

# Distribution of Snake River Water in Idaho (including stored water in Jackson Lake Reservoir)

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Idaho water rights based on *prior appropriation doctrine*..... “*first in time, first in right*”

*Idaho farmers first began diverting water from Snake River and its tributaries in mid-1870’s*

*Approximately 25 canals constructed between Heise and Rigby 1880 – 1890.*



*Canal diversions for irrigation in Idaho continued to increase through the early 1900's*

*1905 was the first year Snake River canals experienced water shortages.*

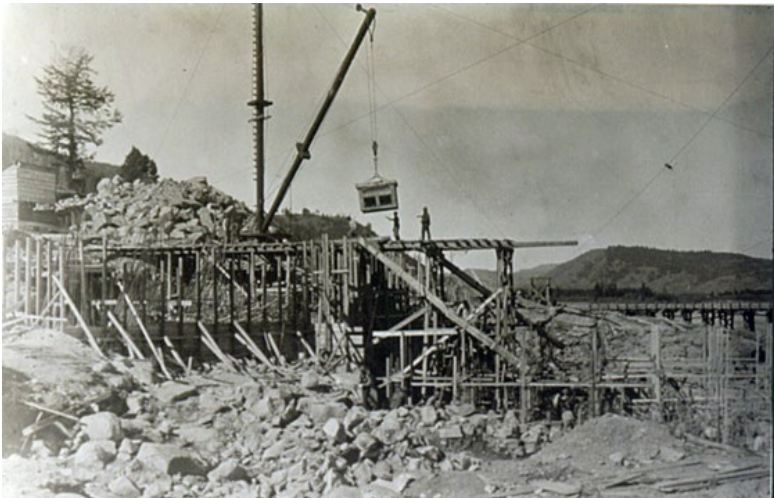
*Snake River becomes dry for approximately 10 miles in the vicinity of Blackfoot, Idaho.*



# JACKSON LAKE DAM

*Log-crib dam constructed at outlet of Jackson Lake in 1906 to store 300,000 acre-feet of water to later be released to satisfy downstream Idaho irrigation diversions in later half of irrigation season when the available downstream natural flow became exhausted.*

*Jackson Dam rebuilt and raised in 1910 and again in 1913 increasing reservoir storage capacity behind dam to the current 847,000 acre-feet.*



The temporary Jackson Lake storage dam.

