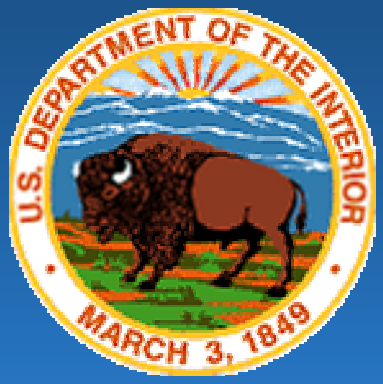
Instream Flow Issues and Information Needs in the Apalachicola-Chattahoochee-Flint River Basin of Alabama, Florida, and Georgia



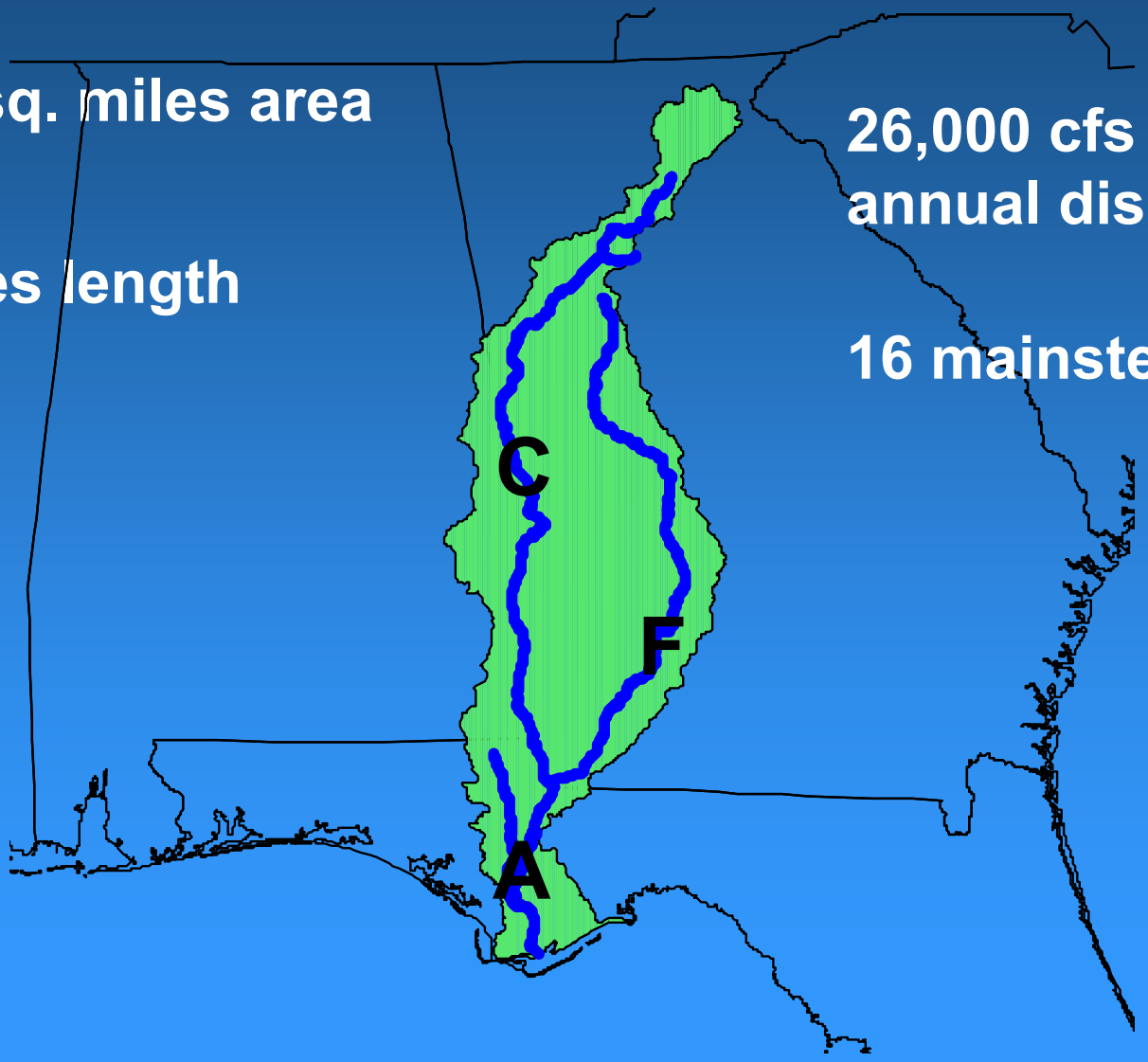
Apalachicola-Chattahoochee-Flint Basin

19,800 sq. miles area

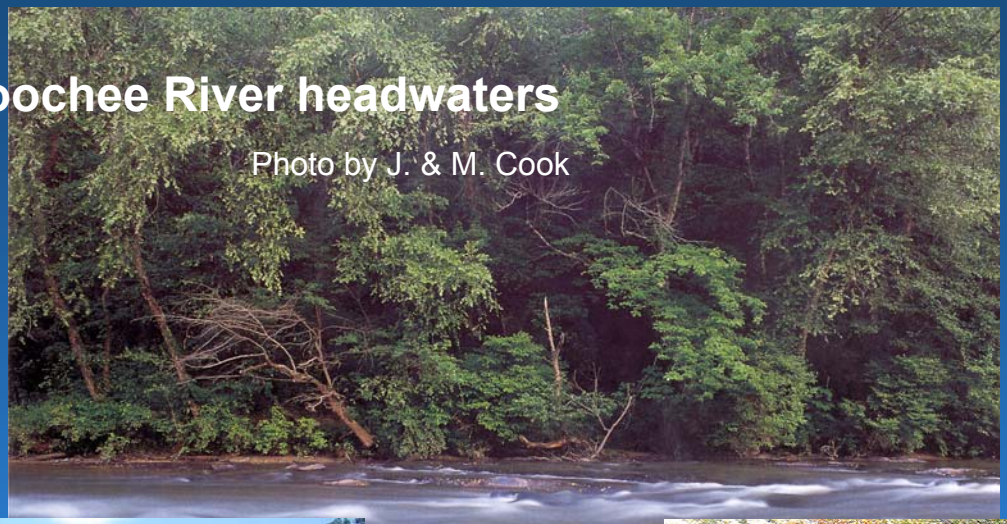
