

Strategies to Improve Reliability of Water Supply for Fisheries in the Henry's Fork Snake River Watershed

U.S. Bureau of Reclamation WaterSMART Planning and Project Design Grant Proposal

May 23, 2024



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List of Abbreviations and Acronyms

ac-ft	acre-feet
cfs	cubic feet per second
DMP	[Henry’s Fork] Drought Management Plan
DMPC	[Henry’s Fork] Drought Management Planning Committee
FERC	Federal Energy Regulatory Commission
FMID	Fremont-Madison Irrigation District
FRREC	Fall River Rural Electric Cooperative
HFF	Henry’s Fork Foundation
HFW	Henry’s Fork Watershed
HFWC	Henry’s Fork Watershed Council
IDFG	Idaho Department of Fish and Game
IPR	Island Park Reservoir
NFRC	North Fork Reservoir Company
NOFO	Notice of Funding Opportunity
NTU	Nephelometric Turbidity Units
Reclamation	U.S. Bureau of Reclamation
USGS	U.S. Geological Survey
WD1	Water District 1

Technical Proposal and Evaluation Criteria

Executive summary

APPLICATION: May 23, 2024 | PROJECT: START Apr. 1, 2025; END Mar. 30, 2027

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The Henry's Fork Foundation (HFF), a nonprofit watershed conservation organization and Category B applicant, proposes to partner with Category A partner Fremont-Madison Irrigation District (FMID) on a two-year Task A: Water Strategy Grant to benefit fisheries in the Henry's Fork Snake River, Idaho. The world-renowned and economically important trout fisheries of the Henry's Fork exist within a hydrologic system that is highly managed for irrigation storage, delivery, and diversion. The centerpiece of that system is Island Park Reservoir, a 135,205 ac-ft Reclamation facility that stores water for FMID. Water management and conservation improvements implemented in the Henry's Fork watershed since 2018—many funded with WaterSMART grants—have increased physical carryover in Island Park Reservoir by 50% and winter outflow downstream of Island Park Dam by 44%, to the benefit of fisheries and water users. However, these savings are not sufficient to meet ecological streamflow objectives sufficiently often within the current water supply, which has averaged 15% less in the past 23 years than in the previous 23 years. Additional savings are needed to maintain desired trout recruitment and aquatic invertebrate community composition downstream of the dam. Further, one of the primary strategies by which water has been conserved in the reservoir is adherence to an irrigation-season target flow of 350 cfs in the Henry's Fork at Parker, downstream of all diversions on the mainstem Henry's Fork and 65 miles downstream of Island Park Dam. Although target flows have been met on average, streamflow there can still fall well below target flows in the short term, due in part to high flow variability (~100–200 cfs) introduced at Ashton Dam, a run-of-river hydroelectric project operated by Pacificorp. That variability not only causes large fluctuations in streamflow in the target reach but can also cause uncertainty in timing and amount of irrigation-season adjustments needed at Island Park Dam to meet irrigation demand and the low-flow target. Thus, we propose a two-year project to develop water-management strategies and assess potential infrastructure improvements at both dams to increase precision of water deliveries from Island Park Dam, through Ashton Reservoir, to points of diversion and the target reach downstream. To this end, we will: 1) develop water-management strategies to minimize effect of travel time and intervening hydropower operations between Island Park Reservoir and irrigation diversion points, 2) update the Henry's Fork Drought Management Plan, a collaborative document initially written in 2005 and last updated in 2018, and 3) assess the potential for infrastructure upgrades to facilitate implementation of these strategies. We request \$189,653 in federal funds, matched by \$66,528 from the applicant and \$16,120 in third-party contributions. Federal funds will pay contractors to assess feasibility and of potential infrastructure improvements, as well as indirect costs. The applicant will contribute staff time and hardware and software to support new stream gaging. In-kind contribution consists of stakeholder participation in strategy development and drought management plan revision. Some of the infrastructure that may be considered for upgrades is located on a federal facility.

Technical project description

The project applicant is the Henry's Fork Foundation (HFF), a 501(c)3 non-profit fisheries and watershed conservation organization based in Ashton, Idaho. We are a Category B applicant as defined in this NOFO. Our Category A partner is Fremont-Madison Irrigation District (FMID), which serves 1,900 spaceholders and agricultural water users in the Henry's Fork of the Snake River watershed (HFW). FMID is the sole entity that holds irrigation storage water rights in Grassy Lake and Island Park Reservoir (IPR), the two Reclamation reservoirs in the watershed. In addition, FMID owns and operates irrigation diversion infrastructure in the agricultural areas of the watershed, 60 miles downstream of IPR. The project will focus on operational strategies at IPR, FMID's diversions, and an intervening private hydroelectric project, as well as potential infrastructure upgrades to improve water management to benefit fisheries throughout the HFW.

Project location

All proposed work will occur in the portion of the HFW that lies within Idaho (Figure 1). All water-management strategies developed through the project will apply directly to water management across the HFW and indirectly to management of the entire upper Snake River basin, because the HFW lies at the headwaters of the basin, and management objectives and water-rights administration are implemented at the scale of the basin. Project management and administration, office space, and computing hardware and software will be housed at the HFF office in Ashton. We anticipate that all of the infrastructure upgrades considered in this project will apply to Island Park Dam (44°25' N 111°23' W) and Ashton Dam (44°04' N 111°29' W). In addition to streamflow data collected at U.S. Geological Survey (USGS) streamflow gages in the watershed, data collected at three water-quality and streamflow gage stations maintained by HFF (Figure 1) will be important in developing and implementing water management strategies in the watershed. Those locations are Buffalo River at Island Park (44°25'N 111°22'W), Henry's Fork near Marysville (44°06'N 111°25'W), and Henry's Fork near Parker (43°55'N 111°46'W).

The HFW contains the subwatersheds of the Upper Henry's Fork, Fall River and Teton River. Mean annual basin yield is 2.54 million ac-ft, of which 0.8 million ac-ft per year is diverted from the surface water system for irrigated agriculture. About 1.66 million ac-ft leaves the HFW as surface flow, and 600,000 ac-ft recharges the Eastern Snake Plain Aquifer. About 250,000 acres in the watershed are irrigated to produce barley, alfalfa, potatoes, and wheat. Crop evapotranspiration on these acres is around 440,000 ac-ft annually, of which 310,000 ac-ft is met by irrigation and precipitation, leaving a shortfall of 130,000 ac-ft. This shortfall is generally accommodated by fallowing and partial-season irrigation.

The most economically important and popular recreational trout fisheries are located on Henry's Lake and on the Henry's Fork upstream of the Teton River. Ecologically important Yellowstone Cutthroat Trout populations are found in the Teton River and its tributaries. Anglers from throughout the world travel to the Henry's Fork, which is widely considered to offer the best dry-fly fishing in the world. Annual angling use is 150,000 visitor days, and total fishing-related expenditure is \$50 million. Ecologically valuable aquatic, wetland, and riparian habitats are found throughout the watershed, particularly along the Teton River and lower Henry's Fork.

The 35 largest canal companies in the watershed divert surface water at one or more of 40 major points of diversion. Most surface water is diverted directly from the Henry's Fork, Fall River and

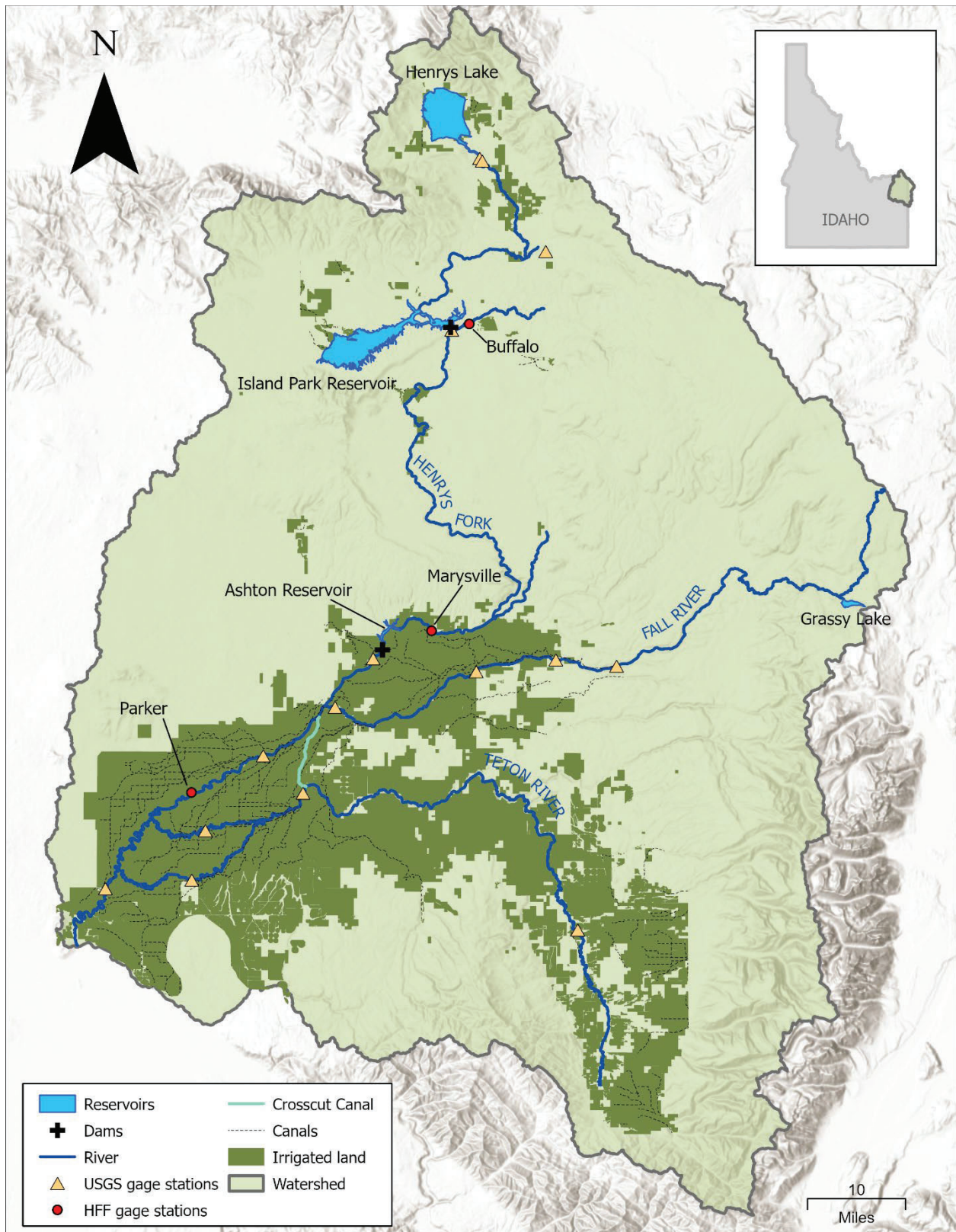


Figure 1. Map of the Henry's Fork watershed. The plus symbol shows the two dams that are the focus of this project. The red points show HFF stream gage stations relevant to the project.

