Developing a Framework for Regional Water–Supply Planning in South Carolina

"The effective management of South Carolina's water resources is beyond the scope of any one agency or organization and will require cooperation and shared responsibility among Federal, State, and local agencies, as well as public and private parties."

South Carolina Water Plan (2004)

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Why plan?
Economics and Quality of Life

- Economic development depends upon a reliable supply of water.
- Fishing, hunting, wildlife viewing, and other water-related activities are a multi-billion dollar business.

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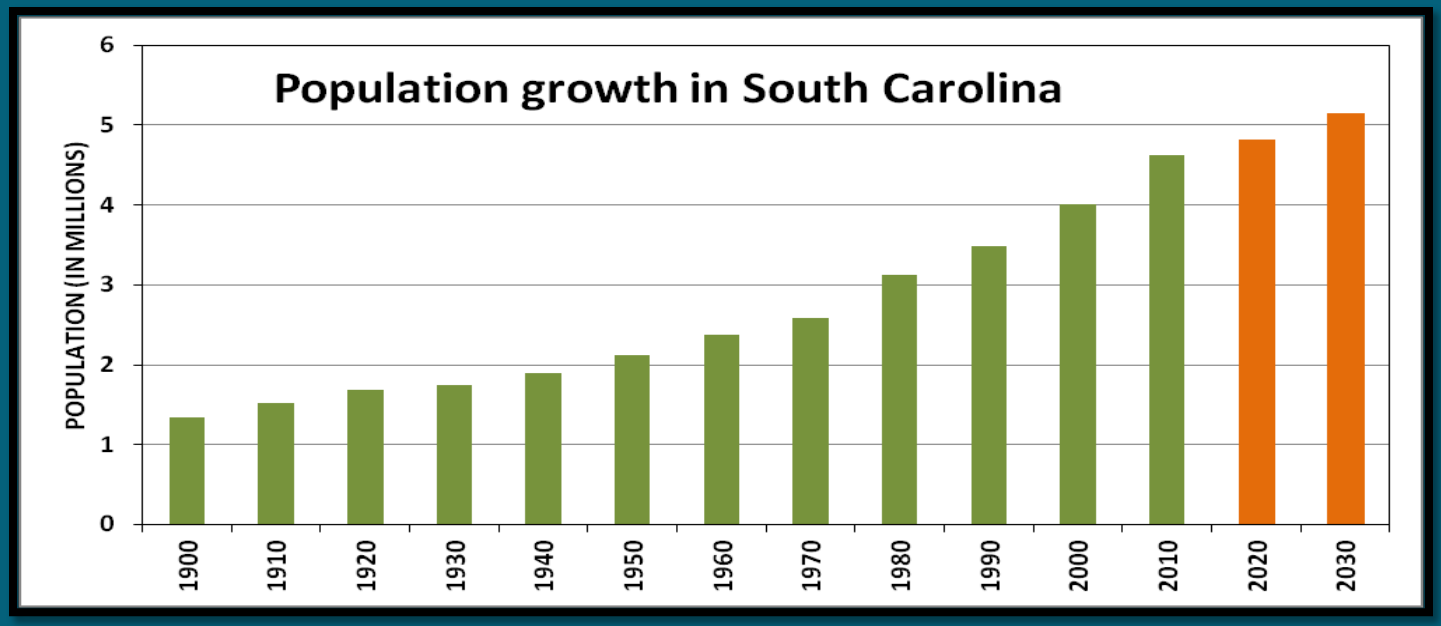
Why plan?
Increasing Demands

Water use, 1990-2005:

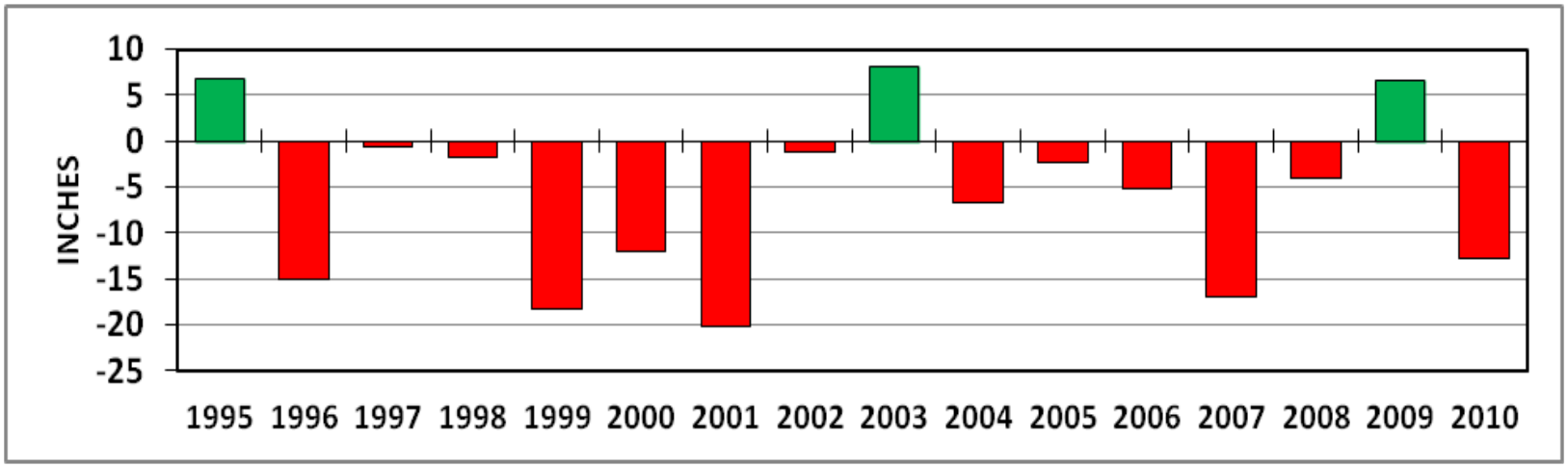
- Municipal ↑ 46%
- Thermoelectric ↑ 26%
- Irrigation ↑ 40%
- Per capita ↑ 25%



