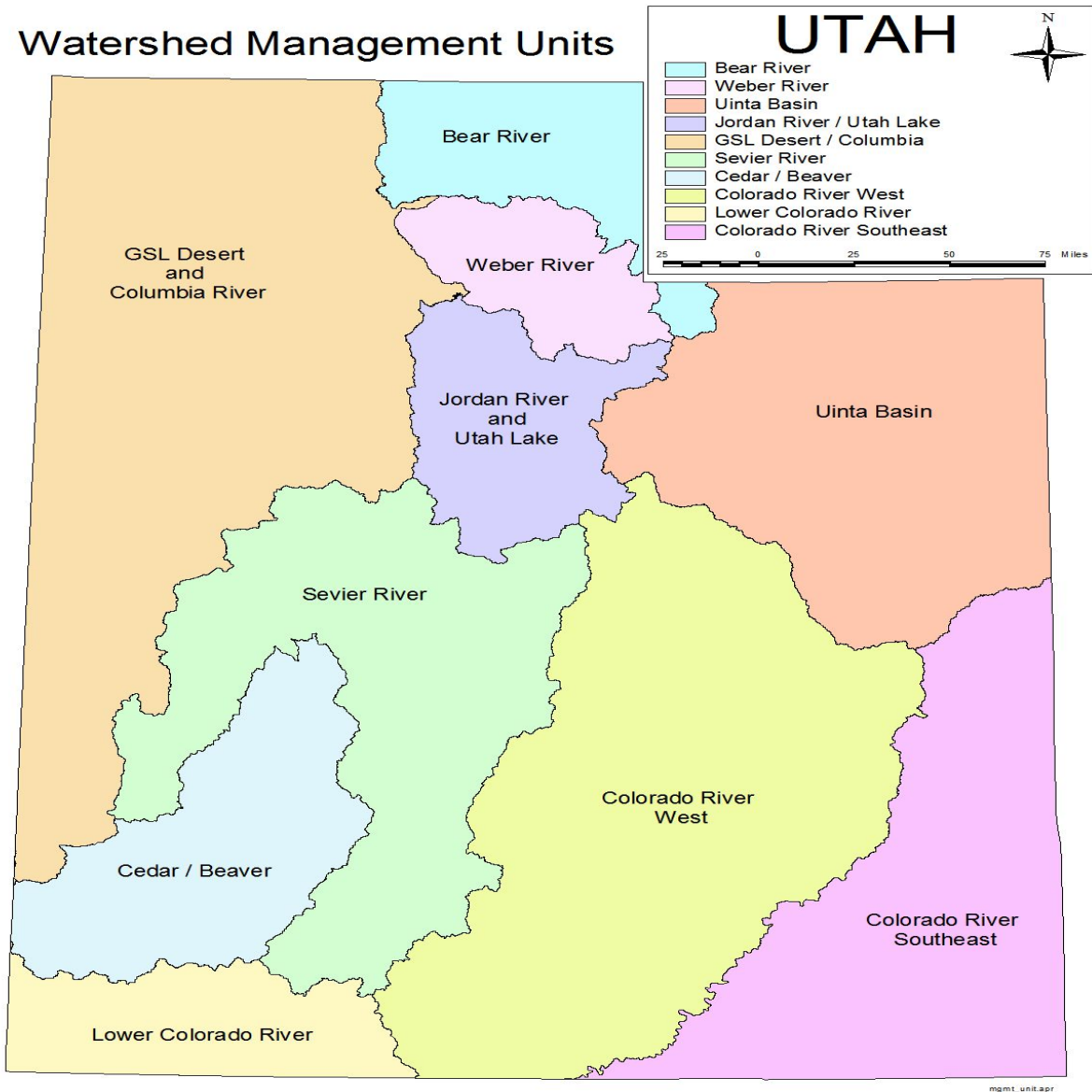


## Chapter 2.3. Statewide River and Stream Water Quality Assessment

### 2.3.1 Introduction

Water quality monitoring conducted as part of the Section 305(b) report form the basis of the Division of Water Quality's assessment work. As part of this assessment, the State uses a five-year rotating monitoring program to collect data and to assess the beneficial use support of its rivers and streams. The State has been divided into ten watershed management units (Figure 3.2.1) and aggregated into five monitoring regions (Table 2.3.1). Each region is monitored on an intensive basis once every five years.