Teton River and delivered via a 450-mile system of mostly unlined, earthen canals. Conversion from traditional flood, border, and furrow application to sprinklers occurred between the 1970s and late 1990s, resulting in reduction in diversion from around 1.05 million ac-ft/year to 0.8 million ac-ft/year. The resulting loss of incidental groundwater recharge has reduced stream reach gains.

In the median year, natural flow in the Henry's Fork watershed is insufficient to fill all water rights between July 3 and September 13, on average. During this time, storage water is required to meet irrigation demand. Storage need is met by three reservoirs in the watershed—Henry's Lake (90,000 ac-ft), Grassy Lake (15,180 ac-ft), and IPR (135,205 ac-ft). Henry's Lake was built in the early 1920s by North Fork Reservoir Company (NFRC), a private corporation of shareholders. Grassy Lake and IPR are Reclamation facilities authorized in 1935 to store water for FMID. Because both Henry's Lake and IPR/Grassy Lake storage rights are junior to large storage rights elsewhere in the upper Snake River system, North Fork Reservoir Company and FMID do not receive their full allocation in many years. On average, FMID receives 87% of its storage allocation. The two Reclamation reservoirs lie in the upper Henry's Fork and Fall River subwatersheds, but the greatest need for storage water occurs on the lower Teton River, where streamflow drops very rapidly once high-elevation snow melts in June. To meet that need, the 1935 Reclamation project included construction of the Crosscut Canal, which diverts water from the Henry's Fork immediately downstream of the Fall River confluence and delivers it to the Teton River (Figure 1). In years when FMID does not receive a full allocation, surface water supply is augmented by groundwater pumped directly into the Teton River and lower Henry's Fork at a series of so-called "exchange wells" developed after the failure of Teton Dam in 1976. Because of its size and reliable groundwater-fed inputs, Island Park Reservoir shoulders the majority of the watershed's burden for storage and delivery and is drafted to around 45% full in an average irrigation season.

Seven hydroelectric power generation facilities are located on streams in the Henry's Fork watershed, four on the Henry's Fork (Island Park, Ashton, Chester, St. Anthony), and one on each of the Buffalo, Fall, and Teton rivers. All of these facilities are privately owned and are operated as run-of-river, meaning that they use available streamflow as determined by irrigation storage, delivery, and diversion needs. The Island Park and Ashton facilities are most relevant to this proposal, as their infrastructure has direct effect on the logistics of delivering water from IPR to the primary points of diversion on the lower Henry's Fork (Figure 1). The Island Park hydroelectric plant is owned and operated by Fall River Rural Electric Cooperative (FRREC), and the Ashton plant is owned and operated by Pacificcorp.

Project activities

We propose a two-year Task A: Water Strategy Grant to develop water-management strategies and assess potential infrastructure improvements at Island Park and Ashton dams to increase precision in storing water in IPR from October through May, releasing water from Island Park Dam during irrigation season, and passing that water efficiently through Ashton Reservoir to diversion structures and a streamflow target point. We propose to: i) develop water-management strategies to address decision points at which additional precision can benefit fisheries and aquatic resources; ii) update the Henry's Fork Drought Management Plan (DMP) to serve as a water strategy document as defined in the NOFO; and iii) assess the feasibility of infrastructure upgrades and additional streamflow data to facilitate implementation of the strategies, including cost, engineering aspects, safety, and regulatory compliance.

Development of water-management strategies

The Henry's Fork Drought Management Planning Committee (DMPC) meets quarterly to determine seasonal strategies for setting IPR outflows to meet irrigation storage and delivery needs, while optimizing conditions for fisheries, aquatic ecosystems, and hydroelectric power production to the greatest extent possible. The DMPC has identified five scenarios that arise regularly but could be managed more effectively with application of science-based strategies.

1. **Alignment of physical and administrative storage water.** System-wide management guidelines emphasize physical storage of water as high in the reservoir system as possible, since that water can always be moved downstream later. Hence, fill of IPR is prioritized, and it fills every year. In water-short years, much of the physical storage in IPR belongs administratively to the senior American Falls Reservoir account. Depending on the difference between physical and administrative fill in IPR, water supply forecasts, and physical storage elsewhere in the system, Water District 1 (WD1), the entity that administers water rights in the basin, can anticipate the need to draft IPR beyond what is needed to meet irrigation demand and streamflow targets within the HFW. This additional draft better aligns physical and administrative water and moves physical supply from headwaters to downstream users. However, the additional draft can negatively affect water quality, fishing experience, and trout populations in the Henry's Fork. We propose to develop strategies for timing and magnitude of such releases to achieve system-wide management objectives while minimizing negative effects of the additional draft on fisheries in the HFW.

2. **Winter/spring reservoir fill constraints.** Currently, fill of the top one foot of authorized space in IPR (around 8,000 ac-ft) cannot occur until ice has melted away from the spillway and the rubber collar that controls that top foot can be inflated. We propose to use new models for runoff and ice-off date to develop strategies for late-winter and early-spring reservoir fill that will result in fill to the ice-off constraint while also maximizing outflow earlier in the winter that is beneficial to trout survival downstream of the dam and to hydroelectric production.

3. **Springtime freshet delivery.** Delivery of a managed springtime freshet flow out of IPR to mobilize and transport fine sediment has long been studied and proposed as a regular feature of IPR management. However, no ecologically based recommendation for freshet management exists. We propose to integrate HFF's ecological data, along with ongoing improvements HFF is making to its streamflow forecasting, to develop both short- and long-term strategies for frequency, magnitude, timing, and duration of freshet operations at IPR to benefit aquatic ecosystem function without jeopardizing reservoir fill or negatively affecting system-wide operations.

4. **Stream gage rating schedules.** The USGS stream gage immediately downstream of IPR is used to determine reservoir outflow but is susceptible to rating shifts of as much as one foot in the late summer and fall due to aquatic vegetation growth in the stream channel. Although USGS has increased frequency of rating adjustments in recent years, critical outflow adjustments to meet IPR fill objectives in the late summer and fall can exceed desired targets by over 25% (e.g., an actual outflow of 400 cfs vs. desired outflow of 300 cfs) when aquatic vegetation is senescing. This can result in lower fill rates than intended early in the fill season, requiring lower outflow during the winter period critical for juvenile trout survival. HFF conducts streamflow measurements downstream of IPR and provides approximate rating adjustments between USGS adjustments, and FRREC can also provide estimates of IPR outflow when all flow is being passed

through its power plant. At times during the fall, HFF, USGS, and FRREC estimates can differ by 10–20% from one another, but the USGS gage must still be used by Reclamation to set flow change orders. We propose to increase precision of flow adjustments during late summer through early winter by formalizing use of non-USGS data or providing additional communications and resources if needed to align USGS rating adjustments with flow changes at IPR.

5. **Integrated IPR fill strategy.** We propose to integrate the four strategies listed above, real-time hydrologic and aquatic ecosystem data, stakeholder input, and water-supply predictions to develop a decision tree to guide fill of IPR from late summer through late spring to maximize benefits to the fishery, aquatic ecosystem function, and hydropower production, while first and foremost meeting Reclamation obligations to fill space in IPR for FMID.

6. **Efficient delivery of water from IPR to lower watershed.** Travel time from Island Park Dam to the primary points of diversion on the lower Henry’s Fork is roughly 20 hours, with an additional 1–6 hours to the location of the lower Henry’s Fork streamflow target point and to points of diversion and target locations on the Teton River. However, travel time depends on streamflow, amount of aquatic vegetation growth, and conditions in Ashton Reservoir and can sometimes be as long as 48 hours. In particular, the current FERC license for the Ashton power plant defines “run-of-river” by maintaining reservoir level within a relatively narrow range (so-called “deadband”) and not relative to actual inflow and outflow. Wind waves, rain events, ice formation and melt and large-magnitude changes in inflow can result in over- or under-compensation of the power plant’s control system and delays in attainment of desired flow needed by irrigators. The consequences of inefficiency in passing needed changes in outflow from Island Park Dam to the lower watershed include high flow fluctuations, low streamflow, insufficient water to meet immediate irrigation demand, and unnecessary draft of IPR. The flow consequences can negatively affect fish populations and the fishing experience watershed-wide. We propose to develop strategies for increasing water delivery efficiency and to conduct the needed science and data to support both development and implementation. In particular, we propose to provide the operators of the Ashton power plant with real-time streamflow data from our Marysville station, which measures inflow to Ashton Reservoir. We will also develop statistically robust travel-time estimates and provide those in a useful graphical or tabular interface to managers and operators. Pacificorp has volunteered to work with the DMPC and other stakeholders through its current FERC relicensing process for the Ashton power plant to update license conditions and operational parameters to implement more efficient travel of water through Ashton Dam and minimize fluctuations in outflow associated with its current FERC license conditions and infrastructure.

Drought management plan revision

Development of the DMP was required by the federal legislation that authorized transfer of Reclamation facilities in the HFW to FMID in 2003. The plan was last revised in 2018 and is in need of revision, given substantial changes in science, irrigation infrastructure, data availability, and basin-wide administration. We propose to update the plan to reflect these changes and include the strategies described above. In addition, as has been the tradition in the previous two DMP versions, we will include a technical appendix containing the latest scientific information on water supply and water quality in the HFW. The DMP revision will be authored by the two project partners—HFF and FMID—and reviewed and edited by the other DMPC stakeholders.

Infrastructure upgrades

Optimal solution to some of the issues identified during strategy development will require new physical infrastructure and possibly additional resources. We propose to investigate options for and feasibility of infrastructure upgrades to facilitate improved water-management precision.

1. **IPR ice constraint.** Even with improved forecasting of winter inflow and ice-off dates, the current infrastructure at Island Park Dam prevents fill of the top foot of the reservoir prior to ice-off. The dam was originally built with a bathtub-type concrete spillway, the top of which was one foot lower in elevation than authorized full pool. The top foot could be filled only by letting the pool elevation reach one foot above the concrete, which coincided with 750 cfs uncontrolled outflow over the spillway. In 1995, after construction of its power plant at Island Park Dam, FRREC installed the rubber collar so that water previously spilled during the fill of the top foot could instead be delivered through the power plant intake, allowing more efficient use of that water for power production and more precise control of fill. Since HFF began carefully monitoring reservoir ice-off dates in 2015 and developing more refined hydrologic models, data show that IPR receives its maximum inflow from snowmelt in the few days prior to ice-off, which has averaged April 28 over the past ten years. This prevents use of most of the seasonal peak of inflow to fill the top foot of the reservoir, which often results in lower outflows than desired later in the spring, to the detriment of fishing conditions and potentially also to streamflow during rainbow trout spawning and rearing. The rubber collar is in need of replacement, so the timing is good for this project to investigate alternative infrastructure that will allow continued power generation during fill of the top foot but allow that fill prior to ice-off. We propose to contract with external contractor(s) to assess potential infrastructure upgrades and needed environmental and regulatory review should an infrastructure upgrade be feasible. The contractor(s) will work closely with Reclamation and FRREC on these assessments.

