

## Chapter 2.12 Colorado River Southeast Watershed Management Unit

### 2.12.1 Introduction

The Colorado River Southeast Watershed Management Unit includes all streams located in the U.S.G.S. Hydrological Units (HUCs) listed in Table 2.12.1. Some of the major streams are the San Juan River, Dolores River, Mill Creek, Montezuma Creek, La Sal River, Geyser Creek and part of the Colorado River.

<b>Table 2.12.1. U.S.G.S. Hydrological Units in the Colorado River Southeast Watershed Management Unit.</b>	
<b>Hydrological Unit Code</b>	<b>Hydrological Unit Name</b>
14010005	Colorado Headwaters/Plateau Utah
14030001	Westwater Canyon
14030002	Upper Delores
14030004	Lower Delores
14030005	Upper Colorado-Kane Springs
14070006	Lower Lake Powell
14070007	Paria
14080201	Lower San Juan-Four Corners Southeast
14080202	McElmo
14080203	Montezuma
14080204	Chinle
14080205	Lower San Juan

### 2.12.2 Water Quality Assessment Results

Data for this assessment was collected from January 1, 2002 through December 31, 2006 including the intensive survey (2003-2004). Benthic macroinvertebrate data were also used in making beneficial use assessments based upon State narrative criteria (Chapter 2.15). Figure 2.12.2 is a map of the designated beneficial uses assigned to the rivers and streams in this management unit.

**2.12.2.1 Overall Beneficial Use Support** — An assessment for at least one beneficial use was made for 603.4 miles. Of those assessed, 317.4 miles (52.6%) are fully supporting all the beneficial uses assessed. Two-hundred eighty-six (286.0) (47.4%) are not supporting at least one beneficial use. Figure 2.12.1 displays the beneficial use percentage assessment.

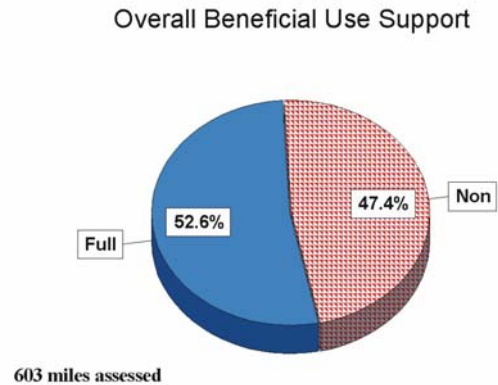
**2.12.2.2 Beneficial Use Assessment By Category**—A list of the categories and the

stream miles included in each of the assessment categories is in Table 2.12.2.

Category	Category Definition	Stream Miles
1	All beneficial uses fully supported.	0.0
2	Beneficial uses assessed are fully supported.	317.4
3A	No data or insufficient data to make an assessment.	206.2
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	78.9
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.	0.0
5	Impaired by pollutant, TMDL required.	207.0

**2.12.2.3 Individual Use Support--**

Table 2.12.3 lists the beneficial use support by individual beneficial use class. Of the 603.4 stream miles assessed for aquatic life, 400.9 miles (66.4%) are fully supporting and 202.5 miles (33.6%) are not supporting this beneficial use. Of the stream miles assessed for agricultural use, 426.6 miles (78.2%) are fully supporting, and 118.9 miles (21.8%) are not supporting this beneficial use. There are 375.0 stream miles (94.5%) fully supporting the drinking water beneficial use and 21.8 not supporting it.



**Figure 2.12.1. Overall Beneficial Use**

	Size Assessed	Size Fully Supporting	Size Not Supporting	Totals
<b>Use</b>				
Aquatic Life	603.4	400.9	202.5	603.4
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	396.8	375.0	21.8	396.8
Agricultural	541.6	422.7	118.9	541.6
<b>Use</b>				
Aquatic Life		66.4%	33.6%	100.0%
Fish Consumption		0.0%	0.0%	0.0%

<b>Table 2.12.3. Individual Use Support Summary Colorado River Southeast Watershed Management Unit.</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>				
Swimming		0.0%	0.0%	0.0%
Secondary Contact		0.0%	0.0%	0.0%
Drinking Water		94.5%	5.5%	100.0%
Agricultural		78.2%	21.8%	100.0%

**2.12.2.4 Total Waters Impaired by Various Causes**—Table 2.12.4 lists the miles of streams affected by the various causes identified as generally affecting water quality. Figure 2.12.4 illustrates the percent of stream miles affected by various causes of pollution. The causes of impairment include metals (selenium), total dissolved solids, thermal modification, and radiation (gross alpha). Figure 2.12.5 illustrates the relative percent of stream miles affected by various causes of water quality impairment.

