Utah Lake Watch Report 2005

Prepared for Utah Division of Water Quality
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Introduction

The Utah Lake Watch (ULW) program recruits volunteers to take Secchi depth measurements in lakes and reservoirs throughout Utah. This ULW annual report summarizes the results of Secchi depth measurements taken by volunteers throughout the summer of 2005. The data collected through the ULW are submitted to the Utah Division of Water Quality to supplement the data they take through their lakes program. The data can be used by scientists, lake managers, and numerous other organizations to analyze the clarity of and overall health of the lakes.

Volunteers are trained individually to use a Secchi disk. The Secchi disk is lowered into the water body and the depth at which it disappears is the Secchi depth. Volunteers are also given information about site location (the DEQ station description or GPS coordinates). The monitoring site is typically the deepest part of the lake or nearest the dam on a reservoir. Standardized data sheets are given to each volunteer, which are returned to the USU Water Quality Extension office (Appendix 1) at the end of the summer season so these data can be recorded and summarized.

Results

During 2005, Secchi depths were recorded by 16 volunteers on 20 different lakes and reservoirs throughout Utah (23 sites total due to multiple sites in several reservoirs). Compared to the 2004 program, six new water bodies were monitored, and additional sites were added at several reservoirs. Two reservoirs monitored in 2004, Deer Creek and North Huntington were not monitored in 2005.

Only one Secchi depth was recorded at five of the lakes. Fifteen sites were monitored multiple times between May and mid September.

General trends:

The maximum Secchi depth recorded in 2005 was a single reading in August of 10 meters at Trial Lake. The minimum Secchi reading of 0.3 meters was measured at site 2 in the Great Salt Lake on June 11. Of those lakes and reservoirs with multiple measurements taken during the summer, several had relatively clear water periods in mid to late summer. These included Piute Reservoir, Watkins Reservoir, Jordanelle Reservoir, Causey Reservoir, Pineview Reservoir, Wide Hollow Reservoir, East Canyon Reservoir and Great Salt Lake. Other water bodies showed little variation between sampling dates. For example, between mid May and mid September, Bear Lake Secchi depths ranged between 5.1 and 5.6 meters and Palisade Reservoir Secchi depths ranged between 2.4 and 3 meters.

Table 1 lists each water body sampled in 2005 along with the volunteer's name and their affiliation. Figure 1 and 2 shows average Secchi depths and average TSI values, respectively, for each water body sampled in 2005. Appendix 1 contains a summary of trends for each water body and Appendix 2 contains all raw data for this years monitoring.

Discussion

Most water bodies monitored in 2005 appear to be mesotrophic and show a trend moving toward an oligotrophic status. The drought that has occurred over much of the past decade may play a role in these trends because less sediment has entered the water body, but additional monitoring is needed to make a conclusion. Also, much consideration must be taken into account when classifying water bodies using only one parameter with one data point.

Excluding water bodies with only one Secchi depth, average Secchi depths ranged from 1.74 meters at Watkins Reservoir to 5.41 meters at Bear Lake. Bear Lake has recorded the greatest average Secchi depth for the past 4 years. East Canyon has also held a consistently deep Secchi average, having the deepest overall measurement in 2003. Based on past ULW reports, 2003 had average Secchi depths ranging from 0.81 m at Yuba Lake to 6.25 m at East Canyon, while 2004 revealed a range of 0.74 m at the Great Salt Lake to 5.46 m at Wide Hollow.

A Secchi depth is only one parameter used in calculating a trophic state index (TSI) and concern must be taken when evaluating the overall health of a lake using one parameter. Three parameters can be used to calculate a TSI value; water clarity, phosphorus concentration, and chlorophyll concentration. Generally these three parameters are correlated with each other. High phosphorus concentrations can stimulate more plant growth (higher chlorophyll concentrations), which can lead to lower water clarity (low Secchi depth). Therefore, a low Secchi depth may inspire further water monitoring to evaluate the source of poor water clarity.

For this report TSI values were calculated using only Secchi depths in this equation:

$TSI = 10(6-\log 2SD)$ where SD = Secchi Depth

Waterbodies are classified using the TSI Index below:

Classification	**Definition**	**TSI Index**
Oligotrophic	A water body having low turbidity and abundant dissolved oxygen.	<40
Mesotrophic	A water body having moderate turbidity and moderate dissolved oxygen.	40-50
Eutrophic	A water body having high turbidity and low amounts of dissolved oxygen.	50-70
Hypereutrophic	A water body that is extremely turbid and exceptionally low in dissolved oxygen.	>70

Based upon Secchi depths collected in 2005 Bear Lake, East Canyon, Site 1 in the Great Salt Lake, Strawberry Reservoir, and Trial Lake are oligotrophic. The outlier Secchi depth of 9 m in the Great Salt Lake Site 1 is the most likely reason why it is considered oligotrophic. Past data has shown the Great Salt Lake to be consistently eutrophic. Besides the Farmington Bay area, the Great Salt Lake is a relatively closed system with waterfowl contributing to a large nutrient loading, which causes algal blooms and a general trend of low water clarity. East Canyon's TSI average has jumped quite drastically from mesotrophic to oligotrophic since

2002 after following a consistently tight trend since 1990. It appears that East Canyon will become consistently oligotrophic in the future. Eutrophic water bodies include; Great Salt Lake Site 2, Tomahawk, Frontier, and Watkins Reservoir. Utah Lake is the only water body considered to be hypereutrophic. Wide Hollow was classified as oligotrophic in 2004, but has become mesotrophic in 2005. Otter Creek and Palisade were classified as eutrophic in 2004, but according to data collected in 2005 have become mesotrophic. All other water bodies monitored in 2005 have been classified as mesotrophic. Trends and individual summaries of each water body can be found in Appendix 1.

A decrease in TSI index over time may indicate that a water body is becoming more oligotrophic and thus healthier. This decrease may denote that there are less polluting agents (i.e., less nutrients and sediments) making it to the reservoir, resulting in fewer algal blooms. Conversely, a water body whose TSI index increases may reveal that it is becoming more eutrophic. A eutrophic lake or reservoir generally has more algal blooms and higher amounts of nutrient and sediment loads and is often classified as degraded or inhibited, requiring further research as to why the lake or reservoir has become classified as eutrophic.

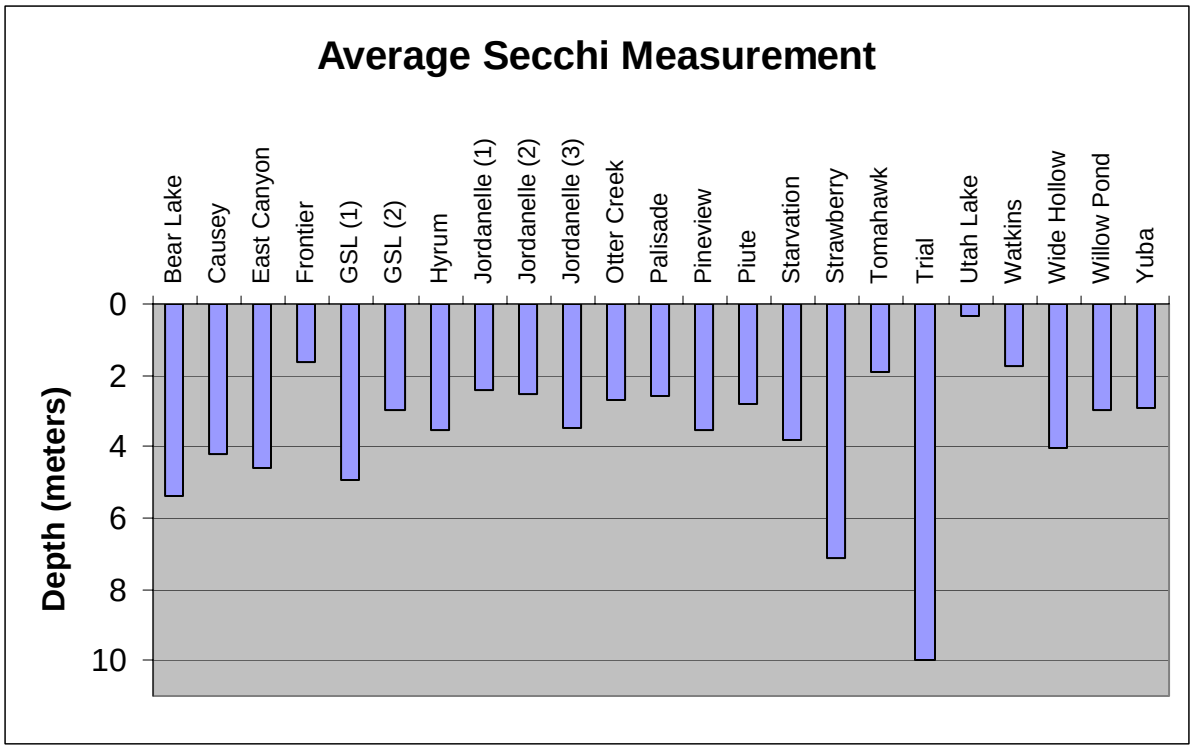


Figure 1. Average Secchi depths for each water body in 2005
Note: Single measurements taken at Frontier, Tomahawk, Trail, Utah Lakes and Willow Pond

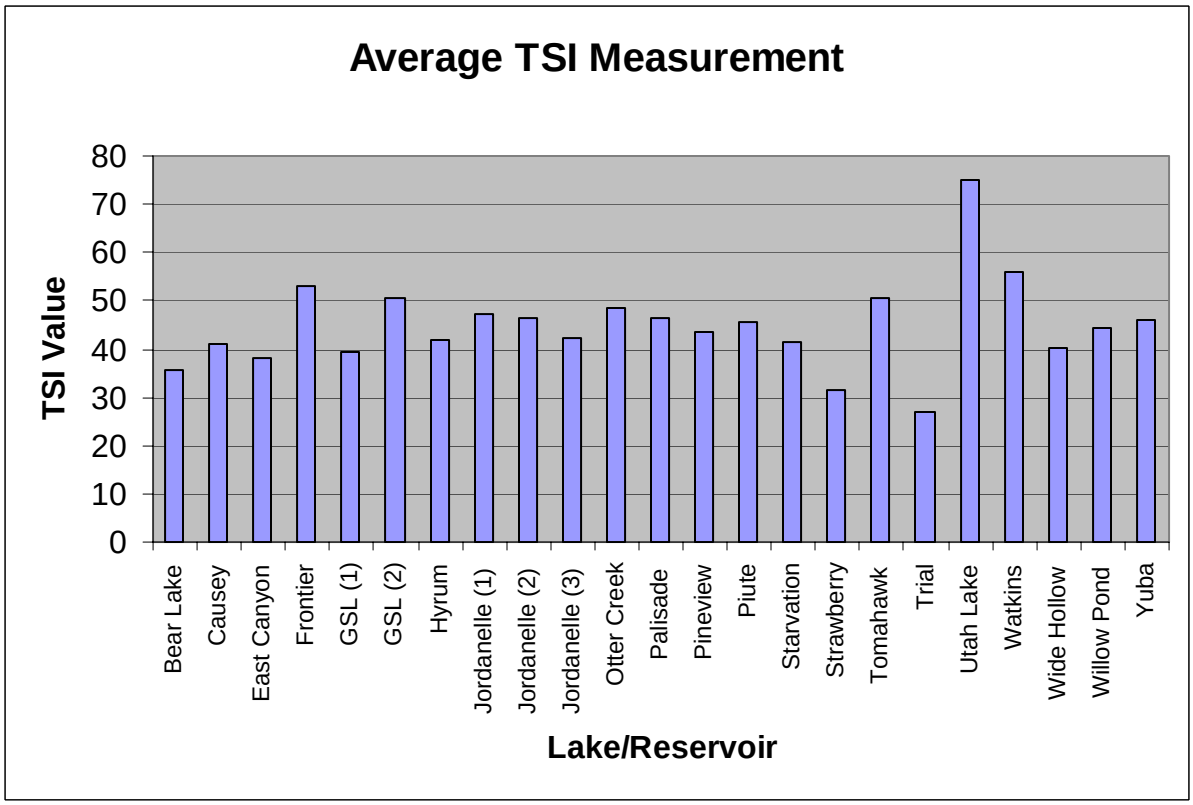


Figure 2. Average TSI values for each water body in 2005
Note: Single measurements taken at Frontier, Tomahawk, Trail, Utah Lakes and Willow Pond