540 miles length

26,000 cfs avg. annual discharge

16 mainstem dams



ACF Basin Aquatic Habitat Diversity

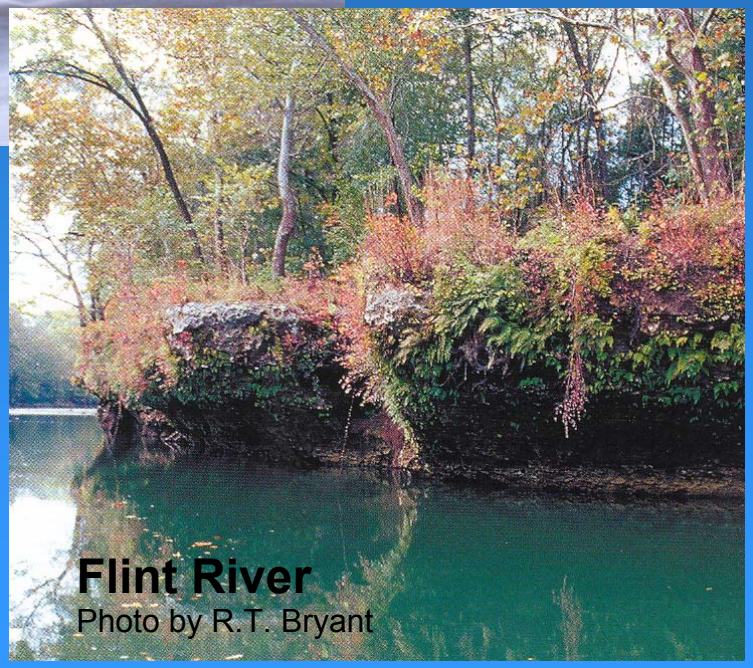


Chattahoochee River headwaters

Photo by J. & M. Cook

Apalachicola River

Photo by J. Ziewitz



Flint River

Photo by R.T. Bryant

