

**NIDIS Southeast US Drought Workshop**  
**April 29-30, 2008**  
**Peachtree City, GA**

**BACKGROUND**

Much of northern Georgia and northern Alabama experienced unprecedented short term drought from mid 2006 into early 2008. This region serves as the headwaters of two critical river basins in the southeast United States. The Apalachicola/Chattahoochee/Flint (ACF) River basin, and the Alabama/Coosa/Tallapoosa (ACT) River basin.

NOAA National Climate Data Center (NCDC) data shows that calendar year 2007 saw record low precipitation across Climate Divisions 1 and 2 of extreme northwest and northern Georgia which serves as the major source of water for both these river basins.

Ongoing disputes have existed between Florida, Alabama, and Georgia over what the equitable allocation of water should be for upstream and downstream users in each basin, ranging from increased water demands for the rapidly growing city of Atlanta metropolitan area in the upper part of the basins, and increased demands for irrigation in the lower portions of each basin. In addition, the presence of many ecologically sensitive fish in the lower basin and the oyster industry at the mouth of each basin further adds to the conflicts for water in the basin.

By the spring of 2008, Lake Lanier, which is the uppermost and largest federally controlled (Corps of Engineers) reservoir in the ACF basin stood at record low levels for that time of year, with a level that was 18 feet below full pool level. Federal government agencies have various management responsibilities over water resources such as managing facilities like Corps of Engineers dams. Federal agencies can also provide resources and services to states to help them manage and adapt to drought conditions, as well as settle disputes between states. Services or resources provided by federal agencies can include facilitating disputes between states and stakeholders and providing technical expertise, support, and services.

**THE ROLE OF NOAA and NIDIS**

The *National Integrated Drought Information System Act of 2006* (Public Law 109-430) created the NOAA's National Integrated Drought Information System (NIDIS). It is precisely the mission of providing technical expertise, support, and services to the states and stakeholders which led NIDIS to host its initial Southeast Drought Pilot Workshop in Peachtree City, GA on April 29-30, 2008.

Invitees included key partners and stakeholders at the federal and state levels who each had a legislative duty in the area of monitoring water resources and overseeing the use of water resources. Local government entities and private stakeholders and customers who are impacted by the allocation of water resources also attended.

The goal of the workshop was to promote the key legislative goals of NIDIS among all attendees, including public awareness and education; engaging the preparedness communities; integrating monitoring and forecasting capabilities; and, to promulgate interdisciplinary research and applications. All these goals fall under the overarching NIDIS mission of creating a drought early warning system and displaying drought information in a one stop shopping web based NIDIS US Drought Portal (<http://www.drought.gov>).

### **INITIAL FINDINGS and OPPORTUNITIES**

- The current successes of existing products such as the US Drought Monitor (USDM), and NOAA Seasonal Outlooks must be built upon and expanded. Where possible, additional emphasis must be placed on the state, watershed, and local levels.
- New and additional tools and products to effect fuller coordination of relevant monitoring, forecasting, and impact assessment must occur at the watershed, state, and local levels.
- Where possible, the integration of observing networks between federal, state, and local entities is needed. This is especially true in the area of stream gauges and precipitation measurement in order to improve the early warning program.
- Monitoring gaps that currently exist must be identified and mitigated to improve the early warning system. Where possible, cross-agency partnerships must be developed to fill these gaps. For example, a national or regional array of soil moisture sensors is needed. None currently exists. However, it appears that the NCDC Climate Reference Network which has approximately 100 sites nationally may soon be having these installed on their sensor array.
- A suite of decision support tools must be created for local and state decision makers coupled with the ability for users to report localized conditions. This product must yield value-added information for agricultural, recreational, water management, commercial, and other sectors.

- Multi-disciplinary observations including land surface conditions, streamflow, and precipitation conditions must be integrated with impacts information (i.e. how is drought affecting a location, how have similar/past droughts affected the location, etc.) which must be linked with climate models and improved regional forecasts.