Why plan?
Uncertain Supplies

- Drought of record in South Carolina (1998-2002)
- Extreme drought in Savannah River basin (2006-2008)
- Unknown effect of climate change on water availability

Departure from normal precipitation at Columbia Metro Airport



History of Water Planning in S.C.

Water Resources Planning and Coordination Act (1967)

Created the S.C. Water Resources Commission in 1969

- The Commission "…shall advise and assist the Governor and the General Assembly in formulating and establishing a comprehensive water resources policy for the State…"
- The Commission "…shall encourage, assist and advise regional, metropolitan, and local governmental agencies, officials or bodies responsible for planning in relation to water aspects of their programs…"

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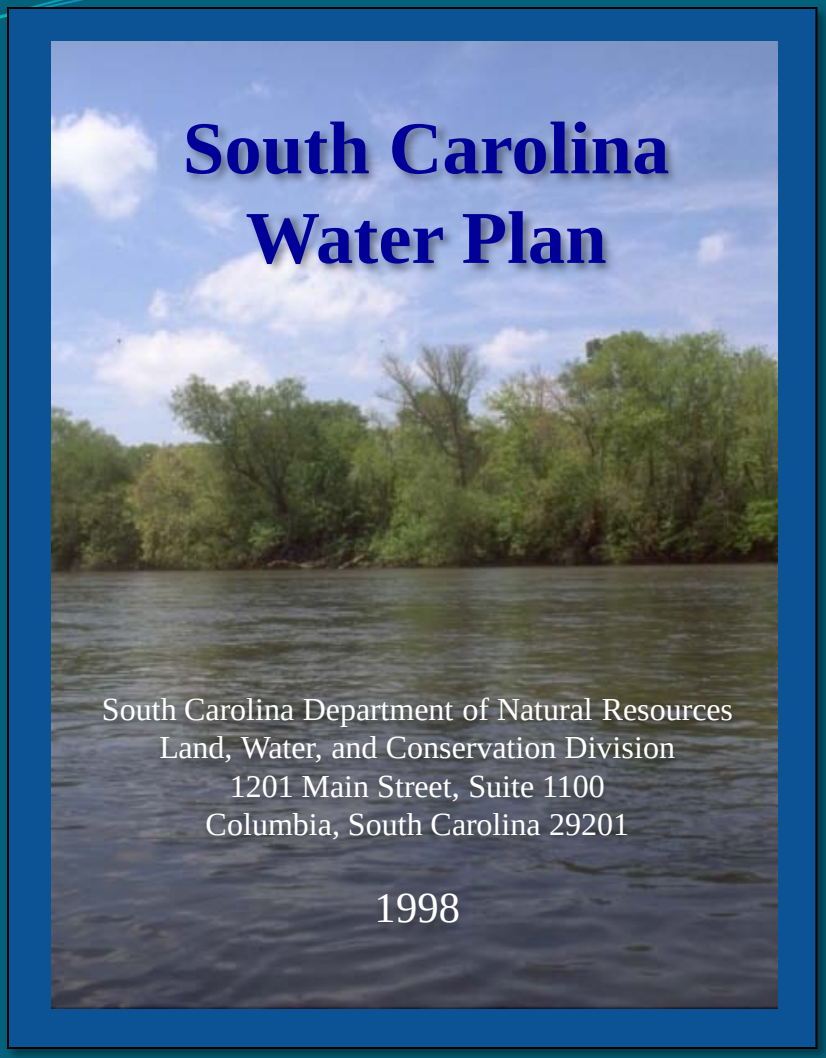
The *Water Resources Planning and Coordination Act* was amended in 1993.

- Many of the regulatory functions of the Commission were transferred to SCDHEC.
- Water policy and planning functions of the Commission were transferred to SCDNR.



In 1998, SCDNR published the first edition of the South Carolina Water Plan.

The *Plan* recommends policies and guidelines for the management of South Carolina's water resources to sustain water availability for all present and future uses.