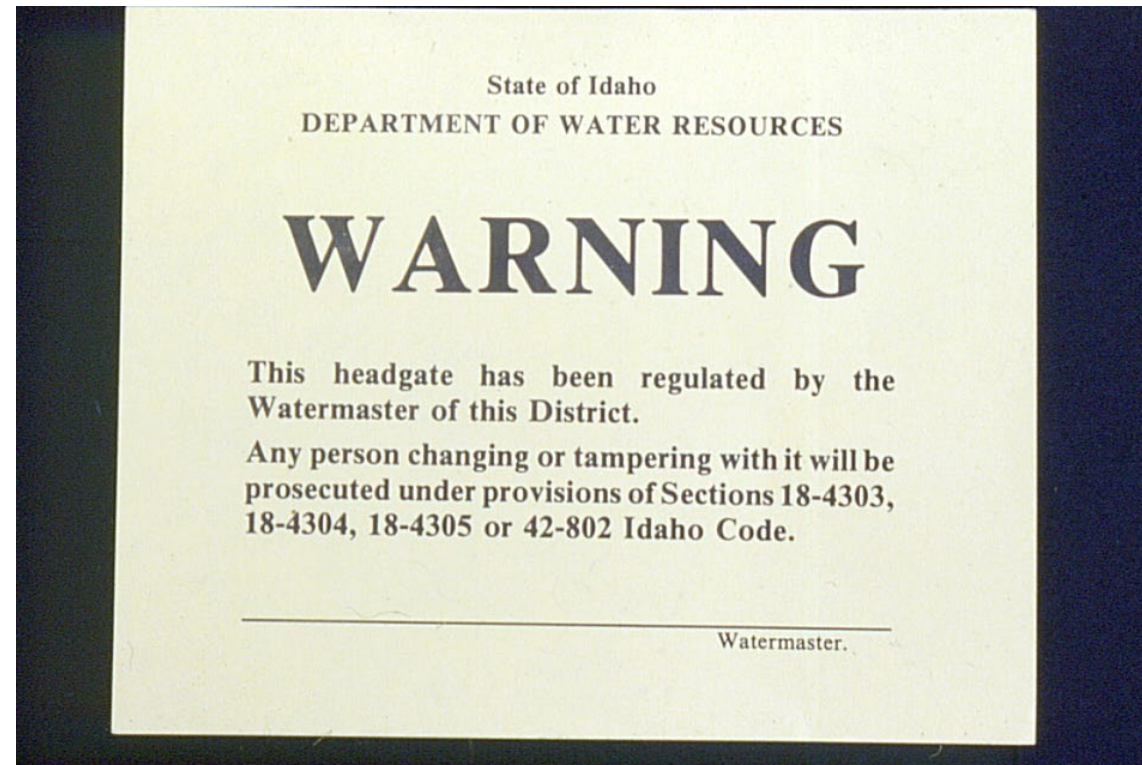


## 1910 - 1913

- Water shortages necessitate the adjudication of currently held water rights
- “Rexburg Decree” is issued covering irrigation water rights diverted for Idaho lands above Blackfoot.
- “Foster Decree” adjudicates Snake River water rights for diversions between Blackfoot and Milner Dam.

