

## Chapter 2.10. Lower Colorado River Watershed Management Unit Assessment

### 2.10.1. Introduction

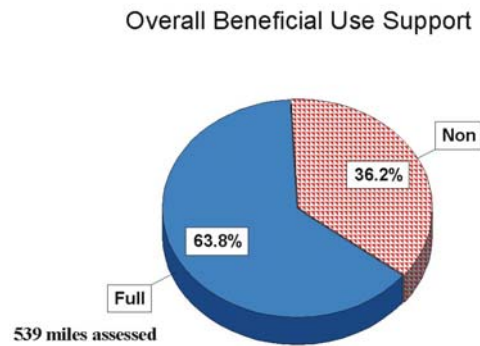
The Lower Colorado River Watershed Management Unit includes all streams located in the U.S.G.S. Hydrological Units (HUCs) listed in Table 2.10.1. Some of the major streams are the Santa Clara River, Virgin River, East Fork of the Virgin River, North Fork of the Virgin River, North Creek, Kanab Creek and Laverken Creek.

Table 2.10.1. U.S.G.S. Hydrological Units in the Lower Colorado Watershed Management Unit.	
Hydrological Unit Code	Hydrological Unit Name
15010003	Kanab
15010008	Upper Virgin
15010009	Fort Pierce Wash
15010010	Lower Virgin

### 2.10.2. Water Quality Assessment Results

Results of the 2006 Integrated Report were used to assess the waters. Data collected since the intensive survey were included in the assessment. Water chemistry and field data are compared against State standards to do the assessment. In addition, benthic macroinvertebrate data were used to assess aquatic life beneficial use support under the narrative standard (Chapter 17). Figure 2.10.1 is a map of the designated beneficial uses assigned to streams in this watershed management unit.

An assessment of support for at least one beneficial use was made for 526.2 stream miles. Of those assessed, 353.3 miles (67.1%) were assessed as fully supporting all the beneficial uses assessed and 172.9 (32.9%) were assessed as not supporting at least one designated beneficial use. The overall beneficial use assessment is shown in Figure 2.10.2.



**2.10.2.1. Beneficial Use Assessment By Categories** – The beneficial uses assigned to streams in unit are illustrated in Figure 2.10.2. The number of stream miles assessed by categories is listed in Table 2.10.2. Figure 2.8.3 is a map of the beneficial use assessment results by categories.

**Table 2.4.2. Stream Miles By Assessment Category - Lower Colorado Watershed Management Unit.**

Category	Category Definition	Stream Miles
1	All beneficial uses fully supported.	0
2	Beneficial uses assessed are fully supported.	353.3
3A	No data or insufficient data to make an assessment.	86.1
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	23.7
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.	172.9

**2.10.2.2--Individual Beneficial Use Support--.** Individual beneficial use assessments are listed in Table 2.10.3. Of the 514.2 miles assessed for aquatic life use 370.9 (72.1%), were assessed as fully supporting and 143.3 miles (27.9%) were assessed as impaired. Of the streams assessed for agricultural use, 424.5 miles (74.2%) were assessed as fully supporting, 109.6 miles (25.8%) not supporting this beneficial use.

**2.10.2.3--Total Waters Impaired by Various Causes--** The causes of impairment are listed in Tables 2.10.4. The causes of impairment are nutrients (total phosphorus), temperature, total dissolved solids. The percent of miles impacted were 19.9% percent respectively for all causes (Figure 2.10.4). The relative impact of these causes is shown in Figure 2.10.5.

**2.10.2.4--Total Waters Impaired by Various Causes--**The number of stream miles impacted by sources are listed in table 2.10.5. The major sources of impairment were agricultural activities, hydromodification, habitat modification, and unknown sources as shown in Figure 2.10.6. The relative percent impairment by sources is illustrated in Figure 2.10.7.

