Chapter 2.8 Sevier River Watershed Management Unit Assessment

2.8.1. Introduction

The Sevier River Watershed Management Unit includes all streams located in the U.S.G.S Hydrological Units (HUCs) listed in Table 2.8.1. Some of the major streams within unit are the Sevier River, San Pitch River, Otter Creek, Salina Creek, and the East Fork Sevier River.

Table 2.8.1. Hydrological Unit Codes and Names

Hydrological Unit Code	Hydrological Unit Name
14030001	Upper Sevier
14030002	East Fork Sevier
14030003	Middle Sevier
14030004	San Pitch
14030005	Lower Sevier
14030009	Sevier Lake

2.8.2. Water Quality Assessment Results

Data from samples collected from January 1, 2002 through December 31, 2006 were used in making this assessment. The data include data collected by DWQ, and Cooperators. Benthic macroinvertebrate data collected at several sites were also used to determine support of the aquatic life beneficial use (Chapter 2.15). Figure 2.8.2 is a map of the designated beneficial uses assigned to the streams in this management unit.

2.8.2.2 Overall Beneficial Use Support -There are an estimated 1,885 perennial stream miles within the Sevier River Watershed Management Unit. Of these, 1,614.4 miles were assessed. There are 948.1stream miles (58.7%) supporting the beneficial uses that were assessed and 666.3 (41.3%) were are not supporting at least one designated beneficial use. The overall beneficial use assessment is illustrated in Figure 2.8.1.

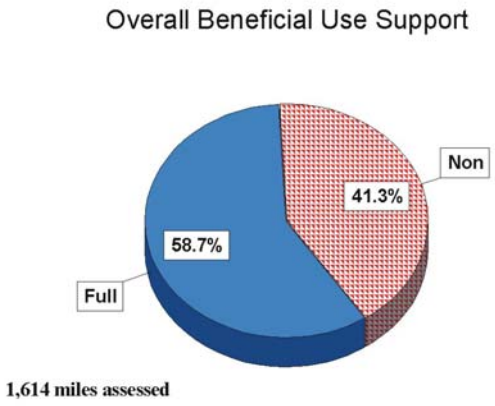

Figure 2.8.1. Overall beneficial use support - Sevier.

2.8.2.3 Beneficial Use Assessment By Categories-- Table 2.8.2 lists the streams miles that were assigned to each of the assessment categories. An AU can be placed in multiple categories when it is assessed. Therefore, the number of stream miles listed in the table may exceed the number of miles assessed. Figure 2.8.3 illustrates the beneficial use by categories.

Table 2.8.2. Stream Miles By Assessment Category – Sevier River Watershed Management Unit.		
Category	**Category Definitions**	**Stream Miles**
1	All beneficial uses fully supported.	0.0
2	Beneficial uses assessed are fully supported.	948.1
3A	No data or insufficient data to make an assessment.	294.3
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	489.3
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.	264.9
5	Impaired by pollutant, TMDL required.	432.2

2.8.1.3. Individual Use Support-- Of the 1,596.4 stream miles assessed for aquatic life, 1,147.0 miles (71.9%) are fully supporting and 449.4 miles (28.1%) are not supporting this beneficial use. Of the streams assessed for agricultural use, 1,364.1 miles (85.4%) are fully supporting and 232.3 miles (14.6%) as not supporting this beneficial use (Table 2.8.3). The beneficial use support categories are mapped in Figure 2.8.2.

Table 2.8.3. Individual Use Support Summary – Sevier River Watershed Management Unit.				
	Size Assessed	**Size Fully Supporting**	**Size Not Supporting**	**Totals**
Use				
Aquatic Life	1,614.3	1,075.4	538.9	1,614.3
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	0.0	0.0	0.0	0.0
Agricultural	1,614.3	948.1	666.3	1,614.3
Use				
Aquatic Life		66.7%	33.3%	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		0.0%	0.0%	0.0%
Agricultural		58.7%	41.3%	100.0%

2.8.1.4 Total Waters Impaired by Various Causes. The causes of impairment are listed

in Table 2.8.4. The causes of impairment are siltation, nutrients (total phosphorus), thermal modifications, total dissolved solids, habitat alterations, unknown causes, and metals (boron). The percent of stream miles impaired is illustrated Figure 2.8.4. The relative impact of these causes is shown in Figure 2.8.5

2.8.1.5. Total Waters Impaired by Various Sources--The sources of impairment are agriculture, hydromodification, unknown sources, natural sources, aquaculture, and habitat modification (Table 2.8.5). The percent of impact by sources is illustrated in Figure 2.8.6. The relative percent of impairment by sources is shown in Figure 2.8.7.

