Chapter 2.5. Weber River Watershed Management Unit Assessment

2.5.1 Introduction

The Weber River rises in Summit County near Reids Peak (11,708 ft), then flows west to Oakley, Utah; then turns and flows in a north westerly direction to the Great Salt Lake (4,200 ft). The Weber River is approximately 125 miles long; one-half of which lies in Summit County, 25 miles flow in Morgan County and 30 miles in Weber County. The Ogden River, the major tributary to the Weber River, lies within Weber County and enters the Weber River about 12 miles upstream from its mouth. The other major tributaries to the Weber River are East Canyon Creek, Lost Creek, Chalk Creek, and Beaver Creek. Two smaller tributaries that can affect the water quality of the Weber River are Echo Creek and Silver Creek.

Table 2.5.1. U.S.G.S. Hydrological Units in the Weber River Watershed Management Unit.

Hydrological Unit Code	Hydrological Unit Name
16020101	Upper Weber
16020102	Lower Weber

2.5.2 Water Quality Assessment Results

Data collected from January 1, 2002 through December 31, 2006 were used to assess the rivers and streams in this watershed management unit. Data included the intensive survey data and data collected at long-term and point source sites. The designated beneficial use classes assigned to rivers and streams are mapped in Figure 2.5.2. Water chemistry and field data were compared against state standards to determine beneficial use support. Benthic macroinvertebrate data were

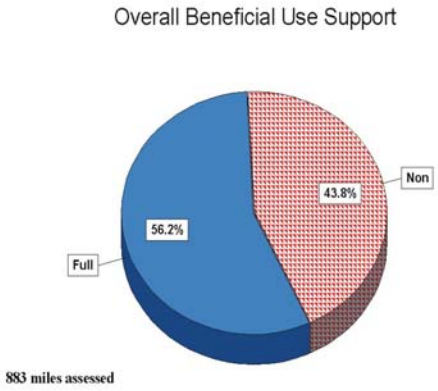

Figure 2.5.1. Overall Beneficial Use Support

used to assess Figure 2.5.1.beneficial use support under the narrative standard (Chapter 2.15). The beneficial uses assigned to rivers and streams are mapped in Figure 2.5.3.

2.5.2.1 Overall Beneficial Use Support --An assessment of beneficial use support was made for 882.6 miles.

Based upon at least one beneficial use being assessed, 496.10 miles (56.2%) were assessed fully supporting and 386.5 miles (43.8%) as not supporting (Figure 2.5.1).

2.5.1.2 Assessment by Categories – Table 2.5.2 is a list of streams miles assigned to the various beneficial use categories during the assessment. Figure 2.5.3 is a map of the beneficial use support by categories.

Table. 2.5.2. Stream Miles By Assessment Category – Weber River Watershed Management Unit.		
Category	**Category Definition**	**Stream Miles**
1	All beneficial uses fully supported.	0.0
2	Beneficial uses assessed are fully supported.	493.2
3A	No data or insufficient data to make an assessment.	173.5
3B	Lakes that are not supported for one cycle only.	0.0
3C	Insufficient data to assess but an assessment plan is in place.	0.0
4A	Approved TMDL	234.5
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.	137.0
5	Impaired by pollutant, TMDL required.	173.4

2.5.1.3 Individual Beneficial Use Support - Table 2.5.3 lists the beneficial use support by individual beneficial use classes. For the aquatic life beneficial use, 496.1 stream miles (56.0%) are supporting their aquatic life beneficial uses. There are 389.2 miles (44.0%) not supporting aquatic life. Of the 832.4 miles assessed for agricultural use, all are fully supporting. Of the miles assessed as a source of drinking water, 694.1 miles (97.0%) are fully supported and 21.4 miles (3.0%) as not supporting. Silver Creek is the stream that does not meet drinking water standards.

Table 2.5.3. Individual Use Support Summary – Weber River Watershed Management Unit.				
	Size	**Size Fully**	**Size Not**	
	Assessed	**Supporting**	**Supporting**	**Totals**
Use				
Aquatic Life	885.3	496.1	389.2	885.3
Fish Consumption	0.0	0.0	0.0	0.0
Swimming	0.0	0.0	0.0	0.0
Secondary Contact	0.0	0.0	0.0	0.0
Drinking Water	715.5	694.1	21.4	715.5
Agricultural	832.4	832.4	0.0	832.4
Aquatic Life		56.0%	44.0%	100.0%

Table 2.5.3. Individual Use Support Summary – Weber River Watershed Management Unit.				
	Size Assessed	**Size Fully Supporting**	**Size Not Supporting**	**Totals**
Use				
Fish Consumption		0.0%	0.0%	0.0%
Swimming		0.0%	0.0%	0.0%
Secondary Contact		0.0%	0.0%	0.0%
Drinking Water		97.0%	3.0%	100.0%
Agricultural		100.0%	0.0%	100.0%

