Nebraska Department of Environmental Quality

Nebraska Surface Water Council

How Water Quality Data is used for Planning

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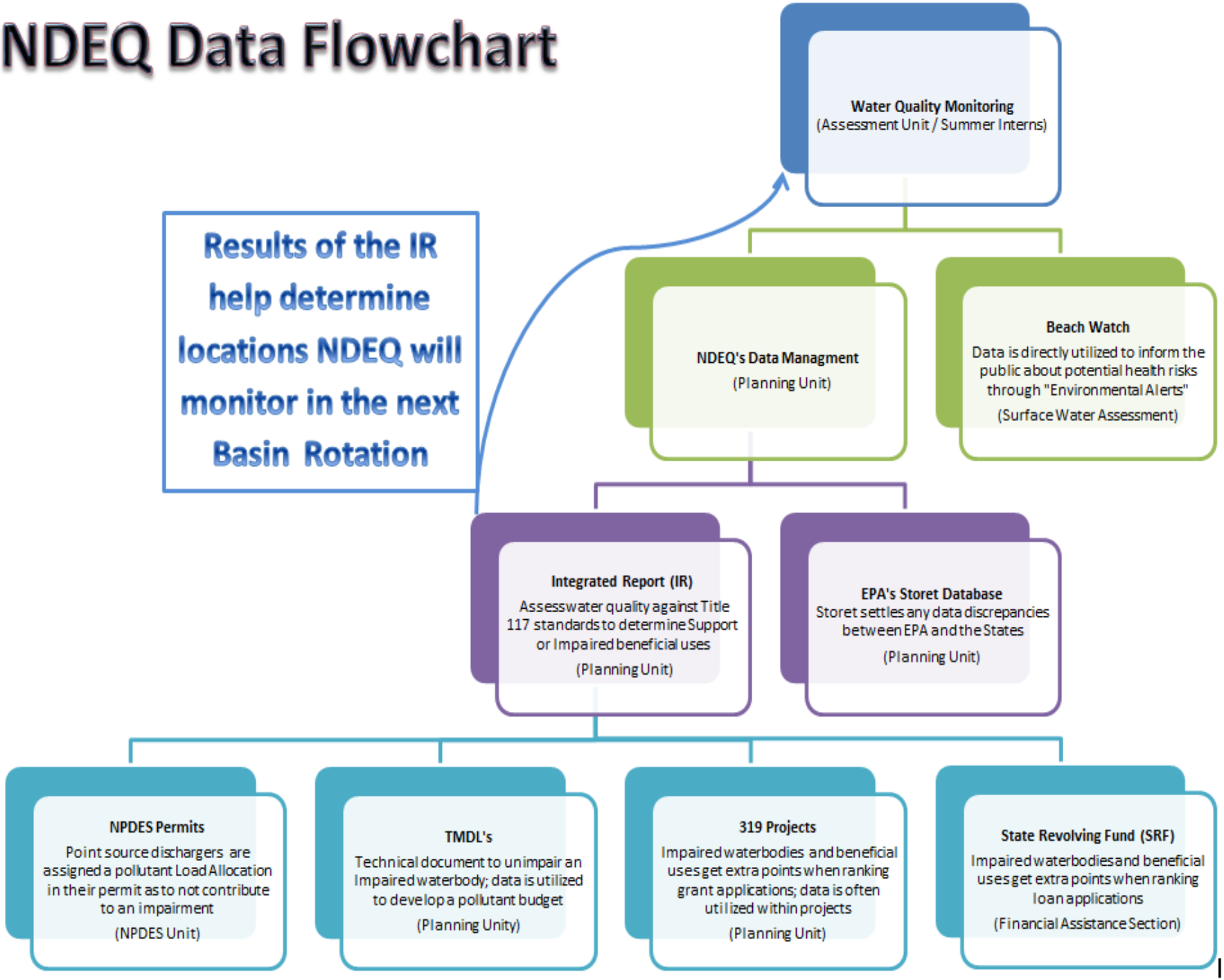
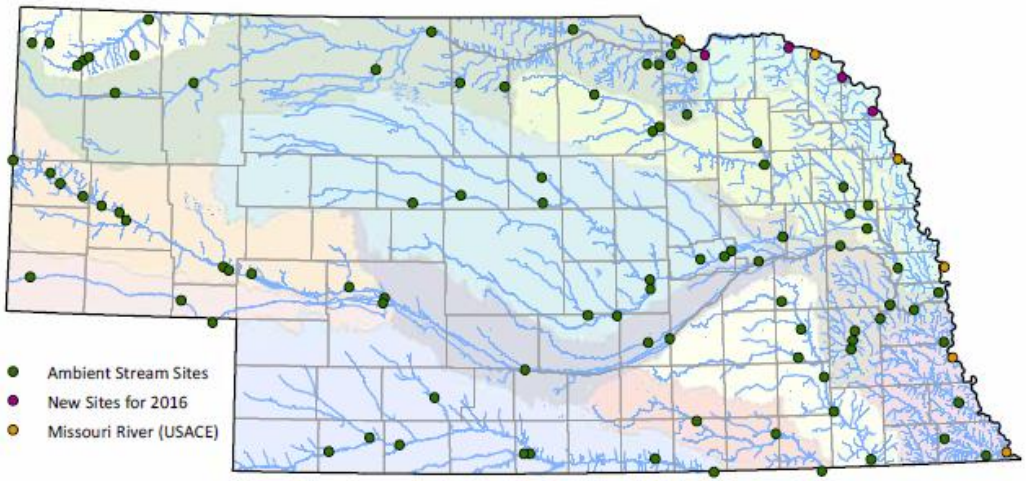
Why monitor water quality?

