IWRB Managed Recharge Environmental Resources Technical Workgroup Report

Rob Van Kirk, Senior Scientist

Henry's Fork Foundation, Ashton, Idaho

IWRB Aquifer Stabilization Committee, September 18, 2019

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Workgroup Background

- Established by settlement agreement for lower-valley IWRB managed recharge rights (01-7142, 01-10609)
- To "…provide information and recommendations to IWRB regarding any potential impact on aquatic, wildlife and recreation resources and on water quality…"
- Group meets at least twice annually
- Meetings to date: October 2018, April 2019

Workgroup Representation

- Idaho Dept. of Fish and Game
- Idaho Dept. of Environmental Quality
- U.S. Bureau of Reclamation
- U.S. Bureau of Land Management
- Idaho Water Users Association
- Idaho Power Company
- Idaho Rivers United
- Trout Unlimited
- Henry’s Fork Foundation
- A&B Irrigation District
- Burley Irrigation District
- Milner Irrigation District
- North Side Canal Co.
- Twin Falls Canal Co.
- American Fall Reservoir District No. 2

Issues Discussed to Date

- IDEQ-approved water-quality monitoring
  - Milepost 31
  - Shoshone
  - Richfield
  - Jones (upper valley)
- Streamflow needs for fisheries and potential interaction with IWRB recharge

Outline of Streamflow Concerns

- Stream reaches supporting major fisheries
- Five 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)
- Additional comments:
  1. *Effects of managed recharge with storage water*
  2. *Potential benefits of managed recharge to fisheries*

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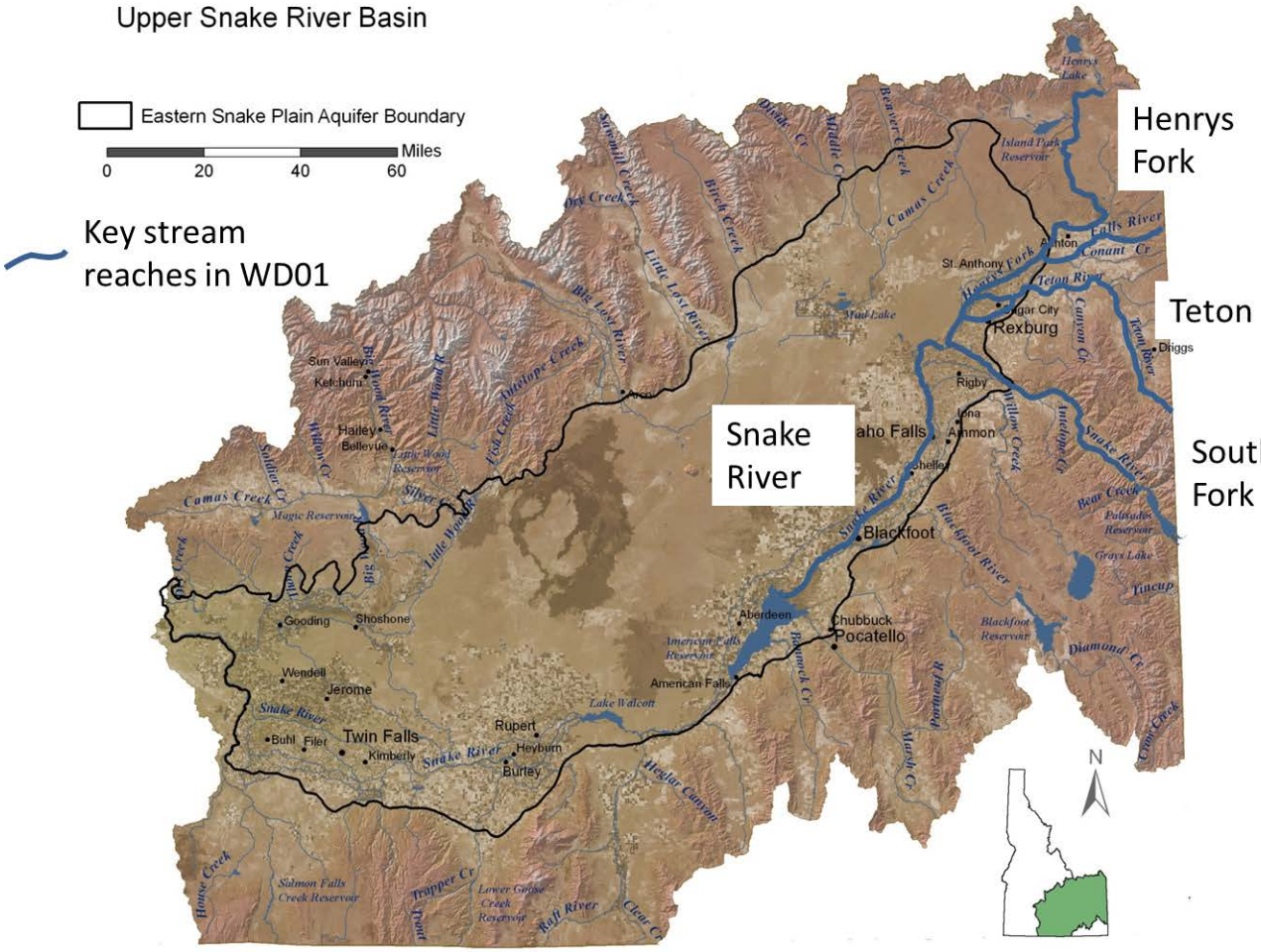