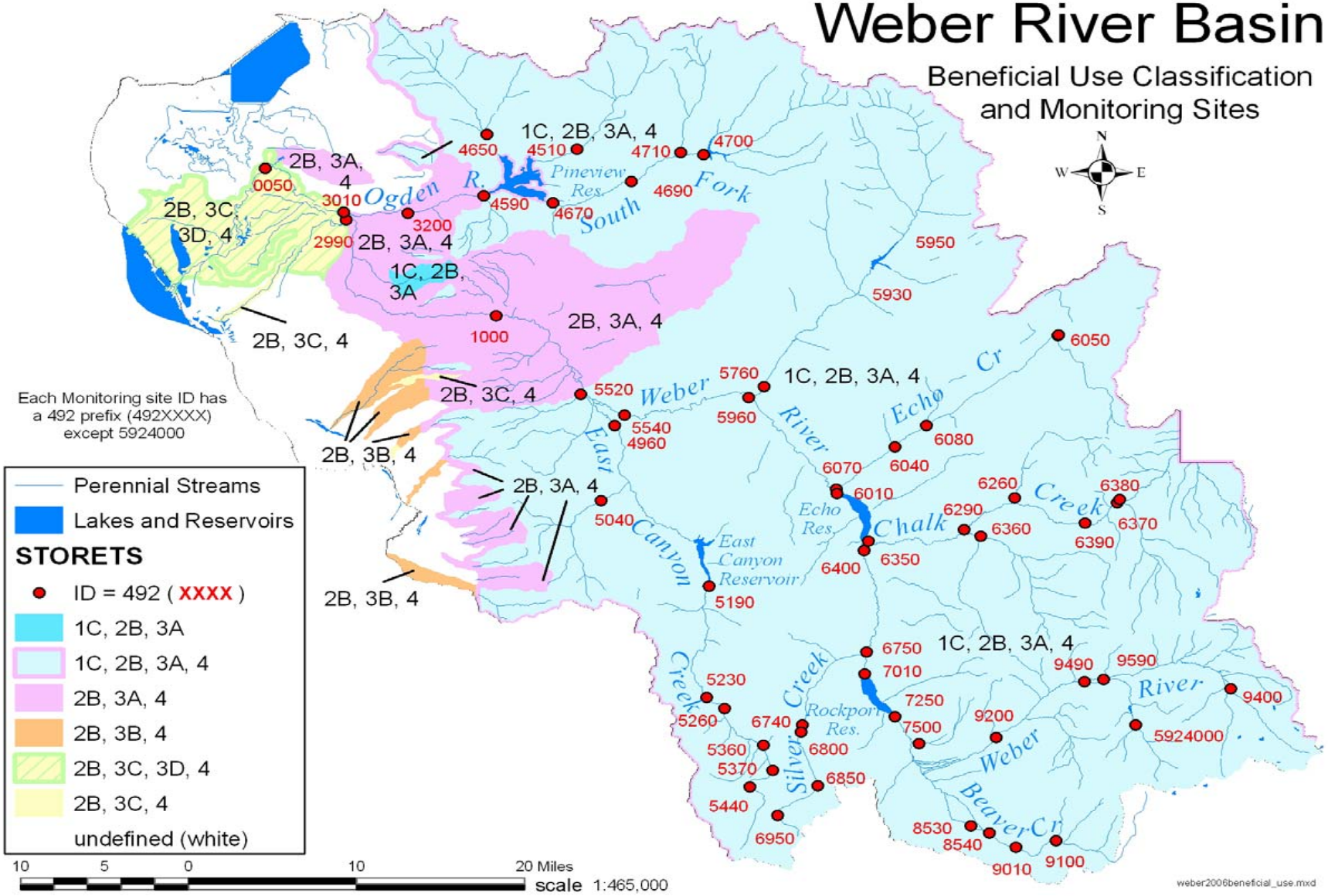

Figure 2.5.2. Weber River Watershed Management Unit beneficial use classifications.