**2.12.2.5 Total Waters Impaired by Various Sources**—Table 2.12.5 is a list of the various sources that impacted water quality. The percent of stream miles affected by various sources is shown in Figure 2.12.6. The relative impact of each source is shown in Figure 2.12.7. The sources of impairment are agricultural activities and natural sources. Resource extraction from uranium mining is the source of gross alpha contamination.

# Colorado River Southeast Management Unit Beneficial Use Classification and Monitoring Sites

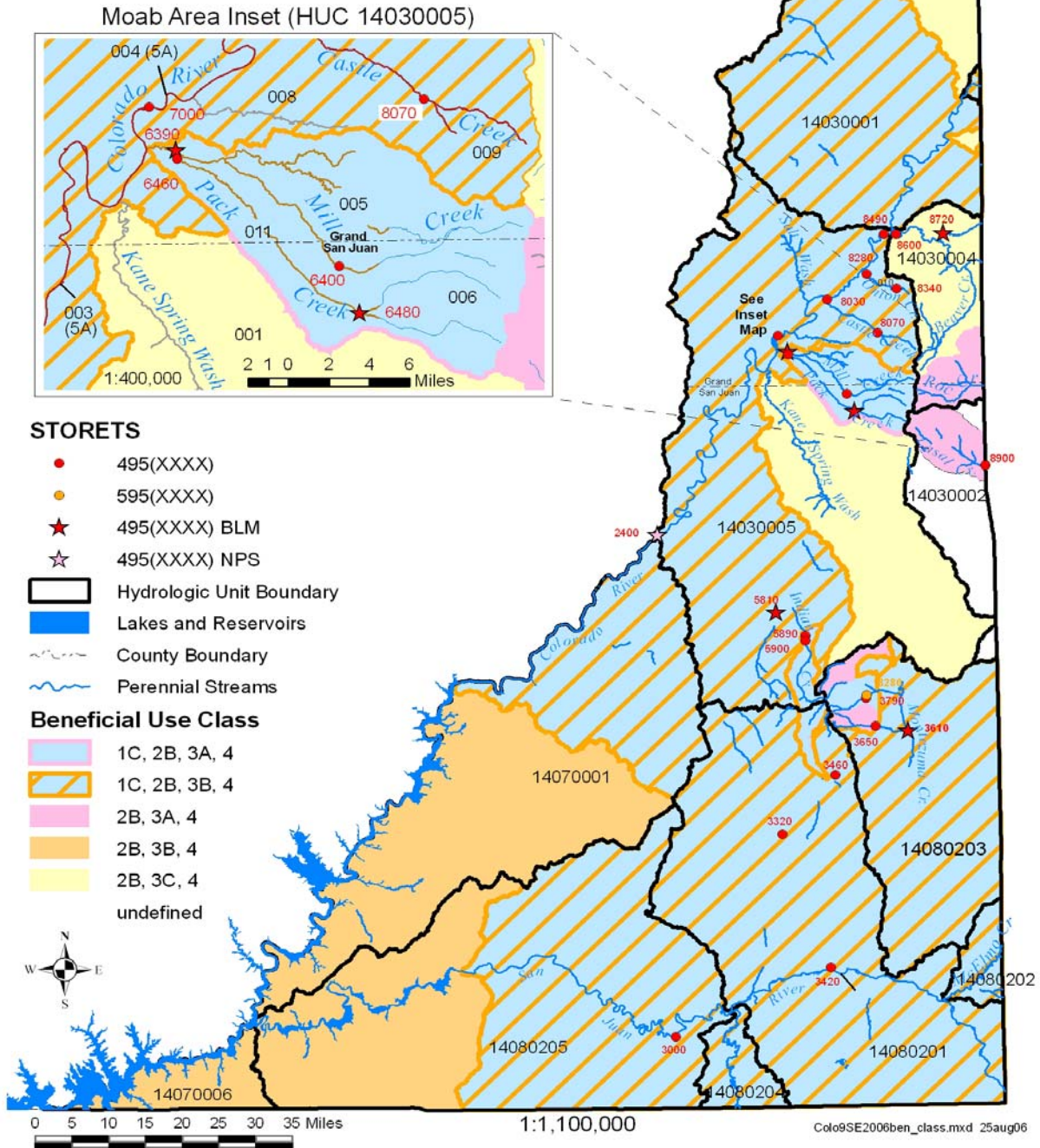
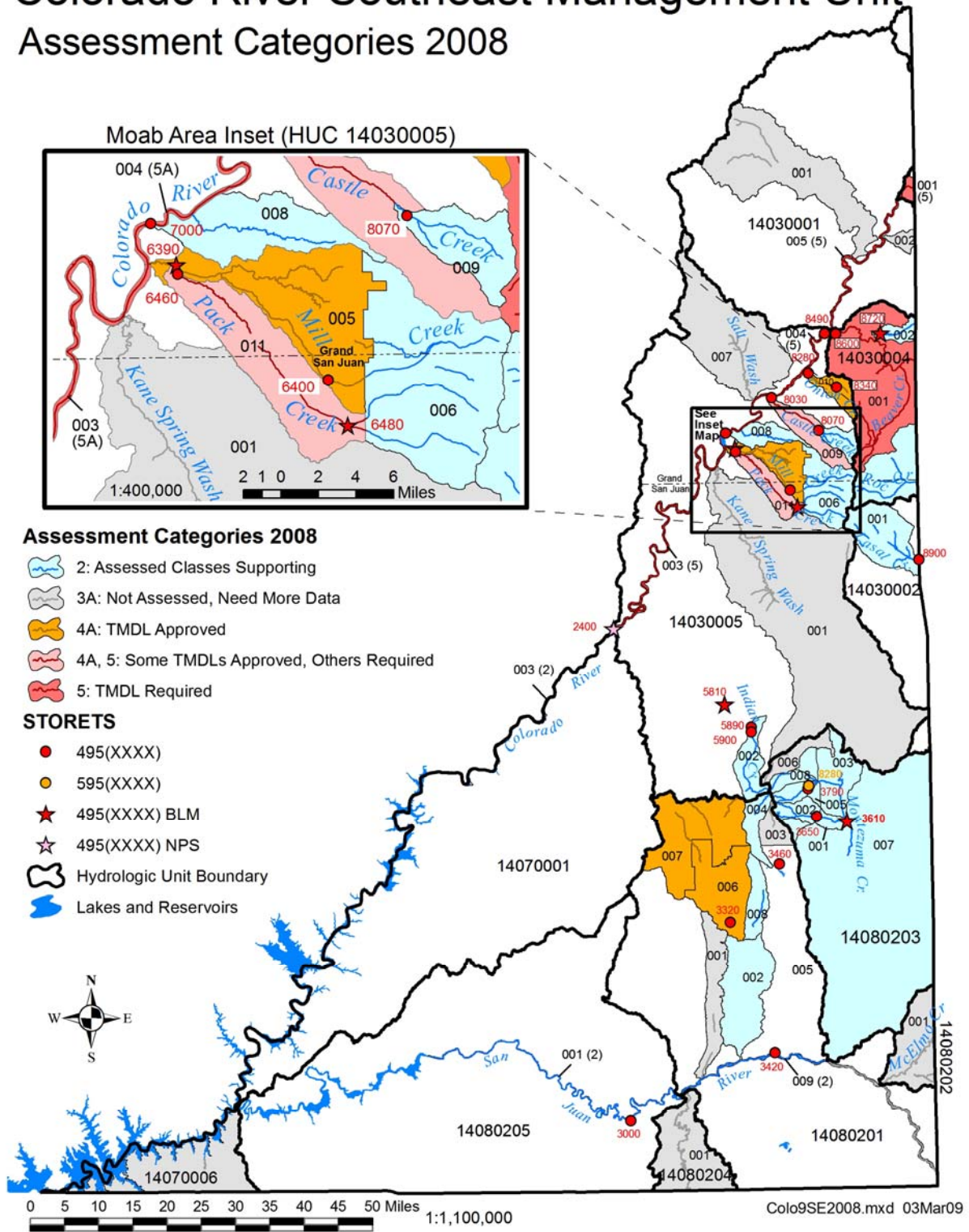


Figure 2.12.2. Beneficial use classifications – Colorado River Southeast Watershed Management Unit.