- **Clean Water Act Section 305 (b) directs states to report every two years the status and trends of water quality.**

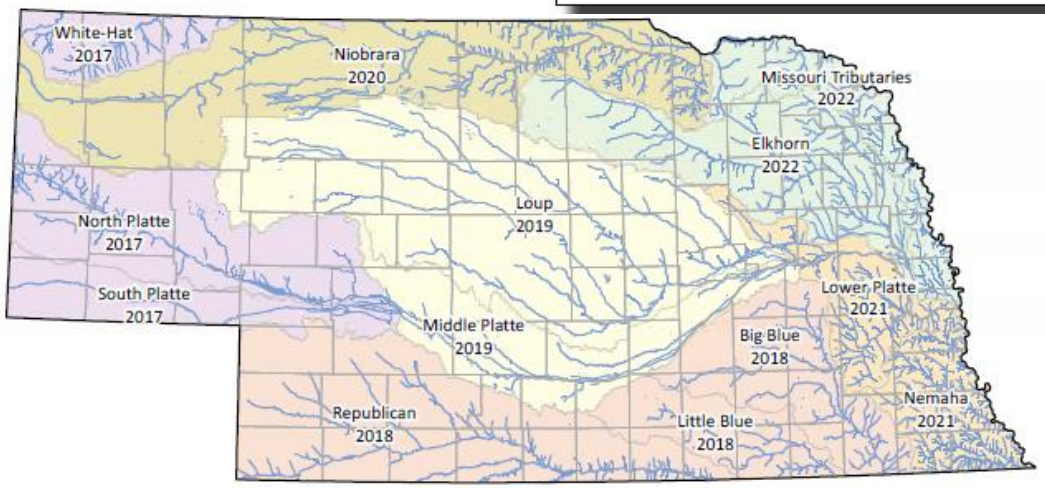
NDEQ Data Flowchart



Surface Water Quality Monitoring



Locations of Ambient Stream Monitoring Program sites.



NDEQ six-year basin rotation monitoring schedule

Preparing algae samples for microcystin analysis.

Water Quality Assessments

T117

- Title 117: Nebraska Surface Water Quality Standards
  - Assigns designated uses and standards to waters

Methods

- Methodologies for Waterbody Assessments
  - Defines what data can be used and how to assess it

Monitoring

- Surface Water Monitoring (Many Partners)
  - Monitors for designated uses according to methods

IR

- Water Quality Integrated Report
  - Describes the status and trends of water quality

Title 117: Nebraska Surface Water Quality Standards

RIVER BASIN: Little Blue

Subbasin: LB1

STREAM SEGMENT	SEGMENT NUMBER	USE CLASSIFICATION									
		STATE RESOURCE WATER	RECREATION	AQUATIC LIFE		WATER SUPPLY			AESTHETICS	KEY SPECIES	COMMENTS
				COLDWATER	WARMWATER	PUBLIC DRINKING WATER	AGRICULTURAL	INDUSTRIAL			
Little Blue River - Big Sandy Creek to Nebraska-Kansas border (Sec 31-1N-4E)	10000		●		A	●	A		●	i,j	
Coon Creek	10100				A		A		●	10,i	Sensitive Species
Rock Creek	10200		●		A		A		●	10	Sensitive Species
Smith Creek	10300				B		A		●		
Rose Creek - Buckley Creek to Little Blue River	10400				A		A		●	i,j	
Dry Branch	10410				A		A		●	10	Sensitive Species

