

# **moris**\* / **Oliver** User Guide

The HTML version of this document is available at [http://maps.massgis.state.ma.us/map\\_ol/moris\\_users\\_documentation.htm](http://maps.massgis.state.ma.us/map_ol/moris_users_documentation.htm).

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**Terms and Conditions:** By using MORIS you agree to the following [terms](#). **\*Please note:** MORIS is one of a family of many applications, all built on the same template. Some other versions include OLIVER (the MassGIS Online Data Viewer) and MuniMapper. This user guide applies to all these applications, you may substitute “OLIVER,” “MuniMapper,” etc. for “MORIS” as you read this guide.

# Introduction

## Background

MORIS, the Massachusetts Ocean Resource Information System, is an online mapping tool created by the [Massachusetts Office of Coastal Zone Management](#) (CZM), the [Office of Geographic Information](#) (MassGIS), [SeaPlan](#) (formerly Massachusetts Ocean Partnership), [Applied Science Associates](#) (ASA), [Charlton Galvarino](#), and [PeopleGIS](#). MORIS can be used to search, display, and share spatial data pertaining to Massachusetts coastal and ocean resources. Users can quickly create and share maps and download data for use in a Geographic Information System (GIS). MORIS connects to MassGIS's GeoServer-based [web mapping service](#).

## What do I need to run MORIS?

MORIS is run through a web browser. At this time, the application fully works in Google Chrome, Internet Explorer, Mozilla Firefox, and Safari. The latest versions of these browsers are recommended. Currently Google Chrome 27, Internet Explorer 10, Mozilla Firefox 21, and Safari 5.1.7 have been thoroughly tested, but the application also works in older versions of these browsers.



This is a publication of the Massachusetts Office of Coastal Zone Management (CZM) within the Executive Office of Energy and Environmental Affairs (EEA) pursuant to National Oceanic and Atmospheric Administration (NOAA) Award No. NA10NOS4190183 and the Office of Geographic Information (MassGIS). This publication is funded (in part) by a grant/cooperative agreement from NOAA. Views expressed herein are those of the author(s) and do not necessarily reflect the views of NOAA or any of its sub-agencies.



# Getting Started

To start MORIS, go to <http://www.mass.gov/czm/mapping/index.htm>. Select “Yes” if you accept and agree to the terms and would like to view the online maps. To start OLIVER, go to [http://maps.massgis.state.ma.us/map\\_ol/oliver.php](http://maps.massgis.state.ma.us/map_ol/oliver.php).

Initial view of the MORIS application

The screenshot shows the MORIS application interface. The main map area displays a map of Massachusetts with various geographical features. The interface includes a top toolbar with navigation and search tools, a search bar, and a right-hand panel with 'Available Data Layers', 'Active Data Layers', and a 'Legend'. Annotations with arrows point to specific parts of the interface:

- Tools**: Points to the top toolbar.
- Map view**: Points to the main map area.
- Tools**: Points to the bottom toolbar.
- Settings**: Points to the gear icon in the bottom toolbar.
- Available Data layers**: Points to the 'Available Data Layers' panel on the right.
- Active Data layers**: Points to the 'Active Data Layers' panel on the right.
- Legend**: Points to the 'Legend' panel on the right.

# Tools



Please note: Not all tools are available in all viewers.

 **Zoom in.** Click this button then click on the map to zoom in to an area, or click on the map, hold down the mouse button, and drag to draw a box to zoom in to that area of interest. The box will be outlined in red as you draw it.

 **Zoom out.** Click this button then click on the map to see approximately twice as much area, or click on the map, hold down the mouse button, and drag to draw a box to zoom out from that box. The box will be outlined in red as you draw it.

 **Zoom to scale.** Click this button to view a drop-down menu. Click one of the listed common map scales, or to zoom to an exact scale, enter a scale value (e.g., 7,500) into the “Custom scale” box. Press Enter to zoom to that scale. This tool is only available in the custom basemap.

 **Pan.** Click this button then click on the map, hold down the mouse button, and drag to recenter the map.

 **Zoom to initial extent.** Click this button to zoom to the original map extent provided when MORIS is first opened.

 **Zoom to full extent of active data layers.** Click this button to zoom to the extent of all the active data layers that are checked.

 **Go back to previous extent.** Click this button to go back to the previous map extent.

 **Go to next extent.** Click this button to go forward to the next map extent.

**Search for a location.** Type an address or location into the box and press Enter to zoom to a location. This location feature is provided by Microsoft Bing.

 **Clear location.** Click this button to clear the location search results (a blue balloon or blue rectangle) from the map.

 **Identify features by clicking a point or drawing a box.** Click this button then click on the map to identify features of active data layers that intersect the location you clicked, or click on the map, hold down the mouse button and drag to draw a box to identify features of active data layers located within or overlapping the box. The box will appear red as you draw it. The identify results will appear in a pop-up window.

 **Identify features by drawing a polygon.** Click this button then click on the map to draw vertices of a polygon, and double-click to finish drawing the polygon to identify features of active data layers located within or overlapping the polygon. The polygon will appear red as you draw it. The identify results will appear in a pop-up window.

 **Add data layers from external sources.** Click this button to launch a pop-up window of a list of external data layers that may be added to your map for display only. Select

one of the listed external data sources to view its available data layers. Double-click a data layer’s row in the “Data layers” table to add it to the map, or right-click a data layer name and select “Add layer(s).”

 **Permalink.** Click this button to make a permalink for the map. Right-click the blue “permalink” and copy and save it as a bookmark to launch the MORIS application with the current map settings (data layers, extent, etc.) enabled.

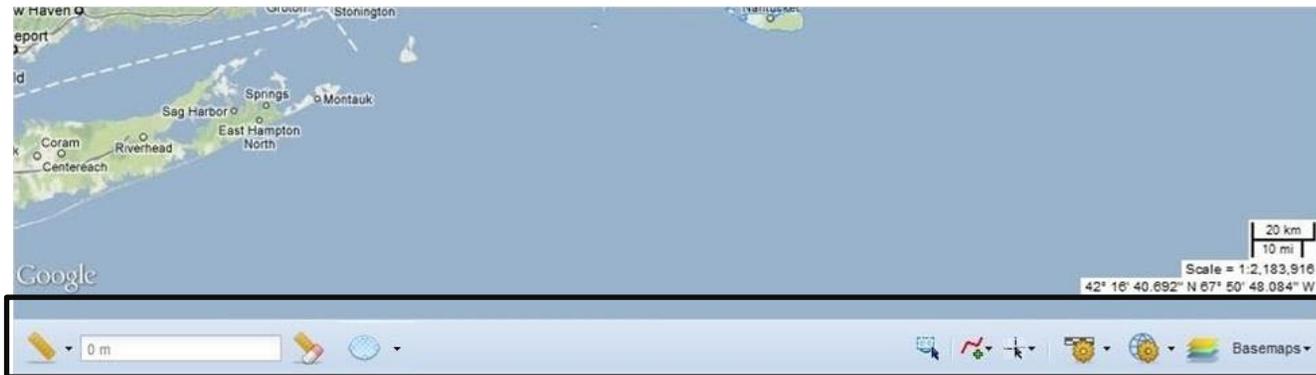
 **Print or save your map and legend.** Click this button then enter a title and click the “OK” button to print or save images of your map and legend. A new pop-up window will appear. Right-click the blue “here” to open a new browser window containing your map and legend as separate images. You can save the images locally or use the browser print option to print the entire map.

 **Export data.** Click this button to launch the data export wizard. This wizard may be used to download geospatial data as shapefiles, Google Earth files (KMLs), or GeoTIFFs.

 **Help.** Click this button to view a drop-down menu. Click “Help HTML” to view the user guide in HTML. Click “Help PDF” to view a PDF document of the user guide. Click “About MORIS” to learn more about MORIS.

# Tools (continued)

Please note: Not all tools are available in all viewers.



 **Measure by length or area.** Click this button to view the measure menu. Move the mouse cursor over “Units” to view a menu of measurement units options and click one of the listed units to select that unit of measurement. Click “By length” to measure the length of a line, click on the map to draw vertices of the line, and double-click to finish drawing the line. Click “By area” to measure the area of a polygon, click on the map to draw vertices of the polygon, and double-click to finish drawing the polygon.

 **Clear measurement.** Click this tool to clear the measured line, polygon, or buffer circle from the map and to clear the distance or area from the measurement results box.

 **Draw a Buffer.** Choose a type of unit and type in a radius, then click the map to draw a buffer.

 **Comment.** Click this tool to add a point to a data layer with attributes.

 **Draw.** Click this button to view a menu of data layers that may be edited. Select one of the listed data layers to which to add a feature and click on the map to start drawing the feature. If drawing a point feature, click once on the map to draw the new feature. If drawing a line or polygon feature, click more than once on the map to mark out the vertices of your line or polygon and double-click to finish drawing. Once you have finished drawing your new feature, the attribute editing window will appear. Enter values for the attribute fields and click “Save.”

 **Edit.** Click this button to view a menu of data layers that may be edited. Select one of the listed data layers to edit from the menu. Draw a box on the map to select a feature to edit. If more than one feature was selected, choose one feature within

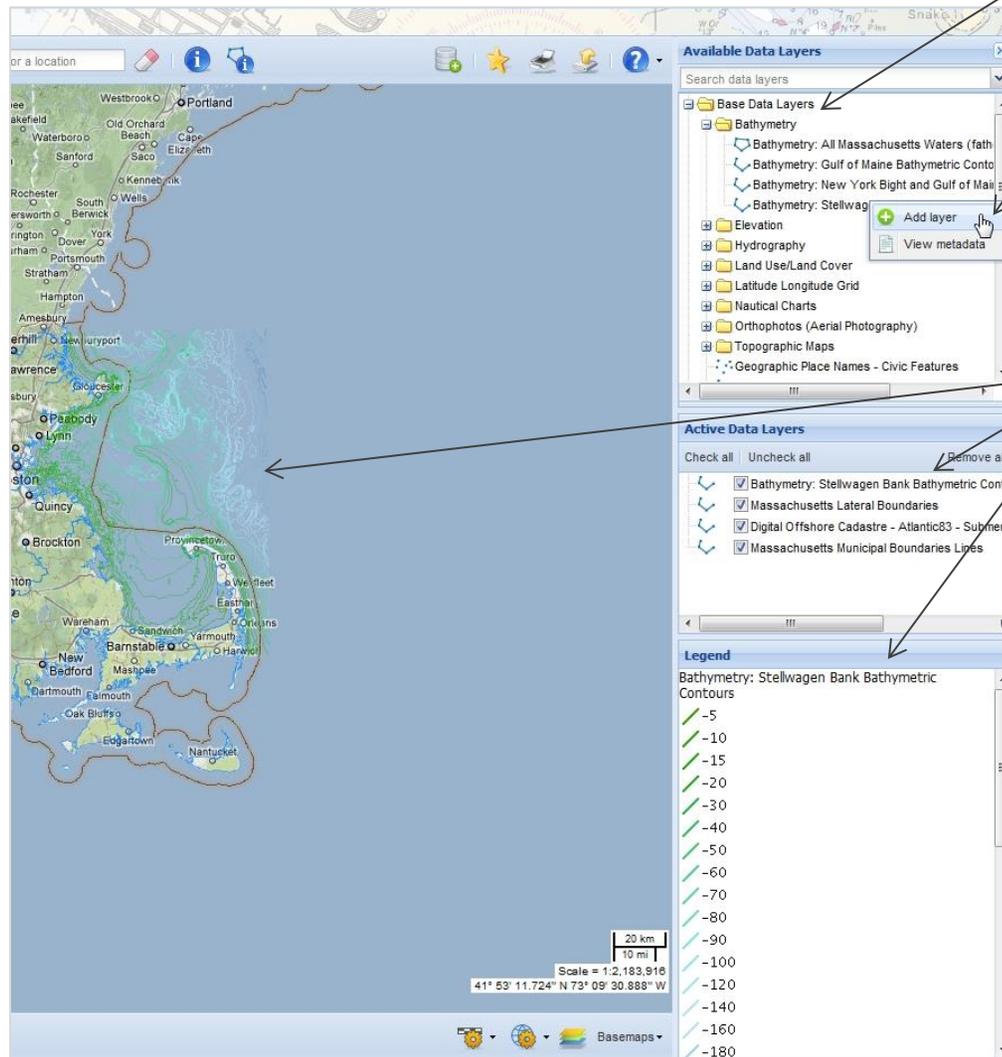
the attribute editing window. You may move the feature, change its shape, or change its attributes. Once you have finished editing the feature, the attribute editing window will appear. Change values for the attribute fields and click “Save.”

 **Scale settings.** Click this tool and click the checkboxes on or off to show or hide the coordinates, scale bar, and scale ratio.

 **Map units.** Click this tool and select one of the map units to change which units are displayed in the lower right-hand corner of the map.

 **Basemaps.** Click this tool to change the basemap or the opacity of the basemap (except custom—the opacity of the custom basemap is controlled data layer by data layer in the “Active Data Layers” window).

# Adding Data Layers

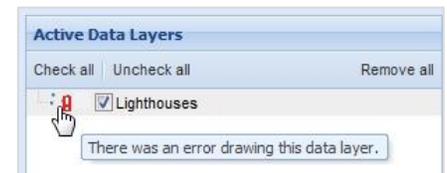


1. Browse folders in the “Available Data Layers” window for data layers.

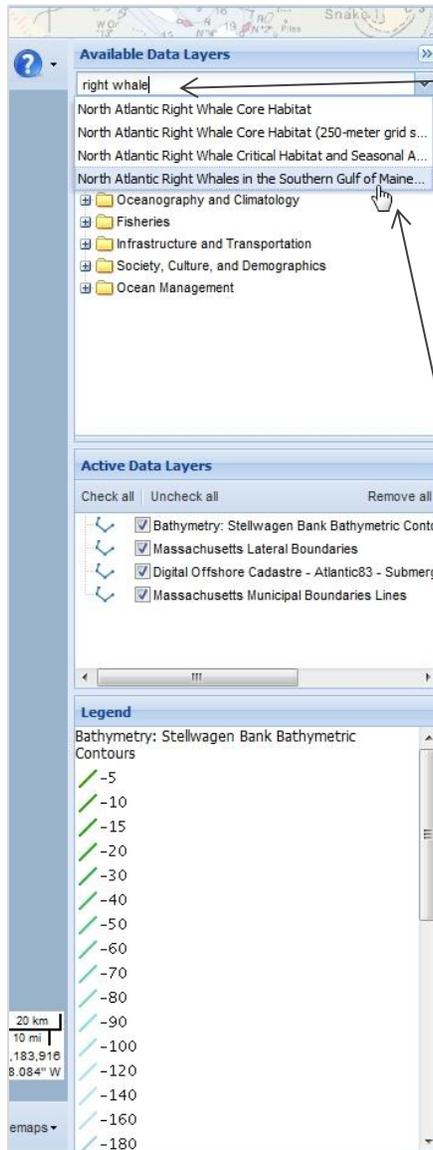
2. Click a data layer name to add it to the map, or right-click a data layer name and select “Add layer.” To add a folder of data layers, right-click a folder name and select “Add folder.” Only folders at the bottom of the folder hierarchy may be added.

