



The Freshwater Trust is a 501(c)(3) not-for-profit organization that actively works to preserve and restore freshwater ecosystems.

# Using Watershed-Scale Restoration for Hydropower Compliance

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The main questions guiding this proposed multi-decade restoration program of multiple Snake River watersheds have been:

- Is it possible to restore ecosystem function to a water quality limited segment of the Snake River in order to support native fish habitat and meet federal regulations?
- Can a regulated entity translate the benefits of restoring functional riverine conditions into parameters that matter to regulatory agencies and stakeholders?



## Program components include:

- **River channel:** Under the flow constraints of a 'working river,' adapting the Snake River channel to promote more natural function by constructing new floodplain and wetlands and augmenting existing islands along a 30-mile section—thereby increasing river depths and flow velocities while decreasing surface area.
- **Agriculture:** Working with agricultural producers to dramatically reduce sediment and nutrient loading throughout the watershed using voluntary incentives for on-farm upgrades and BMPs
- **Riparian:** Restoring over 100 miles of riparian zone on key tributaries upstream of Hells Canyon Dam
- **Regulatory:** Developing a relational model to translate instream processes (such as hyporheic connectivity) into units of temperature for regulatory compliance



Current conditions (top) and proposed restoration (bottom) of riparian vegetation

The Freshwater Trust used a multi-faceted ecosystem services approach to design a program for restoring river function and counting benefits towards Clean Water Act & FERC compliance for the Idaho Power Company.

