MOHAWK RIVER WATERSHED WEB MAP VIEWER

HELP DOCUMENTATION
VERSION 2

Stone Project ID 112437-G
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ACKNOWLEDGEMENTS

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1. INTRODUCTION

The Mohawk Watershed Web Map was developed to serve as a tool for watershed planning.

1.1. Mohawk River Watershed Web Map

The Mohawk River Watershed Web Map can be accessed at the URL:

http://opdgig.dos.ny.gov/#/map/mohawk
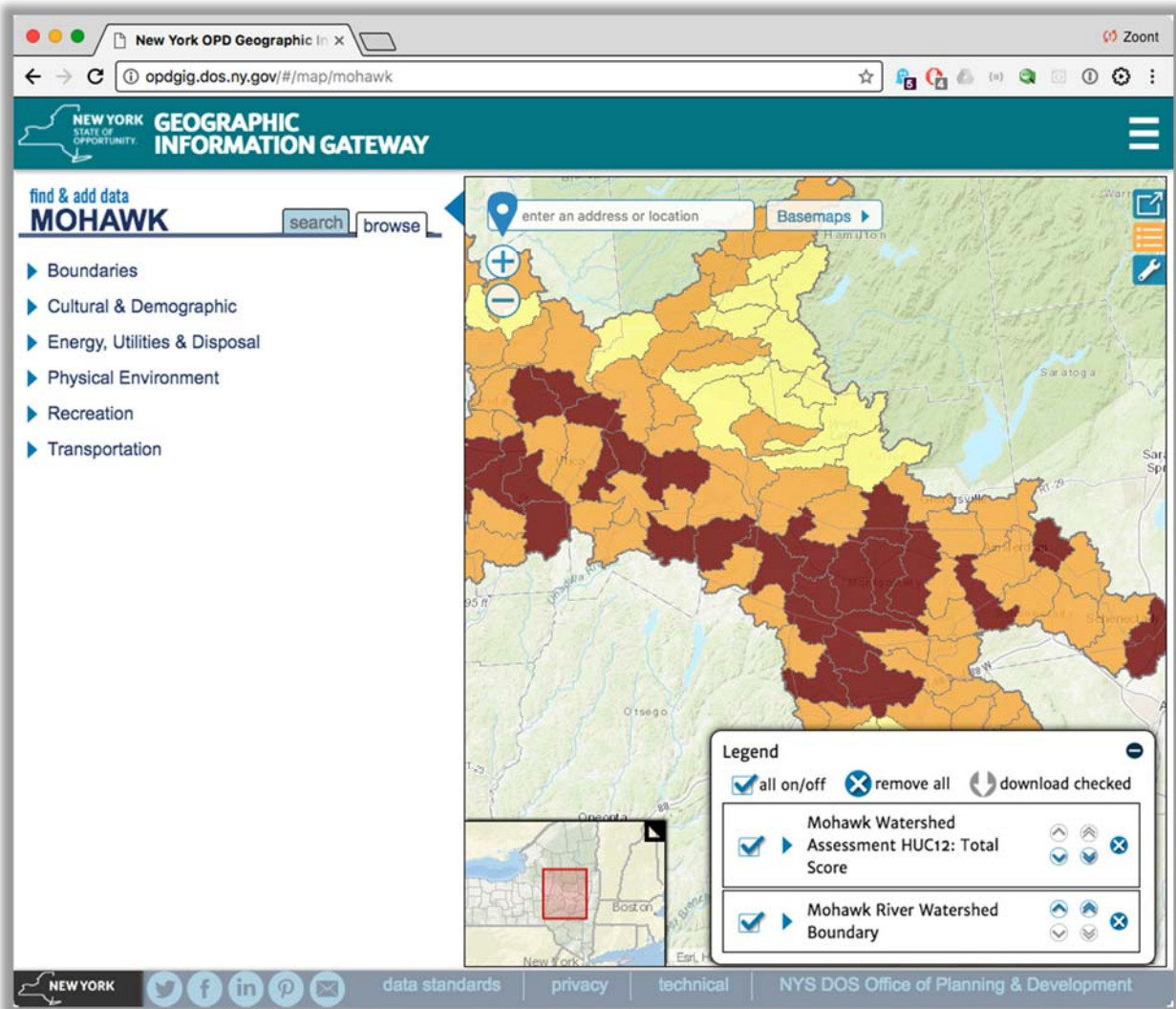
1.2. About the Mohawk River Watershed Web Map

This application was developed to aid the Mohawk River Watershed Coalition of Conservation Districts (Coalition) in the creation of a management plan for the Mohawk River Watershed.

For more information on the Mohawk River Watershed and the Coalition's management planning process, visit:

