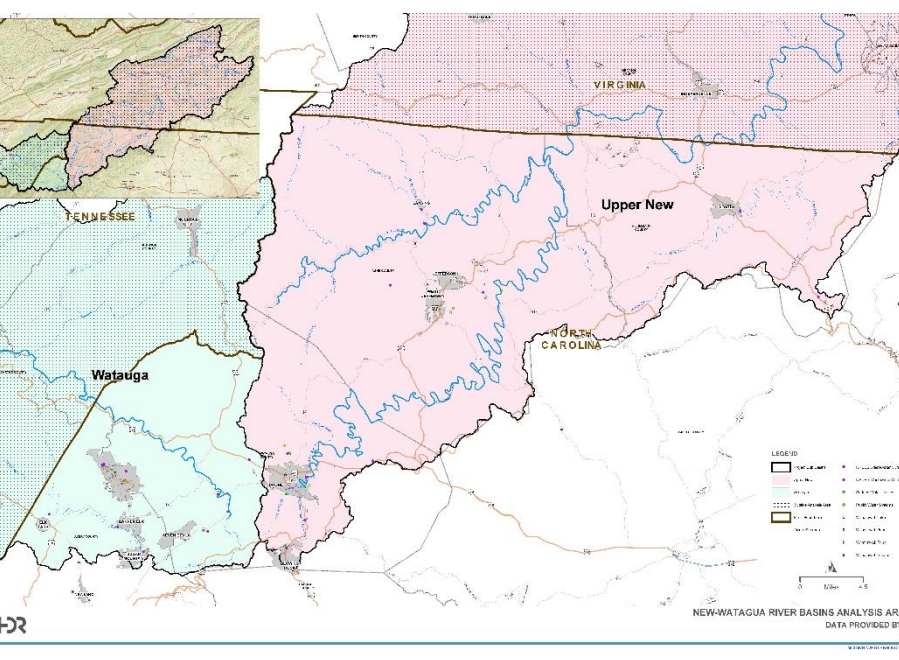


HDR



New and Watauga Hydrologic Model Stakeholder Kick-off Meeting

Data Collection Overview



April 10, 2018



Data Collection Overview

Withdrawals and Returns

Step 1: Data Collection

- Collect Water Withdrawal and Discharge Data
 - Identify applicable water users
 - Collect withdrawal & return data for users
 - Enter data into MS Excel database
 - Quality control reviews of data
 - Collect geographic information on withdrawal and return points
- Data Sources
 - NCDWR
 - Local Water Supply Plan database
 - NCDWR Water Withdrawal and Transfer database
 - NCDWR NPDES database
 - Individual users (where information missing)
- Data Timeline
 - 1930 to 2017



Step 2: Data Processing

- “Hindcasting” forecasts of historic water use for withdrawals and returns where historic information is not available.
 - Water / Wastewater Utilities
 - Population hindcasts and annual growth rates
 - Per capita use rates
 - Industrial
 - Gross Domestic Product hindcasting
 - Determine industry startups and closures
 - Power Generation
 - Historic power generation/water consumption hindcasting
 - Determine facility startups and closures
 - Agriculture / Irrigation
 - Historic precipitation/climate
 - Historic agriculture production
 - Quality control reviews of hindcasting forecasts



Step 3: Documentation

- Deliverables
 - Withdrawal and discharge database as a time series for HydroLogics' use in historical adjustments to streamflows
 - Monthly patterns for all nodes
 - Summary memo of water withdrawal & return data and hindcasting methodology
- Schedule:
 - Data: 3 months (expected end of May)
 - Memo: 1 month (expected end of June)
- Next Steps:
 - Data used by HydroLogics to develop inflow dataset - historical record of unimpaired (natural) river flow
 - Additional data includes reservoir operational rules, storage, etc.





