

# Fisheries Management Offices Suitability Analysis

Evan Robinson, Civil Engineering

Dr. Jennifer Pomeroy, History & Political Science Dept.

York College of Pennsylvania

## Introduction and Background

The mission of the Pennsylvania Fish and Boat Commission is to protect, conserve, and enhance the Pennsylvania Commonwealth's aquatic resources and provide fishing and boating opportunities. Within the states Fish and Boat Commission are several types of commission offices, one of those being Fisheries Management Areas Offices. The primary purpose of Fisheries Management Offices are to conduct Biologist reports and surveys of Pennsylvania waters documenting the status of fisheries, and develop comprehensive plans for managing fishery resources that are consistent with the protection, conservation and enhancement if the quality and diversity of the resource.

## Research Question

Do the current Fisheries Management Areas Offices provide adequate coverage for Pennsylvania's Popular fishing lakes, streams, and tributaries and where can new offices be placed to improve the states Fisheries Management coverage?

## Methodology and Data

To answer the question, geospatial data was collected from the Pennsylvania Spatial Data Access (PASDA) website and was processed into ArcGIS Pro software where the analysis was performed. The Data used is referred to below:

- Best Fishing Waters – Lakes
- Area Fisheries Managers Offices
- Pennsylvania county boundaries
- Pennsylvania state boundary
- Streams Chapter 93 Designated Use

After bringing in the geospatial data, I determined for the analysis that a reasonable assumption for an offices coverage would be a radius of 50 miles from its location. Using this assumption I used the Buffer tool to determine the overall coverage over the state, then I used the Select Layer by Location tool to determine all Popular fishing lakes completely within the present office coverage. From there I determined suitable locations to provide coverage to popular fishing lakes not within the current coverage through visual analysis. The locations were then visualized by creating a new feature class that displayed the most suitable point locations that covered all popular lakes not within the coverage and as many uncovered streams as possible.

