UNRBA Water Quality Data Web Portal

Guidance Document

Introduction

The Upper Neuse River Basin Association (UNRBA) is a cooperating, non-profit organization composed of fourteen local government organizations within the Falls Lake Watershed. The UNRBA was formed in the mid-1990s for the purpose of evaluating water quality in the Falls Lake Watershed. In 2012 the Association embarked on a project to help support the organization's objectives relative to the Falls Lake Rules and the nutrient control strategy that these Rules require. The organization has continued with that effort by developing and implementing a comprehensive monitoring program for the watershed and the Lake. This monitoring program data will assist the UNRBA in developing information to be submitted to the Division and the Environmental Management Commission under the Stage II re-examination provision as outlined in 15 NCAC 02B .0275 (5) (f) of the Rules. This adaptive management component was included in the Falls Lake Rules based on the Consensus Principles endorsed by many of the local government units in the watershed.

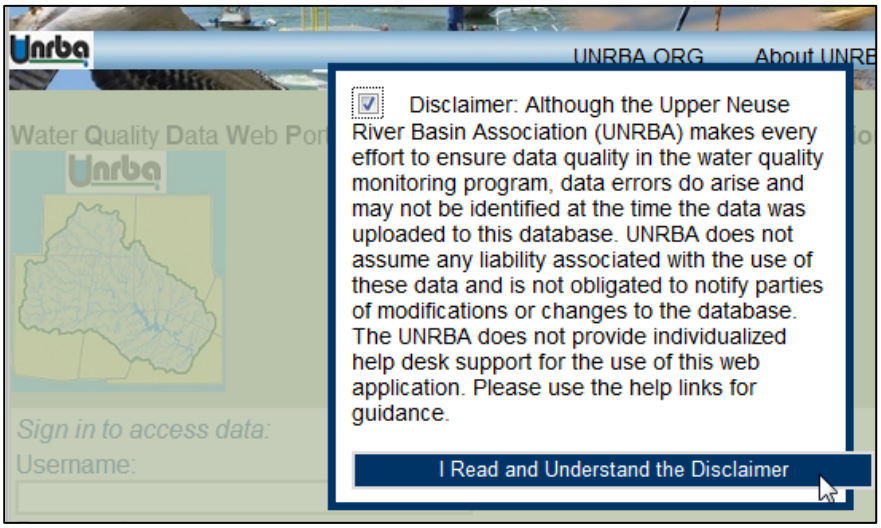
This document was designed to guide users through the use of the UNRBA Water Quality Data Web Portal which will store the data collected by the UNRBA, NCDWR, and UNRBA members with State-approved QAPPs.

- Accessing the Web Portal
- General Features and Menu
- Data Features – Query, View, and Download Data
- Additional Support

Accessing the Web Portal

The Water Quality Data Web Portal (WP) can be accessed at: http://unrba-wqp.cardno.com/

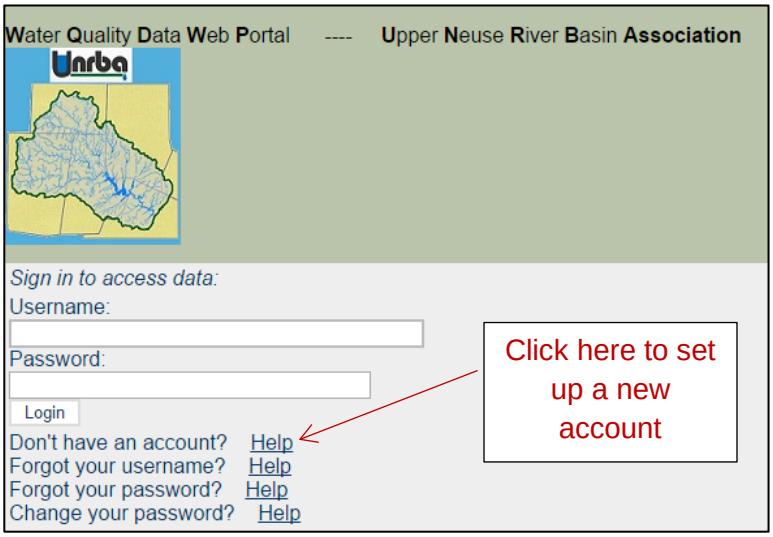
Before the WP can be accessed, the user must review and accept the Disclaimer. Once the Disclaimer has been reviewed, the user must click the box in the upper left corner of the Disclaimer box and click the button "I Read and Understand the Disclaimer" (shown in screen capture at right).



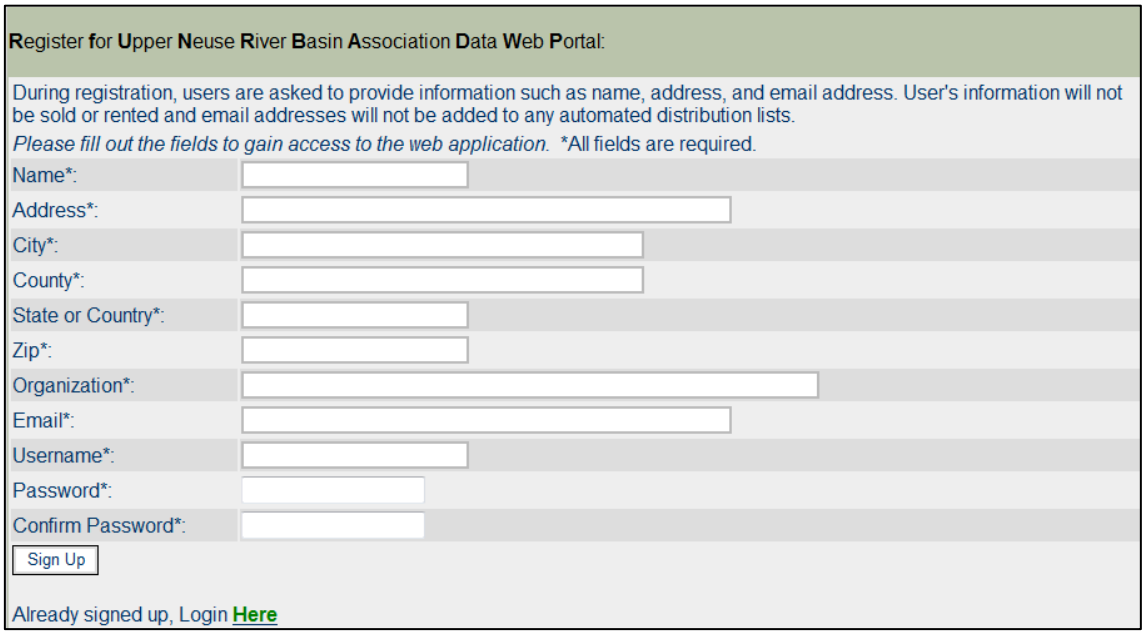
First-Time User Access

First time users must sign up for an account in order to access the WP. From the Sign-In Screen, click "**Help**" next to "Don't have an account?" to sign up (see screen capture at right).

During registration, a user is required to give certain information (such as name and email address). Your email will not be added to any email distribution lists. Your information will not be sold or rented to anyone.



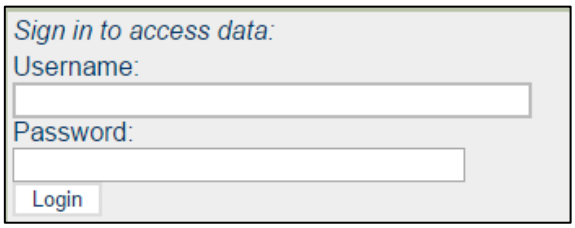
The Account Sign-Up Screen asks the user to fill out all fields. Once all fields are complete, click the "**Sign Up**" icon near the bottom of the screen (see screen capture below).



After clicking the "Sign Up" button, a new user account will be immediately generated. A screen will appear confirming registration (shown in screen capture below). Follow the link at the bottom of the page to return to the Sign-In Screen and login.