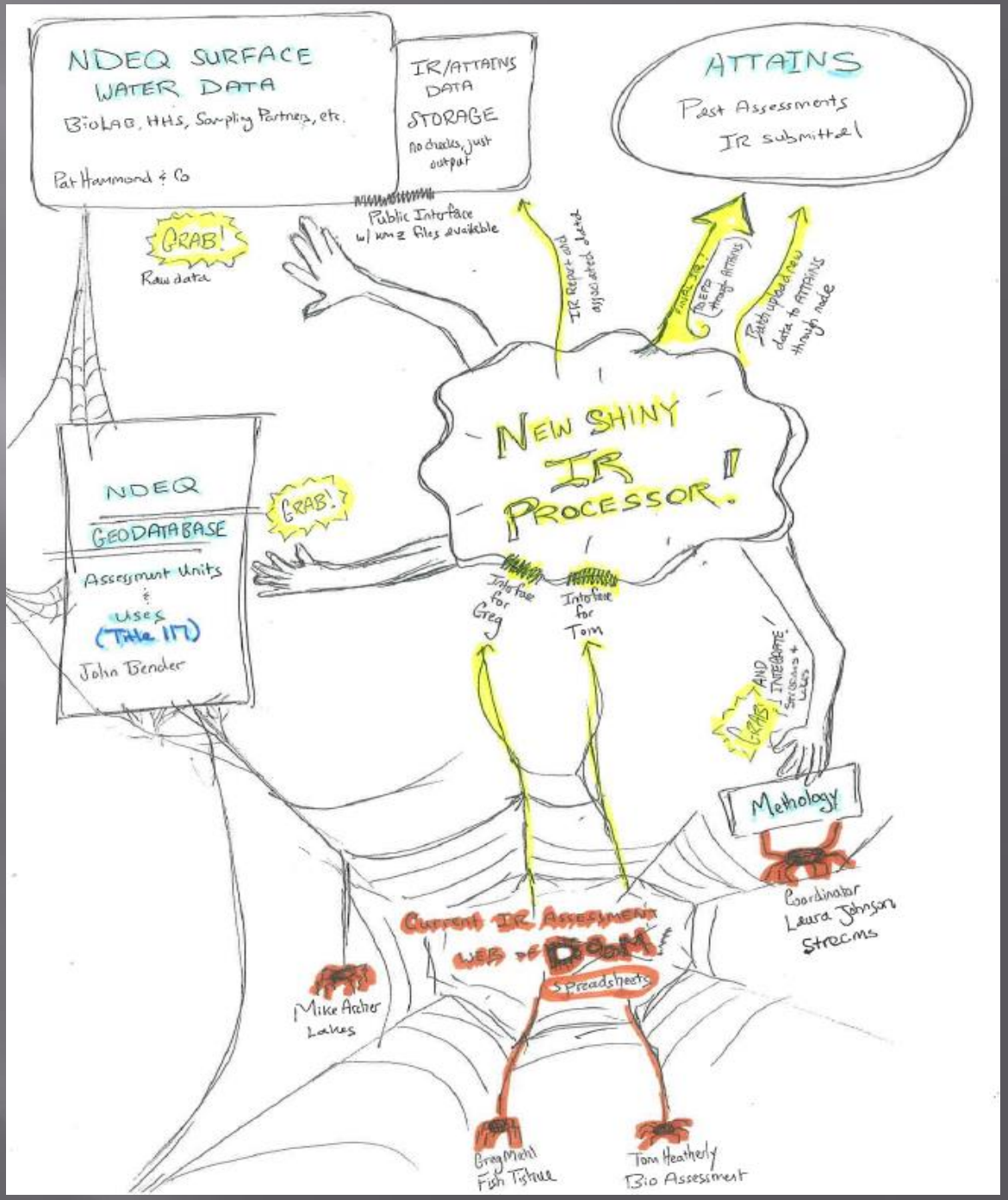
Methodologies for Waterbody Assessments

	A	B	C	N	O	P	Q	R	S	T	U	V	W	X
1	Segment	STATION #	DATE	Conductivity	Rmk-Con	Q	Rmk-Q	Atrazine	Rmk-At	Assessment Atrazine	Seasonal Atrazine	Metolachlor	Rmk-Me	E. coli
2		N		174		171					40	110		21
3		Acute Criteria		2000		0.1					330	760		
4		Exceed Acute		0		0					0	0		
5		Chronic Criteria									12	76		126
6		Exceed Chronic									8	0		97
7		**Impaired Value**		**24**							**7**	**16**		
8		**Impaired?**		**No**							**Yes**	**No**		**No**
9		Max									49.77	31.46		
10		Hardness												
11		***Drinking Water Assessment***												
12		N								110				
13		Criteria								3				
14		# Exceed Criteria								24				
15		**Impaired Value**								**16**				
16		**Impaired?**								**Yes**				
85	LB1-10000	SLB1LBLUE000	5/12/16	318		918.00		31.99		31.99	31.99	13.02		
86	LB1-10000	SLB1LBLUE000	6/7/16	541		375.00		2.35		2.35	2.35	1.93		
87	LB1-10000	SLB1LBLUE000	7/7/16	445		100.00		2.40		2.40		1.15		
88	LB1-10000	SLB1LBLUE000	8/3/16	515		115.00		0.10	U	0.05		0.43		
89	LB1-10000	SLB1LBLUE000	9/5/16	312		275.00		0.63		0.63		1.16		
90	LB1-10000	SLB1LBLUE000	10/17/16	566		111.00								
91	LB1-10000	SLB1LBLUE000	11/8/16	593		98.00								
92	LB1-10000	SLB1LBLUE000	12/8/16	618		112.00								

