Collaborative Watershed Mapping Tool
Tutorial

Tool access and video tutorial: https://lancastercleanwaterpartners.com/collaborative-mapping

The Collaborative Watershed Mapping Tool is a product of the Lancaster Clean Water Partners' Watershed Action Team and the Chesapeake Conservancy. The mapping layers provide spatial information and landscape context to support planning efforts from restoration and conservation professionals in Lancaster County, Pennsylvania.

Data in the tool has been categorized into four different tabs
- Prioritization: This tab shows priority watersheds for restoration at the catchment scale which were then aggregated to the HUC12 watershed scale, and also aggregated to the scale of large watersheds that local groups reference for planning purposes. The factors that went into the priority level are each included as their own data layer listed below the priority datasets.
- Water Quality: This tab includes data layers with information on water quality including the index of biological integrity (IBI) and water quality monitoring data.
- Policy: This tab includes data layers from federal, state, and local agencies related to water quality, designated uses, flood risk, land use, environmental justice, and urban development.
- Implementation: This tab shows data layers relevant to implementation at the local scale including existing planning efforts, high-resolution hydrology, and best management practice (BMP) opportunities.
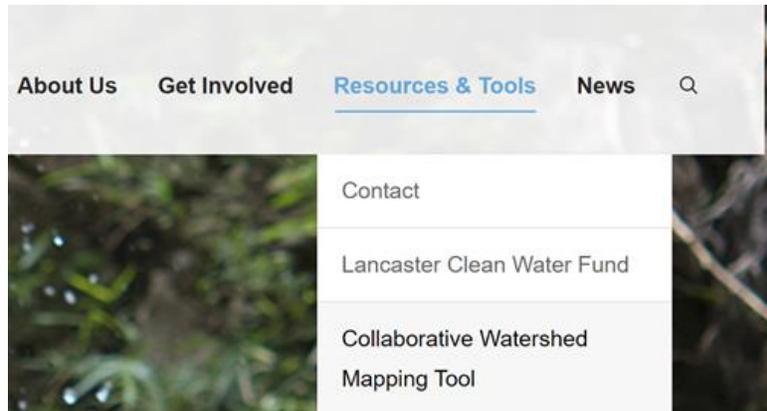
Disclaimer
Results from this mapping tool should be ground-truthed using local knowledge through stakeholder and landowner participation, as the data is not intended to provide site-specific engineering/project design. Chesapeake Conservancy and Lancaster Clean Water Partners do not guarantee the accuracy of suggested practice locations. Local knowledge and planning expertise is required to apply the datasets in an appropriate manner and to ensure restoration projects will result in significant water quality benefits on-the-ground.

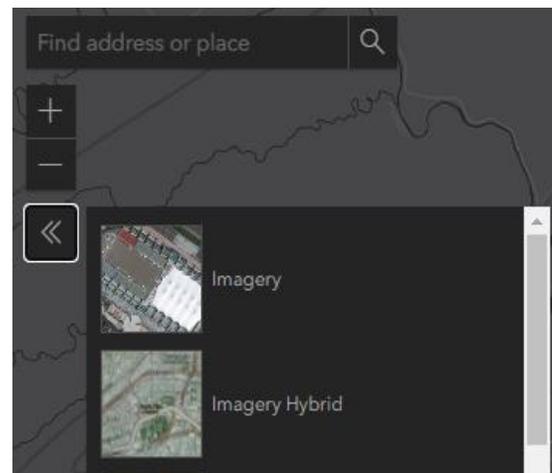**Collaborative Watershed Mapping Tool**
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1. Accessing the tool
   a. Go to **https://lancastercleanwaterpartners.com** and click on the link for the mapping tool.
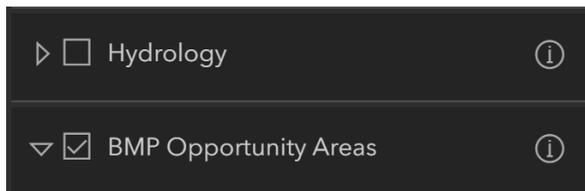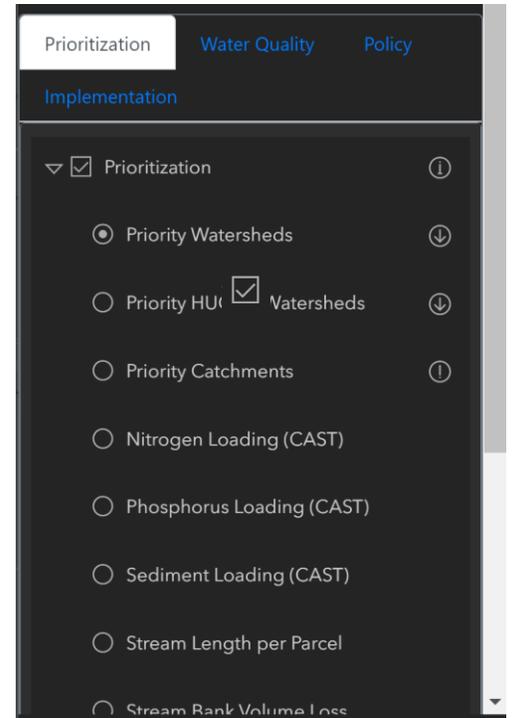   b. Alternative, use access this link: **http://lcwp.cicapps.org**.