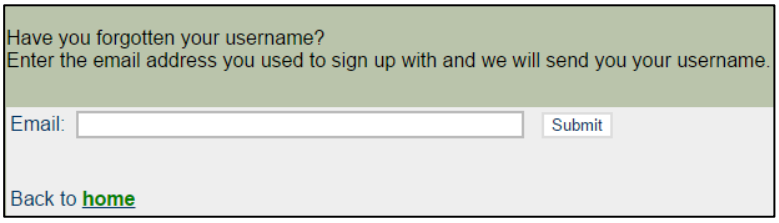
Sign-In

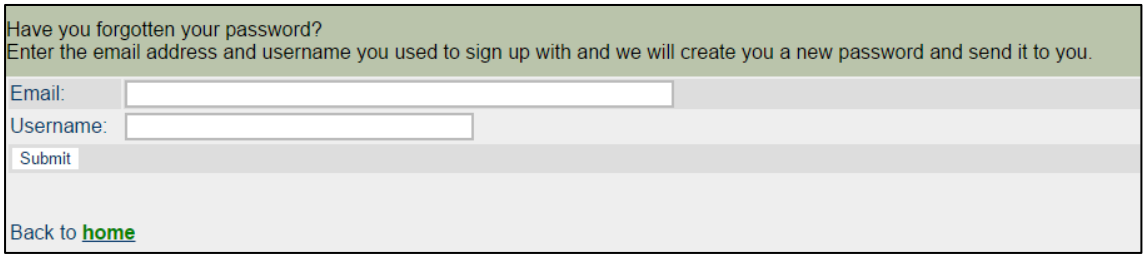
Once an account has been established, the user may login to the WP from the Sign-In Screen using their username and password (see screen capture at right).



Retrieving Forgotten Username or Password and Changing Password

In the event the user has forgotten their username or password, these items may be retrieved using the tools at the bottom left-hand side of the Sign-In Screen. From the Sign-In Screen, click "Help" next to the item that needs to be recovered. If the user has forgotten their username, the portal will ask the user to enter the email address used to create the account (see screen capture above). Enter email address and then click the "Submit" button. The username will be sent to this email address. If the user has forgotten their password, the portal will ask the user to enter their email address and username (see screen capture below). Enter email address and username then click the "Submit" button. A new password will be generated and sent to the user's email account.

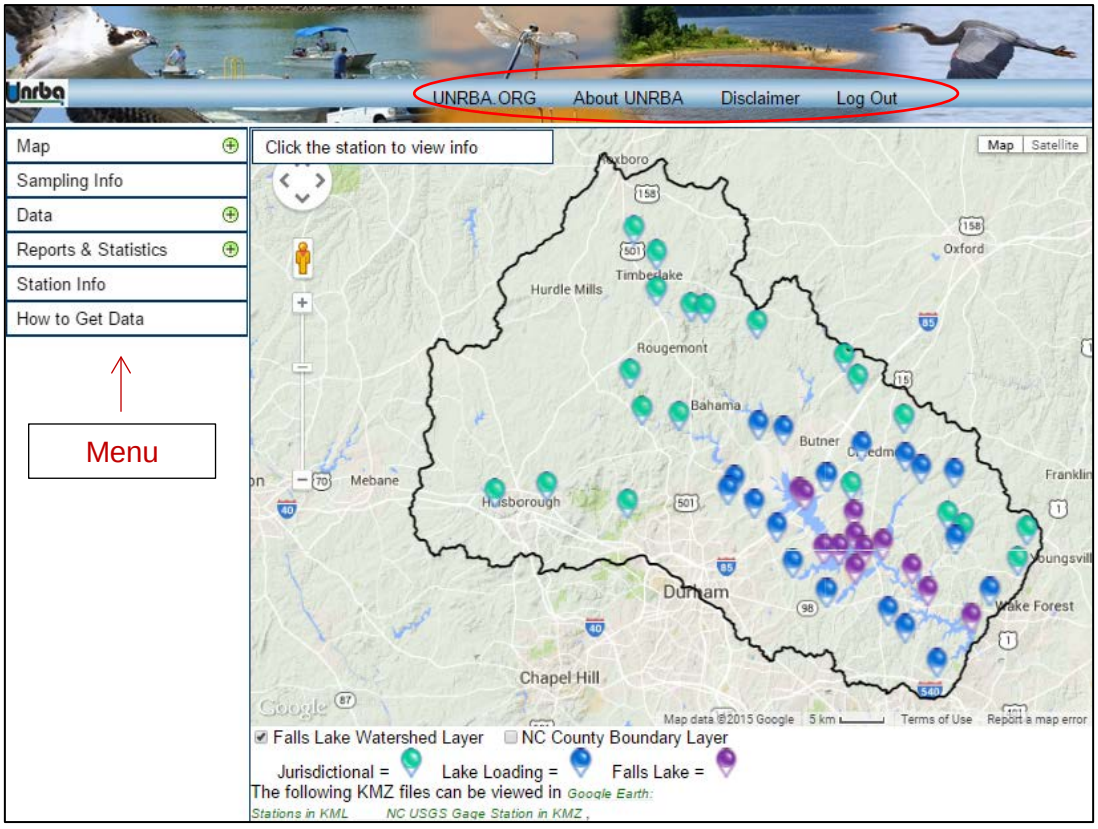




The user is also given the option to change their password. From the Sign-In Screen, click "**Help**" next to "Change your password?" The user will be asked to enter their username and old password, followed by their new password. Enter the required items and then click the "**Submit**" button. After the password has been changed, the user can return to the Sign-In Screen by clicking the "**home**" button at the bottom of the page.

General Features and Menu

After login, at the top of the Main Screen, the user will see links to the UNRBA website and the Disclaimer, as well as a "Log Out" option. A Menu is provided on the left-hand side of the screen which includes various tools that allow the user to query, view, and download data. A map is also provided to the right of the Menu. This map is powered by Google Maps with the options to pan, zoom in, zoom out, change between Map View and Satellite View, and use Google Street View.



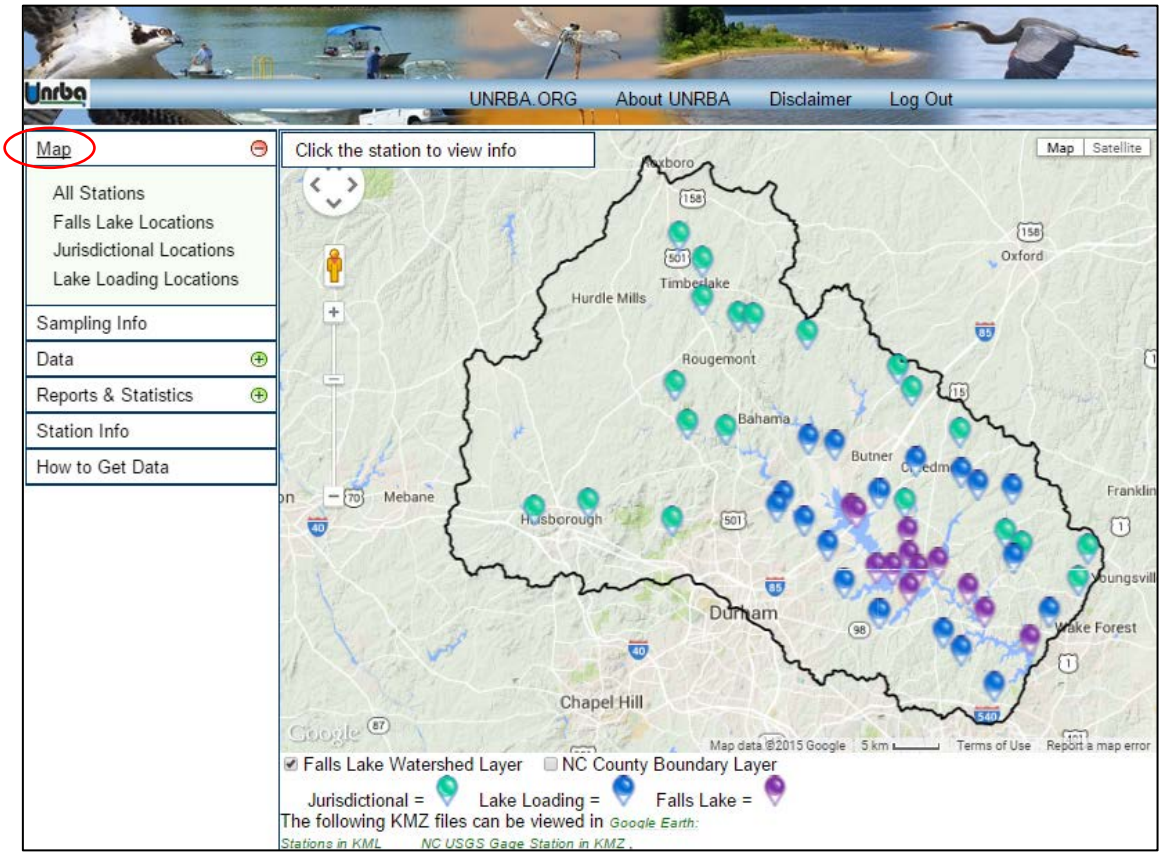
Data Features - Query, View, and Download Data

