Collaboration over Conflict: The Teton Water Users Association

Star Valley CD Meeting

August 12th, 2020

Teton Basin and Star Valley Aquifer Similarities

- Geographic proximity
- Headwater basins feeding Snake River
- Similar geological conditions
- Land use traditionally dominated by agriculture, new development pressures on agricultural infrastructure
- Irrigation practices influence timing of water delivery

Who is the Teton Water Users Association?

A diverse group led by ag producers, conservation groups, municipal and county leaders, and experts in hydrology and economics of the rural west

Members include representatives from:

- Teton Soil Conservation District
- Teton County Farm Bureau
- Friends of the Teton River
- Henry's Fork Foundation
- LegacyWorks Group
- NRCS District Conservationist
- Cities: Victor, Driggs, Tetonia
- Teton County, Idaho
- Water District 01 Water Master
- Individual water right holders
- Major canal companies
- Teton Regional Land Trust

How did the group get started?

- *We have a problem* - Snowmelt is leaving the valley earlier and quicker than in the past. This results in:
  - Less water for irrigation
  - Less water for well and city drinking supplies
  - Less water and higher temperatures in the river
- *We have a solution* - The Teton Water Users Association formed to develop a plan to recharge snowmelt into the aquifer, providing a larger and more stable water supply for all water users in the valley

Group Vision:

- Keep working lands working by securing and maintaining a reliable and affordable supply of water to sustain agriculture

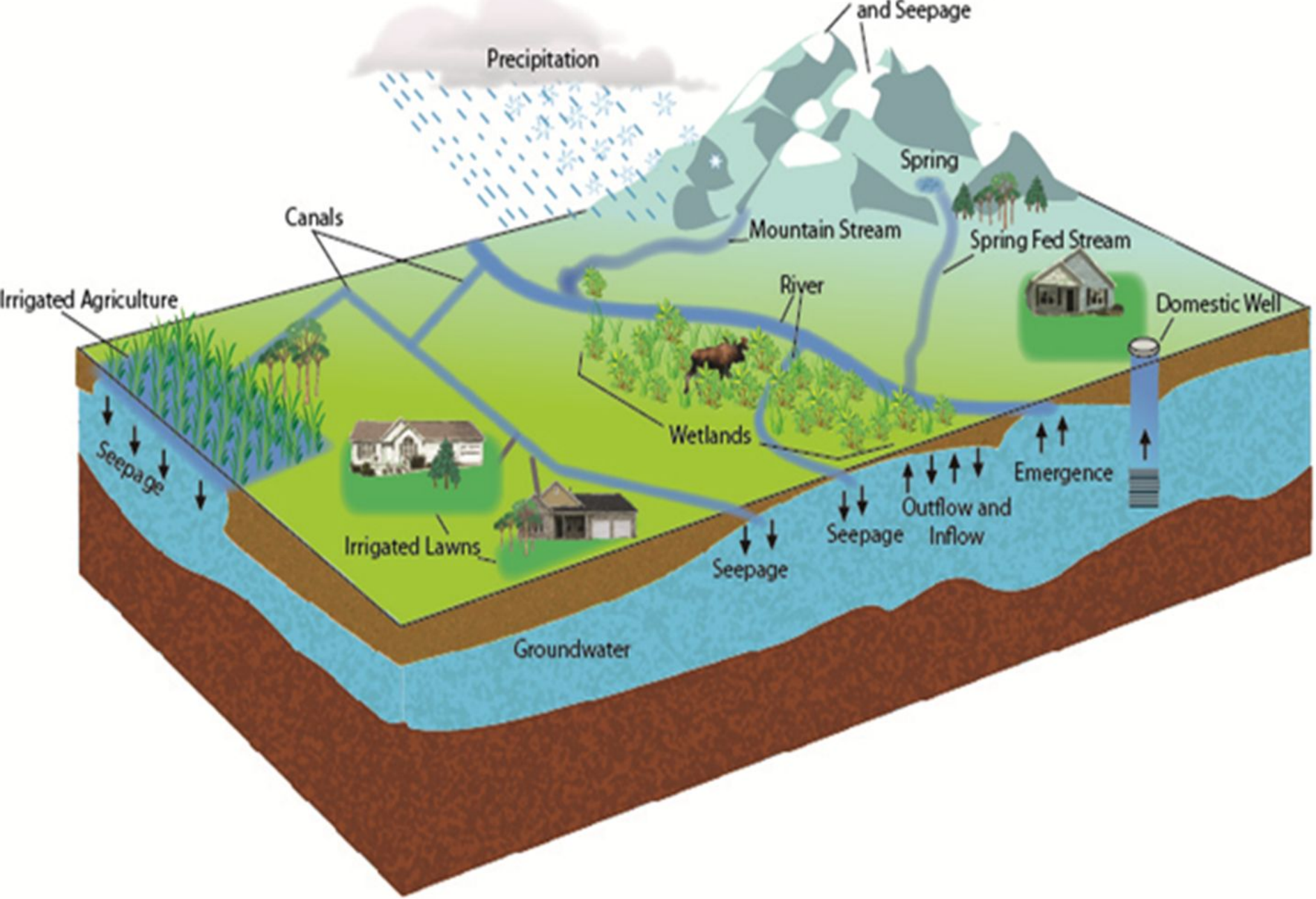
- Protect and restore stream flows and water quality in the Teton River and its tributaries, for the benefit of people, wildlife, and fish

