

Chapter 2.14 Lake Water Quality Assessment

2.14.1 Introduction

Lake eutrophication is a naturally occurring aging process that is often accelerated by human activities. Through a growing public awareness of this problem, Congress passed legislation in 1972 (Section 314 of the Federal Water Pollution Control Act) mandating states to inventory and classify their lakes according to trophic condition. States were initially to develop a ranking system used to prioritize the lakes for potential protective or restorative projects. This system was more recently replaced with the 1987 Clean Water Act Amendments requiring biannual 305(b) assessments and a concomitant 303(d) list of impaired waters.

Over three thousand assessment units, i.e. lakes, reservoirs, and wetlands, were identified in the initial Utah's Clean Lakes inventory. (State of Utah Clean Lakes Inventory and Classification, Volumes I & I, April 1982). Lakes selected for further study and evaluation ("significant lakes") were chosen according to the following criteria. The assessment unit is any publicly owned lake/reservoir/pond with a surface area equal to or greater than 50 acres with the following characteristics: (1) accessibility to the public is provided; (2) beneficial use status has been defined or is anticipated to protect water quality for public benefit; and (3) the lake provides important recreational benefit to the public. Marshes, springs, waterfowl management areas and intermittent lakes were not considered in the report. Exceptions in size were made in cases of high recreation use. Under these guidelines a list of 127 lakes and reservoirs was developed.

Table 2.14-1 provides a summary of the number of freshwater lakes and lake surface area in the State of Utah. Seventy-seven percent of the total surface acres of Utah's lakes are found in six lakes and reservoirs: Bear Lake, Utah Lake, Flaming Gorge Reservoir, Lake Powell, Strawberry Reservoir, and Sevier Bridge Reservoir.

Great Salt Lake (GSL) is not included in this table. Rather, DWQ is in the process of modifying the classification scheme of GSL and developing a monitoring and assessment strategy, including site specific thresholds and standards that are appropriate to each bay and associated transitional wetlands (see Part 2 Appendix 3). The Great Salt Lake was assessed as having insufficient data but an assessment plan is in place. The lake varies in size depending on the hydrological cycle of the streams that enter the lake.

Utah DWQ assessed 132 lakes and reservoirs for this reporting cycle. This includes most of those previously inventoried. Changes were based on actual data collected and subsequent re-evaluation of the selection criteria for the original priority list. In addition, some new reservoirs that were created since the original assessment in 1981-1982 and other lakes assessed by the State or other agencies on a cooperative basis have also been added. Water quality assessment includes determination of Carlson's trophic state index (TSI), dissolved oxygen concentrations throughout the water column, phytoplankton species dominance, reported fish kills and water quality trend. General ambient water quality conditions of Utah's lakes and reservoirs vary greatly in relation to their respective watersheds and lake morphometry. Nutrient concentrations

and trophic status range from the oligotrophic conditions of many high mountain lakes to highly eutrophic downstream lakes such as Lower Box Creek Reservoir, Redmond Reservoir, Utah Lake, Kent's Lake, and Pineview Reservoir. Other water chemical characteristics vary from extremely soft water conditions of the high Uinta lakes to highly saline conditions in reservoirs on the lower Sevier drainage such as Gunnison Bend and D.M.A.D. Reservoirs.

Many lakes and reservoirs experience problems relating to thermal stratification and subsequent depletion of dissolved oxygen (DO) in lower strata. This oxygen depletion is often linked to excessive algal production and, in some lakes, results in fish kills. Many lakes and reservoirs also have aesthetic and recreational use impairment because of severe annual drawdown. Such drawdowns leave expanses of exposed lake bed and often insufficient waters for overwintering fish populations. During recent years, an EPA grant has been utilized to obtain additional water quality data to assist in the evaluation and assessment of lakes and reservoirs for this report. The initial purpose of this program was to assess newly created reservoirs and to conduct ongoing monitoring programs to reassess the lakes and reservoirs contained in the 1981-1982 Clean Lakes Inventory of the State of Utah.

Historically, one half, or about 65 lakes were sampled each year. Hence, all 132 lakes were sampled over a two-year assessment period. Sampling was performed during two visits between June and September for the year it was scheduled. More recently, additional data has been obtained during the winter period, as part of cooperative programs with other agencies, or to provide additional data for Total Maximum Daily Load (TMDL) preparation. In order to meet these monitoring needs, 19 lakes that were consistently oligotrophic and fully supporting were removed from the monitoring schedule during the last two assessment cycles. This process freed up enough field time to allow intensive monitoring of lakes on the TMDL schedule. The 19 lakes not sampled for the 2008 assessment period are: Ashley Twin Lakes, Beaver Meadow Reservoir, Big Sand Wash Reservoir, Causey Reservoir, Dark Canyon Lake, Donkey Reservoir, Duck Fork Reservoir, Electric Lake, Flaming Gorge Reservoir, Hoop Lake, Lake Mary, Lost Creek Reservoir, Paradise Park Reservoir, Posey Lake, Scout Lake, Sheep Creek Reservoir, Silver Lake Flat Reservoir, Spirit Lake, Trial Lake, and Woodruff Creek Reservoir. These water bodies were assigned the support status of the previous cycle.

In addition, during the summer of 2002 we began a voluntary citizen monitoring program to provide additional water quality data and collect recreational usage data. Information pamphlets on subjects ranging from descriptions of nutrient loading and eutrophication to explaining our monitoring program have been distributed to popular recreational lakes and reservoirs in order to stimulate awareness of lake water quality and conditions in Utah.

Table 2.14-1 Utah Freshwater Lakes and Reservoirs by Size Class Showing Numbers, Surface Acres and Percent of Total Lake Surface

Size Class (Surface Acres)	Number of Lakes / Reservoirs	Total Surface Acres
10,000 and greater	6 (0.2%)	370,905 (77.0%)
5,000 - 9,999	2 (0.07%)	15,584 (3.2%)
1,000 - 4,999	18 (0.6%)	34,119 (7.1%)
500 - 999	17 (0.57%)	12,475 (2.6%)
100 - 499	87 (2.9%)	19,890 (4.1%)
50 - 99	68 (2.3%)	4,594 (1.0%)
20 - 49	202 (6.7%)	5,871 (1.2%)
20 or less	2600 (86.7%)	18,200 (3.8%)
Total	3,000	481,638

2.14.2 Trophic Status

Carlson's Trophic State Index (TSI) has been determined since the initial classification and inventory project in 1981 to 1982. This has provided long-term trend data for most of our lakes and reservoirs.

To determine the annual TSI values, the following procedure is used:

- 1 - Individual TSI values for total phosphorus, secchi depth and chlorophyll-a are determined for each sampling station on the lake or reservoir.*
- 2 - The values obtained from step one are then averaged among the two sampling visits at each of the sampling stations.*
- 3 - An average annual summer TSI value for each lake is then calculated by averaging all the station TSI Index values for a given lake or reservoir.*
- 4 - TSI Index values utilized in this report were calculated for each lake or reservoir by determining the average TSI value for the period in two year increment periods since 1989.*

TSI values are compared to the following index values to determine current trophic state condition.

- TSI Index value < 40 - Oligotrophic*
- TSI Index value 40 to 50 - Mesotrophic*
- TSI Index value 51 to 70 - Eutrophic*
- TSI Index value > 70 - Hypereutrophic*

DWQ is currently reviewing the criteria for determining if a lake meets its beneficial use. Carlson's TSI is specifically being reevaluated and in the future DWQ may not calculate the TSI using Secchi Disk, total phosphorus, and chlorophyll *a* measurements but instead may rely on chlorophyll *a* as the best indicator of trophic status (Carlson, 1983).

Table 2.14-2 contains a summary of lake trophic status for Utah's lakes and reservoirs by study periods. Note that some of the apparent changes between assessment periods is due to the variability in the lakes and reservoirs actually assessed. For the 2008 reporting cycle, data for calculating the TSI were collected for nine fewer lakes than the 2006 reporting cycle. One of the lakes not sampled, Flaming Gorge is the source most of the decrease in lake acreage sampled.

Only Cutler Reservoir was determined to be hypereutrophic based on the 2006-2007 TSI.

Lakes that were determined to be eutrophic based on the 2006-2007 TSI are: Baker Dam Reservoir, Barney Lake, Calder Reservoir, China Lake, D.M.A.D. Reservoir, Gunlock Reservoir, Gunnison Bend Reservoir, Gunnison Reservoir, Johnson (Valley) Reservoir, Kents Lake, Koosharem Reservoir, Lebaron Reservoir, Lloyds Reservoir, Lower Bowns Reservoir, Lower Box Reservoir, Manning Meadow Reservoir, Mantua Reservoir, Matt Warner Reservoir, Mill Meadow Reservoir, Minersville Reservoir, New Castle Reservoir, Newton Reservoir, Panguitch Lake, Pineview Reservoir, Piute Reservoir, Red Creek Reservoir (Iron County), Redmond Reservoir, Rexs Reservoir, Rockport Reservoir, Rush Lake, Salem Pond, Scofield Reservoir, Stansbury Lake, Three Creeks Reservoir, Upper Enterprise Reservoir, Utah Lake, Willard Reservoir, and Yankee Meadows Reservoir.

Lakes were determined to be mesotrophic based on the 2006-2007 TSI are: Anderson Meadow Reservoir, Big East Lake, Birch Creek Reservoir #2, Bridger Lake, Brough Reservoir, Browne Lake, Butterfly Lake, Cleveland Reservoir, Cook Lake, Currant Creek Reservoir, Deer Creek Reservoir, East Canyon Reservoir, East Park Reservoir, Echo Reservoir, Fairview Reservoir, Ferron Reservoir, Forsyth Reservoir, Grantsville Reservoir, Hoover Lake, Huntington Reservoir, Joes Valley Reservoir, Jordanelle Reservoir, Kens Lake, Kolob Reservoir, Little Creek Reservoir, Long Park Reservoir, Lower Gooseberry Reservoir, Lyman Lake, Marsh Lake, Meeks Cabin Reservoir, Mill Hollow Reservoir, Millers Flat Reservoir, Millsite Reservoir, Mona Reservoir, Moon Lake, Monticello Lake, Nine Mile Reservoir, Otter Creek Reservoir, Palisade Reservoir, Porcupine Reservoir, Puffer Lake, Recapture Creek Reservoir, Red Creek Reservoir, Red Fleet Reservoir, Settlement Canyon Reservoir, Sevier Bridge Reservoir, Smith and Morehouse Reservoir, Starvation Reservoir, Stateline Reservoir, Steinaker Reservoir, Tibble Fork Reservoir, Washington Lake, and Whitney Reservoir.

Lakes that have been determined to be oligotrophic based on the 2006-2007 TSI are: Bear Lake, Blanding Reservoir #4, Fish Lake, Huntington Lake North, Hyrum Reservoir, Lake Powell, Marshall Lake, Navajo Lake, Pelican Lake, Pine Lake, Quail Creek Reservoir, Strawberry Reservoir, Tropic Reservoir, Upper Stillwater Reservoir, Wall Lake, and Wide Hollow Reservoir.