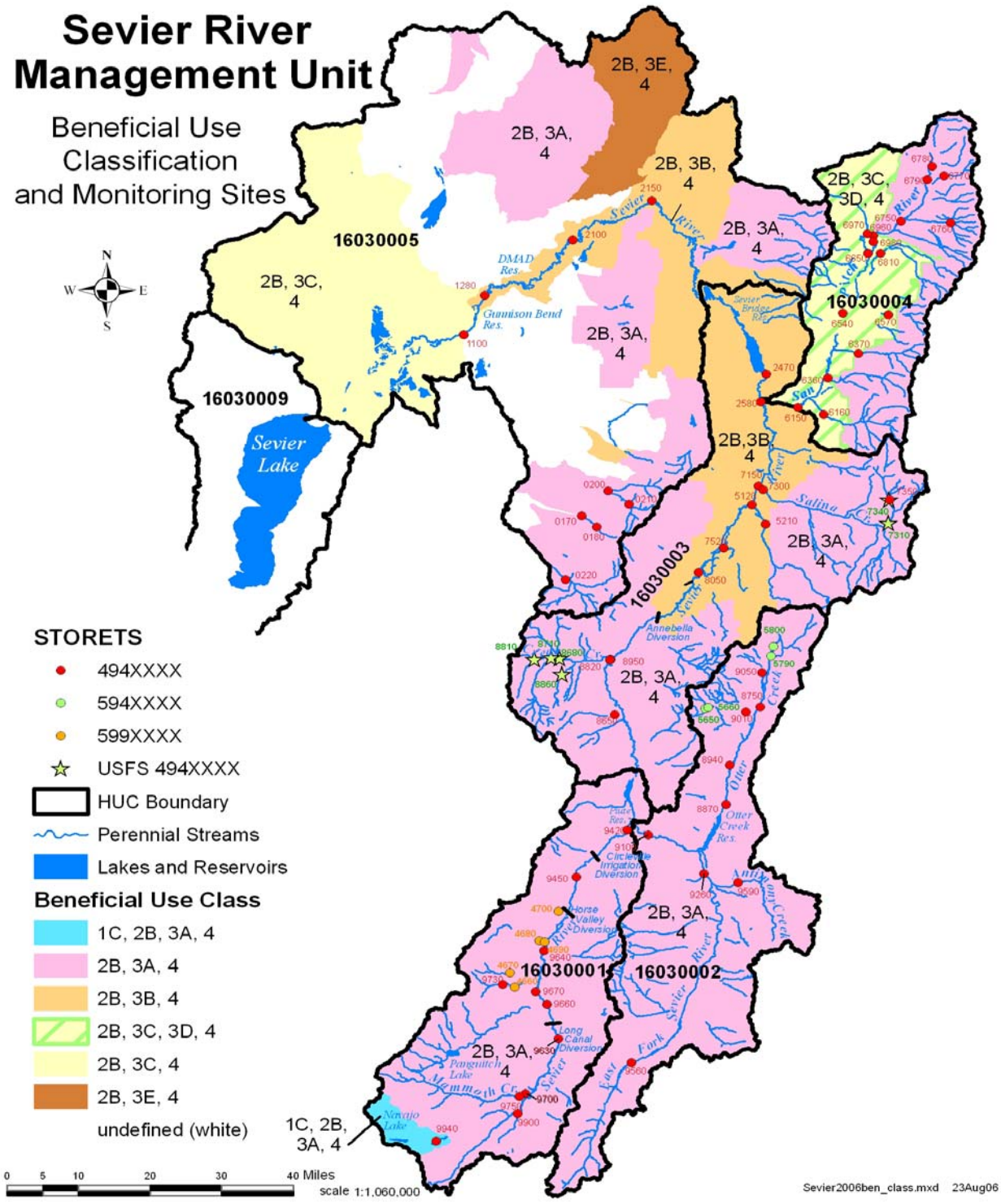

Figure 2.8.2. Beneficial use classifications – Sevier Watershed Management Unit

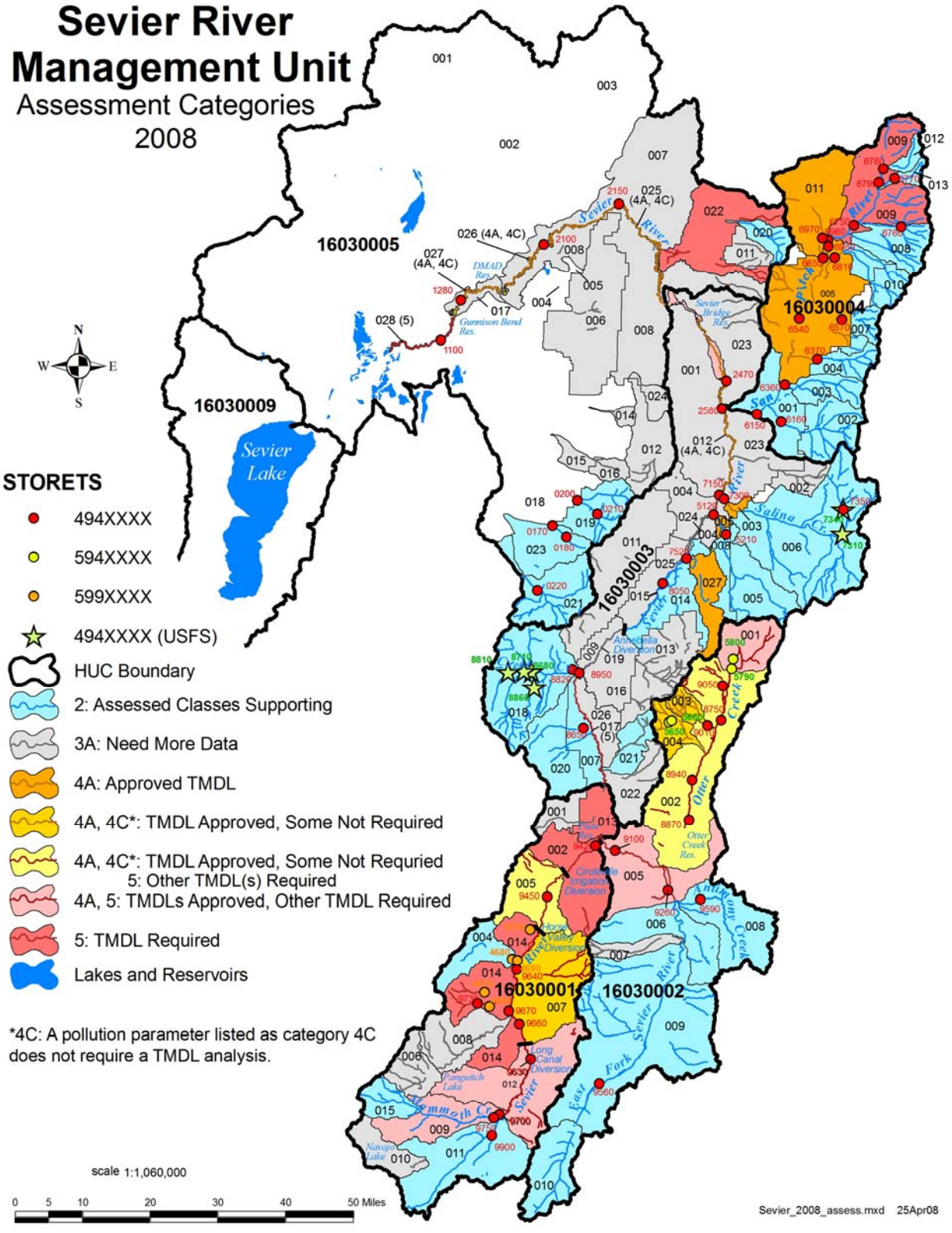

Figure 2.8.3. Beneficial use assessment by category – Sevier River Watershed Management Unit.

Table 2.8.4 Total Waters Impaired by Various Cause Categories (Stream Miles) – Sevier 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	18.7
Ammonia	0.0
Chlorine	0.0
Other inorganics	0.0
Nutrients	385.2
pH	0.0
Siltation/Sediment/Sediments	357.2
Organic enrichment/low DO	
Salinity/TDS/Chlorides	213.6
Thermal modifications	217.5
Flow alterations	0.0
Other habitat alterations	185.6
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
Benthic Macroinvertebrates	0.0
Other (specify)	0.0

Table 2.8.5. Total Waters Impaired by Various Source Categories (Stream Miles) – Sevier Watershed Management Unit.	
Source Category	**Stream Miles**
Industrial Point Sources	0.0
Municipal Point Sources	0.0
Combined Sewer Overflow	0.0
Agriculture	503.8
Silviculture	0.0
Construction	0.0
Urban Runoff/Storm Sewers	0.0
Resource Extraction	0.0
Land Disposal	0.0
Hydromodification	475.8
Habitat Modification	224.9
Marinas	0.0
Atmospheric Deposition	0.0
Contaminated Sediments	0.0
Unknown Source	377.9
Natural Sources	266.7
Reservoir Releases	0.0
Recreation	0.0
Aquaculture	75.5
Extreme Drought	0.0
Out of State	0.0

