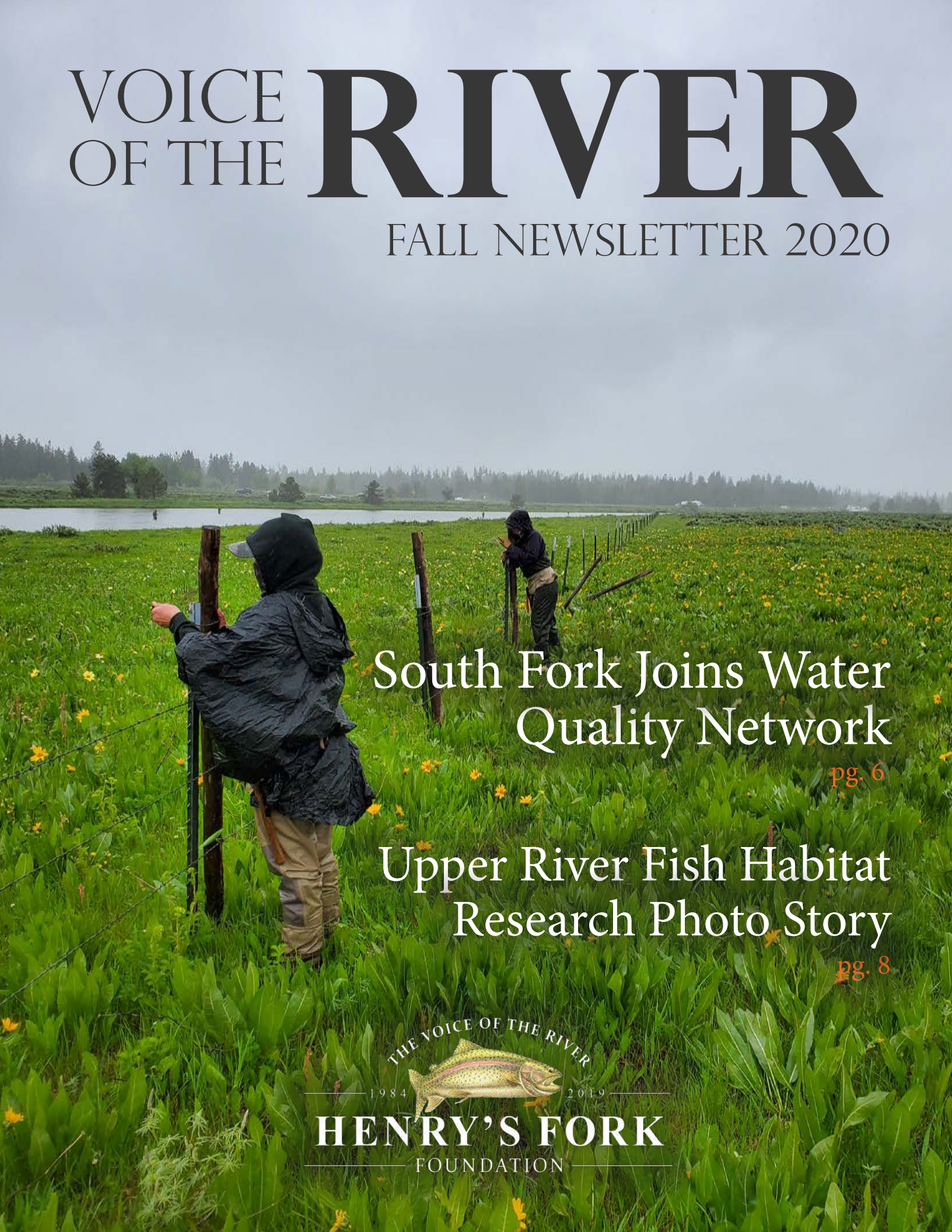
VOICE OF THE RIVER

FALL NEWSLETTER 2020



South Fork Joins Water Quality Network

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Upper River Fish Habitat Research Photo Story

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THE VOICE OF THE RIVER

1984 2019

HENRY'S FORK FOUNDATION

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Mission Accomplishment Continues

More than halfway through a year of unprecedented health and financial uncertainty, our rivers remain strong. Thanks to your investment in technology, infrastructure, and capacity, and additional safety measures to keep our staff and community safe, HFF's programmatic work has continued on and mission accomplishment has not wavered. Thank you for supporting us during these trying times, whether by attending our virtual events, donating throughout the year, or spreading the word about the work we do. We cannot tell you how much your support means to us, and to the rivers and wild trout we love.

