

Idaho's Water Right Mitigation Program: Creative Approaches for Municipal Water Providers

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Scott N. King, P.E., C.W.R.E.



Intro

- **Definitions, Forms & Types**
- **Rangen Call**
- **IGWA Mitigation**
- **Municipal Curtailment**

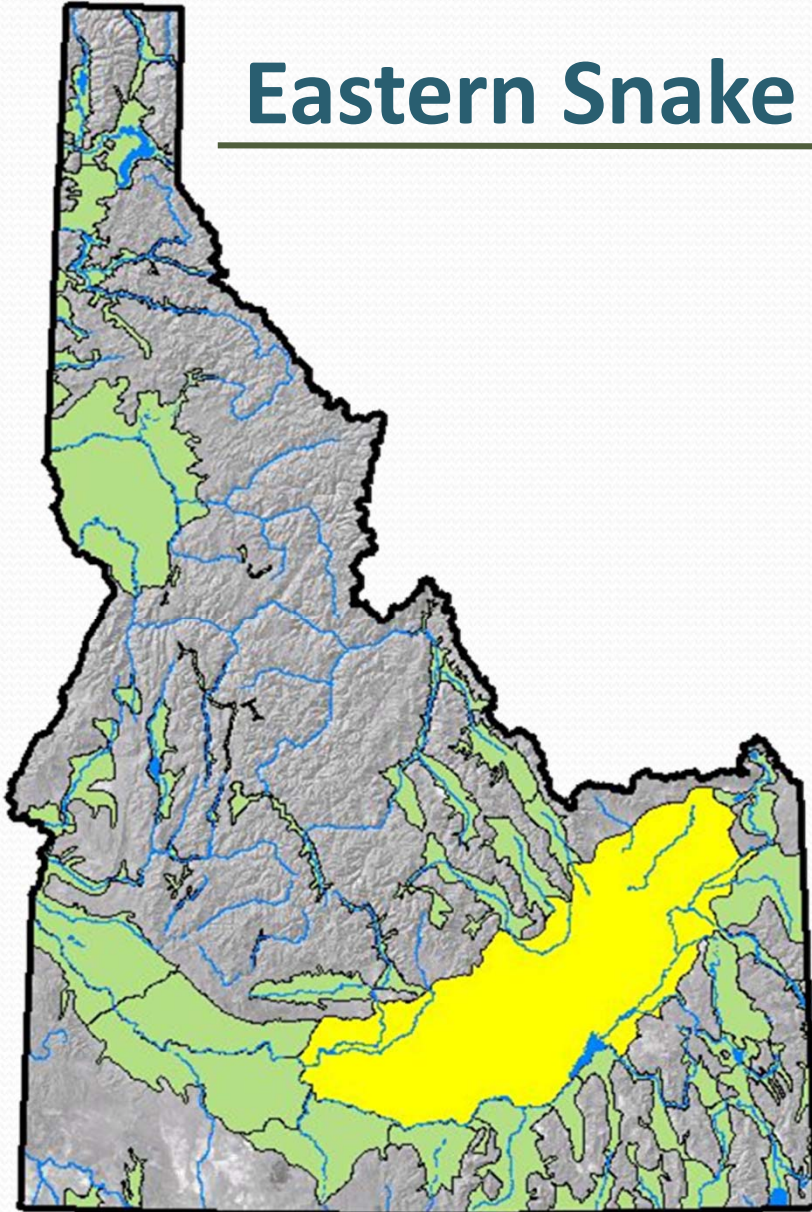
Mitigation

- **Action by one to offset injury to another**
- **Material Injury**
- **Typical forms**
 - **Aquifer recharge**
 - **Replacement water**

Mitigation

- **Types**
 - **Capital-M**
 - **Small-m**
 - **ESPA mitigation**
- **Aquifer Recharge**
 - **Public Benefit Aquifer Recharge**
 - **Aquifer Storage and Recovery**
 - **Aquifer Recharge for Mitigation**

Eastern Snake Plain Aquifer (ESPA)