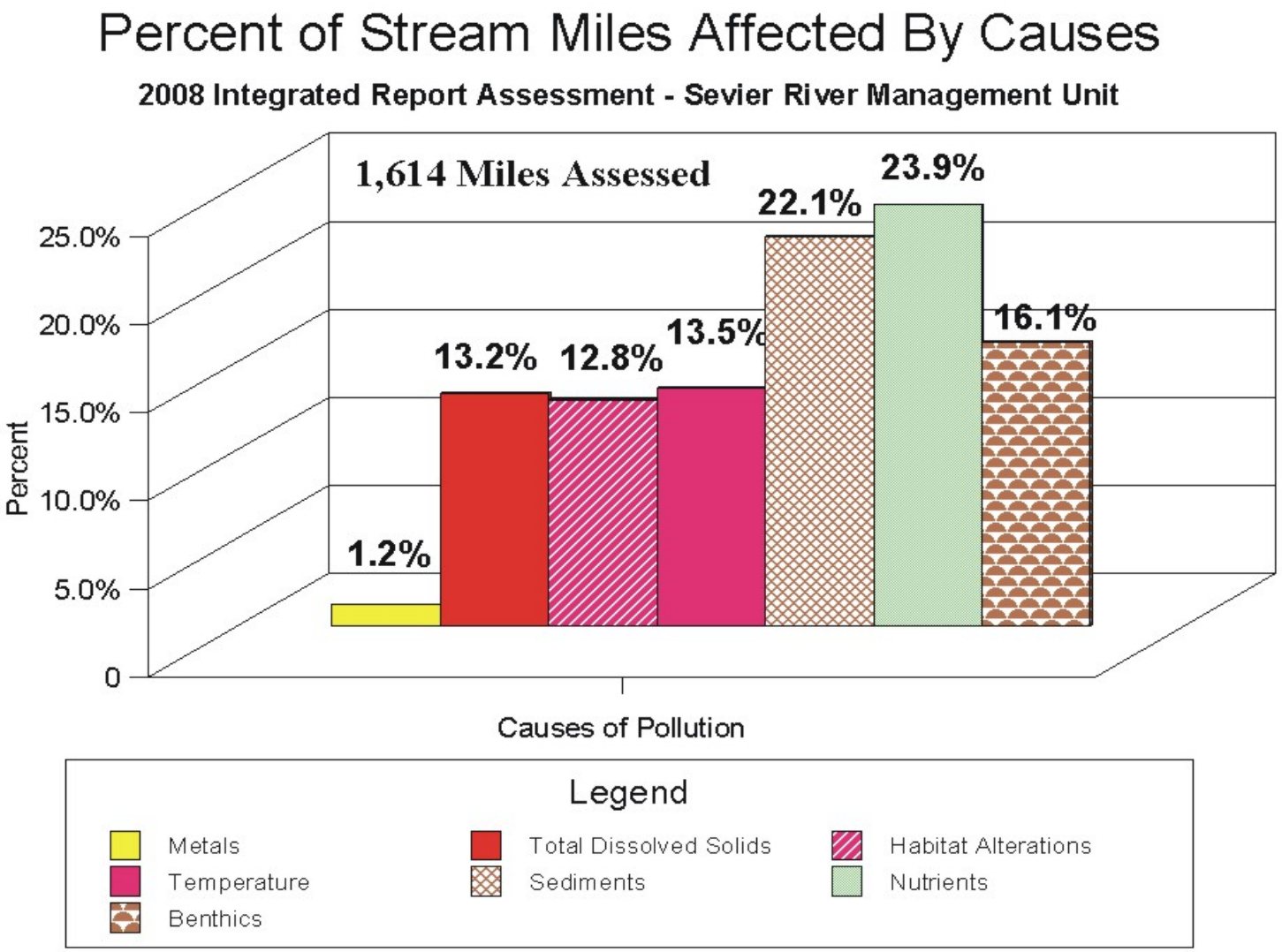

Figure 2.8.4. Percent impact by causes on stream water quality – Sevier Watershed Management Unit.

