Colonel Byron G. Jorns
District Commander
U.S. Army Corps of Engineers
Mobile District
107 Saint Francis Street
Suite 1403
Mobile, AL 36602-9986

RE: Comments regarding the updated Water Control Plan

Dear Colonel Jorns:

Thank you for the opportunity to comment as part of the Corps' revision of the Water Control Plan ("WCP") for the ACF system. Please consider the contents of this letter as comments from the approximately 4,000 individuals and businesses represented by the Lake Lanier Association.

The Lanier Regional Economy Must Be Preserved

A regional economy of more than $5.5 billion has grown up since the 1950's around Lake Lanier. The lives and livelihoods of thousands of people are tied to maintaining Lake Lanier at a water level that supports the lake-based economy that has become the lifeblood of the region surrounding Lanier. The operations that the Corps defines in its new WCP must be designed to preserve and protect that economy and the people whose lives depend on it by maintaining the highest possible water level in the Lake. The comments in this letter address ways in which we believe the Corps should design its WCP to safeguard and maximize the benefits Congress intended through the construction of Buford Dam and the resulting creation of Lake Lanier.

Institute Lake Lanier-Specific Management Triggers

The Revised Interim Operating Plan ("RIOP") currently in place contains no Lake Lanier-specific trigger points for storing or releasing water. It is possible for the composite storage level of all reservoirs to be in Zone 3 or even higher while Lanier is still in Zone 4 due to its much slower refill rate. Downstream reservoirs not only naturally refill much more rapidly than Lanier, they do so even more quickly when rainfall is greater in the ACF watershed south of Buford Dam than north of it. This makes it not only possible but highly probable that the other ACF reservoirs will recover fully while Lanier is still as low as Zone 4, as has happened through much of 2008. The RIOP provides for specialized management of West Point Lake and Lake Walter F. George by allowing temporary storage above the winter pool rule curve under certain conditions. The new WCP should incorporate specialized provisions for managing Lake Lanier that reflect its distinctive characteristics and management needs. Without them, Lake Lanier is destined to be disproportionately impacted by draw-downs for downstream management, without an ability to remain near full pool or to refill.

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We request that the new WCP include provisions that will allow the retention of basin inflow above Buford Dam to the maximum extent possible under all conditions. The purpose of this is to allow Lake Lanier to realize the benefits intended for it under the original authorizing legislation by remaining at or near full pool whenever possible. This can best be accomplished with Lake Lanier-specific management triggers that are independent of the triggers for the entire ACF system. We request that the new WCP incorporate Lake Lanier-specific management triggers that will maximize water storage in Lake Lanier when it falls below Zone 1 and allow the Corps to store a higher percentage of basin inflow above Buford Dam when composite storage is in Zones 2, 3, and 4. We recognize that Lanier-specific triggers would need to be coordinated with triggers for the rest of the system, but the triggers in the RIOP clearly fail to accommodate Lake Lanier's unique disproportion of storage volume and drainage area in comparison to the other reservoirs in the ACF.

We also maintain that the Endangered Species Act ("ESA") does not require the Corps to augment flows from storage purely for protection of the listed species when basin inflows fall below 5,000 cfs at the Chattahoochee Gage - because nature herself is the cause of the low ACF flows, not the Corps. During droughts, the Corps is obligated to augment flows using storage in Lanier to realize the ACF facilities' legally-recognized benefits (including recreation, water supply, and hydropower). But augmentation flows purely to meet the arbitrary 5,000 cfs MRF are not mandated by the ESA.

Nonetheless, we recognize that the Corps does not concur with our opinion. In light of that, it has become obvious that the new WCP needs to be designed for Lanier to be able to refill as quickly as possible to recover from MRF augmentation flows and be able to sustain its intended benefits, including recreation and the economy that is dependent on that industry. In order to accomplish that, we request that the Corps incorporate in the new WCP a Lake Lanier-specific trigger to disengage Lanier as a source of MRF augmentation, from the point at which Lanier's level declines to Action Zone 3 until it returns to the top of Action Zone 2.

Alternatively, and at a minimum, we would request that the Corps set a trigger at the existing Lanier Water Access Limited level of 1060 MSL. As recognized on page 10 of the 1989 draft WCP, "**The level at which severe impacts are observed on all aspects of recreational activities is called the Water Access Limited Level (WAL). At this point all or almost all boat ramps will be out of service, all swimming beaches will be unusable, major navigation hazards occur, channels to marinas are impassable and/or wet slips must be relocated, and a majority of private boat docks are unusable. Additionally, distance and bottom surfaces between water line and normal shoreline at established recreation areas makes water nearly inaccessible."**

As our members have experienced over the last two years, at a level of 1060 severe economic impacts occur as a result of the recreational impacts predicted by the draft WCP. When Lanier's level declines to the top of Action Zone 3 and further to the level of the WAL, these impacts reach drastic proportions and amount to tens of millions

of dollars in direct recreational revenues alone. According to a recent assessment by the Marine Trade Association of Metro Atlanta (attached for your review), gross annual year-over-year Lanier boat sales revenues have fallen between $50,000,000 and $70,000,000 dollars, largely as a result of low water levels. The impact on Lake Lanier real estate investment values is potentially many times this dollar amount. The effect on the local economy is devastating. We therefore request that the Corps include a Lanier-specific trigger to reduce discharges from Buford Dam to the Atlanta metro water supply and quality minimum of 650 cfs whenever these water levels are reached.

We understand that, due to the Corps' operations downstream, structural design limitations may affect the Corps' ability to use such a trigger under certain circumstances. Should the structural design limits of the ACF facilities be inadequate to accommodate this trigger, we would request that the Corps invest in whatever infrastructure changes are necessary to support it.

Full Pool Level

We request that the WCP provide for a Lanier full pool level of 1073 MSL, instead of the current level of 1071 MSL. This operational change was originally proposed by the Lake Lanier Association in our letter of January 9, 2007 (attached). We further request that the new WCP provide for this full pool level throughout the year, rather than only during the summer season. Lake Lanier was designed with a substantial flood control capacity that greatly exceeds any demand that has ever been put on it. In the 21st century, weather prediction capability greatly exceeds what was available when Buford Dam was constructed in the 1950's. As a result, the Corps is able to monitor changing weather and manage the flood control capabilities of the system so well that there is no purpose served in lowering the full pool level to 1070 from October through April. The importance of this is heightened in times of drought, when basin inflow to refill Lanier can be severely reduced. There is no longer any reason to drop Lanier's level during the "non-summer" months.

Eliminate Maintenance of a Navigation Channel as a Corps Operation

We request that navigation be abandoned as a function of the Corps' ACF operations. The Corps' studies have shown that dredging to maintain the required 9-foot channel is not only extremely impractical and costly but directly detrimental to the threatened and endangered species in the Apalachicola River and its environs. The result is a damaged river system that puts additional pressure on upstream resources such as Lake Lanier to compensate for the deteriorating riverbed and deleterious effects on habitat. The state of Florida has refused for a number of years to grant a permit to the Corps for depositing dredged material. Modern-day transportation has reduced the use of the ACF for that purpose to a trickle. Maintaining a navigation channel is an anachronism that should be eliminated from the Corps' operations of the ACF.

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Adopt a Permanent Water Quality Minimum Flow of 650 cfs at Peachtree Creek

We request that, in times of drought and when water quality standards can be maintained, the minimum water quality flows required at Peachtree Creek be reduced from 750 cfs to 650 cfs. The Corps has already granted this flow reduction twice in 2008, based on water quality data and assurances from the Georgia Environmental Protection Division. We endorse this reduction as a permanent feature of the WCP, subject to changing water quality requirements.

Modify the RIOP if it is to be Used as a Basis for the WCP

Lake Lanier is at its lowest point in history for this time of year, and the Corps projects it to fall to its lowest level in history in early December, 2008. Currently, the water flowing into the Lake from the Chattahoochee and Chestatee rivers is running at the third percentile, and both rivers have been flowing at or near their record lows for much of 2008. All of this paints a bleak picture for Lake Lanier in the coming months. That picture is made even bleaker by a number of the provisions of the RIOP implemented on June 1 of this year.

We believe a number of the changes in Corps operations since the inception of the IOP in 2006 are severely detrimental to Lake Lanier and the interests of our members. In particular, the LLA is concerned that a number of features of the RIOP that are deleterious to Lake Lanier will form the basis for revisions to the WCP. From 1989 until 2006, the Corps operated the ACF according to its draft WCP of 1989. That plan generally ensured that Lake Lanier would refill to the maximum extent possible by June 1 every year. The series of Interim Operating Plans instituted in 2006 dramatically changed the focus of the Corps' ACF operations by subjugating the refilling of Lanier to downstream concerns, many of which were not authorized purposes or intended benefits of the construction of Buford Dam. We wish to express our opposition to utilizing those provisions (embodied in what is now the RIOP) as the basis for revisions to the WCP, as more specifically detailed in the comments denoted by bullet points below.