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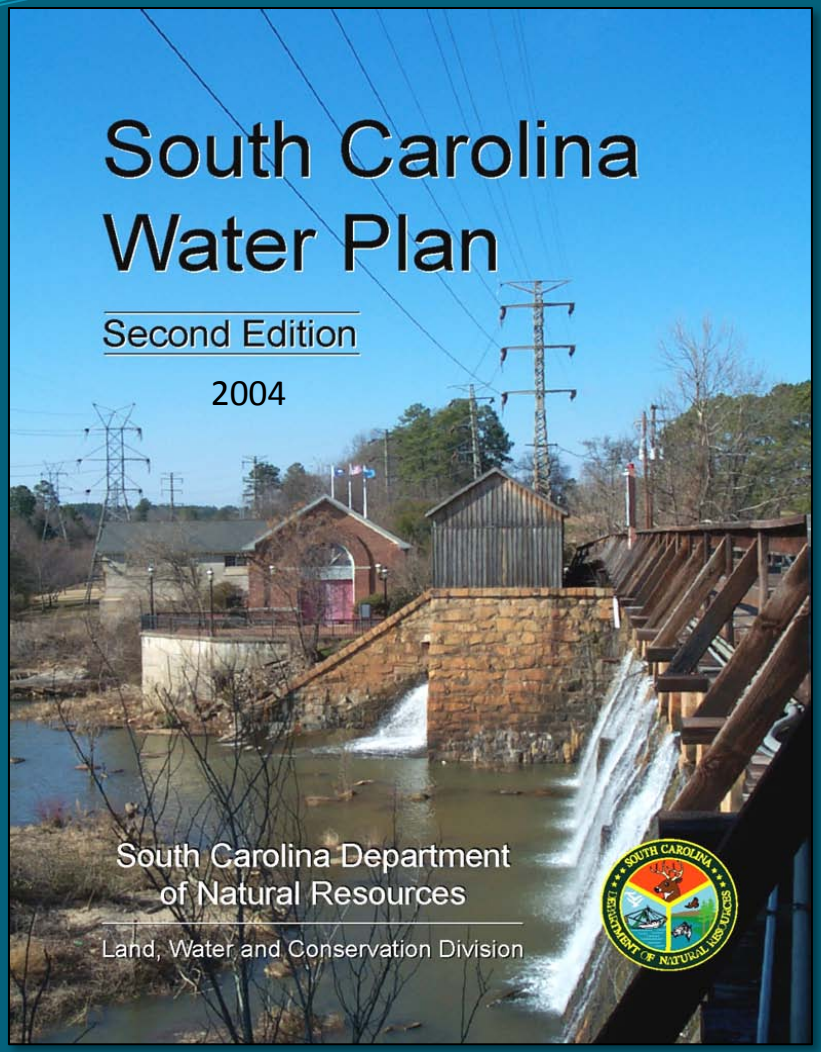

In 2004, SCDNR published the second edition of the South Carolina Water Plan, incorporating experience and knowledge gained from the drought of 1998-2002.

The *Plan* offers 81 recommendations for sustaining our water resources.

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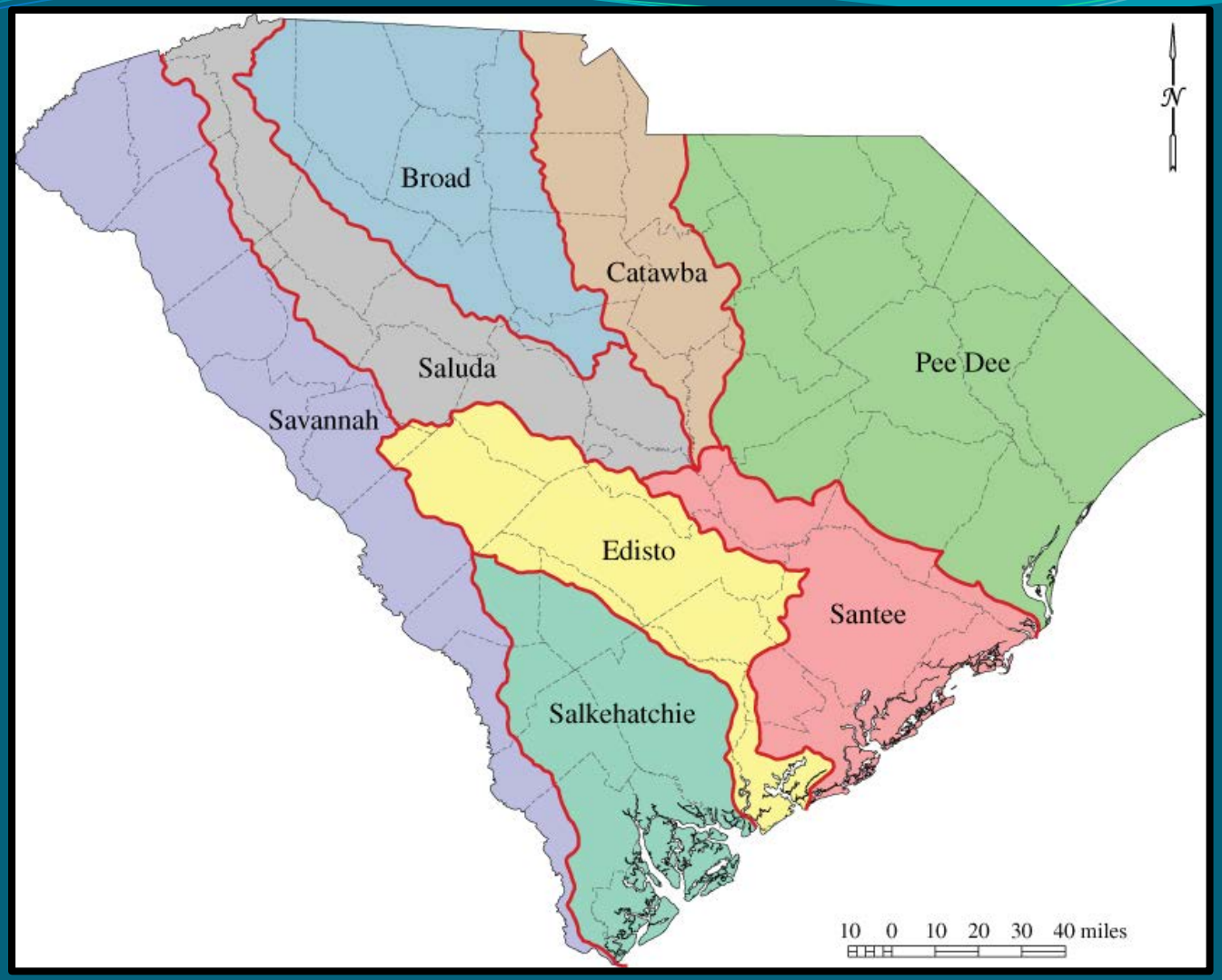
The goal of these plans is to ensure that an adequate and reliable supply of suitable quality water would be available to sustain all future instream and offstream uses in the State.