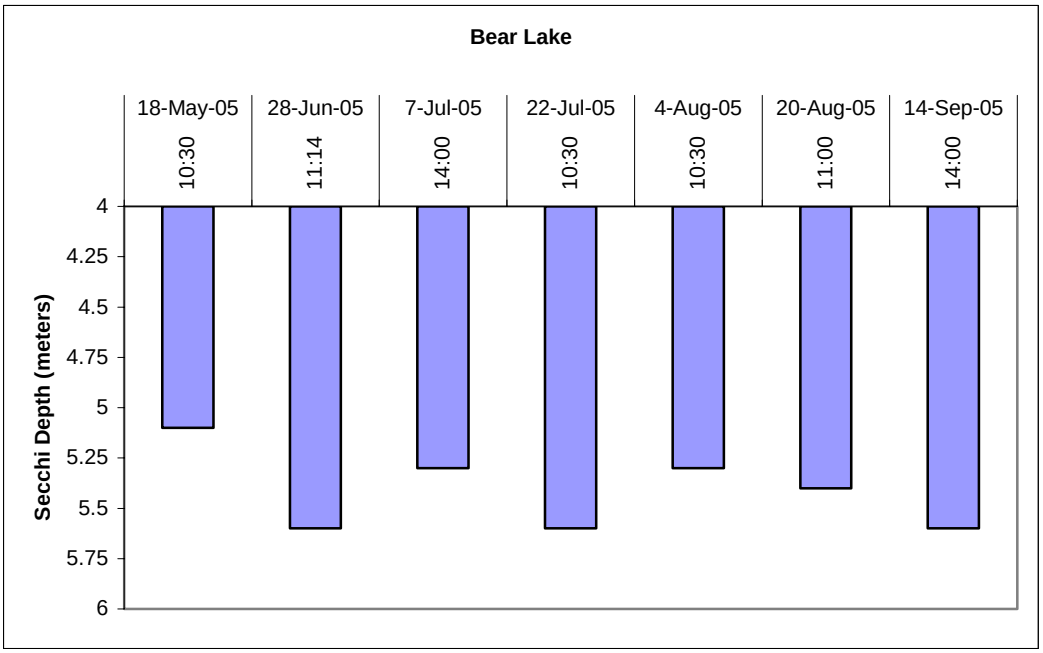
Table 1. 2005 Lake Monitoring List

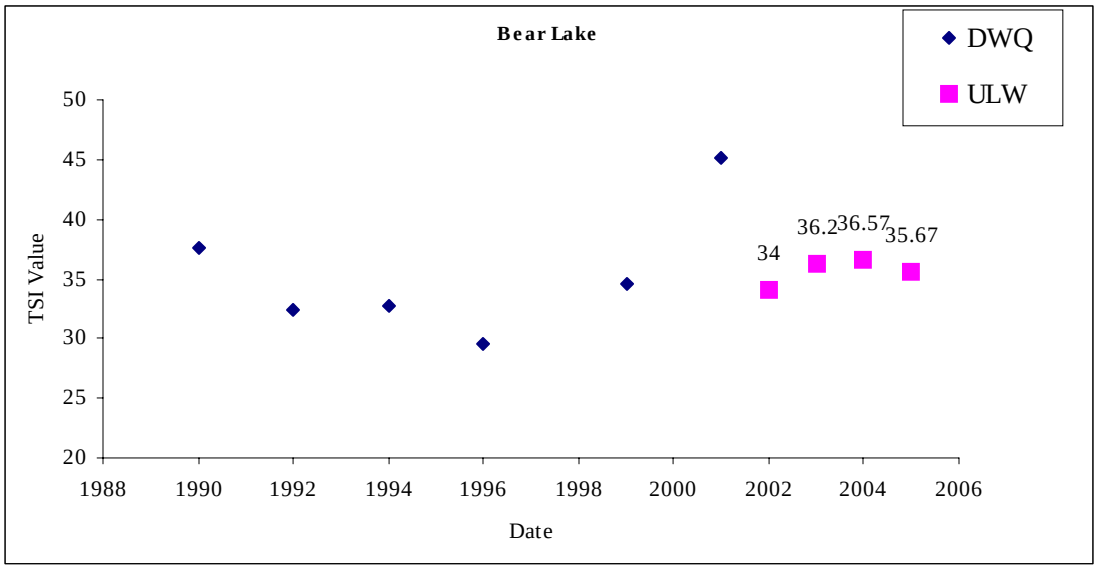
Lake/Reservoir *Italicized names indicate new this year*	**Site Description**	**Volunteer Name**	**Affiliation**
Bear Lake	41° 51.95’ N, 111° 23.8’ W	Scott Tolentino	Utah DWR
Causey Reservoir		Paul Baker	
East Canyon	40° 55’ 12” N, 110° 36’ 00”	Andrea Carrigan	East Canyon State Park
Frontier Reservoir	Vicinity MGRS 12T WA1726.	Jay McAllister	Cyprus High School
Great Salt Lake Site 1	41° 4’ 39” N, 112° 15’ 39.5” W	Chris Haramoto	Antelope Island State Park
Great Salt Lake Site 2	41° 4’ 4.9” N, 112° 13’ 56.1” W		
Hyrum Reservoir	41° 37’ 29” N, 111° 52’ 13” W	Floyd Powell and Lee Gyllenskog	Hyrum State Park
Jordanelle Reservoir (Site 1)		Tom Minahan	Jordanelle State Park
Jordanelle Reservoir (Sites 2	Near Provo River entrance	Jay McAllister	Cyprus High School
Jordanelle Reservoir (Sites 3)	UTM: 12T 0464686 4494376	Jay McAllister	Cyprus High School
Otter Creek Reservoir	Due N. of marina dock, 180 yds. from shed on dam	John Russell	Otter Creek State Park
Palisade Reservoir		Tyrell and Ashley	Palisade State Park
Pineview Reservoir		Keith Rounkles	Ogden Canyon Club
Piute Reservoir	266 yds. From outlet by center channel	John Russell	Piute State Park
Starvation Reservoir		Mike Nealley	Starvation State Park
Strawberry Reservoir	UTM: 127 0497721 4443323	Jay McAllister	Cyprus High School
Tomahawk Lake	Vicinity MGRS 12T WA1726	Jay McAllister	Cyprus High School
Trial Lake	UTM: 12TWA 03680303	Jay McAllister	Cyprus High School
Utah Lake	UTM: 12W31854758	Jay McAllister	Cyprus High School
Watkins Reservoir	41° 21’ 91.3” N, 112° 5’ 162” W	Roland Bringhurst	Willard Bay State Park
Wide Hollow Reservoir		Kendall Farnsworth	Escalante State Park
Willow Pond	UTM: 12T0422457 4498951	Jay McAllister	Cyprus High School
Yuba Lake	39° 22.291’ N, 112° 2.94’ W	Chris Evans	Yuba State Park

Bear Lake Data Summary

The average Secchi depth in 2005 in Bear Lake was 5.4 m. The overall depth and clarity of Bear Lake in 2005 has increased from those of 2003 and 2004, 5.4 m and 5.1 m respectively. The average TSI value for 2005 was 37, nearly equal to the average TSI value for 2004 (37). Bear Lake has held a consistent TSI average over the past 15 years ranging from 30 to 37, a steady oligotrophic state.

Date	Time	Secchi Depth	TSI
18-May-05	10:30	5.1	36
28-Jun-05	11:14	5.6	35
7-Jul-05	14:00	5.3	35
22-Jul-05	10:30	5.6	35
4-Aug-05	10:30	5.3	35
20-Aug-05	11:00	5.4	35
14-Sep-05	14:00	5.6	35
	Average	**5.4**	**35**

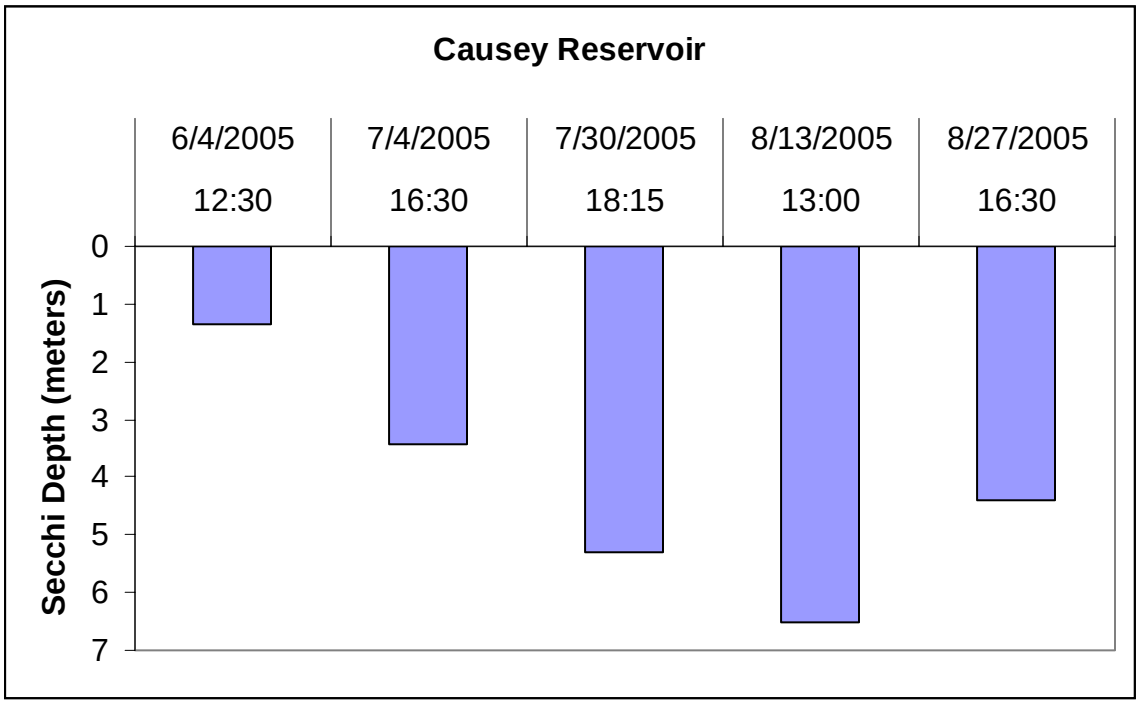


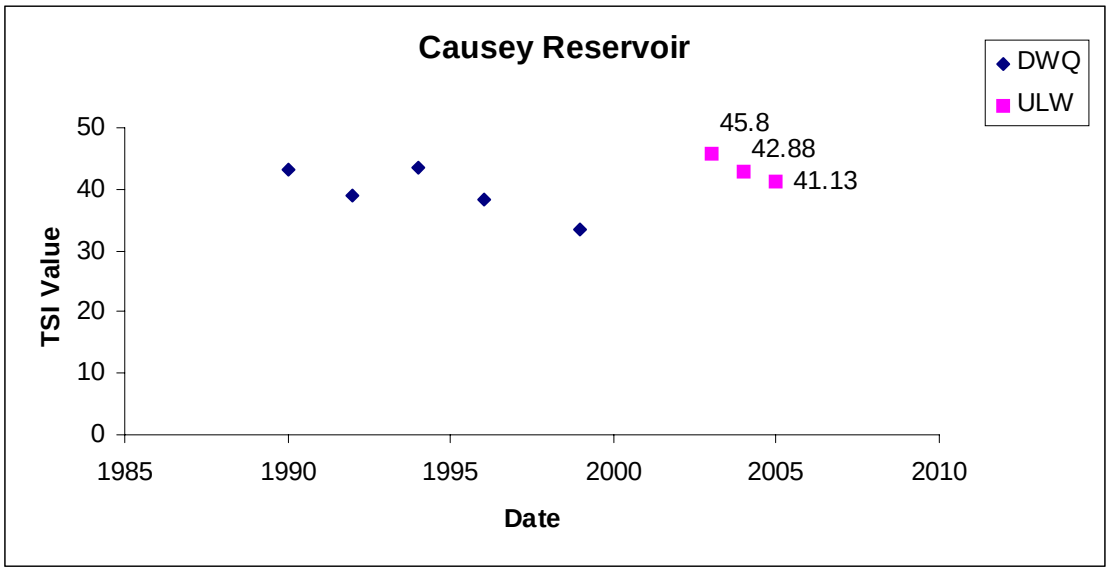


Causey Reservoir Data Summary

The average Secchi depth for 2005 was 4.2 m, an increase from the 2004 average of 3.6 m. The average TSI value for 2005 was 41 a decrease form 43 in 2004. Causey Reservoir has historically been consistently mesotrophic, but has had a steady decrease in average TSI values over the last 3 years becoming more oligotrophic.