- **Minimum Discharge**

The RIOP requires minimum releases equal to or greater than basin inflow (BI) under many conditions, and minimum releases of greater than 50% of BI under virtually all but the highest BI levels. This contrasts with the statement on page 2 of the RIOP proposal that, "Except when basin inflow is less than 5,000 cfs, the minimum releases are not *required* to exceed basin inflow" (emphasis added). Requiring releases to *at least equal* BI provides no opportunity for refilling of reservoirs, and this provision applies in all but the months of December through February. Limiting storage to substantially less than 50% of BI under all but the highest BI levels seems to unnecessarily restrict the ability of the reservoirs, and especially Lake Lanier, to recover or at least stabilize in times of drought.

We question the need for such high minimum releases, because they appear to create an unnecessary risk of preventing the reservoirs – and especially Lake Lanier – from refilling not only in drought conditions but even when BI is relatively plentiful. We also question allowing the highest rate of storage only when BI reaches 39,000 cfs in Zone 3, especially when the BI level for such storage in Zones 1 and 2 is 34,000 cfs. The Lake Lanier Association requests that the new WCP be designed to allow storage of a much greater percentage of available BI in all Zones, in order to ensure that Lake Lanier will remain at or near the top of its conservation pool whenever possible and refill as quickly as possible.

The statement on page 2 of the RIOP proposal also underscores the Corps' failure to reduce the minimum required flow of 5,000 cfs except under conditions in which Lake Lanier will already be well down into Zone 4. Because Lake Lanier contains the vast majority of all storage in the system, composite storage is likely to reach Zone 4 (or the Drought Zone) only if Lake Lanier is already in Zone 4. Because Lake Lanier refills so slowly, it may well remain in Zone 4 long after the composite storage level reaches higher Zones, a condition that exists today. Lake Lanier got into this situation in part because of the requirement of a minimum flow of 5,000 cfs under the original IOP. The EDO wisely allowed for a reduction in the minimum required flow, and while the RIOP does include the option of a minimum flow of 4,500 cfs when composite storage is in the Drought Zone, the new WCP should incorporate an even lower minimum required flow that is based on the actual requirements for realizing the original intended benefits of the system's facilities. If the system is going to be managed without specific provisions that reflect the unique needs of Lake Lanier (addressed below), then the WCP should include at least the option of implementing that minimum required flow in higher composite storage Zones. Without that flexibility, Lake Lanier will almost certainly be disproportionately impacted in drought situations in order to meet the current minimum required flow.

- **Drought Contingency Operations**

The RIOP created a new Composite Storage Zone category called a Drought Zone. The Corps calculates the Drought Zone as "roughly" the equivalent of water in the Inactive Zones for each of the reservoirs in the ACF system plus the water in Zone 4 of Lake Lanier. There has been no explanation of why the Corps believes there is a need for the Drought Zone. According to the Corps' own projections, if the RIOP had been in place during 2007, the composite storage levels of all the reservoirs would have entered the proposed Drought Zone for only a two-week period in November, 2007. Even though the Drought Plan would have been in effect after the composite level entered Zone 4, there would have been no decrease in the minimum required flow except for that two-week period. Thus, the implementation of the proposed Drought Contingency Operations provisions would have accomplished little or nothing to prevent Lake Lanier from reaching its lowest point in history on December 26, 2007.

It appears that the only reason for the existence of the Drought Zone is to relieve the Corps from having to acknowledge that an exceptional drought exists at much higher composite storage levels, and thereby from reducing flows below 5,000 cfs even in the face of the worst drought on record in Georgia. The net goal would appear to be to avoid invoking the relief theoretically afforded in the Drought Zone by setting the trigger so low that composite storage will almost always remain above it. The truth of this is demonstrated by the fact that Lanier would have been in the Drought Zone under the RIOP for only about two weeks, despite its having endured the worst drought in ACF recorded history. This provision of the RIOP also reduces the potential for composite storage to rise above Zone 4, and does virtually nothing to ameliorate depleted storage conditions upstream in times of drought. We therefore request that the Drought Contingency Operations be implemented at a higher composite storage level, at least at the top of Zone 4, and remain in effect until composite storage returns to the top of Zone 3. We also request that the Corps eliminate the RIOP's seasonal storage limitations and minimum flow thresholds in the new WCP.

- **Maximum Fall Rate**

The now-defunct EDO plan suspended the rate at which river stage (and the reservoir discharges that control river stage) could be reduced. However, the RIOP reinstated the original down-ramping rate ("fall rate") provisions except when composite storage level falls to Zone 4 and the Drought Contingency Operation is implemented. The fall rates were a major factor in the excessive depletion of water in Lake Lanier in 2007, and reinstating them threatens to repeat the same disastrous result. Neither the Corps nor the Fish and Wildlife Service has demonstrated science justifying these fall rates. The listed mussels and Gulf sturgeon evolved and presumably thrived prior to the creation of any of the Corps' ACF facilities. At that time, the rise and fall of the rivers were essentially uncontrolled, and the rapidity at which water levels rose and fell were far greater than the effects under either the RIOP. Common sense would suggest that since the species evolved and thrived with uncontrolled fall rates, artificially restricting fall rates is not essential – and may be counterproductive – to their continued well-being. Managing outflows to control flooding is one thing, but the proposed fall rates are a separate and distinct set of controls that is not supported and should not be included in the new WCP. The RIOP provision for a fall rate of 0.25/ft/day in the Drought Zone is a completely unnecessary and inadvisable step that drains the reservoirs without any discernible benefit, and should not be included in the new WCP.

- **Apalachicola Minimum Required Flow**

Primarily, we are concerned about operations during droughts. In this regard, the RIOP focuses on the 5,000 cfs Minimum Required Flow (MRF) at the Chattahoochee Gage. During the fall and winter of 2007, Lake Lanier's level was precipitously reduced at a rate greater than 4,000 cfs specifically to achieve this minimum flow. We believe the MRF was created arbitrarily by the Corps to support, in the wording of the WCP, "downstream industrial users." (See, 1989 draft WCP at 12.) There are no "industrial users" downstream of JWLD that are authorized purposes of the ACF or that provide intended benefits as established by the River and Harbor Acts of 1945 and 1946 or the Flood Control Act of 1944. In the fall of 2007, a Corps spokesman suggested that the 5,000 cfs was initially established to accommodate Plant Scholtz, a coal-fired power plant

owned by Southern Company. It should be noted that, as a non-hydroelectric plant, Scholz was not an intended beneficiary of the construction of the ACF facilities. Yet even accepting the proposition that Plant Scholz should be accommodated, Southern Company has publicly acknowledged that 2,000 cfs would suffice for that plant's water requirements. The Corps should therefore reduce the minimum required flow in the new WCP to 2,000 cfs until and unless it documents greater operational flow requirements that were recognized as benefits under the original authorizing legislation for construction of the ACF facilities.

In times of drought, Lake Lanier is the source of last resort for flow augmentation to meet the MRF, and subjugating the specifically-identified benefit of recreation on Lake Lanier to such unauthorized users is unlawful. The operational philosophy espoused by the RIOP of meeting the 5,000 cfs MRF until Composite Storage is at the Drought Zone is antithetical to the Corps' philosophy for the last 50 years of ensuring that Lake Lanier refills by June 1 of each year. The objective of ensuring that Lake Lanier remains as close to full pool as possible throughout the year is the only one that truly serves all the operational purposes and benefits of Lake Lanier.

We acknowledge that the RIOP reduces MRF from 5,000 cfs to 4,500 cfs, but that provision applies only when the composite storage level is in the Drought Zone. Under that provision, the reduced flow rate would have occurred for only two weeks in November, 2007. At that time, Lake Lanier was already within a few feet of reaching its lowest level in history. The small reduction in flow accomplished by that provision would have lasted only two weeks and then would have ended, actually draining Lake Lanier even faster in December. The Lake Lanier Association requests that the new WCP incorporate specialized management provisions for maximizing storage in Lake Lanier, and a scientifically- and legally-supported minimum required flow at higher composite storage levels.

We appreciate the Corps' consideration of these recommendations, and look forward to working with you to finalize a much-needed new WCP that will benefit all stakeholders in the ACF system.

Yours truly,

V. M. Perry, Jr.
Executive Vice-President
Lake Lanier Association

cc: Pete Taylor, Colonel, USA, (retired)
Brigadier General J. Schroedel

LAKE LANIER ASSOCIATION, INC.
Lake Sidney Lanier
615-F Oak Street • Suite 100
Gainesville, GA 30501
LAKE LINE: (770) 503-7757

January 9, 2007

Colonel Pete Taylor
Commander, Mobile District, Corps of Engineers
Attention: CESAM-DE
Post Office Box 2288
Mobile, Alabama 36628-0001

Reference: Proposal to raise Lake Lanier Full Pool from 1071 to 1073 feet

Dear Colonel Taylor:

The Lake Lanier Association has been a major advocate of keeping Lake Lanier clean and full for 40 years. Many of our positive activities have been accomplished in conjunction with the Corps of Engineers. We are taking this opportunity to enlist your personal support for a proposal that we are convinced will be a "win – win" situation for all of Georgia and the region.