http://mohawkriver.org/management-plan/

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1.3. Accessing Help

Some simplified help can be accessed through the map viewer by clicking on the 'tool' button (that looks like a wrench) in the upper right hand side of the map. Clicking the tool button will open a small menu which exposes an option to show 'map tips.' Aside from the map tips, refer directly to this document for further help.
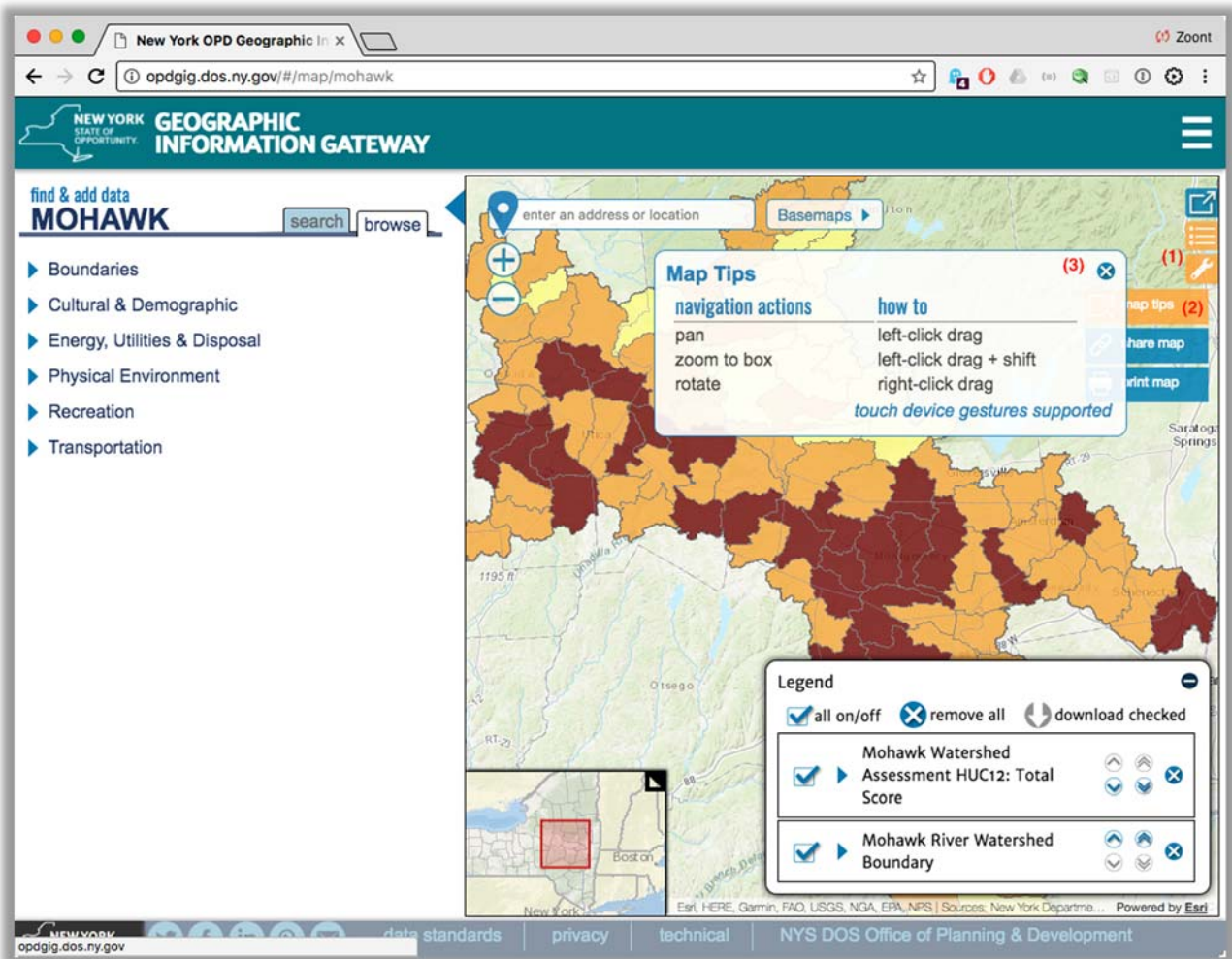
2. MAP VIEWER TOOLS

The toolbar on the right-hand side of the map viewer contains three buttons to provide various functionality:

 "Full Screen"

 "open the Legend"

 "additional Map Tools"

2.1.1. Full Screen

 As per the name of the tool, this button expands the map viewer to use the whole browser window – hiding the header, footer, and the data search and browse panel. Click the button once to make the map "full screen" and click it again to return to the standard view.

2.1.2. Legend

 This button will (re)open the map Legend if it is closed.

2.1.3. Map Tools

 The map tools button expands a menu of a few additional map "meta" tools: print, share, and the "map tips" help pop-up.

2.1.3.1. Map Tips

As described in section 1.3 above, the Map Tips button displays a pop-up in the map window with some basic map navigation help.

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2.1.3.2. Share Map

Copy the link below to share your map

http://opdgig.dos.ny.gov/#/map/0/9D67A7EE-660A-425D-8DEC-445D9A52F696,E888B445-560C-483D-B529-439CBE4CCD1C/-76.906,43.369,-74.233,44.684/oceans/89

The Share Map button will display a pop-up in the map window which contains a URL link that when opened in any browser will re-open the current map view with the same datasets loaded. This is primarily meant to be used by people that have created a map in the map viewer, using a variety of data sets, who want to share a link to re-open that map with a friend or co-worker, say via e-mail. Of course, the link could also be shared via social media sites for anyone to see. You click the X in the upper-right corner to close the pop-up.

2.1.3.3. Print Map

The Print Map tool is a simplified map export tool – while the final goal might be to print the map to paper, this tool will simply generate a static map document that could be used in any number of ways, including embedding in a report, e-mailing to a colleague, or printing to paper.

To "print" a map, you optionally enter a title for the map, and then you must choose an output format: PDF, PNG32, or JPG. The format you choose will depend on your end goal.

Printable Map

Title: Enter Map Title

Format: PDF PNG32 JPG

EXPORT

PDF: When you want a version of the map that is easy to print, and perhaps when you want to share the map with a co-worker or colleague.

PNG32: For images that you want to embed in a report or website or social media posted, that use an aerial imagery basemap, or otherwise include a lot of detail.

JPG: For most cases where you want to embed an image of the map in a document, website, etc.

The default output format is always PDF. To finish and create the "printed" report, hit the button labeled "EXPORT." The output document or image uses a template system to generate the output such that it includes both a map and a legend, and fits on a standard 8.5" x 11" piece of paper.

The output image or PDF document will display the current map layers, with a best-case extent for the map. It is possible that the extent shown in the printed map may not perfectly match the map extent in your web browser because the aspect-ratio (height vs width) of the web browser window may not perfectly fit onto an 8.5" x 11" piece of paper.

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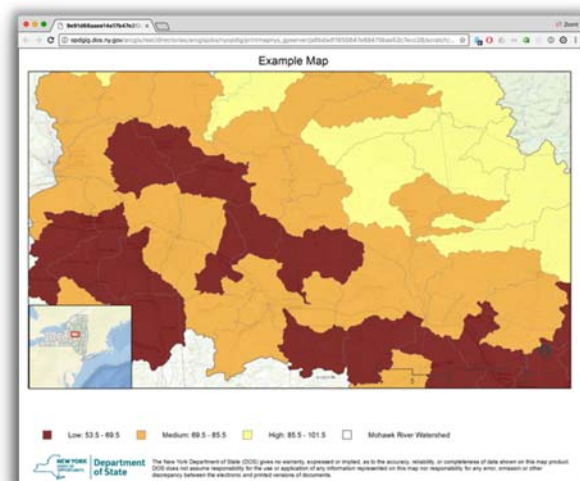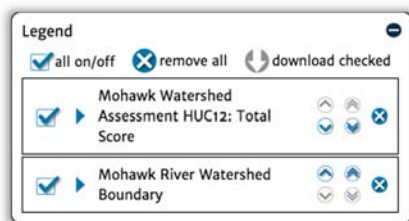
2.2. Legend Tool

The Legend Tool both provides information (symbology) on the data layers displayed in the map, and controls the display of those layers. The legend can be used to re-order layers, hide layers, alter the transparency of the layers, zoom the map to the extent of a layer, and access the data layer in other ways (such as opening the layer in Google Earth, or showing its metadata).

