

# MGWA

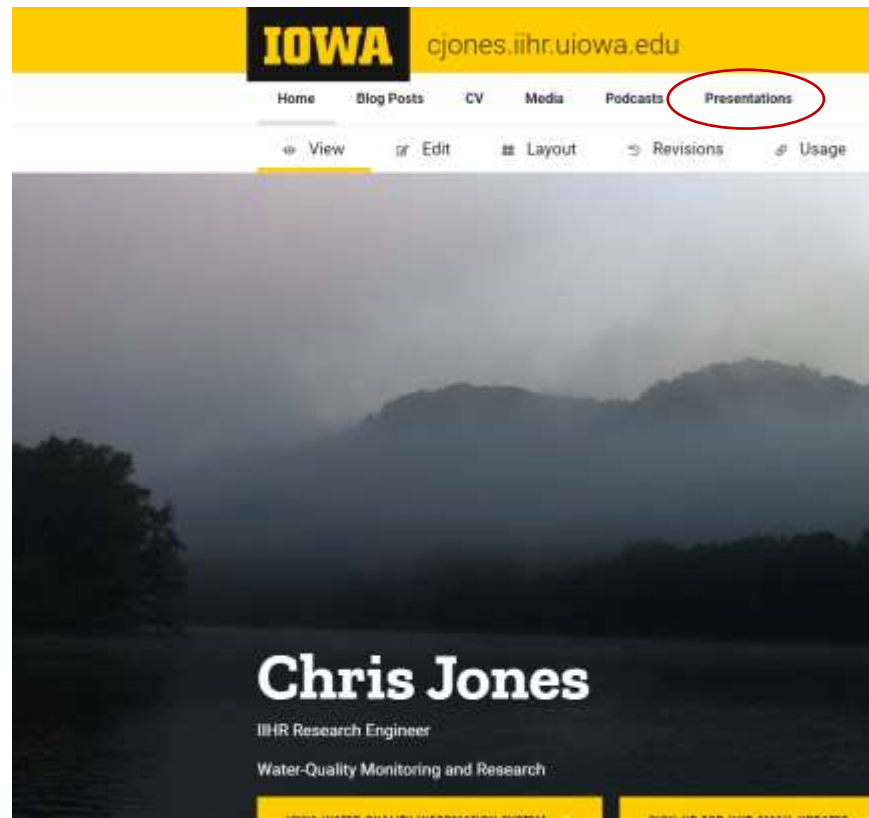
*November 18, 2021*

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## Slides Available at:

<https://cjones.iihr.uiowa.edu/>





## IIHR Water Quality Sensor Network

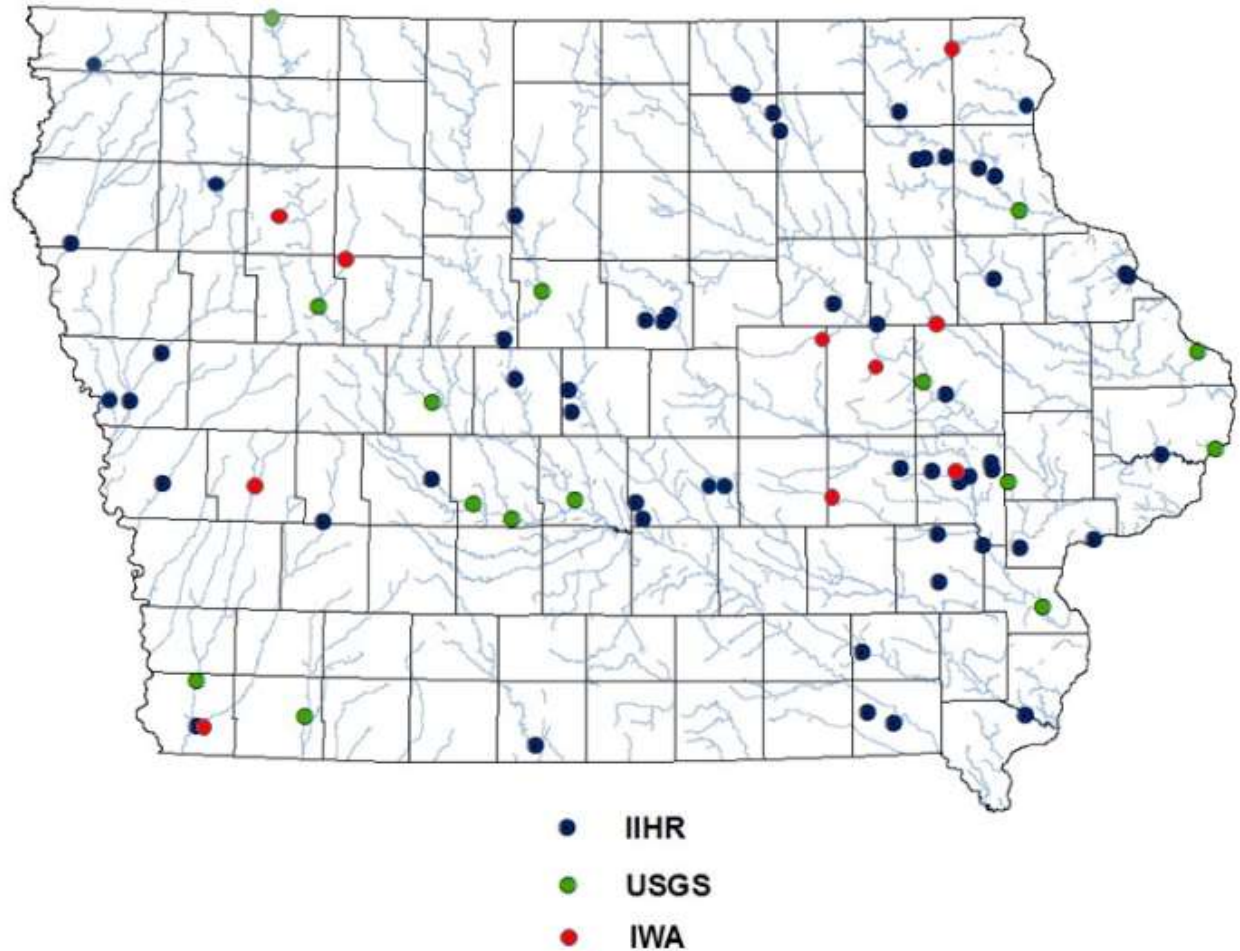


## Sites

70+ sites Nitrate-N

20-25 sites

- Temperature
- pH
- SC
- DO
- Turbidity



## Site infrastructure





## Small Streams



IIHR Water Quality  
Sensor Setup

# Publications

- Practice Assessment: 12
- Wetland Research: 11
- Stream and Tile Drainage Hydrology: 6
- Nitrate Dynamics Within Streams and Reservoirs: 8
- Policy: 4
- Golf Course Soils and Nutrients: 3
- Phosphorus Transport: 5
- Watershed Nitrate Loading: 4
- Livestock and Water Quality: 2
- Groundwater Nitrate Dynamics: 2
- Carbon Transport in Tile Drainage: 2
- Climate/Hydrology: 2
- Water Quality Indices: 1

Hydrogeology Journal  
<https://doi.org/10.1007/s10040-019-01935-y>



REPORT



## Contrasting $\text{NO}_3\text{-N}$ concentration patterns at two karst springs in Iowa (USA): insights on aquifer nitrogen storage and delivery

Keith E. Schilling<sup>1</sup> · Christopher S. Jones<sup>2</sup> · Ryan J. Clark<sup>1</sup> · Robert D. Libra<sup>1</sup> · Xiuyu Liang<sup>3,4,5</sup> · You-Kuan Zhang<sup>3,4,5,6</sup>

