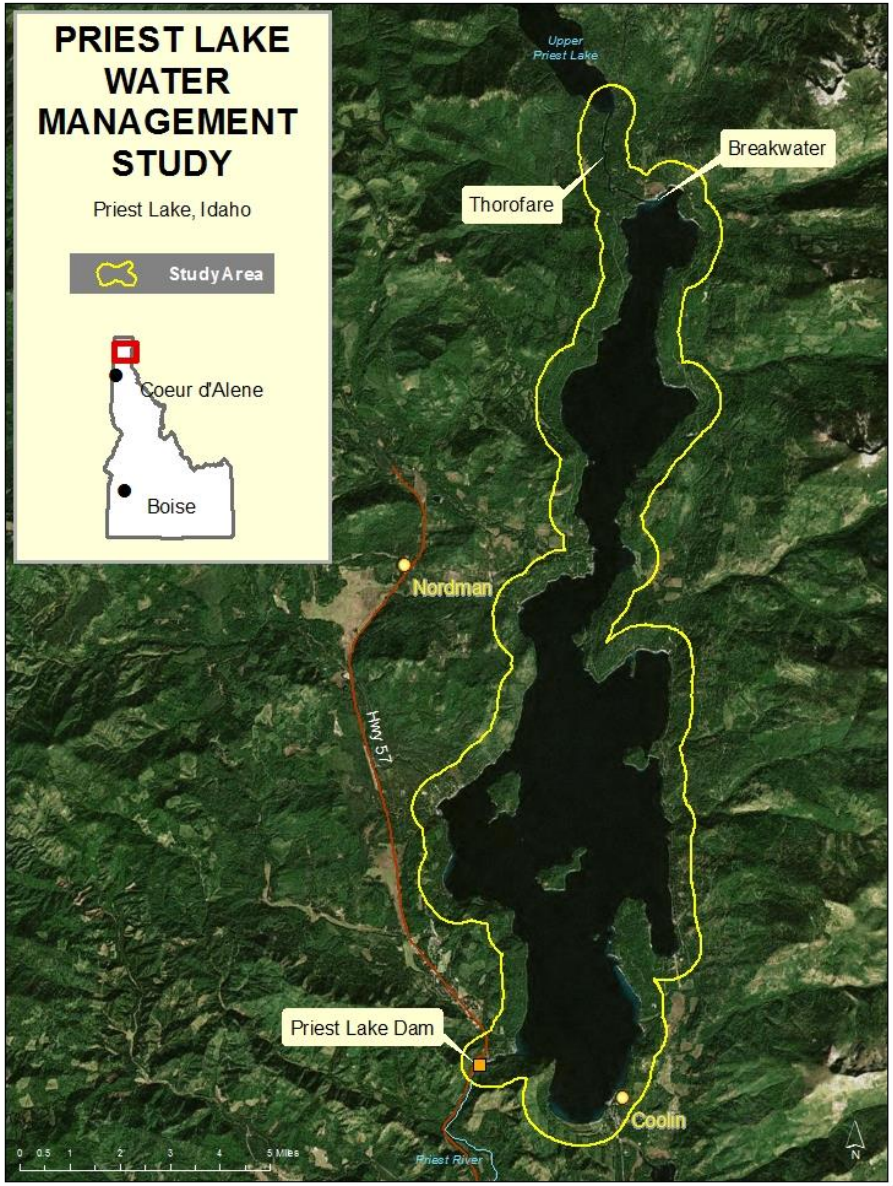
Priest Lake Water Management Study

- **Objectives:**
  - The study includes development (and evaluation) of alternatives to maintain required lake levels and river flow through 1) improved operation of the Priest Lake Outlet Dam, 2) increased water storage in the lake, and 3) potential modifications to the dam.
  - The study will also include options to improve conditions of the Priest Lake Thorofare to maintain access and navigability.

Priest Lake Water Management Study

Elements of the Study:

- Analysis of hydrologic conditions
- Identification of necessary improvements for water supply forecasting and monitoring (gaging) in tributaries
- Identification of potential impacts or benefits to shoreline property owners, water quality, and fish and wildlife
- Engineering analysis of potential improvements to Priest Lake Outlet Dam structure
- Hydraulic modeling and engineering analysis of potential improvements to maintain access and navigability of Thorofare channel