# Colorado River Southeast Management Unit Assessment Categories 2008



**Figure 2.12.3. Beneficial use assessment by category – Colorado River Southeast Watershed Management Unit.**

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<b>Table 2.12.4 Total Waters Impaired by Various Cause Categories (Stream Miles) – Colorado River Southeast Watershed Management Unit</b>	
<b>Cause Category</b>	<b>Stream Miles</b>
Cause unknown	9.1
Unknown toxicity	
Pesticides	
Priority organics	
Nonpriority organics	
Metals	136.2
Ammonia	
Chlorine	
Other inorganics	
Nutrients	
pH	
Siltation/Sediments	
Organic enrichment/low DO	
Salinity/TDS/Chlorides	128.0
Thermal modifications	57.2
Flow alterations	
Other habitat alterations	9.1
Pathogen Indicators	
Radiation	21.8
Oil and grease	
Taste and odor	
Noxious aquatic plants	
Total toxics	
Turbidity	
Benthic Macroinvertebrates	9.1
Other (specify)	

<b>Table 2.12.5. Total Waters Impaired by Various Source Categories (Stream Miles) – Colorado River Southeast Watershed Management Unit</b>	
<b>Source Category</b>	<b>Stream Miles</b>
Industrial Point Sources	
Municipal Point Sources	
Combined Sewer Overflow	
Agriculture	57.2
Silviculture	
Construction	
Urban Runoff/Storm Sewers	
Resource Extraction	21.8
Land Disposal	
Hydromodification	
Habitat Modification	
Marinas	
Atmospheric Deposition	
Contaminated Sediments	
Unknown Source	70.8
Natural Sources	66.3
Reservoir Releases	
Recreation	
Aquaculture	
Extreme Drought	57.2
Out of State	136.2

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# Percent of Stream Miles Affected By Causes

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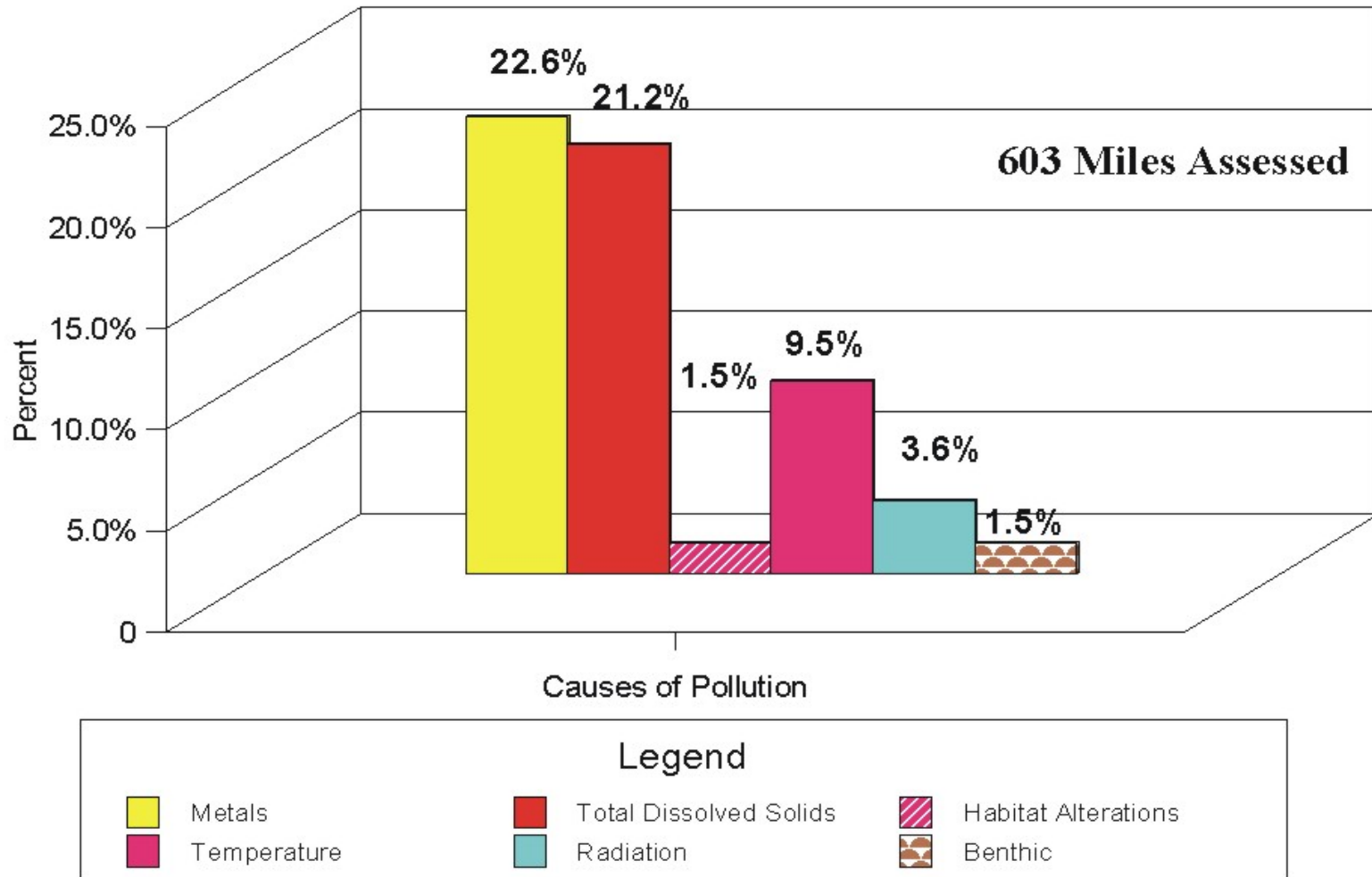