Date	Time	Secchi (m)	TSI
6/4/2005	12:30	1.3	55
7/4/2005	16:30	3.4	42
7/30/2005	18:15	5.3	35
8/13/2005	13:00	6.5	33
8/27/2005	16:30	4.4	38
	Average	**4.2**	**41**

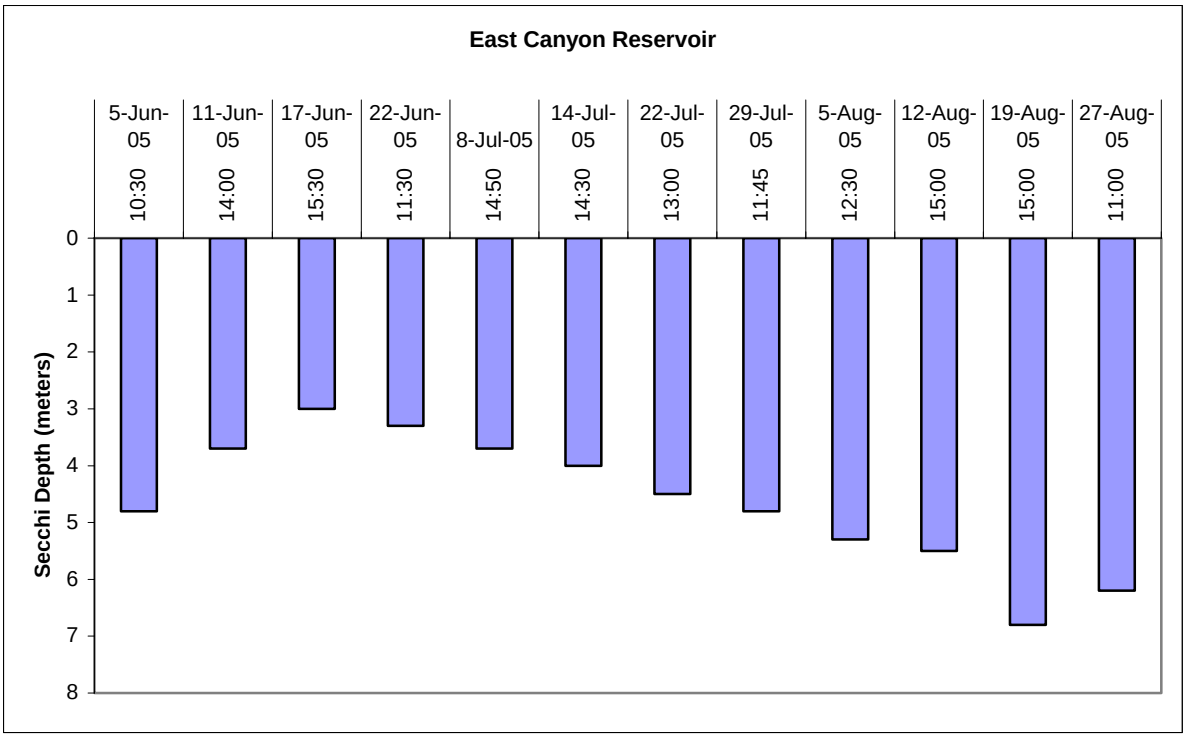


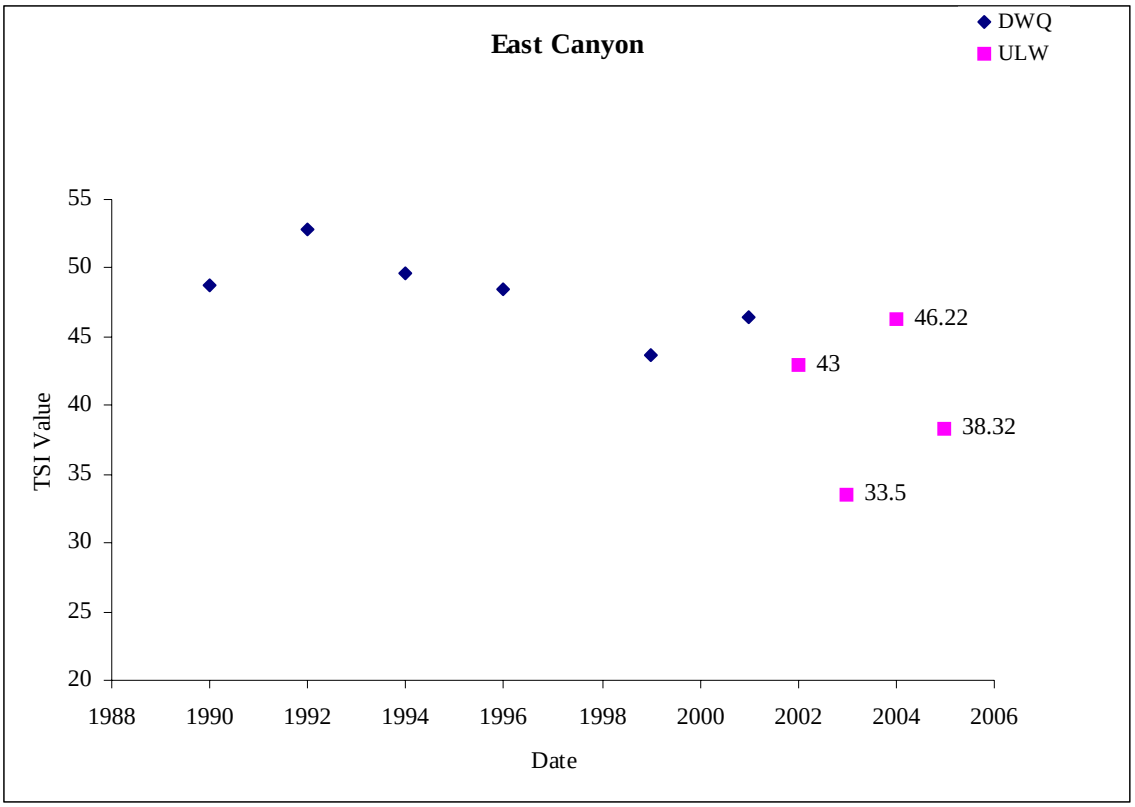


East Canyon Reservoir Data Summary

The average Secchi depth for 2005 in East Canyon Reservoir was 4.6 m, a dramatic increase from 2.9 m in 2004. Over the past three years East Canyon has had large differences in average Secchi depths; 6.5 m for 2003, 2.9 m for 2004, and 4.6 m for 2005. It is noted that there were only two measurements taken in 2003. The average TSI value for 2005 was 38 a sharp decline from 46 in 2004. East Canyon has historically shown a mesotrophic trend with exceptions in 2003 and 2005, which reveal East Canyon to be oligotrophic.

Date	Time	Secchi Depth	TSI
5-Jun-05	10:30	4.8	37
11-Jun-05	14:00	3.7	41
17-Jun-05	15:30	3.0	44
22-Jun-05	11:30	3.3	42
8-Jul-05	14:50	3.7	41
14-Jul-05	14:30	4.0	40
22-Jul-05	13:00	4.5	38
29-Jul-05	11:45	4.8	37
5-Aug-05	12:30	5.3	35
12-Aug-05	15:00	5.5	35
19-Aug-05	15:00	6.8	32
27-Aug-05	11:00	6.2	33
Average		**4.6**	**38**

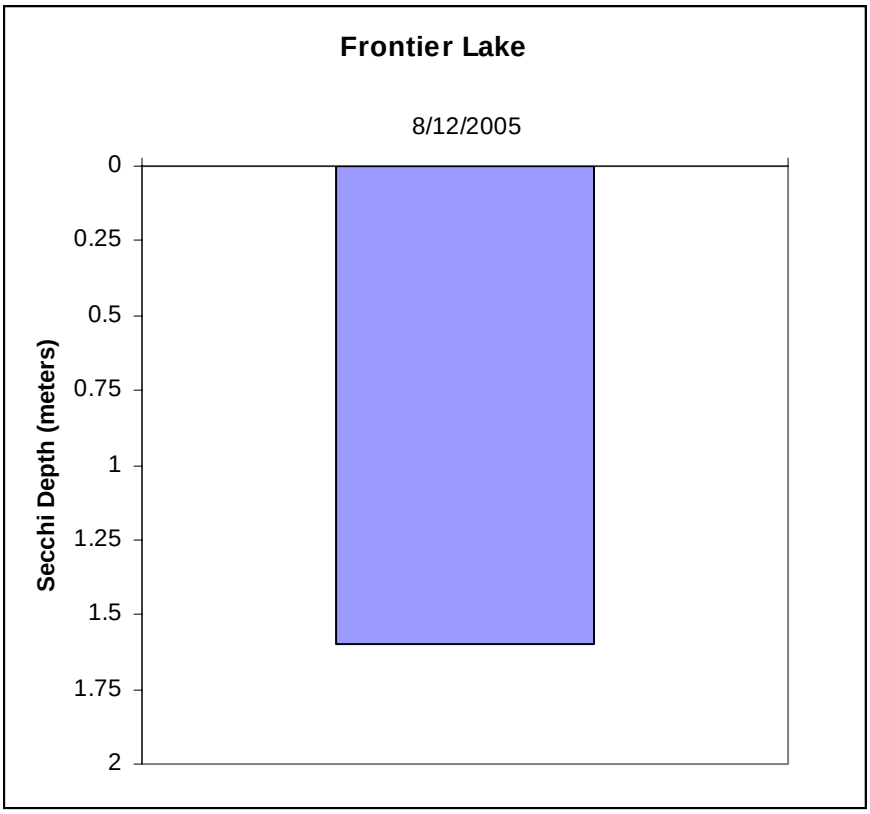



East Canyon
DWQ
ULW
TSI Value
55
50
45
40
35
30
25
20
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
Date
46.22
43
38.32
33.5

Frontier Lake Data Summary

The average Secchi depth for 2005 was 1.6 m, which was the only measurement taken. The average (only) TSI value was 53, categorizing Frontier Lake as a eutrophic water body. There is no other data for Frontier Lake.

Date	Time	Secchi Depth	TSI
12-Aug-05	11:30	1.6	53
	Average	**1.6**	**53**

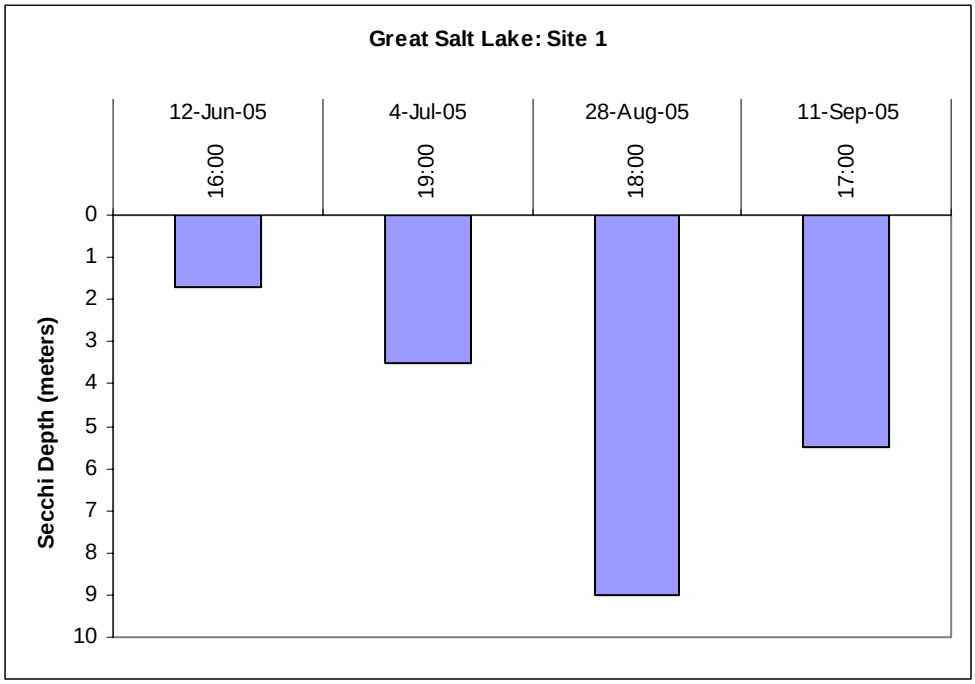


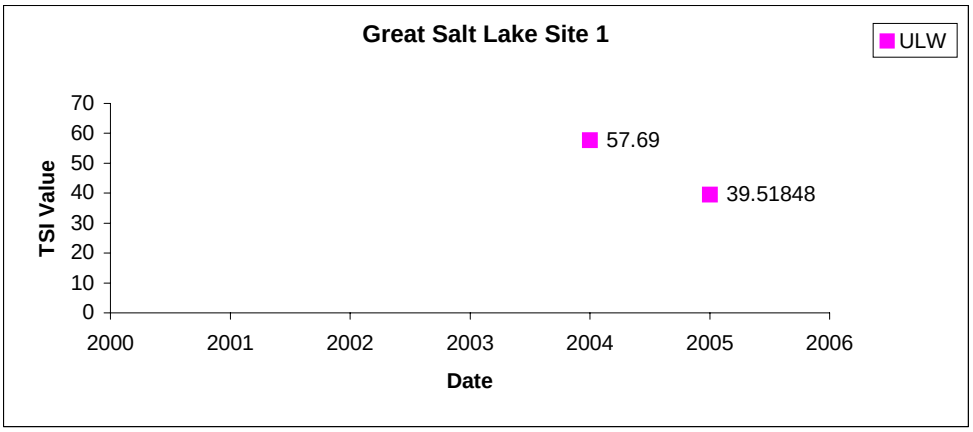
*There are no past TSI data for this lake

Great Salt Lake Site 1 Data Summary

The average Secchi depth for 2005 in the Great Salt Lake Site 1 was 4.9 m a large increase from 1.2 m in 2004. The average TSI value for 2005 was 39 a significant decrease from 58 in 2004. Site 1 TSI value shows this region of the lake to be oligotrophic, while the region in 2004 was eutrophic. Three things must be noted for this region and this year's data: one, the data taken in 2004 and 2005 for Site 1 are not from the exact same geographic locations, but are close; two, on Aug 28th 2005 the Secchi depth was 9 m, an outlier from the rest of the measurements for this site; three, Site 1 in this years report is referred to as site (B) in the 2004 ULW Annual Report.

