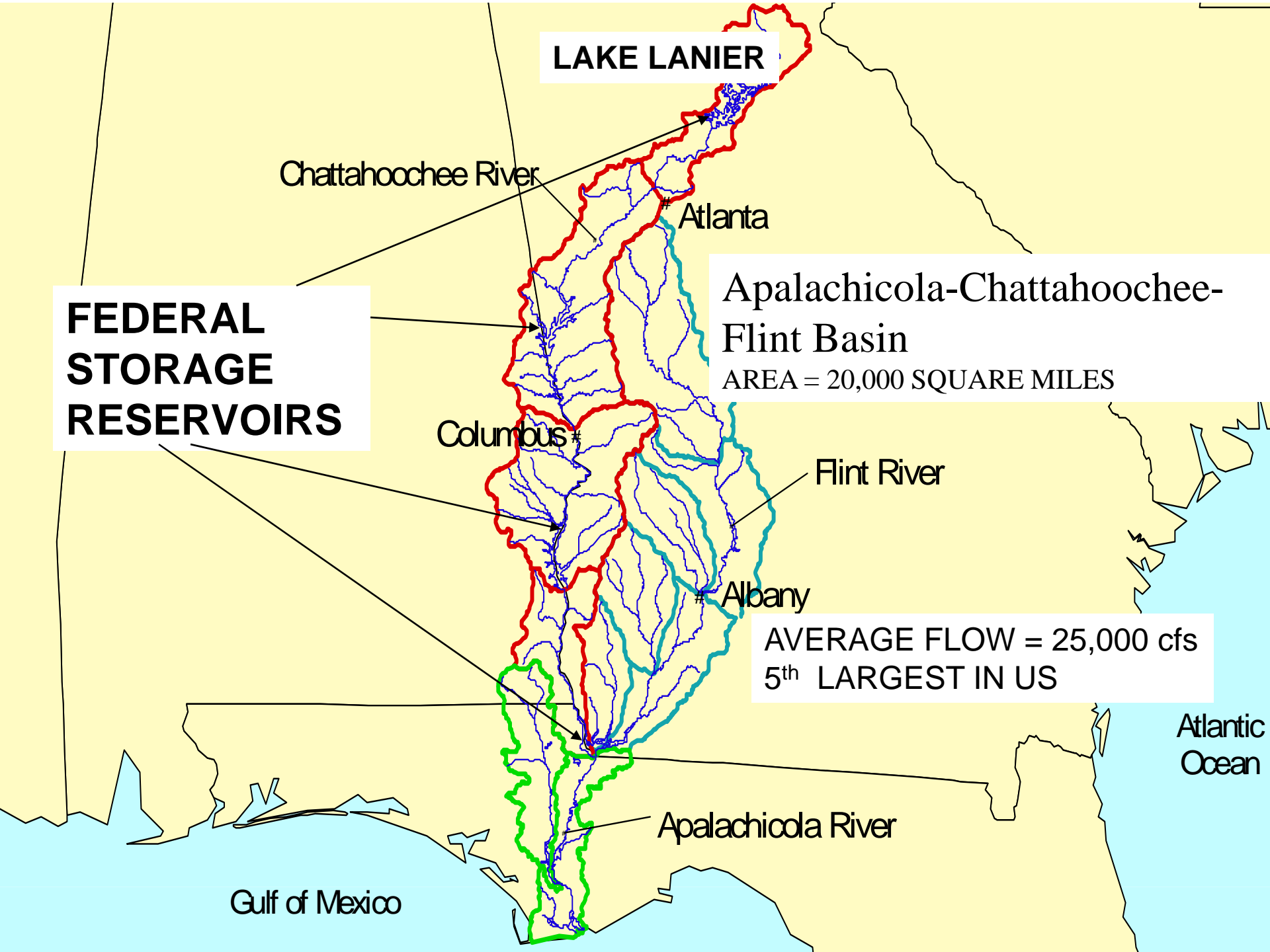


***SOME OBSERVATIONS ON THE  
MANAGEMENT OF THE  
APALACHICOLA-CHATTAHOOCHEE-  
FLINT (ACF) BASIN***

**By:**

**Steve Leitman**



**LAKE LANIER**

Chattahoochee River

Atlanta

**FEDERAL  
STORAGE  
RESERVOIRS**

