

Chapter 2.6 Utah Lake-Jordan River Watershed Management Unit Assessment

2.6.1 Introduction

The Utah Lake-Jordan River Watershed Management Unit lies in north-central Utah and includes those streams that drain into Utah Lake and the Jordan River and its tributaries from Utah Lake to the Great Salt Lake. Utah Lake receives water from the Provo and Spanish Fork Rivers, and numerous tributaries that drain the Wasatch Mountains around it. In addition, the Duchesne Tunnel and Weber River diversions empty into the Provo River and a third diversion carries Strawberry Reservoir water into the lake via Diamond Fork and Spanish Fork Rivers. There are numerous streams that drain the Wasatch and Oquirrh Mountain ranges that flow into the Jordan River. Some of these streams are Little Cottonwood Creek, Big Cottonwood Creek, and Bingham Canyon Creek.

This management unit includes all streams located in the U.S.G.S Hydrological Units (HUCs) listed in Table 2.6.11 and is located in the north central part of the state.

Hydrological Unit Code	Hydrological Unit Name
16020201	Utah Lake
16020202	Spanish Fork
16020203	Provo
16020204	Jordan

2.6.2 Water Quality Assessment Results

Assessments were made using data from January 1, 2002 through December 31, 2007. The intensive survey data were used in the 2006 assessment. The majority of the Jordan River / Utah Lake Watershed is monitored annually. The DWQ, Salt Lake City, Salt Lake County, United States Geological Survey and the Provo River Committee collect data annually for a variety of reasons. These data are compared to the State standards to determine beneficial use support. In addition, benthic macroinvertebrate data are used to assess the aquatic life beneficial use classification (Chapter 2.15). The designated beneficial use for rivers and streams is mapped in Figure 2.6.2

2.6.2.1 Overall Beneficial Use Support --There are an estimated 1,314 perennial stream miles within the Utah Lake-Jordan River Watershed Management Unit. Of the miles assessed, 842.7 (79.2%) are supporting at least one beneficial use, 221.8 (20.8%) miles were not supporting at least one designated beneficial use Figure 2.6.1).

2.6.2.2 Beneficial Use

Assessment By Categories-A list of the categories and the stream miles included in each of the assessment categories is in Table 2.6.2. Figure 2.6.3 is a map of the beneficial use assessment for the rivers and streams.

Overall Beneficial Use Support

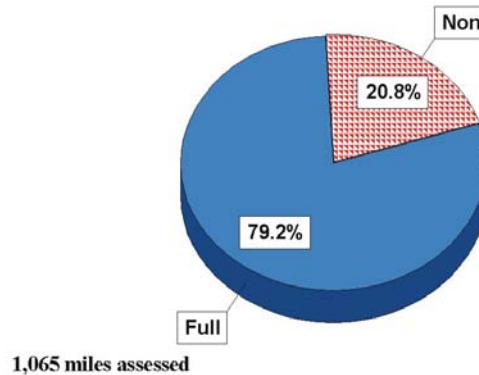


Figure 2.6.1. Overall Beneficial Use Support

Table 2.6.2. Stream Miles By Assessment Category – Jordan River/Utah Lake Watershed Management Unit.		
Category	Category Definition	Stream Miles
1	All beneficial uses assessed, all fully supported.	47.3
2	Beneficial uses assessed are fully supported.	795.3
3A	No data or insufficient data to make an assessment.	118.8
3B	Lakes that are not supported for one cycle only.	
3C	Insufficient data to assess but an assessment plan is in place.	0.0
4A	Approved TMDL	40.0
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.	32.5
5	Impaired by pollutant, TMDL required.	170.9

2.6.2.3 Individual Use Support --Of the streams assessed for aquatic life, 842.7 miles (79.2 %) are supporting and 221.8 miles (20.8%) are not supporting the beneficial use. Of the 953.6 stream miles assessed for agricultural use miles (95.3%) are fully supporting and 44.6 miles (4.7%) are not supporting their agricultural beneficial use classification. Of the Class 1C waters (source of drinking water), 432.7 miles (99.1%) are fully supporting and 4.1 miles (0.9%) are not supporting this beneficial use. Of the 118.0 miles assessed for secondary contact and swimming, 96.9 miles (82.1%) are fully supporting these beneficial uses and 21.1 miles (17.9%) are not. Agricultural waters assessed as fully supporting and not supporting were 842.7 miles (95.3%) and 44.6 miles (4.7%) respectively.

