



2020 303(d) List of Water Quality Impairments

- Approved by EPA on April 28, 2020
- Watershed Based Assessments
 - 328 Stream Sites
 - 118 Lakes
- 1,421 Station/Pollutant Listings: Categories 3, 4a, & 5
- 514 Category 2 Station/Pollutant Listings
- 129 Category Changes in 2020
- <https://www.kdheks.gov/tmdl/methodology.htm>

2020 303(d) List of All Impaired & Potentially Impaired Waters



Bureau of Water
Watershed Planning, Monitoring, and Assessment Section
Approved April 28, 2020

2020 Category Changes at a Glance

Category Descriptions

5: Impaired and needs a TMDL written

4a: TMDL written and EPA approved

3: Waiting on data to make decision on impairment

2: Previously impaired water now meeting water quality

1: Has never been listed as impaired

		2020 303(d)				
		Category	5	4a	3	2
2018 303(d)	5		31	0	25	
	4a	0		0	20	
	3	1	0		2	
	2	11	1	0		
	1	28	3	7	0	
	Totals	40	35	7	47	
		↓	↓	↓	↓	
		New Listings	New TMDLs	Wait & See	New Delistings	

303(d) Methodology

Table 5. 303(d) Methodology: Assessment methods by parameter and designated use.

Parameter	Designated Use					Notes	Data Source Note
	Recreation	Acute AQL	Chronic AQL	Domestic, Irrigation, & Stockwater Use	Food Procurement		
Arsenic		Greater than 1 per 3 years on average	Greater than 1 per 3 years on average; chronic criteria applied to samples taken under stable flow	Greater than 1 over past 10 years	Greater than 1 over past 10 years*		
Beryllium				Greater than 1 over past 10 years			
Boron				Binomial; For natural background concentrations, median over past 10 years			
Biology		Best Professional Judgement					
Total Phosphorus		Median > 201 µg/L			As outlined in 303(d) methodology		
Total Suspended Solids		Median > 50 mg/L			As outlined in 303(d) methodology		
Biology/Sediment		Best Professional Judgement					
			Greater than 1 per 3 years on average;				

6.0 LAKE AND WETLAND METHODOLOGY

Harmful Algal Bloom (HAB) 303(d) Listing Methodology (Eutrophication for Contact Recreation Use)

A Seasonal Excursion is defined as a 7-day HAB Health Warning Advisory covering one week during the HAB season in the calendar year when toxin or cell count data is collected to support addition or retention of the advisory. Warnings are issued in accordance with the Harmful Algal Bloom Response Plan. Carry over advisories should count as excursions when accompanied by sampling events indicating the Warning condition remained in place within the period of record. HAB health Watch advisories are not considered excursions.

A Seasonal Impairment is defined when more than 3 Seasonal Excursions occur within the same recreation season. When this frequency is exceeded within a calendar year (CY) recreational season, this implicates the recreational use support as impaired for the assessed season. This is referred to as a CY HAB Season Impairment.

Assessment Steps

- 1) Assess only lakes that are classified and not listed for Eutrophication.
- 2) Assess only WARNING status advisories.

https://www.kdheks.gov/tmdl/2020/2020_303_d_Methodology.pdf

Methodology & Kansas Surface Water Quality Standards

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Total Suspended Solids		Median > 50 mg/L					
Biology/Sediment		Best Professional Judgement					

Kansas Surface Water Quality Standards Tables of Numeric Criteria, 12/15/2017

https://www.kdheks.gov/tmdl/download/SWQS_Tables_2017_12152017_final.pdf

Table 1a. Aquatic Life, Agriculture, And Public Health Designated Uses Numeric Criteria

PARAMETER	CAS NUMBER	Use Category					
		AQUATIC LIFE		AGRICULTURE		PUBLIC HEALTH	
		ACUTE	CHRONIC	LIVESTOCK	IRRIGATION	FOOD PROCUREMENT	DOMESTIC WATER SUPPLY
METALS (µg/L)							
antimony, total	7440360	88	30	a	a	640	6
arsenic, total	7440382	340	150	200	100	20.5	10
arsenic (III)	a	360	50	a	a	0.14	0.018
arsenic (V)	a	850	48	a	a	a	a
barium, total	7440393	a	a	a	a	a	2,000
beryllium, total	7440417	a	a	a	a	a	4
boron, total	7440428	a	a	5,000	750	a	a
cadmium, total	7440439	table 1b	table 1b	20	10	170	5

Upper Republican River Basin

Two new Category 5 listings

- S. Fork Republican River near Benkelman, NE and Arikaree River near Haigler, NE for **Arsenic**

Walnut River Basin

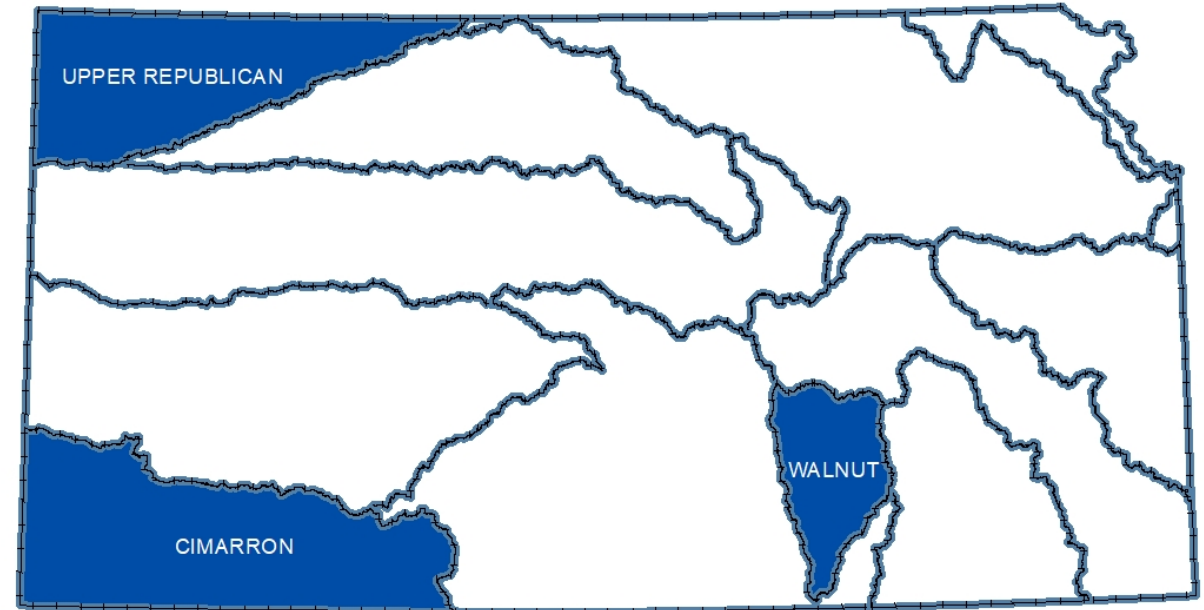
Two new delistings (Category 2)