Apalachicola-Chattahoochee-  
Flint Basin  
AREA = 20,000 SQUARE MILES

Columbus

Flint River

Albany

AVERAGE FLOW = 25,000 cfs  
5<sup>th</sup> LARGEST IN US

Atlantic  
Ocean

Apalachicola River

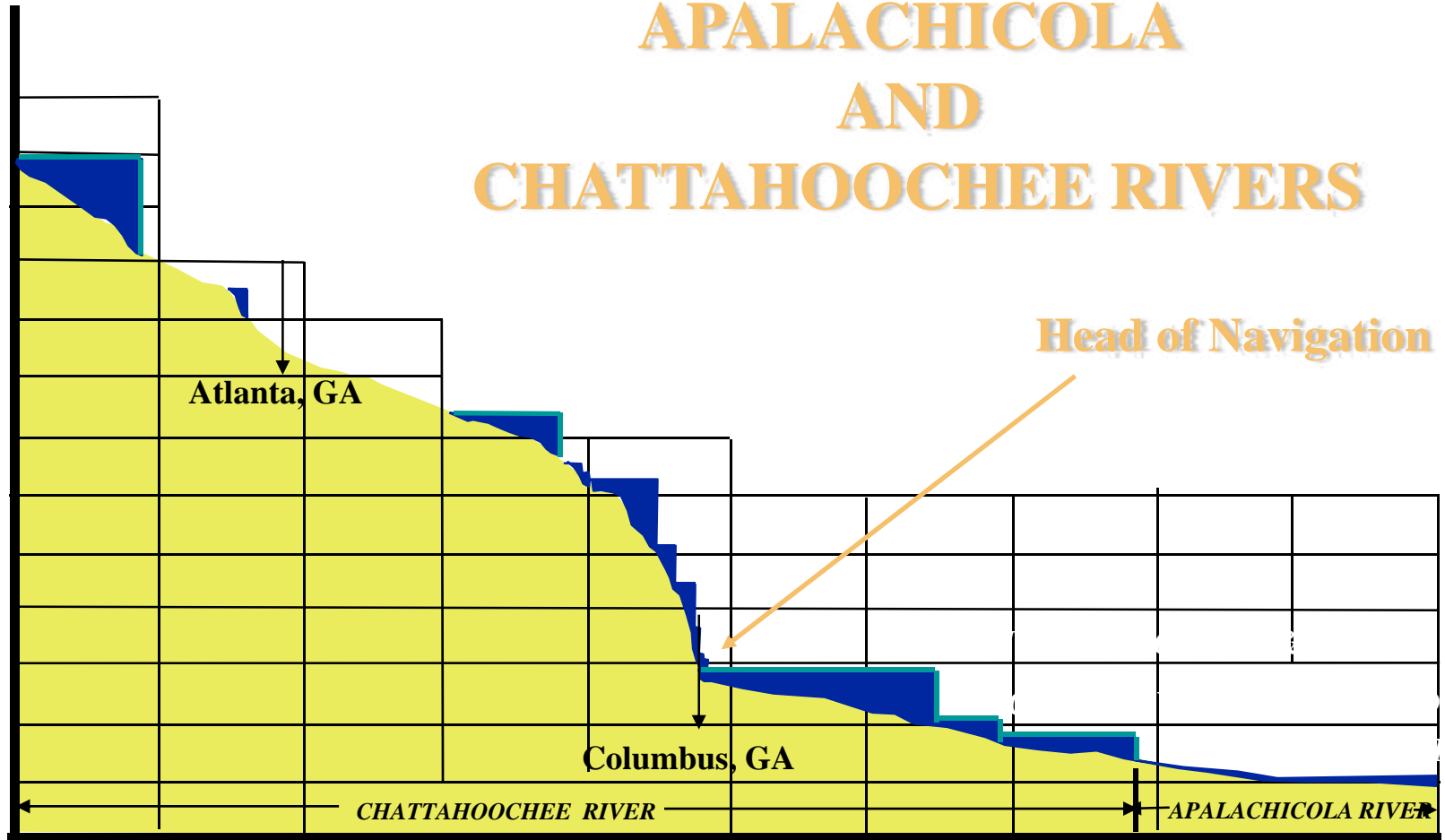
