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 2.3-1) and aggregated into five monitoring regions (Table 2.3-1). Each region is monitored on an intensive basis once every five years.
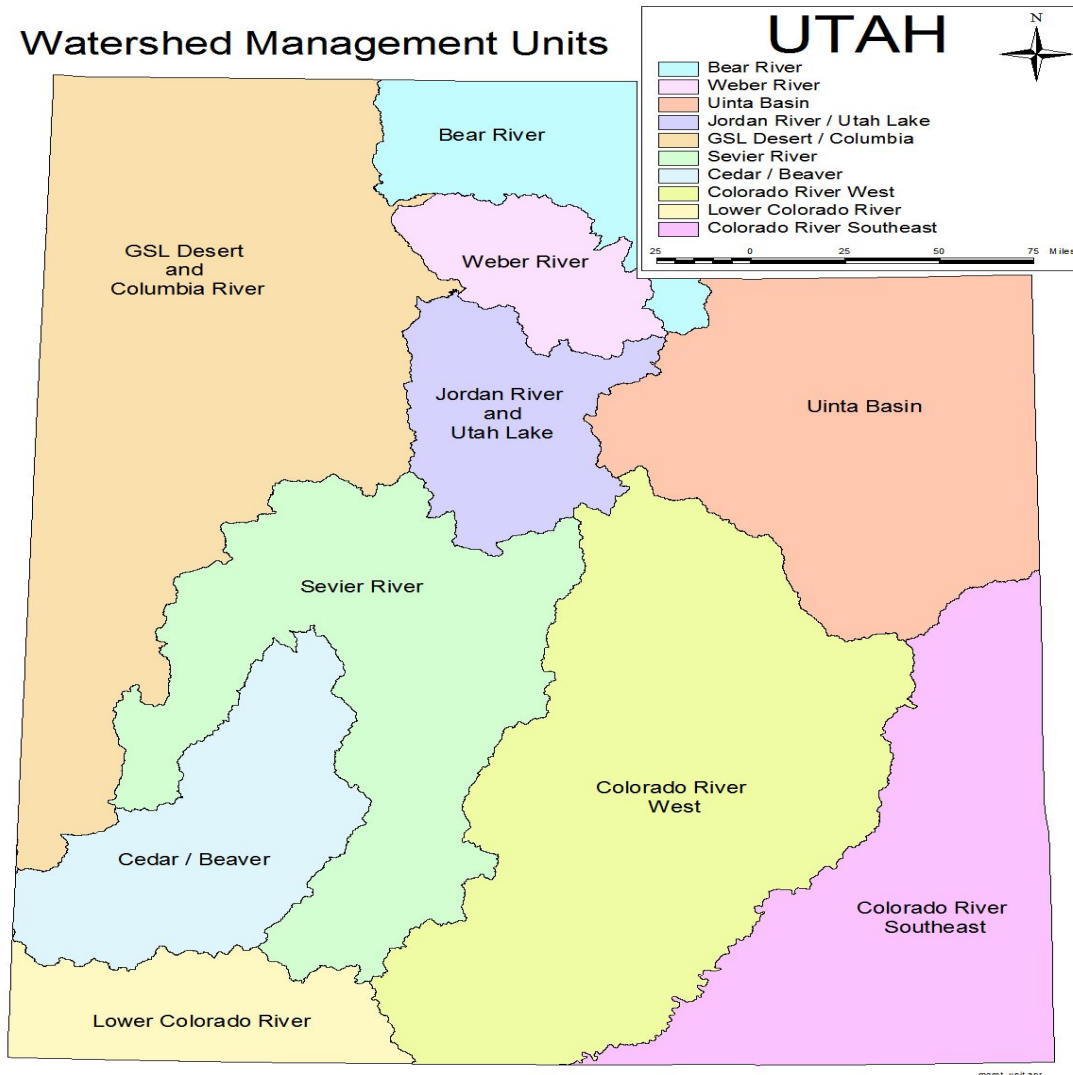

Figure 2.3-1   Watershed Management Units

Table 2.3-1   Water Quality Monitoring Regions

Region	Management Units
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.

2.3.2 Statewide Assessment Results

2.3.2.1 Assessment for Mercury in Fish Tissue

Fish consumption advisories were placed on four Assessment Units (Table 2.3-2). 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.

Table 2.3-2   Stream Assessment Units that have Fish Consumption Advisories

Assessment Unit ID	Assessment Unit Name	Assessment Unit Description	Beneficial Use Class	Common Name Of Fish
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 11,076 miles for this 305(b) reporting period. This was 77.7% of the perennial stream miles in the state.

2.3.2.2 Assessment by Category

Table 2.3-3 lists the number of stream miles assigned to the various assessment categories.