Table 2.14-2 Trophic Status of Lakes Based on Trophic State Index (TSI)

Number and Acreage of Assessed Lakes and Reservoirs.														
Trophic Class	91/92		93/94		95/96		98/99		00/01		02/03		06/07	
Oligotrophic	27 (22%)	239,888 (58%)	42 (32%)	290,432 (63%)	47 (36%)	285,154 (62%)	36 (28%)	288,029 (63%)	28 (21%)	50,380 (11%)	38 (29%)	52,880 (11%)	16 (15%)	254,542 (60%)
Mesotrophic	52 (42%)	21,061 (5%)	51 (39%)	46,678 (10%)	57 (44%)	59,191 (13%)	66 (52%)	63,648 (14%)	60 (46%)	275,274 (60%)	59 (45%)	252,470 (54%)	57 (52%)	39,028 (9%)
Eutrophic	30 (24%)	31,990 (8%)	24 (19%)	22,670 (5%)	24 (19%)	116,166 (25%)	21 (16%)	11,390 (2%)	36 (27%)	36,285 (8%)	31 (24%)	65,407 (14%)	35 (34%)	123,686 (29%)
Hypereutrophic	15 (12%)	122,069 (29%)	13 (11%)	100,808 (22%)	1 (1%)	50 (-)	5 (4%)	97,500 (21%)	7 (5%)	98,703 (21%)	3 (2%)	97,030 (20.7%)	1 (1%)	7,184 (2%)
TOTALS	124	415,008	130	460,588	129	460,561	128	460,567	131	460,642	132	467,787	109	424,593

2.14.3 Control and Restoration Efforts

Several of our watersheds are known to be impaired for water quality and these are reflected in our 2008 303(d) list of impaired waters. Many of these problems were recognized several years ago and restoration efforts have been ongoing through Section 314 Clean Lakes Project grants, Section 319 grants, cooperative efforts between DWQ and other state and federal agencies, and wastewater treatment plant upgrades. Best Management Practices (BMPs) that we are using to protect and restore water quality include biological and chemical removal of phosphorus in wastewater treatment plants, reducing or eliminating the discharge from animal feeding operations to tributary streams, controlling grazing and access of animals to streams, establishing riparian buffer strips adjacent to agricultural lands, restoring stream bank and slope stability, maintaining property tidiness, keeping streets and gutters clean, reducing excess irrigation and the corresponding return flows, restricting excessive use of fertilizers and pesticides, and regulating off-road activities. Proper design, construction, and maintenance of sewage facilities, solid waste disposal facilities and the installation of fish cleaning stations at popular lakes have all contributed to improved lake water quality. Cooperation with other agencies, including the US Forest Service, BLM, NRCS, and local conservation districts have facilitated the education of individuals using both public and private lands as to various activities that have the potential to adversely impact water quality and utilize practices that limit or control these negative impacts. Table 2.14-3 contains a listing of specific lake rehabilitation techniques that have been used in addressing problems identified in diagnostic/feasibility studies funded under Section 314 of the Clean Water Act and ongoing lake assessments.

Table 2.14-3 Lake Rehabilitation Techniques

Technique	Lakes using Technique	Lake Acreage
In-lake Treatments		
1. Phosphorus Precipitation/Inactivation		
2. Sediment Removal/Dredging	1	11
3. Artificial circulation to increase oxygen		
4. Aquatic Macrophyte harvesting	1	120
5. Application of aquatic herbicides		
6. Drawdown for macrophyte control		
7. Hypolimnetic aeration		
8. Sediment oxidation		
9. Hypolimnetic withdrawal of low DO water		
10. Dilution/Flushing		
11. Shading/sediment covers or barriers		
12. Destratification		
13. Sand or other filters to clarify water		
14. Food chain manipulation		
15. Biological controls	1	11
16. Fish Clean Station Installed	23	437,046
Watershed Treatments		
20. Sediment Traps/Detention ponds	2	1,368
21. Erosion control Shoreline/Streambank	7	26,565
22. Diversion of nutrient rich inflows		
23. Conservation tillage used		
24. Integrated pest management practices applied		
25. Animal waste management practices installed	6	9,850
26. Porous pavement used		
27. Redesign streets/parking lots to reduce runoff		
28. Road or skid trail management		
29. Land surface roughening for erosion control		
30. Riprap installation	2	4,063
31. Unspecified BMPs installed	9	2,990
32. Riparian Fencing	8	12,924
33. Diversion structures installed	1	2,015
34. Check-dams or stream structures	6	9,850
35. Reseeding areas for erosion control	6	9,850
36. Streambank stabilization using vegetative controls	6	12,924
37. Wetland treatment of inflow waters	1	11
Other Lake Protection/Restoration Efforts		
40. Local Lake Management Program in place	3	168,540
41. Public Information/Education Program	21	141,288
42. Local Ordinance control to protect lakes	3	4,063
43. Point Source Controls	2	4,359
44. Municipal sewer system developed	3	3,252

Watershed management plans and TMDLs are currently being developed to address the unique problems and conditions identified for a particular lake or reservoir. In addition, wherever point sources are identified in a watershed that are impacting water quality, appropriate steps are being taken to control the discharge of contaminants under the NPDES and UPDES permitting process.

Clean Lakes Program Phase I studies were completed on Scofield Reservoir, Panguitch Lake, Deer Creek Reservoir, Bear Lake, Pineview Reservoir, Salem Pond, Minersville Reservoir, Otter Creek Reservoir, Navajo Lake, Mantua Reservoir, Pelican Lake, Hyrum Reservoir, East Canyon Reservoir and Utah Lake. Phase II lake restoration projects were conducted on four of these assessment units (Panguitch Lake, Scofield Reservoir, Deer Creek Reservoir and Salem Pond). For specific details on Clean Lakes and Section 319 Projects please refer to the summary listed in Table 2.14-4.

Table 2.14-4 Listing of Phase II and Section 319 Projects for Lake Water Quality Control

Name of Lake Project	Date Completed	Type	Federal Funding	Problems	Rehabilitation Techniques ¹
Minersville Reservoir	1991-1998	319	\$ 889,120	Eutrophication	21,25,31,32,35,36,41
Hyrum Reservoir	1991-1995	319	\$1,582,215	Eutrophication	10,16,21,25,31,32,35,36,41
Otter Creek Reservoir	1991-1998	319	\$682,000	Eutrophication	16,21,25,31,32,35,36,41
Echo	1992-1998	319	\$2,050,6000	Eutrophication	16,21,25,31,32,35,41
Scofield Reservoir	1992	Phase II	\$120,000	Watershed Erosion	16,21,30,32,33,34,35,36,41,42,44
Panguitch Lake	1989	Phase II	\$ 95,925	Watershed Erosion	16,20,21,30,32,34,35,36,41,42
Deer Creek Reservoir	1992	Phase II	\$328,393	Agricultural Wastes	20,21,25,29,31,40,41,42,43
Salem Pond	1995	Phase II	\$ 95,000	Macrophytes, Depth	2,15,37,41,

¹ See Table 2.14-3

2.14.4 Impaired and Threatened Lakes

Several factors were considered in the assessment for beneficial use support. The monitoring program for lakes and reservoirs is designed to provide basic water quality information and evaluate algal productivity during the summer period. Additional winter monitoring may be conducted to evaluate dissolved oxygen deficiencies. Water quality standards are evaluated to assess impairment for waters classified as Class 2 (recreation), Class 3 (aquatic life), and Class 4 (agriculture). The assessment includes water column profiles of dissolved oxygen, pH, and temperature using a multi-probe sensor. Values for these parameters are measured at 1-meter intervals throughout the water column and evaluated according to current 305(b) guidelines. A comparison of water column values with State standards proceeds as follows.

For any one pollutant or stressor, exceedence of standards in less than or equal to 10 percent of measurements, a designation of fully supporting is assigned. For any one pollutant or stressor, criteria exceeded in greater than 10 percent of measurements are assessed as not supporting. An exception to these guidelines has been provided for dissolved oxygen. Exceedence criteria for dissolved oxygen have been defined using the 1 day minimum dissolved oxygen concentration

of 4.0 mg/L. State standards account for the fact that anoxic or low dissolved oxygen may exist in the bottom of deep reservoirs and therefore, the dissolved oxygen standard is applied as follows. When the concentration is above 4.0 mg/L for greater than 50% of the water column depth, a fully supporting status is assigned. When less than 50% of the water column dissolved oxygen is above 4.0 mg/L, it is designated as not supporting the fisheries beneficial use.

Having determined support status for individual pollutants or stressors, an overall use designation was determined based on a combination of the individual pollutant or stressor support designations. A “fully supporting” status was assigned when all of the basic criteria (dissolved oxygen, pH and temperature) were found to be fully supporting and a “not supporting” status was assigned to a waterbody when at least two of the basic criteria were found to be not supportive.

Next there is a modification of the initial support status through an evaluation of the trophic state index (TSI), winter dissolved oxygen conditions with reported fish kills, and whether Cyanobacteria (blue green algae) dominate the phytoplankton community. This evaluation, along with best professional judgment, could shift initial support status ranking downward if two of the three criteria indicate that there is impairment to the water quality.

A final determination to list the waterbody is made through an evaluation of assessment trends since 1989. Since that time, we have incorporated the hydrology and seasonal variations associated with lakes and reservoirs. In general, if an assessment unit exhibits a consistent status ‘not supporting’, it is added to the 303(d) list. Lakes that exhibit a mixture of not supporting and fully supporting conditions over a period of time are not listed until two consecutive assessment cycles demonstrate impairment, as well as a long-term increasing trend in TSI values, low winter dissolved oxygen, or increased densities of Cyanobacteria before we list the waterbody as impaired.

Table 2.14-5 presents summary data for each of the 132 lakes and reservoirs. Table 2.14-6 lists the total number in each support status. It should be noted that the biological data used to modify the initial conventional assessment (winter dissolved oxygen and fish kills) may have been collected prior to the data summary period (2006-2007) for this report. If a lake or reservoir supported the designated use for the 2008 cycle, it is considered meeting its beneficial use for the purpose of the calculating the summary statistics in Table 2.14-6 regardless of lake’s category (e.g., a Category 5 may be fully supporting for 2008). If the lake or reservoir was not sampled for the 2008 cycle, the previously determined Category was applied. Of the 468,898 surface acres evaluated 69% were found supporting their beneficial uses and 31% were not supporting the beneficial uses. Tabulation by individual lakes indicates that for the 132 lakes assessed, 64% were fully supporting, and 36% were not supporting. Four lakes were assessed as impaired for a second consecutive assessment cycle and are therefore new additions to Category 5. These include: Monticello Lake, Rockport Reservoir, Starvation Reservoir and Wide Hollow Reservoir. Lakes that were assessed as impaired for one cycle only and thus will be listed in Category 3B include: Blanding City No. 4, and Little Creek Reservoir.