Date	Time	Secchi Depth	TSI
12-Jun-05	16:00	1.7	52
4-Jul-05	19:00	3.5	41
28-Aug-05	18:00	9.0	28
11-Sep-05	17:00	5.5	35
Average		**4.9**	**39**



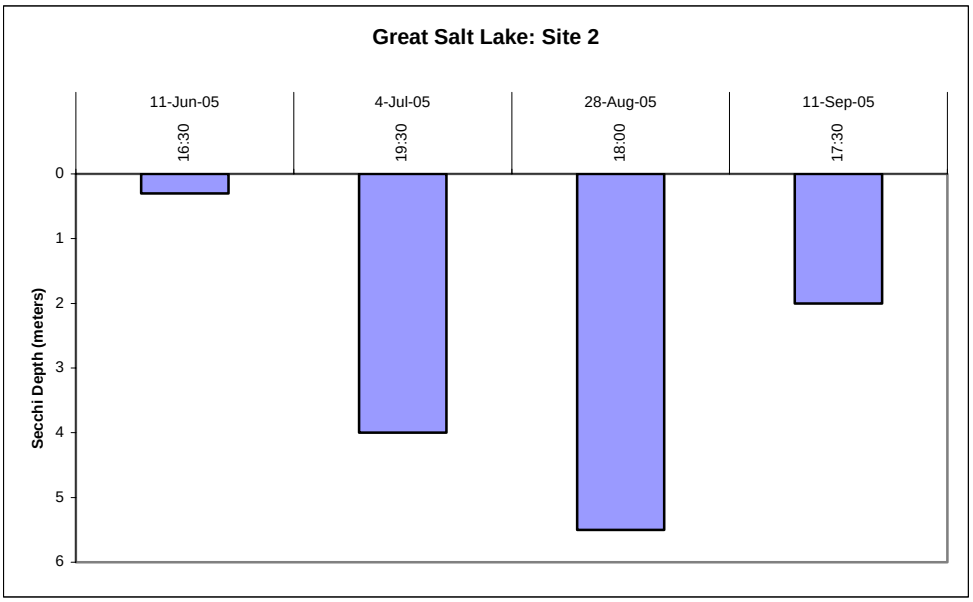


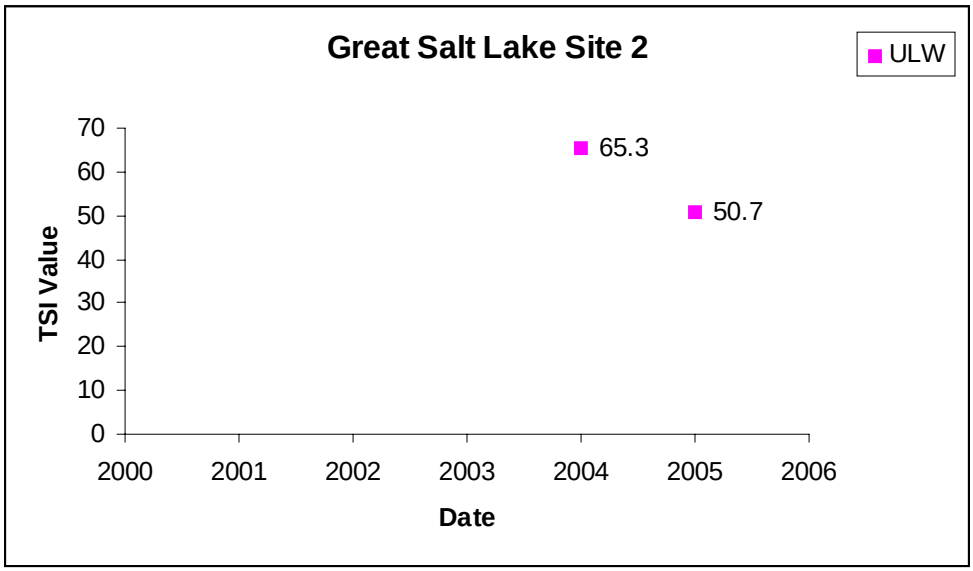
*There are no past TSI data for this site on the Great Salt Lake.

Great Salt Lake Site 2

The average Secchi depth for 2005 in Site 2 of the Great Salt Lake was 2.9 m and increase from 0.74 in 2004. The average TSI value for 2005 was 50 a sharp decrease from 65 in 2004. Site 2, according to data from 2004 and 2005 is eutrophic. Note, the geographic locations for Site 2 in 2004 and 2005 are not exactly the same, but are relatively close; and, Site 2 in this report is referred to as site (A) in the 2004 ULW Annual Report.

Date	Time	Secchi Depth	TSI
11-Jun-05	16:30	0.3	77
4-Jul-05	19:30	4.0	40
28-Aug-05	18:00	5.5	35
11-Sep-05	17:30	2.0	50
Average		**2.9**	**50**



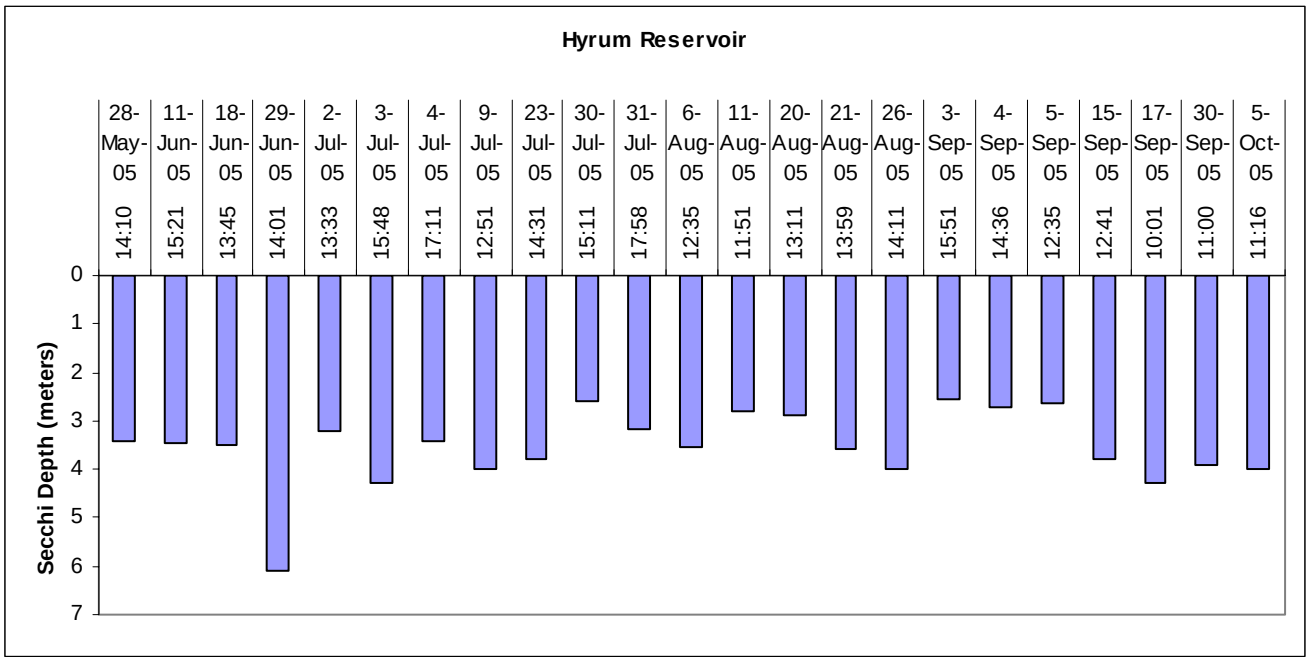


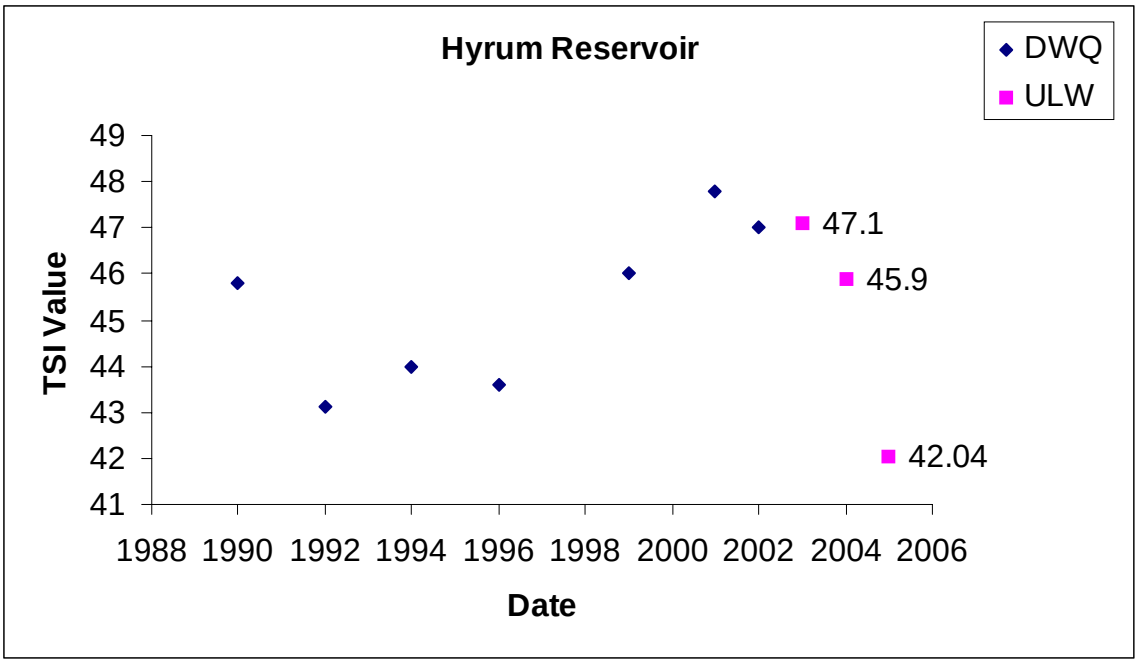
*There are no past TSI data for this site on the Great Salt Lake

Hyrum Reservoir Data Summary

The average Secchi depth in Hyrum Reservoir for 2005 was 3.6 m an increase of 0.8 m from 2004 (2.8 m). The average TSI value measured in 2005 was 42, a decrease from 46 in 2004, but Hyrum Reservoir still holds a mesotrophic classification on the TSI Index. Since 2003 Hyrum Reservoir has shown a steep decrease in it's TSI value becoming more eutrophic than it has in the past.

Date	Time	Secchi Depth	TSI
28-May-05	14:10	3.4	42
11-Jun-05	15:21	3.5	42
18-Jun-05	13:45	3.5	41
29-Jun-05	14:01	6.1	33
2-Jul-05	13:33	3.2	43
3-Jul-05	15:48	4.3	38
4-Jul-05	17:11	3.4	42
9-Jul-05	12:51	4.0	40
23-Jul-05	14:31	3.8	40
30-Jul-05	15:11	2.6	46
31-Jul-05	17:58	3.2	43
6-Aug-05	12:35	3.6	41
11-Aug-05	11:51	2.8	45
20-Aug-05	13:11	2.9	44
21-Aug-05	13:59	3.6	41
26-Aug-05	14:11	4.0	40
3-Sep-05	15:51	2.6	46
4-Sep-05	14:36	2.7	45
5-Sep-05	12:35	2.7	45
15-Sep-05	12:41	3.8	40
17-Sep-05	10:01	4.3	38
30-Sep-05	11:00	3.9	40
5-Oct-05	11:16	4.0	40
	Average	**3.6**	**42**

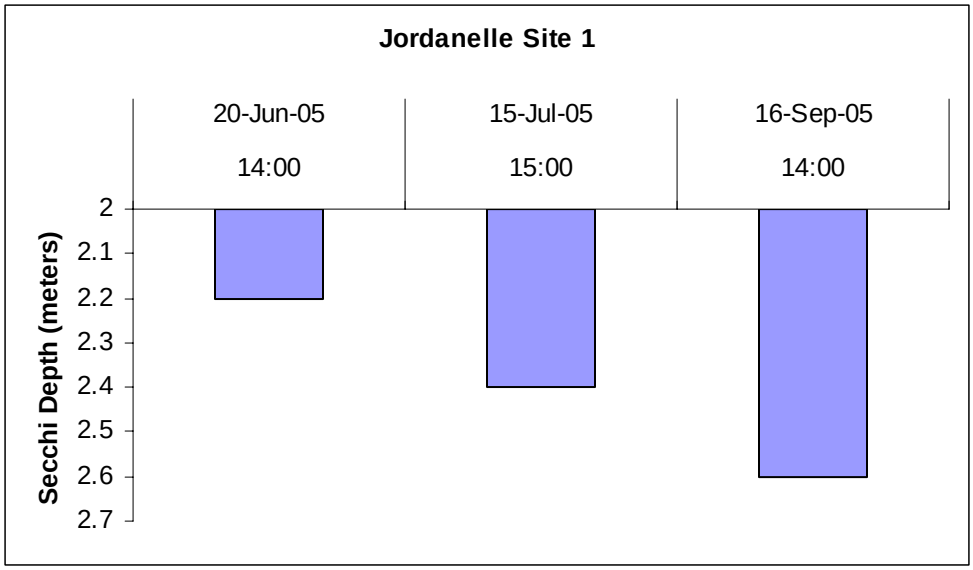



Hyrum Reservoir
DWQ
ULW
49
48
47
46
45
44
43
42
41
TSI Value
47.1
45.9
42.04
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
Date

Jordanelle Reservoir (Site 1) Data Summary

The average Secchi depth for 2005 at Site 1 was 2.4 m, close to a meter less than 3.2 m in 2004, although there was only one measurement in 2004. With an average TSI value of 47.42 Site 1 is classified as a mesotrophic region.