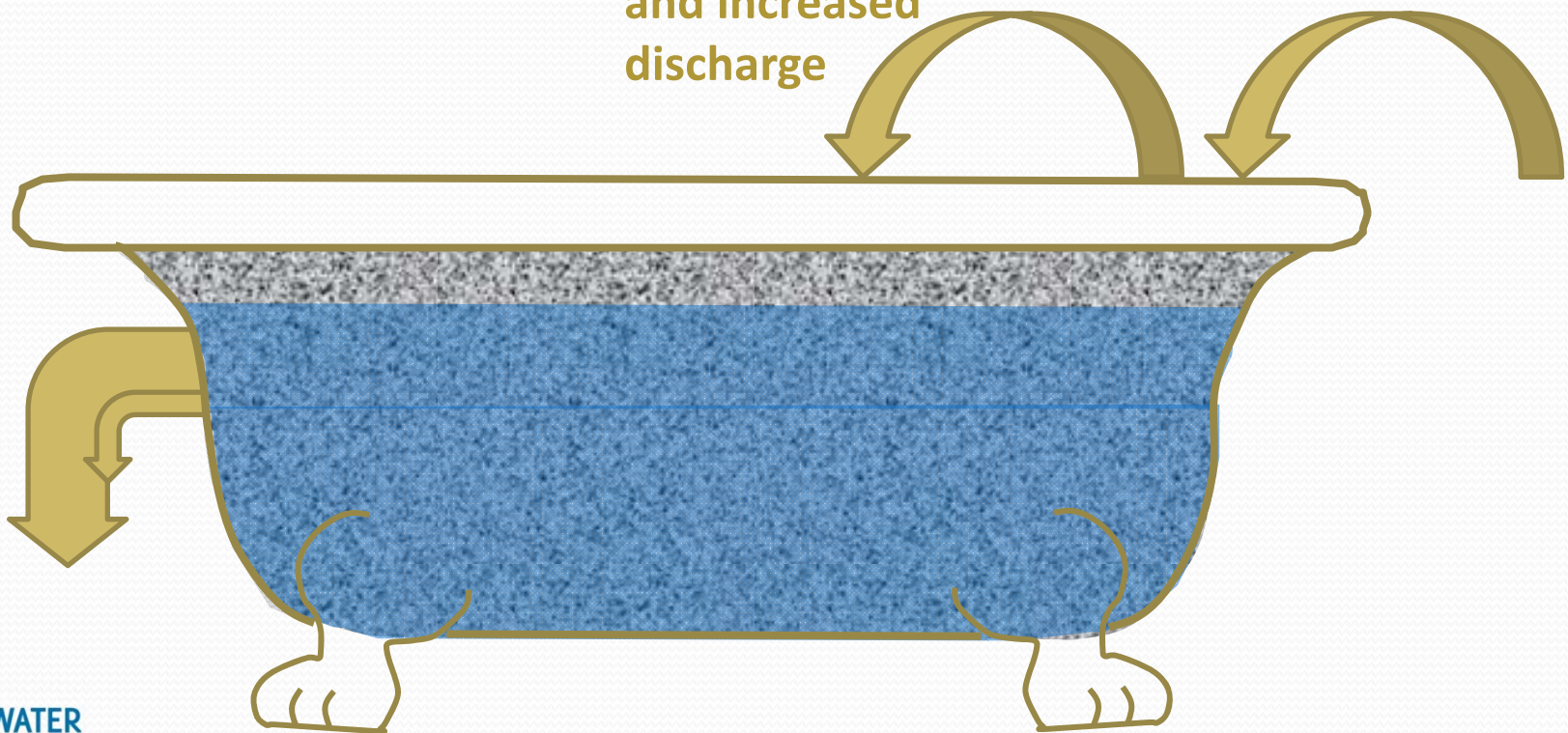


- Primarily fractured basalt
- 10,800 square miles
- Inflow: 7 million acre feet (maf)
- Consumptive ground water use: 2.2 maf
- Remainder discharges in Thousand Springs reach

Factors influencing water levels

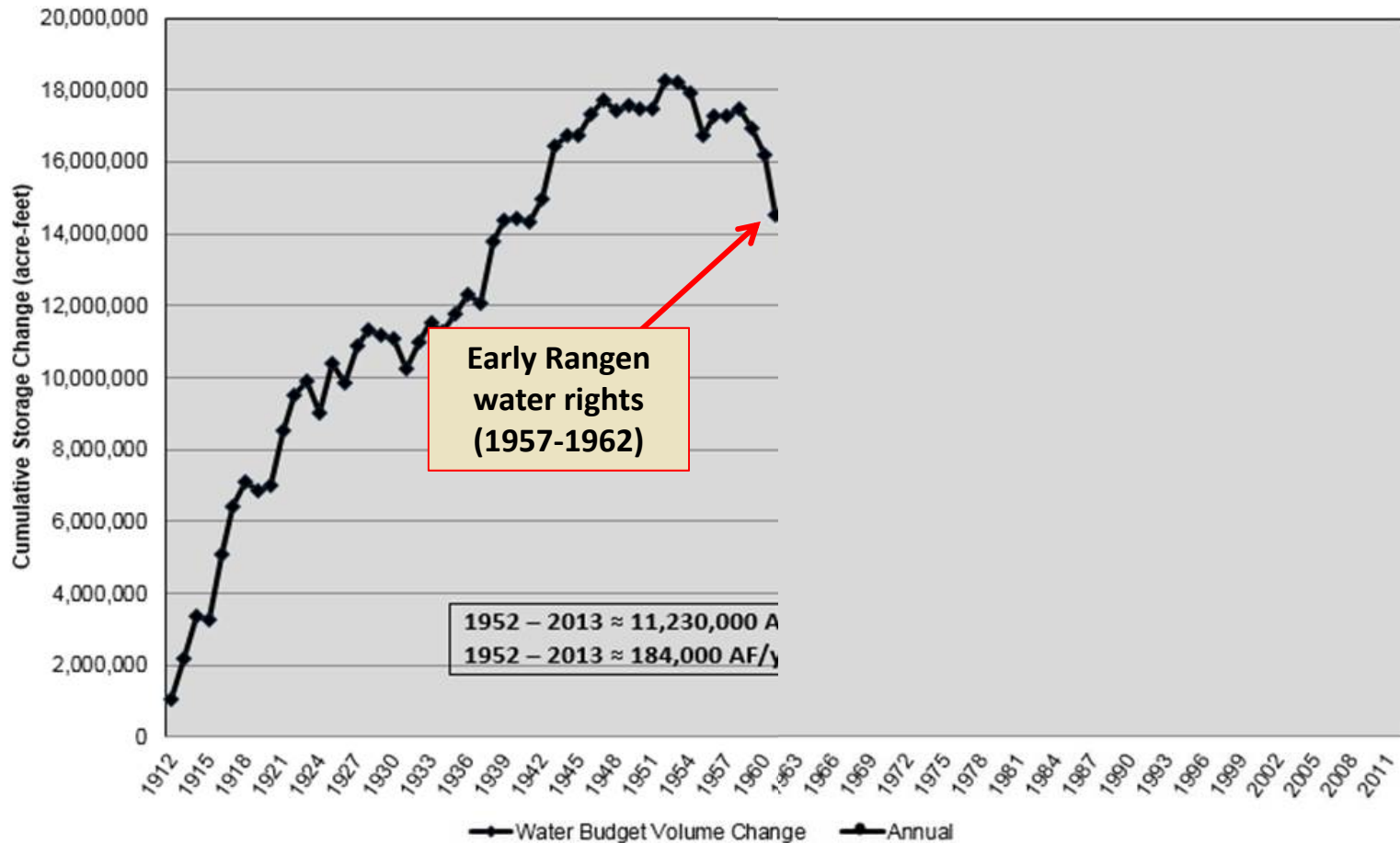
Increased **incidental recharge** from gravity irrigation leads to an increase in water levels and increased discharge