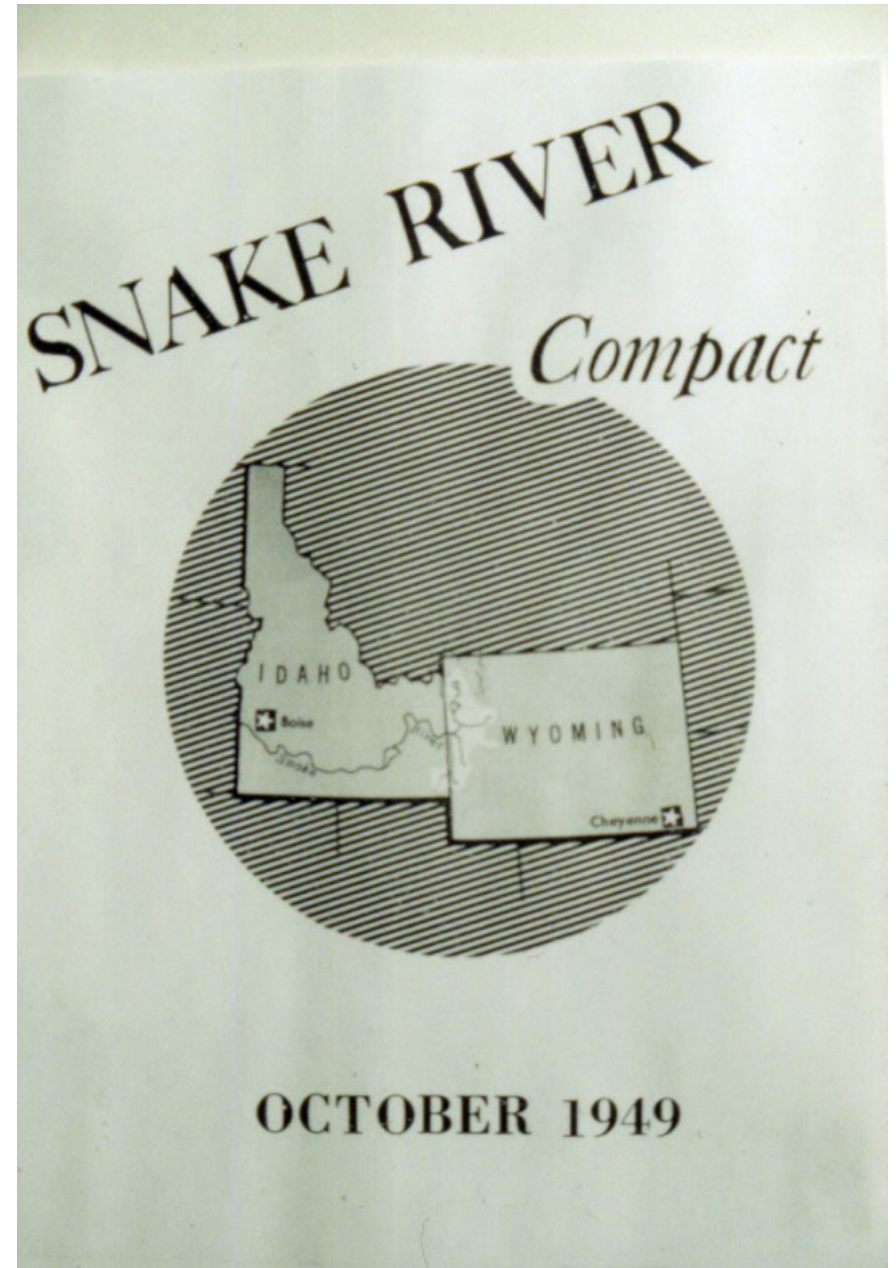


*Water District #36 (later renamed Water District #1) established in Idaho in 1919 to regulate Snake River irrigation diversions according to their water right priorities/amounts, and to ensure reservoir storage water released from Jackson Lake made its way all the way down the Snake River past several Idaho irrigation diversions to reach the canals that had the storage rights in Jackson Lake Reservoir.*



Snake River Compact between Wyoming and Idaho (October 1949)

96% of unappropriated water (as of 1949) from the Snake River headwaters to the Wyoming/Idaho State Line and all tributaries flowing into it within the boundaries of Wyoming shall be allocated to Idaho.....with the remaining 4% of unappropriated water (as of 1949) allocated to Wyoming.



How does Water District #1 determine who is entitled to divert natural-flow from the Snake River and its tributaries each day?

