



ESPA Managed Recharge Program Update

Presentation to Eastern Snake Hydrologic Modeling Committee

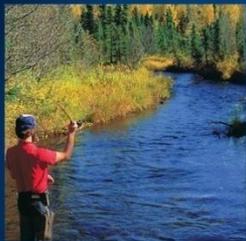
Brian Patton

March 17, 2015



Recharge Goal: Stabilize ESPA

- ✓ Average annual loss from aquifer storage of $\approx 200\text{KAF}$ (1952-2012)
- ✓ CAMP – Phase 1 water budget change 200-300KAF – *Stabilize Aquifer*
- ✓ CAMP Phase 2 goal – *recovery of ESPA* (250KAF from recharge)



Recharge operations in
Milner-Gooding Canal
December 30, 2014

Recharge Goal: Stabilize ESPA

- ✓ HB 547 passed by 2014 Legislature allocates \$5 million annually from cigarette tax to Water Resource Board for “*statewide aquifer stabilization*”
- ✓ ESPA is first priority
- ✓ HB 479 allocated \$4 million one-time to Water Board for ESPA recharge infrastructure

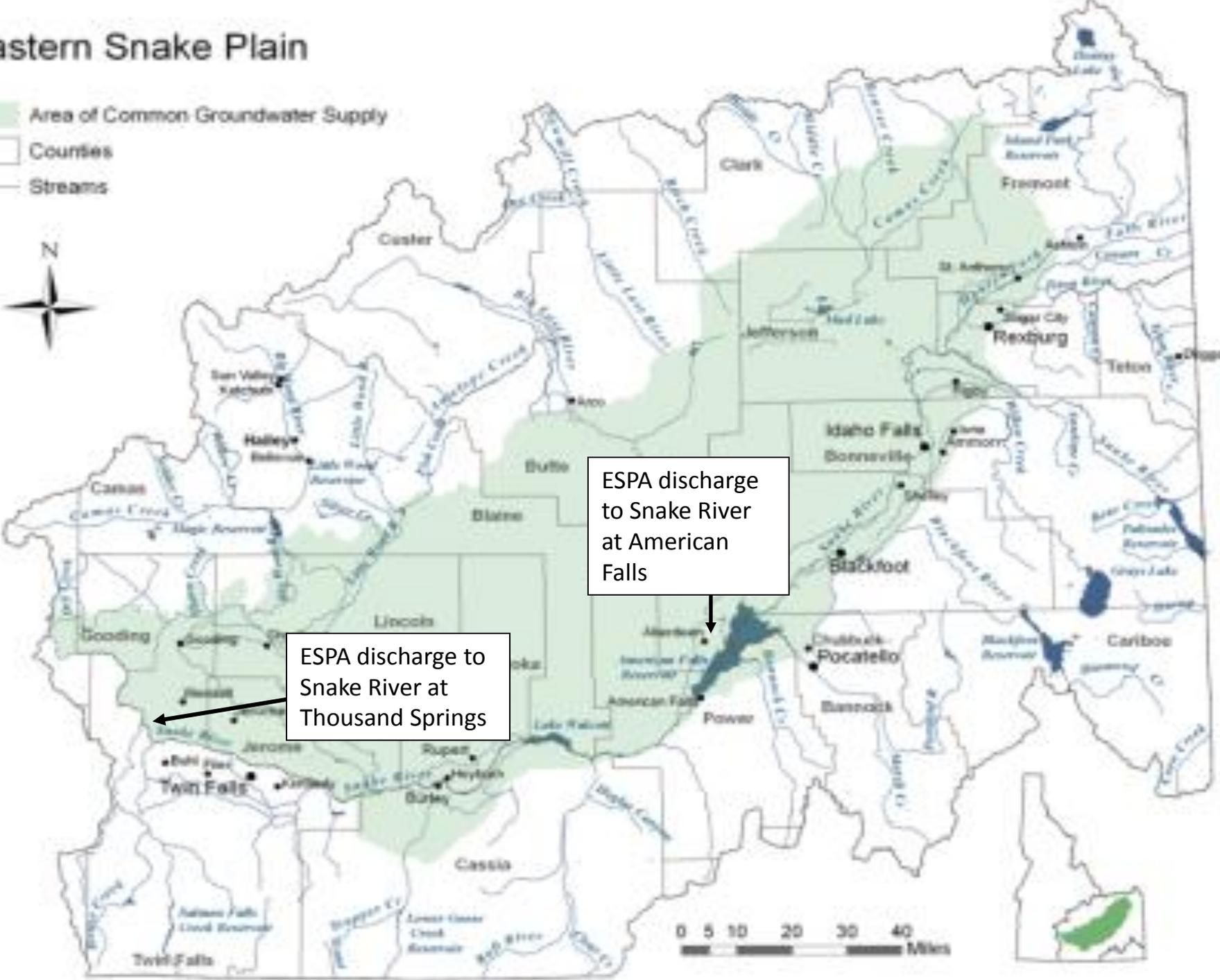


Milepost 31 recharge basin



Eastern Snake Plain

- Area of Common Groundwater Supply
- Countries
- Streams



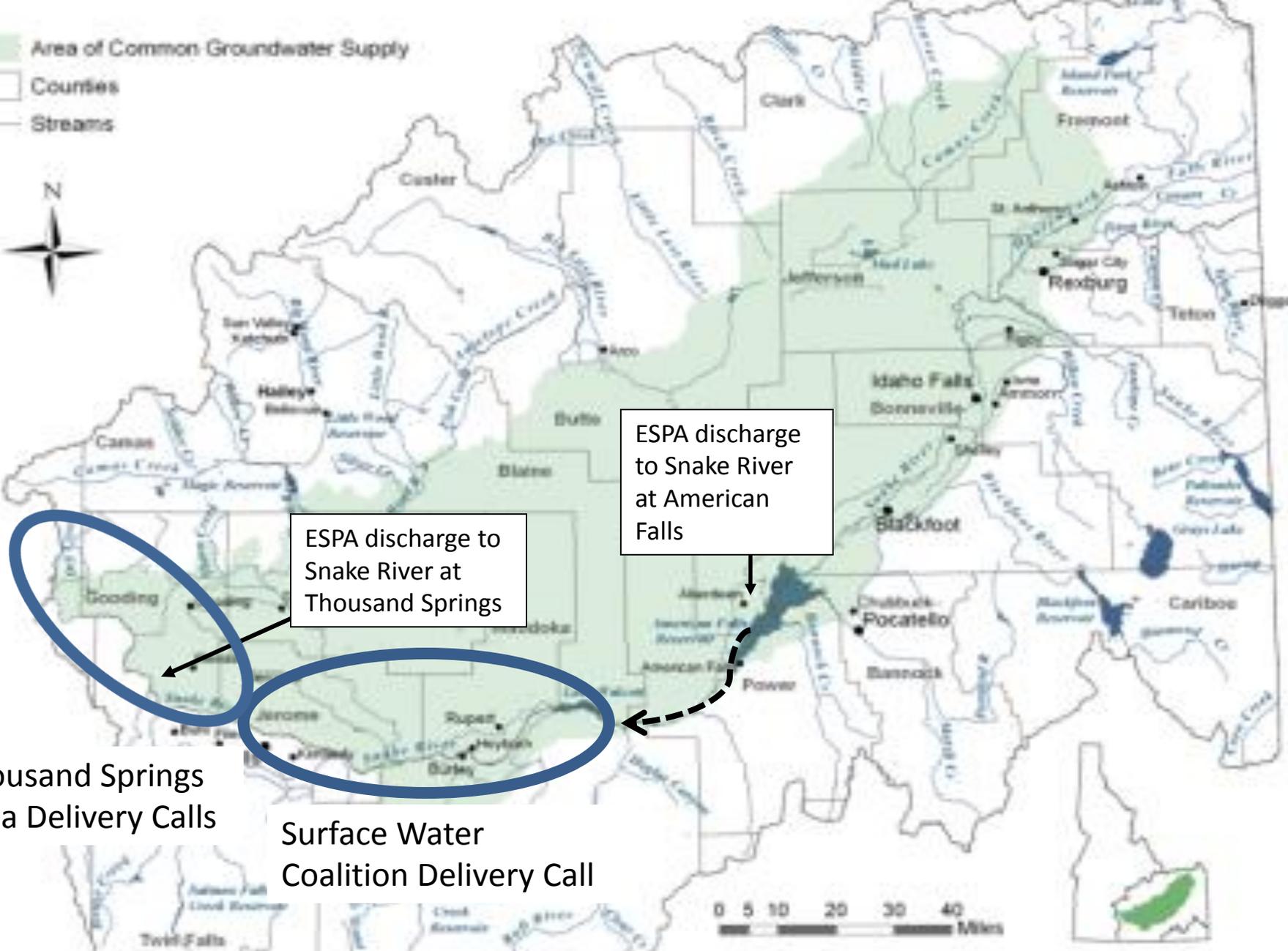
ESPA discharge to Snake River at American Falls

ESPA discharge to Snake River at Thousand Springs

0 5 10 20 30 40 Miles

Eastern Snake Plain

- Area of Common Groundwater Supply
- Courties
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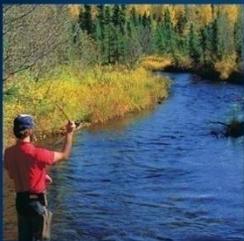
ESPA discharge to Snake River at Thousand Springs

ESPA discharge to Snake River at American Falls

Thousand Springs Area Delivery Calls