As growth and economic development continue to strengthen in Georgia, additional water resources become even more necessary to sustain this trend for our State. We must find new water storage capability. This situation is exacerbated by the water demands (and legal actions) from Alabama and Florida for their growth and some endangered species. Because a new reservoir would be extremely expensive, and a location in Georgia difficult to identify, we propose to raise the full pool for Lake Lanier from 1071 to 1073 feet above sea level. This action would provide the region with over 25+ Billion gallons of additional water storage. This would be more available storage than Lake Seminole on the Georgia/Florida border.

While the Corps is in the process of a scoping effort for Lake Lanier management, we ask that you include an analysis of the costs and issues associated with raising the Lake Lanier full pool level by 2 feet. Our belief is that this concept can be accomplished for minimal costs and little disruption to the Lake and the environment. Implementation can also be accomplished in a relatively short period of time compared to creating a new reservoir.

We thank you in advance for your consideration and implementation of this proposal.

Sincerely,

V. M. Perry, Jr.
Executive Vice President,
Lake Lanier Association

Jackie Joseph
President,

Enclosed: LLA Proposal
cc: Distribution List

"Dedicated to the Preservation of Lake Sidney Lanier"
Since 1960

Exhibit C

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF FLORIDA
JACKSONVILLE DIVISION

IN RE TRI-STATE WATER RIGHTS LITIGATION	:	Civil Action File No. 3:07-MD-1-PAM

DECLARATION OF DONALD R. ALBRECHT

STATE OF GEORGIA)
)
COUNTY OF HALL)

Pursuant to 28 U.S.C. § 1746, Donald R. Albrecht declares as follows:

1.

My name is Donald R. Albrecht. I am over the age of eighteen, and I am competent in all respects to give the testimony set forth herein. I have personal knowledge of the facts stated herein and know them to be true.

2.

I am the Sales Manager of Park Marine Boating Centers, which is located on Lake Sidney Lanier, 9200 Lan-Mar Road, Gainesville, Georgia. I have held this position for 4.5 years. I have worked on and around Lake Lanier for over 22 years in various other capacities. I am also the President of the Marine Trade Association of Metropolitan Atlanta ("MTAMA").

3.

The MTAMA is a trade association formed over 25 years ago. It is comprised of 52 members, including 10 marinas and 42 boat dealerships that derive their business entirely or primarily from recreation on Lake Lanier. The purpose of the MTAMA is to foster better understanding among its members to raise the standards of service within the boating public, to promote safety and cooperative advertising.

4.

MTAMA member businesses are completely dependent on adequate water levels in Lake Lanier. The normal full pool elevation of Lake Lanier is 1071 feet above mean sea level ("MSL"). Currently, the water level in the Lake is 1055 MSL, 16 feet below normal pool level. As water levels drop, our members' business is negatively affected with respect to sales, revenue, and profitability.

5.

Based on my experience and personal knowledge, boat sales on Lake Lanier are greatly affected by water levels below 1060 MSL, due to inaccessible boat ramps, hazards to navigation, unusable swimming beaches, limitations on access to marinas, reduced number of wet slips, inaccessibility of a majority of private boat docks, and inaccessibility to established recreation areas. Water levels in Lake Lanier below 1060 MSL cause severe and irreparable harm to the business of MTAMA members, my personal livelihood, and the recreational-based economy of the Lake Lanier region. That harm will be increasingly exacerbated as water levels decline below 1055 MSL.

6.

Boat sales make up the majority of the MTAMA members' revenues. Based on recent reports of various members, gross annual year-over-year boat sales revenues have fallen between $50,000,000 and $70,000,000 dollars.

7.

I expect continued water levels in Lake Lanier below 1060 MSL, and to a greater extent below 1055 MSL, to cause many MTAMA members' revenues to decline so severely that those members will be forced to close their businesses completely.

8.

I declare under penalty of perjury that the foregoing is true and correct, based on data reported to me in the normal course of business by members of the organization of which I am President, and to the best of my knowledge and belief.

EXECUTED ON AUGUST 1, 2008

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Donald R. Albrecht

ACF Water Control Manual Update Comments

(Ron Seder 11/19/08)

I am pleased to see that a new ACF Water Control Plan is being produced. The disastrous results of the current drought and ACF management practices for the past two years make the need for a new ACF water Control plan very apparent.

Following is my input to the Manual Update.

The drought consequences have been shared unfairly along the ACF. While Lake Lanier has established record daily low levels every day this year, West Point Lake and Lake George have been virtually full almost all of that time, and the Apalachicola River has been running above the minimum 5000 cfs flow a majority of the time.

The most important purpose of Lanier storage, Atlanta Area water supply, is threatened, while the normal $5.5 billion Lanier recreational economy has been seriously damaged by low Lanier levels.

The critical focus of a new ACF Water Control Plan should be on having adequate water during the dry times of the year and during the driest (drought) years. A water control plan is needed during normal years, but the management during normal times is much less challenging than during, and preparing for, the dry times.

Because reduced ACF inflows during dry times can be the most damaging, the ACF system should be managed as though there is always a drought about to occur. That would dictate keeping more water in the reservoirs to soften the negative impacts of a drought.

The reason Lanier has set new daily record low levels every day this year, while the rest of the ACF has suffered much less pain, is that Lanier reportedly contains most of the storage on the ACF while it is fed by the smallest watershed (about 5% of the total ACF watershed). Therefore, once Lanier levels have been drawn down it takes a lot of rain and a long time for them to recover. So, for a given amount of rain, West Point and George levels rapidly recover while Lanier realizes modest Lake Level improvements.

Why are the reservoirs drained so rapidly during a drought? Because of power generation releases during the initial reservoir draw downs along with the flow and ramping requirements established for the Apalachicola River. Although the Atlanta Area is often accused as being the culprit during dry

times, the Atlanta area water supply consumes less than 5% as much water as is required for Apalachicola River flows, even during droughts.

Part of the current problem is that the Flint River, which produces virtually the same amount of water as the Chattahoochee River, has no storage to supplement river flows during dry times. Therefore, uses (primarily agriculture irrigation) of the Flint River and associated aquifer waters (there reportedly is a transference of water between Flint River and associated aquifers) reduces the Flint River flows, requiring more water to be released from Chattahoochee River reservoirs to make up for the lost Flint River contribution the Apalachicola River flow. So it is especially important to minimize the consumption of Flint River waters and associated aquifers during droughts.

The Apalachicola River flows are said to be needed for power plants, endangered/threatened species survival/spawning, and a healthy oyster/Gulf fisheries industry. We have yet to see the scientific and justified economic facts behind these claims, and punishing millions of people by taking their water because of the declaration of a few threatened/endangered species in the Apalachicola River is just plain wrong.

Because we are not able to predict the occurrence or duration of a drought, it is important that an ACF Water Control plan concentrate on real minimum Apalachicola River flow requirements during dry and other times to save as much water as possible in the reservoirs all the time.

Miscellaneous observations

Agriculture Irrigation requires a lot of water during dry times. On some days agriculture irrigation consumption is many times greater than the Atlanta Area water supply consumption.

Power generation plants consume water in addition to using flow through water, and have river level requirements that influence ACF management.

Power generation at Buford Dam is much less important than using the water for water supplies. There should be a Lanier water storage transfer from power generation to water supplies.

Because Lanier has a relatively small watershed to replenish it, Lanier should be treated as though it is the storage of last resort for river flow augmentation.

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In practicality Lanier does not have as much usable storage as claimed. The bottom of the Lanier conversation pool has been identified as 1035’ msl, which is 36 feet below full pool. Lake economic benefits are curtailed long before the 1035’ level would be reached. Lanier economic benefits are seriously diminished when the lake falls below 1060.

Raising the Lake Lanier full pool level above 1071’ msl appears to be a relatively inexpensive and safe way to provide additional reservoir water storage.

The minimum water quality Chattahoochee River flow at Peachtree Creek of 750 cfs should be reduced as the quality of Atlanta Area sewer plant discharges is improved.

Head requirements at Woodruff Dam should be revisited to see if something can be done to improve them, thereby reducing the Woodruff release requirements during rain events, allowing more water to be stored in the reservoirs.

Ronald Seder
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Gainesville, GA 30506

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APALACHICOLA RIVERKEEPER®
SAVING AN AMERICAN TREASURE

December 2, 2008

Colonel Byron Jorns
US Army Corps of Engineers - Mobile District
PO Box 2288
Mobile AL 36628-0001

RE: Scope of Apalachicola–Chattahoochee–Flint (ACF) River System Water Control Manual (WCM) Environmental Impact Study (EIS)

Dear Colonel Jorns:

The update of the ACF Water Control Manual allows the Corps to take a giant step forward in equitable effective basinwide watershed management. We hope these comments will assist in accomplishing that.

