Directions for Using the Massachusetts Shoreline Change Browser

Note: The Massachusetts Shoreline Change Browser is maintained within the Massachusetts Office of Coastal Zone Management's (CZM) Massachusetts Ocean Resource Information System (MORIS), a web-based coastal mapping tool. MORIS is run through a web browser. At this time, the application fully works in Internet Explorer and Mozilla Firefox and has some limited functionality in other web browsers. The latest versions of both Internet Explorer and Firefox are recommended. Currently, Internet Explorer 8 and Firefox 3.6.13 have been thoroughly tested, but the application also works in Internet Explorer 6 and above and Firefox 3.0 and above.

You may want to print these directions so you can refer to them while using the Shoreline Change Browser. Additional directions for using MORIS features are available by clicking on the "Help" icon ( ) in the upper right corner of the MORIS application.

- Locate your area of interest by: 1) clicking on the "Zoom in" tool ( ) and drawing a box around the area on the map, 2) searching for a location by typing an address or landmark into the "Search for a location" box, or 3) entering a transect number (including the unique region code) into the "Zoom to a transect" box in the upper toolbar and pressing enter to zoom to a location.

- Use the Pan tool ( ) to move around the map. Select this tool from the toolbar then click on the map, hold down the mouse button, and drag to recenter the map.

- Add additional data as needed (road maps, topographic maps, etc.) from the "Available data layers" window located on the upper right corner of the MORIS application by expanding menus and clicking on data layer names. Note that some of the data layers will not display until you are tightly zoomed in to your area of interest (these layers will be designated by a yellow exclamation point icon in the "Active data layers" window if the map is not within the appropriate scale range).

- Continue zooming and panning until labels appear on the transects around the site of interest.

- If you zoom in too far, you can use the "Back" tool ( ) to go back to the previous extent.

- Click on the "Identify" tool ( ) and then draw a box around the transects of interest. A pop-up window will appear with the query results. Click on the "Shoreline Change Transects" data layer name in the "Data layers" table to view the relevant statistical data for the transects.

- The "Feature details" table for each transect contains data on the positional change and the corresponding rate of change between the interpreted shorelines over time. Positive numbers indicate accretion while negative numbers indicate erosion. A value of -9999 indicates that no data exists for that attribute. Each data table includes the following:

  ➢ TRANSECT_N - A Unique region code and number (e.g., SS-0843) assigned to each transect or line perpendicular to the shorelines. Region codes include:
    ▪ BB: Buzzards Bay
    ▪ CCB: Cape Cod Bay
    ▪ CCS: Cape Cod South
    ▪ EI: Elizabeth Islands
    ▪ GB: Greater Boston
    ▪ MV: Martha's Vineyard
    ▪ N: Nantucket
    ▪ NS: North Shore
    ▪ OCC: Outer Cape Cod
    ▪ SS: South Shore
  ➢ LT_DIST_FT - The net distance in feet between the oldest and youngest shorelines spanning roughly 1844 to 2009. Exact shoreline dates will vary depending on location.

- ➢ LT_RATE_FT - Annual statistical rate in feet of long-term (approximately 150-year) shoreline change.
- ➢ LT_UNCERT - The 90% confidence interval or level of statistical certainty in feet associated with LT_RATE_FT. This level of uncertainty means that you can be 90% confident that the true annual rate of long-term shoreline change (as measured on the ground) lies between the statistical LT_RATE_FT plus or minus the LT_UNCERT value. This leaves a 10% chance that the true shoreline change lies outside of those boundaries.
- ➢ ST_DIST_FT - The net distance in feet between the oldest and youngest shorelines spanning roughly 1970 to 2009. Exact shoreline dates will vary depending on location.
- ➢ ST_RATE_FT - Annual statistical rate in feet of short-term (approximately 30-year) shoreline change.
- ➢ ST_UNCERT - The 90% confidence interval or level of certainty in feet associated with ST_RATE_FT. In other words, you can be 90% confident that the true annual rate of short-term shoreline change (as measured on the ground) lies between the statistical ST_RATE_FT plus or minus the ST_UNCERT value. This leaves a 10% chance that the true shoreline change lies outside of those boundaries
- ➢ TOWN - Municipality within which the transect lies.
- ➢ LABEL - The transect number with long-term rate (in feet per year) in parentheses.

- To determine the specific year of a shoreline with a range of years in the legend, click on the "Identify" tool ( ) and draw a box around a small section of the shoreline of interest. A pop-up window will appear with the query results. Click on the "High Water Shorelines (1800s-2009)" data layer name in the "Data layers" table to view the year of the selected shoreline.

- There is currently no sophisticated print option in MORIS. Printing from the browser is possible using the browser's Print menu. While options differ between browsers, use Print Preview, choose the landscape orientation, and change the Print size or Scale so that the entire map is shown in the preview. (Before printing you may want to adjust the size of the "Active Data Layers" and "Legend" panes by dragging the horizontal divider bar between the panes to ensure that those map features will be present in the final printed map.) Click Print when you are satisfied with the Preview image.

- To insert an image of the map into other documents, capture a screenshot of the map. On a Windows computer, press and hold Alt then click Print Screen (or PrtScn) to copy an image of your computer's active window display to the clipboard. Click Ctrl V to insert the image in your document. On a Mac, click Command-Control-Shift-4, then the space bar, then click a window to copy an image of the selected window to your clipboard.

- MORIS allows you to bookmark or share a saved map. The map will display user-defined data layers, extent, basemap, and map units. Note that selected features and opacity settings will not be saved. To bookmark a map you made so that you can easily return to it, click the "Permalink" button ( ). Right-click the blue "permalink" and select "Bookmark This Link" in Firefox or "Add to Favorites" in Internet Explorer.

- To share a user-created map via email, click the "Permalink" button. Right-click the blue "permalink" and select "Copy Link Location" in Firefox or "Copy Shortcut" in Internet Explorer to copy the URL to the clipboard. Paste the URL into the body of an email. The recipient will be able to click the URL and have the map launch in his or her web browser.

- To download the data for use in a GIS, zoom to your area of interest making sure that the transects are displayed; if they are not, continue zooming in until they are. Note that you will not be able to download the transect data if the transect layer is not visible. Initiate the data download by clicking the "Launch the data export wizard" ( ) in the upper right corner. Follow the prompts and consult the "Help" documentation ( ) (also in the upper right corner) for further guidance if desired.