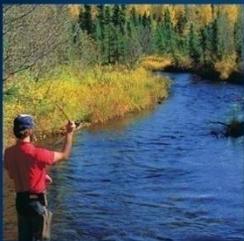
Surface Water Coalition Delivery Call





Current ESPA Conjunctive Administration Delivery Calls

- Rangen Springs Delivery Call
 - Order curtailing ground water to 157,000 acres and 13 cities of not mitigated
- Surface Water Coalition Delivery Call – springs at American Falls area
 - Reviewed annually based on reservoir carry-over and available surface water supplies – variable mitigation obligations
- Additional delivery calls from Thousand Springs area – Aquarius Aquaculture, LynCliff Farms, Ark Fisheries



Delivery Calls – Why Do We Care?

- ESPA region produces 33% of Idaho's economic output (2012 estimate)
- Lots of “value-added” agricultural processing locating in southern and eastern Idaho
- Cities and processing plants have disproportionately junior water right portfolios
- Potential for calls in Wood River Valley, Mountain Home, Treasure Valley, others
- Has chilling effect on economic development efforts – how can our economy grow if we can't sustain water supplies for existing uses?**

ESPA Stabilization and Swan Falls Agreement

State obligation to ensure minimum flows at Murphy Gage just below Swan Falls Dam of:

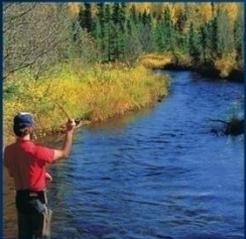
- ✓ 3,900 cfs (4/1 through 10/31) and
- ✓ 5,600 cfs (11/1 through 3/31)

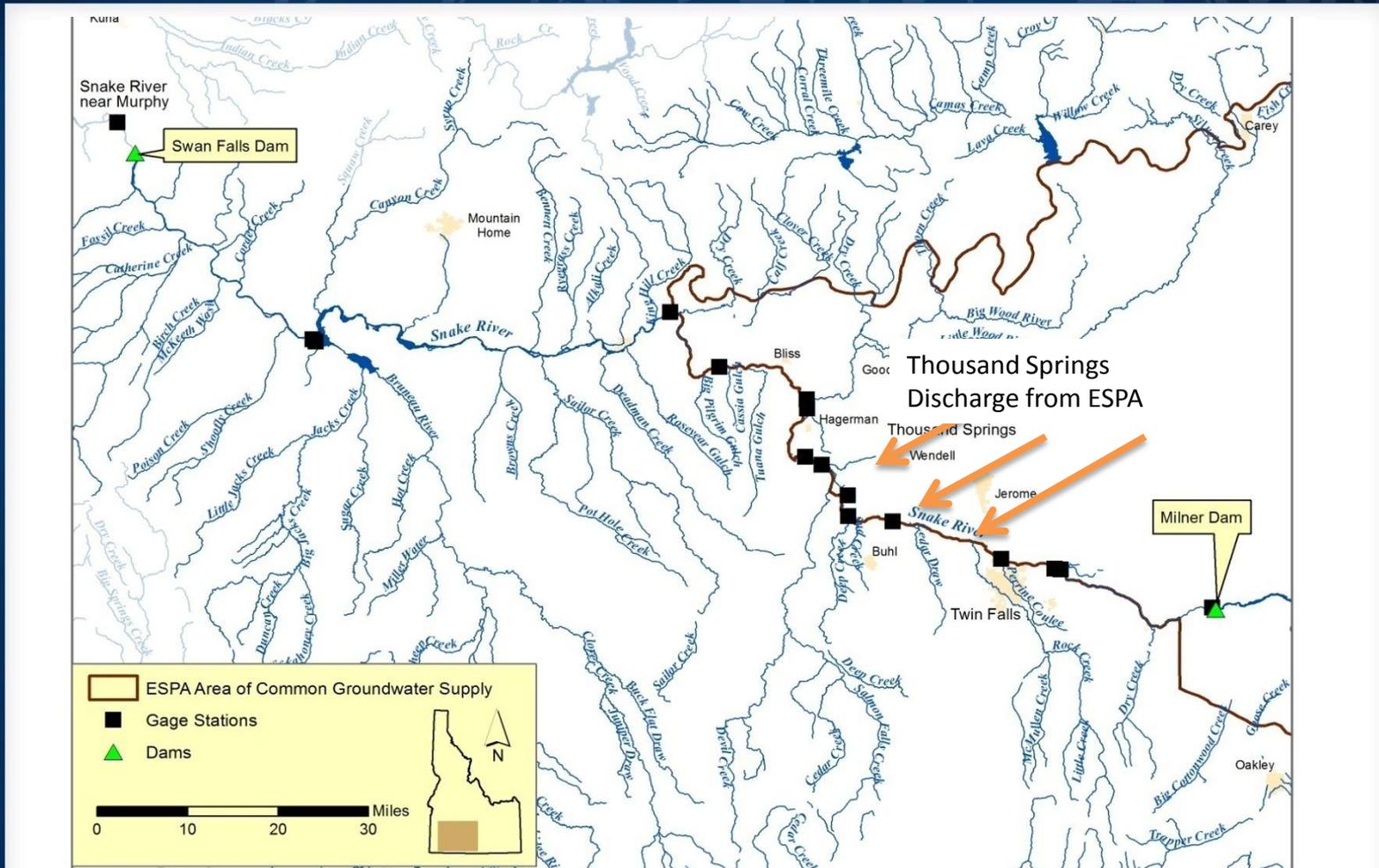
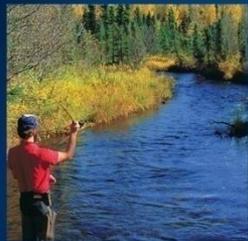


