

# Streamflow needs for fisheries: Interface with ESPA Managed Recharge

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# Outline

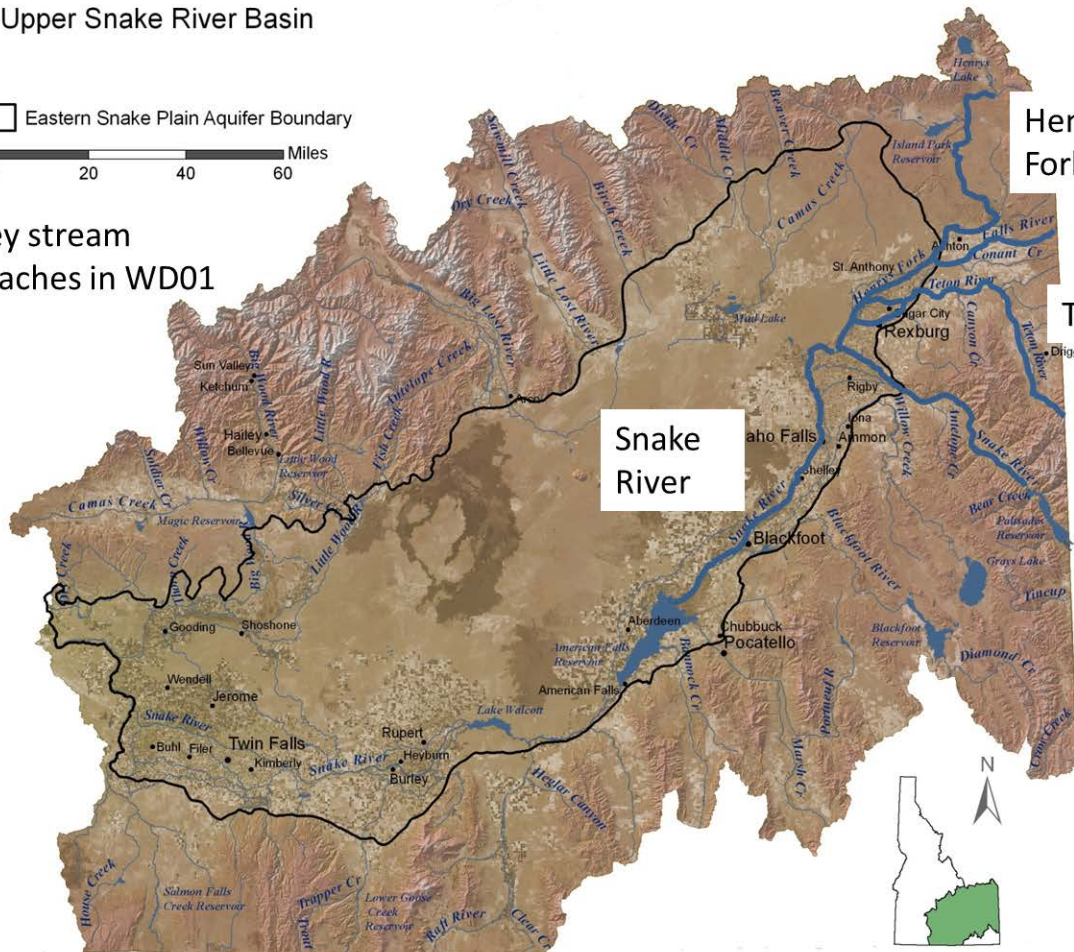
- Stream reaches supporting major trout fisheries
- Four general types of streamflow issues
- Intersection of reaches with fisheries streamflow issues and diversion of natural flow for managed aquifer recharge (e.g., IWRB program)
- Streamflow triggers on private recharge rights
- Additional comments:
  1. *Effects of private managed recharge using rented storage water*
  2. *Potential benefits of managed recharge to fisheries*

