

Relative Risk Model Updates

Former DuPont Waynesboro Site, Virginia

Area of Concern (AOC) 4

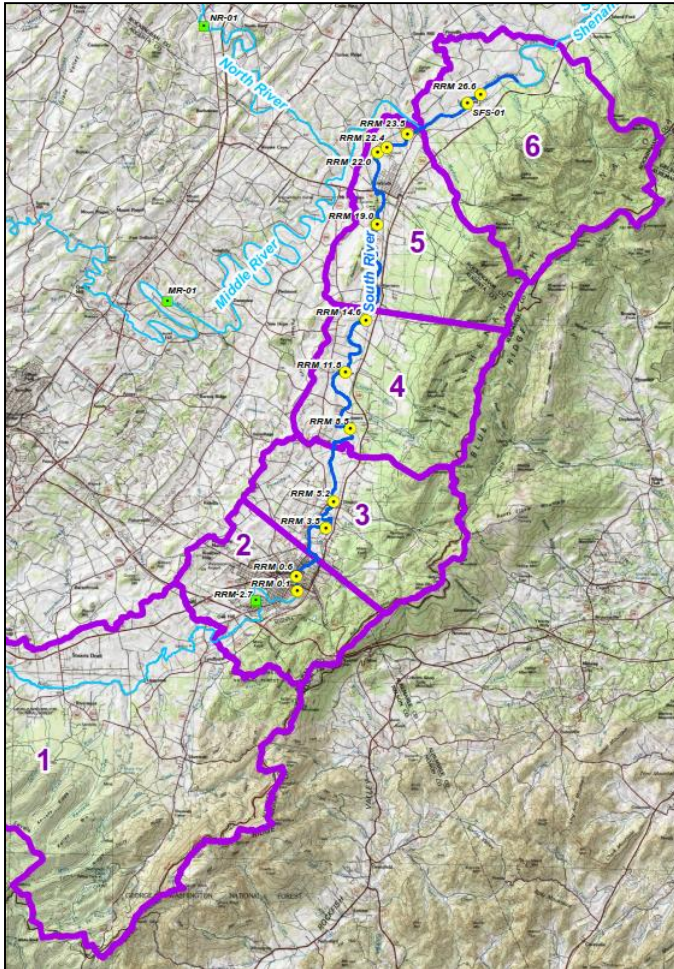


April 18, 2017

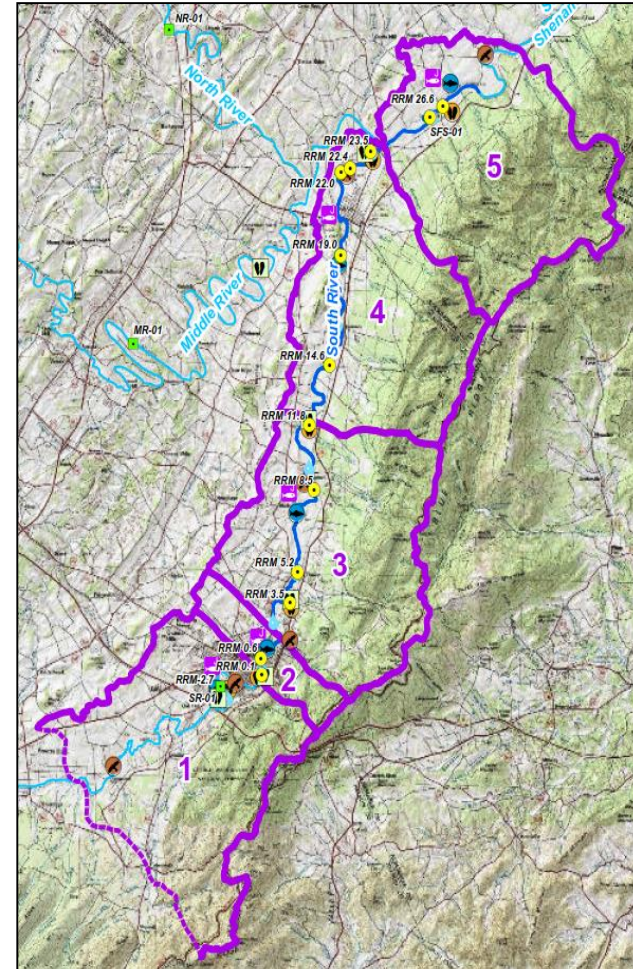
AECOM

Risk Region Modifications

Original Risk Regions



Modified Risk Regions



Risk Region Modifications

- Risk regions stayed consistent with original approach
- Future data availability (LTM Stations)
- More applicable results for the EAM
- New risk regions incorporate remedial designs

