

Web User Interface for Citizen Scientists

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Introduction

In the months of April and May of 2011, a number of volunteers led by Dr. Alan Kolok from the Aquatic Toxicology Laboratory at the University of Nebraska at Omaha performed two tests to measure the amount of Atrazine, the most commonly used herbicide in the United States, in the Elkhorn River watershed.

In order to gather the results of these measurements, a website was developed by the Public Health Informatics Laboratory at the UNO College of Information Science and Technology. The website provided a form where the volunteers could record their name, the date and time when their measurement was taken, the location of the test site, and the result of the measurement. A number of considerations had to be taken into account in order for the website to be as user friendly as possible.

Research Challenges

- Many volunteers were inexperienced in using a computer or the Internet, so the process for entering data had to be short and simple
- A number of the volunteers were elderly and had trouble reading smaller fonts, which meant that no small fonts or low contrast colors were to be used
- Not all volunteers had GPS devices to accurately locate their measurement site, so a way for them to find their location reliably was needed
- High accuracy with regard to longitudinal and latitudinal data of the test site was needed, which meant that there needed to be a way for volunteers to double-check their data
- Researchers needed a way to easily export and manipulate the data while also allowing the volunteers to see an overview of their results in a simple and quick fashion
- Technical support was needed so the users could still enter their information in a timely manner even in the event they encountered a problem

Goals of First Version of UI

- Very simple user interface with detailed instructions on what information needs to be inserted
- An interactive map was placed on the website which allowed volunteers to find and save the location of their measurement site
- A second map with a detailed view of the saved site let volunteers confirm their information
- A results website for researchers let them track responses as they came in and also provided a way for them to download the data to Excel
- A third map showed the locations and results of all measurements by volunteers

Capabilities

Elkhorn Watershed: Atrazine Measurements

Name

Who performed the test?

Note: This will be used only for our own records to keep track of participants who take multiple data points. We will not use this information for any other purpose, so feel free to enter an alias.

Organization

Which organization do you belong to?

Note: If your organization is not listed, feel free to include your organization with your name above.

Date

When did you perform the test?

 at AM

Format: 09/20/2011 09:32 AM

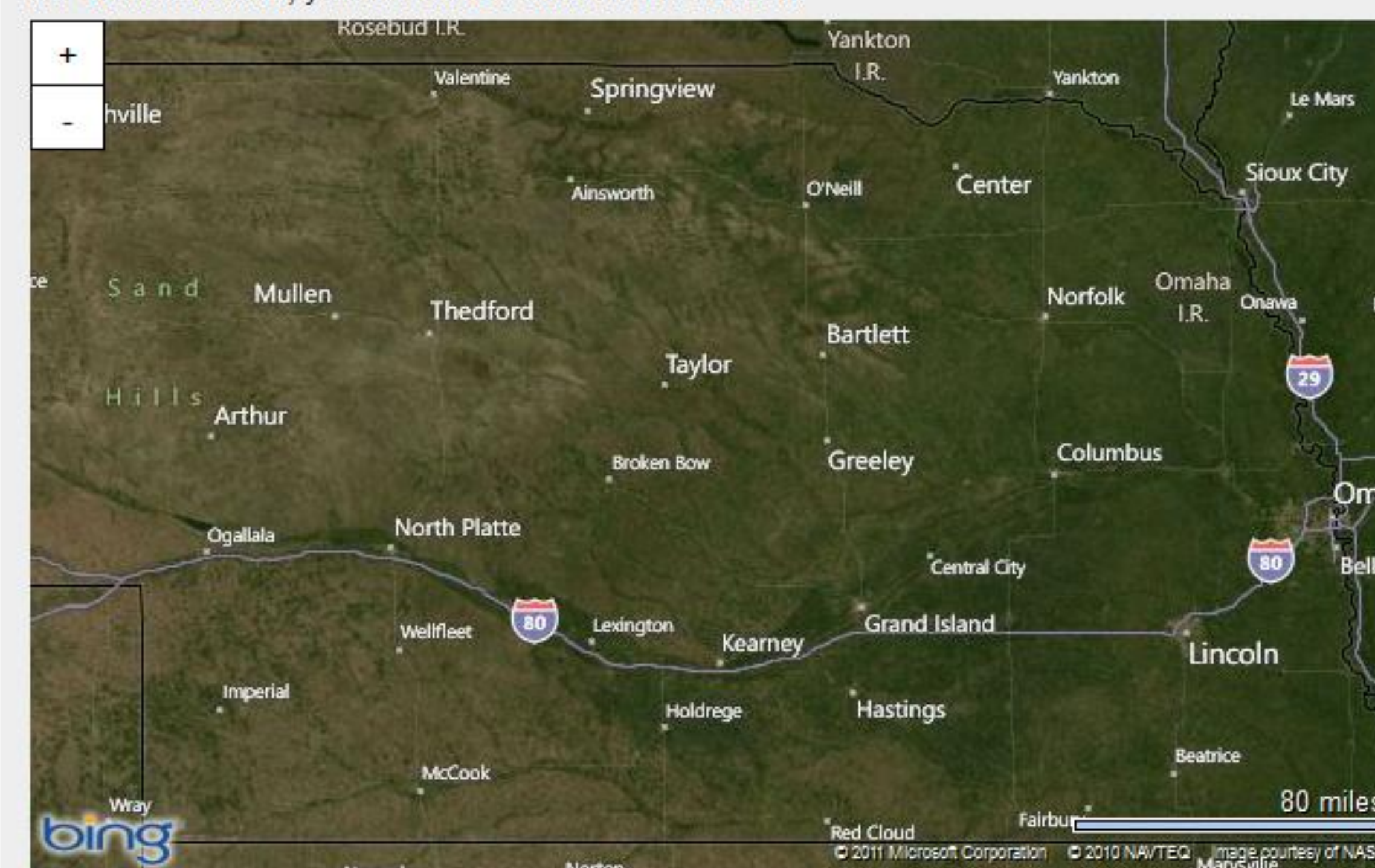
Test Site Location

[I know the coordinates of the test site](#)

[I do not know the coordinates of the test site](#)

Double click on the location of your test site.