New Faces at HFF

The Henry's Fork Foundation (HFF) has welcomed some new faces to our staff. Here are a few members of the HFF team you may not have met yet:

Amber Roseberry, *Conservation Technician*

Amber started her experience with HFF as the 2019 Don C. Byers Intern. After her internship, Amber continued on with the Foundation as a Conservation Technician, putting her valuable computer science and field work skills to use by assisting with real-time data transmission technology, ADCP flow measurements, sonde installation, and much more.

Sydney Stoddard, *Community Campus Coordinator*

Sydney has been with the Foundation since December of 2019 as the Community Campus Coordinator. She manages the day-to-day operations of the front office and Interpretive Center, including answering phone calls, greeting guests, and supervising all maintenance of the campus building and facilities.

Daniel Wilcox, *Upper Snake River Collaborative Farms and Fish Program Manager*

Daniel was hired as the Farms and Fish Program Manager for the Upper Snake River Collaborative in January 2020. Daniel brings his education and experience in agricultural systems to his work with local landowners on water conservation strategies that will benefit river health and our water resources.

Amy Taylor, *Events Coordinator*

Amy began with the Foundation in March 2020, taking over the responsibility of planning and executing HFF's events from former coordinator Kristen Widdison. Amy combines her skills in event planning, member outreach, and fundraising to ensure HFF's events, whether virtual or in-person, are a wonderful experience for the HFF Community.

Guide Profile: *Andy Jenkins, Henry's Fork Anglers*

I was first introduced to the Henry's Fork as a teenager through the words of Mike Lawson. My father and I attended his seminars at the Sportsman Expo shows; at that time he was a part of the Traveling Flyfishermen along with Jack Dennis and Gary LaFontaine. My love for the area grew and I knew I needed to be there.

I was born and raised in Redwood City, California. I got my BS Degree in Marine Biology from the University of Alaska and also my Secondary Education degree from the University of Alaska. I am now a resident of Saint Anthony, Idaho, with my lovely wife Amy, son Dylan, and our daughter Zoey. We are expecting a child this December.

I have been a guide with Henry's Fork Anglers for the last 9 years and when I am not guiding, our family loves to travel. I also love to pursue Roosterfish in Baja, Mexico and Peacock Bass in the Amazon; in the fall and early winter you will find me in the duck blind.

HFF's Intern Program Adapts During Uncertain Times

By Zack Boyd, Conservation and Communications Intern

From the very beginning, it was an unusual summer for the interns. For example, the hydrology and statistics courses, taught by Senior Scientist Rob Van Kirk to orient them to HFF's work, were taught online over the first two weeks. Despite the challenges, every intern was able to produce outstanding work this summer. Farms and Fish intern, Jon Bender from Walla Walla Community College has been monitoring plant populations and testing the effectiveness of moisture monitors. Meanwhile, Aquatic Ecology and Water Quality intern Meg Ruebush, from BYU-Idaho, has been helping to research the impact of macrophytes on the productivity of the river. Due to the circumstances, each observed strict social distancing and health guidelines to participate in field work.

The other four interns worked on a wide range of projects from different corners of the country. Stream Channel Habitat and Hydrology intern London Bernier, a recent graduate from St. Lawrence University, produced a guide to help readers interpret the technical language in HFF's

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The Many Uses of the Acoustic Doppler Current Profiler (ADCP)

Over the years, HFF has learned that farmers and irrigators have many of the same goals we do. They hope to ensure that our water resources remain strong for years to come, and many local farmers not only want to pass the family farm on to future generations, but also their favorite fishing spots.