Date	Time	Secchi Depth	TSI
20-Jun-05	14:00	2.2	48
15-Jul-05	15:00	2.4	47
16-Sep-05	14:00	2.6	46
	Average	**2.4**	**47**

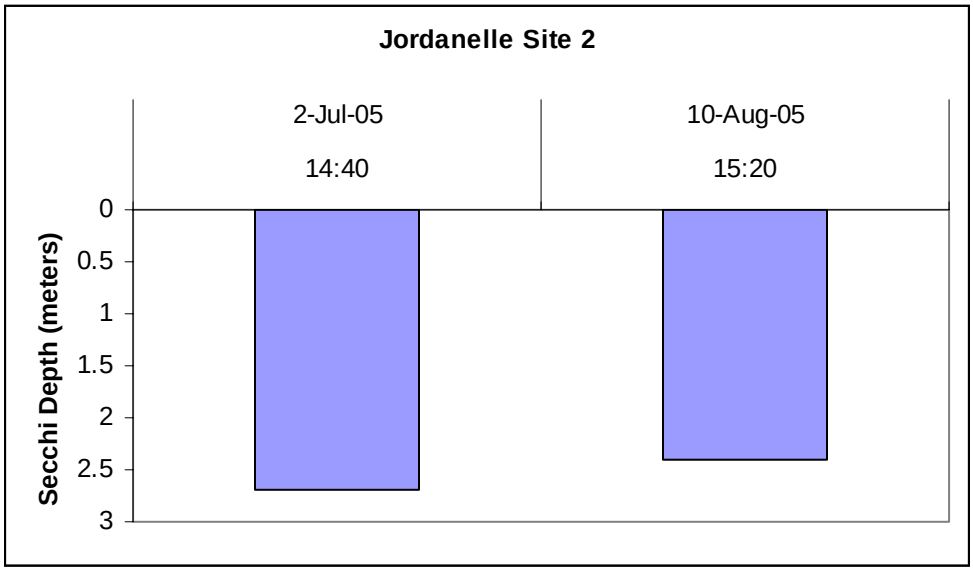


*There are no past TSI data for this site

Jordanelle Reservoir (Site 2) Data Summary

The average Secchi depth for 2005 at Site 2 was 2.6 m. The average TSI value for Site 2 was 46, mesotrophic. There are no other TSI data to notice a trend in its trophic status.

Date	Time	Secchi Depth	TSI
2-Jul-05	14:40	2.7	45
10-Aug-05	15:20	2.4	47
	Average	**2.6**	**46**

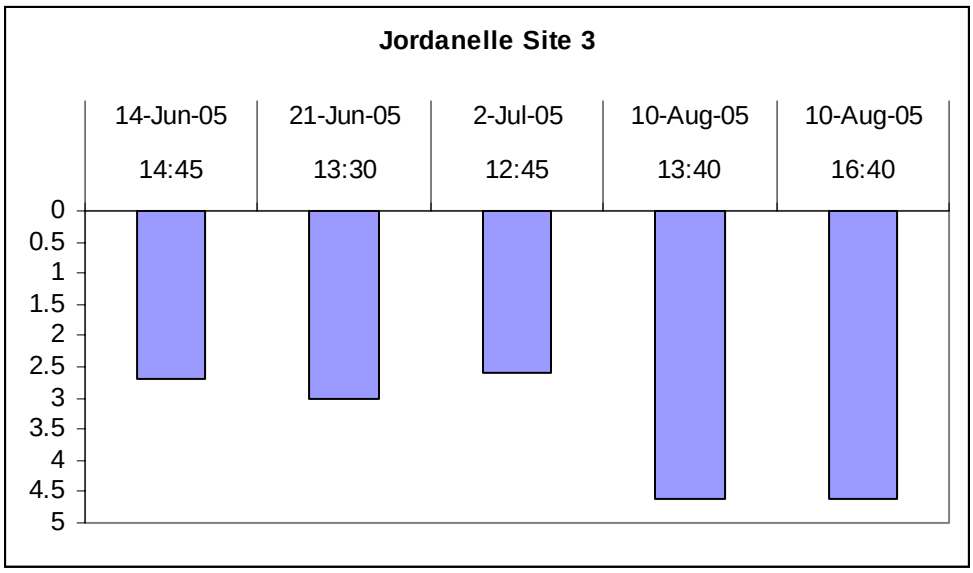


*There are no past TSI data for this site

Jordanelle Reservoir (Site 3) Data Summary

The average Secchi depth for 2005 at Site 3 was 3.5 m. The average TSI value at Site 3 was 42, classifying Site 3 as mesotrophic. There are no available past TSI data for Site 3 to see a trend.

Date	Time	Secchi Depth	TSI
14-Jun-05	14:45	2.7	45
21-Jun-05	13:30	3.0	44
2-Jul-05	12:45	2.6	46
10-Aug-05	13:40	4.6	38
10-Aug-05	16:40	4.6	38
	Average	**3.5**	**42**

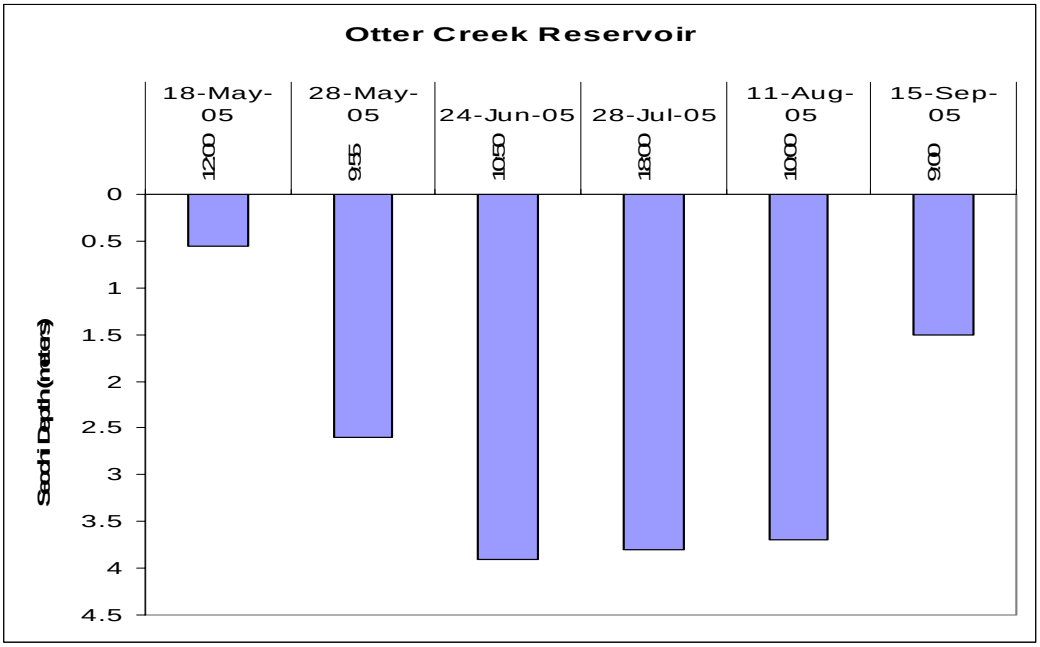


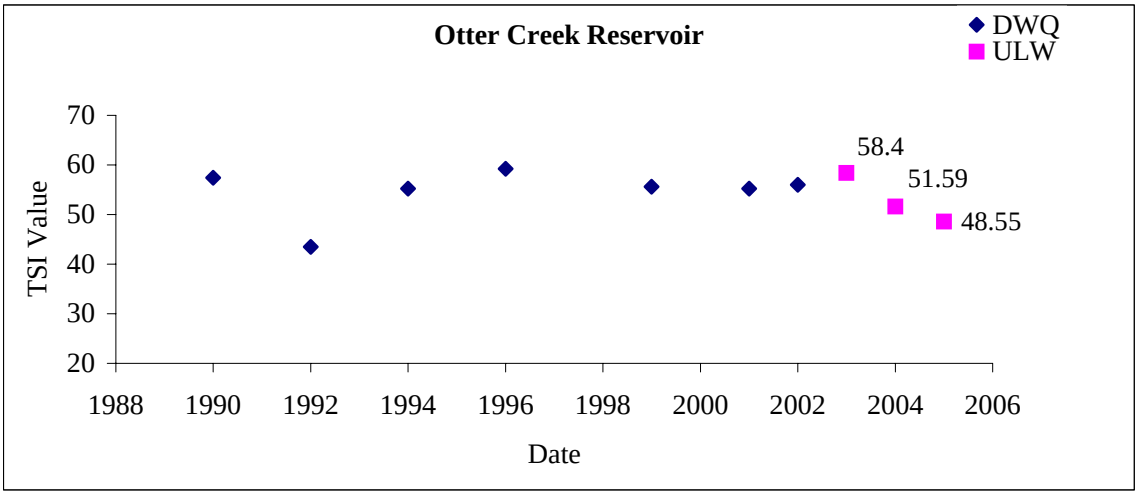
*There are no past TSI data for this site

Otter Creek Reservoir Data Summary

The average Secchi depth in Otter Creek Reservoir was 2.7 m. The average Secchi depth in 2004 was 1.9 m, showing an increase in depth in 2005 by 0.8 m. The average TSI value for 2005 was 48 a decrease from 52 in 2004. Past data from the DWQ and the ULW show Otter Creek Reservoir changing from a eutrophic reservoir to a mesotrophic reservoir on the TSI Index.

Date	Time	Secchi Depth	TSI
18-May-05	12:00	0.6	68
28-May-05	9:55	2.6	46
24-Jun-05	10:50	3.9	40
28-Jul-05	18:00	3.8	40
11-Aug-05	10:00	3.7	41
15-Sep-05	9:00	1.5	54
	Average	**2.7**	**48**

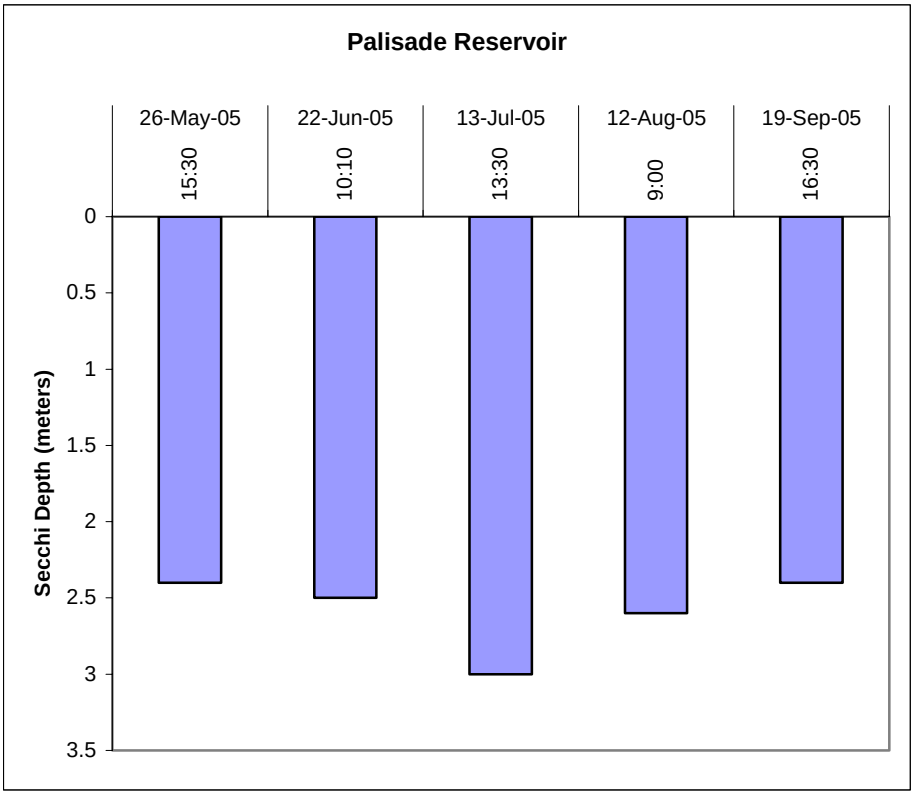




Palisade Reservoir Data Summary

The average Secchi depth in Palisade Reservoir was 2.6 m. From the ULW annual report of 2004 the average depth was 1.8 m. The 2005 average increased almost a full meter from 2004, showing a relatively big improvement in water clarity. The average TSI value for 2005 was 46, a decrease from the 2004 average of 51, changing from a eutrophic reservoir in 2004 to a mesotrophic reservoir in 2005. There are no other past data for Secchi depths nor TSI values.