<b>Table 2.10.3. Individual Beneficial Use Support Summary – Lower Colorado Watershed Management Unit.</b>				
	Size	Size Fully	Size Not	
	Assessed	Supporting	Supporting	Totals
Use				
Aquatic Life	513.3	370.9	143.3	513.3
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	210.3	210.3	0.0	210.3
Agricultural	424.5	314.9	109.6	424.5

**Table 2.10.3. Individual Beneficial Use Support Summary – Lower Colorado Watershed Management Unit.**

	<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>				
Total	526.2	353.3	172.9	526.2
<b>Use</b>				
Aquatic Life		72.1%	27.9%	100.0%
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		100.0%	0.0%	100.0%
Agricultural		74.2%	25.8%	100.0%
Total		67.1%	32.9%	100.0%

# Lower Colorado River Management Unit

## Beneficial Use Classification and Monitoring Sites

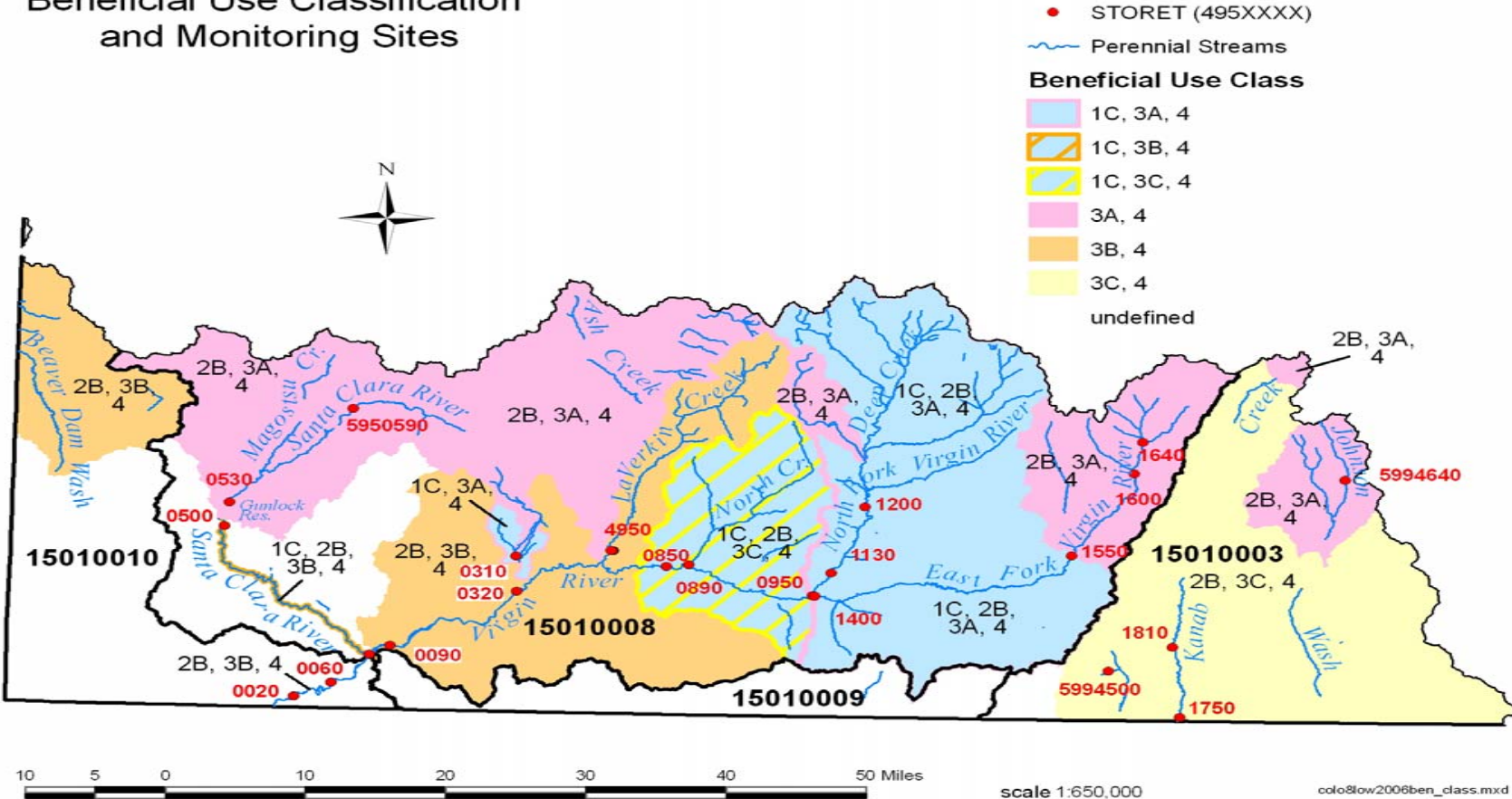


Figure 2.10.2. River and stream designated beneficial use classes – Lower Colorado Watershed Management Unit.

