

WI DNR & Wisconsin Aquatic Gap Mapping Application Guidance Document

Background

Location: <http://infotrek.er.usgs.gov/wdnrfish/>

This application is a joint project undertaken by the Wisconsin DNR and the U.S. Geological Survey's Wisconsin Aquatic Gap Program. The intent of the application is to provide a dynamic, queryable, geographically referenced interface that allows users to pull information directly out of the **WI DNR's Star Schema Database**. This database contains a wealth of historic fish sampling information collected by a variety of agencies and tribes. The web-based interface allows the application to be dynamic and accessible to a broader audience than would be possible using typical Geographical Information System (GIS) software—thereby allowing fish managers and the public access to this information in a geographically-referenced format.

Introduction

When the user first locates the page, they will see the following graphic (fig. 1).

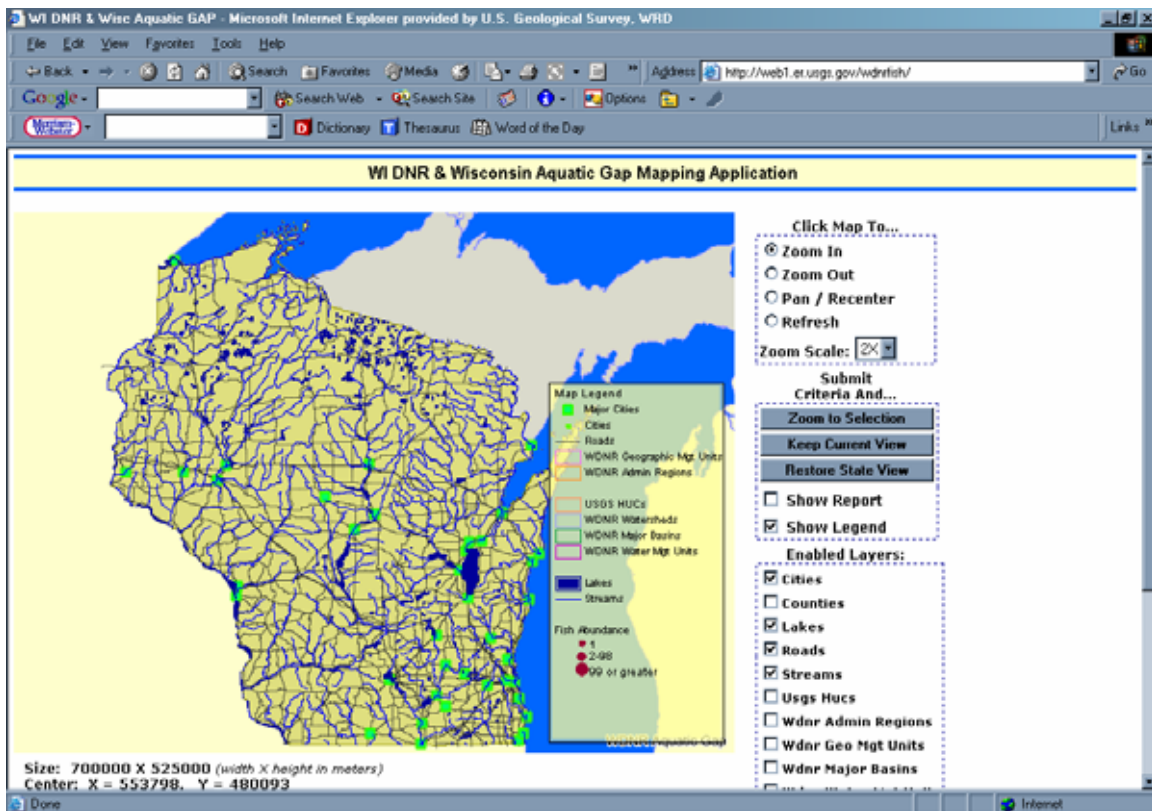


Figure 1. Application page with default settings.