Natural Recharge results in discharge at 1000 Springs



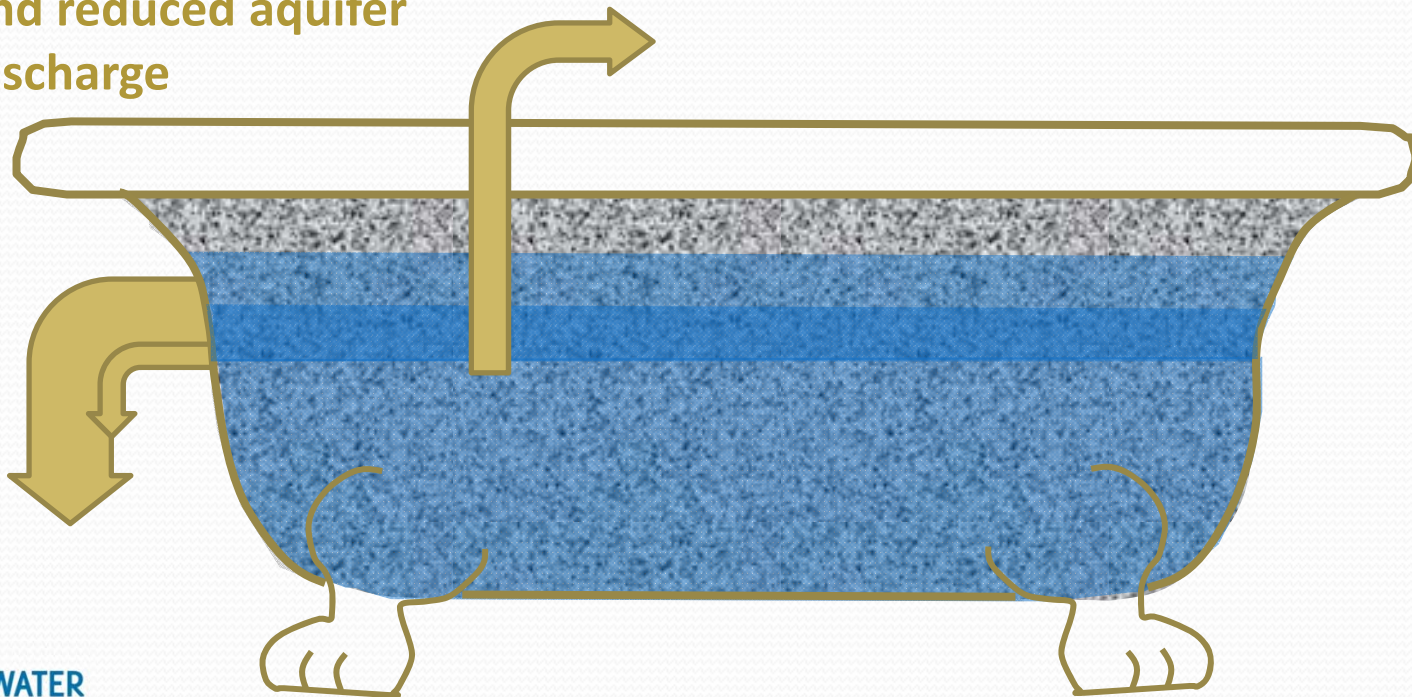
ESPA Storage

Cumulative Change in Volume of Water Stored Within ESPA



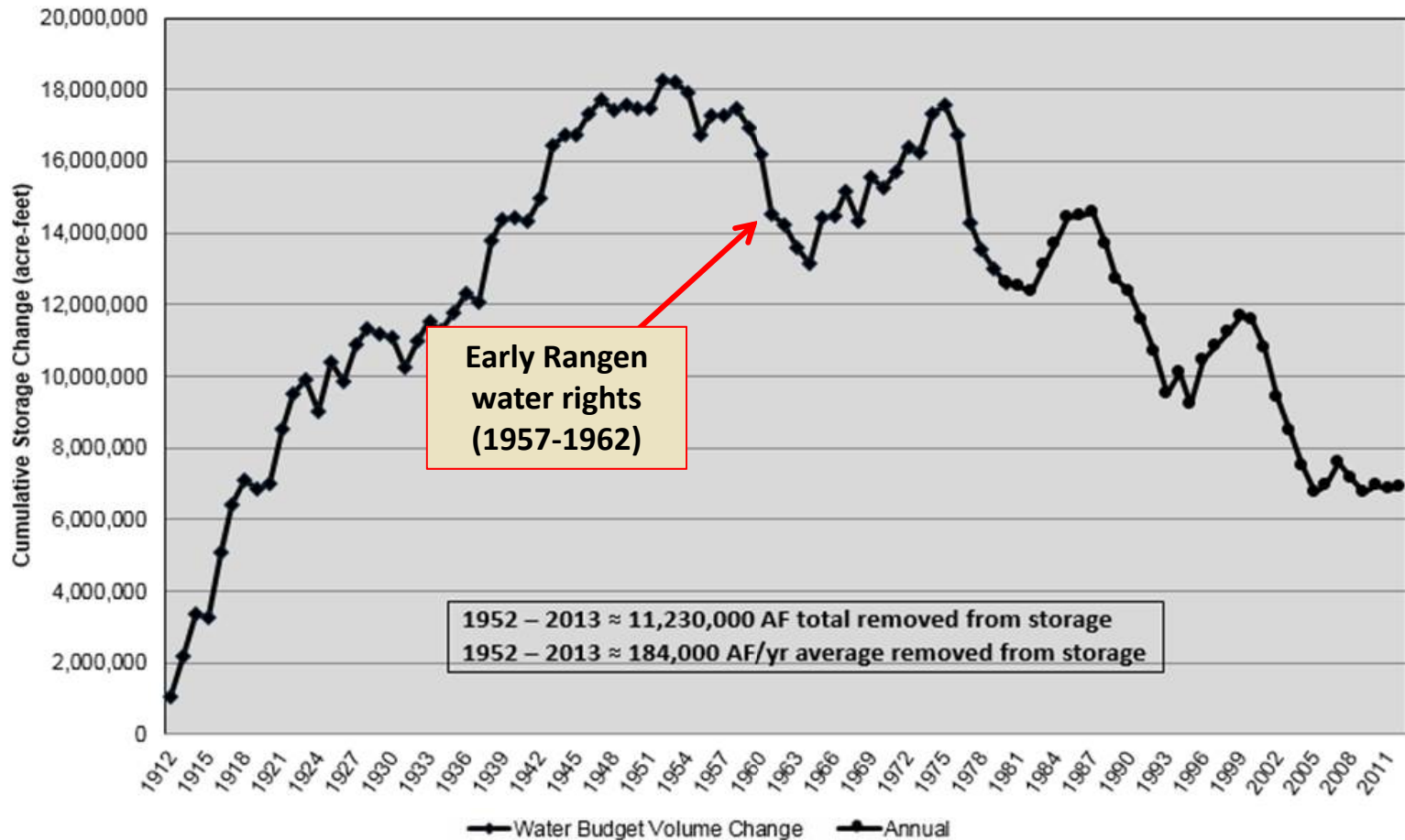
Factors influencing water levels

Reduced incidental recharge (from conversion to sprinklers), **drought**, and **pumping** led to lower water levels and reduced aquifer discharge



ESPA Storage

Cumulative Change in Volume of Water Stored Within ESPA



Conjunctive Administration

- **Surface water and groundwater rights administered as if from common source (surface water and groundwater are hydraulically connected in ESPA)**
