

**FINDING OF NO SIGNIFICANT IMPACT  
AND DECISION TO IMPLEMENT CONSERVATION EFFORTS FOR ARCTIC GRAYLING**

**RED ROCK LAKES NATIONAL WILDLIFE REFUGE**

*Lima, Montana*

Arctic grayling (*Thymallus arcticus*; grayling) are a freshwater holarctic species of salmonid that reside in the Upper Missouri River (UMR) drainage in southwestern Montana. The Centennial Valley, located in the UMR, contains one of four remaining populations of Arctic grayling in the contiguous United States still exhibiting the full spectrum of life history behaviors present in historical grayling population (USFWS 2020). The population of Arctic grayling in the Centennial Valley are one of nineteen populations that are collectively referred to as UMR grayling. The primary winter habitat for grayling within the Centennial Valley is in Upper Red Rock Lake (hereafter Upper Lake or URRL) within Red Rock Lakes National Wildlife Refuge (RRLNWR or Refuge). High winter mortality of grayling within Upper Lake during periods of hypoxia (low dissolved oxygen) has been identified as the primary limiting factor for grayling in the Centennial Valley (Warren et al. 2022).

The U.S. Fish and Wildlife Service (Service) is proposing to improve over-winter habitat for Arctic grayling in Upper Lake which will ensure long-term, self-sustaining persistence of UMR grayling in accordance with the 2022 Arctic Grayling Conservation Strategy (Montana Arctic Grayling Workgroup 2022). The proposed action would increase dissolved oxygen levels in deeper portions of Upper Red Rock Lake in Red Rock Lakes National Wildlife Refuge where grayling over-winter, improve grayling winter survival and maintain existing grayling genetic variation. This would involve creating enough suitable winter habitat, which would consist of water greater than or equal to 1 meter (m) in depth below the ice and with greater than or equal to 4 parts per million of dissolved oxygen, to support a grayling population greater than 400 breeding-age individuals (USFWS and MFWP 2017).

**Selected Action**

**Alternative D—Shambow Pond Diversion Pipeline**

Alternative D would use a buried, gravity flow diversion pipeline to deliver oxygenated water to URRL during winter months to improve conditions for grayling. The Shambow Pond Diversion Pipeline would convey water from East Shambow Creek and Shambow Pond to the center of URRL. Based on stream monitoring during 2021, winter flow available for this alternative is on the order of two cubic feet per second (cfs). Shambow Pond is a created and actively managed wetland feature located southwest of URRL and serves as a suitable diversion point for the proposed pipeline.

An engineered subsurface screened intake and gate structure is recommended at the pond outlet for conveying pond water to the lake through a high-density polyethylene (HDPE) pipeline. Gating would allow the pipeline to be closed when not in use (e.g., late spring, summer, and early fall) so that flow can be returned to the natural channel. The end of the pipeline would contain two lateral lines of perforated PVC or, alternatively, diffuser ports for distribution of tributary water. The pipeline would be 5,300 ft in total length, with 3,300 ft on land and the remaining 2,000 ft in URRL. Engineering design indicates 5,300 ft of 14 in diameter HDPE pipeline would be required along with appurtenant intake, regulation, and aeration vault structures. Visible infrastructure will

include a vault (20in x 6in x 16in) on the north side of the lake to control flow, some minor infrastructure (below 8in in height) near Shambow Pond, and multiple cleanouts along the pipeline. All would be at ground level and placed in such a way that natural topography would reduce the visibility of any structures.

In addition, the ongoing actions to benefit grayling that have been implemented in the past and were described under the No Action Alternative will continue. Those actions include Widgeon Pond releases, beaver dam notching, and fishing closures.