Date	Time	Secchi Depth	TSI
26-May-05	15:30	2.4	47
22-Jun-05	10:10	2.5	46
13-Jul-05	13:30	3.0	44
12-Aug-05	9:00	2.6	46
19-Sep-05	16:30	2.4	47
Average		**2.6**	**46**

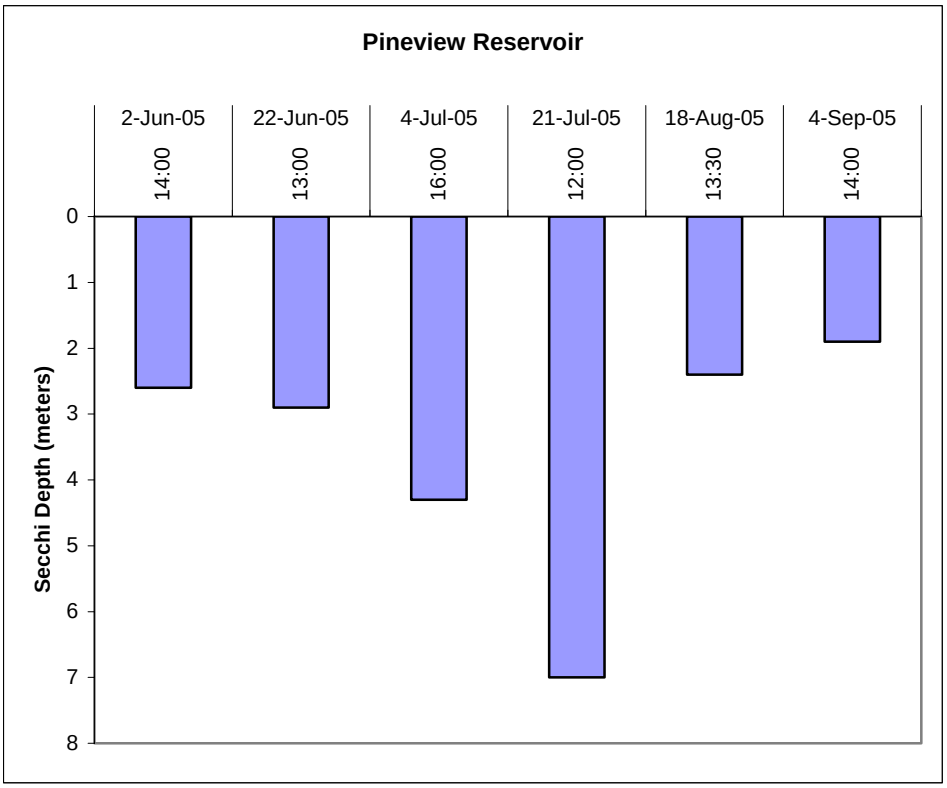


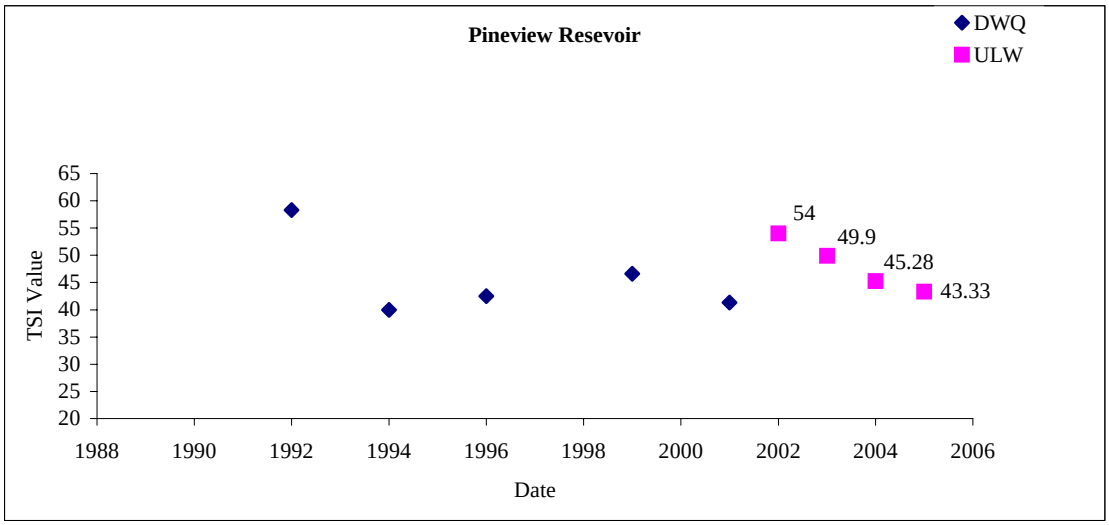
*There are no past TSI data for this reservoir

Pineview Reservoir Data Summary

The average Secchi depth in Pineview Reservoir for 2005 was 3.5 m, showing an increase from 2.3 in 2003 and 2.9 in 2004. Comparing this years average TSI value, 43, with past DWQ and ULW data reveals Pineview Reservoir to have a relatively stable mesotrophic status.

Date	Time	Secchi Depth	TSI
2-Jun-05	14:00	2.6	46
22-Jun-05	13:00	2.9	44
4-Jul-05	16:00	4.3	38
21-Jul-05	12:00	7.0	31
18-Aug-05	13:30	2.4	47
4-Sep-05	14:00	1.9	50
Average		**3.5**	**43**

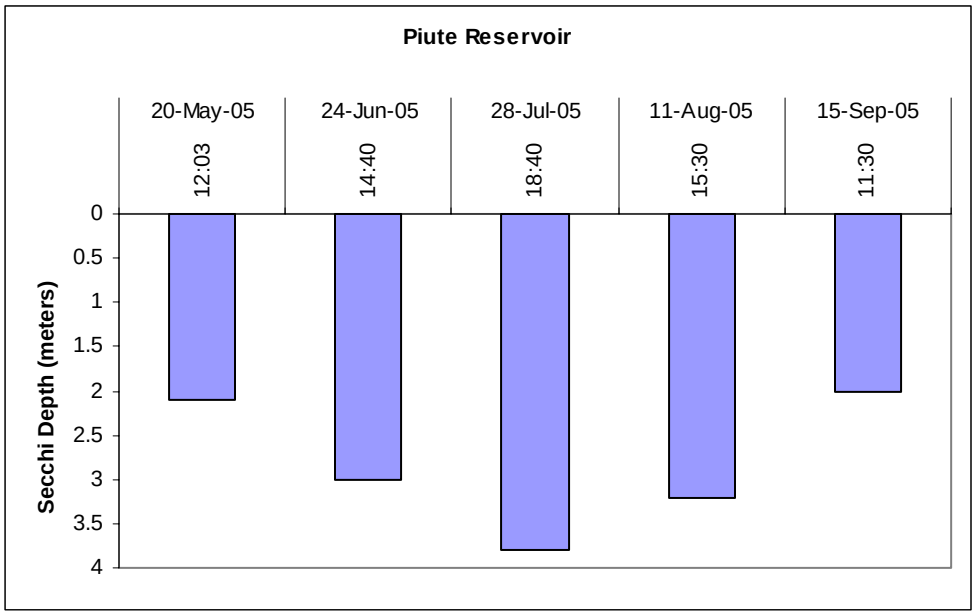


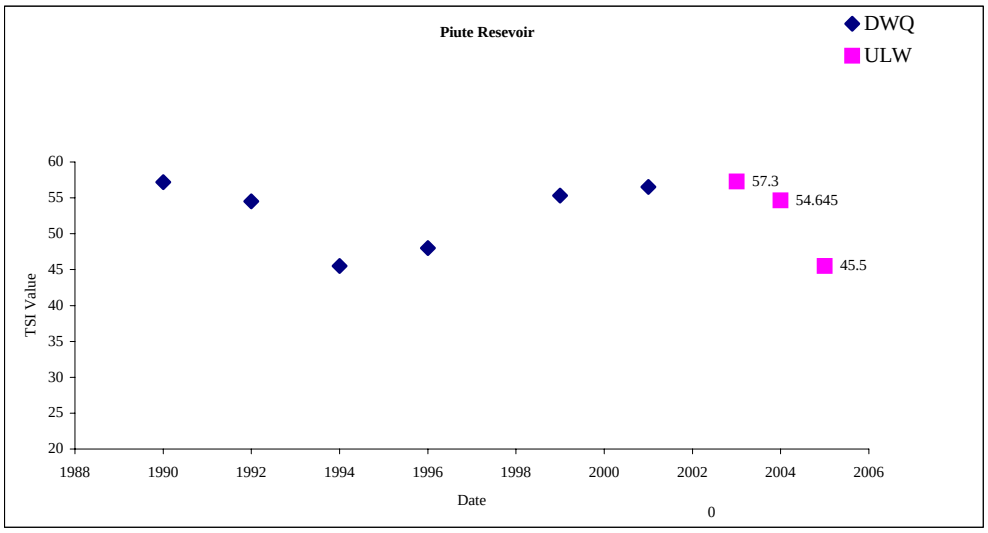


Piute Reservoir Data Summary

The average Secchi depth for 2005 in Piute Reservoir was 2.8 m, an increase from 1.5 m in 2004. The average TSI value for 2005 was 45 a major decrease from 55 in 2004. It must be noted that there was only one Secchi depth measurement in 2004. More measurements in 2004 may have contributed to a closer TSI values between 2004 and 2005. According to past DWQ and ULW data the TSI values have shown a trend ranging from 45 to 57 with 1994 and 2005 having the lowest values and 2003 having the highest value. This years data shows Piute Reservoir as a mesotrophic water body.

Date	Time	Secchi Depth	TSI
20-May-05	12:03	2.1	49
24-Jun-05	14:40	3.0	44
28-Jul-05	18:40	3.8	40
11-Aug-05	15:30	3.2	43
15-Sep-05	11:30	2.0	50
Average		**2.8**	**45**

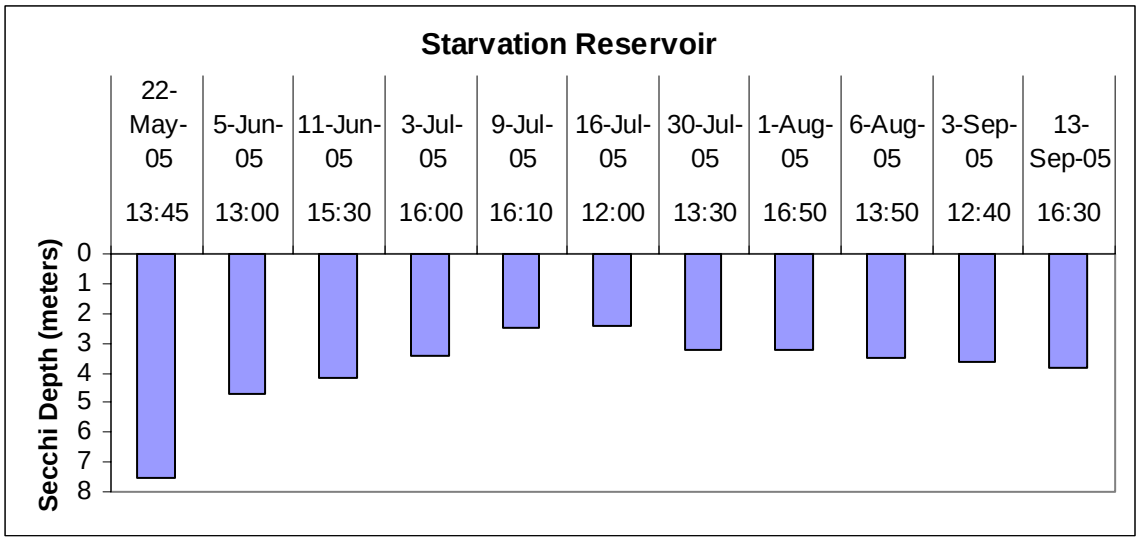


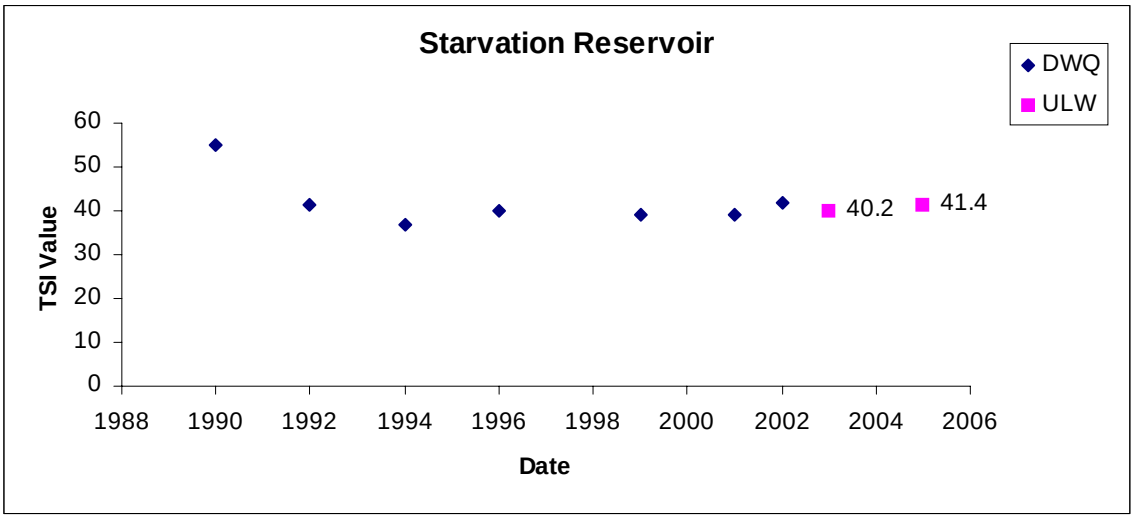


Starvation Reservoir Data Summary

The average Secchi depth for 2005 was 3.8 m, a decrease from 4.1 m in 2003. There were no data from 2004. The average TSI value was 41. Starvation Reservoir has held a very steady trophic status (mesotrophic), but has straddled the cutoff line between a mesotrophic status and a oligotrophic status for the past 13 years.