The Apalachicola Basin is a distinctive, highly productive and bio-diverse area of North America. Within its boundaries are:

- Highly productive farmlands and springs of Jackson and Gadsden counties.
- Vast pine and floodplain forests of Calhoun, Liberty, Franklin and Gulf counties.
- Coastal estuaries and Gulf waters of Franklin and Gulf counties, which team with commercially harvested oysters, crab, mullet, shrimp, scallops, grouper, snapper and many other seafood delicacies harvested by the tons.
- Harvest representing over 10% of the national oyster and 90% of the State of Florida oyster production comes from Apalachicola Bay. Additionally, harvest from the River and Bay of shrimp, finfish, blue crab, crawfish, and eel are commercially important on a national and regional scale. It should also be recognized that the contributions of the Apalachicola estuary to the commercial seafood harvest is significant as one of the most productive bays remaining on the Gulf of Mexico.
- Regionally and nationally significant recreational activities (i.e., fishing, hunting and other outdoor recreation activities are part of the social, cultural and economic pursuits in the Apalachicola River and Bay watershed).

The combinations of this unique natural environmental, cultural and economically important area are of national, regional, and local significance. A thorough and comprehensive assessment of impacts to this area from the alternative proposed actions should be accomplished in order to assure these functions and natural services provided within the Apalachicola Basin are sustained.

Define Lead and Cooperating Agencies with Appropriate Authority and Perspective

The proposed update of the Corps Water Control Manuals for the ACF Basin is the focus of the EIS, but its actions cannot be accurately assessed in isolation of other water management activities in the basin. A clear discussion and delineation of the pertinent water management responsibilities of federal and state agencies should be included as a part of the EIS process.

Because the proposed action is one of a number of water management functions that impact the ACF Basin water management, it would be prudent that alternatives be assessed in terms of the cumulative impacts from a basinwide perspective as part of this Environment Impact Study (EIS). The Corps has indicated that it does not have authority to consider issues and/or to implement pertinent actions because of constraints determined by its authorized purposes. A lead agency with a basinwide perspective such as the U.S. Environmental Protection Agency (EPA) should be selected to be the Lead Agency and to make the final determination. Other cooperating agencies include but should not be limited to U.S. Geological Service (USGS), National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS), and U.S. Fish and Wildlife Service (USFWS) along with the Corps of Engineers. The National Research Council (NRC) should be employed to oversee the necessary objective scientific assessments.

Define and Use an Accurate and Historically Healthy Baseline

The baseline for the EIS must be comprehensive and complete, including actions initiated and undertaken since previous EIS(s) were accomplished. This would require using pre-dam flows as a baseline (See ATTACHMENT 1) for comparison to the proposed alternatives. The unimpaired flow data set should be calibrated to achieve a comparable representation of the pre-dam flows in ATTACHMENT 1 to ensure that it accurately reflects what would occur under natural conditions. It would also require the best possible scientific assessment of the ecological flow needs of the Apalachicola River and Bay to establish the flow regimes which would best mimic and protect the biological, physical and chemical integrity of the waterbody that were sustained and supported by these pre-dam flows.

The divergence from the baseline described above has resulted in significant impacts to Apalachicola River and Bay. The USGS has issued reports which established impacts that have and are occurring to the Apalachicola River due to the Corps' actions and actions by the states of

Florida, Georgia and Alabama, some of which were undertaken under the guidance of the EPA. The separate and cumulative downstream impacts of all these actions must be assessed in a comprehensive fashion if the total impacts to downstream, and in particular the Apalachicola River and Bay, are to be accurately measured from baseline.

Completely Consider All Alternatives

Alternatives should be considered that include:

- Maintaining the ecological flow needs of the Apalachicola River and Bay
- Increasing storage capacity by dredging sediments captured by the Lakes;
- Increasing storage capacity by raising the top of the Dams;
- Increasing storage by reducing flood control and acquiring flood prone areas;
- Increasing percentage of water returned to the river (in a clean condition);
- Aggressive conservation measures that could reduce withdrawals and depletions from the river (This may be the most cost effective and environmentally sound approach); and,
- Providing a navigation channel by using flows during a high water season.

The Corps has the authority and responsibility to protect reservoir inflows in order to achieve authorized purposes. This implies a responsibility for water use which impacts its operations. It is incumbent on the Corps to acquire the most up-to-date data on withdrawals and other uses in the basin and to make such requests and cooperation of Florida, Georgia and Alabama to determine a comprehensive assessment of withdrawals and depletions in the entire basin as necessary information to consider a full array of alternative operations. Once such information is made available and included in the analysis, a more accurate assessment should be accomplished to differentiate impacts due to Corps' operations from withdrawals and ancillary water management and uses in the basin. Only then can a full array of alternative operations be considered on an equitable basis.

Consider Impacts to the Apalachicola River and Bay

As mentioned above, significant environmental impacts have and are occurring to Apalachicola River and Bay from hydrologic changes due to upstream water management. These impacts must be recognized and considered as part of the EIS and all alternatives proposed. The EIS should also consider an assessment of the Ecological Flow Needs of the Apalachicola River and Bay, which will in turn allow analysis of alternatives that will sustain the historic functions of the Apalachicola River and Bay.

The ecological flow assessment and alternatives should be based on and accomplished using the best possible objective science. This could be best accomplished under the guidelines and oversight of the NRC supplemented with locally experienced ACF subject-matter-experts, as has

been proposed by the Florida Congressional delegation, the *Atlanta Journal and Constitution*, the Director of the GA Environmental Protection Division, Florida Department of Environmental Protection, The Nature Conservancy and others. The credibility and usefulness of this National Environmental Policy Act (NEPA)-required EIS would be greatly enhanced through connecting the results of such an independent assessment with visible outcomes in the proposed Water Control Manual update. At a minimum NRC should be secured to perform an "Independent Verification and Validation" role in review of the EIS.

To accurately analyze and understand the impacts to natural resources, consideration of rainfall must be included and appropriate compensation made for climatic changes. Our evaluation of the relationship indicates that the most recent droughts are no worse than the previous droughts, yet flows are significantly reduced, invalidating justification for lowering minimum flows because droughts are more severe. Please consider such an analysis in the scope of the EIS. Using this information in conjunction with comprehensive depletion data should allow the Corps to dispense with its current methodology of calculating basin inflow, which portrays an inaccurate representation of inflows to the basin and cumulative impacts of Corps' operations on the Apalachicola system.

We believe that to accurately reflect the source of impacts in the basin and differentiate changes in flows to the Apalachicola system resulting from Corps' operations and depletions in the basin that a similar assessment of ecological flow needs should be accomplished for the Flint River. Evaluations for the Flint would also be necessary for the assessment to follow NRC recommendations to use a basinwide perspective when managing river systems within coastal areas.

Define Sustainable Limits

Establishing water allocation (i.e., budgets) and compatible reservoir operations requires understanding the sustainable limits on the amount of water use within a basin. The first step is to determine the ecological flow needs to establish the sustainable limits of water available from a river system for current and future uses. Without such a determination of limits, increased water use will result in increased conflict for changes in water allocation and pit community against community and a final detriment to all users in the basin. When natural drought and low flows occur, compounded by unlimited water withdrawals and depletions, without consideration of alternatives, in particular, water conservation, the impact on this diverse, productive, world-class river and bay can be catastrophic. Such events may include:

- Increased potential, duration, frequency, and intensity of red tide in Apalachicola Bay and the near Gulf of Mexico waters,
- Reduction and loss of wetlands, floodplain forest, wildlife habitat and bio-diversity,
- Loss of traditional livelihoods resulting in impacts to the economic, social and cultural structure of the Apalachicola Basin.

Consideration of these and related impacts should be addressed through a comprehensive economic, environmental, social and cultural analysis.

Include All Socio-Economic Impacts to Ecosystem Services

The tremendous economic benefits to water uses on the Chattahoochee and Flint Rivers have been well documented by a number of economic reports. Much of that water use has resulted in economic impacts to users along the Apalachicola River and Bay, the region and the nation. Since the continued productivity and bio-diversity of the Apalachicola River and Bay are historically the economic and cultural backbone of the rural riparian counties and communities of the Apalachicola region, and has national significance the EIS must include the socio-economic impacts to those specific users and to ecosystem services provided by a healthy functioning Apalachicola ecosystem to the nation.

Ecosystem services considered must include outdoor recreational activity such as fishing and swimming, water purification, flood mitigation, cycling and movement of nutrients, atmospheric carbon reduction, maintenance of biodiversity, protection of coastal shores, and more as identified in ATTACHMENT 2. The NRC has developed guidelines and recommendations for consideration of the economic value of ecosystem services. Using a methodology respected by the NRC will ensure the most objective scientific assessment.

Stakeholder Involvement and Process

Serious consideration of public comments and continued involvement of stakeholders throughout the process is critical for any accurate and meaningful analysis. To accomplish this a facilitated stakeholder process should be a necessary component of the EIS process.

Thank you for the opportunity to provide comments.