<p>Table 2.6.3 Individual Beneficial Use Support Summary Jordan River/Utah Lake Watershed Management Unit (Stream Miles)</p>

	Size	Size Fully	Size Not	
	Assessed	Supporting	Supporting	Totals
Use				
Aquatic Life	1,064.5	842.7	221.8	1061.2
Fish Consumption	0.0	0.0	0.0	0.0
Swimming	118.0	96.9	21.1	114.7
Secondary Contact	118.0	96.9	21.1	114.7
Drinking Water	432.7	428.6	4.1	432.7
Agricultural	953.6	909.0	221.8	962.9
Use				
Aquatic Life		79.2%	20.8%	100.0%
Fish Consumption		0.0%	0.0%	0.0%
Swimming		82.1%	82.1%	100.0%
Secondary Contact		82.1%	82.1%	100.0%
Drinking Water		99.1%	0.9%	100.0%
Agricultural		95.3%	4.7%	100.0%

2.6.2.4 Total Waters Impaired by Various Causes-- The causes of impairment are listed in Table 2.6.4. The causes of impairment are thermal modifications, flow and habitat alterations, total dissolved solids, metals, nutrients (total phosphorus), sediments, dissolved oxygen, and pathogens. The percent of miles impacted are illustrated in Figure 2.6.4. The relative contribution of each cause to water quality impairment is illustrated in Figure 2.6.5.

2.6.2.5 Total Waters Impaired by Various Sources-- The major sources of impairment are unknown sources, hydromodification, urban runoff, industrial and municipal point sources, habitat modifications, agricultural activities, resource extraction and natural sources illustrated in Figure 2.6.6. The relative percent impairment by sources is illustrated in Figure 2.6.7.

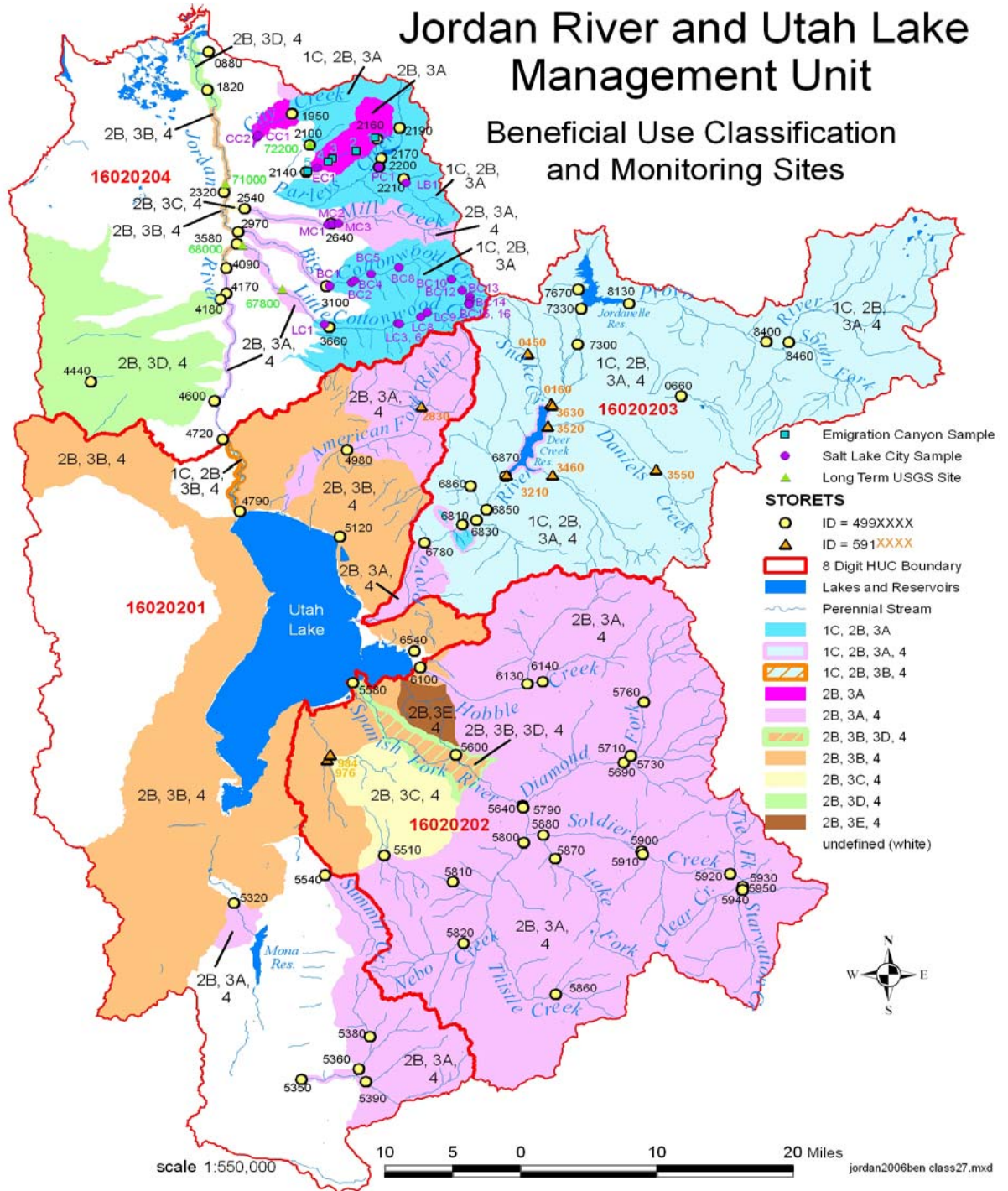


Figure 2.6.2. Beneficial use classifications – Jordan River/Utah Lake Watershed Management Unit.

