

REX RESERVOIR



Introduction

Rex Reservoir is southeast of Salina on the Fishlake Plateau. It is a small, moderate depth impoundment in a mid-elevation meadow. It is nestled in an area of low rolling hills amidst the oak, pinyon, and juniper trees.

The reservoir shoreline is publicly owned and administered by the Fish Lake National Forest with unrestricted public access. Defined beneficial uses include: water recreation excluding swimming, propagation of cold water species of game fish and aquatic life, and

agricultural needs.

Recreation

Rex Reservoir is on FS-050 and FS-053, accessible from I-70 in Salina Canyon and U-24 south of Sigurd. Exit I-70 at Gooseberry Valley (Exit 81, 7 miles east of Salina) and travel south on FS-640, a paved road. About 4 miles south of I-70, leave the paved road, turning right on FS-037 .5 miles later, turn left on FS-050 and follow it for 8 miles to Rex Reservoir.

From U-24, travel south from Sigurd past the junction with U-119. Approximately 9 miles further south is the first of two exits to the east that will lead to FS-053. Travel north and east for about 1 mile where the road forks. Take the north fork, FS-056, and travel another 2 miles. There is a sign directing your travel to the reservoir from

t h i s p o i n t .

Characteristics and Morphometry

Lake elevation (meters / feet)	2,210 / 7,250
Surface area (hectares / acres)	18.6 / 46
Watershed area (hectares / acres)	8,185 / 20,224
Volume (m ³ / acre-feet)	
capacity	1,202,663 / 975
conservation pool	0
Annual inflow (m ³ / acre-feet)	
Retention time (years)	
Drawdown (m ³ / acre-feet)	
Depth (meters / feet)	
maximum	11.6 / 38
mean	6.4 / 21
Length (meters / feet)	628 / 2,059
Width (meters / feet)	209 / 686
Shoreline (meters / feet)	1,703 / 5,590

Location

County	Sevier
Longitude / Latitude	111 46 30 / 38 47 04
USGS Map	Rex Reservoir, Utah, 1966
DeLorme's Utah Atlas and Gazetteer™	Page 37, D-5
Cataloging Unit	Sevier River (16030003)

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The road proceeds to the north and unites again with FS-053. The distance to the reservoir is approximately 5 miles. Fishing, boating, and camping are possible in the area. Usage is light.

There are no recreational facilities at the reservoir, although the area offers itself to primitive camping. There are no Forest Service Campgrounds in the area, and the nearest private campgrounds are in Salina.

Watershed Description

The reservoir is in an area of rolling ridges and valleys characteristic of west Fishlake Plateau. The watershed high point, the northwest shoulder of Mount Terrill, is 3,476 m (11,404 ft) above sea level, thereby developing a complex slope of 10.3% to the reservoir. The reservoir is adjacent to and receives water from, but does not impound Lost Creek. The average stream gradient above the reservoir is 4.9% (259 feet per mile). Lost Creek Reservoir is 9.5 miles upstream on Lost Creek.

The soil is largely of volcanic origin with moderate permeability and moderately slow erosion and runoff.

The vegetation communities are comprised of pine, aspen, spruce-fir, sage-grass, piñon juniper, oak and maple. The watershed receives 38 - 51 cm (15 - 20 inches) of precipitation annually with a frost-free season of 80 - 100 days at the reservoir.