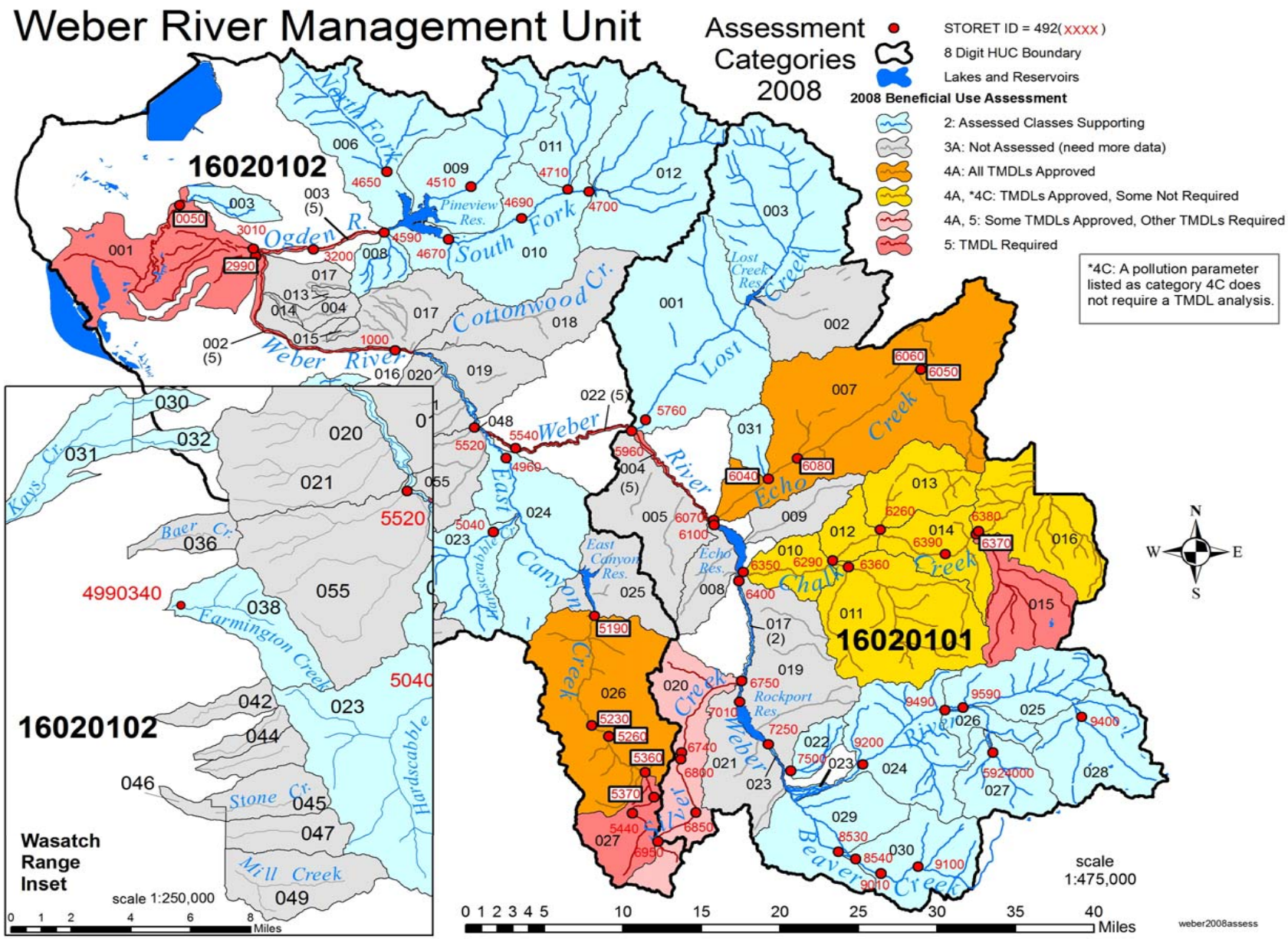

Figure 2.5.3. Weber River Watershed Management Unit assessment by categories.

2.5.1.4 Total Waters Impaired by Various Causes –Table 2.5.4 is a list of stream miles affected by the various causes of pollution. The causes of water quality impairment are nutrients (total phosphorus) sediment (siltation/sediment), habitat alterations such as loss of riparian habitat and in-stream structure and function, dissolved oxygen, flow alterations and metals. The percent of stream miles impaired by these causes is illustrated in Figure 2.5.4. Metals are the cause of impairment in Silver Creek. Historical mining practices and tailings are the source of the contamination. The relative percent impact by causes are illustrated in Figure 2.5.5.

2.5.1.4 Total Waters Impaired by Various Sources –Table 2.5.5 contains a list sources that caused stream impairments. The sources of impairment are agricultural activities, hydromodification, habitat modification, resource extraction, natural sources, unknown, and urban runoff. The percent of stream miles impaired by these sources are illustrated in Figure 2.5.6. The relative percent impact by sources is illustrated in Figure 2.5.7.

Table 2.5.4. Total Waters Impaired by Various Cause Categories – Weber Watershed Management Unit.