Figure 2.12.4. Percent impact by causes on stream water quality – Colorado River Southeast Watershed Management Unit.

# Causes of Stream Water Quality Impairments

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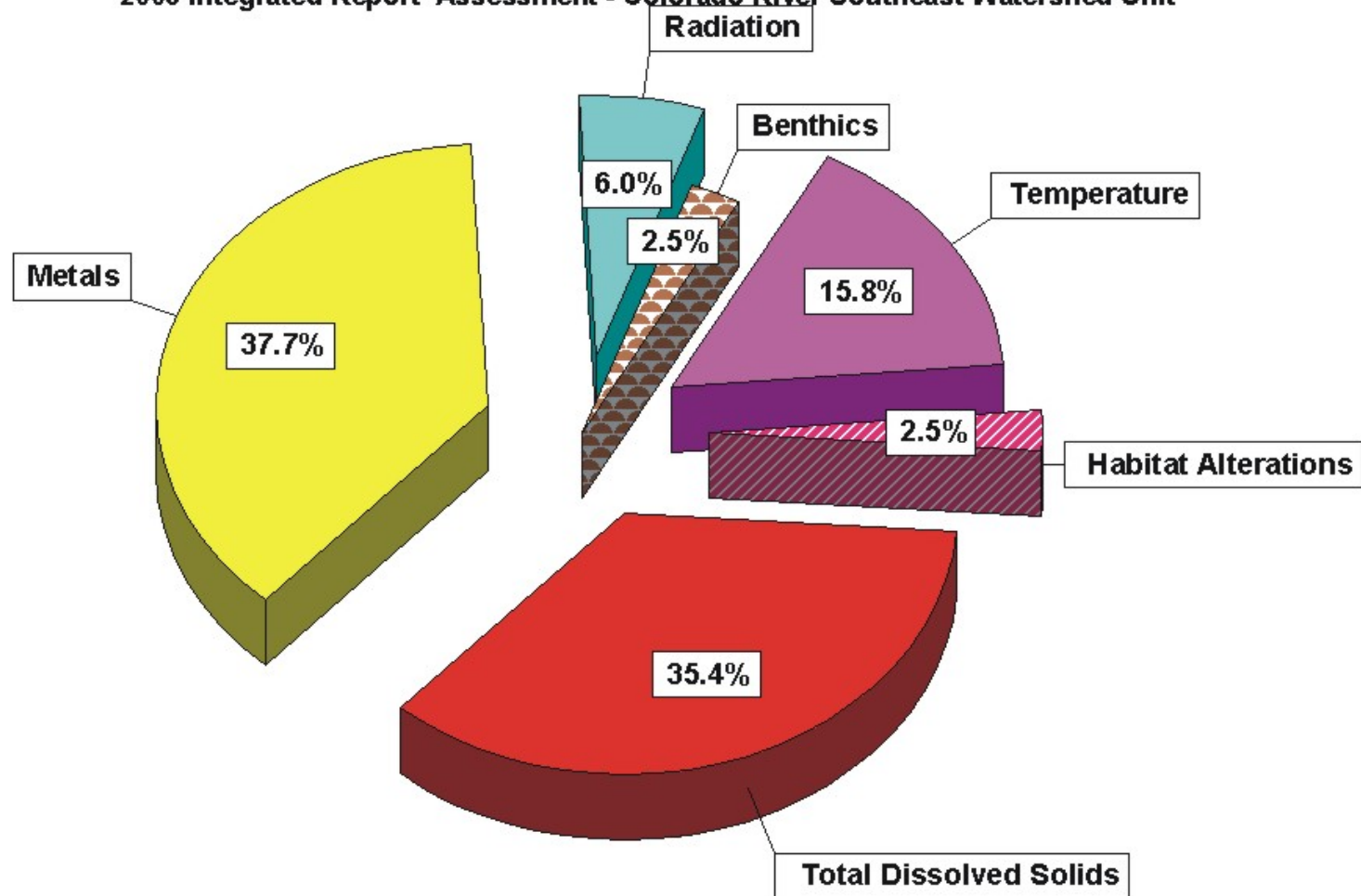