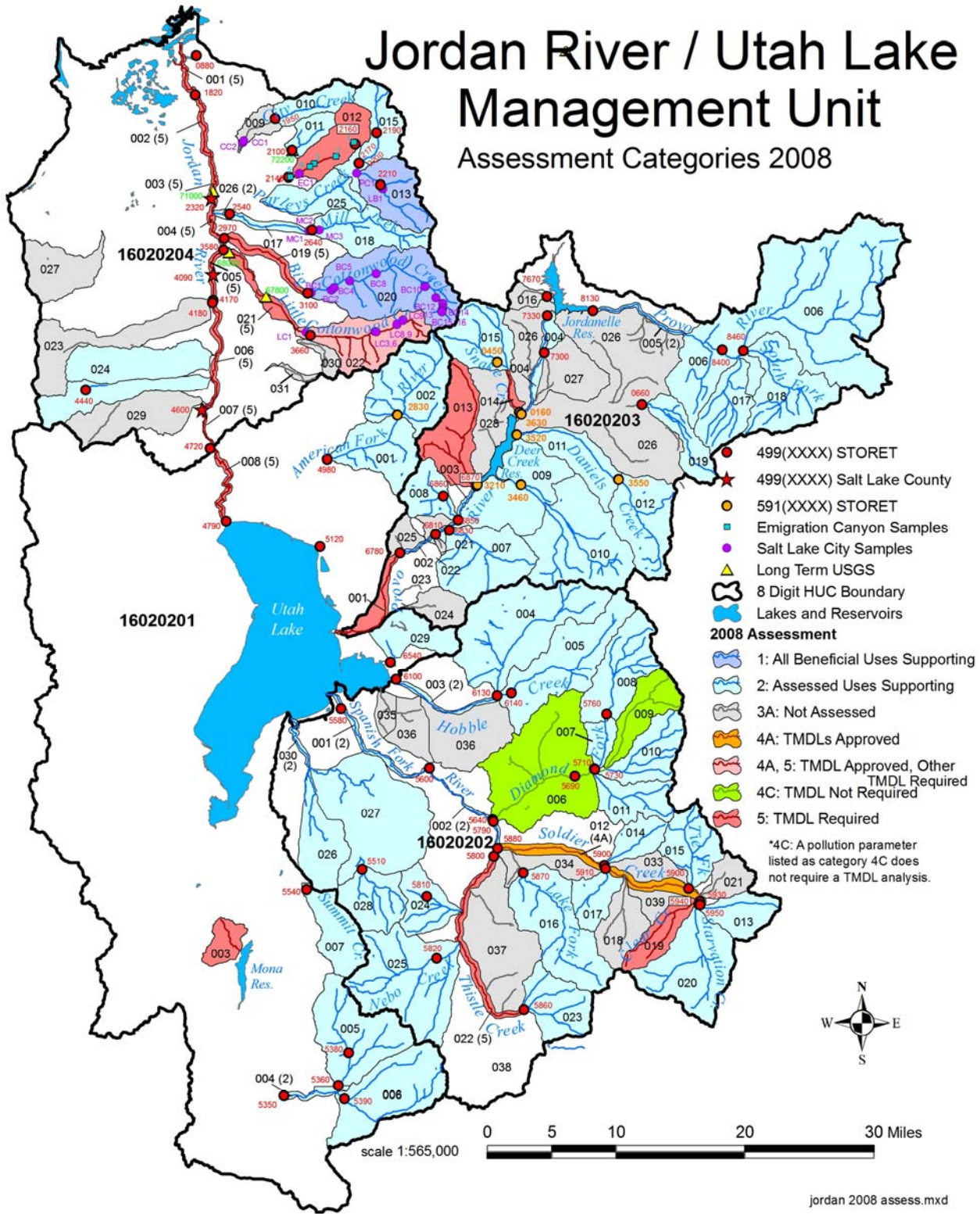


Figure 2.6.3. Beneficial use assessment by category – Jordan River/Utah Lake Watershed Management Unit.

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Table 2.6.4. Total Waters Impaired by Various Cause Categories - Jordan River/Utah Lake 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	25.6
Ammonia	0.0
Chlorine	0.0
Other inorganics	0.0
Nutrients	22.7
pH	3.4
Siltation/Sediments	18.5
Organic enrichment/low DO	16.3
Salinity/TDS/Chlorides	41.2
Thermal modifications	55.0
Flow alterations	32.5
Other habitat alterations	32.5
Pathogen Indicators	17.7
Radiation	0.0
Oil and grease	0.0
Taste and odor	0.0
Noxious aquatic plants	0.0
Total toxics	0.0
Turbidity	0.0
Benthic Macroinvertebrates	0.0
Other (specify)	0.0

