Concept of the Hydrologic Model

A basinwide model of the New and Watauga rivers in North Carolina at the finest practical geographic resolution and timestep.

Possible Uses:
1. Evaluation of the combined effects of municipal water supply plans
2. Evaluation of interbasin transfer permit applications
3. Development of individual water supply plans – model will be on the DWR server and available to stakeholders and their consultants
4. A platform for developing risk-based drought plans.
Project Timeline

• Components
  – Basin schematic (complete)
  – Data collection (demands and discharges, including agricultural demands (complete)
  – Inflow development (complete)
  – Operating rules and reservoir data
  – Current (basecase) and future demand model runs
  – Documentation and training
  – Expected completion date: January 2019
Data Collection (HydroLogics)

- **Reservoirs**
  - Elevation-storage-area curve and operating rules
  - Historic elevation/release data

- **Streamflow (USGS gages)**

- **Precipitation/evaporation**
  - Use stations nearest the reservoirs of interest

- **Drought plans**

- **Interconnections**
Data Collection (HDR)

• Water supply/wastewater discharge
  – Recent data supplied from utilities/industries or water supply plans/NPDES data submitted to DWR
  – Water use data to be extrapolated to earlier years using census population data.
  – Discharge data to be extrapolated using monthly return percentages based on recent data
  – Future demand/discharge scenarios will be developed by HydroLogics/DWR

• Agricultural demand
  – Based on crop and animal use requirements, precipitation, and irrigable area by county