You can use this map to find the location where you performed the test. Pan by dragging the map, zoom by using the scroll wheel or the buttons in the top left corner of the map. Once you have found the correct location, you can double-click on it to select it.



Presence of Atrazine

Did the test strip indicate the presence of Atrazine?

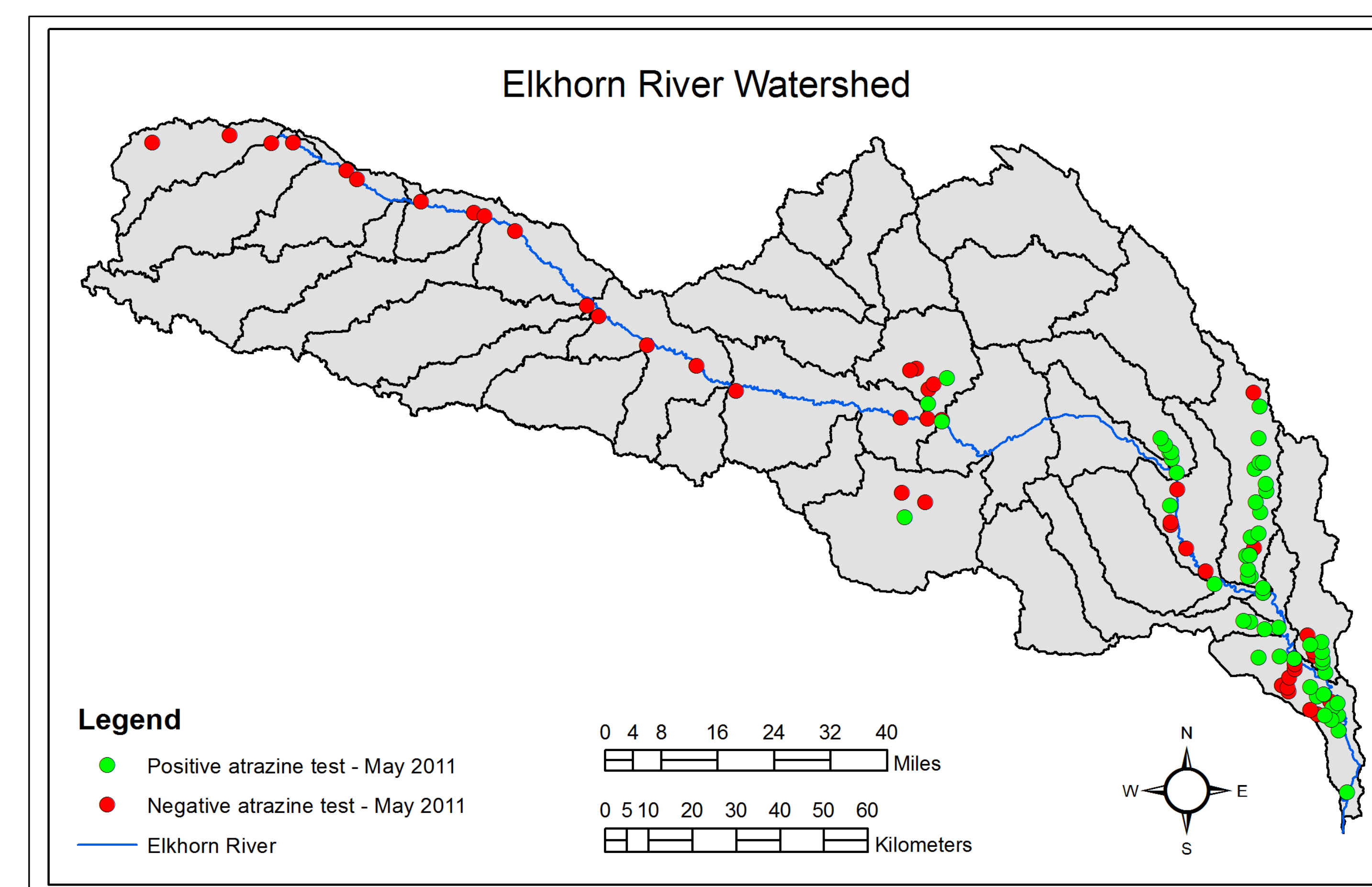
Submit

Cancel



Technical Support: (402) 554-6042

Results



Results from May 2011 Measurement

Findings

- Expert/Power User navigation needed: Interface for a single person to enter multiple data points at once in order to make it easier for volunteers who are willing to perform multiple measurements to input them more easily
- Better navigation of the interactive map: Several users reported difficulties orientating themselves when using the map to find their test sites. One part of the problem was that zooming and panning was perceived to be imprecise and jerky. The other part of the problem was a lack of landmarks in rural parts of the map of Nebraska, which meant that users had problems finding their position again after panning and zooming.

Information about the Aquatic Toxicology Lab and the Elkhorn River Watershed Atrazine Survey is available at <http://www.unomaha.edu/envirotox/>

An interactive map with the results is available at <http://atrazine.nebraskapublichealth.info/elkhorn/map.php>



Consortium for Public Health Informatics

NebraskaPublicHealth.info

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