

ANDERSON MEADOW RESERVOIR



Introduction

Anderson Meadow Reservoir is high in the Tushar Mountains east of Beaver. It is a small artificial lake in a high meadow. The reservoir was built by the DWR to create a fishery.

The reservoir shoreline is owned and administered by the Fish Lake National Forest with unrestricted public access. Water is used for coldwater aquatic life and recreation. No changes in water use are anticipated.

Characteristics and Morphometry

Lake elevation (meters / feet)	2,851 / 9,355
Surface area (hectares / acres)	3.2 / 8
Watershed area (hectares / acres)	641 / 1,584
Volume (m ³ / acre-feet)	
capacity	82,645 / 67
conservation pool	none
Annual inflow (m ³ / acre-feet)	
Retention time (years)	
Drawdown (m ³ / acre-feet)	0 / 0
Depth (meters / feet)	
maximum	6.4 / 21
mean	2.7 / 8.7
Length (meters / feet)	425 / 1,395
Width (meters / feet)	242 / 795
Shoreline (meters / feet)	1,100 / 3,600

Location

County	Beaver
Longitude / Latitude	112 25 09 / 38 12 09
USGS Map	Circleville Mountain, Utah, 1971
DeLorme's Utah Atlas and Gazetteer™	Page 26, B-2*
Cataloging Unit	Beaver River (16030007)
*not on map, at Anderson Meadow Campground	

Recreation

Anderson Meadow Reservoir is accessible from FS-137, a gravel road across the north slope of Circleville Mountain also passing by Kents Lake and LaBaron Lake. FS-137 both originates and terminates at intersections with U-153, the road from Beaver to Junction.

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From the west, exit I-15 at Beaver and travel up Beaver Canyon on U-153 for about 12 miles to the FS-137 turnoff, at Little Cottonwood Campground. Travel on FS-137 for another 6 miles to Anderson Meadow Reservoir. From the east, travel up U-153 (this segment is unpaved) from US-89 at Junction for 12 miles to FS-173, and go 7 miles on FS-137 to Anderson Meadow Reservoir.

Fishing, boating, and camping occur in the area. Recreation use of the area is usually heavy. Although there are no developed boat ramps, a small boat can be launched in the reservoir.

Anderson Meadows Campground, maintained by the Forest Service, is adjacent to the reservoir and offers camping at a nominal charge. It has 10 campsites with drinking water, vault toilets, and charges user fees. There are other USFS campgrounds in the vicinity as well as several private campgrounds in Beaver (see info box).



Watershed Description

Anderson Meadow Reservoir is in an area of glaciated draws on the north slope of Circleville Mountain in the Tushar Range. Anderson Meadow itself is mostly inundated by the reservoir, but extends upstream as a grassy, boggy area.

The watershed high point, Circleville Mountain, is 3,362m (11,031 ft) above sea level, thereby developing a complex slope of 21.9% to the reservoir. The inflow and outflow is the South Fork of the Beaver River, and the average stream gradient above the reservoir is 9.5% (500 feet per mile).

The watershed is made up of high mountains. The soil is largely of volcanic origin. The soil associations that compose the watershed are listed in Appendix III.

The vegetation communities are comprised of pine, aspen, spruce-fir, oak, maple and alpine. The watershed receives 76 cm (30 inches) of precipitation annually with a frost-free season of 0 - 40 days at the reservoir.

Land use is 100% multiple use and is owned by the Fishlake National Forest.

