

ASHLEY TWIN LAKE



Introduction

Ashley Twin Lakes is northwest of Vernal in the shadow of Marsh Peak, one of the highest mountains in the southeast Uintas. The area is a moderately popular summer recreation area, being surrounded by coniferous forests and towering peaks. It is comprised of two natural lakes in the High Uintas that were united when a dam was built to raise the water level.

The two larger lakes were formerly Ashley Twin Lakes. The names were not changed to reflect the union, but "they" are

Characteristics and Morphometry	
Lake elevation (meters / feet)	3,643 / 9,355
Surface area (hectares / acres)	10.9/27
Watershed area (hectares / acres)	351/868
Volume (m ³ / acre-feet)	
capacity	5,550,000 / 450
conservation pool	none
Annual Inflow	not measured
Retention time (years)	<1
Drawdown (meters / feet)	not measured
Depth (meters/feet)	
maximum	6.10 / 20
mean	3.05 / 10
Length (meters / feet)	607 / 2,200
Width (meters / feet)	244 / 800
Shoreline (km / miles)	2.25 / 1.4

Location	
County	Uinta
Longitude / Latitude	109 48 12 / 40 43 24
USGS Map	Marsh Peak, UT, 1965
DeLorme's Utah Atlas & Gazetteer™	Page 56, B-2
(unlabeled. It is directly under the "L" in "NATIONAL FOREST")	

collectively referred to as "it". Nevertheless, it appears as two lakes on many maps, and by late summer due to drawdown they once again become separate lakes.

Ashley Twin Lakes were united in 1920 by the construction of an earth-fill dam. The reservoir shoreline is owned by the Ashley National Forest and public access is unrestricted. Ninety-five percent of reservoir water is used for irrigation, and the remaining 5% is treated for culinary water in the Vernal area.

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Water use is not expected to change in the foreseeable future.

Recreation

Ashley Twin Lakes is accessible from Red Cloud Loop in the Ashley National Forest. The loop begins as 3500 West St. in the VernalMaeser area. Travel north on this road as it climbs into the Uintas. At the National Forest Boundary, the road becomes FS-18. About 13 miles after entering the National Forest, turn left on a less traveled road (FS-027). This turn should be signed to the lake and/or to Marsh Peak. Follow this road for 5 miles which terminates at the lake. The last few miles the road is very rough. It is very rocky and not maintained. Driving can be hazardous during inclement weather. The road at one time did continue on past the lake, but this area is now restricted.

Fishing, camping, picnicking, and hiking are all popular uses of the area. The lake is primarily a Brook Trout Fishery, and fish populations have increased in recent years, although seasonal drawdown results in a muddy shoreline that does little to enhance the angling experience. There are no facilities at the lake. All visitors should pack out all waste.

The nearest campground is operated by the USFS at Oaks Park Reservoir, 20 miles north and east on the Red Cloud Loop, which has primitive latrines, picnic areas, and campsites. Primitive camping is available at the lake and there are a significant number of improved campgrounds in the area.

Watershed Description

Ashley Twin Lakes is in a glaciated area at the foot of the tall peaks of the Uinta's. Marsh Peak, 2 miles to the west, rises 2,000 feet over the lake, with vertical slopes. As a result of glaciation, the area around the lake has uneven topography with poor drainage, resulting in many small lakes and wetlands. Open coniferous forests dominate the landscape at eye level, while the peaks rise above the timberline.

The watershed high point, Marsh Peak, is 3,731m (12,240 ft) above sea level, thereby developing a complex slope of 26.4% to the reservoir. There are no perennial inflows, and the outflow is a tributary of South Fork Ashley Creek. Mud Lake and Marsh Lake are other natural lakes in the watershed.

The watershed is made up of high mountains and mountains meadows. The soil associations that compose the watershed are listed in Appendix III.

The vegetation communities consist of spruce-fir, alpine and aspen. The watershed receives 76 cm (30 inches) of precipitation annually. The frost-free season around the reservoir is 0 - 20 days per year.

Land use in the watershed is 100% multiple use, with

grazing by domestic livestock and human recreation being the primary uses. There are no active or proposed timber sales in the watershed.

Limnological Assessment

The water quality of Ashley Twin Lakes is high quality. It is very soft water with a hardness generally less than 10 mg/L with very low concentration of anions and cations. No constituents analyzed were found to be in excess of State water quality standards. The nutrient concentrations in the lake are below the pollution indicator level established in the State standards and are characteristic of a low to moderately productive lake. Total inorganic nitrogen values are low, usually below minimum detectable limits in June but rise significantly in late summer to a point where the lake may become phosphorus limited. Although the lake was classified in 1982 as phosphorus limited, a review of the data for that period indicates that it was a nitrogen limited system. The