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# Groundwater Deployments

Collaborative project  
with Iowa DNR

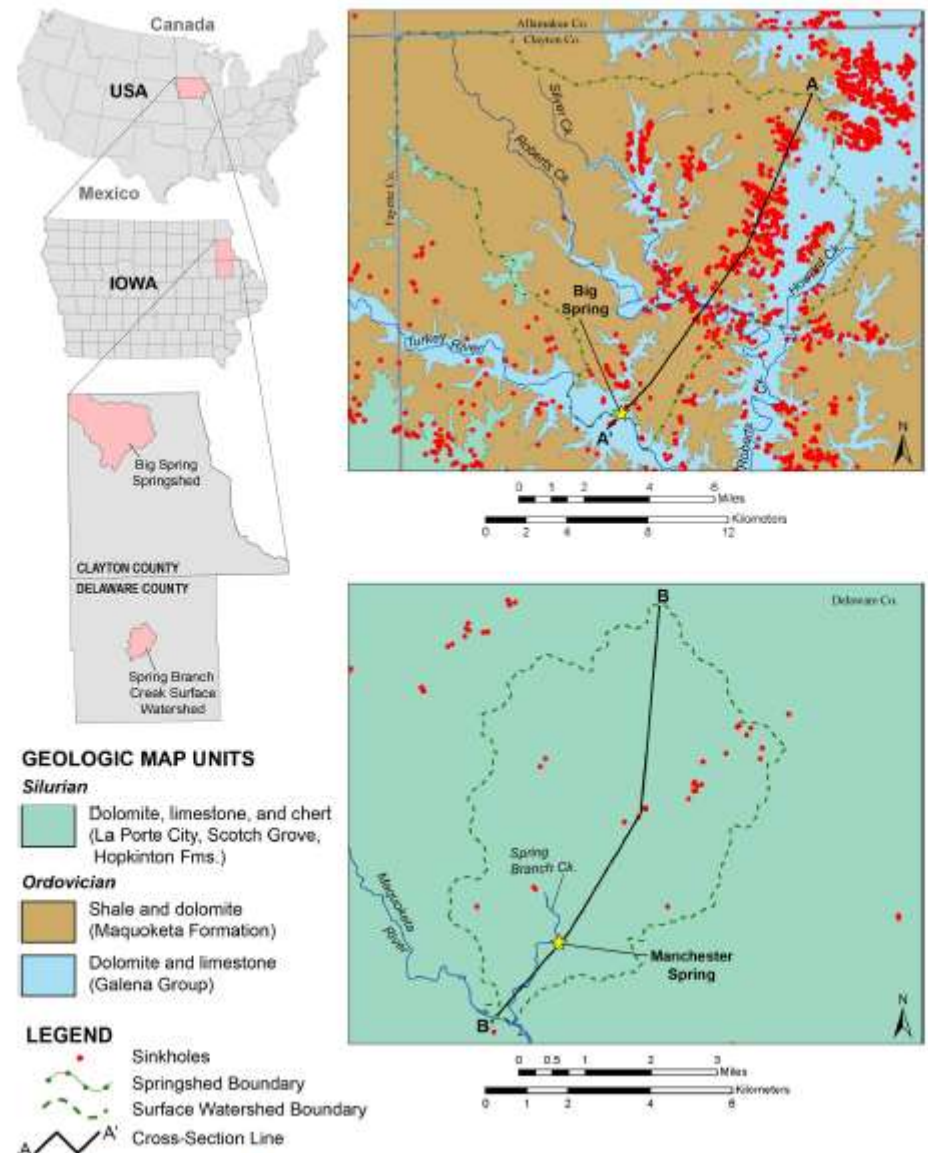


Fig. 1 Location Big Spring and the Manchester spring in northeast Iowa

