

Broad River Basin Hydrologic Model: Data Collection & Analysis

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Advancing the Management
of Water Resources



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C o l u m b i a , M D • R a l e i g h , N C • P o r t l a n d , O R • B o s t o n , M A

Data Collection

- Precipitation Gage Records (NOAA)
- Agricultural Water Use
 - Crop Cover and Livestock Statistics
 - Recent Trends - Irrigation Rates & Groundwater vs Surface water
- Municipal and Industrial Withdrawals
 - Greater than 100,000 gpd
- Municipal and Industrial Discharges
 - Greater than 100,000 gpd
- Census Data

Data Sources

- Municipal & Industrial Withdrawals
 - NC Division of Water Resources
 - Water Users
- Wastewater Discharges (NPDES)
 - NC Division of Water Quality
 - Dischargers
- Agricultural Water Use
 - National Agricultural Statistics Service (NASS)
 - Ag Statistics from NC Dept. of Agriculture (NCDA)
 - Ag Extension Agents and Questionnaire



Municipal & Industrial Data Analysis

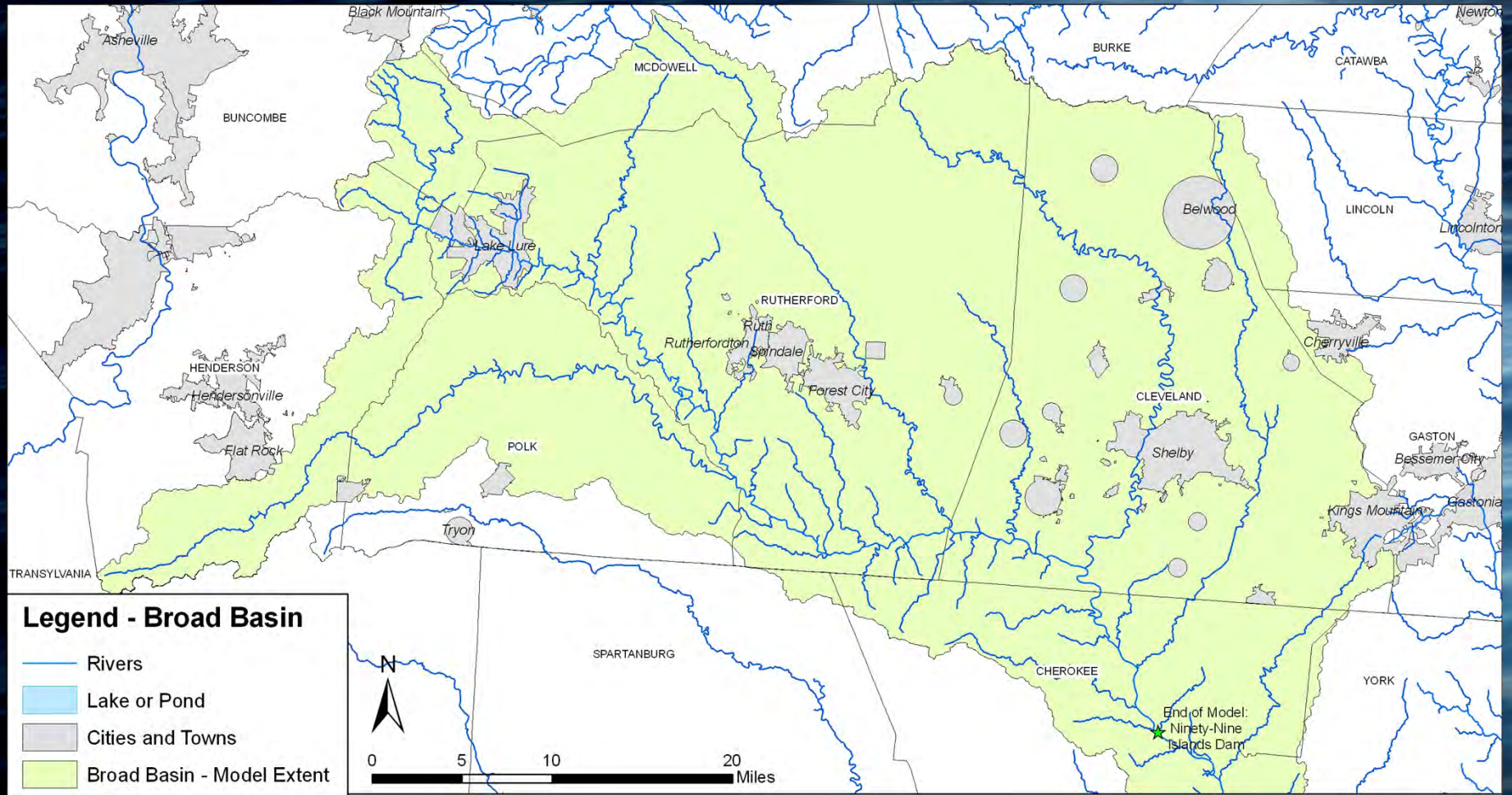
- Withdrawals & Discharges
 - 1930s to 2009
 - Monthly Time Series
- Fill Gaps in Series
 - Linear Interpolation – Census Data
 - User Records of Facility Start/Stop Dates