"Map" Tool

The user can view station information using the "Map" tool on the Menu. Click the ⊕ next to the "Map" tool to expand the Map Menu. From here, the user can view "All Stations" or select locations on the map:

- "Falls Lake" locations represent stations in the lake where water quality sampling is conducted.
- "Jurisdictional" locations represent water quality monitoring stations in the watershed that are located near jurisdictional boundaries such as county lines.
- "Lake Loading" locations represent locations in the watershed where water quality samples are collected to measure the quality of water entering Falls Lake.

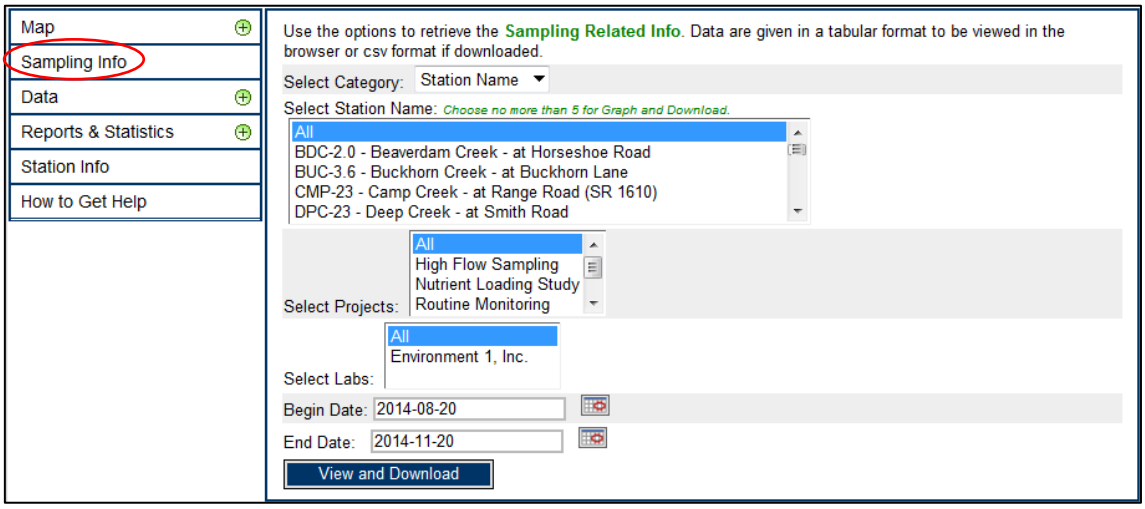
Click on the locations of interest to view the station on the map to the right of the Menu. A key is located below the map. Within the key, the user can add boundary layers including the Falls Lake Watershed Boundary Layer and the NC County Boundary Layer. Stations can be downloaded as KML and KMZ files using the tools below the key. See screen capture below for "Map" tool features.



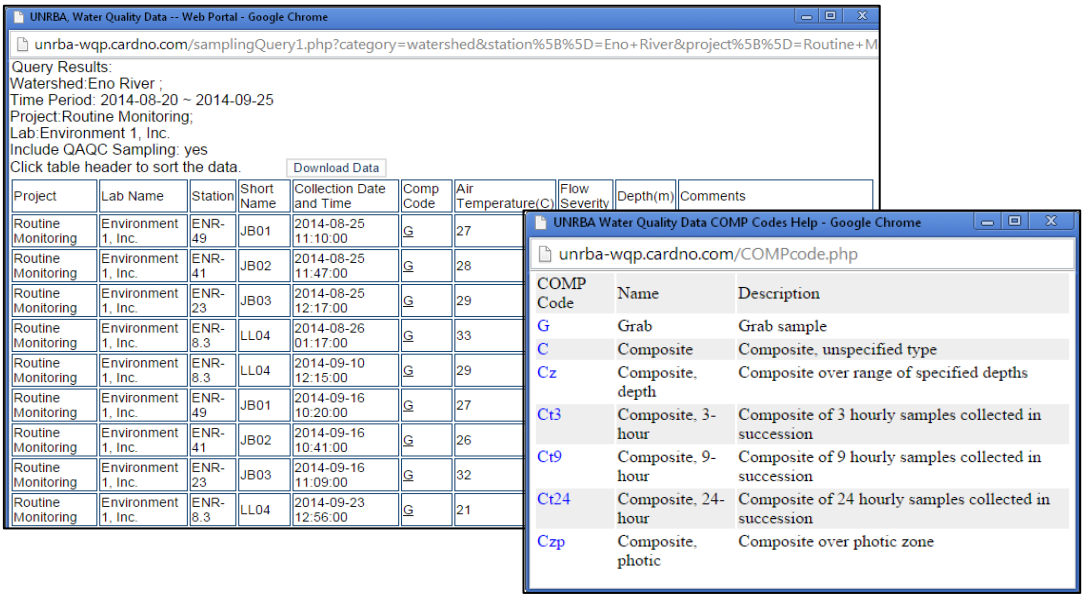
Station information (Station Name, Stream, and Description) can be accessed by clicking on individual station markers (see screen capture at right). Click on the green "X" to close the station information box.

"Sampling Info" Tool

The "Sampling Info" tool can be used to view sampling related information such as the type of monitoring conducted and the organization that collected the sample. The user is first asked to select a Category for the data query. Data can be queried by individual station name, or users may select multiple stations based on Stream name, Subwatershed, or monitoring station type (e.g., Falls Lake, Jurisdictional, or Lake Loading). Once a category is selected, the user may refine the selection by Name, Projects (All, High Flow Sampling, Routine Monitoring, or Storm Event Sampling), Labs, and data Begin and End dates (entered manually or selected using the calendar icon). Click the "View and Download" button at the bottom of the screen to view data.



Data is displayed in tabular format in a separate window showing the query results. Data can be sorted by clicking the table headers. Data can be downloaded (CSV format) by clicking the "Download Data" button. Data coding and classification information can be viewed by clicking on data that includes a hyperlink. For example, clicking on a cell in the column labelled "COMP Code" brings up a table that explains that COMP Code G indicates a grab. See screen captures below for tabular data results and data coding and classification window.



UNRBA, Water Quality Data -- Web Portal - Google Chrome

unrba-wqp.cardno.com/samplingQuery1.php?category=watershed&station%5B%5D=Eno+River&project%5B%5D=Routine+M

Query Results:
Watershed:Eno River ;
Time Period: 2014-08-20 ~ 2014-09-25
Project:Routine Monitoring;
Lab:Environment 1, Inc.
Include QAQC Sampling: yes
Click table header to sort the data.