WWU Risk Regions			
Region	Start (rrm)	End (rrm)	Reach Length (miles)
Region 1*	-20	-6	14
Region 2	-6	2	8
Region 3	2	7	5
Region 4	7	15	8
Region 5	15	23.5	8.5
Region 6	23.5	31	7.5



AECOM Risk Regions			
Region	Start (rrm)	End (rrm)	Reach Length (miles)
Region 1	-10	0	10
Region 2	0	2	2
Region 3	2	12	10
Region 4	12	24	12
Region 5	24	32.4	8.4

Model Updates

– Focused on:

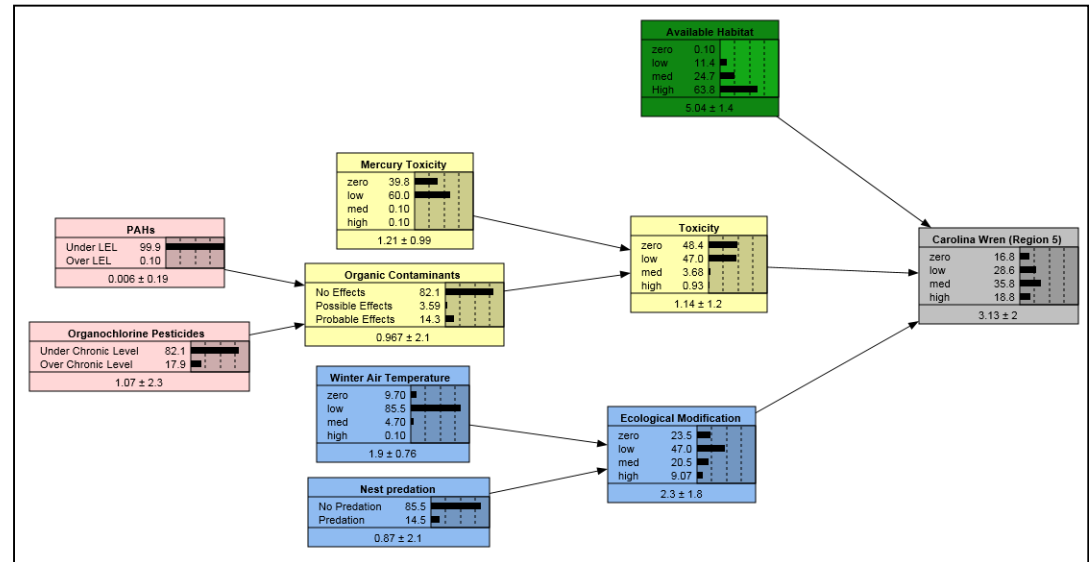
- **Smallmouth Bass**
- **Carolina Wren**
- **Water Quality**

– Updates included:

- Criteria/Model Structure
- Input data (monitoring data)
- Reference Areas/Reaches

– Scenarios

- Hypothetical Minimum
- Extensive Removal
- Interim Remedial Measures

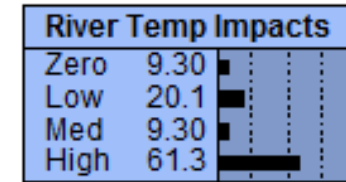


Region	Relative Risk Scores (SMB)				Risk Ratio
	Existing Conditions	Hypothetical Minimum	Extensive Removal	IRM	
Region 1	1.75	1.75	1.75	1.75	1.0
Region 2	4.10	2.37	3.54	3.58	1.7
Region 3	4.81	2.10	4.50	4.57	2.3
Region 4	3.67	1.12	3.47	3.49	3.3
Region 5	3.77	1.94	3.42	3.45	1.9

SMB Updates

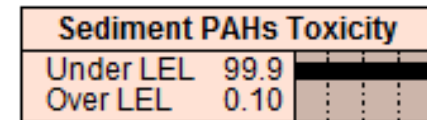
— Treatment of Temperature Data

- Criteria based on “Ideal Temp for Spawning and Growth”
- Input based on “Year-Round Temperature”



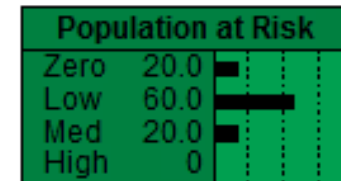
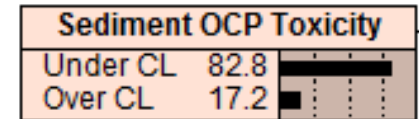
— Pesticides and PAHs