**Figure 2.3.1. Watershed Management Units.**

<b>Table 2.3.1. Water Quality Monitoring Regions.</b>	
<b>Region</b>	<b>Management Units</b>
1	Bear River, Weber River, Great Salt Lake Desert/Columbia (northern portion of the GSL Desert)
2	Jordan River, Great Salt Lake Desert (southern portion of Great Salt Lake)
3	Uinta
4	Sevier River, Cedar/Beaver, Lower Colorado
5	Colorado River West, Colorado River Southeast

For this assessment cycle, data from intensive monitoring, program monitoring, cooperative monitoring the statewide assessment consists of the summary evaluations of intensive monitoring surveys for three watershed management units. These watersheds were the Sevier River, Cedar / Beaver and Lower Colorado Watershed Management Units.

Use support of beneficial uses was arrived at using chemical, physical, biological data and other information collected by the DWQ, Cooperating Agencies, and other entities involved in collecting data related to water quality. Federal and other public agencies involved with cooperative monitoring agreements or providing information used during this cycle to assess beneficial use support are listed below:

1. United States Forest Service
2. United States Bureau of Land Management
3. Salt Lake City
4. United States National Park Service
5. Central Utah Water Conservancy District.
6. United States Geological Survey
7. Salt Lake County
8. Provo River Watershed Council

Bacteriological data collected by Salt Lake City were used to assess streams in the Jordan River watershed. Bacteriological data provided by Salt Lake County were used to assess Emigration Creek and the Jordan River.

## **2.3. Statewide Assessment Results**

### **2.3.1. Assessment For Mercury In Fish Tissue.**

Fish consumption advisories were placed on four Assessment Units (Table 2.3.3). These AUs were not listed on the 303(d) list as being impaired for mercury. They exceeded the Environmental Protection Agency's level of 3 mg/kg, or 0.3 ug/g, but none of the

concentrations exceeded the United States Food and Drug Administration (FDA) value of 1.0 mg/kg. If any fish consumption advisory exceeds the FDA's standard, the AU will be listed on the 303(d) list.

<b>Assessment Unit ID</b>	<b>Assessment Unit Name</b>	<b>Assessment Unit Description</b>	<b>Beneficial Use Class</b>	<b>Common Name Of Fish</b>
UT14070005-007	Calf Creek	Calf Creek from confluence w/Escalante River to headwaters	3A	Brown Trout
UT16020102-022	Weber River-6	Weber River between East Canyon Creek confluence and Lost Creek confluence	3A	Brown Trout
UT14060005-009	Green River-3	Green River from HUC unit boundary (Price River confluence to Duchesne River confluence.	3B	Channel Catfish
UT14030005-005	Mill Creek-1	Mill Creek and tributaries from confluence with Colorado River to U.S.F.S. boundary	3A	Brown Trout

Statewide assessment of streams for at least one beneficial use came to 10,901 miles for this 305(b) reporting period. This was 76.5% of the perennial stream miles in the state

**2.3.2 Assessment By Category**—Table 2.3.3 lists the number of stream miles assigned to the various assessment categories: Category 1, 2, 3A, 3B, 3C, 4A, 4B, 4C, and 5. The statewide beneficial use assessment by category is mapped in Figure 2.3.5. The stream miles assigned to each assessment category are graphed in Figure 2.3.2. Assessment Units assigned to each assessment category are listed in the tables in Appendix 2.1.

<b>Category</b>	<b>Category Definitions</b>	<b>Stream Miles</b>
1	All beneficial uses fully supported.	47.3
2	Beneficial uses assessed are fully supported.	7,932.4
3A	No data or insufficient data to make an assessment.	2,197.4
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	1,409.1
4B	Pollution control requirements are expected to result in full	0.0

Table 2.3.3. Stream Miles By Assessment Category – State Wide		
Category	Category Definitions	Stream Miles
	beneficial use support in near future.	
4C	Impaired by pollution, no TMDL required.	590.9
5	Impaired by pollutant, TMDL required.	2,102.7