2. Navigating the map
   a. Type an address into the **address bar** and click enter or the magnifying glass to zoom to that address. Zoom in and out using the **plus and minus buttons** or use the wheel on your mouse.
   b. Left click and hold anywhere on the map to drag the map and move around.
   c. Click the **basemap tool** to open the basemap gallery and select your preferred basemap. Click the **collapse** button to hide the basemap gallery.
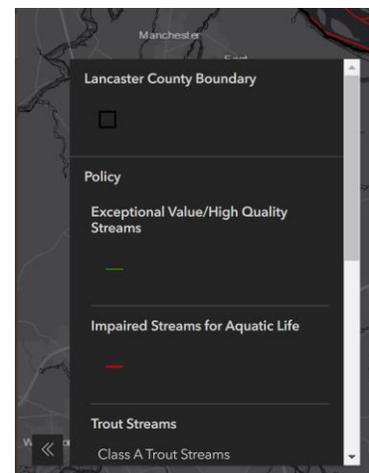   d. Click the **Reset Map** button to return to the original view.

3. Displaying datasets in the map
    a. The layer list is on the right side of the tool. . You may need to scroll down to see the full list of layers.
    b. The data is organized into four main categories prioritization water quality policy and implementation. Click on the **tabs** to see the layers in that category.
    c. Click the **checkbox** or the **radio button** to display the layer in the map
    d. In some cases data layers are grouped together in layer groups. Click on the **arrow** to expand the layer group reveal the group players. They layer group must be checked on for the layers within that group to appear in the map. If layer group group and the data layer are both checked on in the layer list and the dataset is still not showing up in your map, try zooming in or zooming out.
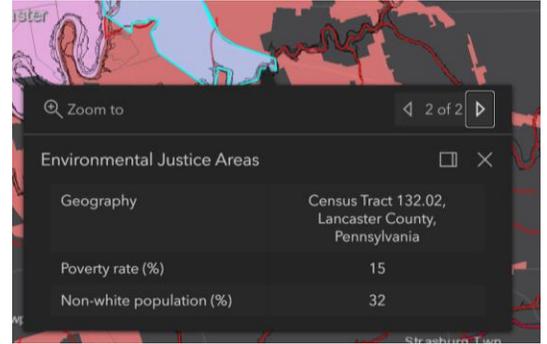
4. Understanding the data:
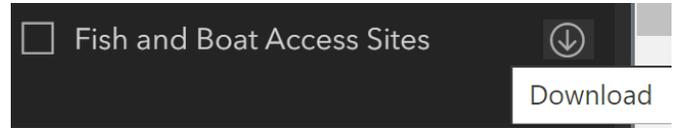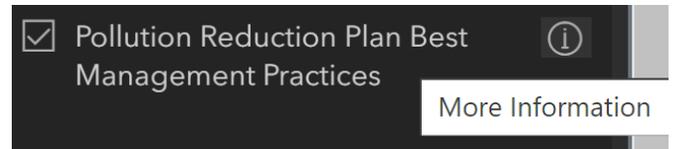   a. The legends will update with the data layers that are turned on. Scroll down to see the full legend.

b. Click in on individual **feature** in the map (a point, line, or polygon) to show a pop-up box displaying the attributes for that feature. Scroll down to see all of the attributes. If two or more features from different layers overlap in the map, click the **arrows** at the top or bottom of the pop-up box to switch between features from different data layers.

5. Accessing the source data:

   i. Click on the **info button** to be linked to a source document or a source map for the dataset.

   ii. Click on the **download button** to for a direct download or download link for a GIS shapefile if available.

   iii. Click on the **How To button** to find information about accessing the Data List and Descriptions document.