Gulf of Mexico



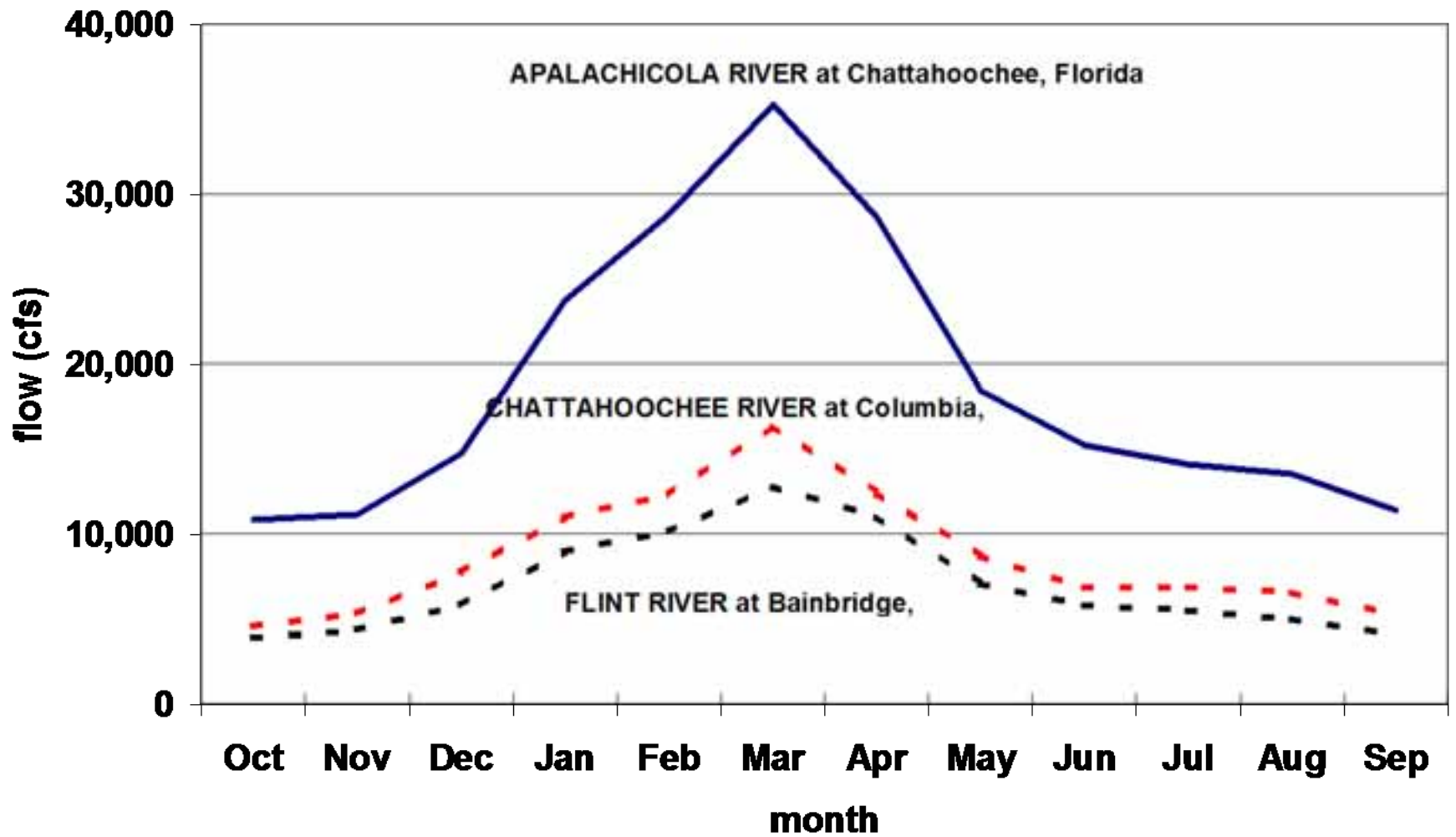
**THE APALACHICOLA RIVER**



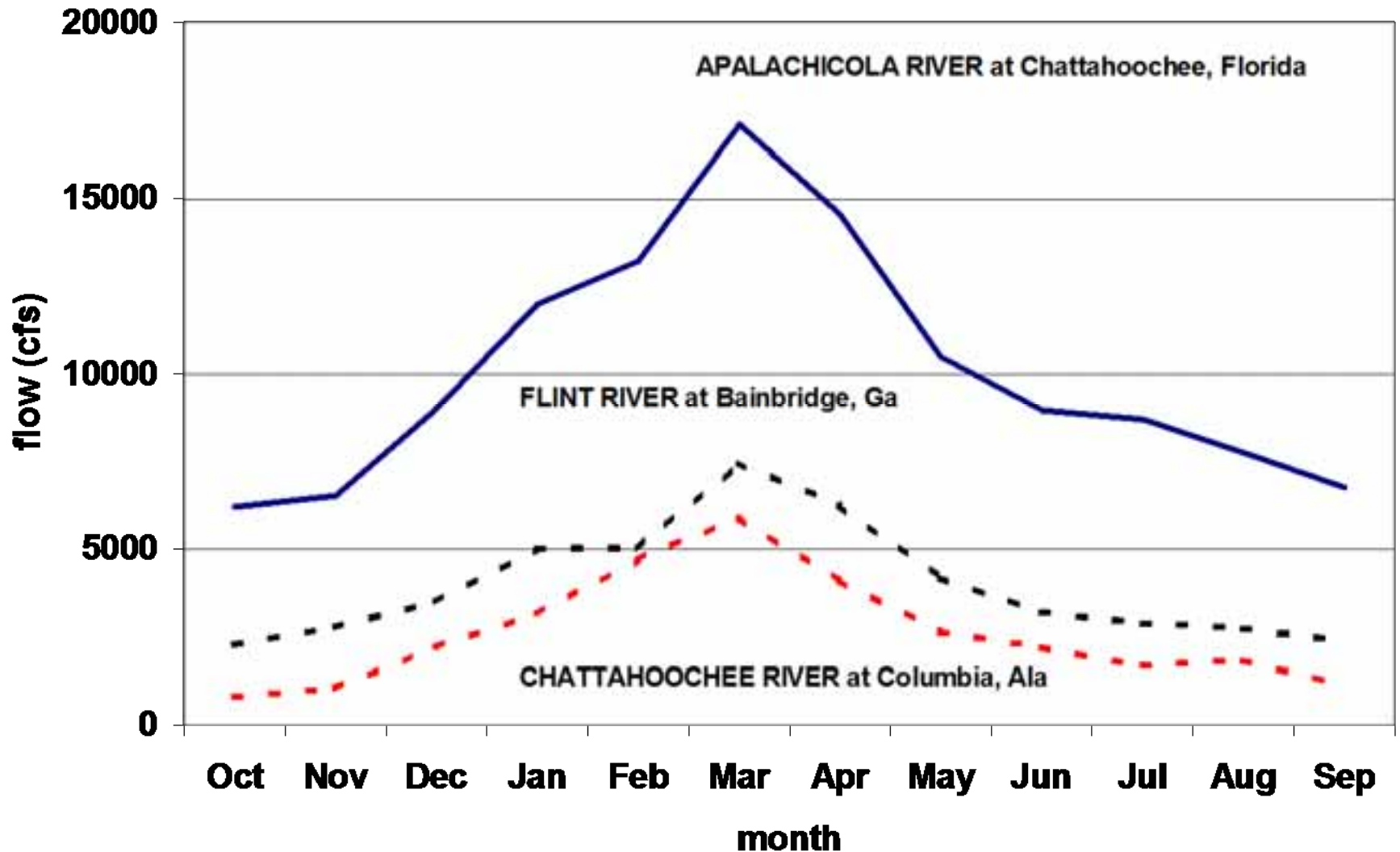
# PROFILE APALACHICOLA AND CHATTAHOOCHEE RIVERS



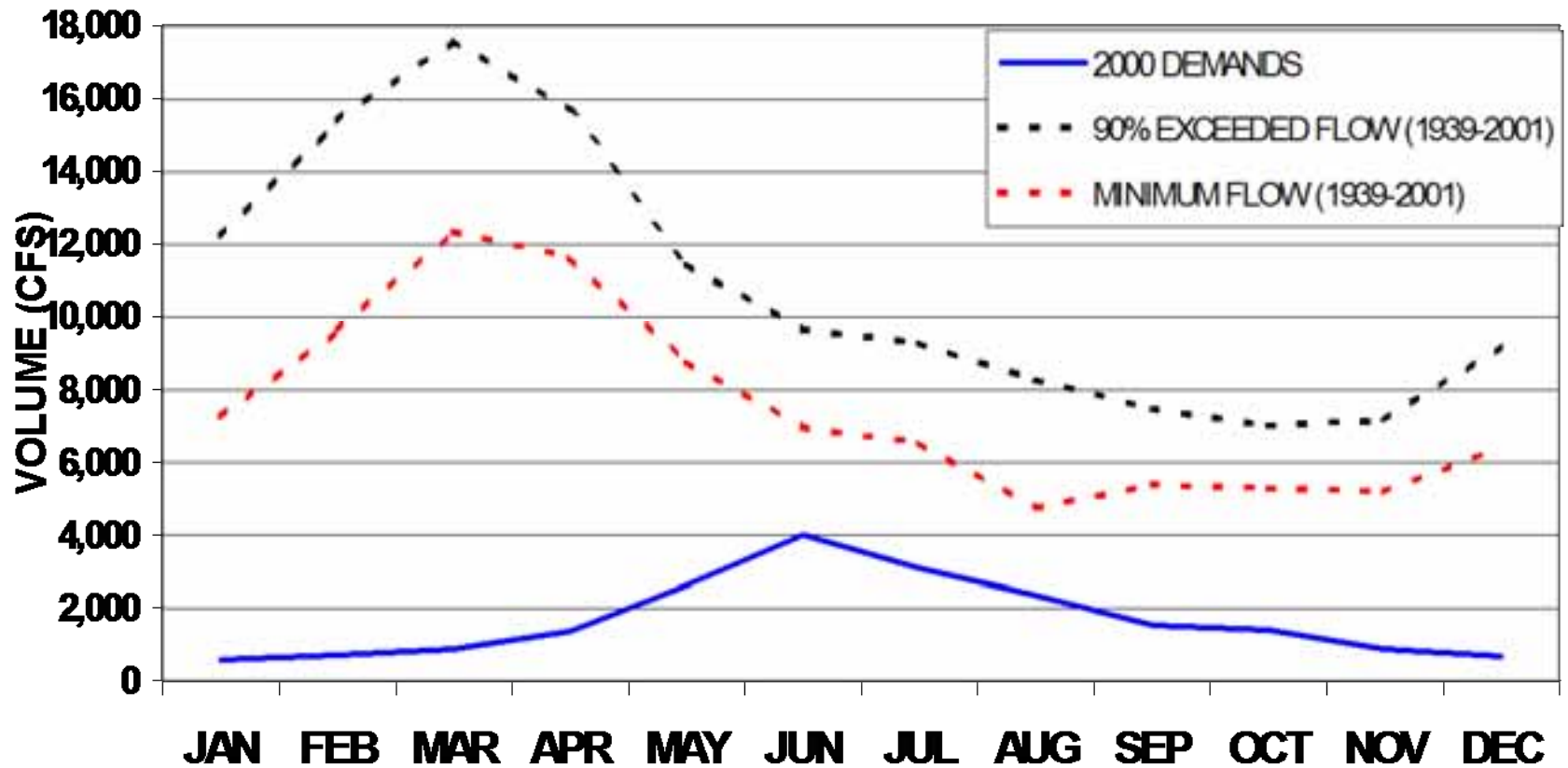
# Median Monthly Flows (1939-2001)