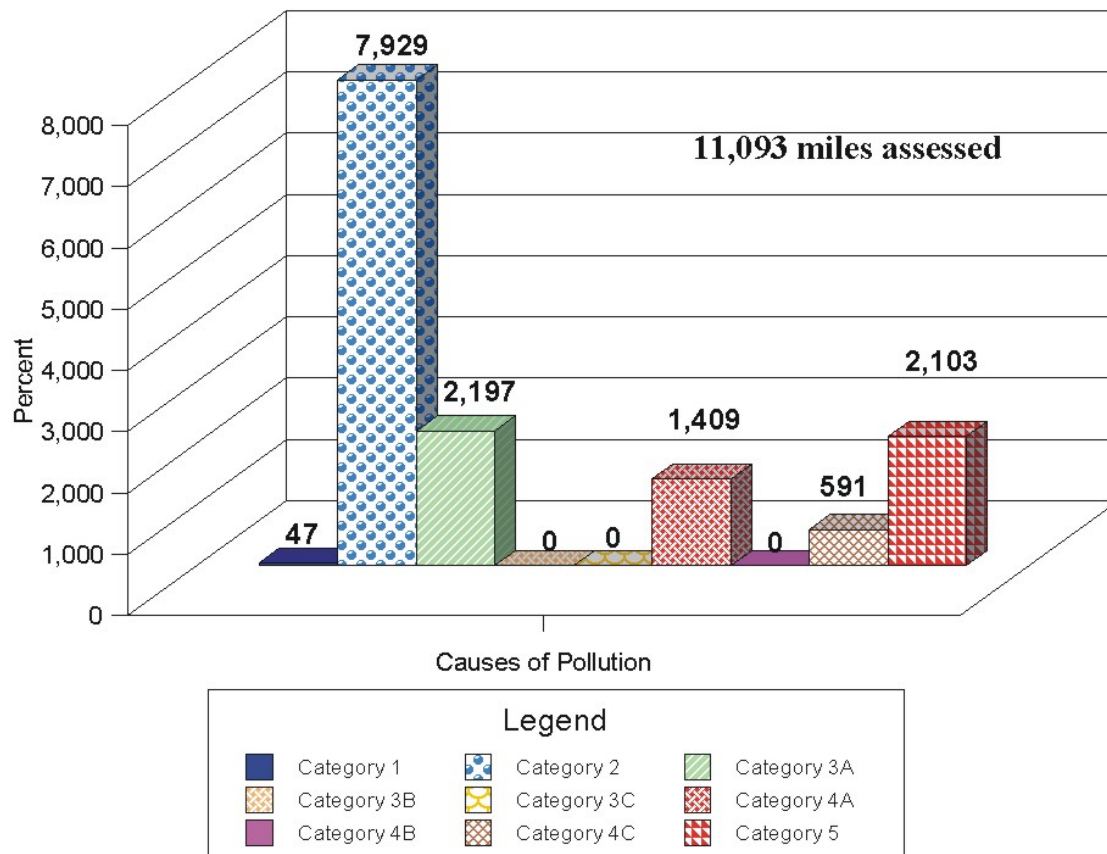
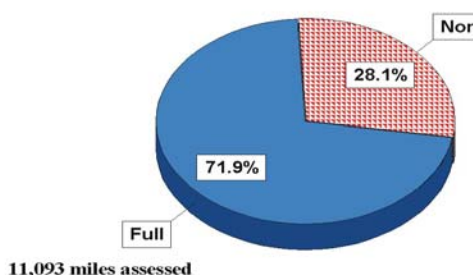


Figure 2.3.3. Stream miles assessed in various beneficial use assessment categories.

**2.3.3. Overall Use Support--**Of the 11,093.3 stream miles assessed, 7,979.7 miles (76.7%) are fully supporting and 3,113.6 (28.1%) stream miles are not supporting at least one beneficial uses (Figure 2.3.2). For the majority of streams, the Class 2B (protected for contact recreation) was not assessed because bacteriological data were not available. Waters with this classification were only considered

Overall Beneficial Use Support



assessed if bacteriological data were collected unless there was physical or chemical impairment such as pH.

**2.3.4. Individual Beneficial Use Support** --Use support by individual beneficial use designations is summarized in Table 2.3.3 The aquatic life use was assessed for 11,139.9 miles of streams. Of these stream miles, 8,542.3 ((76.7%) are supporting and 2,597.5 (23.3%) are not supporting this beneficial use. Swimming (Primary Recreation) and secondary

Figure 2.3.1. Statewide Overall Assessment.

recreation were assessed on 206.5 miles. Of these 93.6 (45.3%) miles were supporting and 112.9 (54.7%) are not supporting the two beneficial uses. The agricultural beneficial use support for 9,835.2 stream miles was assessed. Of these, 8,843.2 (89.9%) are supporting and 992.0 (10.1%) are not supporting the agriculture beneficial use. An assessment for 4,201.3 waters classified as potential source of drinking water was made. Of these, 4,056.2 (96.5%) are supporting and 992.0 (3.5%) are not supporting this beneficial use.