Table 2.3-3   Stream Miles by Assessment Category – State Wide

Category	Category Definitions	Stream Miles
1	All beneficial uses fully supported.	62
2	Assessed beneficial uses fully supported.	7235
3A	No data or insufficient data to make an assessment.	2729
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	988
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.	120
5	Impaired by pollutant, TMDL required.	2080

2.3.2.3 Overall Use Support

Of the 163,214 stream miles assessed, 76% are fully supporting and 24% of stream miles are impaired for at least one beneficial use (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 assessed if bacteriological data were collected unless there was physical or chemical impairment such as pH.
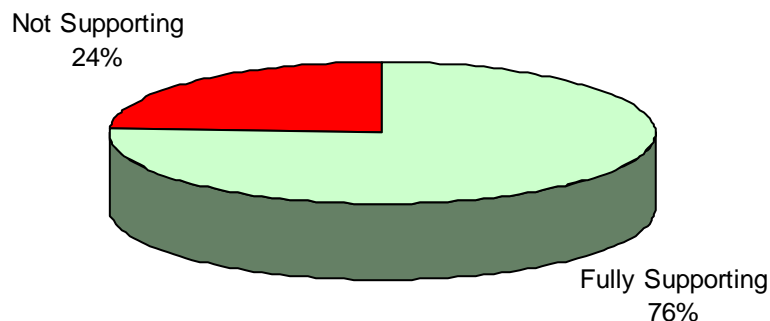

Not Supporting 24%

Fully Supporting 76%

Figure 2.3-2   Statewide overall beneficial use support assessment for streams

2.3.2.4 Individual Beneficial Use Support

Use support by individual beneficial use designations is summarized in Table 2.3-4. No streams were assessed for Swimming (Primary Recreation) beneficial use.

Table 2.3-4   Individual Use Support Summary

	Size Assessed	Size Fully Supporting	Size Not Supporting	Totals
Use				
Drinking Water	4,157	4,012	145	4,157
Fish Consumption	0.0	0.0	0.0	0.0
Swimming	0.0	0.0	0.0	0.0
Secondary Contact	279.9	170.1	109.8	279.9
Aquatic Life, Cold	7,752	6,079	1,673	7,752
Aquatic Life, Warm	1,657	994	663	1,657
Agricultural	10,063	8,971	1091	10,063
Wildlife Habitat	463	344	120	463

2.3.2.5 Causes of Not Supporting

Stream miles impacted by specific cause categories are summarized in Table 2.3-5 . Stream segments may have been impacted by multiple causes. The primary causes of impairment were metals, nutrients, sediment, temperature, habitat alterations, total dissolved solids, and benthic macroinvertebrate community impairments.   The relative percent contribution of each cause is shown in Figure 2.3-3.
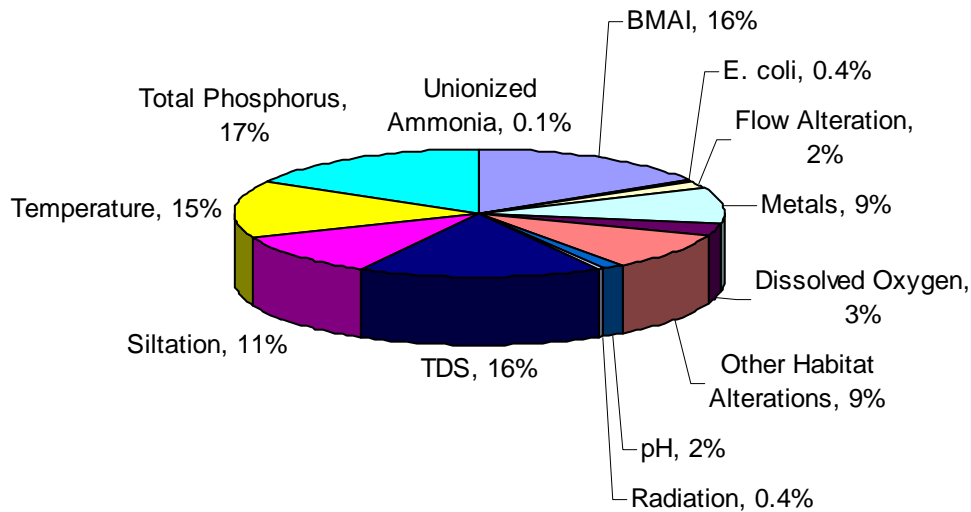
Figure 2.3-3 **Statewide causes of impairments**

2.3.2.6 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, natural sources, hydrological modification, habitat modification, and unknown sources.

Table 2.3-5 **Total Waters Impaired by Various Cause Categories (Stream Miles)**

Cause Category	Miles Impacted
Benthic macroinvertebrate assessment impairment	906
E. coli	22
Flow Alteration	100
Metals	504
Organic Enrichment/Low DO	174
Other Habitat Alterations	511.6
pH	88
Radiation	22
Salinity/TDS/Chlorides	878
Siltation	596
Temperature	805
Total Phosphorus	921
Unionized Ammonia	7

Table 2.3-6   Total Waters Impaired by Various Source Categories (Stream Miles)