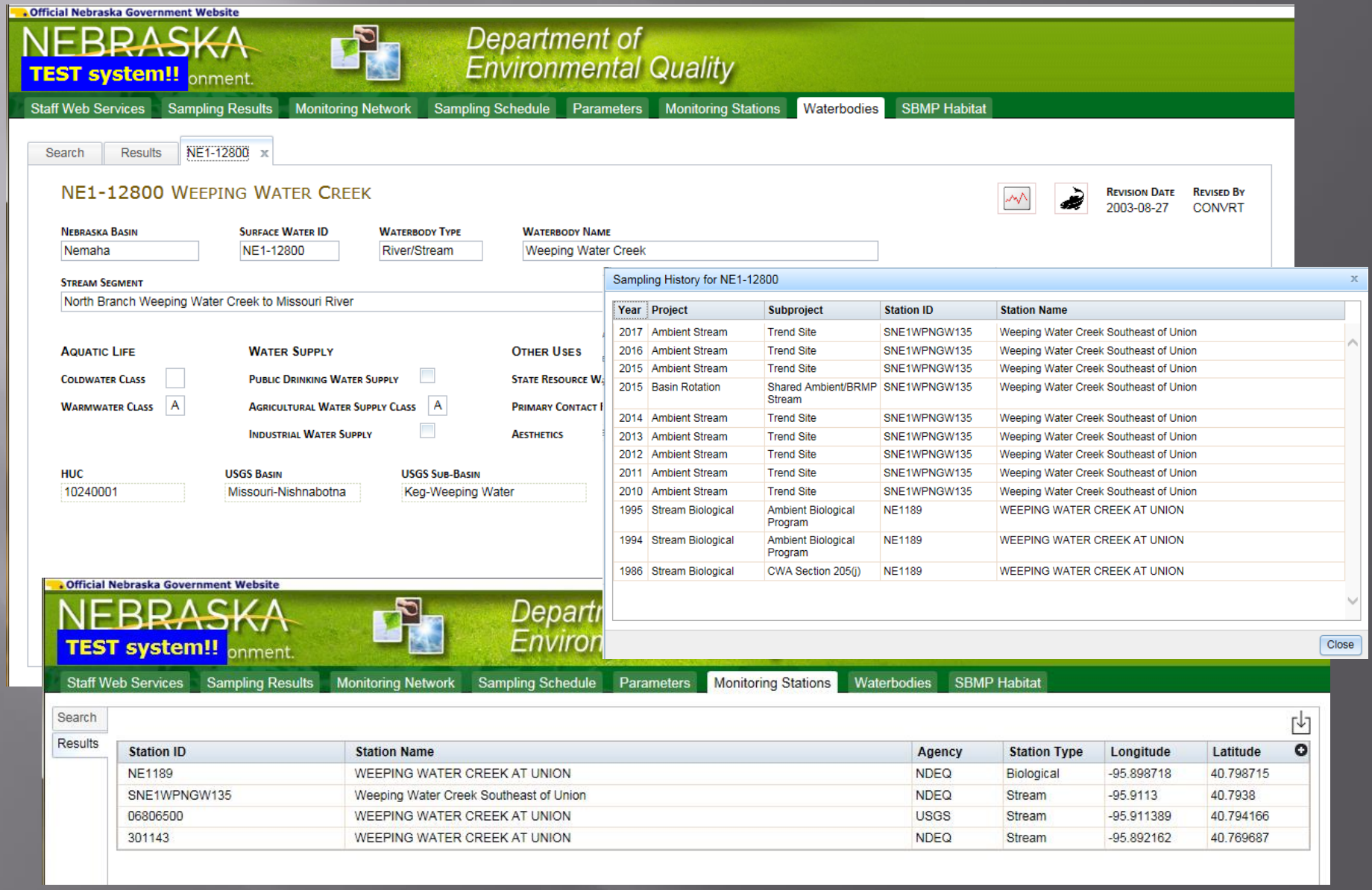
Table 4: Assessment of the Aquatic Life Beneficial Use Using Chemical Water Quality Data.

