Western Native Trout Initiative – National Fish Habitat Partnership
Grant #: F23AP02014-00

Grant Recipient: Friends of the Teton River

Reconnecting Canyon Creek (Idaho)

Final Programmatic Report Narrative

Reporting Period ending 9/30/2024. Report covers activities 5/30/2023 - 9/30/2024.

A. Summary of Accomplished Project Activities & Outcomes

Through this project Friends of the Teton River (FTR), in partnership with the Canyon Creek Canal Company (CCCC), implemented a series of irrigation infrastructure improvements to 3 locations (Schwendiman POD; Ricks Diversion; and Canyon Creek Lateral POD). The project served to restore 10,580 acre-feet of instream flows to Canyon Creek, a priority sub-watershed on the northern flank of the Big Hole Mountains located east of Newdale, Idaho. In addition the project improved irrigation water supply reliability for the irrigation company as well as downstream water users. This project provided a unique opportunity to collaboratively address water supply and ecosystem needs and greatly improve the natural hydrograph in this high priority sub-watershed.

All of the goals and objectives of the grant award, as detailed in the approved scope of work were met, as outlined in detail below.

B. Activities: A discussion of the completion of each of the primary project activities is outlined below:

1) Upgrade/replace the CCCC's two major pump stations, main lines, and conveyance lines to restore stream flow to Canyon Creek (listed as Schwendiman's POD and the Canyon Creek Lateral POD; Ricks, Harris, and Walter's in technical documentation):

Schwendiman POD – Relocate and Rebuild Diversion Structure; Pump Channel Reconfiguration: ***100% Complete***

- The diversion construction work associated with the Schwendiman POD was performed by GoldenWest Irrigation during the fall of 2024. The Diversion structure was relocated ~60 feet to the east of its original location, allowing the pumps to be located in a deeper portion of the pump channel in order to achieve optimal head pressure and depth. A new concrete pump bay was poured to house the pumps, which required extensive excavation to prep the site and then backfill once complete. New rotation screens with high pressure hose flushes were installed on each pump to prevent fish entrainment. New HydroFlow pumps were purchased, increasing pumping capacity. New pump panels with breakers, starters, and safeties were purchased and installed. New motor runs and power runs for the pump panels, including conduit, transformers, panels, meters, cans and wiring were purchased and installed. The new pump bay was then tied into the existing 30" steel mainline with new 12" high pressure check valves and bypasses.

New Concrete Pump Bay Under Construction

New Pump Bay & Pump Panels

- The pump channel reconfiguration work was performed by MD Nursery, occurring in September and October of 2024 when flow conditions in the Teton River recede, thereby improving instream working conditions. The pump channel was widened, deepened, and lengthened to ensure: (1) the pump channel functions property, such that a sufficient quantity of water can enter the pump channel to meet irrigation pumping demand; and (2) the dike is capable of withstand a 100-year flood event.

Pump Channel Under Construction

Aerial View of Completed Channel Reconfiguration Work

Ricks– Remove existing mainline and install 7,920 feet of new 12" PVC, along with air vents and pump outs: *100% Complete*

- All of the work associated with the Ricks Diversion was performed by GoldenWest Irrigation.
- All materials for the Ricks Diversion were procured in September and October of 2023.
- Work on this portion of the project commenced in November 2023. At that time the south end of the new pipeline, and all on-farm tie-ins, were installed.
- Work on the north end of the pipeline commence in May of 2024 just as soon as the ground thawed and dried, making it feasible to mobilize heavy equipment and trench the new pipeline.
- This portion of the project was completed in late May of 2024, just in time for the 2024 irrigation season.

On Farm Tie-Ins at Ricks Complete


Canyon Creek Lateral POD: *100% Complete*

- All of the work associated with the Canyon Creek Lateral POD was performed by GoldenWest Irrigation.
- All materials for this portion of the project were procured in September 2023.
- Work on this portion of the project began on September 29, 2023 and was completed in November of 2023, with the following activities occurring during that time:
  - Existing pump cans, pump panels and concrete pad removed;
  - New concrete pump bay to house pumps constructed;
  - Fish screens at pump intakes installed;
  - Pumps connected into existing 42” steel mainline;
  - New pump panel pad poured and panels installed;
  - Transformers relocated; and
  - Motor runs and power runs for the pump panels, including transformers, installed.

Canyon Creek Lateral Point of Diversion – new pump bay, screens, panels, pad


Canyon Creek Mainline – Remove the existing mainline and install 10,460 ft of new 36” pipe, air vents, and pump outs: *100% Complete*

- All the work associated with the Canyon Creek Mainline was performed by GoldenWest Irrigation.
- All materials for this portion of the project were procured in September 2023.
- Work on this portion of the project began on September 19, 2023, and continued through November of 2023. During that time the existing mainline was removed and 10,460 feet of new 36” cement-lined steep pipe, along with all air vents and pump outs, was installed.
- All heavy machinery has been demobilized from the site.
- Site clean-up was completed in the spring of 2024, during the months of April and May. The old pipeline was hauled away as scrap. Any disturbed land was graded and leveled.

