Terrestrial and Aquatic Core Networks on the North Atlantic LCC's Conservation Planning Atlas (hosted by Data Basin)

Quick Start Guide

This document is intended to guide you through accessing the Terrestrial and Aquatic Core Networks, two of the datasets that comprise the *Connect the Connecticut* gallery of science products on Data Basin.

What is *Connect the Connecticut?*

Connect the Connecticut outlines a network of priority of areas in the Connecticut River watershed for sustaining fish, wildlife, environmental processes, and associated benefits, such as flood protection and recreation. But more than just a map, it offers a set of data and tools that individuals and communities can use to make informed decisions about conservation, planning, and development in the watershed. These resources provide a broader regional context for decisions at any scale, and include supporting data that can help address questions related to land use and management, such as:

- Where do important ecosystems and species habitats occur and overlap?
- Where will climate change and sea level rise place the most stress on the landscape?
- Where is development most likely to occur in the coming decades?

Connect the Connecticut gives you the tools to answer these questions, and many more, as you evaluate conservation and planning opportunities where you live and work.

For an overview of all of the tools, visit http://connecttheconnecticut.org/data-tools/.

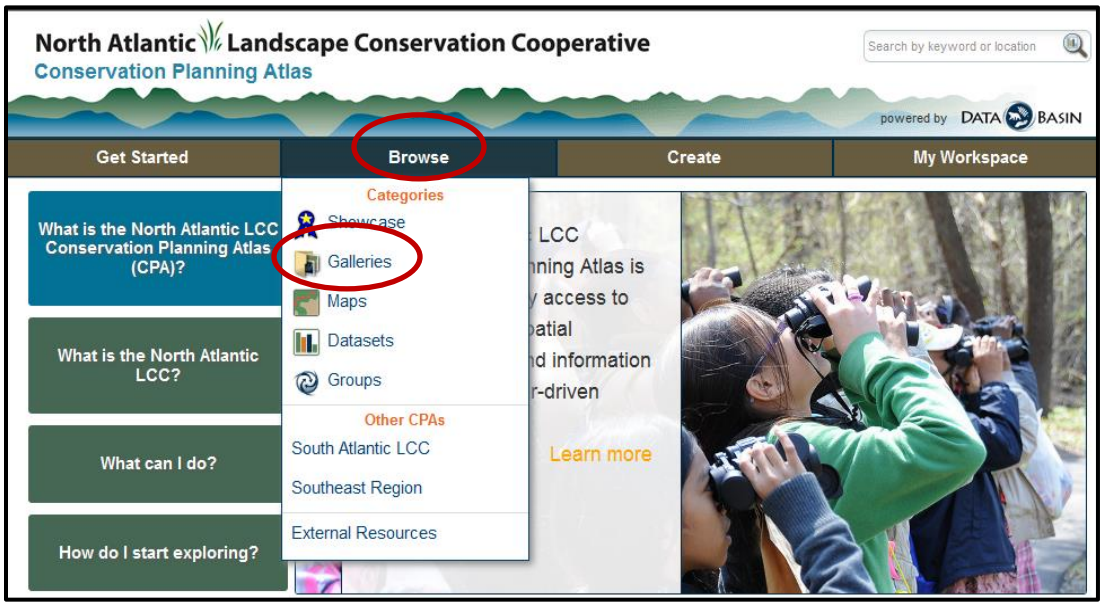
What are the Terrestrial and Aquatic Core Networks?

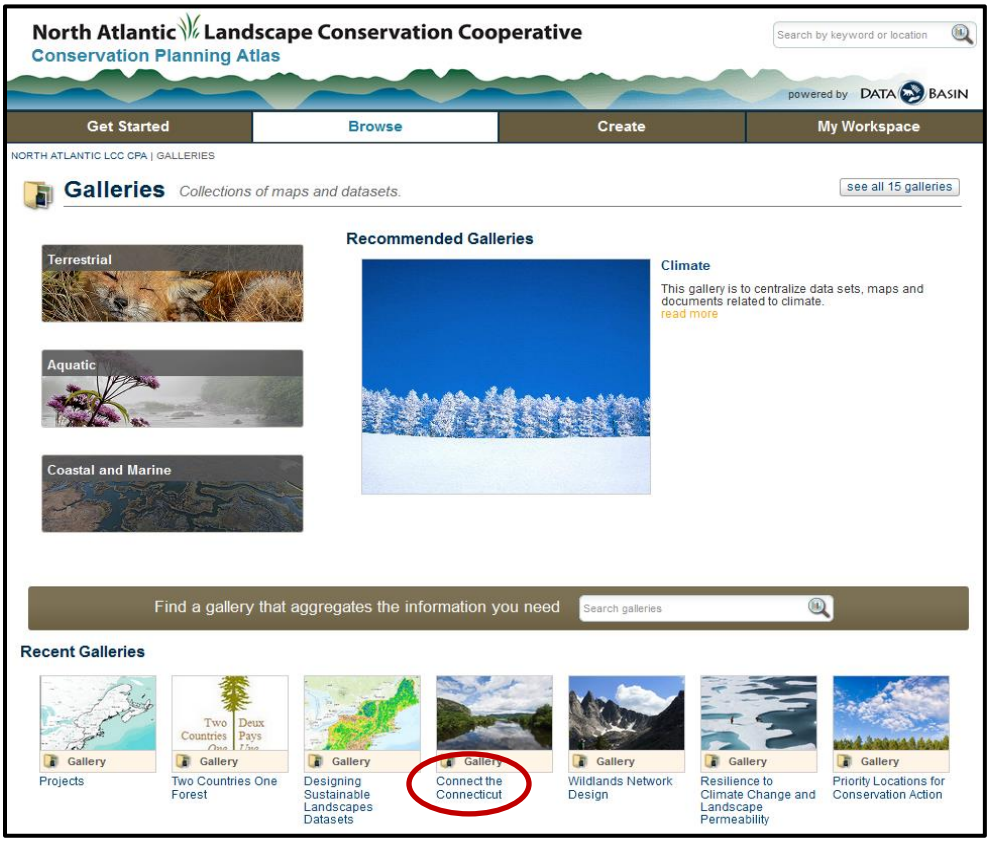
These are an interconnected network of locations, in both terrestrial and aquatic settings, that represent the places considered most essential for conservation action. Collectively, this network is intended to represent those areas most important for maintaining the benefits provided to people by the fish, wildlife, and ecosystems of the watershed.

What else is available besides the Terrestrial and Aquatic Core Networks?

Other tools described on the website include 1) supporting data that can help in understanding and setting priorities within the interconnected network, but that also can be used independently; 2) restoration tools that can inform efforts to reconnect and enhance connectivity in streams and rivers as well as between blocks of terrestrial habitat that are separated by roads, and 3) future change tools that provide context for making more strategic decisions that take into account future changes related to climate and land use.