Cause Category	Stream Miles
Cause unknown	0.0
Unknown toxicity	0.0
Pesticides	0.0
Priority organics	0.0
Nonpriority organics	0.0
Metals	21.4
Ammonia	0.0
Chlorine	0.0
Other inorganics	0.0
Nutrients	182.2
pH	0.0
Siltation/Sediment	182.2
Organic enrichment/low DO	34.7
Salinity/TDS/Chlorides	0.0
Thermal modifications	0.0
Flow alterations	110.5
Other habitat alterations	137.0
Pathogen Indicators	0.0
Radiation	0.0
Oil and grease	0.0
Taste and odor	0.0
Benthic Macroinvertebrates	152.0
Total toxics	0.0
Turbidity	0.0
Exotic Species	0.0

Table 2.5.5. Total Waters Impaired by Various Source Categories – Weber Watershed Management Unit.

Source Category	Stream Miles
Industrial Point Sources	0.0
Municipal Point Sources	34.7
Combined Sewer Overflow	0.0
Agriculture	226.4
Silviculture	0.0
Construction	34.7
Urban Runoff/Storm Sewers	34.7
Resource Extraction	158.3
Land Disposal	0.0
Hydromodification	147.5
Habitat Modification	137.0
Marinas	0.0
Atmospheric Deposition	0.0
Contaminated Sediments	0.0
Unknown Source	152.0
Natural Sources	129.3
Reservoir Releases	10.6
Recreation	0.0

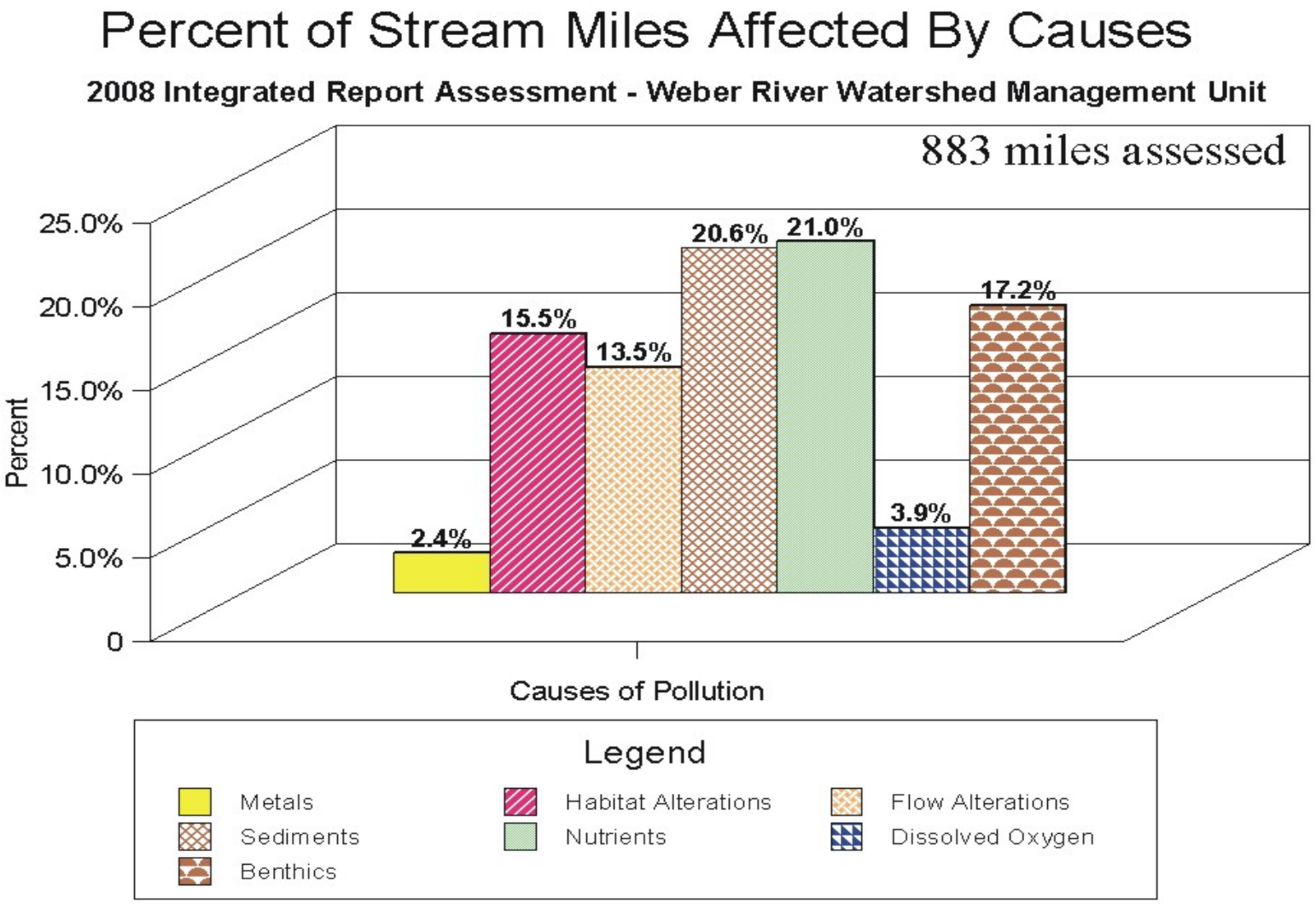

Figure 2.5.4. Percent impact by causes on stream water quality – Weber River Watershed Management Unit.