However, 180 miles Upstream at Milner Dam



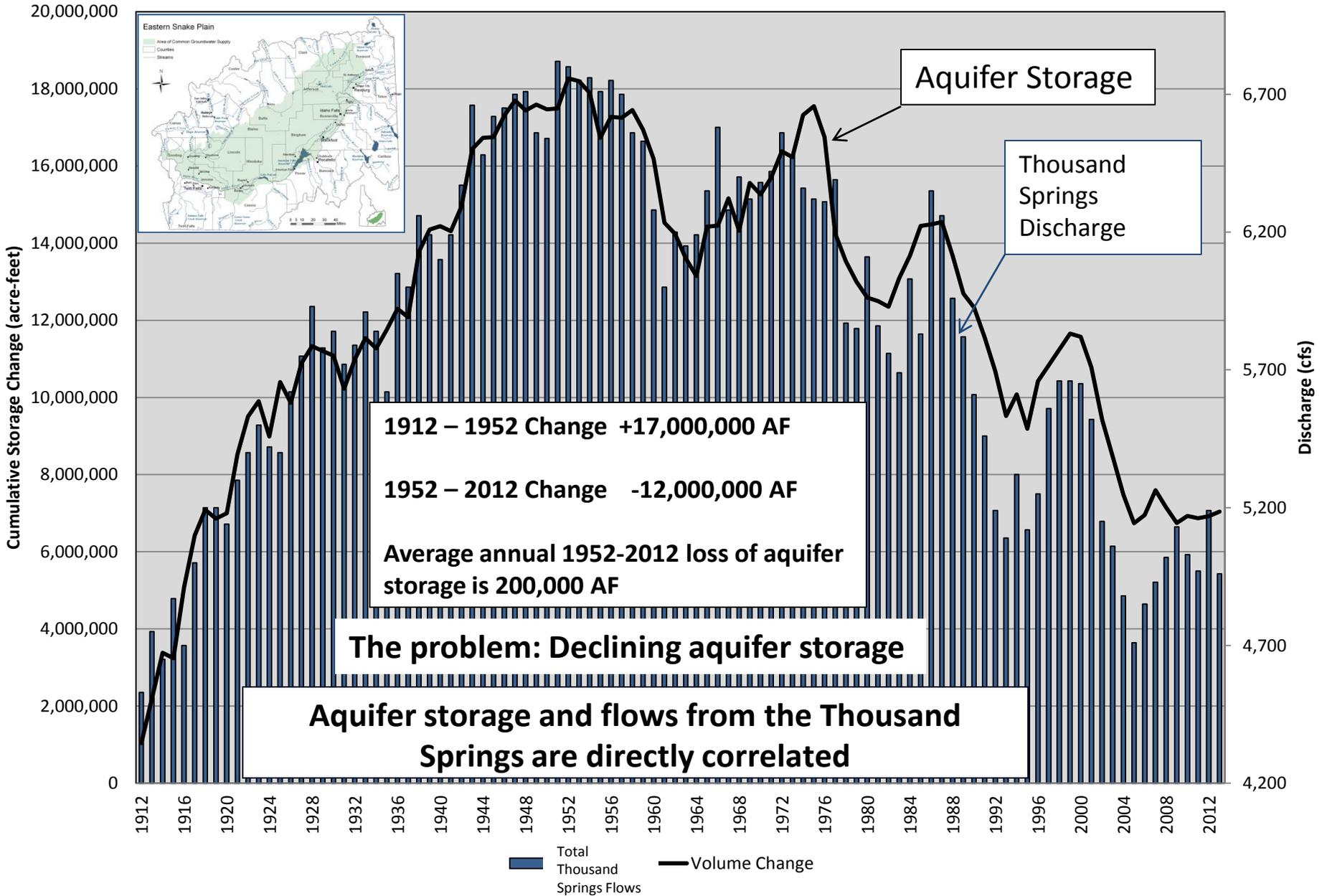
- Water planning, policy, and practice provides for full development of Snake River above Milner Dam
- At times this reduces Snake River flow at Milner Dam to zero