Sources - Jordan River/Utah Lake Watershed Management Unit.	
Source Category	Stream Miles
Industrial Point Sources	34.6
Municipal Point Sources	34.6
Combined Sewer Overflow	0.0
Agriculture	48.8
Silviculture	0.0
Construction	0.0
Urban Runoff/Storm Sewers	61.7
Resource Extraction	21.5
Land Disposal	0.0
Hydromodification	51.0
Habitat Modification	32.5
Marinas	0.0
Atmospheric Deposition	0.0
Contaminated Sediments	0.0
Unknown Source	153.0
Natural Sources	27.1
Reservoir Releases	0.0
Recreation	0.0
Aquaculture	0.0
Extreme Drought	0.0

Table 2.6.5. Total Waters Impaired by Various

Percent of Stream Miles Affected By Causes

2008 Integrated Report Assessment - Jordan River/Utah Lake

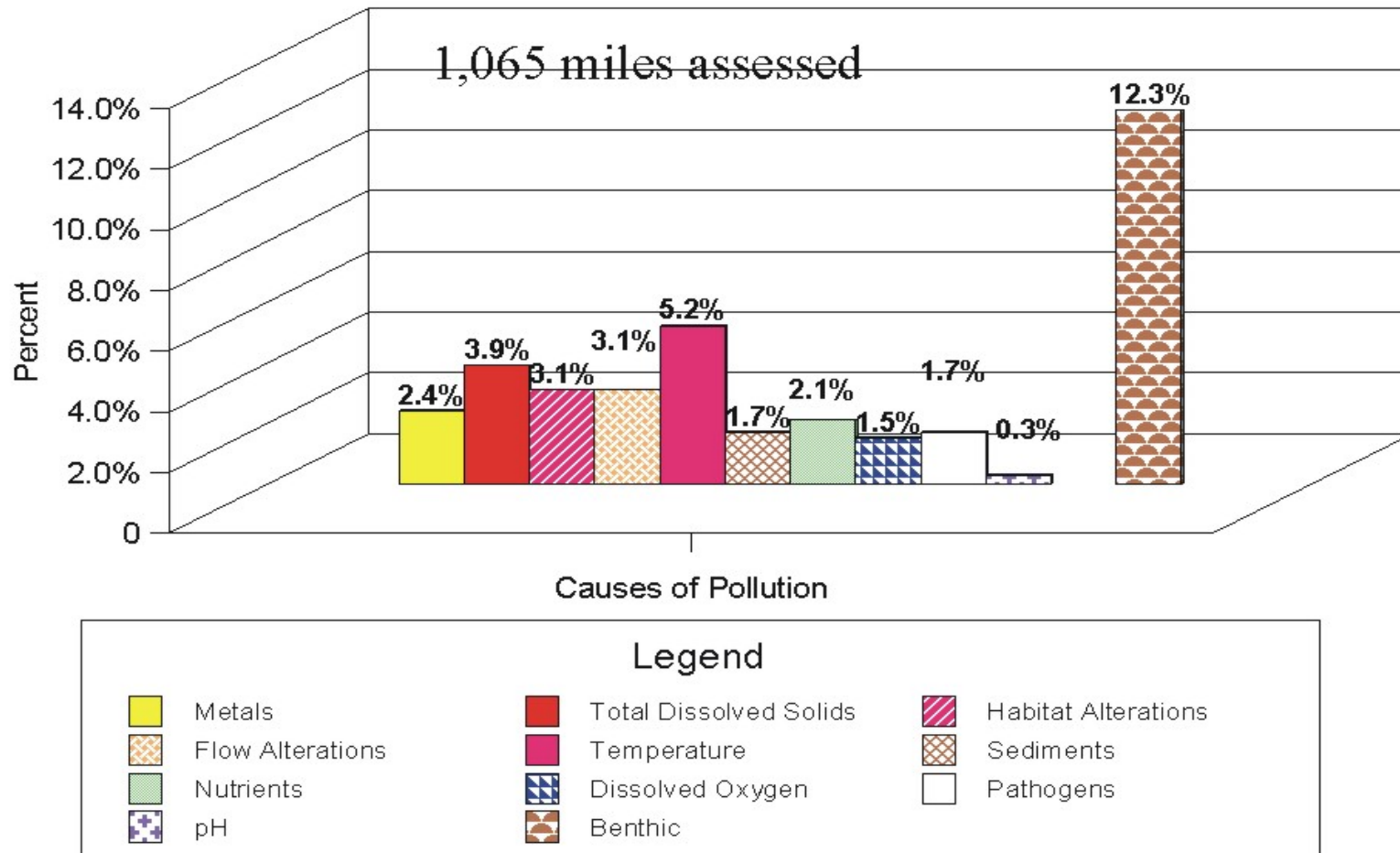


Figure 2.6.4. Percent of stream miles impacted by various causes – Jordan River / Utah Lake Watershed Management Unit.