Method	Supported	Impaired
Binomial Distribution	≤10% of samples exceed acute or chronic water quality criteria	>10% of samples exceed acute or chronic water quality criteria

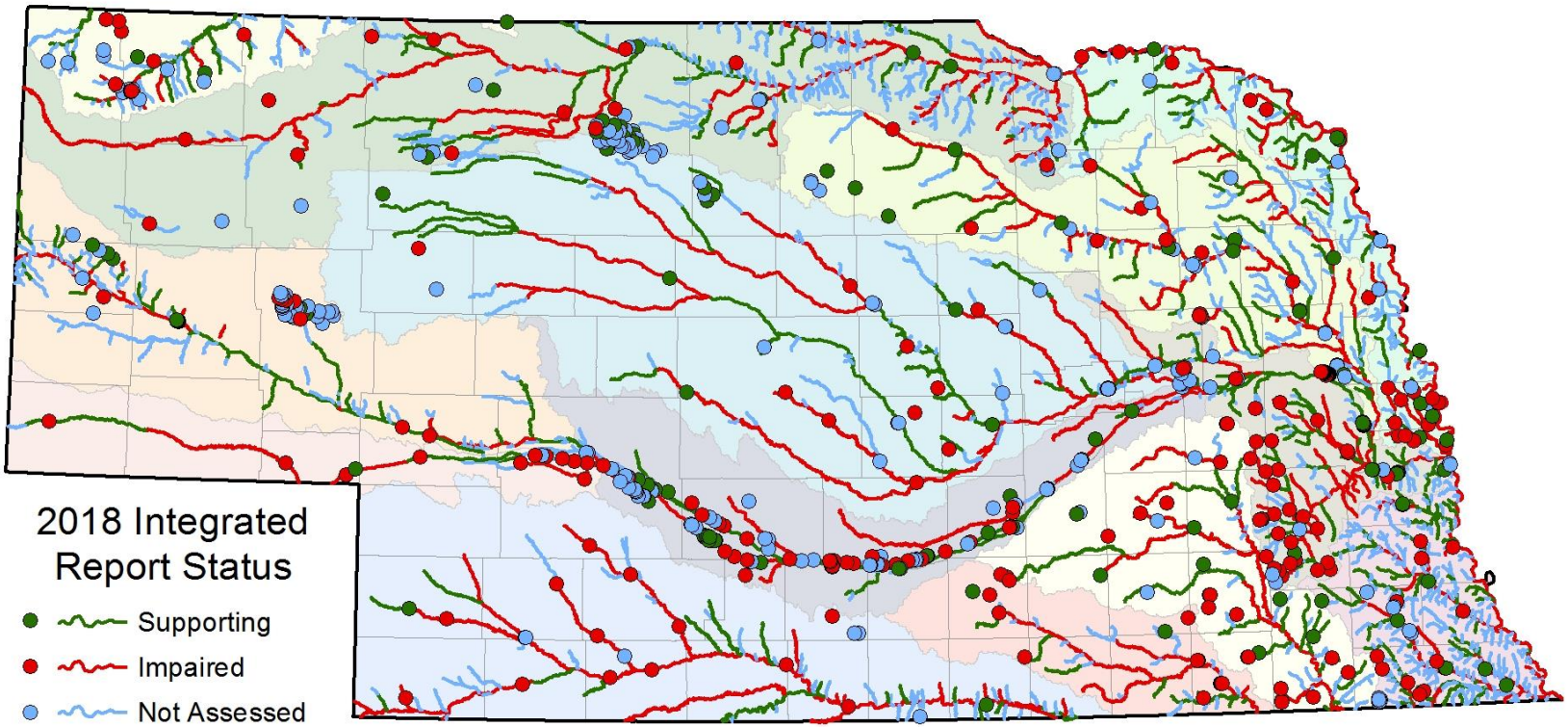
NDEQ's Internal Water Quality Data Software of the future…