<b>Table 2.3.4. Individual Use Support Summary.</b>				
	<b>Size</b>	<b>Size Fully</b>	<b>Size Not</b>	
	<b>Assessed</b>	<b>Supporting</b>	<b>Supporting</b>	<b>Totals</b>
<b>Use</b>				
Aquatic Life	11,139.9	8,542.3	2,597.5	11,139.9
Fish Consumption	0.0	0.0	0.0	0.0
Swimming	206.5	93.6	112.9	206.5
Secondary Contact	206.5	93.6	112.9	206.5
Drinking Water	4,201.3	4,056.2	145.1	4,201.3
Agricultural	9,835.2	8,843.2	992.0	9,835.2
<b>Use</b>				
Aquatic Life		76.7%	23.3%	100.0%
Fish Consumption		0.0%	0.0%	0.0%
Swimming		45.3%	54.7%	100.0%
Secondary Contact		45.3%	54.7%	100.0%
Drinking Water		96.5%	3.5%	100.0%
Agricultural		89.9%	10.1%	100.0%

**2.3.5. Causes of Not Supporting**--Stream miles impacted by specific cause categories are summarized in Table 2.2-7. Stream segments may have been impacted by multiple causes. The primary causes of impairment were metals (5.9%), nutrients (7.7%), sediment (5.0%), temperature (7.6%), habitat alterations (4.7%), total dissolved solids (7.5%), benthic macroinvertebrate community impairment (8.1%) The percent stream miles affected by sources are graphed in Figure 2.3.7 and the relative percent contribution of each cause is shown in Figure 2.3.8.

**2.3.6. Sources of Not Supporting--**The sources of stream water quality impairment are summarized in Table 2.3.6. Like causes, stream segments may have been impacted by multiple sources. The primary sources of impairment were agricultural practices (23.3%), natural sources (15.2%) hydrological modification (12.8%), habitat modification (5.2%) ,and unknown sources (23.5%) (Figure 2.3.9). The relative percent contribution of each source to the impairment of streams is shown in Figure 2.3.10.

**Table 2.3.4.** The percentages of streams that were assessed using only chemical/physical data and those that were assessed using chemical/physical, habitat and biological data to determine aquatic life uses.

<b>Table 2.3.4. Categories of Data Used In ALUS Assessments for Wadeable Streams and Rivers</b>				
<b>Degree of ALUS</b>	<b>Miles Assessed Based on B/H Data Only</b>	<b>Miles Assessed Based on P/C Data Only</b>	<b>Miles Assessed Based on B/H and P/C Data</b>	<b>Total Miles Assessed for ALUS</b>
Fully Supporting	114.9	4,456.1	3,380.4	7,951.4
Fully Supporting but Threatened		-	-	-
Not Supporting	16.40	2,096.7	979.5	3,092.6

<b>Table 2.3.6. Total Waters Impaired by Various Cause Categories (Stream Miles)</b>	
<b>Cause Category</b>	<b>Miles Impacted</b>
Cause unknown	0.0
Unknown toxicity	0.0
Pesticides	0.0
Priority organics	0.0
Nonpriority organics	0.0
Metals	659.0
Ammonia	0.0
Chlorine	0.0
Other inorganics	0.0
Nutrients	849.9
pH	87.8
Siltation/Sediments	557.8
Organic enrichment/low DO	116.6
Salinity/TDS/Chlorides	835.7
Thermal modifications	840.8
Flow alterations	207.2
Other habitat alterations	520.7
Pathogen Indicators	25.0
Radiation	21.8
Oil and grease	0.0
Taste and odor	0.0
Noxious aquatic plants	0.0
Total toxics	0.0
Turbidity	0.0
Benthic Macroinvertebrates	895.2

<b>Table 2.3.7. Total Waters Impaired by Various Source Categories (Stream Miles)</b>	
<b>Source Category</b>	<b>Miles Impacted</b>
Industrial Point Sources	109.1
Municipal Point Sources	143.8
Combined Sewer Overflow	0.0
Agriculture	1,567.6
Silviculture	0.0
Construction	34.7
Urban Runoff/Storm Sewers	156.3
Resource Extraction	201.6
Land Disposal	0.0
Hydromodification	863.4
Habitat Modification	579.7
Marinas	0.0
Atmospheric Deposition	0.0
Contaminated Sediments	0.0
Unknown Source	1,577.3
Natural Sources	1,025.0
Extreme Drought	252.1
Source Outside State	136.2