This alternative was selected over the other alternatives due to the following:

- Unlike Alternative B-Electric Powered Splashers or Diffusers, which primarily rely on atmospheric oxygen transfer by opening a polynya to oxygenate water, this alternative would funnel already oxygenated water to the center of URRL in addition to potentially creating a polynya. The water supply in Shambow Pond is reliable and expected to deliver between 0.9 and 2.3 cfs throughout winter. Monitoring during a dry year suggested approximately 2 cfs would be delivered. An estimated 1.5 ha of habitat would be created. While 1.5 ha is less habitat than recommended in the Adaptive Management Plan, research has shown that lakes in Utah and Wyoming have reported thousands of fish surviving in less than half a hectare of habitat. The creation of any reliable, suitable habitat for overwintering grayling in URRL would provide refugium and lower the probability of grayling extinction. Modeling shows that the pipeline would significantly decrease the possibility of extinction compared to the No Action Alternative.
- Grayling have been shown to survive harsh winter conditions by taking refuge in small areas of oxygenated water. A study in Alaska found that 21 radio tagged grayling occupied areas with ice thickness of 0.4-1.4 m (1.3-4.6 ft) overlying 0.06-0.52 m (0.2-1.7 ft) of water. All grayling occupied much shallower winter habitats than expected. By the end of December, radio-tagged movements were confined to stream sections less than 100 m in length for the rest of the winter. Of the 40 ground relocations during February-March, 26 grayling moved 0-1 m, 8 moved 1-10 m, and 6 moved 11-91 m. Overwinter areas were typically occupied by many other untagged grayling (Lubinski, B.R. 1995. Winter habitat of Arctic grayling in an interior Alaska stream. Master's Thesis. University of Alaska Fairbanks. Fairbanks, Alaska).
- This alternative has a reasonable likelihood of success in the Centennial Valley (CV). Several instances of similar pipeline projects in Utah have been shown to successfully prevent or reduce winterkill in other high elevation mountain lakes, even when there is lower flow and less created habitat (Unpublished data, Utah Division of Wildlife Resources). A 0.5-mile-long buried pipeline on Narrows Creek (north end of CV) has conveyed between 0.2 and 4 cfs year-round with a shallower bury depth and has required no additional maintenance for the past 10 years. Fisheries managers that have piloted or installed several of the technologies we proposed consider the pipeline option as the best aeration alternative.
- Under this alternative there is less required maintenance and less chance of failure compared to the other alternatives. Additionally, the Shambow Pipeline has lower construction and maintenance costs. There are no mechanical components, electrical service requirements, or ongoing electrical costs unlike alternatives B and C. Because of the simplicity of this alternative only annual maintenance checkups would be required and chances of mechanical failure are low.

- Finally, of the action alternatives, the Shambow Pipeline has the least long-term impacts to wilderness and minimal visible infrastructure or ongoing auditory disruptions. Impacts to wilderness from the pipeline would be short-term and only last during the construction phase.

### **Other Alternatives Considered and Analyzed**

#### **Alternative A—Widgeon Pond Releases, Beaver Dam Notching, and Seasonal Fishing Closures (No Action Alternative)**

Under Alternative A (the No Action Alternative), the current management strategies, including water releases from Widgeon Pond into URRL, beaver dam notching, and seasonal fishing closures, would continue. While the No Action Alternative would result in relatively few environmental impacts, it was not selected because there is a high probability of extirpation for the CV Arctic grayling population under this alternative.

#### **Alternative B—Electric Powered Splashers or Diffusers**

This alternative would result in the installation of splashers or diffusers in URRL, a hose running from the aerators to the campground, compressors in the campground, and the construction of an electrical line to the campground. All construction would happen in previously disturbed areas and would result in some disturbance to wilderness quality and water resources, specifically URRL. In the winter of 2023, a smaller-scale pilot test of the diffuser alternative was implemented and monitored in URRL. Results from monitoring showed that even with a polynya, dissolved oxygen in the area surrounding the diffusers remained too low to support grayling, likely due to the shallowness of the lake and the heavy oxygen demand of the lake's sediment layer outpacing atmospheric oxygen transfer, and the fact that the alternative was implemented at a time when anoxic conditions had already developed in the lake. This alternative was not selected based on those results.

#### **Alternative C—Electric Generators with Pumped Aeration**

This alternative would involve the installation of a pumped aerator in the campground, pipes running from the center of the lake to the aerator, electric generators, and the construction of an electrical line to the campground. All construction would happen in previously disturbed areas and would result in some disturbance to Wilderness quality and water resources, specifically URRL. This alternative was not selected because of likelihood of mechanical and electrical failure (which could possibly result in freezing), need for daily checks and repeated maintenance, ongoing electricity costs, and the higher impacts on wilderness character due to visible infrastructure and continuous noise through the winter. If there was a mechanical failure during the winter, repairs would be difficult and expensive or even impossible due to the lack of accessible roads.