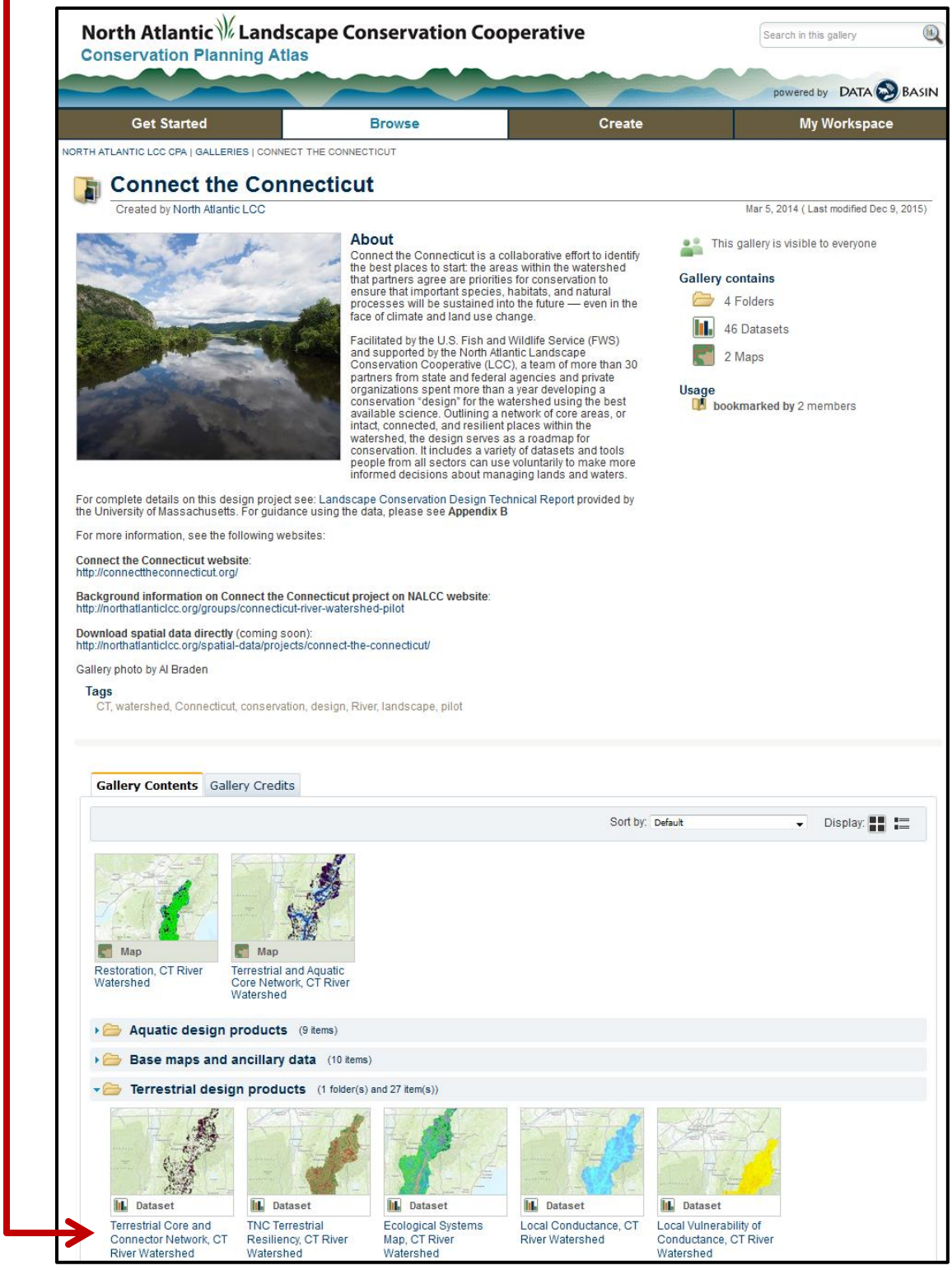
The easiest way to access these maps is through the **Connect the Connecticut gallery** on Data Basin, but you can also navigate to them from the home page for the **North Atlantic LCC's Conservation Planning Atlas (Data Basin page)** by mousing over Browse, selecting *Galleries*, and then clicking on the hyperlinked words "Connect the Connecticut" within the *Recent Galleries* section.



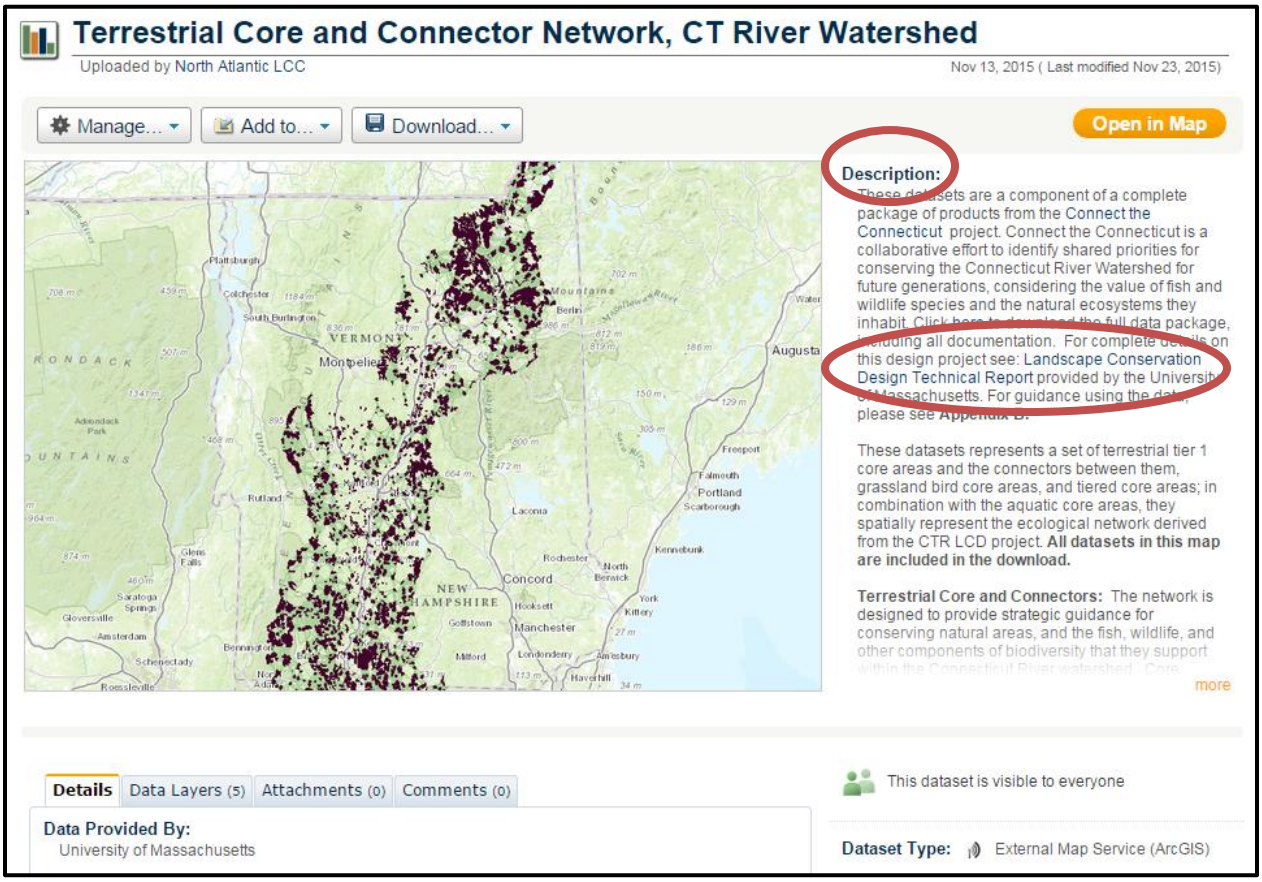


[Jump to the Aquatic Core Network instructions](#)

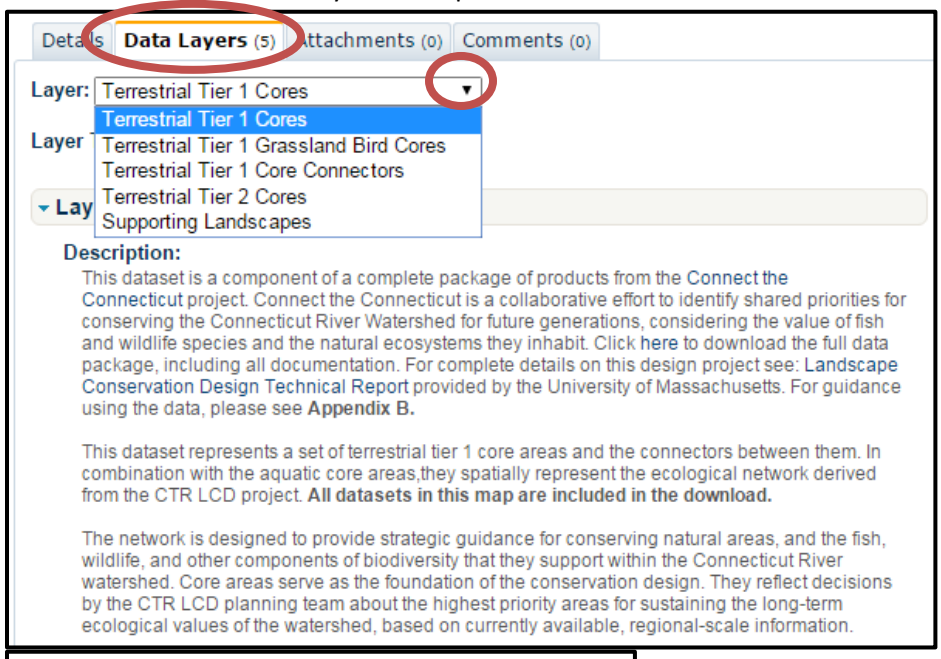
Terrestrial Core and Connector Network: **Scroll down to the "Terrestrial design products" folder and click on the "Terrestrial Core and Connector Network, CT River Watershed" text.**



1. Starting with the preview page: Note the “Description” on the right. It contains the full description for all the core and connector layers provided in the UMASS DSL Technical Report; there is also a link to the full Technical Report. Abstracts for each dataset will be added as they are completed.