# Manchester



# Big Spring









## Big Spring Cross Section

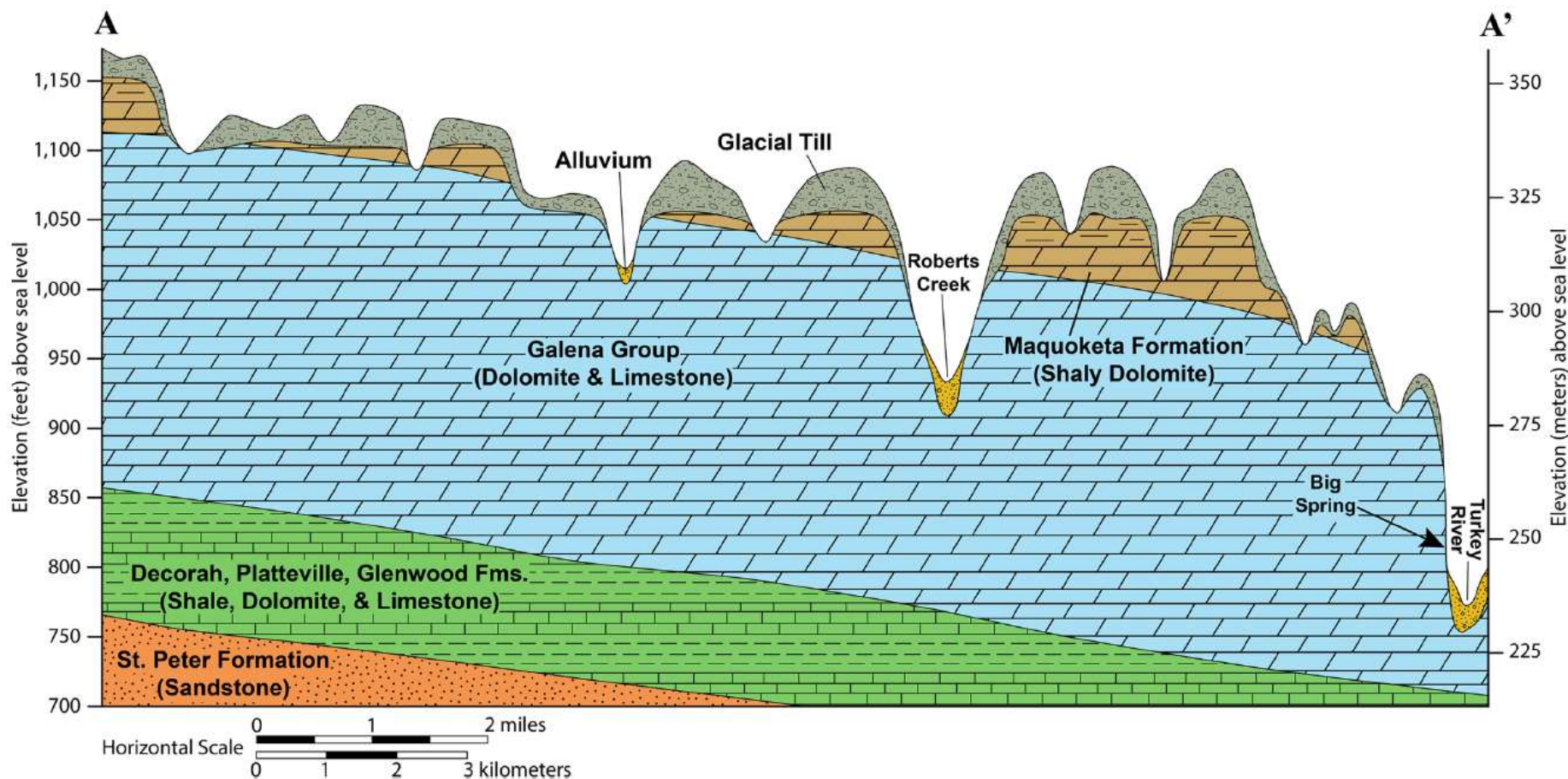
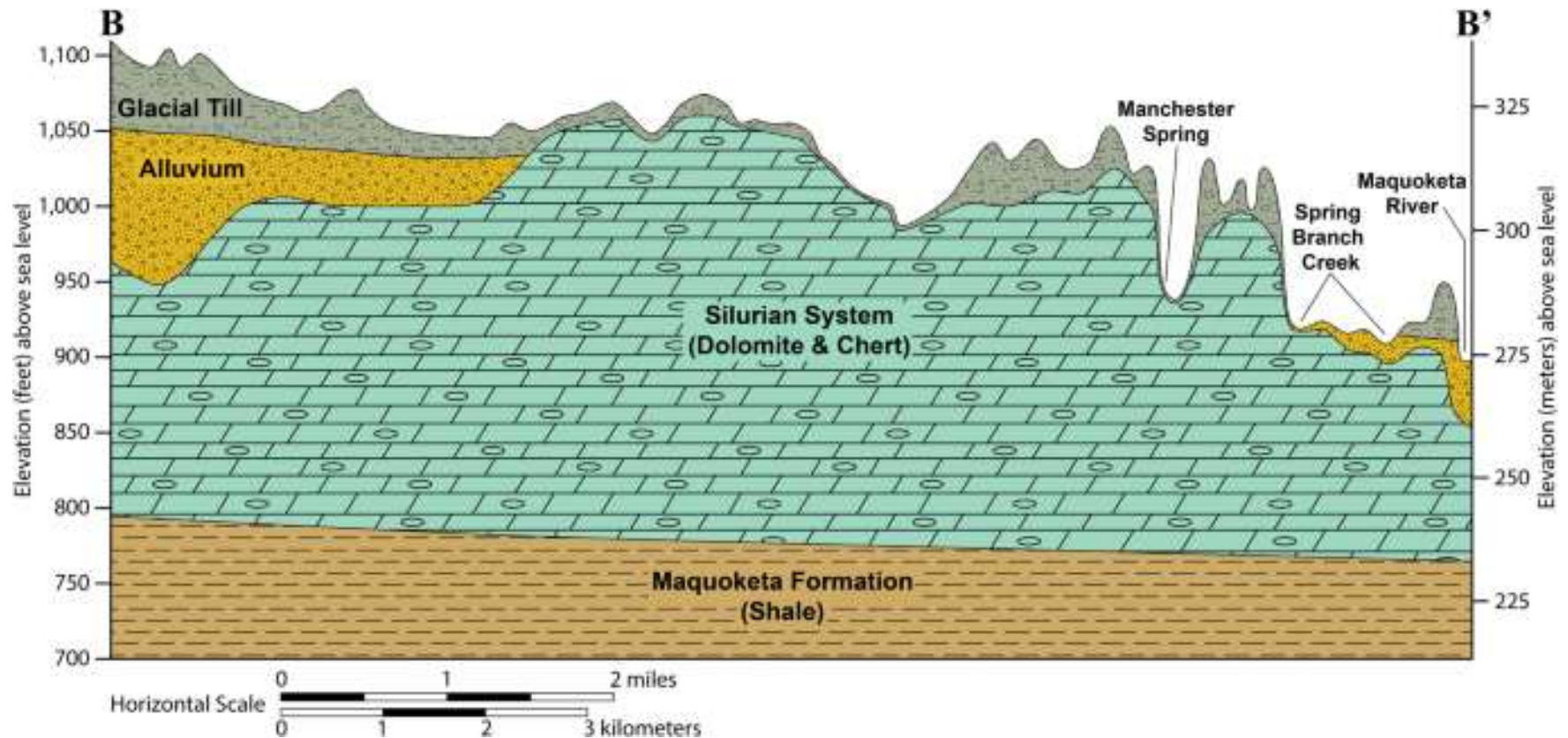
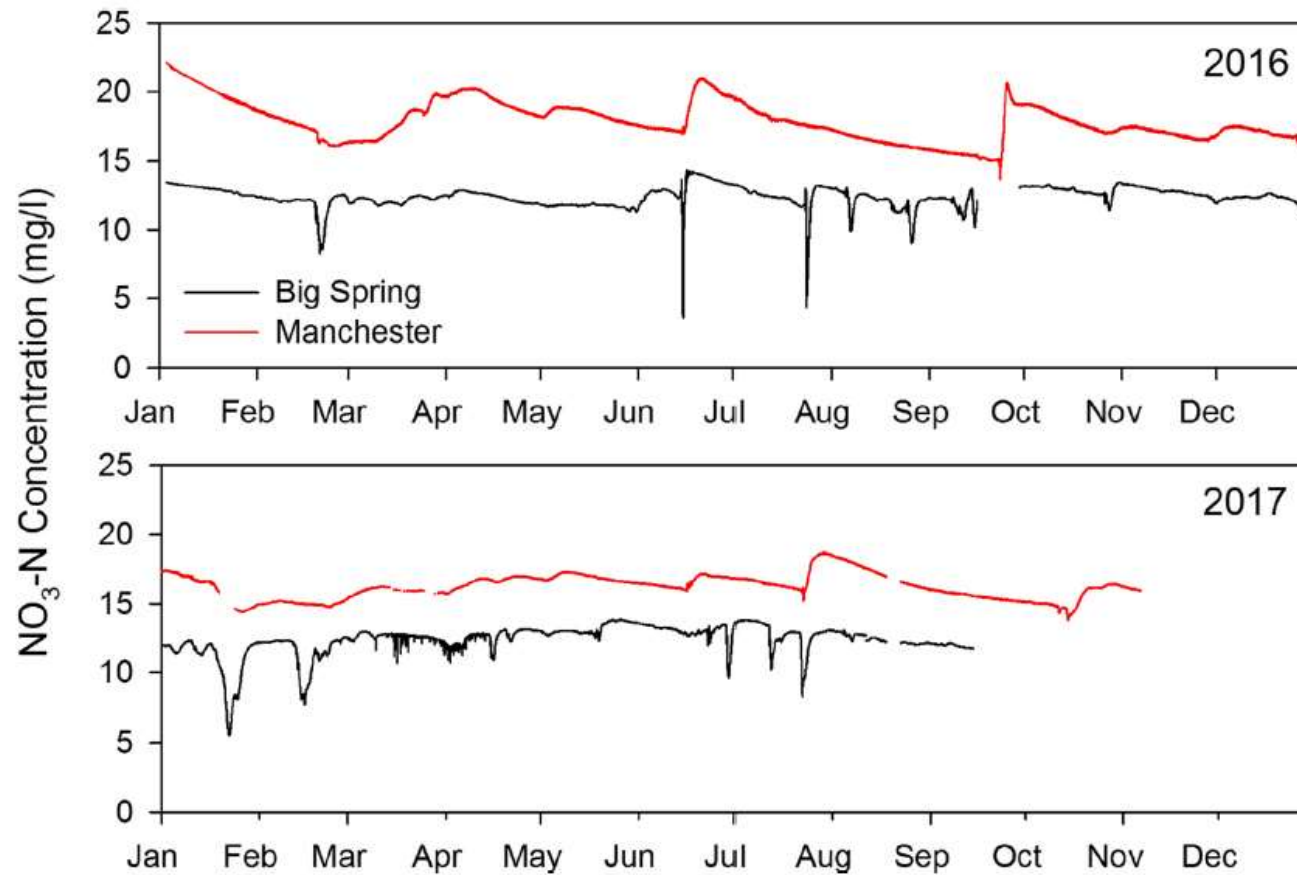