Table 2.3-7. Total Waters Impaired by Various Source Categories (Steam Miles)	
Source Category	**Miles**
	Impacted
Agriculture	1665
Aquaculture	126
Construction	35
Drought	238.7
Habitat Modification (other than Hydromodification)	711
Hydromodification	36
Industrial Point Sources	119
Land Development	35
Major Municipal Point Source	147
Stormwater Permitted Discharges	35
Natural Sources	997
Resource Extraction	201.6
Source Unknown	1532
Sources outside State Jurisdiction or Borders	136
Urban Runoff/Storm Sewers	145

Beneficial Use Stream Assessment: 2008

2008 Assessment Categories

- **1: All Classes Supporting**
- **2: Assessed Classes Supporting**
- **3A: Not Assessed (need more data)**
- **4A: All TMDLs Approved**
- **4A, 4C: TMDLs Approved, Some Not Required**
- **4A, 4C, 5: TMDLs Approved, Some Not Required, Other TMDL Required**
- **4A, 5: Some TMDLs Approved, Other TMDL Required**
- **4C: Pollution TMDL Not Required**
- **5: TMDL Required**
- **Lake or Reservoir**

NOTE: *4C: Impaired by pollution (e.g. habitat alteration) for which a TMDL is not required.

Miles
0   25   50   75   100

1:2,081,539

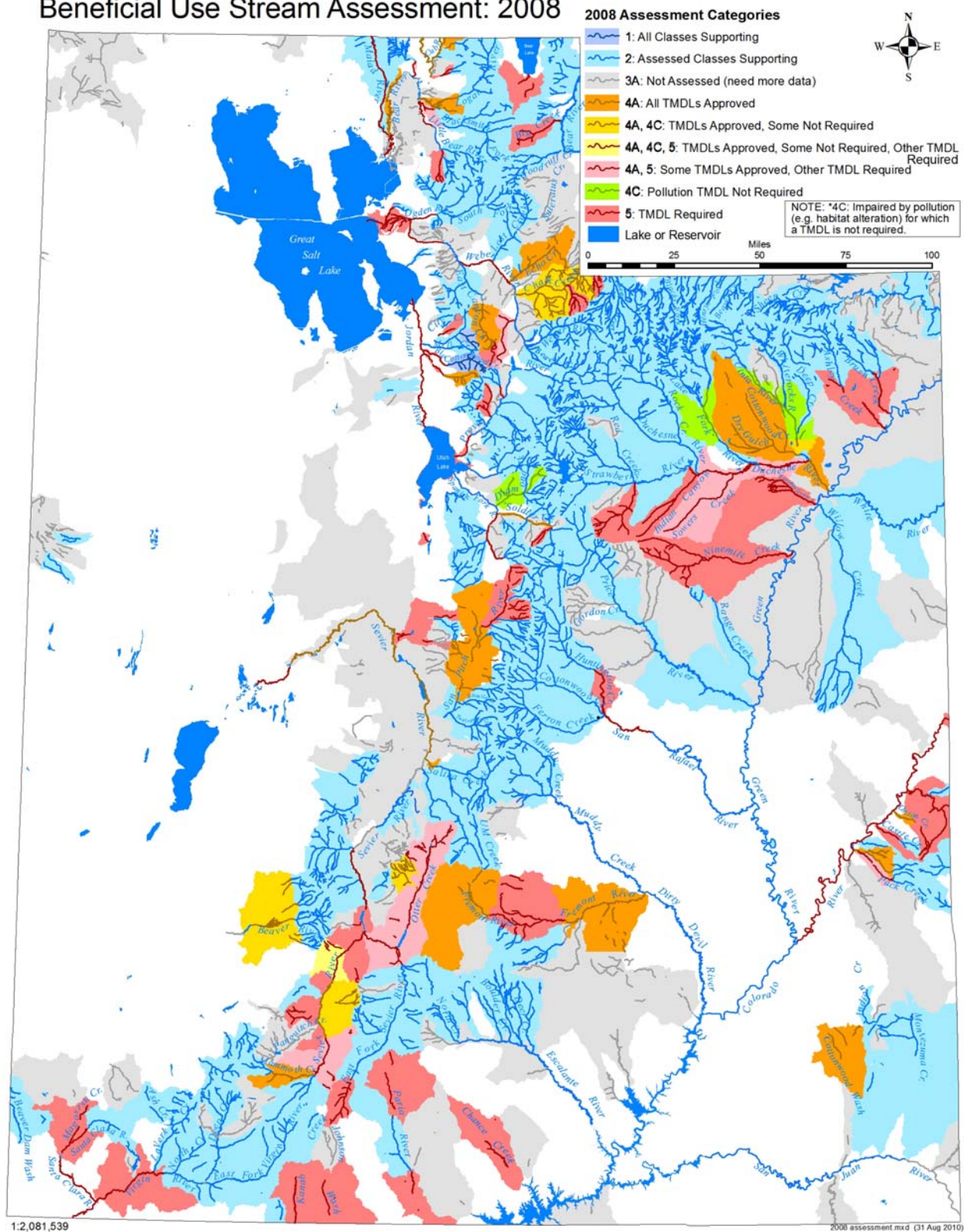2008 assessment.mxd (31 Aug 2010)

Figure 2.3-4   Overall stream beneficial use support for 2008 Integrated Report

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