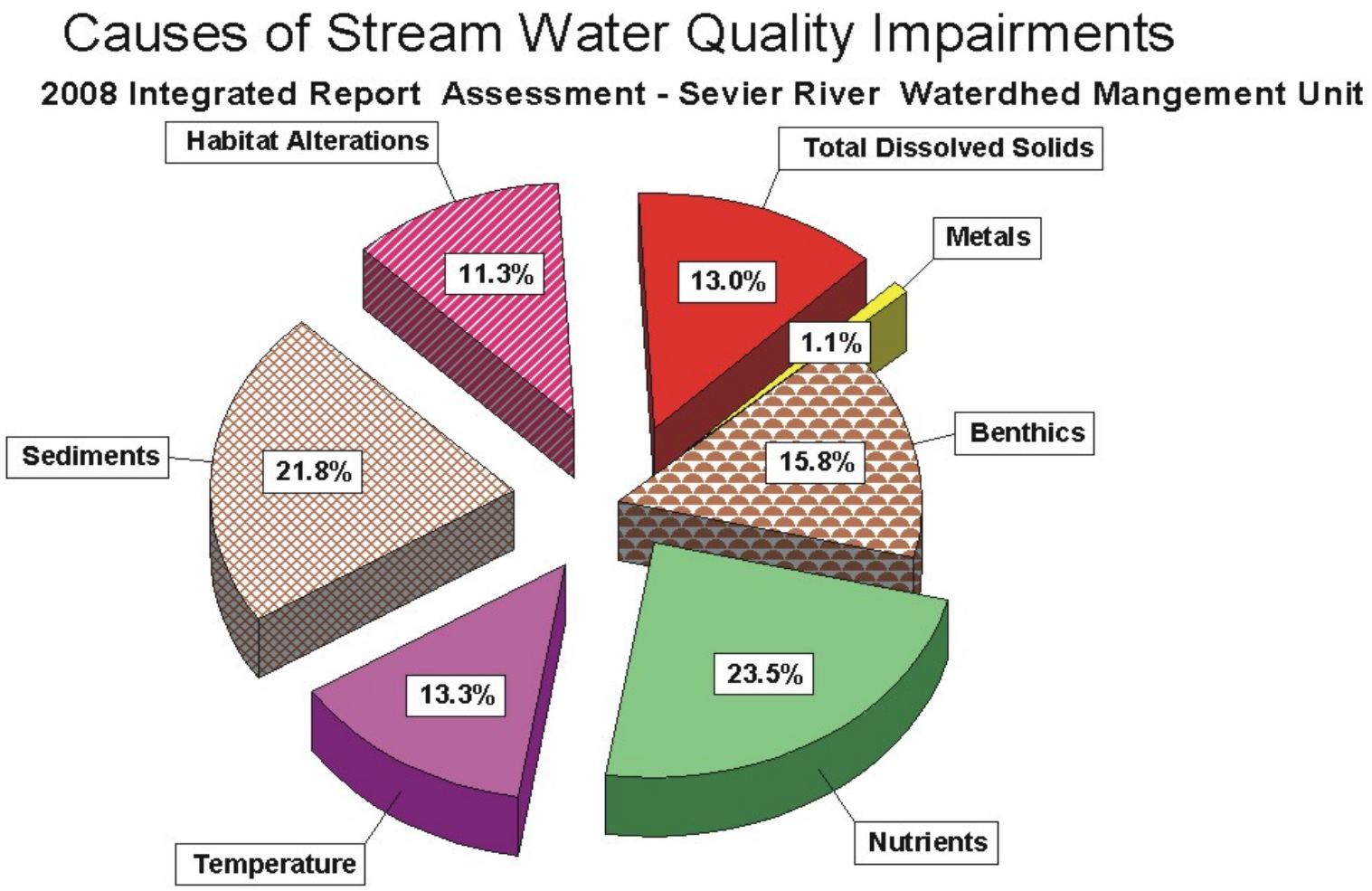

Figure 2.8.5. Relative percent contribution of causes on stream water quality – Sevier River Watershed Management Unit.