2. **Timing of IPR outflow adjustments.** Currently, FRREC serves as the dam tender at Island Park, given the need to make most flow adjustments through their power plant. Because FRREC hydropower personnel must also operate and maintain three other hydropower facilities scattered around the watershed, they schedule maintenance visits to Island Park once each day, usually first thing in the morning. Except in urgent situations, FRREC staff make any requested outflow adjustments at IPR then, even though adjustments at other times of day could benefit anglers, fishing guides and outfitters, and water users. We propose to investigate whether new infrastructure such as remote-controlled gates or additional resources to fund personnel or travel costs would provide feasible ways for flow changes to be made easily at Island Park any time of day. Requested federal funds would be used in part for this investigation.

3. **Ashton Reservoir inflow/outflow.** We propose to investigate the most optimal mechanism for Pacificorp to access and use the real-time Ashton Reservoir inflow data to adjust outflow and maintain run-of-river conditions. This could be as simple as real-time provision of the inflow data to the power-plant operators, followed by manual adjustment of outflow as inflow changes. It could also be as sophisticated as an automated controller at the power plant that accesses and applies the inflow data in real time to set outflow. We propose to fund engineering consultants with knowledge in these types of systems to work with Pacificorp engineers and the other project partners to find an optimal solution. The ultimate goal is efficient and timely adjustment of outflow at Ashton Dam to match changes in inflow.

Evaluation criteria

Evaluation Criterion A—Project Benefits

- *Identify the threats to water supply, water quality, and river-based ecosystem or watershed health within the geographic area of the planning or design project... Your response should include:*
 - *Information regarding past, current, and projected threats to water supplies, water quality.*
 - *Documentation supporting your response.*

Through 10 years of monitoring and research, HFF has identified four climate-related trends relevant to this project that degrade aquatic ecosystems, fish populations, and fishing experience.

1. **Water supply is 15% lower** over the past 23 years than it was [over the previous 23 years](#). Precipitation has not shown any statistically significant trend over that time, but runoff efficiency in the HFW has declined from around 45% in the 1980s to 35% today. That has occurred because of increased loss of precipitation to evapotranspiration, primarily during the springtime, and to an [increased fraction of annual precipitation falling as rain vs. snow](#). These observations corroborate broader-scale [assessment of climate trends in our region](#).

2. **Maximum summer air temperature is increasing** at 1.4°F per decade at Island Park Dam. Based on correlation with 10 years of [water temperature data](#), this has caused an increase in maximum summer water temperatures of around 0.2°F per decade in the most popular fishing reach of the Henry’s Fork downstream of Island Park Dam. This increase in water temperatures—as measured by HFF’s network—has [prompted the Idaho Department of Environmental Quality to list the Henry’s Fork downstream](#) of IPR as water-quality impaired due to high temperatures.

3. **Water quality in IPR and the river downstream is declining** steadily by other measures. Our data show a doubling of nutrient concentrations in the outflow from Island Park Reservoir, from around 0.05 mg/L in 2014 to over 0.1 mg/L in 2023. These results corroborate data from a [recent USGS study](#), which showed a steady increase in the probability of eutrophy in Island Park Reservoir from around 20% in 1990 to 75% by 2020. The probability of eutrophy in IPR is positively related to springtime air temperature and negatively related to summertime stream inflow to the reservoir. Eutrophic conditions in IPR and other climate-related processes result in increased turbidity in the reservoir, which is delivered into the river downstream during the peak of the summer irrigation season, which also coincides with peak fishing season. [Turbidity and sediment load are both strongly correlated with reservoir outflow](#). Sediment exported from the reservoir is trapped and retained on the stream bottom by aquatic vegetation, which some evidence suggests is getting more abundant in response to increased nutrient concentrations. Sediment, in turn, can negatively affect trout spawning habitat and aquatic invertebrates. The only mechanism for removing fine sediment from the river bottom is delivery of a 3-day [freshet flow](#) of around 2,000 cfs from IPR during the spring, when aquatic vegetation is at its minimum. Freshet flows exceeding a 3-day average of 2,000 cfs occurred in 9 years between 1978 and 2000 (2.6-year return interval), *incidental* to irrigation storage and delivery operations. Such flows occurred only once between 2001 and 2023 (23-year return interval), despite *intentional* attempts to deliver freshets for the benefit of aquatic ecosystem function over the past six years.

4. **Climate effects are magnified in the regulated river system.** During years of low water supply, more reservoir storage is needed to meet irrigation demand. The period of draft of IPR has

increased from around 72 days per year in the late 1970s to 87 days per year in 2017, prior to water management and conservation efforts first implemented by HFF, FMID, Reclamation and other partners in 2018. Lower physical reservoir carryover at the end of irrigation season necessitates lower winter outflow to refill the reservoir, and because lower reservoir carryover most often occurs during years of low water supply, reservoir inflow is also lower. As an example, average regulated outflow from IPR during the December–February time period most important for survival of juvenile trout downstream was 31% lower from 2001–2017 than from 1978–2000, while natural flow at Island Park was only 18% lower between the two time periods. As another example, summertime temperature of IPR outflow is dependent on summertime air temperature, but it is more strongly dependent on reservoir draft. Excessive draft evacuates cool water on the bottom of the reservoir early in the summer, [resulting in loss of thermal stratification and warmer outflow temperatures](#), regardless of inflow temperature. As a third example, water managers and users have become more precise in their management of limited water supplies. In the HFW, one of the primary strategies by which water has been conserved in IPR is precise adherence to an [ecologically-based 350-cfs irrigation-season target flow](#) on the Henry’s Fork downstream of all diversions (Figure 1). Although target flows have been met on average, streamflow there can still fall well below target flows, due in part to high short-term variability (100-200 cfs) introduced incidentally into the system at Ashton Dam by outdated infrastructure and FERC license conditions. Other compounding effects occur at watershed and basin scales as [increased irrigation efficiency reduces temperature-moderated groundwater return flows to the river](#) and increased demands put greater reliance on the surface reservoir system as supply decreases.

- *How do the threats identified in your response to the preceding bullet impact specific water uses or sectors in the geographic area of the planning or design project?...Your response should include:*
 - *Information about the specific impacts to water uses or sectors resulting from supply reliability issues within the project area..*
 - *Provide supporting documentation for your response.*

While the agriculture and hydropower sectors are negatively affected by decreased water supply, this project is focused on aquatic ecosystem function, fish populations, and the recreational fishing/outfitting industry that depends on those resources. Recreational fishing in the HFW generates around 317 jobs in eastern Idaho and imports \$17 million in “new money” from out-of-state anglers. [This accounts for around 11% of the entire entertainment/recreation sector in a six-county area.](#) Anglers on the Henry’s Fork consistently rank aquatic insect hatches, number of rising fish, and water quality [as most important to their fishing experience](#). Negative effects on these aspects of fishing experience have the potential to negatively affect a major regional economic sector. We have identified five major links between water management and these fishery qualities.

1. **The fish population upstream of IPR [decreases exponentially](#) with IPR draft.**
2. **Winter outflow from IPR is the [single habitat factor](#) limiting the rainbow trout population in the 15 river miles downstream of Island Park Dam.**
3. **Mid-summer streamflow limits [limits trout habitat](#) in the Henry’s Fork downstream of St. Anthony, while adherence to a low-flow target there to is critical to limiting draft of IPR to benefit fisheries in the upper watershed.**
4. **Abundance and species composition of aquatic insects most valued by anglers are negatively affected by maximum water temperature. Analysis of [HFF invertebrate data](#)**

presented at an American Fisheries Society meeting in May 2024 showed that the most consistently important predictor of a dozen different invertebrate metrics was 7-day maximum temperature. Two of the most commonly used invertebrate-based indicators of aquatic habitat quality—percent Ephemeroptera/Plecoptera/Trichoptera and Hilsenhoff Biotic Index—showed statistically significant degradation as temperature increased. Our analysis showed that abundance of *Drunella sp.* mayflies, including the iconic Green Drake for which the Henry’s Fork is famous, has declined by 10-15% over the past 45 years due to increasing temperature alone.

5. Fishing experience is negatively affected by turbidity and high variability in streamflow during mid-summer, aside from effects on aquatic invertebrates and trout populations. High turbidity downstream of IPR is exacerbated by high irrigation-season streamflows, as visibility of the stream bottom decreases with depth at a given turbidity level and turbidity is positively associated with IPR outflow. In addition, fishing and floating in all river reaches downstream is negatively affected by high short-term variability in streamflow, which can range flow changes made at the beginning of the fishing day at Island Park to high variability downstream of Ashton Dam due to outdated infrastructure and operational procedures there.

- *How will the planning or design project help address the threats to water supplies and water uses identified in your response to the preceding bullets?...include:*
 - *Information about the benefits that you expect to result from your planning or design effort and the projects you are planning or designing, to the extent known. Only address the benefits that are applicable to your project.*
 - *Which sectors or water uses will benefit from your planning or design effort – and the projects you are planning or designing - and how?*
 - *Provide supporting documentation for your response, including referenced statistical data, excerpts or citations from studies or analyses regarding the results of similar projects, or other references.*

Water management and conservation improvements implemented in the HFW since 2018—many funded with previous WaterSMART grants—have [increased physical carryover in IPR by around 26,000 ac-ft \(50% improvement\) and winter outflow downstream of Island Park Dam](#) by around 115 cfs (44% improvement). In particular, we estimate that these savings have reduced summertime reservoir outflow by 160 cfs, turbidity by 1.6 Nephelometric Turbidity Units (NTU), suspended sediment load by 520 tons, and water temperature by 0.75°F relative to what they would have been with the given water supply. The trout population in the Henry’s Fork immediately downstream of IPR has increased by around 18% and that above IPR by a factor of nearly 1.5 in response to conservation efforts. Building on this success, the strategies and infrastructure improvements developed through this project are expected to 1) increase IPR carryover, 2) increase winter outflow from IPR, 3) increase the effectiveness of springtime freshet releases, 4) reduce the number of low-flow days at Parker, and 5) reduce streamflow variability. Although these improvements benefit a variety of stakeholders, this project is primarily intended to benefit fisheries and aquatic resources, so we focus on those resources.