Table 2.14-5 Summary of Individual Lake Beneficial Use Support

Lake Description	Acres	Assessment Cycle						Overall Support		303d list	Conventional Parameters DO, Temp, pH (2008)	Assessment Category	Total P > 0.025 mg/L Indicator	TSI >50	Winter DO/ Fish Kills	Cyanobacteria present
		1998	2000	2002	2004	2006	2008	FS	NS							
Anderson Meadow Reservoir	8	FS	FS	FS	FS	FS	FS	8			FS	2				Y
Ashley Twin Lakes	27	ND	FS	FS	FS	FS	FS	27				2				N
Baker Dam Reservoir	63	NS	NS	NS	NS	NS	NS		63	X	NS-DO, T	4	Y	Y		Y
Barney Lake	72	NS	FS	NS	FS	FS	FS	72			FS	2	Y	Y		Y
Bear Lake	69,760	FS	FS	FS	FS	FS	FS	69,760			FS	2				N
Beaver Meadow Reservoir	5	FS	FS	FS	FS	FS	FS	5			FS	2				N
Big East Lake	23	NS	NS	NS	NS	NS	NS		23	X	NS- DO	5		Y		Y
Big Sand Wash Reservoir	390	NS	FS	FS	NS	FS	FS	390				2				Y
Birch Creek Reservoir #2	63	NS	FS	FS	NS	NS	FS	63			FS	2				N
Blanding City Reservoir#4	32	NS	FS	FS	NS	NS	NS		32		NS-T	3B				N
Bridger Lake	21	NS	NS	NS	NS	NS	NS		21	X	NS-DO	5			DO	Y
Brough Reservoir	128	NS	NS	NS	NS	NS	NS		128	X	NS-DO,T	5		Y		Y
Browne Lake	54	NS	NS	NS	FS	FS	NS		54	X	NS-DO	4	Y	Y		Y
Butterfly Lake	5	FS	FS	FS	FS	FS	FS	5			FS	2				Y
Calder Reservoir	99	NS	NS	NS	NS	NS	NS		99	TMDL Complete	NS-DO	4	Y	Y	DO/FK	Y
Causey Reservoir	142	NS	FS	FS	FS	FS	FS	142			FS	2				N
China Lake	31	NS	NS	NS	FS	FS	NS		31	X	NS-DO,T	5			DO/FK	Y
Cleveland Reservoir	185	NS	FS	FS	FS	FS	FS	185			FS	2				Y
Cook Lake	9	NS	FS	NS	FS	FS	FS	9			FS	2	Y	Y		ND

Lake Description	Acres	Assessment Cycle						Overall Support		303d list	Conventional Parameters DO, Temp, pH (2008)	Assessment Category	Total P > 0.025 mg/L Indicator	TSI >50	Winter DO/ Fish Kills	Cyanobacteria present
		1998	2000	2002	2004	2006	2008	FS	NS							
Currant Creek Reservoir	300	FS	FS	FS	FS	FS	FS	300			FS	2				Y
Cutler Reservoir	7,184		NS	NS	FS	FS	NS	7,184		X	FS	5	Y	Y		ND
Dark Canyon Lake	6	NS	FS	FS	FS	FS	FS	6			FS	2				ND
Deer Creek Reservoir	2,965	NS	NS	NS	FS	FS	NS		2,965	TMDL Complete	NS- DO, T	4	Y	N		Y
DMAD Reservoir	1,199	FS	FS	FS	FS	FS	FS	1,199			FS	2		Y		Y
Donkey Reservoir	40	FS	FS	FS	FS	FS	FS	40			FS	2				N
Duck Fork Reservoir	47	NS	FS	FS	FS	FS	FS	47			FS	2	Y		DO	N
East Canyon Reservoir	684	NS	NS	NS	FS	NS	NS		684	TMDL Complete	NS- DO, TP	4	Y	N		Y
East Park Reservoir	132	FS	NS	FS	FS	FS	FS	132			FS	2				Y
Echo Reservoir	1,394	NS	NS	NS	FS	FS	NS		1394	X	NS- DO	5	Y	Y		Y
Electric Lake	425	NS	FS	FS	FS	FS	FS	425			FS	2				Y
Fairview Lake #2	105	NS	FS	FS	FS	FS	FS	105			FS	2				N
Ferron Reservoir	55	NS	FS	FS	FS	NS	FS	55			FS	2				N
Fish Lake	2,500	NS	FS	FS	FS	FS	FS	2500			FS	2				N
Flaming Gorge Reservoir	42,020	FS	FS	FS	FS	FS	FS	42020			FS	2				Y
Forsyth Reservoir	158	NS	NS	NS	NS	NS	NS		158	TMDL Complete	NS-pH	4A		Y		N
Grantsville Reservoir	88	FS	FS	FS	FS	FS	FS	88			FS	2				
Gunlock Reservoir	266	NS	NS	NS	NS	NS	NS		266	X	NS- DO	4A	Y			Y
Gunnison Bend Reservoir	706	FS	FS	FS	FS	FS	FS	706			FS	2		Y		N

Lake Description	Acres	Assessment Cycle						Overall Support		303d list	Conventional Parameters DO, Temp, pH (2008)	Assessment Category	Total P > 0.025 mg/L Indicator	TSI >50	Winter DO/ Fish Kills	Cyanobacteria present
		1998	2000	2002	2004	2006	2008	FS	NS							
Gunnison Reservoir	1,287	NS	FS	FS	FS	FS	FS	1287			FS	2	Y			N
Hoop Lake	162	FS	FS	FS	FS	FS	FS	162			FS	2				Y
Hoover Lake	17	FS	FS	FS	FS	FS	FS	17			FS	2				Y
Huntington Lake North	225	NS	FS	FS	FS	FS	FS	225			FS	2				N
Huntington Reservoir	115	NS	FS	FS	FS	FS	FS	115			FS	2				N
Hyrum Reservoir	438	NS	NS	NS	NS	NS	FS	438		TMDL Complete	FS	4A		N		N
Joes Valley Reservoir	1,183	FS	FS	FS	FS	FS	FS	1183			FS	2				N
Johnson Valley Reservoir	704	NS	NS	NS	NS	NS	FS	704		TMDL Complete	FS	4A	Y	Y	DO	Y
Jordanelle Reservoir	3,300	FS	FS	FS	FS	FS	FS	3300			FS	2				N
Kens Lake	86	NS	NS	NS	NS	FS	FS	86			FS	2		N		Y
Kents Lake	48	NS	NS	NS	NS	NS	NS	48		TMDL Complete	FS	4	Y	Y		N
Kolob Reservoir	335	NS	FS	NS	NS	FS	FS	335			FS	2	Y			ND
Koosharem Reservoir	310	NS	NS	NS	NS	NS	NS		310	TMDL Complete	NS- pH	4	Y	Y		Y
Labaron Reservoir	24	NS	NS	NS	NS	NS	FS	24		TMDL Complete	FS	4		Y	DO	Y
Lake Mary	23	NS	FS	FS	FS	FS	FS	23			FS	2				N
Lake Powell	162,760	FS	FS	FS	FS	FS	FS	162760			FS	1				ND

Lake Description	Acres	Assessment Cycle						Overall Support		303d list	Conventional Parameters DO, Temp, pH (2008)	Assessment Category	Total P > 0.025 mg/L Indicator	TSI >50	Winter DO/ Fish Kills	Cyanobacteria present
		1998	2000	2002	2004	2006	2008	FS	NS							
Little Creek Reservoir	65	NS	FS	FS	FS	FS	NS		65		NS-pH	3B		N		Y
Little Dell Reservoir	249	NS	FS	FS	FS	FS	FS	249			FS	2				Y
Lloyds Reservoir	104	NS	FS	FS	NS	NS	FS	104			insufficient data	2				Y
Long Park Reservoir	300	FS	FS	FS	FS	FS	FS	300			FS	2				Y
Lost Creek Reservoir	415	FS	FS	FS	FS	FS	FS	415			FS	2				N
Lower Bowns Reservoir	90	NS	FS	FS	NS	NS	NS		90	X	NS-pH	5	Y	Y		Y
Lower Box Reservoir	50	NS	NS	NS	NS	NS	NS		50	TMDL Complete	NS-pH	4	Y	Y		Y
Lower Gooseberry Reservoir	57	NS	NS	NS	NS	NS	FS	57		X	FS	5	Y	N	DO/FK	Y
Lyman Lake	27	NS	NS	NS	NS	NS	NS		27	X	NS-DO	5		Y	DO	Y
Manning Meadow Reservoir	59	NS	NS	NS	NS	NS	NS		59	X	NS- DO	5	Y	Y	DO/FK	N
Mantua Reservoir	554	NS	NS	NS	NS	NS	NS		554		NS -pH, T	5	Y			Y
Marsh Lake	38	NS	NS	NS	NS	NS	NS		38	X	NS- DO	5			DO/FK	Y
Marshall Reservoir	18	NS	FS	NS	NS	NS	FS	18			FS	2			DO/FK	Y
Matt Warner Reservoir	297	NS	NS	NS	FS	NS	NS		297	TMDL Complete	NS-T	5	Y	Y	DO/FK	N
Meeks Cabin Reservoir	477	FS	FS	FS	FS	FS	FS	477			FS	2				N
Mill Hollow Reservoir	15	NS	NS	NS	NS	NS	NS		15	X	NS- pH	5	Y	Y		Y
Mill Meadow Reservoir	156	NS	NS	NS	NS	NS	NS		156	TMDL Complete	NS- pH	4	Y	Y		Y
Miller Flat Reservoir	160	FS	FS	FS	FS	FS	FS	160			FS	2				Y

Lake Description	Acres	Assessment Cycle						Overall Support		303d list	Conventional Parameters DO, Temp, pH (2008)	Assessment Category	Total P > 0.025 mg/L Indicator	TSI >50	Winter DO/ Fish Kills	Cyanobacteria present
		1998	2000	2002	2004	2006	2008	FS	NS							
Millsite Reservoir	435	NS	FS	FS	FS	FS	FS	435			FS	2				N
Minersville Reservoir	990	NS	NS	NS	NS	NS	FS	990		X	NS-T	5		Y		N
Mirror Lake	50	NS	NS	NS	FS	FS	FS					2			DO	Y
Mona Reservoir	1,110	FS	FS	FS	FS	NS	FS	1,110			FS	2				N
Monticello Lake	3	FS	FS	FS	FS	NS	NS		3	X	NS-pH	5		N		N
Moon Lake	768	FS	FS	FS	FS	FS	FS	768			FS	2				N
Navajo Lake	714	NS	NS	NS	NS	NS	NS		714	X	Insufficient data	5		N	DO/FK	NA
Newcastle Reservoir	163	NS	NS	NS	NS	NS	NS		163	X	NS-DO	5		Y		N
Newton Reservoir	350	NS	NS	NS	NS	NS	NS		350	TMDL Complete	NS-DO,T	5	Y	Y		Y
Nine Mile Reservoir	197	NS	NS	NS	NS	NS	NS		197	X	NS-pH,DO	5	Y	N		N
Oak Park Reservoir	382	FS	FS	FS	FS	FS	FS	382			FS	2				N
Otter Creek Reservoir	2,520	NS	NS	NS	NS	NS	NS		2,520	TMDL Complete	NS- DO,T, pH	4	Y	N		Y
Palisades Lake	66	NS	NS	NS	NS	NS	FS	66			FS	2	Y	N		N
Panguitch Lake	1,248	NS	NS	NS	NS	NS	NS		1248	TMDL Complete	NS-pH, NS-DO	4	Y	Y		Y
Paradise Park Reservoir	143	FS	FS	FS	FS	FS	FS	143			FS	2				N
Pelican Lake	1,680	NS	FS	NS	NS	NS	NS		1680	X	NS pH	5	Y		FK	Y
Pine Lake	77	NS	FS	NS	NS	NS	FS	77			FS	2		N		N
Pineview Reservoir	2,874	NS	NS	NS	NS	NS	NS		2,874	TMDL Complete	NS-T, DO	4	Y	Y		Y