- **Diversions for consumptive uses under junior-priority, non-exempt water rights may be curtailed during times of shortage to ensure sufficient supply for senior water-right holders**
- **Curtable rights include irrigation, commercial, industrial, and municipal rights**
- **Governed by conjunctive management rules (IDAPA 37.03.11)**

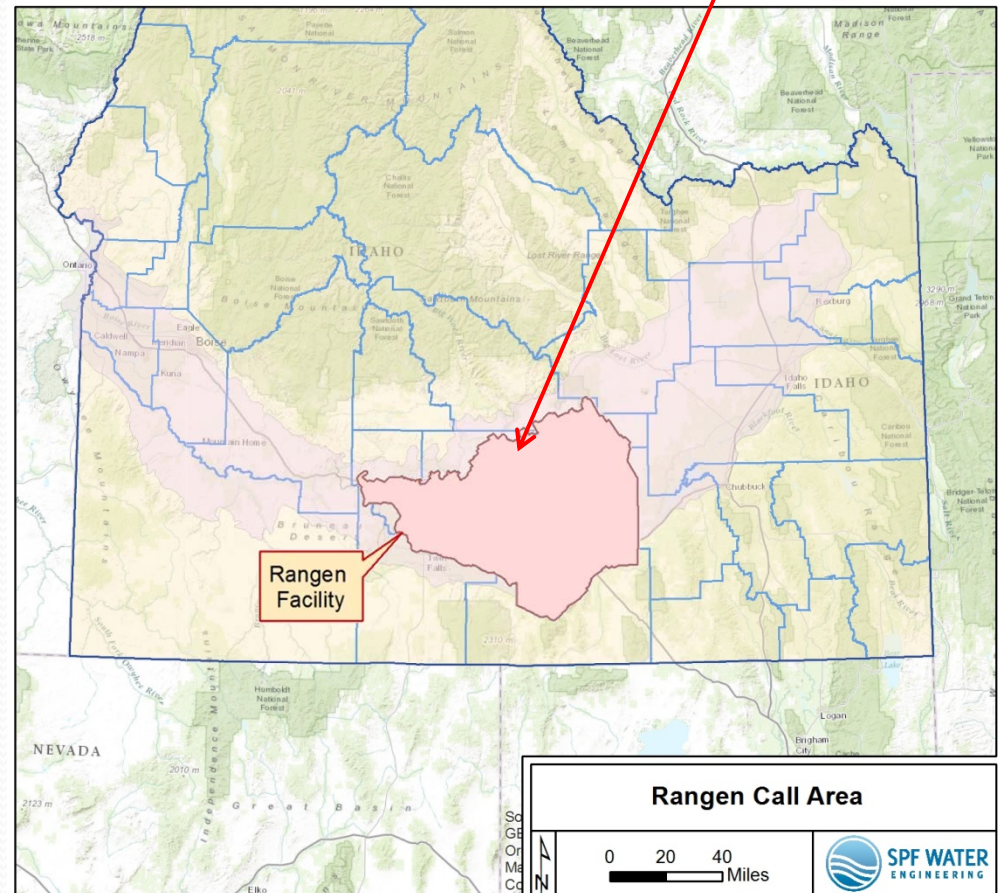
Major ESPA Delivery Calls

- A “delivery call” may initiate the administrative process
- Earlier ESPA delivery calls
 - Spring Users (Blue Lakes Trout Farm, Clear Springs Foods, etc.)
 - Surface Water Coalition (A&B, AFRD#2, BID, MID, NSCC, TFCC)
 - A&B Irrigation District

