

STATELINE RESERVOIR



Introduction

Stateline Reservoir is a large reservoir in a glacial valley north of the Uinta Mountains. It is 1/4 mile south of the Wyoming state line, in the China Meadows area, in close proximity to three natural, moraine lakes—Bridger, China and Marsh.

Stateline Reservoir was created in 1979 with the construction of an earth-fill dam, impounding the East Fork Smith's Fork River. The reservoir shoreline is 100% publicly owned by the Bureau of Reclamation and the Bridger Valley Conservancy District. Public access is unrestricted. Current water use is primarily for irrigation with no changes expected.

Characteristics and Morphometry

Lake elevation (meters / feet)	2,793 / 9,163
Surface area (hectares / acres)	116.6 / 288
Watershed area (hectares / acres)	10,831 / 26,752
Volume (m ³ / acre-feet)	
capacity	17,300,000 / 14,000
conservation pool	2,000
Annual inflow (m ³ / acre-feet)	352,781,000 / 286,000
Retention time (years)	<1
Drawdown (m ³ / acre-feet)	148,000,000 / 12,000
Depth (meters / feet)	
maximum	39 / 128
mean	14.8 / 48.6
Length (km / miles)	2.9 / 1.8
Width (km / miles)	0.762 / 0.47
Shoreline (km / miles)	6.44 / 4

Location

County	Summit
Longitude / Latitude	110 23 07 / 40 58 42
USGS Map	Bridger Lake, UT / WY 1967
DeLorme's Utah Atlas and Gazetteer™	Page 55, A-5
Cataloging Unit	Black's Fork (1404017)

Recreation

Stateline reservoir in the Smith's Fork drainage, 30 miles east of U-150 on the North Slope Road (FS-058). FS-072 and FS-058 join at China Meadows Campground. Stateline Reservoir is 4 miles north of the campground on FS-058.

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It is also accessible from Mountain View, Wyoming. Go south from Mountain View on the paved road towards Robertson (not towards Lonetree). At the second 90° bend to the west (about 5 miles from Mountain View), leave the highway, continuing south on a gravel road that becomes FS-072. The reservoir is just across the Utah state line.

The lake offers fishing, boating and hiking. The water is too cold for most swimmers. There is a unimproved boat ramp adjacent to the campground and fishing is popular.

Stateline Reservoir Campground, administered by the Forest Service, has 41 campsites, running water, and primitive latrines. There are several other USFS campgrounds in the vicinity, as this area is a popular access to the High Uinta Wilderness. Campgrounds are heavily used in the summer.



Watershed Description

Stateline Reservoir is an impoundment of the East Fork Smith's Fork River. The watershed consists of a long (15 miles), narrow (3 miles) drainage on the north slope of the Uintas. Valley glaciers extended from the cirques in the Uinta ridgeline all the way north to the state line, so the river flows down the wide, relatively flat, valley. At the reservoir, the valley is about two miles wide and 800' deep. China Lake, Marsh Lake and Bridger Lake are all natural lakes in the immediate area, created by the damming of side drainages by glacial moraines. The Stateline Dam is built at a point where the river has cut through a moraine. The Red Castle Lakes, Lake Hessie, and Smiths Fork Pass Lake are cirque lakes at the heads of tributaries to the river.

The watershed high point, Red Castle Peak, is 4,006 m (13,142 ft) above sea level, thereby developing a complex slope of 5.0% to the reservoir. Inflow is from East Fork Smiths Fork and an unnamed stream that drains Bridger and marsh Lakes. The outflow is East Fork

Smiths Fork.

The soil in the lower areas of the watershed is glacial till and alluvium. It is comprised primarily of debris from the scouring up upstream valleys, so the till is chemically similar to the Precambrian rocks of the High Uintas, which compose the remainder of the watershed. See Appendix III for a complete soil description.

The vegetation community is comprised of alpine, pine, aspen, spruce-fir, oak, maple and marshlands. The watershed receives 51 - 102 cm (20 - 40 inches) of precipitation annually with a frost-free season of 20 - 40 days.

Land use is 100% multiple use. Both livestock (predominantly sheep) and recreation exert very heavy pressure on the watershed. Commercial horseback tours keep the meadow vegetation closely cropped in the Red Castle area, and large herds of sheep are rotated throughout the area over the course of the summer.