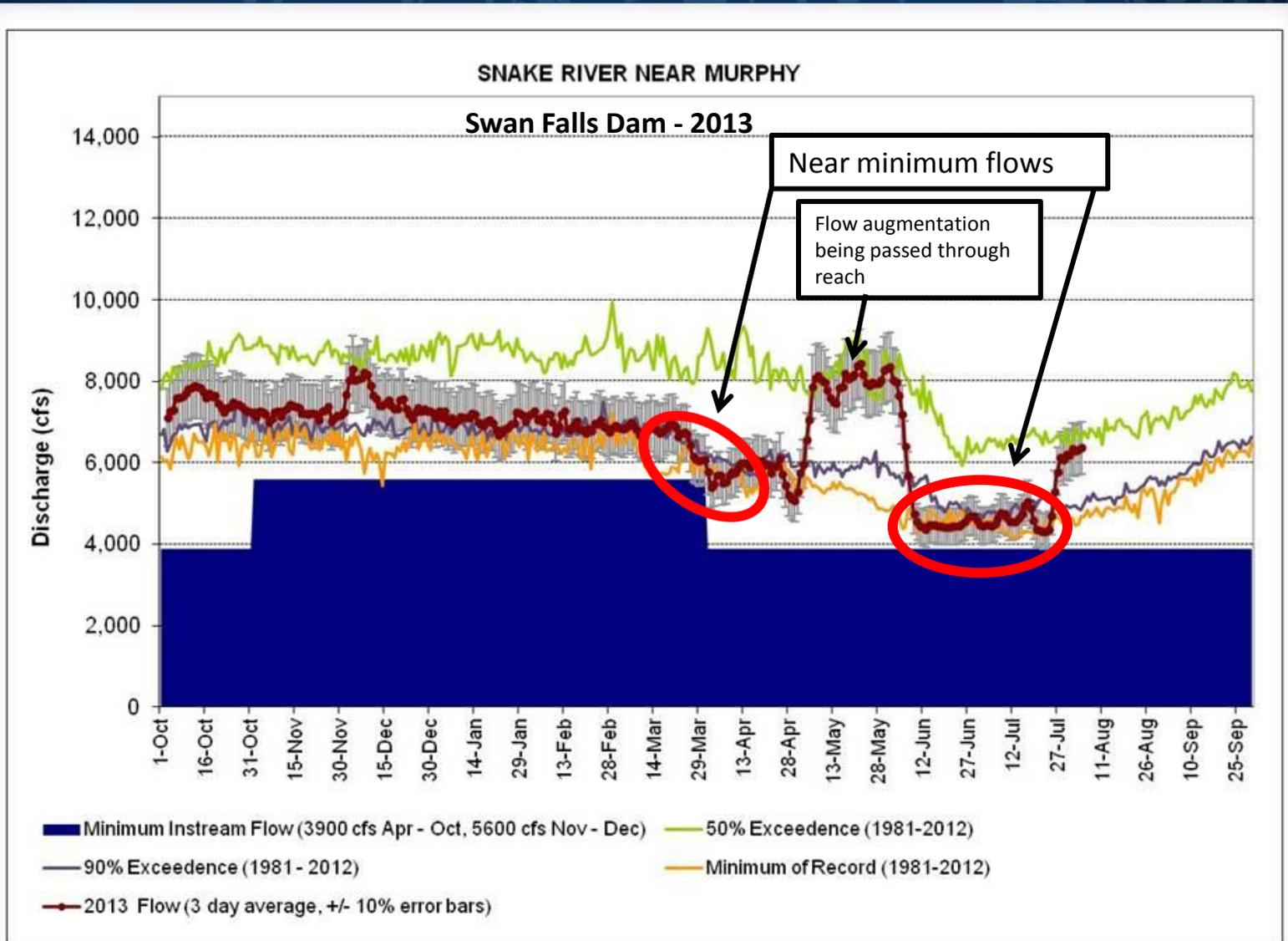
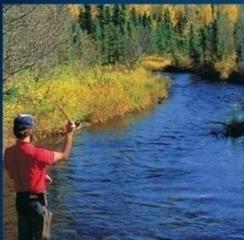


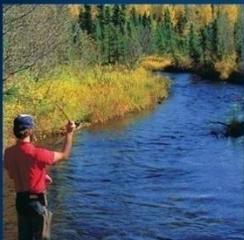


When flow is zero at Milner, flow at Swan Falls Dam is made up almost entirely of spring flows from the ESPA

Cumulative Volume Change of Water Stored Within ESPA and Thousand Springs Discharge

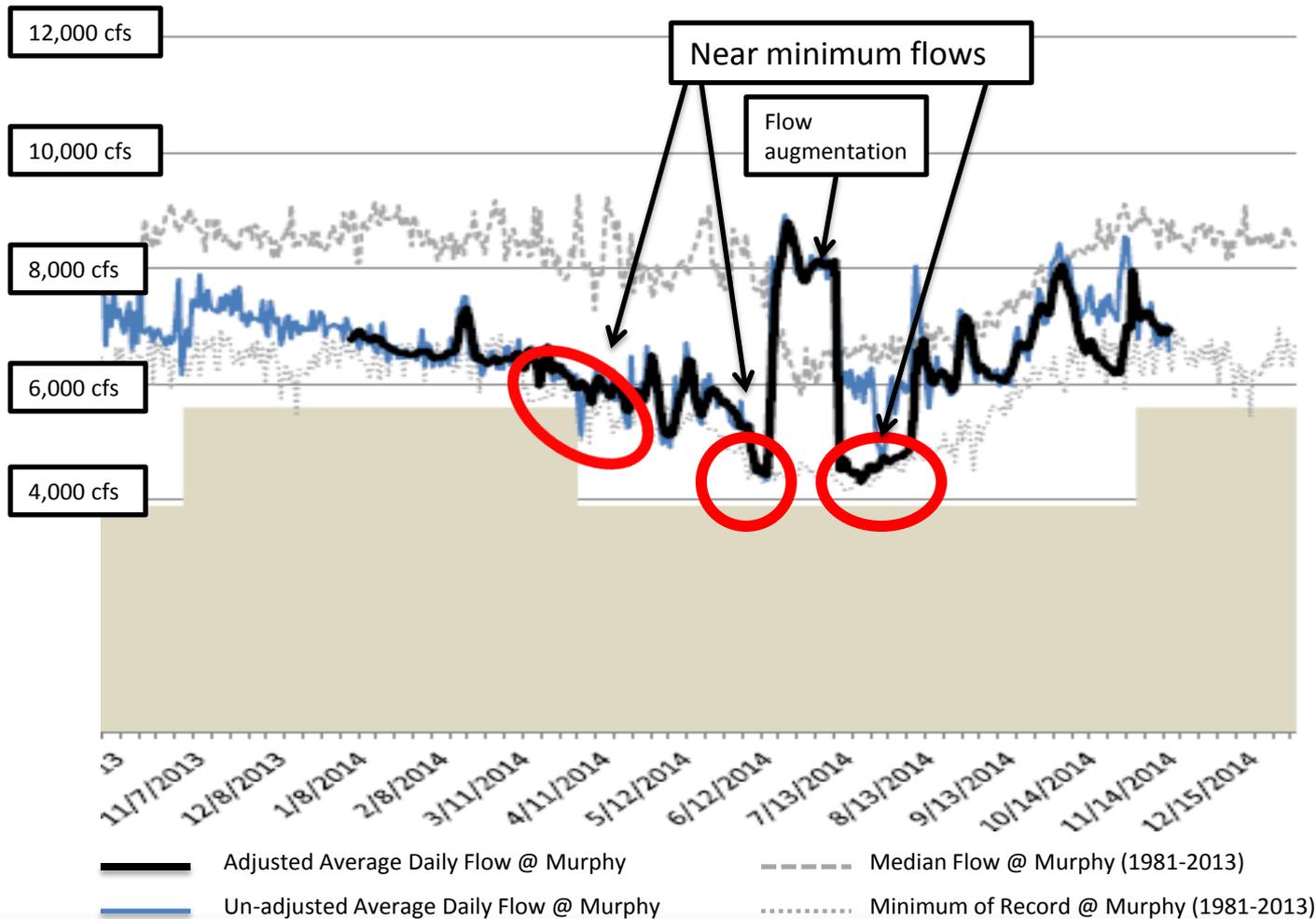






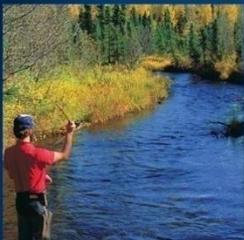
Snake River Near Murphy Gage

Swan Falls Dam - 2014



Implications of Swan Falls Agreement Combined with Milner Zero Flow Policy

- ✓ ESPA must be managed to sustain spring flows sufficient to meet the Swan Falls minimum flows
- ✓ Current situation is due partly to “deferred maintenance” of the ESPA
- ✓ Need to “re-build” ESPA