3. The data layer is drawn on the map. The data layer name will appear in the “Active Data Layers” window and the legend of the data layer will be added to the “Legend” window.

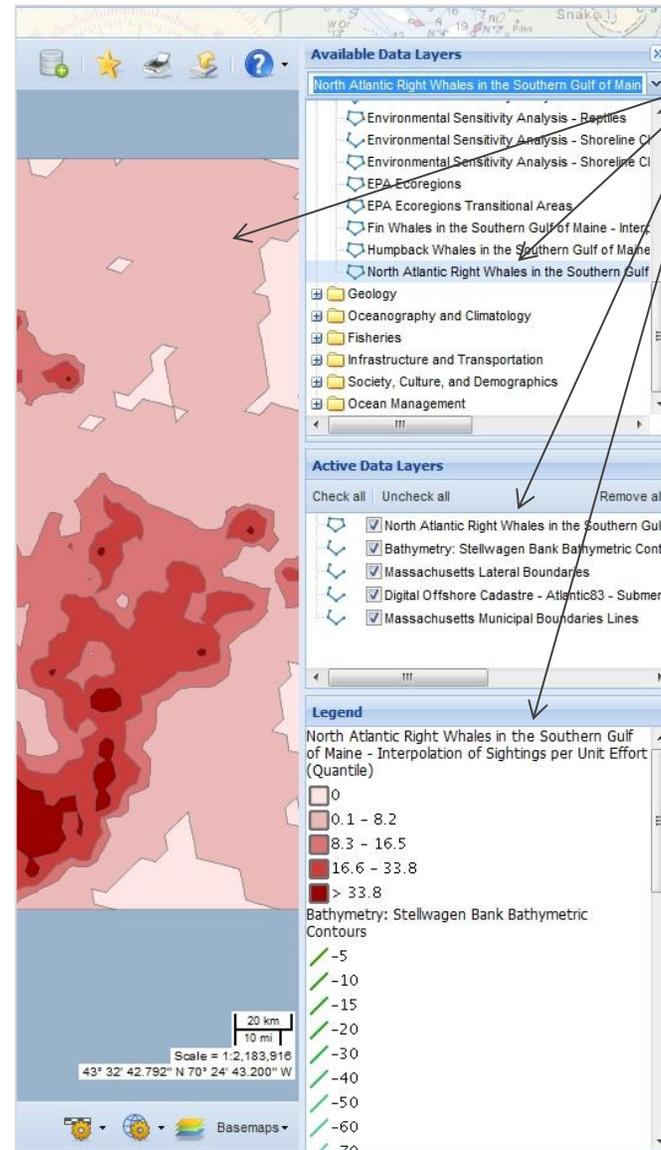
**Please note:** If there is an error drawing a data layer, the data layer’s icon in the “Active Data Layers” window will have a red exclamation point. This red exclamation point indicates that the data layer is currently unavailable; this may be due to an internet connection or a web services problem. Changing the map extent (e.g., panning), adding data layers, etc., will cause the data link to be refreshed. If this connection is restored, the red exclamation point will go away.



# Adding Data Layers by Searching

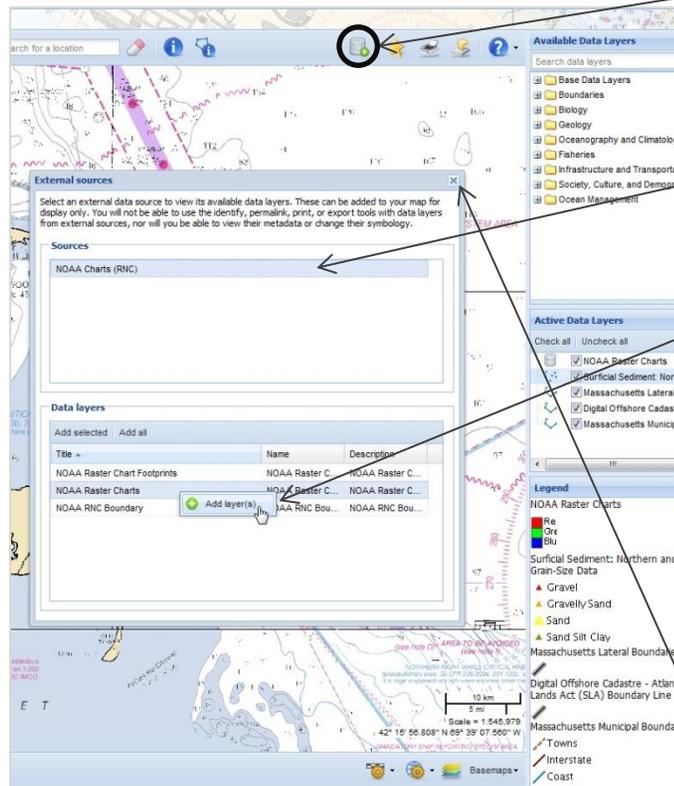


1. Type a search term in the “Search data layers” box in the “Available Data Layers” window. The application searches data layer names and lists all data layers with that term in the title.
2. Click the data layer name of interest.



3. The data layer is drawn on the map. The folders in the “Available Data Layers” window will open to the first listing of the data layer. The data layer name will appear in the “Active Data Layers” window and the legend will be added to the “Legend” window.

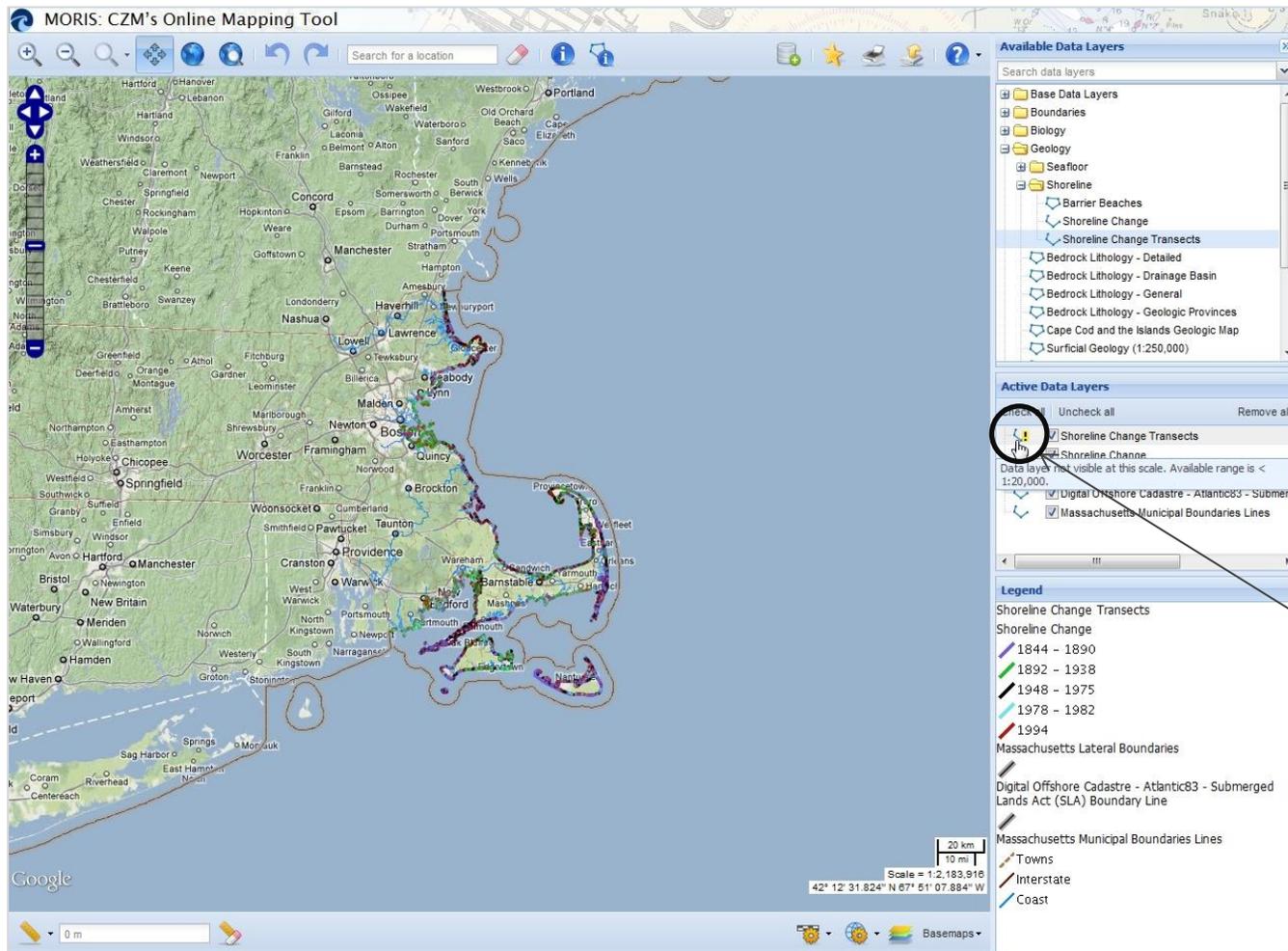
# Adding Data Layers from External Sources



1. Data layers from external sources may be added to the map. These external data layers are served from non-MassGIS servers. To add external data layers, click the “Add data layers from external sources” button.
2. A pop-up window will appear with a table of the available external data sources. Click on an external source name in the “Sources” table to view its available data layers.
3. A list of the available data layers provided by the selected external source will appear in the “Data layers” table. Click the arrow to the right of a column name to sort the columns in ascending or descending order or to turn on or off a column. To add a data layer to the map, double-click a data layer row, or right-click a data layer row and select “Add layer(s).” To add more than one data layer, hold the Shift or Ctrl key on your keyboard to highlight multiple rows, right-click, and select “Add layer(s).” The “Add selected” button may also be clicked to add the selected data layers, and the “Add all” button may be clicked to add all the data layers listed in the “Data layers” table.
4. When you have added the external data layers of interest, close the “External sources” window.

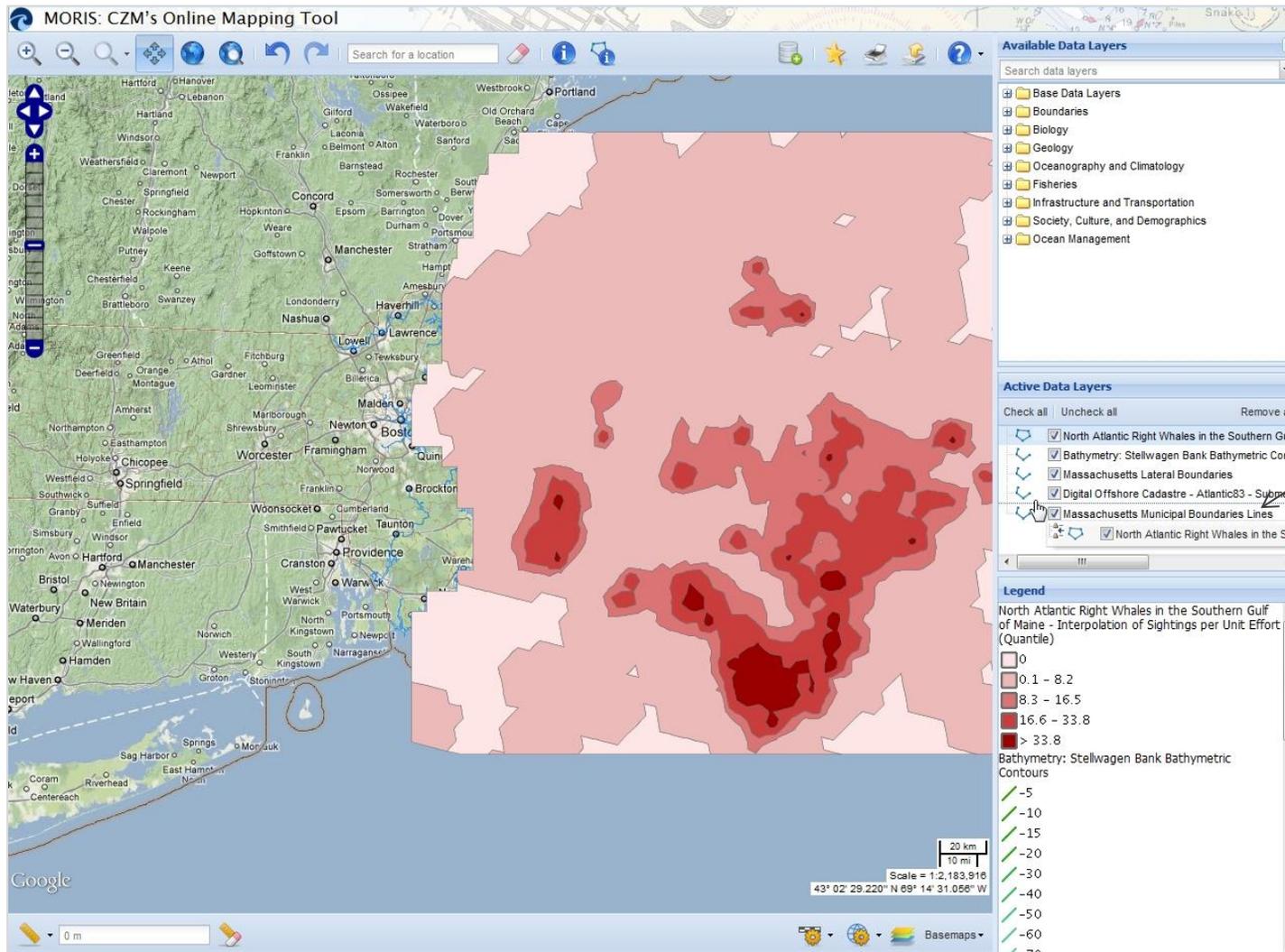
**Please note:** Data layers from external sources can be added to your map for display only. You will not be able to use the identify, permalink, print, or export tools with these data layers, nor will you be able to view their metadata or change their symbology. External data layers may not draw if you have a large monitor with a high-resolution screen display. If the external data layer does not draw, please make the browser window smaller. The legend of external data layers may also get cut off.