# Monthly Low Flows (90% Exceeded) (1939-2001)



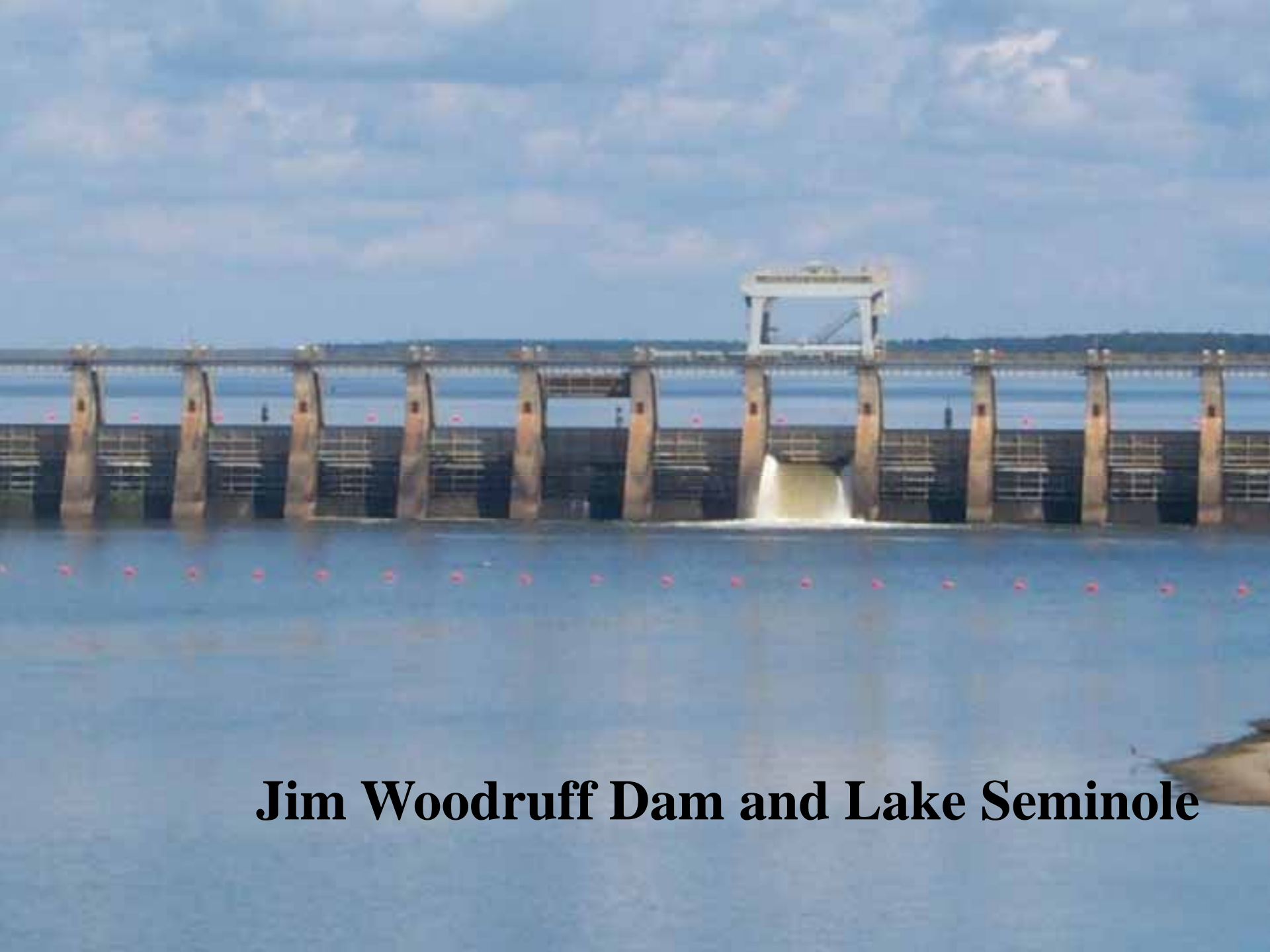
# TOTAL CONSUMPTIVE DEPLETIONS FROM FLINT AND CHATTAHOOCHEE BASINS





***A problem with water management in our society is that there seems to be an expectation that we can support infinite demands from a finite supply.***

***Although some speak to “market solutions” to such problems, the management of water seems to follow an economic paradigm of commonizing the costs and privatizing the profits, not that of a “free market”.***



**Jim Woodruff Dam and Lake Seminole**



# *THE ACF “WATER WARS”*

***In listening to my critiques of how the three states and federal government have handled the ACF issue it must be remembered that this effort was a prototype. Earlier Compacts did not deal with the issue of environmental flow needs.***

## **The ACF Basin Water Wars: A Brief History**

**1989:** Atlanta applies to the Corps for increased water withdrawals and Alabama sues the Corps. States already had contentious relationship over federal navigation project for over a decade.

**1992-1997:** Comprehensive Study of water use in the basin conducted after negotiated agreement.

**1998:** ACF Compact approved by Congress and three states requires development of a Water Allocation Formula by December 1998. First such Compact in the southeast and first in US since passage of major environmental laws in the 1970s.

**1999 – 2003:** Compact negotiation extended 14 times when agreement could not be reached by three States.

## **The ACF Basin Water Wars: A Brief History**

**2003:** Memorandum of Understanding between States on principles of Water Allocation Formula and then the termination of ACF Compact.

**2004-2005:** Multiple lawsuits relating to the ACF water management proceed through courts in Washington, D.C., Birmingham and Atlanta.

**2006:** Corps of Engineers and U.S. Fish and Wildlife present Interim Operating Procedures (IOP) for managing ACF reservoir system.