- Eight Mile Creek near Douglas for **Atrazine & Dissolved Oxygen**

Cimarron River Basin

One new Category 3 listing

- Cimarron River near Forgan, OK for **Bacteria**



Solomon River Basin

Four new delistings (Category 2)

- Kirwin and Sheridan Co. State Fishing Lake for **Arsenic**
- Deer Creek near Kirwin for **Dissolved Oxygen**
- Bow Creek near Stockton for **Sulfate**

Two new Category 5 listings

- Bow Creek near Stockton for **Atrazine**
- Solomon River near Glasco for **Lead**

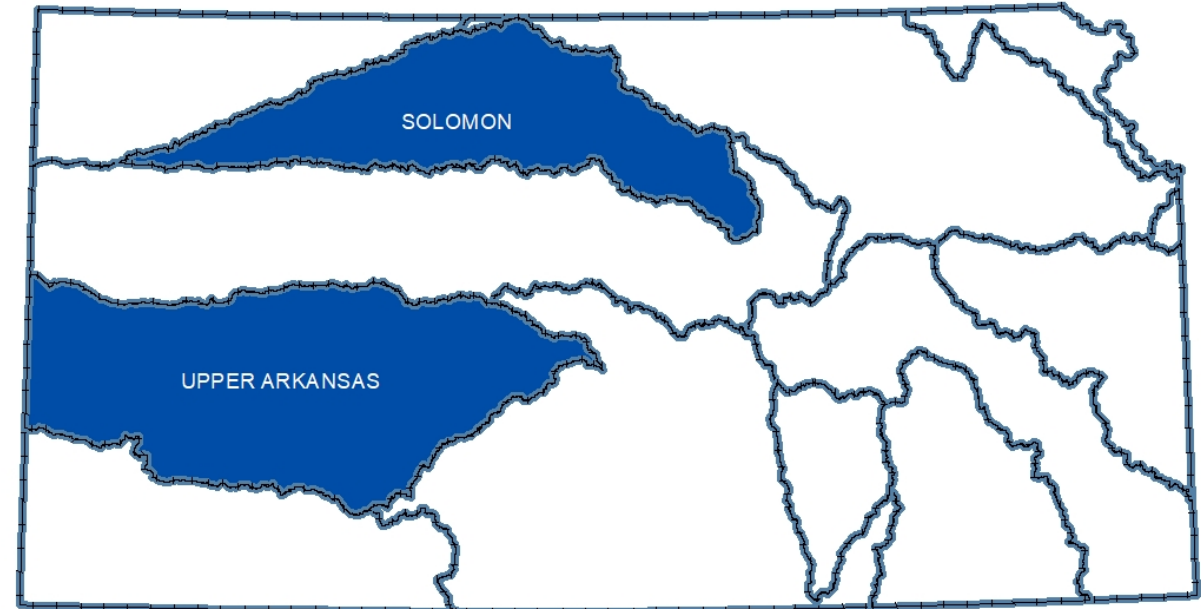
Upper Arkansas River Basins

Two new delistings (Category 2)

- Pawnee River near Larned and Burdett for **Copper**

Four new Category 5 listings

- Arkansas River near Kinsley and Ford for **Dissolved Oxygen**
- Arkansas River near Ford for **Gross Alpha**
- Arkansas River near Coolidge for **Total Suspended Solids**



Missouri River Basin

One new delisting (Category 2)

- Indian Creek near Leawood for **Nitrate**

Three new Category 5 listings

- S. Fork Nemaha River and Turkey Creek near Bern for **Lead**
- Walnut Creek near Reserve for **Arsenic**

Marais des Cygnes

Three new delistings (Category 2)

- Appanoose Creek near Richter for **Dissolved Oxygen** and **Lead**
- Drywood Creek near Garland for **Sulfate**