Limnological Assessment

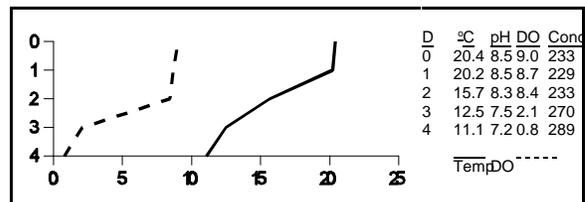
The water quality of Browne Reservoir is good. It is considered to be moderately hard with a hardness concentration value of approximately 123 mg/L (CaCO₃). Those parameters that have exceeded State water quality standards for defined beneficial uses are total phosphorus, dissolved oxygen and temperature. The average concentrations of total phosphorus in the water column for 1992 was 56 ug/L which exceeds the recommended pollution indicator for phosphorus of 25 ug/L. This occurred primarily because in late summer anoxic conditions developed in the bottom of the reservoir and the total phosphorus concentration jumped to 262 ug/L. The remainder of the water column readings were well below the indicator value. It does appear that sufficient organic matter has accumulated in the sediments and is exerting a demand on the dissolved oxygen present in the system. These conditions are evident from the August 4, 1992 profile. Loss of dissolved oxygen can be a late season problem as the reservoir is drawn down and a heavy algal bloom were to develop. A large bloom of algae would require the consumption of dissolved oxygen which could leave the water column in a critical state for the existing fishery. Temperatures are only beginning to exceed the criteria (20°C) near the surface as indicated in the profile.

It is apparent that the reservoir does not stratify due to the shallow conditions and early withdrawal to meet

Limnological Data	
Data sampled from STORET site: 594410	
Surface Data	<u>1992</u>
Trophic Status	M
Chlorophyll TSI	46.09
Secchi Depth TSI	50.75
Phosphorous TSI	40.57
Average TSI	45.80
Chlorophyll <u>a</u> (ug/L)	4.9
Transparency (m)	1.9
Total Phosphorous (ug/L)	13
pH	8.6
Total Susp. Solids (mg/L)	2.25
Total Volatile Solids (mg/L)	1
Total Residual Solids (mg/L)	2
Temperature (°C / °f)	20/68
Conductivity (umhos.cm)	255
Water Column Data	
Ammonia (mg/L)	0.03
Nitrate/Nitrite (mg/L)	0.04
Hardness (mg/L)	123
Alkalinity (mg/L)	121
Silica (mg/L)	18.9
Total Phosphorous (ug/L)	56
Miscellaneous Data	
Limiting Nutrient	N
DO (Mg/l) at 75% depth	2.1
Stratification (m)	1-4
Depth at Deepest Site (m)	4

irrigations needs downstream. The reservoir is characterized as a nitrogen limited system with TSI values indicating that the reservoir is mesotrophic.

According to DWR no fish kills have been reported in recent years. The reservoir has been treated for the control of rough fish in 1957, 1970 and 1978. It is managed primarily as a rainbow trout (*Oncorhynchus*



mykiss) fishery with the DWR stocking 4,000 fingerling trout each year.

Phytoplankton in the euphotic zone include the following taxa (in order of dominance)

Species	Cell Volume% Density
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	(mm ³ /liter)	By Volume
<i>Anabaena spiroides</i>		
<i>var. crassa</i>	286.229	99.40
Pennate diatoms	0.479	0.17
Centric diatoms	0.337	0.12
<i>Ankistrodesmus formosa</i>		0. 0 3 8
0.01		
<i>Fragilaria crotonensis</i>	0.229	0.08
<i>Melosira granulata</i>	0.218	0.08
<i>Euglena sp.</i>	0.165	0.06
<i>Asterionella formosa</i>	0.038	0.01
<i>Mallomonas sp.</i>	0.013	0.00
<i>Haematococcus sp.</i>	0.007	0.00
<i>Chlamydomonas sp.</i>	0.002	0.00
Total	287.748	
Shannon-Weaver [H']	0.05	
Species Evenness	0.02	
Species Richness	0.38	

The phytoplankton community is dominated by the presence of *Anabaena spiroides*, a blue-green algae indicative of eutrophic conditions and poorer water quality.

Pollution Assessment

The only nonpoint source of pollution in Rex Reservoir is sedimentation and nutrient loading from agriculture and grazing in the watershed and in the vicinity of the reservoir.

There are no point pollution sources in the watershed.

Beneficial Use Classification

The state beneficial use classifications include: boating and similar recreation (excluding swimming) (2B), cold water game fish and organisms in their food chain (3A) and agricultural uses (4).

Information	
Fish Lake National Forest	896-4491
Richfield Ranger District	896-4491
Lost Creek Irrigation Company	529-3549
Salina Chamber of Commerce	
Six County Commissioners Association	
Division of Wildlife Resources	538-4700
Division of Water Quality	538-6146