Apalachicola-Chattahoochee-Flint Basin

Aquatic biodiversity resources

Fish: 122 species

Mussels: 29 species

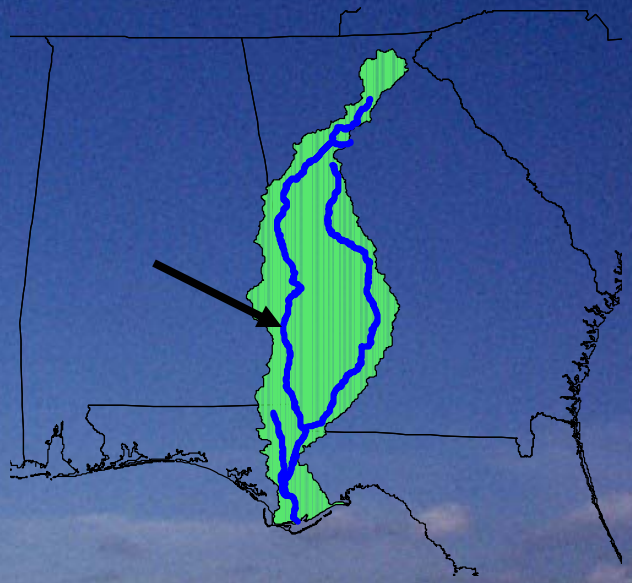
Crayfish: 30 species

Highest US density reptiles & amphibians

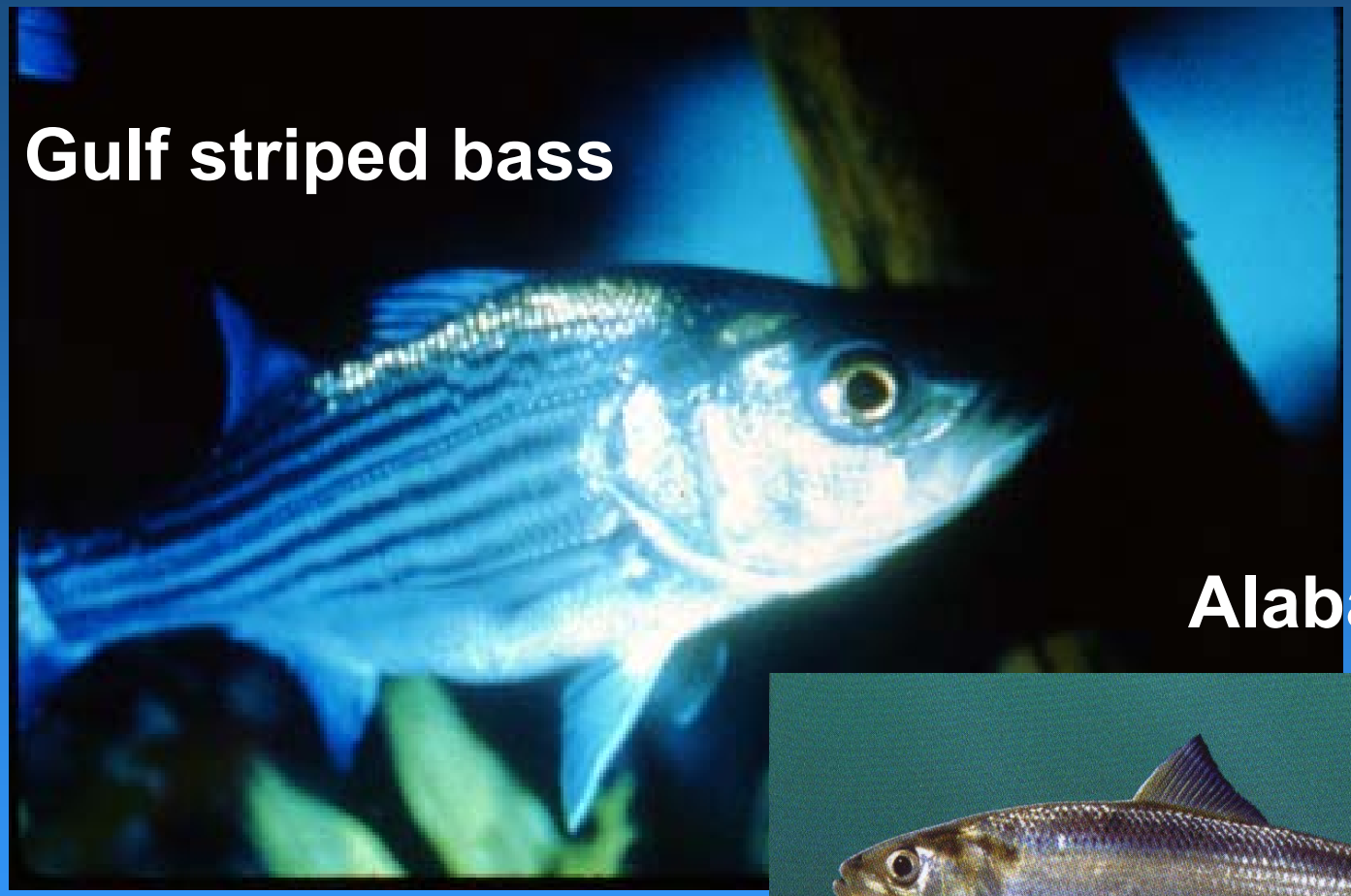
Estuary one of most productive fisheries in North America