Two new Category 3 listings

- Melvern and Lebo City Lakes for **Eutrophication**

One new Category 5 listing

- Bone Creek Lake for **Eutrophication**

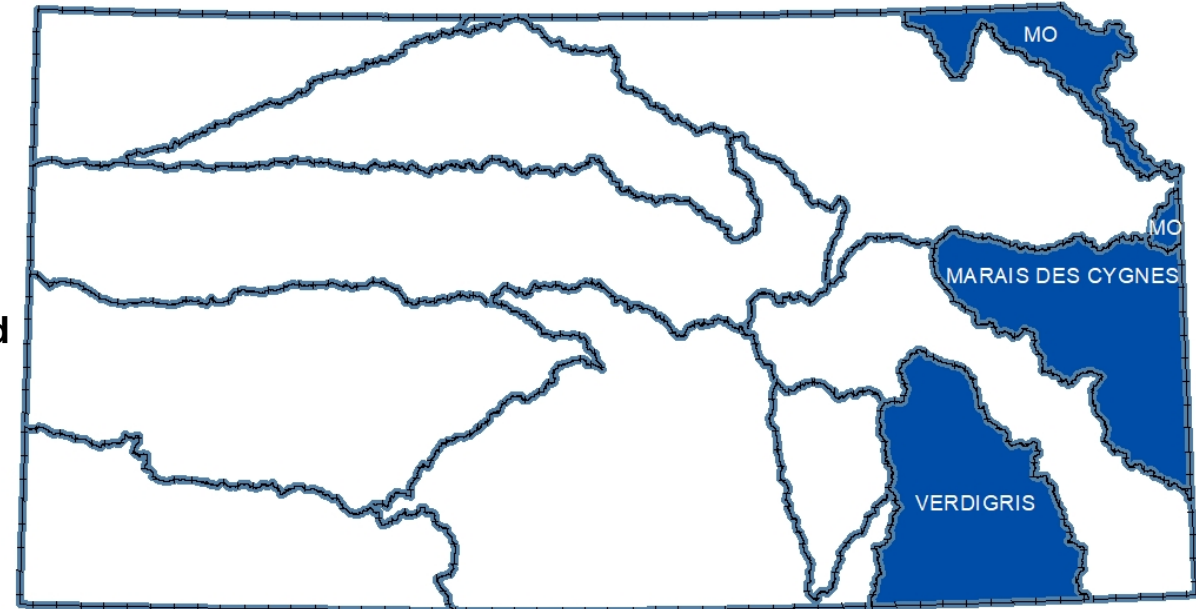
Verdigris

One new Category 3 listing

- Severy City Lake for **Eutrophication**

Three new Category 5 listings

- New Yates Center Lake for **Eutrophication**
- Verdigris River near Sycamore and Elk River near Elk City for **Lead**



Neosho River Basin

12 new delistings (Category 2)

- Deer Creek near Iola and Owl Creek near Humboldt for **Dissolved Oxygen**
- Mud Creek near Marion for **Sulfate**
- Spring River near Baxter Springs and Crestline, Shawnee Creek near Crestline, Owl Creek near Humboldt, and Neosho River near Parkerville for **Copper**
- Spring River near Crestline for **Lead**
- Shoal Creek near Galena, Spring River near Crestline, and Shawnee Creek near Crestline for **Zinc**

One new Category 3 listing

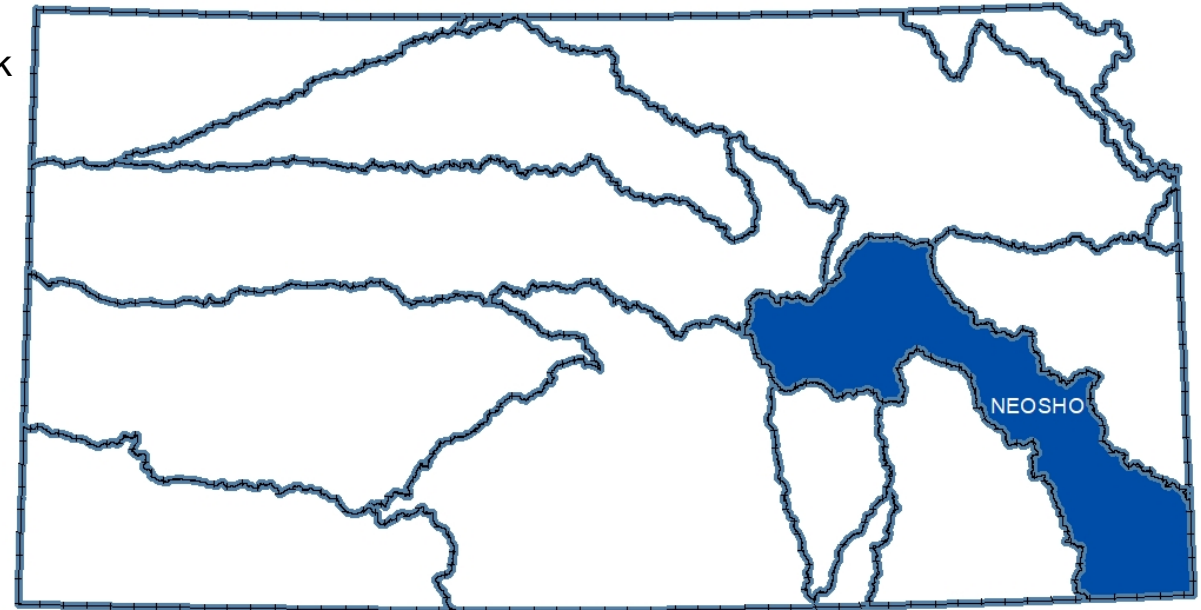
- Yates Center Reservoir for **Eutrophication**

Two new Category 4a listings

- Willow Creek near Baxter Springs for **Copper** (new monitoring site to approved TMDL)
- Neosho River near Chetopa for **Total Phosphorus** (correction: added monitoring site to approved TMDL)

Three new Category 5 listings

- Neosho River at Neosho Rapids for **Lead**
- North Cottonwood River near Durham for **Total Phosphorus**
- Flat Rock Creek near St. Paul for **Atrazine**



Smoky Hill – Saline River Basin

Six new delistings (Category 2)

- Lake Scott, Smoky Hill River near Russell and Enterprise, for **Arsenic**
- Gypsum Creek near Solomon for **Atrazine**
- Smoky Hill River near Salina for **Nitrate**
- Smoky Hill River near Trego for **Dissolved Oxygen**

One new Category 3 listing

- Smoky Hill River near Trego for **Chromium**

Seven new Category 4a listings

- Smoky Hill River at Salina, Enterprise, and Junction City, Saline River near New Cambria, Mulberry Creek near Salina, Mud Creek near Abilene, and Sharps Creek near Freemount for **Total Phosphorus**