# Lower Colorado River Management Unit

## Assessment Categories 2008

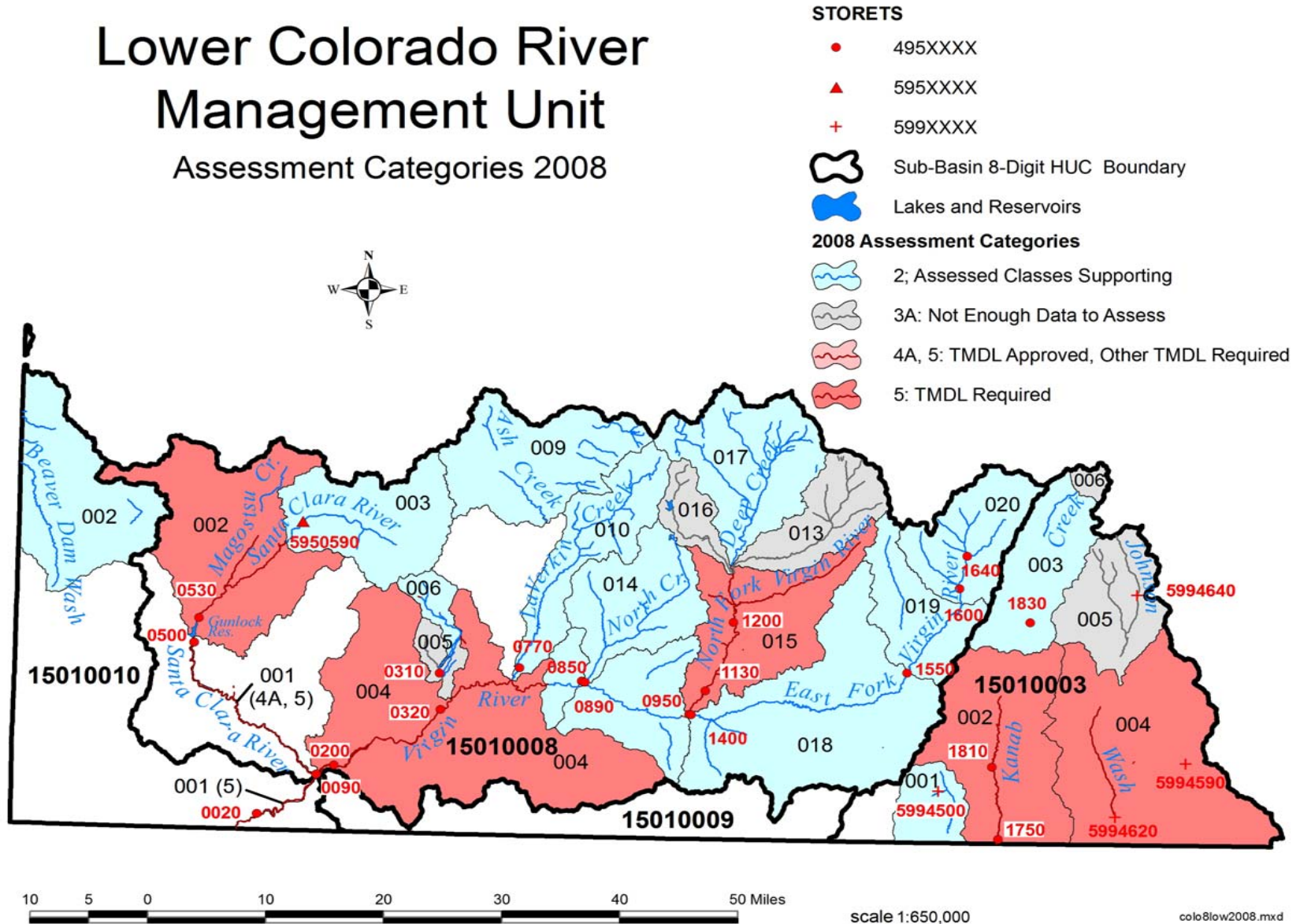


Figure 2.10.2. River and stream assessment by category – Lower Colorado Watershed Management Unit.

<b>Table 2.10.4. Total Waters Impaired by Various Cause Categories – Lower Colorado Watershed Management Unit.</b>	
<b>Cause Category</b>	<b>Stream Miles</b>
Cause unknown	0.0
Unknown toxicity	0.0
Pesticides	0.0
Priority organics	0.0
Nonpriority organics	0.0
Metals	103.7
Ammonia	0.0
Chlorine	0.0
Other inorganics	0.0
Nutrients	22.7
pH	0.0
Siltation/Sediments	0.0
Organic enrichment/low DO	0.0
Salinity/TDS/Chlorides	53.3
Thermal modifications	143.3
Flow alterations	0.0
Other habitat alterations	0.0
Pathogen Indicators	0.0
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
Exotic Species	0.0
Other (Specify)	0.0

<b>Table 2.10.5. Total Waters Impaired by Various Source Categories – Lower Colorado Watershed Management Unit.</b>	
<b>Source Category</b>	<b>Stream Miles</b>
Industrial Point Sources	0.0
Municipal Point Sources	0.0
Combined Sewer Overflow	0.0
Agriculture	109.7
Silviculture	-
Construction	0.0
Urban Runoff/Storm Sewers	23.7
Resource Extraction	0.0
Land Disposal	0.0
Hydromodification	23.7
Habitat Modification	0.0
Marinas	0.0
Atmospheric Deposition	0.0
Contaminated Sediments	0.0
Unknown Source	0.0
Natural Sources	97.6
Reservoir Releases	0.0
Recreation	0.0
Aquaculture	0.0
Extreme Drought	143.3