One of the key recommendations of the 2004 Water Plan is to develop regional water-supply plans for each of the major river basins in the State.

Why regional water planning?

Water availability, sources of water, water use, and the degree to which surface water is regulated vary across the State.

Because regions of the State have different sources and uses of water, plans should be tailored to each region's specific resources and needs.



Suggested regional water planning areas.

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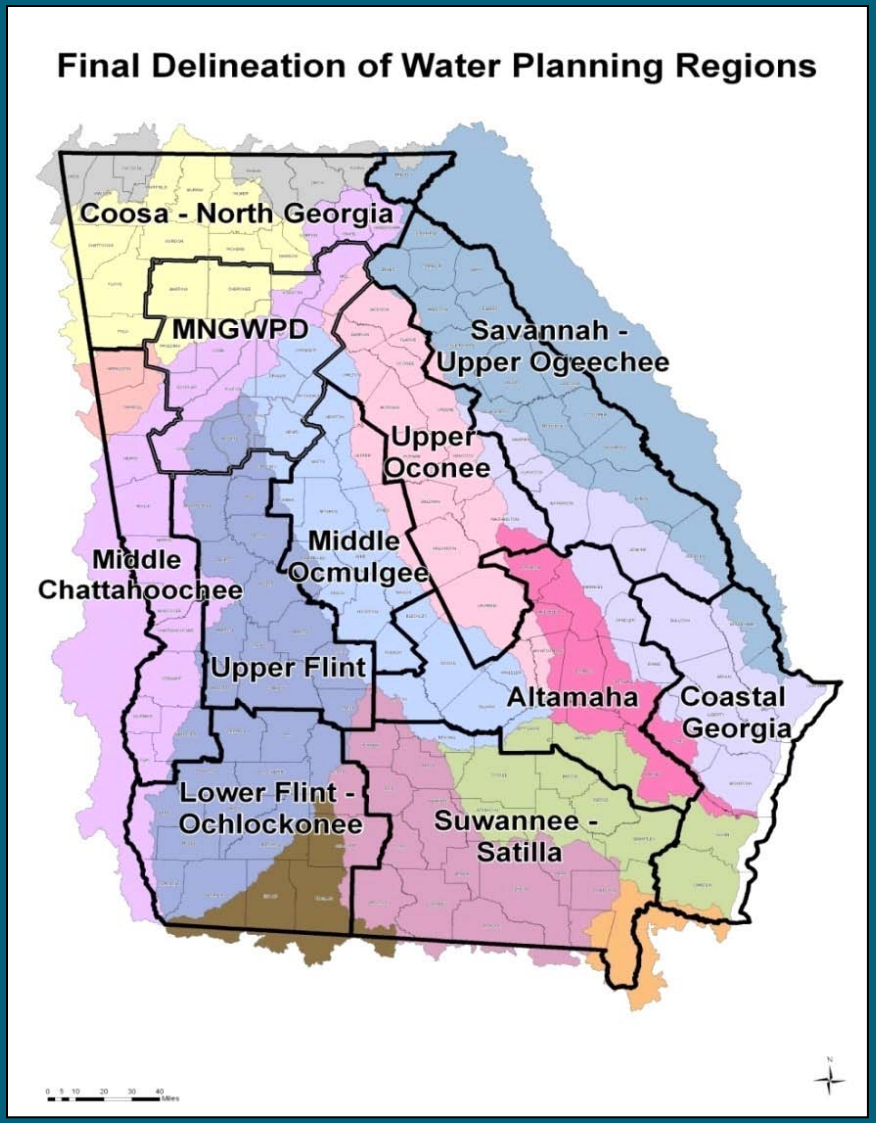
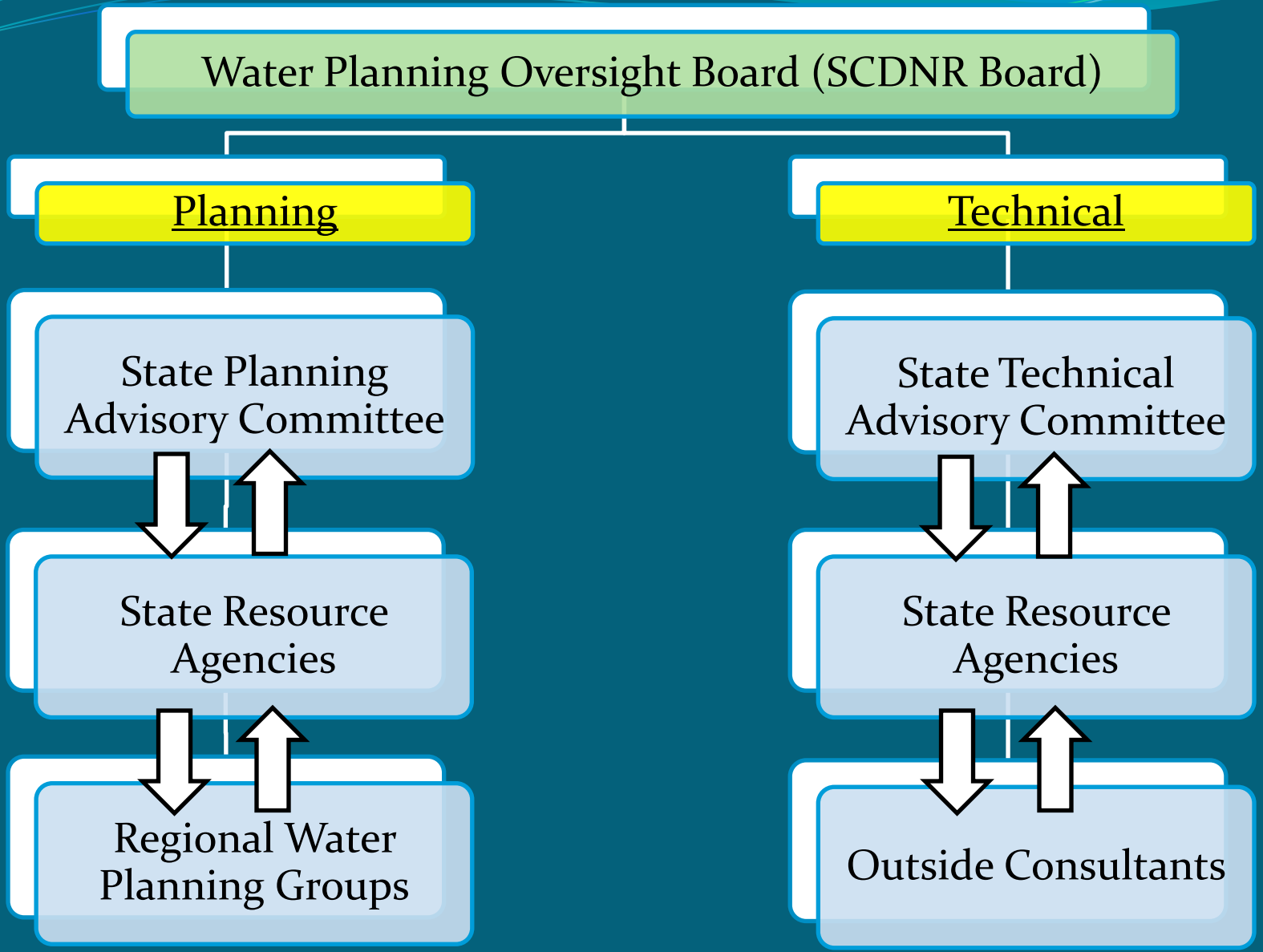


Georgia's planning regions are delineated by counties but are generally aligned with surface or groundwater sources.

Stakeholder and Public Participation

SCDNR supports an approach that involves stakeholder and public participation in the development of the regional water plans.


Water Planning Oversight Board (SCDNR Board)
Planning
Technical
State Planning Advisory Committee
State Technical Advisory Committee
State Resource Agencies
State Resource Agencies
Regional Water Planning Groups
Outside Consultants

South Carolina Water Planning Advisory Committee

Consists of government, stakeholders and the general public (20-25 members)

Responsibilities include:

- Determining planning regions
- Composition of the regional water planning groups
- Developing rules for the planning process
- Overseeing plan development

State Resource Agencies

- Develop a regional water planning guidance document with oversight from the Planning Advisory Committee
- Document would include:
  - an overview of water resource policies
  - a detailed description of the regional water-planning process
  - a description of responsibilities of regional planning groups, State resource agencies, and others
  - a delineation of the planning areas

Regional Water Planning Groups

In collaboration with State resource agencies, the RWPGs would oversee the development of the regional water plans and recommend water-management strategies to meet future demands for their region.