Rangen Curtailment Orders

- Delivery call filed in 2011
- Rangen found 9.1 cfs short
- IDWR required curtailment of (or mitigation for) consumptive uses under junior-priority rights
- Initially impacted 157,000 acres irrigated under post-1962 rights
- Subsequent orders: curtailment date of 8/12/1973 if full mitigation not delivered by 1/19/2015

Curtailment Area



IGWA Mitigation

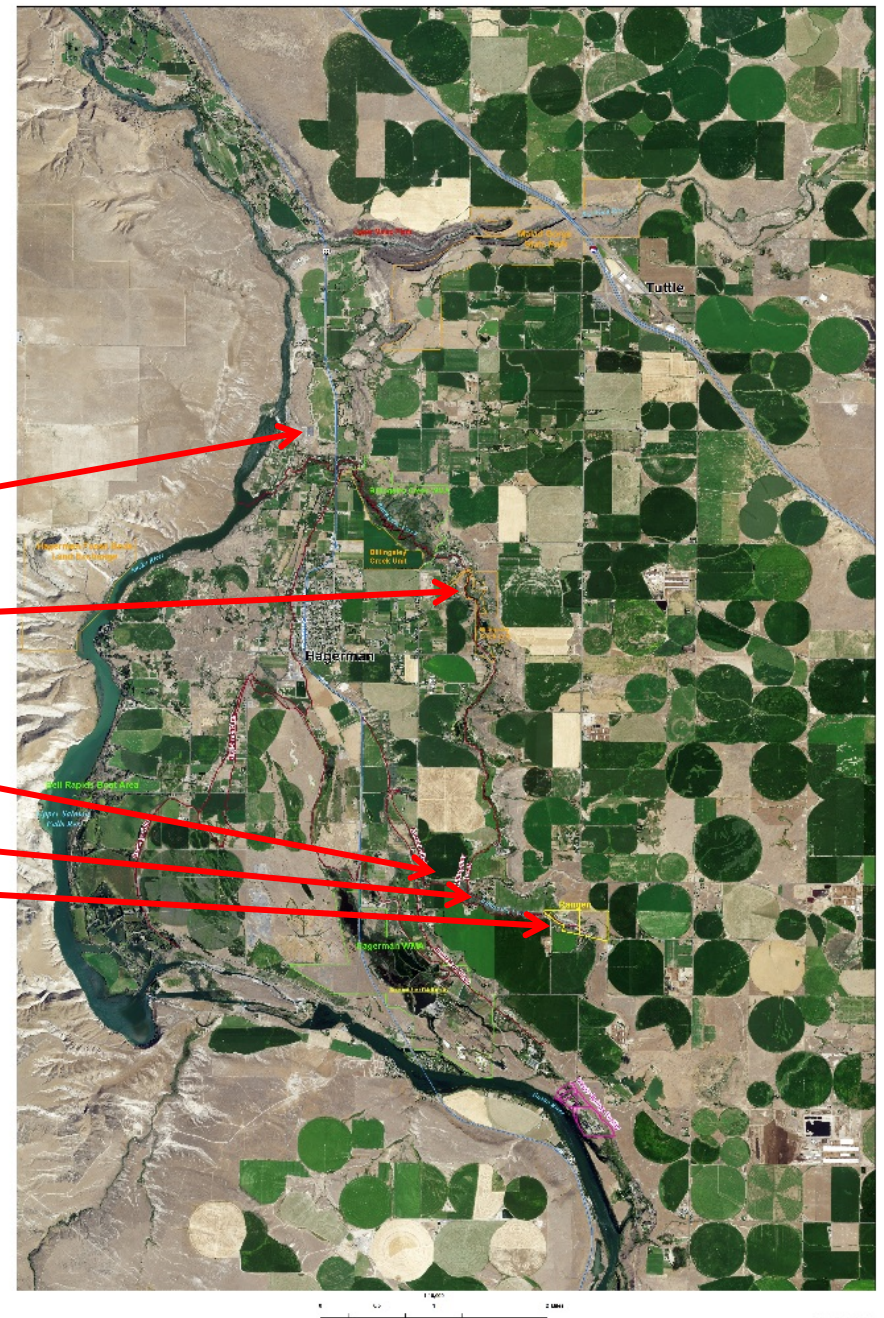
- **The Idaho Ground Water Appropriators (IGWA) is a statewide association of ground water users comprised of 9 ground water districts, 3 irrigation districts, and numerous municipal, commercial, and industrial ground water users**
- **IGWA represents over 1 million acres of agricultural land and 120,000 residential and business customers**

Hagerman Valley

- Five different entities have filed delivery calls in the Hagerman area in the recent past:
 - Lyncliff Farms
 - Aquarius
 - Ark Fisheries
 - Lee
 - Rangen
- IGWA successfully settled the non-Rangen calls without a contested case in front of IDWR, meaning the process was not litigious