CAMP Plan for ESPA

Average loss from storage is about 200,000 AF/year

- **GW-SW Conversions**

- ✓ About 60,000 AF/yr delivered to offset GW pumping in Southwest ID and Magic Valley & North Snake GWD's
- ✓ A&B pipeline under construction

- **Demand Reduction** – About 17,000 acres in CREP

- **Weather Modification/Cloud Seeding** –

- ✓ Operational program - State, Idaho Power, & water user partnership – current program: 283,000 acre-foot annually
- ✓ Expansion underway in Upper Snake and in Wood Basins

- **Managed Recharge** -

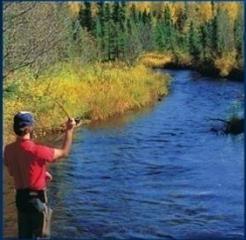
- ✓ average annual volume about 74,000 acre-feet
- ✓ Goal of 250,000 acre-feet/year
- ✓ Need to increase!

REAL TEST OF SUCCESS WILL BE AQUIFER STABILIZATION & RECOVERY!

ESPA Recharge – two different water supply patterns

- ✓ At Milner:
 - Recharge water available all winter (Nov-Mar)
 - Even in driest years 500 cfs spills past Milner
- ✓ Above Minidoka and American Falls:
 - Recharge water available in spring run-off during average-to-above average years
 - Need to ensure reservoirs fill first
 - Senior hydro right at Minidoka

Recharge operations in
Twin Falls Canal
November 12, 2014

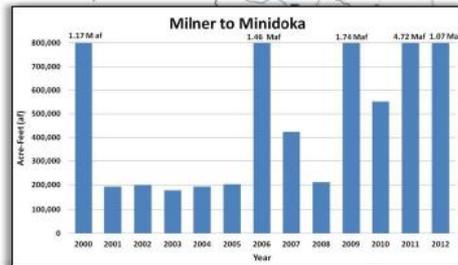


ESPA Recharge – two different water supply patterns

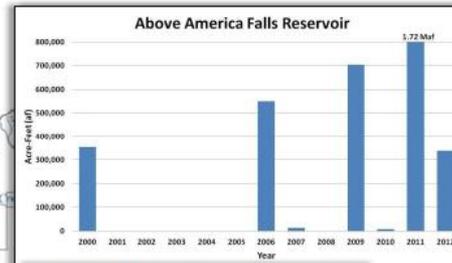
Water Available for Recharge 2000 - 2012

Eastern Snake Plain

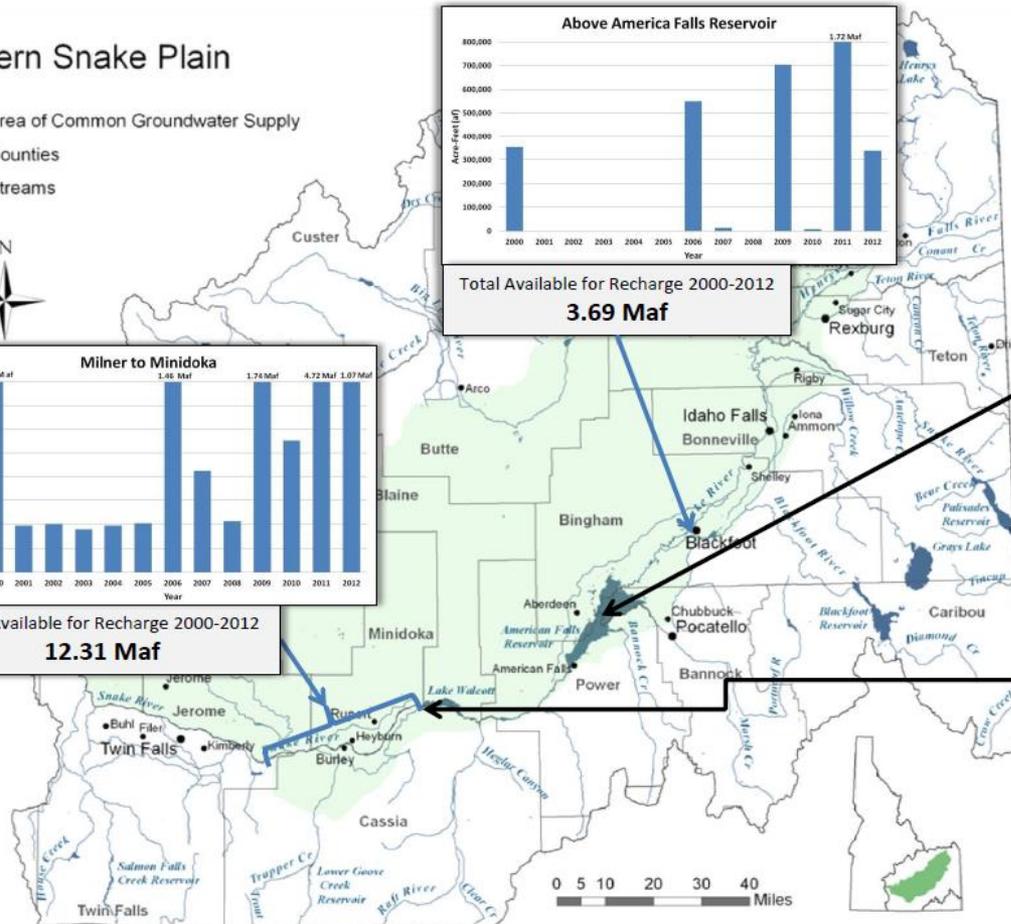
- Area of Common Groundwater Supply
- Counties
- Streams