Last year, Fremont-Madison Irrigation District (FMID) purchased an Acoustic Doppler Current Profiler (ADCP) to be operated by HFF to measure streamflow in canals to help increase precision in water management. However, they also allow HFF to use the unit to measure streamflow in other parts of the river to increase our understanding of the river's hydrology. The ADCP uses acoustics to measure channel width, depth, and velocity to give a streamflow estimate. This summer, Doctoral Research Associate, Christina Morrisett has used the ADCP at least weekly to measure the relationship between streamflow and aquatic habitat, and gage how low is too low to maintain habitat for fish and insects; as well as measuring groundwater reach gains and losses to pair with her piezometer data. HFF also uses the ADCP to measure streamflow below Island Park Dam to ensure accurate and up-to-date analysis for Rob's daily water reporting.

To learn more about how the ADCP unit benefits HFF's work, follow the Henry's Fork Foundation on Facebook, Instagram, or Twitter, or email rob@henrysfork.org to receive daily water supply updates.

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scientific publications, and worked with PhD candidate Christina Morrisett to study how streamflow in the lower Henry's Fork affected aquatic habitat, all from Portland, Maine. Working from just outside New York City, Washington and Lee University's AJ Mabaka worked with PhD candidate Jack McLaren, studying how a variety of variables—including water flow, prey availability, and temperature—affect trout between Big Springs and Island Park Dam. Liv Krogermeier, the South Fork Social Science intern from Colgate University, conducted and analyzed a survey to better understand anglers' fishing experience on the South Fork, and how to best share information with them; she operated out of Pennsylvania. Lastly, Conservation and Communications intern Zack Boyd from Stanford University worked from San Jose, California with Communications and Outreach Director Jamie Laatsch to produce social media posts, flyers, and to evaluate HFF's past projects to determine which are in need of additional monitoring.

Lower Henry's Fork PhD Research and Potential Benefits to Late Season Flows

Doctoral Research Associate and Utah State University PhD candidate, Christina Morrisett continues her research investigating the impacts of groundwater and surface water on aquatic habitat in the lower Henry's Fork. This summer, she — with help from HFF staff and interns, and observing added social distancing and safety precautions — has installed piezometers and streamflow gages, and has taken depth-to-water measurements. A piezometer is a mini well. By installing a pressure logger inside it, she can measure and monitor depth to groundwater. The lower Henry's Fork is hydraulically dynamic, sometimes gaining water from the shallow aquifer and sometimes losing water to it. Christina's project aims to understand when the river gains or loses water and where.

More specifically, she is investigating to what extent groundwater recharge can maintain suitable streamflows and temperature for aquatic species with current and changing water supply and temperatures. Groundwater return flows are important for maintaining baseflows that buffer periods of low streamflow and moderate extreme stream temperatures. Understanding these groundwater dynamics can inform managed aquifer recharge efforts and how water is managed in the lower river.

Managed aquifer recharge (MAR) can capture early snowmelt and store it in the aquifer for use later in the summer. Based on HFF work published earlier this year, we know that a proportion of water recharged to the aquifer in the spring returns to the river in the late summer—increasing streamflow by 4 - 7 percent in July and August. In extremely dry years, recharge could increase streamflow by 10 - 40 percent. Christina plans to use this high-resolution local groundwater data with a state-created groundwater model to simulate alternative recharge strategies to identify those that maintain streamflow and temperatures needed for aquatic ecosystems. Increasing late summer streamflow through MAR could also help keep more water in Island Park Reservoir, conserving water supply and maximizing reservoir carryover.

Phosto credit: Sarah Null

To learn more about Christina's work, view her Lower Henry's Fork Project presentation or follow @lowerhenrysfork on Instagram.

South Fork Initiative Program Updates

Towering cottonwoods, crisp, alpine water, and healthy trout have brought many good memories and moments of peace over the years. The South Fork Initiative (SFI) continues this summer towards the goal of conserving and protecting the South Fork of the Snake River and its watershed.

Water Quality Technology

The Henry's Fork Foundation (HFF) has built a comprehensive water quality monitoring network in the Henry's Fork Watershed to develop a baseline of understanding about the river's health as it relates to qualities like water temperature, dissolved oxygen, and turbidity. This technology, a series of in-river data collection instruments called sondes, has been expanded over to the South Fork Watershed in three sites – Upper, Canyon, and Lower South Fork. Collecting data on water quality parameters every 15 minutes and transmitting that information to HFF's data website in real-time allows scientists and anglers alike to stay up-to-date on South Fork river conditions. It also allows the SFI to assess impacts and analyze changes to water temperature, turbidity, and other factors, which can help improve water management and conservation. Click here to view the data website.