Figure 2.12.5. Relative percent contribution of causes on stream water quality – Colorado River Southeast Watershed Management Unit.

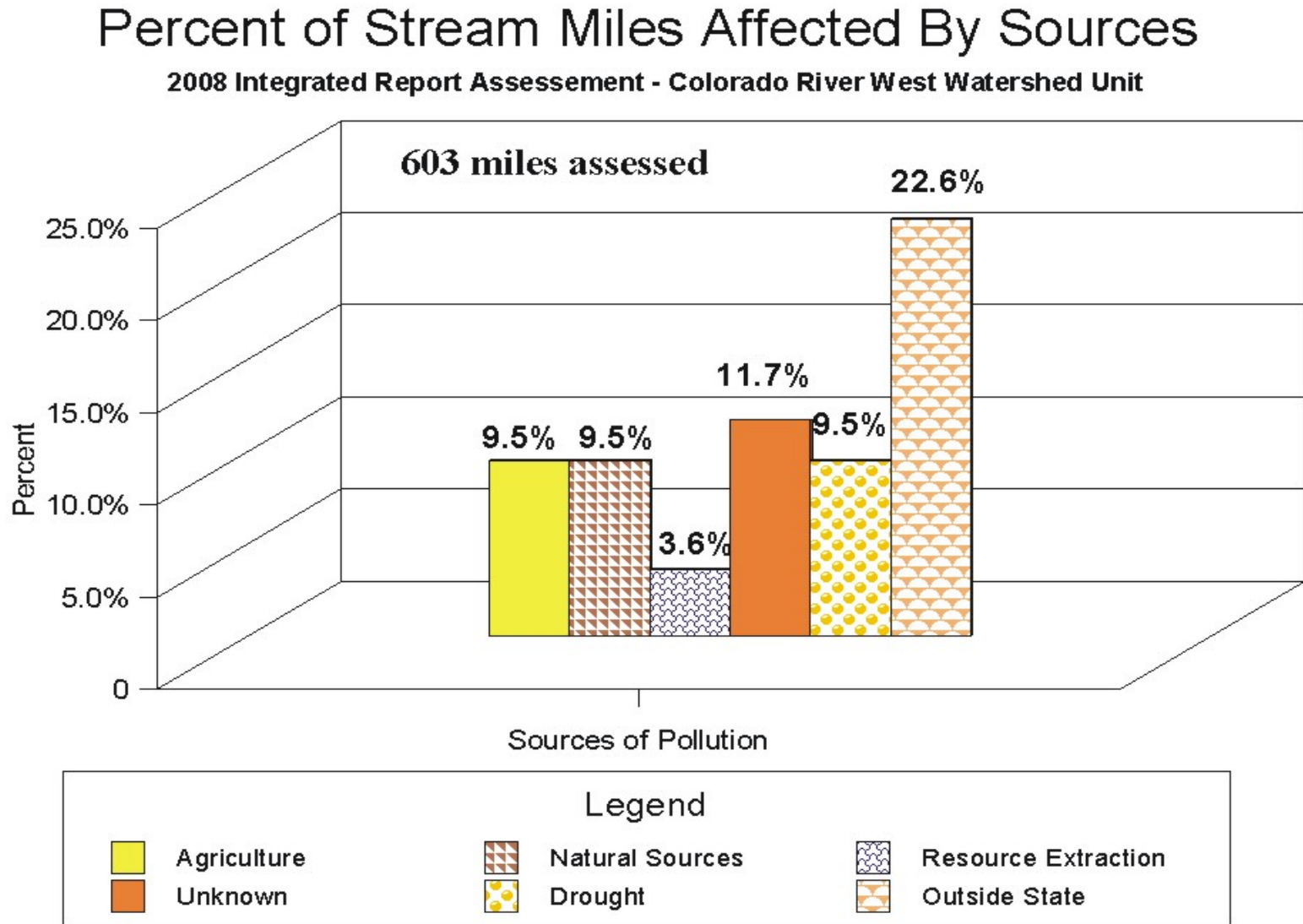


Figure 2.12.6. Percent impact by sources on stream water quality – Colorado River Southeast Watershed Management Unit.