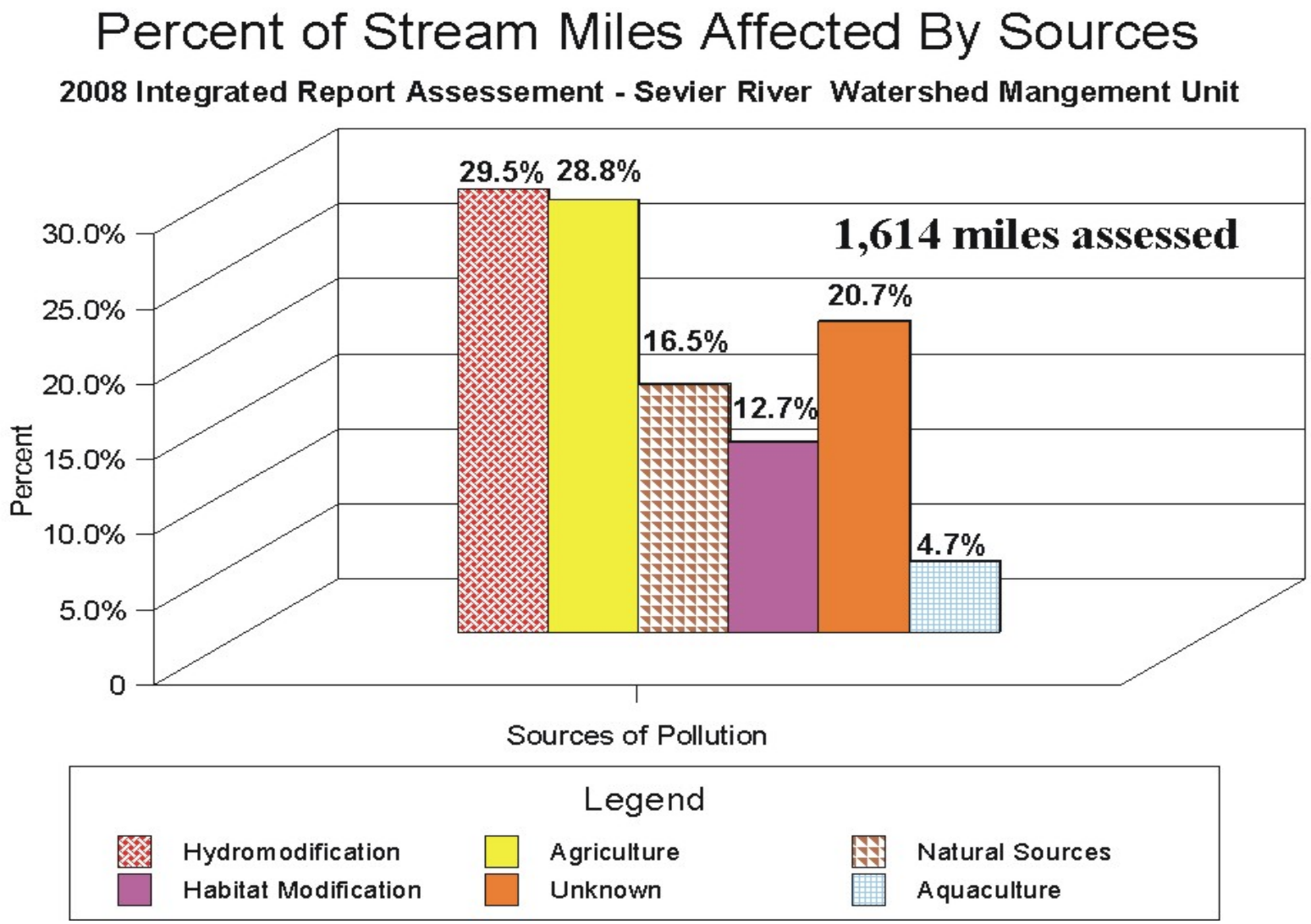

Figure 2.8.6. Percent impact by sources on stream water quality – Sevier River Watershed Management Unit.