Fig. 2 Cross section of Big Spring area

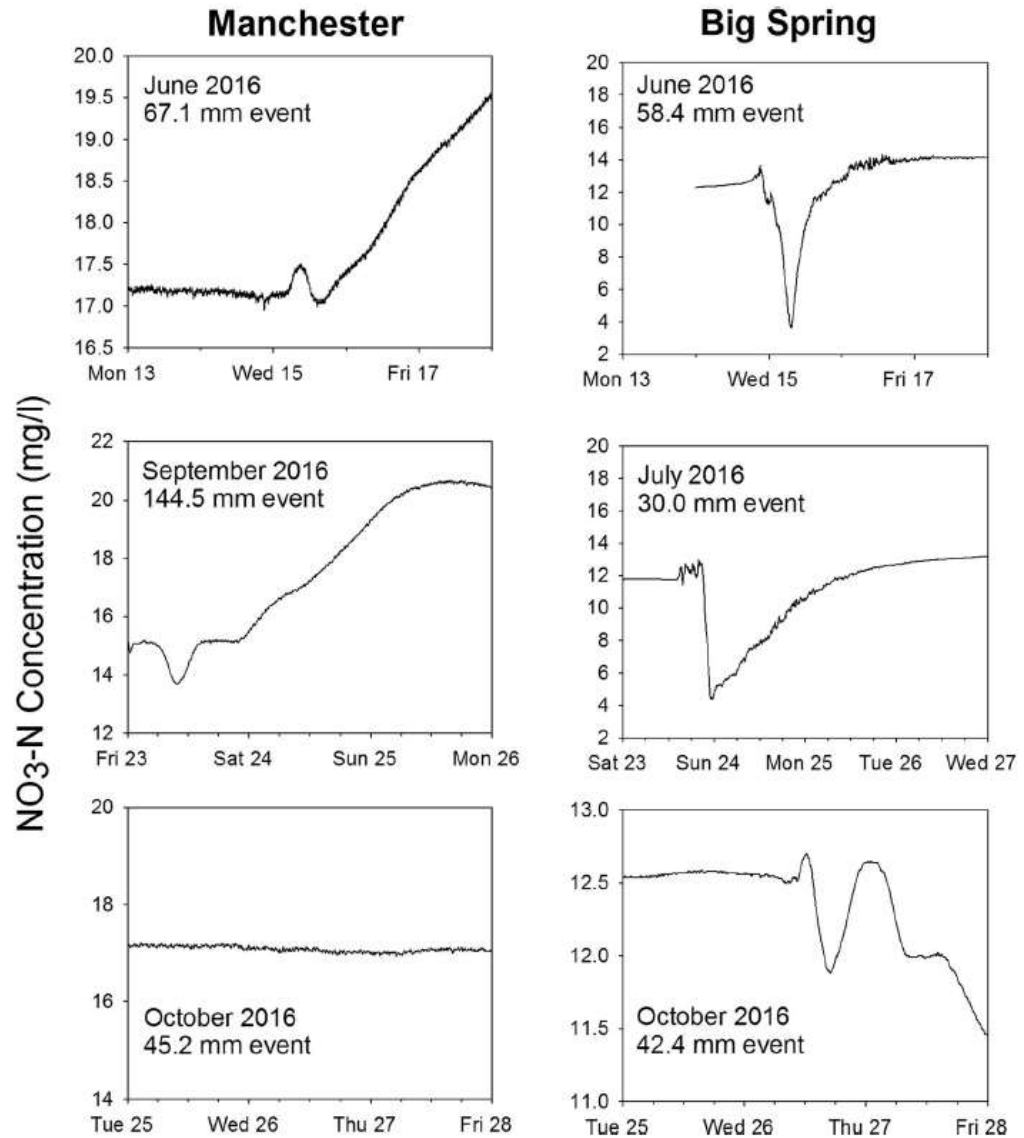
## Manchester Cross Section







# Storm Event Responses



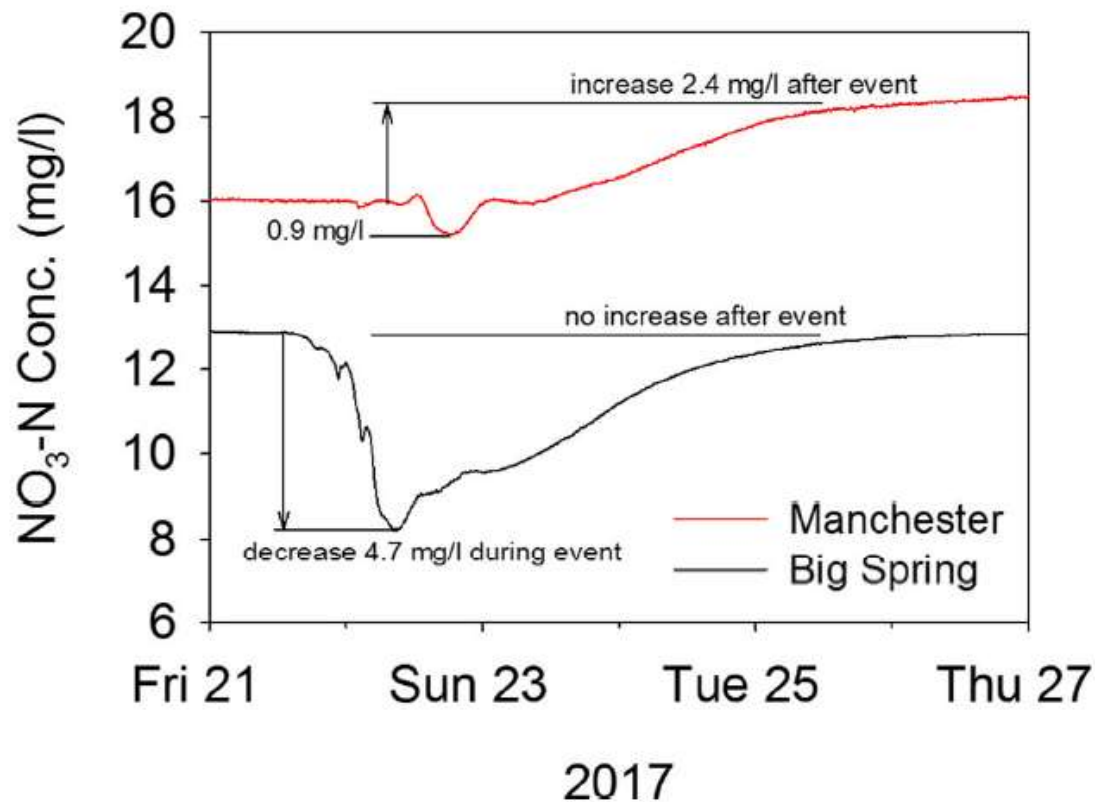
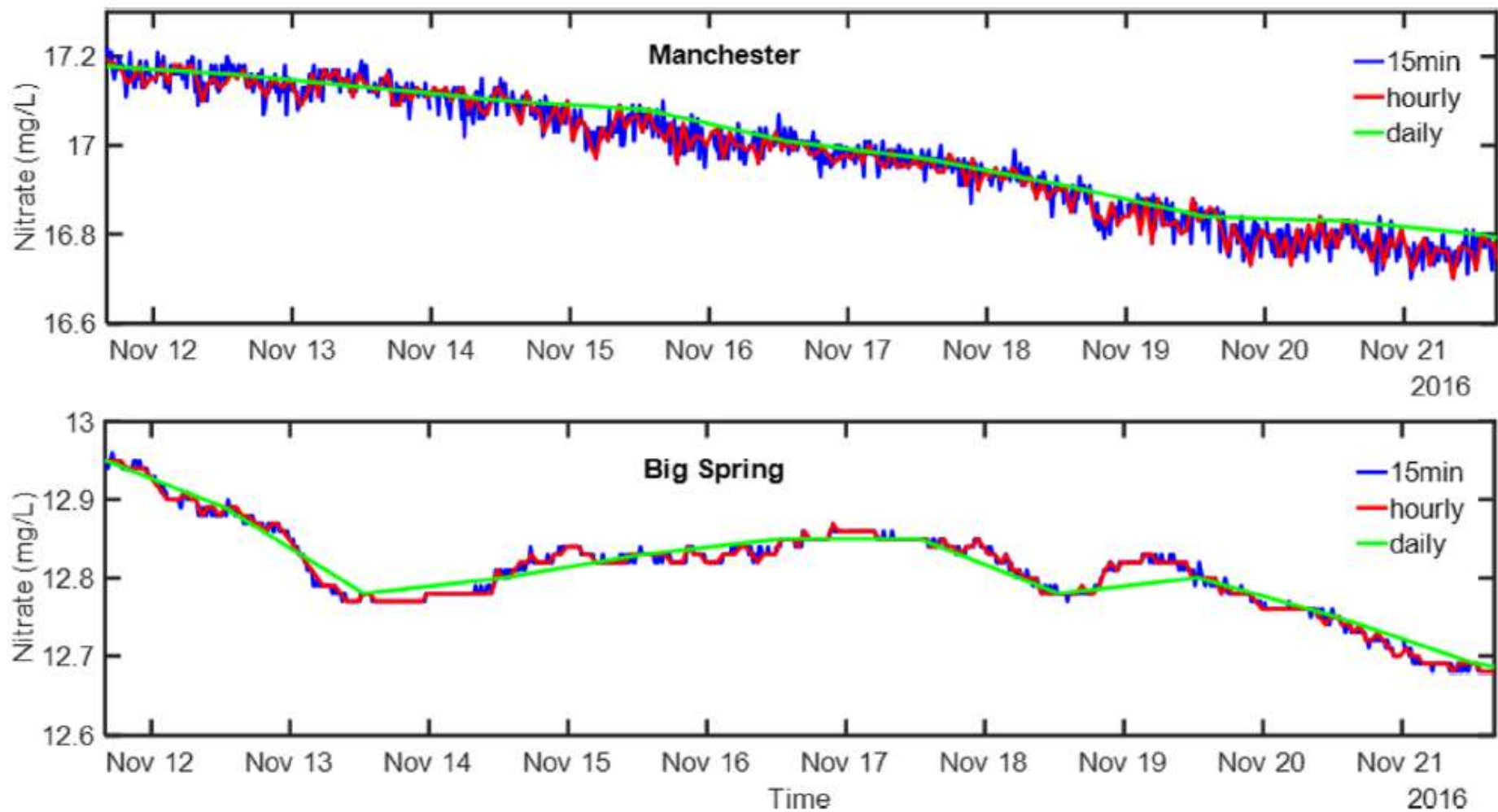