# Upper Snake River Basin

□ Eastern Snake Plain Aquifer Boundary



Key stream reaches in WD01



Henrys Fork

## Trout Fishing in Upper Snake

- Teton
- Internationally known
- \$50-100 million value

South Fork

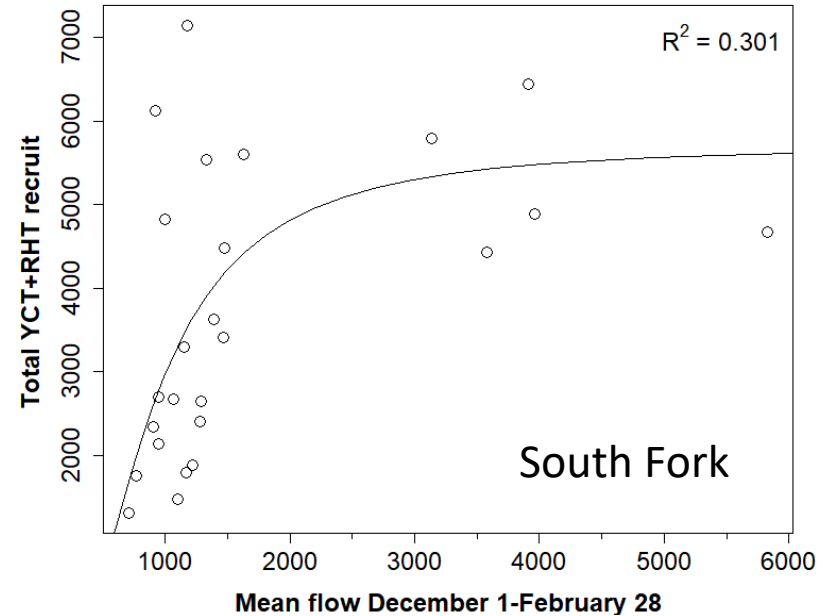
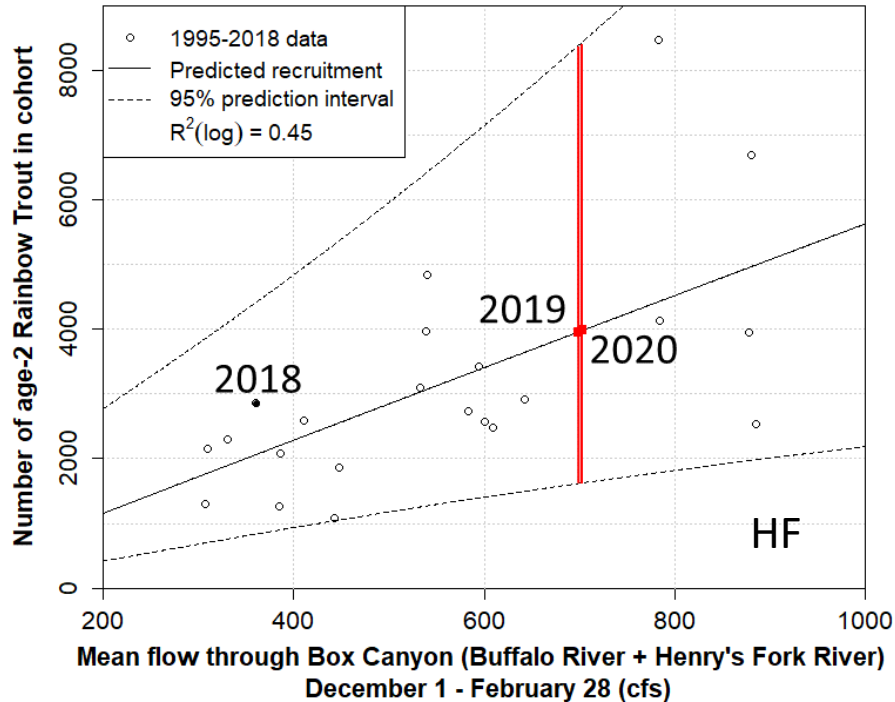
## Major Fisheries

- Henry's Fork & tribs.
- Teton River
- South Fork Snake
- Snake River upstream of American Falls Res.



# Four classes of streamflow issues

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3. **Mid-summer flow** (and associated water temperature) can limit trout habitat in reaches with high irrigation diversion



# Four classes of streamflow issues

1. **Low winter flow** limits survival of juvenile fish downstream of Island Park Dam (Henry's Fork) and Palisades Dam (South Fork)
2. **Springtime freshet** needed for optimal maintenance of stream and riparian habitat in reaches with mobile bed and active floodplain
3. **Low mid-summer flow** (and associated water temperature) can limit trout habitat in reaches with high irrigation diversion
4. **High mid-summer reservoir delivery** decreases water quality and fishing experience



