

CURRENT CREEK RESERVOIR



Introduction

Current Creek Reservoir is a large reservoir built as part of the Central Utah Project (CUP). It is not very well known as a recreation area, but is relatively close to the Wasatch Front. It supplements Strawberry Reservoir to

store spring runoff from the Duchesne River and Rock Creek drainages and releases it to the Wasatch Front over the course of the year. Current Creek Reservoir was begun in 1977 with the construction of an earth-fill dam, and finished filling in 1982. The reservoir shoreline is 85% owned by the Uinta National Forest. The remaining 15%, in the Coal Mine Hollow Area, is privately owned with restricted access. Reservoir water is used primarily for irrigation on the Wasatch Front, via tunnels to Strawberry Reservoir and Diamond Fork. In addition water is used for recreation and agricultural need downstream from the reservoir. As urbanization replaces agricultural land, it is expected that some water will be used for culinary purposes.

| Characteristics and Morphometry | |
|--|---------------------------------|
| Lake elevation (meters / feet) | 2,342 / 7,683 |
| Surface area (hectares / acres) | 121 / 300 |
| Watershed area (hectares / acres) | 12,225 / 30,208 |
| Volume (m ³ / acre-feet) | |
| capacity | 1.93 x 10 ⁷ / 15,670 |
| conservation pool | 1.38 x 10 ⁷ / 1,120 |
| Annual inflow (m ³ / acre-feet) | |
| Retention time (years) | |
| Drawdown (m ³ / acre-feet) | |
| Depth (meters / feet) | |
| maximum | 37.5 / 123 |
| mean | 16 / 52.5 |
| Length (meters / feet) | 2,499 / 8,200 |
| Width (meters / feet) | 686 / 2,250 |
| Shoreline (meters / feet) | 7,900 / 25,920 |

| Location | |
|-----------------------------------|--------------------------------|
| County | Uintah |
| Longitude / Latitude | 111 03 04 / 40 19 56 |
| USGS Map | Steinaker Reservoir, 1965 |
| DeLorme's Utah Atlas & Gazetteer™ | Page 54, D-2 |
| Cataloging Unit | Ashley-Brush Creeks (16060002) |

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Recreation

Currant Creek Reservoir is easily accessible from US-40 between Fruitland and Strawberry Reservoir. At milepost 59.3, the highway is in the bottom of Currant Creek Canyon, with large signs directing traffic to the turnoff in the canyon bottom. The Currant Creek Cafe, at the turnoff, has gas, food, fishing licenses, and other services. Travel up-canyon for about 14 miles on an improved gravel road to the reservoir.

There are no services at the reservoir, but a lodge on US-40 at the turnoff has information, gasoline, groceries and other supplies.

There is a USFS campground at the reservoir, with 49 campsites, tent sites, picnic areas, swimming, toilets, a boat ramp, and handicapped facilities. Winter access is restricted, as the canyon is not plowed.



Watershed Description

Currant Creek has a fairly large natural watershed, and a very large, artificially diverted watershed. The natural watershed consists of gently undulating mountainous terrain with aspen, spruce and sagebrush. The diverted watershed includes much of the south slope of the Uintas, beginning at Upper Stillwater Reservoir.

The natural watershed high point is 3161 m (10,370 ft) above sea level, thereby developing a complex slope of 12.2% to the reservoir. The average stream gradient above the reservoir for Low Pass Creek is 6.5% (343 feet per mile). The inflows are the Left and Right Forks of Currant Creek, Racetrack Creek, Low Pass Creek, Coal Mine Hollow, and the Vat Tunnel. Outflows are Currant Creek and Currant Tunnel. Currant Tunnel eventually drains into Strawberry Reservoir (see the Strawberry Reservoir report for details).

The natural watershed is consists of undulating low mountains, while the diverted watershed is made up of high mountains and glacial valleys.

The vegetation communities consist of pine, spruce-

fir, oak-maple, alpine tundra, pinyon-juniper, and sagebrush-grass. The watershed receives 51 - 76 cm (20 - 30 inches) of precipitation annually. The frost-free season around the reservoir is 40 - 80 days per year.

Land use . The watershed above Upper Stillwater Reservoir is entirely federally protected wilderness.

Limnological Assessment

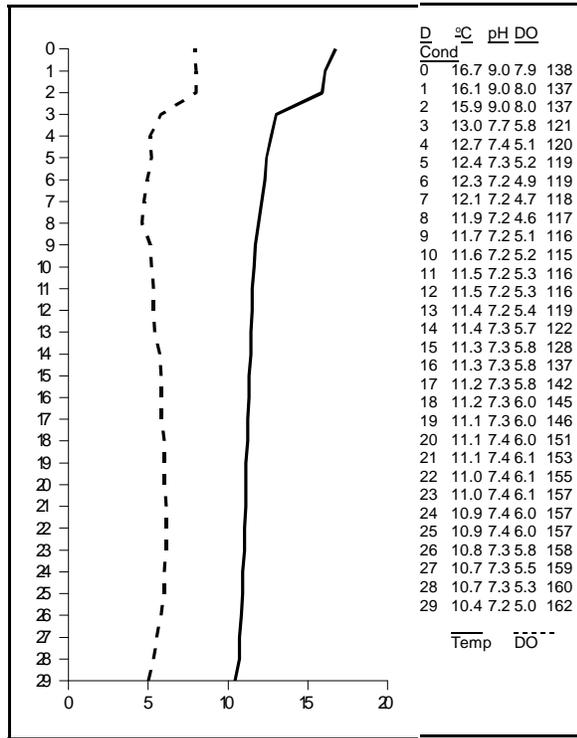
The water quality of Currant Creek Reservoir is very good. It is considered to be soft with a hardness concentration value of approximately 65 mg/L (CaCO₃). The only parameters that have exceeded State water quality standards for defined beneficial uses are on occasion total phosphorus and dissolved oxygen. Overall