#### **Alternative E—Permanent Barrier from Elk Springs Creek to the Lake Center**

The implementation of this alternative would result in the construction of a permanent barrier within URRL. This barrier would run from the mouth of Elk Springs Creek to the center of URRL in order to funnel oxygenated water to the deeper parts of the Lake. The most prominent adverse impacts of this alternative would be to water resources, soil, and wilderness character. Disturbance to each resource would primarily occur during the construction period, but some negative impacts would continue even after construction due to the permanence of the structure within URRL. While the U.S. Geological Survey Structured Decision Making (SDM) technical report showed this

alternative best met the objectives of both the Service and Montana Fish, Wildlife and Parks (MTWP), this alternative was not selected due to the predicted negative impacts to wilderness and the unknown outcome associated with an untested alternative.

### **Alternative F—Dredge and Berm Elk Springs Creek**

This alternative would involve dredging the mouth of Elk Springs Creek to create usable habitat for grayling. That dredged material would be used to create a berm which could channel oxygenated water deeper into the lake center. While the SDM technical report showed dredging to be one of the most effective alternatives for grayling persistence, this alternative was not selected because of the impacts to Wilderness and other resource areas, cost, and need for repetition or maintenance due to sedimentation. Compared to the other alternatives, the dredge and berm alternative would have the most negative impacts on the analyzed resources areas due to the length of construction and invasiveness of dredging. Furthermore, it is likely that dredging would have to be repeated every few years based on the sedimentation rates in URRL creating long term negative impacts to wilderness and other resources.

### **Summary of Effects of the Selected Action**

An Environmental Assessment (EA) was prepared in compliance with the National Environmental Policy Act (NEPA) to provide decision-making framework that (1) explored a reasonable range of alternatives to meet project objectives; (2) evaluated potential issues and impacts to the Refuge, resources, and values; and (3) identified mitigation measures to lessen the degree or extent of these impacts. The EA evaluated the impacts associated with the proposed action and the other five alternatives. It is incorporated as part of this finding.

Implementation of the agency's decision would be expected to result in the following environmental, social, and economic impacts:

- Short-term disturbance and minor displacement of wildlife caused by construction activity.
- Short-term and minor impacts to habitat and vegetation, including sensitive plants species *Carex idahoensis*, *Potentilla plattensis*, *Primula incana*, *Senecio hydrophilus*, and *Thelypodium sagittatum*.
- Temporary changes to the distribution and abundance of invasive Kentucky bluegrass and smooth brome during activities related to pipeline trenching and installation.
- Short-term disturbance to the soil in the project area which is approximately 5,300 ft in length and 14 ft wide, with a 4,700 ft long trench 2 ft wide x 6 ft deep.
- Minor and short-term impacts on air quality from heavy equipment use for 1-2 months of the construction period.
- Temporary dewatering of Shambow Creek during the winter when riparian vegetation is dormant.
- Short-term disturbance to Refuge users from construction, maintenance, and operation activities lasting around three months in the summer when construction could occur and be less impactful than other timeframes.
- Short-term disturbance to wilderness character during the short construction period.
- Impacts to cultural resources are unknown at this point. However, a cultural resource inventory will be conducted in accordance with Section 106 of the National Historic Preservation Act (54 USC § 306108) and its implementing regulations (36 CFR 800) in order to identify, document, and evaluate National Register eligibility of any cultural resources which may occur within the area of potential effect, as well as to analyze

associated impacts and assess effects which could result from the selected action. This investigation is anticipated to be conducted from May 31 to June 2, 2023. Associated Section 106 consultation will be completed prior to the expenditure of funding for the selected action.