Enabling/Disabling Layers

In the bottom right hand corner of the page, there is a section entitled “Enabled Layers:.” Within that section is a list of toggles representing different thematic base layers available for display by the user. Notice, in Figure 1 that cities, lakes, roads, and streams are checked “on;” this is the default for the page. These layers can subsequently be turned off and others turned on at the user’s discretion. For example, in Figure 2 the user has chosen to display the WI DNR Management Units, and to hide the lakes, roads, and streams. They accomplished this by toggling on/off the desired layers then hitting either the “Keep Current View” button, the “Restore Original Size” button, or toggling “on” the “Refresh” option in the upper right hand corner of the screen and clicking on the map.

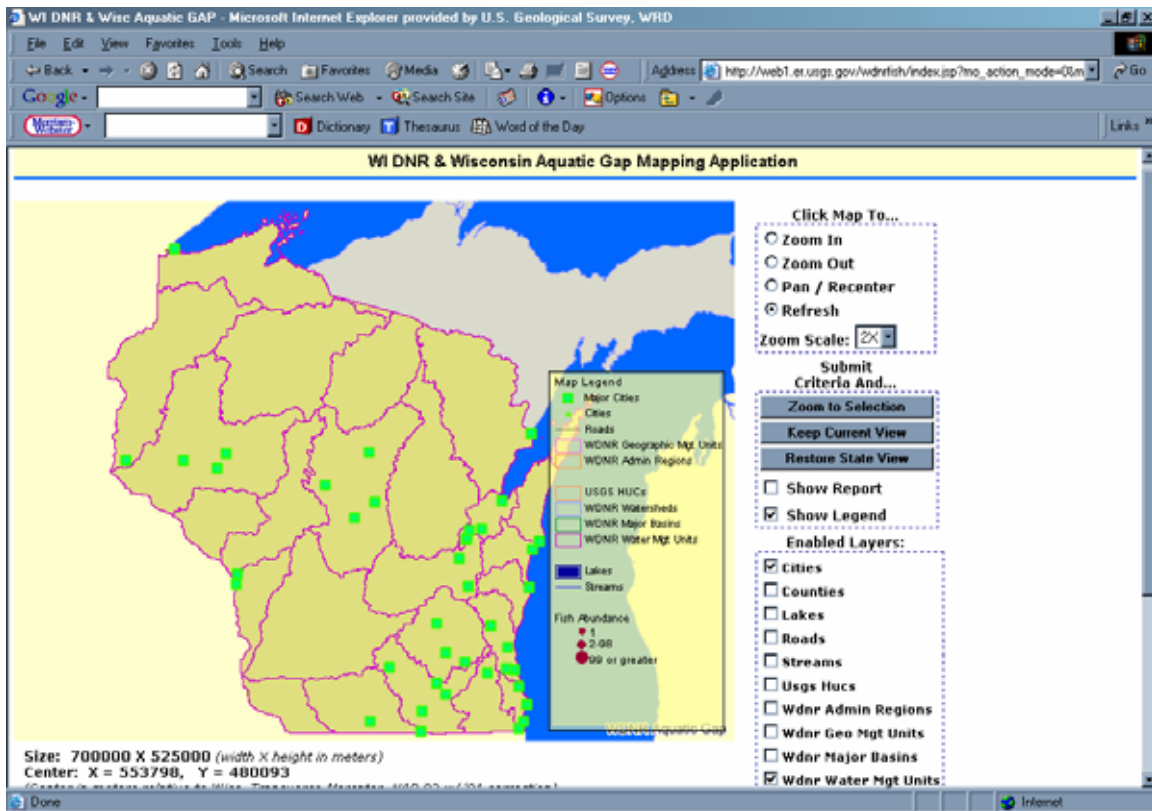


Figure 2. The user has chosen to display the cities and WI DNR Water Management Units layers.