1. **Increase IPR carryover** by an additional 2,000 ac-ft. This will be accomplished through strategies 1 and 6 and by potential infrastructure upgrades 2 and 3. Strategy 1 addresses situations in which physical water in IPR may need to be delivered out of the HFW to meet irrigation demand downstream. Specifically, in 2014, the anticipated water was released beginning in June. Heavy rain in August then reduced irrigation demand basin-wide, after the release of much of the IPR water had already occurred unnecessarily. To avoid the 2014 experience, the DMPC in 2022

decided to wait until late in the irrigation season to release the physical IPR water. Although no such rain event occurred in 2022, had that strategy been followed in 2014, several thousand ac-ft of water could have stayed in IPR. We estimate a savings of roughly 2,500 ac-ft in each case where the need to send physical water from IPR out of the HFW is anticipated early in irrigation season. Because this occurs in around one year out of five, the average annual savings from improved strategies is 500 ac-ft. Strategy 6 and potential infrastructure upgrade 3 are expected to result in an additional savings of 1,000 ac-ft. In 2023, for example, a flow increase of around 200 cfs was made on July 15 at IPR to meet increased irrigation demand in the lower watershed. Due to inefficient passage of this increase through Ashton Reservoir, need for an additional 100 cfs was determined, and an increase was made at IPR on July 20. However, once Ashton Reservoir outflow stabilized in response to the July 15 outflow increase, it turned out that the second increase was not needed. That resulted in about five days of IPR release at 100 cfs higher than was needed, a cost of 1,000 ac-ft in unnecessary draft. We anticipate that an additional 500 cfs of savings in reservoir draft will result from new infrastructure or resources to allow outflow adjustments at IPR to occur at any time of day, rather than only in the morning as has been the practice in recent years. In particular, when rain and decrease in irrigation demand during crop harvest periods temporarily increase water supply relative to demand, reductions in outflow at Island Park dam made at the end of the day on which these events occur rather than at the beginning of the following day would save around 100 ac-ft at each occurrence (roughly a 100-cfs reduction made 12 hours earlier). On average, around five such events happen during each irrigation season. A 2,000 ac-ft increase in reservoir carryover will reduce summertime outflow by around 13 cfs, with corresponding reductions in turbidity of 0.13 NTU, suspended sediment load of 42 tons, and water temperature of 0.06°F. This increase will also increase winter outflow from IPR by 10 cfs.

2. **Increase winter IPR outflow** by 90 cfs. In addition to the 10 cfs increase due to increase in reservoir carryover alone, we estimate that strategies 2 and 5 will result in an additional 66 cfs of winter flow. This will be accomplished primarily by distributing water across the winter currently released in early spring when the ice constraint limits fill. In four of the past seven years, reservoir outflow was increased in late spring to pass increased inflow through the reservoir when it had already reached the ice constraint. In two of the other three years, which were two of the driest on record, no such increase was needed, and reservoir fill intersected the ice constraint about when ice melted. In the third year, the outflow increase was deliberately managed to provide an ecologically beneficial freshet flow. Even with these three years of zero release included, the seven-year average outflow increase amounted to nearly 12,000 ac-ft of early spring release to keep the reservoir below the ice constraint. If that were released over the December-February period instead, it would increase winter outflow by an additional 66 cfs without changing reservoir volume at ice-off. Infrastructure upgrade 1 could potentially remove the ice constraint completely, allowing the full October–May period to be used to fill the reservoir. This would remove the uncertainty associated with ice-off timing, allowing both more certainty in fill strategy at the beginning of the fill season and more flexibility in adjusting fill rate throughout the winter and early spring. We estimate that an additional 15 cfs of winter flow can be obtained through strategy 4. During the fall, aquatic vegetation in the river channel at the Island Park stream gage senesces rapidly, resulting in large positive gage shifts in between rating adjustments. Current management fills as much space in IPR as possible between October 1 and December 1 so that outflow can be increased during the critical mid-winter period for juvenile trout survival. Almost every year, actual outflow during this period exceeds the intended flow because of the gage shift, resulting in less flow than desired prior to the winter. For example, in 2023, exceedance of targeted flows resulted

in storage of 2,570 ac-ft less than intended prior to December 1. This is equivalent to around 14 cfs of winter outflow. The full 90 cfs of increased winter outflow will increase rainbow trout recruitment by 450 fish each year, about 14% of the long-term average.

3. **Increase effectiveness of springtime freshet releases.** Strategies 3 and 5 will develop ecologically based recommendations for duration, magnitude, timing and frequency of managed freshets, within the context of anticipated water supply, administrative and logistical constraints, and winter flow objectives to maximize the rainbow trout population.

4. **Reduce the number of low-flow days at Parker.** Low-flow days are those when the mean daily discharge at Parker is less than the 350-cfs irrigation-season target. The mean over the modern irrigation period (2001-2023) is 14 days per year. Over the past five years of close adherence to the target, the average is 20, as the DMPC has attempted to save more water in IPR. In 2023, 5 of those days were due to inefficient delivery of water from IPR through Ashton Reservoir, as described in item 1. Additional days of shortfall result from travel time between IPR and Parker and from timing of outflow adjustments (first thing in the morning) relative to when the need is identified (often in the evening). Although perfect implementation of the best strategies cannot be attained in this system, we estimate that a combination of strategy 6 and infrastructure upgrades 2 and 3 could reduce the number of low-flow days at Parker by 7, roughly half of the long-term average. This will improve habitat conditions for trout in the lower Henry's Fork.

5. **Reduce streamflow variability.** Strategy 6 and infrastructure upgrade 3 will reduce variability in outflow from Ashton Dam when the current control system there over-compensates or under-compensates for changes in inflow or changes in reservoir elevation due to wind, ice or other factors. Typical flow variability is on the order of 100-250 cfs, and we anticipate that most of this can be eliminated, at least during the summer fishing and low-flow season. Although flow changes at Island Park Dam necessarily produce short-term changes in stream flow to meet reservoir management objectives, strategy 2 could shift some of these changes to the evening. Currently, flow changes are made at 8:00 or 9:00 in the morning, after anglers and fishing guides/outfitters have already set their fishing trip for the day. Changes in flow can create undesirable fishing or floating conditions for the remainder of the day. With the ability to make flow changes in the evening, these situations could be avoided, to the benefit of anglers and guides.

- *Is the planning or design effort for the purpose of providing domestic water supplies to a Tribe, insular area, or disadvantaged community(ies) that do not have reliable access to water supplies?*

No.

- *Does the planning or design effort involve the improvement of nature-based features? If so, please describe.*

Yes. Use of managed freshet releases out of IPR is a nature-based method of transporting fine sediment out of the river downstream of the dam. The proposed project will integrate HFF's ecological data and projections of future water supply to recommend magnitude, frequency, duration and timing of springtime freshet deliveries to have the maximum benefit to aquatic ecosystem function within the constraints of water supply and irrigation needs.

- *Is the project for the purpose of meeting existing environmental mitigation or compliance obligations under Federal or State law?*

No.

Evaluation Criterion B— Inclusion of Stakeholders, Stakeholder Support, and Previous Planning Efforts.

Sub-Criterion B1: Task A - Water Strategy Grants

- *Will the project help meet the water supply needs of a large geographic area, region, or watershed? If the project will not address the water supply needs of a large geographic area, why is the area significant and appropriate for the proposed planning activity?*

The project will help meet water supply and water-quality needs for fisheries and aquatic ecosystem function in nearly 90 miles of the Henry’s Fork, as well as in IPR itself.

- *If the project is supported by an existing water planning effort, please describe that effort.*

The project is specifically supported by the DMP, revision of which is a primary activity of the project. The project is broadly supported by four other plans (Table 1). [The Henrys Fork Basin Plan](#) is one of 10 basin-specific components of the [Idaho State Water Plan](#). The Henrys Fork Basin planning process commenced in 1988 with interim protection for the Henrys Fork from Henrys Lake to Ashton Reservoir, still the most important river reach for fishing. While the vision, protection, and guidance of the 1992 Plan are still relevant, the authors—including the Idaho Water Resource Board and a citizen’s advisory group—could not have anticipated the effects of drought, climate change and aging infrastructure on the resources of the HFW. The proposed project will maintain and enhance these resources into the future. In part because of conflict that arose among different interest groups during development of the Basin Plan, the [Henry’s Fork Watershed Council](#) was established in 1993. The Council uses a nonadversarial, consensus based approach to address natural resource management issues and is co-facilitated by FMID and HFF. Upon the HFWC’s recommendation, the Fremont-Madison Conveyance Act, passed by the U.S. Congress in 2003 to transfer irrigation infrastructure in the HFW from Reclamation to FMID, included a requirement that a drought management planning committee be established for the purposes of collaborative management of the watershed’s water resources to benefit multiple stakeholders. In 2005, the [Henry’s Fork Drought Management Plan](#) (DMP) was completed and signed by six signatories: FMID, HFF, NFRC, Trout Unlimited, The Nature Conservancy, and Reclamation. Scheduled quarterly and other ad hoc meetings of the DMPC are open to the public. Regular non-signatory participants include FRREC, a key partner in the proposed project. In addition, Pacificorp has agree to participate regularly in the DMPC to fulfill the goals of this project.

The Basin Study program “supports collaborative planning to help Reclamation and its partners assess risks to water supplies from competing demands and to identify strategies to meet those demands.” The [Henrys Fork Basin Study](#) was completed in 2015, in partnership with the Idaho Water Resource Board. The HFWC served as the stakeholder workgroup for the study. The proposed project is consistent with and builds on technical information and recommendations in the Basin Study. The 2019–2024 [Idaho Department of Fish and Game \(IDFG\) State Fisheries Management Plan](#) is the “guiding policy document for fisheries activities” within the agency. While largely an internal document, it “reflect[s] the desires of anglers and other interested stakeholders regarding conservation and management of Idaho’s aquatic resources to benefit the public.” The project contributes to IDFG management objectives for all reaches of the Henry’s Fork and IPR. Staff from IDFG are regular participants in the DMPC will contribute to this project.

Table 1: Planning efforts that support the proposed project.

Plan	Organizational authority	Year	Process and collaboration
Henrys Fork Basin Plan	Idaho Water Resource Board	1992	Stakeholder input via local advisory group
Henry’s Fork Drought Management Plan	Six signatories, including U.S. Bureau of Reclamation	2005, 2018	Stakeholder input via HF Watershed Council
Henrys Fork Basin Study	Idaho Water Resource Board U.S. Bureau of Reclamation	2015	Stakeholder input via HF Watershed Council
State Fisheries Management Plan	Idaho Department of Fish and Game	2019	Internal process with solicited stakeholder input
Strategic Plan	Henry’s Fork Foundation	2022	Internal process with solicited stakeholder input

The HFF is governed by a Board of Directors, which conducts strategic planning every 5–10 years to assess organizational effectiveness relative to challenges and threats and to prioritize programs and projects. The HFF strategic plan was last updated in 2022 and included substantial changes to organizational structure of HFF’s Science and Technology Department, reflecting extensive advancement in HFF’s scientific understanding of water quality and aquatic ecosystem function. The proposed project has grown out of the process of routinely evaluating the effectiveness of 40 years of aquatic conservation work in the Henry’s Fork watershed and of incorporating the latest scientific information as it is produced and published, including 13 relevant peer-reviewed publications by HFF staff and affiliated students since 2014.