Lake Description	Acres	Assessment Cycle						Overall Support		303d list	Conventional Parameters DO, Temp, pH (2008)	Assessment Category	Total P > 0.025 mg/L Indicator	TSI >50	Winter DO/ Fish Kills	Cyanobacteria present
		1998	2000	2002	2004	2006	2008	FS	NS							
Piute Reservoir	2,508	NS	NS	NS	NS	NS	NS		2,508	X	NS-T, TP	5	Y	Y		Y
Porcupine Reservoir	190	NS	NS	NS	NS	FS	FS	190		X	FS	2	Y			N
Posey Lake	20	NS	FS	FS	FS	FS	FS	20			FS	2	Y			N
Puffer Lake	65	NS	NS	NS	NS	NS	FS	65		TMDL Complete	FS	4		N		Y
Quail Creek Reservoir	590	NS	FS	FS	FS	FS	FS	590			FS	2				N
Recapture Reservoir	265	NS	NS	NS	NS	NS	NS		265	X	NS-DO	5		N		N
Red Creek Reservoir	142	NS	FS	FS	FS	FS	FS	142			FS	2				Y
Red Creek Reservoir (Iron)	62	NS	NS	NS	NS	NS	NS		62	X	NS-DO	5	Y	Y	DO	N
Red Fleet Reservoir	520	FS	NS	NS	NS	NS	NS		520	X	NS-DO	5		N		Y
Redmond Lake	160	NS	FS	FS	FS	FS	FS	160			FS	2		Y		N
Rex's Reservoir	46	NS	FS	FS	FS	FS	FS	46			FS	2				N
Rockport Reservoir	1,189	FS	FS	FS	FS	NS	NS		1189	X	NS-DO	5		Y		Y
Rush Lake	80	NS	FS	FS	FS	FS	FS	80			FS	2	Y	Y		N
Salem Pond	11	FS	FS	FS	FS	FS	FS	11			FS	2				N
Scofield Reservoir	2,815	NS	NS	NS	NS	NS	FS	2815		TMDL Complete	FS	4	Y	Y		Y
Scout Lake	18	FS	FS	FS	FS	FS	FS	18			FS	2				N
Settlement Canyon Res	315	FS	FS	FS	FS	FS	FS	315			FS	2				N
Sevier Bridge Reservoir	10,905	FS	FS	FS	FS	FS	FS	10905			FS	2				Y
Sheep Creek Reservoir	86	NS	FS	FS	FS	FS	FS	86			FS	2				Y
Silver Lake Flat Reservoir	54		FS	FS	FS	FS	FS	54			FS	2				N

Lake Description	Acres	Assessment Cycle						Overall Support		303d list	Conventional Parameters DO, Temp, pH (2008)	Assessment Category	Total P > 0.025 mg/L Indicator	TSI >50	Winter DO/ Fish Kills	Cyanobacteria present
		1998	2000	2002	2004	2006	2008	FS	NS							
Smith and Morehouse Res	44	NS	FS	FS	FS	FS	FS	44			FS	2				N
Spirit Lake	41	NS	NS	NS	FS	FS					FS	2				N
Stansbury Lake	120	NS	FS	FS	FS	FS	FS	120				2				N
Starvation Reservoir	2,760	NS	FS	NS	NS	NS	NS		2760	X	NS- DO	5	Y	N		Y
Stateline Reservoir	288	FS	FS	FS	FS	FS	FS	288			FS	2				N
Steinaker Reservoir	829	NS	NS	NS	NS	NS	NS		829	X	NS-DO,T	5		N		Y
Strawberry Reservoir	17,160	NS	NS	NS	NS	NS	NS		17160	TMDL Complete	NS- DO, TP	4	Y	N	DO	Y
Three Creeks Reservoir	57	NS	FS	FS	FS	NS	FS	57			FS	5				Y
Tibble Fork Reservoir	13	FS	FS	FS	FS	FS	FS	13			FS	2				N
Tony Grove Lake	25	NS	NS	NS	NS	NS	NS		25	X	NS- DO, pH	5	Y		FK	Y
Trial Lake	98	FS	FS	FS	FS	FS	FS	98			FS	2				N
Tropic Reservoir	180	NS	FS	FS	FS	FS	FS	180			FS	2				N
Upper Enterprise Reservoir	200	NS	FS	NS	NS	NS	FS	200			FS	2	Y			Y
Upper Stillwater Reservoir	320	FS	FS	FS	FS	FS	FS	320			FS	2				Y
Utah Lake	96,900	NS	NS	NS	NS	NS	NS		96,900	X	FS	5	Y	Y		Y
Wall Lake	61	FS	FS	FS	FS	FS	FS	61			FS	2				N
Washington Lake	94	FS	FS	FS	FS	FS	FS	94			FS	2				N
Whitney Reservoir	188	NS	FS	FS	FS	FS	FS	188			FS	2				Y

Lake Description	Acres	Assessment Cycle						Overall Support		303d list	Conventional Parameters DO, Temp, pH (2008)	Assess- ment Category	Total P > 0.025 mg/L Indicator	TSI >50	Winter DO/ Fish Kills	Cyano- bacteria present
		1998	2000	2002	2004	2006	2008	FS	NS							
Wide Hollow Reservoir	145	NS	FS	NS	NS	NS	NS		145	X	NS-pH,T	5	Y			N
Willard Bay Reservoir	10,000	NS	FS	FS	FS	FS	FS	10,000			FS	2	Y			Y
Woodruff Creek Reservoir	90	NS	FS	FS	FS	FS	FS	90			FS	2				Y
Yankee Meadow Reservoir	53	NS	NS	NS	NS	NS	NS		53	X	NS-pH,DO	5		Y	FK	N

Notes:

FS Fully Supporting

NS Not Supporting

Y Yes

N No

DO Dissolved Oxygen

FK Fish Kill

T Temperature

Total P Total Phosphorus

NA Not Analyzed

TDS Total Dissolved Solids

Table 2.14-6 Summary of Assessed Lake and Reservoir Support Use

Summary of Assessed Lake and Reservoir Support Use		
Degree of Use Support	Number	Acreage
Fully supported:	86	324,088
Not supporting:	46	144,810
Total	132	468,898

Table 2.14-7 Summary of Lake and Reservoir Support Use by Designated Beneficial Use (acres)

Use	Supporting	Not Supporting	Unassessed
Fish Consumption	361,366	0	120,272
Aquatic Life Support	316,834	152,182	1,100,622
Shellfishing	NA	NA	NA
Swimming	162,760	0	1,242,441
Secondary Contact	162,760	0	1,389,772
Drinking Water Supply	255,799	0	0
Agriculture	371,388	96,900	0

NA Not Applicable

Table 2.14-7 summarizes the use support by classification. The unassessed acreage for fish consumption was calculated by subtracting the assessed acreage from the total acreage in Table 2.14-1 (all Utah lakes and reservoirs minus Great Salt Lake). The unassessed swimming acreage was calculated by subtracting the assessed acreage from the acreage for all Class 2A in Table 2.14-5 waters plus Great Salt Lake (Classes 5A through 5E). The unassessed secondary contact acreage was calculated by subtracting the assessed acreage from the total acreage in Table 2.14-1 plus Great Salt Lake (Classes 5A through 5E).

Tables 2.14-8 and 2.14-9 summarize the various cause and source categories for those lakes that are not supporting their designated uses. Utah DWQ will continue the Phase I investigations on several lakes and reservoirs in the future in cooperation with other partner agencies including but not limited to the following: Strawberry Reservoir, Lake Powell, and Flaming Gorge Reservoir. However, all of these studies will depend on available time and resources

2.14.5 Acid Effects on Lakes

In 1986, the Acid Deposition Technical Advisory Committee recommended that reconnaissance surveys be conducted in areas considered potentially sensitive to acid deposition. In response to this recommendation, a cooperative agreement involving private individuals, private industries, and several State and Federal agencies was developed and approved. This agreement organized efforts to sample selected streams and lakes in ten different mountain ranges in Utah during the

summer of 1987. The water chemistry data were then used to determine the Acid Neutralizing Capacity (ANC) of the sampled lakes and streams and their sensitivity to acid deposition. Generally, it was concluded that several of the high lakes in the State, were susceptible to acid precipitation due to their low buffering capacities but at the moment, none were actually affected by acid deposition.

2.14.6 Toxic Effects on Lakes

One hundred twenty lakes/reservoirs were assessed for toxic metals during this reporting cycle (Table 2.14-10). Because of the association of metal solubility with decreasing reduction/oxidation potential at the sediment-water interface, samples were collected approximately 0.5 m above the bottom of the lake or reservoir. Resulting data were compared to numeric standards for the protection of aquatic life.

This monitoring would also evaluate the potential for uptake of toxic metals into the food chain initiated by benthic organisms. Hence, this type of sampling is used as a screening tool and additional water column sampling would be performed to identify the frequency of exceedence and subsequent impairment. Although some tributary stream segments have been identified as impaired with various toxic metals, no lake samples contained metal concentrations above the chronic water quality standards.

Notwithstanding these results for water quality, there are some reservoirs for which DWQ and the Utah Department of Health have issued fish consumption advisories for polychlorinated biphenyls (PCBs) and methyl mercury. A PCB fish consumption advisory was issued for Utah Lake. Mercury fish consumption advisories were issued for Lake Powell, Baker Dam, Causey, Deer Creek, East Canyon, Gunlock, Hyrum, Joes Valley, Jordanelle, Lower Bowns, Minersville, Newcastle, Otter Creek, Panguitch, Scofield, Strawberry Wide Hollow, Willard Bay, Piute, Porcupine, and Yuba Reservoirs and Bear Lake, Huntington Lake and Kens Lake. These advisories are based on EPA's recommended tissue concentrations of 0.3 ppm wet weight mercury and not on FDA recommended maximum concentrations of 1.0 ppm. DWQ has decided to list waterbodies as impaired for mercury if tissue concentrations exceed 1.0 ppm. DWQ is continuing to monitor these reservoirs and to check fish tissue concentrations in the remaining 132 priority lakes.

