



Snake River & Hydro Generation Overview

Integrated Resource Plan

John Hildreth

Principal Engineer

Key Terms

- **Water Management:** The control and movement of water resources to minimize damage to life and property and to maximize efficient beneficial use.
- **Hydrograph:** Graph showing the rate of water flowing versus time at a specific location.
- **Natural Flow:** Calculated flow that represents what would occur in the river if the impacts from reservoirs and consumptive use were removed.
- **Regulated Flow:** Observed flow in the river at any given time. This has been impacted by reservoir operations and diversions.
- **Hydropower:** The use of falling or fast-running water to produce electricity

Importance



- Idaho Power has more than 1,800 megawatts (MW) of hydropower generation capacity.
- Hydropower is our largest energy resource.
- Hydropower is an inexpensive fuel source and is a key factor in Idaho Power's ability to keep rates low for our customers.
- Hydropower is a highly flexible resource that supports reliability of the system and integration of renewables.

Where We Serve

OREGON

Serving
1.4 million
People*

*As of July 2026

24,000 sq. mile service area

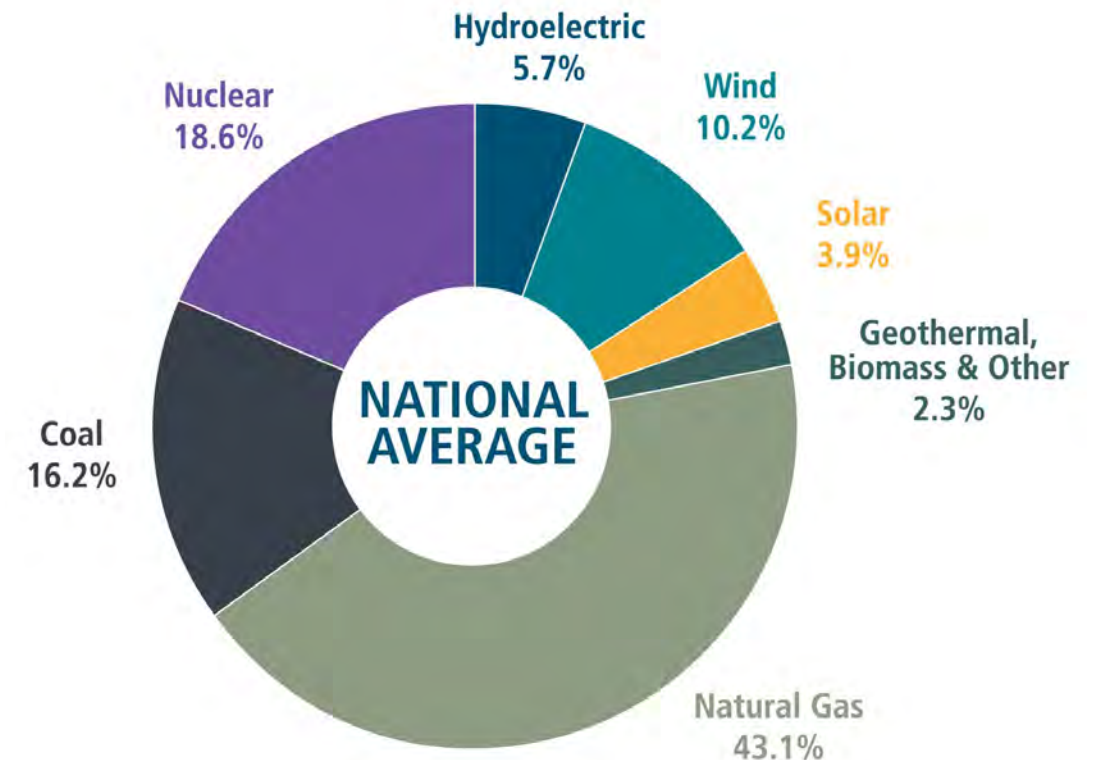
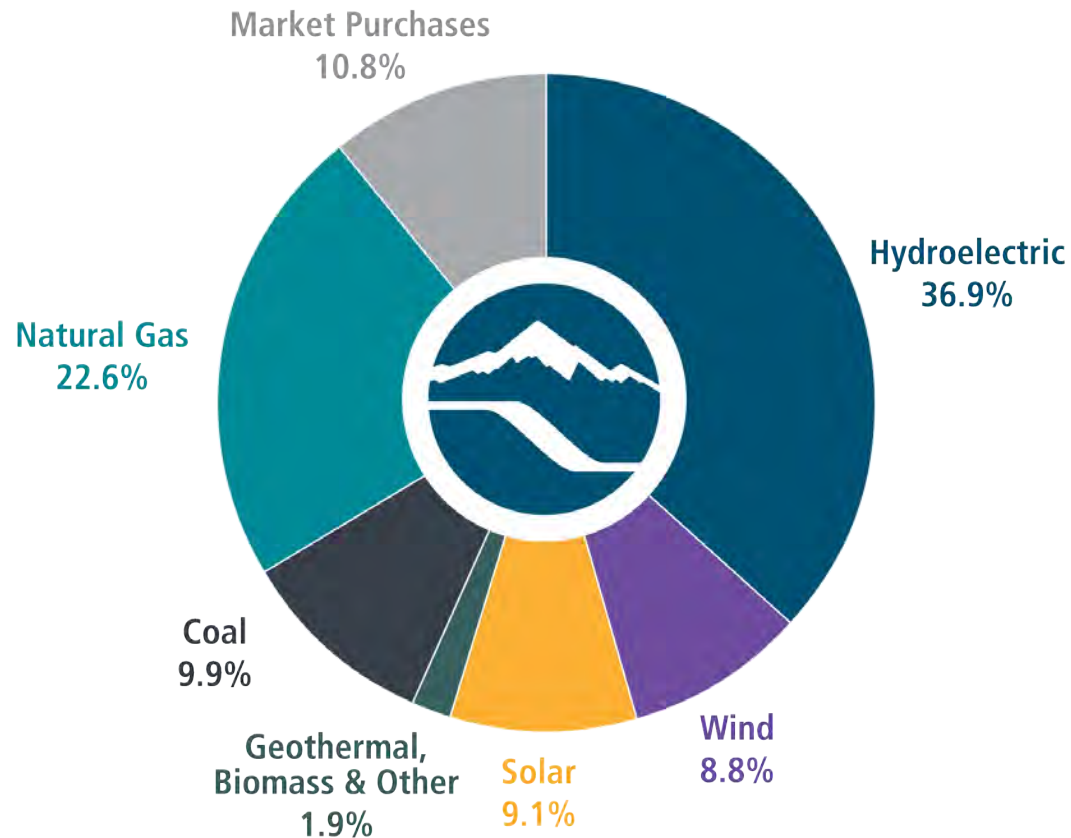
- HYDROELECTRIC
- NATURAL GAS
- COAL
- DIESEL
- BATTERY STORAGE