- Criteria based on “Total” Concentration
- Input based on “Individual” Constituents



— Fish Abundance

- Surrogate for Habitat Suitability
- Limited input data



SMB Results

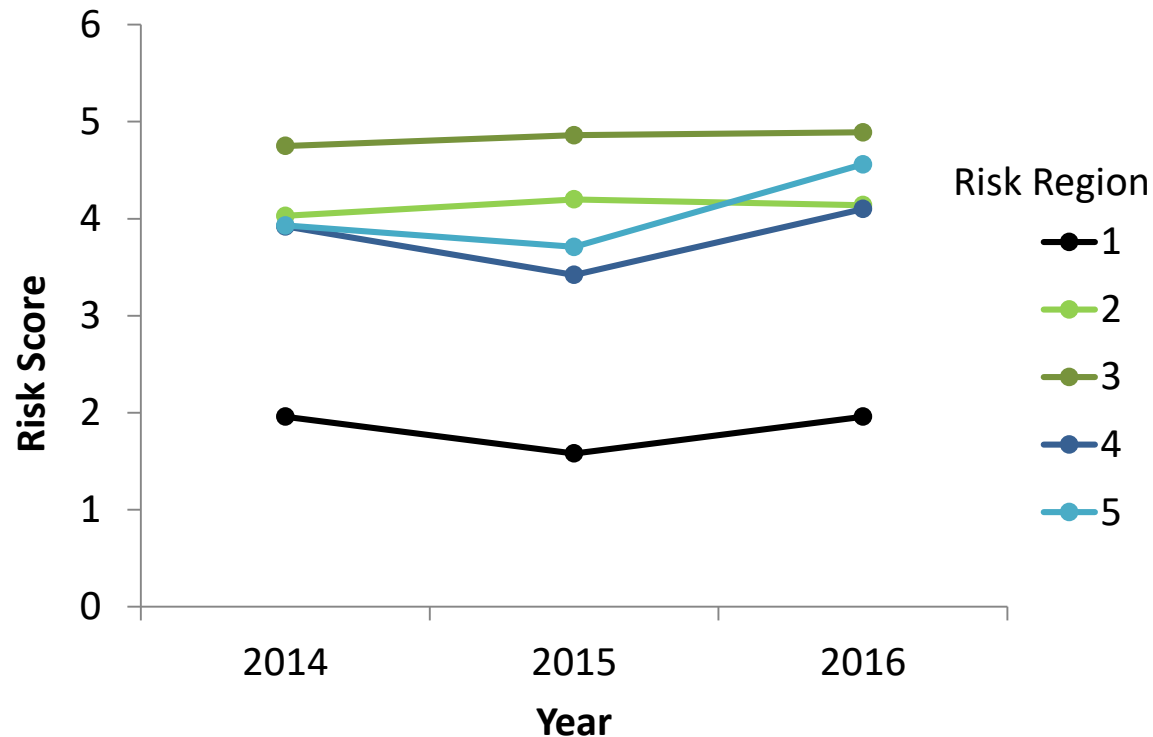
- Updated risk scores are comparable for smallmouth bass
- Risk scores for reference site can now be calculated
- Scenarios for Smallmouth bass show similar results for extensive and IRM remedial activities
- Hypothetical minimum is still lower

AECOM Risk Regions		WWU Risk Regions	
Region	Risk Score	Region	Risk Score
Region 1	1.87	Region 1*	--
Region 2	4.12	Region 2	2.39
Region 3	4.83	Region 3	2.69
Region 4	3.82	Region 4	4.31
Region 5	4.11	Region 5	4.48
		Region 6	3.30

Relative Risk Scores					Risk Ratio
Region	Existing Conditions	Hypothetical Minimum	Extensive Removal	IRM	
Region 1	1.87	1.87	1.87	1.87	1.0
Region 2	4.12	2.46	3.54	3.57	1.7
Region 3	4.83	2.20	4.55	4.61	2.2
Region 4	3.82	1.24	3.49	3.53	3.1
Region 5	4.11	2.06	3.65	3.75	2.0

Yearly Variation SMB

- Ran the smallmouth bass model for each year individually (2014-2016)
- Found relatively low variation overall
- Gives a range to compare post-remediation data



Next Steps

- Improve Predictive Capability:
 - Use of bioaccumulation factors
- Evaluate Post-Remediation Data:
 - Predicted vs. Measured Comparisons
- Present Updates and Results
 - Fall Meeting





Thank You

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