Upper Flint 214 miles without a dam

Walter F. George Lock & Dam
Chattachoochee River

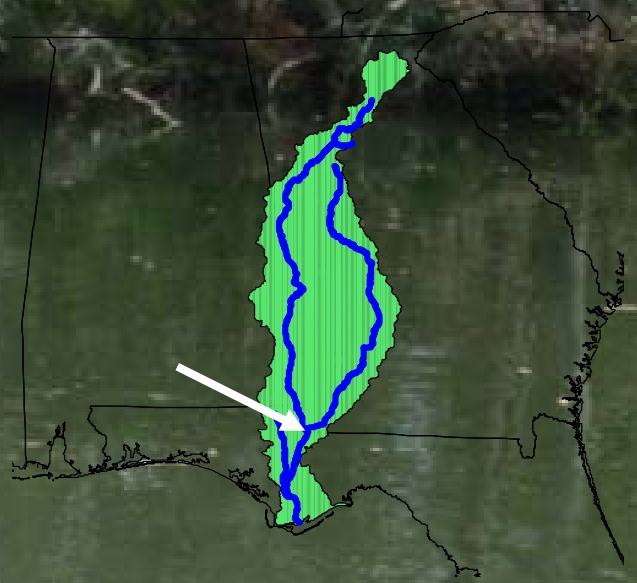


Anadromous Species

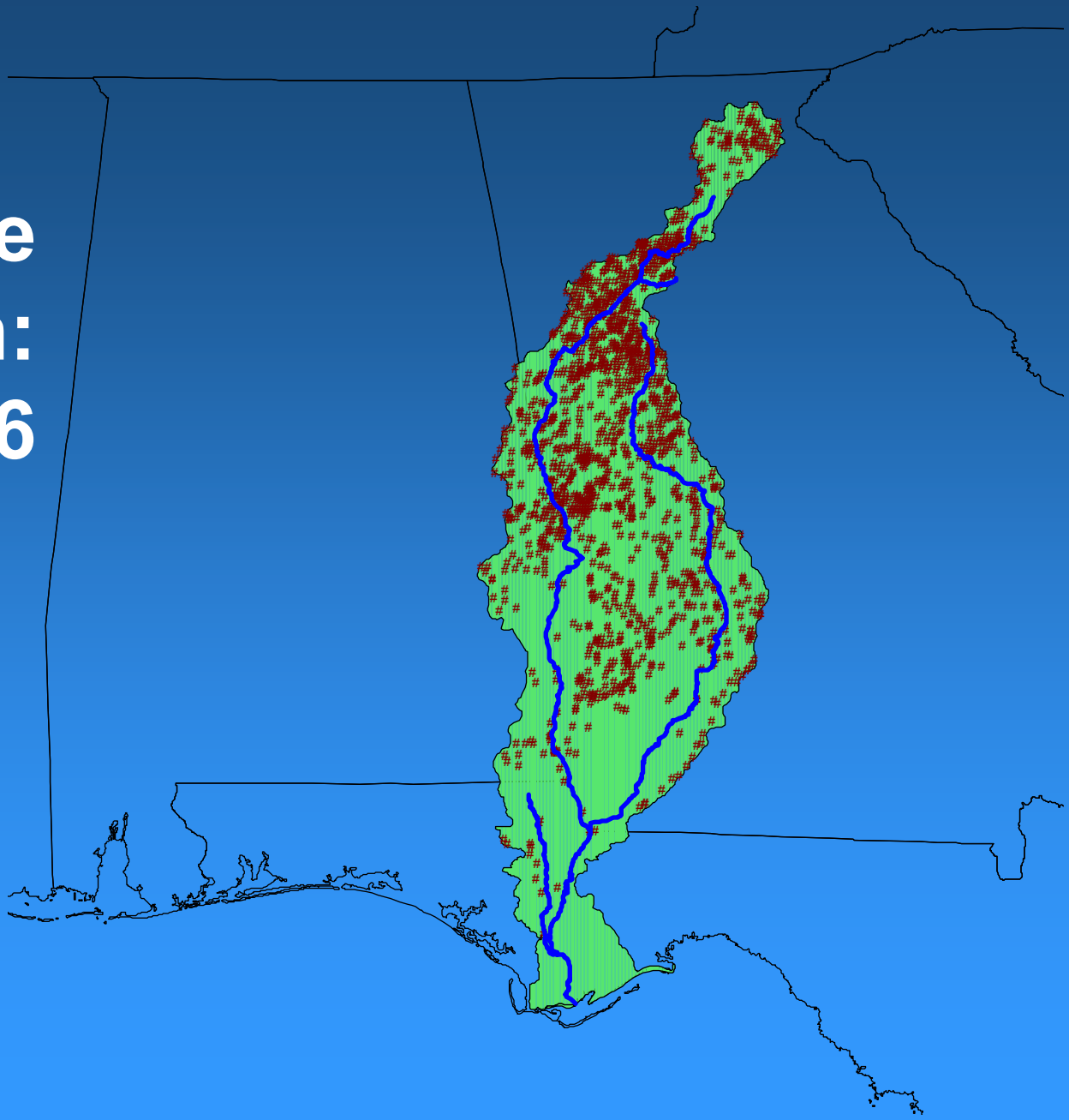


Alabama shad

Gulf sturgeon



Dams in the ACF Basin: 1426




Flint River near site of proposed
intake for Griffin water supply reservoir
located on small tributary
14. 10. 2000


Oval pigtoe (Pleurobema pyrifome)
(federal endangered) collected from Flint River
near site of proposed intake for Griffin Reservoir
14. 10. 2000