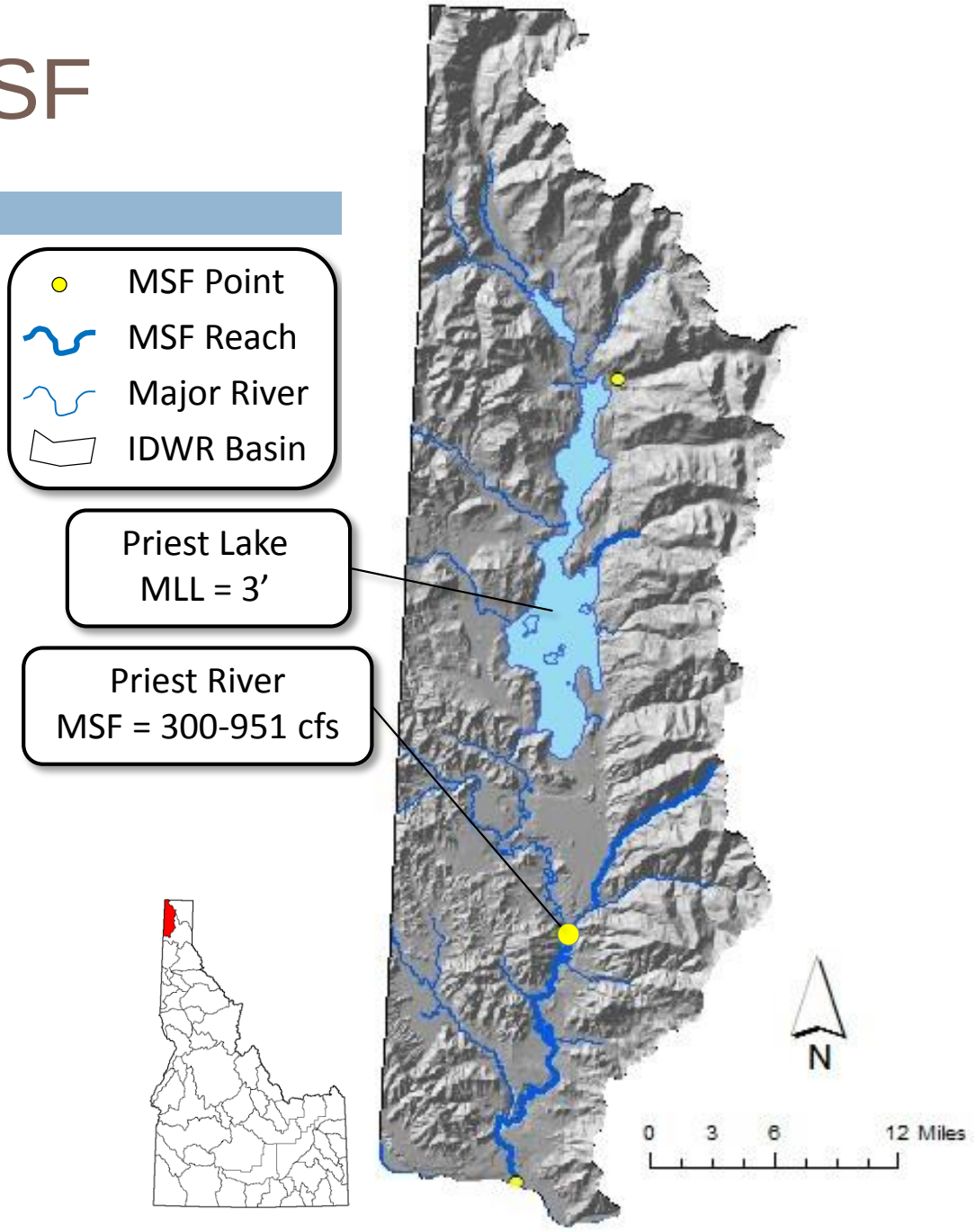
Priest Lake Water Management Study

Status/Schedule

- Dec 2016:
  - Consultant selected
  - Gage (12393501) installed by USGS and placed in operation
- Winter 2017:
  - Working with consultant to execute contract;
  - Coordination with consultant, key stakeholders and study team
- Spring - Summer 2017:
  - Public outreach and ongoing analysis
- On-going:
  - Coordination of internal technical study team including Bonner County and Lakes Commission
- The goal is to complete the study this year

Priest River - MSF

- MSF 97-7380
- Priority Date: 10/22/1997
- Flows:
  - 1,500 cfs (4/01 – 6/30)
  - 951cfs (7/1- 7/31)
  - 300 cfs (8/01 – 10/31)
  - 700 cfs (11/01 – 3/31)
- Subordinate to statutory Priest Lake level operation requirements (Idaho Code § 70-507)
- MSF reach begins approximately 20 miles downstream of outlet dam



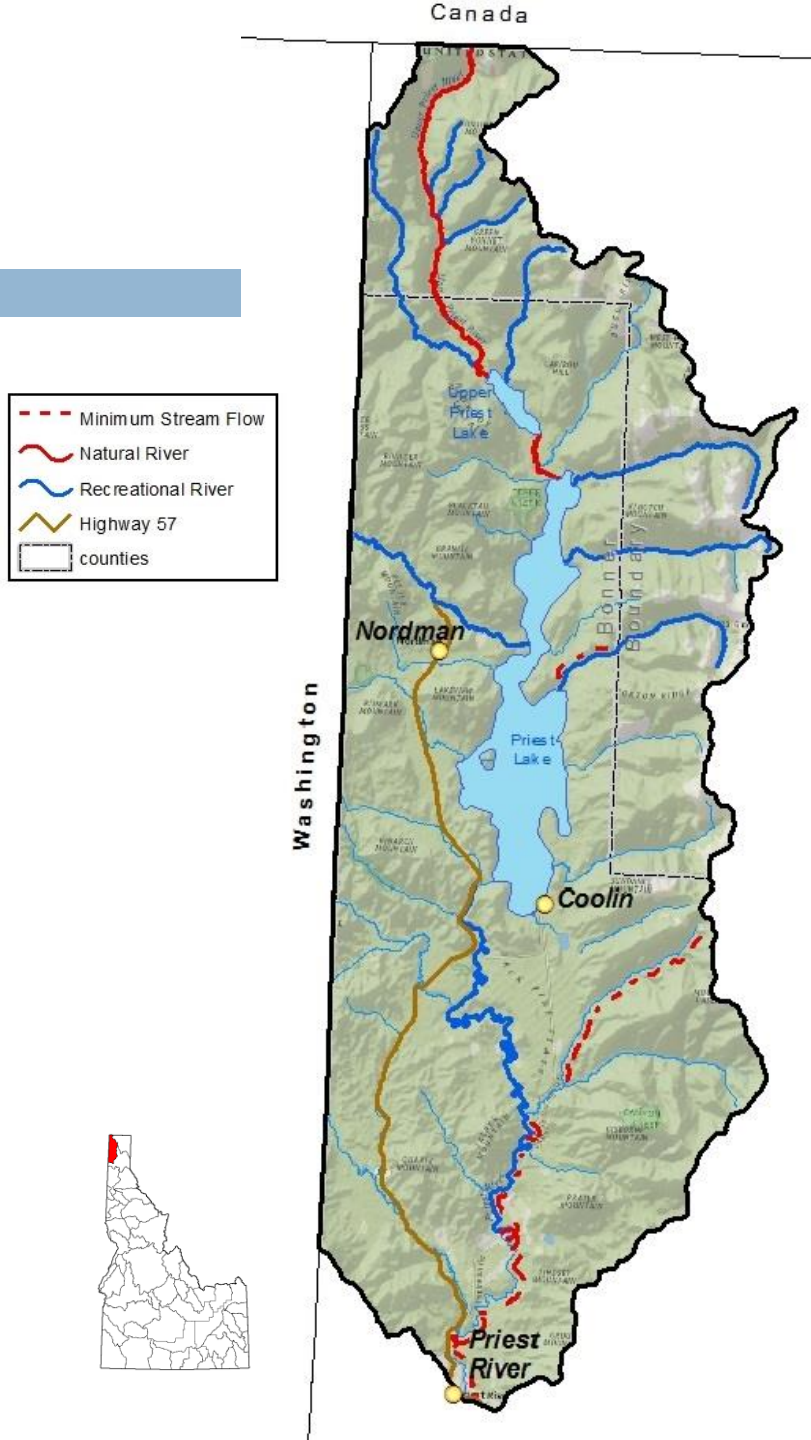
Priest River System – Protected Rivers

- 12 protected river reaches within Priest River Basin (approx 145 miles, designated in 1990 and 1995)

- Upper Priest River (Canadian Border to Upper Priest Lake):
  - 9.6 mi; Natural River Designation
  - Species of Concern, Spawning, Recreation Use, Scenic Area

- Upper Priest Lake and the Thorofare:
  - 5.9 miles; Natural River Designation
  - Species of Concern, Spawning, Recreation Use, Scenic Area