By default, the legend shows layers in a "collapsed" state such that you see the layer name, a check-mark to denote if it is turned-on (visible) or not, and the layer "ordering" controls. To expand a layer so that you may access additional controls, as well as the symbology display that describes the layer's data, simple click the layer title in the legend.
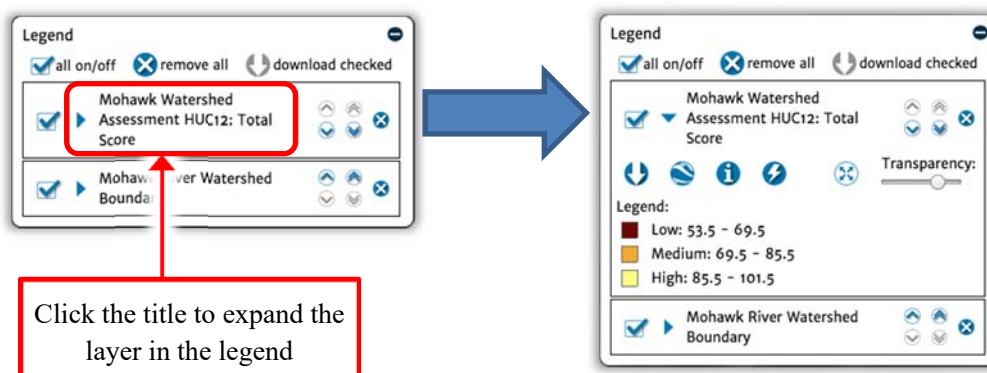

Click the title to expand the layer in the legend

Once the layer is expanded in the legend the most self-evident item displayed is the data symbology (also titled "Legend:"). This data symbology display is determined by the owner of the map data service being displayed and is not controlled by the Map Viewer.

There are a variety of tools available in the legend other than the data symbology (Legend), however.

2.2.1. Layer Visibility
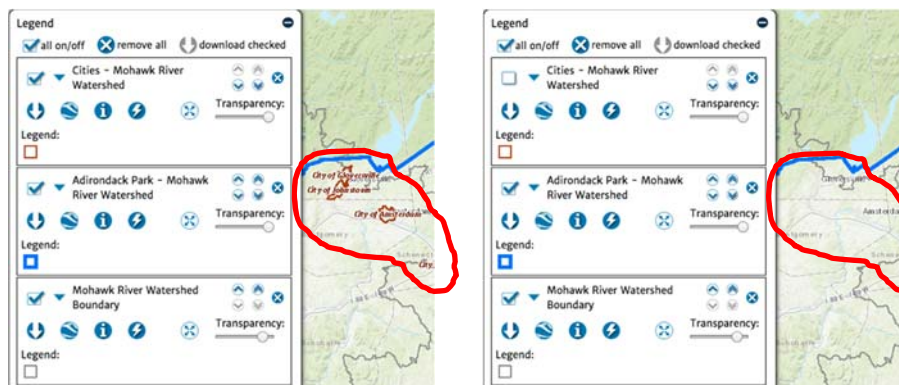
Once layers are added to the map, they can be turned on and off to make the visible.

A layer that is turned "off" (has no check) is not removed from the map, it is simply hidden from display, and likewise will not print. In this example, we turn-off the cities.

A layer that is turned "off" will, however, still be part of the map if you use the "share" tool.

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2.2.2. Layer Ordering

In a map, data is organized into layers that are stacked like layers on top of each other. In this way, some data on a map can obscure other data "below it" in the stack of layers. There are two ways of managing the obscuring of data – to re-order the stack of layers, and to alter transparency.

In managing the layer order, you effectively have two options that operate in two directions. You can move a single layer up or down by one "position" in the stack of layers, or you can move a single layer to the top or bottom in the stack of layers.

The layer order buttons move the layers in the corresponding direction that the button's arrow points. A single up-arrow moves the layer up one position. The double up-arrow moves the layer all the way to the top of the stack. Likewise, the single down-arrow moves a layer down one position, while the double down-arrow moves the layer to the bottom of the stack.

2.2.3. Layer Transparency

As noted above, the map viewer displays data sets as a stack of layers that occasionally obscure each other. A tool that helps to allow two data sets to be displayed without totally obscuring one or the other is to set the layer, that obscures a lower layer, to be partially transparent. This transparency can be adjusted from slightly transparent to almost entirely invisible. Also, in cases where many layers are used, it is possible to set many layers to have varying degrees of transparency to make sure all-of the data on the map is appropriately visible.
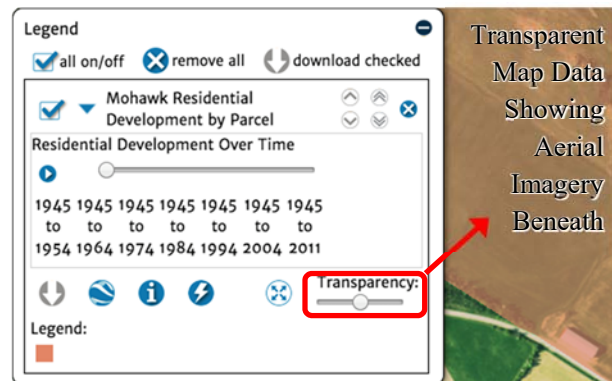
2.2.4. Zoom-To Layer Extent

Occasionally as you move around on the map you can lose the data you were viewing and have trouble getting back to it. This is certainly more common with smaller data sets that don't have large polygons or thick lines. The "Zoom-to Layer Extent" button for a given layer will zoom the entire map to the extent (boundary) of the data in the given layer.

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2.2.5. Additional Layer Access Methods

Every data set shown as a layer on the map is made available to you for the map as a "map service" … which means that the data we put on our map can be accessed in other ways than just viewing it on the map. The map viewer offers several buttons that help you get at the map service in these other ways.

Download: This button will let you download some or all-of the data to your computer for use with a desktop GIS tool.

KML: This button will export the extent envelopes (rectangle boundaries for the dataset and show them in Google Earth.

Metadata: Open the data's metadata in a new tab of the web browser. This will tell you more about how the dataset was created and what the data means.

Map Service: Open the map service's web page.

In all cases, if the button/icon is gray, instead of the blue shown here, it is disabled because the map service does not support that functionality. This is most common with the download button as not every map service can let you download its data.

2.2.6. Multi-Layer Tools

The legend panel itself contains a few tools that can be used to operate on multiple map layers at the same time. The "all on/off" button simply toggles all layers to be on, or off. This is useful if you have many overlapping data layers and want to quickly just view the basemap, for example. The "remove all" button removes all layers from the map (except the basemap), effectively resetting the map's view. The "download checked" button will do the same thing as the download button for an individual layer, but will do so for many layers at once, allowing you to batch download all-of the data on your map that is downloadable. If you have 10 layers in your map, and 2 do not allow their data to be downloaded, then this button could be used to download all-of the other 8 layers at once. If none of your data layers in the map are allowed to be downloaded, then this button will be grayed-out.