Table 2.14-8 Total Size of Lake Assessment Units Not Fully Supporting Uses Affected by Various Cause Categories (Acres)

Cause Categories Threatened	Major Impact	Moderate Impact	Minor Impact
Cause Unknown			
Unknown Toxicity			
Pesticides			
Priority Organics	---	---	---
Nonpriority Organics	---	---	---
Metals	0	0	0
Ammonia	0	0	0
Chlorine	---	---	---
Other Inorganics	0	0	0
Nutrients	140,431	3,928	0
pH	0	5704	0
Siltation	113,540	22,053	0
Organic Enrichment / DO	107,849	133,247	0
Salinity / TDS / Chlorine	96,900	0	0
Thermal Modification	0	0	0
Flow Alteration	---	---	—
Habitat Alteration	*	*	
Pathogen Indicators	0	1,000	0
Radiation	---	---	—
Oil and Grease	0	0	0
Suspended Solids	97,185	0	0
Noxious Aquatic Plants	102,922	754	—
Total Toxics	---	---	—
Turbidity	---	---	—
Exotic Species	---	---	—
Filling and Draining	11,465	5,915	---

Table 2.14-9 Total Size of Lake Assessment Units Not Fully Supporting Uses Affected by Various Source Categories (Acres)

Source Categories Threatened	Major Impact	Moderate impact	Minor Impact
Industrial Point Sources	97,892	0	0
Municipal Point Sources	106,205	2,965	0
Agriculture	16,796	120,613	0
Silviculture	0	990	0
Construction	4,295	103,225	0
Runoff / Storm Sewers	101,437	0	0
Resource Extraction	0	173	0
Land Disposal	0	0	0
Hydromodification	110,828	21,472	0
Habitat Modification			
Marinas	0	0	0
Atmospheric Deposition	0	0	0
Contaminated Sediments	0	0	0
Unknown Source	---	---	---
Natural Source	---	---	---

Table 2.14-10 Summary of Total Lake Assessment Unit Size Affected by Toxics

Assessment unit Type / Unit	Size Monitored For Toxics	Size With Elevated Levels of Toxics
Lake (Acres)	467,787	0

2.14.7 Trends in Lake Water Quality

Table 2.14-11 summarizes the trends in water quality of those lakes assessed under the Lake Water Quality Assessment program. The 1981 data represents eighty-nine lakes and reservoirs where comparable data existed from the original inventory and classification study that completed in 1982. These data represent a comparison of lakes and reservoirs monitored during the last seven cycles of the study (1989-1990, 1991-1992, 1993-1994, 1995-1996, 1997-1999, 2000-2001 and 2002-2003). Carlson TSI values for each assessment unit were compared to values obtained during previous periods of study for comparative lakes or reservoirs (Table 2.14-12). Unknown values were due to data not available at the time of assessment or the reservoir was dry. The initial data period contains the information collected for the Clean Lakes Inventory for Utah in 1982. It should be noted that the 1982 data set in many cases is limited to total phosphorus and Secchi depth data or only one of the two. Chlorophyll *a* data is very limited during that study period. Trends for water quality were then determined from these comparisons. A TSI value comparison yielding a variation of ≤ 5 indicated a stable trend. A TSI value comparison yielding an increase of more than 5 is reported as a degrading condition. A TSI value comparison yielding a decrease of more than 5 is reported as an improving condition.

Table 2.14-11 Trends in Water Quality of Lakes and Reservoirs

Trend	Number of Lakes							Number of Acres						
	1991 1992	1993 1994	1995 1996	1997- 1999	2000- 2001	2002- 2003	2006- 2007	1991 1992	1993 1994	1995 1996	1997- 1999	2000- 2001	2002- 2003	2006- 2007
Improve	24 24%	40 31%	32 25%	16 12%	8 6%	35 27%	32 24%	177,785 45%	55,302 13%	10,254 2%	4,525 1%	42,583 9%	89,718 19%	168,569 36%
Stable	49 52%	70 54%	88 68%	72 55%	78 60%	44 33%	30 23%	204,223 51%	356,097 85%	449,631 98%	436,533 95%	346,863 75%	299,940 64%	174,150 37%
Degrade	23 24%	15 12%	8 6%	39 30%	5 4%	37 28%	70 53%	15,251 4%	6,759 2%	670 ---	19,455 4%	71,208 15%	75,880 16%	124,702 26%
Unknown		5 4%	1 1%	4 3%	12 9%	16 12%	12 0.3%		4,2430 1%	6 ---	129 ---	849 2%	2,288 0.5%	1,583 0.3%
Assessed for Trends	95	130	128	131	131	132	120	397,259	460,588	460,561	460,642	460,642	467,787	465,883

Table 2.14-12 Utah Reservoir/Lake Monitoring List and Trophic State Index (TSI) Evaluation

Lake / Reservoir	TSI Index								Surface Area (Acres)
	1989-90	1991-92	1993-94	1995-96	1997-99	1999-01	2002-03	2006-07	
Anderson Meadow Reservoir	52.69	50.18	43.87	46.99	44.28	35.5	46.85	47.58	8
Ashley Twin Lakes			41.52		39.16	35.01	NA	NA	27
Baker Dam Reservoir	62.33	50.42	46.25	50.9	50.67	41.71	50.29	62.06	63
Barney Lake		61.46	60.7	62.56	50.23	50.17	46.88	58.2	19
Bear Lake	37.57	32.36	32.73	29.62	34.45	45.05	29.53	32.8	69,760
Beaver Meadow Reservoir			45.98	44.28	49.44	47.44	36.31	NA	5
Big East Lake	52.42	48.32	41.48	40.58	42.11	47.72	NA	50.36	23
Big Sand Wash Reservoir	46.11	45.28	38.97	39.02	41.48	48.43	32.71	NA	390
Birch Creek Reservoir #2	52.35	47.4	49.07	36.59	45.12	44.32	53.01	44.39	63
Blanding Reservoir #4	48.4		46.74	35.83	39.8	29.85	37.16	37.26	32
Bridger Lake		46.72	51.82	46.94	46.12	44.82	43.07	47.71	21
Brough Reservoir			44.74	41.64	41.23	NA	48.64	48.91	150
Browne Lake	40.27	45.31	47.02	50.2	50.95	NA	51.08	47.41	54
Butterfly Lake	40.71	35.99	77.79	37.14	44.19	33.5	38.05	49.24	5
Calder Reservoir		54.14	59.49	59.54	58.85	57.78	54.51	59.78	99
Causey Reservoir	43.23	38.79	43.41	38.15	33.64	NA	NA	NA	142
China Lake		45.59	34.87	45.09	48.51	43.83	44.72	54.26	47
Cleveland Reservoir	41.66	51.61	42.75	35.57	46.87	46.87	39.35	50.28	185
Cook Lake	44.01	48.18	44.42	46.38	ND	49.36	NA	48.46	9
Cutler Reservoir							54.52	71.49	7,184
Currant Creek Reservoir	44.15	42.03	38.26	40.72	44.03	45.18	31.95	42.26	305
Dark Canyon Lake			40.2		ND	NA	NA	NA	6
Deer Creek Reservoir	47.79	47.04	43.14	42.58	43.64	42.24	38.76	47.61	2,965

Lake / Reservoir	TSI Index								Surface Area
	1989-90	1991-92	1993-94	1995-96	1997-99	1999-01	2002-03	2006-07	(Acres)
DMAD Reservoir	65.29	57.34	60.55	56.99	56.34	52.55	50.36	57.9	1,199
Donkey Reservoir	48.64	44.57	44.16	41.82	42.29	40.19	34.98	NA	40
Duck Fork Reservoir		39.75	28.05	37.51	42.89	39.96	NA	NA	47
East Canyon Reservoir	48.7	52.82	49.59	48.42	43.72	46.48	46.24	43.25	173
East Park Reservoir		48.35	41.41	45.98	47.18	44.48	37.04	45.48	684
Echo Reservoir		39.07	41.8	45.16	39.19	50.67	51.14	46.03	1,394
Electric Lake Reservoir	39.43	49.74	43.92	40.23	44.13	48.19	40.34	NA	425
Fairview Reservoir	52.72	38.92	39.25	33.76	38.43	33.44	42.67	49.7	105
Ferron Reservoir	43.37	39.86	35.47	31.82	39.92	40.41	45.2	41.18	55
Fish Lake	41.26	40.26	33.59	34.39	34.49	35.77	35.92	34.77	2500
Flaming Gorge Reservoir	42.75		36.47	37.32	39.61	31.93	35.82	NA	42,020
Forsyth Reservoir	61.88	52.76	56.87	49	55.33	50.75	46.4	49.59	158
Grantsville Reservoir	43.63	49.09	46.47	41.11	49.56	45.28	40.91	42.71	88
Gunlock Reservoir	42.47	42.31	47.41	42.61	40.15	38.81	42.65	53.7	266
Gunnison Bend Reservoir	63.04	62.38	55.04	54.03	58.08	53.56	57.2	53.2	706
Gunnison Reservoir	61.41	63.96	56.81	55.24	47.71	54.27	48.5	57.86	1,287
Hoop Lake	57.44	49.8	59.27	49.34	47.48	NA	39.12	NA	162
Hoover Lake	40.22	38.72	36.26	35.72	39.5	41.81	49.2	43.34	17
Huntington Lake North	37.39	44.81	37.63	35.34	43.61	46.04	30.92	34.85	225
Huntington Reservoir		46.5	43.78	32.64	40.39	36.32	40.99	42.22	115
Hyrum Reservoir	45.84	43.07	44.03	43.59	45.96	47.81	45.82	38.91	438
Joes Valley Reservoir	30.85	34.55	32.35	37.05	43.72	40.64	34.91	49.53	1183
Johnson Valley Reservoir	63.77	68.04	65.18	63.63	58.38	60.42	64.47	60.45	285
Jordanelle Reservoir			44.64	43.68	43.12	40.56	42.6	44.54	3068
Kens Lake	56.81	44.01	45.01	36.31	38.83	42.51	40.7	39.55	86
Kents Lake		69.06	67.12	63.92	58.13	77.95	63.2	58.64	26
Kolob Reservoir	41.53	47.82	45.06	43.52	35.3	34.82	31.7	41.11	335
Koosharem Reservoir	73.87	55.4	65.86	56.97	64.73	56.53	51.64	57.19	310
Labaron Reservoir		51.05	65.47	60.04	46.87	56.23	46.94	55.73	24
Lake Mary	42.18	51.43	33.5	41.74	32.32	39.16	38.32	NA	23
Lake Powell	42.47	36.58	35.13	35.07	35.10	NA	39.5	38.53	162,760
Little Creek Reservoir	45.14	37.51	40.41	36.39	42.04	30.06	NA	43.18	65
Little Dell Reservoir			36.84	33.35	42	NA	NA	NA	249
Lloyds Reservoir	49.11	42.58	47.02	35.64	38.24	35.99	32.62	51.95	104
Long Park Reservoir		44.84	45.49	41.99	DRY	DRY	34.43	48.21	60
Lost Creek Reservoir	39.53	46.18	35.17	39.26	36.97	29.56	36.93	NA	52
Lower Bowns Reservoir	50.05	41.31	47.18	48.35	40.72	40.21	44.01	56.09	90
Lower Box Reservoir		77.07	74.78	73.03	64.57	66.29	64.12	60.79	50