North Valmy ▲

Jim
Bridger ▲

2025 Energy Mix

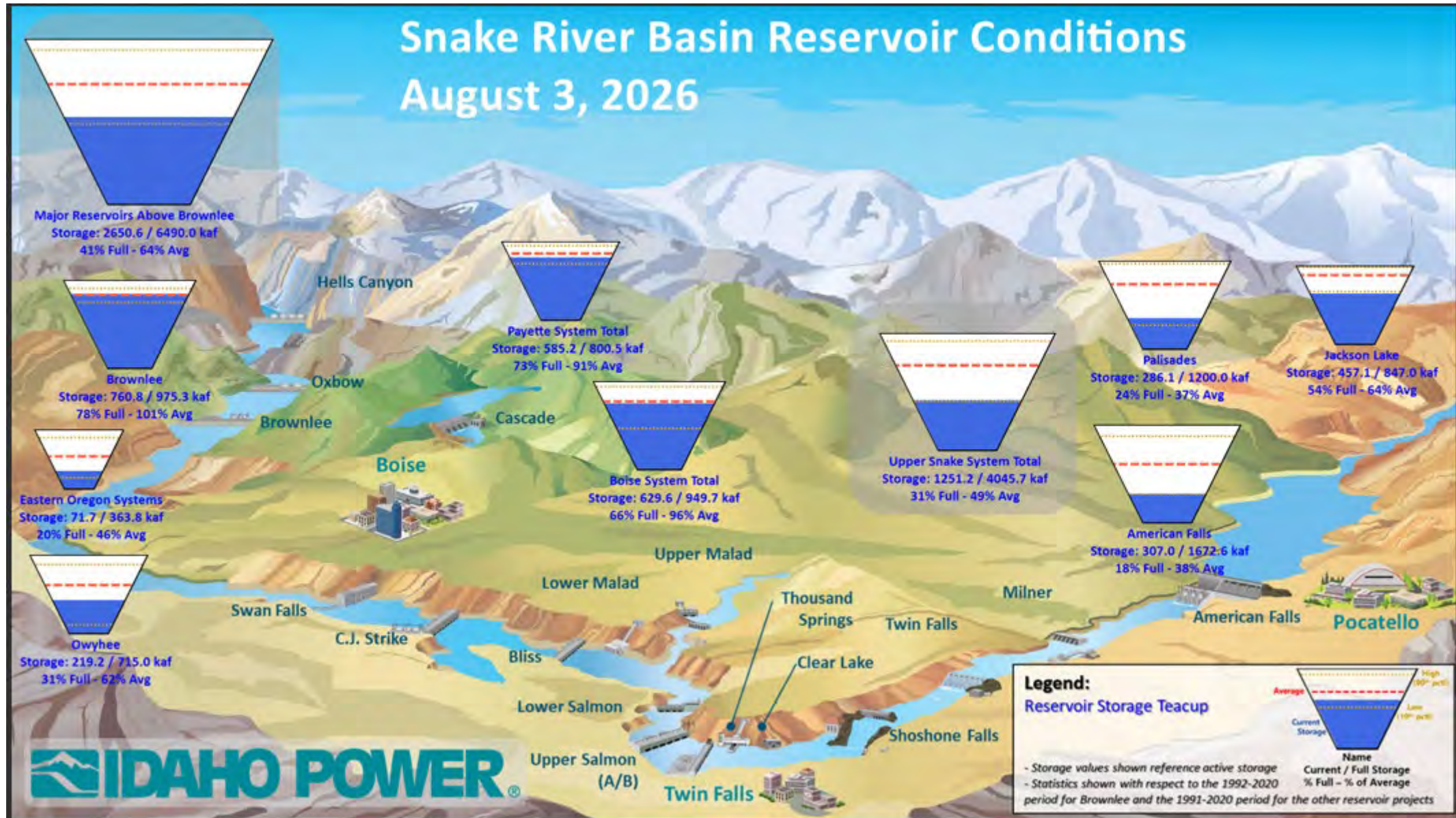


Data Source: U.S. Energy Information Administration.
Totals may not equal 100% due to rounding.

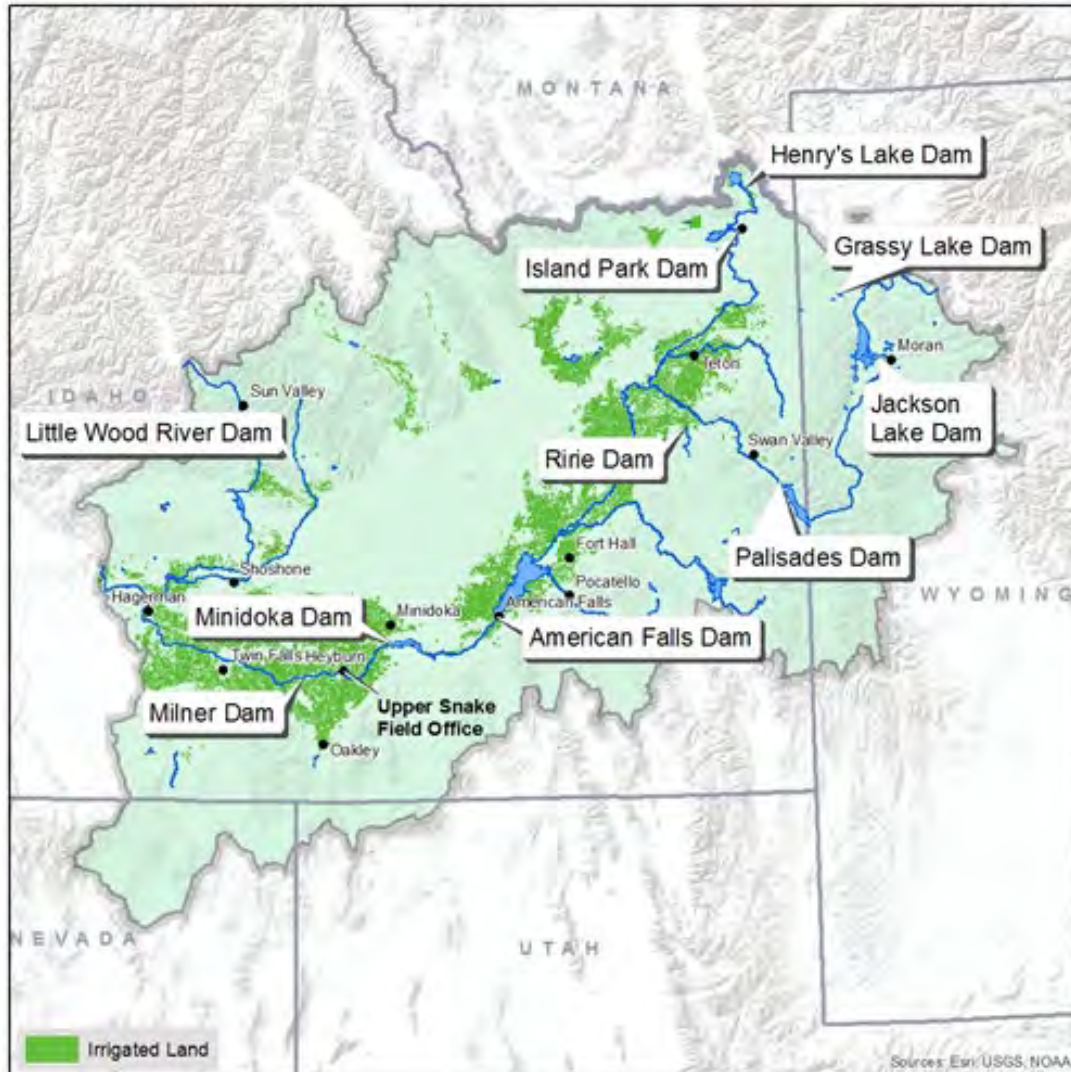
This shows the energy we generate from company-owned resources and energy we buy through long-term contracts with wind, solar, biomass, geothermal and small-scale hydro generators. The mix does not represent the energy delivered to customers for two reasons.