# Sources of Stream Water Quality Impairment

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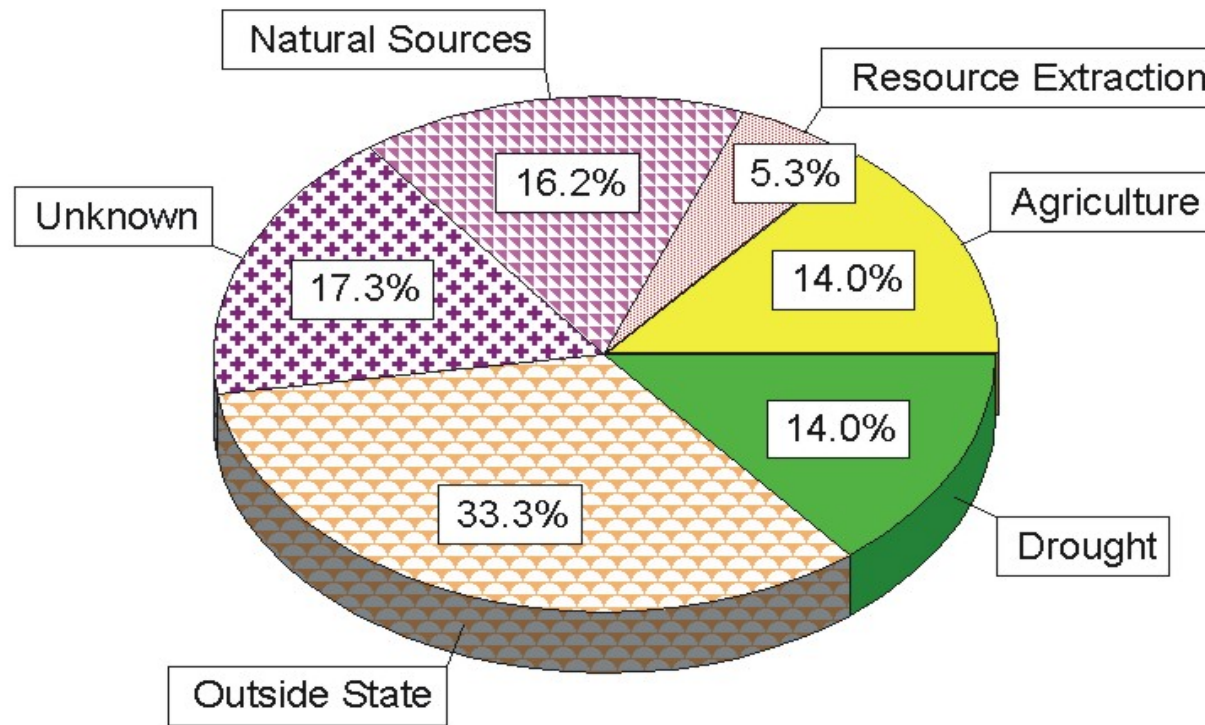


Figure 2.12.7. Relative percent contribution of sources on stream water quality – Colorado River Southeast Watershed Management Unit.