2.2.7. Layers Hidden by Zoom Scale

Some data layers will not be displayed at smaller zoom scales. These layers are marked with a checked, gray, checkbox. As such, to see them, you must zoom into the map. You can start by using the zoom to extent tool, and then zooming in further. As you zoom closer, when you get close enough, the checkbox will become enabled (blue) to let you know when the data is being shown.

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2.3. Find & Add Data

The map viewer provides an empty shell that can be used to view related map data sets together. Therefore, the most crucial part of its functionality is the ability to add data to the map. This is accomplished through the panel on the left third (roughly) of the map viewer's browser page under the heading "find & add data …"

In short, you locate data in the "find & add data" panel on the left, and then add it to the map on the right.
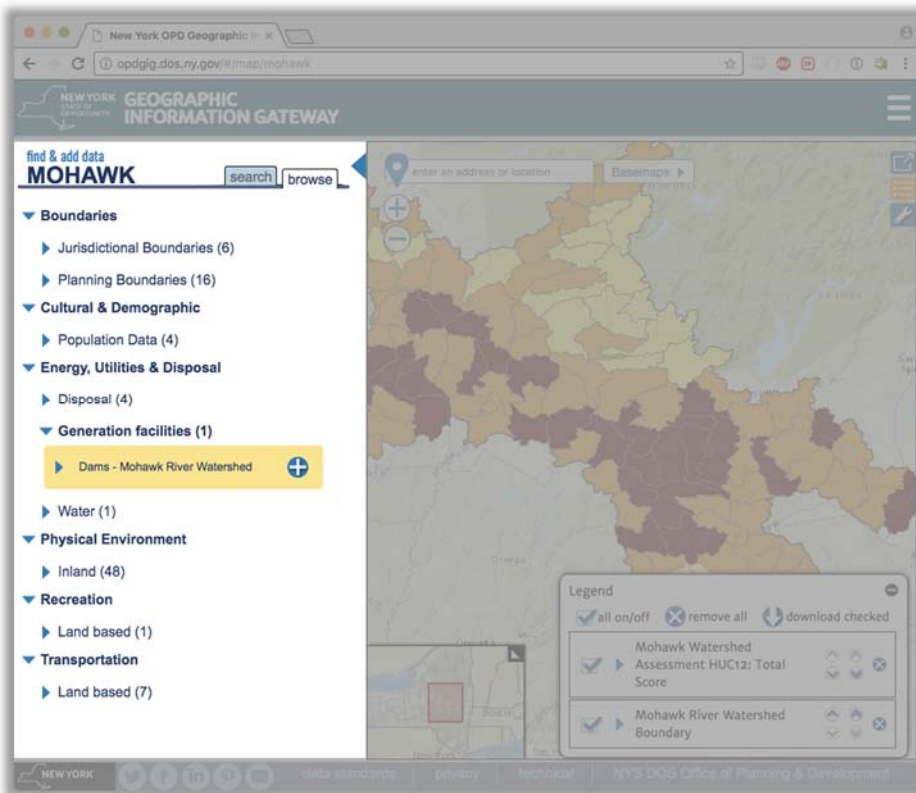
The Mohawk Map Viewer data panel contains listings only for the data that are relevant to the Mohawk River Watershed management program. The New York Office of Planning and Development Geographic Information Gateway map viewer, of which the Mohawk Map Viewer is a subset, contains many more data sets that can be added to the map.

2.3.1. Hiding the find & add data Panel

Once you have added all the data that you are interested in adding to your map, you may want to hide the find & add data panel. The panel can be collapsed by clicking the large blue arrow to the right of the "search and browse" tabs.

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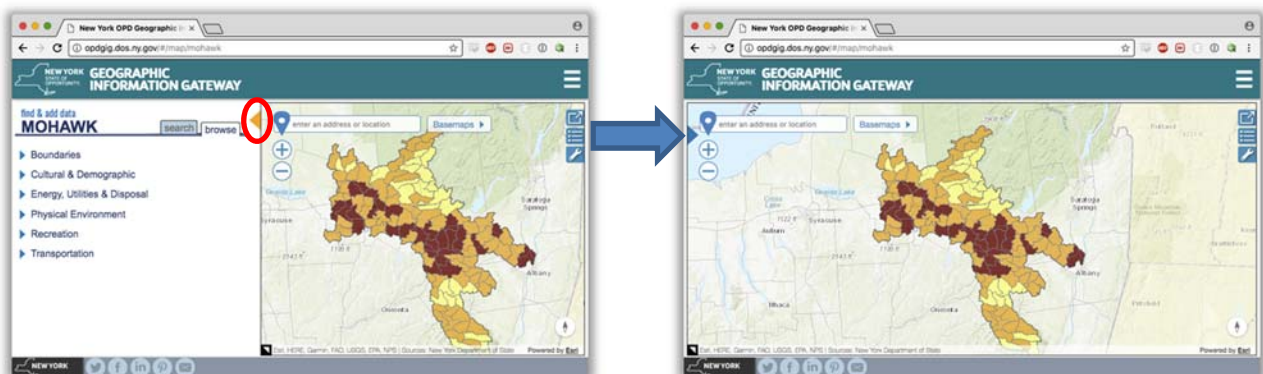
2.3.2. Searching vs Browsing

You can locate data for inclusion in the map by browsing or searching. Changing between browsing or searching is handled by the two tabs labeled as such.
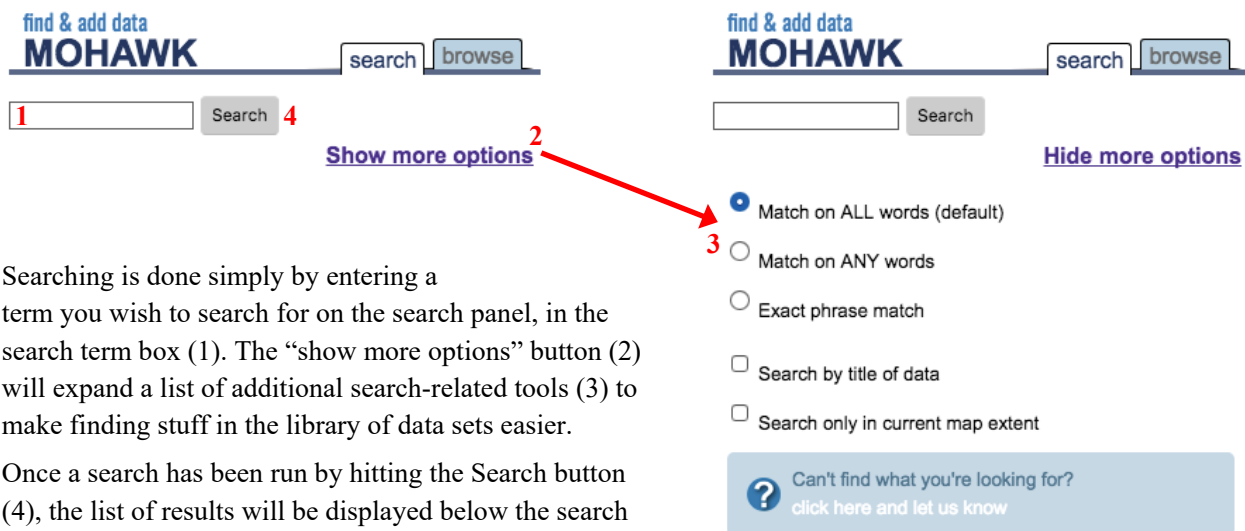
2.3.3. Searching for Data

