

REDMOND LAKE



Introduction

Redmond Lake is a moderately large, spring-fed reservoir in the town of Redmond. Beyond being a warm water fishery, its shallow, turbid water does not support extensive recreational use.

Redmond Lake was created by the development of an earth-fill dam. The reservoir shoreline is privately

owned by the Redmond Irrigation Company, but public access is unrestricted. Water use is for irrigation and recreation. Water use is not expected to change in the foreseeable future.

Characteristics and Morphometry	
Lake elevation (meters / feet)	1,557 / 5,110
Surface area (hectares / acres)	65 / 160
Watershed area (hectares / acres)	388 / 959
Volume (m ³ / acre-feet)	
capacity	1,480,202 / 1,200
conservation pool	0
Annual inflow (m ³ / acre-feet)	
Retention time (years)	
Drawdown (m ³ / acre-feet)	
Depth (meters / feet)	
maximum	3 / 10
mean	1.5 / 5
Length (meters / feet)	1,540 / 5,053
Width (meters / feet)	772 / 2,533
Shoreline (km / miles)	4.5 / 2.8

Location

County	Sevier
Longitude / Latitude	111 52 01 / 38 59 09
USGS Maps	Salina 1966 and others
DeLorme's Utah Atlas & Gazetteer™	Page 37, C-5
Cataloging Unit	Middle Sevier (16030003)

Recreation

Redmond Lake is accessible from U-256 (Old US-89) in Redmond. The current US-89 route bypasses Redmond, so several miles north or south of town, turn onto U-256 leading to Redmond. The lake is about a quarter mile southwest of town.

There are no recreational facilities at the lake but it is feasible to launch a small boat on the northern side.

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Watershed Description

Redmond Lake is fed by springs. Water is impounded throughout the year for irrigational use in the summer. No water comes from the Sevier River or any other stream. The reservoir does have a small watershed, however, which is relatively flat and serves as an intensive agricultural area. The vegetation communities consist of Sage-grass and cropland. The watershed receives 25 cm (10 inches) of precipitation annually. The frost-free season around the reservoir is 100 - 120 days per year.

Land use is 100% intensive agriculture.

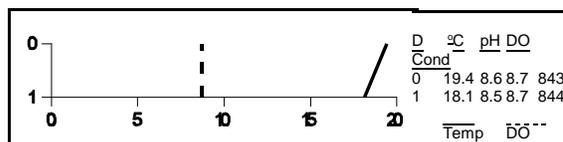
Limnological Assessment

The water quality of Redmond Reservoir is fair. It is considered to be hard with a hardness concentration value

all exceed the recommended pollution indicator for phosphorus of 25 ug/L. The phosphorus concentration near the surface on September 8, 1992 reached a level of 322 ug/L. It appears from a review of the data that the concentration of nutrients in the reservoir is increasing over time. This increased concentration may be due to an increase in agricultural activities in direct proximity to the reservoir.

The existing data suggest that the reservoir is currently a nitrogen limited system. There is a relatively high abundance of nutrients and the limiting factor is probably turbidity due to the shallow nature of the lake. Transparency is extremely low and in large part due to the resuspension of sediments which inhibit the transmission of light essential for plant growth. TSI values indicate the reservoir is in a state of hypereutrophism. The reservoir does not stratify due to its shallow nature as indicated in the September 8, 1992 profile..

Limnological Data			
Data sampled from STORET site: 594395			
Surface Data	1981	1990	1992
Trophic Status	E	H	H
Chlorophyll TSI	-	55.38	53.94
Secchi Depth TSI	51.57	77.35	89.96
Phosphorous TSI	60.56	73.31	81.19
Average TSI	56.06	68.68	75.03
Chlorophyll <i>a</i> (ug/L)	-	12.5	10.8
Transparency (m)	-	0.3	0.1
Total Phosphorous (ug/L)	50	121	209
pH	-	8.5	8.4
Total Susp. Solids (mg/L)	60	83.5	162.5
Total Volatile Solids (mg/L)	-	-	18
Total Residual Solids (mg/L)	-	-	144
Temperature (°C / °f)	-	23/73	18/64
Conductivity (umhos.cm)	-	888	901
Water Column Data			
Ammonia (mg/L)	0.05	0.06	0.07
Nitrate/Nitrite (mg/L)	0.60	-	0.34
Hardness (mg/L)	288	249.6	245
Alkalinity (mg/L)	200	193	197
Silica (mg/L)	-	-	37.9
Total Phosphorous (ug/L)	60	111	209
Miscellaneous Data			
Limiting Nutrient	N	N	N
DO (Mg/l) at 75% depth	-	7.3	8.7
Stratification (m)	-	NO	NO
Depth at Deepest Site (m)	-	1	1



According to DWR no fish kills have been reported in recent years. The lake was treated for rough fish competition in 1968, so populations of native fishes may not be present in the lake. According to DWR records, Redmond Lake has been stocked with northern pike (*Esox lucius*), largemouth bass (*Micropterus salmoides*), centrarchids, and channel catfish (*Ictalurus punctatus*). Populations of black bullhead (*Ictalurus melas*), carp (*Cyprinus carpio*), and yellow perch (*Perca flavescens*) also occur. Lake invertebrates are numerous and varied. Dragonflies (*Anax libellula*), snails (*Physa*), leeches (*Hirudinea*) and many other insects larva are present. Macrophyte growth is moderate and composed mainly of emergent tamaracks, bulrushes, and cattails.

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

Species	Cell Volume% Density (mm ³ /liter)	By Volume
Pennate diatoms	14.078	97.04
Centric diatoms	0.249	1.72
<i>Phacus sp.</i>	0.056	0.38
<i>Oocystis sp.</i>	0.053	0.37
Unknown spherical green alga	0.033	0.23
<i>Scenedesmus sp.</i>	0.017	0.11
<i>Chlamydomonas sp.</i>	0.017	0.11

of approximately 264 mg/L (CaCO₃). The parameter that has exceeded State water quality standards for defined beneficial uses is primarily total phosphorus. The average concentrations of total phosphorus in the water column for the three study periods were 60, 111 and 209 ug/L which

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Wislouchiella planktonica 0. 0 0 4
0.03

Total 14.507

Shannon-Weaver [H'] 0.17

Species Evenness 0.08

Species Richness 0.30

Pollution Assessment

Nonpoint pollution sources are primarily associated with intensive agriculture in direct proximity to the reservoir. There is grazing of cattle in direct proximity to the reservoir in addition to feedlots which drain downhill to the reservoir.

Beneficial Use Classification

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

Information	
Management Agencies	
Six County Commissioners Association	896-9222
Division of Wildlife Resources	538-4700
Division of Water Quality	538-6146
Recreation	
Panoramaland Travel Region (Richfield)	896-9222
Reservoir Administrators	
Redmond Irrigation Company	