Regional Water Planning Groups

RWPGs might be composed of local governments, stakeholders, and the general public that are residents of the planning area (20-25 members), such as:

- General public
- Local government
- Industry
- Agriculture
- Environmental/conservation groups
- Water and power utilities
- Conservation districts
- Others

Regional Water Planning Groups

Some of the responsibilities of the RWPGs might include the following:

- Conduct public hearings
- Review water-use projections
- Resolve regional and interregional disputes
- Prepare final regional water plans
- Vote to adopt regional water plans

Groundwater

- SCDNR recommends that groundwater be managed at the aquifer level.
- Because aquifers often cross regional planning boundaries, groundwater management may necessitate a higher level of statewide planning and coordination among neighboring water-planning regions.

Management Strategies

1. water conservation
2. expanded use of existing supplies
3. conjunctive use of surface and ground water
4. reallocation of reservoir storage
5. enhancements of yields from existing sources
6. expansion of reservoirs
7. reverse osmosis and desalination
8. aquifer storage and recovery
9. interbasin transfers of water
10. reuse of treated wastewater and stormwater
11. smart growth
12. new reservoirs
13. other measures

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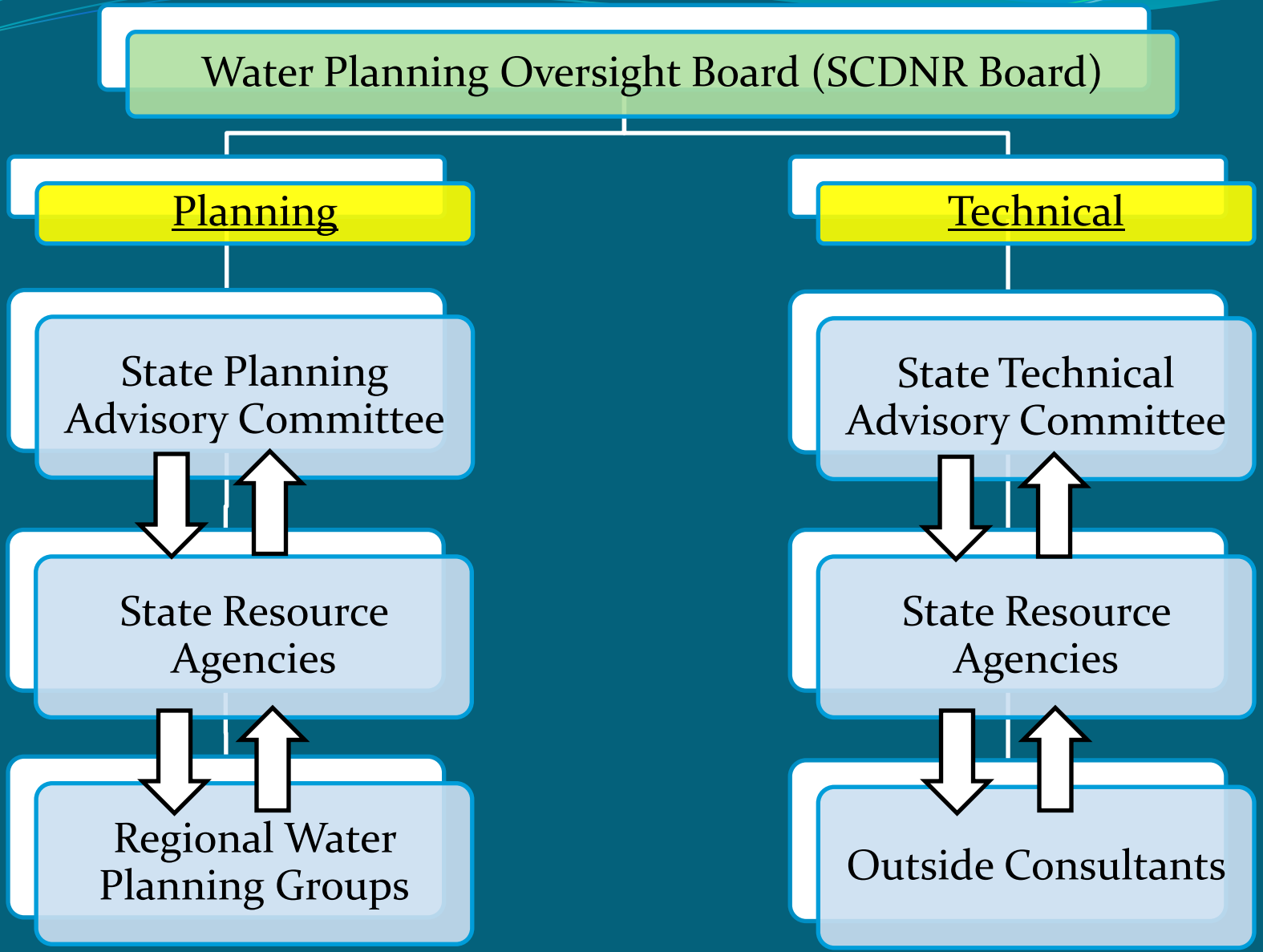
Water-management strategies would be evaluated based on such things as:

- Water quantity and reliability
- Financial costs
- Impacts to the environment
- Impacts to water quality
- Time required to implement strategy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South Carolina Water Planning Technical Advisory Committee