# Data Layers with Scale Dependencies



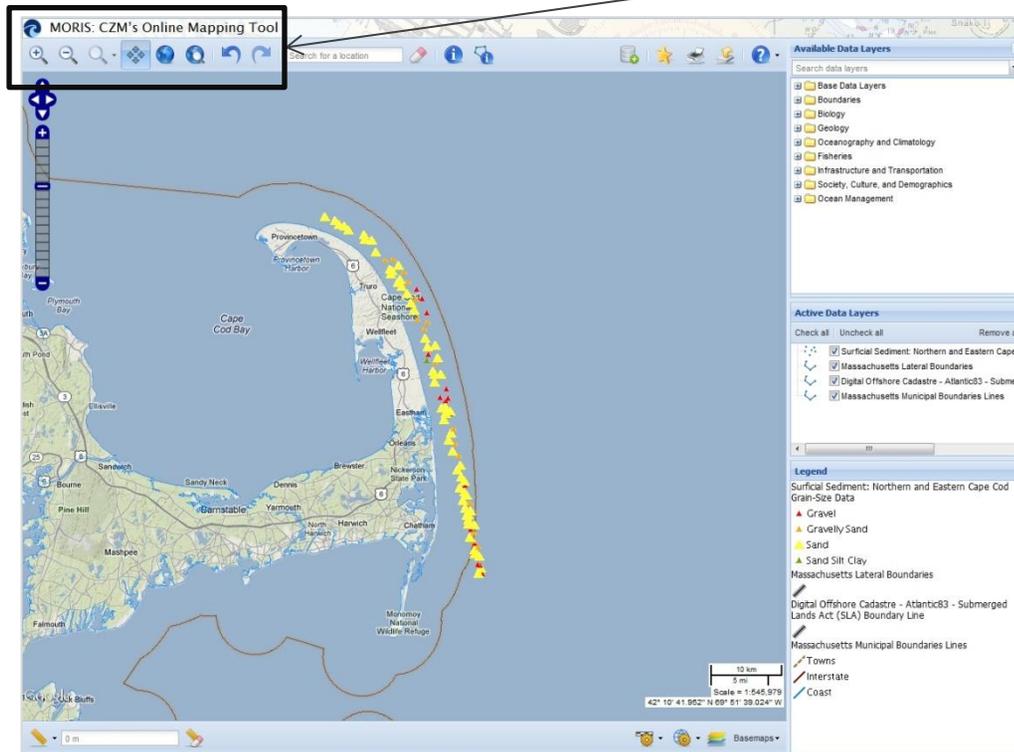
Most data layers are visible at all scales, but some data layers have scale dependencies and are only visible within certain scale ranges, such as less than 1:100,000. If a data layer has a scale dependency and the map is not within the appropriate scale range, the data layer will not draw on the map and its icon in the “Active Data Layers” window will have a yellow exclamation point. Hover the mouse over the yellow exclamation point to see the range within which the data layer will draw. To view the data layer, zoom in or out to a map scale within the available scale range.

# Reordering Data Layers



Data layers are drawn from the bottom to the top of the “Active Data Layers” list. To reorder the data layers, click on a data layer name in the “Active Data Layers” window, hold down the mouse button, and drag the data layer name up or down in the list.

# Navigating the Map



 **Zoom in.** Click this button then click on the map to zoom in to an area, or click on the map, hold down the mouse button, and drag to draw a box to zoom in to that area of interest. The box will be outlined in red as you draw it.

 **Zoom out.** Click this button then click on the map to see approximately twice as much area, or click on the map, hold down the mouse button, and drag to draw a box to zoom out from that box. The box will be outlined in red as you draw it.

 **Pan.** Click this button then click on the map, hold down the mouse button, and drag to recenter the map.

 **Zoom to initial extent.** Click this button to zoom to the original map extent provided when MORIS is first opened.

 **Zoom to full extent of active data layers.** Click this button to zoom to the extent of all the active data layers that are checked.

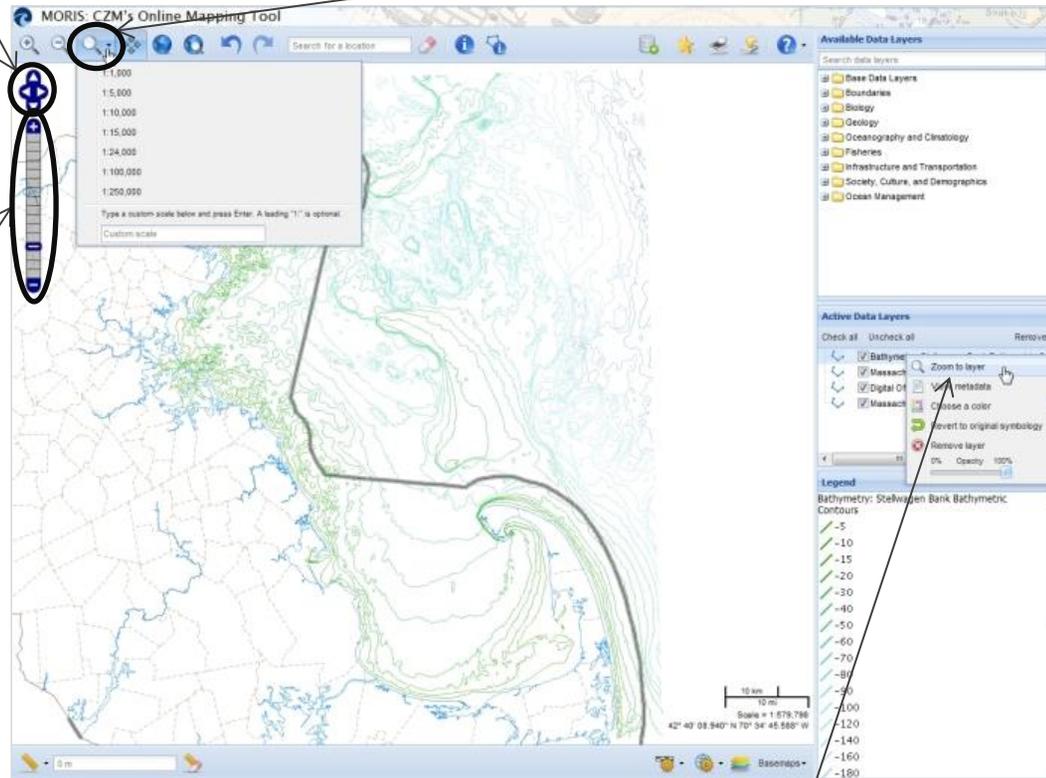
 **Go back to previous extent.** Click this button to go back to the previous map extent.

 **Go to next extent.** Click this button to go forward to the next map extent.

# Navigating the Map (continued)

The arrows may be used to pan the map. Click an arrow to pan the map north, south, east, or west.

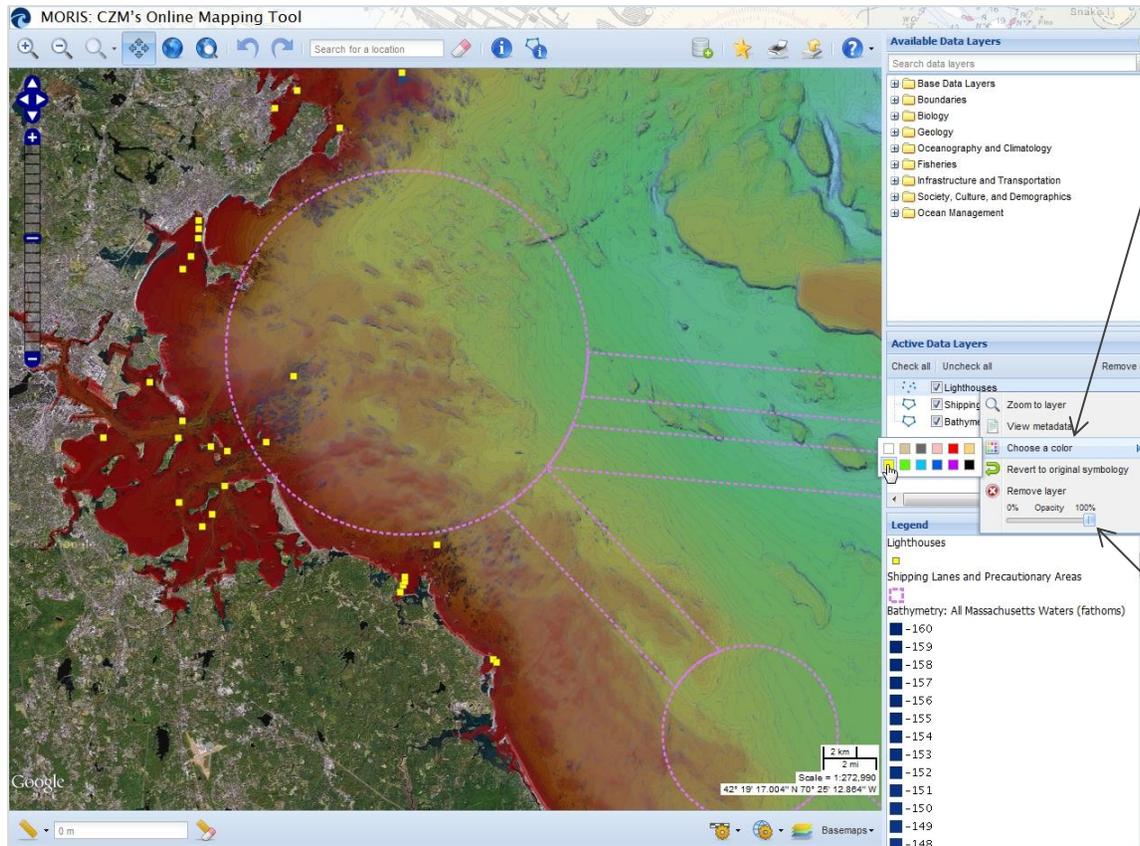
The zoom slider may be used to zoom in or out on the map. Click the plus sign to zoom in one level on the center of the map or the minus sign to zoom out. To zoom in or out multiple zoom levels, drag the zoom slider up or down, and release the mouse button at the desired zoom level.



The “Zoom to scale” menu is only available in the custom basemap. The Bing, CloudMade, Google, OpenStreetMap, and TopOSM basemaps may only be viewed at fixed zoom levels. The custom basemap, however, may be zoomed to any scale from 1:100 to 1:5,000,000. To zoom to a particular scale in the custom basemap, click the “Zoom to scale” button to view a drop-down menu. Select one of the listed scales or type a scale into the “Custom scale” box and press Enter. The zoom in and zoom out tools or zoom slider may also be used to zoom to an in-between zoom level in the custom basemap.

To zoom to the extent of a data layer, right-click the data layer name in the “Active Data Layers” window and select “Zoom to layer.”

# Customizing Data Layers



**Symbology:** The symbology of point, line, or polygon active data layers may be changed. Right-click a data layer's name in the "Active Data Layers" window, move the mouse cursor over "Choose a color" to view a menu of color options, and click one of the colors. Points will be drawn as squares in the color you selected, lines will be drawn with the color you chose, and polygons will be drawn with a gray outline and filled in with the color you picked. To change back to the original symbology, right-click a data layer's name in the "Active Data Layers" window and click "Revert to original symbology."

**Opacity:** The opacity of active data layers may be changed. Right-click a data layer's name in the "Active Data Layers" window, click the opacity slider, hold down the mouse button, and drag the slider to the desired opacity. Data layers with 0% opacity will be completely transparent and data layers with 100% opacity will be opaque.

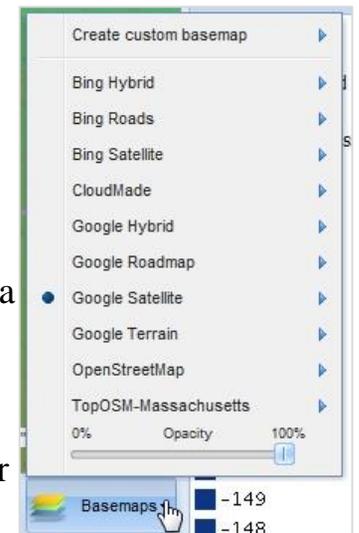
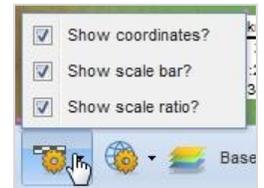
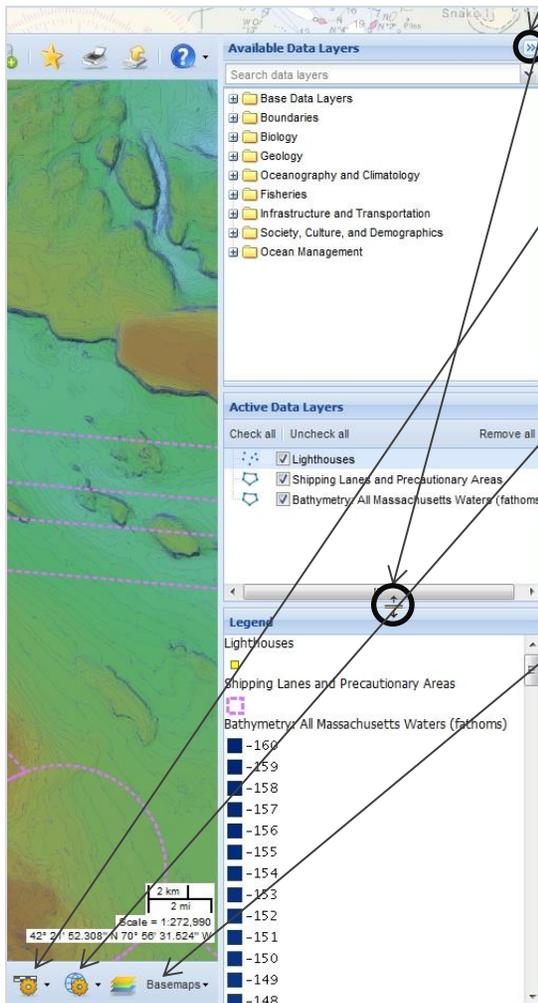
# Customizing the Map

**Windows:** The “Available Data Layers,” “Active Data Layers,” and “Legend” windows may be minimized or resized. Click the arrows icon (  ) to minimize the three windows. To resize a window, move the mouse cursor over the edge of a window, hold down the mouse button, and drag the window edge to the desired height or width.