Palisades Dam Flow Changes

In the spring, the U.S. Bureau of Reclamation (USBR) manages the South Fork system to ensure the river doesn't exceed flood stage and the reservoir system is full when storage water is needed for irrigation. Prior to the 4th of July weekend, three consecutive days of extraordinary rain fell in the watershed while the reservoir system was near full capacity. USBR made extra efforts to adjust flows during the rain event to specifically minimize impacts to fishing during the holiday weekend. Our sincere thanks goes to USBR for working with the fishing community so flow adjustments would have minimal impacts on fishing conditions over the 4th.

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Farms and Fish Program Benefits Water Conservation

The Upper Snake Collaborative Farms and Fish Program continues to strengthen partnerships with the agricultural community. The Collaborative is made up of Trout Unlimited, The Nature Conservancy, Friends of the Teton River, and the Henry's Fork Foundation (HFF). During these uncertain times, it is more important than ever to find ways to continue making an impact on water conservation. None of the participant organizations in the Collaborative, including HFF, can determine how much water comes out of Island Park Reservoir directly, but continued efforts to help increase precision in water management benefit carryover in Island Park Reservoir and, thereby, Henry's Fork fisheries.

So, what is HFF doing this year with agricultural producers and irrigation entities to reduce the amount of water that is diverted out of the river? HFF is working with canal companies and irrigation districts on precision management hardware installations that will enable them to more precisely monitor their withdrawals from the river. Based on our predictive models, the Henry's Fork Foundation provides data to these managers that can assist decision-making and lead to water savings.

The Farms and Fish Program also continues to pilot agricultural strategies that reduce water demand on Island Park Reservoir and increase late season water supply. Strategies must be economically feasible for farmers and create market-based incentives to improve water management. Some producers sign a creative irrigation deferment agreement that will have the farmer voluntarily

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Upper River Fish Habitat Research Photo Story

Jack McLaren, HFF Doctoral Research Associate and Utah State University PhD student, led a team of HFF staff and interns this summer in field work and data collection to support his study of factors impacting fish habitat in the Henry's Fork above Island Park Reservoir (the "upper river"). This research was able to continue with added safety and social distancing precautions. Learn more about this project here.

Macrophyte (aquatic vegetation) sampling occurs at 4 different sites in the upper river: Buffalo River, Big Springs, North Fork Club, and Flat Rock Club. Samples are taken at the same sites over time to assess how the macrophytes grow and change.

Sampling locations are selected randomly as GPS points, the sampler is set down in the river channel and macrophytes within the sampler are collected. Then they are identified by species, taken to the lab, dried, and measured to attain biomass (total mass of organisms in a given area or volume).

Staff also assist with snorkeling surveys. The snorkeler looks for fish and once they spot one, a rock is used to mark the spot. Then the data collector takes flow measurements, macrophyte coverage and height data, and records substrate size in the fish's habitat.

Then a random point 6-12 meters away is selected and the same data is collected to compare the characteristics of the habitat the fish chose vs the habitat in the location it did not choose.

The research also involves nutrient analysis, assessment of total Nitrogen and Phosphorus levels, turbidity samples, water temperature and pH. In this photo, HFF staff member Kamberlee Allison is conducting a titration to test the alkalinity of the water sample.

Did You Know?

The **3-month April-June period is the most critical in determining summer streamflow** and need for reservoir draft, as it includes the period of peak snow accumulation and melt of that snowpack.

Once the snowpack has melted, **rain during mid-late June can have a large impact on early-summer streamflow**, irrigation demand, and need for Island Park Reservoir draft.

