

# Request for Proposal (RFP) Outline for Hypolimnetic Oxygenation System Design

## Introduction

Project Name	Scoping hypolimnetic oxygenation for water quality and fish habitat in Island Park Reservoir, Idaho
Issuing Organization	Henry's Fork Foundation (HFF)
Date of Issue	November 21, 2024
Proposal Due Date	January 15, 2025
Location	Island Park Reservoir, Fremont County, Idaho, USA
Project Objective	Develop a hypolimnetic oxygenation design plan, including outreach and education to the local community
Budget	\$50,000

## Project Overview

Hypolimnetic anoxia in Island Park Reservoir could be a factor that threatens the Henry's Fork watershed's water quality, power generation, and world-famous fisheries. Island Park Reservoir is a 7,800 surface-acre, 135,205 acre-foot hypolimnetic-outflow reservoir on the Henry's Fork River in east Idaho (Table 1). Island Park Reservoir is managed by the United States Bureau of Reclamation (USBR) to meet downstream irrigation water needs. Fall River Rural Electric Cooperative operates a run-of-river hydropower facility on the outflow. Hypolimnetic anoxia due to eutrophication has reduced salmonid sportfish populations in the reservoir and potentially increases internal nutrient loading and further eutrophication. This increases the frequency of harmful algal blooms and reduces water quality in the Henry's Fork River downstream. Statutory water quality regulations prevent hydropower generation when dissolved oxygen concentrations fall below 6 mg/L in power plant outflows.

The primary goal of this RFP is to leverage existing data, scientific expertise, and collaborative contacts to develop initial plans and evaluations of oxygenation, aeration, and/or destratification alternatives for Island Park Reservoir. Planning and evaluation reports will be used to 1) compare the marginal costs of water quality improvement among

analyzed alternatives, 2) as outreach to our management partners, and 3) as a step towards additional engineering and design development for eventual implementation.

