



## IDWR Actions Related to the Swan Falls Agreement

### Water Management Implications of the Swan Falls Agreement



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Presentation to the Legislative Natural Resources Interim Committee

August 6, 2013



# IDWR Actions Related to Swan Falls Agreement - Water District 2

- Snake River from Milner Dam to Swan Falls Dam
- Created in July 2012
- Purpose is administration of water rights in this reach of river
  - ensure delivery of water according to water rights
  - Measurement and reporting of diversions
- About 150 diversions with irrigation rights totaling more than 3,000 cfs
- Phased in measurement device installation on diversions through 2016



# **IDWR Actions Related to Swan Falls Agreement**

## **– Streamflow Measurement & Monitoring Plan**

- Measurement & monitoring protocol for delivery of water to minimum flows at Murphy gage
- Main issue is how to adjust for effects of Idaho Power's operations on minimum flow at Murphy gage
  - Load following operations (increase or decrease flows based on power demands) can occur at Lower Salmon, Bliss, C.J. Strike, and Swan Falls
  - Requires measurement of change in storage at these reservoirs
  - Consider time lag effects on flows at Murphy gage
- Protocol being developed with together Idaho Power, water user representatives, and USGS as technical advisor



# IDWR Actions related to Swan Falls Agreement

## – Streamflow Measurement & Monitoring Plan

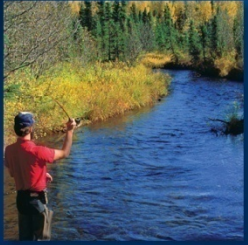
- Considerable effort on how best to measure change in storage
  - Flow method: requires many more gages than we have
  - Reservoir-Stage method: susceptible to wave and wind action; needs accurate bathometry
- Next steps
  - Implement protocol using reservoir-stage method
  - Install several new gages
  - Implement flow method and compare with reservoir-stage method
  - Work with USGS to quantify uncertainty for both methods



## Swan Falls Agreement

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

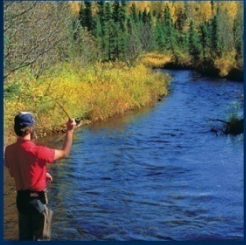
- ✓ 3,900 cfs (4/1 through 10/31) and
- ✓ 5,600 cfs (11/1 through 3/31)