Collecting dead mussels
Spring Creek
Summer 2000


Shiny-rayed pocketbook
Lampsilis subangulata
Federal endangered
Spring Creek
Flint River Basin
Summer 2000

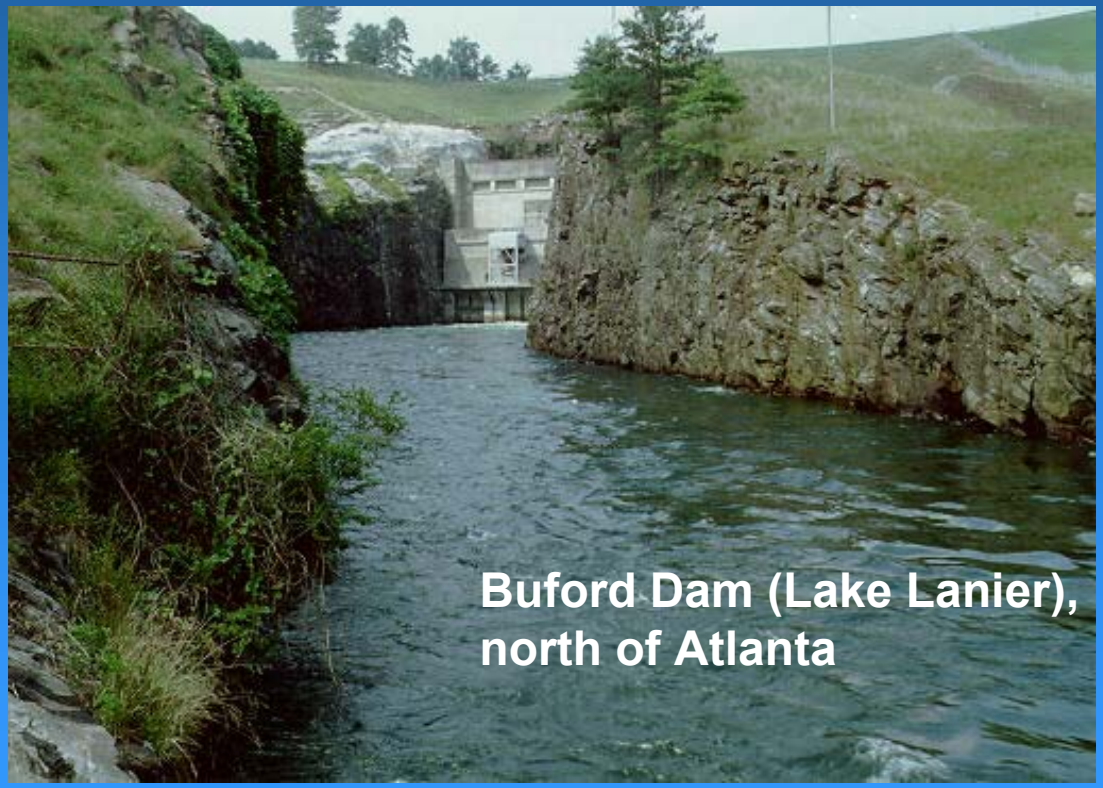
ACF Basin Water Compact

- Congress passed Public Law 105-104 in 1997.
- Purpose: equitable apportionment of the surface waters of the basin while protecting its water quality, ecology, and biodiversity
- Compact did not specify the apportionment.
- A Commission was empowered to negotiate and then administer an apportionment.
- Failing unanimous agreement within time frame, the Compact terminated in 2003.