New and Watauga Data Review

Current Status

Watauga River Basin

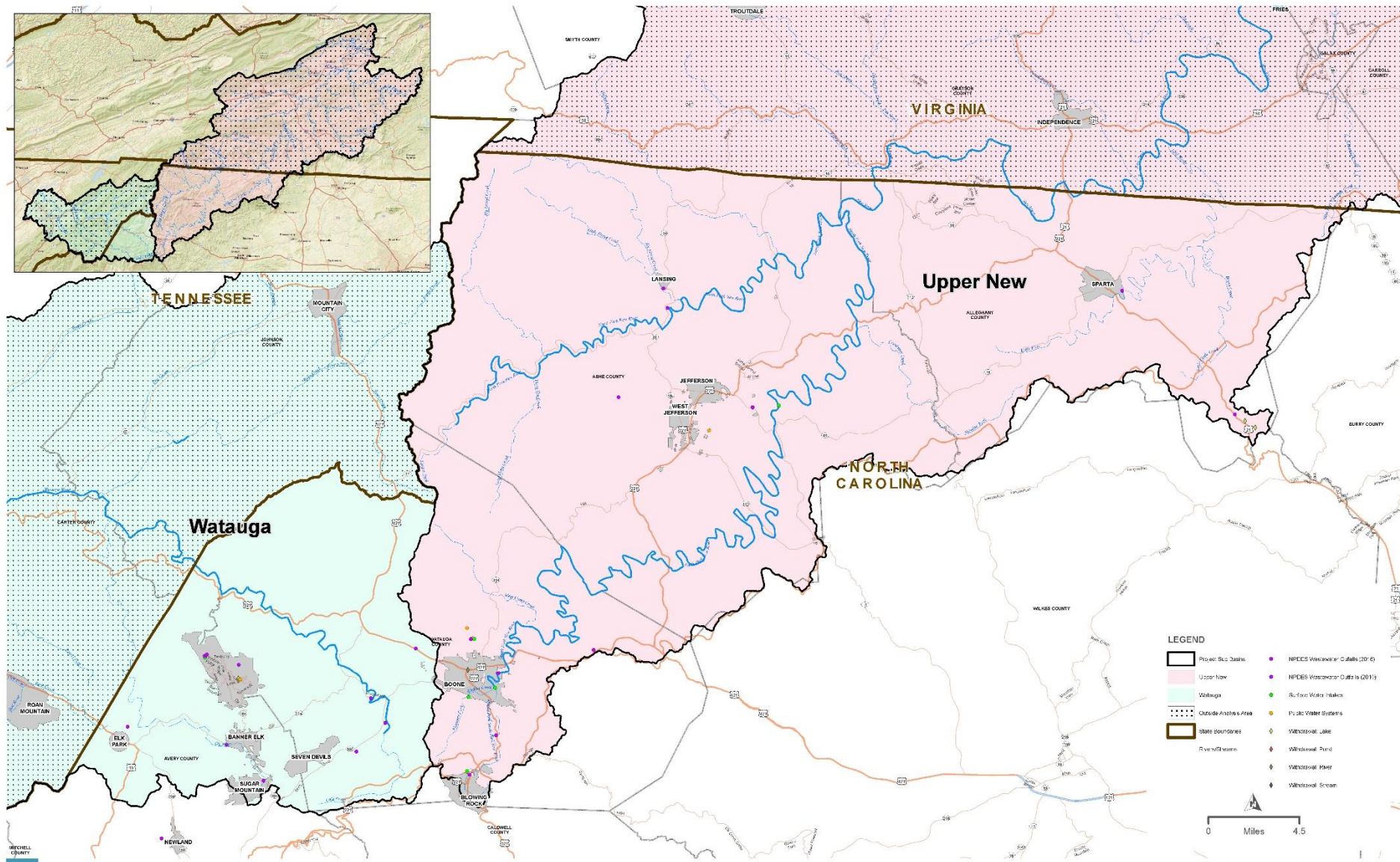
- Withdrawal nodes identified = 4
- Return nodes identified = 10
- All water/wastewater utilities, except 1 agricultural/irrigation use