## Background

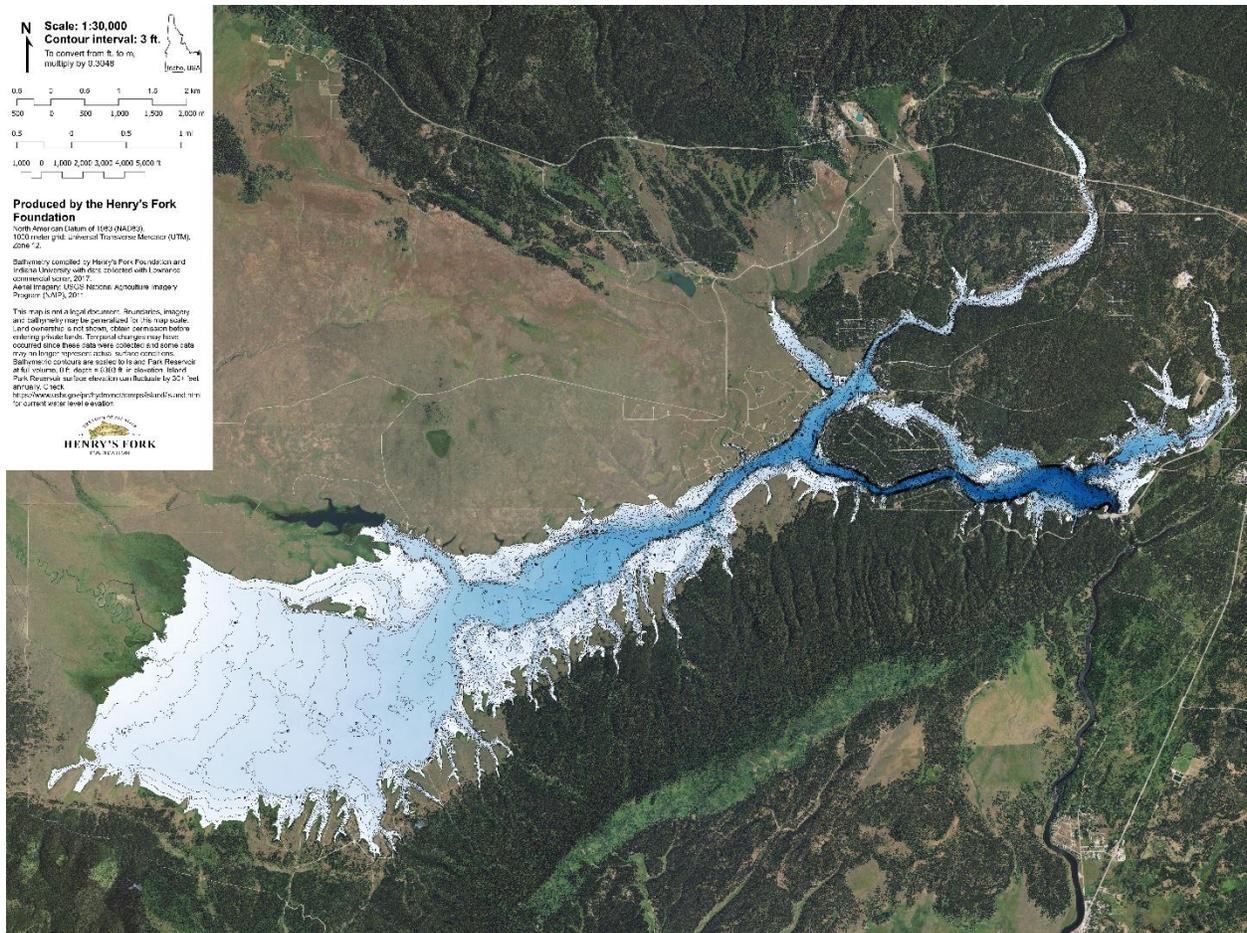
The Henry's Fork Foundation (HFF) is a 501(c)(3) nonprofit organization whose primary mode of mission accomplishment is science-based collaboration. The HFF's science-based work is supported by a science and technology program that includes an in-house water quality/aquatic ecology laboratory and is staffed by five full-time equivalent employees and as many as six undergraduate interns. The program is directed by Dr. Rob Van Kirk, who has a 30-year record of conducting a wide range of research in the Upper Snake River Watershed to inform conservation and management of fisheries and water resources. Dr. Jack McLaren is the Aquatic Ecology Program Manager for the HFF and the project manager for this RFP. He has eight years of experience specifically researching the limnology and ecology of Island Park Reservoir. The Aquatic Ecology program uses cutting-edge aquatic ecology concepts to identify infrastructure- and policy-based solutions to anthropogenic pressures on the Henry's Fork watershed.

The Henry's Fork Foundation's science team along with its partners the U.S. Geological Survey, U.S. Bureau of Reclamation, the Idaho Department of Fish and Game, and the Idaho Department of Environmental Quality have assembled detailed physical and ecological background information about Island Park Reservoir, including:

1. A digital elevation model of reservoir bathymetry and associated limnological descriptive statistics (2017, Figure 1)
2. Long-term weekly water quality profiles of temperature, dissolved oxygen, turbidity, conductivity, and algal concentrations during the ice-off period across multiple locations within the reservoir (2016-present)
3. Long-term continuous water quality data in the reservoir's outflow and primary inflow, including temperature, turbidity, dissolved oxygen, conductivity, algal concentrations, nutrients, and suspended sediment concentrations (2014-present)
4. Long-term fish population monitoring (2000-present)
5. CE-QUAL W2 model of Island Park Reservoir hydrodynamics (2025 estimated)
6. Continuous hydrological data for all inflows and outflows (1970s-present)
7. Continuous weather data (1980s-present)