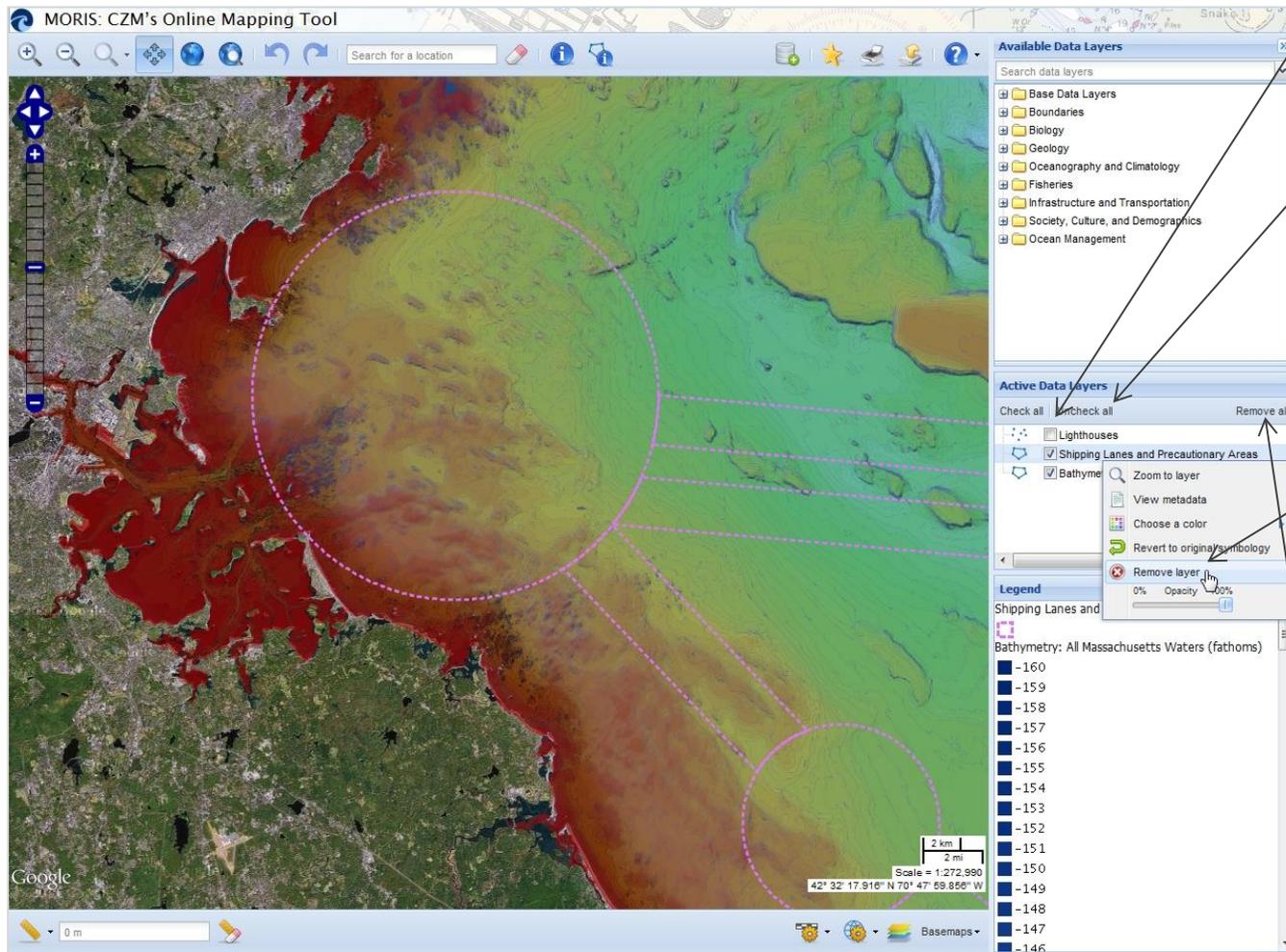
**Scale settings:** The coordinates, scale bar, and scale ratio in the lower right-hand corner of the map may be turned on or off. Click the “Scale settings” button to view a menu and click on or off the checkboxes to show or hide the coordinates, scale bar, and scale ratio.

**Map units:** When the cursor is over the map, the latitude and longitude of the cursor’s location are displayed in the lower right-hand corner of the map. To change the units of the latitude and longitude, click the “Map units” button to view a menu and select one of the listed options.

**Basemaps:** To change the basemap, click the “Basemaps” button to view a menu and select one of the listed options. The opacity of the current basemap may also be changed. Click the “Basemaps” button to view the menu, click the opacity slider, hold down the mouse button, and drag the slider to the desired opacity. This feature is not available for the custom basemap—the opacity of custom is controlled data layer by data layer in the “Active Data Layers” window. The metadata, or text documentation, for each basemap may also be viewed. To view the metadata of a basemap, click the “Basemaps” button to view the menu, move the mouse cursor over the basemap of interest, and click “View metadata.” A pop-up window will appear with the basemap’s metadata.



# Removing Data Layers



To temporarily turn a data layer off, uncheck the box next to the data layer name in the “Active Data Layers” window. The “Uncheck all” button may be clicked to turn off all the active data layers. The legends of unchecked data layers will be removed from the “Legend” window.

To remove a data layer, right-click the data layer name in the “Active Data Layers” window and select “Remove layer.” To remove more than one data layer, hold the Ctrl key on your keyboard to highlight multiple rows, right-click, and select “Remove layer.” The “Remove all” button may also be clicked to remove all the active data layers.

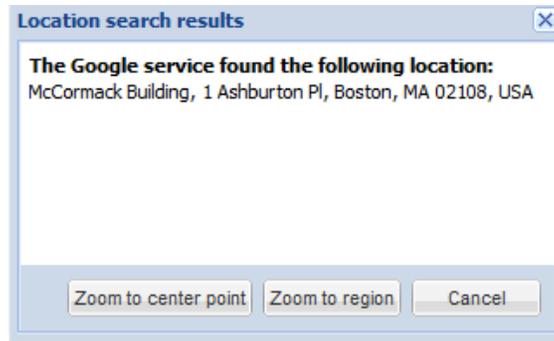
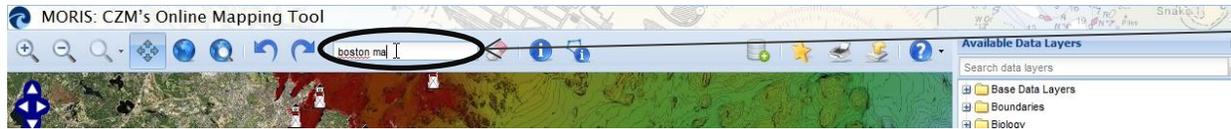
# Viewing Metadata

The screenshot displays the MORIS: CZM's Online Mapping Tool interface. A central window titled "Lighthouses" shows the metadata for the "Lighthouses of the Coast of Massachusetts" data layer. The metadata includes a list of links for "Identification Information", "Data Quality Information", "Spatial Data Organization Information", "Spatial Reference Information", "Entity and Attribute Information", "Distribution Information", and "Metadata Reference Information". Below this, the "Identification Information" section provides citation details: "Originator: The Massachusetts Office of Coastal Zone Management", "Publication Date: 20091110", "Title: Lighthouses of the Coast of Massachusetts", "Geospatial Data Presentation Form: vector digital data", and two "Online Linkage" URLs: "<http://www.mass.gov/czm/mapping/index.htm>" and "<http://www.mass.gov/mgis/lighthouses.htm>".

On the right side of the interface, the "Available Data Layers" window is open, showing a list of categories such as "Base Data Layers", "Boundaries", "Biology", "Geology", "Oceanography and Climatology", "Fisheries", "Infrastructure and Transportation", "Society, Culture, and Demographics", and "Ocean Management". The "Active Data Layers" window is also open, showing a list of layers including "Lighthouses", "Shipping", and "Bathymetry". A context menu is open over the "Lighthouses" layer, with the "View metadata" option selected. An arrow points from the text on the right to this menu option.

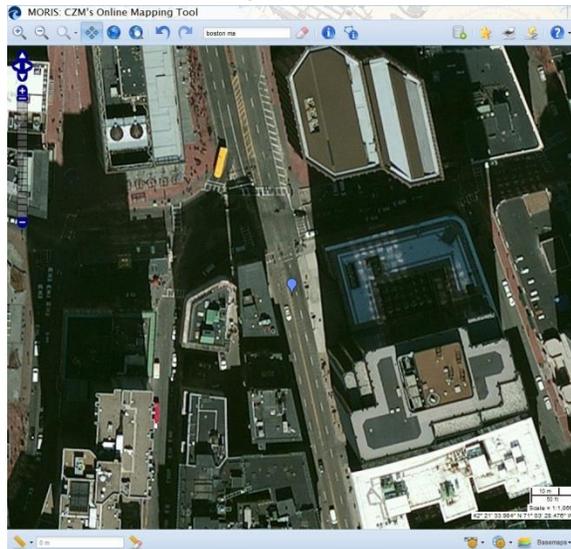
Metadata is text documentation about a data layer. Each available data layer has a metadata record. To view a data layer's metadata, right-click a data layer name in the "Available Data Layers" window or "Active Data Layers" window and click "View metadata." A pop-up window will appear with the data layer's metadata.

# Searching for a Location

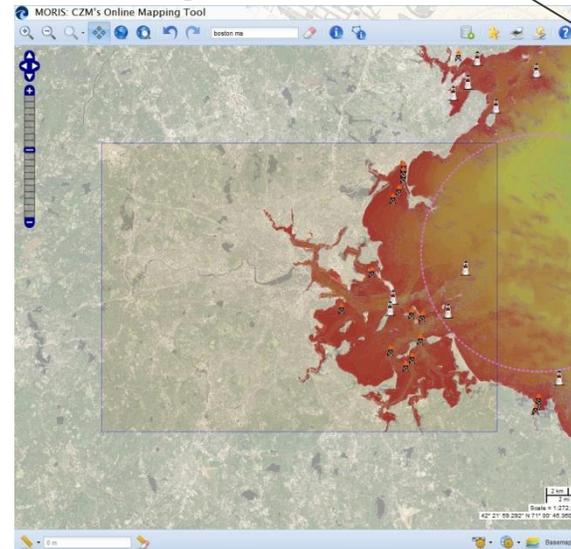


1. Type an address or location into the “Search for a location” box and press Enter to zoom to a location. The tool may be used to search a variety of locations, such as street addresses (please include a municipality or ZIP code), street intersections or coordinates. This location search feature is provided by Google.

Zoom to center point



Zoom to region

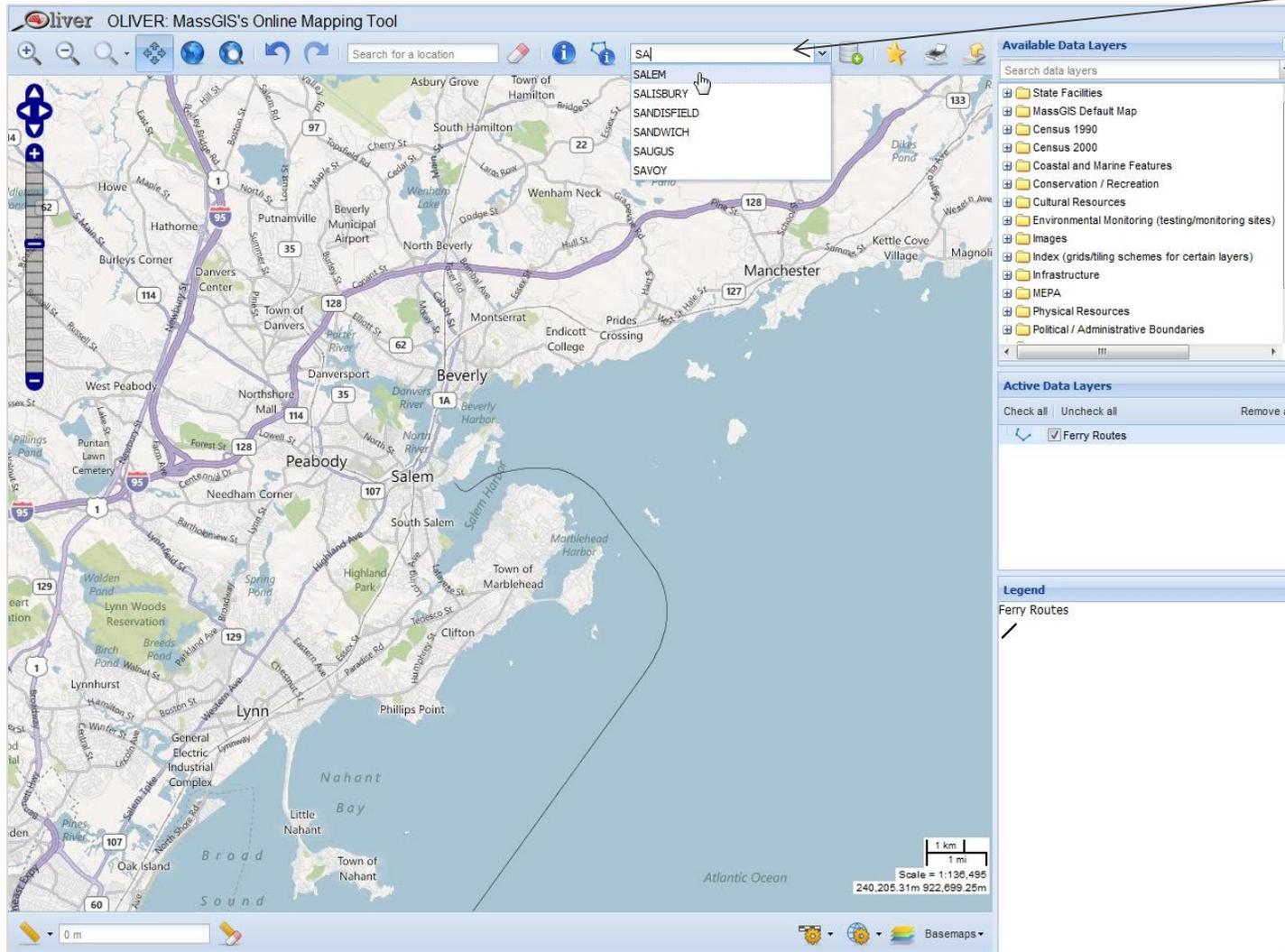


2. A pop-up window will appear with the location search results. Click “Zoom to center point” to zoom close to the results. A blue balloon is displayed at the center point of the location search results. Click “Zoom to region” to zoom to the region of the results. A blue rectangle is visible around the region of the search results.

3. Click the “Clear location” button to clear the location search results (the blue balloon or blue rectangle) from the map.