Searching is done simply by entering a term you wish to search for on the search panel, in the search term box (1). The "show more options" button (2) will expand a list of additional search-related tools (3) to make finding stuff in the library of data sets easier.

Once a search has been run by hitting the Search button (4), the list of results will be displayed below the search term box.
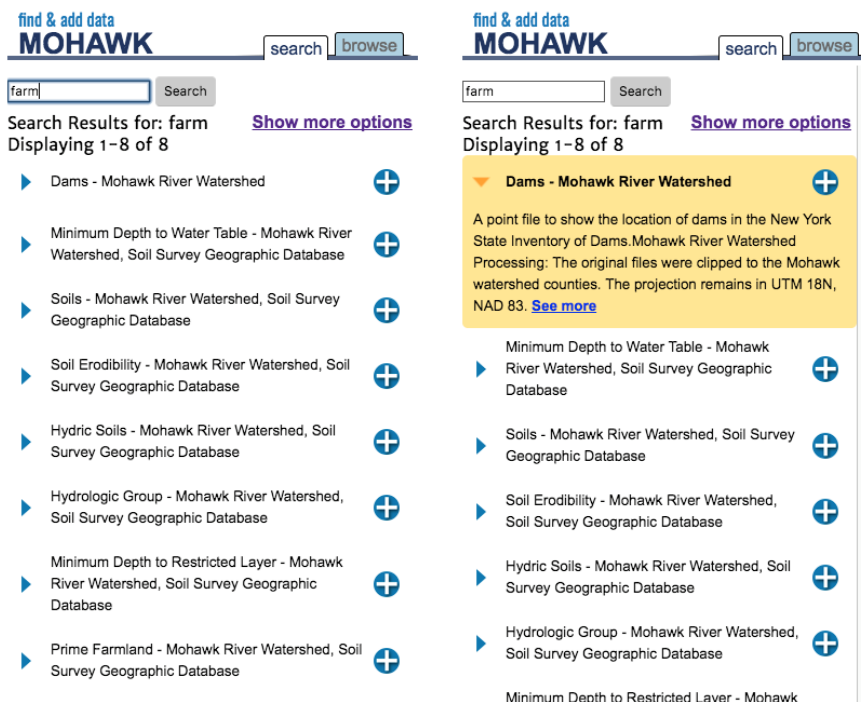
The search results are shown as names but the small blue triangle/arrow to the left of each listing can be toggled to expand the listing and show a short description. If further information is needed, you can click "see more" to open the metadata for the listing.

Once a dataset that you want added to the map is found, click the blue "plus" ( ) sign button and the data set will be added to the map and to the legend.

2.3.4. Browsing for Data

find & add data
MOHAWK [search][browse]

▼ **Boundaries**
   ▶ Jurisdictional Boundaries (6)
   ▶ Planning Boundaries (16)
▼ **Cultural & Demographic**
   ▶ Population Data (4)
▼ **Energy, Utilities & Disposal**
   ▶ Disposal (4)
   ▼ Generation facilities (1)
     ▶ Dams - Mohawk River Watershed ➕
   ▶ Water (1)
▼ **Physical Environment**
   ▶ Inland (48)
▼ **Recreation**
   ▶ Land based (1)
▼ **Transportation**
   ▶ Land based (7)
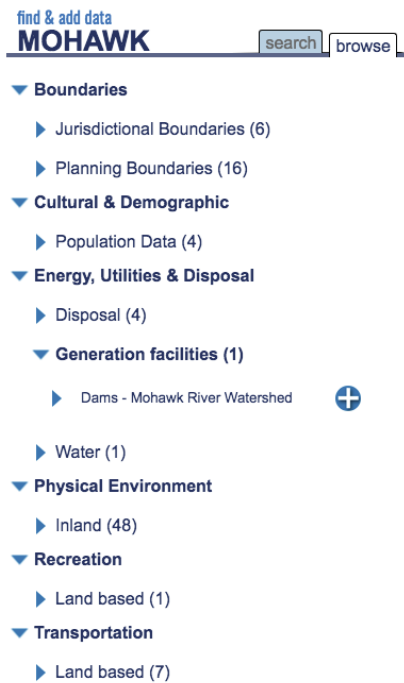
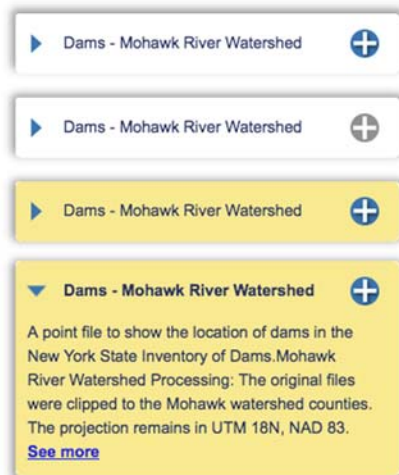The browse for data tab, in the "find & add data" panel of the map viewer contains a hierarchical list of data sets available for display in the Mohawk River Watershed map viewer. There are six top-level categories with various sub-categories listed under each one.

By default, the list is "closed" meaning the category and sub-category lists are not expanded. You can toggle & expand the categories by clicking on the blue triangle / arrow next to each listing. Each sub-category also has a number in parentheses at the end of the name. This tells you how many data sets are listed under that sub category.

The actual data sets are listed under the sub-categories and can be distinguished as not being a category because they have a blue "plus" (➕) sign next to them.

While categories in the browse tab are only really opened, or closed, the data sets have a few different states:

▶ Dams - Mohawk River Watershed ➕

▶ Dams - Mohawk River Watershed ➕

▶ Dams - Mohawk River Watershed ➕

▼ Dams - Mohawk River Watershed ➕
A point file to show the location of dams in the New York State Inventory of Dams.Mohawk River Watershed Processing: The original files were clipped to the Mohawk watershed counties. The projection remains in UTM 18N, NAD 83.
**See more**

Default: By default, a data set listing is collapsed and has a blue plus sign button next to it. Click the plus sign button to add it to the map.