## Percent of Stream Miles Affected By Causes 2008 Lower Colorado 305(b) Assessment

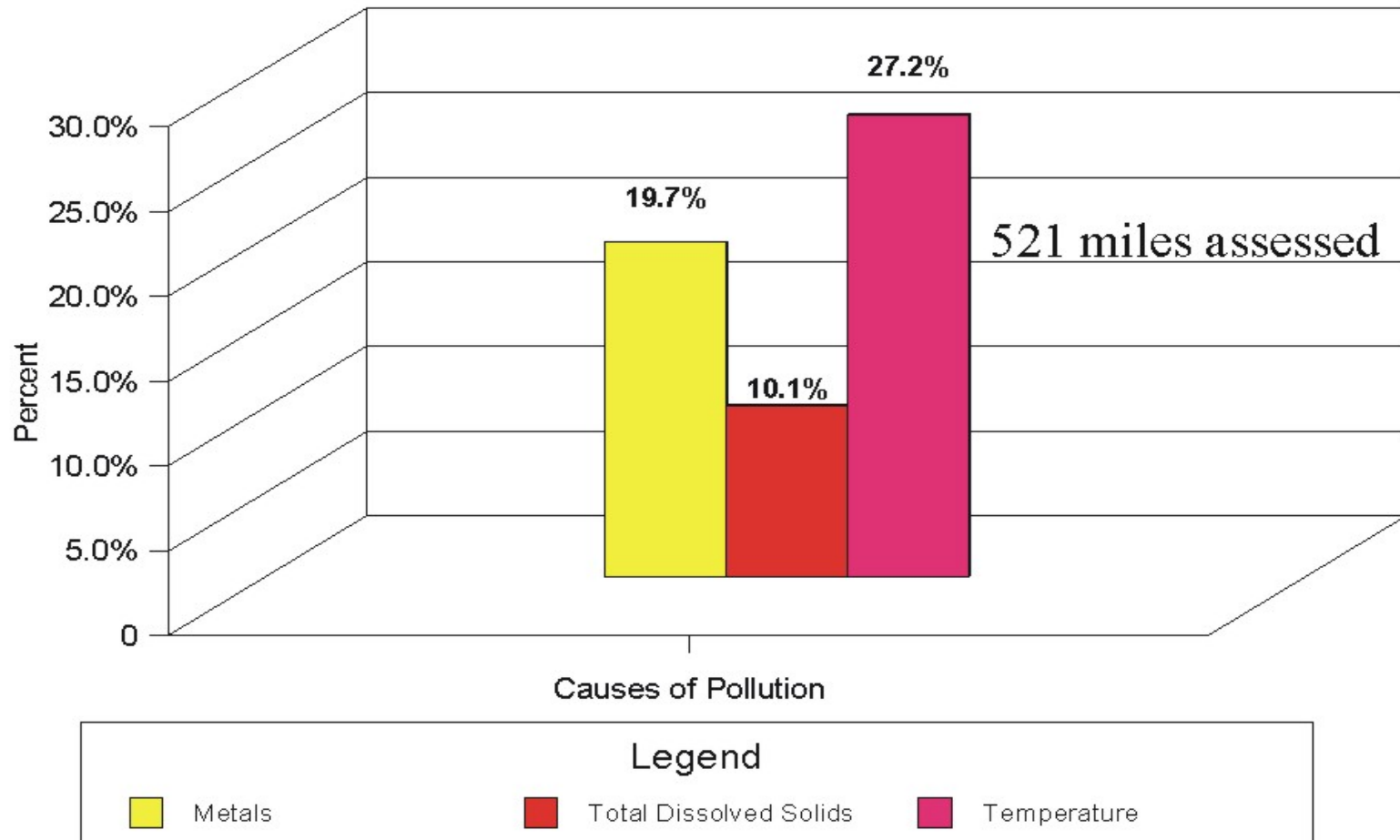


Figure 2.10.4. Percent of assessed stream miles impacted by various causes – Lower Colorado Watershed Management Unit.