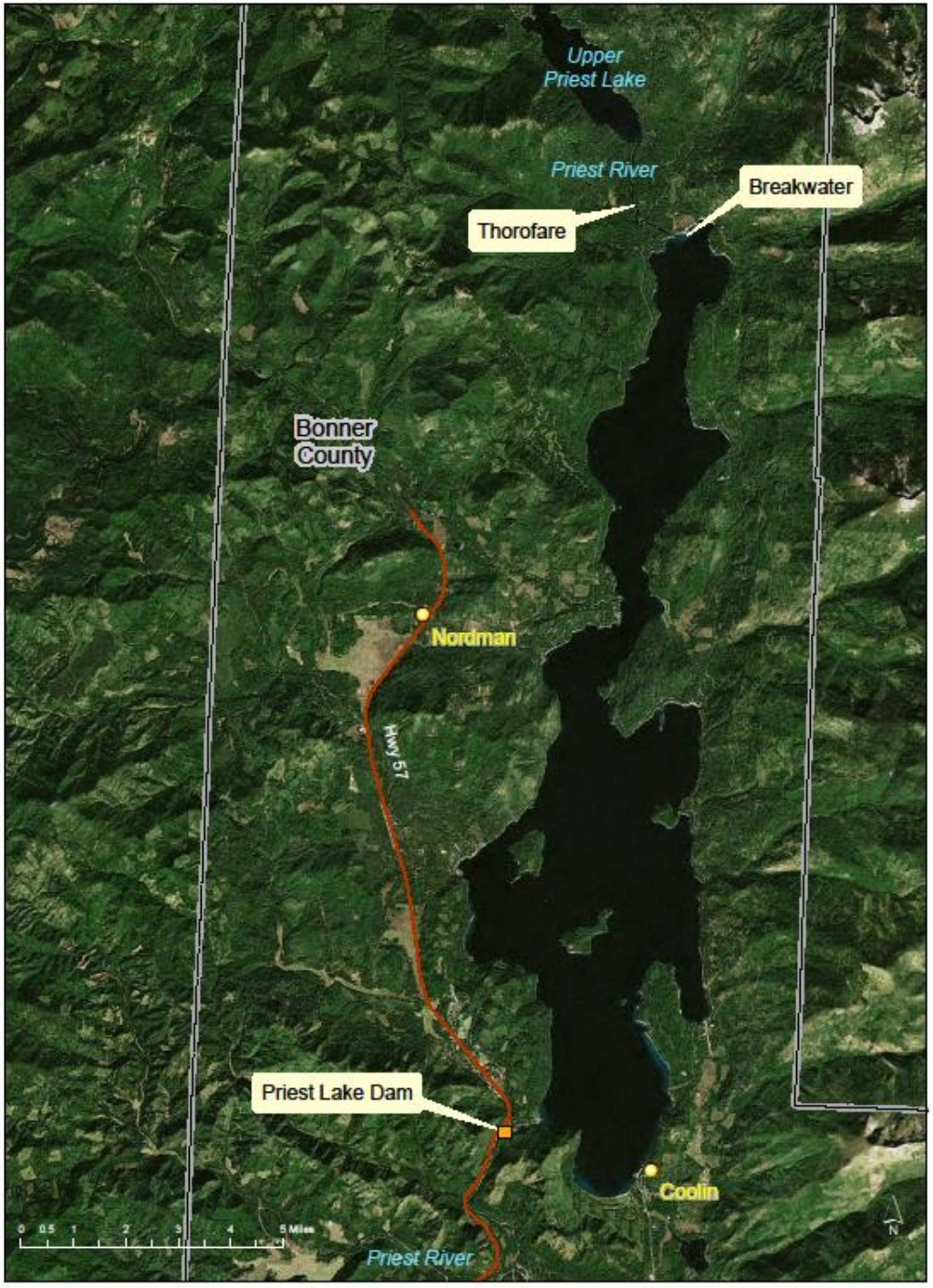
- Priest River, Priest Lake Outlet Structure to Mcbee Falls:
  - 43.7 miles; Recreational River Designation
  - Wildlife, boating opportunity



Questions and/or Discussion?

Presentation

- Priest Lake & River System
- Priest Lake Operations
- Priest Lake Water Management Study



Priest River System - Hydrology

- Priest River Basin – annual volume entering basin = 1,944,000 af
- Priest River annual avg discharge (Priest River City) = 1,200,000 af

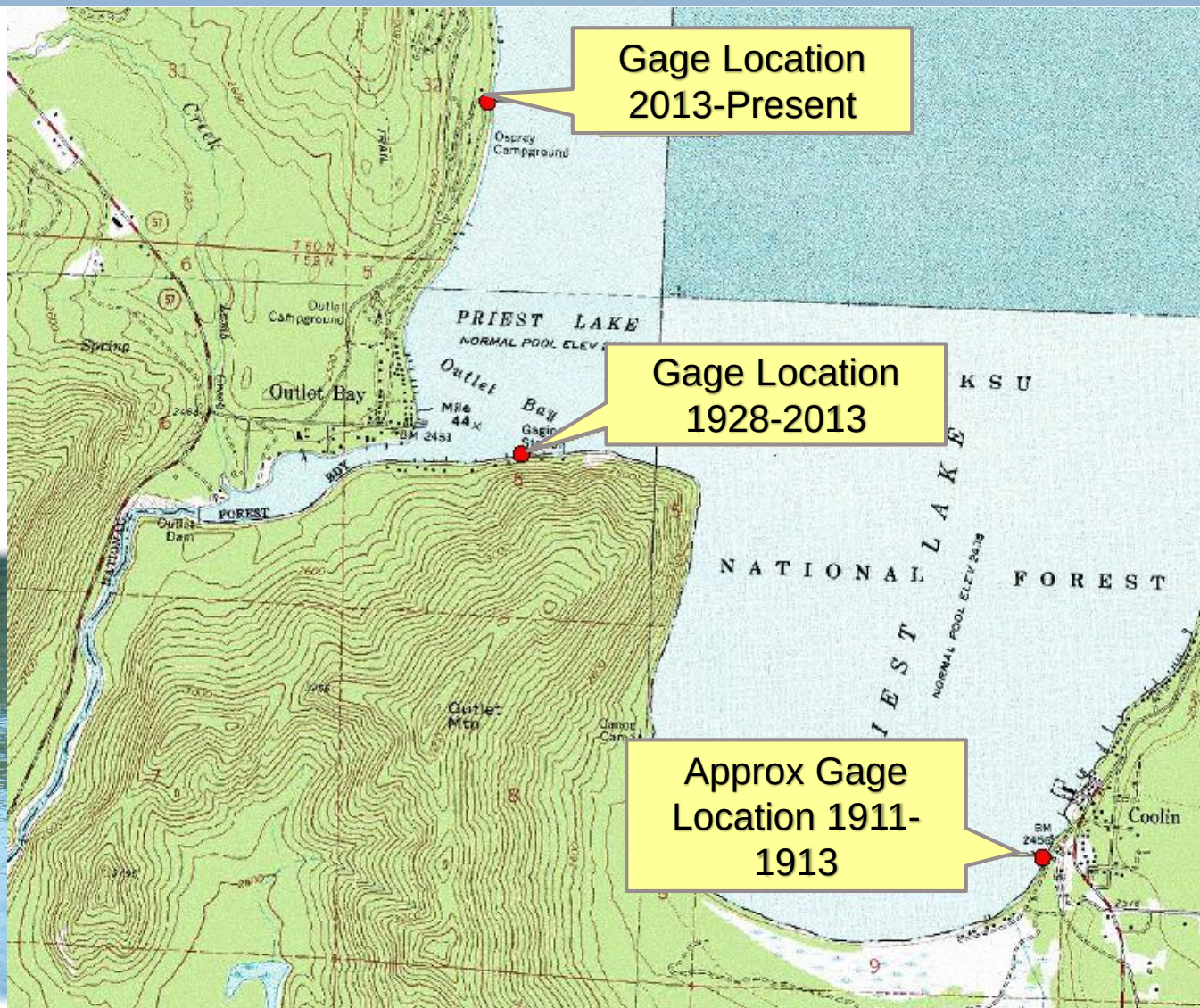
  (difference = 700 kaf lost through evaporation and 20 kaf through water use consumption; IWRB Priest River Basin Plan)
- Runoff pattern below Priest Lake:
  - Spring runoff - starts in April
  - Peak – May to early June
  - Lowest flows – usually Aug to Sept
- Natural hydrograph altered by Outlet Dam
  - Decreased river flows during July – Sept
  - Increased river flows in Oct and Nov