Hagerman Valley Location Map

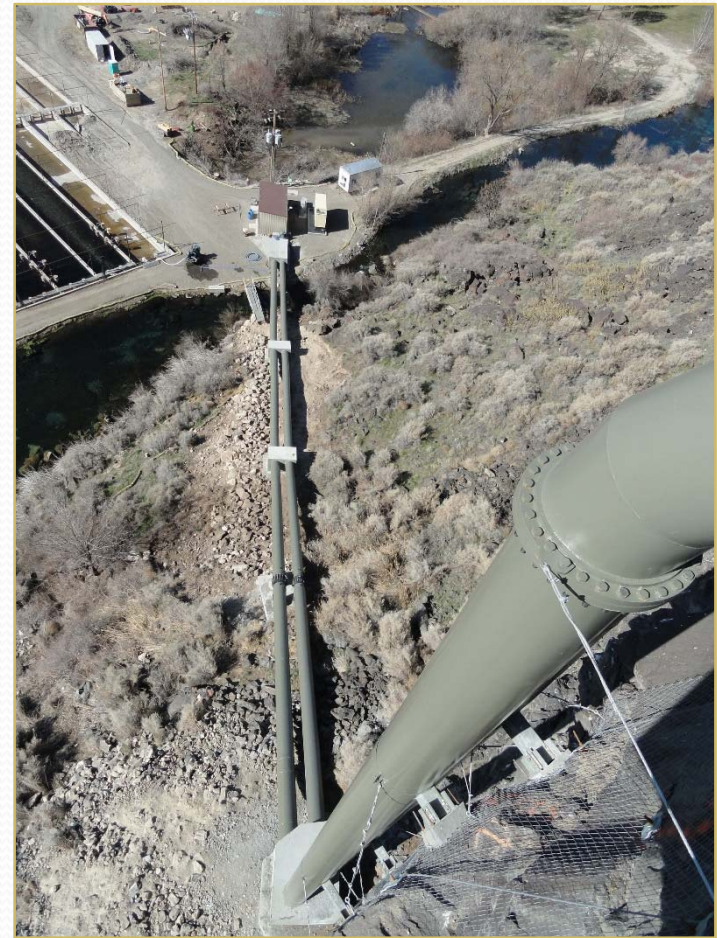
NAD Images 2013



IGWA's 4th Mitigation Plan

- This plan was not conceived until late summer 2014
- Magic Springs Hatchery, owned by SeaPac, brought the concept to IGWA
- Included pumping up to 10 cfs of first-use spring water from Magic Springs and piping 1.6 miles to Rangen's facility
- Magic Springs is surrounded by Federal land and has numerous spring outcroppings and wet land areas
- Ordered deadline to deliver water was January 19, 2015

The Result



The Result



Project Summary

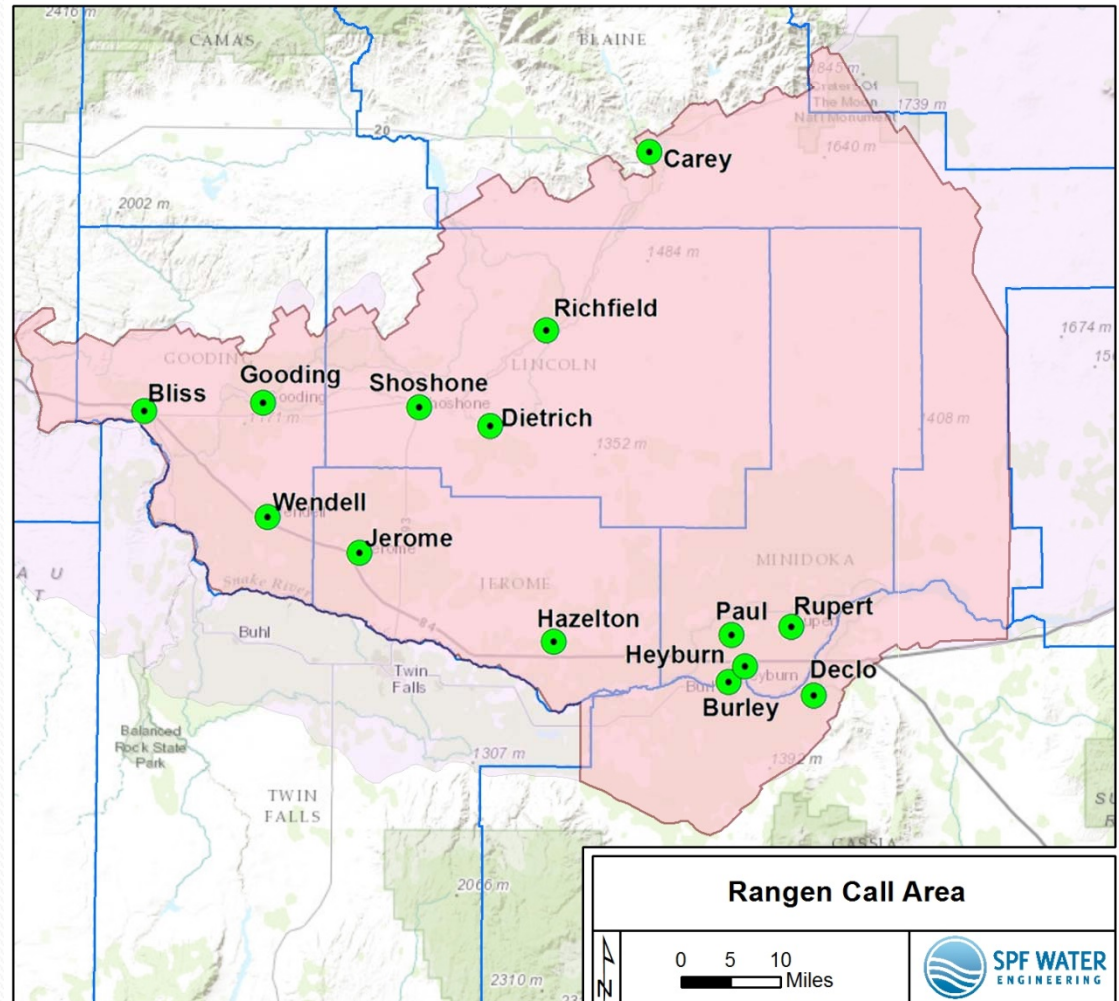
- Received a 3-week extension and completed project one day early on February 6, 2015
- Included three 200-hp VT pumps (2 duty, 1 standby, nominal 10 cfs), VFDs, back-up generator, fully automated, with remote monitoring
- 1.5 miles of buried 24-inch HDPE, 400 LF of 24-inch above ground welded steel, with concrete thrust blocks
- Parallel 36-inch buried HDPE and 30-inch above ground steel for future Hagerman Valley mitigation
- Total related construction costs \$3.9M