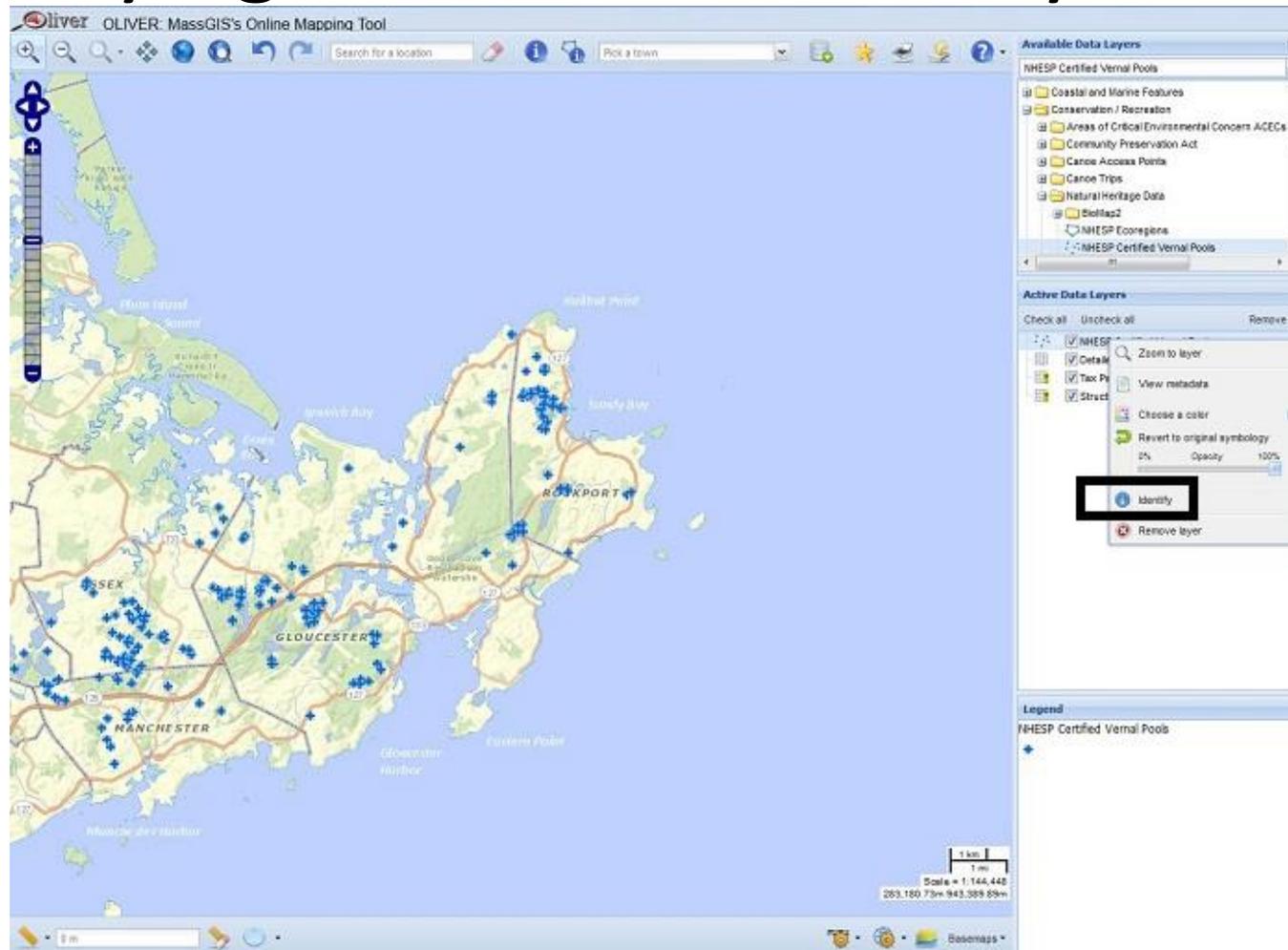


# Searching for a Location (continued)



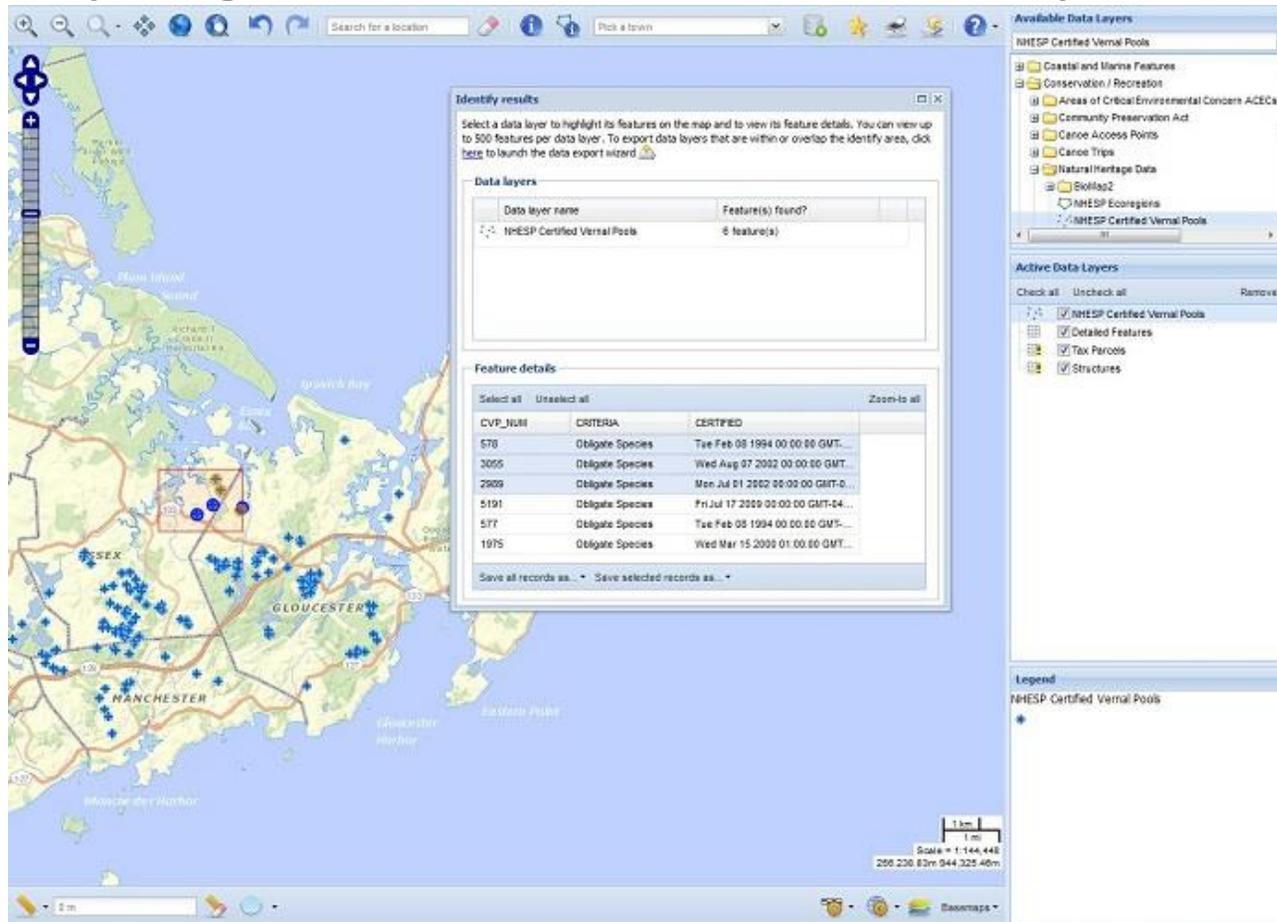
In some viewers, a “Pick a town” tool may be available. Type a municipality name into the “Pick a town” box. You may also type just the first part of a town name. For example, to see a list of municipalities that begin with “Sa,” type “Sa” into the box. Click the town name of interest. The map will zoom to the extent of the selected municipality. Other variations of this tool, such as “Pick a school,” may be available.

# Identifying Features – One Layer



1. Right-click on an eligible data layer in the Active Data Layers window and choose the "Identify" choice. If a layer is not eligible the "Identify" choice will be greyed out. Layers that are not eligible for identify include unchecked (not drawn) layers, out of scale layers (yellow exclamation mark), tilesets (with small boxes icon) or layers from external data sources.
2. Click on the map to identify features of the active data layer that intersect the location you clicked, or click on the map, hold down the mouse button, and drag to draw a box to identify features of active data layers located within the box. This box will appear red as you draw it.

# Identifying Features – One Layer (cont.)

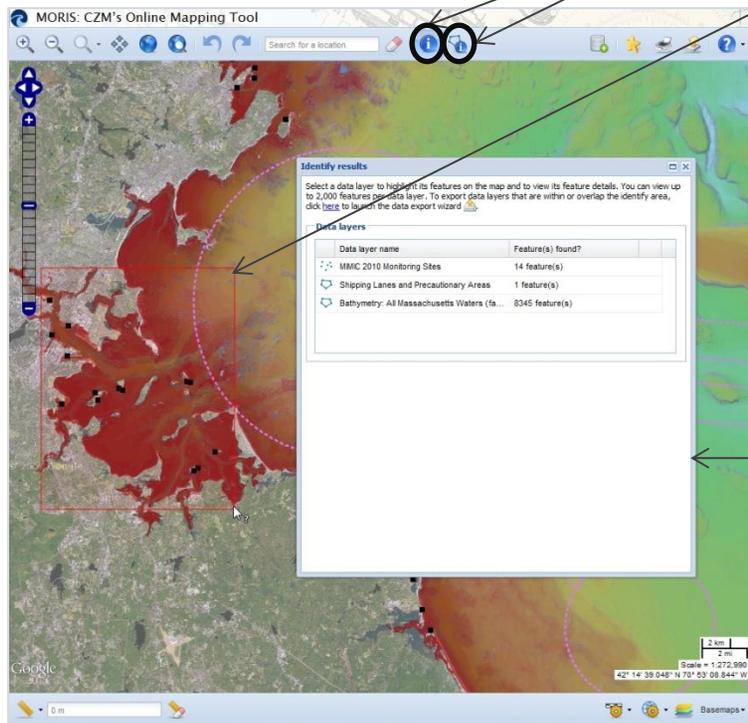


3. A pop-up window will appear with the identify results. Data layers from external sources cannot be queried, so they will not be included in the results. You may view the attributes for up to 500 features per data layer. If identifying on a raster data layer, the raster's cell value in the center of the identify box or polygon will be found. Please note that some data layers have scale dependencies and are only visible within certain scale ranges, such as less than 1:100,000. If a data layer has a scale dependency and the map is not within the appropriate scale range, then the data layer will not draw on the map, its icon in the "Active Data Layers" window will have a yellow exclamation point, and it cannot be identified. Please see the Help section on "Data Layers with Scale Dependencies" for more information on how to view data layers with scale dependencies. Once data layers with scale dependencies are visible, they may be queried.

# Identifying Features – Multiple Layers

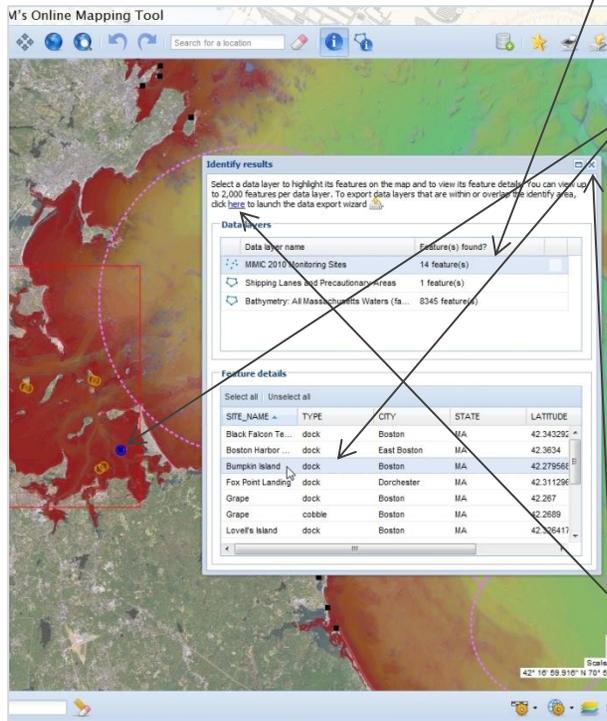
1. Click the “Identify features by clicking a point or drawing a box” tool or the “Identify features by drawing a polygon” tool.

2. If using the “Identify features by clicking a point or drawing a box” tool, click on the map to identify features of active data layers that intersect the location you clicked, or click on the map, hold down the mouse button, and drag to draw a box to identify features of active data layers located within the box. This box will appear red as you draw it. If using the “Identify features by drawing a polygon” tool, click on the map to draw vertices of a polygon, and double-click to finish drawing the polygon to identify features of active data layers located within or overlapping the polygon. The polygon will appear red as you draw it.



3. A pop-up window will appear with the identify results. Data layers from external sources cannot be queried, so they will not be included in the results. You may view the attributes for up to 500 features per data layer. If identifying on a raster data layer, the raster’s cell value in the center of the identify box or polygon will be found. Please note that some data layers have scale dependencies and are only visible within certain scale ranges, such as less than 1:100,000. If a data layer has a scale dependency and the map is not within the appropriate scale range, then the data layer will not draw on the map, its icon in the “Active Data Layers” window will have a yellow exclamation point, and it cannot be identified. Please see the Help section on “Data Layers with Scale Dependencies” for more information on how to view data layers with scale dependencies. Once data layers with scale dependencies are visible, they may be queried.

# Identifying Features – Multiple Layers (cont.)



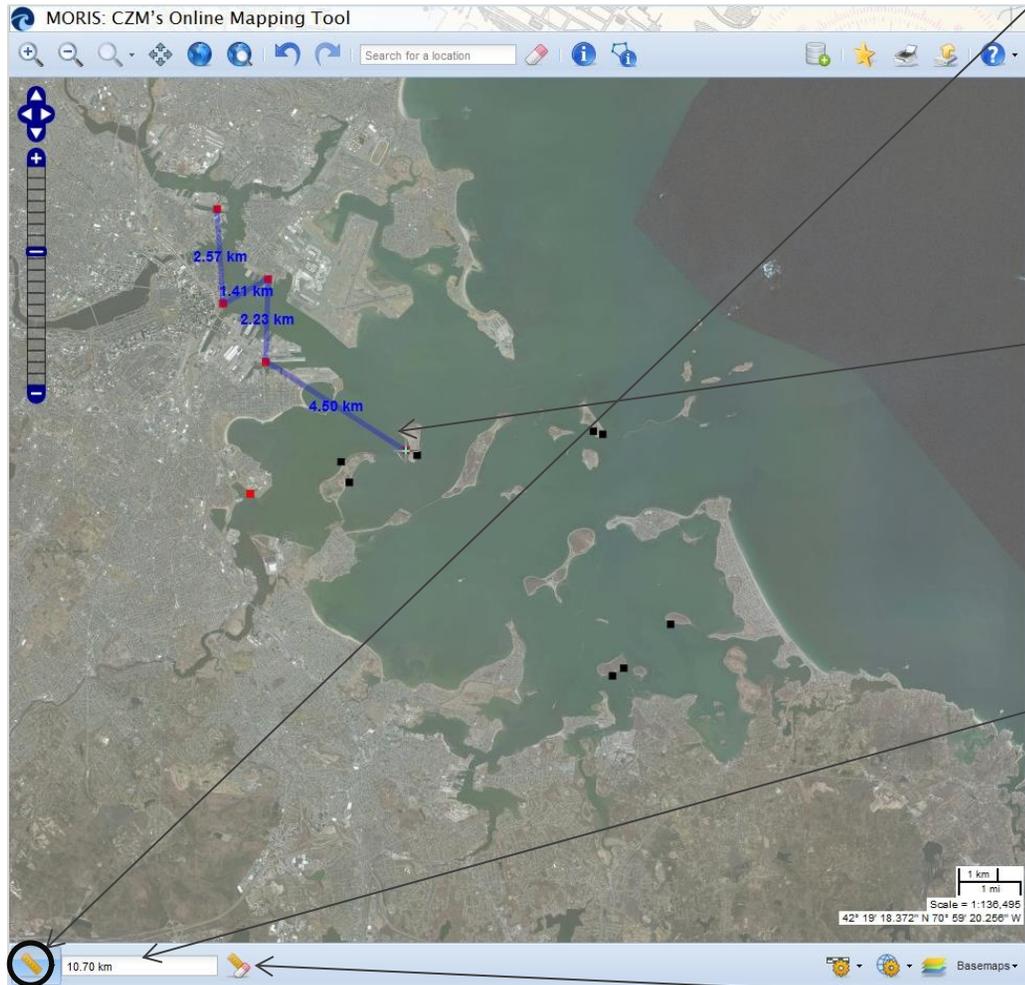
4. To view the feature details of a point, line, or polygon data layer, click on the data layer name in the “Data layers” table. Attributes for the selected data layer will appear in the “Feature details” table and the features will be highlighted in orange on the map. Click the arrow to the right of a column name to sort the attributes in ascending or descending order or to turn on or off a column. If a row is selected in the table, the corresponding feature will be highlighted in blue on the map. Hold the Shift or Ctrl key to select multiple rows. The “Select all” button may also be clicked to select all the features. Additionally, you may click one of the orange highlighted features on the map to highlight it in blue and select its corresponding row in the “Feature details” table. Right-click a row in the “Feature details” table to zoom to a feature or clear a feature.