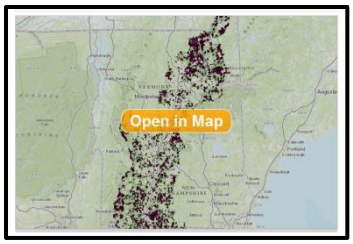
2. Below the image on the preview page there are 4 tabs. If you click on the “Data Layers” tab you will see information about all the layers included in the network. To select the layer you want more information on, click on the arrow in the “Layer” field for the drop down menu. Once you have selected the layer of interest, scroll down to view the description, as well as the definition of the attributes, for that layer. Example below: Terrestrial Tier 1 Cores



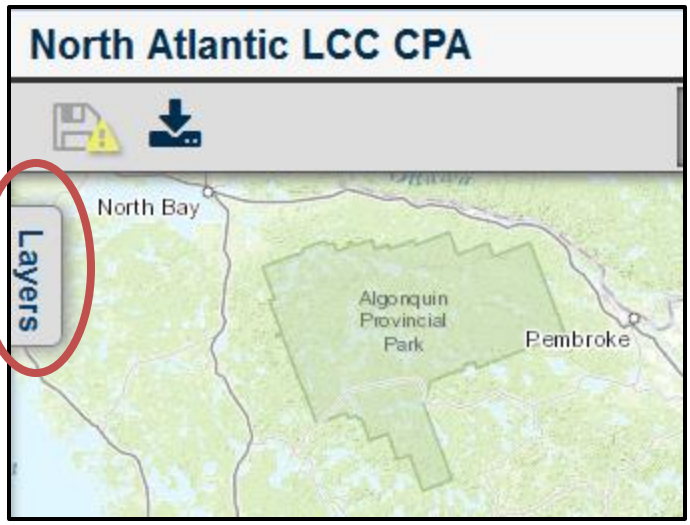
Attribute Details:

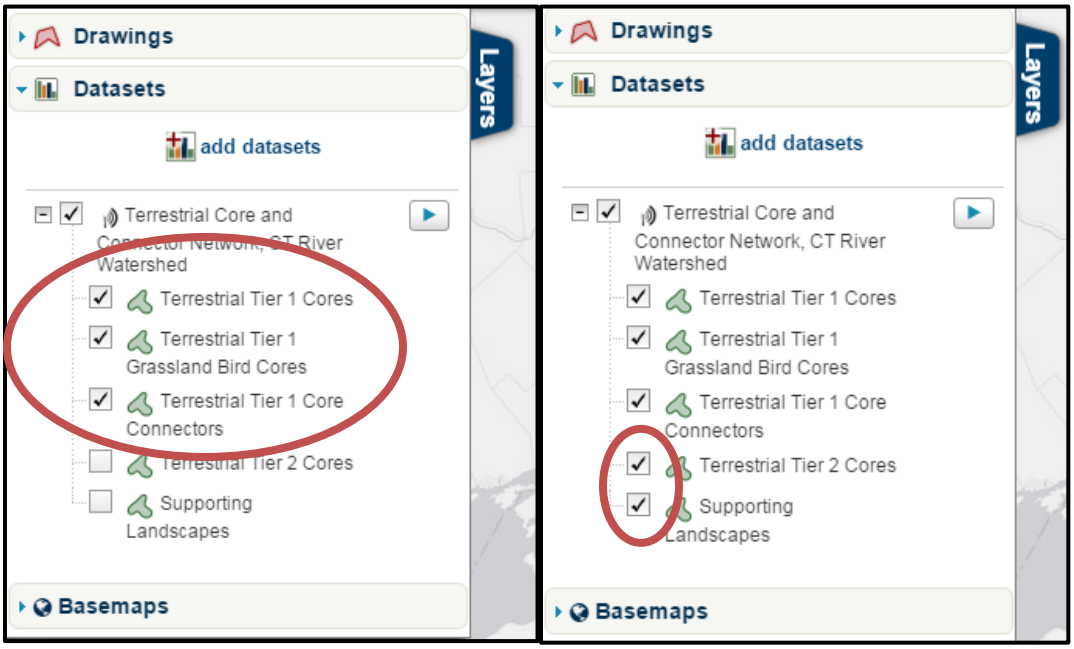
Alias	Description
SCROLL OVER FIELD NAMES for more information (in map view). CoreID	Unique number assigned to each core.
The TYPE field - scroll over for more information	High priority Tier 1 “core areas”, together with the Tier 1 Grassland bird cores, are the backbone of Connect the Connecticut. Each core area has been identified because it contains important or unique natural features. The kinds of features they contain include especially intact, resilient examples of more common ecosystems such as hardwood forests; rare natural communities such as bogs; and important habitat for wildlife such as black bear and wood thrush. The terrestrial Tier 1 cores (excluding Tier 1 Grassland bird cores) are linked through a defined set of “connectors”. *TIP - to get more information about the composition of the cores in terms of ecosystems and species habitat, click on a core of interest using the identify tool. (The TYPE field indicates the designation of the polygon as “t1core” or “connector”)
centroidX	Easting for the centroid of the core.
centroidY	Northing for the centroid of the core.
areaCount	Size of the core area in number of cells (30x30 m); this includes any developed cells.
areaHa	Size of the core area in hectares; this includes any developed area.
ieiSum	Sum of the terrestrial core area selection index which is a reflection of both the size of the core and the quality of the cells within in it.
ieiRank	Rank of ieiSum (1 = max ieiSum).
import	index of the importance of each core to the entire core area network based on its size/quality (as represented by ieiSum), proximity to other cores, and strategic position in the network. Specifically, it is an index reflecting how much the connectivity of the entire network would be affected by its removal. It gives the absolute decrease in the Probability of Connectivity (ΔPC) of the network.

3. Next, scroll back up and mouse over the preview image: an orange box that says “Open in Map” will appear. Click on the orange box to open the data in the map view.

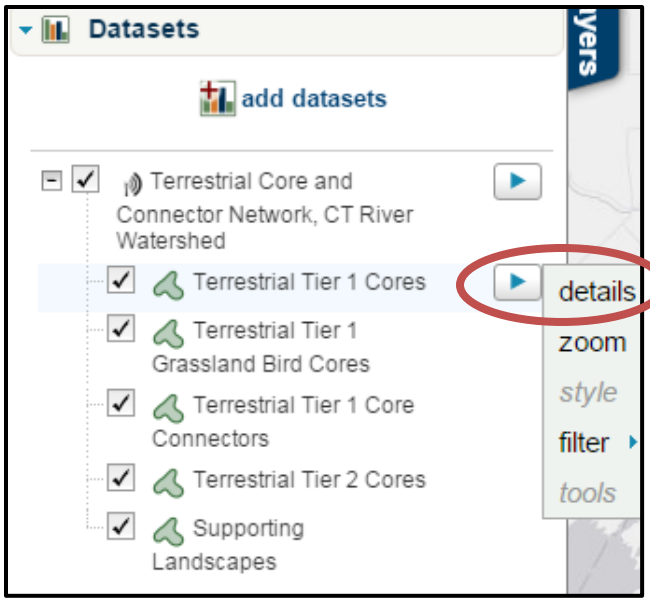


4. First, check out the Layers tab on the left - click the word ‘Layers’ to expand the tab. Notice that the default is the first 3 datasets (Tier 1 Cores, Tier 1 Grassland Bird Cores, and Tier 1 Core Connectors) are turned on; however, we have also included a layer for the Terrestrial 2 Cores and Supporting Landscapes. This will allow the map to draw faster when first opened and send the message that the Tier 2 Cores and Supporting Landscape support the primary core network. Check the boxes next to the layer name to turn them on and off.

