RECAPTURE LAKE

Introduction

Recapture Reservoir is an impoundment of an ephemeral stream on the south slope of the Abajo Mountains. Twenty-eight million years ago, molten rock pushed up through the horizontal strata of this area of what is now the Colorado Plateau. The lava blistered the horizontal rock strata, and eventually burst through the surface. The area has since been been uplifted and eroded, leaving a rugged mountain range. The high elevations collect much more precipitation than the surrounding lowlands, and the runoff eroded deep stream valleys through the area surrounding the mountains.

Characteristics and Morphometry

Lake elevation (meters / feet)	1850 / 6068
Surface area (hectares / acres)	107.3 / 265
Watershed area (hectares / acres)	48,155,840 / 39,040
Volume (m^3 / acre-feet)	
capacity	11,494,986 / 9319
conservation pool	0
Annual inflow (m^3 / acre-feet)	8,400,429 / 6,813
Retention time (years)	1.37
Drawdown (m^3 / acre-feet)	8,317,818 / 6,746
Depth (meters / feet)	
maximum	34.4 / 113
mean	10.7 / 35.2
Length (meters / feet)	1,981 / 6,500
Width (meters / feet)	427 / 1,400
Shoreline (meters / feet)	4,328 / 14,200

Location

County	San Juan
Longitude / Latitude	109 26 26 / 37 40 05
USGS Map	Blanding North, Utah (not on map) 1985
Atlas	pg.46,B2
Cataloging Unit	Lower San Juan (14080201)

The Mormon pioneers settled the area in the late 1800's, and diverted water from the mountain streams for irrigation. Recapture Creek was impounded in the early 1980's to retain spring runoff for irrigation during the summer. It is a large reservoir, also known as Recapture Lake.

The reservoir shoreline is 80% publicly owned by the BLM. The west end of the reservoir is on private land. Public access is unrestricted. The impoundment, an earth-

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fill dam, was built in 1983. Currently, water is consumed entirely for agriculture.

Recreation

Recapture Reservoir is on US-191 about 3 miles north of Blanding and 17 miles South of Monticello. Highway 191 crosses the dam, and unimproved roads lead down to the reservoir.

The reservoir offers swimming, waterskiing, boating, fishing and other forms of water recreation.

The area immediately around the reservoir offers primitive camping. About 4.5 miles north off US-191 is Devil's Canyon Campground, a USFS facility with 32 campsites, drinking water and vault toilets. User fees are charged. There is one private campground in Blanding and several in Monticello.

Watershed Description

Recapture Reservoir is in a wide canyon in the transition zone between the arid lands west of Blanding and the Abajo Mountains, an isolated group of exposed laccoliths. Water from the headwaters of Indian Creek is diverted via a tunnel through the ridgeline of the Abajos into Johnson Creek, a tributary of Recapture Creek.

The watershed high point, the west shoulder of Abajo Peak, is 3443 m (11,295 ft) above sea level, thereby developing a complex slope of 8.6% to the reservoir. The inflows are Recapture Creek, Bulldog Creek and Bullpup Creek. All inflows are ephemeral--flowing only during spring runoff. The outflow is Recapture Creek, but water is only released in wet years when the reservoir reaches capacity. The average stream gradient above the reservoir is 6.7 % (353 feet per mile).

The vegetation communities are comprised of . The watershed receives 30 - 51 cm (12 - 20 inches) of precipitation annually with a frost-free season of 120 - 140 days at the reservoir.

Aside from at least one ranch in the drainage basin, land use is 100% multiple use. The major use of the watershed is livestock grazing.

Limnological Data

Data averaged from STORET sites: 595801, 595802, 595803

Surface Data	1989	1991
Trophic Status	M	M
Chlorophyll TSI	38.83	40.33
Secchi Depth TSI	57.62	58.02
Phosphorous TSI	40.36	49.12
Average TSI	45.60	49.16
Chlorophyll a (ug/L)	2.4	2.9
Transparency (m)	1.3	1.2
Total Phosphorous (ug/L)	13	24
pH	8.1	8.2
Total Susp. Solids (mg/L)	1.5	10
Total Volatile Solids (mg/L)	-	5
Total Residual Solids (mg/L)	-	16
Temperature (°C / °f)	20/67	18/64
Conductivity (umhos.cm)	390	418
Water Column Data		
Ammonia (mg/L)	0.05	0.04
Nitrate/Nitrite (mg/L)	-	0.01
Hardness (mg/L)	140	156
Alkalinity (mg/L)	152	167
Silica (mg/L)	-	6.5
Total Phosphorous (ug/L)	18	27
Miscellaneous Data		
Limiting Nutrient	N	N
DO (Mg/l) at 75% depth	1.3	0.5
Stratification (m)	5-14	4-9
Depth at Deepest Site (m)	24	15