| Limnological Data | | |
|---|-------------|-------------|
| Data averaged from STORET sites: 593645, 593646, 593647 | | |
| Surface Data | <u>1989</u> | <u>1991</u> |
| Trophic Status | M | M |
| Chlorophyll TSI | 44.38 | 46.13 |
| Secchi Depth TSI | 42.97 | 46.07 |
| Phosphorous TSI | 45.08 | 33.90 |
| Average TSI | 44.15 | 42.03 |
| Chlorophyll <i>a</i> (ug/L) | 4.2 | 4.9 |
| Transparency (m) | 3.3 | 2.7 |
| Total Phosphorous (ug/L) | 17.0 | 9.0 |
| pH | 8.6 | 8.6 |
| Total Susp. Solids (mg/L) | <3 | 3.8 |
| Total Volatile Solids (mg/L) | - | 6 |
| Total Residual Solids (mg/L) | - | 1 |
| Temperature (°C / °f) | 18/64 | 15/60 |
| Conductivity (umhos.cm) | 148 | 135 |
| Water Column Data | | |
| Ammonia (mg/L) | 0.03 | 0.05 |
| Nitrate/Nitrite (mg/L) | - | 0.02 |
| Hardness (mg/L) | 64 | 65 |
| Alkalinity (mg/L) | 59 | 62 |
| Silica (mg/L) | - | 2.5 |
| Total Phosphorous (ug/L) | 18 | 22 |
| Miscellaneous Data | | |
| DO (Mg/l) at 75% depth | 6.2 | 6.1 |
| Stratification (m) | 4-6 | 2-3 |
| Limiting Nutrient | N | N |
| Depth at Deepest Site (m) | 31.0 | 29.0 |

averages for total phosphorus concentrations in the water column have consistently been below the State's pollution indicator (25 ug/L), and only near the bottom of the reservoir has the dissolved oxygen concentrations exceeded minimum dissolved oxygen requirements.

LAKE REPORTS

Typically these values at the lower levels of the reservoir are to be expected and are not considered to be in violation of State standards. Although dissolved oxygen concentrations are not considered to have exceeded State



standards they do reach low levels near the bottom of the lake. A review of the profile obtained on August, 1991 showed concentrations of 7.9 mg/L at the surface with a slight declining trend to 5.0 mg/L at the bottom (29 meters). The reservoir is defined as a nitrogen limited system with TSI values indicating the reservoir is mesotrophic, with an overall TSI index of 44.15 in 1989 and 42.03 in 1991. There was no TSI evaluation conducted during the initial inventory and classification in 1981 because the construction was underway at that time in building the dam. The phosphorus concentrations in recent years appear stable at approximately 20 ug/L in the water column which is well under the established pollution indicator of 25 ug/L. The profile of September 3, 1991 indicates that the reservoir was stratified with a thermocline developing at 2-3 meters. As indicated previously there was a noticeable decline in the concentration of dissolved oxygen in the water column below the thermocline but not to the point that it effected the fishery and defined beneficial uses. During recent surveys as part of study there have been no problems associated with macrophytes at the reservoir. In some of the bays near inlets some emergent macrophytes are

present but not to the extent that there are impairments to the defined beneficial uses.

Fish kills have been reported at Currant Creek Reservoir. The reservoir was chemically treated by the DWR in 1989 to eliminate rough fish competition, so fixed populations of native fishes may not be present in the lake.

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> | 5.282 | 58.34 |
| <i>Fragilaria crotonensis</i> | 3.436 | 37.95 |
| <i>Melosira granulata</i> | 0.108 | 1.20 |
| <i>Aphanizomenon flos-aquae</i> | 0.1 | 0.6 |
| <i>Peridinium sp.</i> | 0.056 | 0.61 |
| Pennate diatoms | 0.023 | 0.26 |
| <i>Asterionella formosa</i> | 0.019 | 0.21 |
| <i>Ankistrodesmus falcatus</i> | 0.013 | 0.14 |
| Mallamona sp. | 0.006 | 0.07 |
| Centric diatoms | 0.003 | 0.04 |
| Total | 9.052 | |
| Shannon-Weaver Index | 1.17 | 0.86 |
| Species Evenness | 0.38 | |
| Species Richness | 0.41 | |

As observed the phytoplankton community is dominated by green algae and diatoms. This type of community composition supports the trophic state index for water quality.

| Information | |
|--|----------|
| Management Agencies | |
| Mountainlands Association of Governments | 377-2262 |
| Division of Wildlife Resources | 538-4700 |
| Division of Water Quality | 538-6146 |
| Uinta National Forest | 377-5780 |
| Recreation | |
| Mountainlands Travel Region (Provo) | 377-2262 |
| Heber Chamber of Commerce | 654-3666 |
| Duchesne Chamber of Commerce | 738-2707 |
| Reservoir Administrators | |
| Department of the Interior | 538-1467 |
| CUP | 226-7100 |

Pollution Assessment

Nonpoint pollution sources include logging, recreation, and grazing of domestic livestock. Grazing takes place throughout the watershed and along the shores of the reservoir.

In 1993 and 1994, 7.3 million board feet of timber will

be logged from the Roundy Basin. Most of this has been killed by bark beetles. By 1996, 2.5 million board feet of timber will be taken from the Smith Basin area. While care is being taken to avoid disturbing riparian areas, these cuts may adversely affect the watershed and reservoir water quality.

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).