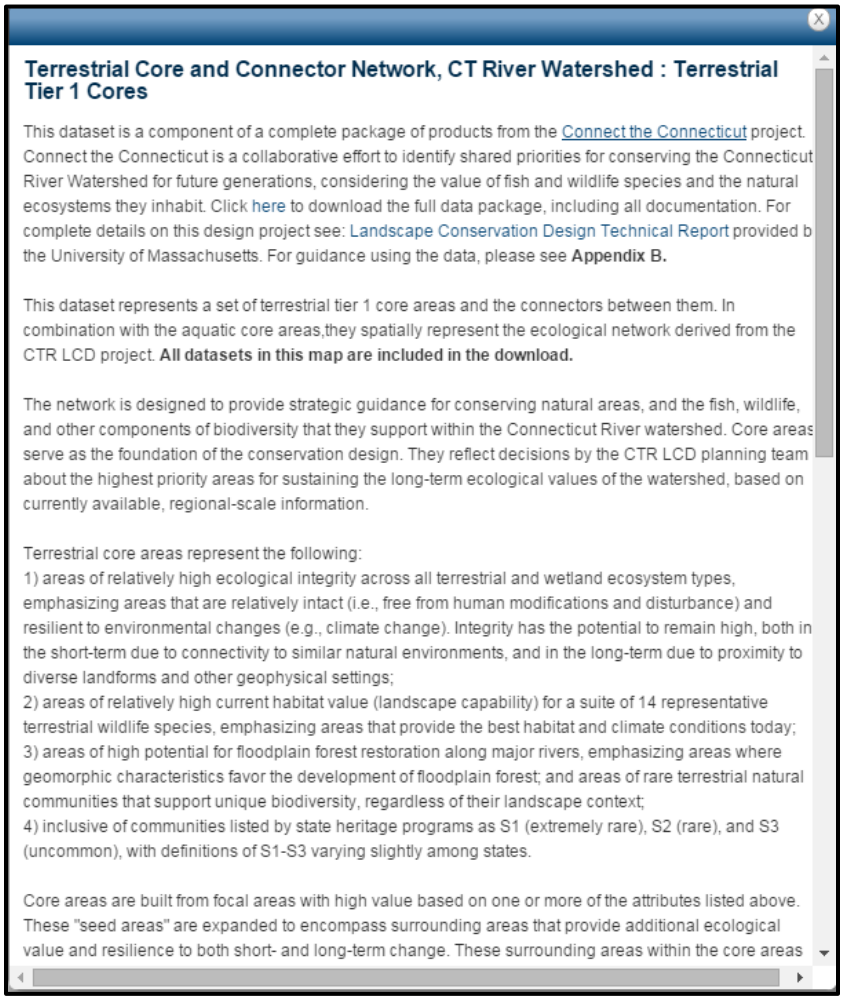




Scroll your mouse over one of the layers to make the blue arrow appear. Click on the blue arrow to view all options. The first option listed is "details".



If you click on details you will get a box that looks like this:



Terrestrial Core and Connector Network, CT River Watershed : Terrestrial Tier 1 Cores

This dataset is a component of a complete package of products from the Connect the Connecticut project. Connect the Connecticut is a collaborative effort to identify shared priorities for conserving the Connecticut River Watershed for future generations, considering the value of fish and wildlife species and the natural ecosystems they inhabit. Click here to download the full data package, including all documentation. For complete details on this design project see: Landscape Conservation Design Technical Report provided b the University of Massachusetts. For guidance using the data, please see **Appendix B.**

This dataset represents a set of terrestrial tier 1 core areas and the connectors between them. In combination with the aquatic core areas,they spatially represent the ecological network derived from the CTR LCD project. **All datasets in this map are included in the download.**

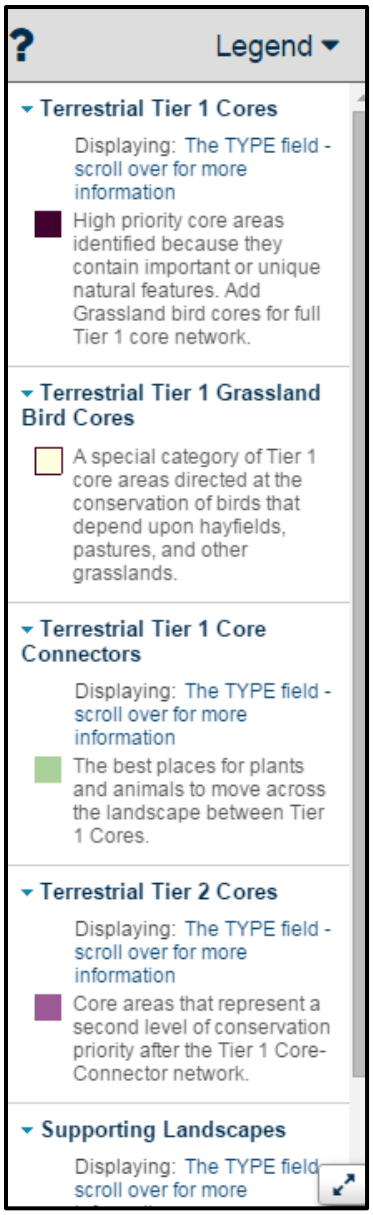
The network is designed to provide strategic guidance for conserving natural areas, and the fish, wildlife, and other components of biodiversity that they support within the Connecticut River watershed. Core areas serve as the foundation of the conservation design. They reflect decisions by the CTR LCD planning team about the highest priority areas for sustaining the long-term ecological values of the watershed, based on currently available, regional-scale information.

Terrestrial core areas represent the following:
1) areas of relatively high ecological integrity across all terrestrial and wetland ecosystem types, emphasizing areas that are relatively intact (i.e., free from human modifications and disturbance) and resilient to environmental changes (e.g., climate change). Integrity has the potential to remain high, both in the short-term due to connectivity to similar natural environments, and in the long-term due to proximity to diverse landforms and other geophysical settings;
2) areas of relatively high current habitat value (landscape capability) for a suite of 14 representative terrestrial wildlife species, emphasizing areas that provide the best habitat and climate conditions today;
3) areas of high potential for floodplain forest restoration along major rivers, emphasizing areas where geomorphic characteristics favor the development of floodplain forest; and areas of rare terrestrial natural communities that support unique biodiversity, regardless of their landscape context;
4) inclusive of communities listed by state heritage programs as S1 (extremely rare), S2 (rare), and S3 (uncommon), with definitions of S1-S3 varying slightly among states.

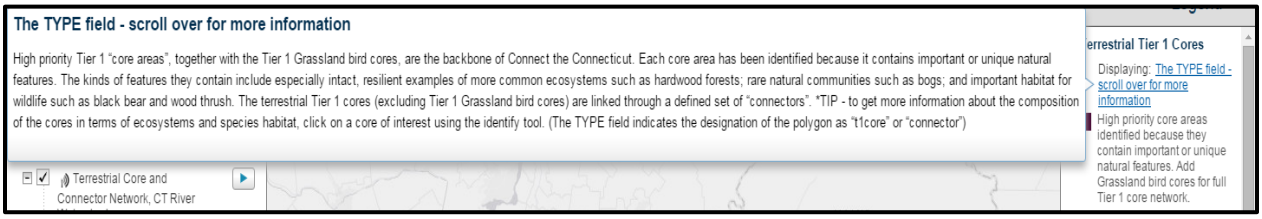
Core areas are built from focal areas with high value based on one or more of the attributes listed above. These "seed areas" are expanded to encompass surrounding areas that provide additional ecological value and resilience to both short- and long-term change. These surrounding areas within the core areas

This allows someone in the map to view the description of the dataset without always having to go back and forth between the map page and the preview page (this is true for all data, not just the Terrestrial and Aquatic Cores).