Principal Focus of the ACF Compact Allocation Formula Negotiations

Federal reservoir operations for water supply and minimum flow

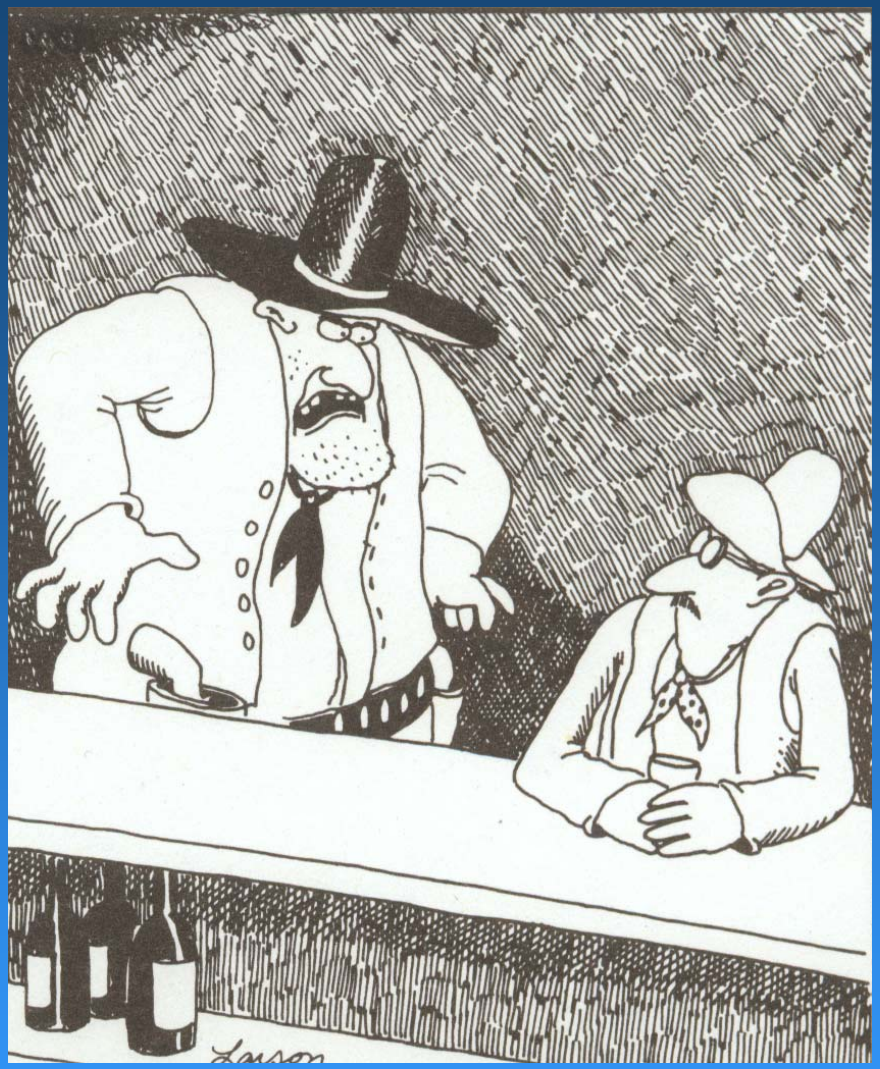
Limitations on operations for hydropower and navigation



Buford Dam (Lake Lanier), north of Atlanta

Negotiations Did Not Focus Much On:

Allocating water for intra-state consumption



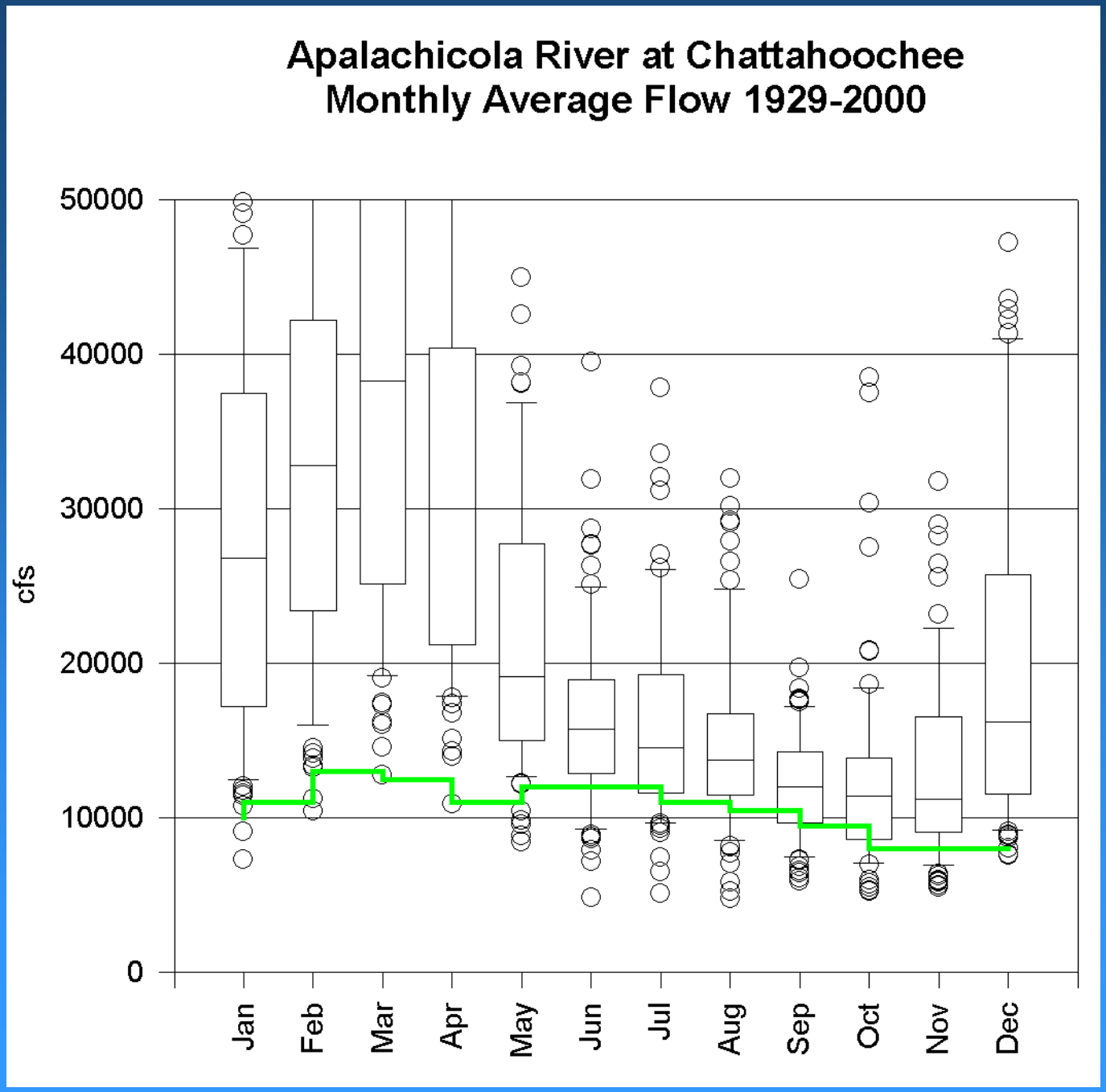
“I asked you a question buddy, what is the minimum flow we need for the 122 fish species in the ACF Basin?”