### **STRESSORS for KEY STAKEHOLDERS in the ACT/ACF BASIN and MORE DETAILED USER NEEDS**

- Municipal and Industrial Water Use in Metropolitan Atlanta: Ground water sources supply only 1% of metro Atlanta's water needs because the region is underlain by crystalline rock aquifers that typically do not support high yield wells. 72% of its drinking water needs come from Lake Lanier and the Chattahoochee River.
  - Stressors include water availability in Lake Lanier. Formed by Buford Dam in 1956 as a federal reservoir, it comprises 63% of the storage in the ACF system but only 6% of its capacity.
- Irrigated Agriculture in southwest Georgia and southeast Alabama: Metro Atlanta's net water withdrawal is 162 million gallons/day. Depletions to the Flint River due to agricultural irrigation averages 268 million gallons/day.
- Power facilities: Many hydropower, coal, and nuclear power plants are located on the ACT/ACF basins. Each of these power plants requires a minimum low flow rate.
- The Apalachicola Bay Oyster and Seafood Industry: The oyster fishery is centered around the mouth of the Apalachicola River and is an integral part of the economy of the Florida panhandle. \$10 million in oysters is harvested yearly. This represents 90% of Florida's harvest and 10% of the nation's oyster supplies.
  - Stressors include increased salinity in the bay due to decreased fresh water flows in the ACF basin is detrimental to this harvest. The state of Florida has raised concerns that sustained low freshwater flow could result in permanent harm to the Apalachicola Bay oyster industry.
- Endangered Species Concerns: The Apalachicola River is home to four species that are listed on the federal Endangered Species Act: the Gulf sturgeon fish and three species of mussel.
  - Stressors include low water flows that could result in a water flow below that which is felt to be necessary by the US Fish and Wildlife Service.

## **ATTENDEES COMMENTS and SUGGESTIONS for POSSIBLE PARTNERSHIPS and OPPORTUNITIES**

- Multi-state drought mitigation plans need to be created with suitable triggers before a drought takes place, so that a plan of action is already established and can go into effect when the appropriate triggers are reached.
- A thorough scientific assessment and cataloguing of water resources and water users must be conducted in order to facilitate necessary contingency plans. This would include the constant monitoring and end to end assessment of water quality and water quantity that would be available to all interested parties in real-time. This would facilitate the creation and updating of drought contingency plans to reflect current conditions.
- Where possible, the need exists for comprehensive watershed management. This would greatly facilitate a drought early warning process with subsequent triggers being a key part of this.
- Coordination and communication between all federal agencies is imperative. In turn, these agencies must understand the concerns of industry, user groups, state and local governments, and the public at large.
- The need for NOAA to improve its drought monitoring and drought forecasting skills is important. Conveying this information in products that the user can navigate and understand is equally as important.
- Possible creation of a concept of a state-led forum or council of states to develop a regional vision for integrated solutions to water resource challenges in these basins. This would be an opportunity to 1) reduce fragmentation; 2) establish more consistent approaches to water resource issues across the region; 3) to set some overarching regional water resource priorities; and, 4) to build a collaborative working relationship among the state and federal partners.
- A way of trying to measure the amount of water in each basin and how much is used, and by whom. Water supply planning must focus on the amount of streamflow in the upper basin.
- An improved method for monitoring the cumulative impact of the center pivot wells that are used for agricultural irrigation in the lower portion of each basin. The cumulative

impact of these wells can change the direction of ground-water flow. These withdrawals are currently largely unregulated. In addition, efforts must be intensified to provide incentives to agricultural producers to retrofit irrigation systems in order to conserve water.

- The importance of USGS Stream Gauges: Recent budgetary cuts have reduced the number of gauges and resulted in the maintenance of others being shifted to state and county entities who are also fiscally challenged.
- Public education to encourage the public to conserve water is needed. Comparisons were made to the US Forest Service “Smoky the Bear” ad campaign.
- The need for large metropolitan areas such as Birmingham and Atlanta to utilize best practices for conservation.
- Enactment of State Drought Plans: In 2004 with the input of the National Drought Mitigation Center (NDMC), the State of Georgia enacted a Drought Management Plan that authorized the state to impose restrictions on outdoor water use during time of drought. Alabama has put in place a similar type plan that has been successfully used operationally but has yet to be codified by the legislature.
- The tremendous growth in the agribusiness industry has complicated the implementation of state, county, and local water restrictions. This industry is significantly impacted by the implementation of watering restrictions.
- Research to calculate the time lag between drought onset and response in aquifers. This is extremely variable with the rate of decline increasing with the length of drought.