Best regards,

Dan Tonsmeire
Riverkeeper

A NON-PROFIT ORGANIZATION DEDICATED TO THE PROTECTION AND STEWARDSHIP OF THE APALACHICOLA RIVER & BAY
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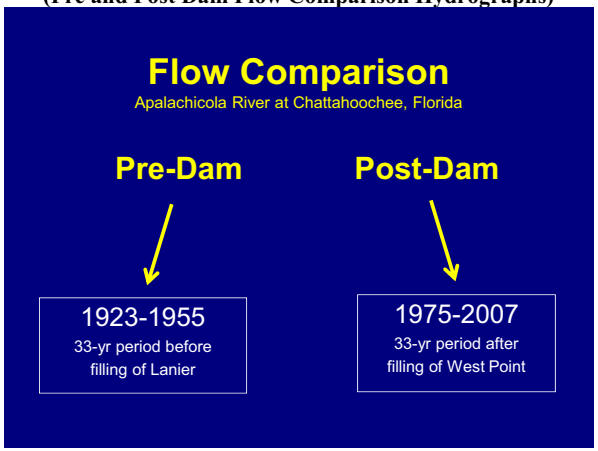
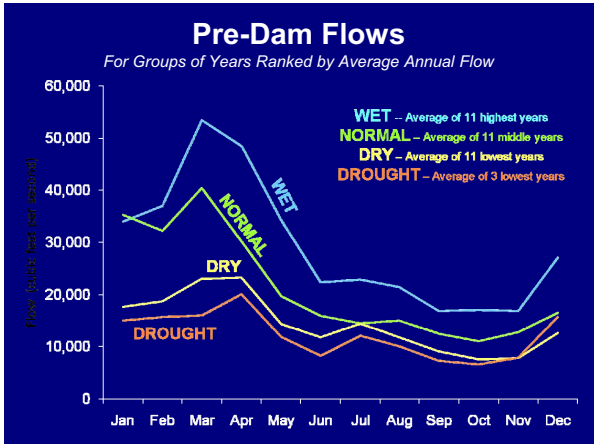
ATTACHMENT 1

(Pre and Post Dam Flow Comparison Hydrographs)





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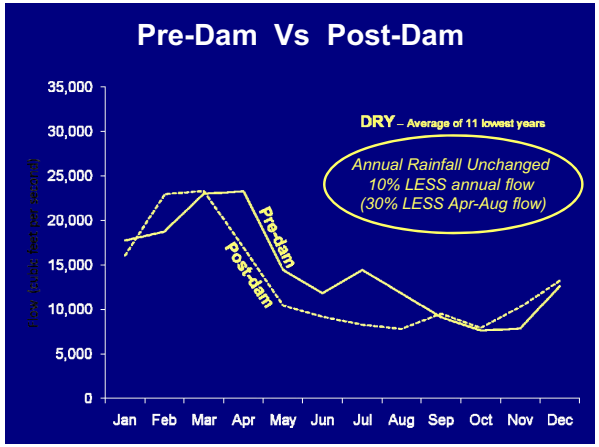

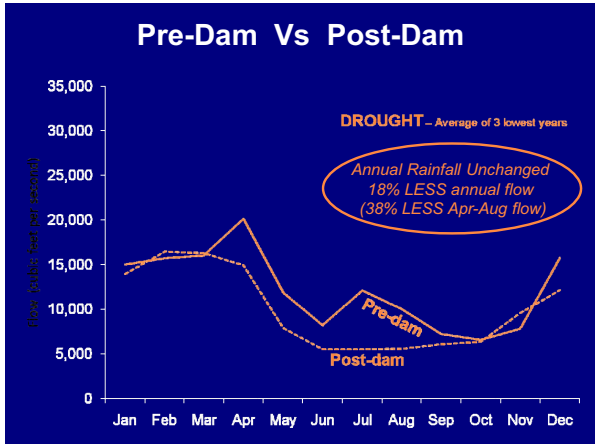

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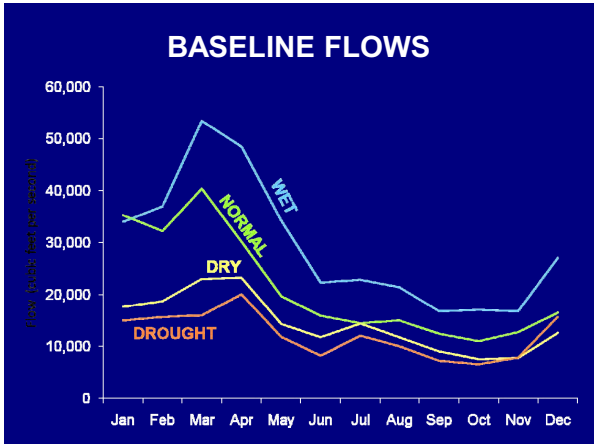

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ATTACHMENT 2

ECOSYSTEM SERVICES

Because ecosystem services are not generally traded in the marketplace, their full value is not captured in the conventional economic statistics. The market value of goods and services derived from ecosystems typically reflects only the human labor, technological and managerial inputs used for their extraction, processing, transportation and distribution. A consequence of this is that the underlying natural resources may be unsustainably exploited or improperly managed.

What are ecosystem services?
The natural environment provides an array of ecosystem goods and services that are critical to the welfare of the human population and to the support of life generally. Following are some of the important ecosystem services that have been widely recognized (Daily, 1997) (see also, http://www.centurycommission.org/current_projects.asp):

- **Production of agricultural food and fiber products;**
- **Forestry and fisheries production;**
- **Setting for outdoor recreational activity;**
- **Purification of air and water;**
- **Mitigation of droughts and floods;**
- **Generation and preservation of soils and renewal of their fertility;**
- **Detoxification and decomposition of wastes;**
- **Pollination of crops and natural vegetation;**
- **Dispersal of seeds;**
- **Cycling and movement of nutrients;**
- **Control of potential agricultural pests;**
- **Maintenance of biodiversity;**
- **Protection of coastal shores from erosion by waves;**
- **Protection from the sun's harmful ultraviolet rays;**
- **Partial stabilization of climate;**
- **Moderation of weather extremes and their impacts.**

0054

Nature furnishes these services to human society as an outcome of the normal functioning of healthy ecosystems. Flows of materials, energy and information arise from the natural capital stocks of plants, animals, minerals, and atmospheric gases, which may be periodically accumulated or depleted by both natural cycles and human activities. Ecosystems have evolved over billions of years to be highly efficient and robust. Some of these ecosystem services provided by nature are critical and irreplaceable. Others may be accomplished by engineered human systems only at great expense.

Reference

http://www.centurycommission.org/current_projects.asp and go to CC UF Applied Sustainability, "Review of Environmental, Social, and Economic Concepts for Sustainable Development in Florida" edited by Dr. Stephen S. Mulkey, Chair at UF of People and Land Use Strategies (PLUS) Workgroup", and to "Protecting Ecosystem Services in Florida" September 1, 2006 by Alan W. Hodges"

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Vern Herr <vherr@acf-wcm.com>

State of Alabama's Comments for the ACF Scoping Meetings

1 message

Atkins, Brian <Brian.Atkins@adeca.alabama.gov> **Fri, Nov 21, 2008 at 3:11 PM**

To: comments@acf-wcm.com

ToWhom It May Concern,

These comments are submitted by J. Brian Atkins, Director of the Alabama Office of Water Resources, on behalf of the State of Alabama. The State of Alabama reserves the right to submit additional comments regarding the scoping process for the ACF Manual update.

In 1990, the State of Alabama sued the Corps of Engineers over its operations and proposed operations of several federal reservoirs, including Lake Lanier, West Point Lake and Lake Walter F. George (Lake Eufaula) in the Apalachicola-Chattahoochee-Flint River Basin. The operations of these federal reservoirs have a substantial and profound impact upon numerous interests of our citizens. In the lawsuit over the ACF Basin, the State of Alabama claims that the Corps' management of the ACF System, particularly Lake Lanier, has violated and continues to violate federal law and regulations. Unless the Corps undertakes the revision to the Water Control Manuals in a manner that is consistent with federal law, including the recent decision of the United States Court of Appeals for the D.C. Circuit, the current effort will not help resolve the long-running controversy over the ACF Basin. Instead, revised Water Control Manuals will generate additional conflict. In light of the expected ruling by the court handling all of the litigation over the ACF system, Alabama believes that the Corps should ensure that the rulings on that litigation are taken into account

in the manual update process. Indeed, the Corps should suspend the manual update process until the rulings are issued.

To satisfy the Corps' obligations under Federal law, including the National Environmental Policy Act, we believe the Corps must focus on the authorized purposes of Lake Lanier (hydropower, navigation, and flood control) and establish a scope for the manual update that addresses five objectives. First, the Corps should determine the critical yield of each reservoir using the most current hydrologic and climatic conditions. Second, the Corps should establish the baseline or the starting point for any proposed changes to the water control or master manuals and the baseline should be based upon authorized project purposes. Third, the Corps should use the agreed upon HEC-5 model developed during the Comprehensive Study and used in the negotiations of the allocation formula under the ACF River Basin Compact or develop a new model that is agreed upon by the Corps and the states. Fourth, the Corps should assess whether any changes in the baseline conditions are necessary to comply with existing laws and regulations, including laws and regulations designed to protect the environment. Fifth, the Corps should analyze any proposed modifications to the baseline and other legal requirements to develop the proposed operations for Lake Lanier, West Point Lake and Lake Walter F. George (Lake Eufala). Each of these objectives is critical to the update process. Moreover, the order in which these steps are completed is significant. It is impossible to evaluate and assess proposed changes to the water control manuals unless the critical yields have been calculated and the baseline is established. Refusing to undertake a complete review and assessment of each of these objectives will ensure that valid water control manuals will never be developed and that additional conflicts over the Corps' operations of the federal reservoirs in the ACF Basin will

follow.