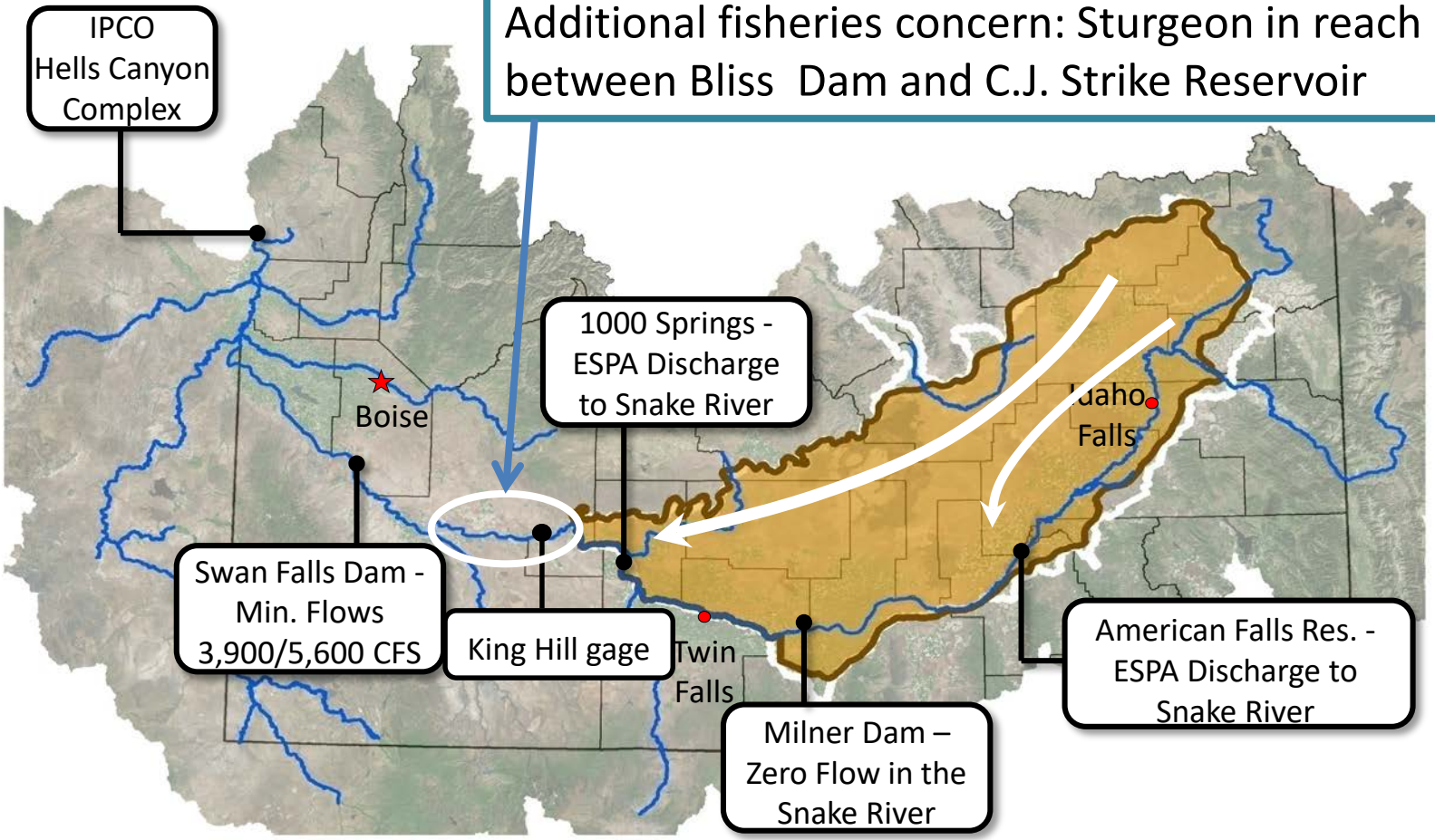
Trout Fishing in Upper Snake

- Internationally known
- $50-100 million value

Major Fisheries

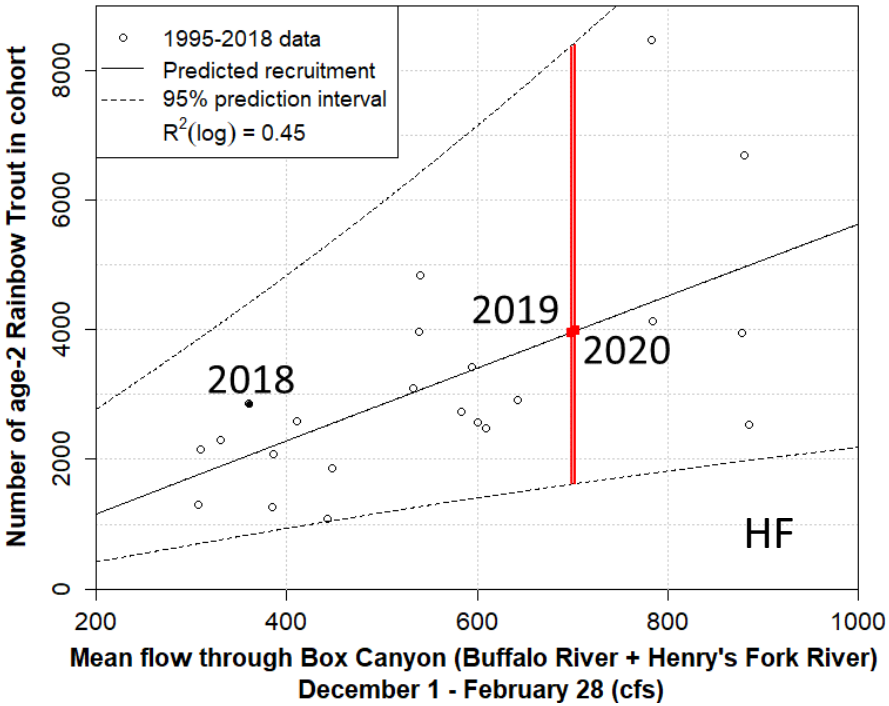
- Henry's Fork & tribs.
- Teton River
- South Fork Snake
- Snake River upstream of American Falls Res.

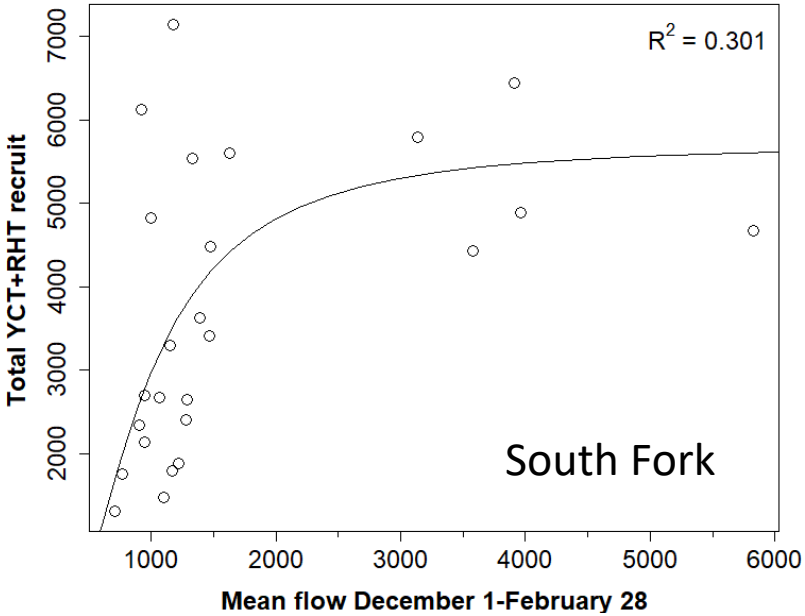
Additional fisheries concern: Sturgeon in reach between Bliss Dam and C.J. Strike Reservoir



Five classes of streamflow issues

1. **Winter flow** limits survival of juvenile fish downstream of Island Park Dam (Henry's Fork) and Palisades Dam (South Fork)





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2. **Springtime freshet** needed for optimal maintenance of stream and riparian habitat in reaches with mobile bed and active floodplain

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4. **High mid-summer reservoir delivery** decreases water quality and fishing experience

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5. **High springtime flows** needed for sturgeon recruitment in Bliss-to-C.J. Strike reach (~25 Kcfs optimal; no recruitment at flows < 12 Kcfs