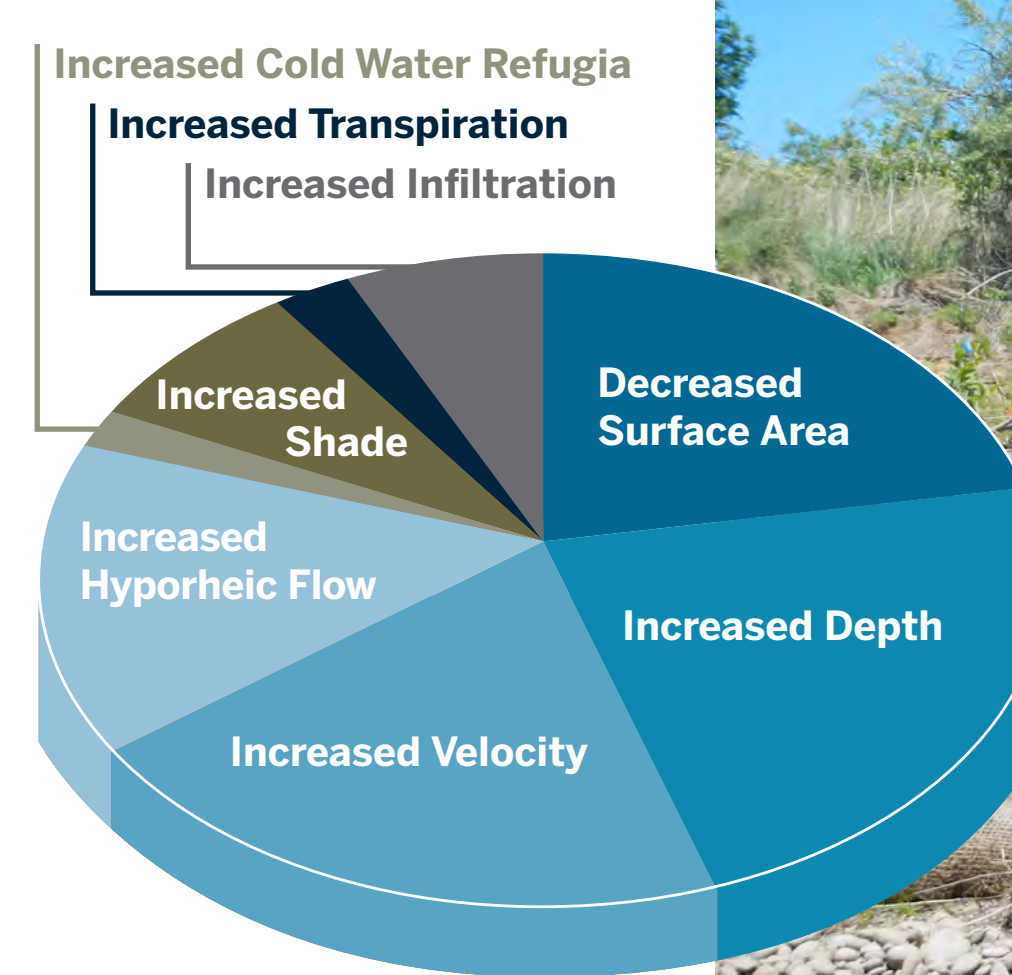


## Status quo:

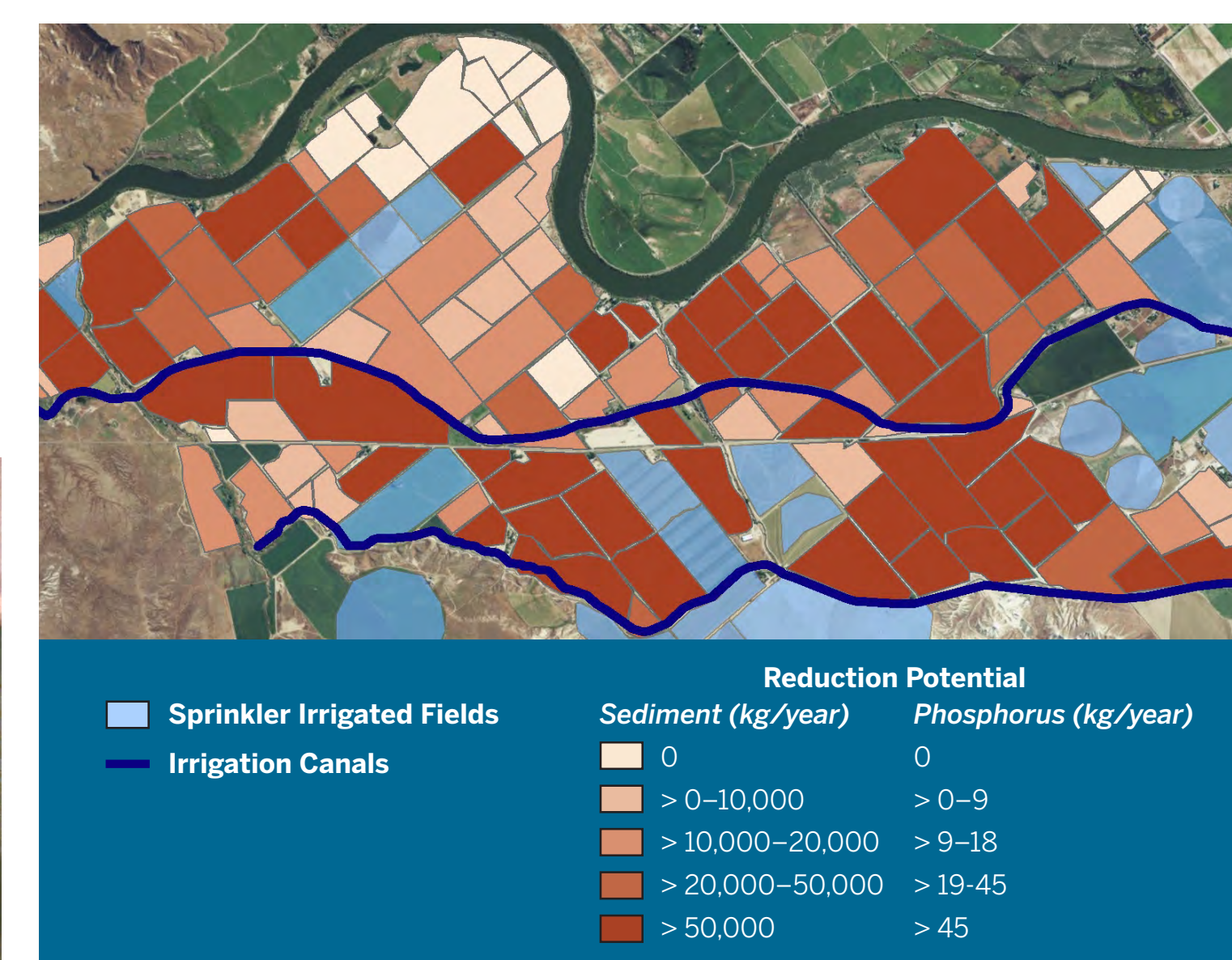
The engineered solution to current regulations would require cooler water to be pumped from bottom of reservoir at specific times to comply with water quality standards relative to salmon spawning habitat.