- We participate in the wholesale energy market and sell energy to other utilities and to retail customers.
- Some of our purchased power from renewable sources comes with a Renewable Energy Credit, or REC, which we sell to keep customer prices low.

Snake River Basin Teacup Diagram

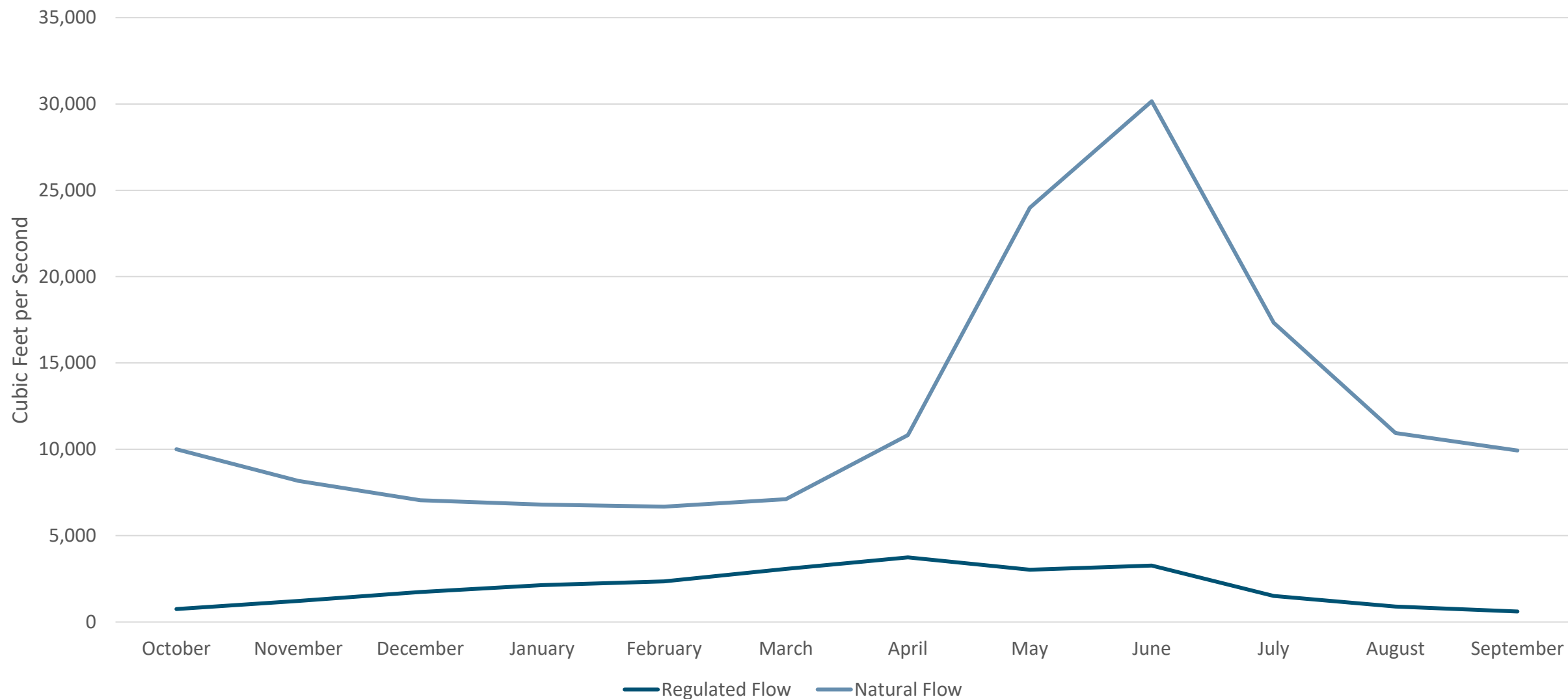


Upper Snake Basin

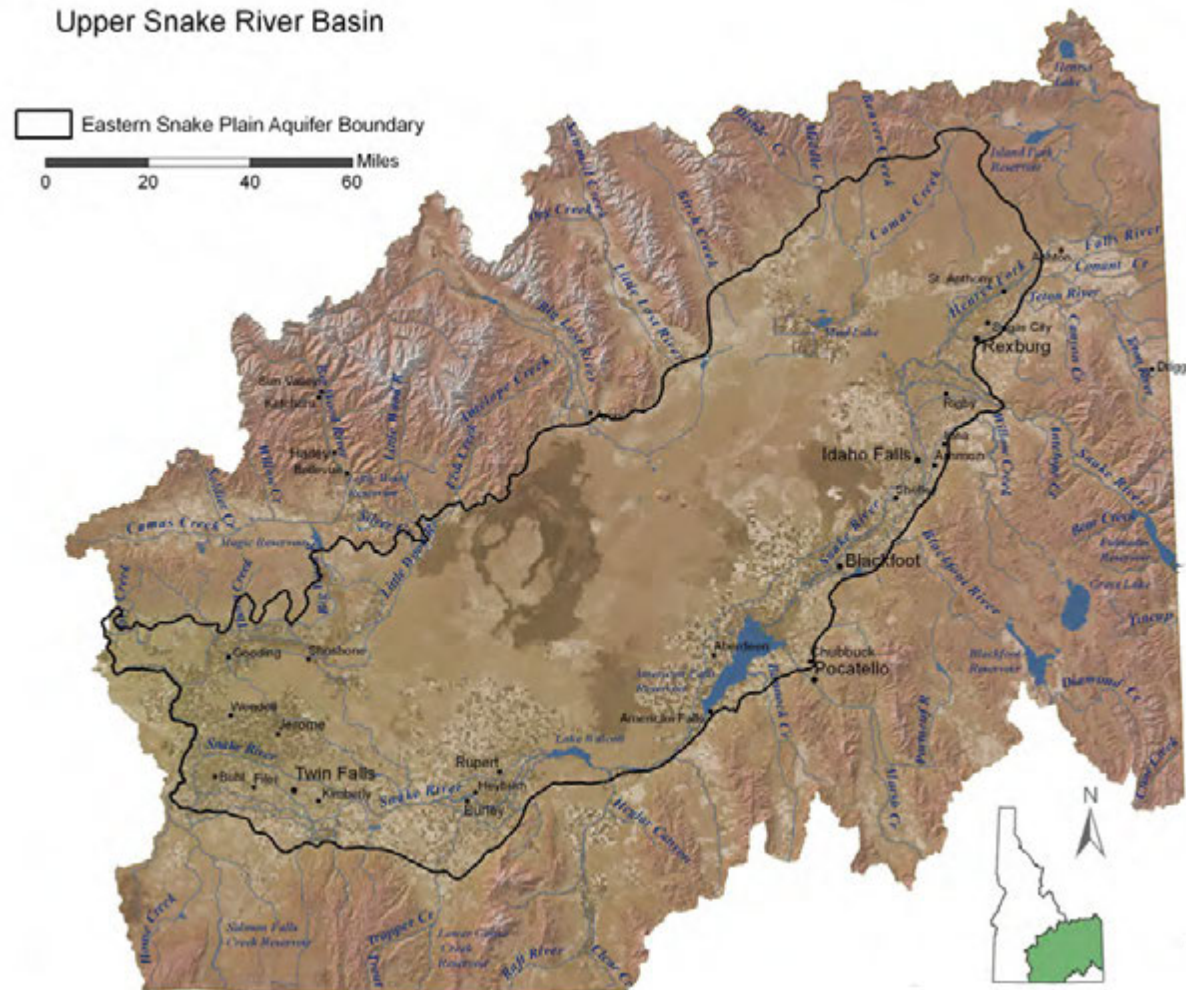


- Headwaters of the Snake in Yellowstone National Park down to Milner, Idaho
 - 17,180 square miles
- In a normal year
 - 9 million acre-feet of natural flow supply
 - 4 million acre-feet of reservoir storage capacity
 - 7.5 million acre-feet of consumptive use
 - 2.0 million acre-feet leaving basin
- Minimum flow 0 cfs at Milner Dam
- Complex water management
 - Managed Aquifer Recharge
 - Reservoir operation changes
 - Changing water uses
 - Surface water and groundwater interactions
 - Weather modification