Five new Category 5 listings

- Saline River near Beverly, Mulberry Creek near Salina and Landon Creek near Russel for **Lead**
- Smoky Hill River near **Arsenic**
- Big Creek near Russel for **Chloride**



Lower Arkansas River Basin

Nine new delistings (Category 2)

- Cow Creek near Willowbrook for **Arsenic**
- Cow Creek near Willowbrook, Arkansas River near Ark City, Slate Creek near Wellington, Black Kettle near Halstead, Cowskin Creek at Wichita for **Atrazine**
- Little Cow Creek near Lyons for **Nitrate**
- North Fork Ninnescah River near Castleton for **pH**
- Sandy Creek near Ruella for **Temperature**

One new Category 3 listing

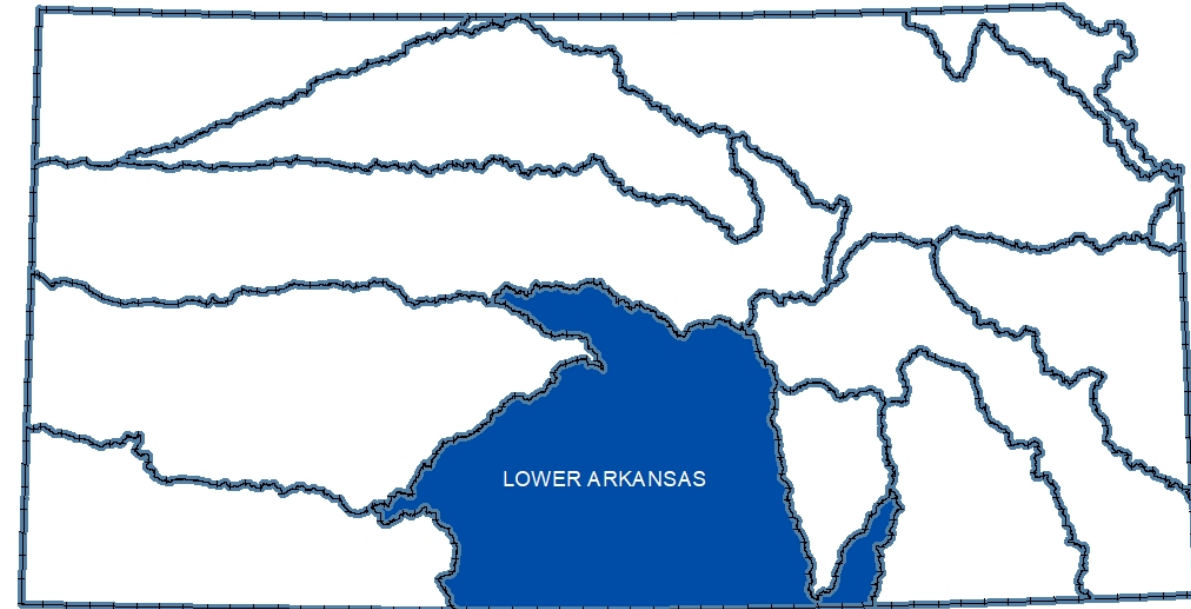
- Little Mule Creek near Kiowa for **Arsenic**

13 new Category 4a listings

- Arkansas River at Derby for **Nitrate**
- Arkansas River at Oxford and Arkansas City for **pH**
- Arkansas River from Hutchinson to Arkansas City for **Total Phosphorus**
- Arkansas River at Wichita for **Chloride** (added new monitoring station to existing TMDL)

Two new Category 5 listings

- Quivira Big Salt Marsh for **Ammonia**
- Wellington New City Lake for **Eutrophication**



Kansas Lower Republican River Basin

Eight new delistings (Category 2)

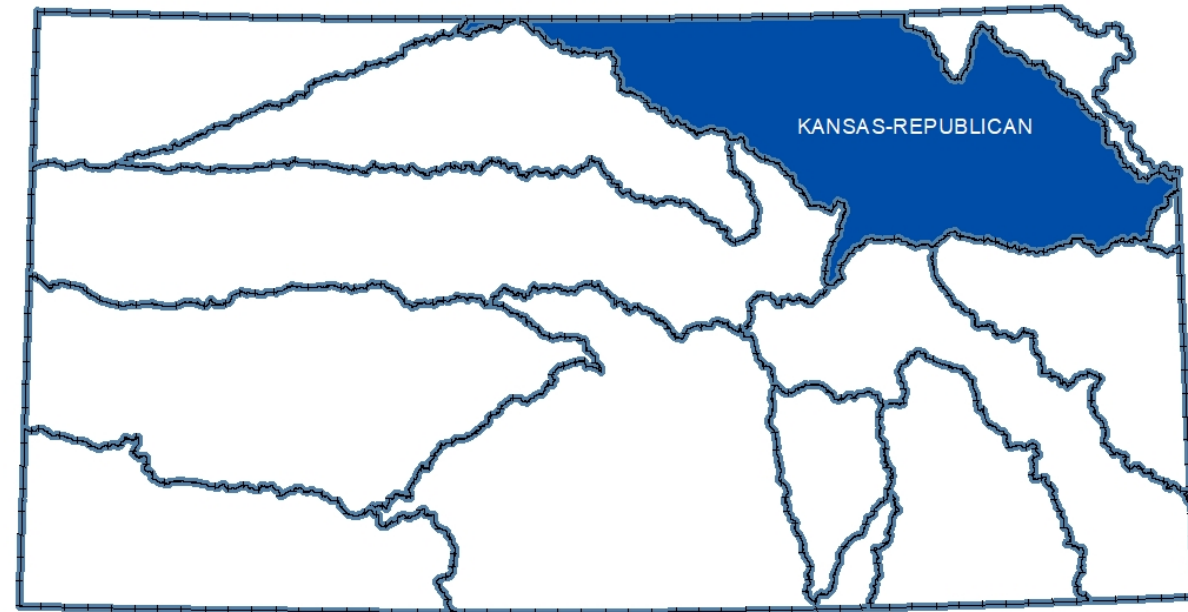
- Tuttle Creek Lake for **Alachlor**
- Soldier Creek near Topeka and Kansas River at KC for **Atrazine**
- Little Blue River near Hollenberg and Stranger Creek near Easton for **Copper**
- Stranger Creek near Easton and Nine Mile Creek near Linwood for **Lead**
- Black Vermillion River near Frankfort for **Total Suspended Solids**