Date	Time	Secchi Depth	TSI
22-May-05	13:45	7.5	30
5-Jun-05	13:00	4.7	37
11-Jun-05	15:30	4.2	39
3-Jul-05	16:00	3.4	42
9-Jul-05	16:10	2.5	46
16-Jul-05	12:00	2.4	47
30-Jul-05	13:30	3.2	43
1-Aug-05	16:50	3.2	43
6-Aug-05	13:50	3.5	41
3-Sep-05	12:40	3.6	41
13-Sep-05	16:30	3.8	40
	Average	**3.8**	**41**

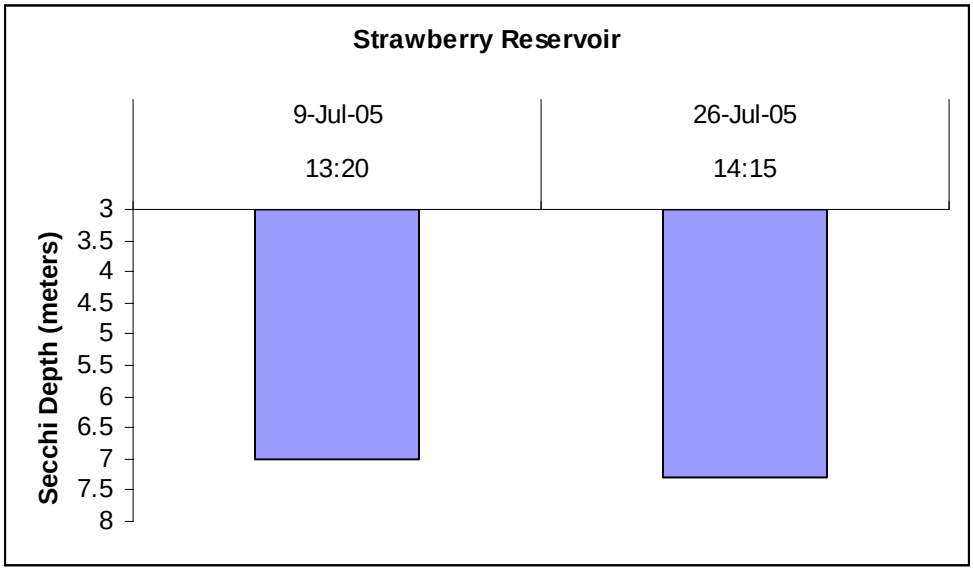




Strawberry Reservoir Data Summary

The average Secchi depth for Strawberry Reservoir was 7.2 m, a relatively deep measurement. The average TSI value was 31 classifying Strawberry Reservoir as an oligotrophic reservoir. There are no past TSI data to create a trend in trophic status.

Date	Time	Secchi Depth	TSI
9-Jul-05	13:20	7	31
26-Jul-05	14:15	7.3	31
	Average	**7.2**	**31**

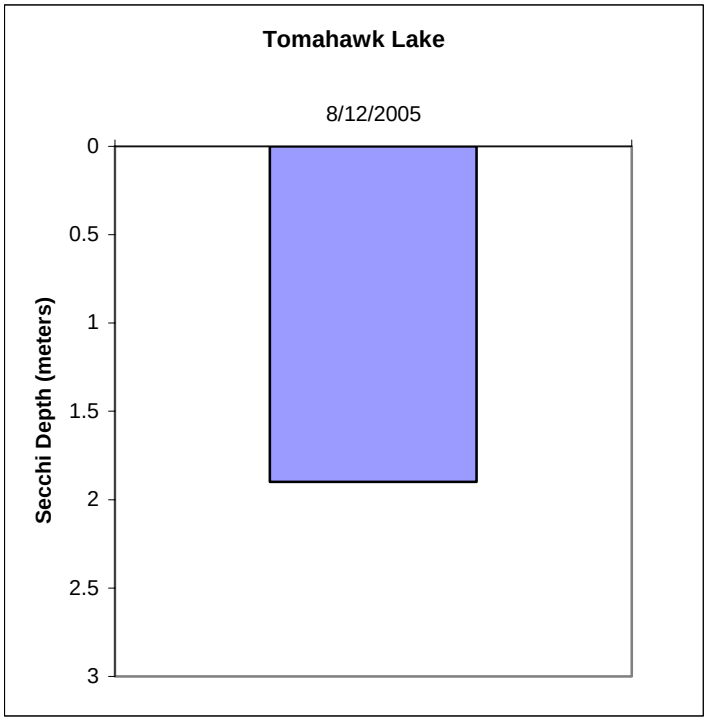


*There are no past TSI data for this reservoir

Tomahawk Lake Data Summary

The average Secchi depth for 2005 was 1.9 m, which was also the only measurement taken. The average (only) TSI value was 50, classifying Tomahawk reservoir as a eutrophic water body. There are no other data for Tomahawk Lake.

Date	Time	Secchi Depth	TSI
12-Aug-05	9:30	1.9	50
	Average	**1.9**	**50**

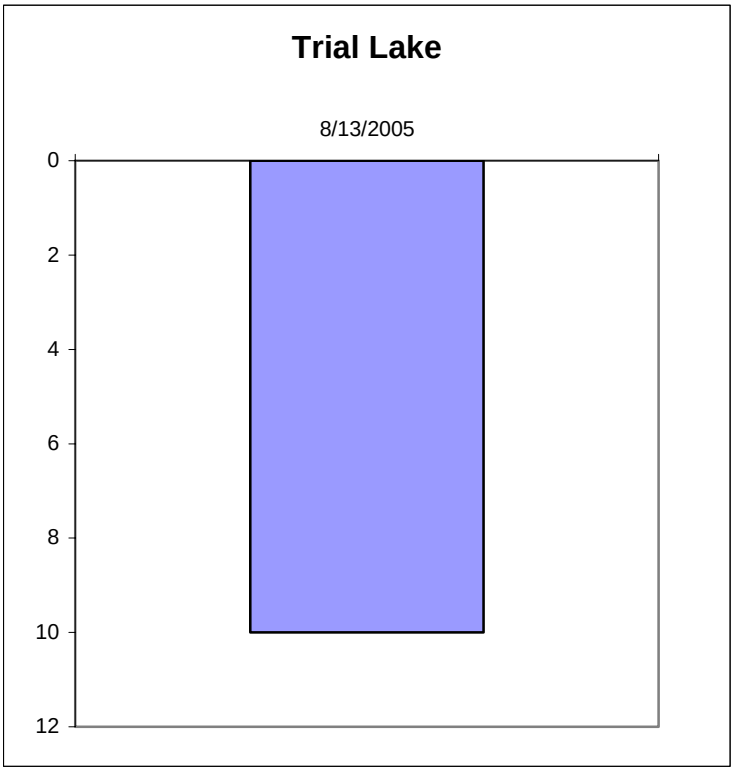


*There are no past TSI data for this lake

Trial Lake Data Summary

The average Secchi depth for 2005 was 10 m, also the only measurement taken in 2005. The average (only) TSI value was 26. There are no past data to report for Trial Lake.

Date	Time	Secchi Depth	TSI
13-Aug-05	12:00	10	26
	Average	**10**	**26**

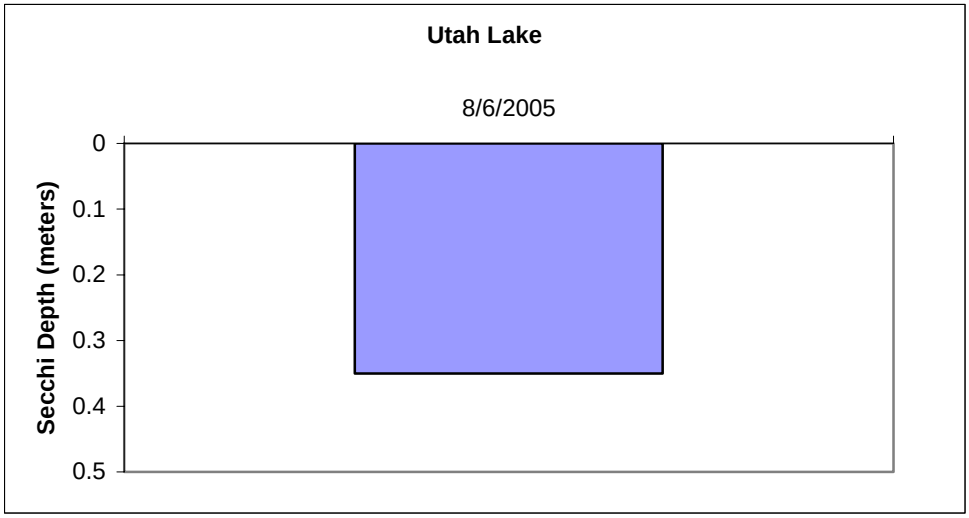


*There are no past TSI data for this lake

Utah Lake Data Summary

The average Secchi depth for 2005 was 0.4 m, which was also the only measurement taken for 2005. The average (only) TSI value was 75, making Utah Lake the only hypereutrophic water body monitored. Utah Lake is a shallow lake allowing wind to stir up sediments creating poor water clarity levels. There are no past data for Utah Lake.

Date	Time	Secchi Depth	TSI
6-Aug-05	10:00	0.4	75
	Average	**0.4**	**75**

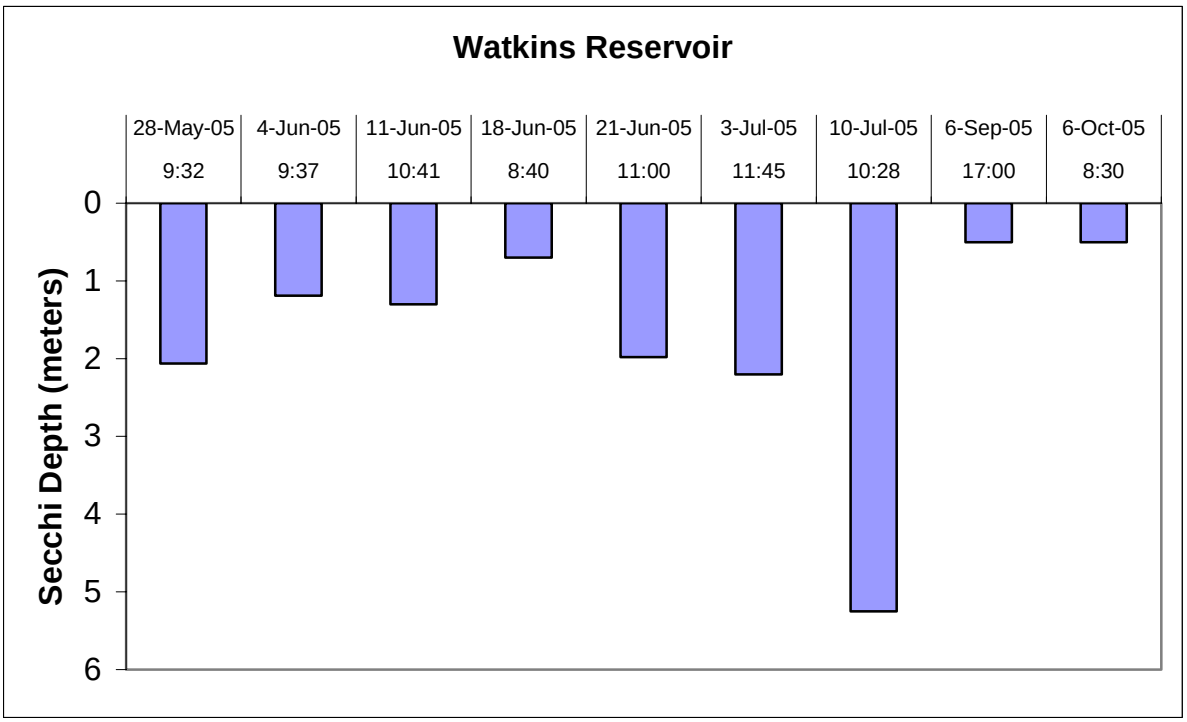


*There are no past TSI data for this lake

Watkins Reservoir Data Summary

The average Secchi depth for 2005 was 1.7 m, with one outlier on July 10th of 5.3 m. Watkins reservoir for 2005 is classified as a eutrophic reservoir with an average TSI value of 56. There are no historical data to create a trend in trophic status for Watkins Reservoir.