Download Data

Project	Lab Name	Station	Short Name	Collection Date and Time	Comp Code	Air Temperature(C)	Flow Severity	Depth(m)	Comments
Routine Monitoring	Environment 1, Inc.	ENR-49	JB01	2014-08-25 11:10:00	G	27			
Routine Monitoring	Environment 1, Inc.	ENR-41	JB02	2014-08-25 11:47:00	G	28			
Routine Monitoring	Environment 1, Inc.	ENR-23	JB03	2014-08-25 12:17:00	G	29			
Routine Monitoring	Environment 1, Inc.	ENR-8.3	LL04	2014-08-26 01:17:00	G	33			
Routine Monitoring	Environment 1, Inc.	ENR-8.3	LL04	2014-09-10 12:15:00	G	29			
Routine Monitoring	Environment 1, Inc.	ENR-49	JB01	2014-09-16 10:20:00	G	27			
Routine Monitoring	Environment 1, Inc.	ENR-41	JB02	2014-09-16 10:41:00	G	26			
Routine Monitoring	Environment 1, Inc.	ENR-23	JB03	2014-09-16 11:09:00	G	32			
Routine Monitoring	Environment 1, Inc.	ENR-8.3	LL04	2014-09-23 12:56:00	G	21			

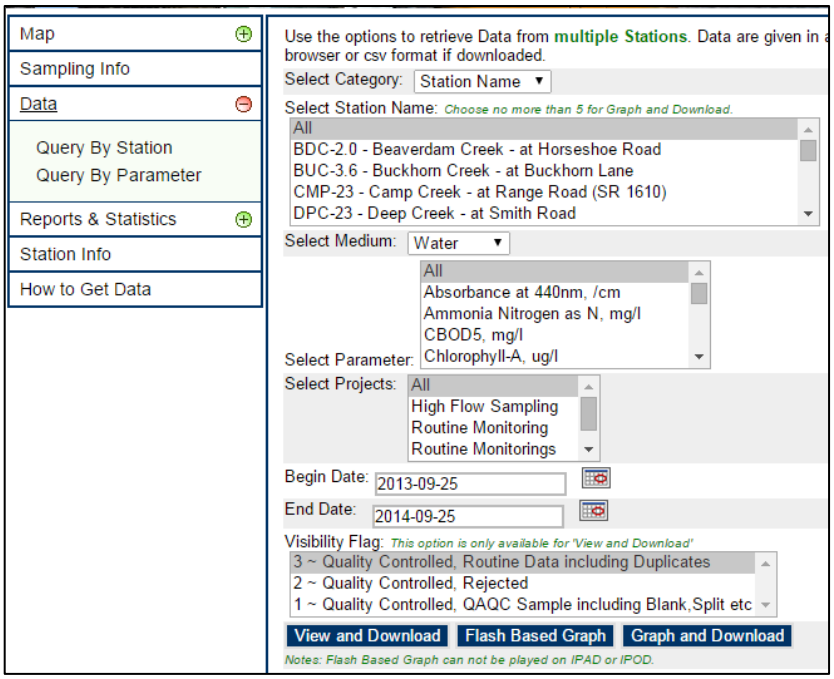
UNRBA Water Quality Data COMP Codes Help - Google Chrome

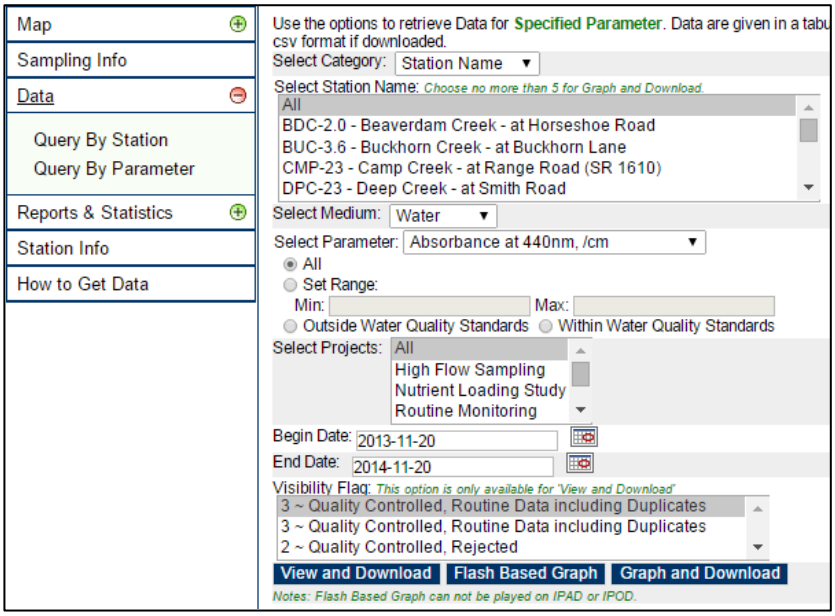
unrba-wqp.cardno.com/COMPcode.php

COMP Code	Name	Description
G	Grab	Grab sample
C	Composite	Composite, unspecified type
Cz	Composite, depth	Composite over range of specified depths
Ct3	Composite, 3-hour	Composite of 3 hourly samples collected in succession
Ct9	Composite, 9-hour	Composite of 9 hourly samples collected in succession
Ct24	Composite, 24-hour	Composite of 24 hourly samples collected in succession
Czp	Composite, photic	Composite over photic zone

"Data" Tool

Click the ⊕ next to the "Data" tool in the Menu to query the database and view or download monitoring data. The "Query By Station" option allows the user to set up a query to retrieve data for one or more stations. "Query By Parameter" allows the user to select data for a single parameter of interest with the option of filtering for values that meet user specified criteria. See screen captures at right for "Query By Station" (top) and "Query By Parameter" (bottom) features.





For parameters with State water quality standards, the user can refine the query by selecting the radio buttons for "Outside Water Quality Standards" or "Within Water Quality Standards." The "Data" tool can also be used to query data on additional items including Medium (Water, Sediment) and Parameter (e.g., Ammonia Nitrogen, Chlorophyll a). Data can be filtered using the Visibility Flag options to specify whether rejected data or QAQC samples (blanks and split samples) are displayed. Data can be viewed and downloaded using the "View and Download" button or graphed, downloaded, printed, or exported using the "Flash Based Graph" or "Graph and Download" buttons. Flash based graphs require Adobe Flash Player and may not be visible on iPads. We recommend the "Graph and Download" option for viewing results.

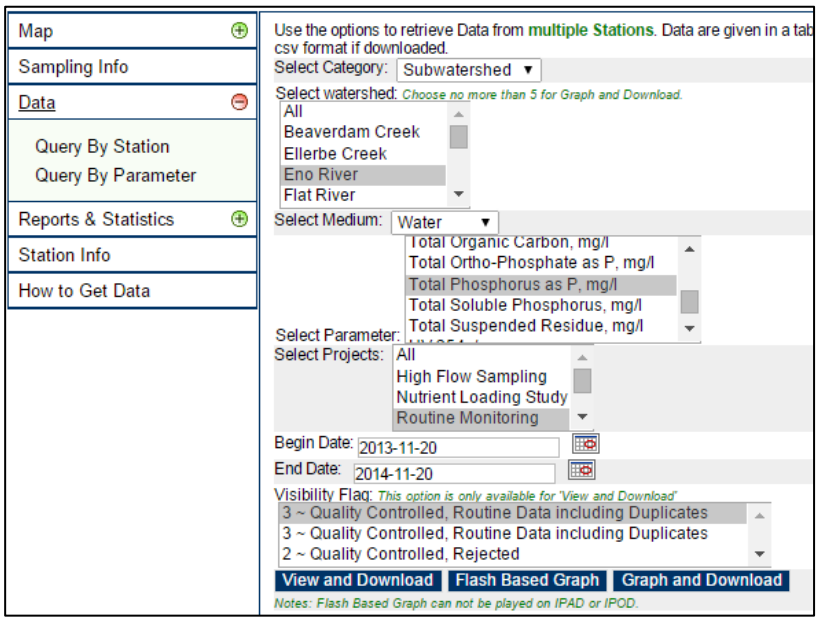
A case example is provided in the following section to illustrate using the "Data" tool to query, view, download, and graph data.