Upper Snake Normal Hydrograph

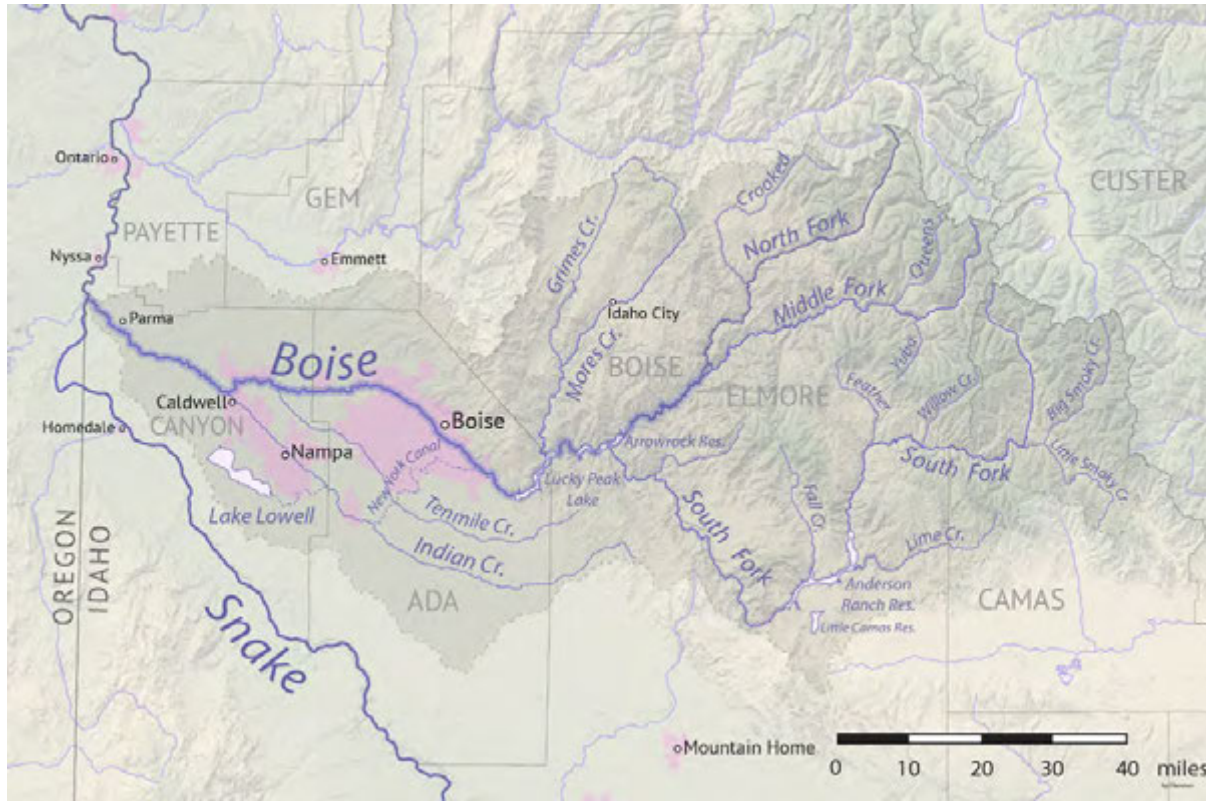


Eastern Snake Plain Aquifer



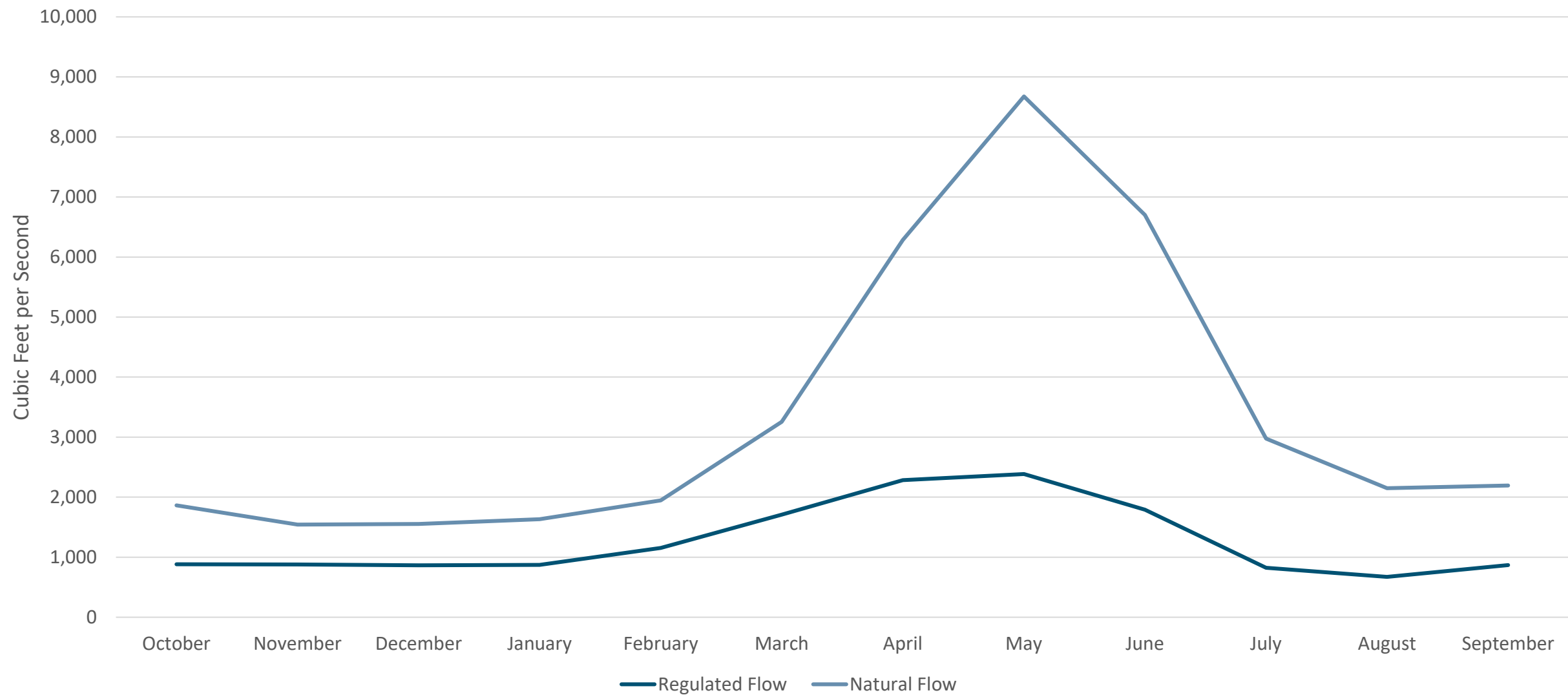
- Fractured basalt aquifer
 - 11,000 square miles
- 2.1 million irrigated acres
 - Surface water
 - Groundwater
 - Mixed sources
- Estimates of 200-300 Million acre-feet of water is in the upper 500 ft of aquifer
- Springs replenish river in two main reaches
 - American Falls about 1.5 million acre-feet
 - Thousand Springs about 4.0 million acre-feet
 - About 40% of Brownlee inflow
- When Milner is at 0 cfs, springs make up nearly all of the river.