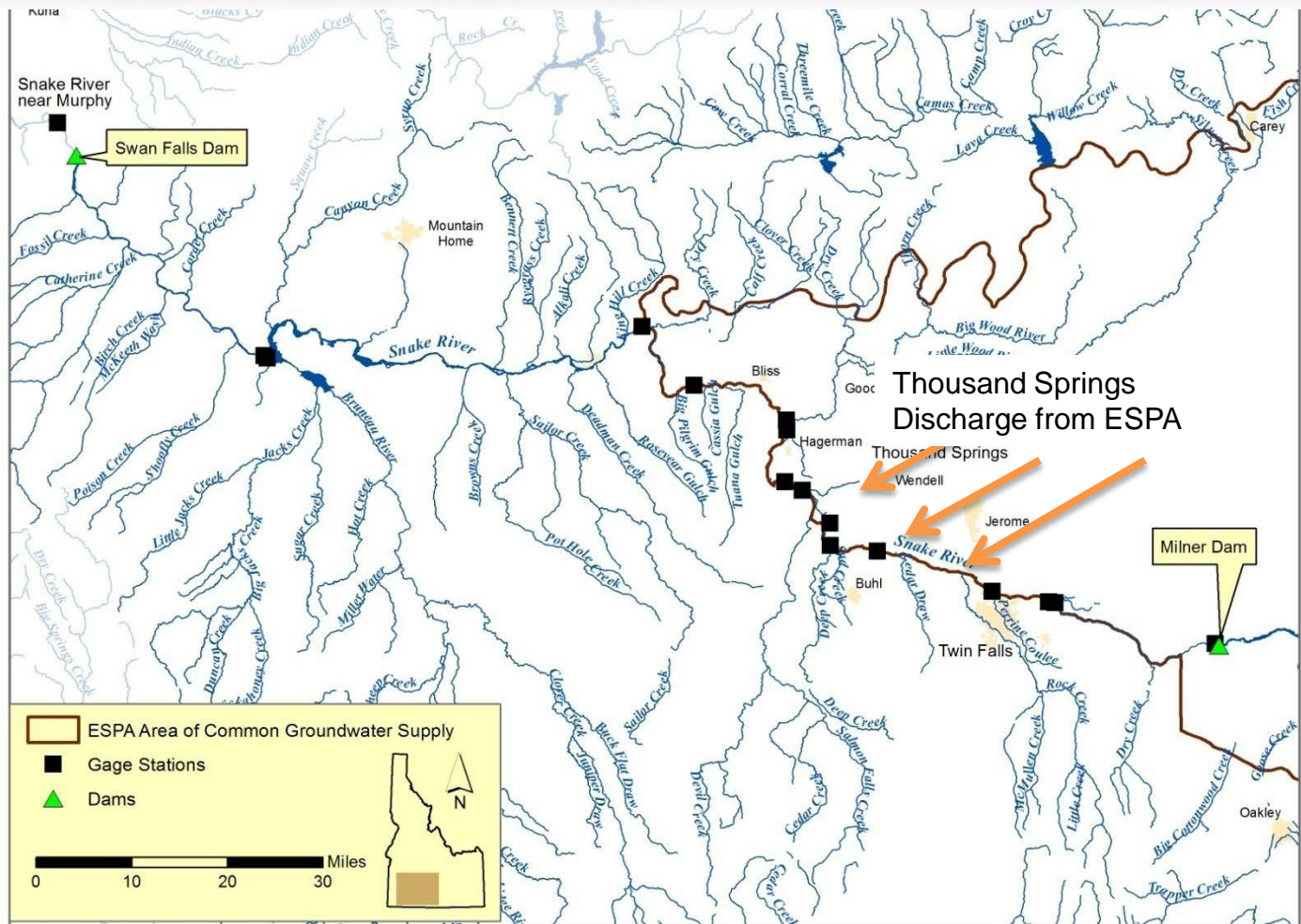
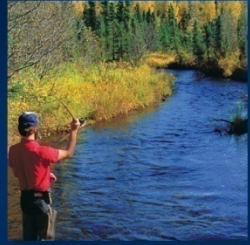
Swan Falls Dam