- *Does the referenced plan identify the project as a potential water management action?*

No. None of these plans specifically identify the actions proposed in this project.

- *If identified in a plan, how is the project prioritized in the plan?*

NA

- *If not identified in the plan, does the proposed project implement a goal or need identified in the plan?*

Yes, as described above, the proposed projects addresses goals of all five plans.

- *Was the referenced plan developed or updated using a collaborative process with input from multiple and diverse stakeholders?*

Yes. As described above, all five plans involved input from multiple stakeholders.

- *If the referenced plan was not developed collaboratively, please explain why.*

NA

- *Identify stakeholders in the planning area who have committed to be involved in the planning process.*
 - *Describe what sector(s) the participating stakeholders represent and how they will engage in this effort.*

In addition to HFF, three of the other signatories to the DMP identified above have committed to be involve in the planning process: FMID, The Nature Conservancy, and Trout Unlimited will

contribute in-kind time. The other contributors of in-kind time are FRREC and Pacificorp. FMID will convene meetings of the DMPC, participate in strategy development, and edit the plan. Other stakeholders will review proposed strategies and plan revisions. In addition, the two hydroelectric power companies will be involved in ensuring that strategies and any infrastructure plans conform to their respective FERC licenses.

- *Provide documentation of the commitment by stakeholders to participate in the planning process.*

Letters of commitment attached.

- *Describe stakeholders in the planning area who have expressed their support for the planning process, whether or not they have committed to participate.*

An outline of the proposed project, including anticipated funding level, all activities and tasks, and the timeline, was presented and discussed by the DMPC at one of its regular meetings. All attendees, including Reclamation, expressed support for the project and will participate.

- *For tribal strategies or plans that will be developed collaboratively with multiple tribal interests, but do not include collaboration with external entities, please provide explanation as to why collaboration with entities external to the Tribe will not occur in the development of the strategy or plan.*

NA

- *Describe what efforts the applicant will undertake to ensure participation by a diverse array of stakeholders in the development of a plan (or plan update).*

All activities of the DMPC are summarized and presented to the full HFWC so that the full array of stakeholders in the HFW have the opportunity to provide input. For this project, the strategies, and potential infrastructure upgrades will be presented to the HFWC, with opportunity for input and comment before the draft plan is sent to Reclamation as required near the end of the project.

- *Is there opposition to the proposed planning effort? If so, describe the opposition and explain how it will be addressed. Opposition will not necessarily result in fewer points.*

Not that we know of.

Evaluation Criterion C—Ability to Meet Program Requirements

Please see the applicable appendix for required program elements...Responses to this criterion should demonstrate a clear understanding of the tasks required to meet program components.

- *Describe how the project will address the program specific requirements described in the appropriate program-specific appendix.*

Required Project Component 1: Outreach and Partnership Building

The project will be conducted as part of the work of the DMPC, a stakeholder-driven group that has successfully conducted collaborative water management since 2003. All major stakeholder sectors—including hydropower, fisheries, agriculture, federal and state agencies, and river-based recreation—are represented in the DMPC. In turn, the DMPC reports to the HFWC, a broader stakeholder-driven organization that has conducted water-supply planning activities since 1993.

The HFWC reaches other stakeholders such as reservoir-shore homeowners, flat-water recreationists, elected government officials, and state and federal agencies beyond those with direct authority for water and aquatic resources management. When Council facilitators—the Category A and B partners on this project—have identified additional stakeholders not among regular attendees who should be represented in discussion of specific issues, they have successfully advertised Council activities to those stakeholders. If awarded this Strategy Grant, we will develop a schedule of HFWC meetings and a field tour, as well as needed outreach to specific stakeholder groups, to ensure input to the project by diverse stakeholders. This will include a formal review process that allows stakeholders time to provide input to proposed strategies and infrastructure.

Required Project Component 2: Analyses, Scoping and Planning Activities

The existing plans described above provide much of the background information, motivation, and broader water management and aquatic ecosystem conservation goals that will be addressed by this project. In addition, HFF has already conducted most of the science—much of it already peer reviewed—that has identified problems, needs, and potential solutions. The only scientific component that will be more fully developed as part of this project is an ecologically based recommendation for springtime freshet flows to mobilize and transport sediment.

Required Project Component 3: Development of a Water Strategy Document

The existing DMP will serve as the starting point for the strategy document. It already contains broad strategies for managing the HFW irrigation system. The proposed project will not only update that plan but expand its inclusion of background information, the scientific basis for identification of needs and potential solutions, and the specific strategies developed through this project. The revised plan will include a summary of the feasibility and environmental compliance assessments conducted by external contractors, in cooperation with Reclamation, Pacificorp, and FRREC. The results of those assessments will be presented to the stakeholder group for additional input on cost, benefits, and logistical considerations of implementation. In particular, if certain strategies or infrastructure upgrades are too costly to be implemented voluntarily by Reclamation, Pacificorp, FRREC or FMID but do not otherwise impede operation and hydropower and irrigation facilities and are of great benefit to the fishery, HFF and other conservation partners will identify and pursue additional funding and resources for implementation. A near-final draft of the strategy document will be provided to Reclamation for review, as required.

- *Describe the approach that will be undertaken to meet the applicable program components and requirements.*

The project will be managed by Dr. Rob Van Kirk, who has successfully managed numerous large grant-funded projects over his 30-year career, including, most recently, WaterSMART Applied Science award R21AP10036. He has assigned responsibility for completing project tasks to highly qualified team members with particular areas of expertise (Table 2). The HFF staff team that will undertake this project has worked together since 2019 and completed dozens of small and large projects.

- *Include a preliminary project schedule that shows the stages and duration of the proposed work including major tasks, milestones, and dates. For each task and milestone, indicate who will have the primary responsibility for completion.*

Table 2. Timeline of project tasks, by activity type. Shading indicates task performance.

Activities and tasks	Apr 2025 - Sep 2025	Oct 2025 - Mar 2026	Apr 2026 - Sep 2026	Oct 2026 - Mar 2027	Primary responsibility
Development of water management strategies					
Develop strategy to align phys. and admin. storage water					Morrisett
Develop late-winter/early-spring IPR fill strategy given ice					Morrisett
Integrate ecological data with streamflow forecasting					McLaren
Develop short- and long-term freshet operation strategies					McLaren
Estimate streamflow travel-time from IPR to Ashton Reservoir					Van Kirk
Develop strategy for adjusting IPR flow relative to rating shifts					Morrisett
Develop strategy for efficient IPR water delivery to irrigators					Morrisett
Create IPR fill decision tree for late-summer to late-spring					Morrisett
Provide Ashton Dam operators with real-time streamflow data					Van Kirk
Ensure strategies/data included in Ashton Dam FERC license					Hively
Drought Management Plan revision					
Add new strategy descriptions					Morrisett
Update policy/science info					Van Kirk
Write technical appendix					Morrisett
Submit revision to DMPC stakeholders for review/editing					Van Kirk
Discuss strategies/revision at a dedicated DMPC work session					Hoffner
Infrastructure upgrade assessment					
Develop RFP for external contracts; select contractor(s)					Van Kirk
Contractor work					Van Kirk
Assess contractor reports; integrate into DMP revision					Van Kirk
Strategy Grant Requirements					
Outreach and engagement plan					Morrisett
Stakeholder field tour					Morrisett
Strategy review by HFW					Van Kirk
Strategy review by Reclamation					Van Kirk

- *Proposals with a budget and budget narrative that provide a reasonable explanation of project costs will be prioritized.*

See Budget section below.

- *If prior planning work will be relied on to meet any of the required program components, please explain and describe the work that will be relied on.*

NA

- *Describe the availability and quality of existing data and models applicable to the proposed plan or design.*

Through its network of [water-quality](#), aquatic invertebrate, and [stream gage monitoring](#) stations, as well as through project-specific research [published in numerous reports and peer-reviewed papers](#), HFF has compiled the highest quality and most comprehensive set of relevant data and scientific results in the HFW, including models for short- and long-term prediction of streamflow. Much of HFF's current stream gage infrastructure and most of the predictive models were developed with funding from WaterSMART Applied Science award R21AP10036.

- *Identify staff with appropriate technical expertise and describe their qualifications. Describe any plans to request additional technical assistance from Reclamation or by contract.*

Dr. Rob Van Kirk: HFF Science and Technology Director; Project Manager.

Rob is trained as a mathematical modeler and holds a B.A. in Mathematics, M.S. in Environmental Systems and Ph.D. in Mathematics. He has worked in collaborative water resource research and management in the Snake River basin since 1994. He has received and administered over \$2 million in competitive grants, published 40 peer-reviewed scientific papers and book chapters, and completed over 20 projects as a consultant for a variety of agencies and organizations, including U.S. Fish and Wildlife Service, Idaho Water Resource Board, and The Nature Conservancy.

Dr. Christina Morrisett: Climate Adaptation Program Manager

Christina is an interdisciplinary water management scientist and holds a B.S. in Earth Systems, M.S. in Aquatic and Fishery Sciences, and Ph.D. in Watershed Sciences. She worked in HFF's Science and Technology program as an intern (2015), research assistant (2015–2016), doctoral research associate (2018–2023), and water resources consultant (2023). She began her current role managing HFF's new Climate Adaptation Program in 2024. Christina's dissertation work investigated how streamflow targets and groundwater-surface water interactions affect reservoir operations and climate resilience in the HFW. Christina has completed two climate adaptation science fellowships and is currently in fellowship programs for climate change communication with the American Geophysical Union and the American Fisheries Society. Christina is the resident expert on Acoustic Doppler Current Profiler deployment for streamflow measurement and was a key member of the HFF team that received WaterSMART Applied Science grant (R21AP10036). Christina has published seven papers related to fisheries and water management, with three focused on the Henrys Fork and one currently in review.

Amber Roseberry: HFF Conservation Technician

Amber joined HFF as an intern in 2019 and has since served as HFF's field and laboratory technician. She is responsible for installing, maintaining, and calibrating HFF's field instrumentation, including stream gage stations and supporting instrumentation. She is familiar

with remote data transmission equipment and protocols, power supplies, and control systems. Amber is a key member of HFF’s streamflow measurement crew.

Matt Hively: HFF Aquatic Resources Coordinator

Matt holds a B.S. in Biology and is currently pursuing a Master’s of Natural Resources. Matt joined the HFF team as a technician in 2019. In 2020, he stepped into his current role of Aquatic Resources Coordinator, focusing his efforts on environmental impact and public access. Matt has expertise with wetland mitigation, in lieu fee programs, and environmental compliance regulations at county, state, and federal levels. Matt is also a member of the streamflow measurement crew.

Brandon Hoffner: HFF Executive Director

Brandon holds a B.S. in wildlife biology and rangeland ecology, with additional training in agricultural business management and GIS, and has been the Executive Director of HFF since 2011. Brandon is a leader in collaboration, represents HFF on the DMPC and recently participated in a leadership training program hosted by the Idaho Water Users Association. Brandon has obtained and supervised dozens of federal and state grants to improve irrigation infrastructure, restore riparian habitat, and maintain and improve public river access. He has worked with numerous contractors and is familiar with federal subcontracting.

