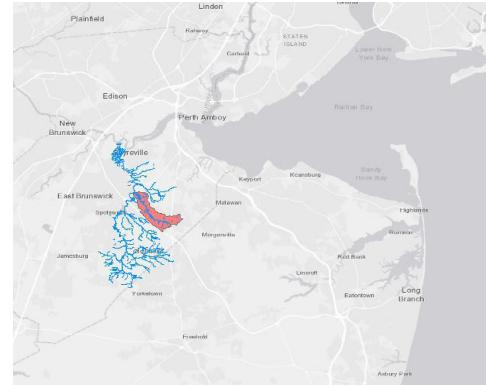


# Aquatic Connectivity Through Climate-Ready Infrastructure

## Deep Run Subwatershed

This assessment found one priority restoration project in the Deep Run Subwatershed that will address aquatic connectivity. Deep Run Creek is a tributary of the South River. There are no connectivity issues from the mouth of Deep Run to the ocean. At the head of the Deep Run Subwatershed, the creek continues further upstream. Aquatic connectivity is generally unhindered throughout the subwatershed and this stream has more of a riparian area than other nearby tributaries. However, the connectivity of the subwatershed is cut off entirely by one large dam near the mouth of the tributary on the Perth Amboy Waterworks Property. Another problematic part of the watershed is a 0.75 mile stretch that is buried under a neighborhood in Old Bridge.

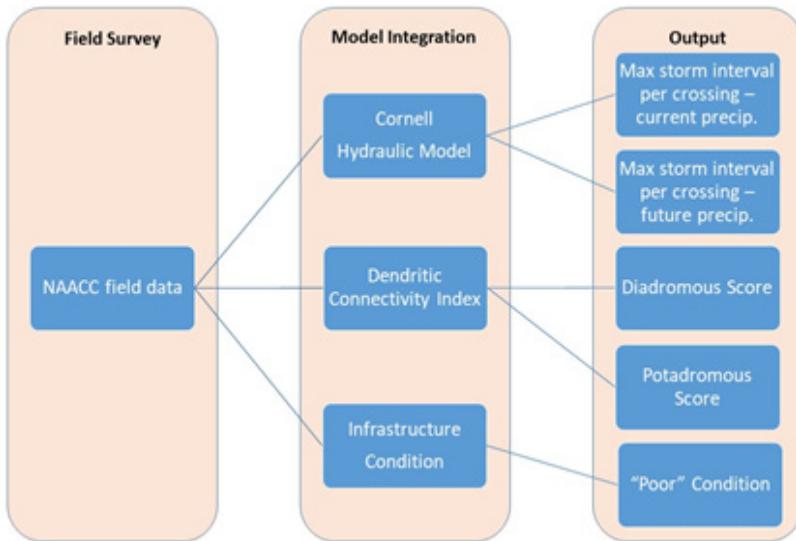


## Background

Aquatic connectivity is a key restoration goal for the New York – New Jersey Harbor & Estuary Program (HEP) and its partners because this connectivity is crucial for improving healthy ecosystems and managing severe storms and flooding caused by climate change. Recommendations for barrier removal were made based on the following assessments: the North Atlantic Aquatic Connectivity Collaborative (NAACC), dendritic connectivity, a culvert capacity model developed by Cornell University, and infrastructure condition. These results are being shared with stakeholders to advance planning and capital projects that will replace problematic road-stream crossings with climate-ready, connectivity-friendly versions.



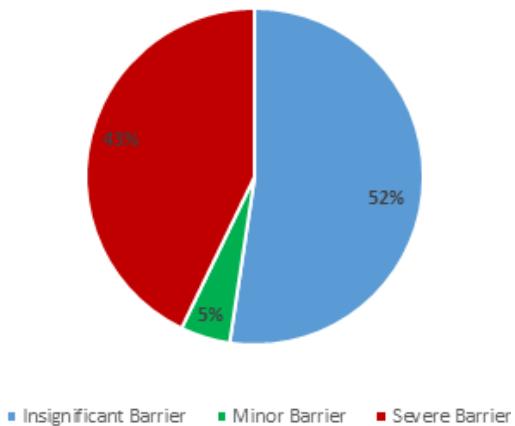
This assessment was made possible by funding from the EPA Coastal Watershed Grant administered by Restore America's Estuaries, and in partnership with the Rutgers Sustainable Raritan River Initiative.