Priest Lake Operations – Lake Levels

- Lake levels - I.C. §70-507 defines requirements for lake level water surface elevations (added to I.C. in 1950)
  - May exceed 3.0 on Outlet Gage during spring runoff
  - Must be maintained at 3.0 ft until close of main recreation season
  - Other times of year, maintain between 0.1 and 3.0 ft
- Water Right 97-2020
  - 800 kaf, Recreation Storage
  - Owned by the State of Idaho, Office of the Governor
  - Priority Date: 1/24/1927
- River flows
  - Efforts made to maintain a minimum of 60 cfs discharge during summer months
  - Discharge from lake comprises majority of flow in Priest River for at least 10 miles below dam

Priest Lake Operations – Measurement

- USGS gage 12393000: Lake levels measured at Outlet Gage
- Gage location has changed over time



Priest Lake Operations – Measurement

- USGS gage 12394000: Discharge to Priest River measured approx 4 miles downstream from Outlet Dam until 2006 (discontinued)

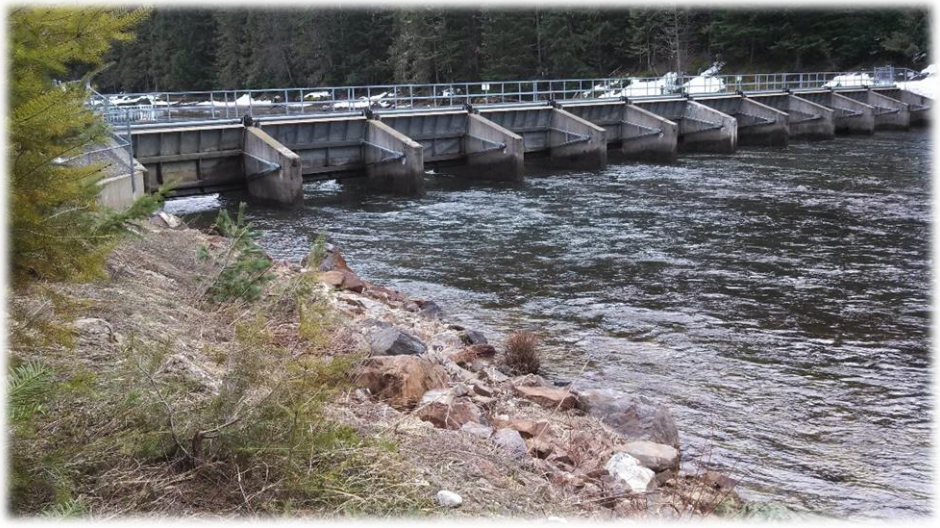
- USGS gage 12395000: River discharge measured at gage near Priest River City (45 miles downstream of Outlet Dam)

Priest River below Outlet Dam

Priest River Outlet Dam

Dam Features

- Owner = IDWR
- Constructed 1950/Rebuilt 1978
- Concrete with 11 radial gates (7 ft high)
- Structural height 12 ft
- Dam Crest length 194ft
- Top of Dam elev 2441.7 ft
- Full pool elevation 2437.64 ft (3 ft on USGS gage)
- Active lake storage 76,160 af
- Reservoir Surf Area 23,800 ac



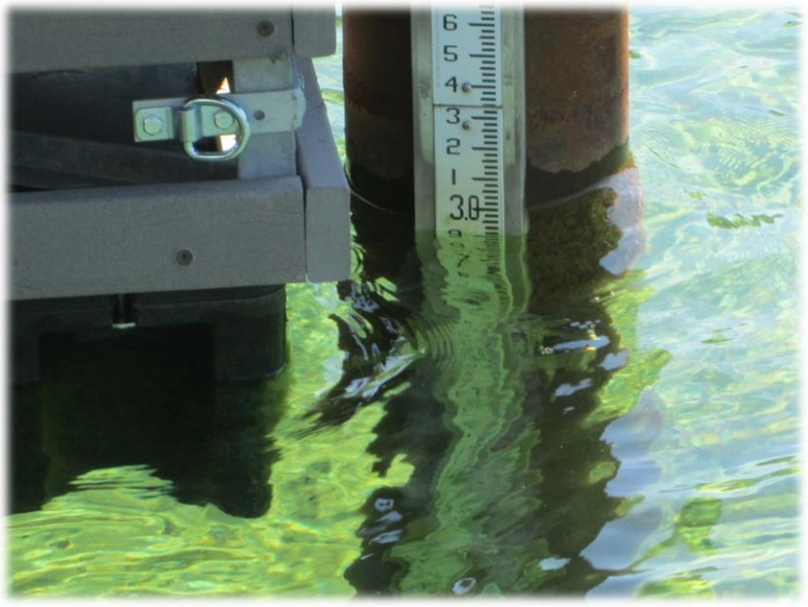
Priest River Outlet Dam – Historical Operation

- Water lake levels measured at Outlet gage had consistent pattern from 2000-2014
  - Lake levels begin to rise in April and May during spring runoff
  - Max level of 3-5 ft in early June
  - Level recedes to about 3.0 ft in July through end recreation season
  - Storage releases commonly begin mid-Oct, end in November