**2007:** Severe drought requires modifying IOP to include Emergency Drought Operations (EDO) as the Apalachicola River experiences record low flows and endangered species are threatened. Court case consolidated to single court.

**2008:** District Court of Appeals rules in favor of Florida and Alabama on case relating to water supply withdrawals from Lake Lanier. Georgia appeals decision. Corps of Engineers announce preparation of new Water Control Plan for ACF basin.

***To address basin wide water quantity issues in a multi-state basin in the U.S., there are four options:***

***1) A lawsuit through the U.S.  
Supreme Court,***

***2) Federal legislation requiring  
interstate management,***

***3) Creating an Interstate Water Compact, and***

***4) Pretend you have no problems and pass them on to unsuspecting future generations.***

**OBSERVATION 1: *IT TAKES A CRISIS OR MAJOR EVENT TO INITIATE AN EFFORT TO MAKE A SIGNIFICANT CHANGE IN THE MANAGEMENT OF A WATERSHED. THE 1989 LAWSUIT PROVIDED THIS INCENTIVE.***

***CRISIS CAN BE SEEN AS AN  
OPPORTUNITY FOR CHANGE.  
JUST BE PATIENT BECAUSE THE  
NEXT CRISIS IS ON ITS WAY AND IF  
YOU HAVE A VISION DURING A  
CRISIS OF WHAT TO DO YOU  
TYPICALLY ARE THE ONLY ONE.***

***In the ACF Compact legislation, the three States were required under the Compact to negotiate an Allocation Formula instead of including such a formula in the Compact legislation.***

**OBSERVATION 2: *WE NEED TO  
LEARN FROM OUR FAILURES, NOT  
HIDE FROM THEM OR PRETEND  
THEY ARE NOT OCCURRING.***



***In Working Through Environmental Conflict, Daniels and Walker have defined a fundamental paradox in making water decisions which is applicable to the ACF situation:***

***The paradox is that although citizens demand technically sound decisions and their involvement, as situations become more complex, fewer people have the technical competence to either contribute to the decision or even critique the decision.***

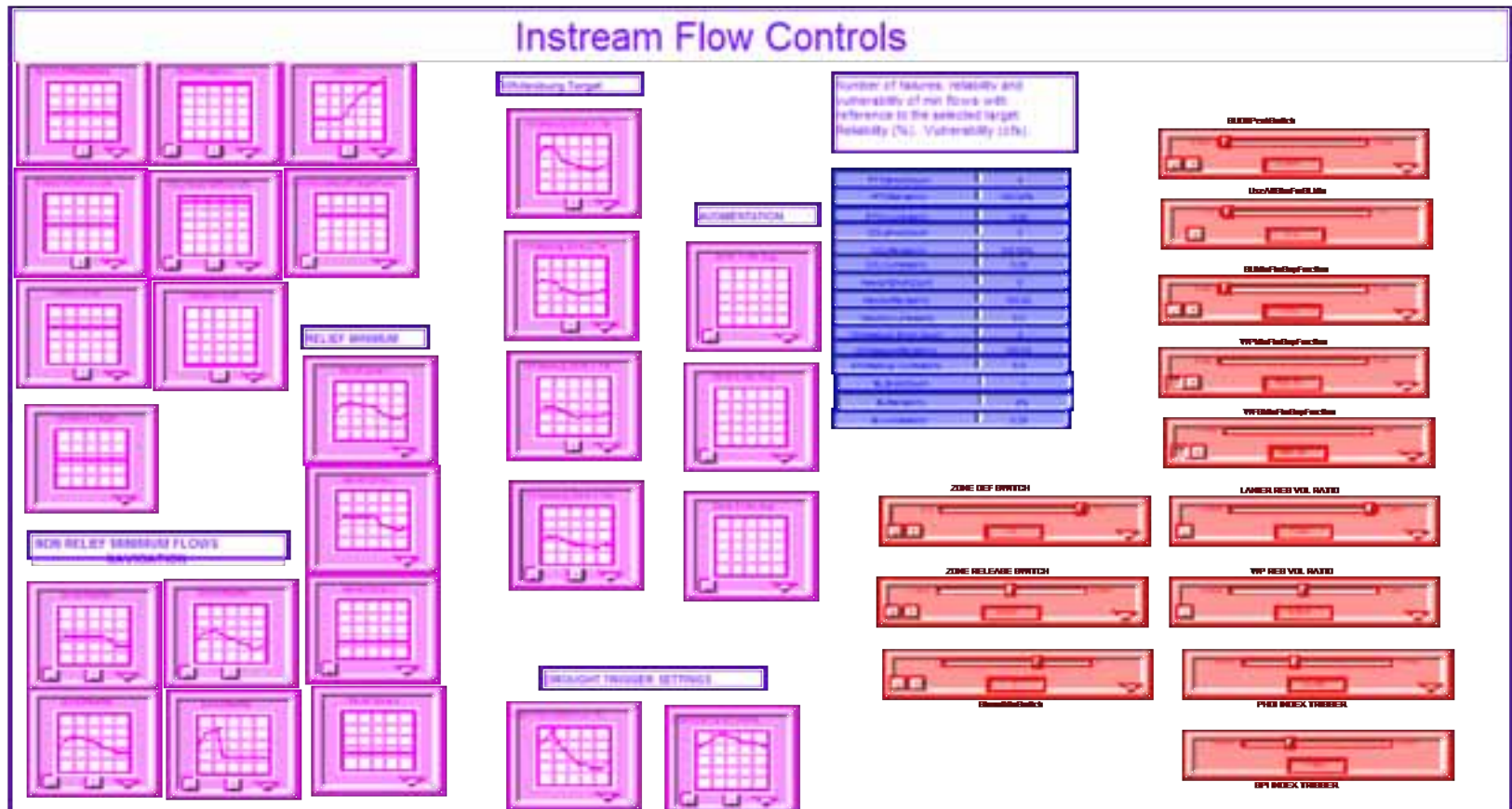
***It is a curious fact that the university community was for the most excluded from this complex decision-making process, although in hindsight it is obvious that the expertise in the university system would have been helpful.***

**OBSERVATION 3: *MANY OF OUR PROBLEMS ARE IN THE PROCESS, NOT IN THE AVAILBILITY OF ADEQUATE INFORMATION OR KNOWLEDGE.***

***To illustrate this problem I want to discuss the response to several issues. The first is the use of models in the process and the second the lowering of Lake Lanier in the summer of 2007.***