The first objective that must be accomplished is to update the critical yield analysis for Lake Lanier, West Point Lake and Lake Walter F. George (Lake Eufaula), Lake. Without an accurate determination of the amount of water that is available to address the competing demands for water and water storage in the driest of conditions, it will be impossible for the Corps to develop water control manuals that establish operations that are consistent with Congressional intent and satisfy the purposes for which Congress authorized each project. The critical yield analyses for the federal reservoirs in the ACF Basin have not been revised to reflect 2007 drought conditions. Indeed, in the past, the Corps has failed to use then-existing droughts of record to calculate the critical yields; instead deciding that the then-existing drought of record was an outlier and could be ignored. Failure to develop a critical yield analysis based upon the actual drought of record cannot be repeated. Because the conditions in 2007 established a new drought of record, the State of Alabama respectfully requests that the Corps update its calculation of the critical yields from the federal reservoirs, particularly Lake Lanier, as a first step in its effort to update the water control manuals.

The determination of the critical yield should be done in an open and public process that includes input from stakeholders throughout the ACF Basin. Before the critical yields are finalized, the Corps should conduct one or more public hearings to allow the public to provide input into the process, particularly any modeling or operating assumptions used to make such calculations. Alabama believes that until the critical yield calculations are updated, any effort to update the water control manuals will be incomplete. The critical yield calculations should consider the inventory of all existing pipes withdrawing water from or discharging treated wastewater to any of the federal reservoirs, including the elevation within

the reservoir of each such pipe, and the need to meet downstream minimum flow requirements at Peachtree Creek (750 cfs), Columbus and Phenix City (1,850 cfs) and Plant Farley (2,000 cfs).

After the critical yields of the federal reservoirs are determined, the Corps needs to establish the baseline conditions against which any proposed modification to the water control plans will be judged or assessed. Alabama believes the Corps should use the 1959 water control manual for Lake Lanier, the 1975 water control plan for West Point Lake, the 1965 water control plan for Lake Walter F. George, and the 1972 water control plan for Lake Seminole/Jim Woodruff to determine whether there is sufficient water available in each reservoir to meet the Congressionally authorized project purposes of hydroelectric power generation, flood control, and navigation support for the ACF System and to provide water storage for the specific amounts of storage currently under an existing, valid contract. The State of Alabama believes that the baseline or “no action” alternative for the review of the water control manuals under the National Environmental Policy Act must start with the currently approved water control manuals for each reservoir. Draft manuals, the use of action zones or other proposed operations that have never been subject to the public scrutiny demanded under NEPA and the Corps’ implementing regulations should not be used as a starting point of the Corps’ review or effort to update the manuals. The use of draft manuals, action zones or other proposed operations as the baseline or “no action alternative” would allow the Corps to alter or modify the operations of the reservoirs and impact authorized project purposes in a manner that is inconsistent with Congressional intent without providing Congress any opportunity to review the proposed changes. Such an approach would allow the Corps to circumvent its obligation to update the manuals through an open and public process. Using any other scenario as the “baseline” and ignoring the existing water control

manuals for the federal reservoirs and the existing master manual for the ACF Basin would allow the Corps to avoid seeking Congressional approval for significant alterations in the operations of the reservoirs, to impact significantly the authorized project purposes of the reservoirs and to circumvent Congressional intent in establishing the project purposes for these reservoirs and the process for changing or altering such purposes.

The State of Alabama understands that the Corps may use 2003 as the "baseline condition" for the manual update. We further understand that this date was selected based upon the date that the ACF River Basin Compact expired. Under the ACF Compact, Alabama, Florida Georgia and the United States agreed to allow increased water withdrawals during the development of a water allocation formula. In Articles VII and VIII of the ACF Compact, however, the parties agreed that no permanent, vested or perpetual right to water would be recognized, granted or acknowledged for any increased water withdrawals that occurred after January 3, 1992, if the compact ultimately expired. By proposing a baseline of 2003, the Corps is violating an unambiguous Congressional enactment that expressly recognized the agreements of Alabama, Florida, Georgia and the Corps as expressed in the ACF Compact and the documents that led to the enactment of the ACF Compact.

The State of Alabama learned at one of the Public Scoping meetings that the Corps' baseline will assume that current withdrawals will continue despite the ruling of the United States Court of Appeals for the D.C. Circuit, the pending litigation challenging such withdrawals, and the express language of the now-expired ACF Compact. Such an assumption ignores a significant issue that the Corps must confront. The Corps currently has no legal basis or authority to operate Lake Lanier for water supply if such operations significantly impact the authorized project purposes of navigation, hydropower or flood control or require major

operational change to these authorized project purposes. By failing to consider the limited nature of the legal authority granted to the Corps by Congress to operate Lake Lanier, the Corps is wasting a tremendous amount of time and resources by using unsupported assumptions as the bases for proceeding with the manual update.

The Corps' proposed approach curtails the environmental review mandated under NEPA by significantly limiting the scope of any review. Instead of reviewing the environmental impacts of proposed operations based upon the currently approved manuals, the Corps is, in effect, ignoring the potentially significant impacts upon the environment associated with major operational changes occurring between the dates of the last manuals and 2003 for the federal reservoirs. In ruling that the Corps overstepped its authority by entering the clandestine settlement agreement in the Apalachicola-Chattahoochee-Flint River Basin, the United States Court of Appeals for the D.C. Circuit admonished the Corps that it could not allow incremental changes over time to establish a new baseline or status quo. Any attempt to use 2003 as a baseline simply ensures further legal challenges over the Corps' operations and proposed operations in the ACT Basin and ignores the Corps' obligations under NEPA and other laws, rules regulations and agreements designed to govern the manual update process.

Moreover, the baseline should also be based upon the amount of storage currently under existing contracts (not expired or so-called "holdover" contracts) and should assume that the contract amounts establish limits or caps on the amount of water that can be withdrawn for water supply purposes. Specifically, the baseline should not assume that the current practice of allowing water withdrawals without contracts by the Atlanta Regional Commission or Gwinnett County will be continued in the future. Any proposed changes in

operations, including increases in water supply withdrawals in amounts exceeding this baseline, should not be considered by the Corps in establishing the baseline or "no action" alternative and should only be considered after the baseline conditions are established. With the expiration of the ACF Compact, the "live and let provision" expired, and there can be no expectation that water withdrawals in excess of contract amounts would be incorporated into the "baseline" operations.

The United States Court of Appeals for the D.C. Circuit rejected the Corps' argument that the proper baseline for considering whether a reallocation of storage to water supply at Lake Lanier constituted a "major operational change" requiring Congressional approval was not the status quo at the time of the settlement agreement. The Court clearly stated that "the appropriate baseline for measuring the impact of . . . reallocation of water storage is zero, which was the amount allocated to storage space for water supply when [Lake Lanier] began operation." Any baseline that considers current operations to accommodate water supply withdrawals or storage is contrary to this legal conclusion.

Another aspect of the manual update process should consider the Corps' compliance with existing environmental laws. Since the federal reservoirs were constructed, Congress, Alabama, Florida and Georgia have enacted a number of laws and regulations designed to protect and enhance the quality of the environment, including the Clean Water Act and the Endangered Species Act. In operating the federal projects in the ACF Basin, the Corps must avoid operations that will violate or lead to violations of water quality standards or will cause directly or indirectly the take of an endangered species or impacts to critical habitat. As part of its effort to update the water control manuals at the federal reservoirs in the ACF Basin, the Corps should ensure that even under drought conditions, sufficient flow is

maintained below each dam, so that water quality standards and endangered species are protected. Specifically, the Corps should coordinate with the Fish & Wildlife Service, the EPA and appropriate state agencies in Alabama and Georgia to ensure that the water control manuals are compliant with the Endangered Species Act and the Clean Water Act.

After the critical yield calculations, the baseline conditions, and the Corps' compliance with existing laws are completed, then the Corps and the states should agree upon the computer model that will be used to evaluate the impact of any changes to the baseline operations. During the Comprehensive Study and the negotiations under the ACF Compact, a significant amount of work was done in the development of the HEC-5 model and the assumptions underlying the model runs. While Florida never agreed to use the HEC-5 model as the only modeling tool and continued to use the STELLA model in connection with the allocation formula negotiations, Alabama, Florida and Georgia and the Corps are familiar with the HEC-5 model. As a result, each of their technical staffs is able to evaluate the results of HEC-5 model runs and to identify potential inconsistencies between the modeled output and anticipated results.

The State of Alabama understands that revisions to the Water Control Manuals will be evaluated using the ResSim model. The ResSim model should only replace the HEC-5 model after the technical staffs of the three states and the Corps agree that the ResSim model is a better tool to evaluate the ACF system. It would be inappropriate and premature for the Corps to develop the ResSim model without input from the states on the assumptions underlying the model and without sufficient time for each of the states to develop the experience and expertise required to evaluate the results generated by the ResSim.