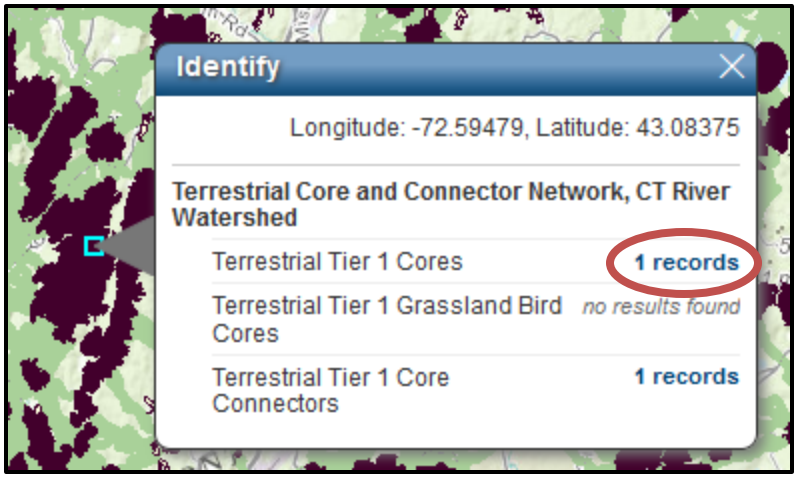
5. Now, check out the Legend on the right. Under most of the data layers there is blue text that tells us both the attribute layer being displayed by in the map (in this case they are all the TYPE field) AND tells the user to scroll their mouse over the text for more information.



Here, in addition to the field definition, we include additional information about that layer. For the core areas blurb we also provide a "TIP" that encourages users to use the identify tool to click on a core for more core specific details.

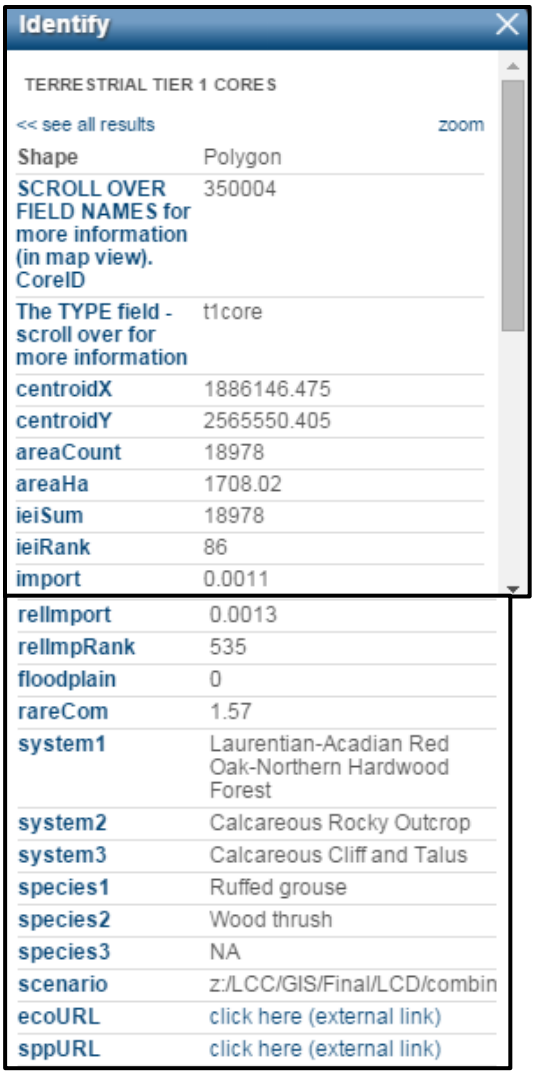


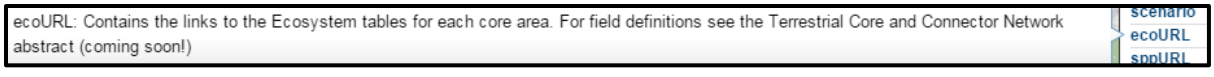
6. Use the identify tool to click on a core. Select the Terrestrial Tier 1 Cores record by clicking on the hyperlink reading '1 record' (may also read '2 records', etc.).



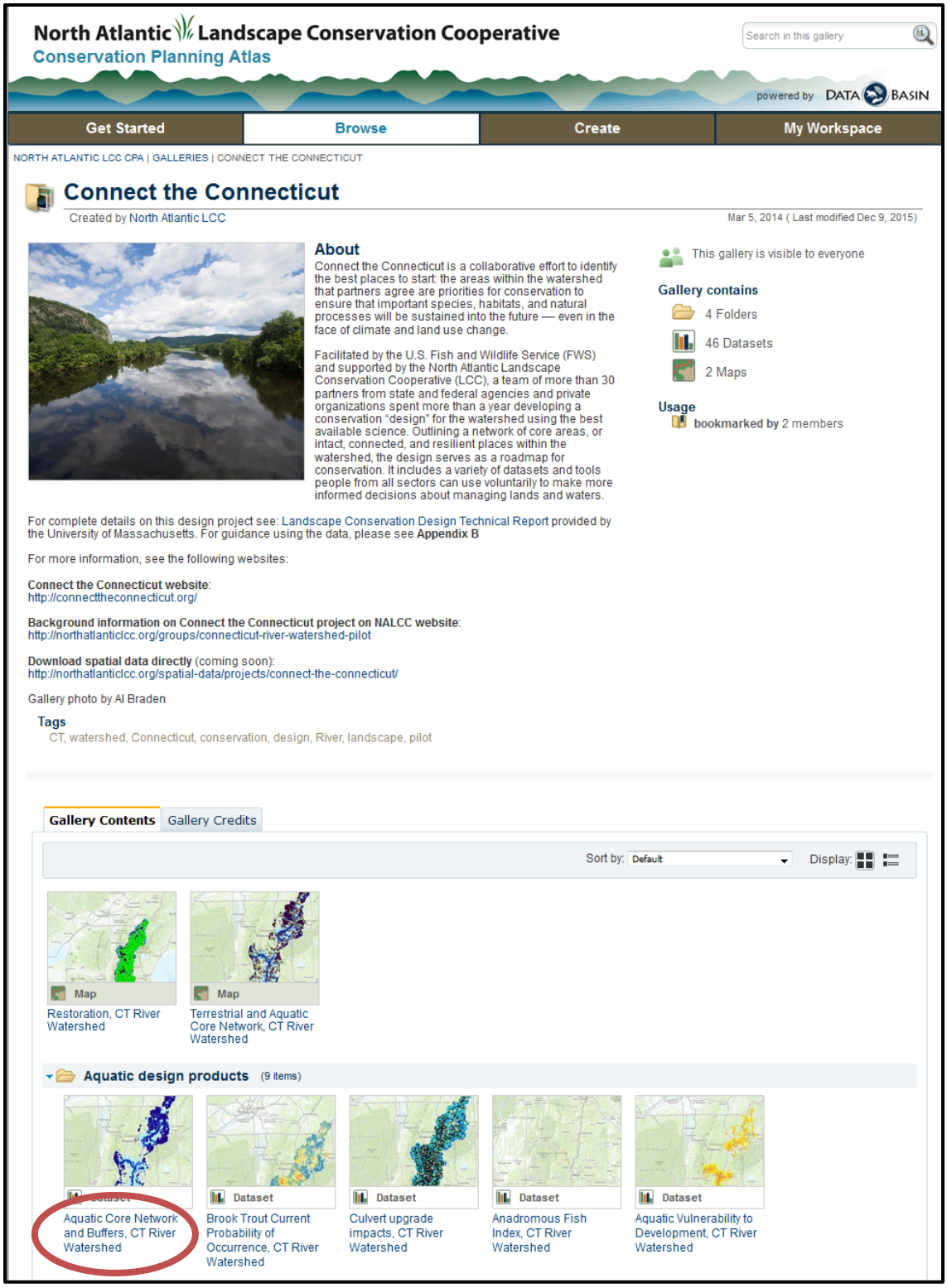
We include a message to the field name that says "SCROLL OVER FIELD NAMES for more information (in map view)." This is to remind users that if they scroll their mouse over blue text they can get more information. In this case the information provided is the same attribute field definition provided in the table on the preview page. This way, if you are in the map view and you forget what "import" means, for example, you can just scroll over that Field name instead of going back to the preview page, clicking on the data layers tab, etc.