Causes of Stream Water Quality Impairments

2008 Integrated Report Assessment - Jordan River / Utah Lake

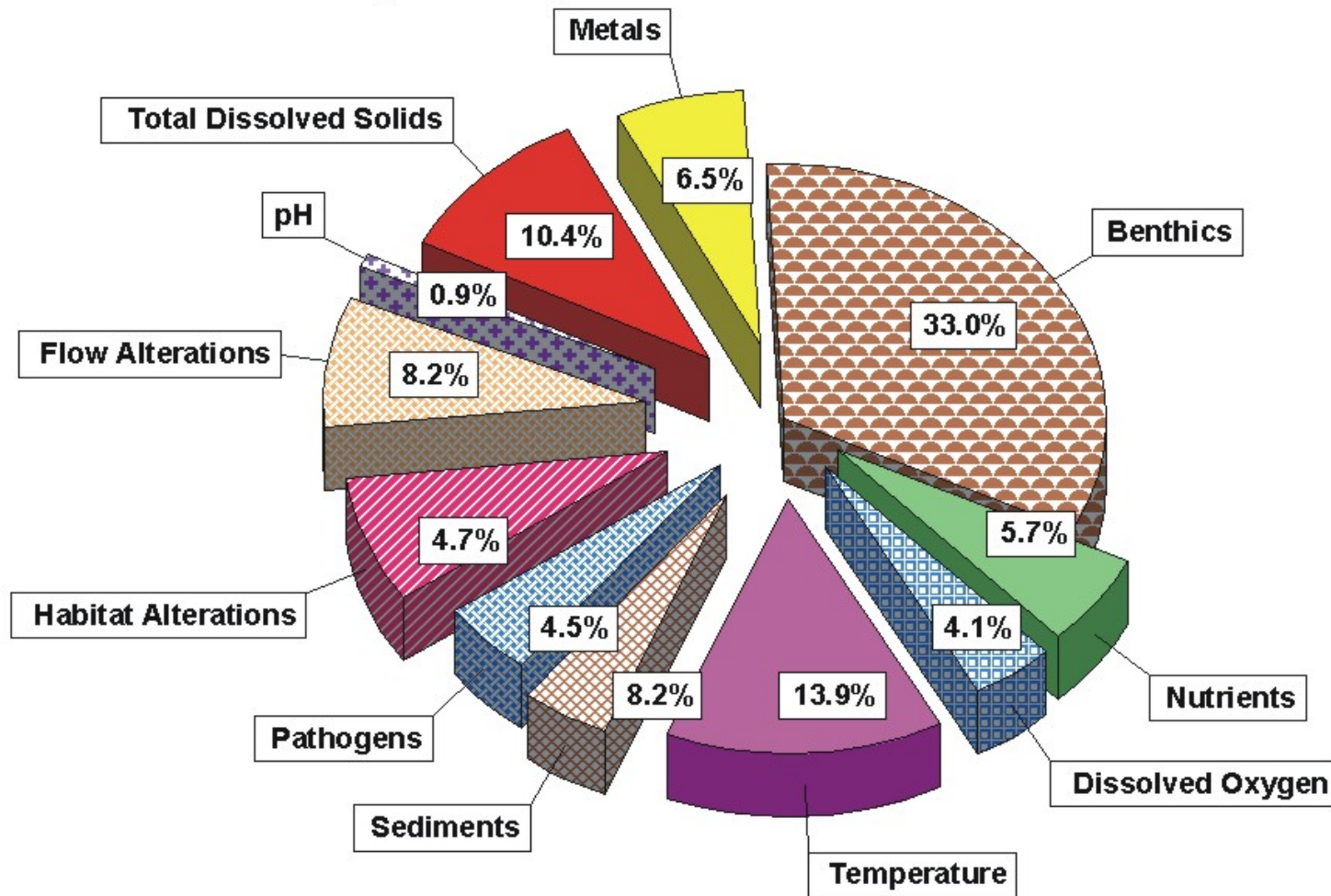


Figure 2.6.5. Relative percent impacted by causes on water quality – Jordan River / Utah Lake Watershed Management Unit.