Total Available for Recharge 2000-2012
12.31 Maf



Total Available for Recharge 2000-2012
3.69 Maf



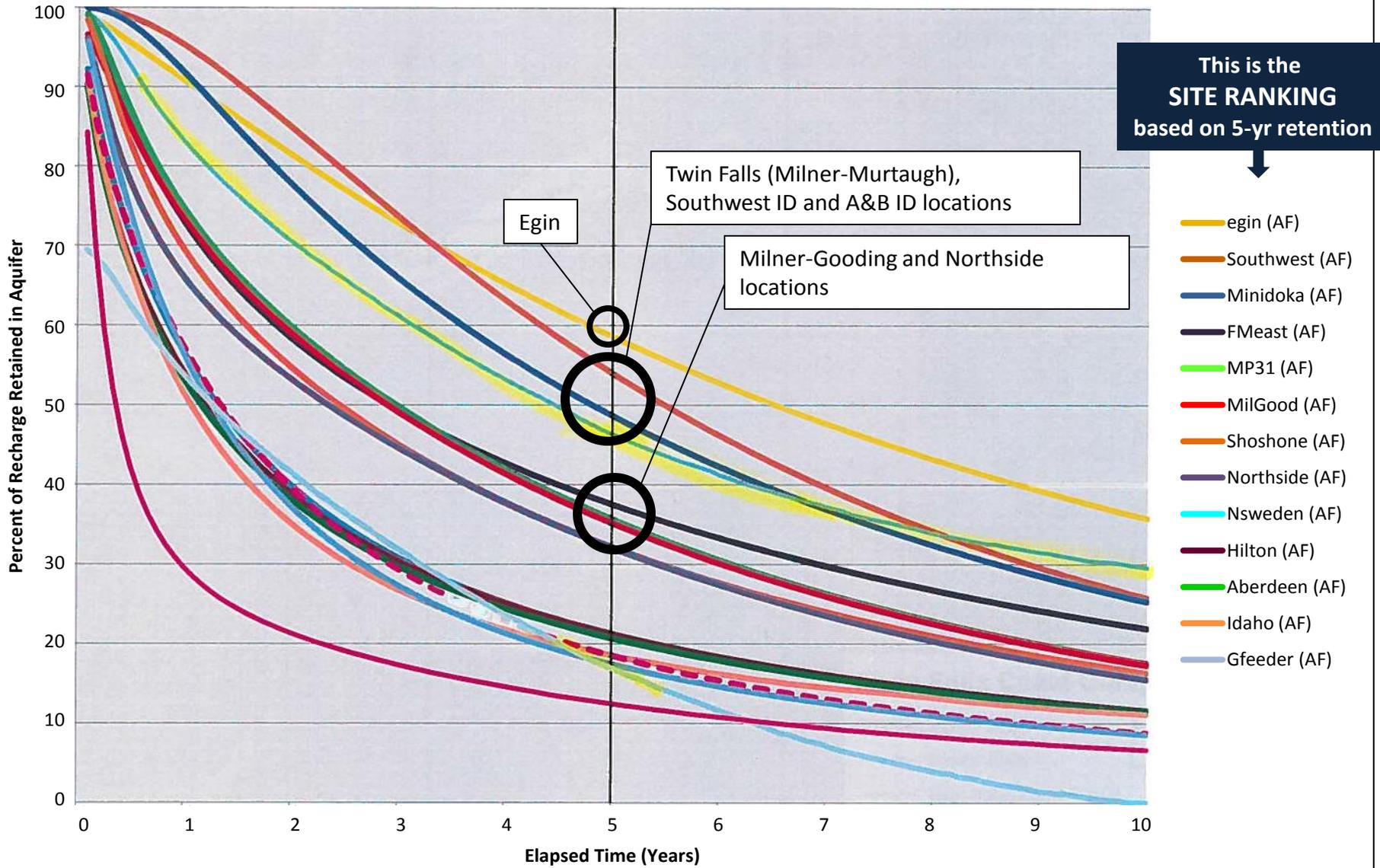
American Falls Reservoir:
1.6 million AF
1921 priority

Unsubordinated
hydropower rights
at Minidoka Dam:
2,700 cfs
1909/1912 priority



Retention of Recharged Water within the Aquifer

ESPAM 2.1 Ground Water Model



Conclusions for ESPA Recharge

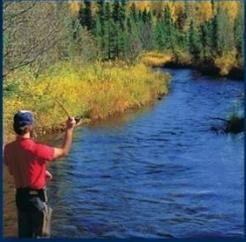
- Water rights and ensuring reservoir fill drives water supply availability by location
- Good aquifer retention and best water availability in Minidoka-to-Milner reach
- Diversion of winter flows from Milner Pool – available every year
- Need additional capacity (diversion & infiltration) in this reach to take advantage of water supply and good aquifer retention

Recharge operations
in North Side Canal
February 24, 2015

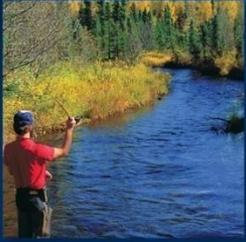


Conclusions for ESPA Recharge

- Recharge above American Falls (AMF) important for maintaining spring flows into AMF area
- Diversion for recharge above AMF can occur during spring run-off in average-to-above average years



Hilton Spill recharge
basin Aberdeen-
Springfield Canal



Winter Recharge 2014-2015

- Goal of 250,000 AF/yr to stabilize and rebuild aquifer
- Eastern Snake Plain Aquifer losing about 200,000 AF/yr from aquifer storage
- Water Board adopted incentivized payment schedules for canals – **MAKE RECHARGE A PARTNERSHIP!**



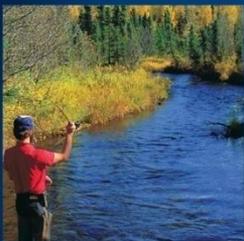
Recharge at MP31 recharge basin/Milner-Gooding Canal – Jan 16, 2015

Winter Recharge 2014-2015

October 27 to February 15:

- ✓ Recharge water right “on” below Minidoka Dam
- ✓ Recharged 37,000 AF in canals below Minidoka
- ✓ Also spilled 200,000 AF past Milner due to lack of capacity
- ✓ Water Board working with canal company partners to address this capacity issue

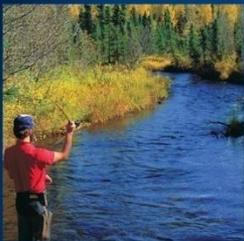
Recharge operations in
Twin Falls Canal
November 12, 2014



Winter Recharge 2014-2015

February 16 to March 4:

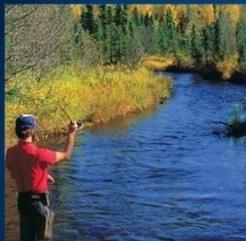
- ✓ Recharge water right “on” both above American Falls and below Minidoka Dam
- ✓ Recharge began in Upper Valley canals
- ✓ 500 cfs recharged in canals above American Falls & 700 cfs in canals below Minidoka (full right is 1,200 cfs)
- ✓ Must maintain 2,700 cfs passing Minidoka Dam for recharge to occur in Upper Valley