Dr. Jack McLaren: HFF Aquatic Ecology Program Manager

Jack is an aquatic ecologist and holds a B.S. in Environmental Science, M.S. in Environmental Science, Master’s in Public Affairs, and Ph.D. in Ecology. Jack has worked in HFF’s Science and Technology as a graduate intern (2016–2018) and doctoral research associate (2018–2022). Jack transitioned into his current role in 2023. For both his M.S. and Ph.D., Jack studied Island Park Reservoir limnology and management—and how these dynamics impact surrounding river ecosystems. Jack has published three papers on ecosystem dynamics relative to Island Park Reservoir, with two currently in review. Jack has received over \$100,000 in competitive grants.

Contractors with expertise outside of that of HFF to assess feasibility and compliance requirements of potential infrastructure upgrades that could contribute to project goals. The HFF developed and utilizes procedures and policies for managing and selecting contractors within federal grants, and recognizes it imperative to follow the specific guidelines and regulations set forth by Reclamation. HFF considers a competitive bidding process, compliance with prevailing wage requirements (Davis-Bacon), and adherence to specific reporting and documentation standards as critical pieces to contractor management. It is also crucial to thoroughly vet potential contractors to ensure they have the necessary qualifications, experience, and capacity to successfully complete the project. All contractors will be required to sign a formal agreement outlining the scope of work, deliverables, timelines, and payment terms. The agreement will also include provisions for confidentiality, liability, and dispute resolution. Our partners at FMID, FRREC, and Pacificorp, will be party to the final draft of formal agreements with consultants and contractors within the scope of work of this grant.

- *Describe any new policies or administrative actions required to implement the plan or project being designed.*

Installation of infrastructure to minimize or eliminate the spillway ice constraint at IPR and implementation of new winter/spring fill strategies to allow more efficient use of early spring

runoff may require changes to current Reclamation policies on use of reservoir surcharge space. Changes to Pacificorp's operations at Ashton Dam may require modification of its FERC license.

Evaluation Criterion D—Presidential and DOI Priorities

E.1.4.1 Sub-criterion No. D1. Climate Change

Points will be awarded based on the extent the project will reduce climate pollution; increase resilience to the impacts of climate change; protect public health; and conserve our lands, waters, oceans, and biodiversity. Address the following as relevant to your project.

- *Please provide specific details and examples on how the project will address the impacts of climate change and help combat the climate crisis.*
- *Does this proposed project strengthen water supply sustainability to increase resilience to climate change? Does the proposed project contribute to climate change resiliency in other ways not described above?*

The project's primary goal is to improve streamflow and reservoir carryover to benefit trout populations and aquatic ecosystem function as spring and summer temperatures increase and water supply declines. All of the anticipated project outcomes address the effects of climate change and strengthen water supply reliability for fisheries, aquatic ecosystem function, and the dependent fishing-related economic sector. These benefits include increased reservoir carryover and winter reservoir outflow and decreased turbidity, suspended sediment export, and water temperatures.

Evaluation Criterion E—Nexus to Reclamation

- *Is there a Reclamation project, facility, or activity within the planning area?*

Yes. Island Park Dam is a Reclamation facility.

- *Is the planning area in the same basin as a Reclamation project, facility, or activity?*

Yes. The HFW lies within Reclamation's Minidoka Project. Operation of IPR is indirectly affected by other Reclamation projects, including Palisades, Michaud Flats, and Ririe.

- *In what way will the proposed project benefit a basin where a Reclamation project, facility, or activity is located? For example, will the project improve watershed health in a river basin that is adversely impacted by a Reclamation water project?*

Operation of IPR for irrigation storage and delivery adversely affects streamflow and water quality in the 15 miles of the Henry's Fork immediately downstream of the reservoir. These 15 river miles support the most renowned trout fishery in the HFW. Further, trout populations in the Henry's Fork downstream of all irrigation diversions are negatively affected by low flow and high water temperatures during the summer. The strategies and infrastructure improvement options developed through this project are specifically intended to improve fisheries and aquatic ecosystem health that are currently negatively affected by Reclamation facilities and projects.

- *Does the applicant have a water service, repayment, or O&M contract with Reclamation?*

No.

- *If the applicant does not hold a type of contract named above, does the applicant receive Reclamation water through a Reclamation contractor or by any other contractual means?*

NA

Project Budget

We propose a three-year project budget of \$272,301, of which \$189,653 (70%) is federal funding requested in this application (Tables X and Y). The federal funds will be used primarily to pay for contracts to third-party consultants to conduct feasibility assessments for potential infrastructure upgrades that could facilitate implementation of water-management strategies developed through this project. A small amount of federal funds is requested for indirect costs.

Nonfederal match will total \$82,648 (30% of project budget), of which \$66,528 will be costs paid by the applicant using nonfederal funds. The applicant's share of match includes salaries and benefits, travel to conduct streamflow measurements, student internships, and cloud computing, web hosting and data transmission fees. Staff time will be devoted to project management, strategy development, DMP revision, compliance, attending DMPC meetings, and providing streamflow data. Funding for HFF's contribution will come from private donations to HFF obtained through its normal fundraising mechanisms and schedules. As indicated in the official resolution, HFF's Board of Directors commits to ensuring that nonfederal contributions to HFF will be sufficient over the life of the project to meet the proposed match commitment. HFF's match commitment does not depend on any pending grant or loan requests. The remaining nonfederal match will come from in-kind contributions from project partners.

Table 3. Total project costs.

SOURCE	AMOUNT	PERCENT OF TOTAL
Non-Federal Entities		
Henry's Fork Foundation (Applicant)	\$ 66,528	
Fremont-Madison Irrigation District (Category A partner)	\$ 2,400	
Fall River Rural Electric Cooperative	\$ 1,200	
Pacificorp	\$ 8,800	
The Nature Conservancy	\$ 1,200	
Trout Unlimited	\$ 2,520	
Non-Federal Subtotal	\$ 82,648	30%
REQUESTED RECLAMATION FUNDING	\$ 189,653	70%
TOTAL PROJECT COST	\$ 272,301	100%

Budget Narrative

Salaries and wages

All salaries and wages included in the budget will be paid to regular HFF employees at their current rates.

Dr. Rob Van Kirk, Science/Technology Director and Project Manager

Rob will devote 200 hours per year in each of the two project years. As project manager, his time will primarily be spent supervising project staff and consultants, tracking project expenditures, and completing and submitting required reports. He was co-author of the last DMPC revision and so will devote substantial time to that task in this project. He also supervises all stream gaging

conducted by HFF and will do so for the stream gaging component of this project, including measuring streamflow as part of a four-person team. Three team members are required for each measurement.

Table 4. Detailed budget.

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	\$/Unit	Quantity		
Salaries and Wages				
Rob Van Kirk, Science/Technology Director	\$50.96	400	hour	\$ 20,384
Christina Morrisett, Climate Adaptation Mgr.	\$31.73	400	hour	\$ 12,692
Amber Roseberry, Technician	\$20.00	53	hour	\$ 1,060
Matt Hively, Aquatic Resources Coordinator	\$24.00	61	hour	\$ 1,464
Brandon Hoffner, Executive Director	\$57.69	40	hour	\$ 2,308
Jack McLaren, Aquatic Ecology Manager	\$28.82	40	hour	\$ 1,154
TOTAL Salaries and Wages				\$ 39,062
Fringe Benefits				
Rob Van Kirk, Science/Technology Director	15.1%	\$20,384	wage	\$ 3,078
Christina Morrisett, Climate Adaptation Mgr.	19.4%	\$12,692	wage	\$ 2,462
Amber Roseberry, Technician	8.1%	\$1,060	wage	\$ 86
Matt Hively, Aquatic Resources Coordinator	29.0%	\$1,464	wage	\$ 425
Brandon Hoffner, Executive Director	21.8%	\$2,308	wage	\$ 503
Jack McLaren, Aquatic Ecology Manager	37.2%	\$1,154	wage	\$ 429
TOTAL Fringe Benefits				\$ 6,983
Travel				
Local, for streamflow measurement	\$0.655	84	mile	\$ 55
Supplies				
Cloud computing, web host, data transmission	\$571	0.75	annual	\$ 428
Contractual				
TBA—infrastructure feasibility assessments	\$200	900	hour	\$180,000
Third-party Contributions				
Fremont-Madison Irrigation District	\$60	40	hour	\$ 2,400
Fall River Rural Electric Cooperative	\$60	20	hour	\$ 1,200
Pacificorp	\$110	80	hour	\$ 8,800
The Nature Conservancy	\$60	20	hour	\$ 1,200
Trout Unlimited	\$84	30	hour	\$ 2,520
TOTAL Third-party Contributions				\$ 16,120
Other expenses				
Internships	\$10,000	2	summer	\$ 20,000
TOTAL DIRECT COSTS				\$ 262,648
Indirect Costs				\$ 9,653
TOTAL ESTIMATED PROJECT COSTS				\$ 272,301

Dr. Christina Morrisett, Climate Adaptation Manager

Christina will devote 200 hours per year to the project in each of the two years. She will lead development of the water management strategies, attend DMPC meetings, participation in revision of the DMP, and serve on the streamflow measurement team.

Amber Roseberry, Technician

Amber will spend 53 hours on this project over the two years, serving on the streamflow measurement team and maintaining the physical stream gage and associated data transmission hardware.

Matt Hively, Aquatic Resources Coordinator

Matt will devote 61 hours to the project over the two years. He will serve on the streamflow measurement team, coordinate any FERC-related interface between this project and the hydroelectric partners, and provide input to assessment of environmental and historical resources compliance that may be required in association with future infrastructure upgrades identified through this project.

Brandon Hoffner, Executive Director

Brandon will devote 20 hours per year during each of the two years. He will attend DMPC meetings and review/edit the DMP revision.

Dr. Jack McLaren, Aquatic Ecology Manager

Jack will devote 40 hours to the project over the two years, primarily in year one. Because of his expertise in aquatic ecosystem function in and downstream of IPR, he will analyze ecological response to past freshet operations and provide technical input to planning and design of future springtime freshets.

Fringe benefits

Benefits will be paid to these employees at their current, respective rates, calculated as a percentage of the total salary each employee will contribute to the project. Fringe benefits include Federal Insurance Contributions Act taxes, health insurance, Individual Retirement Account contributions, and vehicle allowance. Rates differ across employees because of different health insurance coverage, IRA selections, and vehicle allowances.

Travel

Local travel of 84 miles will be required to conduct seven streamflow measurements in each of the two years of the project. The river access used to launch the boat to conduct those measurements is a 6-mile round trip from the HFF office. Mileage rate is the current standard federal rate of \$0.655 per mile.

