Water Resource Basin Plans

• Primary vehicle for consolidating data collected and issues identified by all water related resource agencies

• Provide a single location to present the water quality and water quantity related evaluations developed by state agencies

• Provide a platform for resource agencies to highlight water related issues that are important to each agency’s mission

• Watershed-based approach to river basin water resource management

• Considers the cumulative impacts to all activities across a river basin (point and nonpoint sources of pollution)
303(d) Listing

Data Gathering
- ESS Reports/Studies
- Statistical Trend Analysis
- Gathering other data and watershed reports

8, 10, & 12-Digit Narratives / GIS
- Non-Statistical Trends
- Restoration Status
- Watershed Issues
- Collaboration with other interested parties
- Basin/Watershed Maps

Permitting
- CAFOs
- NPDES WW & SW
- Non-Dischargers
- Trout Farms
- Etc.

Recommendations/Action Plans
- ID WQ needs at different scales
- Coordinate action plans internally and externally

Finalize Plans
- Internal Review
- Public Review
- WQC Draft
- EMC Approval
- Post each version on web
- NSW follow-up

Sampling Design
- Plan changes from current sampling plan
- Special Studies

Basinwide Sampling
- Biological
- Ambient
- Lake

10 Year Cycle

2 Years

Grants/ERC Report

1 Year

NSW follow-up

10 Year Cycle

2 Years

Grants/ERC Report

1 Year

NSW follow-up
Biological Monitoring (Benthic and Fish)

Ambient Monitoring (Physical and Chemical Parameter)

Swimming Advisories & Shellfish Closures (DMF)

Instream Flow Requirements

Fish Consumption Advisories (DHHS)

Lakes Monitoring

Data Collected by Outside Agencies (Coalitions, Watershed Groups, etc.)

Public Water Supply

NPDES Permits & Violations, Return Flows

Groundwater

Interbasin Transfer (IBT) Certifications

Projections (Supply & Demand)

Local Water Supply Plans (LWSPs)

Water Withdrawal & Transfer Registration (WWATR)

Inflow Data (USGS)
Surface Water Quality Assessment

- Waters are assessed based on parameters of interest and determined to be:
  - **Supporting** (meeting standards/criteria)
  - **Impaired** (exceeding standards/criteria)
  - **Data Inconclusive** (data does not allow for an assessment to be made)
  - **No Data**

- Data that is collected is used to generate the Integrated Report (303(d)/305(b))

http://deq.nc.gov/about/divisions/water-resources/planning/classification-standards/surface-water-standards#WQSTables
Water Resources River Basin Management

Basin Plan

Basin Model

Water Resources Management

Water Resources Management

Integrated Basin Plan

HYDROLOGIC MODEL
Water Quantity

Current and Projected Water Use and Population
Local Water Supply Plans (LWSP)

- Residential: 42%
- Non-Residential: 34%
- System Processes: 15%
- Unaccounted-for Water: 9%

Bar chart showing water use and population from 2015 to 2060:
- 2015: 600 MGD
- 2040: 1000 MGD
- 2060: 1200 MGD
Water Quantity Using Hydrologic Modeling

• Models need to answer 3 questions:
  • Locations and time when yield may be inadequate to meet all essential uses.
  • Locations and times when yield may be inadequate to meet all needs.
  • Locations and times ecological flow may be adversely impacted.

• Models are not rule-making and will not change any existing regulations nor will they add new regulations.

“All models are wrong, but some are useful”
Andrew Gelman, Professor of Statistics, Columbia University
Water Quantity Using Hydrologic Modeling

• Models can also answer water resource planning issues as the relate to:
  □ Identifying alternative sources for water supply
  □ Developing and implementing water shortage response plans (are triggers adequate or can they be improved)
  □ Impacts related to generating hydroelectric power
  □ Impacts to recreational areas (rivers, lakes, boat launches)
Basin Planning Branch

Basinwide Water Quality Plan Archives

Basin Water Resources Plan Archives

Ecological Flow Planning & Science Advisory Board

http://deq.nc.gov/about/divisions/water-resources/planning/basin-planning
Towns desperate for water

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KEY ISSUES THAT SHAPE CURRENT NC WATER PLANNING

Drought of 1998-2002

Interbasin Transfer
South Carolina vs. North Carolina - Key Facts

- Case originates in the Supreme Court. South Carolina seeks an equitable amount of the Catawba River which starts in North Carolina and flows into South Carolina.
- October, 2007 - Granted
- October, 2009 - Argued
- December, 2010 - Dismissed

2007-08 Drought
Fontana Lake (Sept 9-10, 2007)
New (July 2011) and Watauga (draft 2017) River Basins

- High volumes and velocity of stormwater
- Increased water temperatures and sedimentation
- Aging and/or failing septic tanks
- Livestock access to streams
- Lack of riparian buffers