# Sources of Stream Water Quality Impairment 2008 305(b) Assessment - Lower Colorado

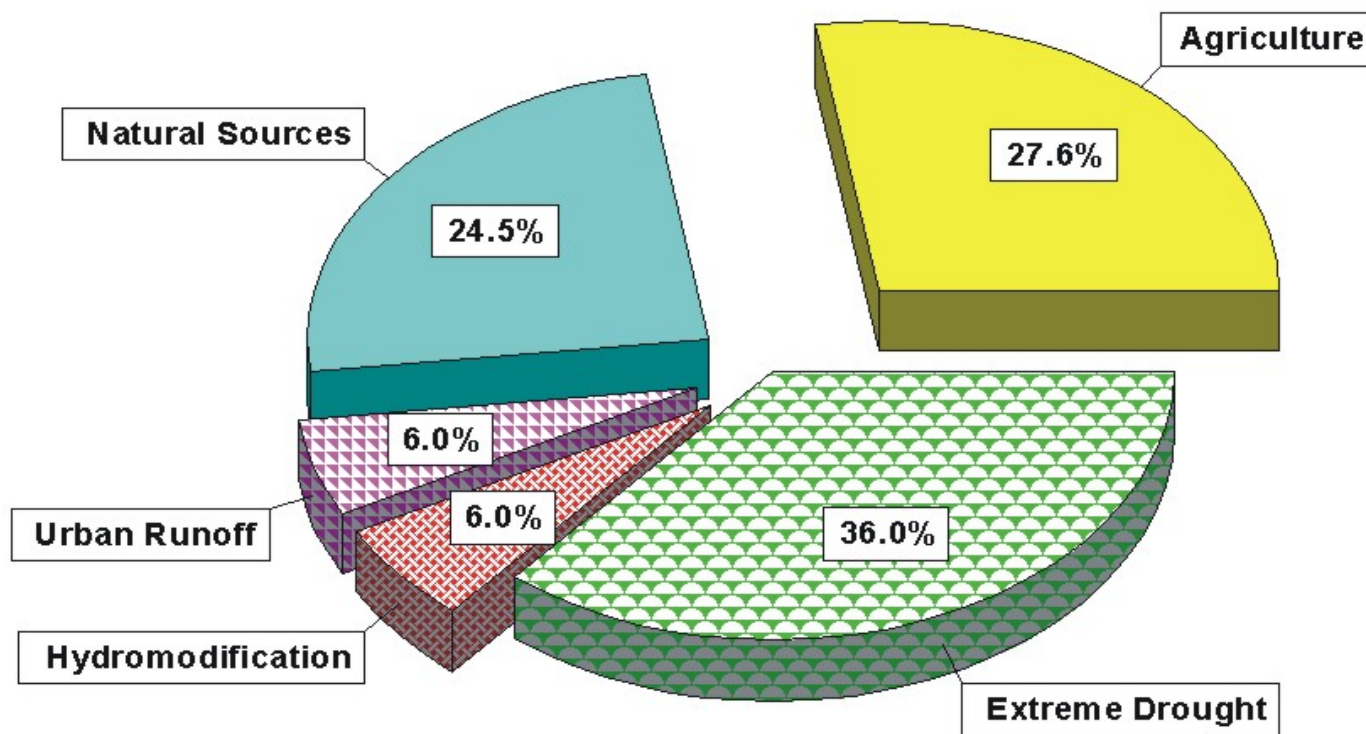
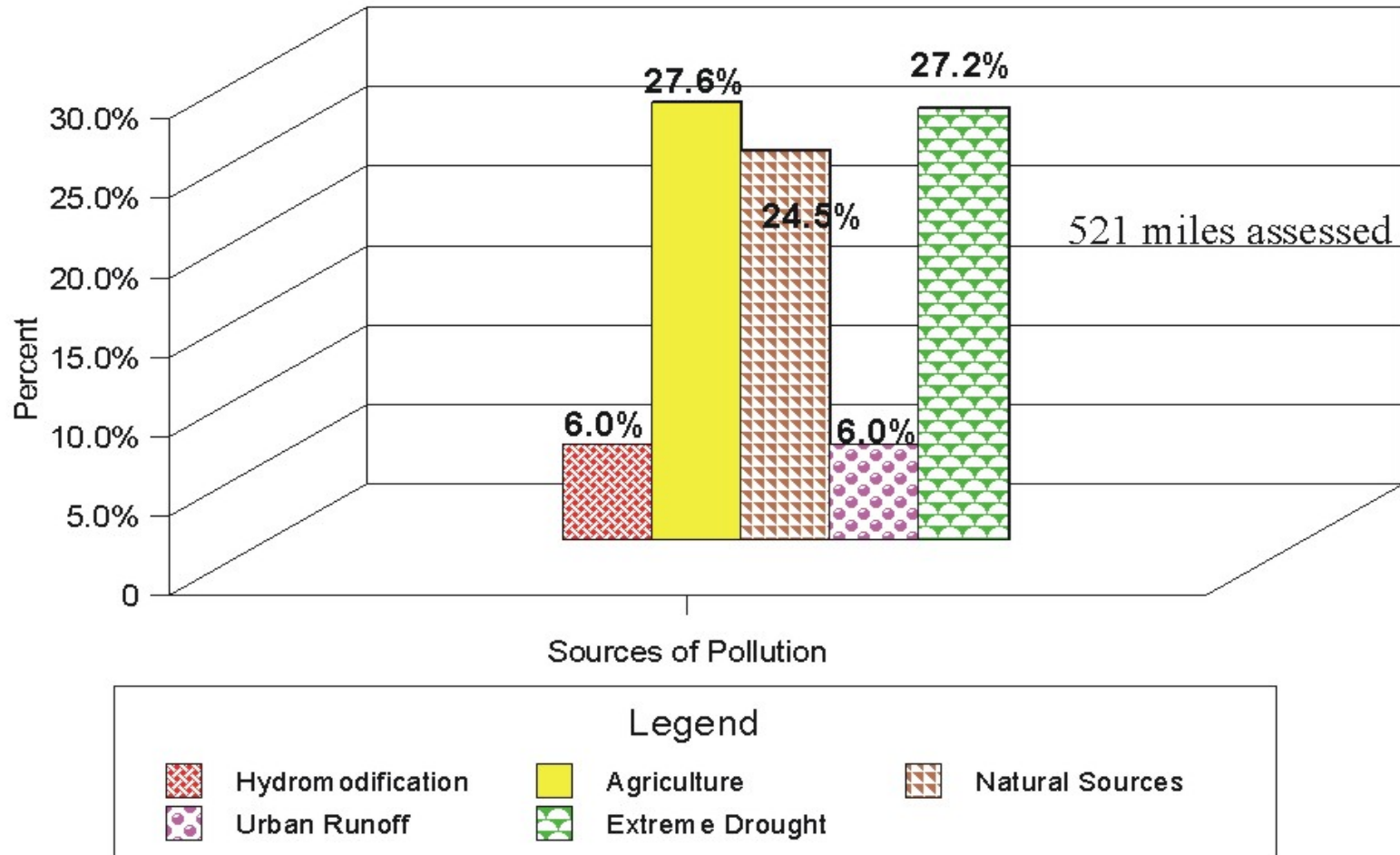