Lake / Reservoir	TSI Index								Surface Area
	1989-90	1991-92	1993-94	1995-96	1997-99	1999-01	2002-03	2006-07	(Acres)
Lower Gooseberry Reservoir	45.69	44.26	40.82	40.31	46.12	45.08	37.51	44.9	57
Lyman Lake		37.74	31.21	34.92	32.96	31.82	47.88	41.33	27
Manning Meadow Reservoir		54.37	50.17	49.58	52.78	NA	51.83	54.39	59
Mantua Reservoir	54.93	58.05	59.56	55.13	48.21	45.21	38.71	51.39	554
Marsh Lake	28.14	34.36	30.42	30.9	37.46	40.51	31.27	41.95	38
Marshall Lake	36.27	29.51	31.77	31.27	38.83	27.56	31.08	37.43	18
Matt Warner Reservoir		53.35	61.26	55.76	57.28	52.63	54.44	58.23	433
Meeks Cabin Reservoir	47.13	42.42	40.19	39.89	44.13	45.93	32.03	42.31	477
Mill Hollow Reservoir	47.24	47.79	47.42	46.63	56.95	55.27	45.41	49.04	15
Mill Meadow Reservoir	67.06	69.15	55.75	59.74	50.48	55.66	46.26	62.59	156
Millers Flat Reservoir		40.84	42.35	32.74	37.92	32.46	NA	39.64	65
Millsite Reservoir	35.07	41.46	35.19	37.42	45.85	55.81	30.97	40.39	435
Minersville Reservoir	59.98	56.23	66.48	56.29	56.33	53.2	50.78	61.03	990
Mirror Lake	38.23	39.95	31.69	37.91	42.78	40.77	38.3	NA	50
Mona Reservoir		66.1	57.58	44.4	49.08	39.77	52.95	44.71	1,110
Moon Lake	46.79	38.08	37.42	41.15	43.93	42.53	32.8	39.87	768
Monticello Lake		46.71	45.46	45.08	36.12	38.92	NA	39.88	3
Navajo Lake	34.03	35.41	39.71	41.15	39.93	42.58	36.08	36.05	714
New Castle Reservoir	48.12	53.92	41.78	47.5	54.15	47.22	58.62	62.34	163
Newton Reservoir	53.81	60.67	60.82	47.96	51.68	42.5	58.94	62.86	350
Nine Mile Reservoir	45.2	59.42	53.1	44.72	52.49	36.65	53.13	46.07	197
Oak Park Reservoir	48.61	47.89	42.44	44.79	45.46	46.26	42.08	33.46	382
Otter Creek Reservoir	57.44	43.54	55.23	59.19	55.59	55.15	61.12	45.41	2520
Palisade Reservoir	45.73	58.86	39.61	38.17	40.42	40.72	48.41	47.98	66
Panguitch Lake	54.25	50.56	52.67	49.56	50.81	61.63	45.91	59.3	1248
Paradise Park Lake		40.49	36.97	38.66	44.06	48.12	37.95	NA	143
Pelican Lake	44.5	38.71	47.06	41.24	38.17	34.72	46.42	37.35	1,680
Pine Lake	44.14	34.48	19.66	30.64	42.04	53.1	39.42	30.39	77
Pineview Reservoir		58.31	39.97	42.5	46.58	41.3	52.04	51.61	2,874
Piute Reservoir	57.18	54.45	45.54	47.99	55.31	56.48	51.47	50.94	2,508
Porcupine Reservoir	38.05	40.09	38.44	37.45	46.23	42.87	40.29	40.58	190
Posey Lake	46.29	45.82	38.82	32.59	42.87	42.87	32.81	NA	20
Puffer Lake	49.1	36.16	38.44	38.8	49.62	49.62	39.77	46.07	65
Quail Creek Reservoir	38.38	40.35	26.15	29.56	34.83	37.91	29.8	33.2	590
Recapture Creek Reservoir	45.61	49.16	44.5	35.56	40.64	39.75	34.43	45.76	265
Red Creek Reservoir (Iron)		53.14	57.3	40.22	52.81	47.57	51.2	56.24	39
Red Creek Reservoir		57.73	54.12	53.55	36.72	41.99	44.78	42.22	142
Red Fleet Reservoir	42.35	40.47	41.02	45.98	40.24	NA	37.89	43.5	520

Lake / Reservoir	TSI Index								Surface Area
	1989-90	1991-92	1993-94	1995-96	1997-99	1999-01	2002-03	2006-07	(Acres)
Redmond Reservoir	68.68	75.03	70.71	67.34	63.44	69.88	64.63	69.81	160
Rexs Reservoir		45.8	50.21	48.29	43.17	49.49	NA	63.06	46
Rockport Reservoir	43.88	42.98	41.78	45.48	40.76	30.85	47.93	64.13	1,189
Rush Lake	60.83	78.55	72.37	60.64	64.29	61.82	64.95	50.83	80
Salem Pond	45.89	50	39.81	45.89	44.76	38.57	42.1	53.9	11
Scofield Reservoir	62.69	55.77	53.22	41.69	45.08	45.95	44.06	51.75	2,815
Scout Lake		58.05	38.43	31.75	38.7	34.3	44.75	NA	18
Settlement Canyon Reservoir	39.65	47.94	40.84	42.54	47.43	36.25	43.52	41.76	315
Sevier Bridge Reservoir	54.4	63.95	52.19	48.24	48.66	44.35	56.38	49.73	10,905
Sheep Creek Reservoir		45.87	46.1	40.85	37.79	31.37	43.91	NA	86
Silver Lake Flat Reservoir					41.94	NA	NA	NA	54
Smith and Morehouse Reservoir	44.34	45.96	34.39	37.31	38.13	40.3	43.03	39.72	44
Spirit Lake	44.43	45.18	50.21	40.81	48.05	46.04	45.57	NA	41
Stansbury Lake	55.77	57.22	58.31	49.55	49.27	49.41	60.07	52.36	120
Starvation Reservoir	54.86	41.45	36.66	40.14	39.16	39.1	42.51	42.55	2,760
Stateline Reservoir	46.29	39.66	41.41	40.74	41.79	45.21	33.18	42.54	288
Steinaker Reservoir	35.01	40.33	33.72	34.82	38.24	37.37	36.7	40.38	829
Strawberry Reservoir	55.6	53.47	48.43	45.68	45.87	48.18	43.99	36.94	17,160
Three Creeks Reservoir		50.83	57.32	54.09	49.92	42.37	63.07	57.21	57
Tibble Fork Reservoir	28.48	42.92	44.39	41.77	38.32	39.85	36.13	48.16	13
Tony Grove Lake	40.76	33.52	35.26	33.89	41.93	40.47	35.96	NA	25
Trial Lake	42.92	37.95	39.51	35.22	43.21	48.27	46.03	NA	98
Tropic Reservoir	47.71	36.75	39.12	29.08	38.33	35.67	30.16	33.21	180
Upper Enterprise Reservoir	73.65	58.37	54.18	54.41	44.15	44.15	53.13	58.23	200
Upper Stillwater Reservoir	39.21	38.93	25.21	35.16	38.17	39.76	32.62	37.27	252
Utah Lake	69.35	67.67	67.59	64	67.9	70.08	69.19	65.55	96,900
Wall Lake		31.83	39.18	28.98	37.94	26.55	40.21	34.44	61
Washington Lake		41.59	40.73	39.55	39.78	31.12	39.44	39.64	94
Whitney Reservoir	40.11	56.88	37.21	40.63	37.72	NA	NA	40.56	188
Wide Hollow Reservoir	46.33	43.91	47.59	40.58	40.62	DRY	DRY	38.92	145
Willard Reservoir		62.84	47.68	52.66	47.43	45.92	55.86	56.62	10,000
Woodruff Creek Reservoir	40.92	48.6	43.14	42.37	45.11	NA	31.88	NA	90
Yankee Meadows Reservoir		50.19	54.09	52.84	49.4	56.48	53.55	51.18	5

Notes:
NA Not Analyzed

2.14.8 Assessment Categories

The use of assessment categories that more accurately reflects the need and progress of TMDL development has been initiated for the 2004 303(d) list and the 305(b) assessment report. Tables 2.14-13 through 2.14-19 list these categories for Utah’s lakes and reservoirs. Table 2.14-15 lists the lakes with TMDLs approved after 2003. Table 2.14-16 shows the new Category 5 listing at the end of the table. As stated above, several of Utah’s lakes and reservoirs vary between fully and not supporting their beneficial uses. As such, we require the results of two consecutive assessment cycles as either fully or not supporting in order to list or delist a lake or reservoir as supporting beneficial uses. Sub-category 3B (Table 2.14-18) was added to track such lakes or reservoirs in this process.

Table 2.14-13 Category 1 – All Designated Uses are Met

Watershed Management Unit	Assessment Unit ID	Lake Name	Beneficial Use Classes Assessed	Lake Acres
Colorado River Southeast	UT-L-14070006-001	Lake Powell	1C,2A,2B,3B,4	162,700

Figure 2.14-1 is a map of the beneficial use assessment categories excluding Category 3, lakes not assessed.

Table 2.14-14 Category 2 – Some Designated Uses are Supported; Insufficient Data to Assess Other Designated Uses

Assessment Unit ID	Lake Name	Surface Acres	Beneficial Use Classes Assessed	Beneficial Use Classes Not Assessed
UT-L-16020203-003	Jordanelle Reservoir	3300	1C,3A,4	2A
UT-L-14040106-021	Flaming Gorge Reservoir	42020	1C, 3A,4	2A, 2B
UT-L-14060003-112	Moon Lake	768	1C,,3A,4	2B
UT-L-14060009-026	Millsite Reservoir	435	1C,3A,4	2A, 2B
UT-L-14030004-001	Dark Canyon Lake	6	1C,3A,4	2B
UT-L-14080203-009	Lloyds Reservoir	104	1C,3A,4	2B
UT-L-15010008-024	Quail Creek Reservoir	590	1C, 3A,4	2A, 2B
UT-L-16020101-003	Lost Creek Reservoir	415	3A,4	2A, 2B
UT-L-16020203-002	Trial Lake	98	1C,3A,4	2B
UT-L-14060003-296	Upper Stillwater Reservoir	320	1C,3A,4	2B
UT-L-16020204-024	Lake Mary	23	1C,3A	2B
UT-L-16020204-026	Little Dell Reservoir	249	1C,3A	2B
UT-L-14060009-017	Joes Valley Reservoir	1183	3A,4	2A, 2B
UT-L-16010201-003	Bear Lake	69760	3A,4	2A, 2B
UT-L-16020101-008	Scout Lake	30	3A,4	2A, 2B
UT-L-14040106-001	Hoop Lake	162	3A,4	2B
UT-L-14040107-007	Stateline Reservoir	288	3A,4	2B
UT-L-14060003-297	Paradise Park Reservoir	143	3A,4	2B