Step 1: Calculate the daily “reach gain” for each reach of the Snake River from its source down to Milner Dam near Twin Falls Idaho. Total of 36 river reaches.

Reach Gain = Reach outflow – Reach Inflow + Reach diversions + Change in Reservoir Storage if reach contains a reservoir





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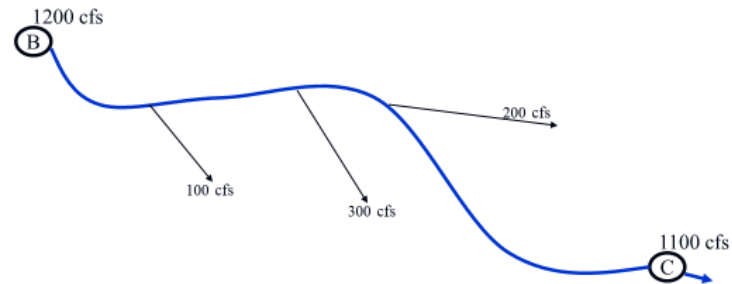
Step 2: Sum the reach gains (upstream to downstream) calculated for each river reach to determine the total natural flow available to be distributed to water rights. Total of 36 river reaches from top to bottom of river system.

### Reach Gain



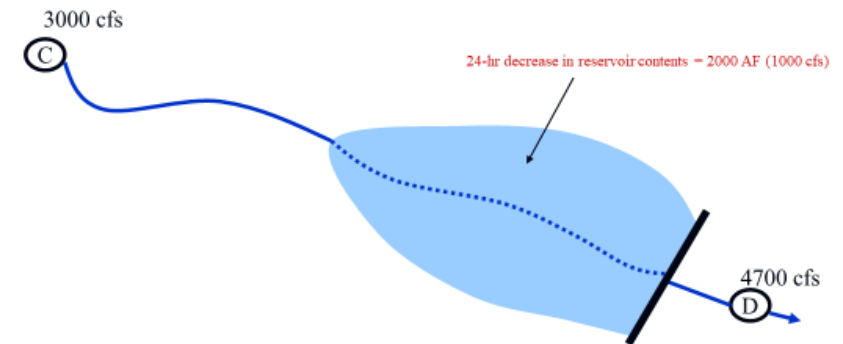
$$\begin{aligned}\text{Reach Gain} &= \text{Outflow minus Inflow} \\ &= 1200 \text{ cfs} - 0 \text{ cfs} \\ &= 1200 \text{ cfs}\end{aligned}$$