13 new Category 4a listings

- Kansas River near Ogden for **Chloride** (back to 4a after being delisted)
- Republican River from Nebraska state line to Milford Reservoir, Buffalo Creek, Crooked Creek near Winchester, Elm Creek, Five Creek, Mulberry Creek, Peats Creek, Salt Creek, Stranger Creek near Easton, and Wolf Creek for **Total Phosphorus**

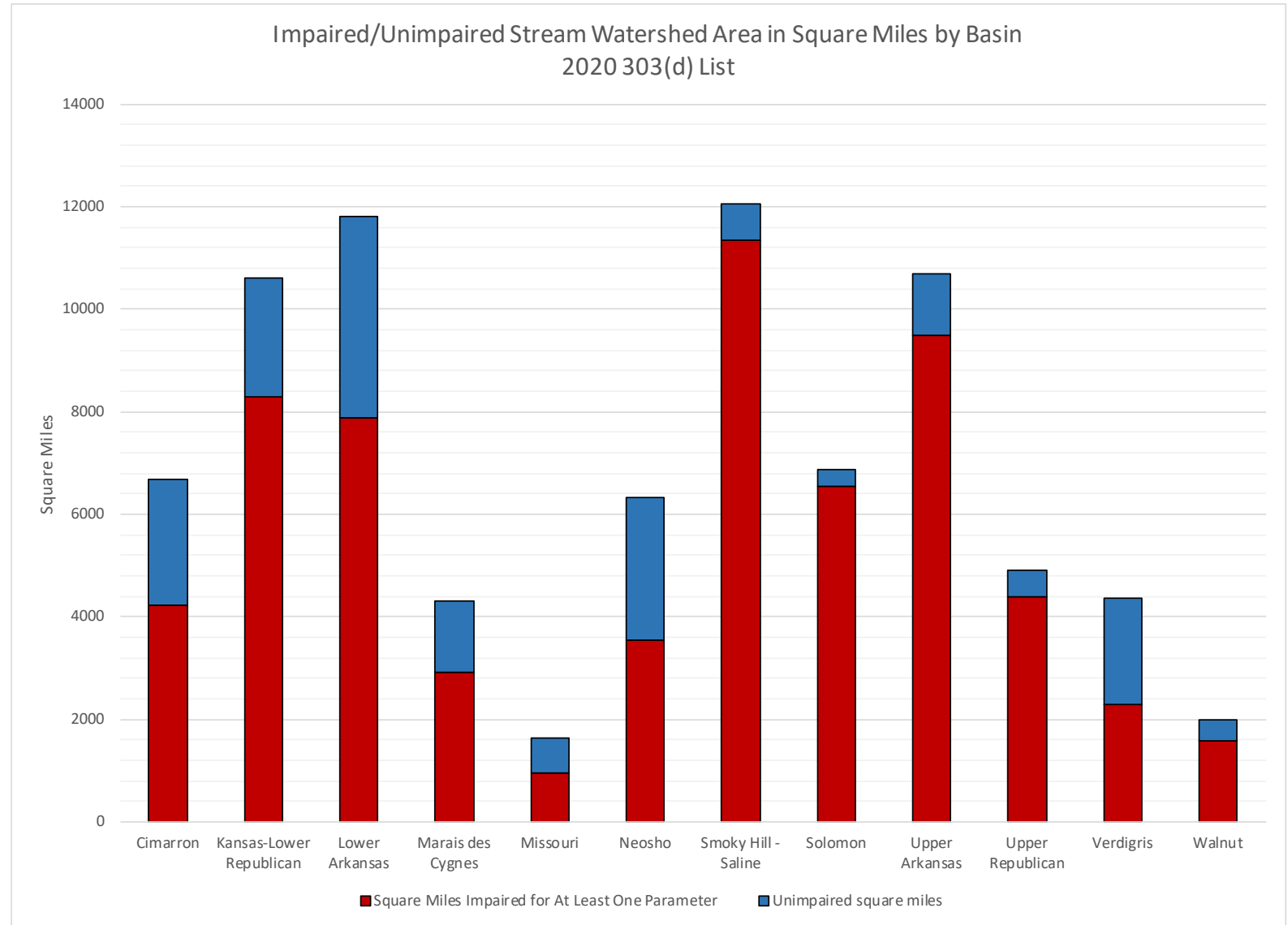
15 new Category 5 listings

- Antioch Park Lake for **DDT, Dieldrin, Heptachlor Epoxide** in fish tissue
- Lost Creek near Belvue for **Chloride**
- Big Blue River near Blue Rapids and Oketo, Black Vermillion River near Frankfort, Elm Creek near Ames, Little Blue River near Waterville, Mil Creek, Mulberry Creek, Peats Creek, Rose Creek, Buffalo Creek near Concordia and Republican River near Rice for **Lead**