Winter Recharge 2014-2015

Beginning March 5:

- ✓ Recharge water right turned “off” above American Falls
- ✓ Recharge right still “on” below Minidoka
- ✓ About 400 cfs diverted for recharge – 300 cfs being spilled past Milner due to lack of diversion capacity
- ✓ Anticipate recharge continuing until start of irrigation about April 1st

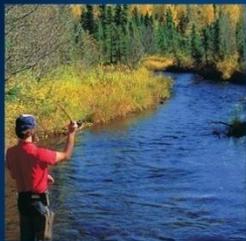


Shoshone Recharge Basin
March 5, 2015

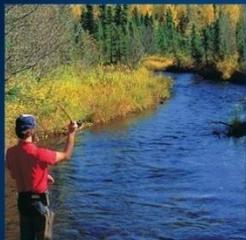
Winter Recharge 2014-2015

As of March 16:

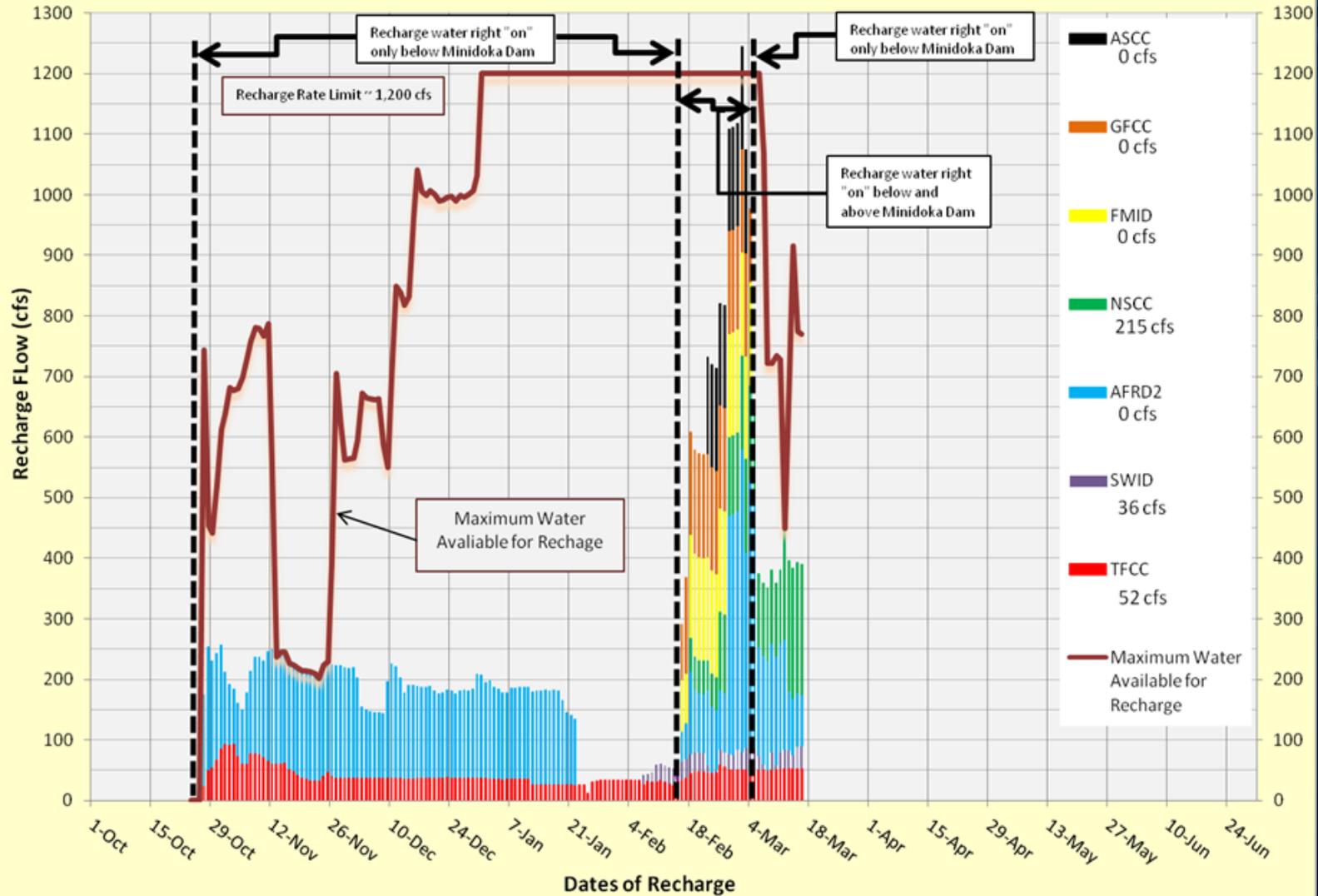
- Total ESPA recharge: 72,266 AF
- Amount below Minidoka: 58,095 AF
- Amount above American Falls: 14,170 AF
- Total spill past Milner since Oct 27: ~ 300,000 AF



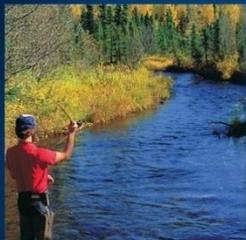
Recharge operations in
Aberdeen-Springfield
Canal & Hilton Spill
February 26, 2015



Total Water Board Recharge Diversions During 2014 - 2015 Season



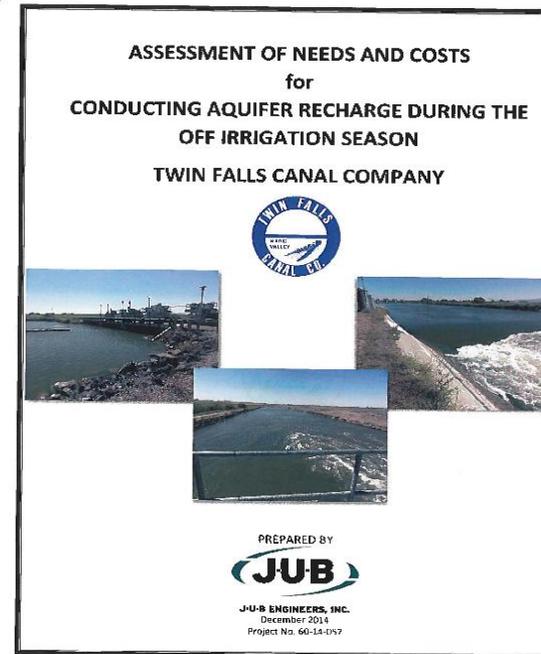
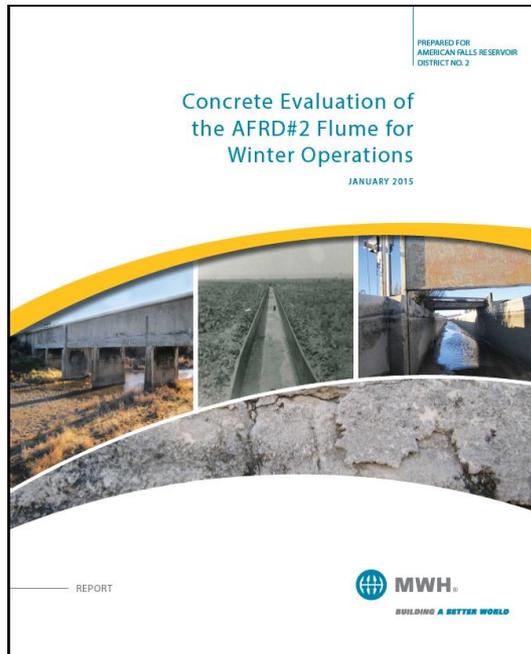
Working with Canal Company Partners to Improve Systems for Recharge