## However, 180 miles Upstream at Milner Dam

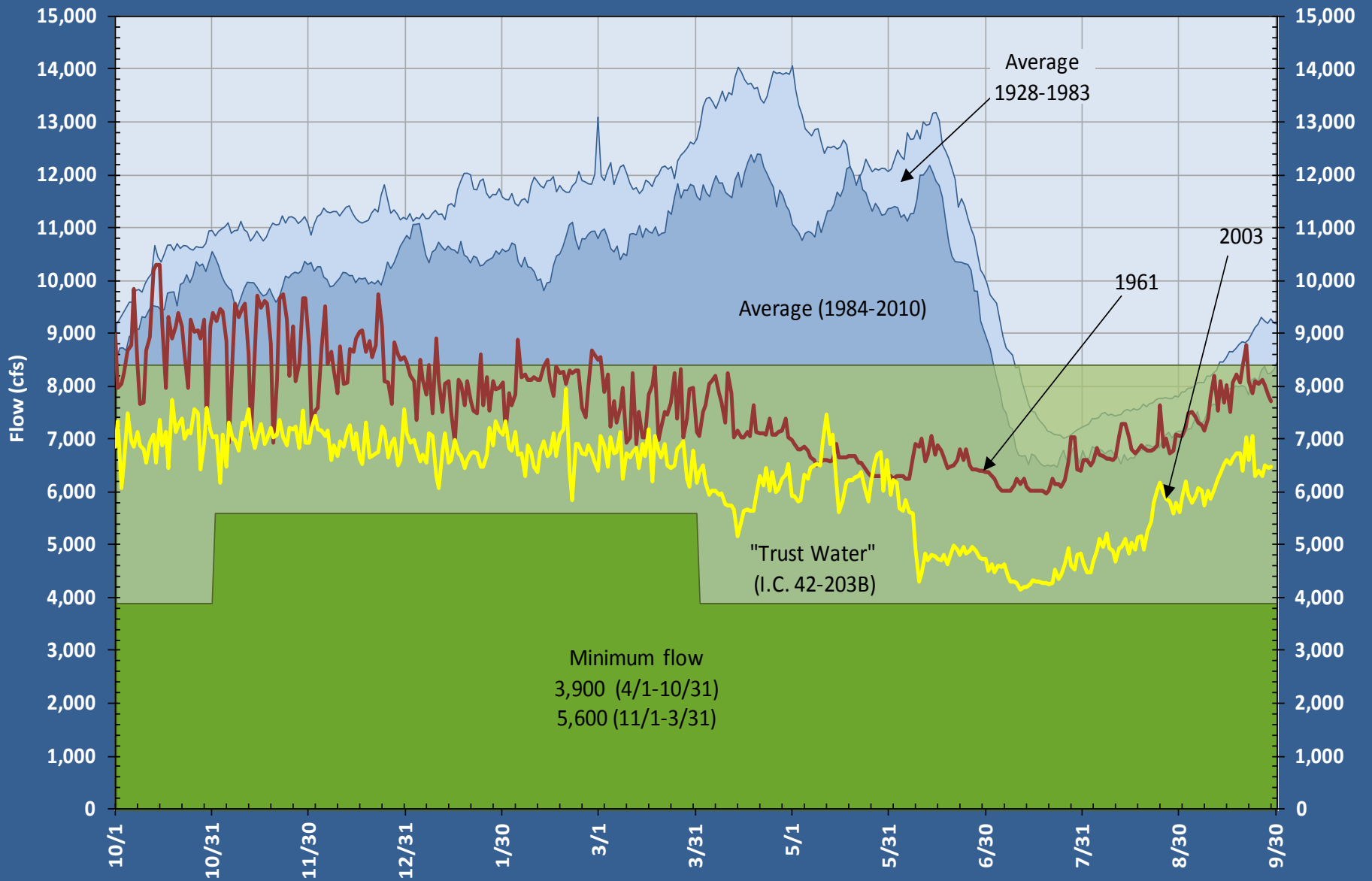
- Water planning, policy, and practice provides for full development of Snake River above Milner Dam
- At times this practice reduces Snake River flow at Milner Dam to zero



Milner Dam

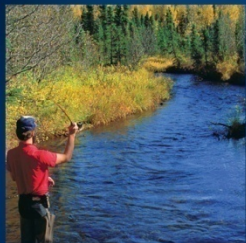


When flow is zero at Milner, flow at Swan Falls Dam is made up almost entirely of spring flows from the ESPA