# **EXAMPLE 1**

## **THE USE OF MODELS IN THE PROCESS**



**WATER MANAGEMENT MODELS WERE CREATED IN BOTH STELLA AND HEC-5**

# Vertical Cross-section of Salinity on an Ebb and Flood Tide

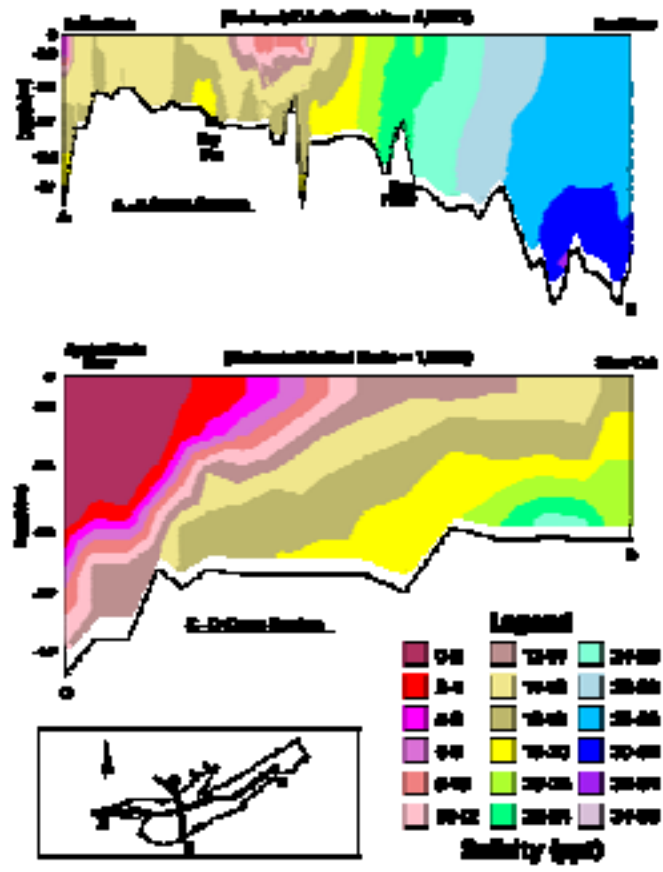


Figure 10.10: Average monthly salinity distribution on an ebb tide.

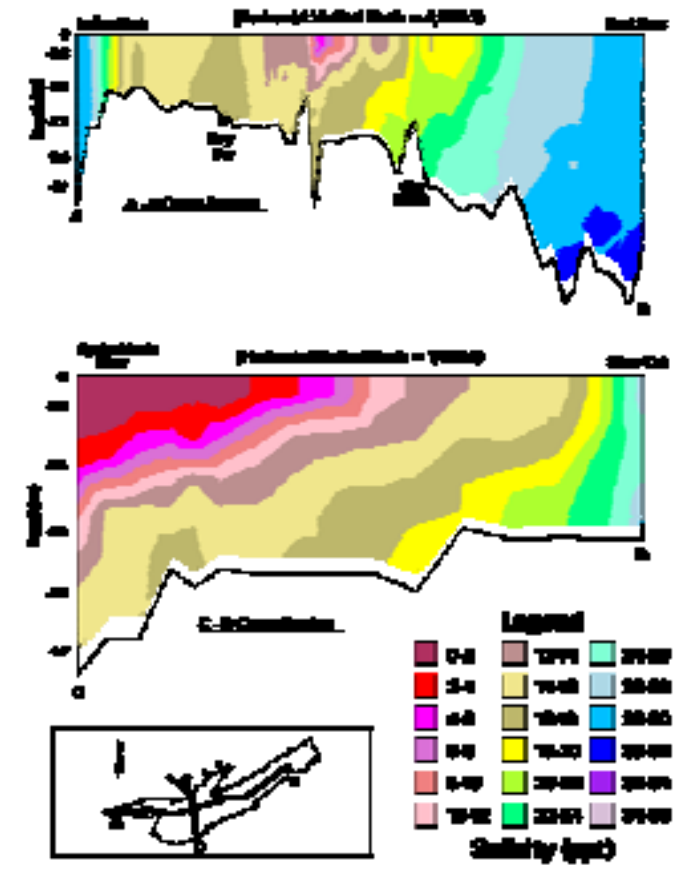


Figure 10.11: Average monthly salinity distribution on a flood tide.



**OBSERVATION 4: *IT OFTEN ASSUMED THAT TECHNICAL PEOPLE KNOW EVERYTHING THERE IS TO BE KNOWN TO EFFECTIVELY MANAGE A WATERSHED. THEY JUST NEED TO BE ASKED THE RIGHT QUESTION.***

***LEARNING AND ADAPTING  
MANAGEMENT EFFORTS TO WHAT  
IS LEARNED MUST BE PART OF  
THE PROCESS.***

**OBSERVATION 5: *DEFINING HOW TO EVALUATE OUTPUT FROM MODELING EFFORTS IS JUST AS CHALLENGING AND DIFFICULT AS DEVELOPING MODELS TO SIMULATE THE SYSTEM.***