Date	Time	Secchi Depth	TSI
28-May-05	9:32	2.1	49
4-Jun-05	9:37	1.2	57
11-Jun-05	10:41	1.3	56
18-Jun-05	8:40	0.7	65
21-Jun-05	11:00	1.9	50
3-Jul-05	11:45	2.2	48
10-Jul-05	10:28	5.3	36
6-Sep-05	17:00	0.5	69
6-Oct-05	8:30	0.5	69
Average		**1.7**	**56**

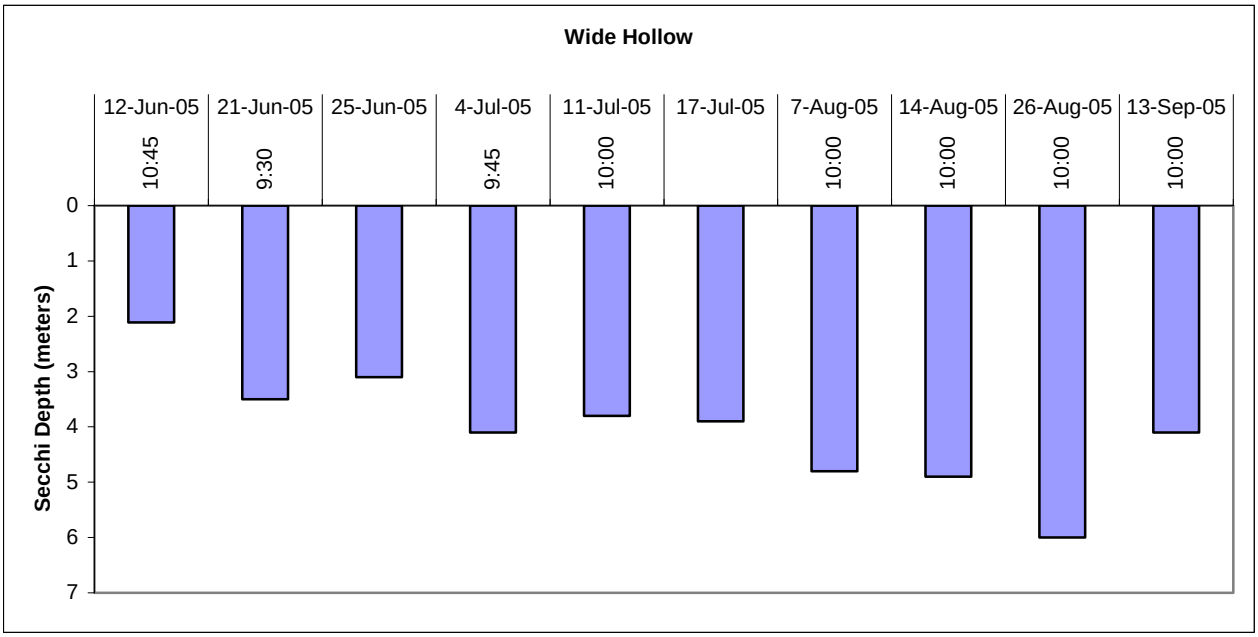


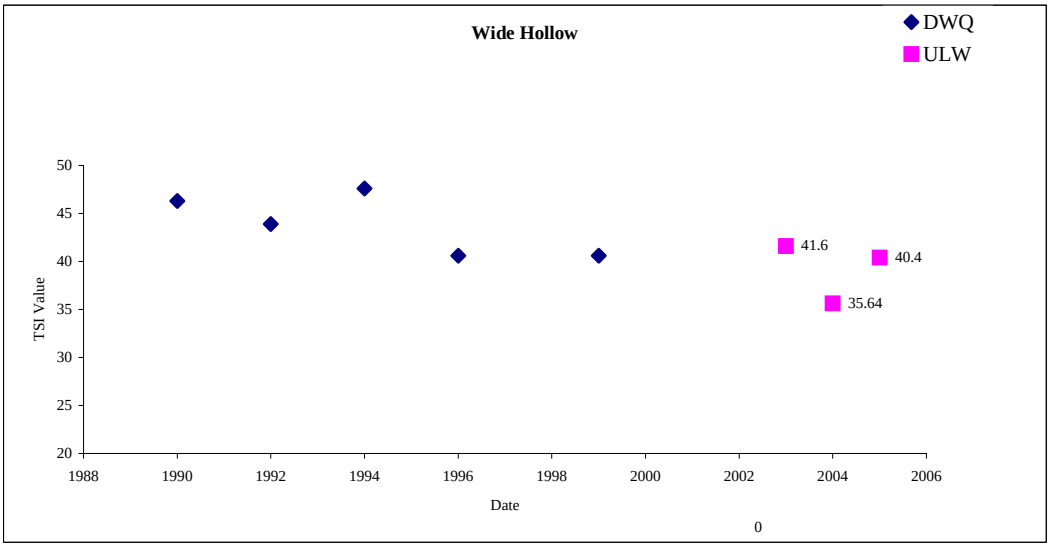
*There are no past TSI data for this reservoir

Wide Hollow Reservoir Data Summary

The average Secchi depth for 2005 was 4.0 m decreasing from 5.5 m for 2004. The average TSI value for 2005 was 40 (mesotrophic) an increase from 36 for 2004, but follows the general trend from the past 14 years moving closer to an oligotrophic state.

Date	Time	Secchi Depth	TSI
12-Jun-05	10:45	2.1	49
21-Jun-05	9:30	3.5	41
25-Jun-05		3.1	43
4-Jul-05	9:45	4.1	39
11-Jul-05	10:00	3.8	40
17-Jul-05		3.9	40
7-Aug-05	10:00	4.8	37
14-Aug-05	10:00	4.9	37
26-Aug-05	10:00	6.0	34
13-Sep-05	10:00	4.1	39
Average		**4.0**	**40**

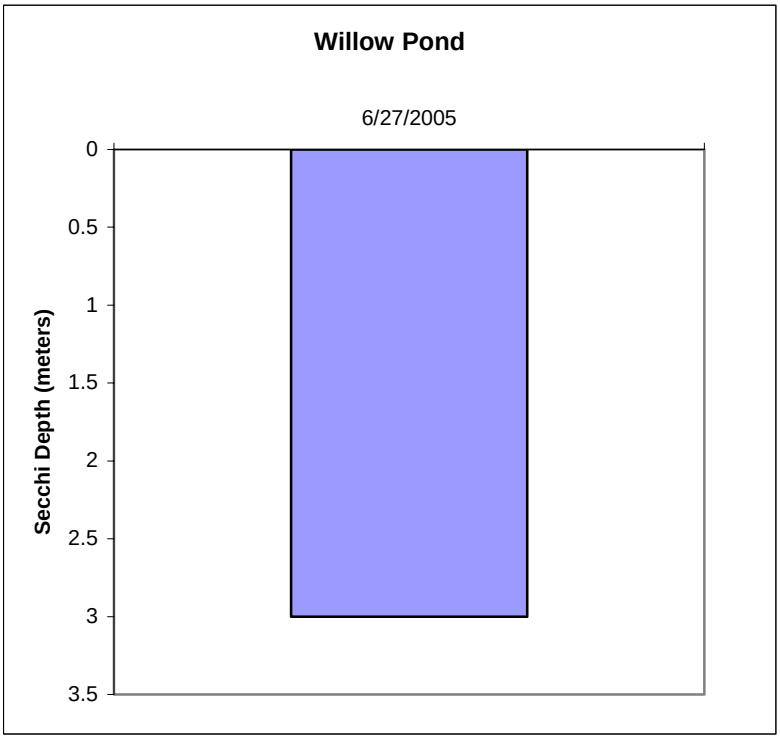




Willow Pond Data Summary

The average Secchi depth for 2005 was 3 m, which was the only measurement taken. The average (only) TSI value was 44. There are no other data for Willow Pond.

Date	Time	Secchi Depth	TSI
27-Jun-05	18:00	3	44
	Average	**3**	**44**

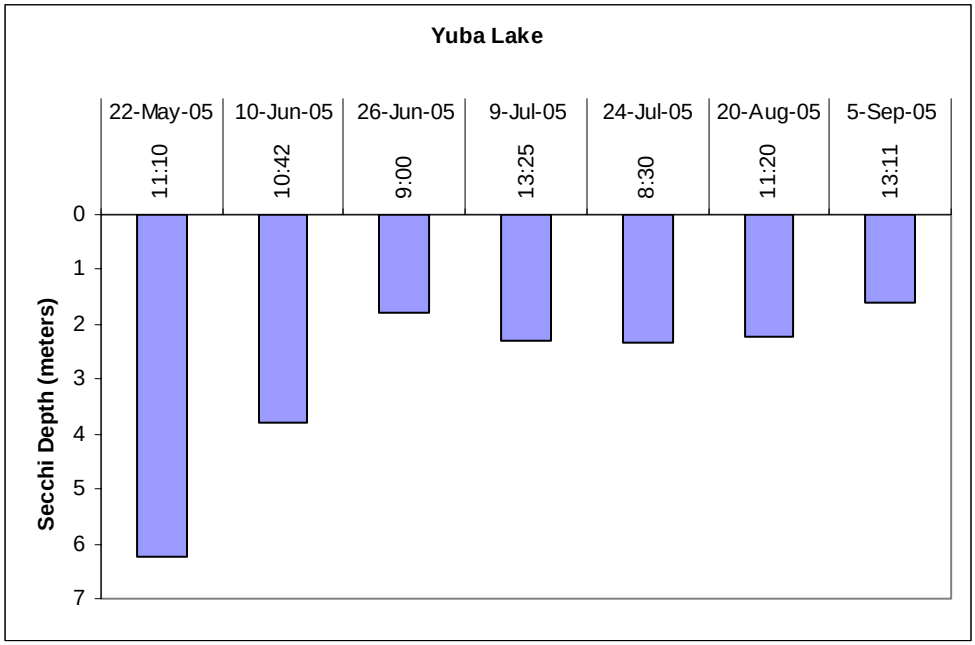


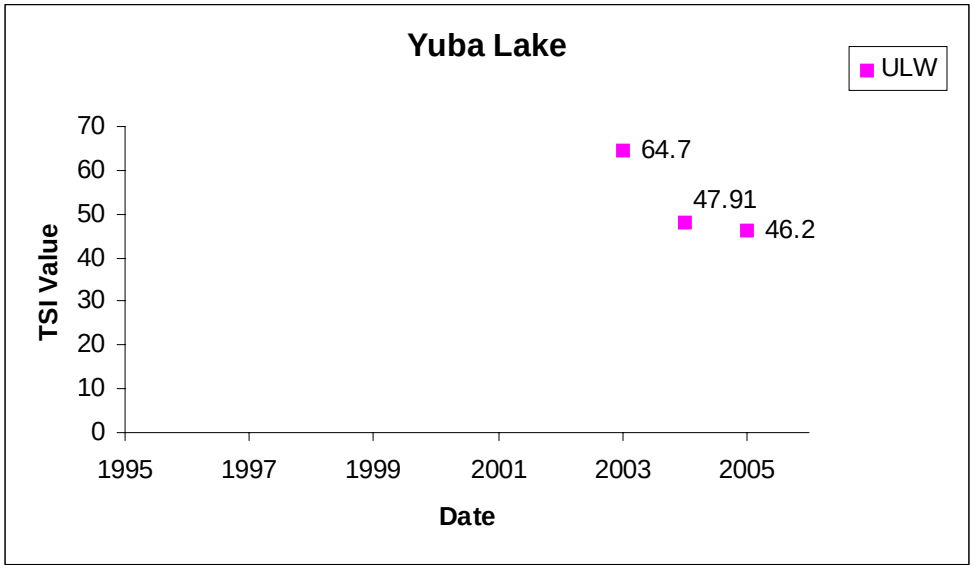
*There are no past TSI data for this pond

Yuba Lake Data Summary

The average Secchi depth for 2005 in Yuba Lake was 2.9 m. The average TSI value for 2005 was 46, a slight decline from 48 in 2004, but holding a steady mesotrophic status for the past two years.

Date	Time	Secchi Depth	TSI
22-May-05	11:10	6.2	33
10-Jun-05	10:42	3.8	40
26-Jun-05	9:00	1.8	51
9-Jul-05	13:25	2.3	47
24-Jul-05	8:30	2.3	47
20-Aug-05	11:20	2.2	48
5-Sep-05	13:11	1.6	53
	Average	**2.9**	**46**





*There are no other past TSI data earlier than 2003 for Yuba Lake

Appendix 1:

Individual Lake/Reservoir Summaries
2005

Appendix 2:

Raw Data for Each Lake/Reservoir
2005