# Beneficial Use Stream Assessment: 2008

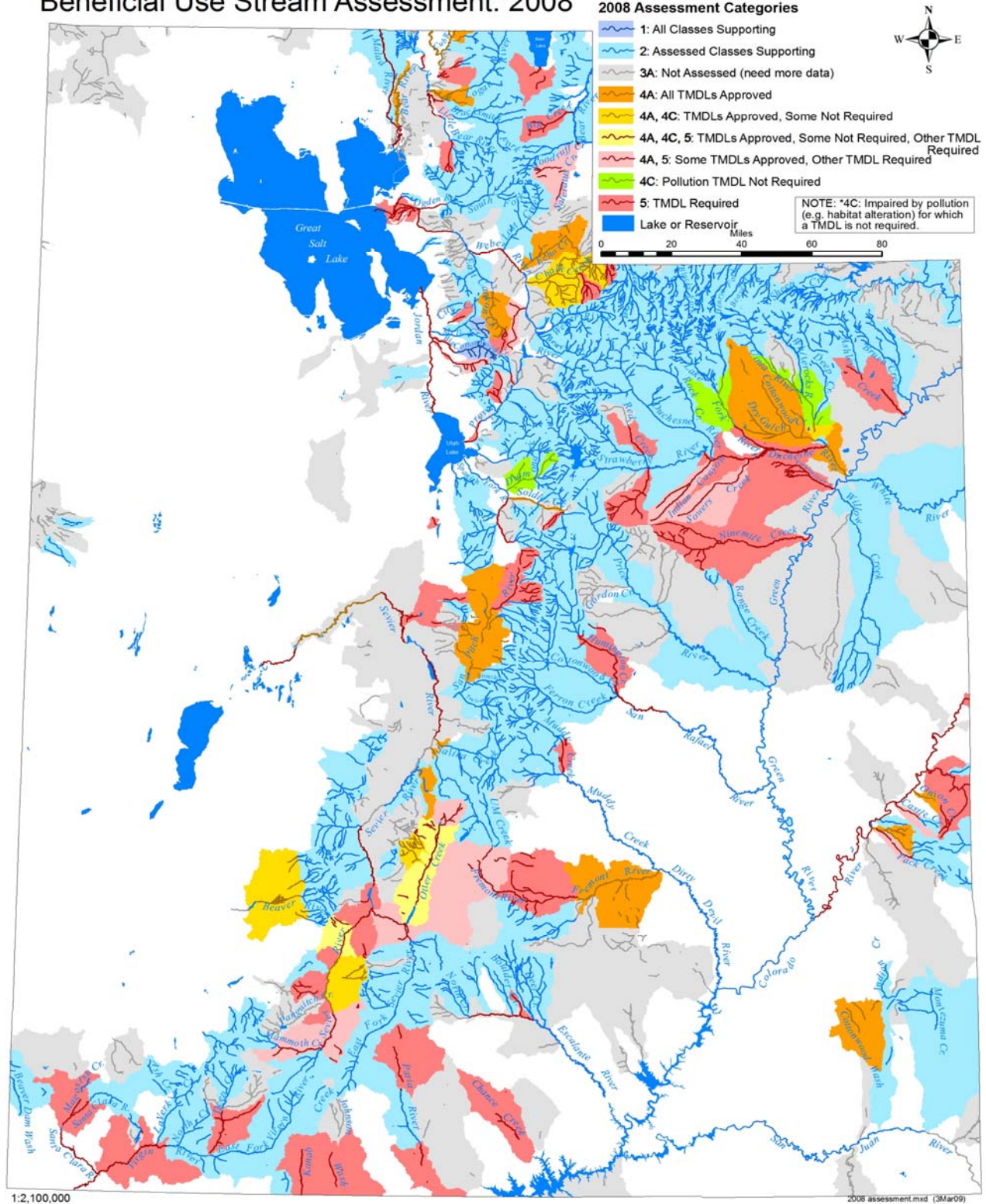
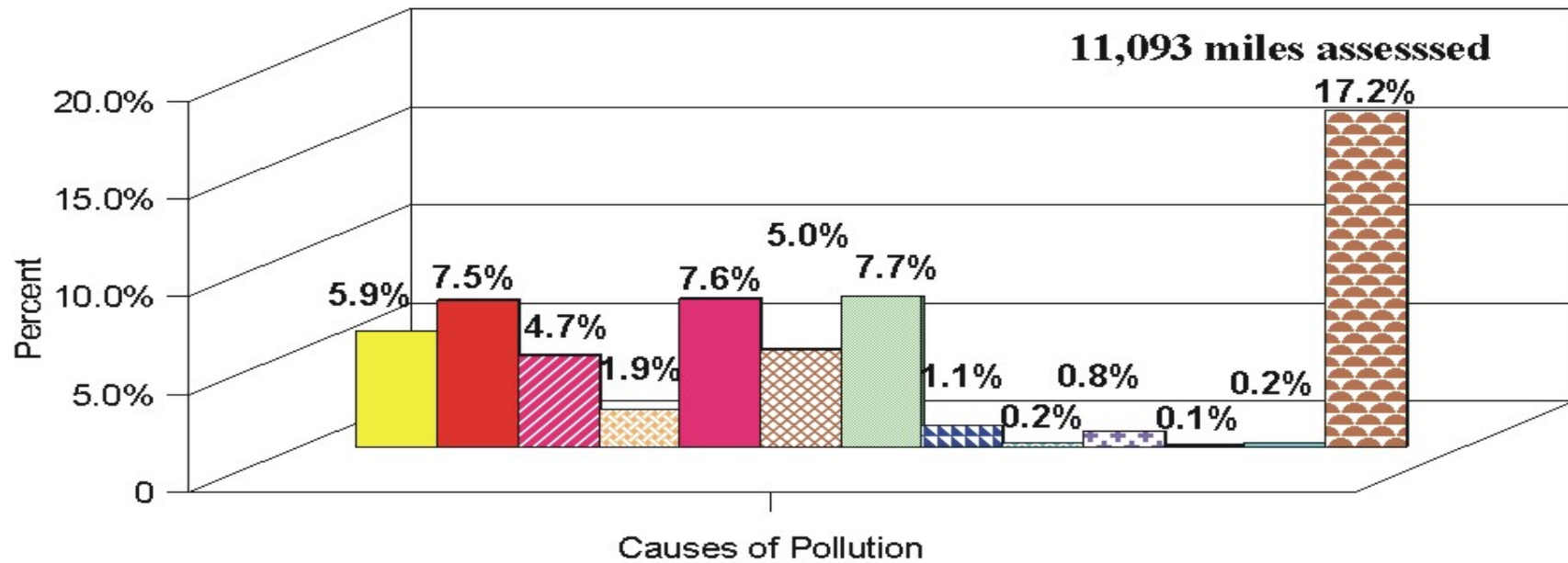