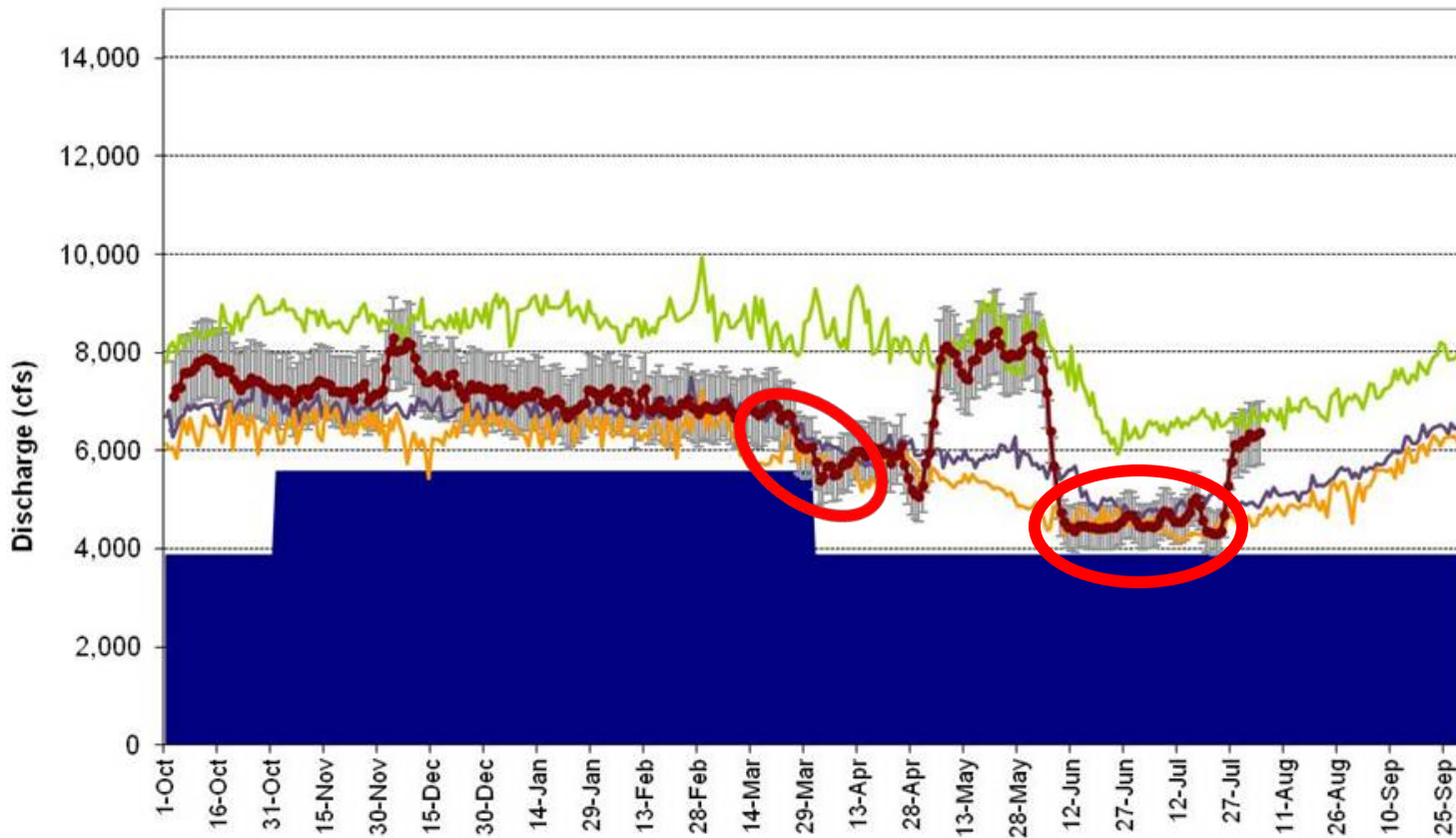


- Average daily flow (1928-1983)
- Average daily flow (1984-2010)
- "Trust Water" (I.C. 42-203B)
- Established minimum flow
- 1961 Flow (cfs)
- 2003 Flow (cfs)





### Snake River Near Murphy



■ Minimum Instream Flow (3900 cfs Apr - Oct, 5600 cfs Nov - Dec)
 — 50% Exceedence (1981-2012)

■ 90% Exceedence (1981 - 2012)
 — Minimum of Record (1981-2012)