Assessment			Beneficial Use	Beneficial Use
Unit	Lake	Surface	Classes	Classes
ID	Name	Acres	Assessed	Not Assessed
UT-L-14060002-002	Long Park Reservoir	300	3A,4	2B
UT-L-14060002-003	Oak Park Reservoir	382	3A,4	2B
UT-L-14060002-005	East Park Reservoir	132	3A,4	2B
UT-L-14060004-003	Red Creek Reservoir	142	3A,4	2B
UT-L-14060004-007	Currant Creek Reservoir	300	1C,3A,4	2B
UT-L-14060009-004	Duck Fork Reservoir	42	3A,4	2B
UT-L-14060009-018	Huntington Reservoir	118	3A,4	2B
UT-L-14060009-023	Miller Flat Reservoir	150	3A,4	2B
UT-L-14060009-024	Cleveland Reservoir	185	3A,4	2B
UT-L-14060009-025	Electric Lake	425	3A,4	2B
UT-L-14070003-027	Donkey Reservoir	40	3A,4	2B
UT-L-14070005-008	Posy Lake	20	3A,4	2B
UT-L-16010101-001	Woodruff Reservoir	90	3A,4	2B
UT-L-16010101-002	Birch Creek Reservoirs	63	3A,4	2B
UT-L-16010101-007	Little Creek Reservoir	65	3A,4	2B
UT-L-16010101-030	Whitney Reservoir	188	3A,4	2B
UT-L-16020101-005	Smith and Morehouse Reser	44	1C,3A,4	2B
UT-L-16020102-021	Causey Reservoir	142	3A,4	2B
UT-L-16020201-006	Silver Flat Lake Reservoir	54	3A,4	2B
UT-L-16020202-001	Salem Pond	11	3A,4	2A, 2B
UT-L-16020203-005	Washington Lake	94	3A,4	2B
UT-L-16020203-006	Wall Lake	61	3A,4	2B
UT-L-16020304-004	Settlement Canyon Reserv	315	3A,4	2B
UT-L-16020304-005	Granstville Reservoir	88	3A,4	2B
UT-L-16030002-002	Tropic Reservoir	180	3A,4	2B
UT-L-16030002-007	Pine Lake	77	3A,4	2B
UT-L-16030003-016	Rex Reservoir	46	3A,4	2B
UT-L-14040106-031	Beaver Meadow Reservoir	122	3A,4	2B
UT-L-14040107-001	Meeks Cabin Reservoir	477	3A,4	2B
UT-L-14060003-012	Hoover Lake	17	3A,4	2B
UT-L-16020101-010	Butterfly Lake	5	3A,4	2B
UT-L-16020201-005	Tibble Fork Reservoir	13	3A,4	2B
UT-L-14040106-016	Sheep Creek Lake	86	3A,4	2B
UT-L-14070003-006	Fish Lake	2500	3A,4	2B
UT-L-14060009-034	Huntington Lake	225	3A,4	2B
UT-L-16020201-001	Mona Reservoir	1110	3B,4	2B
UT-L-16020304-003	Stansbury Lake	120	3B,4	2B
UT-L-16030003-007	Sevier Bridge Reservoir	10905	3B,4	2A, 2B
UT-L-16030003-012	Redmond Lake	160	3B,4	2B
UT-L-16030005-021	Gunnison Bend Reservoir	706	3B,4	2B
UT-L-16030005-026	D.M.A.D. Reservoir	1199	3B,4	2B
UT-L-16020304-002	Rush Lake	80	3B	2B
UT-L-16030004-002	Gunnison Reservoir	1287	3B,4	2B
UT-L-16020102-004	Willard Bay	10000	1C, 3B,3D,4	2A, 2B

Assessment			Beneficial Use	Beneficial Use
Unit	Lake	Surface	Classes	Classes
ID	Name	Acres	Assessed	Not Assessed
UT-L-14060002-001	Ashley Twin Lakes	27	1C,3A,4	2B
UT-L-16030007-024	Anderson Meadow Reservoir	8	3A,4	2B
UT-L-14060003-011	Marshall Reservoir	18	3A,4	2B
UT-L-16030006-002	Upper Enterprise Reservoir	200	3A, 4	2B
UT-L-16030003-005	Barney	72	3A, 4	2B
UT-L-14070003-018	Cook	9	3A, 4	2B
UT-L-15010008-018	Kolob Reservoir	335	3A,4	2B
UT-L-14070005-008	Posy Lake	20	3A,4	2B
UT-L-14060007-001	Fairview Lakes	105	3A,4	2B
UT-L-14040106-002	Spirit Lake	41	3A,4	2B
UT-L-16030004-005	Palisades Lake	66	3A,3B,4	2B
UT-L-16010203-009	Porcupine Reservoir	190	3A	2B

Table 2.14-15 lists the lakes and reservoirs that have undergone TMDL analysis and subsequently have a TMDL completed for some pollutants or have been removed from the Category 5 list because they are currently meeting standards. A lake is counted only once even though the lake may be impaired for more than pollutant.

Table 2.14-15 Category 4A - Total Maximum Daily Load Analyses Completed and Approved by EPA

Watershed Management Unit	Assessment Unit ID	Assessment Unit Name	Beneficial Use Class	Pollutant TMDL Completed	Beneficial Use Support	Lake Acreage	Date TMDL Approved	Comments
Jordan River / Utah Lake	UT-L-16020203-001	Deer Creek Reservoir	3A	TEMP	NS	2,965	9/9/2002	Delisted for Temperature 5/2/03
Uinta Basin	UT-L-14040106-019	Browne Lake	3A	DO	NS	54	2/19/2003	
Uinta Basin	UT-L-14040106-019	Browne Lake	3A	TP	NS	54	2/19/2003	
Sevier	UT-L-16030002-011	Koosharem Reservoir	3A	TP	NS	310	8/4/2006	
Cedar/Beaver	UT-L-16030007-020	Kents Lake	3A	TP	NS	48		
Uinta	UT-L-14060004-001	Strawberry Reservoir	3A	DO	NS	17,160	7/9/2007	
Uinta	UT-L-14060004-001	Strawberry Reservoir	3A	TP	NS	17,160	7/9/2007	
Uinta	UT-L-14040106-034	Calder Reservoir	3A	DO	NS	99	7/9/2007	
Uinta	UT-L-14040106-034	Calder Reservoir	3A	TP	NS	99	7/9/2007	
Lower Colorado River	UT-L-15010008-008	Baker Dam Reservoir	3A	TP	NS	63	9/9/2004	TMDL approved for TP and DO 9/9/2004
Lower Colorado River	UT-L-15010008-008	Baker Dam Reservoir	3A	DO	NS	63	9/9/2004	TMDL approved for TP and DO 9/9/2004
Lower Colorado River	UT-L-15010008-001	Gunlock Reservoir	3A	DO	NS	266	9/9/2004	
Lower Colorado River	UT-L-15010008-001	Gunlock Reservoir	3A	DO	NS	266	9/9/2004	
Bear River	UT-L-16010202-013	Newton Reservoir	3A	DO	NS	350	6/24/2004	
Bear River	UT-L-16010202-013	Newton Reservoir	3A	TP	NS	350	6/24/2004	
Uinta	UT-L-14060003-011	Matt Warner Reservoir	3A	TP	NS	297	7/9/2007	.
Uinta	UT-L-14060003-	Matt Warner	3A	DO	NS	297	7/9/2007	

Watershed Management Unit	Assessment Unit ID	Assessment Unit Name	Beneficial Use Class	Pollutant TMDL Completed	Beneficial Use Support	Lake Acreage	Date TMDL Approved	Comments
	011	Reservoir						
Sevier River	UT-L-16030002-005	Lower Box Creek Reservoir	3A	TP	NS	50	8/04/2006	
Sevier River	UT-L-16030002-005	Lower Box Creek Reservoir	3A	DO	NS	50	8/04/2006	
Sevier	UT-L-16030002-004	Otter Creek Reservoir	3A	TP	NS	2,520	8/4/2006	
Sevier	UT-L-16030002-004	Otter Creek Reservoir	3A	TEMP	NS	2,520	8/4/2006	*Temp naturally occurring
Sevier	UT-L-16030001-006	Panguitch Lake	3A	DO	PS	1,248	6/24/2004	
Sevier	UT-L-16030001-006	Panguitch Lake	3A	TP	PS	1,248	6/24/2004	

Table 2.14-16 Category 5 - Lakes Needing Total Maximum Daily Load Analysis

Watershed	Assessment	Assessment	Beneficial				Current Status
Management	Unit	Unit	Use	Lake		Targeted	
Unit	ID	Description	Class	Acreage	Pollutant	For	
						TMDL	
Bear River	UT-L-16010204-033	Mantua Reservoir	3A	554	Temp		Requested delisting in 2006 IR
Bear River	UT-L-16010202-002	Cutler Reservoir	3B	7,184	TP	7/1/2008	TMDL submitted, awaiting approval
Bear River	UT-L-16010202-002	Cutler Reservoir	3B	7,184	DO	7/1/2008	TMDL submitted, awaiting approval
Bear River	UT-L-16010203-005	Hyrum Reservoir	3A	438	Temp		
Bear River	UT-L-16010202-013	Newton Reservoir	3A	350	Temp		
Bear River	UT-L-16010203-012	Tony Grove Lake	3A	25	TP	4/1/2010	USFS report recommendation for de-listing based on analysis of new data
Bear River	UT-L-16010203-012	Tony Grove Lake	3A	25	DO	4/1/2010	USFS report recommendation for de-listing based on analysis of new data
Bear River	UT-L-16010203-012	Tony Grove Lake	3A	25	pH	4/1/2010	USFS report recommendation for de-listing based on analysis of new data
Cedar/Beaver	UT-L-16030006-019	Red Creek Reservoir (Iron Co)	3A	62	DO	4/1/2008	TMDL in progress
Cedar/Beaver	UT-L-16030007-025	Three Creeks Reservoir	3A	57	pH		
Colorado River Southeast	UT-L-14080201-007	Recapture Reservoir	3A	17	DO	4/1/2008	DWQ report recommendation for UAA/ Beneficial use change from 3A to 3B
Colorado River West	UT-L-14060007-004	Lower Gooseberry Reservoir	3A	57	DO	4/8/2008	USFS report, Limnological Assessment of Water Quality for Lower Gooseberry Reservoir, recommends de-listing based on analysis of new data
Colorado River West	UT-L-14060007-004	Lower Gooseberry Reservoir	3A	57	pH	4/8/2008	USFS report, Limnological Assessment of Water Quality for Lower Gooseberry Reservoir, recommends de-listing based on analysis of new data
Colorado River West	UT-L-14060007-004	Lower Gooseberry Reservoir	3A	57	TP		
Jordan River / Utah Lake	UT-L-16020203-004	Mill Hollow Reservoir	3A	15	TP	4/1/2008	USFS report recommendation for de-listing based on analysis of new data
Jordan River / Utah Lake	UT-L-16020203-004	Mill Hollow Reservoir	3A	15	pH	4/1/2008	USFS report recommendation for de-listing based on analysis of new data