### Reach Gain with Diversions



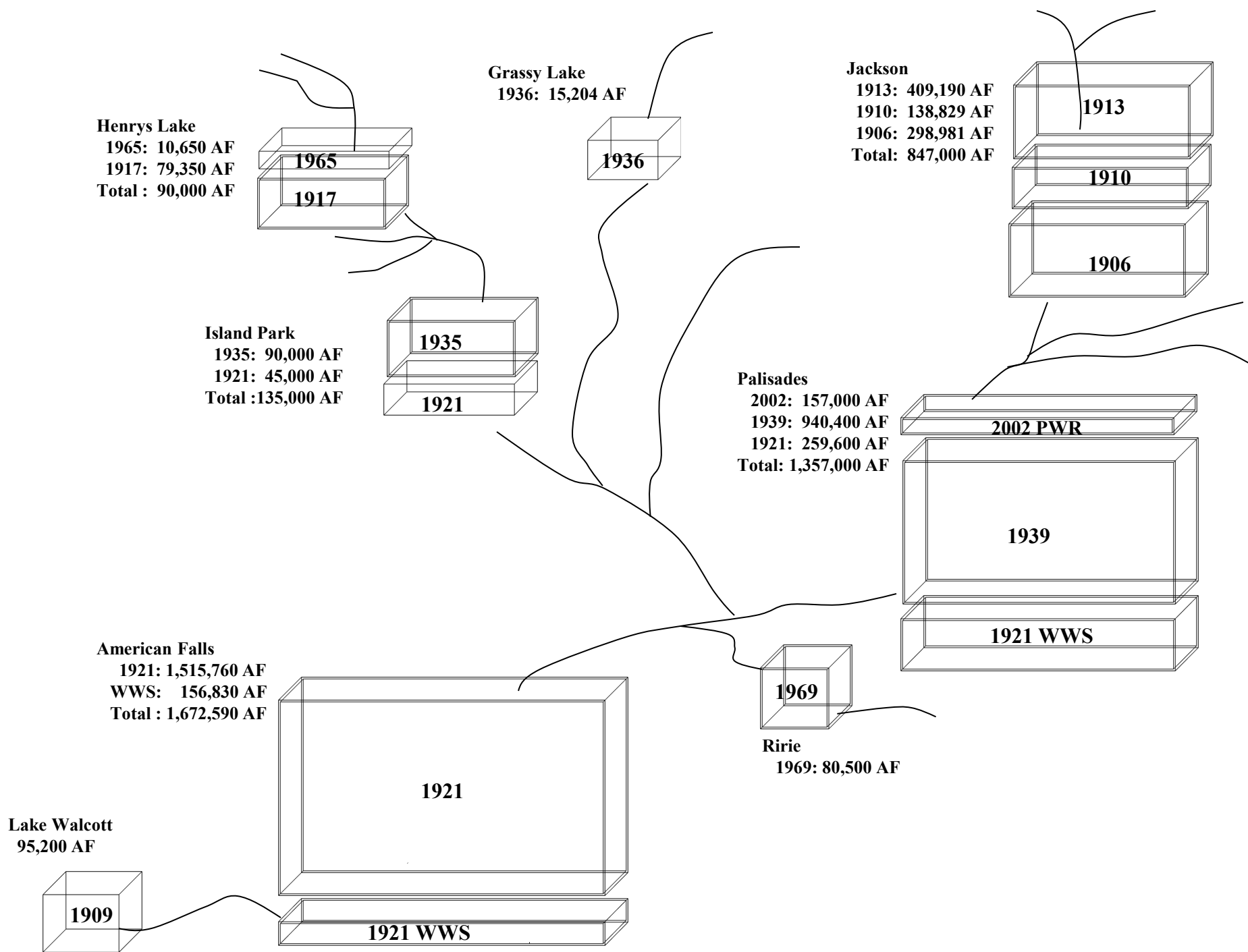
$$\begin{aligned}\text{Reach Gain} &= \text{Outflow} - \text{Inflow} + \text{Diversions} \\ &= 1100 \text{ cfs} - 1200 \text{ cfs} + 600 \text{ cfs} \\ &= 500 \text{ cfs}\end{aligned}$$