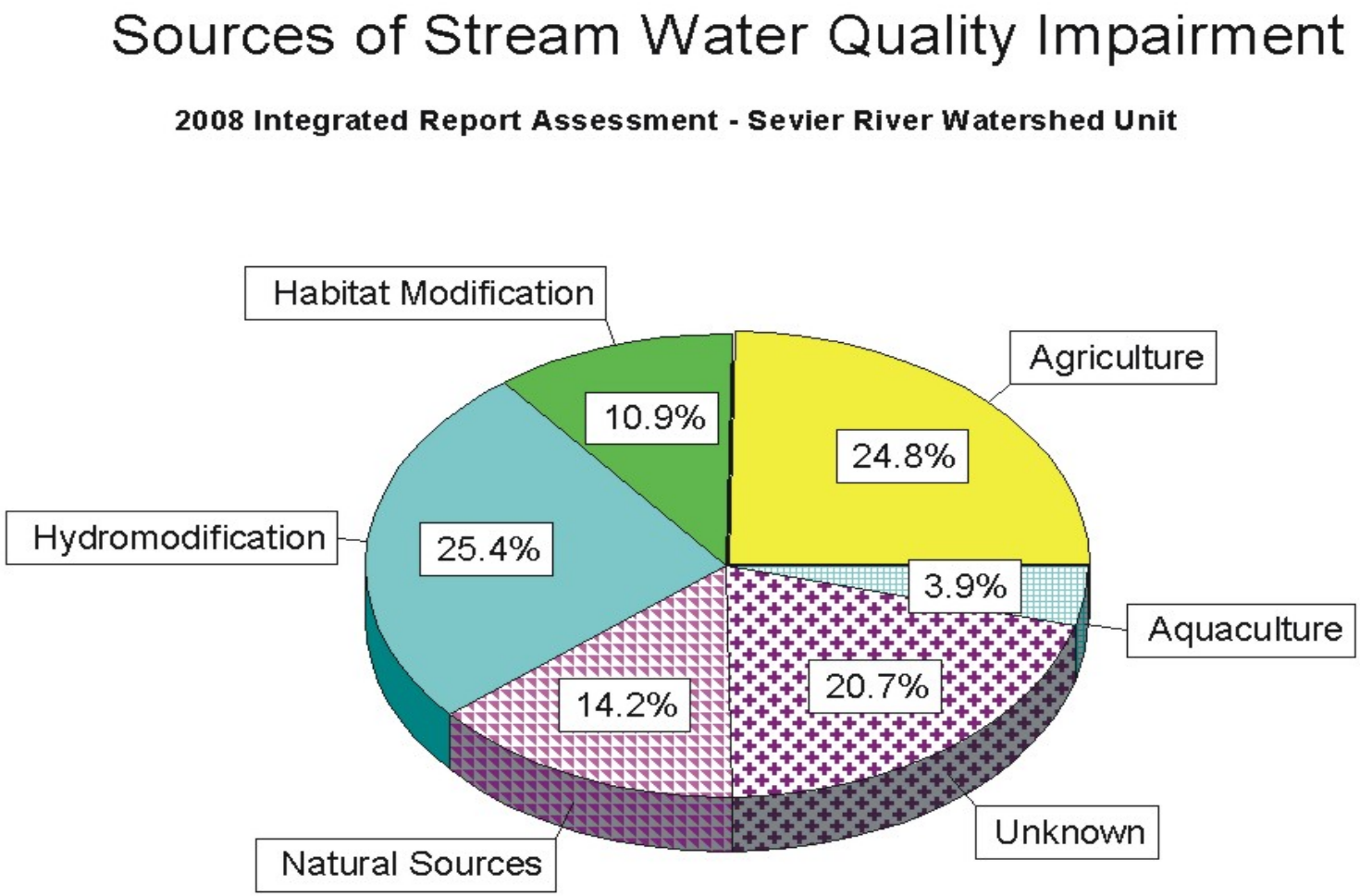

Figure 2.8.7. Relative percent contribution of sources on stream water quality – Sevier Watershed Management Unit.

Table 2.8.6. Impaired Waters Located in the Sevier 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**
AU_ID	AU_NAME	AU_DESCR	CLASS	SUPPORT	CATEGORY	CAUSE	MILES
UT16030003-003	Salina Creek-1	Salina Creek and tributaries from confluence with Sevier River to USFS boundary	4	NS	4A	Salinity/TDS/Chlorides	4.71
UT16030003-005	Lost Creek-1	Lost Creek and tributaries from confluence with Sevier River upstream approximately 6 miles	4	NS	4A	Salinity/TDS/Chlorides	4.11
UT16030003-012	Sevier River-17	Sevier River from Yuba Dam upstream to confluence with Salina Creek	4	NS	4A	Salinity/TDS/Chlorides	45.24
UT16030003-027	Peterson Creek	Petersen Creek and tributaries from confluence with Sevier River to USFS boundary	4	NS	4A	Salinity/TDS/Chlorides	8.7
UT16030004-005	San Pitch-2	San Pitch River and tributaries from Gunnison Reservoir to U132 crossing below USFS boundary	4	NS	4A	Salinity/TDS/Chlorides	55.79
UT16030004-011	San Pitch-4	Silver Creek and tributaries from confluence with San Pitch to headwaters	4	NS	4A	Salinity/TDS/Chlorides	10.84
UT16030005-026	Sevier River-22	Sevier River from DMAD Reservoir upstream to U-132 crossing at the northern most point of the Sevier River (near Dog Valley Wash)	4	NS	4A	Salinity/TDS/Chlorides	42.27
UT16030005-027	Sevier River-24	Sevier River from Gunnison Bend Reservoir to DMAD Reservoir	4	NS	4A	Salinity/TDS/Chlorides	17.45
UT16030001-005	Sevier River-3	Sevier River and tributaries from Circleville Irrigation Diversion to Horse Valley Diversion	3A	NS	4A	Siltation	20.66
UT16030001-007	Sevier River-2	Sevier River and east side tributaries from Horse Valley Bridge Diversion upstream to Long Canal	3A	NS	4A	Siltation	46.98
UT16030001-012	Sevier River-1	Sevier River and tributaries from Long Canal to Mammoth Creek confluence	3A	NS	4A	Siltation	28.48
UT16030002-001	Otter Creek-4	Otter Creek and tributaries from Koosharem Reservoir to headwaters	3A	NS	4A	Siltation	18.58

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AU_ID	AU_NAME	AU_DESCR	CLASS	SUPPORT	CATEGORY	CAUSE	MILES
UT16030002-002	Otter Creek-1	Otter Creek and tributaries from Otter Creek Reservoir to Koosharem Reservoir, except Box and Greenwich Creeks	3A	NS	4A	Siltation	59.82
UT16030002-003	Otter Creek-3	Greenwich Creek and tributaries from confluence with Otter Creek to headwaters	3A	NS	4A	Siltation	23.77
UT16030002-004	Otter Creek-2	Box Creek and tributaries from confluence with Otter Creek to headwaters	3A	NS	4A	Siltation	19.49
UT16030001-005	Sevier River-3	Sevier River and tributaries from Circleville Irrigation Diversion to Horse Valley Diversion	3A	NS	4A	Total Phosphorus	20.66
UT16030001-007	Sevier River-2	Sevier River and east side tributaries from Horse Valley Bridge Diversion upstream to Long Canal	3A	NS	4A	Total Phosphorus	46.98
UT16030001-009	Mammoth Creek Lower	Mammoth Creek and tributaries from confluence with Sevier River to Mammoth Spring confluence	3A	NS	4A	Total Phosphorus	22.2
UT16030001-012	Sevier River-1	Sevier River and tributaries from Long Canal to Mammoth Creek confluence	3A	NS	4A	Total Phosphorus	28.48
UT16030002-001	Otter Creek-4	Otter Creek and tributaries from Koosharem Reservoir to headwaters	3A	NS	4A	Total Phosphorus	18.58
UT16030002-002	Otter Creek-1	Otter Creek and tributaries from Otter Creek Reservoir to Koosharem Reservoir, except Box and Greenwich Creeks	3A	NS	4A	Total Phosphorus	59.82
UT16030002-003	Otter Creek-3	Greenwich Creek and tributaries from confluence with Otter Creek to headwaters	3A	NS	4A	Total Phosphorus	23.77
UT16030002-005	East Fork Sevier River-4	East Fork Sevier River and tributaries from confluence with Sevier River upstream to Antimony Creek confluence, excluding Otter Creek and tributaries	3A	NS	4A	Total Phosphorus	25.74
UT16030001-005	Sevier River-3	Sevier River and tributaries from Circleville Irrigation Diversion to Horse Valley Diversion	3A	NS	4C	Other Habitat Alterations	20.66
UT16030001-007	Sevier River-2	Sevier River and east side tributaries from Horse Valley Bridge Diversion upstream to Long Canal	3A	NS	4C	Other Habitat Alterations	46.98