Municipal Curtailment

- **Municipal water rights are vulnerable to curtailment, but there is a lack of clarity regarding the quantity vulnerable to curtailment**
- **Lack of parity between municipal and exempt domestic/commercial uses**
- **Suggest need for administrative guidance regarding municipal curtailment**

Cities with Post-7/1/1962 Water Rights

- 14 cities in Rangen curtailment area divert water under 97 water rights
- 34 municipal rights with priority date junior to 8/12/1973
- Each of 14 cities has at least one post 8/12/1973 right



Curtailment Amount

- **Regional curtailment (or mitigation) requirements have been established based on model simulation (curtailment scenarios)**
- **ESPA curtailment scenarios used to**
 - **Simulate benefits of curtailing *irrigation* rights**
 - **Determine curtailment priority date**
 - **Benefits of curtailing municipal, commercial, or industrial rights have not yet been simulated**

Municipal Consumptive Use

- Rangen orders required curtailment of pumping for “consumptive uses” under junior-priority rights (including municipal rights)
- Consumptive municipal uses include
 - Irrigation
 - Commercial/industrial uses
- Indoor domestic and commercial/industrial uses are *non-consumptive* if treated wastewater is returned to the “local hydrologic system” (e.g., discharge of treated wastewater to river)

Municipal Consumptive Use (cont.)

- **Municipal use (including indoor domestic) is fully consumptive if wastewater is evaporated or land-applied**
- **8 of 14 Coalition cities dispose of municipal wastewater via land application or evaporation ponds – this water is consumptively used**

IDWR letter to Twin Falls (2/20/2015)

“Municipal use includes the consumptive use of water for irrigation of parks and open spaces, including lawn and garden irrigation for residential use. Municipal use also includes water for other domestic, commercial, and industrial uses, and may be partly or fully consumptive. In addition, municipal use allows the re-use of wastewater to its full consumption. For those reasons, *the Department normally considers municipal use to be fully consumptive.*”
(emphasis added)

Exempt from Curtailment

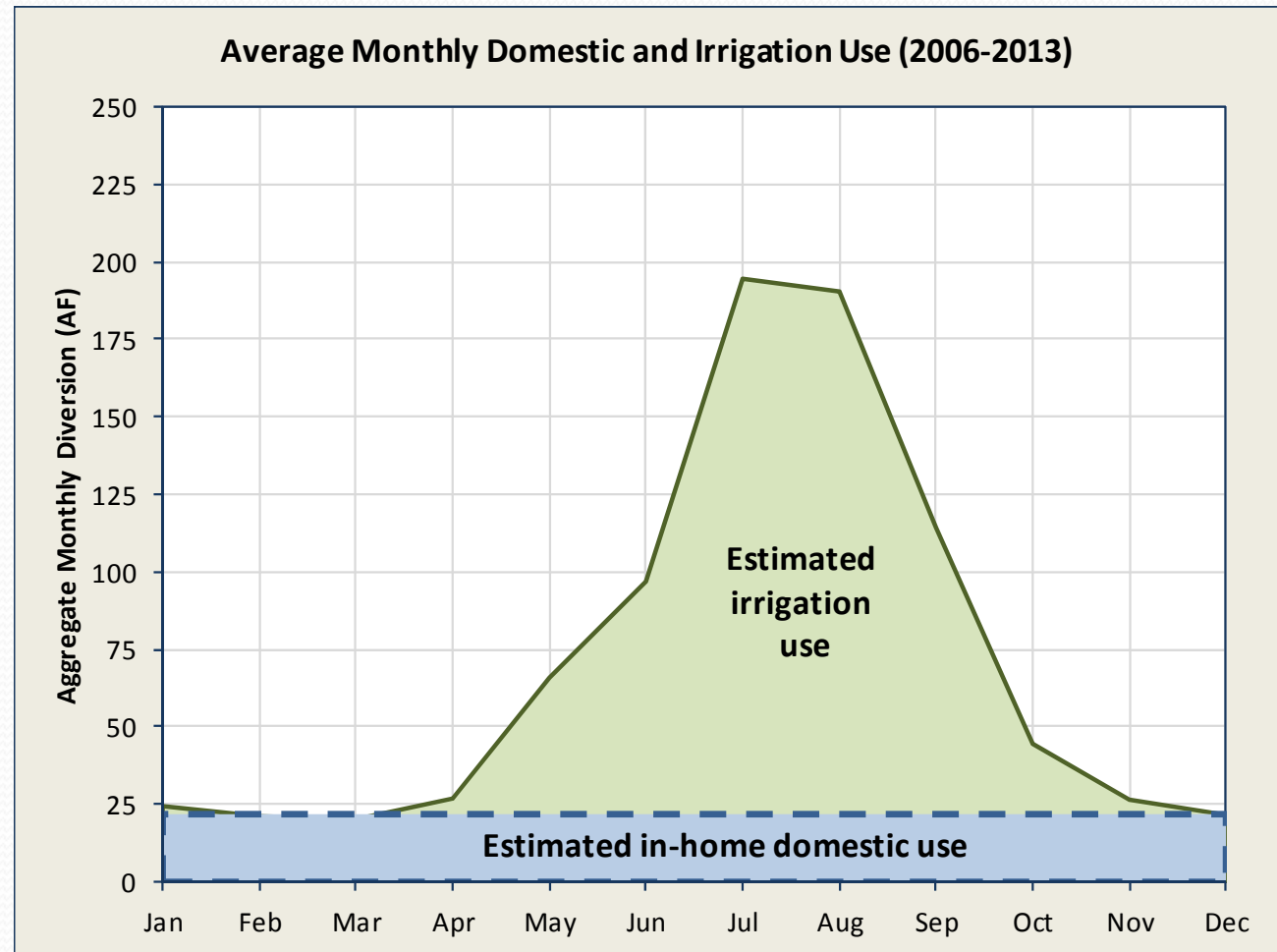
- **Rights exempt from curtailment (Idaho Code § 42-111):**
 - Domestic rights, which authorize irrigation of up to ½ acre and maximum diversion of up to 13,000 gpd
 - Any other uses with a maximum diversion of less than 0.04 cfs and diversion volume of 2,500 gpd
 - These exemptions *do not* apply to municipal rights
- Previous curtailment orders (SWC, Blue Lakes, Clear Springs) explicitly exempted “culinary” and/or in-home uses from curtailment requirements
- Director’s letters to owners of curtailed rights in Rangen Call stated that “non-consumptive uses and culinary in-house uses of water are not subject to curtailment”

