

## LONG PARK RESERVOIR



### Introduction

Long Park Reservoir is a large reservoir on the north slopes of the Uintas. Its primary purpose is storage of agricultural water. It has a large conservation pool, but drawdown reduces the fish habitat area and may result in an impairment to the fishery.

Long Park Reservoir was created in the late 1970's

by the construction of an earth-fill dam. The reservoir shoreline is owned by the Ashley National Forest, and public access is unrestricted. Reservoir water is used entirely for irrigation, and 75% of the volume of the reservoir is drained by mid-summer for agricultural purposes in the Lucerne Valley, but the remaining 25% is retained as a conservation pool. Water use is not expected to change in the foreseeable future.

### Recreation

#### Characteristics and Morphometry

Lake elevation (meters / feet)	2,635 / 8,646
Surface area (hectares / acres)	1,200 / 300
Watershed area (hectares / acres)	1,347 / 3,328
Volume (m <sup>3</sup> / acre-feet)	
capacity	16,900,000 / 13,700
conservation pool	3,700,500 / 3000
Annual inflow (m <sup>3</sup> / acre-feet)	
Retention time (years)	
Drawdown (m <sup>3</sup> / acre-feet)	10,700
Depth (meters / feet)	
maximum	29.3 / 96
mean	14 / 45.9
Length (meters / feet)	2,765 / 9,070
Width (meters / feet)	1,138 / 3,735
Shoreline (meters / feet)	7,478 / 24,533

#### Location

County	Daggett
Longitude / Latitude	109
USGS Map UT/WY 1963, Phil Pico Mtn, UT/WY 1963	
(Not on map, but in area marked Long Park to 8,648' elevation)	
DeLorme's Utah Atlas & Gazetteer™	Page 56, A-2
Cataloging Unit	Flaming Gorge (14040106)

Long Park Reservoir is off the north slope road of the Uintas, 14 miles west of U-44. From near milepost 15 on U-44, turn west on the Sheep Creek Geologic Loop. A

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says "Long Park Reservoir 14". Follow the Sheep Creek Road for three miles, then turn west again on a gravel road also signed to Long Park Reservoir. This is the North Slope Road. Follow it for nine miles to the turnoff to Long Park Reservoir on the right. The lake is two miles north on this road.

It is also accessible from the west by turning south near milepost 28 east of Bumtfork, Wyoming on W-414. Follow this gravel road up Birch Creek and across the north slope for 16 miles to the Long Park turnoff.

Fishing, waterskiing, swimming, and boating are the recreational uses of the reservoir, but primary emphasis is on fishing. The water is very clear and the bottom firm, making ideal swimming conditions. Boating is best in the spring before the water is drained down to the conservation pool. A long, wide, concrete boatramp extends deep into the reservoir for easy launching of boats regardless of drawdowns. Improved privies are located at the top of the boatramp, and primitive camping is possible throughout the area.

The nearest campground is at Browne Lake, about 8 miles southeast on Sheep Creek Road, with toilet facilities, campsites, and picnic areas.

### Watershed Description

Long Park Reservoir is located in the High Uintas. The reservoir is situated in a strike valley. The valley has periodic notches cut in it by streams that predated the exposure of the limestone. Long Park Reservoir is built in such a valley.

The natural watershed consists solely of the area immediately around the lake. It was once forested, but selective cuts have removed almost all of the timber, and little has grown back. South facing slopes have sage-grass vegetation.

The reservoir has a small natural watershed, but is fed primarily by the Sheep Creek Canal, which collects the runoff from Carter Creek, Weyman Creek, Beaver Creek and Sheep Creek into Long Park Reservoir. This effectively captures the drainage from a 12 mile stretch of the north slope of the Uintas.

The top of the watershed is the ridgeline of the Uintas, which has been effectively carved out by glaciers. This glacialiation has created a line of cirques with wooded meadows, lakes and marshes at their base. The watershed boundary follows the top of the cirques, with snow on the tops of the mountains themselves draining to the south. Slopes greater than 100% are the norm in cirques. These high peaks are visible from the reservoir.

The watershed high point, Mount Chepeta, is 3,742 m (12,276 ft) above sea level, thereby developing a complex slope of 9.9% to the reservoir. The average stream gradient is variable. The average stream gradient

of the diverted streams is 5.1% (270 feet per mile). The canal which transports water from these streams is relatively level, but yields to a fairly steep gradient for about 0.5 miles above the reservoir. The inflow and outflow is referred to as Sheep Creek Canal, although the canal follows Sols Canyon (a natural watercourse) for the two miles after it leaves the reservoir.

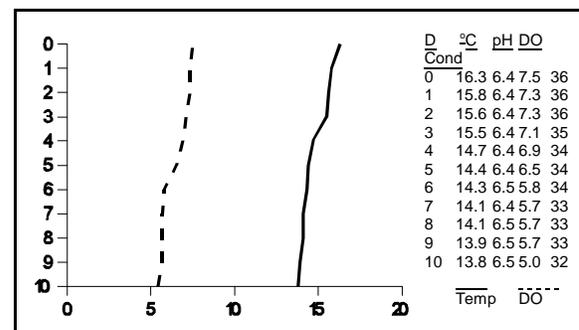
The watershed is made up of high mountains and mountains meadows. The soil associations that compose the watershed are listed in Appendix III.

The vegetation communities consist of sage-grass, oak, maple, pine, alpine, spruce-fir and aspen. The watershed receives 51 - 76 cm (20 - 30 inches) of precipitation annually. The frost-free season around the reservoir is 20 - 40 days per year.

Land use in the watershed is 100% multiple use, with grazing and human recreation being the primary activities. Much of the watershed has been logged, and there are several active or proposed sales.