Percent of Stream Miles Affected By Sources

2008 Integrated Report Assessment - Jordan River / Utah Lake

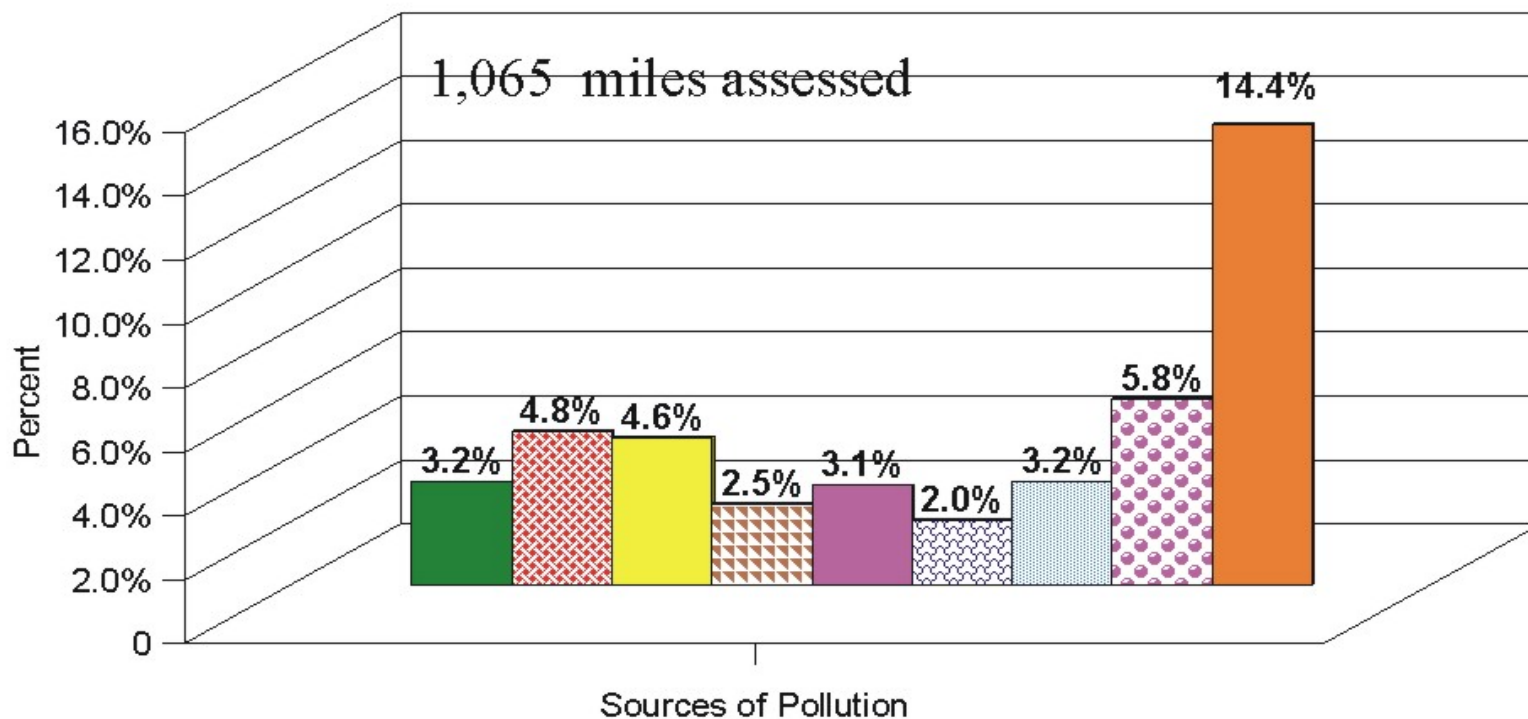


Figure 2.6.6. Percent of assessed stream miles impacted by various sources – Jordan River / Utah Lake Watershed Management Unit.