### Reach Gain with a Reservoir



$$\begin{aligned}\text{Reach Gain} &= \text{Outflow} - \text{Inflow} - \text{Decrease in Storage} \\ &= 4700 \text{ cfs} - 3000 \text{ cfs} - 1000 \text{ cfs} \\ &= 700 \text{ cfs}\end{aligned}$$

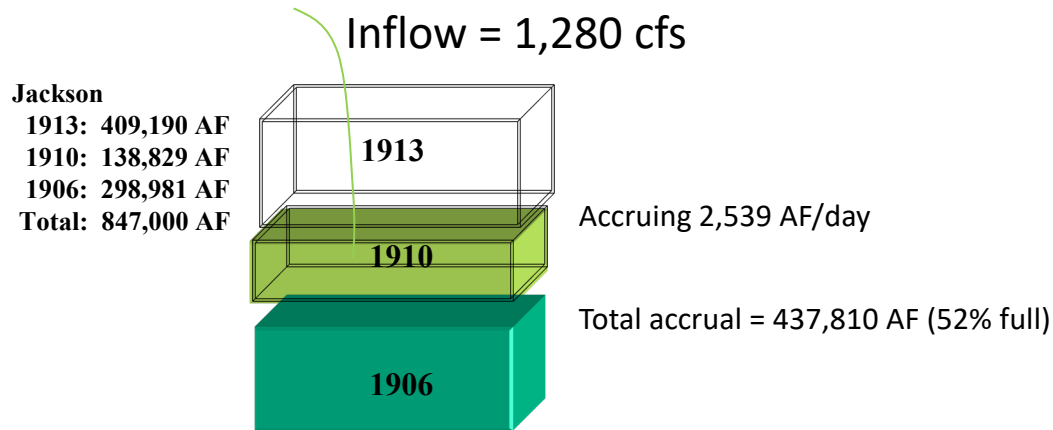




# JACKSON LAKE – Water Right Accrual vs. Physical Contents

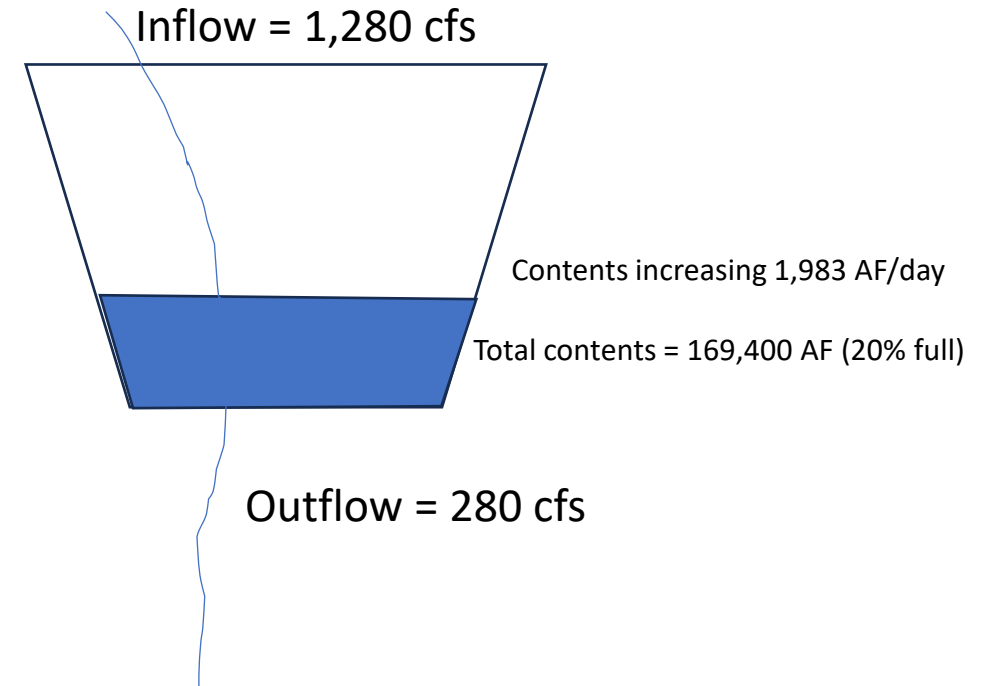
## Water Right Accrual

Capacity = 847,000 AF



## Physical Contents

Capacity = 847,000 AF



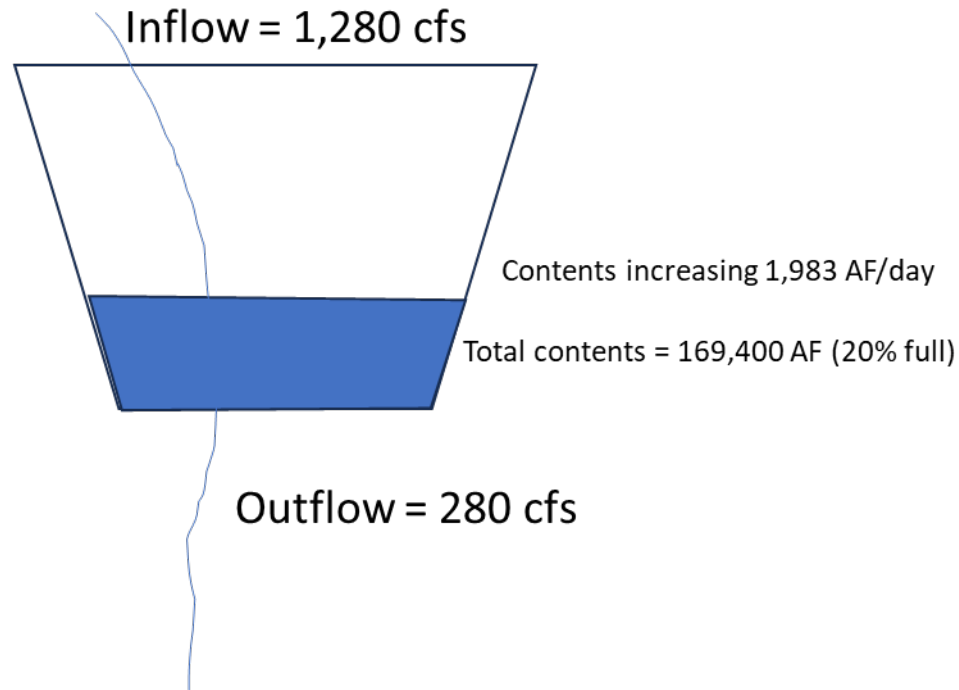
Jackson Lake storage rights are senior to all downstream reservoirs.

Releases from Jackson Dam are comprised of storage allocated to Jackson Lake USBR spaceholders unless reservoir remains 100% physically full.

If downstream reservoirs are unable to capture and store Jackson Lake releases, storage allocations to Jackson Lake USBR spaceholders may be reduced.