**Table 1:** Basic information about Island Park Reservoir

Year built	1937-1939	
Ownership	United States Bureau of Reclamation	
Drainage area	482 sq. mi. (1250 sq. km)	
Dam type	Zoned earth and rock fill	
Dam height	91 ft. (27.7 m)	
Dam crest elevation	6309 ft. (1923.0 m)	
Maximum surface elevation	6303 ft. (1921.1 m)	
Location	44.418894° N, 111.396462° W	
Outlet works	USBR: Circular, two-story cage type concrete intake structure with trash racks, through right abutment, controlled by four 5 ft in length, 6 ft in height pressure gates. FRREC: Eight 7ft. diameter, 8 ft. long cylinders interconnected to a common header-penstock system (Johnson “well screen” type submerged lake intake), routed through siphon over left abutment.	
Outlet intake elevation	USBR: 6230 ft. MSL, 73 foot depth (23 m) FRREC: 6250 ft. MSL, 52 foot depth (16 m)	
Outlet capacity	USBR: 0-3400 cfs (0-96.3 cms) FRREC: 200-960 cfs (5.7-27.2 cms) Emergency spillway: 5000 cfs (141.6)	
Purpose	Irrigation storage and supply (primary), hydroelectric power generation (secondary), recreation (secondary), flood control (secondary)	
Power generation capacity	4800 KW	
Trophic state	Mesotrophic/Eutrophic	
Ecoregion	USEPA 17j – Middle Rockies West Yellowstone Plateau	
	<b>Full pool</b>	<b>Average annual minimum</b>
Surface Area	7800 ac. (3156 ha.)	4500 ac. (1821 ha.)
Volume	135,205 acre-feet (1.67*10 <sup>8</sup> m <sup>3</sup> )	61,000 acre-feet (7.52*10 <sup>7</sup> m <sup>3</sup> )
Average depth	17.3 ft (5.27 m)	13.5 ft. (4 m)
Maximum depth	73 ft (22 m)	63 ft (19 m)



**Figure 1:** Bathymetric map of Island Park Reservoir at authorized full pool with a surface elevation of 6303 feet above mean sea level. Contour intervals are 3 ft. Datum is North American Datum of 1983, projection is Universal Transverse Mercator zone 12N. Bathymetry was compiled by the HFF and Indiana University with data produced from a Lowrance commercial sonar in 2017. Aerial imagery is from USGS National Agricultural Imagery Program, 2011.

## Scope of Work

Management strategies that increase oxygen concentrations in the Island Park Reservoir hypolimnion could reduce eutrophication, improve water quality in the reservoir and downstream, increase fish habitat and fish populations, and support hydropower resources. With that in mind, our desired outcome is an initial technical report of oxygenation, aeration, and/or destratification alternatives for Island Park Reservoir. The technical report should include the following:

- Conceptual design (e.g. design criteria/standards such as oxygenation rates, system durability, and equipment)
- Budget estimates (e.g. permitting, capital, and operations costs)
- Evaluation of benefits (e.g. changes in dissolved oxygen concentrations, nutrient flux, and nutrient concentrations in the lake and in the outflow)

The HFF has extensive background data will work alongside our partners and the applicant to complete any tasks necessary to complete these objectives, such as measuring hypolimnetic oxygen demand, sediment oxygen demand, and/or sediment nutrient flux, among other activities.

Since the HFF operates as a science-based collaborative organization, expected deliverables could include an advisement workshop with the HFF and our management partners. Thus, the elements of the technical report and/or workshop should aim to:

- Compare the marginal costs of water quality improvement among analyzed alternatives
- Provide the information needed for an organization like the HFF or one of its partners to pursue design and implementation funding
- Outreach to partners and the general public

The project timeline is as follows:

- January 15, 2025: RFP applications due
- January 15-March 15, 2025: Additional materials requests and interviews with prospective applicants
- March 15, 2025: RFP applicant chosen
- April 15, 2025: Award made, and project begins
- May-October 2025: Field season activities (site assessment and conceptual design)
- December 2025: Technical report due
- Summer 2026: Workshop/presentation due

## Proposal Submission Information

Applicants may submit their proposal by hand delivery, mail, or electronic submission to Dr. Jack McLaren (jack@henrysfork.org) no later than January 15, 2025 at 5:00 pm MST. If submitting by mail or by hand delivery, two (2) copies of the proposal must be received in a sealed envelope marked “RFP 2024 Proposal Enclosed – Hypolimnetic Oxygenation” to the following address:

Henry’s Fork Foundation, c/o Jack McLaren  
801 Main St. Ashton, ID 83420

Proposals may be modified or withdrawn by submitting a new proposal any time prior to the opening of proposals; only the most recently submitted proposal will be considered if more than one proposal is submitted.

If within twenty-four (24) hours after the submission deadline of January 15, any applicant sends a signed written notice with the HFF and promptly thereafter demonstrates to the reasonable satisfaction of the HFF that there was a material and substantial mistake in the preparation of its proposal, that applicant may withdraw its proposal.