Sources of Stream Water Quality Impairment

2008 Integrated Report Assessment - Jordan River / Utah Lake

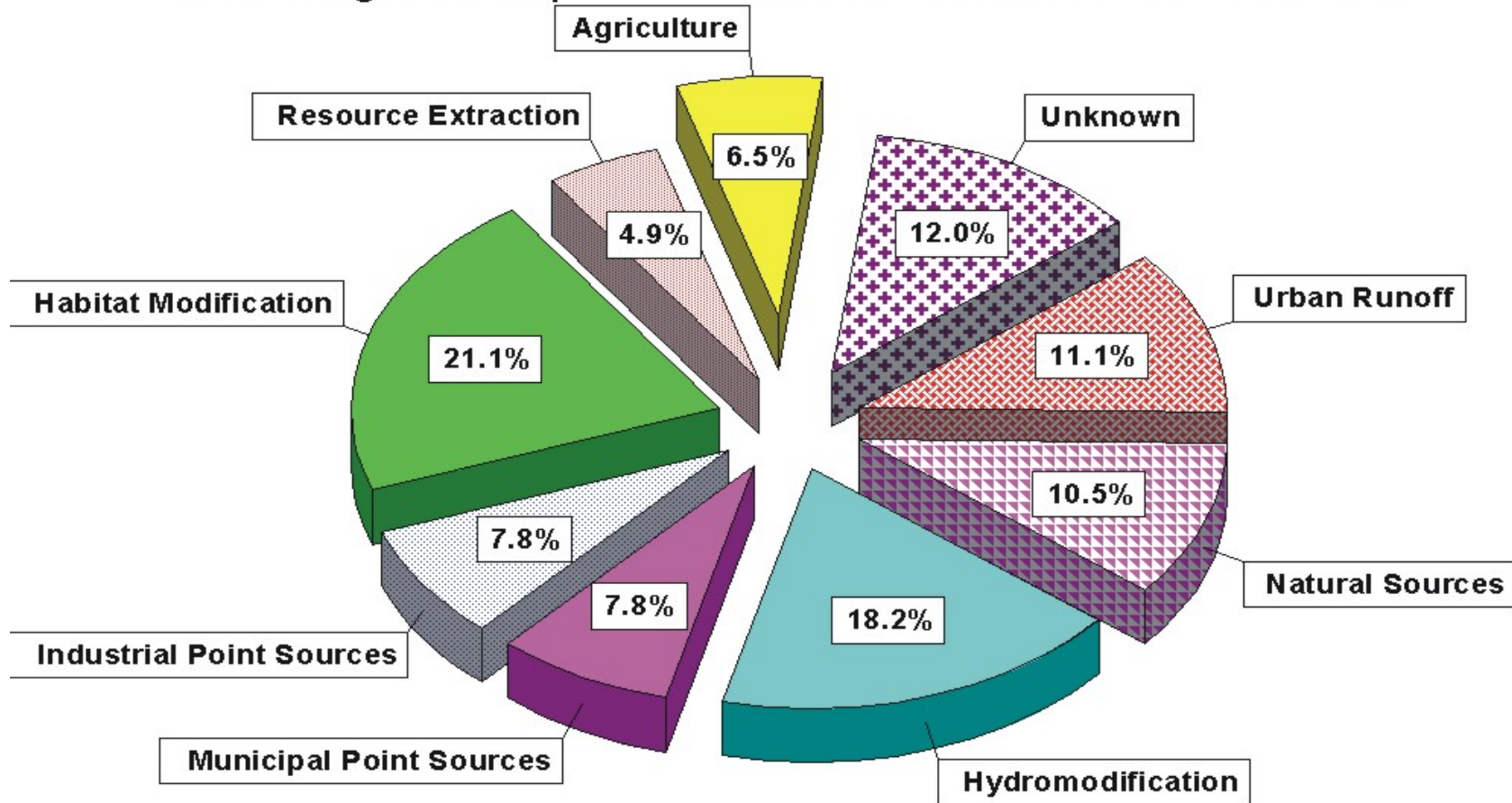


Figure 2.6.7. Relative percent impact by various sources on water quality – Jordan River / Utah Lake Watershed Management Unit.

Table 2.6.6. Impaired Waters Located in the Jordan/Utah Lake Watershed Management Unit.

Assessment	Assessment	Assessment	Beneficial Use	Beneficial		Pollutant	
Unit	Unit	Unit	Class	Use	Support	Or	Stream
ID	Name	Description	Impaired	Support	Category	Pollution	Miles
UT16020204-022	Little Cottonwood Creek-2	Little Cottonwood Creek and tributaries from Metropolitan WTP to headwaters	3A	NS	4A	Zinc	21.49
UT16020202-012	Soldier Creek-1	Soldier Creek from confluence with Thistle Creek to confluence of Starvation Creek	3A	NS	4A	Siltation	18.46
UT16020202-006	Diamond Fork-1	Diamond Fork Creek and tributaries from confluence with Spanish Fork River to Sixth Water confluence	3A	NS	4C	Flow Alteration	20.06
UT16020202-006	Diamond Fork-1	Diamond Fork Creek and tributaries from confluence with Spanish Fork River to Sixth Water confluence	3A	NS	4C	Other Habitat Alterations	20.06
UT16020202-006	Diamond Fork-1	Diamond Fork Creek and tributaries from confluence with Spanish Fork River to Sixth Water confluence	3A	NS	4C	Other Habitat Alterations	20.06
UT16020202-009	Sixth Water Creek	Sixth Water Creek and tributaries except Fifth Water and First Water Creeks and tributaries from confluence with Diamond Fork Creek to headwaters	3A	NS	4C	Flow Alteration	12.45
UT16020202-009	Sixth Water Creek	Sixth Water Creek and tributaries except Fifth Water and First Water Creeks and tributaries from confluence with Diamond Fork Creek to headwaters	3A	NS	4C	Other Habitat Alterations	12.45
UT16020201-003	Currant Creek	Current Creek from mouth of Goshen Canyon to Mona	2B	NS	5	pH	3.44

Table 2.6.6. Impaired Waters Located in the Jordan/Utah Lake 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
		Reservoir					
UT16020201-003	Currant Creek	Current Creek from mouth of Goshen Canyon to Mona Reservoir	3A	NS	5	pH	3.44
UT16020201-003	Currant Creek	Current Creek from mouth of Goshen Canyon to Mona Reservoir	3A	NS	5	Temperature	3.44
UT16020201-003	Currant Creek	Current Creek from mouth of Goshen Canyon to Mona Reservoir	3A	NS	5	pH	3.44
UT16020201-003	Currant Creek	Current Creek from mouth of Goshen Canyon to Mona Reservoir	4	NS	5	pH	3.44
UT16020201-008	Jordan River-8	Jordan River from Narrows to Utah Lake	3A	NS	5	Temperature	14.15
UT16020201-008	Jordan River-8	Jordan River from Narrows to Utah Lake	3A	NS	5	Benthic Macroinvertebrate Assessment Impairment	14.15
UT16020201-008	Jordan River-8	Jordan River from Narrows to Utah Lake	4	NS	5	Salinity/TDS/Chlorides	14.15
UT16020202-019	Clear Creek	Clear Creek and tributaries from confluence with Soldier Creek to headwaters	3A	NS	5	Benthic Macroinvertebrate Assessment Impairment	12.63
UT16020202-022	Thistle Creek-1	Thistle Creek from confluence with Soldier Creek to confluence with Little Clear Creek	3A	NS	5	Benthic Macroinvertebrate Assessment Impairment	18.28
UT16020203-001	Provo River-1	Provo River from Utah Lake to Murdock Diversion	3A	NS	5	Benthic Macroinvertebrate Assessment Impairment	10.26