Watershed	Assessment	Assessment	Beneficial				Current Status
Management	Unit	Unit	Use	Lake		Targeted	
Unit	ID	Description	Class	Acreage	Pollutant	For	
						TMDL	
Jordan River / Utah Lake	UT-L-16020201-004	Utah Lake	3B	96,900	TP	4/1/2010	TMDL in progress
Jordan River / Utah Lake	UT-L-16020201-004	Utah Lake	3B	96,900	TDS	4/1/2010	TMDL in progress
Jordan River / Utah Lake	UT-L-16020202-002	Big East Lake	3A	23	DO	4/1/2008	USFS report recommendation for de-listing based on analysis of new data
Lower Colorado River	UT-L-15010008-008	Baker Dam Reservoir	3A	63	Temp.		
Sevier River	UT-L-16030003-012	Palisades Lake	3A	66	Temp.		
Sevier River	UT-L-16030001-011	Piute Reservoir	3A	2,508	TP	4/1/2008	DWQ report recommendation for delisting based on analysis of new data
Sevier River	UT-L-16030003-006	Manning Meadow Reservoir	3A	59	DO	4/7/2010	USFS report recommendation for de-listing based on analysis of new data
Sevier River	UT-L-16030003-006	Manning Meadow Reservoir	3A	59	TP	4/7/2010	USFS report recommendation for de-listing based on analysis of new data
Sevier River	UT-L-16030001-001	Navajo Lake	3A	714	DO		Delisting requested, http://www.waterquality.utah.gov/TMDL/Navajo_Lake.pdf
Sevier River	UT-L-16030004-001	Ninemile Reservoir	3A	197	DO	4/1/2008	DWQ report recommendation for delisting based on analysis of new data
Sevier River	UT-L-16030004-001	Ninemile Reservoir	3A	197	pH	4/1/2008	DWQ report recommendation for delisting based on analysis of new data
Sevier River	UT-L-16030004-001	Ninemile Reservoir	3A	197	TP	4/1/2008	DWQ report recommendation for delisting based on analysis of new data
Sevier River	UT-L-16030004-001	Ninemile Reservoir	3A	197	TEMP	4/1/2008	DWQ report recommendation for delisting based on analysis of new data
Sevier River	UT-L-16030006-008	Newcastle Reservoir	3A	163	DO	4/1/2008	TMDL in progress
Sevier River	UT-L-16030006-008	Newcastle Reservoir	3A	163	TP	4/1/2008	TMDL in progress
Sevier River	UT-L-16030006-017	Yankee Meadow Reservoir	3A	53	DO	4/1/2008	USFS report recommendation for de-listing based on analysis of new data

Watershed	Assessment	Assessment	Beneficial				Current Status
Management	Unit	Unit	Use	Lake		Targeted	
Unit	ID	Description	Class	Acreage	Pollutant	For	
						TMDL	
Uinta	UT-L-14060003-011	Matt Warner Reservoir	3A	297	Temp.		Requested delisting in 2006 IR
Uinta	UT-L-14060001-001	Pelican Lake	3B	1,680	pH,	4/1/2012	
Uinta	UT-L-14060001-002	Brough Reservoir	3A	128	Temp.	4/8/2008	Temp previously delisted in 2006 IR
Uinta	UT-L-14060001-002	Brough Reservoir	3A	128	DO	4/8/2008	TMDL in progress, Temp previously delisted in 2006 IR
Uinta	UT-L-14040106--016	Sheep Creek Lake	3A	2218	pH		
Uinta	UT-L-14060002-004	Steinaker Reservoir	3A	829	Temp		
Uinta	UT-L-14060002-004	Steinaker Reservoir	3A	829	Temp	4/1/2008	TMDL in progress
Uinta	UT-L-14060002-006	Red Fleet Reservoir	3A	520	DO	4/1/2008	TMDL in progress
Uinta	UT-L-14040107-004	Bridger Lake	3A	288	DO		Delisting requested , http://www.waterquality.utah.gov/TMDL/Draft_WCNF_Lakes_Delisting_Document.pdf
Uinta	UT-L-14040107-006	China Lake	3A	31	DO		Delisting requested, http://www.waterquality.utah.gov/TMDL/Draft_WCNF_Lakes_Delisting_Document.pdf
Uinta	UT-L-14040107-006	China Lake	3A	31	TEMP		Delisting requested, http://www.waterquality.utah.gov/TMDL/Draft_WCNF_Lakes_Delisting_Document.pdf
Uinta	UT-L-14060003-002	Lyman Lake	3A	27	DO		Delisting requested, http://www.waterquality.utah.gov/TMDL/Draft_WCNF_Lakes_Delisting_Document.pdf
Uinta	UT-L-14040107-003	Marsh Lake	3A	38	DO		Delisting requested http://www.waterquality.utah.gov/TMDL/Draft_WCNF_Lakes_Delisting_Document.pdf
Weber River	UT-L-16020101-001	Echo Reservoir	3A	1,394	DO	7/1/2008	TMDL submitted, rejected by EPA. Start over to include Rockport Reservoir
Weber River	UT-L-16020101-001	Echo Reservoir	3A	1,394	TP	7/1/2008	TMDL submitted, rejected by EPA. Start over to include Rockport Reservoir
Weber River	UT-L-160030003-007	Pineview Reservoir	3A	2874	Temp.		

Watershed	Assessment	Assessment	Beneficial				Current Status
Management	Unit	Unit	Use	Lake		Targeted	
Unit	ID	Description	Class	Acreage	Pollutant	For	
						TMDL	
Colorado River West	UT-L-14070003-044	Lower Bowns Reservoir	3A	90	pH	New	
Colorado River Southeast	UT-L-14080203-002	Monticello Lake	3A	3	pH	New	
Weber River	UT-L-16020101-002	Rockport Reservoir	3A	1,189	DO	New	
Uinta	UT-L-14060004-006	Starvation Reservoir	3A	2,760	DO	New	
Colorado River West	UT-L-14070005-011	Wide Hollow Reservoir	3A	145	Temp.	New	
Colorado River West	UT-L-14070005-011	Wide Hollow Reservoir	3A	145	pH	New	
<p>Notes:</p> <ul style="list-style-type: none"> * Assessment currently being performed to determine whether temperature impairment is natural. TMDL Total Maximum Daily Load DO Dissolved Oxygen TEMP Temperature TP Total Phosphorus TDS Total Dissolved Solids USFS United States Forest Service 							

Table 2.14-17 Category 4 and Category 5 - Lake and Reservoir Approved TMDLs for some but not all Pollutants Assessment Units Meeting Standards

Watershed Management Unit	Assessment Unit ID	Assessment Unit Name	Assessment Unit Description	Assessment Use Class	Lake Acres	Beneficial Use Support	Pollutant	Justification for Change
Some But Not All TMDLs Completed								
Bear River	UT-L-16010204-033	Mantua Reservoir	Mantua Reservoir	3A	554	NS	pH	TMDL for TP, DO approved 9/1/2000

Table 2.14-18 Category 3B – Lakes not Fully Supporting Beneficial Uses for 2008, but will not be listed until Two Consecutive Assessment Cycles Demonstrated Impairment

Assessment Unit ID	Lake Name	Beneficial Use Class	Lake Acreage	Beneficial Use Support	Pollutant	Comments
UT-L-16010101-007	Little Creek Reservoir	3A	65	NS	pH	
UT-L-14080201-002	Blanding City Reservoir	3A	32	NS	Temp	Heat budget will be calculated to determine if temp exceedence is naturally caused
UT-L-16020202-002	Big East Lake	3A	23	NS	pH	
UT-L-16020203-001	Deer Creek Reservoir	3A	4965	NS	Temp	

Table 2.14-19 Lake Beneficial Use Assessment by Category - Lake Acreage

Category	Category Definitions	Lake Acreage
1	All beneficial uses fully supported.	162,700
2	Beneficial uses assessed are fully supported.	154,004
3A	No data or insufficient data to make an assessment.	3,368
3B	Lakes that are not supported for one cycle only.	97
3C	Insufficient data to assess but an assessment plan is in place.	1,088,000
4A	Approved TMDL	10,720
4B	Pollution control requirements are expected to result in full beneficial use support in near future.	0.0
4C	Impaired by pollution, no TMDL required.	0.0
5	Impaired by pollutant, TMDL required.	141,041

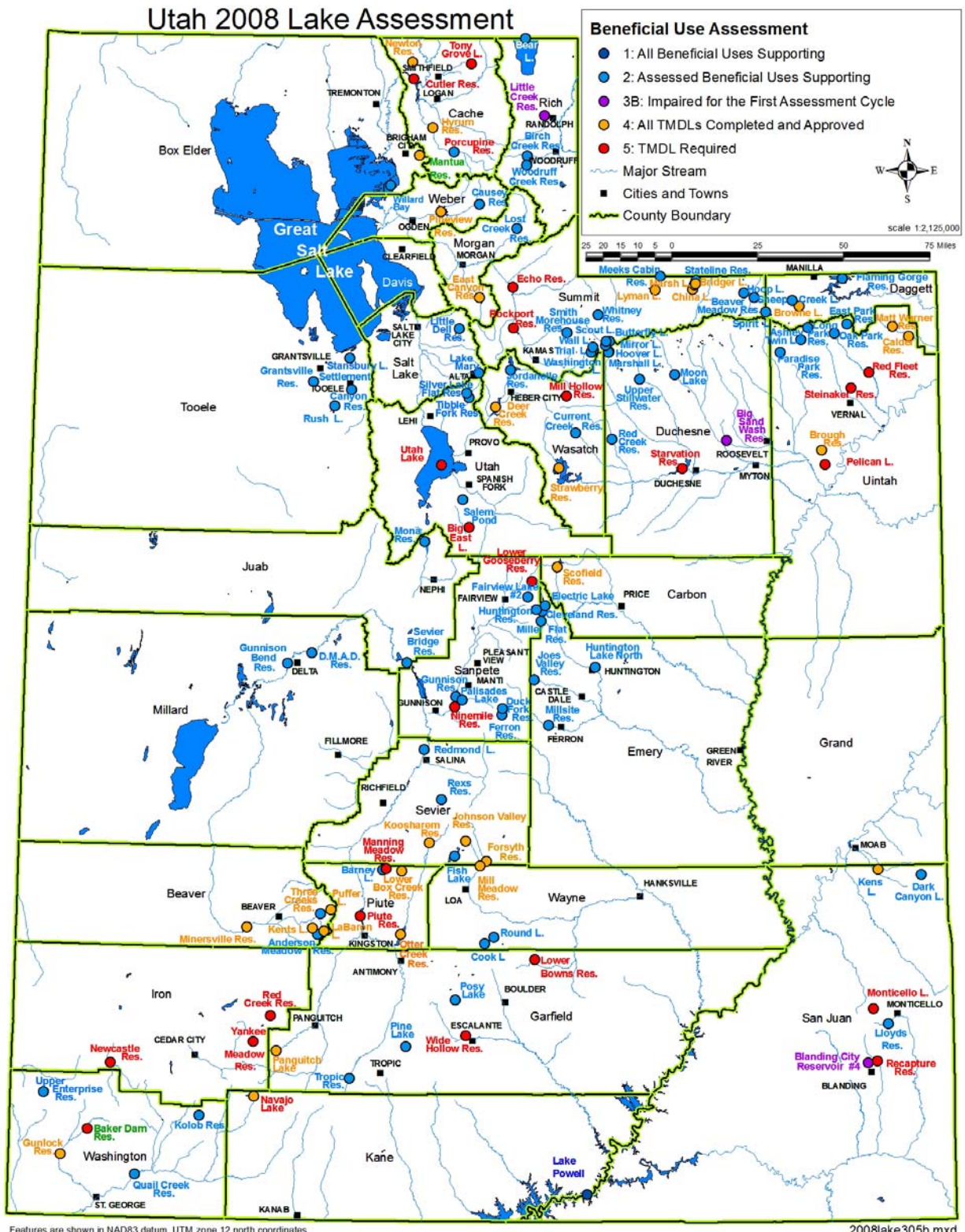


Figure 2.14-1 Lake beneficial use assessment by category

This page intentionally left blank.