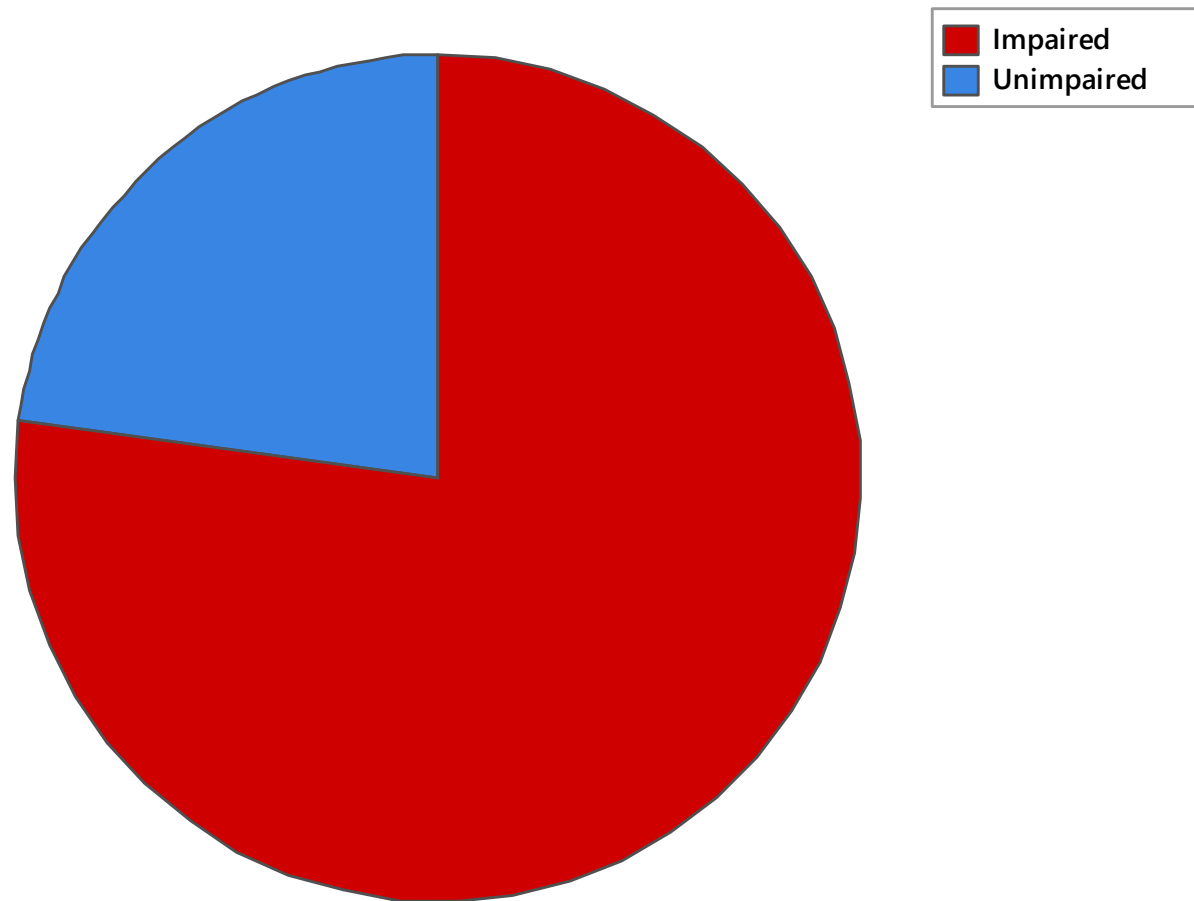
2020 303(d) List: Impaired/Unimpaired Watershed Area

- Impaired means the watershed is impaired for at least one pollutant
- Watershed boundaries are defined by the location of KDHE Stream Chemistry Monitoring Stations



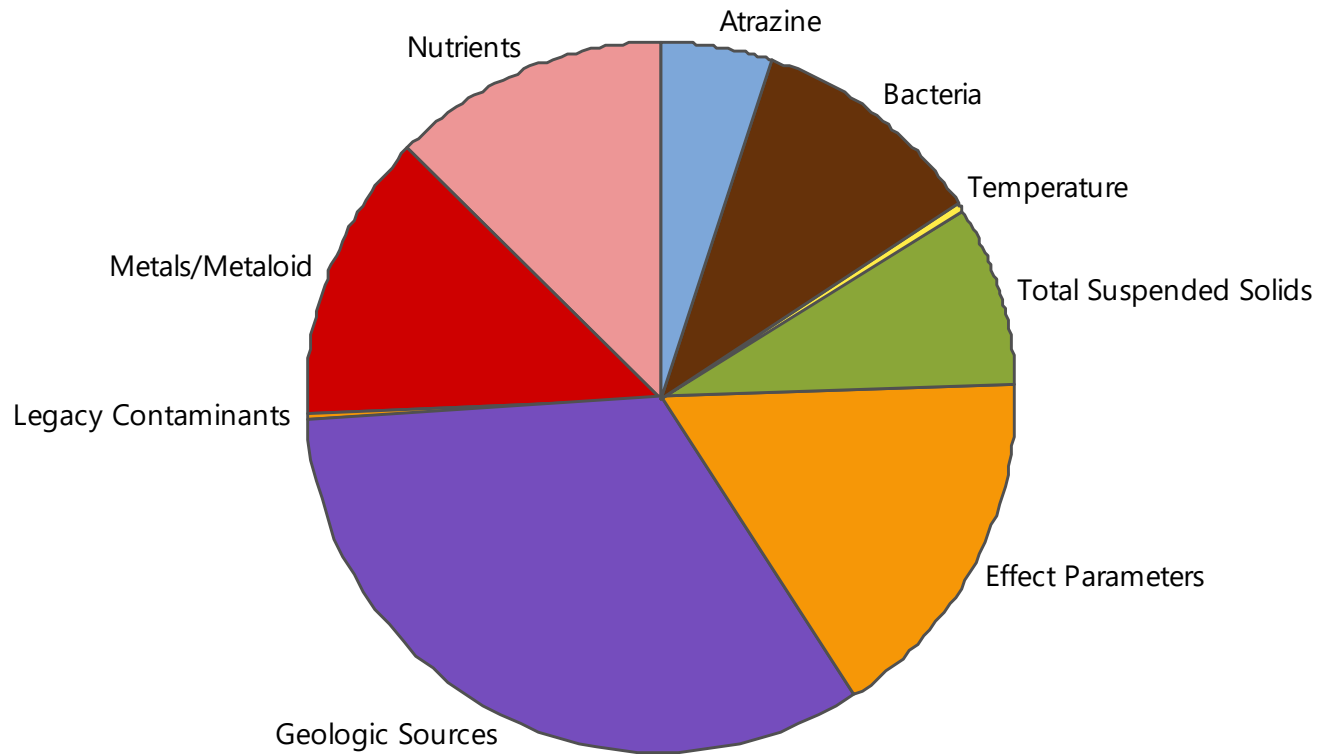
2020 303(d) List: Impaired/Unimpaired Watershed Area