If you mouse over the Field name "ecoURL," the field definition appears. For both the external links to the Ecosystem and Species tables a note was added that an abstract would be coming soon that will provide the definitions for the field names in those two tables (currently, the field names are not intuitive, making the table hard to understand on its own).

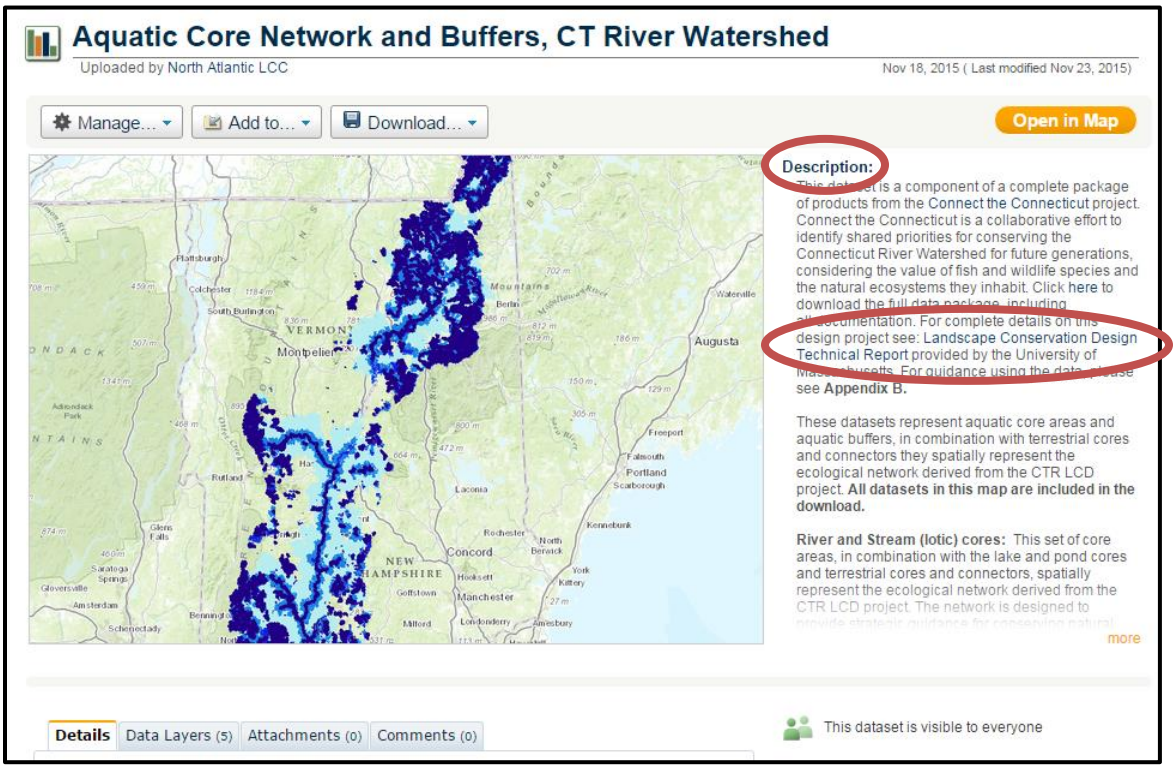




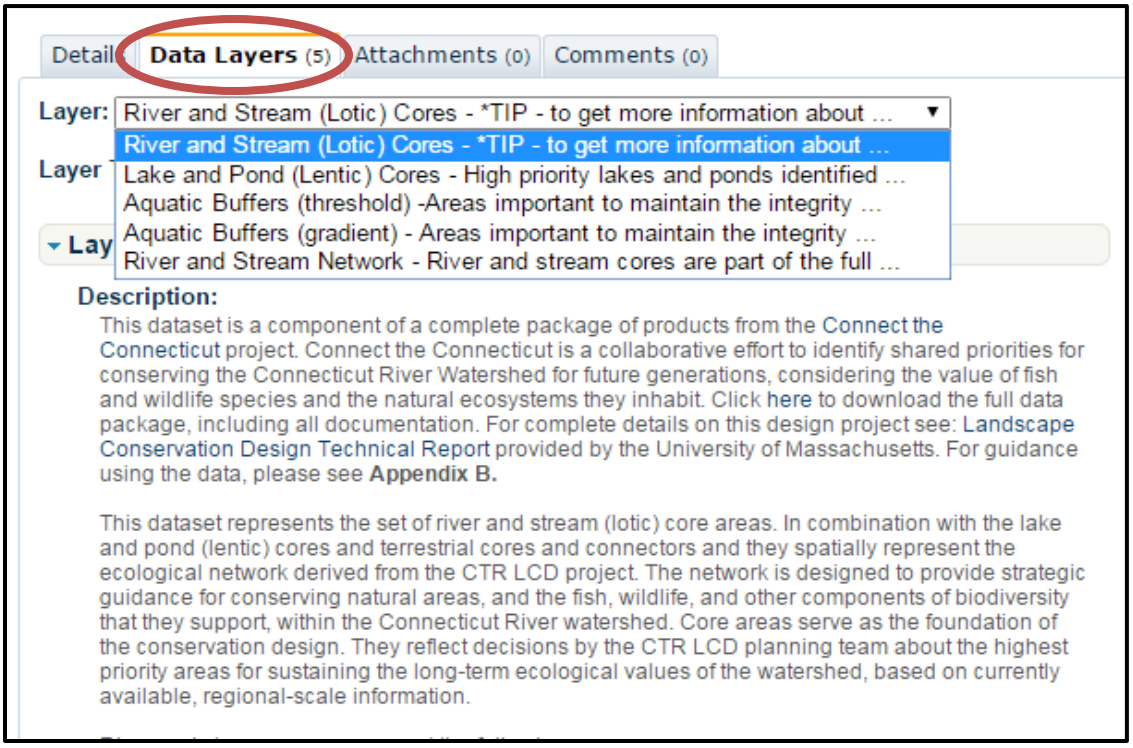
Aquatic Core Network: **Scroll down to the "Aquatic design products" folder and click the "Aquatic Core Network and Buffers, CT River Watershed" text.**



1. Starting with the preview page: Note the “Description” on the right. It contains the full description for the aquatic cores and aquatic buffer layers provided in the UMASS DSL Technical Report; there is also a link to the full Technical Report. Abstracts for each dataset will be added as they are completed.



2. Below the image on the preview page there are 4 tabs. If you click on the "Data Layers" tab you will see information about all the layers included in the network. To select the layer you want more information on, click on the arrow in the "Layer" field for the drop down menu. Once you have selected the layer of interest, scroll down to view the description, as well as the definition of the attributes, for that layer. Example below: River and Stream (Lotic) Cores

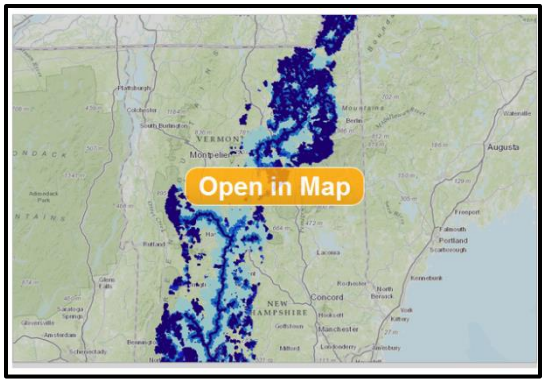


3. In addition to a description for each layer, the attribute field definitions are included

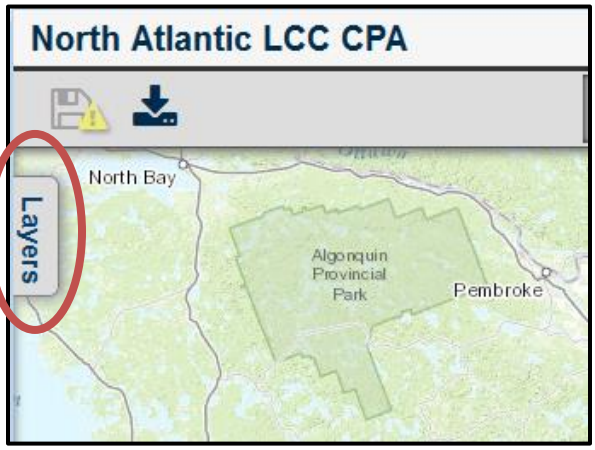
Attribute Details:

Alias	Description
SCROLL OVER FIELD NAMES for more information (in map view). CoreID	unique number (ID) assigned to the core. Lotic cores contiguous with or connected by lentic cores are considered to be a single lotic core and assigned a single coreID.
TYPE	indicator designating the polyline as "core".
LENGTHKM	stream length (km) of the core. The length of the river and stream (lotic) core is approximated by the number of 30 m centerline cells. In addition, river and stream cores can include centerlines through contiguous wetlands as well as contiguous lake and pond (lentic) cores; thus, length of the river and stream core represents the approximate length of contiguous river and stream (including through wetlands) and lake and pond cores.
SYSTEM1	Along with SYSTEM2 and SYSTEM3, list of the top three lotic ecosystems for which the core is particularly important; specifically, systems for which the cumulative ecological integrity of the system within the core is greater than expected (from a statistical perspective) given its distribution across the entire core area network. Note, the lotic systems listed here are not necessarily the most abundant systems in the core, but rather reflect the systems for which the core is especially important. A complete listing of all aquatic systems present in the core (including wetland and lentic systems), along with their relative abundance, is available separately in the Ecosystem table (see URLeco).

4. Next, scroll back up and mouse over the preview image: an orange box that says “Open in Map” will appear. Click on the orange box to open the data in the map view.

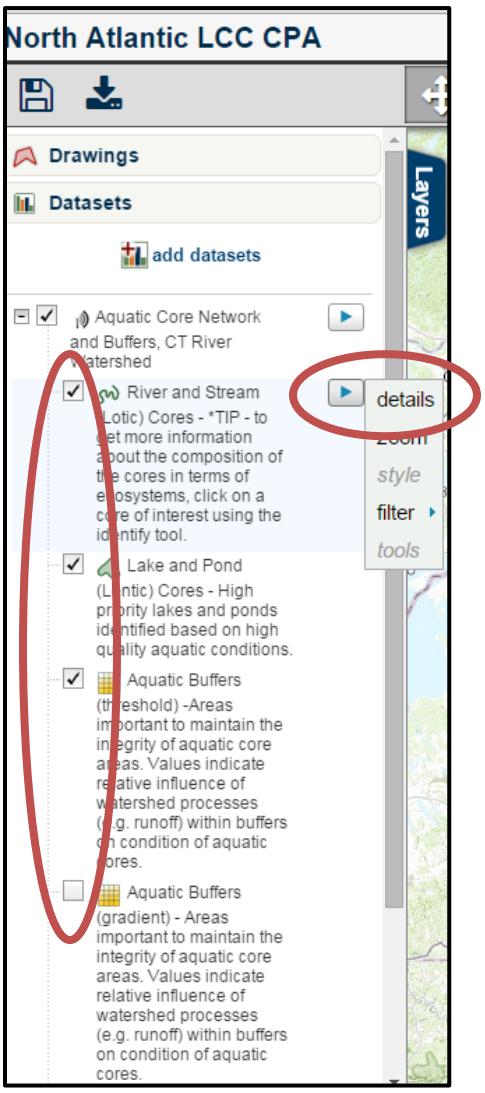


5. First, check out the Layers tab on the left - click the word ‘Layers’ to expand the tab.

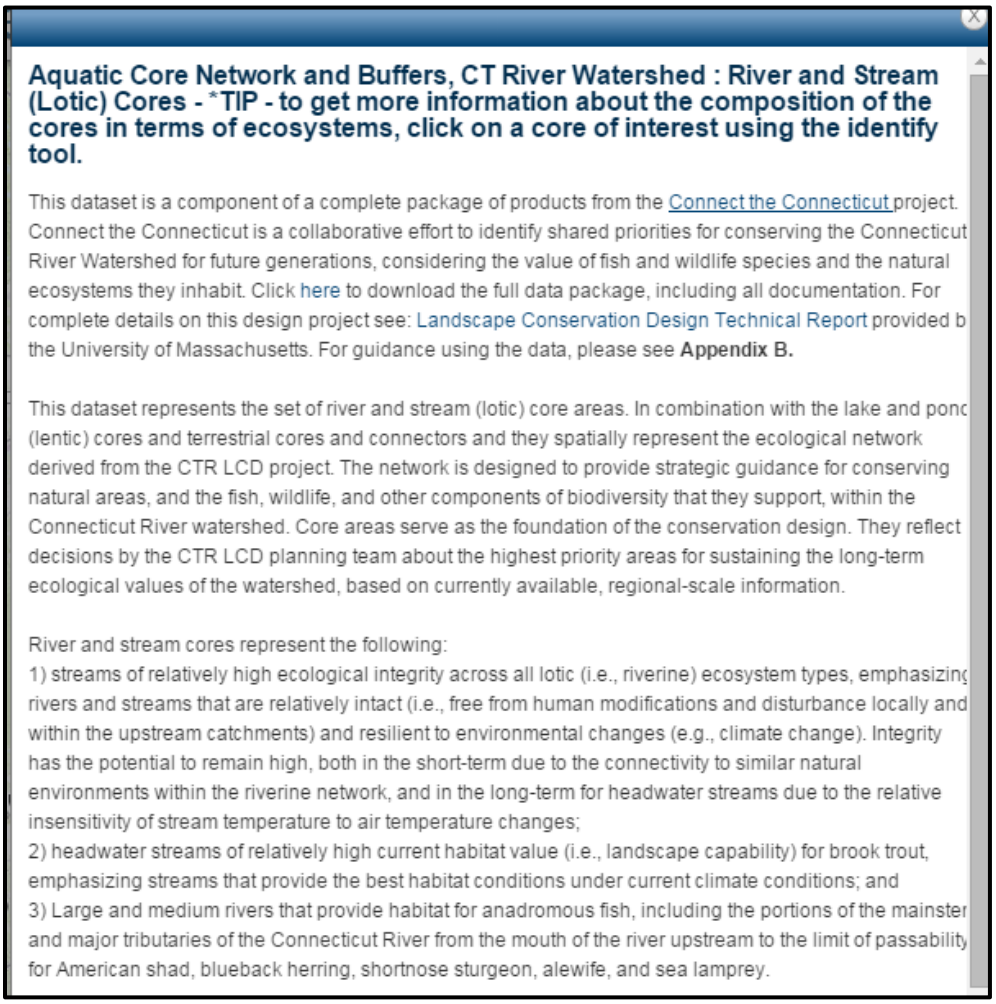


6. Notice that the default is the first 3 datasets (River and Stream Cores, Lake and Pond Cores, and Aquatic Buffers - Threshold) are turned on; however, we have also included layers for Aquatic Buffers - Gradient and the River and Stream Network. This will allow the map to draw faster when first opened and send the message that the River and Stream Network support the primary aquatic core networks. Check the boxes next to the layer name to turn them on and off.

7. Scroll your mouse over one of the layers to make the blue arrow appear. Click on the blue arrow to view all options. The first option listed is “details”.



8. If you click on it, a pop up box appears and provides a description for the layer. This allows the users to have all the information about the layers while in the map view so one doesn't have to constantly go back and forth between the preview page and the map.