- Springs have been declining and flows in the river decreasing since the 1950s.

Boise Basin

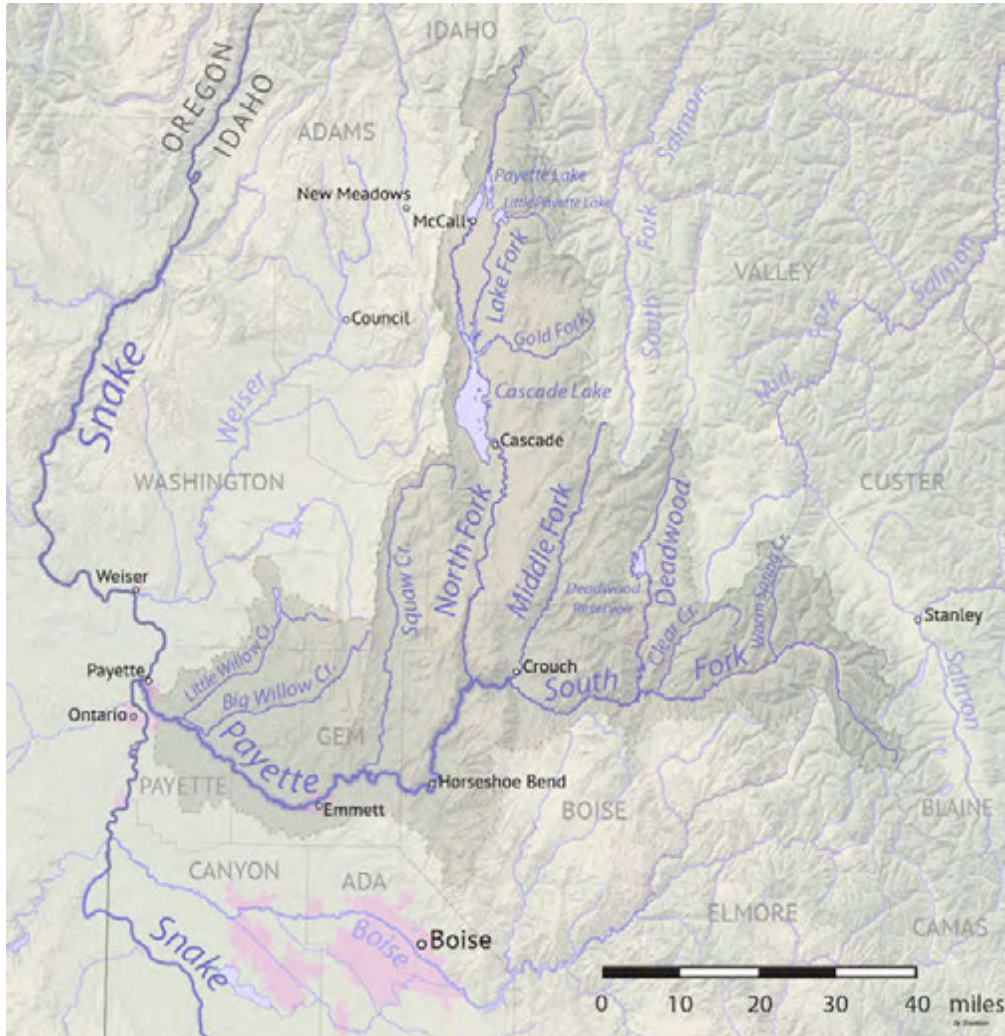


- Drainage area from the Sawtooth Mountain Range to west of Parma, Idaho
 - 4,100 square miles
- In a normal year
 - 2.5 million acre-feet of natural flow
 - 1.0 million acre-feet of reservoir storage capacity
 - 1.2 million acre-feet of consumptive use
 - 1.0 million acre-feet leaving basin
- Minimum flow 250 cfs at Middleton, Idaho
- Complex water management
 - Rapid population growth
 - New water developments
 - Changing demand
 - Weather modification