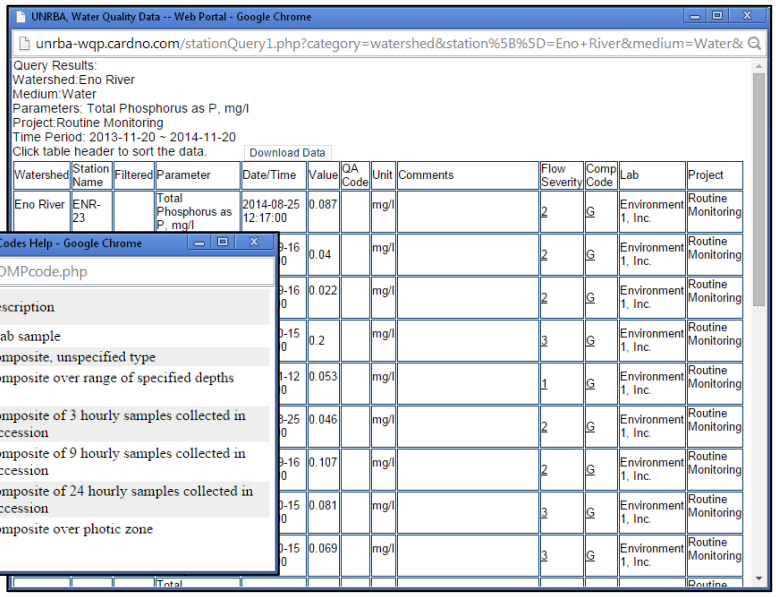
Case Example

From the expanded "Data" tool menu, choose the "Query By Station" option. Choose the following items:

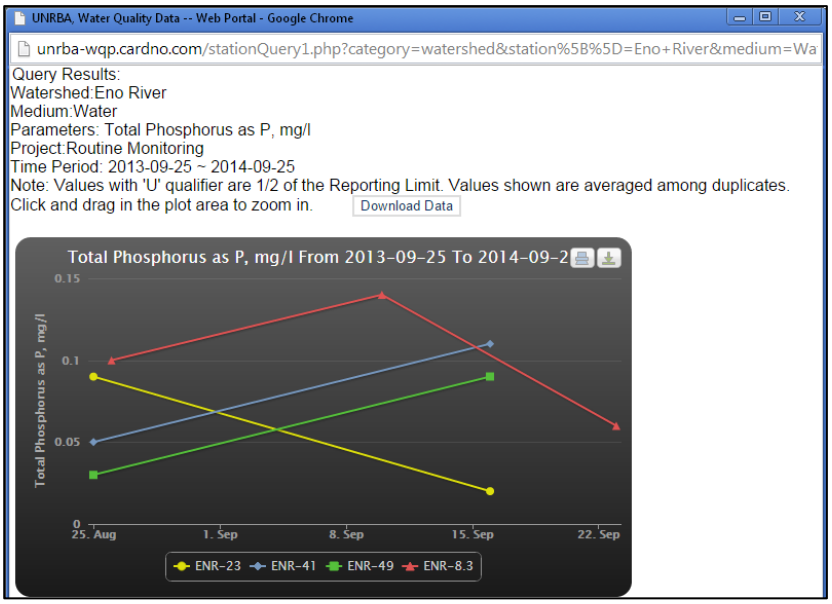
- Select Category (drop-down menu): *Subwatershed*
- Select Watershed: *Eno River*
- Select Medium: *Water*
- Select Parameter: *Total Phosphorus as P, mg/l*
- Select Projects: *Routine Monitoring*
- Begin Date: *2013-09-25*
- End Date: *2014-09-25*
- Visibility Flag: *3 ~ Quality Controlled, Routine Data including Duplicates*

Choose "View and Download" to view the data. Data is displayed in tabular format in a separate window. Data can be sorted by clicking the table headers. Data can be downloaded (CSV format) by clicking the "Download Data" button. Data coding and classification information can be viewed by clicking on the data that includes a hyperlink. For example, clicking on a cell in the column labelled "COMP Code" brings up a table that explains that COMP Code G indicates a grab sample. See screen captures at right for tabular data results and data coding and classification window.





Choose "Graph and Download" to see an interactive line plot with markers indicating monitoring events (hover over markers to see monitoring date, station name, and parameter value). Parameter values are displayed on the Y-axis, and Time is displayed on the X-axis. Data Series (identified by station name) are color-coded and identified in the key at the bottom of the graph. Data for a series can be turned on and off by clicking on the marker in the legend. This graph can be printed or exported to an image file (PNG, JPG, PDF, SVG) using the Print and Export buttons at the top right of the graph. Data can also be downloaded in CSV format from the "Graph and Download" window using the "Download Data" button above the graph.

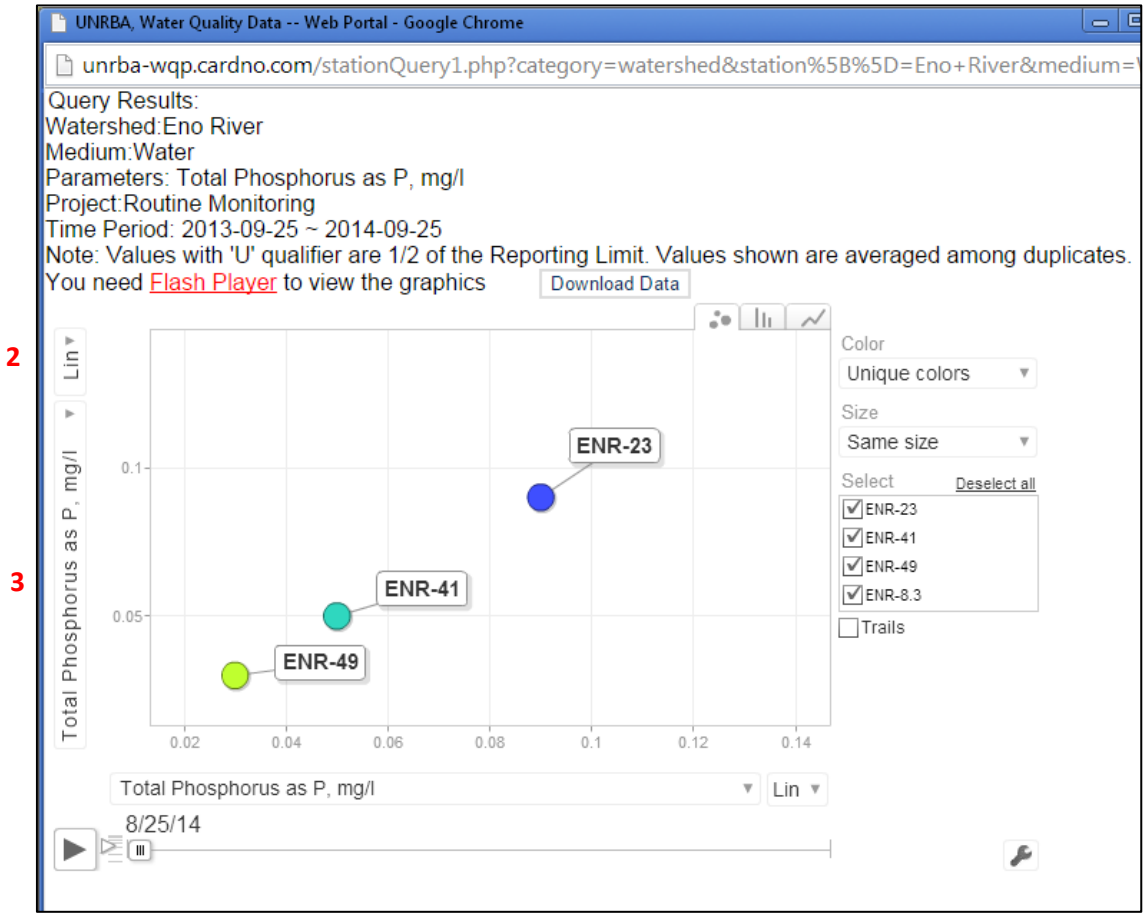


More advanced graphing features are available using the "Flash Based Graph." Features of this tool are provided below (numbered items below correspond to numbered items in screen capture at top of next page):