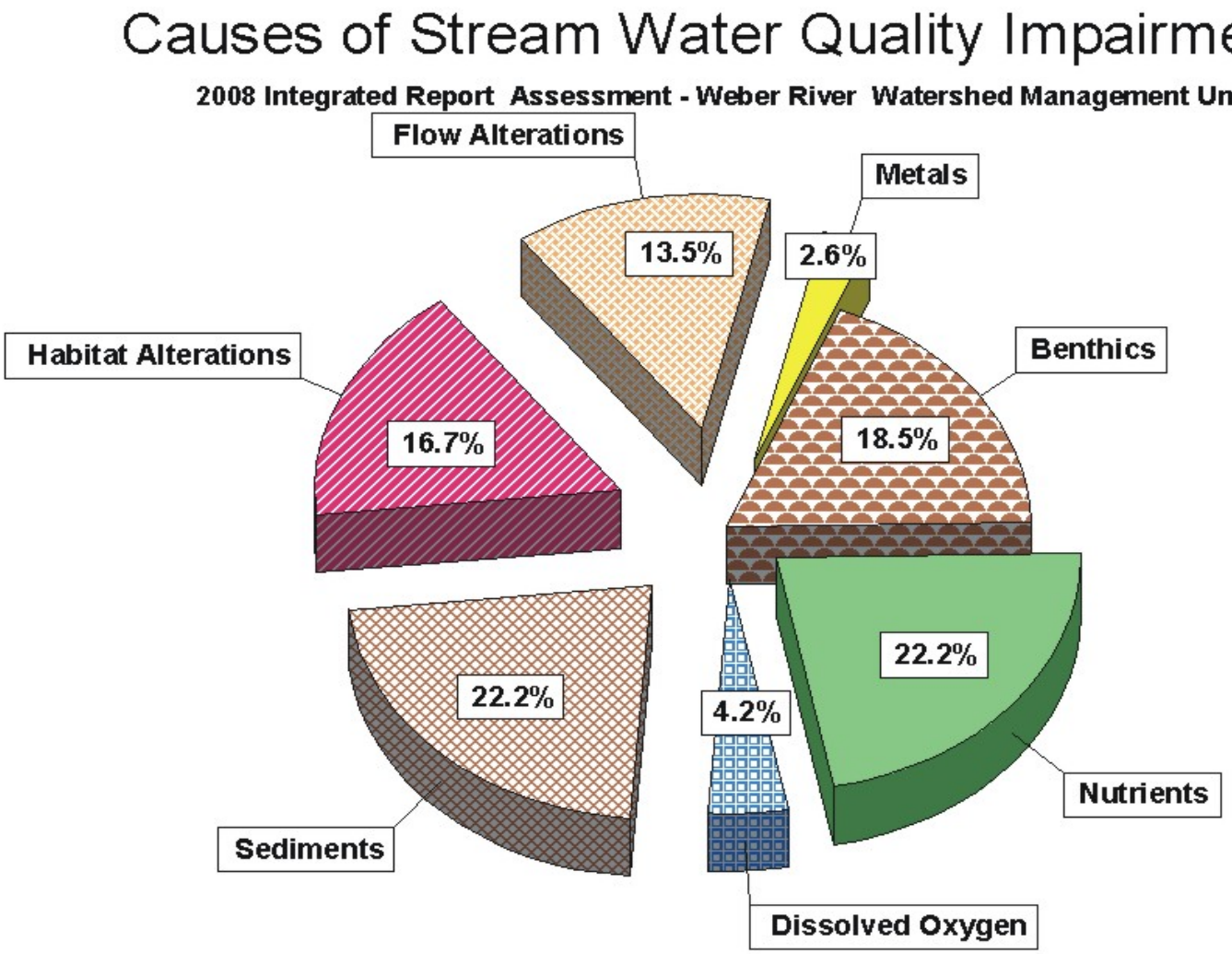

Figure 2.5.5. Relative percent contribution of causes on stream water quality – Weber River Watershed Management Unit.