Assuming the Corps uses the appropriate model or allows the states to develop the necessary expertise in the ResSim model, the Corps should evaluate potential modifications to the baseline conditions that would form the basis for the new water control manuals and master manual. Any proposed modification to the baseline condition must determine whether and to what extent such modifications in or deviations from the approved operations prevents the Corps from fully satisfying the Congressional authorized project purposes of hydropower generation, flood control, and navigation support. The Corps must also assess whether the proposed operations under the revised water control plan will be consistent with applicable federal laws, including, but not limited to, the Water Supply Act and the Flood Control Act.

This step requires an assessment of other proposed reallocations of water storage in the federal storage projects to water supply and potential reservoir construction within the ACF Basin. The State of Georgia has developed a water supply plan that includes various assumptions and projections regarding the use of federal reservoirs for water supply purposes over the next several years. To date, the Corps has not reviewed any of the potential efforts within the State of Georgia to increase the amount of water storage available for water supply at Lake Lanier. Failure to consider the impact of these assumptions and projections upon the potential future operations of Lake Lanier would violate the Corps' obligations to consider the cumulative impacts of known and foreseeable future actions. The Corps should consider these potential reallocations of storage in the environmental impact statement under NEPA, but should also consider the extent to which these reallocations may require Congressional approval prior to implementation.

The State of Alabama is also concerned that some proposed reservoir projects under consideration in Georgia may have impact upon inflows into the federal reservoirs in

the ACF Basin, including inflows from the Flint River. Whether such projects impact the amount of water flowing into the federal reservoirs or the demands placed upon the federal reservoirs by downstream interests, a detailed assessment of the environmental and operational impacts of such proposed projects is critical to future operations of the federal and non-federal projects in the ACF Basin. Again, the review of such projects should include an assessment of each project individually as well as cumulative impacts with other potential and foreseeable projects. In assessing the cumulative impacts associated with the operation of the ACF Basin, the Corps must consider the amount of water that may be lost from the basins through interbasin transfers and consumptive uses and should consider appropriate limitations on any such losses, particularly under drought conditions.

The State of Alabama also believes that the Corps' updated manuals should establish some degree of certainty in drought conditions. The Corps' water control manuals should recognize that releases from conservation storage at Lake Lanier for protection of downstream flows and water quality are necessary and expected and that impacts to recreation and recreation facilities are temporary but unavoidable during dry conditions. Under no circumstances should the Corps base the critical yield analysis of the reservoirs on the entire conservation storage pools and then adopt an operational scheme that prevents the use of any portion of such storage. The bottom of the conservation pool at Lake Lanier is set at 1035' MLS and the critical yield calculation assumes that the conservation pool is exhausted. Limiting releases from Lake Lanier to prevent the lake from going below an elevation well above 1035' MLS establishes an artificial barrier that was never authorized or approved by Congress.

As the Corps is keenly aware, the State of Alabama has a significant interest in

the operations of the federal reservoirs in the ACF Basin. The Corps' operation of these reservoirs has a direct and substantial impact on the quantity and quality of water flowing into Alabama. Any effort to update the water control manuals and the master manual should proceed in a logical and stepwise manner and should start with a calculation of the critical yield from each reservoir. Without determining how much water is available from each reservoir during critical times, it is impossible to evaluate potential modifications in the operations of these reservoirs and to determine whether such operations are authorized by law. The Corps has a significant responsibility in protecting water quality and the environment downstream of its projects. A detailed review of the operations and proposed operations under existing environmental rules and regulations needs to be a significant part of this exercise. Finally, the Corps' operations should not protect uses of the water stored in these reservoirs that have not been authorized by Congress. In choosing between releases and retention, the Corps must consider the authorized purposes of the reservoir and not make its decision based upon what it believes to be politically feasible.

The Secretary of the Army assured Alabama's congressional delegation that the update of the ACF water control plan would involve a complete, top-to-bottom, "clean slate" review of the ACF system. Alabama expects that the Secretary's assurance will be fulfilled, and the issues raised in this letter must be fully addressed in order for the assurance to be met.

Respectfully Submitted,

J. Brian Atkins

Director, Alabama Office of Water Resources

Alabama Department of Economic and Community Affairs

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0056

Vern Herr <vherr@acf-wcm.com>

lake levels

1 message

NGGsigns@aol.com <NGGsigns@aol.com> **Fri, Nov 21, 2008 at 9:02 AM**

To: Comments@acf-wcm.com

I believe that the minimum lake level should be full pool. Never should it go below that if we actually can control it. It makes no sense to me that we would ever let out more water than is coming in.

Buddy Manning
Buford, Georgia

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0057

Vern Herr <vherr@acf-wcm.com>

ACF Stakeholder Comments

1 message

Chadwick Taylor <cct@phonl.com> **Fri, Nov 21, 2008 at 5:56 PM**

To: Comments@acf-wcm.com
Cc: "C. Chadwick Taylor" <cct@phonl.com>, Dave McLain <dmclain850@aol.com>, Carole Rutland <crutland@knology.net>, Andrew Jubal Smith <smithlaw@mindspring.com>, Dan Tonsmeire <dan@apalachicolariverkeeper.org>

Col. Byron Jorns, Mobile District Commander, USACE, Mobile, AL 36628-0

Dear Col. Jorns:

By this email and according to your instructions I submit these comments for the record on the **Environmental Impact Assessment of the Proposed Update to the ACF Water Control Manual.** **Please by return email indicate you have received this in a timely manner**.

First, I want to endorse and I support the comments submitted by both the Apalachicola Riparian County Stakeholder Coalition and the Apalachicola Riverkeeper, as if they are my own and were attached herewith. As a faithful servant of both organizations and others such as RiverWay South, I believe their submissions to this process to be better than anything I can write on my own.

Having said that, and in watching daily, and to paraphrase David C. Korten in his book, we are in The Great Turning, From Empire to Earth Community, and the United States is in deep trouble. At present we seem destined to try to solve our troubles by the very same means by which we arrived in this fix. The lessons learned but not acted upon are encompassed in the referenced comments above from these two distinguished organizations and General Schroedel has taken to saying it himself, "the ACF system is already over-allocated".

Since being raised on the St Johns River I have watched the decline of that system from bulkeds, dredging, over-allocation and saltwater intrusion to where the cypress trees that line the banks are now dead and dying and the river turns green in the summer. If left unchecked we seem destined to the same fate here on the Apalachicola River and Bay for many of the same reasons and more. We are up against what I will call, the ecological imperative, and denial is not another river in Egypt. Actions proposed and already implemented by the USACE sanctioned by the USFWS, the State of Georgia and others simply will destroy the Apalachicola River and Bay in time, a death by a thousand slashes. But such a fate is entirely unnecessary as I like to remind us, we can forgive our ancestors for they knew not what they were doing but in our time we know exactly what we are doing and our children's children and theirs' are least likely to forgive us. As the lead player in this game the USACE can do the right thing and avoid the judgment of our descendents. I am not confident that you can for I understand you can lead the horse to water but you can't make him drink. At that you have the necessary information before you in the above

comments and we will work with you to the best possible outcome. Simply put we must establish and protect the ecological and historical flow regime first and the rest is up for debate.

I commend for your further consideration, The Dominant Animal, Human Evolution and the Environment by Paul Ehrlich, that describes well where we have come from, the challenges we face, and most importantly acknowledges limits most will find an inconvenient truth. In the Apalachicola River and Bay and the ACF Basin we find an opportunity and a challenge to lead our nation. I have enjoyed our collaboration together and am hopeful for a successful outcome that protects the Apalachicola River and Bay Basin and the communities within. For if we do that, we will succeed in protecting the entire ACF basin. I trust you will do your best and I remain ready and willing to provide further assistance. Please don't hesitate to call. Sincerely yours, Chad Taylor

C. Chadwick Taylor
CCT & Associates, Inc.
P. O. Box 315, 4209 Buckland Trail
Greenwood, Florida 32443
850/526-0176, cct@phonl.com

Vern Herr <vherr@acf-wcm.com>

Keep it flowing, PLEASE

1 message

carolineW <ctylerw@fairpoint.net> **Wed, Nov 19, 2008 at 6:53 PM**

To: Comments@acf-wcm.com

Firstly, I want to say that I am not outraged that Atlanta has been growing on water taken from Lake Lanier "illegaly". That kind of emotion is counterproductive. I understand all the economic benefits from that growth. Secondly, I am hoping that the Corp will make new rules that will keep the water flowing downstream so that this magnificent spot on the planet will survive and thrive for the world to experience for future generations. This kind of living museum is disappearing. Additionally, this estuary sustains no small economy, from the local seafood workers to the restaurants in NYC. You know the right thing to do. Please take the higher road. It doesn't have to be viewed as Atlanta versus Apalachicola; it is a choice between mortar and bricks or a productive paradise that can't be replaced once it is destroyed. Thank you for taking this into serious consideration.

Caroline Weiler
Apalachicola, FL

Vern Herr <vherr@acf-wcm.com>

18 feet and dropping..

