Rueter-Hess Reservoir

Conservation and Fish Assessment Overview

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Prepared By:

Aqua Sierra, Inc.

Excellence in Fisheries and Water Quality Management

9094 US Highway 285

Morrison, CO 80465

ParkerWater & SANITATION DISTRICT

AQUA SIERRA INC. ESTABLISHED 1989 EXCELLENCE IN FISHERIES AND WATER QUALITY MANAGEMENT

Rueter-Hess Recreation AUTHORITY – ESTABLISHED 2014

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Background

Successful partnerships between Parker Water and Sanitation District (PWSD), Rueter-Hess Recreation Authority Board (RAB), and Aqua Sierra, Inc. (ASI) have cultivated sustainable management benefitting drinking water storage and recreational opportunities at Rueter-Hess Reservoir (RHR). A gradual decline in habitat diversity facilitated conservation efforts in 2024 to improve habitat accessibility for various aquatic organisms while being safe for potable water and naturally blending with the landscape. Native, locally sourced stone was strategically arranged in clusters adjacent to the shoreline to form submerged islands and attract aquatic organisms as the water level rises. Regular assessments designed and conducted to sample various habitats have allowed reservoir managers to monitor fish development and establish proper fishing regulations when angling opened to the public in July 2023. While most species stocked have been observed through sampling, one avoided capture until this year. Both biologists and anglers report a vibrant fishery and successful reproduction of many game fish.

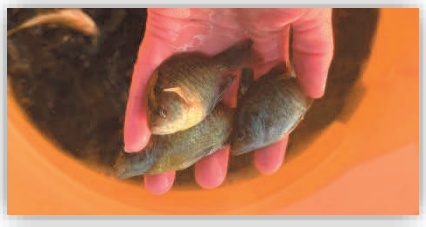
Reservoir Conservation

Primary production in RHR increased simultaneously with the surge of anthropogenic activity in the watershed and deterioration of natural elements. One of the most significant influences on reservoir health is the availability of aquatic habitats proficient in natural filtration, biodiversity, nutrient cycling, food web dynamics, and water treatment. As human activity expands across the local watershed, degradation patterns are expected to increase, and complex structures will continue to vanish.

The adopted conservation strategy was designed to blend with the native landscape, whether above or below water level, and safe for potable water. This summer, locally sourced rocks and boulders were placed outside the waterline in two locations but within the reservoir's future boundaries (Picture 1). As the water level rises and these clusters become submerged, the arrangement will provide vital habitat for aquatic organisms.

Picture 1: Habitat Improvement Areas, Boulder Piles, RHR, 2024

The ongoing stocking program aims to boost recruitment, enhance predator-prey relationships, and facilitate a resilient aquatic ecosystem. In addition to habitat improvements, approximately 14,250 large bluegills were released (Picture 2.). Since bluegills avoided capture during previous sampling, the fish were strategically stocked along the western and southern shorelines, abundant in compatible habitats, to increase survivability.



Picture 2: Bluegill Stocking, RHR 2024

Fisheries Assessment

Sampling Methodology

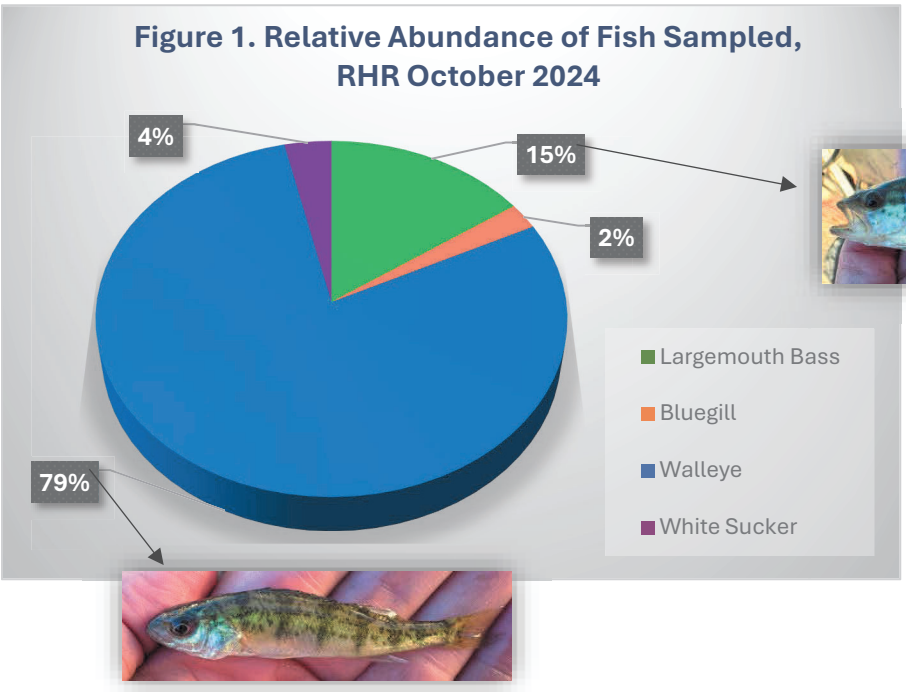
The E-boat method, specialized fisheries electroshocking equipment, was selected as the exclusive gear for this year's assessment. Electroshocking transmits an electrical current on demand to temporarily stunned fish within four to six feet of the boat. Stunned fish are quickly netted and placed in a live well for processing before being released back into the reservoir uninjured. All captured fish were identified, examined, and measured for total length (millimeter, mm) and weight (gram, g). Compiled data was used to calculate relative weights (Wr), relative composition, and relative biomass. Relative weight indicates the body condition of gamefish, relative composition is the proportional abundance of each species sampled, and relative biomass is the percentage of mass each species from the sample represents. Documenting species health, recruitment, and availability guides management decisions and establishes recreational angling policies.