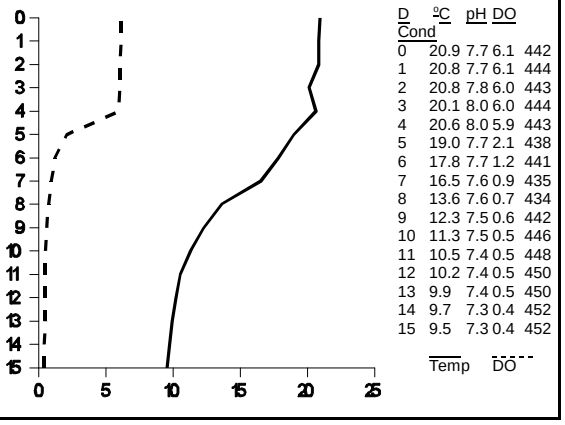
Limnological Assessment

The water quality of Recapture Reservoir is good. It is considered to be moderately hard with a hardness concentration value of approximately 148 mg/L ($CaCO_3$). Those parameters that have exceeded State water quality standards for defined beneficial uses are total phosphorus and dissolved oxygen. The average concentrations of total phosphorus in the water column only exceeded the recommended pollution indicator for phosphorus of 25 ug/L slightly in 1991. Anoxic conditions have been reported as indicated in the August 7, 1991 profile. Dissolved oxygen concentrations in late summer substantiate the fact that water quality impairments do exist. Concentrations dropped dramatically below the thermocline from a concentration of only approximately 6.0 mg/L to values less than 1 for the majority of the water column. These low concentrations have a definite impact on the fishery present in the reservoir.

The reservoir is characterized as a nitrogen limited system. TSI values indicate the reservoir is mesotrophic. The reservoir was stratified during August, 1991 as indicated in the profile. Stratification usually begins in early June , intensifies in August and turnover sometime in September. The profile indicates that a thermocline developed at a depth of 5 meters. There was a noticeable decline in the concentration of dissolved oxygen in the water column. These conditions are deleterious to the fishery rendered approximately 2/3 of the water column unsuitable for a fishery. Water temperatures during late summer to exceed the indicator for a cold water fishery but only by a degree near the surface for a short period of time.

According to DWR no fish kills have been reported in

recent years. The reservoir supports populations of brook trout (*Salvelinus fontinalis*), rainbow trout (*Oncorhynchus* mykiss), and bullheads (*Ictalurus sp.*). The lake was treated for elimination of rough fish in September, 1983 prior to completion of the dam and filling of the impoundment. From careful consideration of limnological conditions recommended a fishery management plan focusing on the establishment of a rainbow trout fishery. Concerns were expressed over the potential for illegal introduction of bass into the reservoir with a plan to educate the public on the benefits of their management plan strategy.



The DWR stocks the reservoir annually with about 9,000 advanced fingerling rainbow trout. Fingerling brook trout have been stocked in the past.

The reservoir and tributaries were chemically treated by the DWR to control rough fish competition, therefore endemic fish populations of Recapture Creek may not be present.

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

Sp.	Cell Volume (mm^3/liter)	
Sphaerocystis schroeteri	2.641	97.94
Wislouchiella planktonica	0.022	0.82
Chlamydomonas globosa	0.016	0.56
Ankistrodesmus falcatus	0.013	0.49
Unknown green flagellate	0.004	0.16
Total Algal Cell Volume		2.696
		99.99
Shannon-Weaver Index[H']		0.13
Species Evenness		0.07
Species Richness		0.23

The flora dominated by green algae, which indicates a fairly healthy aquatic ecosystem. Algal biomass is not great enough to be a problem.

Pollution Assessment

Nonpoint pollution sources include: sedimentation and nutrient loading from grazing and feed yards; and wastes or litter from 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:

Information

Management Agencies	
Bureau of Land Management	539-4001
San Juan Resource Area (Monticello)	587-2141
Southeastern Utah Association of Governments	
Division of Wildlife Resources	538-4700
Division of Water Quality	538-6146
Recreation	
Canyonlands Travel Region (Monticello)	587-2231
Reservoir Administrators	
San Juan County Water Conservation District	678-2596

boating and similar recreation (excluding swimming) (2B), cold water game fish and organisms in their food chain (3A) and agricultural uses (4).

Water quality is sufficient to sustain current water use.