Since the WI DNR Water Management Units also delineate watersheds in the state, perhaps the user wants to determine which major basin those watersheds fall in. They can then enable the WI DNR Major Basins layer and see a combination of the two layers, as shown in Figure 3.

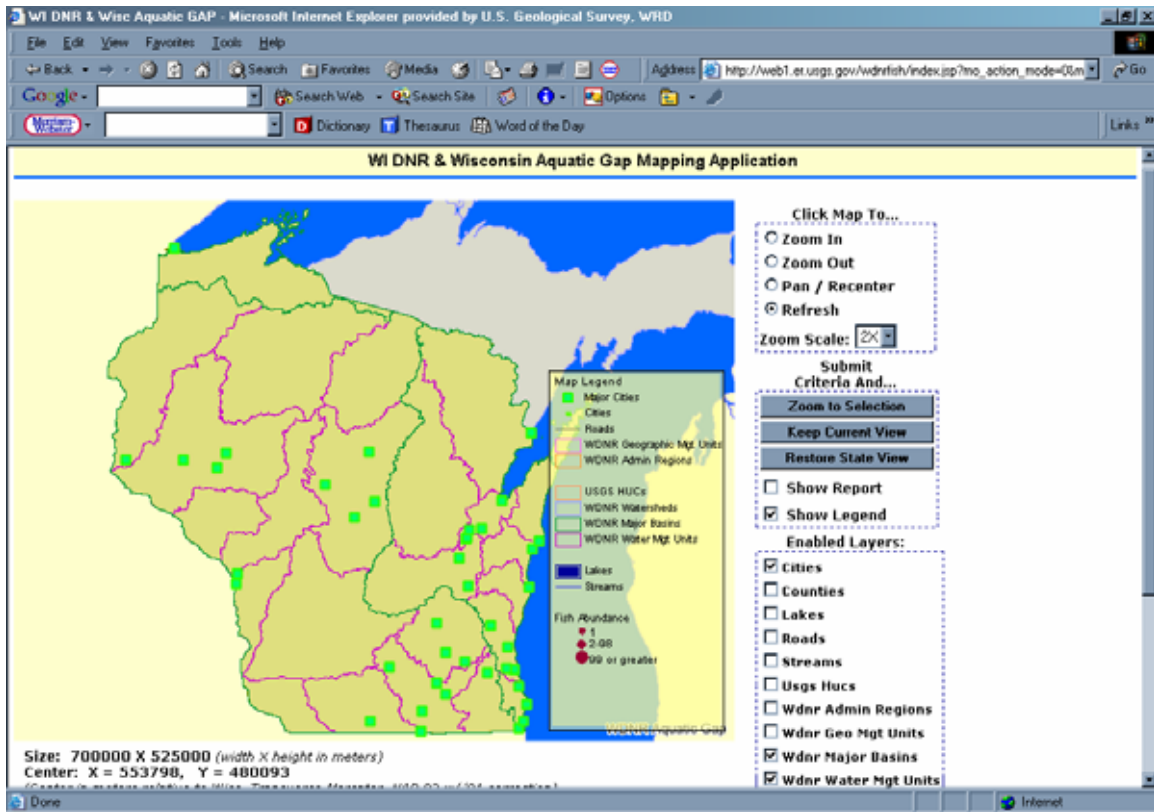


Figure 3. The user has chosen to display the cities layer with both the WI DNR Major Basins and the WI DNR Water Management Unit layers.

Please note, regardless of which layers are enabled, the legend contains information regarding every possible layer. In addition, if the given layer is enabled, more detailed versions of the cities, lakes, roads, and streams layers will appear automatically as the user zooms to higher magnification for a more precise determination of sample location.

Querying for Fish Sampling Locations

Scrolling down on the page will reveal the section of the application entitled “Selection Criteria.” This portion of the application will allow the user to retrieve information from the WI DNR fish database. Fish taxonomy, sample location, sample date, and reliability of species identification can be specified to extract selected records from the database. The default settings for this section are “Any” or blank. To retrieve selected data, the user would choose the desired criteria from the pull-down menus then click on one of the buttons from the “Submit Criteria And...” section at the right hand side of the application.