“….rather than optimizing water regimes for one or a few species, a better approach is to try to approximate the natural flow regime that maintained the entire panoply of species.”

-- Richard Sparks

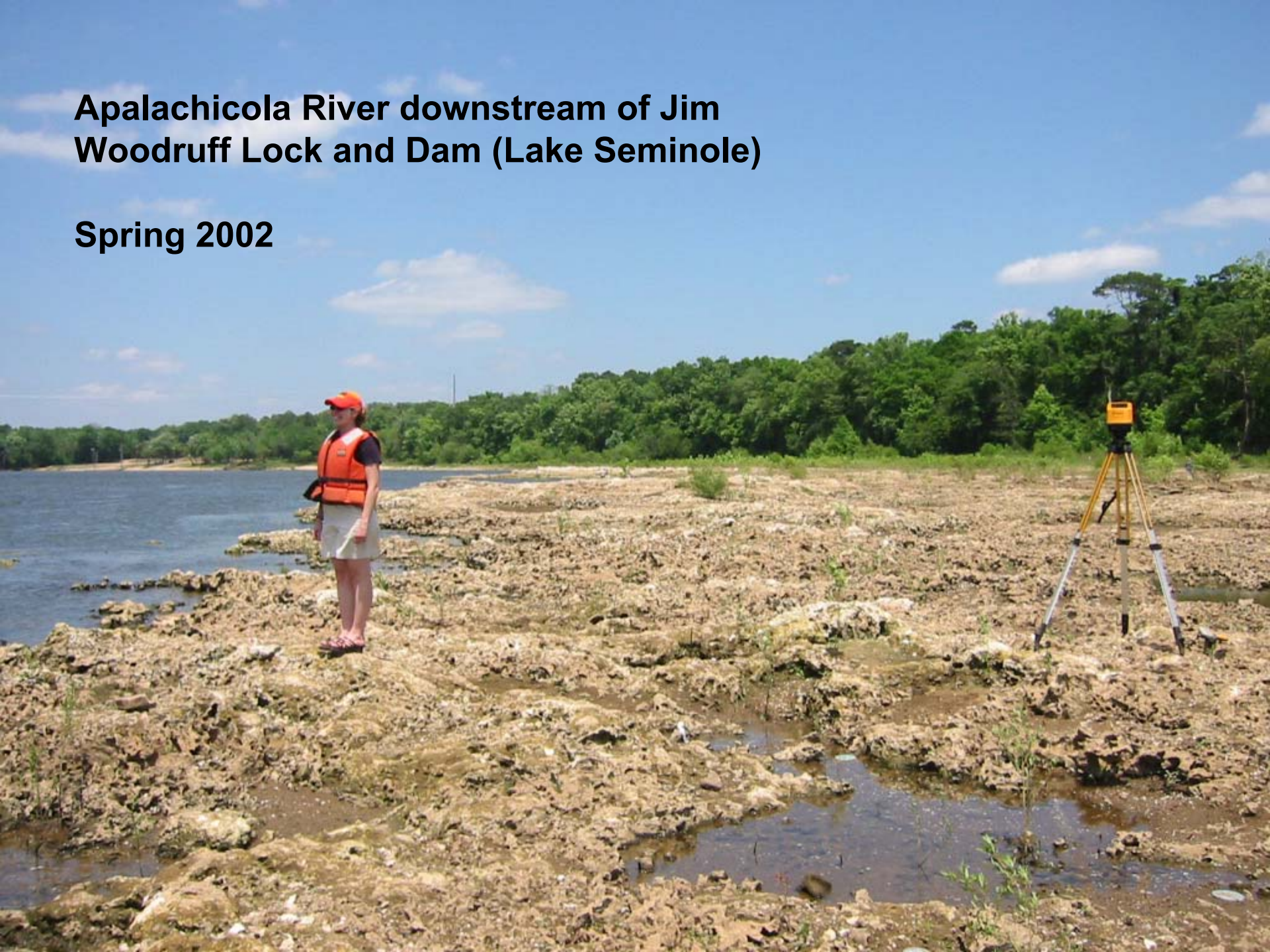
“The full range of natural intra- and inter-annual variation of hydrologic regimes, along with associated characteristics of timing, frequency, duration, and rates of change, is necessary to sustain native biodiversity and evolutionary potential of freshwater ecosystems”