Limnological Assessment

Limnological Data			
Data averaged from STORET sites: 593932, 593934			
Surface Data	<u>1981*</u>	<u>1989</u>	<u>1991</u>
Trophic Status	E	M	O
Chlorophyll TSI	-	43.03	38.61
Secchi Depth TSI	54.20	51.94	53.00
Phosphorous TSI	53.20	43.89	27.35
Average TSI	53.70	46.29	39.66
Chlorophyll <u>a</u> (ug/L)	-	3.6	2.3
Transparency (m)	1.5	1.8	1.7
Total Phosphorous (ug/L)	30	16	5
pH	6.9	7.2	7.1
Total Susp. Solids (mg/L)	<5	-	6
Total Volatile Solids (mg/L)	-	-	5
Total Residual Solids (mg/L)	-	-	1
Temperature (°C / °f)	13/55	13/55	11/52
Conductivity (umhos.cm)	26	41	36
Water Column Data			
Ammonia (mg/L)	0.05	0.01	0.03
Nitrate/Nitrite (mg/L)	0.05	0.01	0.01
Hardness (mg/L)	18	-	13
Alkalinity (mg/L)	12	-	12
Silica (mg/L)	-	-	3.5
Total Phosphorous (ug/L)	25	15	7
Miscellaneous Data			
Limiting Nutrient	N	N	N
DO (Mg/l) at 75% depth	7.3	6.5	5.7
Stratification (m)	4-7	NO	NO
Depth at Deepest Site (m)	27	14.0	24.0
* One site only (593954)			

LAKE REPORTS

The water quality of Stateline Reservoir is to be excellent. It is considered to be very soft with a hardness concentration value of approximately 16 mg/L (CaCO₃). There are no overall water column concentrations that exceed State water quality standards for defined beneficial uses for parameters analyzed.

Data suggest that the reservoir is currently a nitrogen limited system. TSI values indicate the reservoir is currently a oligotrophic reservoir in a state of low productivity. It should be noted that the trophic status has continually declined since it was originally impounded . There will need to be additional data collected to see if the reservoir maintains its oligotrophic state. The reservoir has sufficient depth for stratification but due to the early withdrawal for downstream irrigation needs and the elevation of the reservoir stratification has not been evident during our monitoring periods as indicated in the September 3, 1991 profile.

According to DWR no fish kills have been reported in recent years. The DWR stocked the reservoir with 10,000 advanced fingerling rainbow trout (*Oncorhynchus mykiss*) and 10,000 fingerling kokanee (*Oncorhynchus nerka*) in 1992. In addition the reservoir probably supports a population of brook trout (*Salvelinus fontinalis*)(previously stocked), cutthroat trout (*Oncorhynchus clarki*), mountain whitefish (*Prosopium williamsoni*), mountain sucker (*Catostomus platyrhynchus*), and sculpins (*Cottus* sp.) which are present in the tributaries to the reservoir. DWR has not treated the reservoir for the remove of nongame species so populations of native species will probably be present in the reservoir.

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

Species	Cell Volume (mm ³ /liter)	% Density By Volume
Pennate diatoms	0.140	66.90
<i>Asterionella formosa</i>	0.066	31.59
Centric diatoms	0.003	1.51
Total	00.209	
Shannon-Weaver [H']	0.70	
Species Evenness	0.63	
Species Richness	0.11	

The phytoplankton community is dominated exclusively by diatoms and is indicative of good water quality and low production.

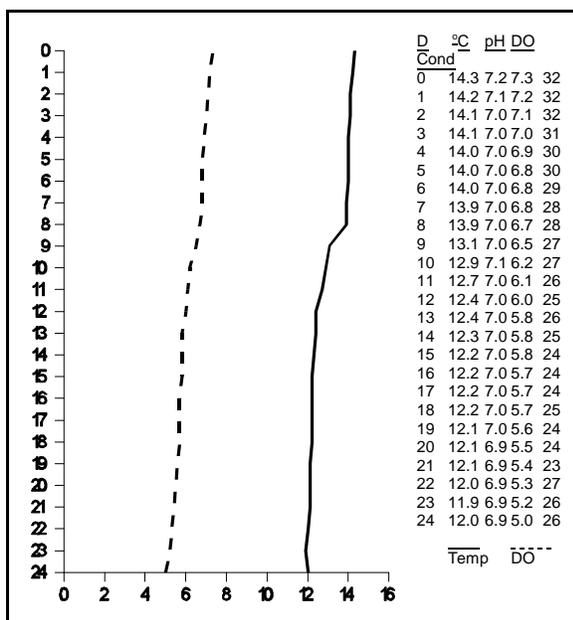
Pollution Assessment

Nonpoint pollution sources include: sedimentation and nutrient loading from grazing; and wastes and litter associated with recreation. Cattle graze in the watershed and around the reservoir.

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

Wasatch-Cache National Forest 524-5030
 Mountain View Ranger District 307-782-6555
 Mountainlands Association of Governments 377-2262
 Division of Wildlife Resources 538-4700
 Division of Water Quality 538-6146

Recreation

Mountainland Travel Region (Provo) 377-2262

Reservoir Administrators

Bureau of Reclamation 524-5436

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