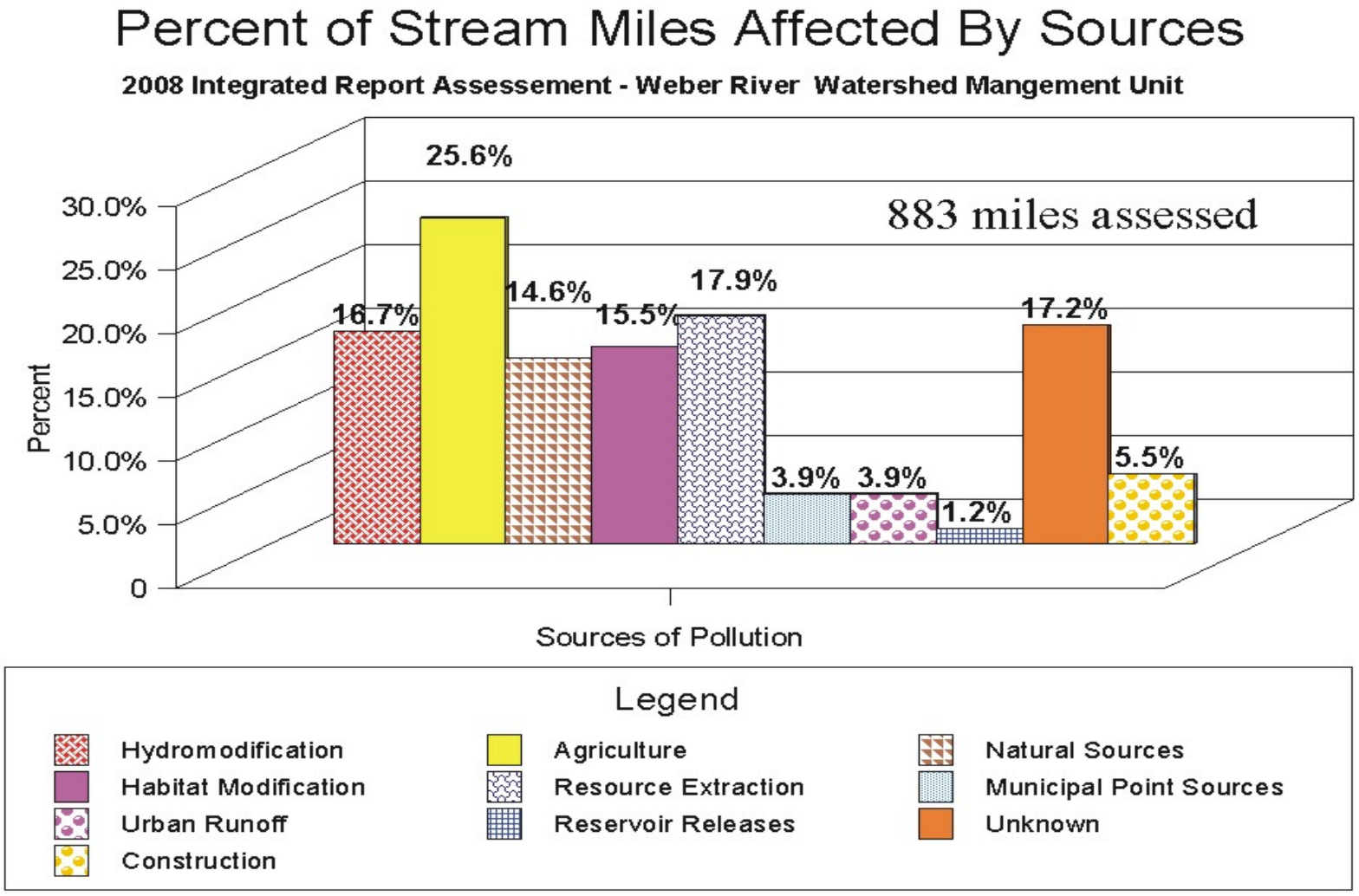

Figure 2.5.6. Percent of assessed stream miles impacted by various sources – Weber River Watershed Management Unit.