IR Processor Software



Surface Water Quality Integrated Report



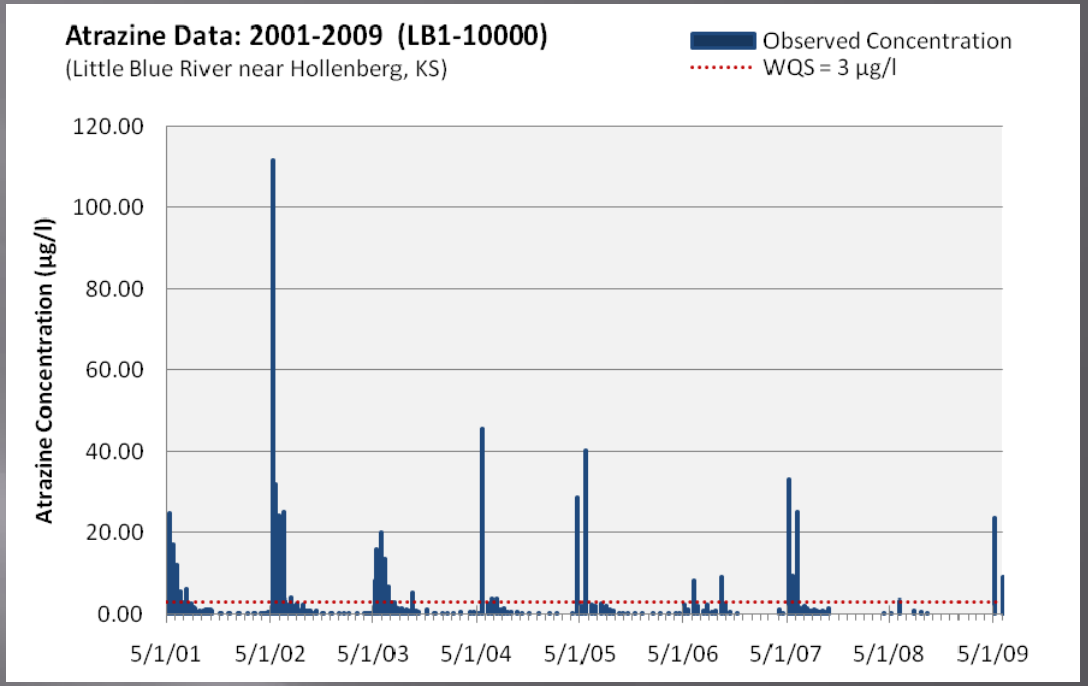
http://deq.ne.gov/publica.nsf/pages/wat251

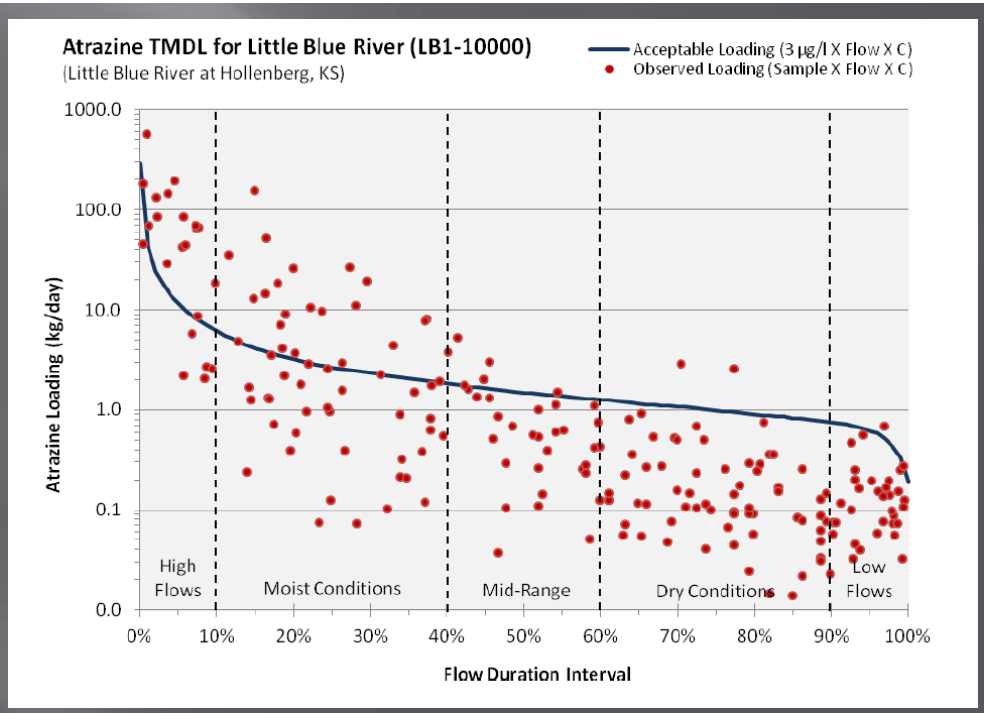
IR Results (Little Blue Basin)