Split of Impaired and Unimpaired Waters in Kansas



2020 303(d) List: Statewide Impairment Split

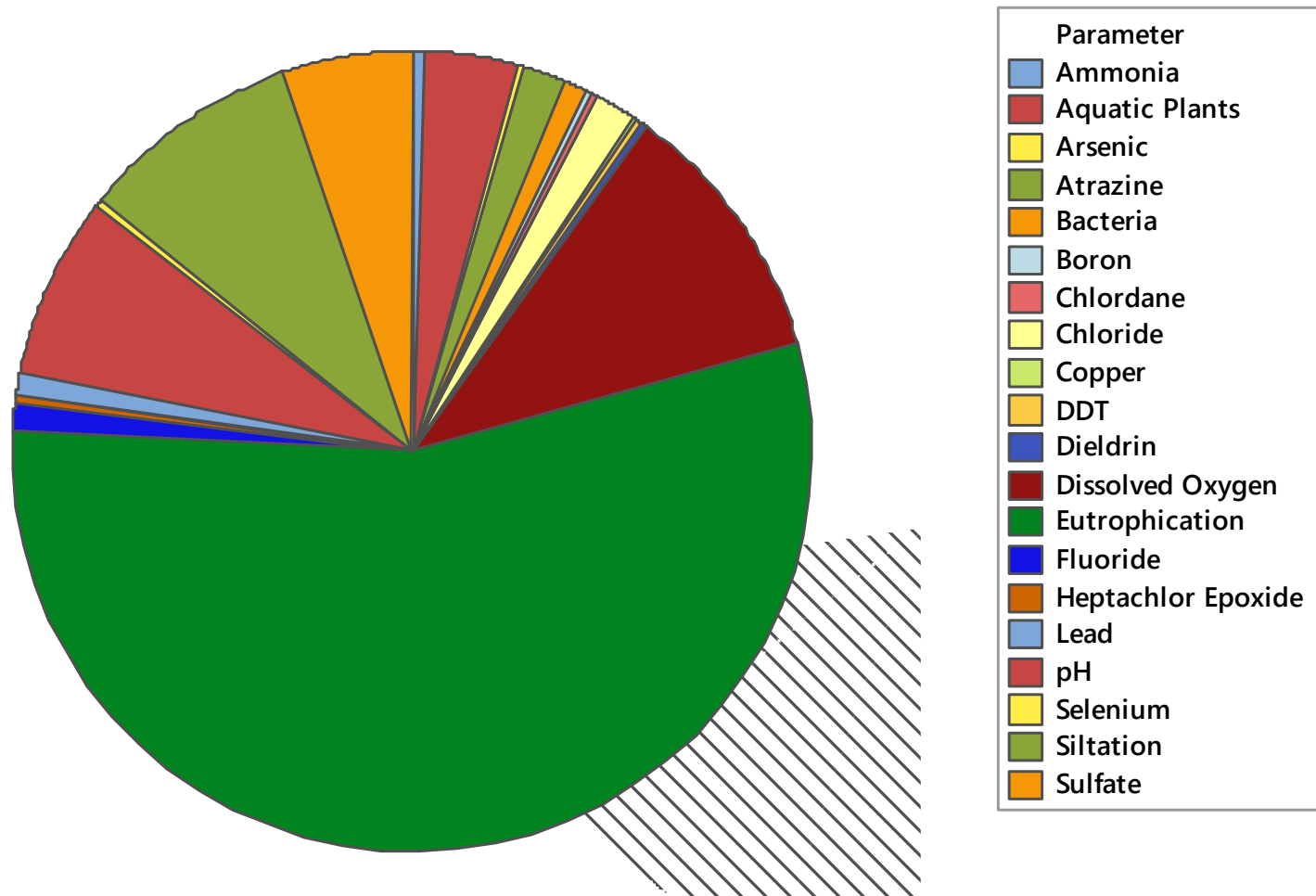
Split of Impairments in Kansas Stream Watersheds



Parameter Grouping	Parameters
Atrazine	Atrazine
Bacteria	Bacteria
Effect Parameters	Biology, Dissolved Oxygen, pH
Geologic Sources	Chloride, Fluoride, Gross Alpha, Selenium, Sulfate
Legacy Contaminants	Diazinon, PCB
Metals	Arsenic, Boron, Cadmium, Copper, Lead, Mercury, Zinc
Nutrients	Nitrate, Total Phosphorus
Temperature	Temperature
Total Suspended Solids	Total Suspended Solids

2020 303(d) List: Impairment Split by Basin

Split of Impairments in Kansas Lakes



Questions?