- Discharge in Priest River below the Outlet Dam varied between 1952-2006 (last year of USGS gage)
  - High of approx 300 cfs; minimum of 60 cfs maintained
  - In low water years, flow has dropped below 60cfs but has also been maintained above 100 cfs
  - In normal water years, discharge can also approach 60 cfs

Priest River Outlet Dam – 2015 Operation

- Northern Idaho experienced one of the most severe droughts on record in 2015.
- There were significant concerns about maintaining lake levels into the fall
- There were significant concerns about reducing river flow – impacts to recreation, etc.
- There were significant concerns about reducing river flow downstream of the Outlet Dam below 60cfs – impacts to bull trout populations and other aquatic life



IC Section 70-507

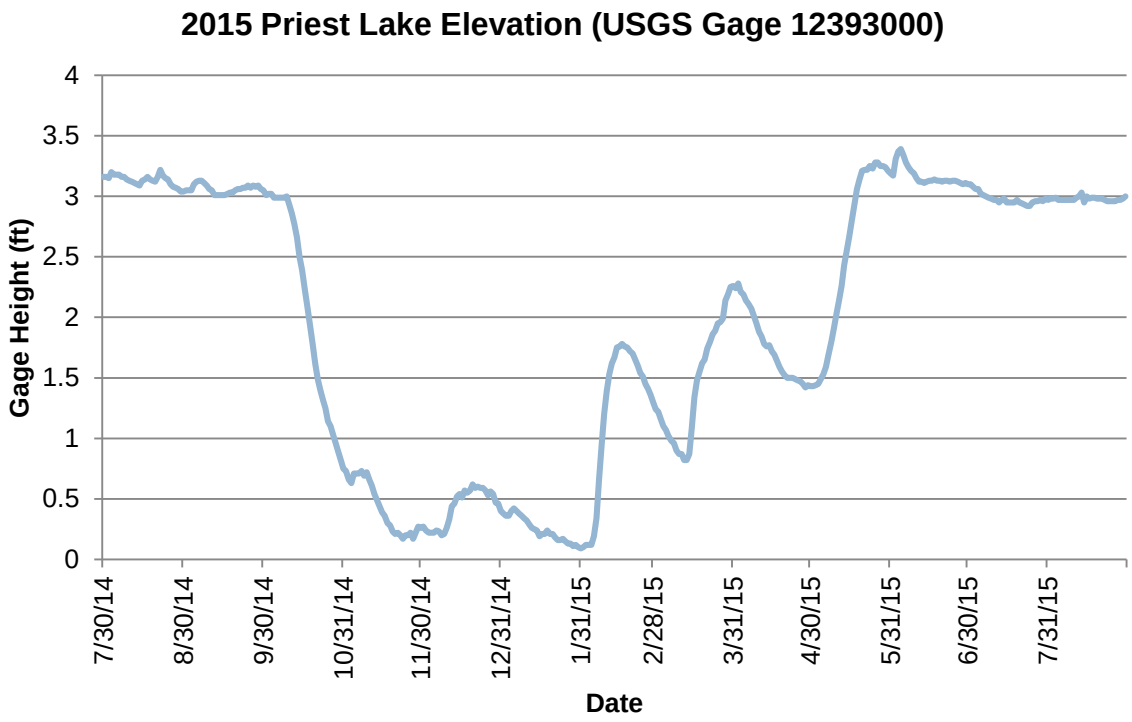
70-507. DIRECTOR OF THE DEPARTMENT OF WATER ADMINISTRATION TO HAVE SUPERVISION AND CONTROL. The Priest Lake outlet control structure shall, when constructed, be under the supervision and control of the director of the department of water administration, who may enter into contracts for a period of one (1) year or more with persons or corporations, by him deemed qualified, to operate and maintain, at their sole expense, said outlet control structure or any other control structure erected as a replacement thereof: provided, however, that under no circumstances shall the water surface level of Priest Lake be maintained or regulated by said director of the department of water administration above 3.0 feet on the present United States Geological Survey Priest Lake outlet gage with gage datum of 2434.64 feet above mean sea level, datum of 1929, supplementary adjustment of 1947, or released below 0.1 feet on said gage; provided further, that the water surface level of Priest Lake shall be maintained at 3.0 feet on the United States Geological Survey Priest Lake outlet gage, from and after the time each year following the run-off of accumulated winter snows, when the surface level of the waters of Priest Lake has receded to such elevation, until the time after the close of the main recreational season, as determined by said director of the department of water administration, that said lake waters may be released and the surface level permitted to recede below said elevation 3.0

Priest Lake Outlet Dam – 2015 Operation

Lake level measurement results:

- Level held at 3.0 ft on Outlet gage in compliance with I.C. through August 30, 2015

- USGS measurements determined discharge at dam was reduced to roughly 42.5 cfs on July 28, 2015 to maintain 3.0 ft lake level
- USGS developed rating table for lake elevation change vs volume released - estimated 0.4 cfs is equivalent to lake decline of 0.11ft



Priest Lake Outlet Dam - History

1928

- City of Sandpoint received a license by Federal Power Commission (FPC) to construct a dam and power plant on Priest River. Plan dropped – not financially feasible.

1939

- Northern Lights proposed to build a dam and power plant. Would have raised lake 22 ft above current elevation – not approved.

1949

- Prior to 1949, logging operations in outlet channel resulted in lake level increases impacting lake front property owners and fish passage.
- 1949, resort owners and residents petitioned Governor to stabilize lake.

1950

- Idaho Leg approved construction of a control structure to maintain lake levels (I.C. 70-507 added). Washington Water Power (WWP) Company constructed outlet dam on behalf of the State of Idaho.

Priest Lake Outlet Dam - History

1950

- State of Idaho and WWP enter into 5-year agreement for rights to water releases for power in the fall. Purpose - to regulate lake levels during summer months and to coordinate release of storage water in the fall for the benefit of hydropower facilities downstream.

1953-1955

- Northern Lights applied to Federal Power Commission to build 2 plants on Priest Lake
- State of Idaho discouraged FPC from issuing licenses.

1957-2002

- State of Idaho and WWP executed multiple multi-year renewable (O&M) – IDWR receives payments

Priest Lake Outlet Dam - History

1964

- Pacific NW Coordination Agreement executed (headwaters storage agreement between USACE, USBOR, BPA, Utilities – state not eligible).

1978

- New dam constructed for IDWR (concrete with 11 radial gates) 100 ft downstream from original dam.

2002

- New O&M agreement executed between IDWR and Avista (formerly WWP). Avista continues to pay compensation to state for rebuild of Outlet Dam and a negotiated fee.