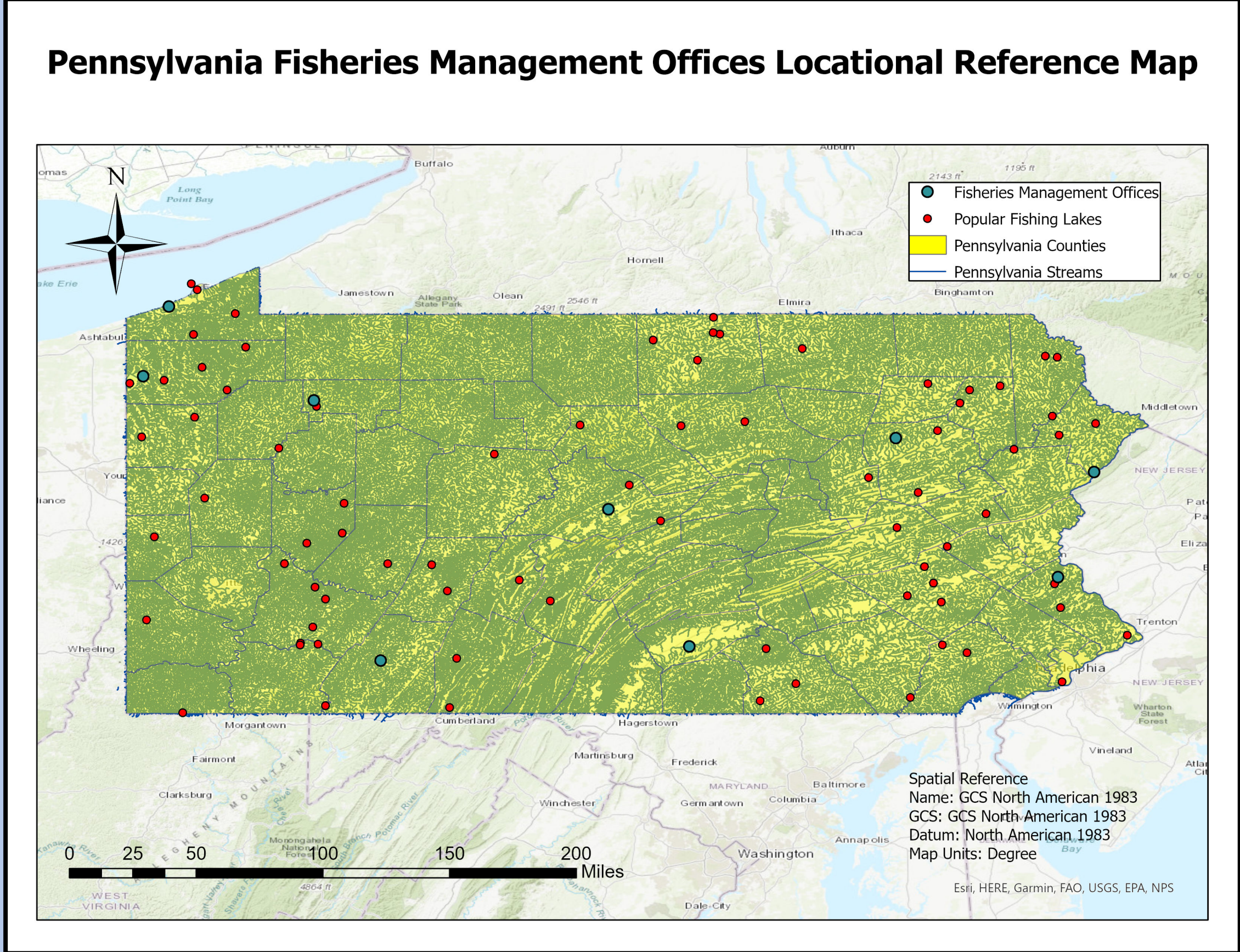


Figure 1

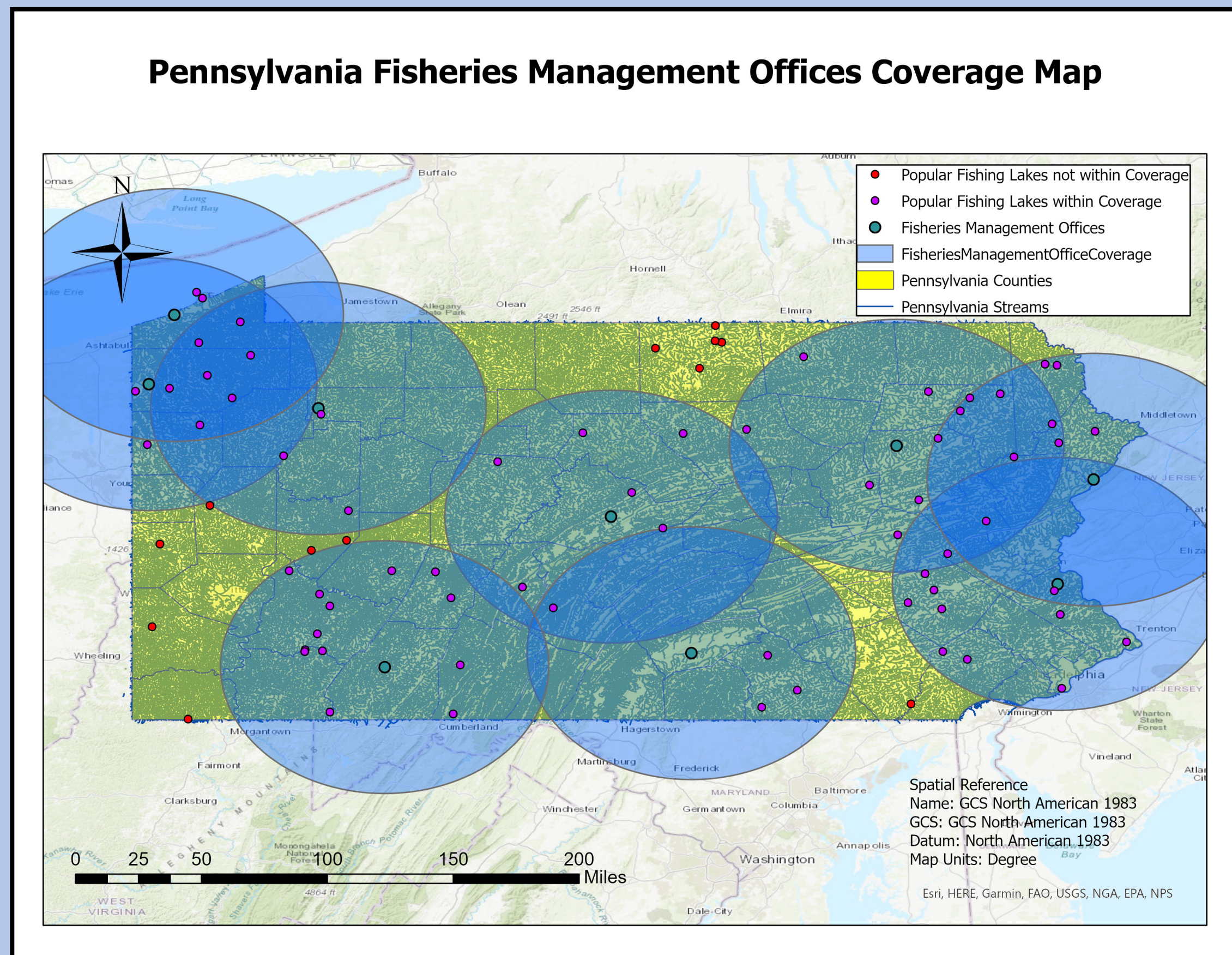


Figure 2

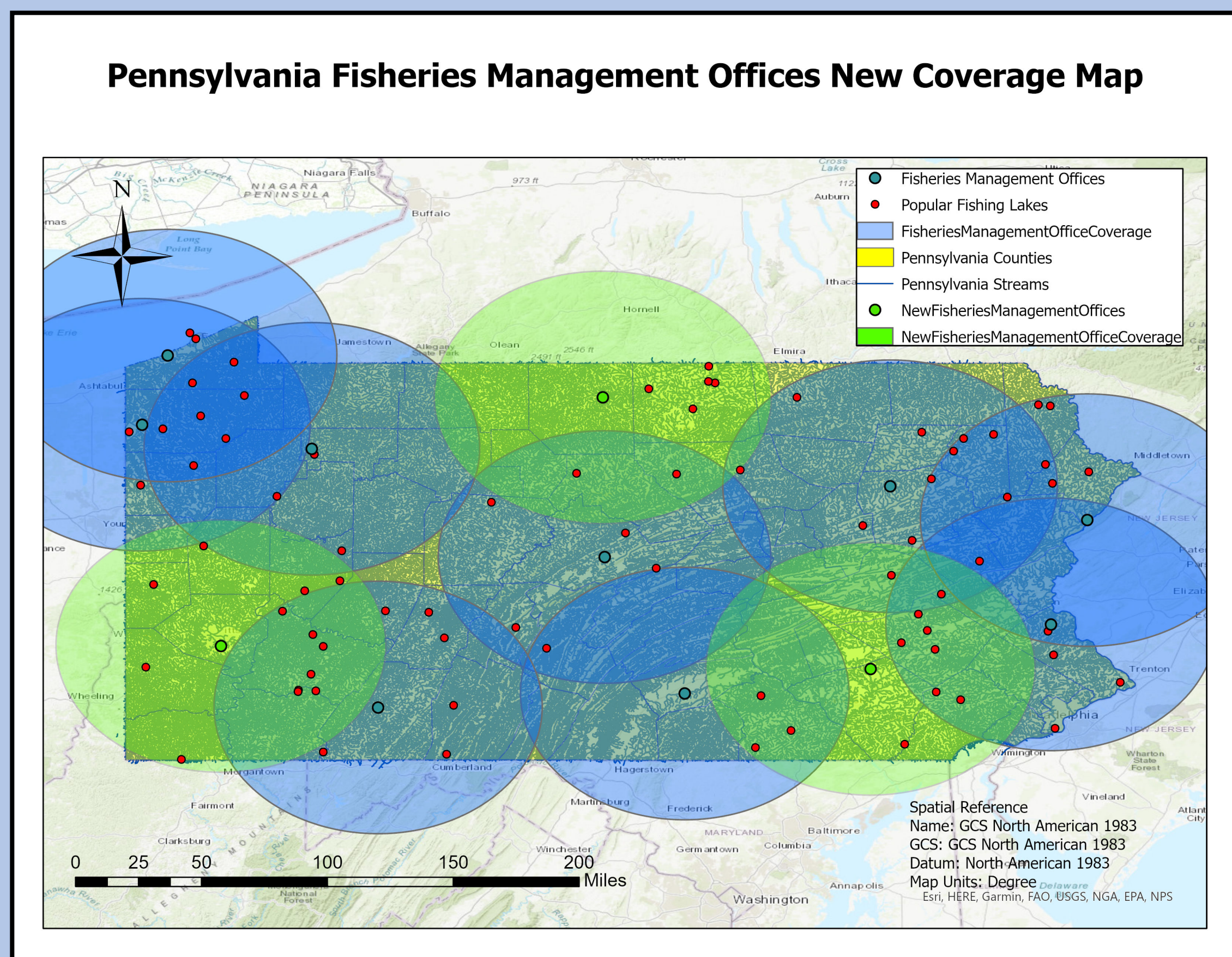


Figure 3

## Study Area

Pennsylvania is no stranger to water bodies with over 83,184 miles of streams and more than 4,000 lakes reservoirs and ponds and several miles of coastal waters. As shown in figure 1, Pennsylvania is loaded with water bodies including the 77 popular fishing lakes, marked in red, with only 9 fisheries Management Offices responsible for surveying and reporting on all of Pennsylvania's designated use water features.

## Analysis & Discussion

After using the buffer tool to determine the coverage of the current offices, it was determined in figure 2 that 12 of the 77 popular fishing lakes fell out of the current coverage of offices. 5 uncovered lakes are located North Central Pennsylvania in Tioga County. 