Limnological Data			
Data sampled from STORET site: 493787			
0	1	2	3
TSI	13.7	6.8	8.2
Secchi Depth (m)	13.7	6.7	7.7
Chlorophyll <i>a</i> (ug/L)	2	12	6.7
Temperature (°C / °f)	14/57	12/54	12/53
Conductivity (umhos/cm)	20	33	24
Phosphorous TSI	47.35	33.20	46.05
Average TSI	45.76	41.09	44.19
Chlorophyll <i>a</i> (ug/L)	-	4.75	2.25
Transparency (m)	30	3.0	2.65
Total Phosphorous (ug/L)	10	8	21
pH	7.3	6.80	7.45
Total Susp. Solids (mg/L)	<5	<3	<3
Total Volatile Solids (mg/L)	-	-	1
Total Residual Solids (mg/L)	-	-	2
Ammonia (mg/L)	0.15	0.03	0.14
Nitrate/Nitrite (mg/L)	0.38	-	0.05
Hardness (mg/L)	10	9.1	7.6
Alkalinity (mg/L)	6	9	9
Silica (mg/L)	2.0	-	1.4
Total Phosphorous (ug/L)	15	9	20
Miscellaneous Data			
DO (Mg/l) at 75% depth	8.2	7.5	7.1
Stratification (m)	2-4	1-2	NO
Limiting Nutrient	P	N	N
Depth at Deepest Site (m)	5	2.3	2.0

data obtained during the 1990 and 1992 sampling program indicates that the system is usually nitrogen limited except on occasion during late summer when

nitrogen concentration increase. Average annual maximum inorganic nitrogen values are 0.13 and 0.19 mg/L for 1990 and 1992. Total epilimnetic phosphorus values for the same periods are 0.015 and .021 mg/L. The ratio of total organic nitrogen to total phosphorus utilizing this data indicate that the system is nitrogen limited. The reservoir is classified as mesotrophic. Average TSI values have not shifted significantly since 1982 with an average TSI value of 43.68 for the three periods surveyed. The only period that the reservoir was stratified was in August, 1980. The reservoir had a depth of 5.0 meters with a thermocline developing from 2-4 meters. During 1990 and 1992 no stratification was present, but the depth of the reservoir during August was insufficient for the development of thermocline. The August, 1993 profile does indicate a drop of dissolved oxygen concentration from 8.2 to 6.2 mg/L in only two meters of water.

The habitat for fish in Ashley Twin Lakes is generally good but late summer drawdowns result in low water conditions which adversely affect the fishery. Brook trout (*Salvelinus fontinalis*), cutthroat trout (*Oncorhynchus clarki*), and rainbow trout (*Oncorhynchus mykiss*) have been stocked at some time in the lake. Recent stocking reports indicate that DWR typically stocks the lake with fingerling brook trout. If natural reproduction of trout takes place, it is of a quantity too small to be of significance in the overall populations. Cutthroat trout are reported as present in the lake. However, it is unclear if these are naturally reproducing or remnants of earlier stocking programs. Because the lake has not been chemically treated by the DWR, populations of native fishes may be present.

The DWQ (1982) reported that significant populations of macrophytes and zooplankton were present in the lake. Species composition mentioned were quillwort (*Isotes* sp.), peat moss, *Cyclops* sp. at 1.78/L and *Daphnia* sp. at 6.67/L. Of the invertebrates surveyed at that time the following organisms were present in order of prevalence: midges (*Chironomidae*), clams (*Pelecypoda*) 11.1%, aquatic earthworms (*Oligochaeta*) 4.4%, larvae (*Tanypodinae*) 2%, pupae 0.7%, leeches (*Hirudinea*) 0.7%, and caddisfly larvae (*Limnephilidae*) 0.7%. (Brady Green, Fisheries Biologist, Ashley National Forest, Vernal, Utah)

Phytoplankton data obtained during the 1991-92 monitoring period is dominated by *Sphaerocystis Schroeteri*, a low-productive water algae. Phytoplankton in the euphotic zone include the following taxa (in order of dominance)

Species	Cell Volume (mm ³ /liter)	% Density By Volume
<i>Sphaerocystis Schroeteri</i>	47.538	97.24
<i>Pandorina morum</i>	0.444	0.91
Unknown Spherical		
Chrysophyte (flagellate)	0.434	0.89

<i>Dinobryon divergens</i>	0.147	0.30
Oocystis	0.092	0.19
<i>Euglena</i> sp.	0.082	0.17
<i>Cosmarium</i> sp.	0.078	0.16
Unknown Spherical		
Green algae	0.025	0.05
<i>Scenedesmus bijuga</i>	0.022	0.05
<i>Asterionella formosa</i>	0.009	0.02
<i>Ankistrodesmus falcatus</i>	0.009	0.02
Pennate diatoms	0.008	0.02

Total 49.630

Shannon-Weaver [H']	0.17
Species Evenness	0.07
Species Richness [d]	0.45
Number of species	12

Information

Management Agencies

Uinta Basin Association of Governments	722-4518
Division of Wildlife Resources	538-4700
Division of Water Quality	538-6146
Ashley National Forest	789-1181
Vernal Ranger District	789-1181

Recreation

Dinosaurland Travel Region (Vernal)	789-6932
Vernal Chamber of Commerce	789-1352

Reservoir Administrators

Ashley Valley Reservoir Company	789-3212
Uinta Water Conservancy District	789-1651

Pollution Assessment

Nonpoint pollution sources include recreation and domestic livestock grazing. 1,250 sheep graze the watershed and reservoir shoreline during the summer.

There are no point sources of pollution in the watershed.

Beneficial Use Classification

The state beneficial use classifications include: culinary water (1C), boating and similar recreation (excluding swimming) (2B), cold water game fish and organisms in their food chain (3A) and agricultural uses (4).