Waterbody ID	Waterbody Name	Recreation	Aquatic Life	Public Drinking Water Supply	Agriculture Water Supply	Industrial Water Supply	Aesthetics	Overall Assessment	2018 IR	Impairments (Causes)	Comments/Actions
LB2-L0040	Bruning Dam Lake	NA	S		S		S	S	2		
LB2-L0050	Liberty Cove Lake	S	I		S		S	I	5	Aquatic Life - Fish Consumption Advisory (Hazard Index Compounds*, Mercury), Chlorophyll α, pH (Total Nitrogen, Total Phosphorus)	Fish Consumption Assessment completed
LB2-L0070	Crystal Lake (SRA)	S	I		S		S	I	5	Aquatic Life - Chlorophyll α, pH, Dissolved Oxygen (Total Nitrogen, Total Phosphorus)	
LB2-L0080	Prairie Lake (32-Mile H)	NA	I		S		S	I	5	Aquatic Life - pH (Unknown)	TN and TP are Not Assessed, Fish Consumption Assessment completed
LB2-L0090	Roseland (32-Mile D)	NA	S		S		S	S	2		
Streams											
LB1-10000	Little Blue River	S	I	I	S		S	I	4a	Aquatic Life (May-June Atrazine), Public Drinking Water Supply (Atrazine)	Atrazine & E. coli TMDLs approved 2/13, Aquatic Community Assessment completed, Fish Consumption Assessment completed
LB1-10100	Coon Creek		S		NA		S	S	2		Aquatic Community Assessment completed
LB1-10200	Rock Creek	I	S		S		S	I	4a	Recreation (*E. coli*)	E. coli TMDL approved 2/13, Aquatic Community Assessment completed

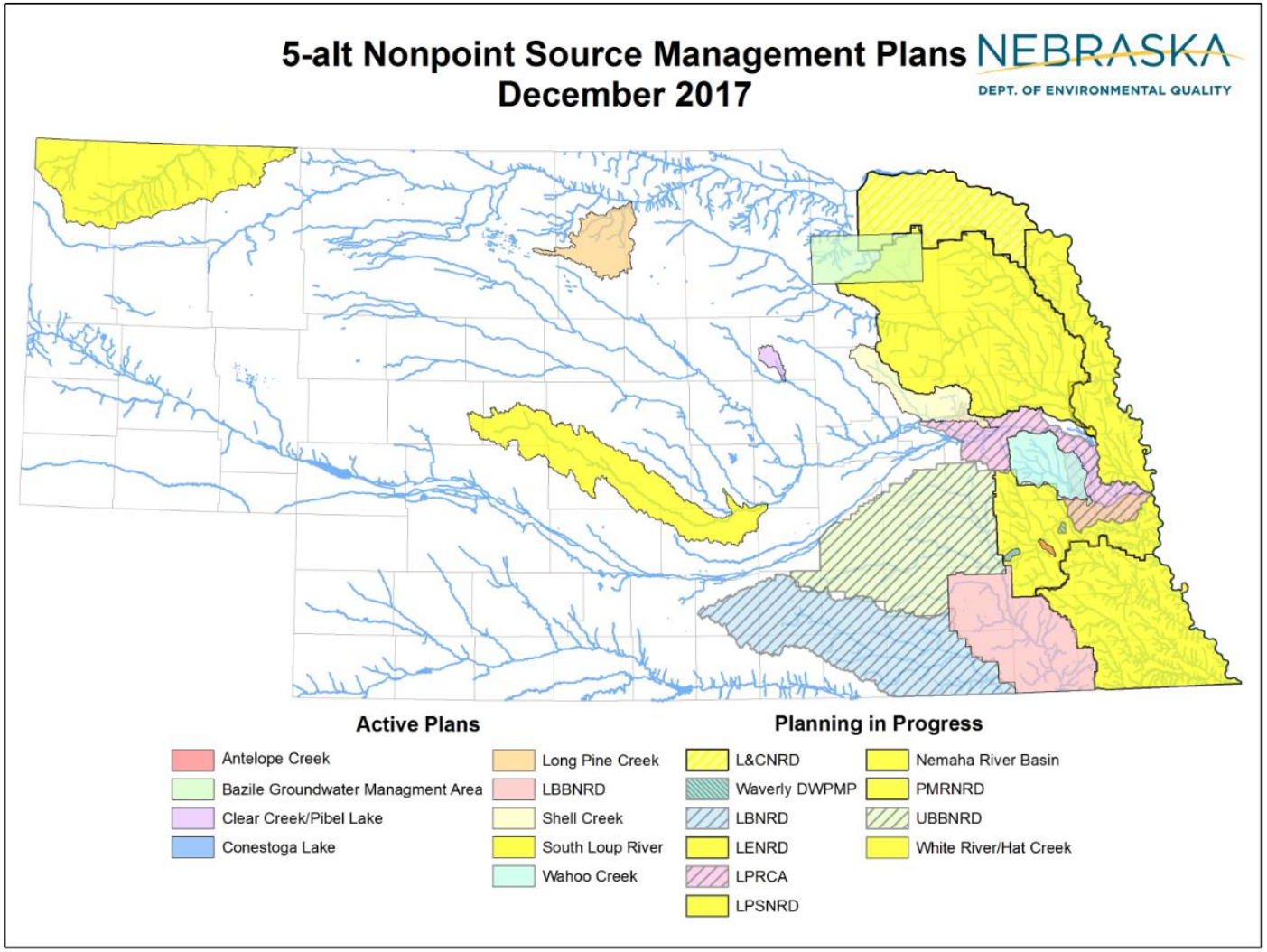
Total Maximum Daily Load (TMDL)