Supplies

Provision of real-time streamflow data to Pacifcorp staff and other stakeholders will require incorporation of the stream gage into HFF's cloud-based network of data transmission, compilation, processing, and upload to a public website. The total annual subscription costs across HFF's instrument network for cell transmission lines, cloud data storage, a cloud computing server, and web hosting is \$7992 per year for maintenance of 14 stations, or \$571 per station per

year. The station that will support the stream gage used for this project also supports a water-quality instrument, so we applied half of the annual cost of that station toward the stream gaging component. For the two-year duration of this project, that cost is \$571. However, for the first six months of this project, the funding to maintain that station has already been secured from a federal source. Thus, we can apply only 75% of that cost as nonfederal match toward this project, namely \$428.

Contractors

Contractors will be selected via competitive bidding in accordance with all applicable federal laws and policies to conduct feasibility assessments of potential infrastructure upgrades. Based on previous projects, we anticipate that around 900 hours of time at a total hourly rate of \$200 will be required to conduct these assessments.

Third-party contributions

Fremont-Madison Irrigation District: 40 hours at \$60 per hour in salary and fringe benefits to facilitate and attend DMPC meetings and author and edit the DMP revision.

Fall River Rural Electric Cooperative: 20 hours at \$60 per hour in salary and fringe to attend DMPC meetings, review and edit the DMP revision, and provide input on operations at Island Park Dam.

Pacificorp: 80 hours at \$110 per hour in salary, fringe, travel, and indirect costs to attend DMPC meetings, review and edit the DMP revision, and interact with HFF staff and consultants and HFF on proposed mechanisms to facilitate efficient streamflow through its Ashton facility.

The Nature Conservancy: 20 hours at \$60 per hour in salary and fringe to attend DMPC meetings, and review and edit the DMP revision.

Trout Unlimited: 30 hours at \$84 per hour in salary, fringe, and indirect costs to attend DMPC meetings, and review and edit the DMP revision.

The commitment and valuation of these contributions are documented in the attached letters of commitment.

Other expenses

Two student **internships** (400 hours per internship) will be devoted to the project. Each 10-week summer intern is paid a stipend of between \$5,000 and \$10,000 (averaging \$7,000) depending on university and their class standing and is housed in HFF's campus dormitory facility. Housing is valued at \$125 per week. Program administrative cost, which is not included in any of the staff time described above, is \$1,750 per internship, for a total value of \$10,000 per internship per year. We anticipate recruiting two interns to work on this project: one to conduct a detailed analysis of water travel time through the reservoir and irrigation system, and another to assist with DMP editing and revision.

Indirect costs

Indirect costs at the *de minimus* rate of 10% of modified total direct costs are requested.

Environmental and Cultural Resources Compliance

The only field work associated with this project is streamflow measurement associated with maintaining the rating curve for a stream gage associated with one of HFF's long-term water-quality monitoring instruments. This instrument is located on private land, with permission from the landowner, and has been in place continuously for 10 years. Streamflow will be measured from a boat launched at a public river access.

Assessment of environmental and cultural resources compliance needs associated with potential infrastructure modifications identified through this planning grant will be included in the feasibility analyses conducted as part of this project.

- *Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.*

No.

- *Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?*

Yes. Grizzly bears are present in the project area. They will not be affected by any of the project activities proposed in this study and design project. We will assess effects of potential infrastructure upgrades on grizzly bears during the planning conducted as part of this project.

- *Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as "Waters of the United States"? If so, please describe and estimate any impacts the proposed project may have.*

Yes. Island Park Reservoir, the Henry's Fork and all perennial streams and connected wetlands within the project area are navigable waters and hence Waters of the United States under the CWA. They will not be impacted by the assessment activities of this project.

- *When was the water delivery system constructed?*

Island Park Reservoir, a Reclamation facility, was authorized in 1935 and constructed between then and 1939. Ashton Reservoir was constructed between 1914 and 1918 by a private company.

- *Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.*

No.

- *Are there any known archeological sites in the proposed project area?*

No.

- *Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?*

No.

- *Will the proposed project limit access to, and ceremonial use of, sacred sites or result in other impacts on Tribal lands?*

No.

- *Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?*

No.

Required Permits or Approvals

No permits or approvals are required to conduct this project. However, the assessment of potential infrastructure upgrades conducted as part of this project will identify the need for permits and approvals that may be required for construction of those upgrades in the future.

Overlap or Duplication of Effort Statement

None of the tasks proposed in this project overlap with or duplicate those proposed in any other funding application, federal or not. A small amount of proposed work will be conducted by the applicant as part of its routine operations, regardless of whether this project is funded. That work consists of attending regular quarterly DMPC meetings and conducting a small number of streamflow measurements and is funded by recurring private donations to HFF. None of the HFF staff time or other resources applied to the nonfederal component of the project budget are funded by federal sources.

Conflict of Interest Disclosure Statement

The applicant has no actual or potential conflicts at the time of submission.

Letter of Partnership and Commitment

Attached: Fremont-Madison Irrigation District

Official Resolution

Attached: Henry's Fork Foundation Board of Directors

Letters of Support and Commitment

Attached:

Fall River Rural Electric Cooperative

Pacificorp
The Nature Conservancy
Trout Unlimited

RESOLUTION OF THE BOARD OF DIRECTORS OF THE
HENRY'S FORK FOUNDATION

WHEREAS, the mission of the Henry's Fork Foundation is to conserve, protect, and restore the unique fisheries, wildlife and aesthetic qualities of the Henry's Fork and its watershed; and

WHEREAS, the Henry's Fork Foundation uses a science-based, collaborative approach to promote favorable streamflow, good water quality, healthy fish populations, and a positive fishing experience on the Henry's Fork and South Fork Snake River watersheds; and

WHEREAS, the Henry's Fork Foundation has consistently demonstrated its effectiveness at administering federal grants and using federal funds to meet its mission; and

WHEREAS, the U.S. Bureau of Reclamation's WaterSMART program provides opportunities to fund collaborative projects that meet the mission of the Henry's Fork Foundation, and the Board of Directors has reviewed these opportunities and their suitability for the organization; and

Now therefore be it

RESOLVED, that the Henry's Fork Foundation Board of Directors authorizes Brandon Hoffner, Executive Director, to submit applications to WaterSMART funding programs during fiscal year 2024 for projects to restore aquatic habitats and improve water management that will be undertaken in fiscal years 2025-2027; and

RESOLVED, that the Henry's Fork Foundation Board of Directors authorizes Brandon Hoffner, Executive Director, to enter into financial agreements with the U.S. Bureau of Reclamation pursuant to application for, receipt of, and administration of WaterSMART funding; and

RESOLVED, that the Henry's Fork Foundation will adhere to any and all deadlines, timelines, and requirements of said agreements; and

RESOLVED, that the Henry's Fork Foundation will commit the non-federal in-kind and cash contributions as specified in the grant applications, during fiscal years 2025-2027.

I, the undersigned, do hereby certify:

- 1. That I am the duly elected and acting Secretary of the Henry's Fork Foundation, and*
- 2. That the foregoing constitutes a Resolution of the Board of said organization, as duly adopted at a meeting of the Board of Directors held on the 6th day of October 2023.*

IN WITNESS WHEREOF, I have hereunto subscribed by name, this 6th day of October 2023.



*Ron Miller, Secretary
Henry's Fork Foundation*



Fremont-Madison Irrigation District

350 North 6th West

PO Box 15

St. Anthony, Idaho 83445

Phone: (208) 624-3381 Fax: (208)624-3990

Email: fmid@myidahomail.com



Officers of the Board

Jeff Raybould-Chairman

Scott Neville-Vice Chairman

Cleve Bagley-Treasurer

Aaron Dalling-Executive Director

Board Members

Nathan Scafe

Mark Ricks

Dennis Fransen

Cade Crapo

March 11, 2024

Bureau of Reclamation

Water Resources and Planning Office

Attn: Ms. Irene Hoiby

Mail Code: 86-63000

P.O. Box 25007

Denver, CO 80225-0007

Dear Ms. Hoiby,

This letter of partnership confirms that Fremont-Madison Irrigation District (FMID) supports the application of the Henry's Fork Foundation (HFF) to the Reclamation's WaterSMART Water Strategy Grant Program. The proposed project, entitled "Strategies to Improve Reliability of Water Supply for Fisheries in the Henry's Fork Snake River Watershed", will build upon successful water management and conservation efforts in the watershed funded by previous WaterSMART grants to FMID, HFF, and individual irrigation entities in our watershed. Together, water conservation projects in the Henry's Fork watershed have increased physical carryover in Island Park Reservoir, the largest Reclamation storage facility in the watershed, by an average of 26,000 ac-ft a 50% improvement. However, even with this annual improvement in water savings, streamflow from day to day is affected by long travel times between storage reservoirs and irrigation diversions and by operations at intervening run-of-river hydroelectric plants. The goal of the proposed project is to develop water management strategies and accompanying infrastructure improvements that will allow more reliable and stable delivery of water from storage reservoirs in headwater areas to meet irrigation needs and streamflow targets 60 miles downstream.

FMID works closely with the HFF and Reclamation to best manage water resources within the Henry's Fork Watershed for the benefit of all those who depend on it. One of the avenues for this collaboration is through the Henry's Fork Drought Management Committee (HFDMC). The HFDMC includes representatives from the conservation community including HFF, the Nature Conservancy and Trout Unlimited. Additionally, it includes representatives from the Hydropower industry and the irrigation community. This committee meets at least quarterly throughout the year. We plan reservoir management and set river flow targets. Most of the work proposed by this project will take place through the HFDMC, and the primary deliverable of the grant is a revision of the Henry's Fork Drought Management Plan, which guides decisions made by the HFDMC. The Plan was originally adopted in 2005 and was revised in 2018.

Specific tasks proposed by this grant are:

1. Develop strategies to:

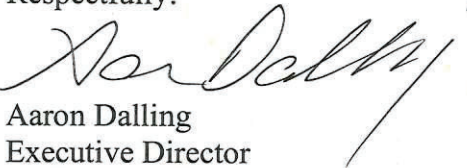
- a. guide water management in specific scenarios**, including but not limited to
 - i. Fill constraints imposed by current Island Park Reservoir spillway infrastructure when the reservoir is ice covered

- ii. Frequency, magnitude, and timing of springtime freshet flows to mobilize and remove fine sediment.
 - iii. Distribution of reservoir fill across fall, winter and spring seasons based on past and current hydrologic and ecological conditions and weather forecasts, and
 - iv. Aligning stream gage rating adjustments with anticipated outflow decisions
- b. **minimize effect of water travel time** between Island Park Reservoir and the lower watershed, and
 - c. **minimize flow fluctuations at Ashton Dam**, a non-federal run-of-river hydroelectric facility that sits between Island Park Reservoir and all major irrigation diversions in the watershed.
2. **Investigate potential for infrastructure changes and additional resources** at Island Park and Ashton dams to facilitate the above strategies.
 3. **Update the Drought Management Plan** to include these strategies and associated infrastructure needs.