Boise Normal Hydrograph

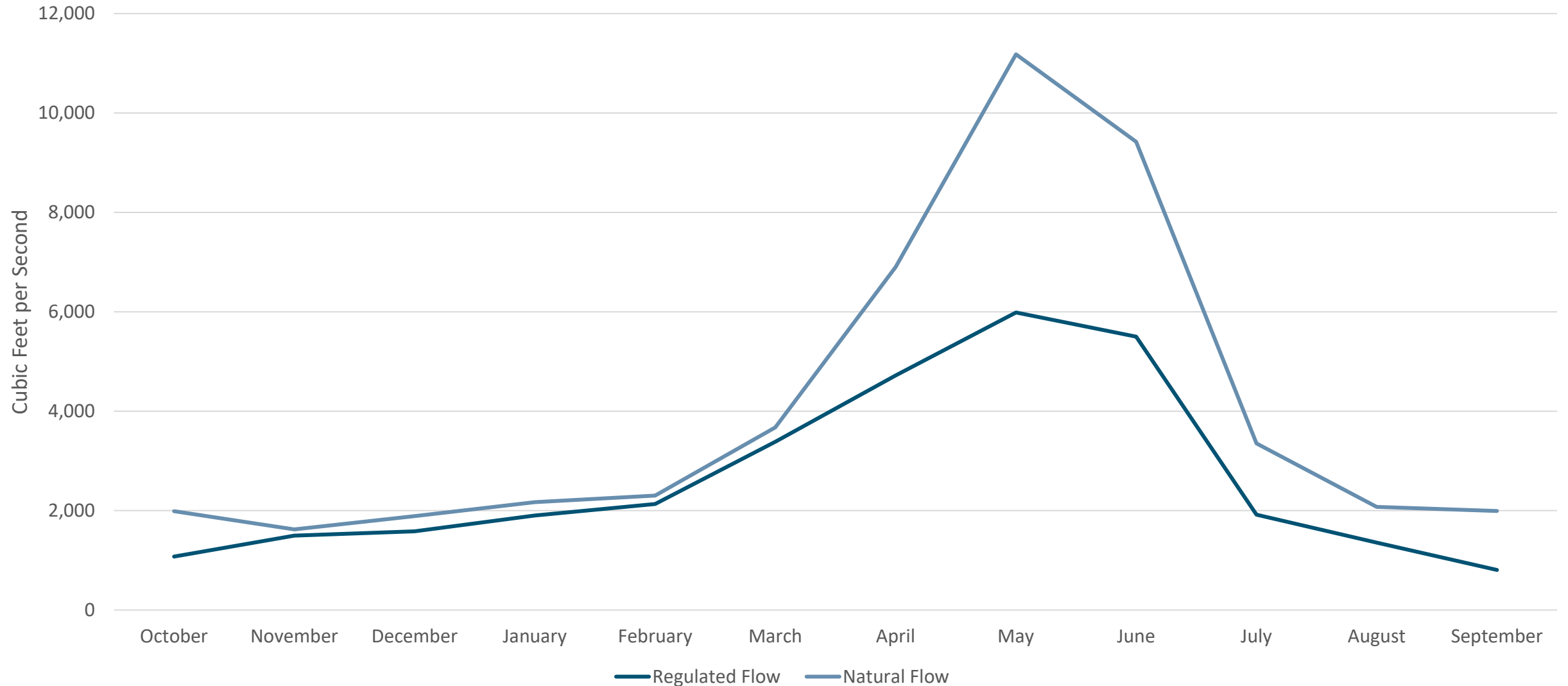


Payette Basin



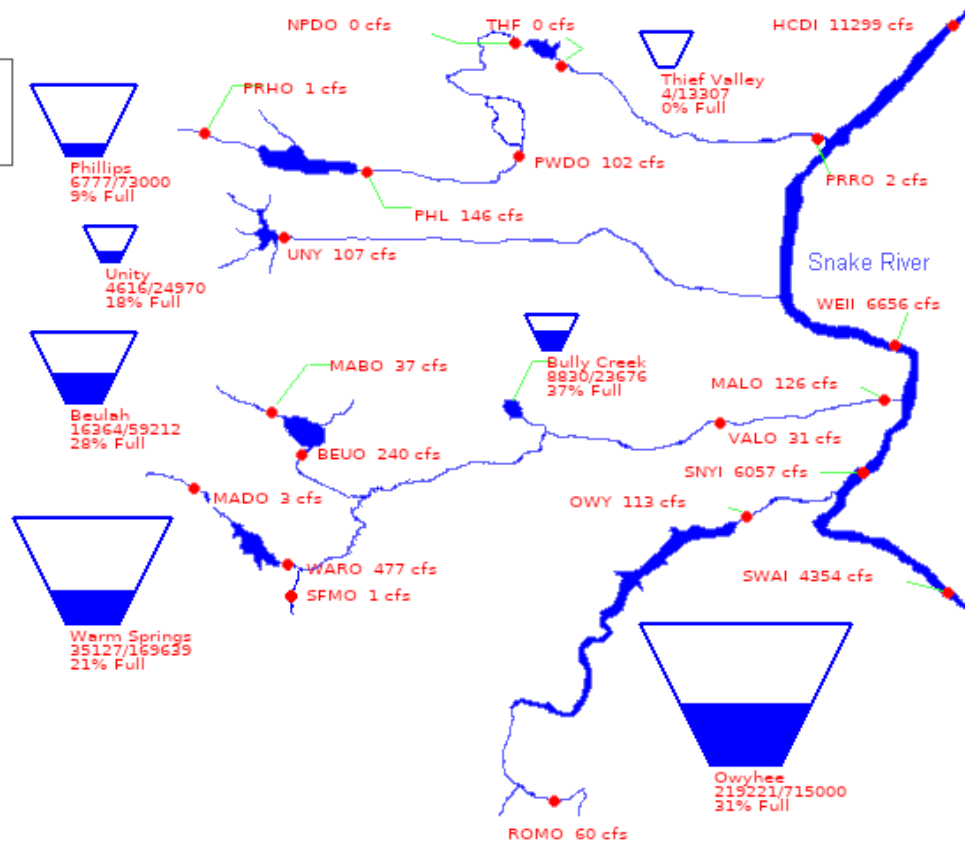
- Drainage area from the Salmon River Mountain Range down to Payette, Idaho
 - 3,240 square miles
- In a normal year
 - 3.0 million acre-feet of natural flow
 - 0.8 million acre-feet reservoir storage capacity
 - 1.2 million acre-feet of consumptive use
 - 2.0 million acre-feet leaving basin
- Minimum flow 135 cfs at Letha, Idaho
- Complex water management
 - Weather modification
 - Water quality