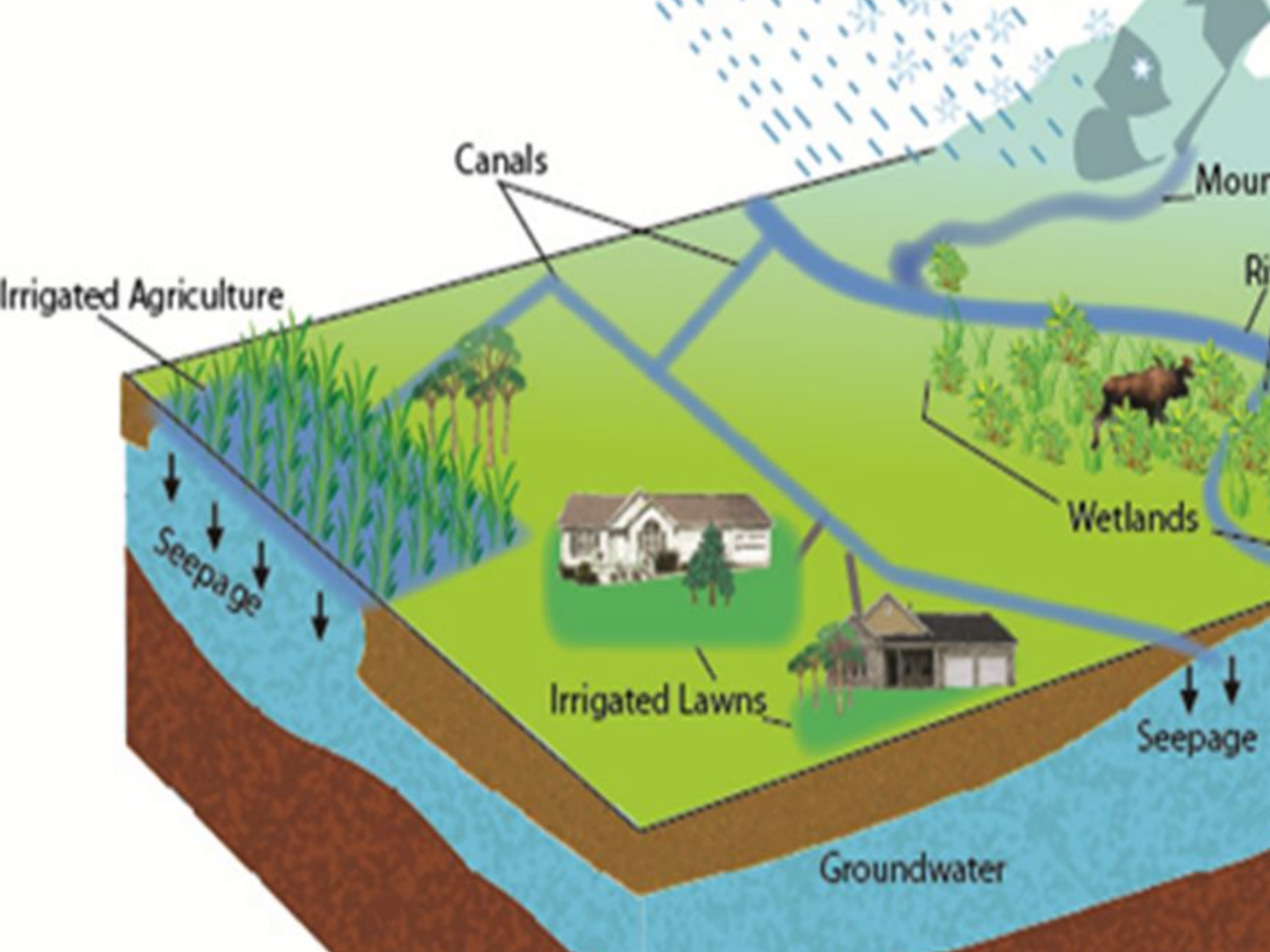
- Secure and maintain a safe, affordable, and high quality water supply for municipalities and residential water users