During this two-year project, FMID will chair at least four meetings per year of the HFDMC, in which both FMID staff and Board members will participate. In addition, FMID will devote time to revising the Drought Management Plan. In all, FMID will commit 40 hours at a rate of \$60 per hour for a total in-kind contribution of \$2400 to this project.

In summary, we support HFF's application because it will expand on existing management strategies and infrastructure improvements that have already proven to improve water management to benefit all stakeholders in the Henry's Fork watershed.

Respectfully,



Aaron Dalling
Executive Director

Fall River Electric

Cooperative, Inc.

1150 N 3400 E

Ashton, ID 83420

208-652-7431

www.fallriverelectric.com

February 22, 2024

Bureau of Reclamation
Water Resources and Planning Office
Attn: Ms. Irene Hoiby
Mail Code: 86-63000
P.O. Box 25007
Denver, CO 80225-0007

Dear Ms. Hoiby,

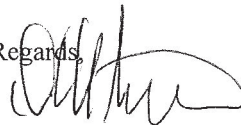
This letter of support and in-kind contribution confirms that Fall River Rural Electric Cooperative supports the application of the Henry's Fork Foundation (HFF) to the Reclamation's WaterSMART Water Strategy Grant Program. The proposed project, entitled "Strategies to Improve Reliability of Water Supply for Fisheries in the Henry's Fork Snake River Watershed", will build upon successful water management and conservation efforts in the watershed funded by previous WaterSMART grants. The goal of the proposed project is to develop water management strategies and accompanying infrastructure improvements that will allow more reliable and stable delivery of water from Island Park Reservoir, the largest Reclamation facility in the watershed, to meet irrigation needs and streamflow targets 60 miles downstream.

Fall River Rural Electric Cooperative has a stake in this project because we own and operate a hydroelectric generation facility at Island Park Dam. The power plant operates as a run-of-river facility using available outflow as determined by irrigation storage and delivery needs. We operate the plant in compliance with water-quality criteria specified in our Federal Energy Regulatory Commission license. Some of the potential operational strategies and infrastructure changes developed through this project may affect our operations.

Most of the work proposed by this project will be discussed and vetted at meetings of the Henry's Fork Drought Management Planning Committee (DMPC), which Fall River Rural Electric Cooperative has attended regularly since the Committee's inception. During this two-year project, our staff will participate in eight meetings of the DMPC and will review changes to the Henry's Fork Drought Management Plan that will be made through this project. In all, Fall River Rural Electric Cooperative will commit 20 hours at a rate of \$60 per hour for a total in-kind contribution of \$1200 to this project.

As a nonprofit utility serving over 20,000 meters, Fall River Rural Electric Cooperative's priority is maintaining current hydro project generation and limiting the financial impact of any operational changes, which will help keep rates low for our members. To ensure that any potential water management or infrastructure changes developed through this project will be compatible with our operations, we commit to participating in consultation activities with the applicant and other stakeholders.

Regards,



Dave Peterson
Manager of Engineering
Fall River Electric Cooperative

208-652-7431 • 800-632-5726

208-652-7825 fax

www.fallriverelectric.com



March 4, 2024

US Bureau of Reclamation
Water Resources and Planning Office
Attn: Ms. Irene Hoiby
Mail Code: 86-63000
P.O. Box 25007
Denver, CO 80225-0007

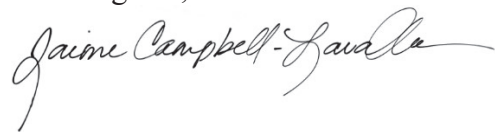
Dear Ms. Hoiby,

PacifiCorp owns and operates the Ashton Hydroelectric Project on the Henry's Fork of the Snake River near Ashton, Idaho. As a collaborative partner in the Henry's Fork watershed, PacifiCorp supports the Henry's Fork Foundation's (HFF) application for a Bureau of Reclamation WaterSMART grant. Their proposed project, entitled "Strategies to Improve Reliability of Water Supply for Fisheries in the Henry's Fork Snake River Watershed" will provide useful data for management of water resources in the region.

Demonstrating our support for the HFF project, PacifiCorp will commit to participating in meetings of the Henry's Fork Drought Management Planning Committee (DMPC), which is chaired by the Fremont-Madison Irrigation District (FMID). In addition, PacifiCorp staff will work outside of formal DMPC meetings to maintain open communication with HFF and FMID pertaining to Ashton Hydroelectric Project operations including flow releases. In all, PacifiCorp will commit 80 staff hours over HFF's project duration, totaling \$8,800 of in-kind contribution.

Please feel free to contact me if you have any questions or require additional information. I can be reached via email at jaimc.campbell-lavallee@pacificorp.com, and via phone at (208) 970-6821.

Best Regards,



Jaime Campbell-Lavallee
Sr. Environmental Analyst

WCS:TO:JC

cc: Devin Pharis, Director, Plant, Hydro East; Todd Olson, Director Licensing and Compliance; Mark Stenberg, Principal Operations Project Manager.



Idaho Chapter Office
950 W. Bannock St.
Suite 210
Boise, ID 83702

Tel (208) 343-8826
Fax (208) 343-8892

nature.org

March 7, 2024

TO: Bureau of Reclamation -Water Resources and Planning Office
Attn: Ms. Irene Hoiby
Mail Code: 86-63000
P.O. Box 25007
Denver, CO 80225-0007

FROM: The Nature Conservancy (TNC) – Idaho Chapter

RE: **WaterSMART Planning and Project Design NOFO R23AS00109**

Dear Ms. Hoiby,

This letter of support and in-kind contribution confirms that The Nature Conservancy supports the application of the Henry's Fork Foundation (HFF) to the Reclamation's WaterSMART Water Strategy Grant Program. The proposed project, entitled "Strategies to Improve Reliability of Water Supply for Fisheries in the Henry's Fork Snake River Watershed", will build upon successful water management and conservation efforts in the watershed funded by previous WaterSMART grants to Fremont-Madison Irrigation, HFF, and individual irrigation entities in our watershed. The goal of the proposed project is to develop water management strategies and accompanying infrastructure improvements that will allow more reliable and stable delivery of water from storage reservoirs in headwater areas to meet irrigation needs and streamflow targets 60 miles downstream.

Most of the work proposed by this project will take place through the Henry's Fork Drought Management Planning Committee (DMPC), and the primary deliverable of the grant is a revision of the Henry's Fork Drought Management Plan, which guides decisions made by the DMPC. The Plan was originally adopted in 2005 and signed by our organization and five others. The plan was revised in 2018, and that revision again was approved and signed by our organization. The proposed project takes next steps to refine water management decisions made by the DMPC to improve streamflow in the Henry's Fork for the benefit of irrigators, hydroelectric power companies, and fisheries.

Specific tasks proposed by this grant are:

1. **Develop strategies to:**
 - a. **guide water management in specific scenarios**, including but not limited to

- i. Fill constraints imposed by current Island Park Reservoir spillway infrastructure when the reservoir is ice covered
 - ii. Frequency, magnitude, and timing of springtime freshet flows to mobilize and remove fine sediment
 - iii. Distribution of reservoir fill across fall, winter and spring seasons based on past and current hydrologic and ecological conditions and weather forecasts, and
 - iv. Aligning stream gage rating adjustments with anticipated outflow decisions
 - b. **minimize effect of water travel time** between Island Park Reservoir and the lower watershed, and
 - c. **minimize flow fluctuations at Ashton Dam**, a non-federal run-of-river hydroelectric facility that sits between Island Park Reservoir and all major irrigation diversions in the watershed.
2. **Investigate potential for infrastructure changes and additional resources** at Island Park and Ashton dams to facilitate the above strategies.
3. **Update the Drought Management Plan** to include these strategies and associated infrastructure needs.

During this two-year project, The Nature Conservancy personnel will attend at least four meetings per year of the DMPC. In addition, we will devote time to reviewing and revising proposed changes to the Drought Management Plan. In all, The Nature Conservancy will commit 20 hours at a rate of \$60 per hour for a total in-kind contribution of \$1200 to this project.

I strongly encourage Reclamation to support this WaterSmart grant proposal as it furthers both TNC's freshwater goals and the collective goals of organizations in the region. I thank you for the opportunity to be involved in this process and to support such an impactful project.

Sincerely,

Best Regards,



Neil Crescenti
Agriculture Program Manager
The Idaho Chapter of The Nature Conservancy



April 15, 2024

Bureau of Reclamation
Water Resources and Planning Office
Attn: Ms. Irene Hoiby
Mail Code: 86-63000
P.O. Box 25007
Denver, CO 80225-0007

Dear Ms. Hoiby,

Please accept this letter of strong support and in-kind contribution from Trout Unlimited for the application by the Henry's Fork Foundation (HFF) to Reclamation's WaterSMART Water Strategy Grant Program.

HFF's proposed project, entitled "Strategies to Improve Reliability of Water Supply for Fisheries in the Henry's Fork Snake River Watershed," will build upon successful water management and conservation efforts in the watershed funded by previous WaterSMART grants to Fremont-Madison Irrigation, HFF, and individual irrigation entities. The goal of the proposed project is to develop water management strategies and accompanying infrastructure improvements that will allow more reliable and stable delivery of water from storage reservoirs in headwater areas to meet irrigation needs and streamflow targets 60 miles downstream.

Most of the work proposed by this project will take place through the Henry's Fork Drought Management Planning Committee (DMPC), and the primary deliverable of the grant is a revision of the Henry's Fork Drought Management Plan, which guides decisions made by the DMPC. The Plan was originally adopted in 2005 and signed by HFF, TU and four others. The plan was revised in 2018, and that revision again was approved and signed by our organization. The proposed project takes next steps to refine water management decisions made by the DMPC to improve streamflow in the Henry's Fork for the benefit of irrigators, hydroelectric power companies, and fisheries.

During this two-year project, Trout Unlimited personnel will attend at least four meetings per year of the DMPC. In addition, we will devote time to reviewing and revising proposed changes to the Drought Management Plan. In all, Trout Unlimited will commit 30 hours at a rate of \$84 per hour for a total in-kind contribution of \$2520 to this project.

By way of background, Trout Unlimited (TU) is the nation's largest grassroots coldwater conservation organization with more than 350,000 members and supporters and a mission to

bring together diverse interests to care for and recover rivers and streams so that our children can experience the joy of wild and native trout and salmon. TU works to achieve this mission on a local, state, and national level through an extensive volunteer network and dedicated staff. TU has led or been involved in several other watershed groups supported by Reclamation WaterSMART funding, including the South Fork Boise Watershed Collaborative, the Wood River Water Collaborative, the Boise River Enhancement Network, and the Sun River Watershed Group.

Please contact me at (208) 563-3486 or Kira.Finkler@tu.org if you have questions or need additional information.

Sincerely,



Kira Finkler
Idaho State Director