Payette Normal Hydrograph



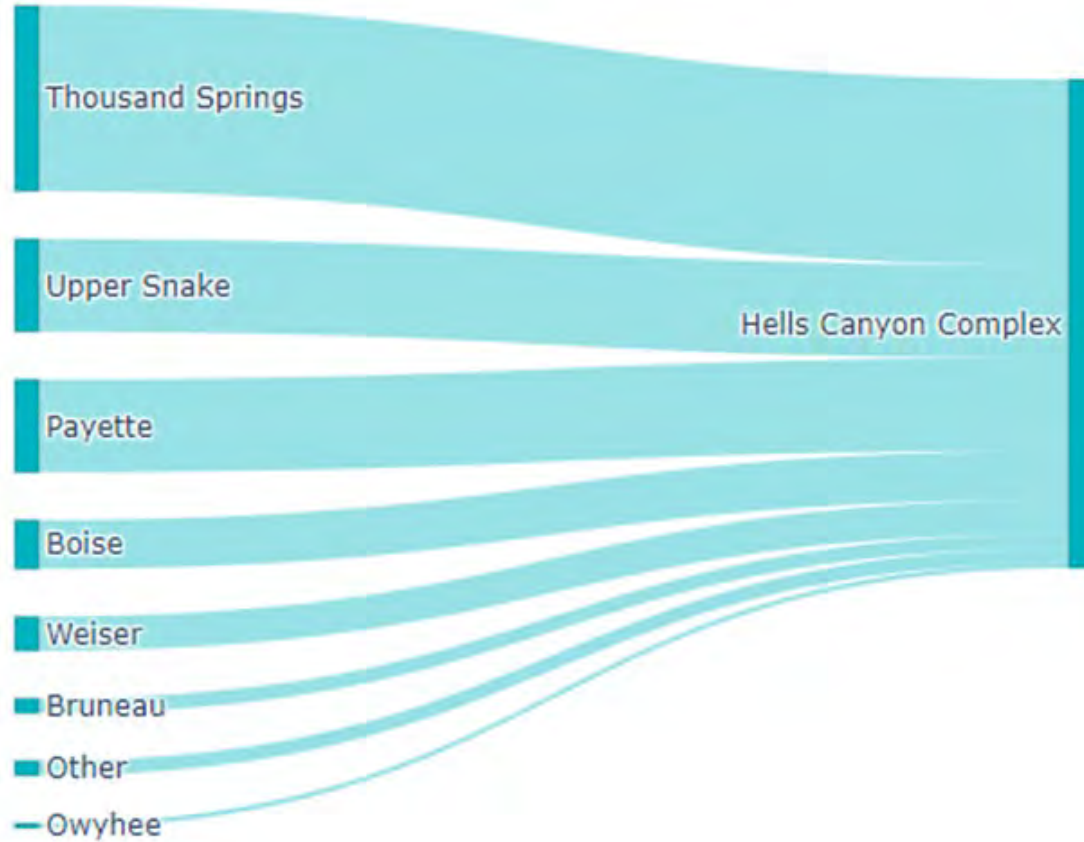
Other Basins

08/03/2026



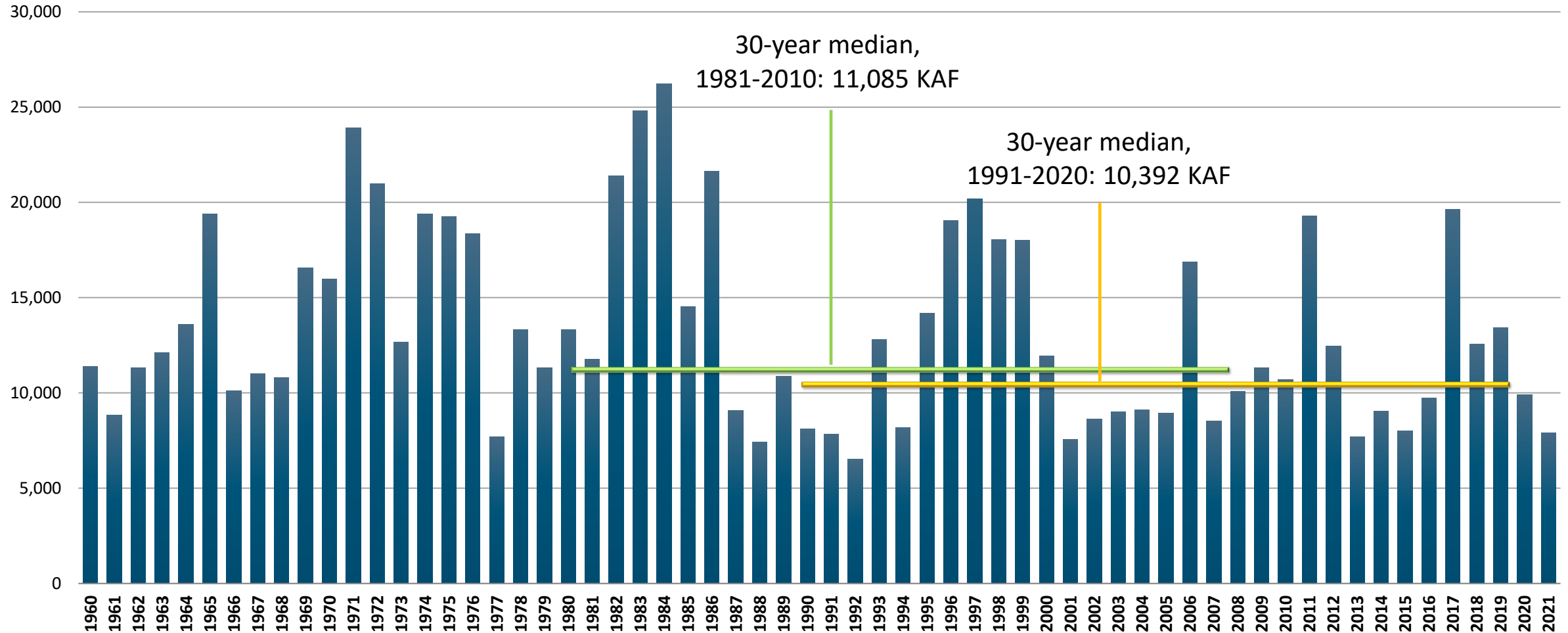
- Weiser
 - 0.7 million acre-feet leaves basin
- Bruneau
 - 0.3 million acre-feet leaves basin
- Owyhee
 - 0.7 million-acre feet of natural flow
 - 0.8 million acre-feet reservoir storage capacity
 - 0.1 million acre-feet leaves basin
- Other Tributaries
 - Primarily all water used for irrigation
 - Only in the biggest water years does significant volume reach Snake