From a fishing standpoint, **spring weather can have a large effect on water quality and timing and quality of aquatic insect hatches.**

Although April-June temperature was average, high variability resulted in 3 very warm periods that **melted this year's average snowpack 10 days earlier than average.**

Luckily, cold, rainy weather in the second 1/2 of June compensated for the early snowmelt and **delayed need for Island Park Reservoir draft 2 weeks beyond what it would have been without the rain.**

As of mid-July, Island Park Reservoir was still 91% full, compared with 83% full on average, setting up a **4th consecutive year of above-average carryover and high winter flows.**

Contributions: April 1, 2020 - June 30, 2020

$10,000+

Ralph and Meggan Hamm III
Jackson Hole One Fly Foundation
Jack and Janet Roberts
Denny and Jane Shelton

$5,000+

Lyman and Carol Casey
Brad and Annette Elg
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$2,500+

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Sticker Mountain
Paul Waldon
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Scott Yates

In Kind

Fishpond
Bill Hackett
Scott Harkins
Henry's Fork Anglers
Andy Jenkins
Korkers
Lamson
Loop
Simms
Winston Rods
Yeti

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not divert their share of water from the river for that crop year, as well as provide a cover crop to act as a soil armor to reduce water consumption for next year's crop. Producers can also enroll in a winter wheat conversion for crop year 2021 that will make irrigation applications timelier and reduce late season demand when Island Park Reservoir is most susceptible to large drawdowns. This agreement has a plethora of benefits not only for irrigation demand, but also for improved soil health, reducing wind erosion and sediment runoff, and benefits to water quality.

Despite current challenges, the work continues to enhance river flows and improve reservoir carryover. To support HFF's work as part of the Farms and Fish Program, visit https://henrysfork.org/donate.

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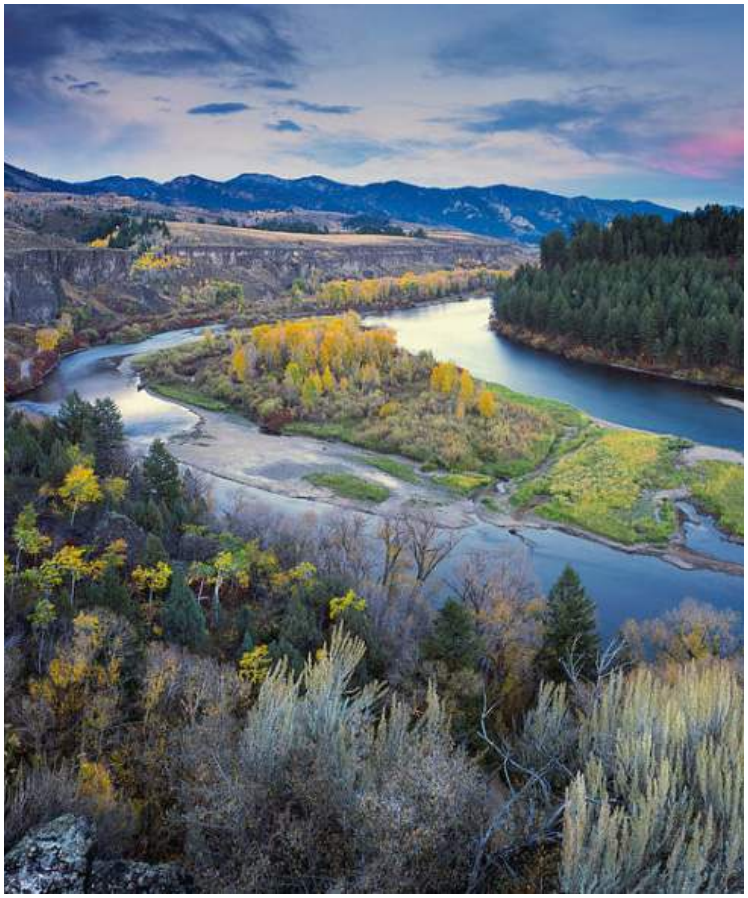
South Fork Social Science Intern

Liv Krogermeier of Colgate University is this year's South Fork Social Science Intern. Liv's primary project is the South Fork Angler Survey where she gathered angler insights to get a better sense of anglers' vision for the future of the South Fork. Feedback provided in the survey is being analyzed and results will help the SFI plan a path forward.

South Fork Gala Ensures Crucial Work Can Continue

Thank you to all those who donated, participated in the online auction, and joined us for the 2nd Annual South Fork Gala on Friday, July 10. Although the event wasn't able to occur on the banks of the South Fork, your support and donations will help crucial work continue, including tributary restoration, water quality monitoring, aquatic insect monitoring and much more.

Missed the Gala, but would still like to donate? Visit https://henrysfork.org/donate-south-fork-initiative.



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