Photo and information from Idaho Power

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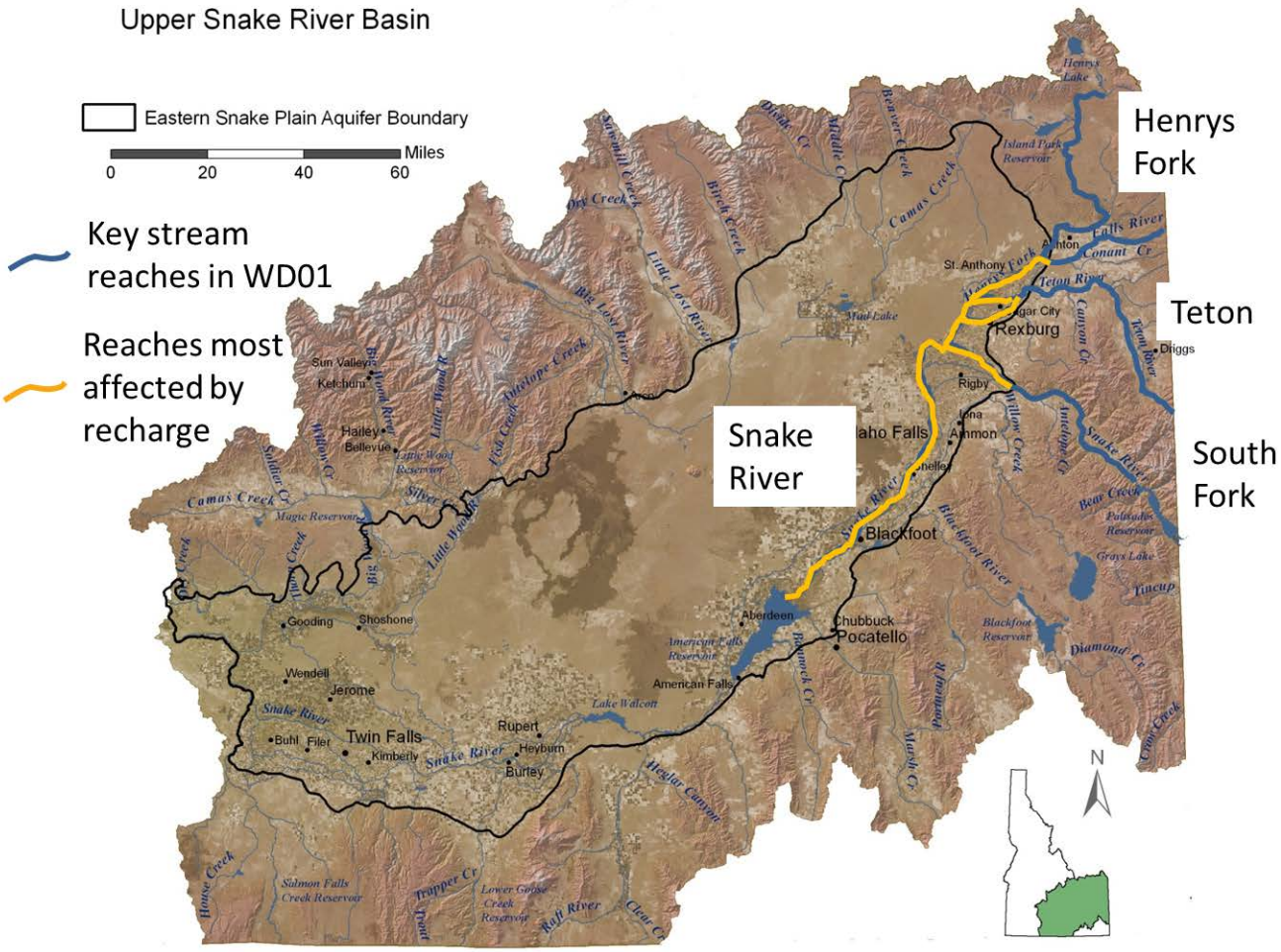

Reaches downstream of recharge PODs

- Lower Henry's Fork
- Lower Fall River
- Lower Teton River
- Lower South Fork
- Snake River
- Mid-Snake (Bliss to C.J. Strike)

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Streamflow concerns and Effects of Managed Recharge (natural flow)

River Reach	Winter flow		Freshet/sturgeon		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			
Bliss to C.J. Strike			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) water supply is sufficient for recharge and streamflow.
- Greatest potential effect of diversion for managed recharge:
  - Springtime freshet; currently limited by priorities and recharge capacity.
  - Sturgeon recruitment; recharge has little effect when King Hill flow > 12 Kcfs

Additional Comments

1. Effects of managed recharge using 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 when natural-flow recharge would have no effect
   - IWRB recharge with donated mitigation storage: minimal effect because this happens only in years (e.g., 2018, 2019) with low storage demand
2. Potential benefits of managed recharge to fisheries
   - Increased baseflow in hydraulically connected reaches
   - Moderated water temperatures (cooler in summer; warmer in winter)

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