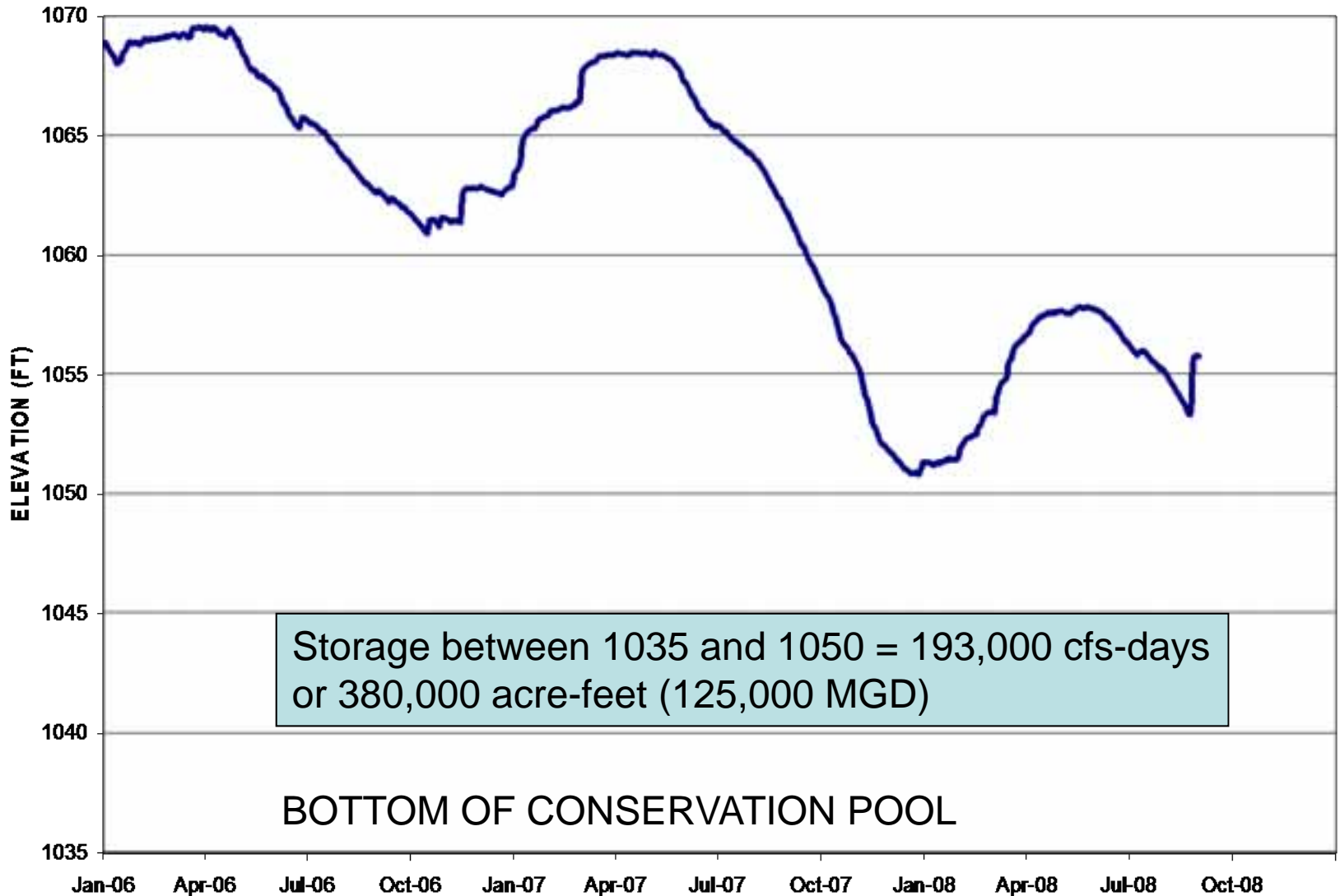
# EXAMPLE 2

## THE DROPPING OF ELEVATIONS AT LAKE LANEIR



**IN 2006-2008 THE ACF BASIN HAS EXPERIENCED A MAJOR DROUGHT EVENT**

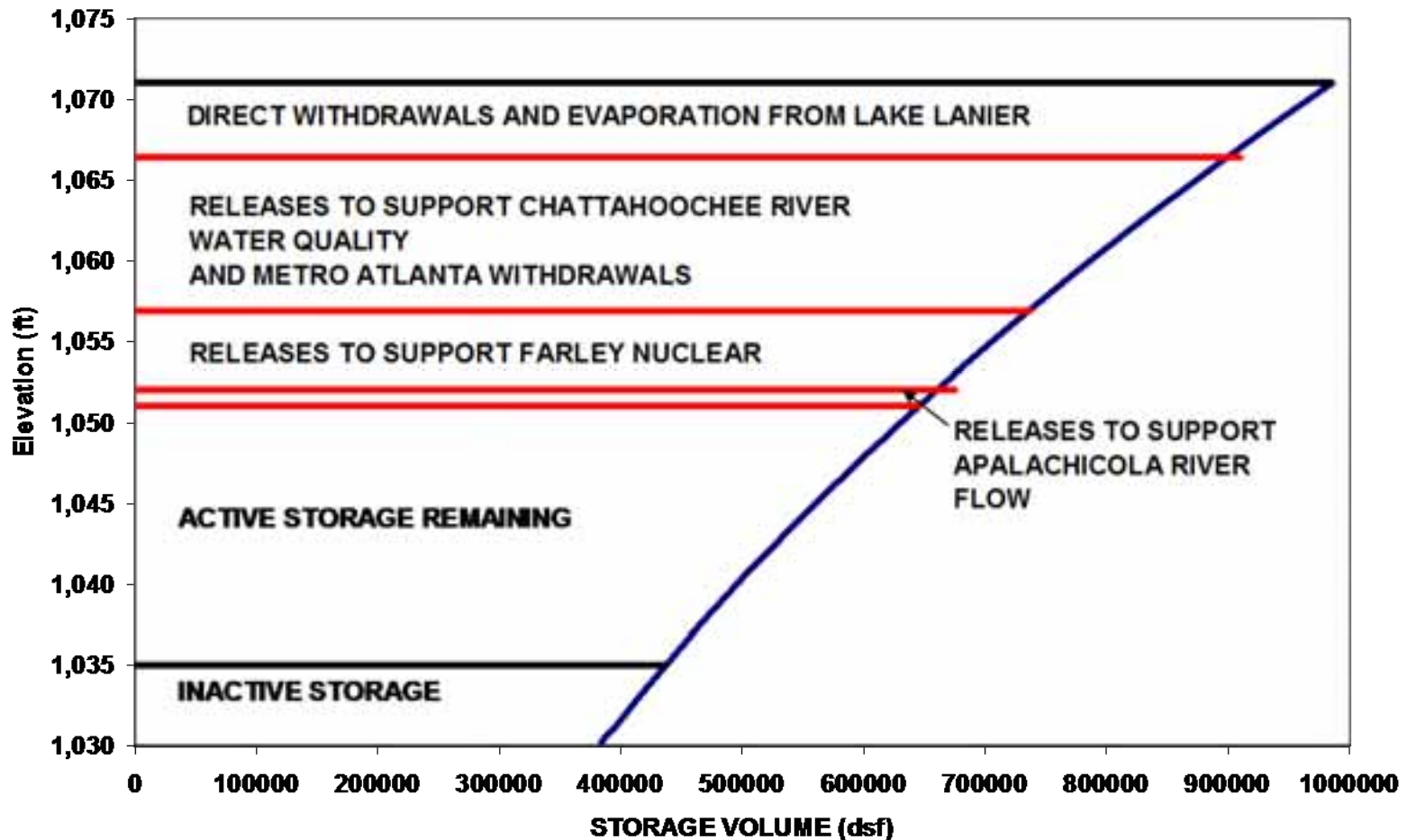
# LAKE LANIER ELEVATIONS (2006 - 2008)



# **GEORGIA RESPONSES TO** **DROUGHT**

- 1. Prayer meetings***
- 2. Move border north***
- 3. Reduce downstream flows***