Consists of scientists and experts in water resources planning (20-25 members)

Responsibilities include:

- Oversight of scientific and technical aspects of regional water planning
- Review and approval of water-use projections and hydrologic models

State Resource Agencies

- Assessment of current water use
- Projections of future water demands
- Assessment of water resources (monitoring networks)
- Development of hydrologic models

Assessment of Current Water Use

Assessments of current water use in each planning area and for the following user groups:

- Thermoelectric
- Water supply
- Industry
- Irrigation

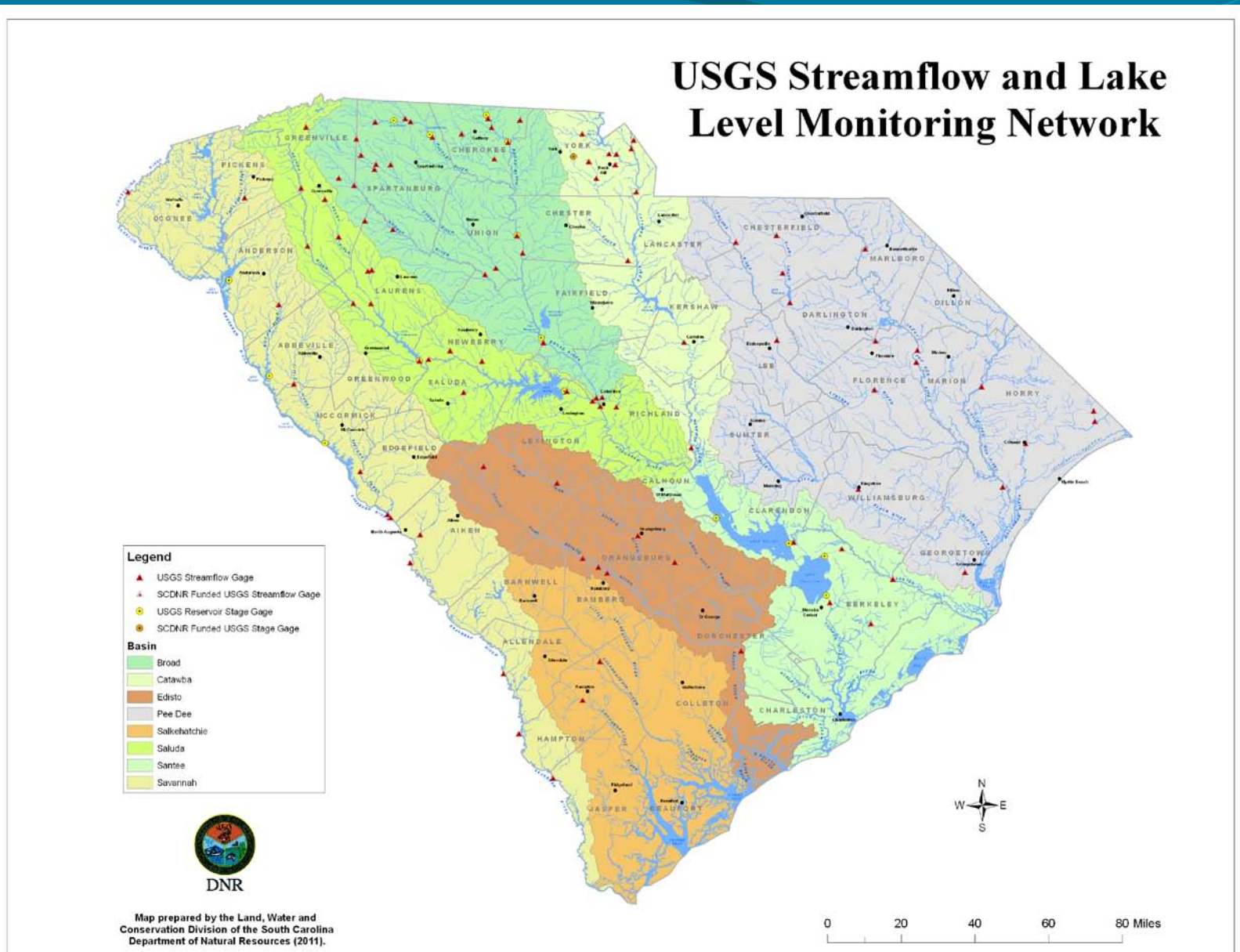
Much of this information is already collected through existing water-use reporting programs.