6 uncovered lakes are located in Western Pennsylvania in counties surrounding Allegheny County. The remaining uncovered lake is located in Lancaster County, South Central Pennsylvania. Also in figure two It was noticeable that several counties lack proper coverage making those areas our target areas to determine a suitable location for new offices. Through the suitability analysis Figure three displays my findings that the most suitable locations for a new offices would be in Allegheny County, Potter County, and Northern Lancaster.

## Conclusion and Future Direction

The Current Fisheries Management Areas Offices fail to provide adequate coverage for several of Pennsylvania's Popular fishing lakes, and a multitude counties in Western, North Central, and South Central Pennsylvania. Our suitability analysis determined the best way to provide coverage to all the Popular fishing lakes and cover as much uncovered ground as possible finding the best 3 places to put new offices were in Allegheny County, Potter County, and Lancaster County.

## Work Cited

- "Agency Overview." *Pennsylvania Fish & Boat Commission*, Commonwealth of Pennsylvania, [www.fishandboat.com/AboutUs/AgencyOverview/Pages/default.aspx](http://www.fishandboat.com/AboutUs/AgencyOverview/Pages/default.aspx).
- Abdalla, Charles, and Kristen Saacke Blunk Former Director. "Access and Allocation of Water in Pennsylvania." *Penn State Extension*, Penn State University, 17 Dec. 2007, [extension.psu.edu/access-and-allocation-of-water-in-pennsylvania#:~:text=Pennsylvania%27s%20surface%20water%20resources%20include%2083%2C184%20miles%20of,overall%20involving%20nearly%202.5%20trillion%20gallons%20of%20water.](http://extension.psu.edu/access-and-allocation-of-water-in-pennsylvania#:~:text=Pennsylvania%27s%20surface%20water%20resources%20include%2083%2C184%20miles%20of,overall%20involving%20nearly%202.5%20trillion%20gallons%20of%20water.)