Disabled: If a data set is already added to the map, it will have a gray, disabled plus sign button that cannot be used.

Current: As you move your mouse over the various listed data sets, the currently selected data set is highlighted with yellow.

Expanded: The blue triangle / arrow to the left of a data set can be clicked to expand a brief description of the data set. For more details about that data set, click the "see more" link at the end of the description to open the data set's full metadata record.

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## 2.4. Playing Data Sets with Time Series Data
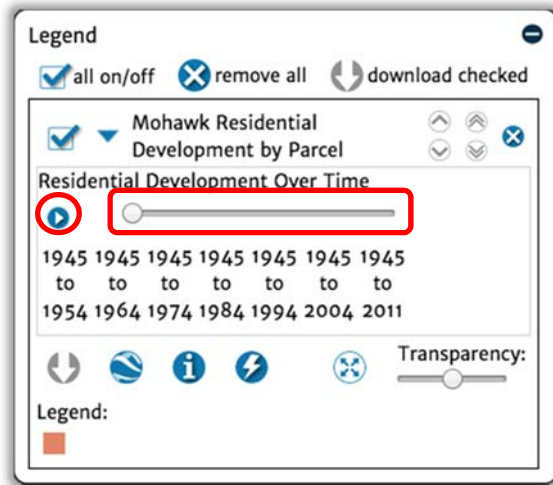
There are many different types of data sets in the data library for the map viewer.

Some of these data sets contain time-series data that can be played / animated using a special control in the legend.

One such data set is named "Mohawk Residential Development by Parcel." Once added to the legend, and with the layer's details expanded in the legend panel, you will see a "play" button, a slider control, and a series of "stops" showing what time periods the time series player is navigating. You can move through the time series either by dragging the slider back and forth through time, or hitting the play button which loops through the time series repeatedly until stopped (by clicking it again).

3. MAP NAVIGATION
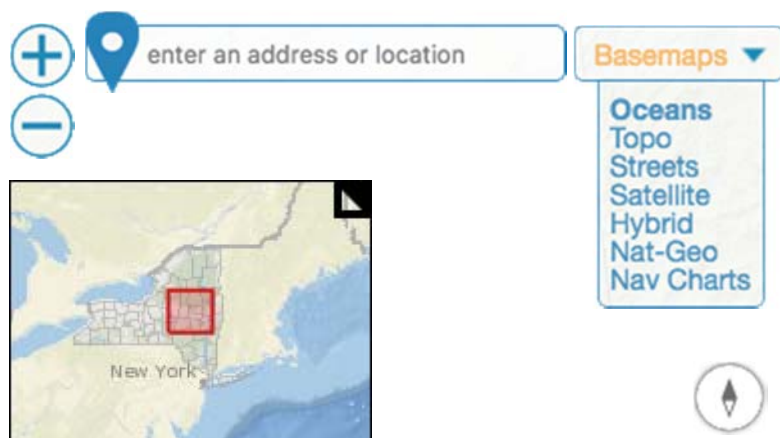
Various tools allow the user to interact with the map.

The name of the tool can be viewed by hovering your mouse over the tool icon.

3.1. Basic Navigation Tools

Using the navigation tools around the edges of the map, you can use a mouse or pointing device to move around and explore the map. As you will find, there are many ways to navigate the map. Here are a few ways using your mouse and/or keyboard, in addition to the tools described below.

Drag with Left Mouse Button—Simply move the mouse cursor onto the map, press down the **left** mouse button, holding it down, and move the mouse the drag / pan the map in whatever direction you move the mouse.

Drag with Right Mouse Button—Move the mouse cursor onto the map, press down the **right** mouse button, holding it down, and move the mouse… you will rotate the map away from display with north at the top. See the compass tool, below, for resetting the rotation.

Mouse Wheel—Using the scroll wheel of your mouse, you can zoom in or out by moving your scroll wheel up or down, respectively. The map will center itself around your cursor as the scale changes.

Drag Mouse with Keyboard—You can hold down the SHIFT key, then click on the map with the left mouse button, holding down the mouse button, and "drag" to draw a zoom box – an area to zoom the map in to. The map will zoom into an extent that best fits whatever shape zoom box you draw. Holding SHIFT + CTRL while dragging a box will zoom the map out.

Click Mouse with Keyboard—Double-clicking the map will re-center the map on the point as well as zoom in one level. Doing this with the SHIFT key pressed will zoom out one level.

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3.2. Zoom Buttons

These buttons zoom the map in one level (larger scale), or out one level (smaller scale). The same can be done by scrolling your pointing device's scroll "interface" (usually a mouse wheel, or two fingers up/down on your touchpad). On mobile, you can zoom in and out with a pinch, or a double tap.

3.3. Address Search
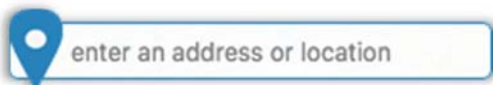
The Find Address Tool allows the user to search for, and zoom to, a street address on the map.

To find an address just type the address in the address search "bar" and hit enter on your keyboard. You may also click on the blue map marker ( ) icon at the left edge of the address search bar to initiate the search.
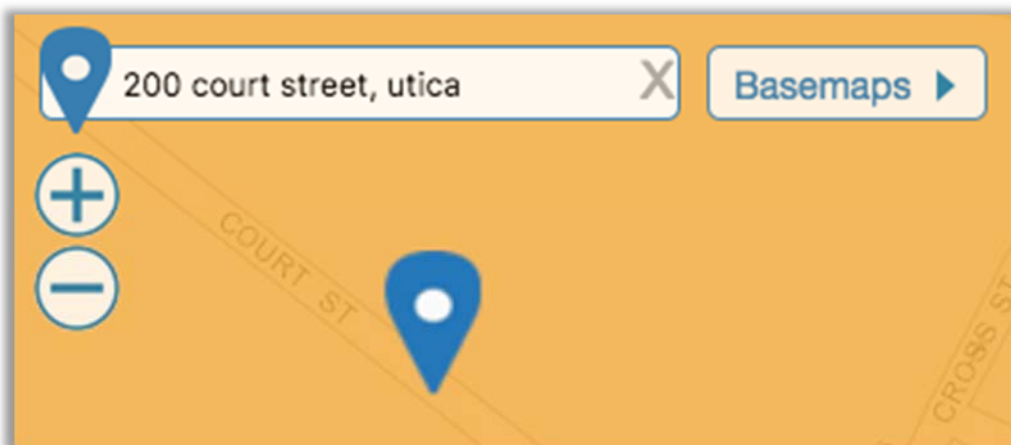
Once a search is initiated, the map will zoom to the result with the highest matched score and will display a blue map marker ( ) at the location it found. While there may not be an exact match to your search, only the most likely match will be displayed.