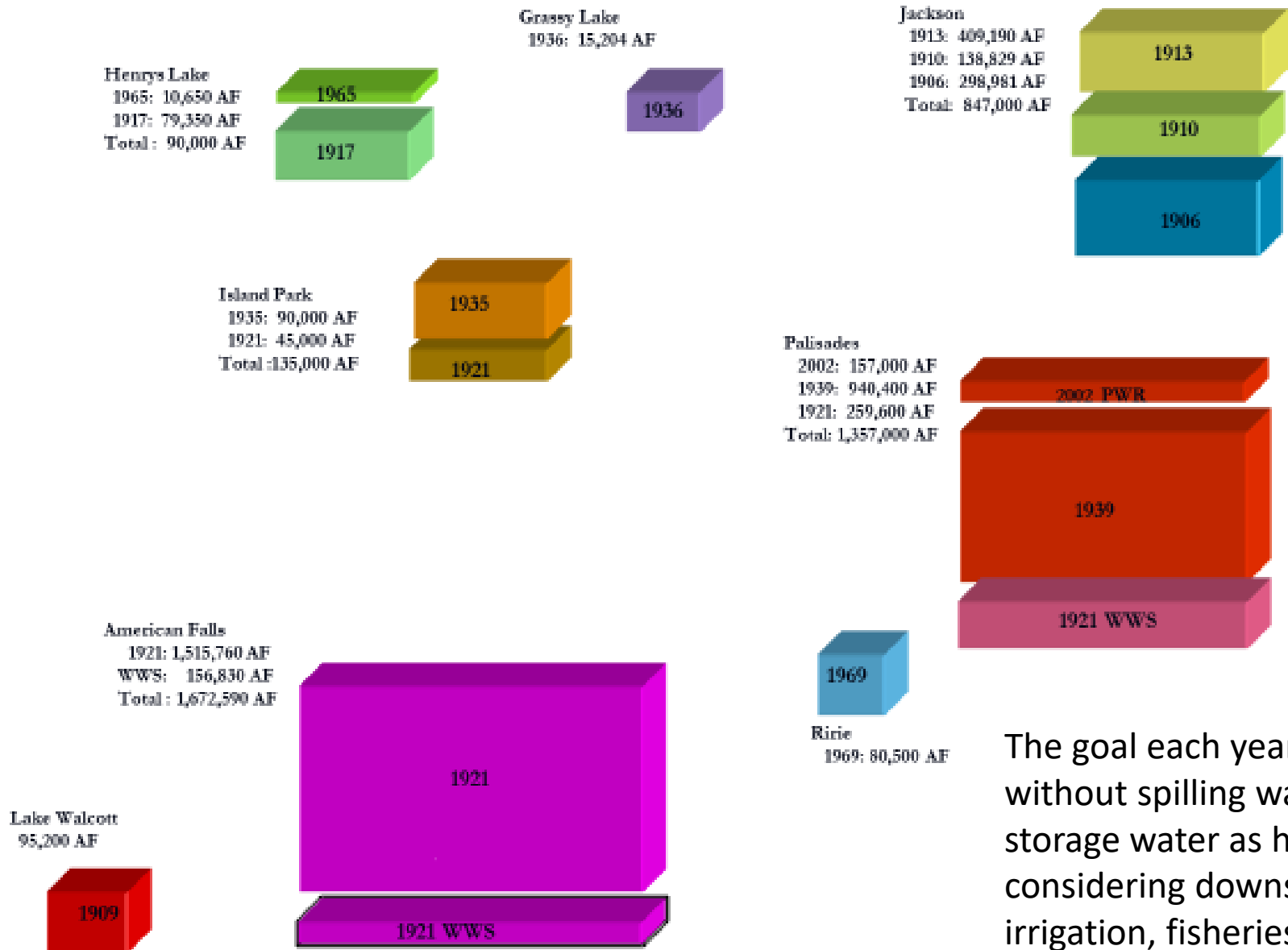
## Physical Contents

Capacity = 847,000 AF



Outflows from Jackson Dam are determined by USBR taking into consideration: 1) Flood-control requirements; 2) Downstream irrigation demands; 3) Fisheries; 4) Boating/Rafting; and 5) Preserving previously stored water in the reservoir in case the upcoming winter snowpack isn't sufficient to completely refill the reservoir for the next season.

Once storage is released to flow downstream, you can't move it back upstream to store into the reservoir.



The goal each year is to completely fill the reservoir system without spilling water out the end of the system and keeping storage water as high up in the system as possible while considering downstream demands for flood-control, irrigation, fisheries, recreation, and flow augmentation.

# QUESTIONS ?

Additional information and contacts:

Water District #1 Webpage [www.waterdistrict1.com](http://www.waterdistrict1.com)

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