Please note, selection of a single criterion from the “Select Fish to Map” section is recommended to protect against asking the database for mutually exclusive data. When selecting multiple criteria in the “Select Location to Map” section, users should also be careful not to select locations that are mutually exclusive. For example, suppose the user wanted to see where all the locations where green sunfish were found in the state; in order to do this they (incorrectly) chose the common name “Green Sunfish” and the family name “Clupeidae.” Since the green sunfish is not in this family, there are no occurrences in the database where both things are true and the user will get no data returned. In a location example, the user chooses to map “Any” fish species that occurs in “Milwaukee County” in the “Mississippi River” basin, however, no records are displayed because Milwaukee County is not located in the Mississippi River basin. If the user chose to display “Any” fish species in “Waukesha County” in the “Mississippi River” basin, the user would get only those fish samples from Waukesha County that are located in the Mississippi River Basin

Figure 4 shows a search for brook trout collected anywhere in the state on or between the dates of January 1, 1980 and December 31, 2003. The red dots on the map indicate the locations where brook trout were found, with the size of the dot giving an indication of the number caught during the most recent sampling.

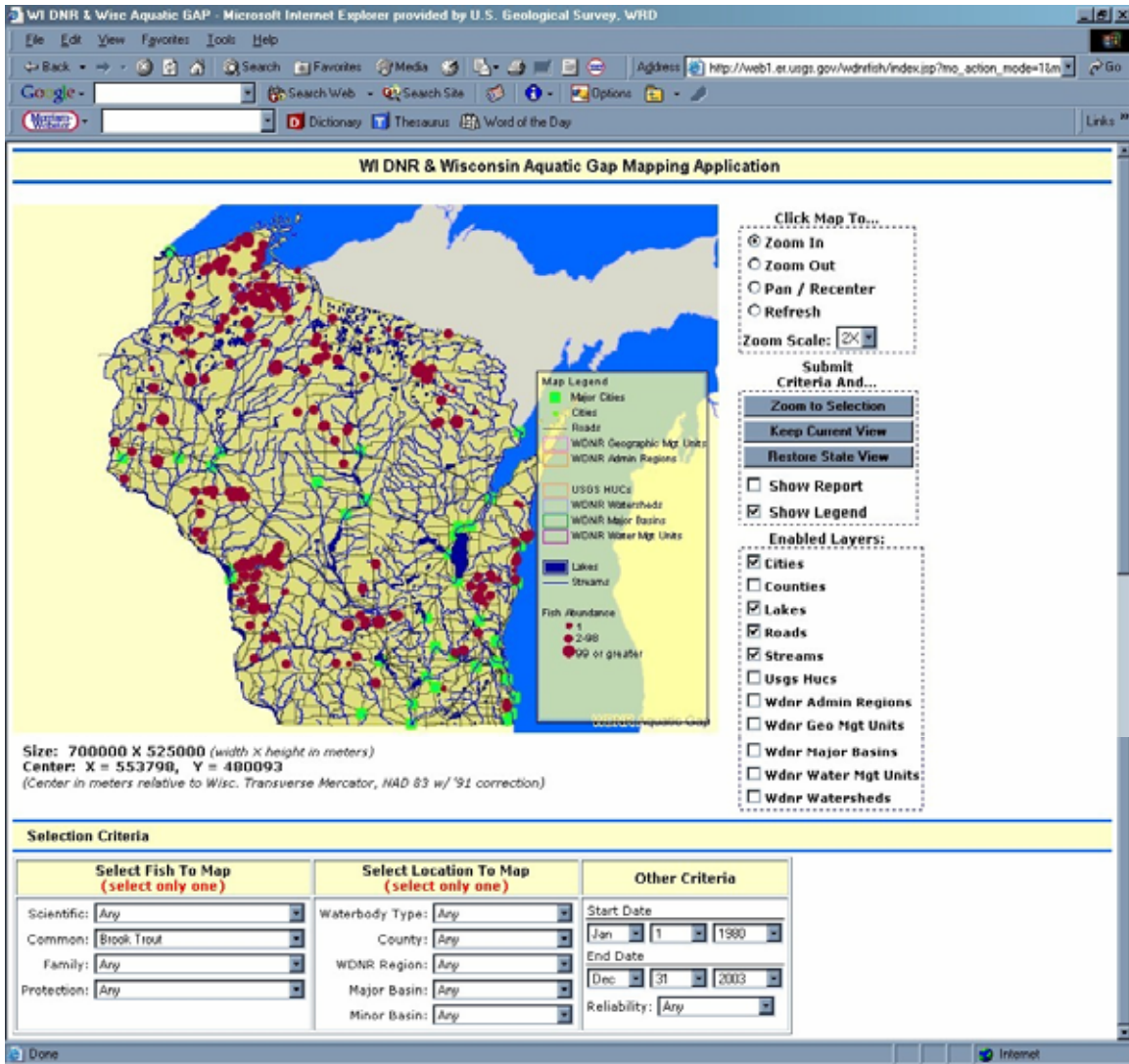


Figure 4. By selecting from the pull-down menus in the “Selection Criteria” section of the page the user can display fish data spatially. In this case, location has not been specified as a limiting option, so all the sampling locations for the State are being displayed.

The user can further limit the search by geographic region. For example, the user could restrict the query to Sawyer County by selecting this county from the drop down list in the second column. “Zoom to Selection” can be used to zoom in on the specified area (fig. 5).