Quantify Vulnerability to Curtailment

- 1. Estimate consumptive/non-consumptive use**
- 2. Allocate consumptive use to senior-priority water rights**
- 3. Estimate volume of pumping under junior-priority water rights vulnerable to curtailment**

1. Estimate Consumptive/Non-Consumptive Use

- **Summer irrigation represents a consumptive use**
- **Portion of “in-home domestic” production may include commercial use**



2. Allocate Use to Senior-Priority Rights

- **Maximum instantaneous diversion rate is a key water-right element**
- **Volume is a better indicator of aquifer impact than rate**
- **Volume limit**
 - **Most older municipal rights do not have explicit limit**
 - **Implicit volume limit: maximum diversion rate times 24 hours per day, 365 days per year**

Coalition Outcome in Rangen Call

- **Coalition's 2015 average impact: 0.001 cfs (0.45 gpm) (steady-state impact is 0.015 cfs, or 6.7 gpm)**
- **IGWA direct deliveries have benefited Coalition of Cities**
 - Short-term benefit
 - Long-term benefit
- **2015 Mitigation Plan**
 - 1500 AF diverted into the Milner-Gooding Canal , conveyed to Gooding Recharge Site
 - Mitigates for 0.001 cfs (0.45 gpm) 2015 net impact to Rangen Facility (steady-state impact is 0.015 cfs, or 6.7 gpm)

Need for Clarification

- **Each municipality relying on groundwater needs to be able to quantify vulnerability to potential curtailment**
 - **Ability to quantify vulnerability reduces water-supply uncertainty**
 - **Enables cities to plan for curtailment, mitigation requirements**
- **Vulnerability to curtailment is not clear**
 - **Summer/winter use may not fully characterize consumptive/non-consumptive use**
 - **Can peak summer use be allocated to senior-priority volume on an annual basis, or some other time increment?**
 - **Is in-home domestic use exempt from curtailment, regardless of disposal method?**

ID Constitution (Article XV, Section 3)

- **“Priority of appropriations shall give the better rights as between those using the water, but when the waters of any natural stream are not sufficient for the service of all those desiring the use of the same, *those using the water for domestic purposes ... have the preference over those claiming for any other purpose*, and those using the water for agricultural purposes shall have preference over those using water for manufacturing purposes.”**

Constitution Preference

- Domestic uses are exempt from curtailment
- Does constitutional preference also apply to municipal domestic uses?

Domestic rights



Municipal rights

Summary

- **Rangen Call has been one in a series of ESPA water delivery calls**
- **IGWA's direct deliveries have mitigated for junior-priority groundwater use in Rangen call**

Summary (continued)

- **Statute and rules do not provide a precise basis for quantifying municipal use exempt from curtailment**
 - **Is indoor municipal use vulnerable to curtailment if wastewater is land-applied?**
 - **Which commercial/industrial uses are not vulnerable to curtailment?**
 - **Use difference between summer and winter pumping to define “consumptive use”?**
 - **Use other metric (e.g., standard per capita rate) to define “non-consumptive use”?**
 - **Time interval for determinations?**

Summary (continued)

- **Issue of parity: are city residents entitled to some level of residential irrigation use (consistent with exempt domestic rights)?**
- **How will the Idaho Department of Water Resources (IDWR) administer consumptive use (and possible curtailment) under junior-priority municipal rights?**
 - **Dry ground?**
 - **Monthly monitoring, reporting, and analysis? What level of detail? At what cost?**

Recommendations

- **Develop administrative guidance (by statute or rule) for quantifying water use that is**
 - **Vulnerable to curtailment**
 - **Exempt from curtailment**
- **Do so *prior* to litigation**
- **Review current lack of parity between exempt domestic and municipal uses**

References and Acknowledgements

- **Christopher H. Meyer, Givens Pursley LLP**
 - **Memorandum on Water Rights Mitigation in Idaho, April 2, 2015**
- **Christian Petrich, Ph.D, P.E., P.G., SPF Water Engineering**
- **Bob Hardgrove, P.E., SPF Water Engineering**