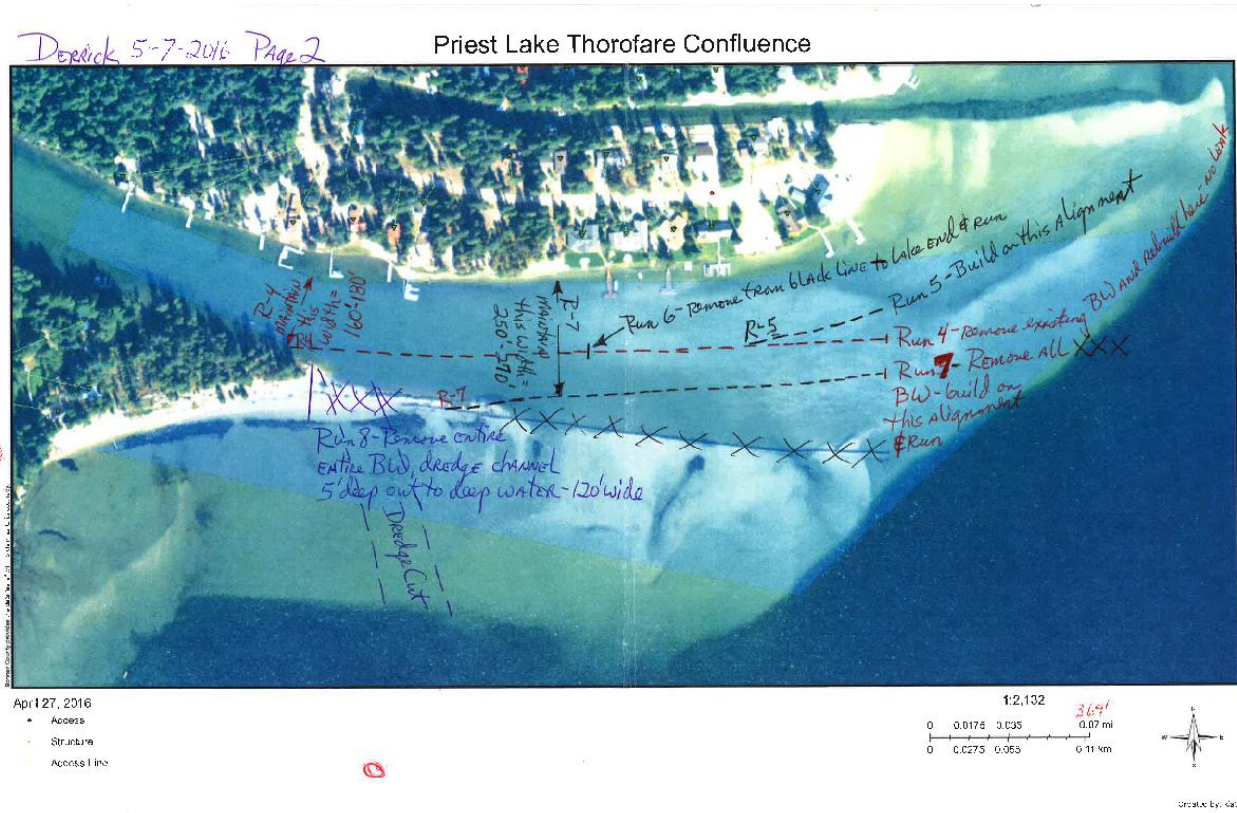
2011

- Avista (formerly WWP) terminated O&M Agreement. Priest Lake Dam removed from agreement.

Priest Lake Water Management Study

Elements of the Study continued:

- Engineering analysis of potential improvements to the Priest Lake Outlet Dam
- Engineering and other technical analysis of potential improvements to the breakwater structure to promote sustainability of the Thorofare channel



Memorandum

To: Idaho Water Resource Board (IWRB)

From: Neeley Miller

Date: January 13, 2017

Re: Priest Lake Water Management Study

Background:

- The Idaho Department of Water Resources (IDWR) owns the Priest Lake Dam (dam) which was originally constructed in 1951 and reconstructed in 1978 as an outlet control structure to maintain lake levels and downstream flows in the Priest River in accordance with Idaho Code §70-507. Idaho Code §70-507 authorizes the director of IDWR to contract operation and maintenance of the dam, and requires that the water surface level of Priest Lake be maintained at 3.0 feet on the USGS Priest Lake Outlet gage (located upstream of the dam) after run-off of the winter snowpack until the close of the main recreational season.
- As a result of limited water supply and drought conditions in northern Idaho in 2015, it was difficult to maintain required pool levels and downstream flow in the Priest River during the recreational season.
- The IWRB subsequently authorized expenditure of up to $300,000 from the Revolving Development Account to complete the Priest Lake Water Management Study (study) to evaluate strategies to meet long-term water management objectives for the Priest Lake and Priest River system. The study includes development of alternatives to maintain required lake levels and river flow through improved operation of the Priest Lake Outlet Dam, increased water storage in the lake, and potential modifications to the dam. The study will also include options to improve conditions of the Priest Lake Thorofare. General elements of the study include the following:
    1) Analysis of hydrologic conditions;
    2) Identification of necessary improvements for water supply forecasting and monitoring (gaging);
    3) Identification of potential impacts or benefits to shoreline property owners, water quality, and fish and wildlife;
    4) Engineering analysis of potential improvements to the Priest Lake Outlet Dam structure; and
    5) Hydraulic modeling and engineering analysis of potential improvements to maintain access and navigability of the Thorofare channel.
- The USGS currently operates the Priest Lake Outlet Gage upstream of the dam which is used to monitor lake levels. Until 2006, the USGS operated a streamflow gage approximately four miles downstream of the dam which measured flow in the Priest River and could be used to generally determine outflow from the dam.
- At the November 2016 meeting the IWRB passed a resolution authorizing 1) expenditures from the Revolving Development Account not to exceed $17,000 for the installation of a new gage below the Priest Lake Outlet Dam by the USGS (Priest River Outflow Gage), and 2) annual

expenditure of funds not to exceed $10,000 for O&M expenses for the new outflow gage beginning in FY 2018.

- Gage installed by USGS and placed in operation on December 12th 2016.

Project Status:

Study RFP: A Request for Proposals was issued to solicit consultant services to complete the study. The proposal submittal period closed on October 14, 2016. Five proposals were submitted and staff has selected a consultant to perform the study. Staff is currently working with the selected consultant to finalize the scope of work and develop a contract.