<b>Table 2.12.6. Impaired Waters Located in the Colorado River Southeast Watershed Management Unit.</b>							
<b>Assessment Unit</b>	<b>Assessment Unit</b>	<b>Assessment Unit</b>	<b>Beneficial Use Class</b>	<b>Beneficial Use</b>	<b>Support</b>	<b>Pollutant Or</b>	<b>Stream</b>
<b>ID</b>	<b>Name</b>	<b>Description</b>	<b>Impaired</b>	<b>Support</b>	<b>Category</b>	<b>Pollution</b>	<b>Miles</b>
UT14030005-005	Mill Creek-1	Mill Creek and tributaries, except Pack Creek, from the confluence with Colorado River to USFS boundary	4	NS	4A	Salinity/TDS/Chlorides	31.77
UT14030005-005	Mill Creek-1	Mill Creek and tributaries, except Pack Creek, from the confluence with Colorado River to USFS boundary	3A	NS	4A	Temperature	31.77
UT14030005-009	Castle Creek-1	Castle Creek and tributaries from confluence with Colorado River to Seventh-Day Adventist diversion	4	NS	4A	Salinity/TDS/Chlorides	9.10
UT14030005-010	Onion Creek	Onion Creek and tributaries from confluence with Colorado River to headwaters	4	NS	4A	Salinity/TDS/Chlorides	10.17
UT14030005-010	Onion Creek	Onion Creek and tributaries from confluence with Colorado River to headwaters	3B	NS	4A	Temperature	10.17
UT14030005-011	Pack Creek	Pack Creek and tributaries from the confluence with Mill Creek to USFS boundary	4	NS	4A	Salinity/TDS/Chlorides	15.21
UT14080201-006	Cottonwood Wash-2	Cottonwood Wash from Westwater confluence to USFS boundary	1C	NS	4A	Radiation	4.63
UT14080201-007	Cottonwood Wash-3	Cottonwood Wash and tributaries within USFS boundary	1C	NS	4A	Radiation	17.16
UT14010005-001	Colorado River-6	Colorado River from HUC 14010005-14030001 boundary to Colorado State Line	3B	NS	5	Selenium	3.84
UT14030001-005	Colorado River-5	Colorado River from Dolores River confluence to HUC 14010005 boundary	3B	NS	5	Selenium	33.90
UT14030004-001	Dolores River	Dolores River and tributaries (except Granite Creek) from confluence with Colorado River to headwaters or Utah-Colorado state line	4	NS	5	Salinity/TDS/Chlorides	61.73
UT14030005-003	Colorado River-3	Colorado River from Green River confluence to Moab	3B	NS	5	Selenium	62.69
UT14030005-004	Colorado River-4	Colorado River from Moab to HUC unit (14030005) boundary	3B	NS	5	Selenium	35.77

<b>Table 2.12.6. Impaired Waters Located in the Colorado River Southeast Watershed Management Unit.</b>							
<b>Assessment</b>	<b>Assessment</b>	<b>Assessment</b>	<b>Beneficial Use</b>	<b>Beneficial</b>		<b>Pollutant</b>	
<b>Unit</b>	<b>Unit</b>	<b>Unit</b>	<b>Class</b>	<b>Use</b>	<b>Support</b>	<b>Or</b>	<b>Stream</b>
<b>ID</b>	<b>Name</b>	<b>Description</b>	<b>Impaired</b>	<b>Support</b>	<b>Category</b>	<b>Pollution</b>	<b>Miles</b>
UT14030005-009	Castle Creek-1	Castle Creek and tributaries from confluence with Colorado River to Seventh-Day Adventist diversion	3B	NS	5	Benthic Macroinvertebrate Assessment Impairment	9.10
UT14030005-011	Pack Creek	Pack Creek and tributaries from the confluence with Mill Creek to USFS boundary	3A	NS	5	Temperature	15.21