3.4. The Basemap

In the map viewer, the basemap is the imagery you lay all-of your other data set layers on top of. You always have-to-have one basemap selected. If you remove all other data from the map, the basemap is what you see. The viewer offers several basemap choices. Simply select one from the drop-down to change your choice. This can be done at any time, and can be done as often as you wish.

A detailed listing of each basemap can be found in Appendix A.

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3.5. The Overview Map

It is often helpful, when working very zoomed-in on a map, to still be able to get a clearer sense of where you are in a region. This is the purpose of the overview map. Displayed by default, the overview map is shown in the lower left corner of the map viewer, and usually will show a zoomed-out (smaller scale) map of the region, with a red rectangle overlaid on top. While the zoomed-out map is the region, the red rectangle is the boundary for what is shown in the main map viewer (at the larger scale). You will see as you move around the main map viewer, the overview map adjusts its own zoom level and, if necessary, the red rectangle, to remain up-to-date with the region you are seeing in the main map viewer. Click the black box with the triangle in the upper right corner of the overview map to minimize its display.

3.6. The Compass

The compass button's only role is to reset the map's rotation, should it be rotated away from north being at the top of the screen, and south at the bottom (done by dragging the map with the right mouse button held down).

3.7. Identify Features on a Map

If you want to know about a feature on the map, you can get more information about it by clicking on the map with the left mouse button. For example, if you would like to view the details of a HUC in a watershed, or a parcel in a village, or a road segment, once the data set is added to the legend just click on the item you are interested in on the map. The click will select any items right around where you clicked the mouse so you need to be pretty precise, but not extremely exact about where you click.

Note that you can only pull up details about items that are turned on in the map. If it was turned off, or if you zoomed out far enough that the layer disabled itself (for layers with zoom scale display limits), you cannot pull up details about items in such layers.

3.7.1. The Pop-Up
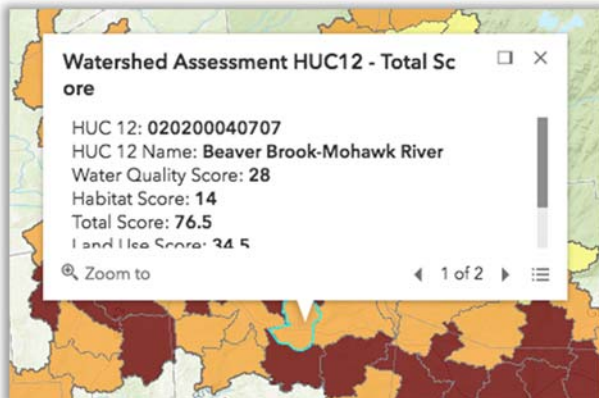
In the image shown here, the user has clicked with the left mouse button while holding the cursor over a particular watershed HUC boundary. A pop-up is displayed showing the record's attribute data such as the HUC 12 ID, name, score, and more.

The pop-up can be closed by clicking the X in the upper right corner of the pop-up.

Or the user can click on any other map items and the pop-up will display the record attributes for the newly-clicked item instead.

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### 3.7.2. Download Documents Linked in The Record
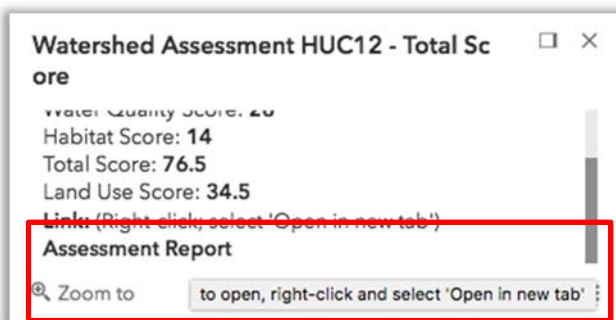
Some items on the map are data records that happen to include a URL link in their attribute data to other data such as a PDF report that references the data set being explored. These links can be used by right-clicking the appropriate link, and choosing "Save Link As…" from the browser's right-click menu.
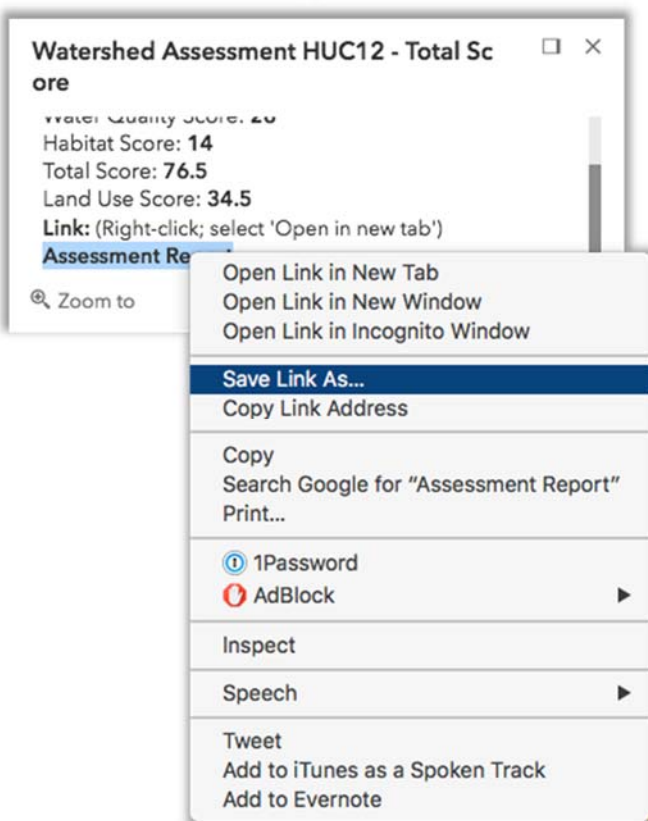
In the example shown an Assessment Report is available. Note the tool-tip that displays when you hover the cursor over the link, to help remind you how to access the report.

3.7.3. Zoom to The Item
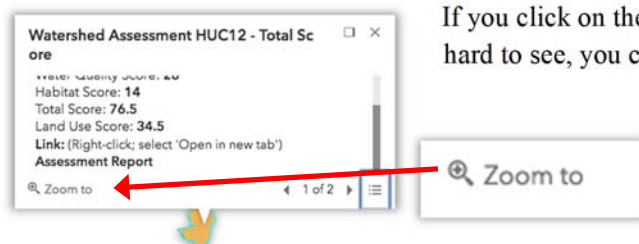
If you click on the map and manage to select a very small item that is hard to see, you can click the "Zoom To" button in the bottom left corner of the pop-up to have the map zoom into the extent of that specific item.