Sampling Results

Eighty-five fish (Table 1) were captured over 3,114 seconds of active electroshocking along the eastern and southern shoreline, a catch per unit effort of one fish every 36 seconds. All fish sampled were juveniles or young adults demonstrating successful reproduction of two primary predators, walleye and largemouth bass. The single class of walleye and two size classes of largemouth bass comprising over ninety percent of the catch (Figure 1) revealed these sports fish remain in good condition.

Table 1: Fish Species Sampled in RHR, October 2024

SPECIES	NUMBER CAPTURED	AVE LENGTH (mm)	AVE LENGTH (in)	AVE WEIGHT (g)	AVE WEIGHT (lb)
Micropterus salmoides Largemouth Bass	13	123.08	4.85	26.24	0.06
Lepomis macrochirus Bluegill	2	137.50	5.41	49.40	0.11
Sander vitreus Walleye	67	91.45	3.60	7.56	0.02
Catastomous commersonii	3	165	6.50	51.23	0.11
Ctenpharydon idella Grass Carp	2	n/a	n/a	9071.85	20



Discussion

Significant highlights include the recovery of bluegill adjacent to stocking locations and documenting successful reproduction of largemouth bass and walleye. The inlet channel produced the most significant catch per unit effort, although three sampling sites showed considerable fish activity. Abandoned redds were observed in new locations, indicating potential reproduction. A large channel catfish escaped netting but was visually documented by biologists. Creel survey reports from anglers at the reservoir reported walleye, yellow perch, largemouth bass, channel catfish and grass carp (Table 2).

Table 2: RHR Creel Survey Data, 2024

SPECIES	SIZE (in, lbs)
Micropterus salmoides Largemouth Bass	8" – 12" > 3lbs
Perca flavescens Yellow Perch	3"- 4" 6"- 8"
Sander vitreus Walleye	6" – 8" 18" - 24"
Ictalurus punctatus Channel Catfish	> 18"
Ctenpharydon idella Grass Carp	> 20lbs

Proposed Recreational Fishing Updates

The fishing program for RHR reflects an adaptive management approach aimed at balancing conservation and recreational interests. After reviewing survey data, updates to regulations are suggested as a commitment to enhance the angler experience while preserving ecological integrity. Recognizing the importance of sustaining a young ecosystem and maintaining drinking water standards, revisions prioritize documenting species recruitment before considering significant harvest. Selective slot sizes and bag limits for walleye, largemouth bass, and yellow perch *may be considered*, as well as increasing daily angler reservations, if supported by park rangers, to accommodate demand. However, if the daily number of anglers increases, shoreline accessibility must be simultaneously improved to designate fishing zones. Lastly, public education should continue emphasizing the importance of visitor feedback, rules and regulations, and responsible fishing practices.

Table 3: Proposed Slot Sizes and Bag Limits for Fish Harvest at RHR in 2025.

SPECIES	SLOT SIZE	BAG LIMIT
Sander vitreus Walleye	16 – 20 inches	Up to two fish per angler
Micropterus salmoides Largemouth Bass	14 – 18 inches	Up to one fish per angler
Perca flavescens White Sucker	≥ 6 inches	Up to five fish per angler

Selective Harvest

While there are signs of successful reproduction and growth among top-tier fish species, like largemouth bass, and mid-tier species like yellow perch, data remains scarce for other species.

- A selective harvest of walleye, largemouth bass, and yellow perch *may be considered*; however, changes shall not be implemented until July 1, 2025, to surpass the spring spawning season.

Number of Daily Anglers

On average, Park rangers reported that 28% of anglers did not show up for their reservation, and occasional rates surpassed 50%.

- If supported by local park rangers, daily fishing passes could be increased by up to 20%, or twenty additional anglers per week.

Accessibility

Clear paths to intentional shoreline sites will accommodate more anglers without compromising sensitive aquatic and terrestrial habitats.

- Improving access and designating specific fishing zones for anglers is suggested.

Public Education

Angler awareness is effective for collaborative compliance in conservation.

- Messaging across all platforms should emphasize the importance of the creel survey responses, adherence to rules and regulations, and responsible fishing practices.

Summary

The Master Plan for Rueter-Hess Reservoir (RHR) requires a strong commitment between collaborative partnerships to protect an invaluable drinking water supply while preserving the land as a wildlife sanctuary accessible to the public. Aqua Sierra, Inc. (ASI) offers professional guidance to the Parker Water and Sanitation District (PWSD) and Rueter-Hess Recreation Authority (RHRA) to uphold the multi-use design as a reliable, clean water source. The spring fish assessment was postponed so that bluegill could be stocked in early July, and habitat improvement began with several large boulder clusters, exceeding sixty square feet, strategically placed within the reservoir's boundaries to be flooded as the water level rises. The fall fish assessment demonstrated successful walleye and largemouth bass reproduction, and bluegill were documented. Data supports updates to the recreational fishing program to enhance the angler experience, but young reservoirs must be closely monitored for adverse impacts on the fishery. Slot sizes and bag limits for walleye, largemouth bass, and yellow perch *may be considered*, as well as increasing daily angler reservations to accommodate demand. Even with these changes, preservation, conservation, and education remain paramount to the long-term success of RHR.