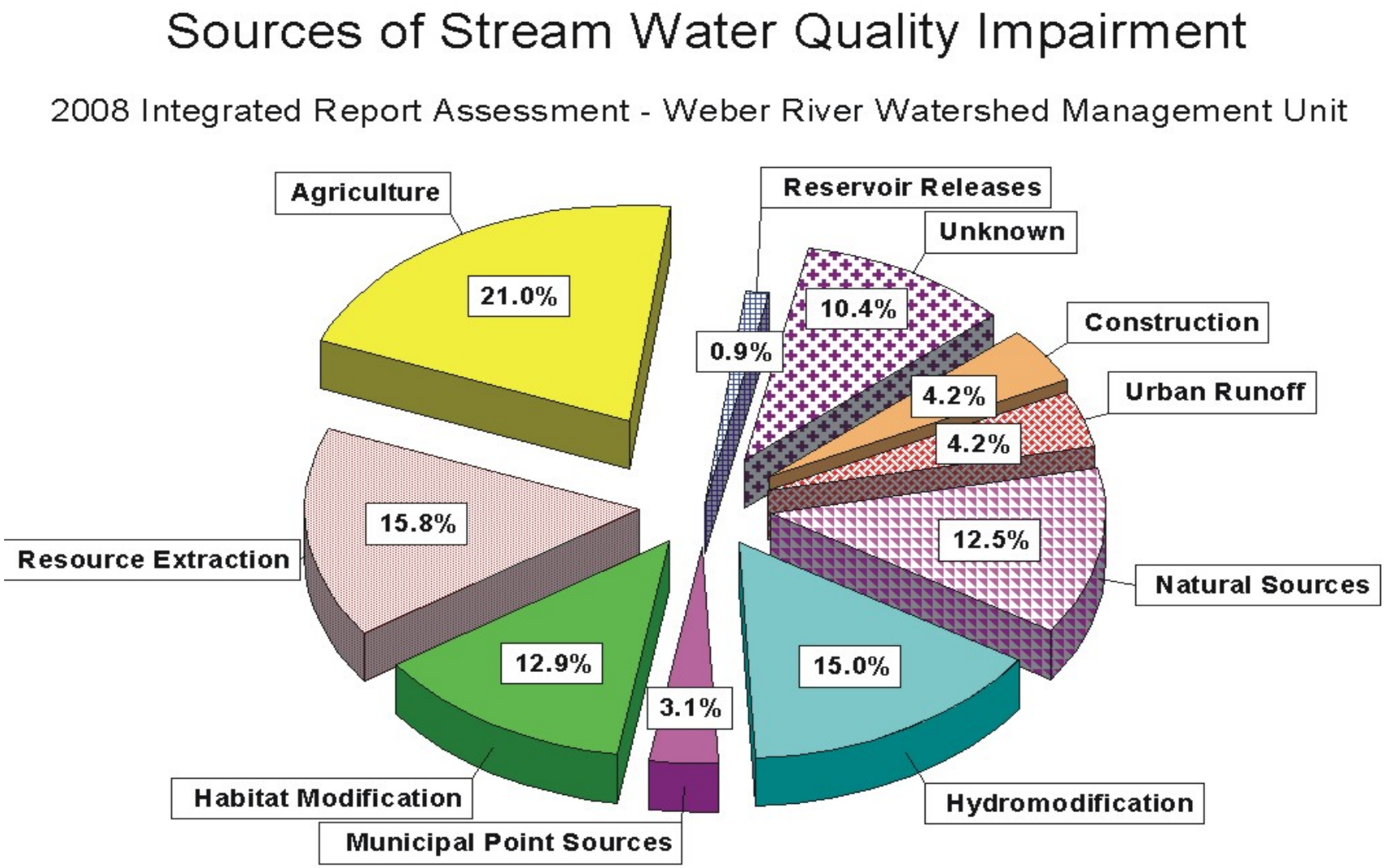

Figure 2.5.7. Relative percent impact by causes on water quality – Weber River Watershed Management Unit.

Assessment Unit ID	Assessment Unit Name	Assessment Unit Description	Beneficial Use Class Impaired	Beneficial Use Support	Support Category	Pollutant Or Pollution	Stream Miles
UT16020101-007	Echo Creek	Echo Creek and tributaries from confluence with Weber River to headwaters, excluding Sawmill Creek	3A	NS	4A	Siltation	44.15
UT16020101-010	Chalk Creek-1	Chalk Creek and tributaries from confluence with Weber River to South Fork confluence	3A	NS	4A	Siltation	7.67
UT16020101-010	Chalk Creek-1	Chalk Creek and tributaries from confluence with Weber River to South Fork confluence	3A	NS	4A	Total Phosphorus	7.67
UT16020101-011	South Fork Chalk Creek	South Fork Chalk Creek and tributaries from confluence with Chalk Creek to headwaters	3A	NS	4A	Siltation	47.4
UT16020101-011	South Fork Chalk Creek	South Fork Chalk Creek and tributaries from confluence with Chalk Creek to headwaters	3A	NS	4A	Total Phosphorus	47.4
UT16020101-012	Chalk Creek-2	Chalk Creek and tributaries from South Fork confluence to Huff Creek confluence	3A	NS	4A	Siltation	4.49
UT16020101-012	Chalk Creek-2	Chalk Creek and tributaries from South Fork confluence to Huff Creek confluence	3A	NS	4A	Total Phosphorus	4.49
UT16020101-013	Huff Creek	Huff Creek and tributaries from confluence with Chalk Creek to headwaters	3A	NS	4A	Siltation	16.39
UT16020101-013	Huff Creek	Huff Creek and tributaries from confluence with Chalk Creek to headwaters	3A	NS	4A	Total Phosphorus	16.39
UT16020101-014	Chalk Creek-3	Chalk Creek and tributaries from Huff Creek confluence to East Fork confluence	3A	NS	4A	Siltation	13.73
UT16020101-014	Chalk Creek-3	Chalk Creek and tributaries from Huff Creek confluence to East Fork confluence	3A	NS	4A	Total Phosphorus	13.73
UT16020101-016	Chalk Creek-4	Chalk Creek and tributaries from East Fork Chalk Creek confluence to headwaters	3A	NS	4A	Siltation	47.29
UT16020101-016	Chalk Creek-4	Chalk Creek and tributaries from East Fork Chalk Creek confluence to headwaters	3A	NS	4A	Total Phosphorus	47.29
UT16020101-020	Silver Creek	Silver Creek and tributaries from confluence with Weber River to headwaters	3A	NS	4A	Cadmium	21.37
UT16020101-020	Silver Creek	Silver Creek and tributaries from confluence with Weber River to headwaters	3A	NS	4A	Zinc	21.37
UT16020102-026	East Canyon Creek-2	East Canyon Creek and tributaries from East Canyon Reservoir to headwaters	3A	NS	4A	Organic Enrichment/Low DO	34.66