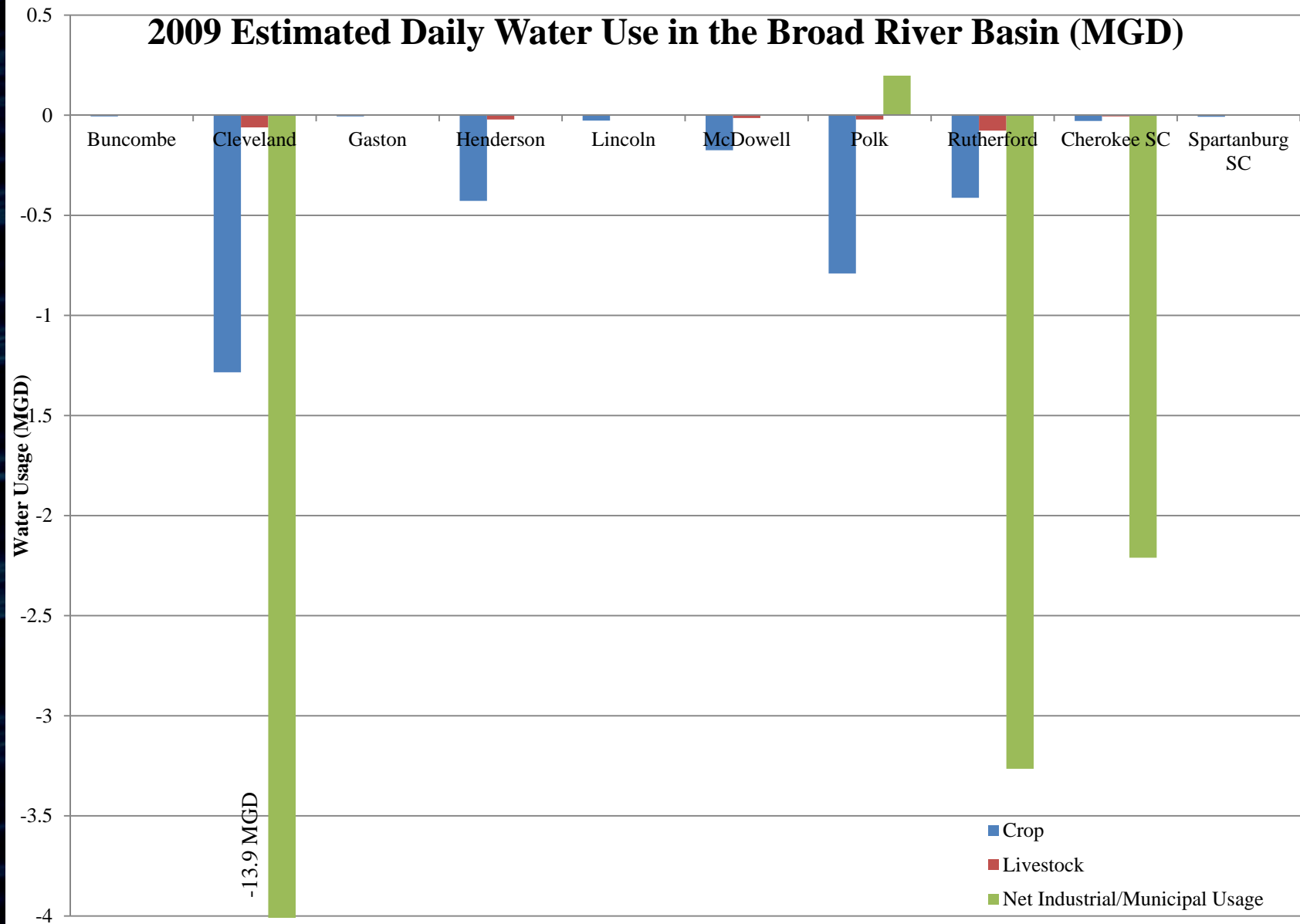
Agricultural Data Analysis

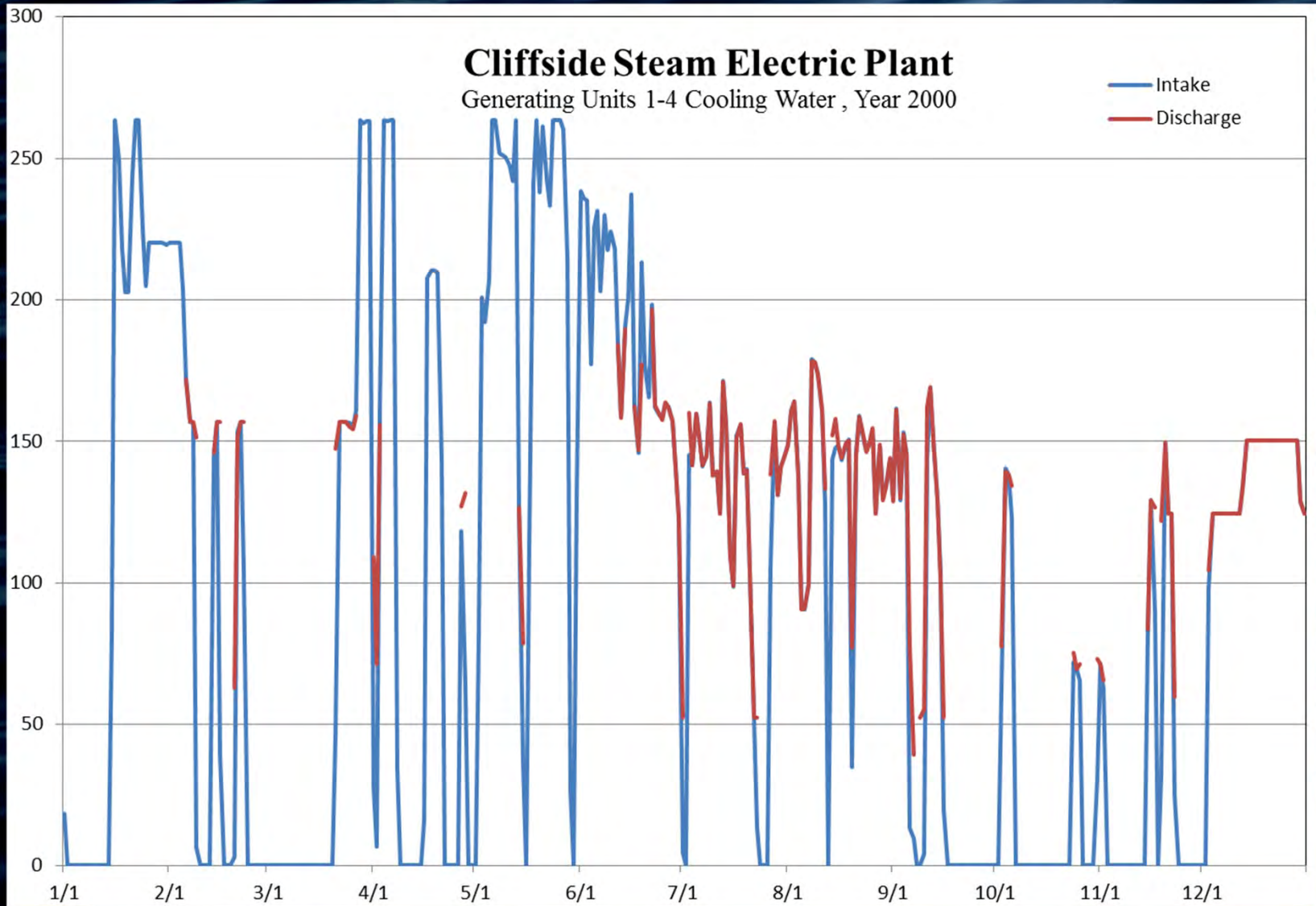
- Crop Acreage & Livestock Head
 - Ag Census data from NASS & NCDA (by County)
 - Distribute Ag in Basin with Ext Agents
- Agricultural Water Use
 - Determine ET Rates/Crop Water Requirements
 - Subtract Demands from Weekly Rainfall
 - Supplement Difference with Irrigation
- Daily Time Series of Weekly Values
 - Back to 1930s

Basin Map



2009 Estimated Daily Water Use in the Broad River Basin (MGD)





2009 Estimated Average Daily Agricultural Surface Water Usage within the Broad River Basin (MGD)