Figure 2.3.2. Statewide beneficial use assessment by categories.



# Percent of Stream Miles Affected By Causes

## 2008 Integrated Report - Statewide Assessment



**Figure 2.3.4. Percent of assessed stream miles impacted by various causes – Statewide Assessment.**

# Sources of Stream Water Quality Impairment 2008 Integrated Report Assessment

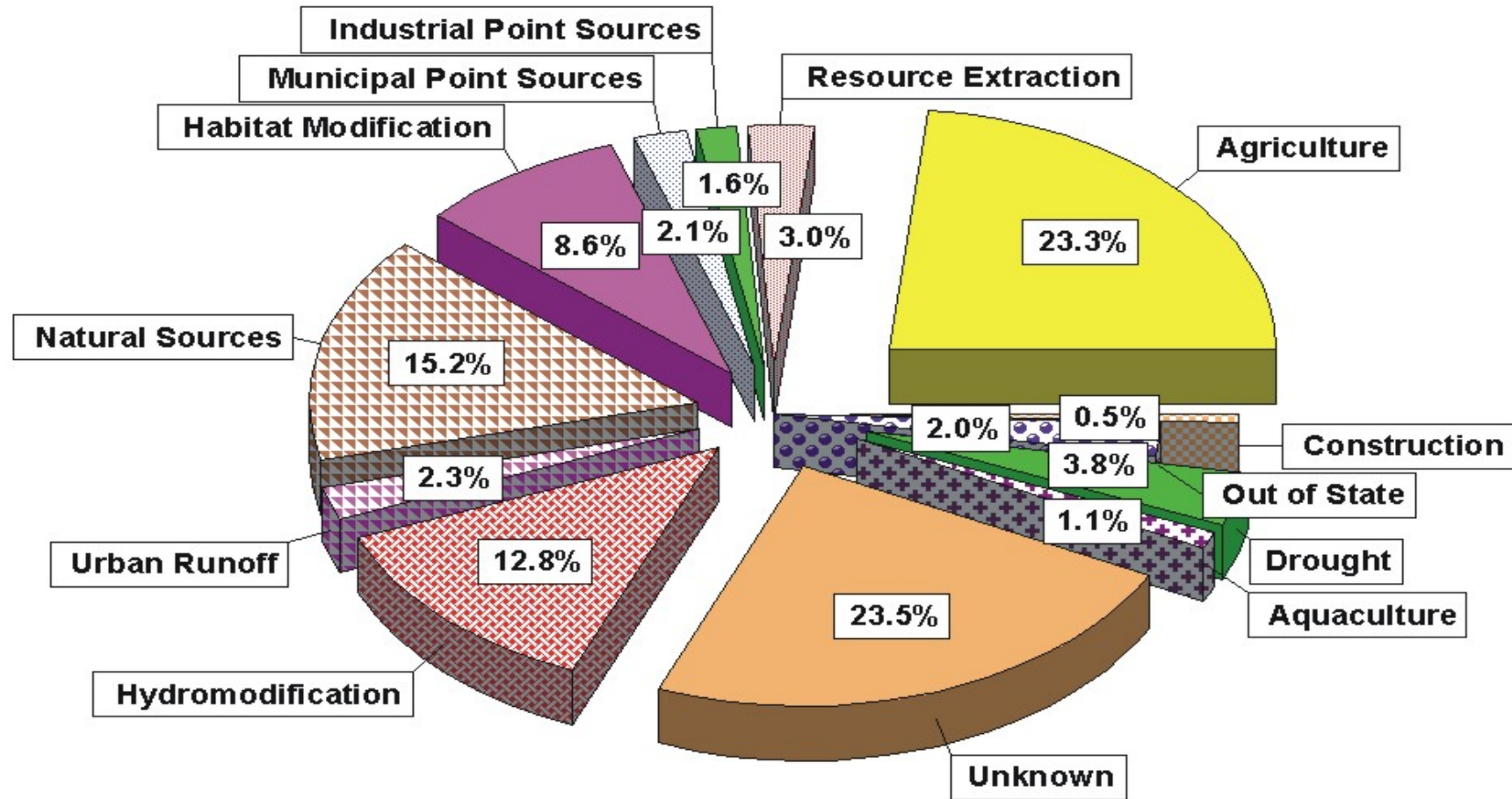
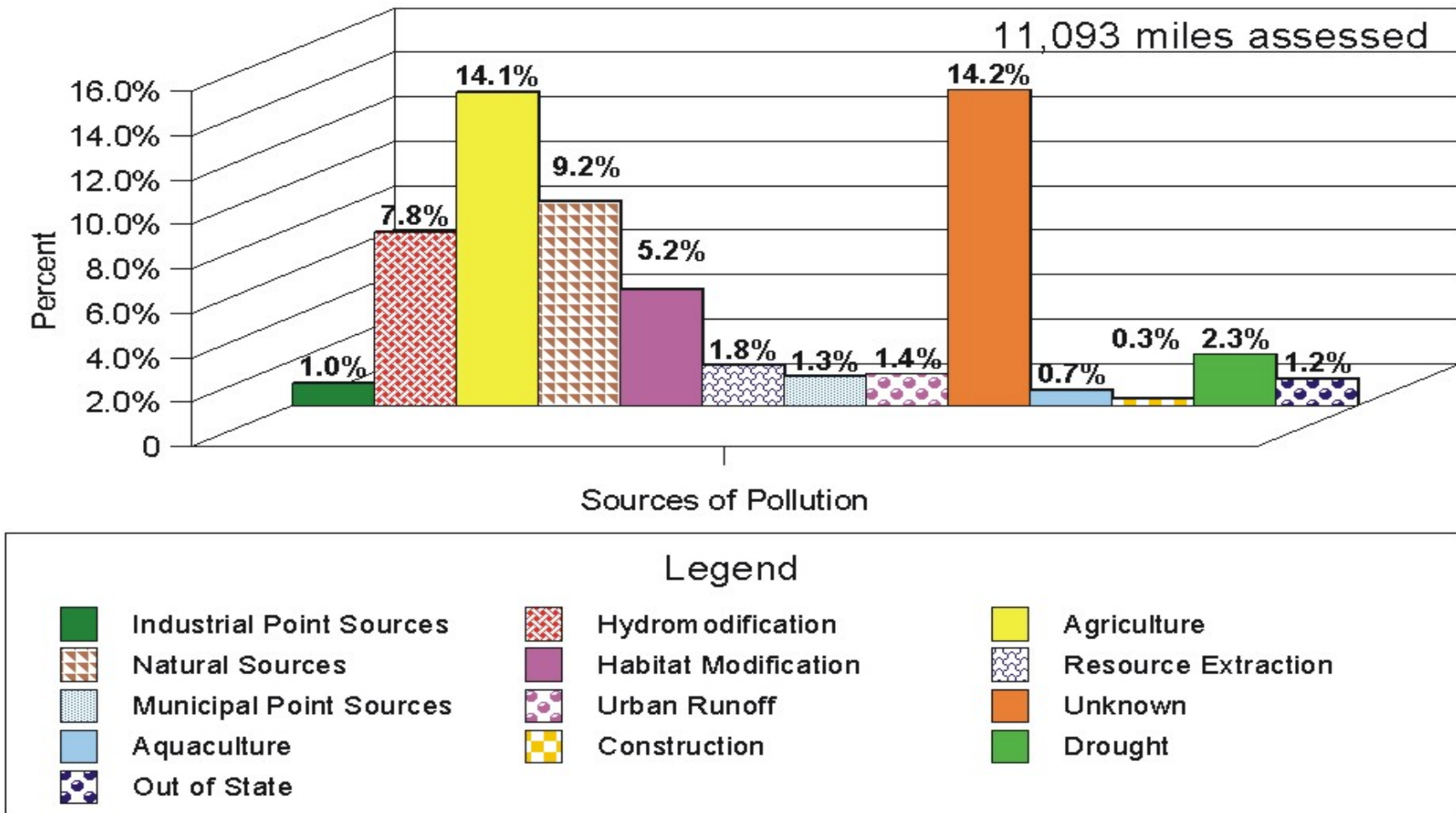


Figure 2.3.5. Relative percent contribution of causes on stream water quality – 2008 Integrated Report.