Why did the group form?

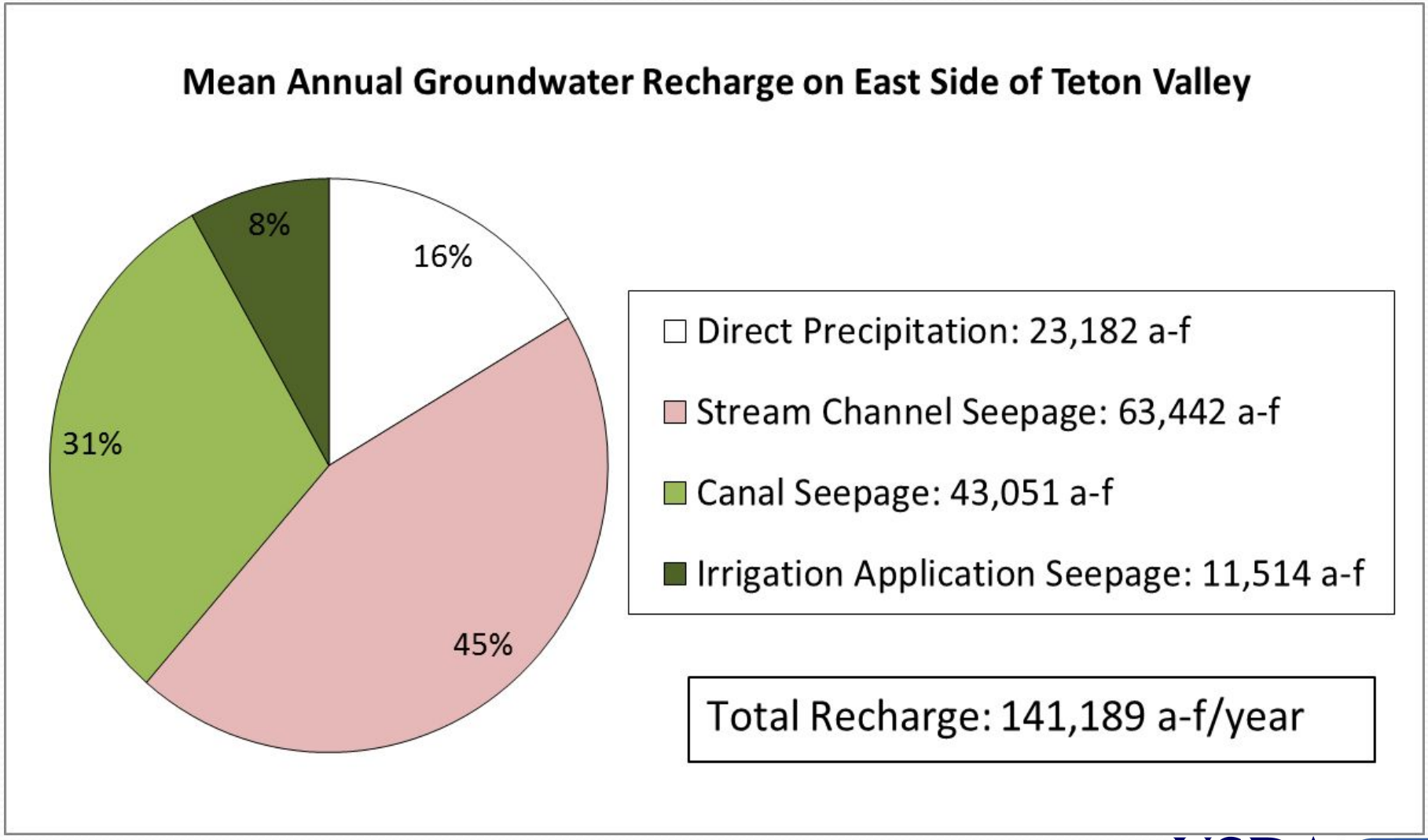
- Declines in Idaho's aquifer and river levels
- Prolonged drought
- Mitigation and water-supply concerns for growing cities and rural areas
- Declines in native Yellowstone cutthroat trout populations
- Water-quality concerns
- Formation of a Groundwater Management Area to stabilize the Eastern Snake Plain Aquifer, and resulting in impact to tributary basins
- Issues resulting from the incremental conversion of land from agriculture to suburban use