Entity	Facility	Source/Receiving Water	Water Supply Type (W, R, N)	Entity Category	Sub-basin
Beech Mountain	Municipality	Buckeye Creek	W	PW/WU	Watauga
Banner Elk WWTP	Banner Elk WWTP	Elk River	R	PW/WU	Watauga
Buckeye Lake WTP	#N/A	Buckeye Creek	R	PW/WU	Watauga
Camp Broadstone WWTP	Camp Broadstone WWTP	WATAUGA RIVER	R	PW/WU	Watauga
Elk Park WWTP	Elk Park WWTP	Little Elk Creek	R	PW/WU	Watauga
Grassy Gap Creek WWTP	Grassy Gap Creek WWTP	Grassy Gap Creek (Grassy Gap Branch)	R	PW/WU	Watauga
Hound Ears WWTP	Hound Ears WWTP	WATAUGA RIVER	R	PW/WU	Watauga
Pond Creek WWTP	Pond Creek WWTP	Pond Creek	R	PW/WU	Watauga
Sugar Mountain WWTP	Sugar Mountain WWTP	Flattop Creek	R	PW/WU	Watauga
Sunset Apartments	Sunset Apartments	Brushy Fork	R	PW/WU	Watauga
The Ponds WWTP	The Ponds WWTP	WATAUGA RIVER	R	PW/WU	Watauga
Beech Mountain, Town Of	Community	Pond Creek (Lake Coffee)	W	PW/WU	Watauga
Beech Mountain, Town Of	Community	Buckeye Creek	W	PW/WU	Watauga
Beech Mountain Club	Golf course (Recreation)	Pumphouse (Lake)	W	A/I	Watauga

New River Basin

- Withdrawal nodes identified = 15
- Return nodes identified = 12
- All water/wastewater utilities, except 4 agricultural/irrigation & 2 industrial