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3.7.4. Multiple Records

If you click on the map and multiple items are right around where you clicked, the pop-up will display some buttons to help you navigate the different items you clicked near and see all of their attributes.

You will see a pair of left-right arrows with the text "X of Y" in between them, where X and Y are numbers. This will indicate that if you clicked and there were 2 items under where you clicked the mouse, then you are viewing, for example, item 1 of 2. To see all of the items you clicked, to the right of the "X of Y" text there is a button that looks like a list. Click this to show a list of the items that the pop-up has found where you clicked the mouse, and to navigate between viewing the details for those items.
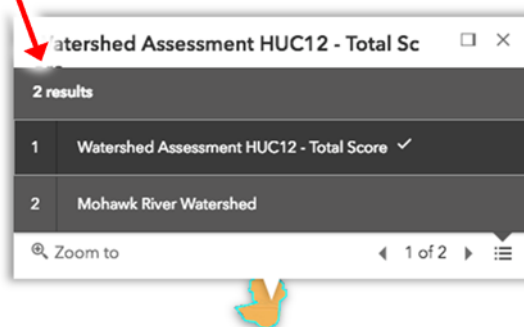
3.7.5. Docking the Pop-Up

Occasionally if you are clicking between many items on the map you will find it problematic that the pop-up showing their details keeps moving around with your mouse clicks. You can "dock" or stick the pop-up display to the top-right-corner of the map viewer by clicking the box icon to the left of the X (the close button) in the upper-right of the pop-up. Once you do so the pop-up will stick to the map corner, and the box icon will change to a double-box icon that you can click to "un-dock" the pop-up when you are ready.

STONE ENVIRONMENTAL INC
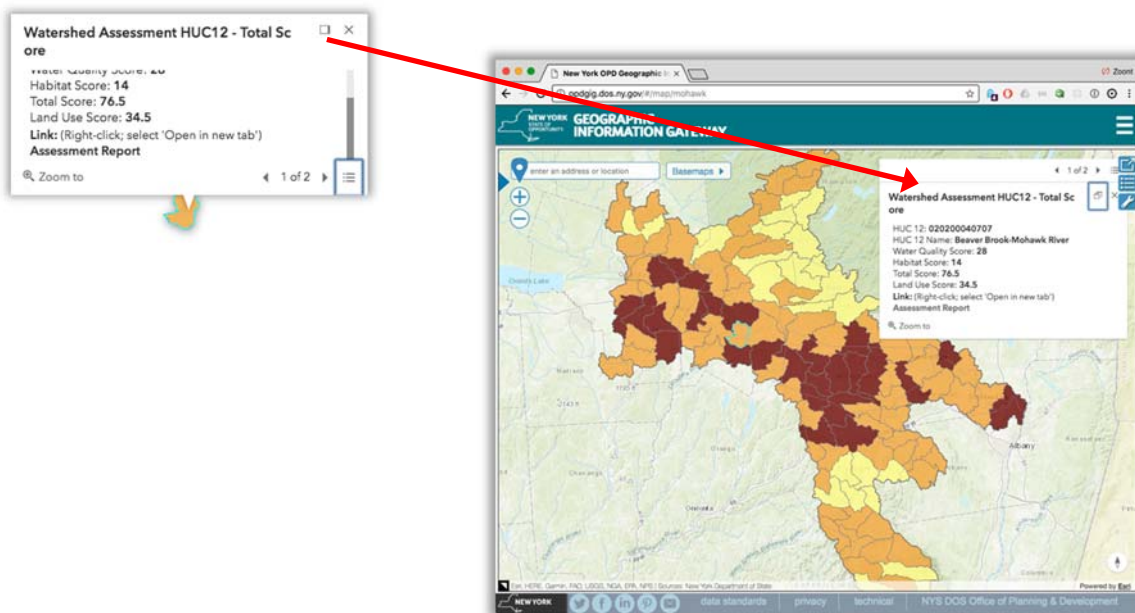
4. APPENDIX A – BASEMAP DETAILS

Multiple basemaps are available in the map viewer. The exact listing of basemaps may change over time as some are retired by their respective owners, and others are added.

- **Oceans:**
  - http://services.arcgisonline.com/arcgis/rest/services/Ocean/World_Ocean_Base/MapServer
  - The map is designed to be used as a basemap by marine GIS professionals and as a reference map by anyone interested in ocean data. The basemap focuses on bathymetry. It also includes inland waters and roads, overlaid on land cover and shaded relief imagery.
- **Topo:**
  - https://services.arcgisonline.com/arcgis/rest/services/World_Topo_Map/MapServer
  - This map is designed to be used as a basemap by GIS professionals and as a reference map by anyone. The map includes administrative boundaries, cities, water features, physiographic features, parks, landmarks, highways, roads, railways, and airports overlaid on land cover and shaded relief imagery for added context.
- **Streets:**
  - https://services.arcgisonline.com/arcgis/rest/services/World_Street_Map/MapServer
  - This worldwide street map presents highway-level data for the world. This comprehensive street map includes highways, major roads, minor roads, one-way arrow indicators, railways, water features, administrative boundaries, cities, parks, and landmarks, overlaid on shaded relief imagery for added context. The map also includes building footprints for selected areas.
- **Satellite:**
  - https://services.arcgisonline.com/arcgis/rest/services/World_Imagery/MapServer
  - World Imagery provides one meter or better satellite and aerial imagery in many parts of the world and lower resolution satellite imagery worldwide.
- **Hybrid:**
  - https://services.arcgisonline.com/arcgis/rest/services/World_Imagery/MapServer
  - The same basemap as the "Satellite" basemap, but with high level place names included.
- **Nat-Geo:**
  - https://services.arcgisonline.com/arcgis/rest/services/NatGeo_World_Map/MapServer
  - This map is designed to be used as a general reference map for informational and educational purposes as well as a base map by GIS professionals and other users for creating web maps and web mapping applications. The map was developed by National Geographic and Esri and reflects the distinctive National Geographic cartographic style in a multi-scale reference map of the world.
- **Nav Charts:**
  - http://tileservice.charts.noaa.gov/
  - The NOAA Chart Tile Service provides standardized nautical chart tilesets for the public, eliminating the need for application developers to regularly undergo the cumbersome process of transforming NOAA BSB files into tilesets.

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5. ADDITIONAL RESOURCES

If you need additional help regarding this application or if you find bugs, please contact Katie Budreski at 802.229.1870 or kbudreski@stone-env.com.

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