We hope to be proactive about these issues, and work together to plan/mitigate for potential impacts.


and Seepage
Precipitation
Spring
Canals
Mountain Stream
Spring Fed Stream
River
Irrigated Agriculture
Domestic Well
Wetlands
Seepage
Emergence
Outflow and
Inflow
Seepage
Irrigated Lawns
Seepage
Groundwater

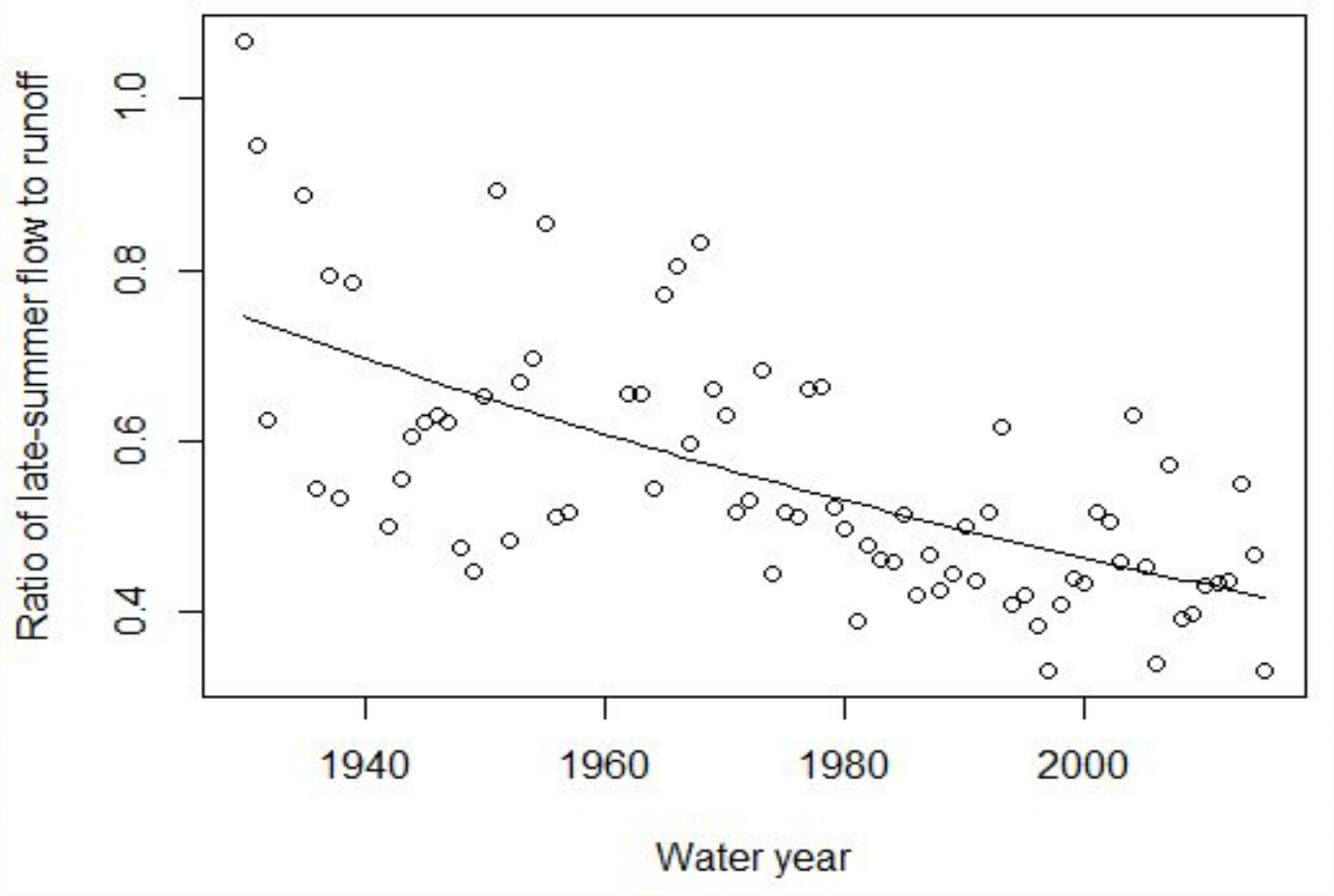

Canals
Irrigated Agriculture
Seepage
Irrigated Lawns
Wetlands
Seepage
Groundwater