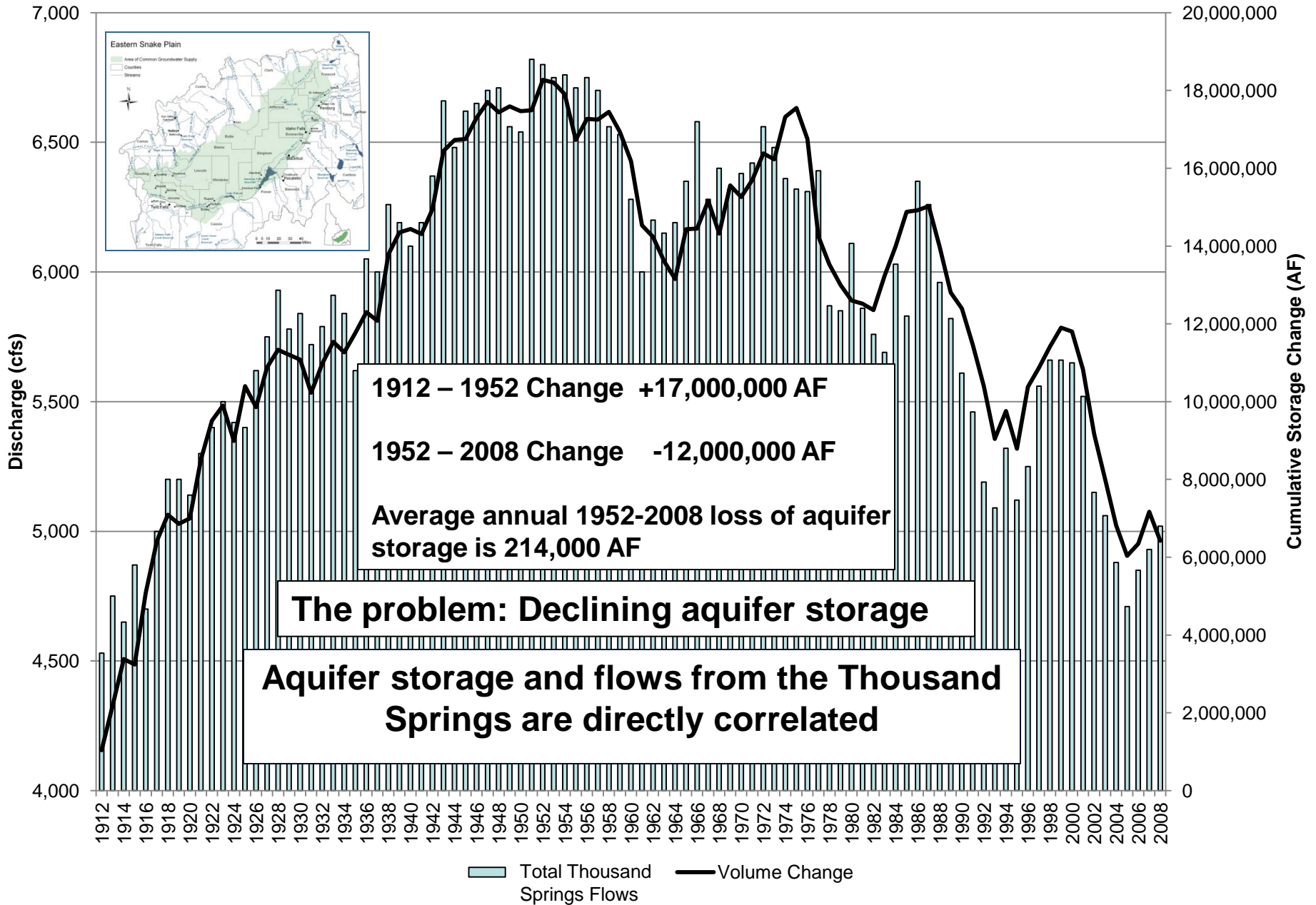
—●— 2013 Flow (3 day average, +/- 10% error bars)

## 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
  - ✓Few junior-priority trust rights in river that could be curtailed
  - ✓Curtailement of junior trust rights in ESPA not good solution – delayed timing means effects don't reach river when needed and causes economic damage in process