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AU_ID	AU_NAME	AU_DESCR	CLASS	SUPPORT	CATEGORY	CAUSE	MILES
UT16030002-003	Otter Creek-3	Greenwich Creek and tributaries from confluence with Otter Creek to headwaters	3A	NS	4C	Other Habitat Alterations	23.77
UT16030001-009	Mammoth Creek Lower	Mammoth Creek and tributaries from confluence with Sevier River to Mammoth Spring confluence	3A	NS	5	Benthic Macroinvertebrate Assessment Impairment	22.2
UT16030001-013	Piute	Piute Reservoir tributaries below USFS boundary and excluding Sevier River inlet	3A	NS	5	Benthic Macroinvertebrate Assessment Impairment	4.04
UT16030002-002	Otter Creek-1	Otter Creek and tributaries from Otter Creek Reservoir to Koosharem Reservoir, except Box and Greenwich Creeks	3A	NS	5	Benthic Macroinvertebrate Assessment Impairment	59.82
UT16030003-017	Sevier River-6	Sevier River from Clear Creek confluence to HUC unit 1603003-1603001 boundary	3A	NS	5	Benthic Macroinvertebrate Assessment Impairment	28.06
UT16030004-009	San Pitch-5	San Pitch River and tributaries from U-132 to Pleasant Creek confluence, excluding Cedar Creek, Oak Creek, Pleasant Creek and Cottowood Creek	3A	NS	5	Benthic Macroinvertebrate Assessment Impairment	65.66
UT16030005-028	Sevier River-25	Sevier River from Crafts Lake to Gunnison Bend Reservoir	4	NS	5	Boron	18.66
UT16030005-022	Chicken Creek-2	Chicken Creek and tributaries from confluence with Sevier River to Levan	4	NS	5	Salinity/TDS/Chlorides	24.51
UT16030001-002	Sevier River-4	Sevier River and tributaries from Piute Reservoir to Circleville Irrigation Diversion, excluding East Fork Sevier River and tributaries	3A	NS	5	Temperature	16.21
UT16030001-005	Sevier River-3	Sevier River and tributaries from Circleville Irrigation Diversion to Horse Valley Diversion	3A	NS	5	Temperature	20.66
UT16030001-012	Sevier River-1	Sevier River and tributaries from Long Canal to Mammoth Creek confluence	3A	NS	5	Temperature	28.48

Table 2.8.6. Impaired Waters Located in the Sevier 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**
AU_ID	AU_NAME	AU_DESCR	CLASS	SUPPORT	CATEGORY	CAUSE	MILES
UT16030001-014	Threemile Creek	Threemile Creek and other Sevier River west side tributaries from Horse Valley Diversion upstream to Long Canal, excluding Panquitch and Bear Creeks	3A	NS	5	Temperature	19.91
UT16030002-001	Otter Creek-4	Otter Creek and tributaries from Koosharem Reservoir to headwaters	3A	NS	5	Temperature	18.58
UT16030002-002	Otter Creek-1	Otter Creek and tributaries from Otter Creek Reservoir to Koosharem Reservoir, except Box and Greenwich Creeks	3A	NS	5	Temperature	59.82
UT16030002-005	East Fork Sevier River-4	East Fork Sevier River and tributaries from confluence with Sevier River upstream to Antimony Creek confluence, excluding Otter Creek and tributaries	3A	NS	5	Temperature	25.74
UT16030003-017	Sevier River-6	Sevier River from Clear Creek confluence to HUC unit 1603003-1603001 boundary	3A	NS	5	Temperature	28.06