Irrigation Canals Play an important role in recharging Teton Valley's Aquifer

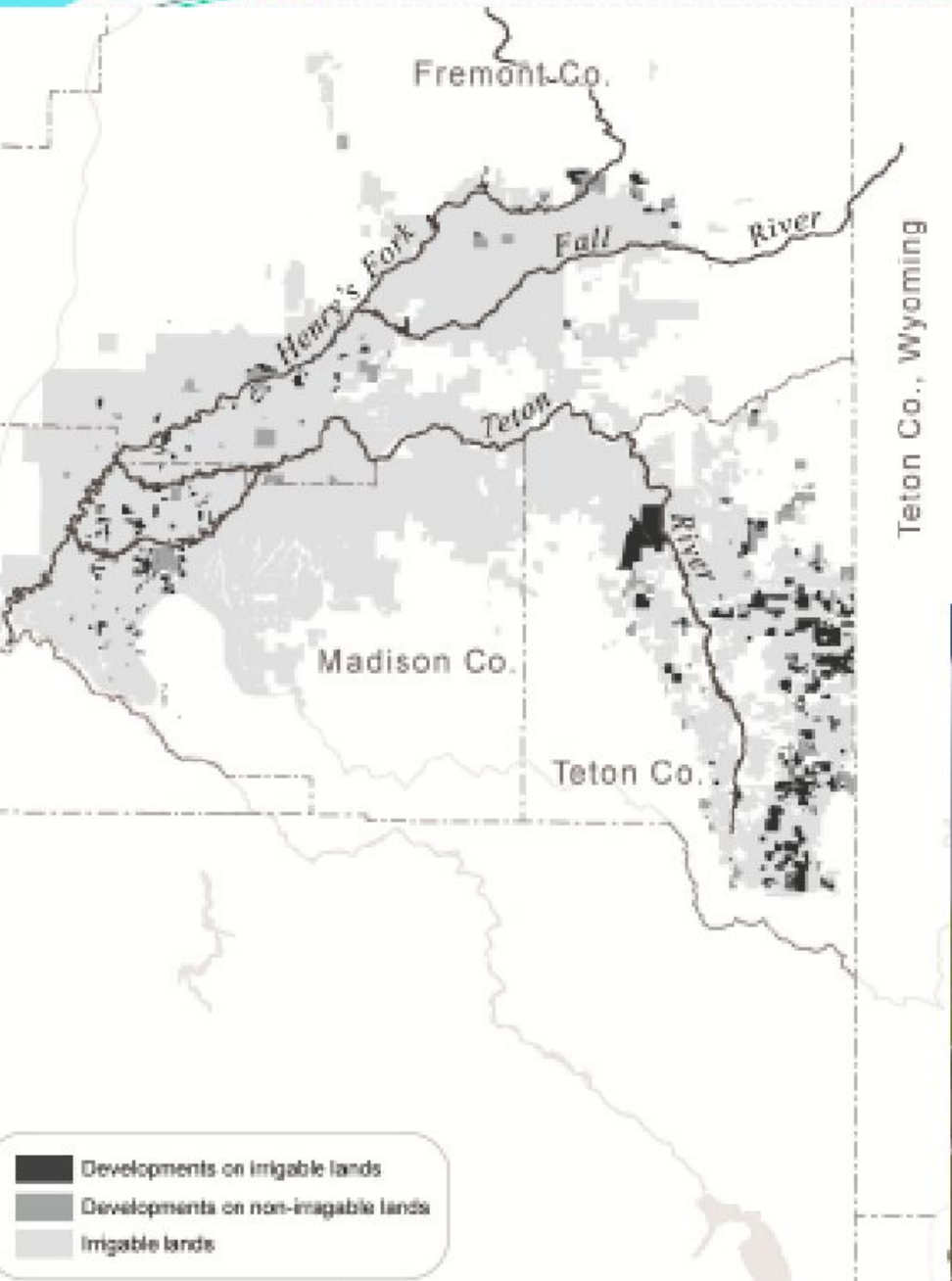


Van Kirk et al, "Conservation of surface and ground water in a Western watershed experiencing rapid loss of irrigated agricultural land to development" www.humboldt.edu/henrysfork