1. The tabs at the top right of the graph allow the user to switch between graph types:
    a. Point: Illustrates parameter concentrations (Y-axis) as single measurements in time. The "Play" button (▶) at the bottom of the graph produces a time series illustrating changes in parameter concentrations over the selected time period. Speed of play can be adjusted using the scale adjacent (to right of) Play button (top = fast play speed, bottom = slow play speed).
    b. Column: Illustrates parameter concentration (Y-axis) in column form. The "Play" button at the bottom of the graph produces a time series.
    c. Line: Illustrates changes in parameter concentrations (Y-axis) over time (X-axis).
2. Graphs may be viewed on a Linear or Log scale (Y-axis) by choosing the Scale Menu on the left-hand side of the graph.
3. If multiple parameters were selected for graphing, the user can choose which parameter to view by using the Parameter Menu on the left-hand side of the graph.
4. The user can change the item-display on the X-axis (Point and Column graphs, only). Items can be ordered alphabetically, by time, or according to parameter concentration.
5. The Color Menu allows the user to choose between viewing the graphed Data Series in:
    a. Same Color: A single color is used to graph data for all stations.
    b. Unique Colors: Individual colors assigned by station.
    c. Parameter-Specific Scale: Parameter concentrations are color-coded according to a graduated color bar, which shows the range of concentrations observed, from high-end (red) to low-end (blue).

6. The Size Menu (Point graph, only) allows the user to visualize concentration level by point size.
7. The Station Menu, at the right of the graph, allows the user to zoom in on data for a station(s) of interest.
8. The Trails option (Point graph, only) creates a scatter plot of the Data Series, allowing the user to visualize and track concentrations over time.
9. The Settings Menu allows the user to adjust general settings, including the opacity of non-selected items, and provides instructions on how to "zoom in" on a section of the graph.

Station name and parameter concentration can be viewed at any time by hovering over a Data Series. Data can also be downloaded in CSV format from the "Flash Based Graph" window using the "Download Data" button above the graph.



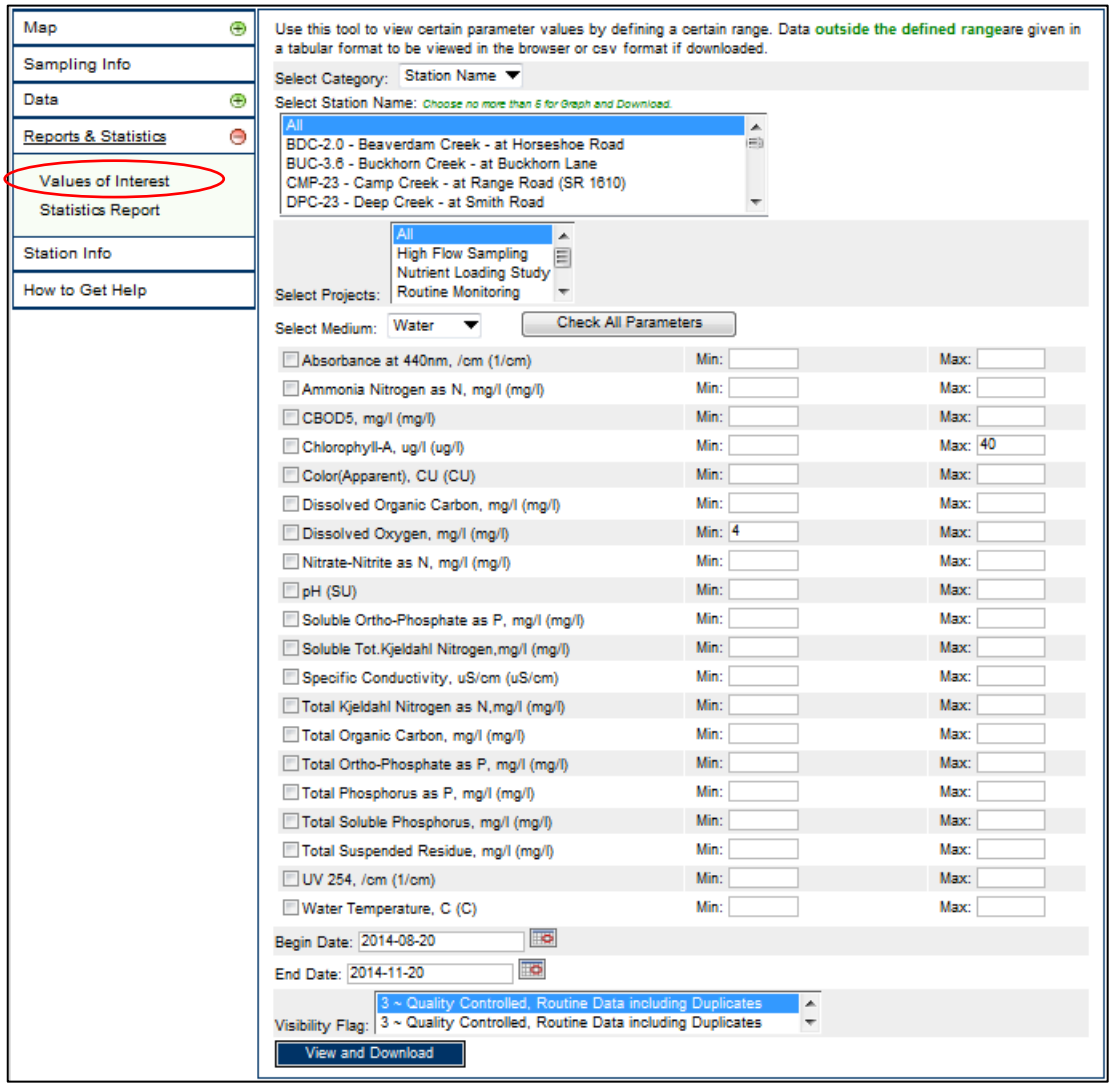
“Reports and Statistics” Tool

Click the ⊕ next to the “Reports and Statistics” tool in the Menu.