BACKGROUND NOTES PAGE FOR NEELEY

Priest River Outflow Gage:

- *IDWR hydrology staff has identified the need for improved streamflow data on the Priest River in locations that would assist with water supply forecasting, operation of the outlet dam and measurement of outflows from the dam.*
- *The USGS currently operates the Priest Lake Outlet Gage upstream of the dam which is used to monitor lake levels. Until 2006, the USGS operated a streamflow gage approximately four miles downstream of the dam which measured flow in the Priest River and could be used to generally determine outflow from the dam. The closest operational streamflow gage is now located 45 miles downstream of the dam which reflects flows in the Priest River that include inflow from tributary streams below the dam.*
- *Installation of a gage below the dam but upstream of tributary inflows is recommended to provide accurate reservoir outflow data and to assist with reservoir and dam operations. The USGS is prepared to enter into a Joint Funding Agreement (JFA) with the IWRB for installation, operation and maintenance, and publication of data collected for a new streamflow gage to be located on the Priest River, as close to the downstream side of the dam as practicable.*
- *The total estimated cost of installation plus operation and maintenance (O&M) for a new gage for Fiscal Year (FY) 2017 is $24,500. The annual O&M costs in subsequent years are estimated to be $16,400.*
- *The IDWR Safety of Dams Program secured a FEMA grant in the amount of $7,500 to assist with installation expenses for the new Priest River Outflow Gage. Therefore, the total remaining expenses for installation and O&M in FY 2017 are $17,000. The USGS expects to share costs associated with the O&M in subsequent years, though the amount will be defined on an annual basis.*
- *A resolution is provided for the IWRB's consideration to authorize funding from the Revolving Development Account for the following: 1) to authorize funding in the amount of $17,000 for the remaining installation and O&M costs for FY 2017; and 2) to authorize annual cost-share funding not to exceed $10,000 for O&M expenses for the new Outflow gage beginning in FY 2018.*

SEE TAB 11 IN THE MEETING MATERIALS SECTION

Memorandum

To: Idaho Water Resource Board

From: Cynthia Bridge Clark

Date: January 13, 2017

Re: Island Park Reservoir Enlargement – Land and Real Estate Assessment

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Background

- The Henrys Fork Basin Study, completed by the US Bureau of Reclamation (Reclamation) in 2014 in partnership with the Idaho Water Resource Board (IWRB), identified an option to increase surface water storage in the basin through an enlargement of the Island Park Reservoir.
- The Basin Study provided a conceptual level analysis of a proposal to increase the operational water surface elevation of the reservoir 1 to 4 feet resulting in approximately 30,000 acre-feet of additional storage water. The additional water would be captured and stored using existing reservoir space currently reserved for flood flows. The relative construction cost was estimated to be $6.4 million with limited required modifications to the dam and reservoir:
    - Minimal modifications to the existing embankment dam.
    - Modification of the emergency spillway to provide additional discharge capacity (offset current flood surcharge space in the reservoir).
    - Increase in the height of the bladder on the Operational Spillway.
    - Possible modifications to the dike adjacent to the embankment dam.
- In order to better understand the viability of the proposal, several threshold issues were identified for further study by IDWR/IWRB and Reclamation staff including: 1) a more detailed assessment of potential impacts to property resulting from a raise in reservoir pool elevation; 2) refinement of the hydrologic analysis of reservoir yield; and 3) analysis of potential dam safety constraints.
- With authorization from the IWRB, staff initiated the Island Park Reservoir Enlargement Land and Real Estate Assessment (Assessment) to evaluate and quantify impacts. The IWRB will consider future action on the project based upon the results of the Assessment.

Status:

- Airborne lidar and orthoimagery for the entire Island Park reservoir, including surrounding lands and islands within the reservoir, was collected in the spring of 2016 to provide high resolution elevation data and geometrically corrected aerial imagery for the project area. The processed data and imagery was submitted to IDWR/IWRB staff during the summer of 2016 and is publicly available on the Idaho Lidar Consortium website.
- The IWRB authorized expenditure of up to $100,000 (November 2016) to hire a consultant to evaluate and quantify potential impacts to land, real estate, roads, utilities, septic systems, easements, shoreline and other appurtenant structures resulting from a 1 to 4 foot raise of the reservoir water surface elevation, as well as estimated associated costs.

- A contract is currently being finalized with Forsgren Associates, Inc. to complete the Assessment. The scope of work generally includes:

    1) Compilation and review of existing data; field survey to validate existing elevation data and clarify critical areas; generation of a base map to manage all collected and existing data for use as an evaluation and documentation tool.

    2) Evaluation of water surface increase alternatives (1 to 4 feet in one foot intervals). The evaluation of each alternative will include an inventory of impacts and associated potential costs.

    3) The consultant will deliver a final report, a final base map and all data collected, and will assist with presentation materials and provide technical support in public outreach efforts.

- Schedule and outreach: The estimated completion of the Assessment is November 2017. A more detailed schedule, including potential dates for a public meeting in the Island Park area and coordination with local groups such as the Henry's Fork Watershed Council, will be developed with the contractor and stakeholders.

- The Reclamation has agreed to assist with the analysis. The contractor and IDWR will coordinate directly with Reclamation staff in areas such as exchange of available survey or elevation data, property access, and spatial and legal verification of Reclamation easements.

REQUIRED ACTIONS: IWRB action is not required at this time.

Update on Treasure Valley Groundwater Flow Model Project

Presented to the Idaho Water Resource Board by Sean Vincent
January 23, 2017

Overview

- Background
- Project summary
- Recent developments
- Upcoming work

Background

- USBR update of TVHP model (2013)
- Senate Concurrent Resolution 137 adopted by Senate on 2/16/2016
- Presentation at IWRB Work Session on 3/17/2016
- Staff completed review of USBR model on 5/12/2016
- Scope of work, timeline, and budget presented and approved at 5/19/2016 Work Session