Ratio of late-summer (August 1 – September 30) mean flow in the Teton River to mean flow during runoff (May 15 – July 15)



Effects of Land Conversion on Irrigation



- 14% of irrigable land has been subdivided in Teton Valley
- 86% of development has occurred on canal-irrigated land
- Development has fragmented canal systems

How does this affect all of us?

TYPE OF SERVICE	METER READING PRESENT	METER READING PREVIOUS	USED	CHARGES
Water	213660	203350	10,310	25.84
Sewage				48.56
Garbage				12.00
Act 903				0.30
Sales Tax				3.26

$89.96

DO NOT PAY! BANK WILL DRAFT.

Service From 7/20/2011 TO 8/16/2011 ACCOUNT [redacted] 8/30/11

METER READ MONTH | DAY | CLASS | TOTAL DUE UPON RECEIPT | LATE CHARGE AFTER DUE DATE | PAST DUE AMOUNT

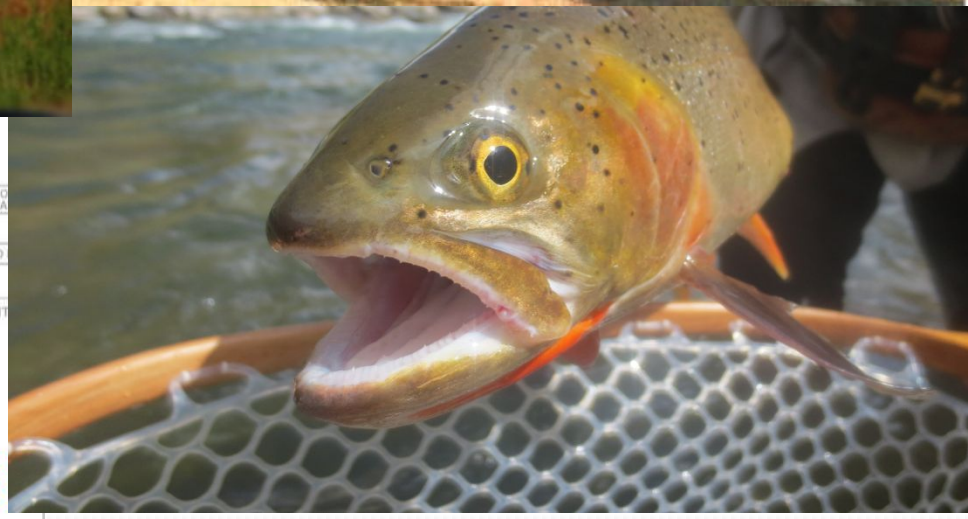
PINE BLUFF, AR 71601
PERMIT NO. 588

CUSTOMER ROUTE	CUSTOMER ACCOUNT	PAY GROSS AMO AFTER THIS DA
99	[redacted]	9/15/11
NET AMOUNT TO BE PAID		GROSS AMOUNT TO
89.96		98.96

MAIL THIS STUB WITH YOUR PAYMENT

[redacted]