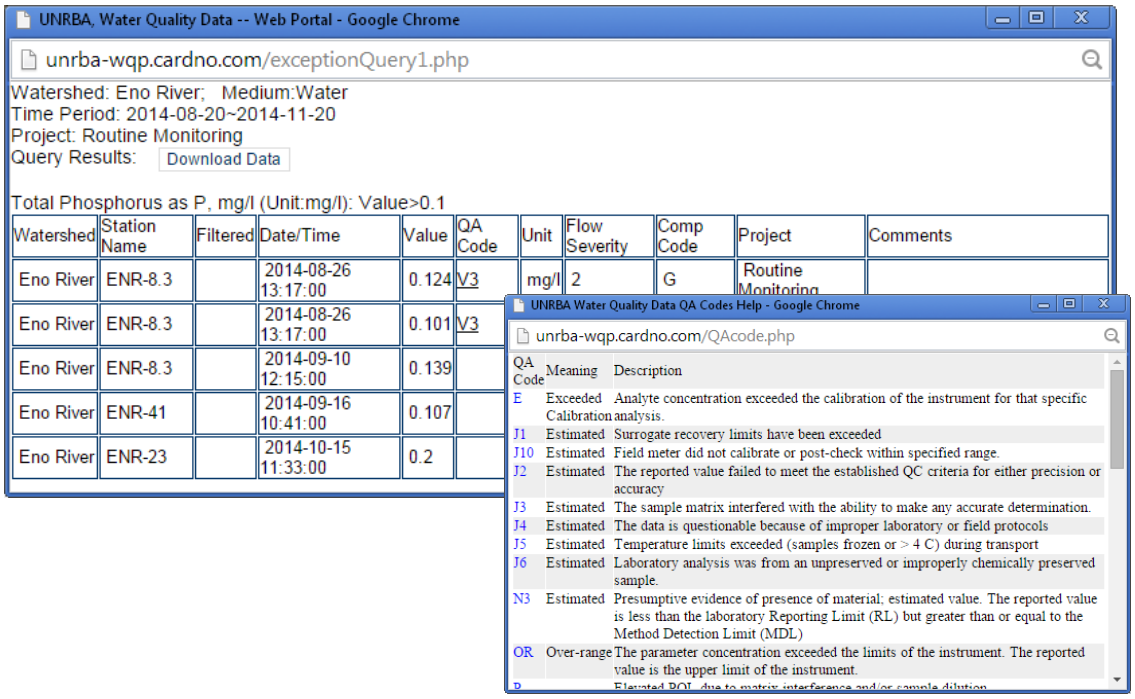
The “Values of Interest” option can be used to query values of interest by parameter according to user specifications:

- To only show values that are less than a value, enter the value in the Min box.
- To only show values that are greater than a value, enter the value in the Max box.
- To show values outside of a range (i.e., extremes), enter the smaller value in the Min box and the higher value in the Max box.
- Note: To show values within a range, the user must use the “Data” tool menu and choose the “Query By Parameter” option. Under “Select Parameter,” click on the “Set Range” radio button and enter the values in the boxes labelled Min and Max.

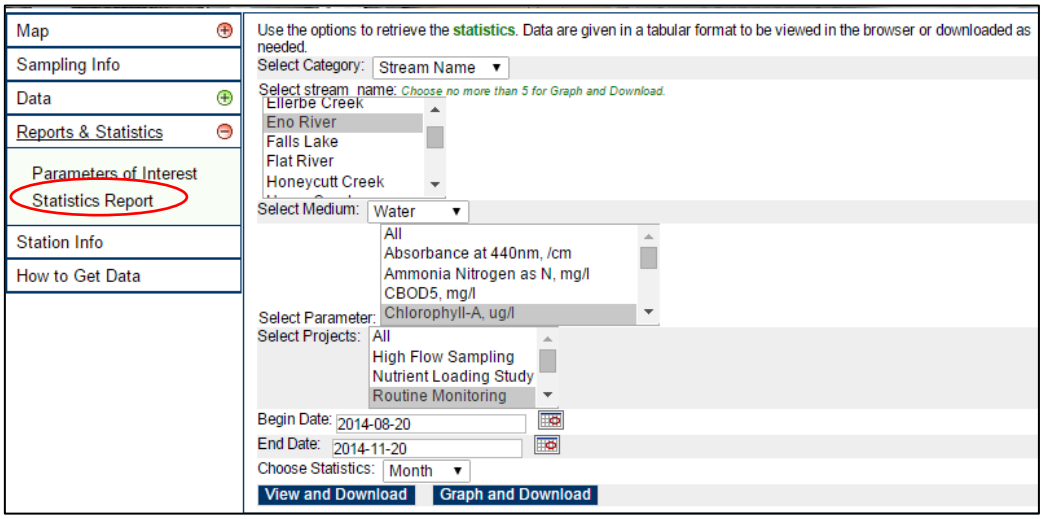
Once query items are defined, choose “View and Download” to view the data.



Data is displayed in tabular format in a separate window. Data can be sorted by clicking the table headers. Data can be downloaded (CSV format) by clicking the "Download Data" button. Data coding and classification information can be viewed by clicking on the data that includes a hyperlink. For example, clicking on a cell in the column labelled "QA Code" brings up a table that defines QA coding (see screen captures below).

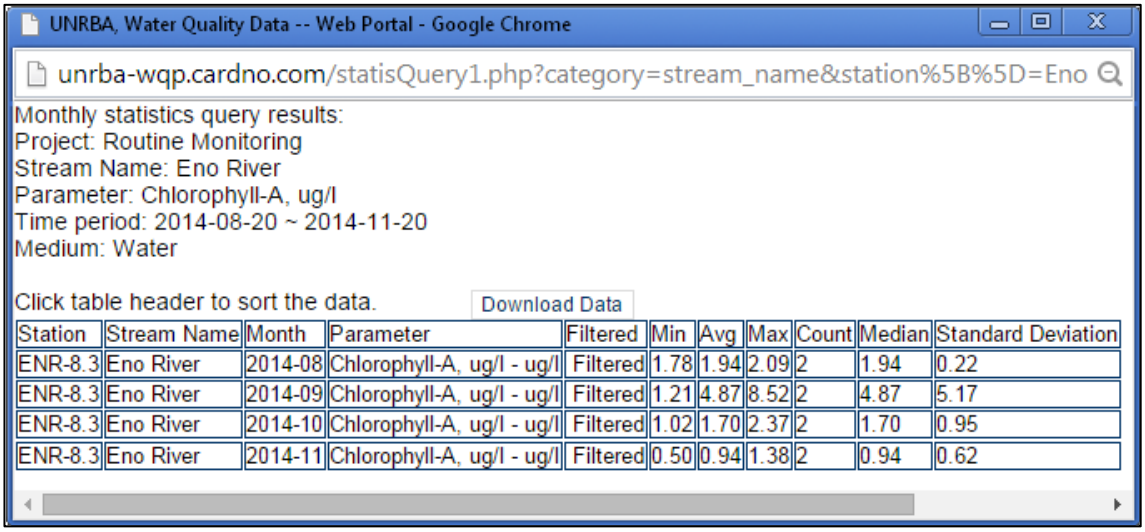


The "Statistics Report" option can be used to query data for generating a statistics report (see screen capture below). The user first selects a Category at the top of the window (Stream Name, Subwatershed, Station Name, or Station Type), and then the corresponding Names or Types to summarize (e.g., Beaverdam Creek or Falls Lake). If the user selects "All" under the Select Names box, the results will compare statistics across all of the names. If the user selects a particular name under the Select Names box, the results will compare statistics for individual stations within the Name. For example, if the Category is Stream Name and the user selects "All", one row of statistics will be generated for each watershed. If the user selects "Eno River" instead of "All", one row of statistics will be generated for each station in the Eno River watershed.



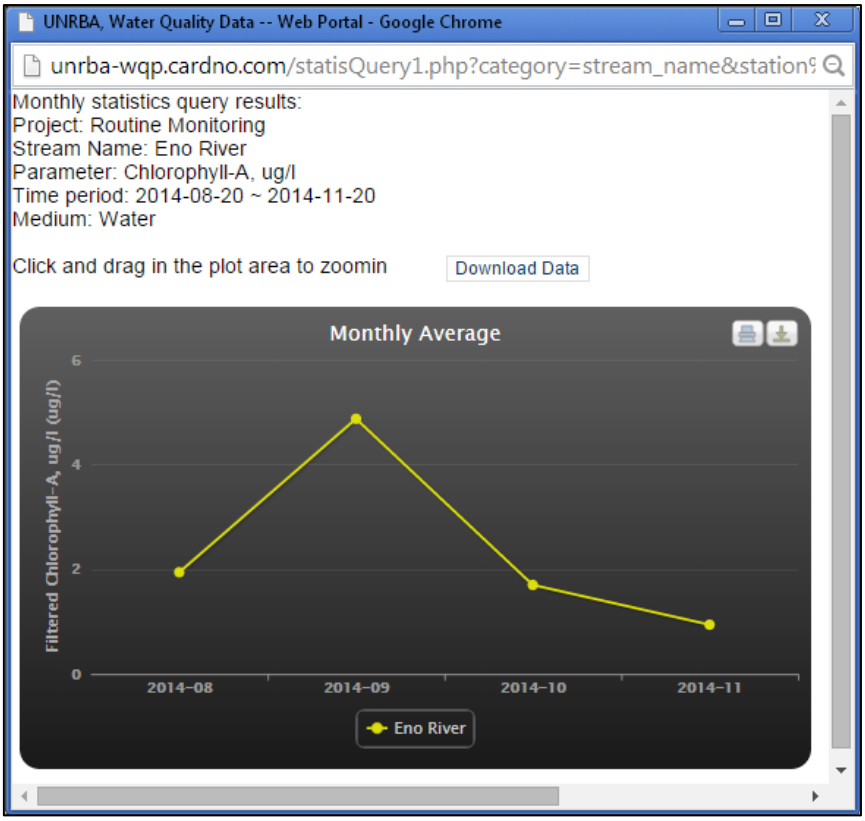
The report can be generated by Year, Quarter, or Month using the "Choose Statistics" feature drop-down menu. Choose the "View and Download" button to view data.