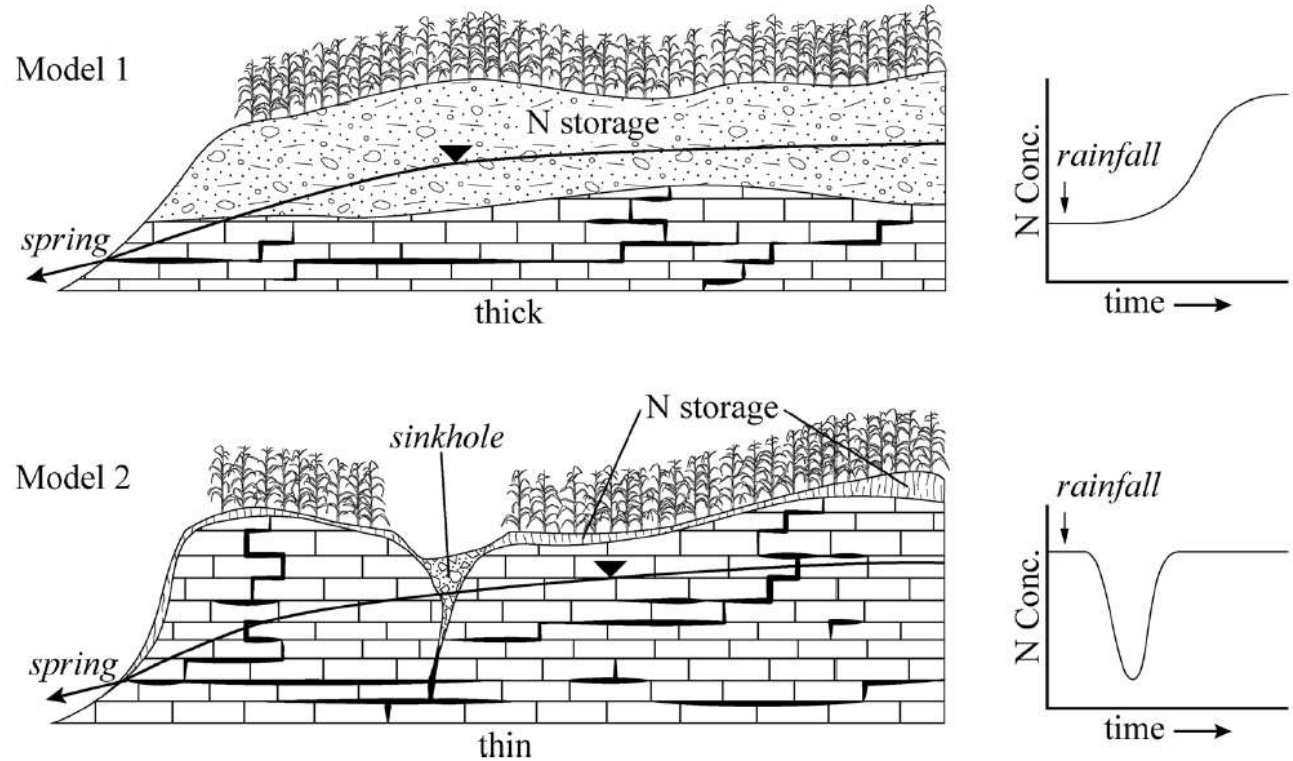
Fig. 6 Comparison of spring  $\text{NO}_3\text{-N}$  concentration patterns during a July 2017 storm event