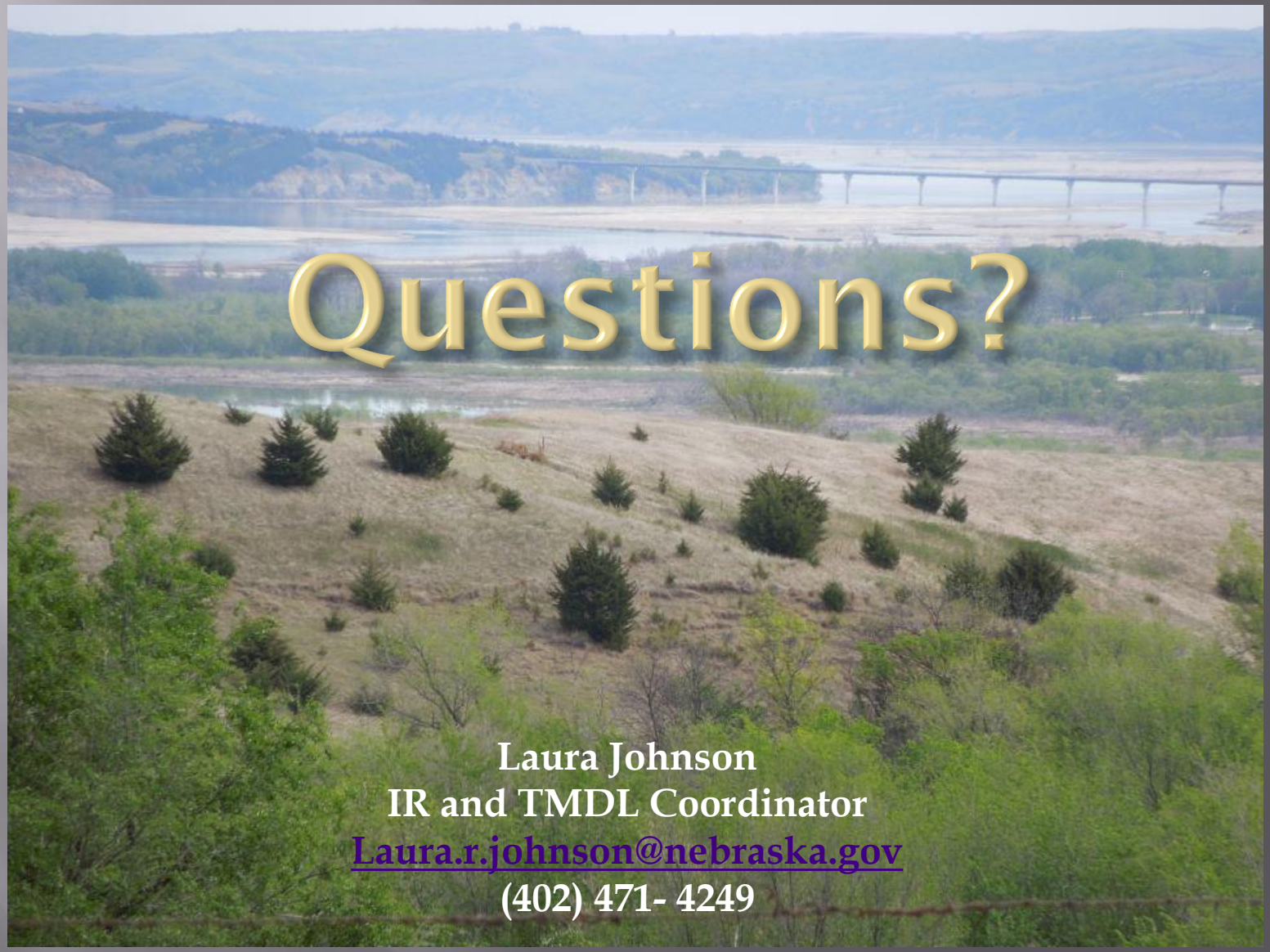
- CWA Section 303(d) requires states to identify and establish a priority ranking for all waters not supporting it's designated uses.
- A TMDL determines the pollutant load reduction needed in order to support the impaired use yet is only enforceable for point sources.
- 5-alt is an informational only TMDL for non-point sources of pollution being addressed in Watershed Management Plans.





NDEQ Funded Watershed Management Plans





The confluence of the Niobrara and Missouri Rivers in Knox County