Staging of Mainline Pipe

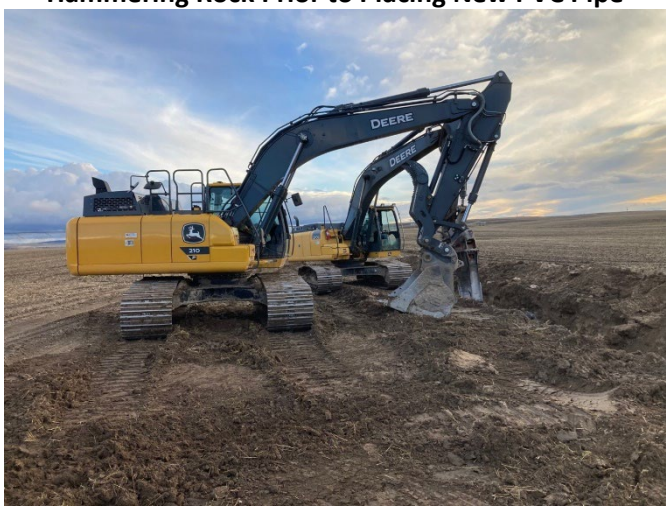
Mainline Pipe Installation: Photo taken looking north along the Old Dam Road, towards the Historic Teton Dam, where the 36” pipe was tied into the 42” pipe.

Crapo On-Farm Tie-In from Mainline

Walters Site: *100% Complete*

- All of the work associated with this portion of the project was performed by GoldenWest Irrigation.
- All materials for this site were procured in October 2023.
- Work on this portion of the project began in October 2023 and proceeded through November of 2023, including:
  - Installation of 6,540 feet of new 12” PVC pipe;
  - Installation of wire and new 25 hp pump, VFD with harmonic filters, breakers and safeties; and
  - Tie the new line into the mainline.

Hammering Rock Prior to Placing New PVC Pipe



Walters New Booster Station

Harris Site: ***100% Complete***

- All the work associated with this portion of the project was performed by GoldenWest Irrigation.
- All materials for the site were procured in October 2023.
- Work on this portion of the project commenced in April of 2024. At that time the new PVC pipe was installed.
- Work halted during the summer, but resumed in early September of 2024. At that time the new booster pumps were installed and tied into the system.
- By late September all the work was complete, the site was cleaned up and equipment was demobilized.

Harris New Booster Station

2) Discontinue the use of the Canyon Creek Canal: With the irrigation infrastructure improvements outlined above now complete, the Canyon Creek Canal will no longer be used to divert water from Canyon Creek. FTR and the

Canyon Creek Canal Company have entered into a Water Management Agreement, contractually requiring the closure of the canal.

3) Restore 10,680 acre-feet of instream flow to Canyon Creek annually, connecting 45 miles of available instream habitat: With the project complete, and the canal contractually closed, approximately 10,680 acre-feet of water will be restored annually to the Canyon Creek system. This will generate vast flow and habitat outcomes benefit Yellowstone cutthroat trout.

4) Develop a monitoring and management plan that identifies how the monitoring and diversion data will be collected and managed by CCCC once the project is complete: FTR and the Canyon Creek Canal Company worked with the Idaho Department of Water Resources and Water District 01 to develop an appropriate monitoring plan that satisfies State water administration requirements, and which also monitors instream flow. FTR installed a telemetry gaging station on Canyon Creek and IDWR has agreed to integrate the station into its online portal, beginning in 2025. The telemetry gage will be used to monitor water availability, and thus diversion availability, at the newly improved downstream points of diversion. Diversion will be capped by actual water availability.

Telemetry Gaging Station

5) Install a real-time flow logger/temperature monitoring station to evaluate the long-term conservation outcomes associated with the project as well as provide necessary information to IDWR -WD01 to facilitate the legal administration of the CCCC water rights for the contract agreement: Please see information about the monitoring equipment, above.

6) Continue data collection at established monitoring sites on Canyon Creek (PIT tag interrogation site, meteorological station, water quality/temperature sites) to analyze the efficacy of flow restoration strategies and to inform future priority projects in the Teton Watershed: In 2023, and again in 2024, FTR actively monitored temperature and flow in Canyon Creek at three strategic locations. In addition, FTR is operating the PIT tag interrogation site, located near the mouth of Canyon Creek near the confluence with the Teton River. This flow and fisheries data is folded up into an annual report and provided to agency partners for review, analysis, and comment each year. FTR anticipates that this data will continue being collected and analyzed well into the future to monitor the efficacy of the project.