To view the identified cell value of a raster data layer, click on the raster data layer name in the “Data layers” table. A pop-up window will appear with the cell value and a red “X” will be drawn on the raster data layer cell that is being queried. Close the pop-up window to clear the red “X” from the map.

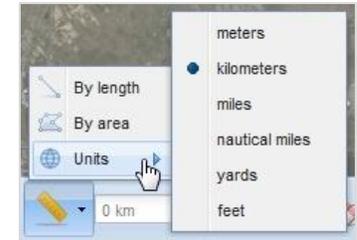
5. You may also use the identify tools to select an area of interest for exporting data. To export data layers that are within or overlap the identify area (i.e., the identify point, box, or polygon), click the blue “here” at the top of the “Identify results” window to launch the data export wizard. To export data layers that are within or overlap a selected polygon feature, right-click the row of the feature of interest in the “Feature details” table and select “Launch the data export wizard and restrict the area of interest to this feature.” Please note that this option is not available for point or line features. Please see the Help section on “Downloading Data” for more information on using the data export wizard.

6. Close the “Identify results” window to clear the identified features and red box from the map.

# Measuring Length or Area



1. Click the “Measure” menu. The default is to measure length in meters and area in square meters. To change the unit of measurement, move the mouse cursor over “Units” to view a menu of measurement units options and click one of the listed units.

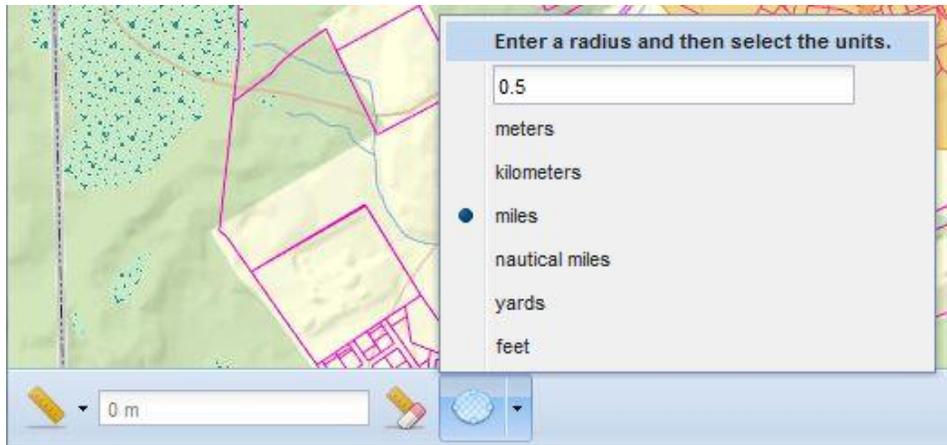


2. In the “Measure” menu, click “By length” to measure the length of a line, click on the map to draw vertices of the line, and double-click to finish drawing the line. Click “By area” to measure the area of a polygon, click on the map to draw vertices of the polygon, and double-click to finish drawing the polygon.

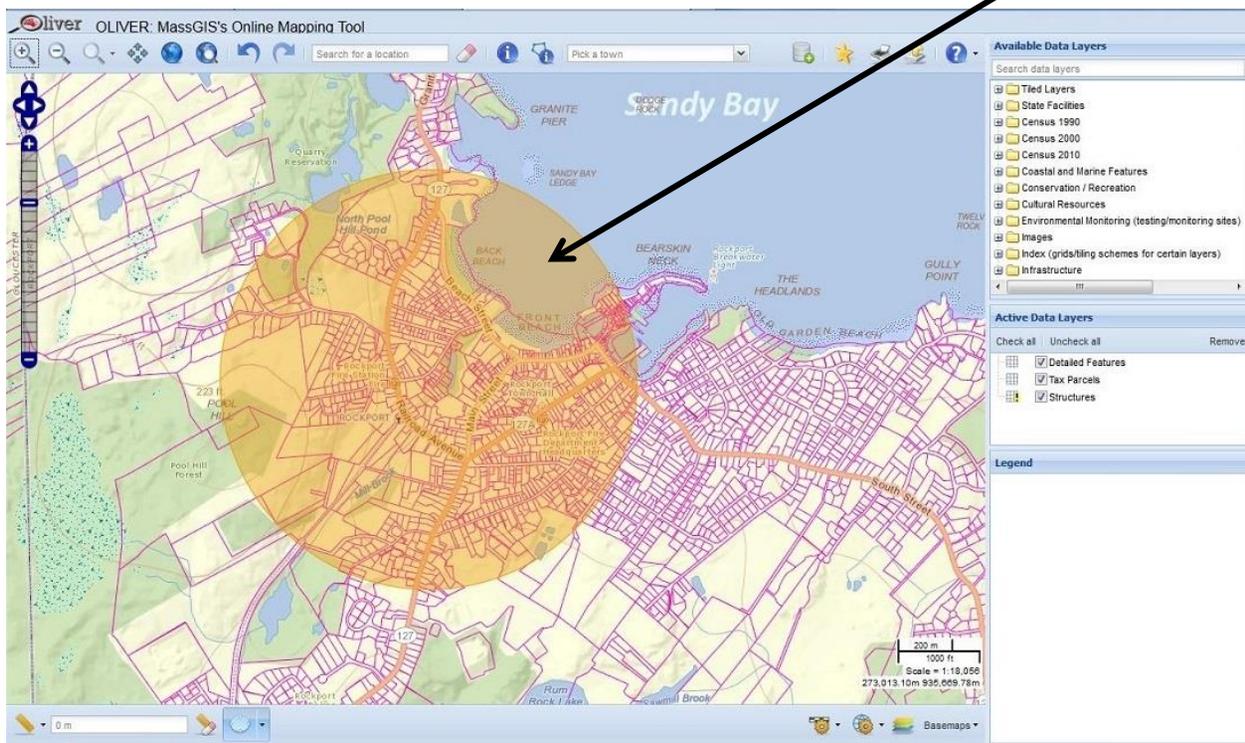
3. The results of the measurement will appear in the box next to the “Measure” menu. If measuring by length, the length of each line segment will be written on each segment on the map and the total length will be written in the results box.

4. Click the “Clear measurement” tool to clear the measured line or polygon from the map and to clear the distance or area from the measurement results box.

# Draw a Buffer



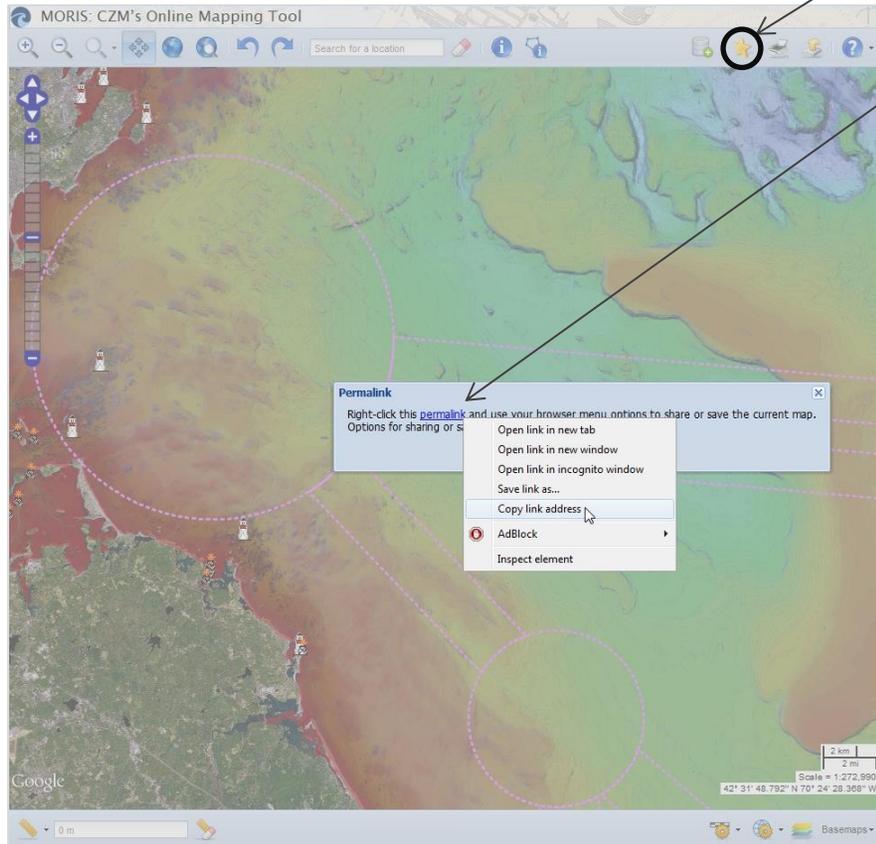
1. Click the "Buffer" menu on the bottom toolbar in the left hand corner of OLIVER. The default is to draw a buffer in meters. To change the unit of measurement, click on one of the listed units.
2. Enter a number (decimal is acceptable) into the "Buffer radius" box. Then, click on the map to draw the buffer. The buffer will appear as a partially transparent orange circle.



3. To clear the buffer circle from the map, click on the "Clear measurement" button  to the left of the buffer tool.

# Bookmarking/Sharing a Map

1. To create a bookmark to launch the application with the current map settings (e.g., data layers, extent, etc.) enabled, click the “Permalink” tool.



2. Right-click the blue “permalink” and see the options. Options for sharing or saving vary among browsers. In Firefox “Copy Link Location” will copy the URL to the clipboard. “Bookmark This Link” will create a Firefox bookmark. In Internet Explorer “Copy shortcut” will copy the URL to the clipboard. “Add to favorites” will create an Internet Explorer favorite. In Google Chrome “Copy link address” will copy the URL to the clipboard. “Open link in new window” will open the map in a new browser window. You can then click the bookmark icon (☆) in the address bar to save the permalink map as a bookmark. In Safari “Copy Link” will copy the URL to the clipboard. “Add Link to Bookmarks” will create a Safari bookmark.

This URL may be saved as a bookmark in the web browser or shared with others in an email to launch the current map (includes the checked active data layers, along with their custom symbology and opacity settings, the map extent, the basemap, and the map units, but not external data layers).

**Please note:** Some software programs, such as Microsoft Outlook, limit the number of characters allowed in a URL. If the permalink URL exceeds the maximum allowed length, the link will not open automatically when clicked. Copy and paste the URL into a web browser to open it.

# Open to an address

MORIS/OLIVER can be opened zoomed to an address by adding the address to the URL. Two options are available:

## 1) Google geocoding service

Add `?gcType=Bing&gcAddress=1 Ashburton Pl,02108&gcZoomTo=center` where `gcType=` is an address of any format and `gcZoomTo=` either "center" (for a blue balloon) or "region" for a more zoomed out map and a light blue outlined region box.

Samples:

[http://maps.massgis.state.ma.us/map\\_ol/oliver.php?gcType=Google&gcAddress=1%20Ashburton%20Pl,%2002108&gcZoomTo=center](http://maps.massgis.state.ma.us/map_ol/oliver.php?gcType=Google&gcAddress=1%20Ashburton%20Pl,%2002108&gcZoomTo=center)

[http://maps.massgis.state.ma.us/map\\_ol/oliver.php?gcType=Google&gcAddress=1%20Ashburton%20Pl,%20Boston&gcZoomTo=region](http://maps.massgis.state.ma.us/map_ol/oliver.php?gcType=Google&gcAddress=1%20Ashburton%20Pl,%20Boston&gcZoomTo=region)

[http://maps.massgis.state.ma.us/map\\_ol/oliver.php?gcType=Google&gcAddress=Fenway%20Park&gcZoomTo=center](http://maps.massgis.state.ma.us/map_ol/oliver.php?gcType=Google&gcAddress=Fenway%20Park&gcZoomTo=center)

[http://maps.massgis.state.ma.us/map\\_ol/oliver.php?gcType=Google&gcAddress=Park St. and Beacon St. Boston&gcZoomTo=center](http://maps.massgis.state.ma.us/map_ol/oliver.php?gcType=Google&gcAddress=Park St. and Beacon St. Boston&gcZoomTo=center)

(when supplying an intersection, use "and" instead of "+" between the street names)

[http://maps.massgis.state.ma.us/map\\_ol/oliver.php?gcType=Google&gcAddress=McCormack%20Building,%20Boston&gcZoomTo=center](http://maps.massgis.state.ma.us/map_ol/oliver.php?gcType=Google&gcAddress=McCormack%20Building,%20Boston&gcZoomTo=center)

[http://maps.massgis.state.ma.us/map\\_ol/oliver.php?gcType=Google&gcAddress=42.35935%20-71.06237&gcZoomTo=center](http://maps.massgis.state.ma.us/map_ol/oliver.php?gcType=Google&gcAddress=42.35935%20-71.06237&gcZoomTo=center)

Latitude and Longitude may be used in decimal degrees format.