Figure 2.10.5. Relative percent impact by causes on water quality – Lower Colorado Watershed Management Unit.

## Percent of Stream Miles Affected By Sources 2008 305(b) Assessment - Lower Colorado



**Figure 2.10.6. Percent of assessed stream miles impacted by various sources – Lower Colorado Watershed Management Unit.**

## Sources of Stream Water Quality Impairment 2008 305(b) Assessment - Lower Colorado

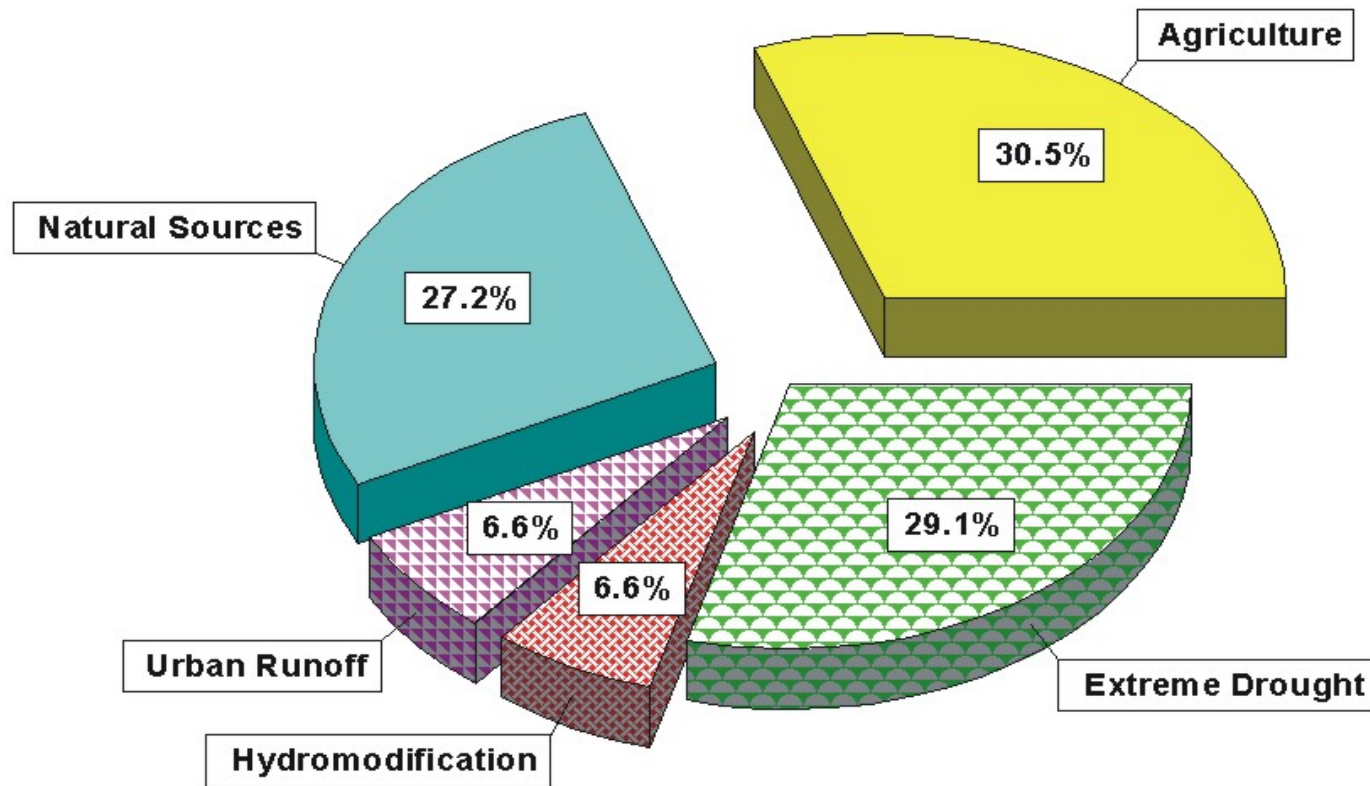


Figure 2.10.7. Relative percent impact by sources on stream water quality – Lower Colorado Watershed Management Unit.

<b>Table 2.10.6 Impaired Assessment Units In The Lower Colorado 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>
UT15010008-001	Santa Clara-1	Santa Clara River from confluence with Virgin River to Gunlock Reservoir	3B	NS	4A	Selenium	23.67
UT15010008-001	Santa Clara-1	Santa Clara River from confluence with Virgin River to Gunlock Reservoir	4	NS	4A	Salinity/TDS/ Chlorides	23.67
UT15010003-002	Kanab Creek-1	Kanab Creek and tributaries from state line to the confluence with Fourmile Hollow near the White Cliffs	4	NS	5	Salinity/TDS/ Chlorides	17.64
UT15010003-004	Johnson Wash-1	Johnson Wash and tributaries from Utah-Arizona state line to Skutumpah Canyon confluence	4	NS	5	Salinity/TDS/ Chlorides	11.96