7) Disseminate project results to stakeholders and educate the public through targeted outreach, using this project as a model of collaborative conservation:

- FTR hosted numerous tours of the Canyon Creek project throughout the grant period. Public tours were hosed on October 17, 2023, May 19, 2024, and July 26, 2024. At each event approximately 25 people were in attendance. Special tours were hosted for the BOR Commissioner, the NPCC Idaho Council Members and Staff, and the Eastern Idaho Water Right Coalition during the summer of 2024.
- The Canyon Creek project was highlighted in FTR's Summer 2023 newsletter which is distributed broadly to 750 individuals/families.
- The project was highlighted by the Teton Valley News on October 18, 2023. The article can be viewed by clicking the following hyperlink: https://www.tetonvalleynews.net/outdoors/canyon-creek-project-update/article_5889ef3a-6850-11ee-964f-17201b64d361.html
- FTR works with a number of collaborative groups, through which project results and lessons learned are shared on a regular basis, including: Upper Snake Collaborative, Teton Water Users Association, FTR's Science Review Committee, and YCT Interstate Working Group.
- The Canyon Creek project was discussed in FTR's 2024 Summer newsletter and highlighted in many recent social media posts (found on Instagram under the handle: friendsofthetetonriver on 10/27/23, 12/29/23, 6/27/24, 7/22/24, 9/9/24).

C. Outcomes: A discussion of the completion of each of the major outcomes is outlined below.

Now complete, the project generates many interrelated outcomes, including:

Ecosystem Outcomes:

1. **Restored and improved instream flows on Canyon Creek in both magnitude (discharge) and timing (duration)**, thus improving instream conditions for native Yellowstone Cutthroat Trout and increasing available cold-water aquatic habitat, fish passage, connectivity, and life history success. Water secured instream will improve instream connectivity by increasing passage/migration flows during the springtime cutthroat spawning period and will also improve over-summering flows the entire length of Canyon Creek. Restored flows in the lowermost 10 miles of stream will also promote growth of stream-shading riparian vegetation and create habitat for birds, beaver, elk, and deer.
2. **Improved water quality conditions**, specifically maintaining and reducing water temperatures in this cold-water fishery, for YCT and other native aquatic species.
3. **Elimination of fish entrainment in the Canyon Creek Canal and at the Schwendiman POD**, thus reducing YCT mortality and improving spawning success and complete life histories for YCT in Canyon Creek and the Teton River; leading to an increase in YCT populations.
4. **Protect a core "source" population of YCT for the Teton River and improve YCT populations** (trout density and age class distributions) in Canyon Creek and the Teton River.

Each of the outcomes identified above (1-4) were achieved when the irrigation infrastructure project activities were completed, thereby facilitating the long-term closure of the Canyon Creek Canal. As a result of the project YCT will experience improved water quality (i.e. – decreased temperature), improved flow conditions facilitating increased migratory and spawning success, and the elimination of two significant fish entrainment hazards. It is expected that these habitat improvements will bolster YCT populations in this valuable tributary.

Irrigation Outcomes:

5. **Improved irrigation infrastructure efficiency and the delivery of irrigation water** to support the robust farming economy in the region as well as ecosystem values. Improved water supply and water reliability for irrigation will reduce reliance on storage water in the Upper Snake system; eliminate water loss to the Canyon Creek Canal and deliver water rights more efficiently to the CCCC, thereby increasing water availability for downstream users. Conserved water will enhance flows not only in Canyon Creek (keeping it wet throughout the year), as well as in the mainstem Teton River.

With the project now complete, the full benefits of the project will be realized by the Canyon Creek Canal Company shareholders in the 2025 irrigation season. Based upon conversations with WD01, IDWR, and Fremont Madison Irrigation District, it is expected that the irrigation improvements associated with this project will delay the Canyon

Creek Canal Company's need to utilize storage water by 7-10 days. This is a critical step towards insulating these valuable farming interests against climate variability and drought.

Information/Data Gap Outcomes:

6. **Monitoring the long-term water management and ecological outcomes** associated with the project will provide important information to FTR, irrigation interests and agency partners to facilitate similar future collaborative projects that provide a win-win for stakeholders and watershed conservation and restoration. Enhanced scientific understanding of the ecological impacts on Canyon Creek will help experts to analyze the efficacy of flow restoration strategies for water quality and fisheries improvements.

FTR conducts in-depth monitoring for all its projects (pre- and post-implementation). Founded on the basis of sound science, the organization is dedicated to continuing to collect flow, temperature and fisheries data in association with this project (as discussed above) well into the future. These monitoring efforts will assist FTR in evaluating the long-term efficacy of this project, as well as identifying strategies that support native YCT and which may be replicable in other geographies.

Thank you! Both FTR and the Canyon Creek Canal Company are proud of this project and the long-term benefits it secures for irrigation in the region and the Canyon Creek ecosystem. It is with overwhelming gratitude that we thank the US Department of the Interior, and the WNTI program, for its role and support in bringing this project to fruition.

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