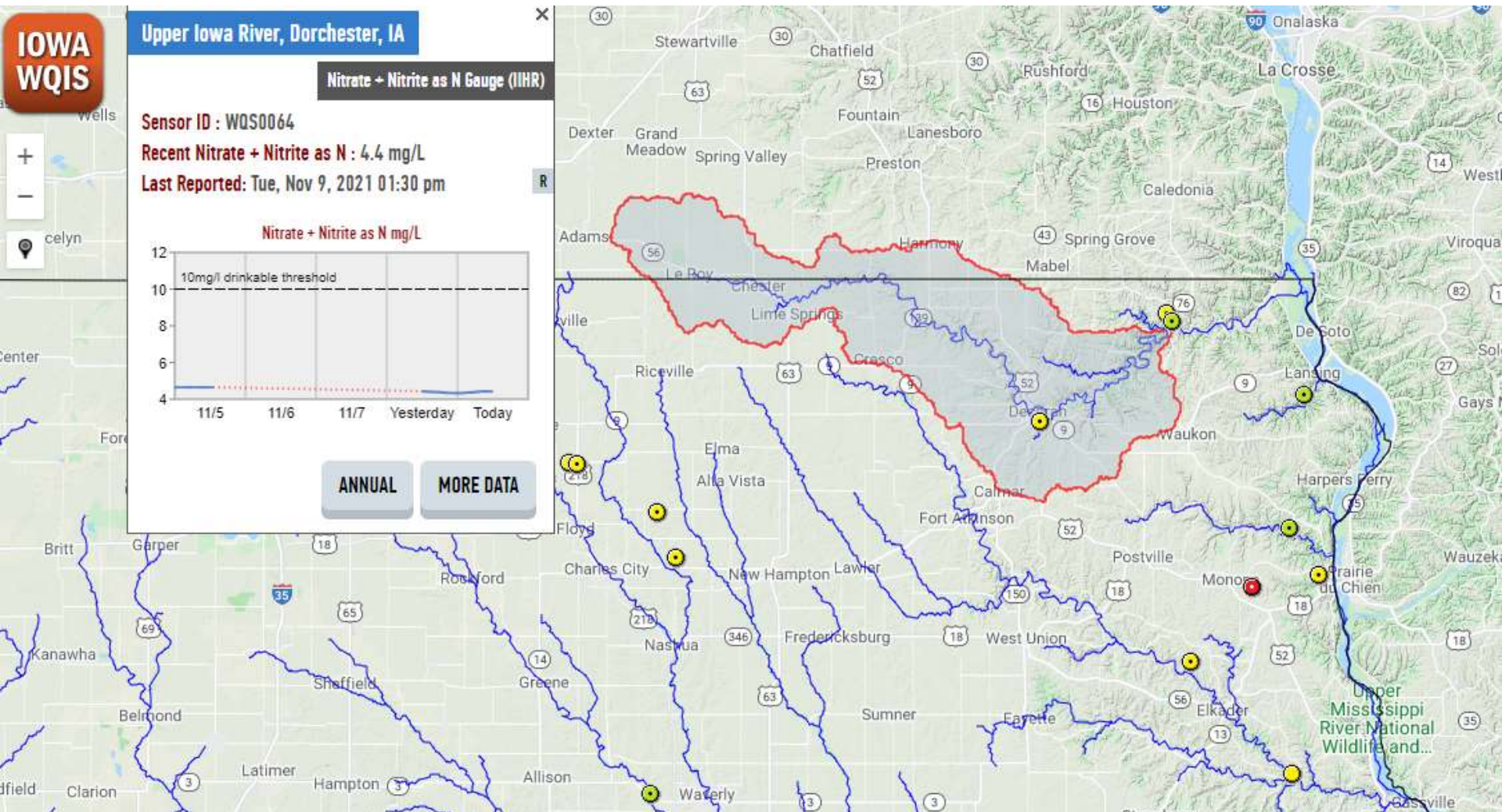




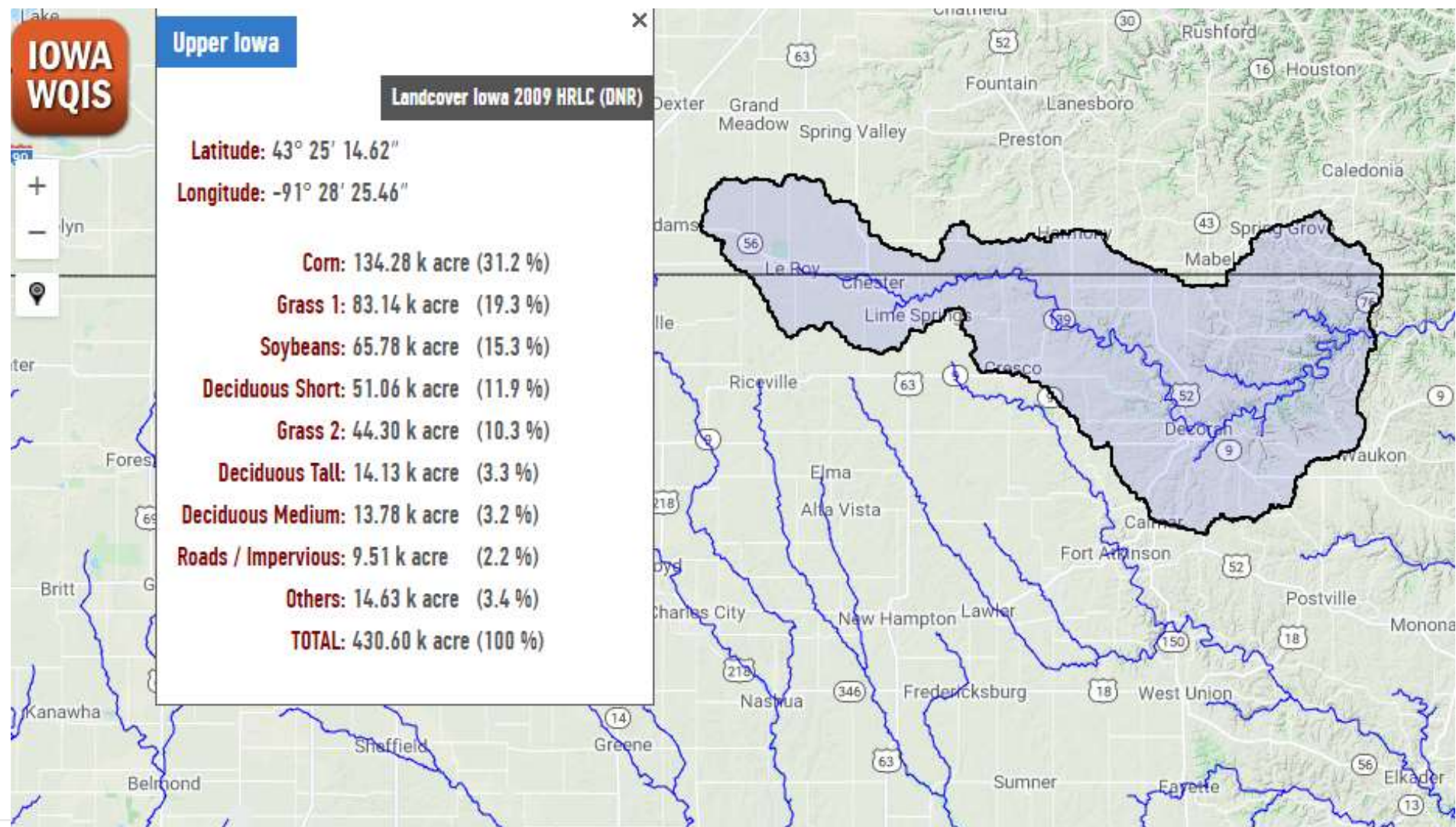
## Conceptual Models Based on Event Data

**Fig. 9** Conceptual model of  $\text{NO}_3^-$ -N concentration patterns consistent with thick overburden materials and greater N storage at Manchester (model 1) and thin overburden and less N storage at Big Spring (model 2)