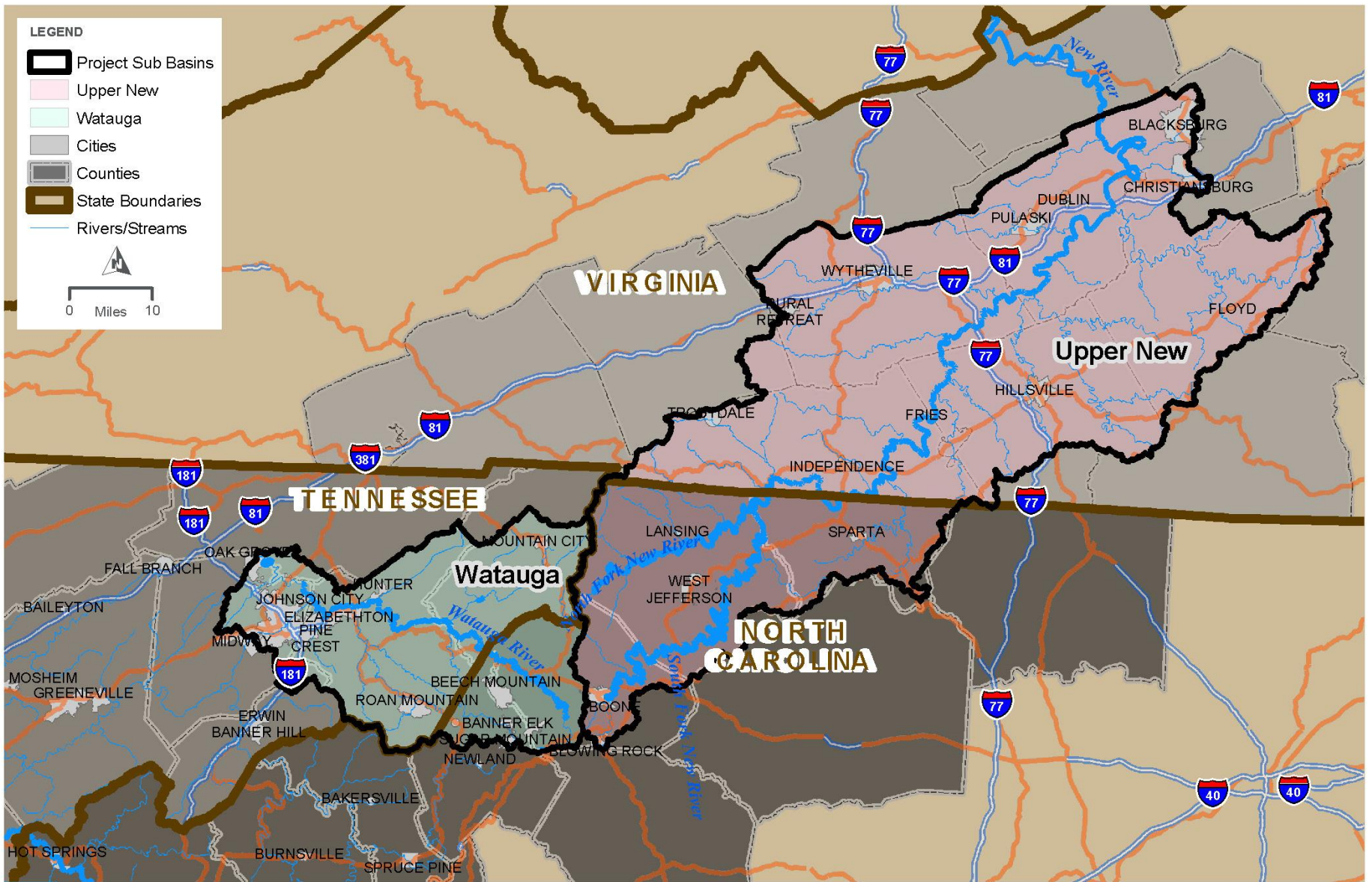
Entity	Facility	Source/Receiving Water	Water Supply Type (W, R, N)	Entity Category	Sub-basin
Appalachian State University	State	Norris Branch	W	PW/WU	Upper New
Blowing Rock	Municipality	Flat Top Branch	W	PW/WU	Upper New
Boone	Municipality	South Fork	W	PW/WU	Upper New
Boone	Municipality	Winklers Creek	W	PW/WU	Upper New
Jefferson	Municipality	South Fork of New River	W	PW/WU	Upper New
Appalachian State WTP	Appalachian State WTP	Norris Branch	R	PW/WU	Upper New
Blowing Rock WWTP	Blowing Rock WWTP	Middle Fork South Fork New River	R	PW/WU	Upper New
Buffalo Meadows WWTP	Buffalo Meadows WWTP	Buffalo Creek	R	PW/WU	Upper New
Jefferson WWTP	Jefferson WWTP	Naked Creek	R	PW/WU	Upper New
Lansing WWTP	Lansing WWTP	Big Horse Creek	R	PW/WU	Upper New
Olde Beau Golf Club WWTP	Olde Beau Golf Club WWTP	Laurel Branch (Laurel Creek)	R	A/I	Upper New
Parkway Elementary School	Parkway Elementary School	Laxon Creek	R	PW/WU	Upper New
Sparta WWTP	Sparta WWTP	Little River	R	PW/WU	Upper New
Town of Boone Jimmy Smith WWTP	Jimmy Smith WWTP	South Fork New River	R	PW/WU	Upper New
Tweetsie Railroad	Tweetsie Railroad	Middle Fork South Fork New River	R	IND	Upper New
United Chemi-Con	United Chemi-Con	North Fork New River	R	IND	Upper New
West Jefferson WWTP	West Jefferson WWTP	Little Buffalo Creek	R	PW/WU	Upper New
Jefferson, Town Of	Community	So Fork New River	W	PW/WU	Upper New
West Jefferson, Town Of	Community	Spring At Mt Jefferson	W	PW/WU	Upper New
Boone, Town Of	Community	S Fork New Riv	W	PW/WU	Upper New
Appalachian State Univ Wtp	Community	Norris Branch	W	PW/WU	Upper New
Blowing Rock, Town Of	Community	Town Lake	W	PW/WU	Upper New
Boone, Town Of	Community	Winklers Creek	W	PW/WU	Upper New
Appalachian State Univ Wtp	Community	Howards Creek	W	PW/WU	Upper New
Boone Golf Club	Golf course (Recreation)	Middle Fork (River)	W	A/I	Upper New
Olde Beau Golf Club	Golf course (Recreation)	Lake (Lake)	W	A/I	Upper New
Roaring Gap Club	Golf course (Recreation)	Lake Louise (Lake)	W	A/I	Upper New