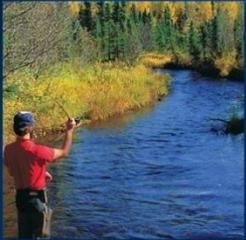
Improvement of Milner-Gooding Canal
access road to allow winter recharge



Working with Canal Company Partners to Improve Systems for Recharge



Recently completed evaluations of improvements needed for winter recharge – others in progress

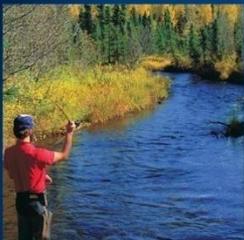


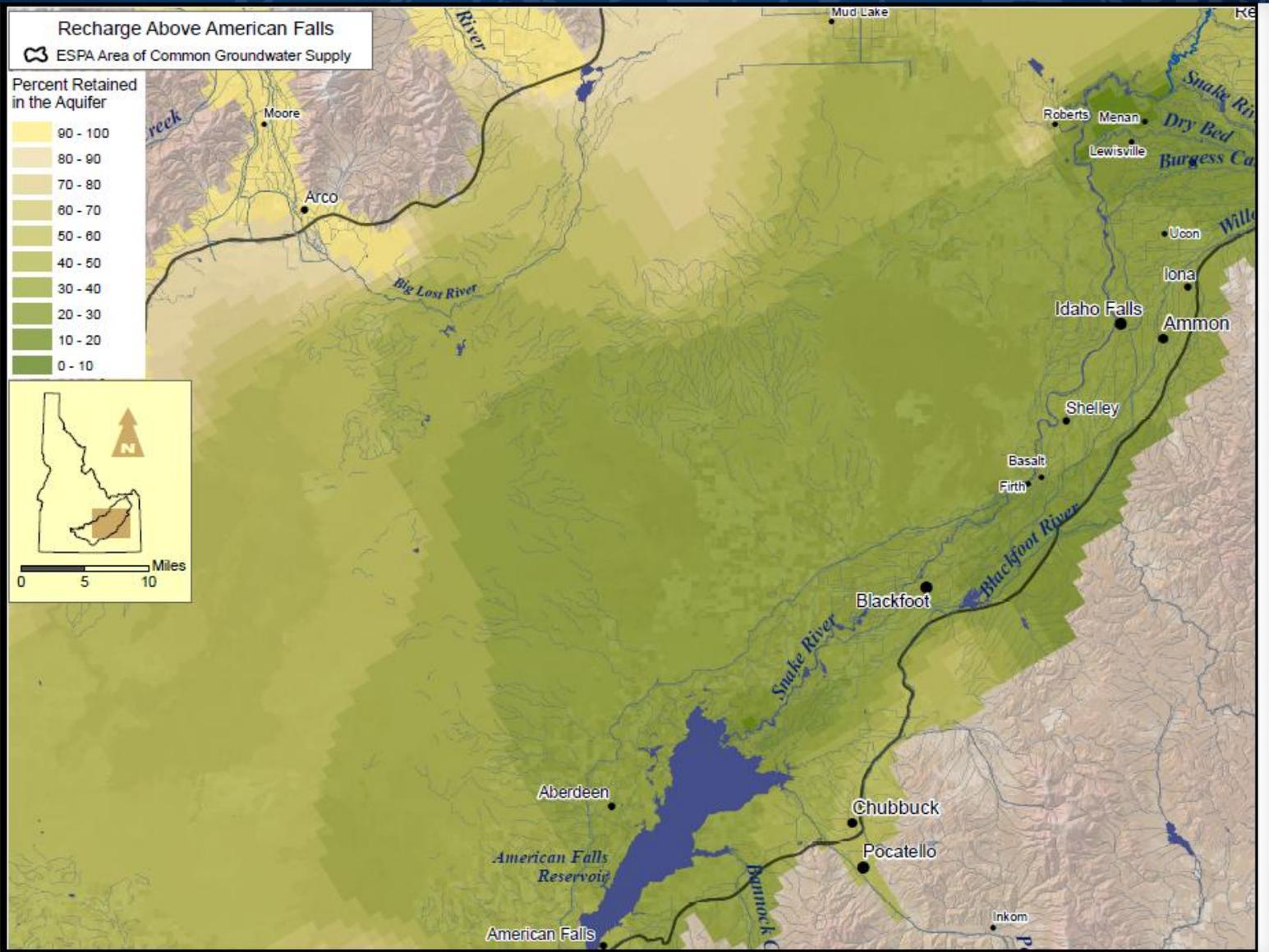
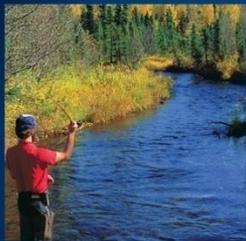
We need your help & support to get this done!



Measuring recharge flow in Milner-Gooding Canal with Idaho Power assisting January 16, 2015



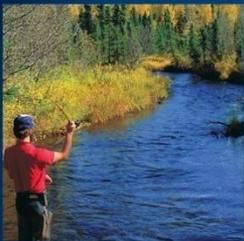




Recharge Incentive Payment Plan

Below Minidoka Dam

- ✓ Recharge water right “on” from fall through spring
- ✓ Minimum of 500 cfs spill past Milner available for recharge all winter – more in most years
- ✓ Payment per acre-foot increases with number of days delivering recharge - goal to keep canals recharging all winter



Recharge Incentive Payment Plan

Above American Falls:

- ✓ Recharge water right “on” in about 50% of years during spring runoff and flood control releases
- ✓ Recharge water availability - variable timing and variable volume
- ✓ Wide range of aquifer retention – varies from 15% retained after 5 years to 60% retained after 5 years
- ✓ Payment per acre-foot is based on combination of retention and incentive for matching canal availability with uncertain water availability
- ✓ Goal is to have canals ready when water occurs