### Limnological Assessment

The water quality of Long Park Reservoir is very good to excellent. It is considered to be very soft with a hardness concentration value of approximately 13.4 mg/L (CaCO<sub>3</sub>). There are no violation of State water quality standards for the entire water column of the reservoir but pH and dissolved oxygen values have been reported outside of the existing criteria at places in the water column. On the average for the water column these values are within the limitations. Dissolved oxygen does show a decline as depicted in the profile from September 5, 1991 and pH values have reached 6.3 (6.5 is the low range point). This



body of water is susceptible to acidification with the low buffering capacity as are a lot of the higher Uinta lakes. The reservoir did not show stratification during our monitoring, but it has the attributes necessary for stratification. The reservoir was surveyed on March 14, 1991 to determine if dissolved oxygen deficiencies were present under the ice. The profile

LAKE REPORTS

Limnological Data	
Data averaged from STORET sites: 593810, 593811	
<b>Surface Data</b>	1991
Trophic Status	M
Chlorophyll TSI	48.85
Secchi Depth TSI	53.31
Phosphorous TSI	32.35
Average TSI	44.84
Chlorophyll <i>a</i> (ug/L)	6.5
Transparency (m)	2.3
Total Phosphorous (ug/L)	8
pH	6.65
Total Susp. Solids (mg/L)	9
Total Volatile Solids (mg/L)	7
Total Residual Solids (mg/L)	2
Temperature (°C / °f)	15/59
Conductivity (umhos.cm)	29
<b>Water Column Data</b>	
Ammonia (mg/L)	0.04
Nitrate/Nitrite (mg/L)	0.01
Hardness (mg/L)	13.4
Alkalinity (mg/L)	13.5
Silica (mg/L)	3.6
Total Phosphorous (ug/L)	8
<b>Miscellaneous Data</b>	
Limiting Nutrient	N
DO (Mg/l) at 75% depth	5.7
Stratification (m)	NO
Depth at Deepest Site (m)	10

indicated that there was a substantial oxygen demand in the hypolimnion as depicted in the profile. The dissolved oxygen concentration decreases to a low of 2.0 mg/L near the bottom of the reservoir.

The reservoir level has a large fluctuation due to the primary use of the reservoir as a storage facility for irrigation needs. There has been a leakage problem associated with the reservoir in recent years but efforts have been taken to correct the problem. The limited data available on the reservoir indicates that it is a nitrogen limited system. TSI values indicate the reservoir is mesotrophic with low to moderate productivity.

The reservoir has not been treated by the DWR for rough fish competition, therefore there may be native populations of fishes in the reservoir. DWR typically stocks the reservoir with 30,000 fingerling rainbow trout (*Oncorhynchus mykiss*). In 1992 they used advanced fingerlings, a little larger fish.

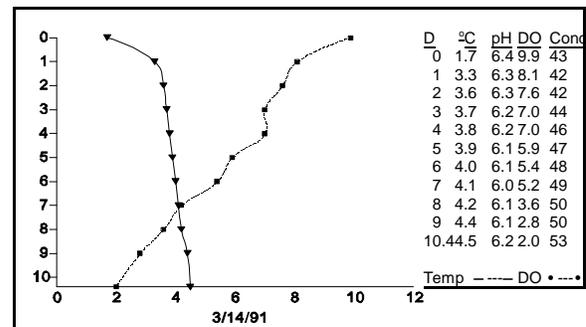
In recent years as indicated earlier the reservoir has not been operated at capacity due to a leakage problem. Limnological conditions may change as operational

situations change. Further monitoring will allow a better interpretation of the system.

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

Species	Cell Volume% (mm <sup>3</sup> /liter)	Density By Volume
<i>Tabellaria sp.</i>	0.836	70.48
<i>Dinobryon divergens</i>	0.195	16.48
Centric diatoms	0.063	5.34
<i>Oocystis sp.</i>	0.050	4.21
Pennate diatoms	0.010	0.84
<i>Asterionella formosa</i>	0.009	0.80
<i>Ankistrodesmus falcatus</i>	0.009	0.74
<i>Chlamydomonas sp.</i>	0.006	0.56
<i>Mallomonas sp.</i>	0.006	0.55
<b>Total</b>	<b>1.183</b>	
Shannon-Weaver [H']	1.01	
Species Evenness	0.46	
Species Richness	0.41	

The flora is fairly typical, but not particularly diverse. The dominance of green algae and diatoms indicates that the lake is reasonably healthy and is indicative of good water quality.



**Pollution**

**Assessment**

Nonpoint pollution sources include the following: sedimentation and nutrient loading from grazing, litter from recreation, and sedimentation and increased runoff from logging.

Grazing takes place throughout the watershed and in the vicinity of the reservoir.

Much of the watershed has been cut in fairly recent history, and a large timber sale is proposed in the Bear Park area. Unlike much of the central and western areas of the Uintas, none of this area is protected as a wilderness area. Much of it, however, retains its wilderness quality. While the ruggedness and severe climate of the Uintas have given them natural protection

from human degradation, only careful management will protect them in the future.

There are no point sources of pollution 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).

<b>Information</b>	
<b>Management Agencies</b>	
Uinta Basin Association of Governments	722-4518
Division of Wildlife Resources	538-4700
Division of Water Quality	538-6146
Ashley National Forest	789-1181
Flaming Gorge Ranger District	784-3445
<b>Recreation</b>	
Dinosaurland Travel Region (Vernal)	789-6932
Manila Chamber of Commerce	784-3395
<b>Reservoir Administrators</b>	
Sheep Creek Irrigation Company	784-3412