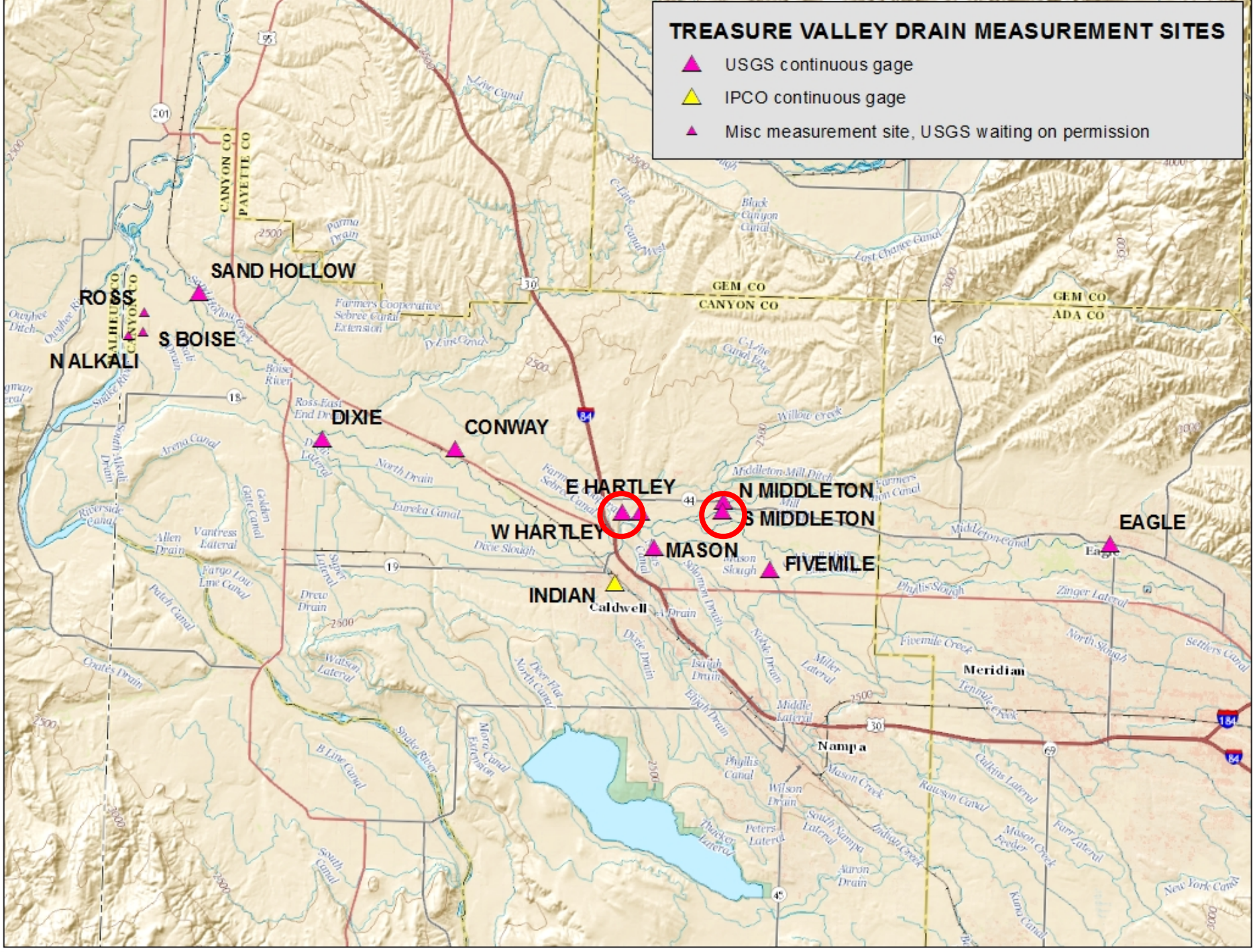
Project Summary

- Collaboration w/ USGS
- 5 year project w/ 2 phases
- Phase 1 – data
  - Data collection and data processing
  - Hydrogeologic framework report
- Phase 2 – modeling
  - Monthly water budgets for period 1986-2015
  - Model construction/revision in MODFLOW USG
  - Calibration w/ PEST
  - Water management scenarios
  - Final report

Recent Developments

- Contracting
  - JFA w/ USGS for data collection, hydrogeologic framework, and modeling
  - U of I Kimberly for processing METRIC ET data (8 years)
  - IWRRI for land use mapping → GIS Analyst started 1/17/2017

- Initial work (Phase I)
  - Installed 10 telemetered drain gages in lower Treasure Valley
  - Established 3 miscellaneous measurement sites along Snake River


TREASURE VALLEY DRAIN MEASUREMENT SITES
USGS continuous gage
IPCO continuous gage
Misc measurement site, USGS waiting on permission
SAND HOLLOW
ROSS
S BOISE
N ALKALI
DIXIE
CONWAY
E HARTLEY
N MIDDLETON
S MIDDLETON
W HARTLEY
MASON
FIVEMILE
INDIAN
EAGLE
CANYON CO
PAYETTE CO
GEM CO
ADA CO
Caldwell
Meridian
Nampa

Drains

Recent Developments (cont'd)

- Contracting
  - USGS for data collection, hydrogeologic framework, and modeling
  - U of I Kimberly for processing METRIC ET data (8 years)
  - IWRRI for land use classifications → new GIS Analyst started 1/17/2017

- Initial work (Phase I)
  - USGS installed 10 telemetered drain gages in lower Treasure Valley plus one IPCO gage and 3 miscellaneous measurement sites along the Snake River
  - First Draft of Project Fact Sheet

Fact Sheet for WRV Modeling Project

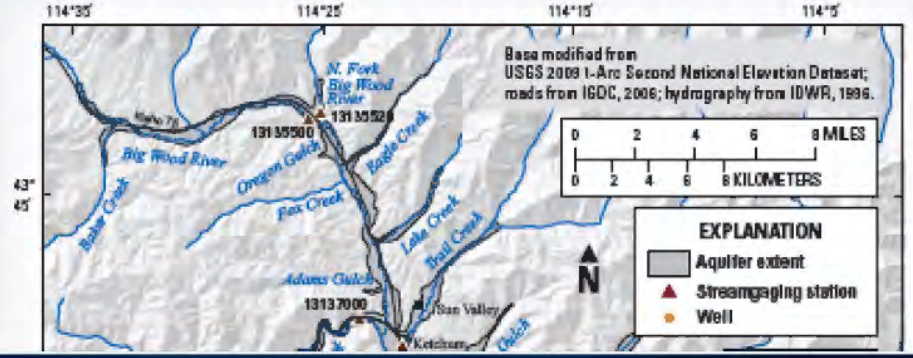
USGS science for a changing world

Groundwater Resources of the Wood River Valley, Idaho: A Groundwater-Flow Model for Resource Management

The U.S. Geological Survey (USGS), in collaboration with the Idaho Department of Water Resources (IDWR), will use the current understanding of the Wood River Valley aquifer system to construct a MODFLOW numerical groundwater-flow model to simulate potential anthropogenic and climatic effects on groundwater and surface-water resources. This model will serve as a tool for water rights administration and water-resource management and planning. The study will be conducted over a 3-year period from late 2012 until model and report completion in 2015.

The Wood River Valley

The population of Blaine County in south-central Idaho has nearly quadrupled from 1970 to 2010; most of the growth has occurred in the Wood River Valley in the northern part of the county. Because the entire population of the valley depends on groundwater for domestic supply, from either domestic or municipal-supply wells, this growth has caused concern about the long-term sustainability of the groundwater



Work during 2017

- Finalize Project Fact Sheet (USGS and IDWR)
- Establish/convene MTAC (IDWR)
- Create project webpage (IDWR)
- Develop ratings curves for seven drain gages (USGS)

Work during 2017 (cont'd)

- Compile and review geology and water level data (USGS and IDWR)
  - Contact municipal water providers for data from deep aquifers
  - Develop layer-specific well log and water level database
- Begin correlating well water levels with drain discharge measurements (IDWR)
- Begin processing METRIC remote sensing data for 8 years during calibration period (U of I)
- Begin land use classification mapping for METRIC years (IWRRI)

END

Model Boundaries