## 2) MassGIS geocoding service using [base streets](#)

Use up to 4 parameters: `&gcAddress=` `&gcCity=` `&gcState=` `&gcZipcode=`

`&gcZoomTo` is not applicable for the MassGIS geocoding service

`&gcAddress` is required

Either `&gcCity` or `&gcZipcode` are required

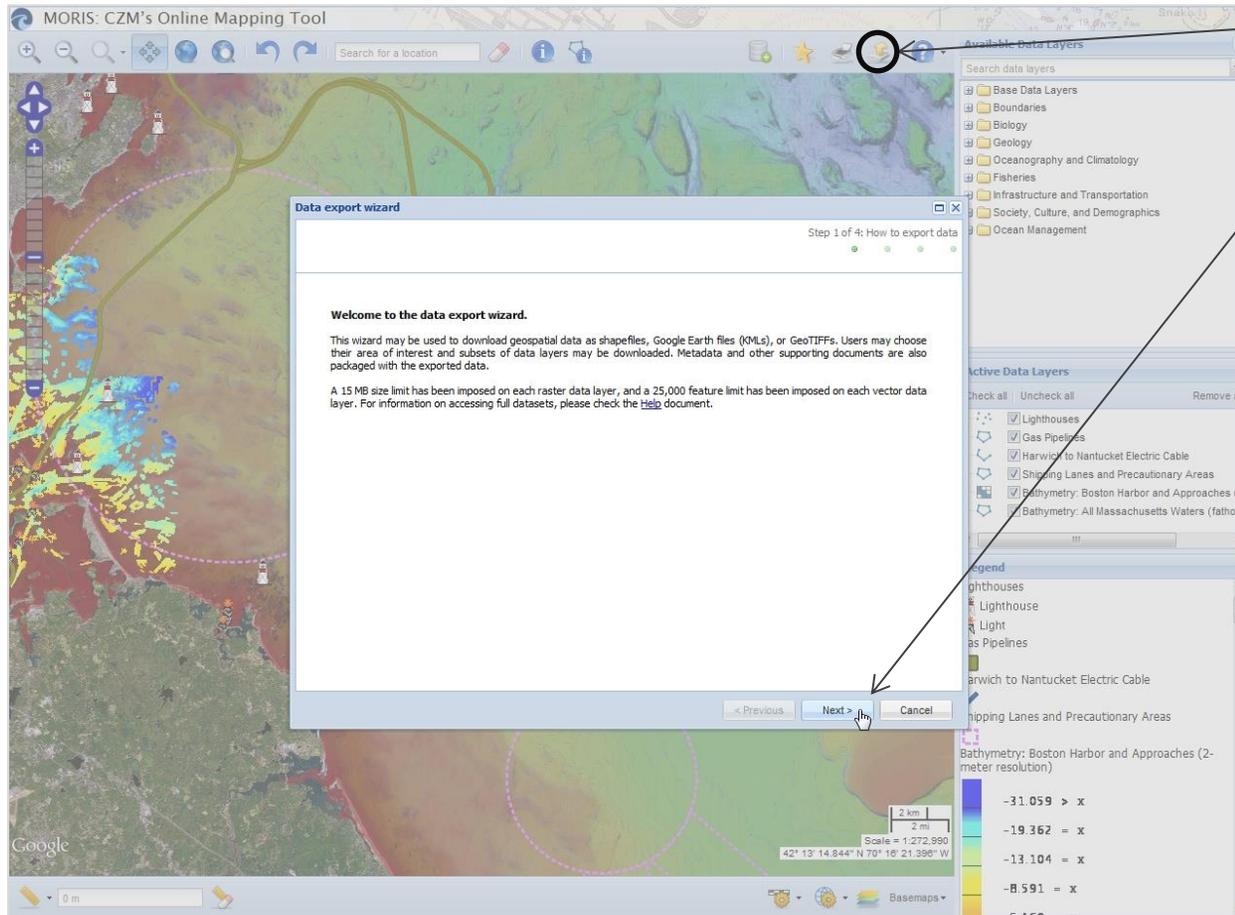
`&gcState` is optional

Samples:

[http://maps.massgis.state.ma.us/map\\_ol/oliver.php?gcType=MassGIS&gcAddress=1 Ashburton Pl.&gcCity=Boston](http://maps.massgis.state.ma.us/map_ol/oliver.php?gcType=MassGIS&gcAddress=1 Ashburton Pl.&gcCity=Boston)

[http://maps.massgis.state.ma.us/map\\_ol/oliver.php?gcType=MassGIS&gcAddress=100 Willard St.&gcZipcode=03071](http://maps.massgis.state.ma.us/map_ol/oliver.php?gcType=MassGIS&gcAddress=100 Willard St.&gcZipcode=03071)

# Downloading Data

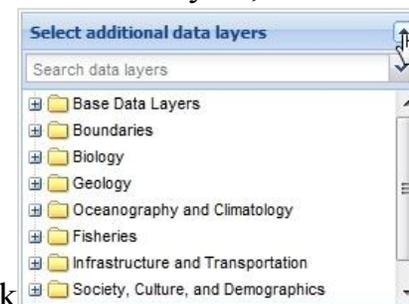
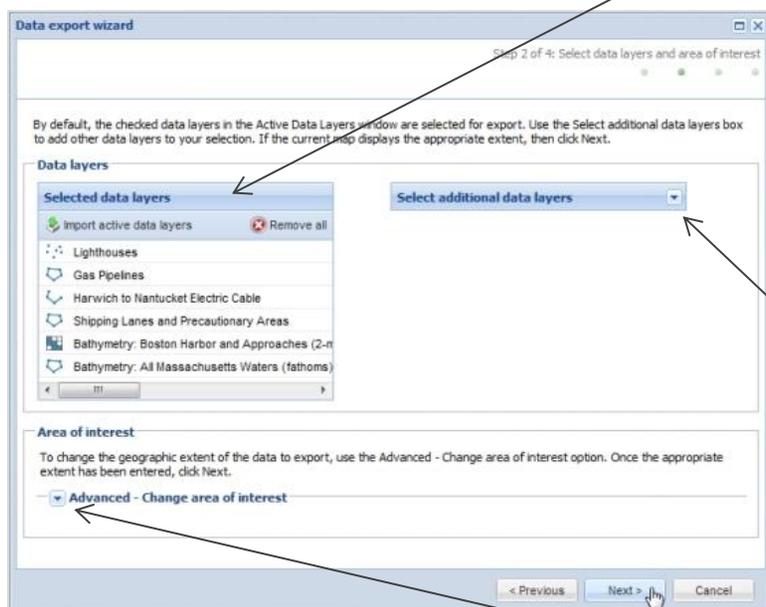


1. Click the "Data export wizard" tool.

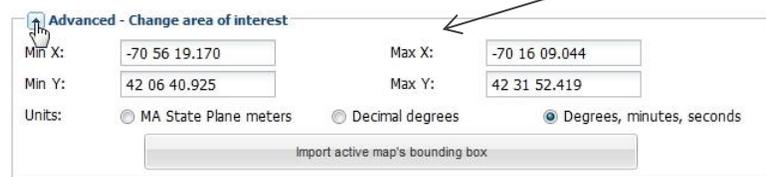
2. The data export wizard will appear in a pop-up window. Read the welcome paragraph and click "Next" to continue.

# Downloading Data (continued)

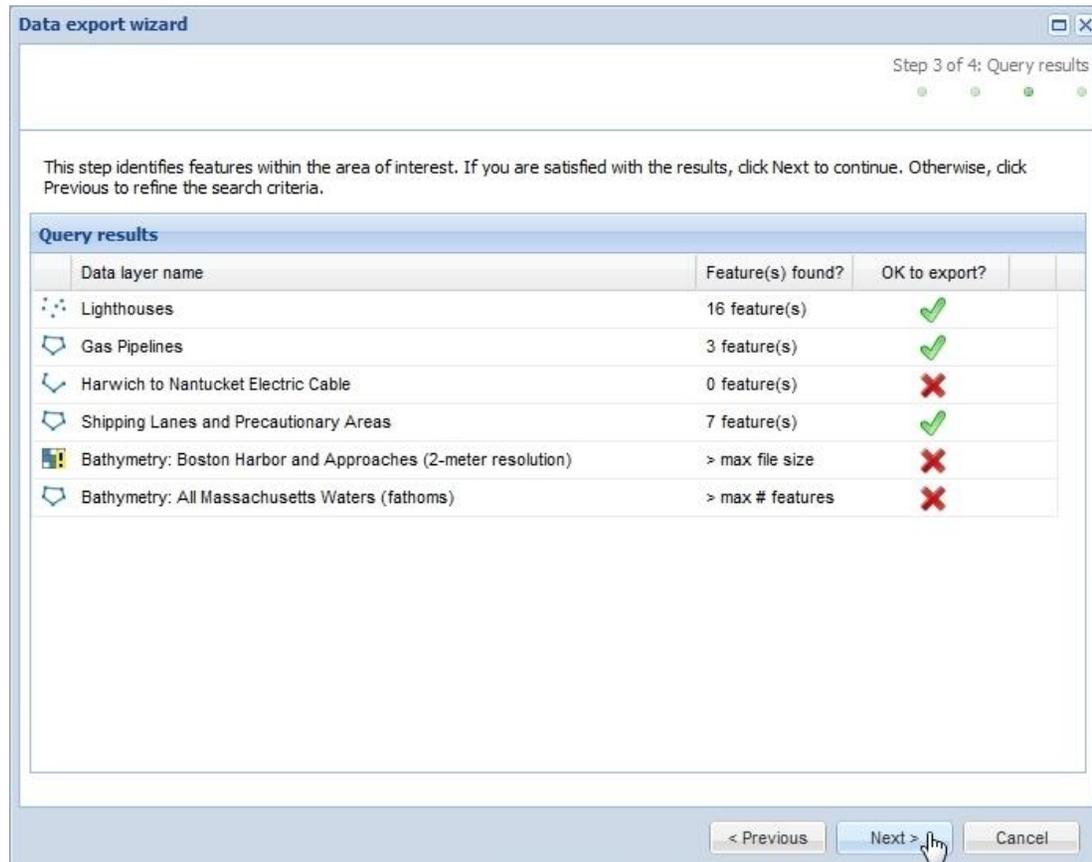
3. By default, the checked data layers in the “Active Data Layers” window will appear in the “Selected data layers” table. External data layers cannot be exported. Individual data layers can be removed from this list by clicking the data layer name in the “Data layers of interest” table, right-clicking, and selecting “Remove layer(s).” To remove more than one data layer, hold the Shift or Ctrl key on your keyboard to highlight multiple rows, right-click, and select “Remove layer(s).” To remove all data layers, click “Remove all.” Additional data layers not present on the current map can be added by using the “Select additional data layers” drop-down menu. Click a data layer name to add it to the “Selected data layers” table. To export all the data layers in a folder, right-click a folder name and select “Add folder.” Only folders at the bottom of the folder hierarchy may be added.



4. If you want to export data that are within or overlap the current map window extent, click “Next.” If you want to change the area of interest, click “Advanced - Change area of interest.” If changing the area of interest, select the units you would like to use (i.e., Massachusetts State Plane meters, decimal degrees, or degrees, minutes, and seconds). Then enter the minimum X, minimum Y, maximum X, and maximum Y coordinates you want to use to define your area of interest. If you prefer to go back to the original extent instead, select the “Import active map’s bounding box” button to import the current map extent. Click “Next” to continue.



# Downloading Data (continued)



5. The “Query results” table lists the data layers for export and the number of features found for each data layer within your area of interest. A green check mark indicates that the data layer is okay to export. A red “X” indicates that the data layer will not download because zero features or greater than the maximum number of features allowed for download were found within your area of interest, or the file size of the raster data layer for your area of interest is too large. Click “Next” to proceed.

# Downloading Data (continued)

Data export wizard

Step 4 of 4: Select output and download options

**Vector data output options**

Format:  Shapefile (.shp)  Google Earth file (.kml)

**Raster data output options**

Format:  GeoTIFF

**Output coordinate system**

NAD83/Massachusetts State Plane Coordinate System, Mainland Zone, meters - EPSG:26986

NAD83/UTM zone 18N, meters (Western Massachusetts) - EPSG:26918

NAD83/UTM zone 19N, meters (Eastern Massachusetts) - EPSG:26919

WGS84 (Latitude-Longitude) - EPSG:4326

**Name of the ZIP file to download**

File name:

< Previous Finish Cancel

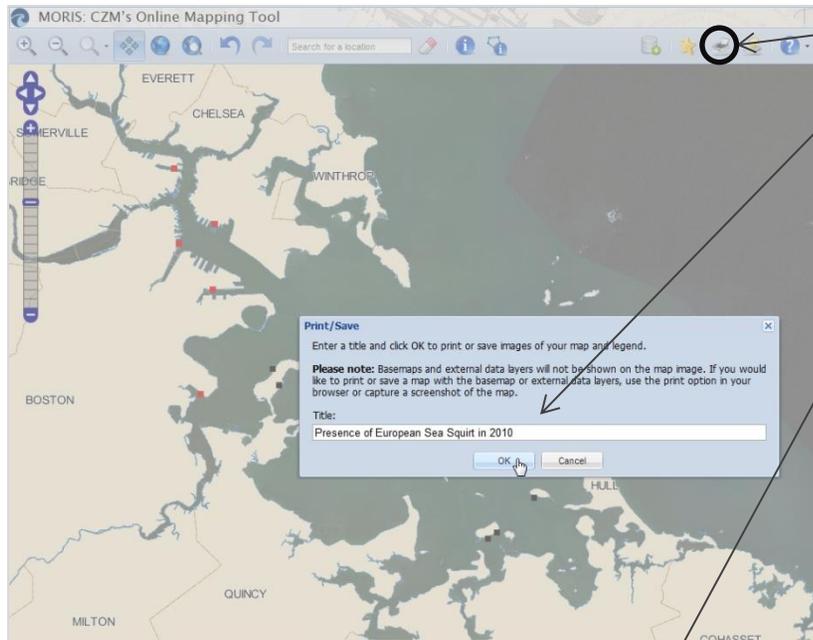
6. Select your preferred data output. The default format is shapefile (.shp) for vector data. Also available is Google Earth file (.kml). For raster data, the GeoTIFF radio button will be selected by default since this is the only raster format available at this time.

7. If downloading the vector data as shapefiles, select the output coordinate system for the data you are going to export. The default system is NAD83/Massachusetts State Plane Coordinate System, Mainland Zone, meters - EPSG:26986. Currently, rasters can only be downloaded in NAD83/Massachusetts State Plane Coordinate System, Mainland Zone, meters - EPSG:26986.