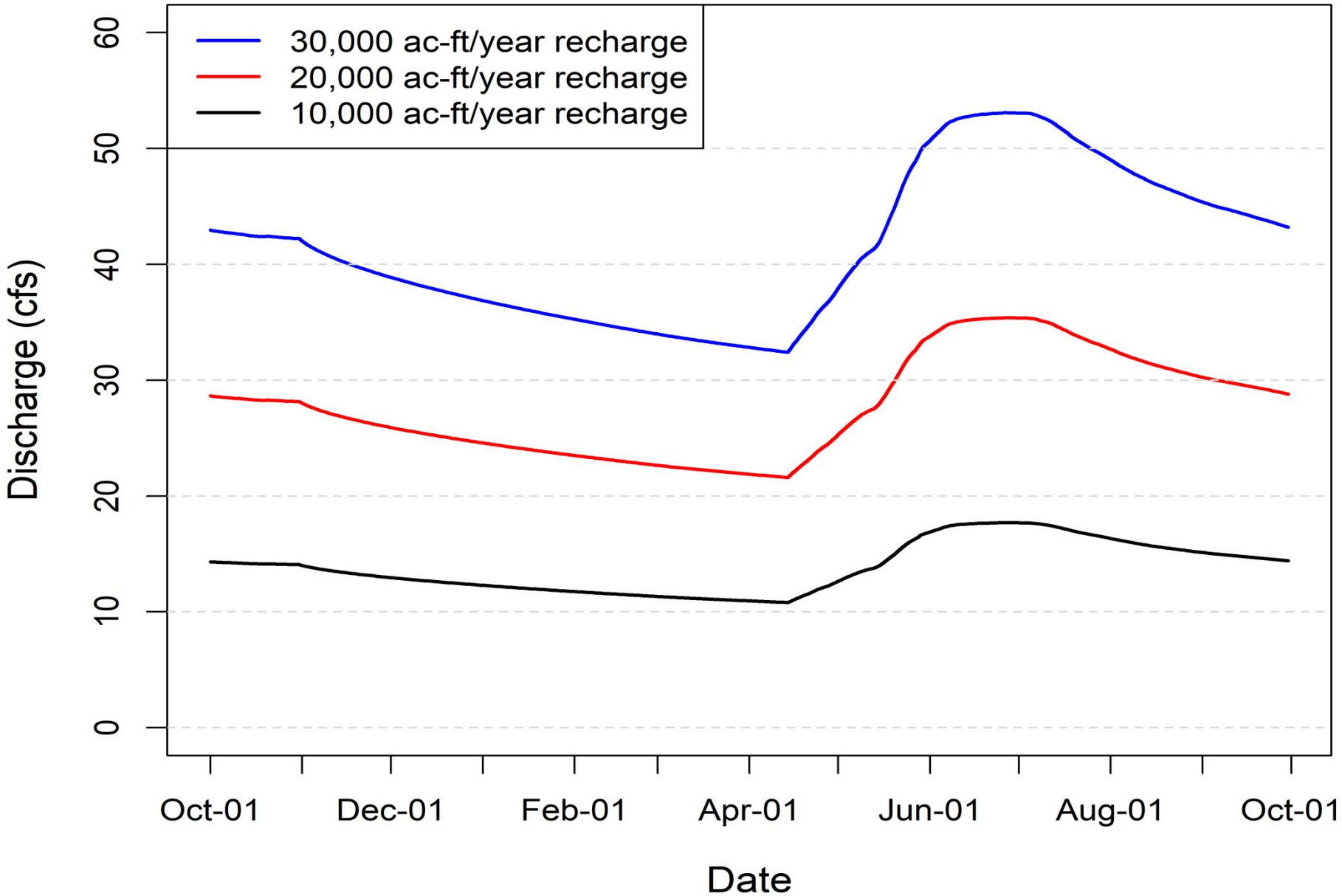
WHITE HALL, AR 71602



What is the plan?

- Recharge the aquifer in the spring by:
  - Working on canals and irrigation infrastructure
  - Actively putting water in canals early (April – June)
  - Using flood irrigation techniques and identifying locations suitable for operational spills
- Continuing to conserve water by:
  - Utilizing sprinklers and wheel lines when stream flows decline
  - Utilizing municipal water metering and residential water conservation techniques

Expected Additional Contribution to Teton River



Recharge Pilot

Market-Driven Approach

- Water in July and August is worth more than April and May
- Groundwater storage is an effective storage mechanism
- Incentives to manage <u>existing</u> water rights differently can lead to greater availability of late season water

Pilot Program

- Payments to local irrigators and irrigation companies to increase groundwater recharge in April-June using existing water rights
- Robust monitoring downstream to measure impacts
- 2018 recharged ~2,500 AF, 2019 recharged ~10,500 AF, 2020: ?
- Aim to generate statistically significant results

Funding Sources

- NRCS: irrigation infrastructure
- Nature Conservancy
- National Fish and Wildlife Foundation
- Idaho Water Resources Board

Summary of Goals:

1. Increase water levels in the Teton Valley aquifer, thereby protecting municipal and residential water supply;

2. Insulate farmers against changes in water availability and increase water-supply reliability, particularly during times of drought;

3. Maintain valuable wetland habitat and stream flow conditions beneficial for trout; and

4. Quantifiably increase base flows in the Teton River, thereby decreasing water supply and demand pressure on the Henrys Fork River and Island Park Reservoir.


Questions