This diagram shows the evaluation process. First field measurements are taken to estimate how well fish can pass through the culverts and bridges. Then that data is plugged into the Cornell Model to estimate the size of the rain event the crossing can accommodate (as measured by the current projections of the 1 to 500-year storm events). Individual culverts were prioritized for passage for estuarine (diadromous) and freshwater (potadromous) species using a dendritic connectivity index. Finally, crossings were prioritized that were in poor condition (falling apart).

## Aquatic Connectivity Results

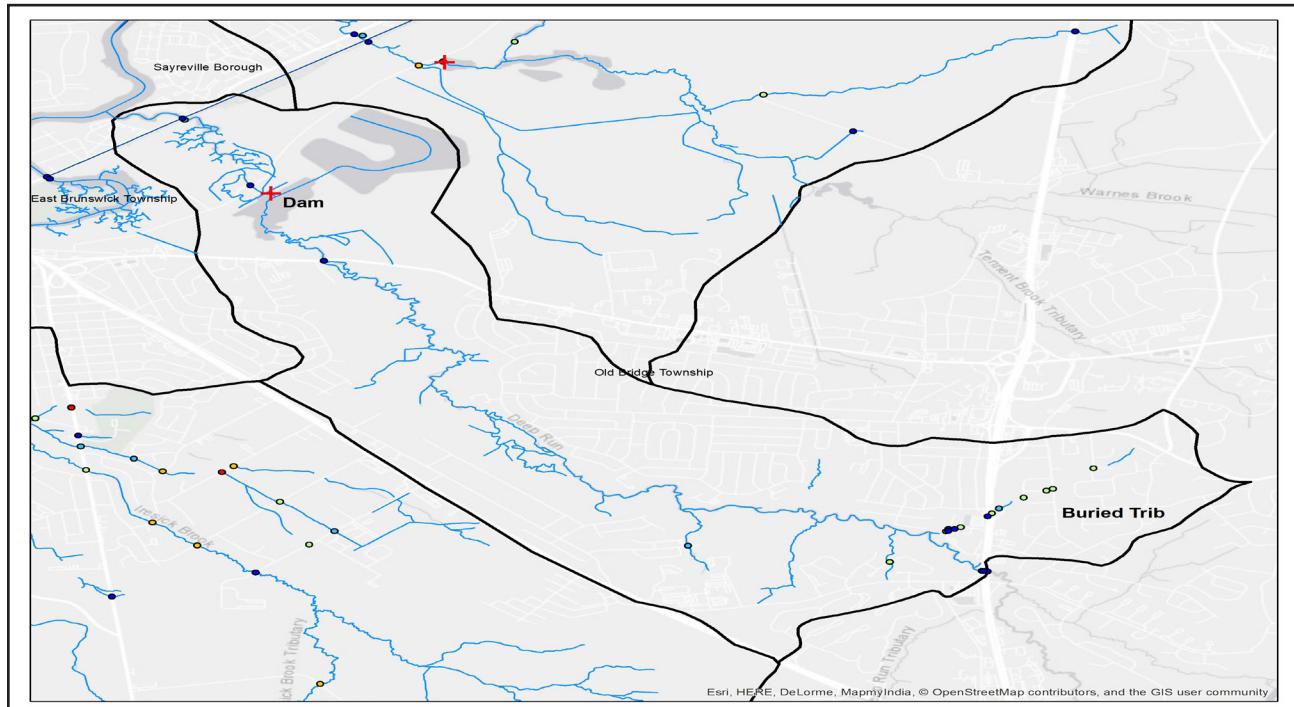
Aside from the dam (not included in the pie chart), the aquatic connectivity of this subwatershed is characterized by a section of buried stream (the severe barriers) and the remainder of the watershed does not hamper aquatic flow.



## Capacity Model Results

Only two of the road-stream crossings were able to be modeled for hydraulic capacity because the other crossings in this watershed were either buried or too large. The two crossings modeled had no capacity issues.

## Priority Restoration Projects



All crossings are located in Old Bridge Township.

1. Deep Run Dam is the barrier mentioned in the summary on the utility property. This dam creates a wetland area in the stream with running spillway that lets the flow continue but blocks aquatic connectivity for likely all fish. Utility staff have caught fish upstream of the dam. This dam is unlikely to be removed so this may be a good project to establish a fish passage device.



PHOTOS: NY/NJ HEP