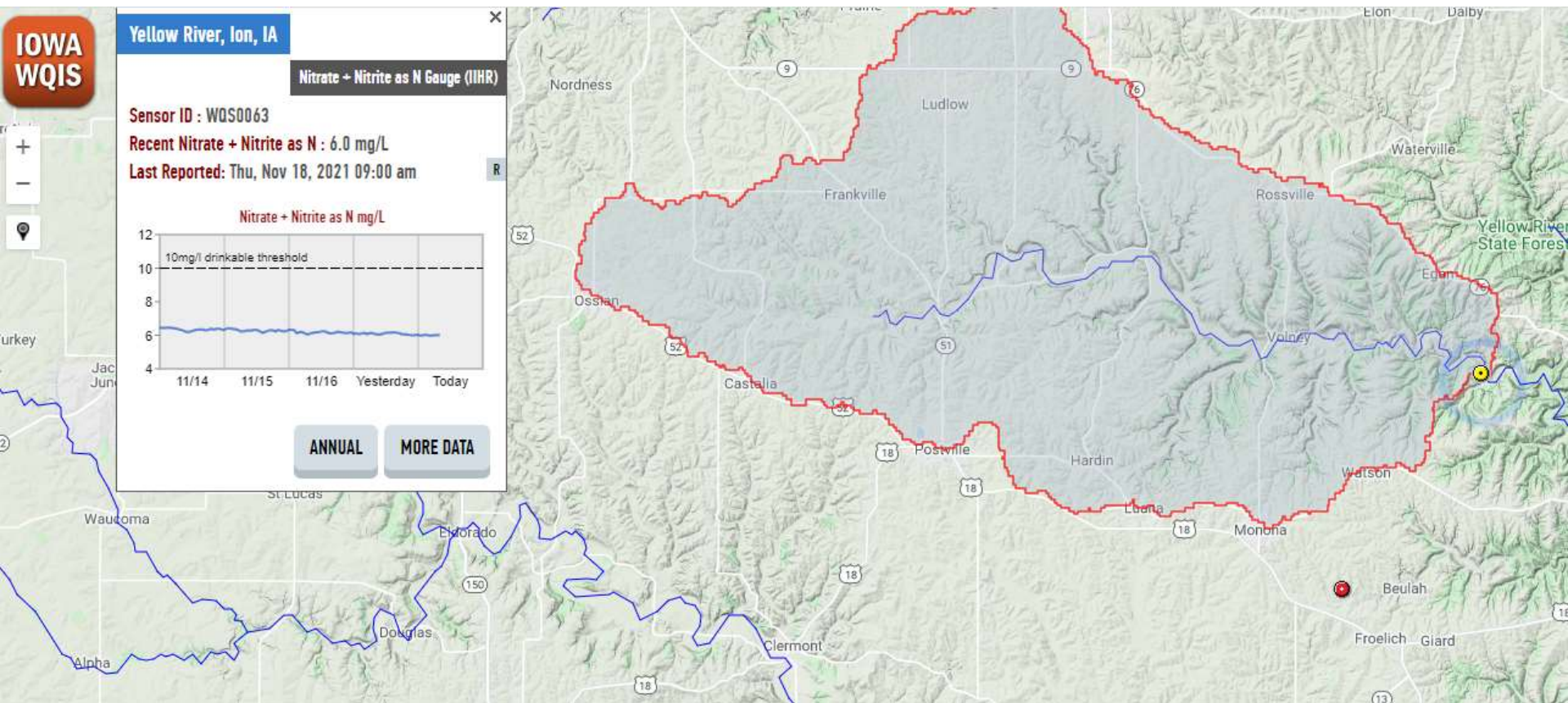






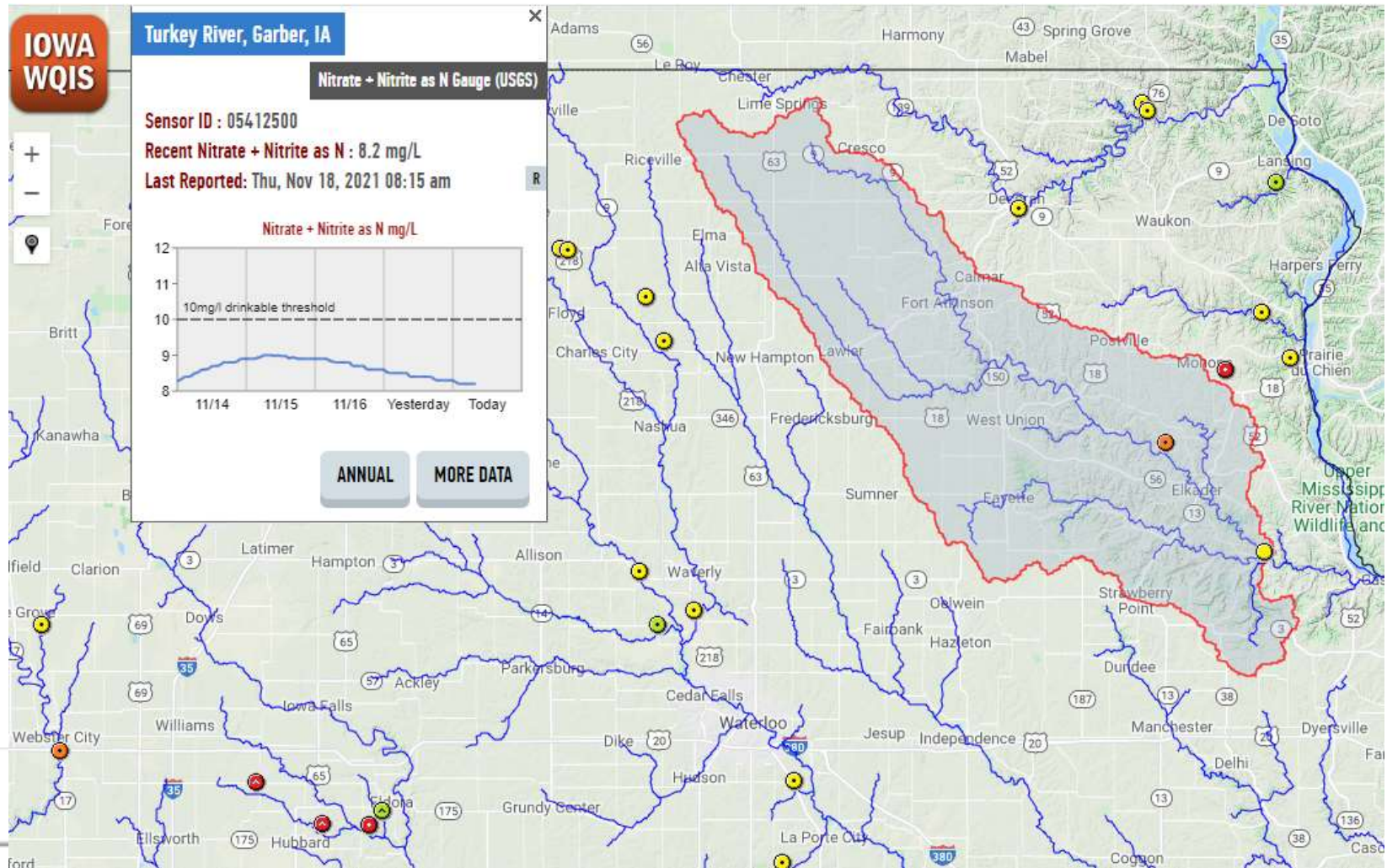


## Yellow River

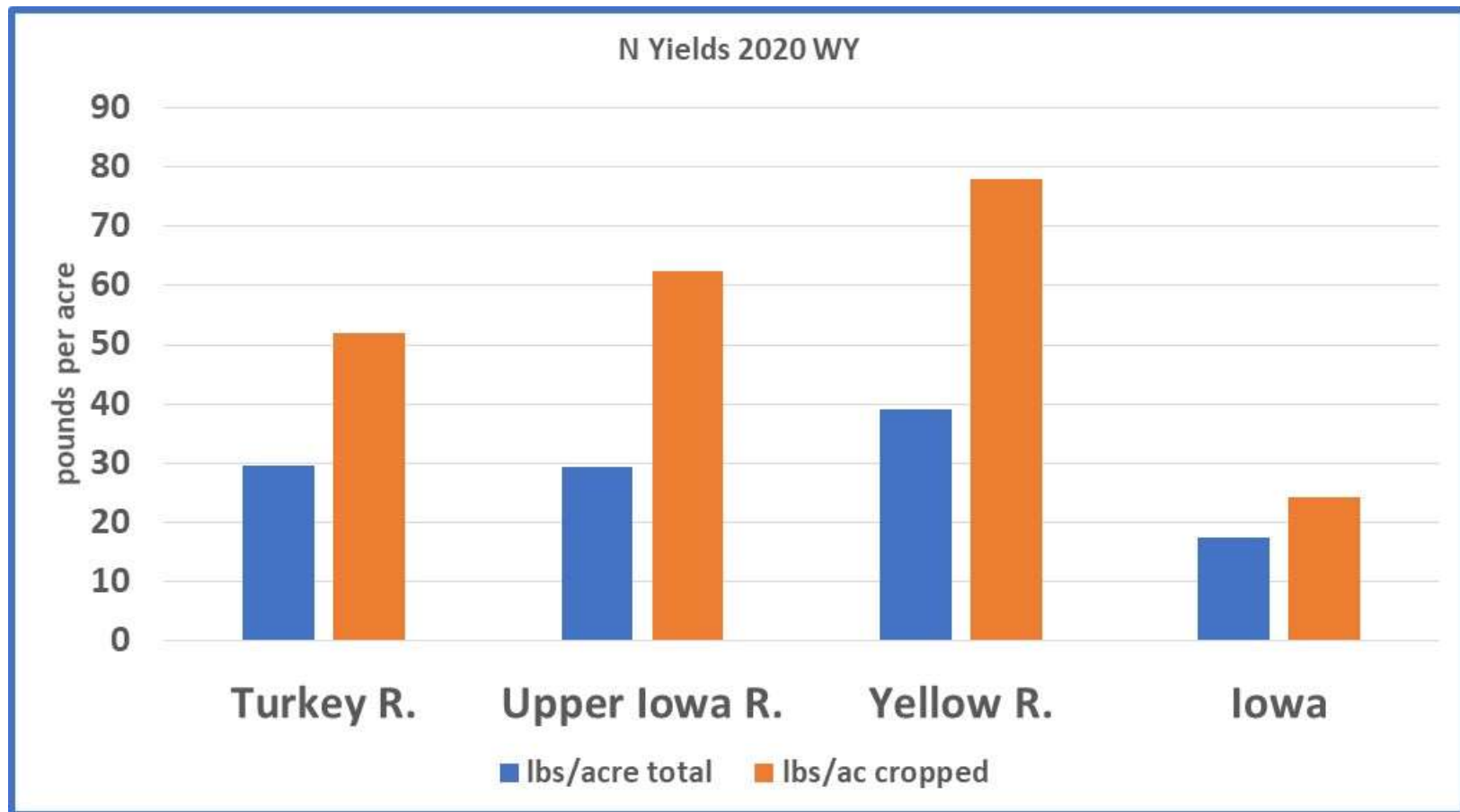




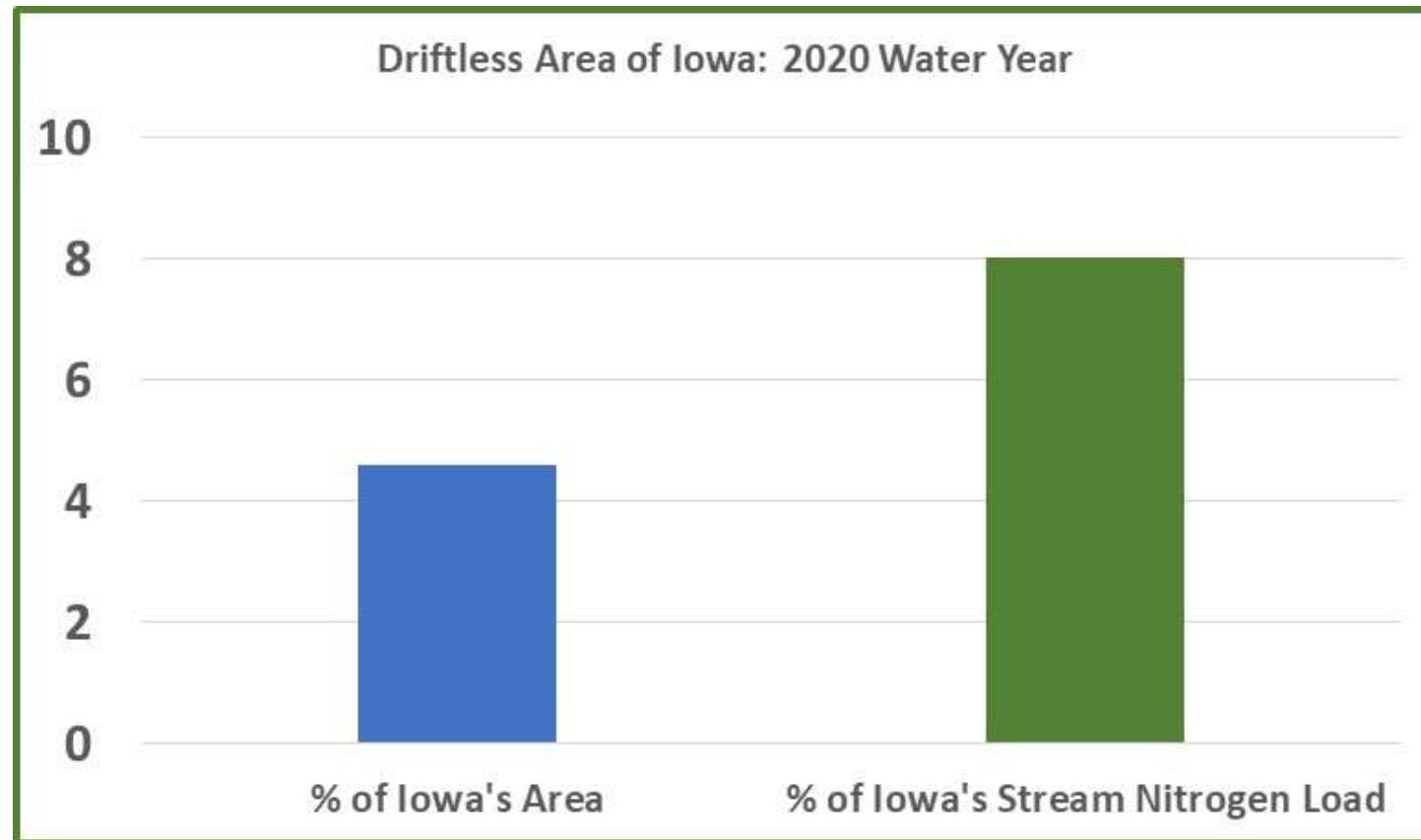
## Turkey River

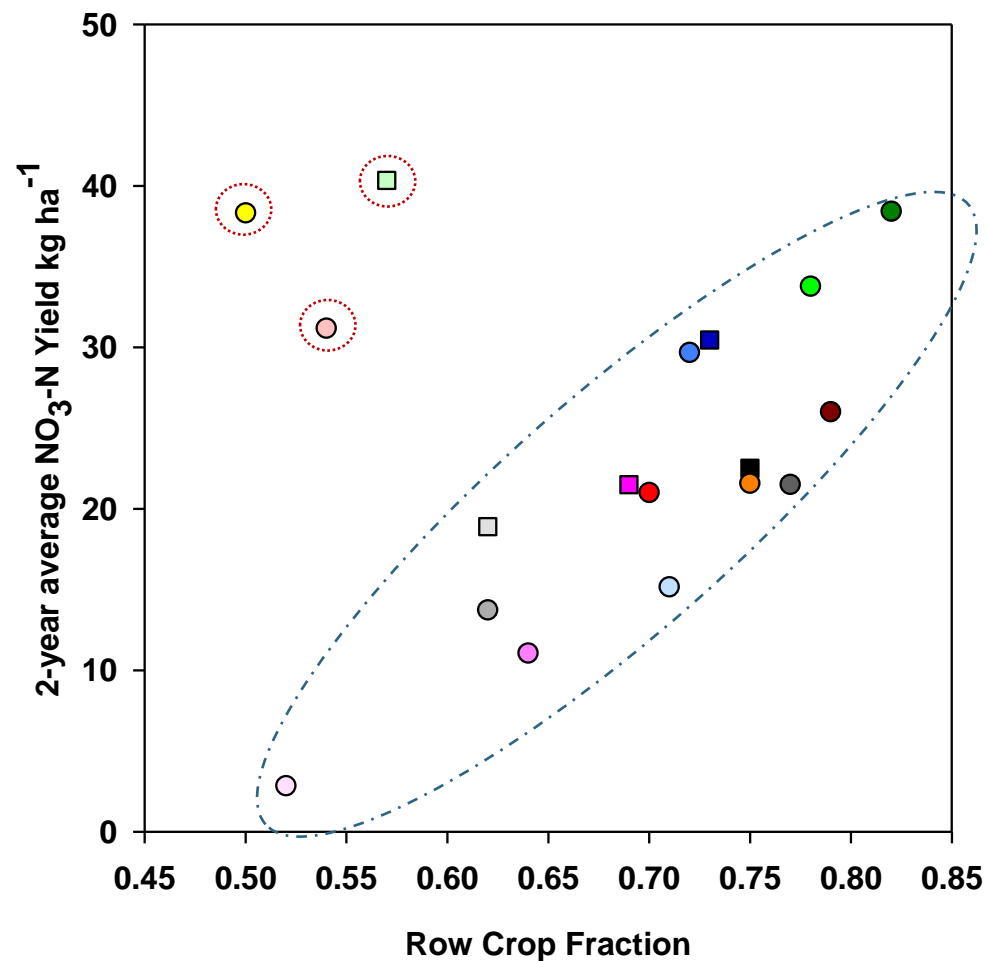
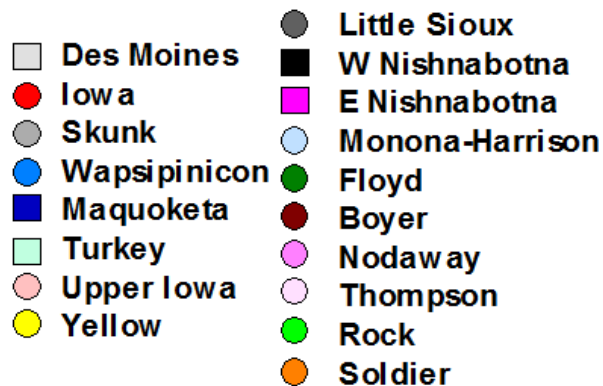


## N Yields









# The Battle Over Bloody Run Creek



Iowa Public Radio | By Clay Masters

Published July 1, 2021 at 5:00 AM CDT