Brownlee Water Supply



Brownlee Reservoir Inflow Volume

in thousands of acre-feet



Oxbow and Hells Canyon



Idaho Power's Hydroelectric System



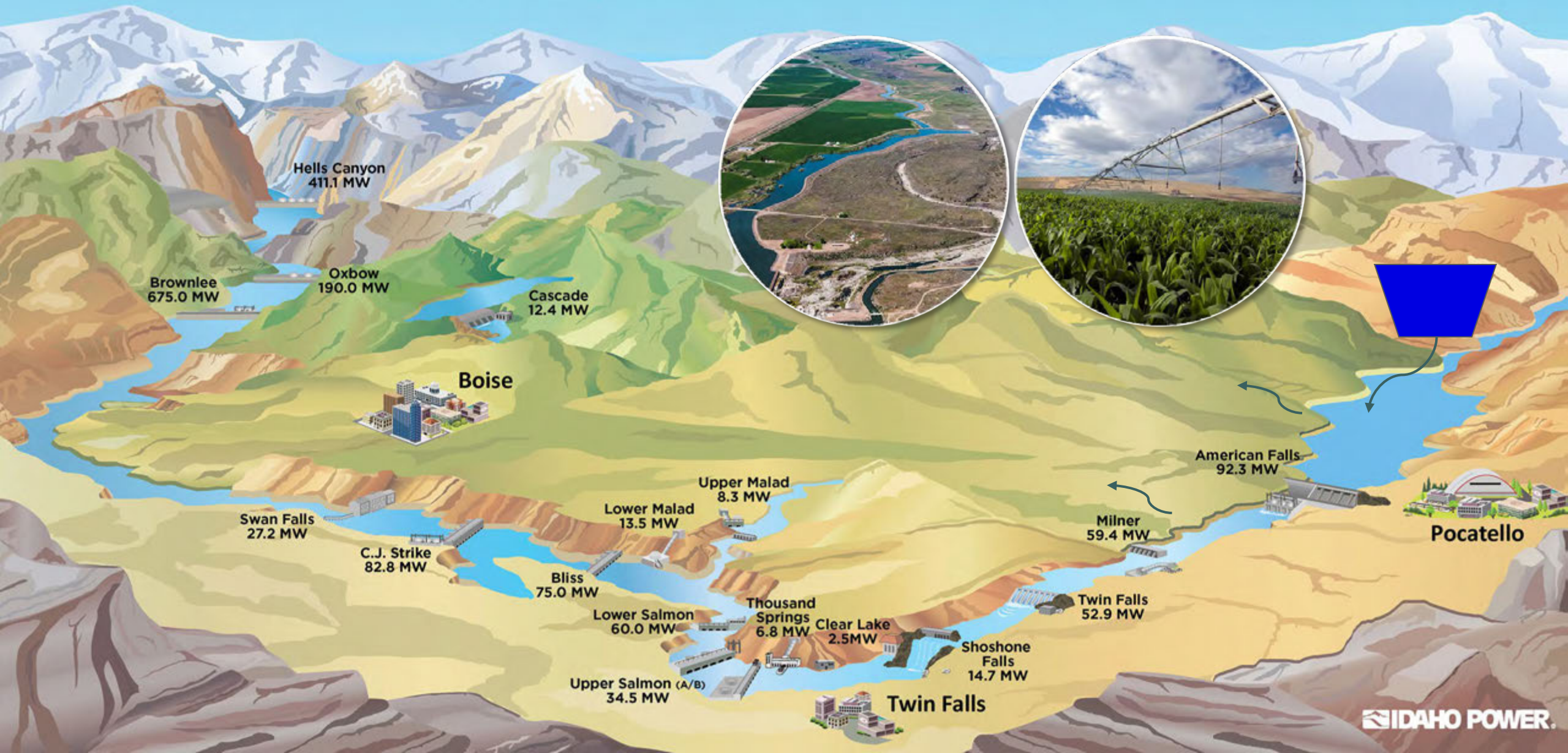
Idaho Power's Hydroelectric System



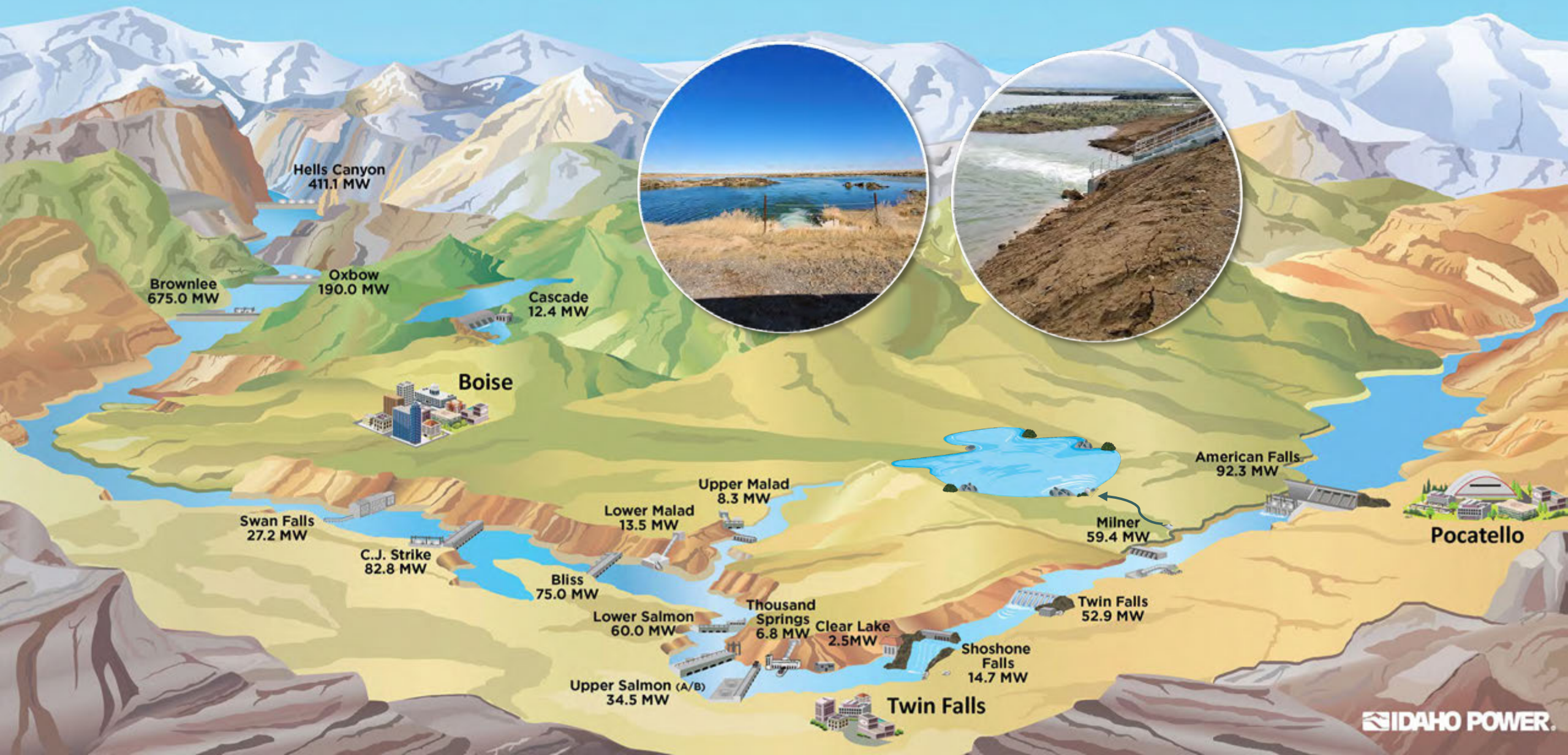
Idaho Power's Hydroelectric System



Idaho Power's Hydroelectric System



Idaho Power's Hydroelectric System



Idaho Power's Hydroelectric System



Idaho Power's Hydroelectric System



Summary

- The Snake Basin is an ever-changing complex system.
- In a normal year, the largest fuel source for hydro generation comes from spring discharge in the Thousand Springs area.
- Idaho Power hydro generation is directly impacted by these interactions.
- Water management and policy has the largest impact to future hydro generation for Idaho Power's system.

Additional Resources

- idwr.idaho.gov
- isu.edu/digitalatlas
- usbr.gov
- waterdata.usgs.gov