-- Richter et al. 1997



Proposed minimum monthly flow when federal reservoirs full and drought not declared


Gulf sturgeon
Federal status:
Threatened
Critical Habitat Designated


Apalachicola River downstream of Jim Woodruff Lock and Dam (Lake Seminole)
Spring 2002

Other limiting factors?

- Habitat utilization of Y-O-Y sturgeon not yet studied on Apalachicola.
- Suwannee River studies suggest that flow during first fall/winter after spawning may influence recruitment more than flow during spring.

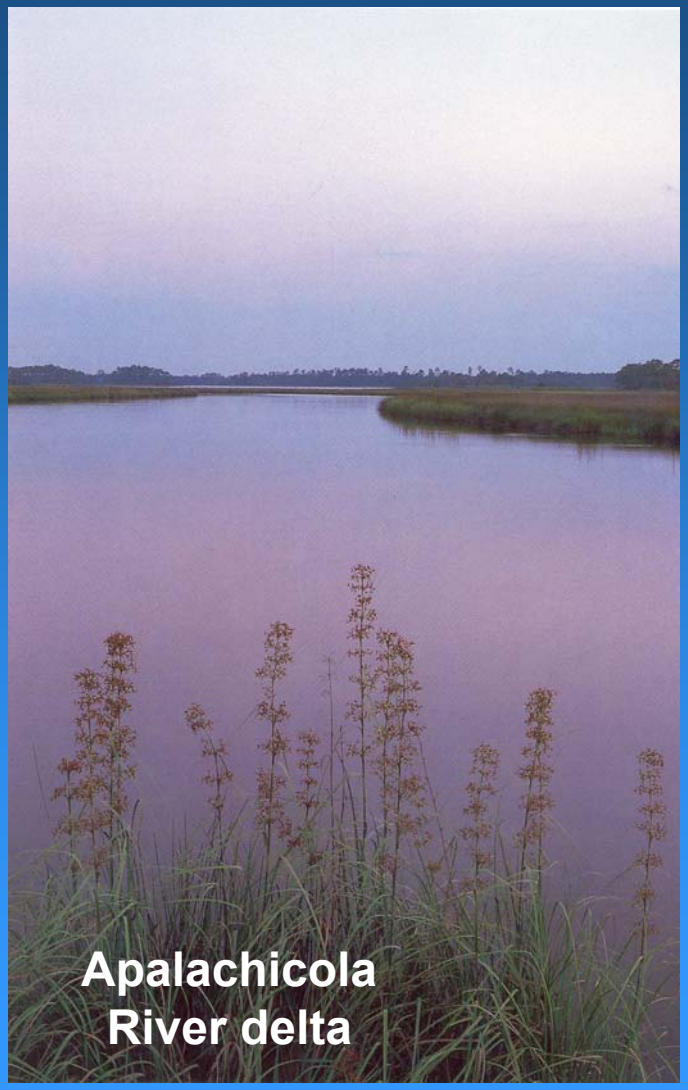


Photo by J. & M. Cook

ACF Instream Flow Guidelines

- Identified several biologically relevant flow regime parameters.
- Estimated values of these parameters for the natural flow regime and the current flow regime at various locations in both basins.
- Did not specify threshold values for protection or for too much alteration.

An Instream Flow Prescription Should Represent:

- A societal choice.
- A balance between desired ecological integrity of a stream and desired human uses of that stream.
- A work in progress.

Federal Concept for an ACF Water Allocation Formula

- A feasible balance between anticipated human uses and retaining important natural flow regime features.
- Maximum depletions by state and sub-basin.
- Minimum state-line flow by month and by climatic condition.
- Adaptive process for adjusting water management actions over time.

ACF: What Next?

- Must still seek instream flow prescriptions that achieve a feasible pairing of desired human uses and desired ecological health.
- Must still develop an adaptive water management process (monitoring and evaluation framework) for reservoir operations, state water permitting programs, drought plans, etc.