## Percent of Stream Miles Affected By Sources 2008 Integrated Report Statewide Assessment



2.3.6. Percent impact by sources on stream water quality – 2008 Integrated Report.

# Sources of Stream Water Quality Impairment 2008 Integrated Report Assessment

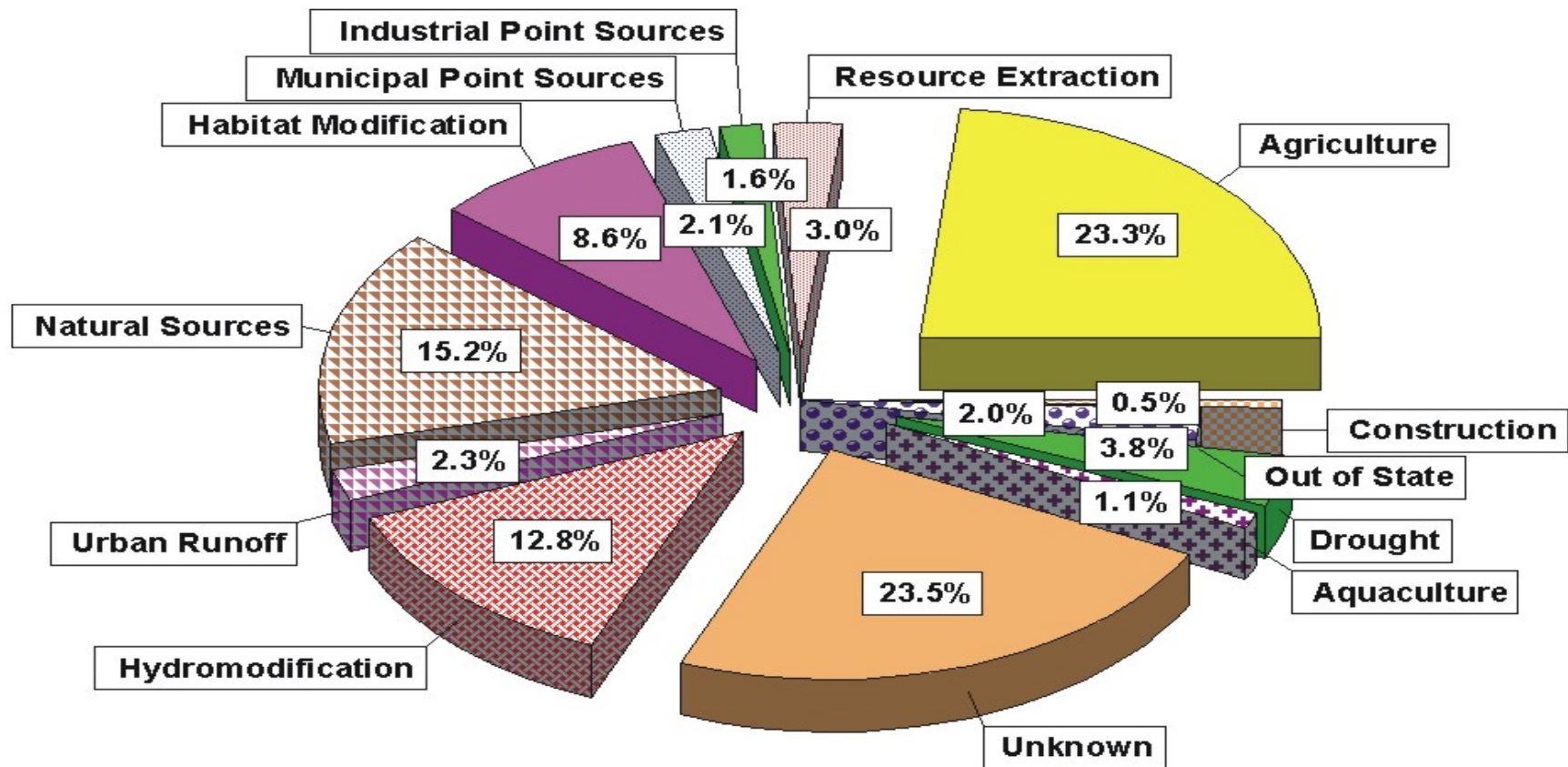


Figure 2.3.7. Relative percent contribution of sources on stream water quality.