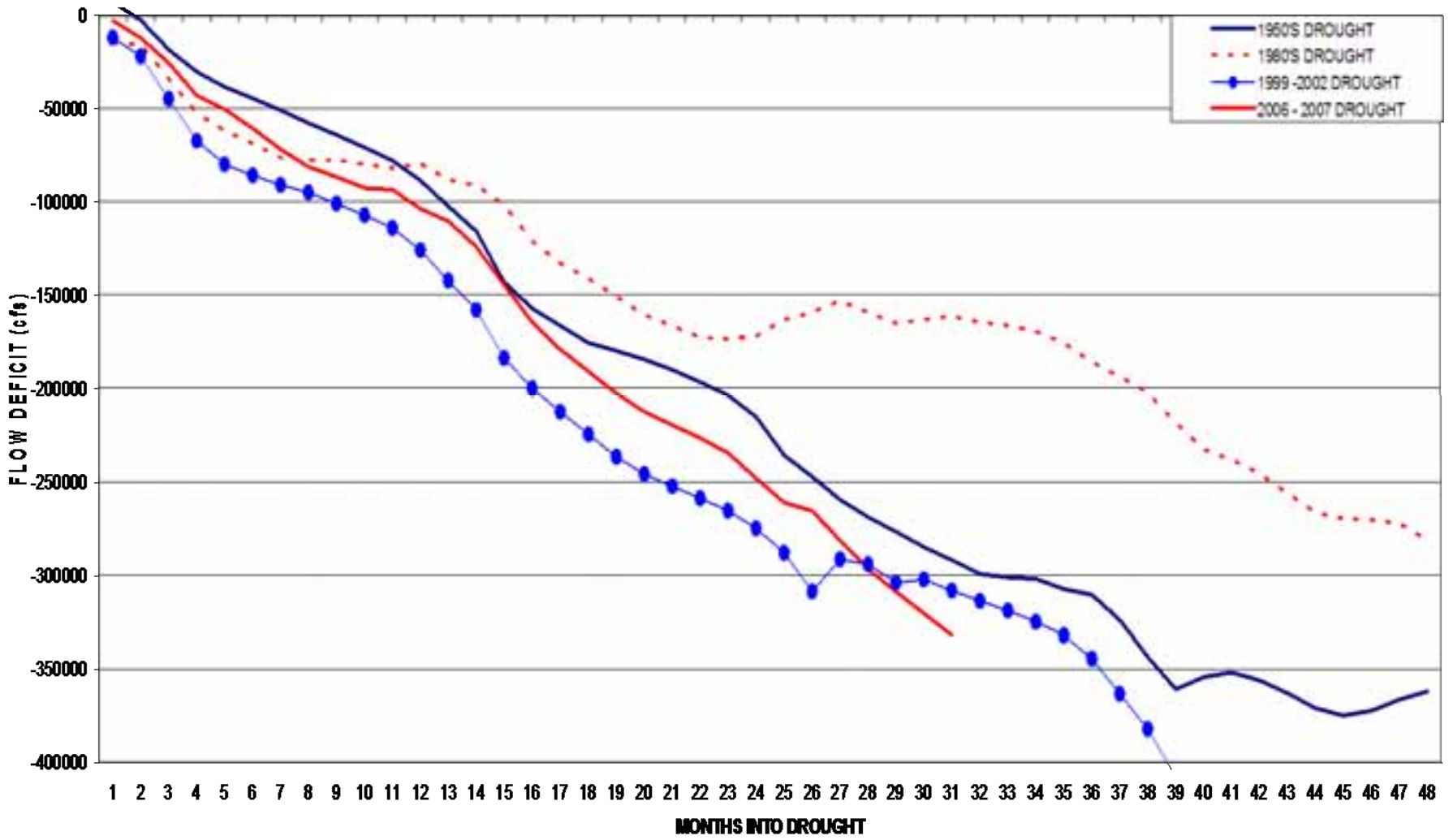
## PRO-RATING OF CAUSAL FACTORS FOR CHANGES IN LANIER ELEVATION IN 2007



**70% OF THE DRAWDOWN CAN BE ATTRIBUTED TO THE METRO ATLANTA REGION AND <10% TO RELEASES TO APALACHICOLA RIVER**



### SUMMARY OF CUMULATIVE FLOW DEFICIT FROM AVERAGE OBSERVED FLOW DURING MAJOR DROUGHT EVENTS



# COMPARISON OF CUMULATIVE PRECIPITATION DEFICITS DURING 1950s AND CURRENT DROUGHTS



***Georgia governmental interests  
have contended that Georgia has  
not impacted flows in Florida.***

**OBSERVATION 6: IN AMERICA, WE  
ALSO NEED TO USE OUR  
TRACTORS APPROPRIATELY.**

***For the balance of this presentation I would like to focus on the reasons for the termination of the Compact negotiations and where to go in the future to address these observations.***

***A major reason for the termination of the Compact was a breakdown in trust among the negotiating parties.***

***This breakdown in trust was caused  
by multiple factors including:***

***1. The insertion of new data and information into the negotiating process which was not put through the same collaborative process as was called for in the Comprehensive Study.***



***2. The State of Georgia entering into a negotiated agreement on litigation which involved use of the storage pool at Lake Lanier while simultaneously being involved in negotiations on the Allocation Formula for use of the same water.***

***3. The process for developing and content of a Memorandum Agreement in 2003 which was intended to define the boundaries of an acceptable agreement.***

***Another major problem was the negotiators failure to define what constituted a successful agreement.***

***This created the dilemma where there was ample data and tools to evaluate alternative Allocation Formula alternatives, but no agreed upon standards to evaluate results against.***

***Deciding on what constitutes an acceptable results is a policy decision that needs to be made by negotiators and policy decision-makers, not a decision to be left to technical staff developing and running models.***

***Many of the process problems in the Allocation Formula negotiations could possibly have been avoided if there had been a neutral facilitator or mediator who was responsible for the negotiation process.***

WHERE TO FROM HERE?

***1. The boundaries of an interstate agreement need to be defined by the three states (e.g. environmental flows for the Apalachicola River, acceptable reservoir elevations, etc.)***



***2. A group of technical people need to define multiple options of reservoir management and demand management using modeling tools to meet defined boundaries.***

***3. A program to monitor system performance and implementation of agreements to be established and sustained.***

***4. The limits of the system need to be understood and adhered to and the paradigm of commonizing the costs and privatizing the profits abandoned.***