6. Learning about new data created by the Lancaster Clean Water Partners

Data layer name: Priority Catchments

Where you can find it: Prioritization tab

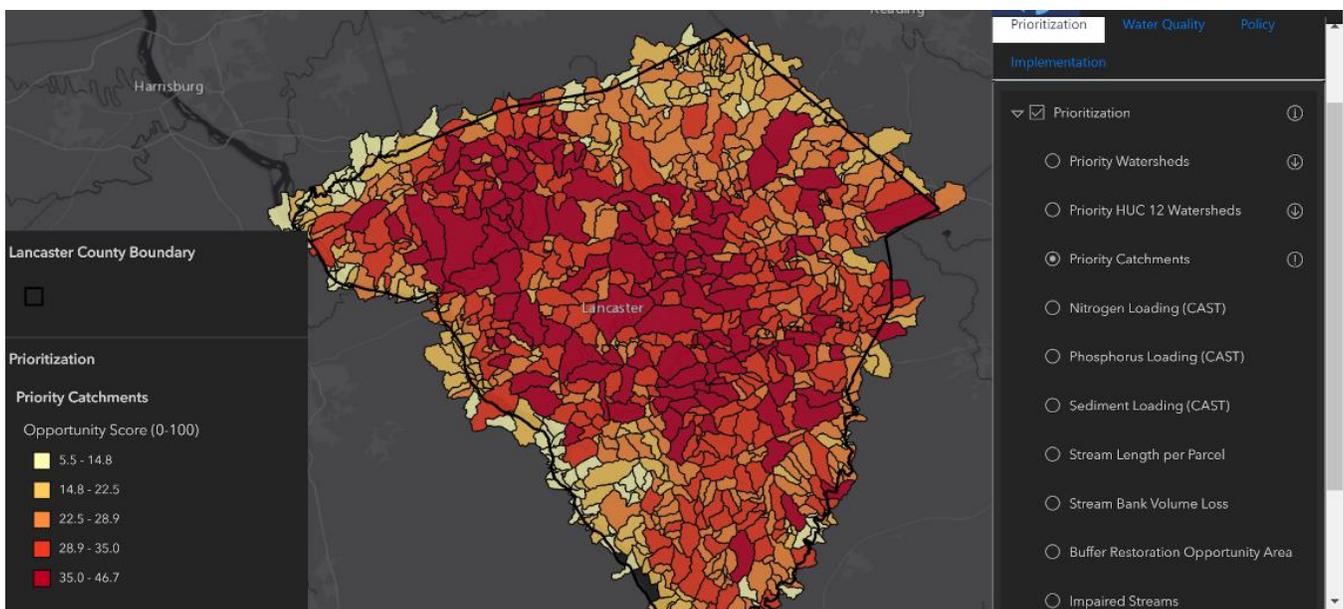**Product of:** Watershed Action Team

When created: Spring 2019

Purpose: To identify the places with the greatest opportunities for restoration.

Mapping unit: Catchment from the National Hydrography Dataset Plus Version 2 (NHDPlus 2)

Primary attribute: Opportunity score – the higher the score, the higher the restoration opportunity.

How it was created: Over several months, Watershed Action Team came to a consensus on the places that would be considered the greats opportunities for restoration. The NHDPlus 2 catchment was selected as the unit of analysis. Multiple existing GIS datasets were considered to help quantify the restoration opportunity score for each catchment. Once the datasets were selected, the Action Team considered different scenarios of weighting each dataset to generate the score. The datasets selected to generate the restoration opportunity score are listed below the Priority Catchments layer in the layer list. The catchment scores were aggregated at the HUC 12 scale (Priority HUC 12s) and also using a watershed-based layer that represents the scale of different planning efforts across the county.

Data layer name: Tier 1 & Tier 2 Catchments for Stream Delisting

Where you can find it: Implementation tab

Product of: Lancaster Clean Water Partners

When created: Fall 2020

Purpose: To identify the places where restoration could lead to the delisting of stream segments listed as impaired in the Pennsylvania Integrated Water Quality Report most quickly.

Mapping unit: Catchment area upslope from the impaired stream segment of interest—delineated using ArcGIS specifically to support the Lancaster Clean Water Partners' rapid stream delisting strategy.

Primary attribute: Tier—Tier 1 & Tier 2 catchments are the initial focus areas for the strategy.

How it was created: The data used to identify and select these catchments primarily included information about on-the-ground restoration efforts. This knowledge was shared by stakeholders in a series of watershed workshops held in Zoom in September and October of 2020. Due to the sensitive nature of the information shared during these workshops, data on specific projects and potential projects is not currently available in the Collaborative Watershed Mapping Tool. Once the knowledge of restoration efforts was gathered, locations with the greatest momentum and potential for future work within the next 2-3 years were then assessed by a group of scientists who considered landscape characteristics and water quality data to recommend places where the planned restoration efforts could possibly lead to delisting the impaired stream within 10-12 years. Finally, catchments were selected as Tier 1 & Tier 2 if the potential projects could and geographies align with existing and new funding opportunities.