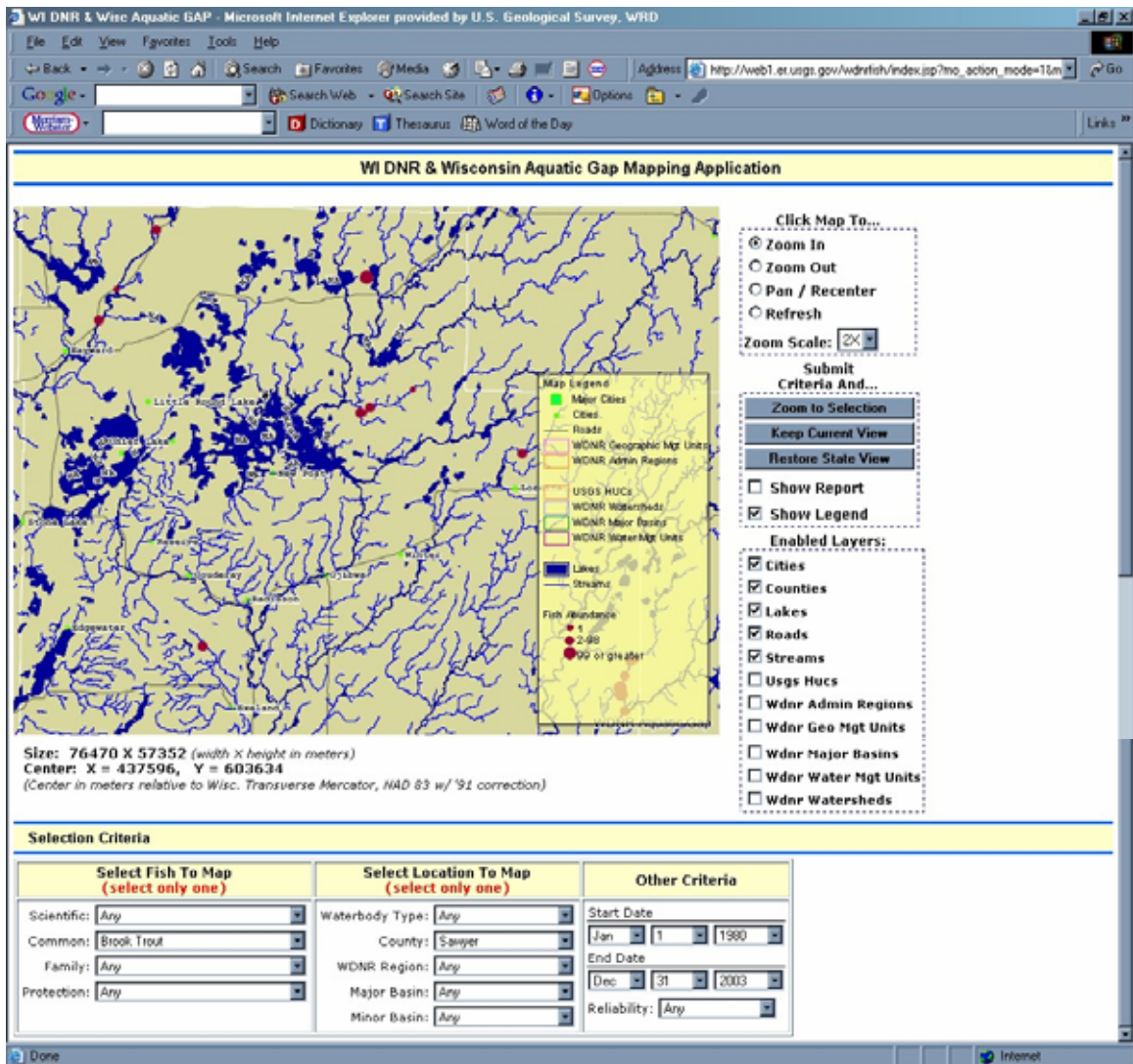


Figure 5. The query first shown in Figure 4 has been further limited by location: Sawyer County, and zoomed to the datapoints. (The county boundary layer has also been enabled to allow the user to see the boundary of Sawyer County.)

The legend floats on top of the image and can obscure datapoints beneath it (Figure 5). The user has the option of hiding the legend in order to more clearly see those datapoints. In order to hide the legend, toggle “off” the “Show Legend” option from the right hand side of the application and hit the “Keep Current View” button or toggle the “Refresh” command and click on the map (Figure 6).

The user can further determine the exact location of sampling sites by panning and zooming using the functions in the upper right hand corner of the screen. In the case of Figure 6, the “Zoom In” function has been selected with a zoom value of 8x, and the map has been clicked. Note that at this map scale both the detailed roads and waterbodies have been activated automatically to assist in the determination of precise sampling location.