Table 2.6.6. Impaired Waters Located in the Jordan/Utah Lake 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
UT16020203-013	Provo Deer Creek	Provo Deer Creek and tributaries from confluence with Provo River to headwaters	3A	NS	5	Benthic Macroinvertebrate Assessment Impairment	19.14
UT16020203-014	Snake Creek-1	Snake Creek from confluence with Provo River to Wasatch Mountain State Park Golf Course	1C	NS	5	Arsenic	4.09
UT16020204-001	Jordan River-1	Jordan River from Farmington Bay upstream contiguous with the Davis County line	3B	NS	5	Organic Enrichment/Low DO	7.6
UT16020204-001	Jordan River-1	Jordan River from Farmington Bay upstream contiguous with the Davis County line	3B	NS	5	Benthic Macroinvertebrate Assessment Impairment	7.6
UT16020204-001	Jordan River-1	Jordan River from Farmington Bay upstream contiguous with the Davis County line	3B	NS	5	Organic Enrichment/Low DO	7.6
UT16020204-002	Jordan River-2	Jordan River from Davis County line upstream to North Temple Street	2B	NS	5	E. coli	4.46
UT16020204-002	Jordan River-2	Jordan River from Davis County line upstream to North Temple Street	3B	NS	5	Benthic Macroinvertebrate Assessment Impairment	4.46
UT16020204-002	Jordan River-2	Jordan River from Davis County line upstream to North Temple Street	3B	NS	5	Organic Enrichment/Low DO	4.46
UT16020204-003	Jordan River-3	Jordan River from North Temple to 2100 South	2B	NS	5	E. coli	4.2
UT16020204-003	Jordan River-3	Jordan River from North Temple to 2100 South	3B	NS	5	Organic Enrichment/Low DO	4.2

Table 2.6.6. Impaired Waters Located in the Jordan/Utah Lake 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
UT16020204-003	Jordan River-3	Jordan River from North Temple to 2100 South	3B	NS	5	Total Phosphorus	4.2
UT16020204-004	Jordan River-4	Jordan River from 2100 South to the confluence with Little Cottonwood Creek	4	NS	5	Salinity/TDS/Chlorides	9.41
UT16020204-005	Jordan River-5	Jordan River from the confluence with Little Cottonwood Creek to 7800 South	2B	NS	5	E. coli	4.7
UT16020204-005	Jordan River-5	Jordan River from the confluence with Little Cottonwood Creek to 7800 South	3A	NS	5	Temperature	4.7
UT16020204-005	Jordan River-5	Jordan River from the confluence with Little Cottonwood Creek to 7800 South	4	NS	5	Salinity/TDS/Chlorides	4.7
UT16020204-006	Jordan River-6	Jordan River from 7800 South to Bluffdale	3A	NS	5	Benthic Macroinvertebrate Assessment Impairment	10.29
UT16020204-006	Jordan River-6	Jordan River from 7800 South to Bluffdale	3A	NS	5	Temperature	10.29
UT16020204-007	Jordan River-7	Jordan River from Bluffdale to Narrows	3A	NS	5	Benthic Macroinvertebrate Assessment Impairment	4.18
UT16020204-007	Jordan River-7	Jordan River from Bluffdale to Narrows	3A	NS	5	Temperature	4.18
UT16020204-007	Jordan River-7	Jordan River from Bluffdale to Narrows	4	NS	5	Salinity/TDS/Chlorides	4.18
UT16020204-012	Emigration Creek	Emigration Creek and tributaries from Foothill BLVD to headwaters	2B	NS	5	Pathogens	4.29
UT16020204-019	Big Cottonwood Creek-1	Big Cottonwood Creek and tributaries from Jordan River to Big Cottonwood WTP	3A	NS	5	Temperature	9.53

Table 2.6.6. Impaired Waters Located in the Jordan/Utah Lake 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
UT16020204-021	Little Cottonwood Creek-1	Little Cottonwood Creek and tributaries from Jordan River confluence to Metropolitan WTP	3A	NS	5	Temperature	8.73
UT16020204-021	Little Cottonwood Creek-1	Little Cottonwood Creek and tributaries from Jordan River confluence to Metropolitan WTP	3A	NS	5	Benthic Macroinvertebrate Assessment Impairment	8.73
UT16020204-021	Little Cottonwood Creek-1	Little Cottonwood Creek and tributaries from Jordan River confluence to Metropolitan WTP	4	NS	5	Salinity/TDS/Chlorides	8.73
UT16020204-022	Little Cottonwood Creek-2	Little Cottonwood Creek and tributaries from Metropolitan WTP to headwaters	3A	NS	5	Benthic Macroinvertebrate Assessment Impairment	21.49