## Issue:

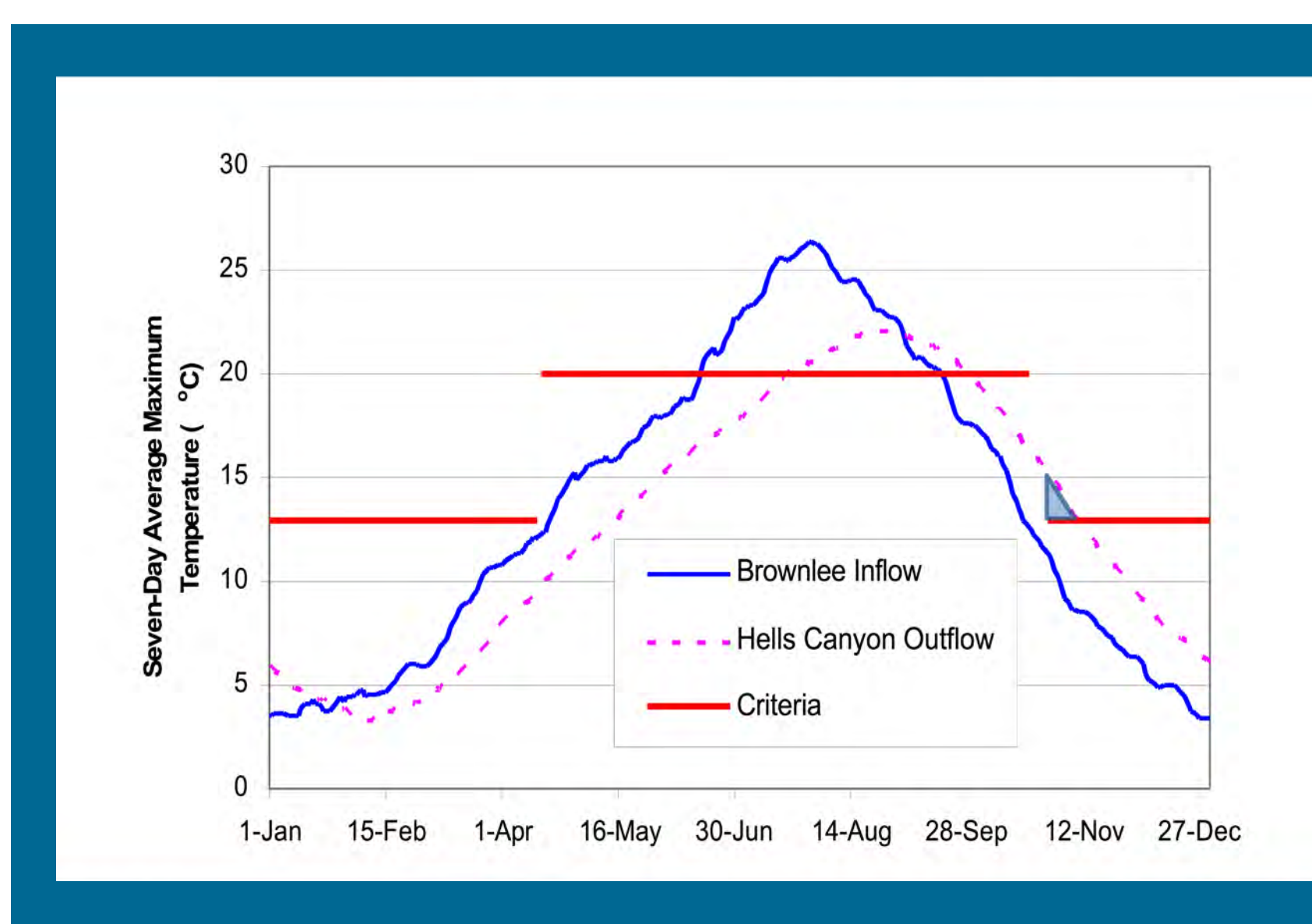
- Pumping could be problematic because of ammonia, methane and methyl-mercury deposition behind dam
- Water temperature below dam already supports quality fish habitat



## Sediment & Phosphorus Reductions Are Feasible



## Temperature Issue



## Proposed alternative solution:

- Restore natural functions of river through instream restoration actions, agricultural management improvements and riparian revegetation.
- Actions would cool water, increase flow and sediment transport, decrease macrophyte growth and improve impaired fish habitat.



## Results (in progress):

- Working with state and federal agencies to refine facets of the program for 401 water quality certification compliance
- On-going stakeholder outreach to community members, landowners and local officials
- Completing multi-agency permitting and site characterization to begin pilot project on island augmentation