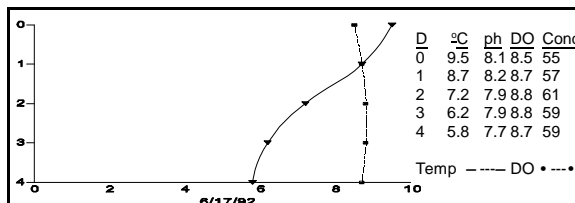
Limnological Data

Data sampled from STORET site: 594115

Surface Data	1981	1990	1992
Trophic Status	E	E	E
Chlorophyll TSI	-	55.14	47.14
Secchi Depth TSI	54.15	46.51	47.38
Phosphorous TSI	53.19	56.41	56.02
Average TSI	53.67	52.67	50.18
Chlorophyll <i>a</i> (ug/L)	-	12.20	5.4
Transparency (m)	-	2.6	2.4
Total Phosphorous (ug/L)	30	38	36
ph	8.4	8.35	7.80
Total Susp. Solids (mg/L)	<5	2.25	<3
Total Volatile Solids (mg/L)	-	-	1
Total Residual Solids (mg/L)	-	-	2
Temperature (°C / °f)	7/45	13/55	12/53
Conductivity (umhos.cm)	45	63	48
Water Column Data			
Ammonia (mg/L)	0.05	0.03	0.03
Nitrate/Nitrite (mg/L)	0.08	-	0.02
Hardness (mg/L)	26	24	23.8
Alkalinity (mg/L)	22	27	28
Silica (mg/L)	-	-	28.5
Total Phosphorous (ug/L)	35	39	47
Miscellaneous Data			
DO (Mg/l) at 75% depth	8.6	9.3	9.3
Stratification (m)	1-2	1-2	1-2
Limiting Nutrient	N	N	N
Depth at Deepest Site (m)	6	4.3	4.3

Limnological Assessment

The water quality of Anderson Meadow Reservoir is very good. It is considered very soft water with a hardness generally less than 30 mg/L. The only parameter that exceeds State standards is phosphorus. All other parameters including total metals obtained near the bottom at the deep sites were within State standards for defined beneficial uses. Although the DWQ (1982) reported the lake as phosphorus limited, data from 1989-92 indicates that the lake is nitrogen limited with N/P ratios near 1-2. Although there is a change



in temperature gradient in excess of 1 degree per meter as indicated in the lake profile, no consistent stratification is

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present due to the shallow nature of the lake and climatic conditions which probably keep the water column fairly well mixed. For all three periods of study the reservoir's trophic status is eutrophic. There has been no significant shift in the trophic status since 1981. According to DWR stocking records catchable rainbow trout (*Oncorhynchus mykiss*) and fingerling brook trout (*Salvelinus fontinalis*) have been introduced to Anderson Meadow Reservoir and are stocked annually. In addition the lake has not been treated for control of nongame fish species, therefore native populations could still exist in the lake or its tributaries. Currently the fishery is managed as a put and take fishery. As reported by DWQ (1982) common invertebrate species in the lake include midge and caddisfly larvae and snails. There is a heavy macrophyte growth covering the surface near the inlet but macrophytes are sparse throughout the remainder of the reservoir.

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

Species	Cell Volume (mm ³ /liter)	% Density By Volume
<i>Anabaena spiroides</i>	237.078	74.92
<i>Spirogyra sp.</i>	55.600	17.57
<i>Fragilaria crotonensis</i>	13.744	4.34
<i>Sphaerocystis Schroeteri</i>	7.923	2.50
<i>Pandorina morum</i>	2.002	0.63
Pennate diatoms	0.047	0.01
<i>Asterionella formosa</i>	0.028	0.01
<i>Haematococcus lacustris</i>		0.0009
0.00		
Centric diatoms	0.007	0.00
Total	317.857	
Shannon Weaver [H']	0.79	
Species Evenness	0.36	
Species Richness [d]	0.30	

Phytoplankton data obtained during the 1991-92 monitoring period is dominated by *Anabaena spiroides*, a eutrophic blue-green algae. This is indicative of a fairly nutrient rich system and high productivity.

Pollution Assessment

Nonpoint pollution sources include grazing and recreation. The campground and parking areas are above the reservoir. About 520 head of cattle graze in the watershed and around the lake for part of each year.

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	
Management Agencies	
Fishlake National Forest	896-4491
Beaver Ranger District	438-2436
Five County Association of Governments	673-3548
Division of Wildlife Resources	538-4700
Division of Water Quality	538-6146
Recreation	
Color Country Travel Region (St. George)	
Beaver KOA	438-2924
United Beaver Camperland	438-2808
Beaver Chamber of Commerce	438-2975
Reservoir Administrator	
Division of Wildlife Resources	586-2455