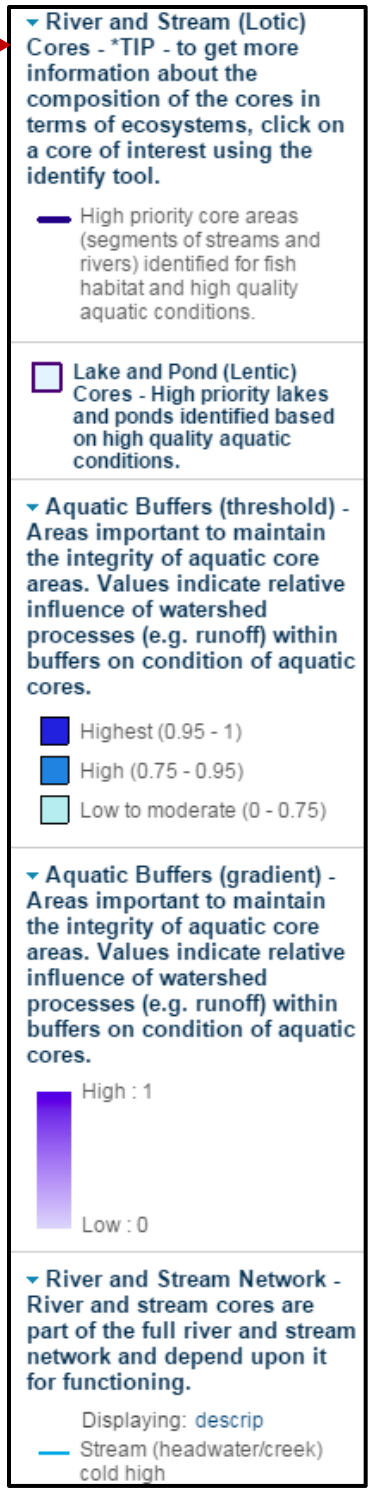
Aquatic Core Network and Buffers, CT River Watershed : River and Stream (Lotic) Cores - *TIP - to get more information about the composition of the cores in terms of ecosystems, click on a core of interest using the identify tool.

This dataset is a component of a complete package of products from the Connect the Connecticut project. Connect the Connecticut is a collaborative effort to identify shared priorities for conserving the Connecticut River Watershed for future generations, considering the value of fish and wildlife species and the natural ecosystems they inhabit. Click here to download the full data package, including all documentation. For complete details on this design project see: Landscape Conservation Design Technical Report provided b the University of Massachusetts. For guidance using the data, please see **Appendix B.**

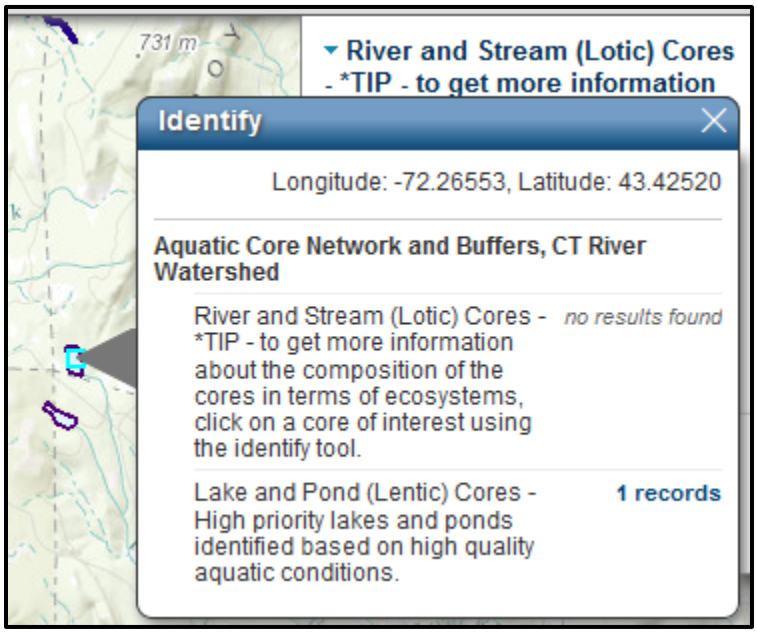
This dataset represents the set of river and stream (lotic) core areas. In combination with the lake and ponc (lentic) cores and terrestrial cores and connectors and they spatially represent the ecological network derived from the CTR LCD project. The network is designed to provide strategic guidance for conserving natural areas, and the fish, wildlife, and other components of biodiversity that they support, within the Connecticut River watershed. Core areas serve as the foundation of the conservation design. They reflect decisions by the CTR LCD planning team about the highest priority areas for sustaining the long-term ecological values of the watershed, based on currently available, regional-scale information.

River and stream cores represent the following:
1) streams of relatively high ecological integrity across all lotic (i.e., riverine) ecosystem types, emphasizing rivers and streams that are relatively intact (i.e., free from human modifications and disturbance locally and within the upstream catchments) and resilient to environmental changes (e.g., climate change). Integrity has the potential to remain high, both in the short-term due to the connectivity to similar natural environments within the riverine network, and in the long-term for headwater streams due to the relative insensitivity of stream temperature to air temperature changes;
2) headwater streams of relatively high current habitat value (i.e., landscape capability) for brook trout, emphasizing streams that provide the best habitat conditions under current climate conditions; and
3) Large and medium rivers that provide habitat for anadromous fish, including the portions of the mainster and major tributaries of the Connecticut River from the mouth of the river upstream to the limit of passability for American shad, blueback herring, shortnose sturgeon, alewife, and sea lamprey.

9. Now, check out the Legend on the right. We added additional information about the data layers into the legend, including a "TIP" on how to obtain additional core information by using the Identify tool. (This differs from the Terrestrial data, which has additional windows that appear when you mouse over the Legend description)

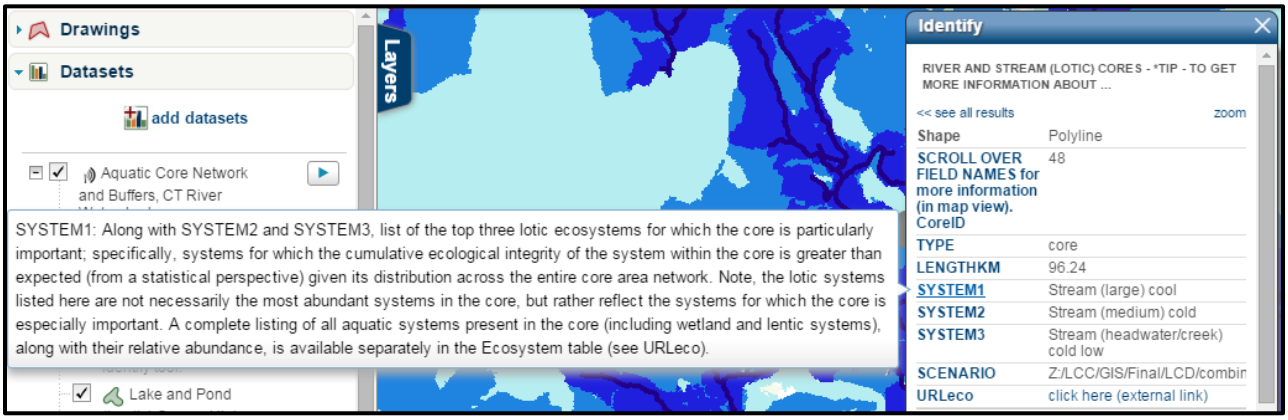


10. Use the identify tool  to click on a core and select the record. Select the appropriate record by clicking on the hyperlink reading '1 record' (may also read '2 records', etc.). The attributes for that core appear.



11. If you scroll your mouse over a blue field name a box will appear with the attribute field description. This is the same information that lives in the attribute description table under the "Data Layers" tab.
12. For River and Stream cores, we include a message to the field name that says "SCROLL OVER FIELD NAMES for more information (in map view)." This is to remind users that if they scroll their mouse over blue text they can get more information. In this case the information provided is the same attribute field definition provided in the table on the preview page. This way, if you are in the map view and you forget what "System1" means, for example, you can just scroll over that Field name instead of going back to the preview page, clicking on the data layers tab, etc.

13. The example shown below appears if you mouse over the Field name “System1,” which causes the definition to appear.



14. The external URLeco link that will download the full Ecosystem Table for that core. An abstract, once completed, will be included that provides the definitions of the attribute fields in the URLeco Ecosystem Tables.