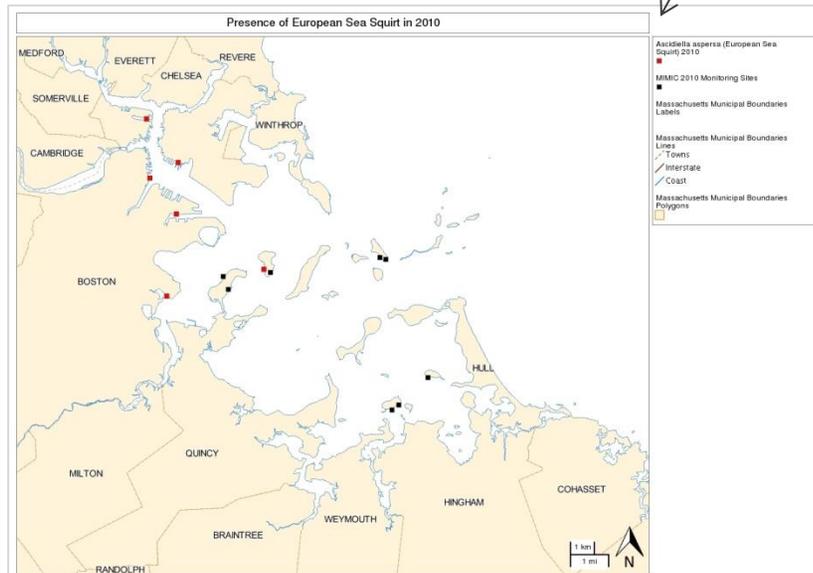
8. The exported data and associated files (e.g., HTML metadata file, XML metadata file, symbology file, etc.) will be downloaded in a ZIP file. Enter a file name (with no spaces) for the ZIP file to download.

9. Click "Finish." A pop-up window will appear. Click the blue "here" and follow your browser instructions for saving the file. Close the pop-up window once you have saved the exported data.

# Printing and Saving a Map Image



1. Click the “Print or save your map and legend” button.
2. A pop-up window will appear. Enter a title for the map and click “OK.” Please note that basemaps and external data layers will not be shown on the map image. If you would like to print or save a map with the basemap or external data layers, use the print option in your browser or capture a screenshot of the map.
3. Your map will be assembled and a new pop-up window will appear. Click the blue “here” to open a new window containing your map and legend as separate images. You can then either right-click each image and save them locally or use the browser print option to print the entire map.



**Please note:** If you would to print or save a map with the basemap or external data layers, you may use the print option in your browser or capture a screenshot of the map. Printing from the browser is possible using the “File” menu and “Print” option. Use “Print Preview” to see the expected result. Choosing landscape orientation and setting the scale so that the map and legend fit on the printed page will work best. The three windows to the right of the map may be adjusted in size to, for example, make the legend area larger.

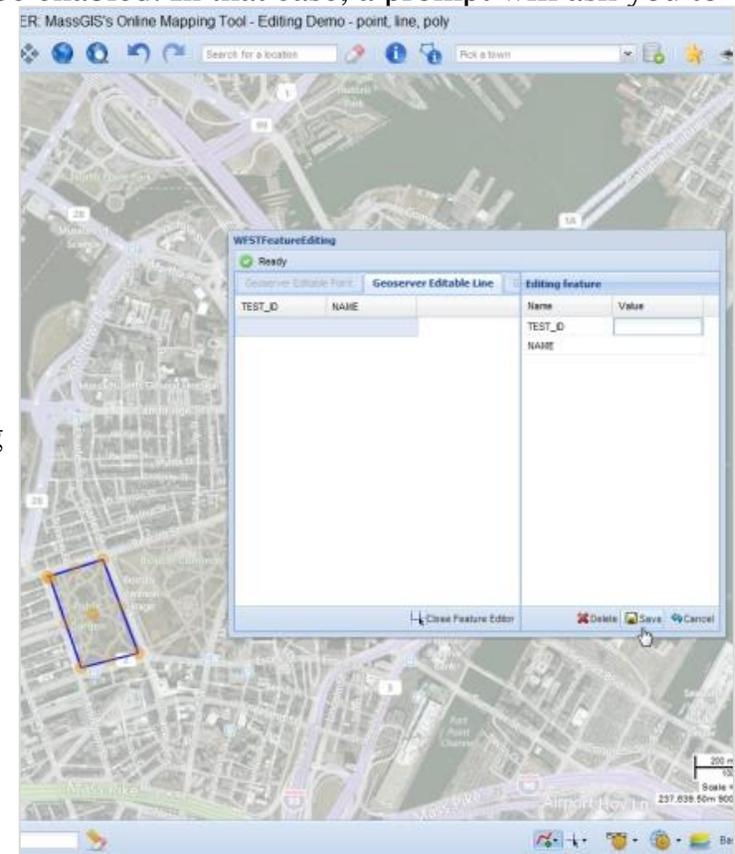
To insert an image of the map into other documents, capture a screenshot of the map. Press and hold Alt then press Print Screen (or PrtScn) on your keyboard to copy an image of your computer’s active window display to your clipboard. This image can be pasted into another software program, such as Microsoft Word.

# Editing Data

Some versions of MORIS allow points, lines, and polygons to be edited live. Typically those versions will ask for a username and password to verify permission to perform edits.

## Drawing New Features

1. Click the “Draw New Feature” tool to view a menu of data layers that may be edited.
2. Select one of the listed data layers to which to add a feature (there may be one or more data layer choices).
3. Click on the map to start drawing the feature.
4. In some applications snapping to features and splitting (of lines) may be enabled. In that case, a prompt will ask you to draw a box to indicate the snapping area.
5. If drawing a point feature, click once on the map to draw the new feature. If drawing a line or polygon feature, click more than once on the map to mark out the vertices of your line or polygon and double-click to finish drawing. Once you have finished drawing your new feature, the attribute editing window (titled WFSTFeatureEditing) will appear.
6. If snapping or splitting is available, it is configured specifically for each application. Consult the more detailed instructions provided. As a general note, snapping can happen to more than one data layer, including the data layer being edited. Snapping will occur even if the data layer being snapped to is not drawn on the map. Snapping will occur to both lines and vertices. However, features that are selected by this drawn rectangle are used in their entirety. Currently it is possible to split only lines with lines. When approaching a data layer feature to which it is possible to snap you will sense a bit of “stickiness”—the vertex will seem to jump slightly to match up to the line or vertex.
7. Enter values for the attribute fields. Click the “Save” button in the lower right of the attribute editing window when done. If you wish to cancel adding a feature, click the “Cancel” button in the lower right of the attribute editing window.
8. The new feature will immediately appear on the map.



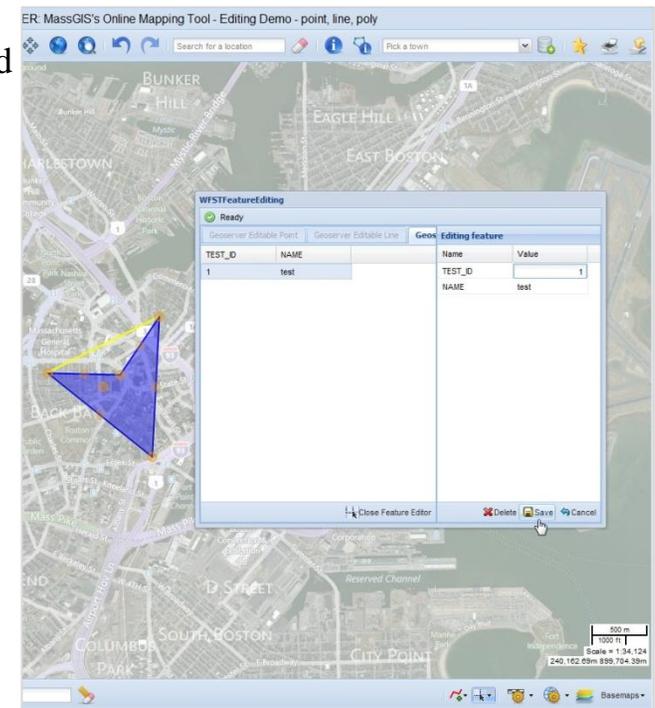
# Editing Data (continued)

## Editing Existing Features

1. Click the “Edit Existing Feature” tool to view a menu of data layers that may be edited.
  2. Select one of the listed data layers to edit from the menu (there may be one or more data layer choices).
  3. Draw a box on the map to select a feature to edit. Features within or overlapping that box will be selected. You may zoom in or out while features are selected.
  4. If more than one feature was selected, choose one feature within the attribute editing window. (Only one feature may be edited at a time.) The selected feature will turn blue and have orange vertices.
  5. You may move the feature, change its shape, or change its attributes. To move the feature, click on the vertex (orange dot) closest to the center of the feature and drag. You should see the blue feature with orange vertices move, while the original feature stays. If you decide to save, the original feature will disappear. To reshape the feature, click on a vertex (orange dot) and drag it. You will see the blue feature change shape. To add vertices, click on a vertex that is not on a corner and drag it slightly. A new vertex to both sides will be created.
  6. If drawing a point feature, after one click the attribute editing window (titled WFSTFeatureEditing) will appear. If drawing a line or polygon feature, click more than once on the map to mark out the vertices of your line or polygon and double-click to finish drawing.
  7. Change any values for the attribute fields. Click the “Save” button in the lower right of the attribute editing window when done. If you wish to cancel editing a feature, click the “Cancel” button in the lower right of the attribute editing window.
  8. The edited feature will immediately appear on the map.
- The current editing attributes system is basic. Enhancements such as mandatory fields, restricted fields and dropdown values are planned.

## Comment Tool

There is a “Comment” tool option that allows a point to be entered into a data layer with attributes. The points may only be entered, not edited.



# Accessibility

In order to address accessibility guidelines under the Massachusetts Information Technology Division's Enterprise IT Accessibility Standards, several enhancements have been added to the latest version of MORIS:

- Keyboard equivalents for menu items (see next page for listing)
- Ability to change the focus with the tab key
- Labels for inputs
- Semantic HTML, e.g., specific header elements for sections of the page
- Clear information on table column headings

Users should note that MORIS contained a number of accessible elements already in its first OpenLayers version:

- Documentation is provided in HTML as well as PDF format. The two formats are clearly labeled by type. Both the HTML and PDF documentation provides good navigation and alternative text for images. The HTML documentation has been validated and checked successfully against several accessibility websites.
- The data provided on the map visually is also available through DBF download in text format.
- Data provided in compressed format (.zip) is also provided in uncompressed format.
- As an alternative to searching for data in folders and subfolders, MORIS offers an input box. The user can enter part of a text string and data layers with that string anywhere in the title will appear in a drop-down list. For example, if the user types "z" choices come up, and when "o" is added, those choices are narrowed to those with "zo" such as "Coastal Zone" and "Zoning District Outlines."
- Additional software is not required—MORIS runs inside a web browser (the previous version of MORIS required a separate software installation).

# Accessibility (continued)

For those users who prefer to skip mouse movement, keyboard shortcuts to drive map operations, change focus, or open menus or dialogs are listed below. These key mappings have been tested in Firefox. (Note: Not all tools may be provided in MORIS or other applications.)

- To select the Zoom in tool: Ctrl-Alt-z
- To select the Zoom out tool: Ctrl-Alt-o
- To open the Zoom to scale menu: Ctrl-Alt-s
- To select the Pan tool: Ctrl-Alt-p
- To zoom to the initial extent: Ctrl-Alt-i
- To zoom to the full extent of active data layers: Ctrl-Alt-m
- To give focus to the Search for a location box: Ctrl-Alt-l
- To open the Permalink tool: Ctrl-Alt-k
- To open the Print/Save tool: Ctrl-Alt-w
- To open the data export wizard: Ctrl-Alt-x
- To view the Help drop-down menu: Ctrl-Alt-q
- To give focus to the Available Data Layers search box: Ctrl-Alt-y
- To open the Measure tool menu: Ctrl-Alt-a
- To open the Scale settings menu: Ctrl-Alt-g
- To open the Map units menu: Ctrl-Alt-u
- To open the Basemaps menu: Ctrl-Alt-b
- To open the Comment tool dialog: Ctrl-Alt-t

If you require additional accommodations or information, please contact Aleda Freeman at [aleda.freeman@state.ma.us](mailto:aleda.freeman@state.ma.us).

# Using MORIS on a Mac

This user guide was written using a Windows PC. Below are some tips for using MORIS on a Mac.

## **Right-Clicking**

Some of the tools and menus are accessed by right-clicking (e.g., to zoom to the extent of a data layer, right-click the data layer name in the “Active Data Layers” window and select “Zoom to layer”). If your Mac mouse has one button, you may right-click by holding down the Control key and then clicking with the mouse.

## **Highlighting Multiple Rows**

To highlight multiple rows, hold the Shift or Command key on your keyboard and then click the rows of interest. After identifying features, users may highlight multiple rows in the “Feature details” table in the “Identify results” pop-up window. Users may also remove more than one data layer from the “Selected data layers” table in the “Data export wizard” by highlighting multiple rows.

## **Saving a Map Image**

To insert an image of the map into other documents, capture a screenshot of the map. Click Command-Shift-4 on your keyboard, then the space bar, then click a window to save an image file of the selected window on the desktop. Click Command-Control-Shift-4 on your keyboard, then the space bar, then click a window to copy an image of the selected window to your clipboard. This image can be pasted into another software program, such as Microsoft Word.

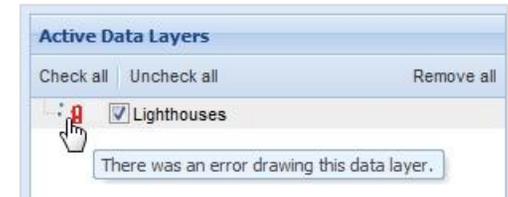
# Problems? Questions? Comments?

## Troubleshooting

If the map does not initially load in Internet Explorer, go to the “Tools” menu and click “Internet Options.” Click on the “Security” tab and click the button “Default level.” Click the “Apply” button and the “OK” button and then reload the MORIS page.

## Errors Drawing Data Layers

If there is an error drawing a data layer, the data layer’s icon in the “Active Data Layers” window will have a red exclamation point. This red exclamation point indicates that the data layer is currently unavailable; this may be due to an internet connection or a web services problem. Changing the map extent (e.g., panning), adding data layers, etc., will cause the data link to be refreshed. If this connection is restored, the red exclamation point will go away.



## Please Report Problems and Give Feedback

To assist in the maintenance of these data, users are encouraged to report errors or omissions. To report a coastal data error, please contact CZM's GIS/Data Manager at [daniel.sampson@state.ma.us](mailto:daniel.sampson@state.ma.us). To report a non-coastal data error, please contact the MassGIS Education and Outreach Coordinator at [paul.nutting@state.ma.us](mailto:paul.nutting@state.ma.us). We would also appreciate feedback, so please let us know of any suggested enhancements, bugs you experience, or other comments you may have. To view a list of known problems or to check and see if a bug you experienced is documented, please see the [list of issues](#) on the [MORIS Github site](#).

## Interested in learning more?

If you are interested in learning more about the technology behind MORIS, please view the MORIS Developers Documentation available at [http://maps.massgis.state.ma.us/map\\_ol/moris\\_developers\\_documentation.htm](http://maps.massgis.state.ma.us/map_ol/moris_developers_documentation.htm).

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