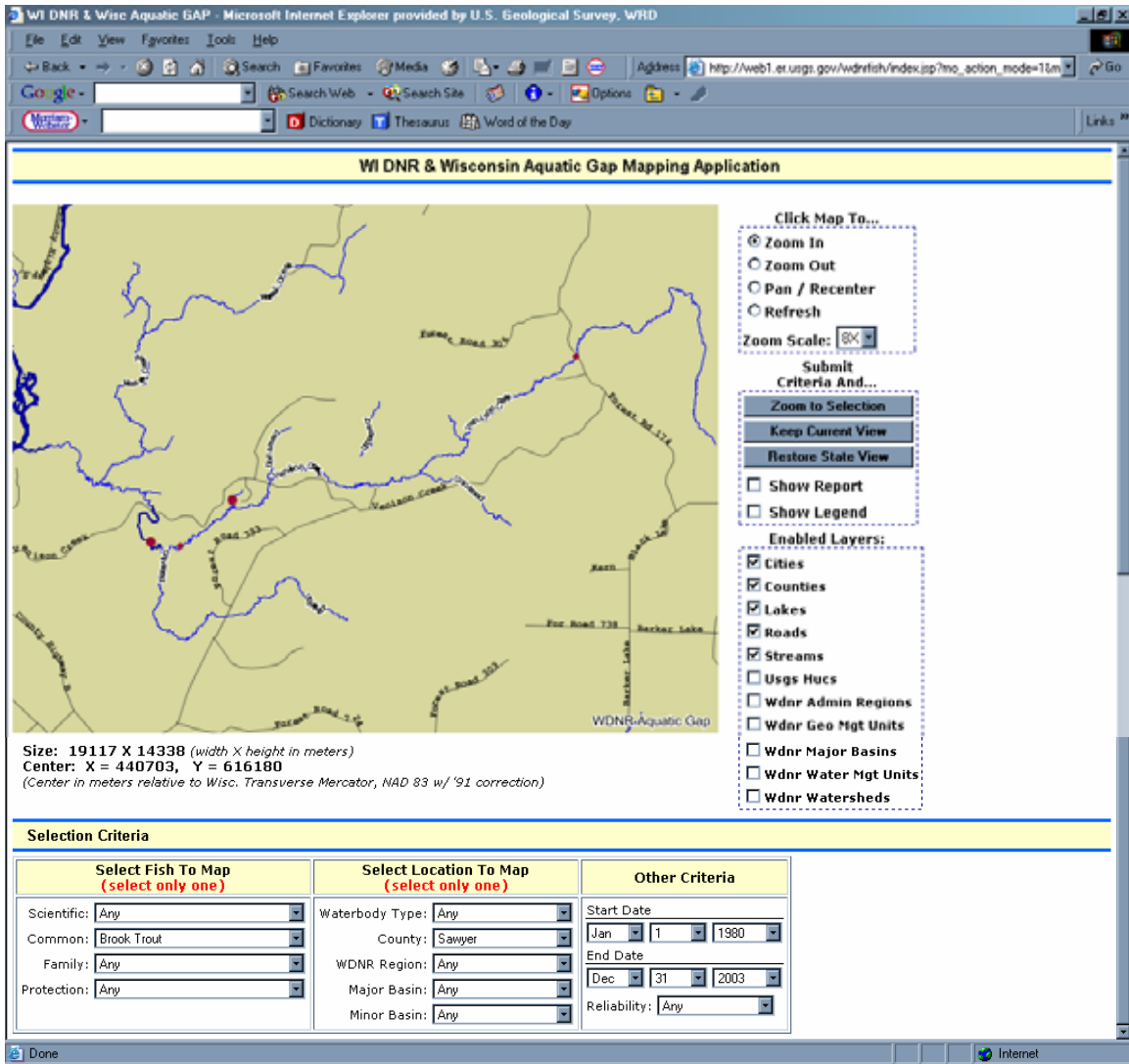


Figure 6. A more detailed look at the map in Figure 5; the legend has been hidden.

The map display can be saved directly from the website by right clicking on the image and selecting “Save Picture As...” from the pull down menu. The user is then given the option of saving the image as either a PNG or bitmap image.

Fish Data in Tabular Format

In addition to displaying the geographic location of sampling points, the mapping application allows the user to view and export the data associated with those sampling locations in a tabular format. The tabular display of the application is limited at any time by the sampling sites displayed on the map and includes even those points obscured by the legend. Therefore, to obtain data for a single sampling site, the user can zoom in on that site until no other sites are contained within the view window. Many sampling sites have been sampled, more than once, so a single point on the map may represent many sampling events at the same location; the size of the dot relating to the abundance of the species found at that location displays results only for the most recent sampling event.

In order to view the data for the points shown in Figure 6, the user would select the “Show Report” toggle and either click on the “Keep Current View” button or select the “Refresh” toggle and click on the map. This will add the tabular data to the bottom of the web page (Figure 7). The user then has the option of opening that table in a new window or exporting the data in a tab delimited format that can then be brought into Excel by clicking on the desired link directly above the table.