# Thousand Springs Discharge and Eastern Snake Plain Aquifer Cumulative Storage Change



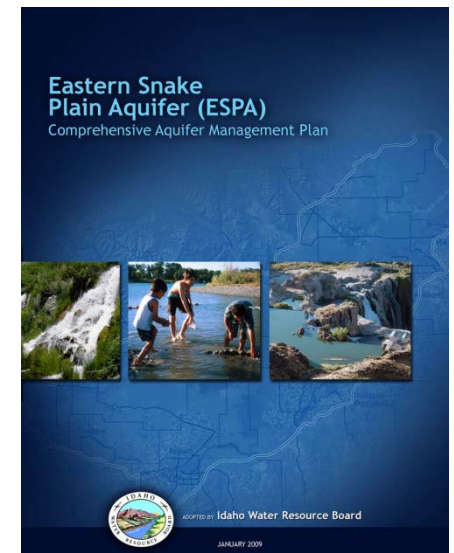
## What tools are available to sustain spring flows?

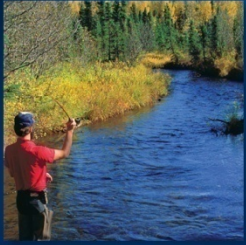
- ✓ Managed aquifer recharge
- ✓ Ground water-to-surface water conversion projects
- ✓ Demand reduction (ground water use)
- ✓ Weather modification – more streamflow results in less supplemental ground water pumping



## How does CAMP fit into the equation?

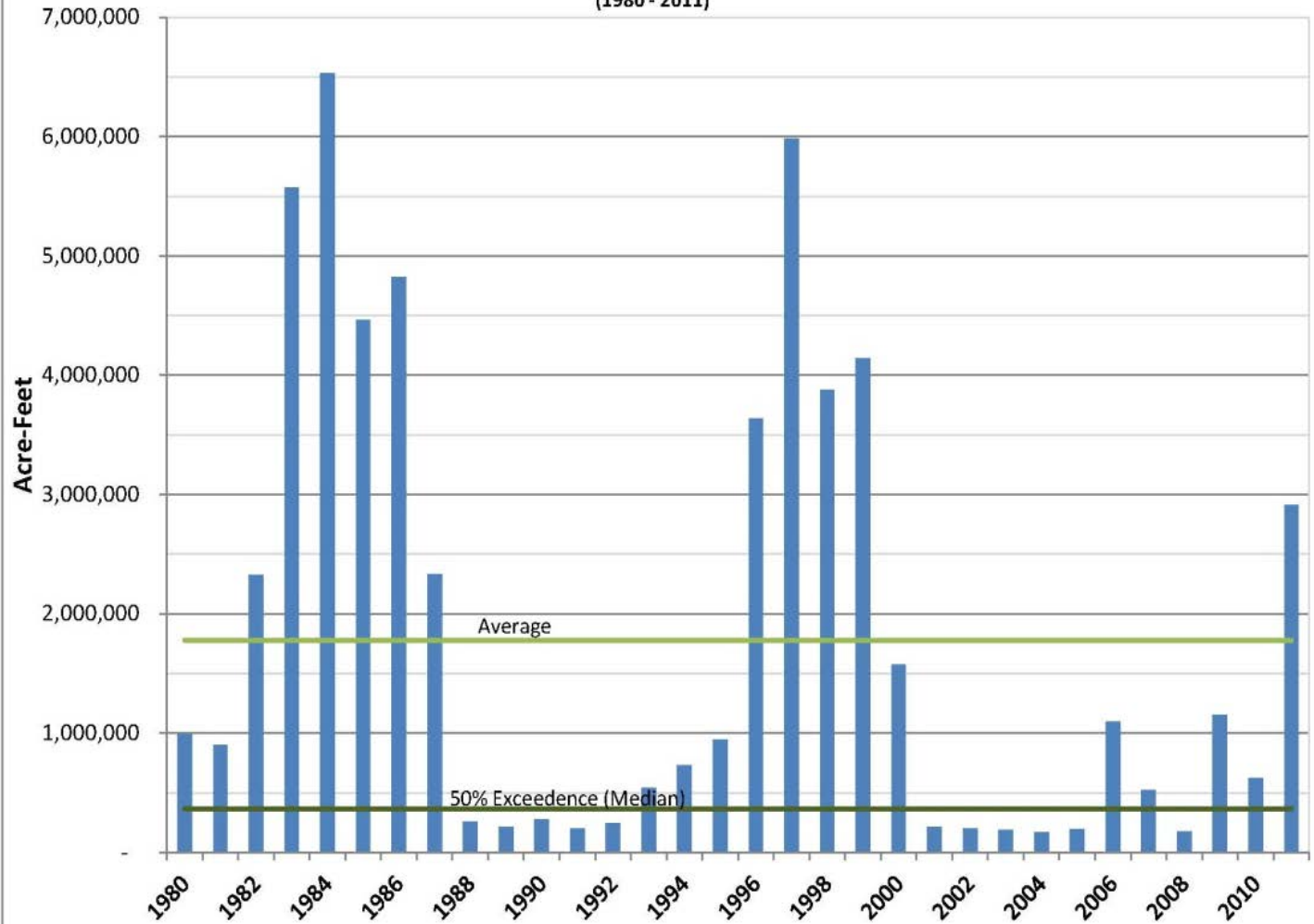
- ✓ CAMP lays out a goal for ESPA water budget change through a series of management actions
- ✓ Phase 1 of CAMP (200-300 KAF water budget change) is designed to stabilize aquifer storage - this should stabilize spring flows
- ✓ Phase 2 (600 KAF water budget change) is designed to recover some aquifer storage – this should recover some spring flows
- ✓ CAMP funding system not enacted
- ✓ Progress being made by using some IWRB funds to leverage water user funds and securing federal grants