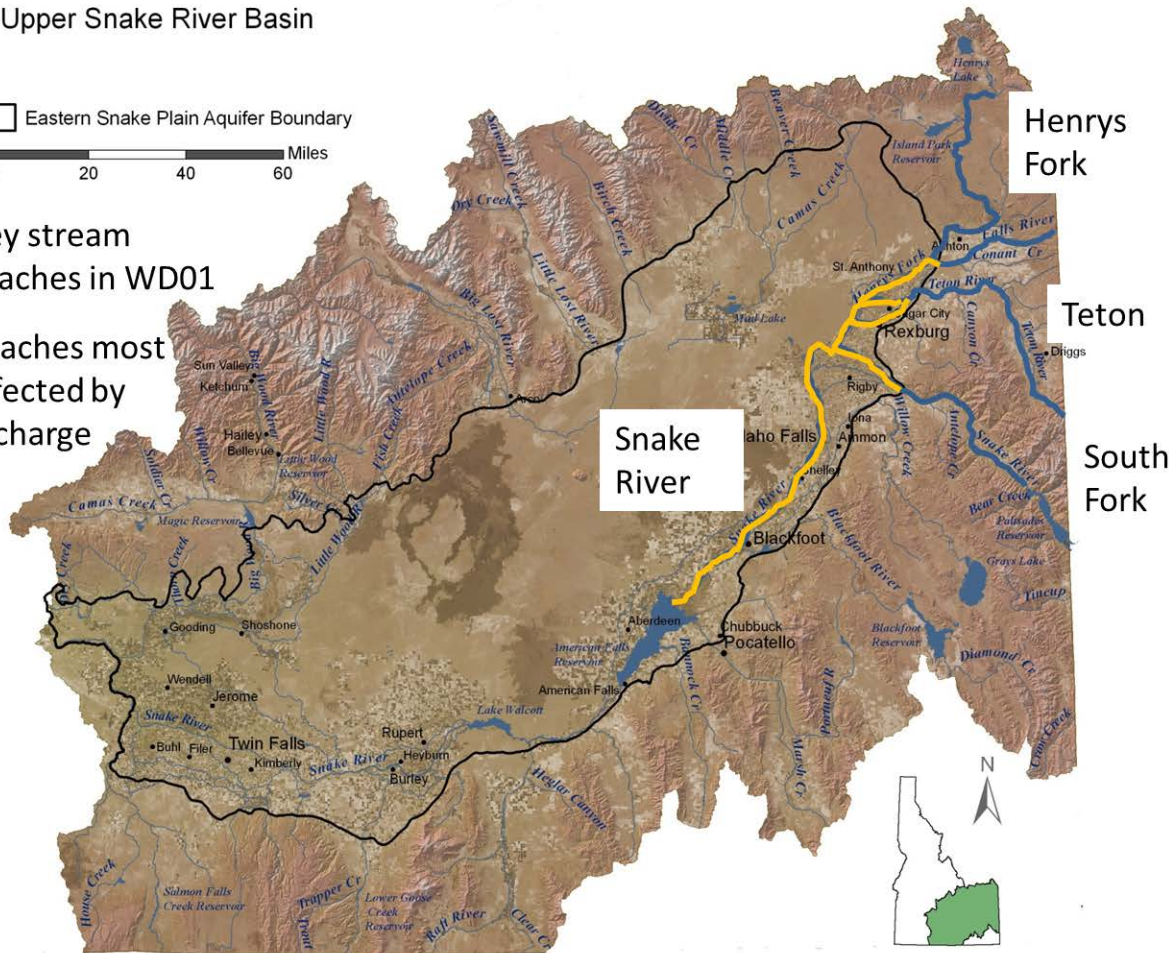
# Upper Snake River Basin

Eastern Snake Plain Aquifer Boundary



Key stream reaches in WD01

Reaches most affected by recharge



## Reaches downstream of recharge PODs

- Lower Henry's Fork
- Lower Fall River
- Lower Teton River
- Lower South Fork
- Snake River



# Streamflow concerns and Effects of Managed Recharge (natural flow)

River Reach	Winter flow		Freshet		Summer flow		Reservoir delivery	
	concern	effect	concern	effect	concern	effect	concern	effect
Upper HF								
HF below IP	X						X	
Mid-HF & tribs								
Lower HF/Fall R			X	X	X			
Upper Teton					X			
Lower Teton			X	X	X			
SF ab. Great Feeder	X		X				X	
SF blw. Great Feeder			X	X				
Snake River			X	X	X			

- Reservoir outflow concerns are upstream of managed recharge PODs.
- Low summer flow is not affected, because either: 1) natural flow recharge rights are not in priority, or 2) if they are, water supply is sufficient for recharge and streamflow.
- Private recharge rights have minimum flow trigger: 1,000 cfs in HF at St. Anthony and 2,070 cfs in Snake River at Blackfoot. These are set at customary operational flows.
- Greatest potential effect of diversion for managed recharge: decreased springtime freshet (but not in SF canyon, where critical). Currently limited by capacity.

# Additional Comments

1. Effects of private managed recharge using rented storage water
  - Additional physical reservoir delivery during irrigation season
    - Decreased water quality and fishing experience downstream of reservoirs
    - Increased sediment transport out of reservoirs
    - Decreased water quality in reservoirs
    - Decreased winter flow to refill
  - Decreased streamflow at times when natural-flow recharge would have no effect
2. Potential benefits of managed recharge to fisheries
  - Increased baseflow in hydraulically connected reaches
  - Moderated water temperatures (cooler in summer; warmer in winter)