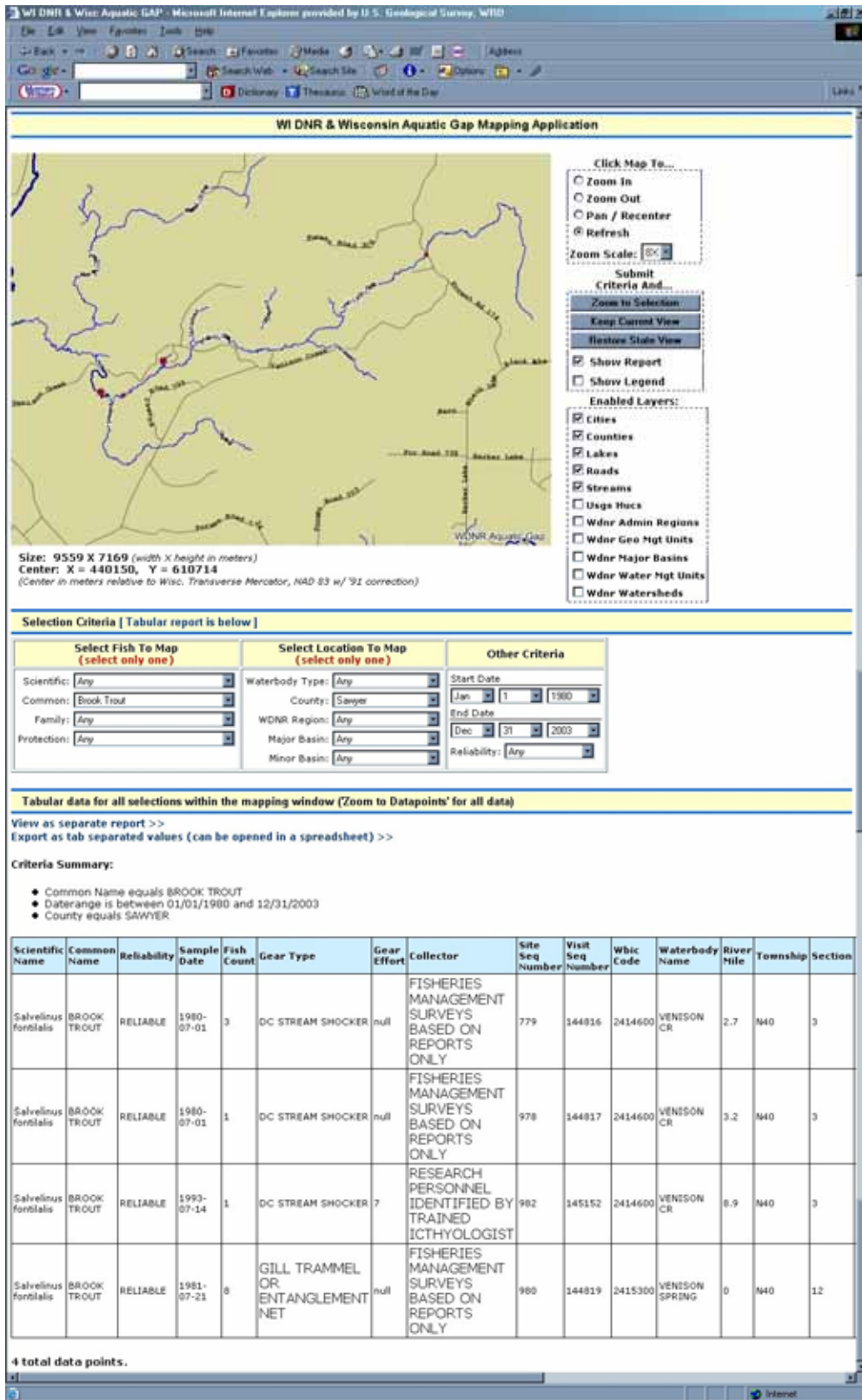


Figure 7. Tabular output for datapoints shown in Figure 6.