### Submission requirements:

The following must be submitted, with each section’s maximum length in parenthesis.

- Executive summary (2 page limit)
- Detailed approach and methodology (10 page limit)
- Statement of qualifications (10 page limit)
- Project timeline (1 page)
- Cost proposal (5 pages)

A statement of qualifications should include the following:

1. A brief history and description of the entity/firm submitting the proposal.
2. Identification of the entity/firm's professional staff members who will be assigned to this engagement if the entity/firm's proposal is selected. Include summarized information regarding the professional staff members detailing qualifications, years and types of experience, education, licensure, certifications, accomplishments, etc. Specify the extent of the availability and commitment of each such professional staff member who will be assigned to this engagement if the firm's proposal is selected.
3. At least three (3) references, including addresses and telephone numbers.

4. A signed cover letter from a person within the entity/firm who is authorized to make representations on behalf of the firm and to bind the entity/firm.
5. A summary of the entity/firm's general experience in providing services described in the scope of work on ecosystems similar to that of Island Park Reservoir.
6. Any additional information which would serve to distinguish the entity/firm from other entities/firms submitting proposals.

A cost proposal will set forth in detail all expenses for which you expect to be reimbursed. Please include a tabular budget and a budget narrative. The proposal must, however, provide a guarantee that no additional fees will be charged without prior written consent by the HFF.

Proposals may include alternative matters or items not specified or requested in this RFP. However, all such alternatives matters or items must be listed separately from the proposal and the cost(s) thereof must be separate and itemized.

### Evaluation criteria

- Ability of the applicant to meet the scope of work given timeline and budget constraints
- Demonstration of applicant experience and/or expertise in hypolimnetic oxygenation or aeration
- Demonstration of applicant experience and/or expertise in western U.S. lake ecosystems, including irrigation and hydropower reservoir management. We strongly prefer applicants to work in partnership with the HFF to leverage our existing data and scientific expertise given the unique context of Island Park Reservoir
- The extent to which the applicant communicates a clear and comprehensive plan to complete the requested elements of the requested technical report and workshop

Estimated notification of award will be by March 15, 2025.

Please contact Dr. Jack McLaren with any inquiries related to the RFP before January 1, 2025. Clarifications on background and scope of work, including past and present data, maps, briefs on past and current projects, internal and external technical reports, and peer-reviewed literature are all available from Dr. McLaren for Island Park Reservoir and the Henry's Fork. Contacting Dr. McLaren will also ensure you can receive updates about the RFP, including addenda or clarifications. Addenda and clarifications will also be communicated via reupload of the RFP to the HFF website, [www.henrysfork.org](http://www.henrysfork.org).

The HFF may make such inquiries it deems necessary to determine responsibility and the ability of each applicant to perform the services contemplated by this RFP. Applicants will promptly furnish all information and data for this purpose as may be subsequently requested by the HFF.

## Contract Terms and Conditions

Each proposal submitted will be the document upon which the HFF will make its initial judgment regarding each applicant's qualifications, methodology, and ability to provide the requested services.

Those submitting proposals do so entirely at their own expense. There is no express or implied obligation by the HFF to reimburse any entity, firm or individual for any costs incurred in preparing or submitting proposals, preparing or submitting additional information requested by the HFF, or participating in any selection interviews.

Submission of any proposal indicates an acceptance of the conditions contained in this Request for Proposals unless the submitted proposal clearly and specifically states otherwise.

The HFF reserves the right to accept or reject any and all proposals in whole or in part, to waive any and all informalities, require supplemental statements or information from any responsible party, negotiate potential contract terms with any applicant to this RFP, have discussions with any applicant to this RFP to correct and/or clarify responses which do not conform to the instructions contained herein and to disregard all non-conforming, nonresponsive or conditional proposals.

The HFF reserves the right to award the services, in whole or in part, to one or more entities, firms and/or individuals.

Any award of the services will be conditioned on the later execution of a formal written contract. The HFF reserves the right to revoke or rescind any award at any time prior to the full execution of a formal written contract. Any resultant contract will be fixed-price. Payment schedule will be based on project milestones and key deliverables, including field season activities, technical report, and workshop/presentation.

Applicants should avoid submission of marketing materials.