Projections of Future Water Demands

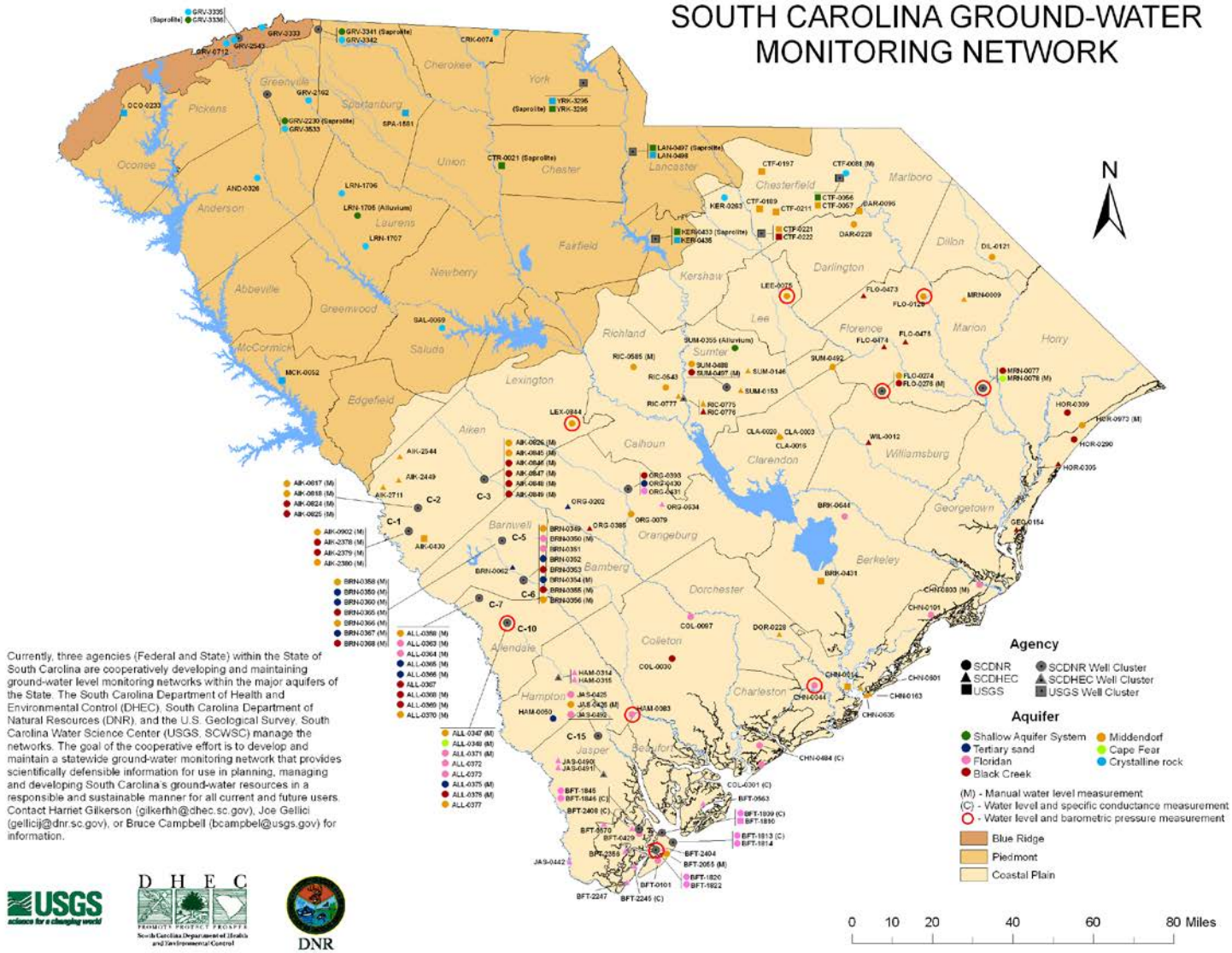
- Water-use projections in 5- or 10-year intervals over a 40- or 50-year planning period for each planning area should be made for the major user groups.
- Some states, like North Carolina and Virginia, require public water systems to prepare local water supply plans, which include water-use projections.

Assessment of Water Resources

- Data from the surface and groundwater monitoring networks are critical for assessing water availability and developing hydrologic models.
- The better the monitoring networks, the better the hydrologic models, and the better the water plans.



Approximately 100 streamflow gages and 13 lakes gages.



Approximately 200 monitoring wells.

Development of Hydrologic Models

- Using data from our monitoring networks, develop surface-water and groundwater hydrologic models for each river basin and each aquifer.
- Water-use projections are entered into the hydrologic models to determine if, when, and where water shortages will occur in the basin.

If the models predict a water shortage:

Regional water plans would recommend measures to:

- Reduce demands
- Increase supplies, or
- A combination of supply and demand actions.

Plans may also recommend the utilization of new technologies to meet future demands of the basin.

Outside Consultants

- Consultants may be contracted do some of the technical work associated with planning.
- Work would include, among other things, development of water-use projections and surface and groundwater modeling.
- Consultants may include private consulting firms, federal agencies, the State University system, and other research institutions.

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Water Planning Oversight Board

- Appoints members to the State Technical and State Planning Advisory Committees
- Gives final approval to the regional water plans
- Ensures coordination and cooperation among government agencies
- Provides financial and administrative support
- Recommends State water resource policies
- Identifies the need for new legislation

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State Water Plan

- The State Water Plan would be updated after the completion of the regional plans.

- Among other things, the State Water Plan would offer water-resource policy and program recommendations on the basis of information contained in the regional water plans.

Water-Planning Challenges

- Securing sufficient funding and technical staff.
- Possible new legislation authorizing/ supporting the regional planning program.
- Establishing a planning process with regional planning groups and a state advisory committee.
- Interagency coordination.
- Adequacy of monitoring networks.

Questions