Approved 2020 303(d) List and its Methodology is available here:

<http://www.kdheks.gov/tmdl/methodology.htm>

Please contact Michelle Probasco with Questions

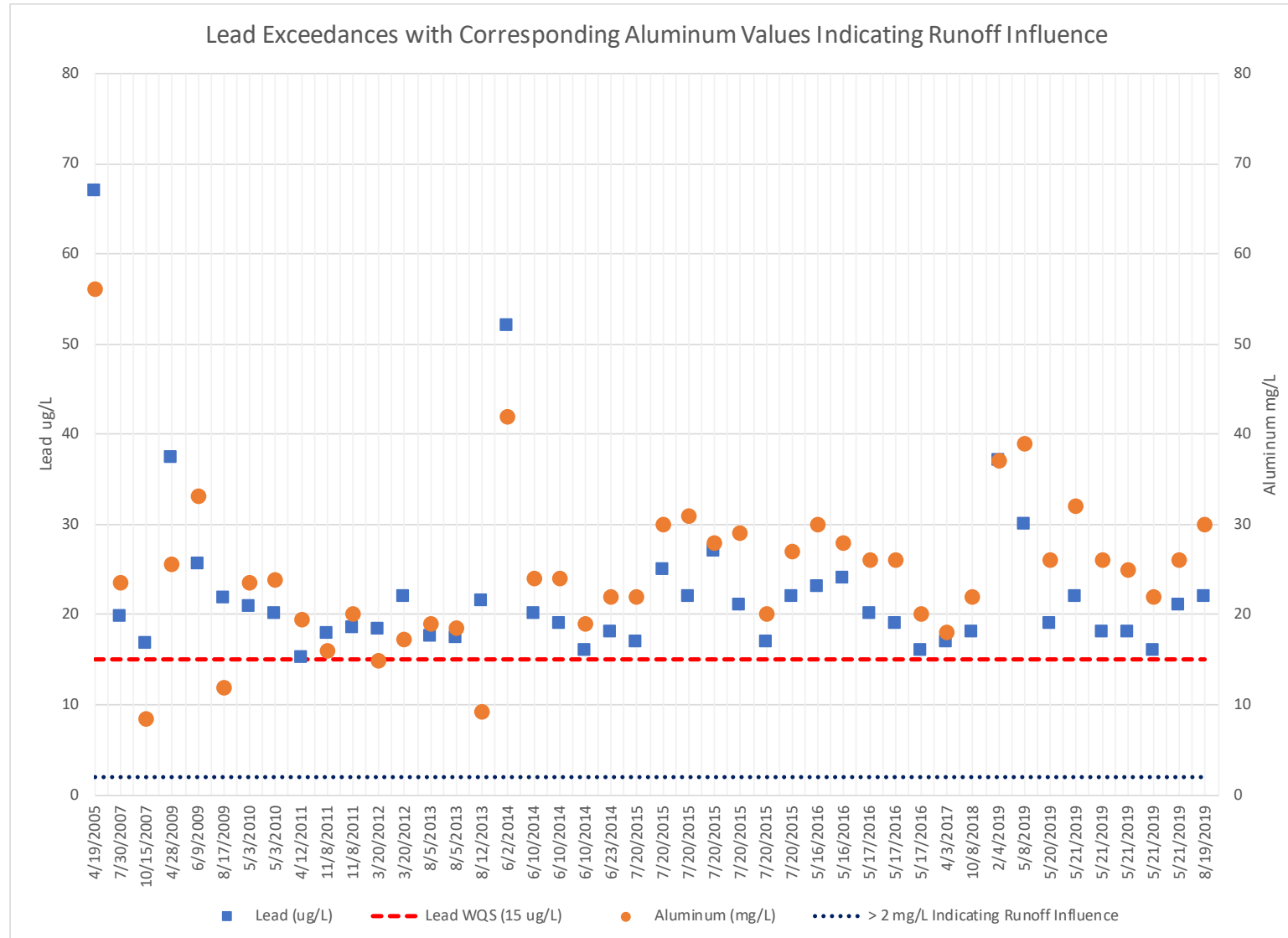
785-296-8229

michelle.probasco@ks.gov

New Category 5 Lead Listings

- Greater than 1 exceedance above the domestic water supply criteria of 15 $\mu\text{g/L}$ over the last 10 years of sampling = Impaired
- There are 44 total exceedances for the 20 new Category 5 waters
- Sample aluminum values indicate exceedances are due to influence from runoff/high flow events
- Samples are analyzed for Total Lead where sediment/soil bound lead is put into solution and measured versus just measuring Dissolved Lead

2020 303(d) List



2020 TMDL Development Schedule

HUC 8 Subbasin	Stream Chemistry Station	Stream Assessment Unit	Parameter
11030012 Little Arkansas	SC246	Little Arkansas River At Alta Mills	Total Phosphorus
	SC282	Little Arkansas River At Valley Center	Total Phosphorus
	SC534	Emma Creek Near Sedgwick	Total Phosphorus
	SC703	Kisiwa Creek Near Halstead	Total Phosphorus
	SC705	Black Kettle Creek Near Halstead	Total Phosphorus
110300013 Middle Arkansas - Slate	SC730	Cowskin Creek At Wichita	Total Phosphorus
	SC702	Cowskin Creek Near Belle Plaine	Total Phosphorus
	SC288	Cowskin Creek in Wichita-Valley Center Floodway	Total Phosphorus
	SC528	Slate Creek Near Wellington	Total Phosphorus

2021 TMDL Development Schedule

HUC 8 Subbasin	Stream Chemistry Station	Stream Assessment Unit	Parameter
10250017 Lower Republican	SB503	Republican River Near Clay Center	Biological Condition
10260008 Lower Smoky Hill	SC264	Smoky Hill River near Junction City	Biological Condition
10270103 Delaware	SC554	Delaware River near Half Mound	Biological Condition
10270205 Lower Big Blue	SB475	Horseshoe Creek	Biological Condition
	SB476	Spring Creek	Biological Condition
	SC128	North Fork Black Vermillion River near Vliets	Biological Condition
	SC233	Blue River near Oketo	Biological Condition
	SC505	Black Vermillion River Near Frankfort	Biological Condition
10270207 Lower Little Blue	SC232	Little Blue River Near Hollenberg	Biological Condition