NEW-WATAGUA RIVER BASINS ANALYSIS AREA MAP
 DATA PROVIDED BY NCDWR
 FIGURE 3.2

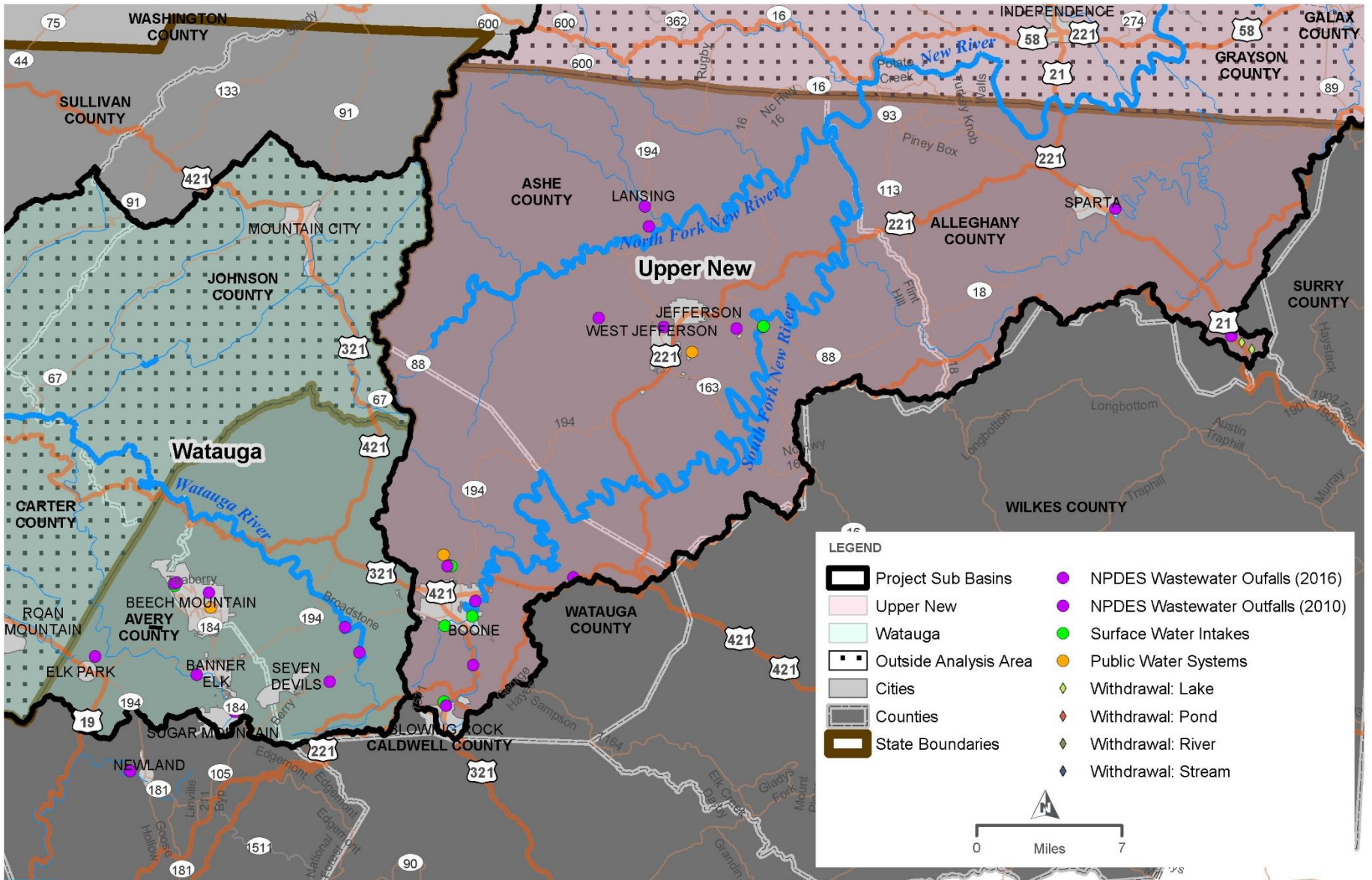
NCDWR WESTERN NC BASIN MODELS





**NEW/WATAGUA RIVER BASINS
PROJECT AREA MAP**

FIGURE 3



NEW/WATAGUA RIVER BASINS ANALYSIS AREA MAP
 DATA PROVIDED BY NCDWR

FIGURE 3.1



Questions???

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