UT15010008-001	Santa Clara-1	Santa Clara River from confluence with Virgin River to Gunlock Reservoir	3B	NS	5	Temperature	23.67
UT15010008-001	Santa Clara-1	Santa Clara River from confluence with Virgin River to Gunlock Reservoir	4	NS	5	Boron	23.67
UT15010008-002	Santa Clara-2	Santa Clara River and tributaries from Gunlock Reservoir to Baker Dam Reservoir (includes Magotsu Creek)	3A	NS	5	Temperature	24.96
UT15010008-004	Virgin River-2	Virgin River and tributaries from Santa Clara River confluence to Quail Creek diversion, excluding Quail, Ash, and La Verkin Creeks	3B	NS	5	Temperature	41.11
UT15010008-004	Virgin River-2	Virgin River and tributaries from Santa Clara River confluence to Quail Creek diversion, excluding Quail, Ash, and La Verkin Creeks	4	NS	5	Boron	41.11
UT15010008-015	North Fork Virgin River-1	North Fork Virgin River and tributaries from confluence with East Fork Virgin River to Kolob Creek confluence	3A	NS	5	Temperature	38.32
UT15010010-001	Virgin River-1	Virgin River from state line to Santa Clara River confluence	3B	NS	5	Temperature	15.24
UT15010010-001	Virgin River-1	Virgin River from state line to Santa Clara River confluence	4	NS	5	Boron	15.24