▶ LISTEN • 6:21





# Environmental groups ask Iowa EPC to reverse DNR decision on 11,600-head Supreme Beef cattle feedlot near Monona

Supreme Beef feedlot will have more manure than stated in nutrient management plan the Iowa DNR approved April 2, petition states



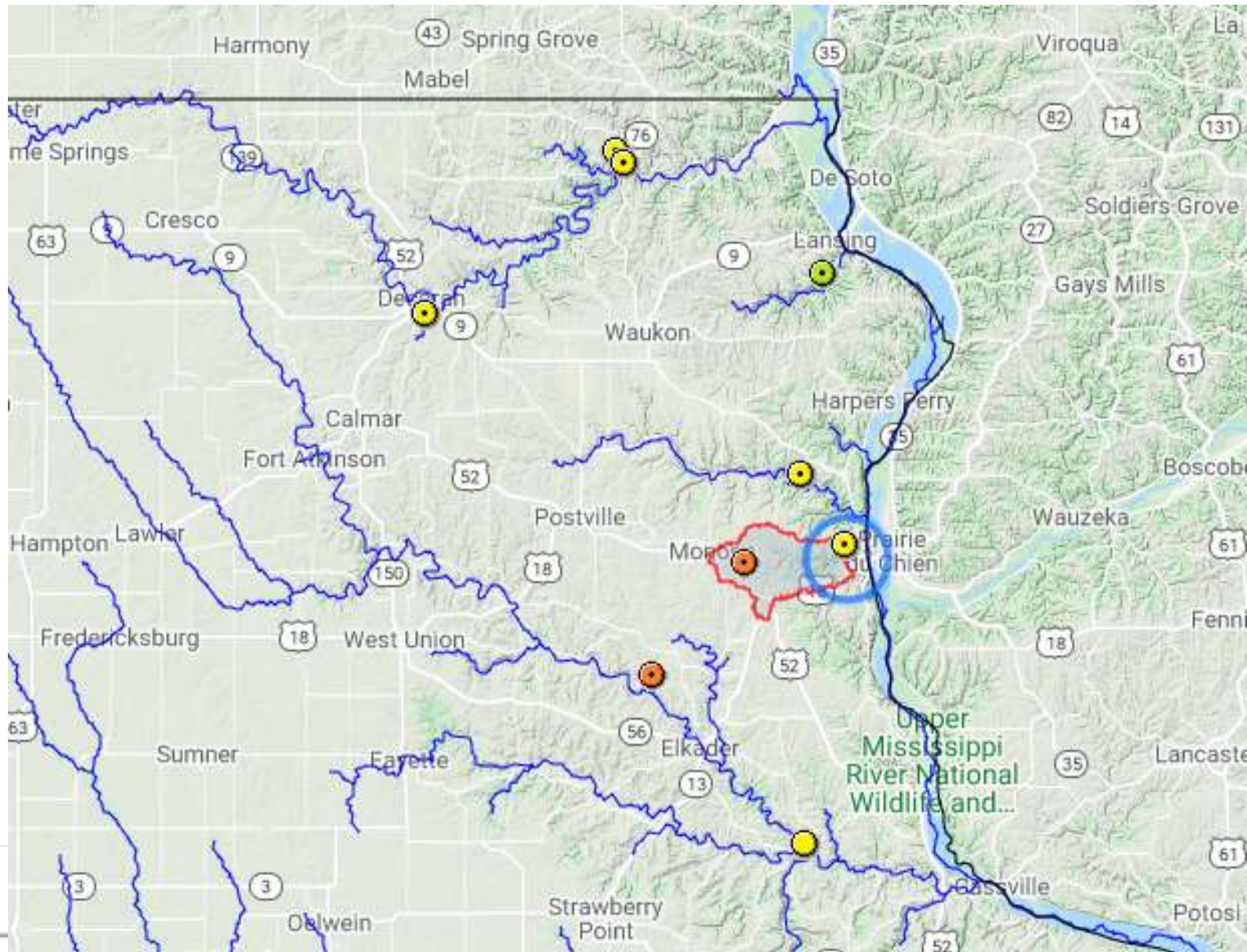
Erin Jordan



May. 10, 2021 1:29 pm, Updated: May. 10, 2021 6:12 pm







## Headwaters







# Iowa Landforms