Measures to mitigate and/or minimize impacts have been incorporated into the selected action. These measures include:

- Confining construction-related site disturbance to the smallest area practical to prevent unnecessary damage to water resources, vegetation, and wildlife disturbance.
- Timing construction activities to avoid or minimize disturbance during sensitive nesting and wildlife use seasons.
- Installing silt fencing, as appropriate, and fiber rolls, if necessary, prior to initiating any ground disturbance.
- Avoiding storing, fueling, or repairing construction equipment in areas that may drain into URR, wetlands or other natural areas.
- Inspecting all equipment for leaks immediately prior to the start of project activities and conduct regular equipment inspections during construction activities.
- Developing an emergency spill response plan prior to initiation of construction and maintain a spill kit would on-site throughout the duration of the proposed project.
- Entirely cleaning any equipment brought to the construction site and retaining excavated materials and returning them following the installation.
- Following construction, revegetate disturbed areas utilizing native species, to the greatest extent practical.
- Developing an integrated weed management plan and implementing the remediation and removal of invasives following construction.
- Ceasing activities, contacting SHPO, and potentially adjusting the project design if cultural artifacts are discovered during implementation of the project.

### **Public Review**

A Draft EA was made available for a 15-day public review and comment period, from February 28-March 14, 2023. In response to requests for an extension, this comment period was extended through March 28<sup>th</sup>. Comments received on the 29<sup>th</sup>-31<sup>st</sup> were accepted as well. A total of 3,313 comments were received during this period.

The proposal has been thoroughly coordinated with all interested and/or affected parties. Parties contacted include:

- Montana Fish, Wildlife and Parks
- Montana Trout Unlimited
- Apache Tribe of Oklahoma
- Confederated Salish and Kootenai Tribes
- Confederated Tribes of the Umatilla Indian Reservation
- Shoshone Tribe
- Fort Belknap Indian Community
- Nez Perce Tribe
- Shoshone-Bannock Tribes

The Service has not initiated consultation regarding potential effects to historic properties in accordance with Section 106 of the National Historic Preservation Act (NHPA, 54 USC § 306108) and its implementing regulations (36 CFR Part 800). To this end, a cultural resource inventory will be conducted in order to identify, document, and evaluate National Register eligibility of any cultural resources which may occur within the area of potential effect, as well as to analyze associated impacts and assess effects which could result from the selected action. This investigation is anticipated to be conducted from May 31 to June 2, 2023. Associated Section 106 consultation will be completed prior to the expenditure of funding for the selected action.

Seven Tribal affiliations were identified as having ancestral connections to Beaverhead County, MT, where Red Rock Lakes National Wildlife Refuge is located. The seven Tribes were as follows: Apache Tribe of Oklahoma, Confederated Salish and Kootenai Tribes of the Flathead Reservation, Confederated Tribes of the Umatilla Indian Reservation, Shoshone Tribe of the Wind River Reservation, Fort Belknap Indian Community of the Fort Belknap Reservation of Montana, Nez Perce Tribe, and Shoshone-Bannock Tribes of the Fort Hall Reservation. On February 28, 2023, leadership of each Tribe were notified of and invited to consult on the EA and associated documents. Additional emails were sent to alert the Tribes of the extended comment period for the draft EA, and follow-up calls were made later in the comment period. To date, no concerns were communicated by any Tribe. Further consultation with the Tribes will be pursued in accordance with Section 106 of the NHPA (54 USC § 306108) and its implementing regulations (36 CFR Part 800).

The Service conducted a biological evaluation (EA Appendix B) in compliance with Section 7 of the Endangered Species Act on February 16, 2023, and determined the proposed action would have no effect on or may affect but not likely to adversely affect the listed threatened and endangered species or candidate species that may exist in the area.

### **Finding of No Significant Impact**

Based upon a review and evaluation of the information contained in the EA as well as other documents and actions of record affiliated with this proposal, the Service has determined that the proposal to implement conservation efforts for Arctic grayling on Red Rock Lakes National Wildlife Refuge does not constitute a major federal action significantly affecting the quality of the human environment under the meaning of section 102 (2) (c) of the National Environmental Policy Act of 1969 (as amended), the Council on Environmental Quality's NEPA Implementing Regulations (40 CFR Parts 1500-1508), Department of Interior Regulations (43 CFR. Part 46), Department of the Interior Policy (516 DM 1-4; 516 DM 8), and the Service's Policy (550 FW 3). As such, an environmental impact statement is not required.

### **Decision**

The Service has decided to proceed with the installation of a pipeline from Shambow Pond to Upper Red Rock Lake for grayling conservation.

The action is consistent with applicable laws and policies.

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Regional Director

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Date