Assessment Unit ID	Assessment Unit Name	Assessment Unit Description	Beneficial Use Class Impaired	Beneficial Use Support	Support Category	Pollutant Or Pollution	Stream Miles
UT16020102-026	East Canyon Creek-2	East Canyon Creek and tributaries from East Canyon Reservoir to headwaters	3A	NS	4A	Total Phosphorus	34.66
UT16020101-010	Chalk Creek-1	Chalk Creek and tributaries from confluence with Weber River to South Fork confluence	3A	NS	4C	Other Habitat Alterations	7.67
UT16020101-011	South Fork Chalk Creek	South Fork Chalk Creek and tributaries from confluence with Chalk Creek to headwaters	3A	NS	4C	Other Habitat Alterations	47.4
UT16020101-012	Chalk Creek-2	Chalk Creek and tributaries from South Fork confluence to Huff Creek confluence	3A	NS	4C	Other Habitat Alterations	4.49
UT16020101-013	Huff Creek	Huff Creek and tributaries from confluence with Chalk Creek to headwaters	3A	NS	4C	Other Habitat Alterations	16.39
UT16020101-014	Chalk Creek-3	Chalk Creek and tributaries from Huff Creek confluence to East Fork confluence	3A	NS	4C	Other Habitat Alterations	13.73
UT16020101-016	Chalk Creek-4	Chalk Creek and tributaries from East Fork Chalk Creek confluence to headwaters	3A	NS	4C	Other Habitat Alterations	47.29
UT16020101-004	Weber River-7	Weber River segment between confluence of Lost Creek and Echo Reservoir	3A	NS	5	Benthic Macroinvertebrate Assessment Impairment	10.57
UT16020101-004	Weber River-7	Weber River segment between confluence of Lost Creek and Echo Reservoir	3A	NS	5	Total Phosphorus	10.57
UT16020101-015	East Fork Chalk Creek	East Fork Chalk Creek and tributaries from confluence with Chalk Creek to headwaters	3A	NS	5	Benthic Macroinvertebrate Assessment Impairment	28.42
UT16020101-020	Silver Creek	Silver Creek and tributaries from confluence with Weber River to headwaters	1C	NS	5	Arsenic	21.37
UT16020102-001	Weber River-1	Weber River and tributaries from Great Salt Lake to Slaterville Diversion	3C	NS	5	Benthic Macroinvertebrate Assessment Impairment	60.15
UT16020102-002	Weber River-3	Weber River from Ogden River confluence to Cottonwood Creek confluence	3A	NS	5	Benthic Macroinvertebrate Assessment Impairment	17.86
UT16020102-005	Ogden River-1	Ogden River from confluence with Weber River to Pineview Reservoir	3A	NS	5	Benthic Macroinvertebrate Assessment Impairment	9.66

Assessment Unit ID	Assessment Unit Name	Assessment Unit Description	Beneficial Use Class Impaired	Beneficial Use Support	Support Category	Pollutant Or Pollution	Stream Miles
UT16020102-022	Weber River-6	Weber River between East Canyon Creek confluence and Lost Creek confluence	3A	NS	5	Benthic Macroinvertebrate Assessment Impairment	12.37
UT16020102-027	Kimball Creek	Kimball Creek and tributaries from East Canyon Creek confluence to headwaters, including McLeod Creek	3A	NS	5	Benthic Macroinvertebrate Assessment Impairment	12.97