## Total Annual Volume of Natural Flow Passing Milner

(1980 - 2011)



## How does CAMP fit into the equation?

CAMP Progress:

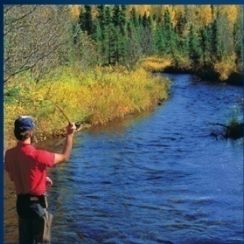
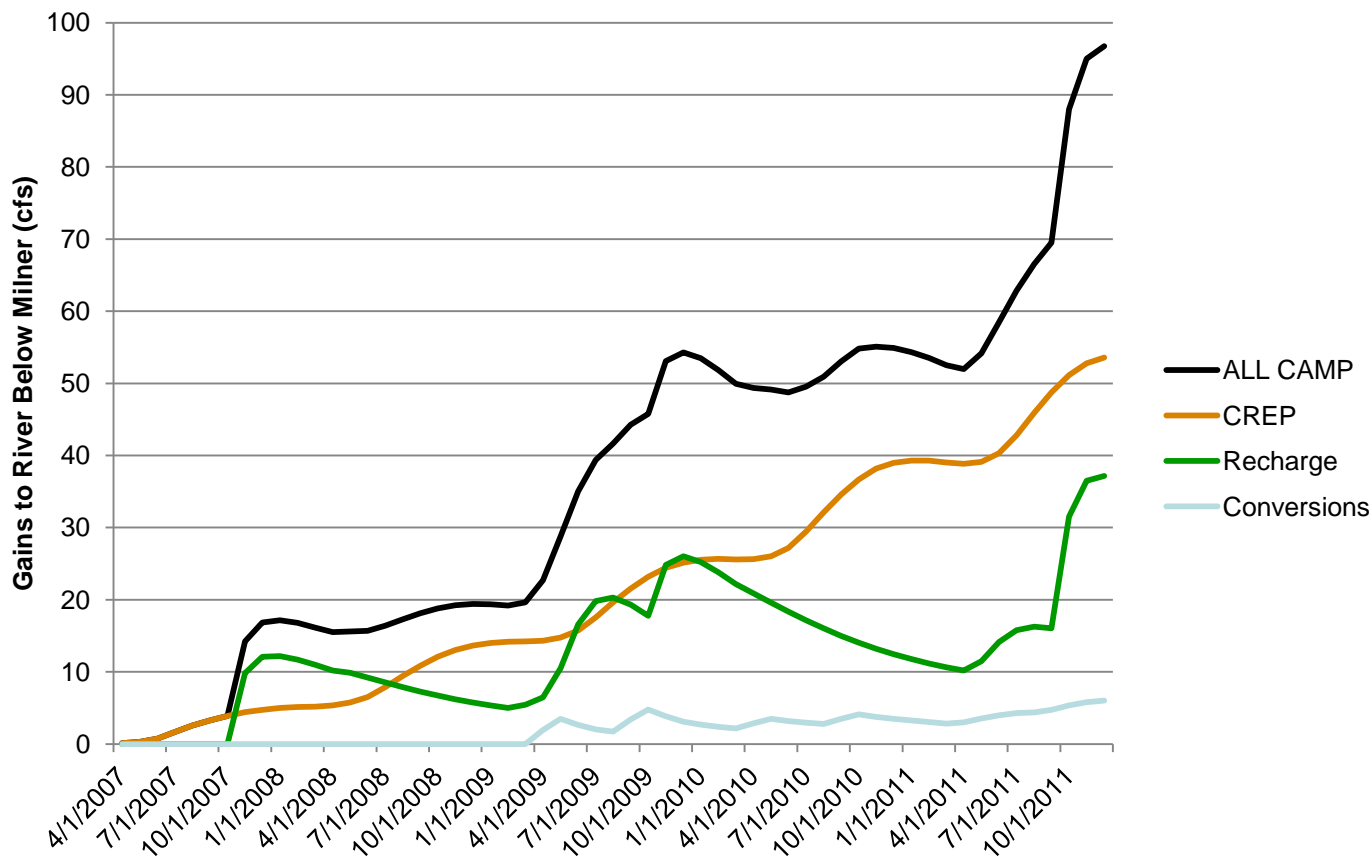
	Phase 1 CAMP Target	Progress 2009-2012
Recharge	100,000 AF/yr	117,111 AF/yr average
GW-SW Conversions	100,000 AF/yr	Projects installed on 11,612 acres. Should reduce GW pumping by 15,000 AF/yr
Demand Reduction	95,000 AF/yr	42,000 AF/yr (CREP)
Cloud Seeding	Pilot program – analyze results	19 remote-operated generators installed. IPCO estimates current operations will produce average of 124,000 AF/yr additional flow

**Real test of success will be aquifer stabilization!**



## How does CAMP fit into the equation?

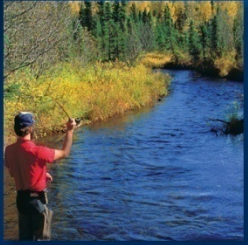
### CAMP Activities: Effects on Snake River Flow Below Milner





## How Does the Milner to King Hill Part B State Water Plan Fit into the Equation?

- Adopted in 1992 - focused on protected river designations for remaining free-flowing rapids
- Pressure from proposed hydropower development in reach
- Policy statement in plan calls for sending more water over Milner – does not reflect current understanding of agreements and legislation



## How Does the Milner to King Hill Part B State Water Plan Fit into the Equation?

- Could be revised and re-structured to lay out how state will maintain Swan Falls minimum flows:
  - ✓ Tie minimum flow obligations together with spring flow outcomes from CAMP
  - ✓ Develop predictive tools to forecast potential breaches of minimum flows
  - ✓ Use of IWRB's Palisades storage & acquisition or development of additional storage
  - ✓ Other projects that may be necessary to maintain minimum flows



## How Does the Milner to King Hill Part B State Water Plan Fit into the Equation?

- Goal is to be proactive and have a unified plan for managing the combined ESPA-Snake River system to sustain multiple state objectives:

- ✓ Stabilize ESPA
- ✓ Milner Zero Flow (full development above Milner)
- ✓ Swan Falls minimum flows

- Have opportunity to forestall problem





Questions?