Results are displayed in tabular format in a separate window showing the query results (see screen capture at top of next page). Statistical summaries include Minimum, Average, Maximum, Count (sample size), Median, and Standard Deviation. Data can be sorted by clicking the table headers. Data can be downloaded (CSV format) by clicking the "Download Data" button.



Station	Stream Name	Month	Parameter	Filtered	Min	Avg	Max	Count	Median	Standard Deviation
ENR-8.3	Eno River	2014-08	Chlorophyll-A, ug/l - ug/l	Filtered	1.78	1.94	2.09	2	1.94	0.22
ENR-8.3	Eno River	2014-09	Chlorophyll-A, ug/l - ug/l	Filtered	1.21	4.87	8.52	2	4.87	5.17
ENR-8.3	Eno River	2014-10	Chlorophyll-A, ug/l - ug/l	Filtered	1.02	1.70	2.37	2	1.70	0.95
ENR-8.3	Eno River	2014-11	Chlorophyll-A, ug/l - ug/l	Filtered	0.50	0.94	1.38	2	0.94	0.62

Choose "Graph and Download" from the Statistics Report window to see an interactive line plot with markers indicating monitoring events (hover over markers to see monitoring date, station name, and parameter value). Parameter values are displayed on the Y-axis, and Time is displayed on the X-axis. Data Series (identified by station name) are color-coded and identified in the key at the bottom of the graph. This graph

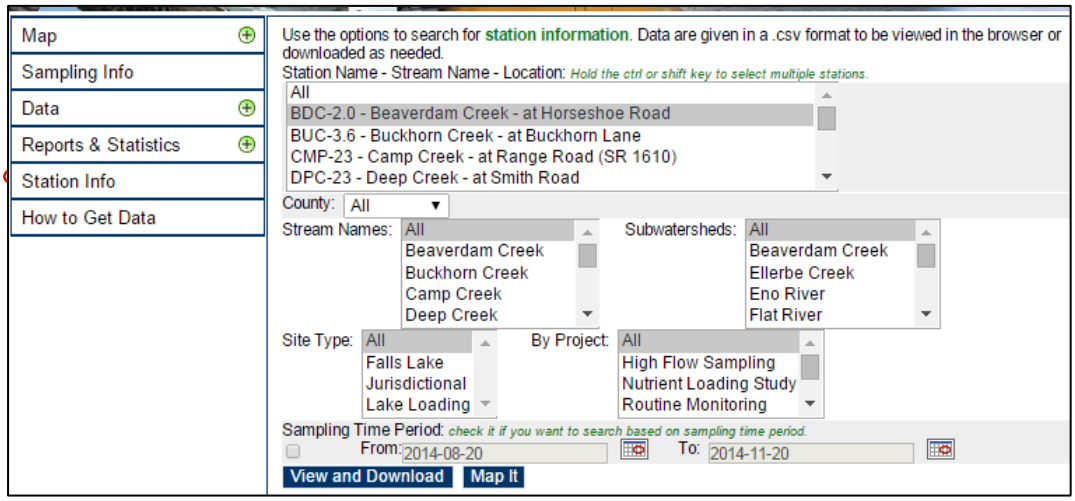


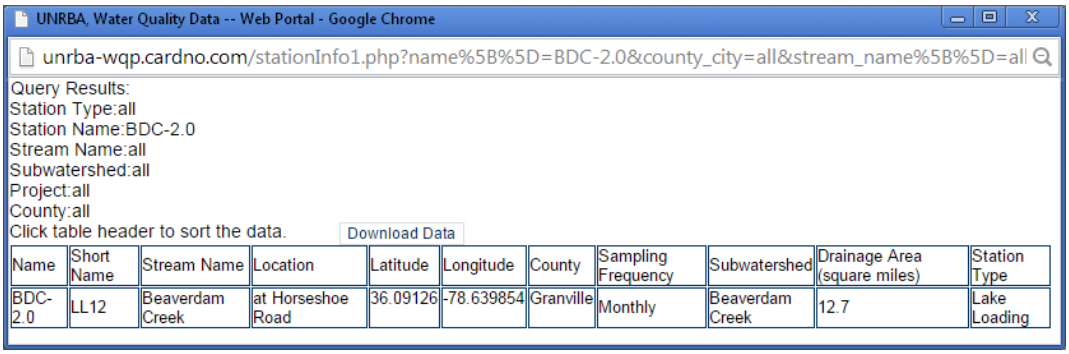
can be printed or exported to an image file (PNG, JPG, PDF, SVG) using the **Print** and **Export** buttons at the top right of the graph. Data can also be downloaded in CSV format from the "**Graph and Download**" window using the "**Download Data**" button above the graph.

"Station Info" Tool

The "Station Info" tool can be used to search for station information or to generate a map of stations. The user can query by Station Name(s), County, Stream Name(s), Subwatershed(s), Site Type (station type), and Project. The user is also given the option to query by sampling time period using the Sampling Time Period check box and "From" and "To" options for selecting a date range.

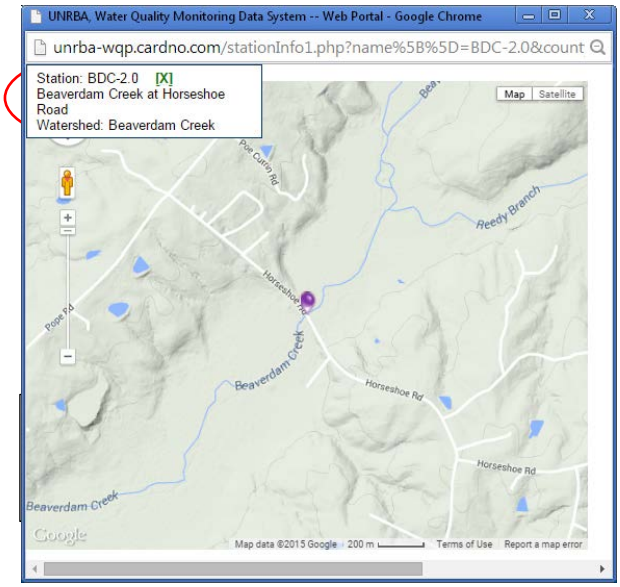
Choose the "**View and Download**" button to view data.





Data is displayed in tabular format in a separate window (see screen capture above). Data can be sorted by clicking the table headers. Data can be downloaded (CSV format) by clicking "**Download Data**."

Choose the "Map It" button to map the station in a separate window (see screen capture at right). Click on the station marker to see station information including Station Name, Stream Name, Location, and Subwatershed. Click on the green "X" to close the station information box.



Additional Support

For additional instruction on retrieving data from the WP, please see the "How to Get Data" menu option. UNRBA does not provide individualized help desk support for the use of this web application.