1 message

Darryl Lanier <dlanier@dtiglobal.com> **Thu, Nov 20, 2008 at 10:05 AM**

To: Comments@acf-wcm.com

Folks,

For what it is worth, if the level of Apalachicola bay dropped the same amount as Lake Lanier (18 +/- feet) there wouldn't be any water left in the bay at all!.. Agreed, we need to conserve water in Atlanta and I'm doing my part, but we also need to moderate the amount of our precious resource that is allowed to run into the Gulf of Mexico. Once it has left Lake Lanier there is no getting it back.. Perhaps trying to prevent salt water from coming into Apalachicola bay is like trying to stop a hurricane. It is just destined by forces of nature.

I love Apalachicola and Apalachicola bay but I think that there may not be enough rain in the North Georgia watershed to keep the lower river and bay from getting saltier even if Atlantans stop showering, washing cars and watering their yards..

Darryl Lanier

Regional Management Services Consultant

Document Technologies

Suite 850

Two Ravinia Drive

Atlanta, GA 30346

dlanier@dtiglobal.com

404-218-0077 cell

404-873-2202 Ext 401 office

770-998-5993 residence

0060

Vern Herr <vherr@acf-wcm.com>

Comments on ACF Water Control Manual Update (Nov. 21, 2008)

1 message

Denesia_Cheek@nps.gov <Denesia_Cheek@nps.gov> **Fri, Nov 21, 2008 at 10:00 AM**
To: Comments@acf-wcm.com
Cc: Denesia_Cheek@nps.gov

November 21, 2008

District Engineer, U.S. Army Engineer District, Mobile
Post Office Box 2288
Mobile, Alabama 36628-0001

RE: Scoping Comments addressing the Environmental Impact Statement for the Apalachicola-Chattahoochee-Flint (ACF) River Basin
Water Control Manual Update

In response to the September 11, 2008, Water Control Manual Update Process and Environmental Impact Statement (EIS) Interagency Scoping Meeting, the National Park Service (NPS) has reviewed the Corps of Engineers ACF Water Control Manual Update. The Master Water Control Manual for the ACF Basin was last completed in 1958 and it did not include Water Control Manuals for the West Point, Walter F. George, and George W. Andrews projects. In addition, NPS understands that the updates to the Water Control Manuals are typically integrated with the National Environmental Policy Act (NEPA) public involvement process.

The current request expands on previous request to manage water and balance the lakes in the ACF system during times of drought, navigation, hydropower, recreation, water supply, water quality and other project purposes. The NPS has express concerns in regards to any decision to reduce flows at Peacthree Creek less than 750cfs as a meaningful threshold for preserving water quality and biological health in the river. Historical research indicates that 750cfs provides a better support for recreation and resources than would lower flows.

As a federal land management agency responsible for managing a significant percentage of the Chattahoochee River, NPS continues to recommend an

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instantaneous flow of 750cfs at Peachtree Creek under drought conditions needed to protect resources (fish, wildlife, and recreation) within the Chattahoochee park unit. In addition, as a land management agency we are responsible for the following congressional authorizations: Water Supply Act of 1958, Endangered Species Act of 1973, and Fish and Wildlife Coordination Act of 1958.

We appreciate the opportunity to submit comments at this time and hope that you will take them into consideration. We will continue to be engaged in the process and appreciate opportunities to further collaborate. Should you have additional questions and/or comments, you can contact Denesia W. Cheek, NPS Southeast Regional Hydrologist at (404) 562-3113 ext. 510 or denesia_cheek@nps.gov.

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Vern Herr <vherr@acf-wcm.com>

Lake Lanier

1 message

D-Jay Petro <djaypetro@charter.net> **Fri, Nov 21, 2008 at 2:56 PM**
To: Comments@acf-wcm.com

Please help save our lake. Our business depends on lake traffic. This is a part of our income.

Thanks,

D-Jay Petroleum

0062

Vern Herr <vherr@acf-wcm.com>

(no subject)

1 message

Gwen Criswell <criswell@bellsouth.net> **Fri, Nov 21, 2008 at 11:59 AM**
To: Comments@acf-wcm.com

My family's livelihood relies heavily upon Lake Lanier for our source of revenue. My husband is in the marine business directly on the lake and I am a realtor. We have watched our incomes decrease significantly due to the water levels. The lake provides not only a source of income to those families in the boating industry, but it also affects the property values as well. I am a native of Florida and understand the reasons why water is allowed to be carried to Florida. I have scalloped and fished Florida all over all my life. Florida has had its share of drought conditions as well. However, a lake should never be allowed to reach the drastic low levels that Lake Lanier has experienced. It saddens me to see the lake in its current condition. My hope is that we can reach a reconciliation to this situation in the very near future.

Gwen L. Criswell, ~Realtor~

Keller Williams Realty ~Atlanta Partners

678.898.4008 (cell)

678.482.7464 (home)

678.482-7465 (fax)

email address: criswell@bellsouth.net ~ Gwencriswell@KW.com

The finest compliment I can ever receive is a referral from my friends and clients.

Miller, Jamie

From: vherr@aol.com
Sent: Monday, November 24, 2008 2:05 PM
To: Miller, Jamie; Davie, Steven; bostonbret@aol.com
Subject: Fwd: EIS Submittal from LaGrange (Scoping or EIS resource?)

This is the note I was referencing from Joe Maltese.
Recommend a quick check with Brian to ensure our assumptions line up on this.
We have multiple comments from LaGrange Mayor, Chamber and area businesses in the system.
Believe these are at the right level and the additional data is probably overkill.

Thanks

Vern Herr
Group Solutions
770.757.9828

-----Original Message-----
From: Joe Maltese <jmaltese@lagrange-ga.org>
To: Comments@acf-wcm.com; Taylor, Peter F SAM <Peter.F.Taylor@usace.army.mil>; Zettle, Brian A SAM <Brian.A.Zettle@usace.army.mil>; Me <vherr@aol.com>
Sent: Wed, 19 Nov 2008 5:55 am
Subject: EIS Submittal from LaGrange (Scoping or EIS resource?)

Good morning:

I needed to follow up on a volume of documents that was commissioned for development by the greater LaGrange/Troup County/ east Alabama community relative to West Point Lake. I am not sure if this falls within the realm of scoping (it may) or in offering environmental research and material for the Corps use in EIS and Operational decision making activity. In case it is viewed as a scoping document rather than an EIS support resource and must be submitted by a deadline I wanted to get this in the Scoping hopper.

Our community has provided the Corps with the Economic Study completed last year relative to West Point Lake. The second component of that massive community undertaking was the development of an Environmental Study that:

1. Assessed and identified a wide range of environmental issues surrounding environmental concerns at West Point Lake

2. Compiled a wide range of existing data and studies related to the lake that have been "on the shelf" and already completed by various entities throughout the history of West Point Lake

3. Set forth action plans studies and analysis and projects of environmental concern at the West Point project.

Many of the concerns that evolved from that environmental element of local study of the West Point project, have been submitted into the scoping process by various agencies and entities in the west GA east AL area. However the background behind those issues and much more is available and we wish to make sure you have all that data in your hands for resource as you move forward with the EIS process. Our hopes are that this information can become a useful resource for the Corps and other agencies involved with the process as you complete the EIS for the WCM's on the ACF.

The study pointed to many issues that need attention, some of which we have already begun to address but have implications that may take years of study to fully understand . For example, one project that you are familiar with is an in depth/ long term study of water quality at the West point project. As you know that activity began early this past summer and our goal is to continue that effort for at least a 10 year period to capture what happens to WQ at the lake through various climatic conditions and cycles, and to more clearly develop a profile and understand what happens to Water Quality in the lake over long periods of time.

The documentation pulled together thus far is quite massive, and when printed out can easily eat up about 2 feet of bookshelf. The question and offering here is how best to submit and make this documentation and reports available. Printing it seems unreasonable and I can offer it to you in digital format. I suspect at this time the total volume size may be about 2-3 gigs or more with GIS data.(I assume you have the base ESRI GIS programs to work with the GIS\Data)

The City of LaGrange does have an FTP site we could utilize to place the data and information and for a period of time to allow the Corps and any other entity transfer the files that have been compiled thus far. The other opportunity is that I prepare a set of disks and send all currently available files for your use.

As noted earlier this is somewhat of a "living" or ongoing project to monitor, collect and submit information to appropriate entities for use in decision making on the West Point project. You will see that some data is GIS based and is consistently being added to and modified, as in the current case of water quality monitoring. I have been submitting WQ data about twice each month to Mike Eubanks of your office. This data is also linked to a GIS system that is constantly being updated utilizing newly gathered information. How we share and offer that info to assure the coordination and storage of accurate records going forward is important.

We want this information in your hands as a resource for the longer term EIS process, and also for any scoping needs you may have.

Please let me know what format and how you'd like to receive this information and I will transmit it to you promptly.

Thanks

Joe Maltese

Joe Maltese
Assistant to the City Manager for Special Projects
P.O. Box 430
City of LaGrange

LaGrange, GA 30241
cell 706-302-4087
fax 706-883-2020
jmaltese@lagrange-ga.org

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Vern Herr <vherr@acf-wcm.com>

PLEASE HELP US TO FILL LAKE LANIER WITH WATER

1 message

Sunny K. Park <parkk@aol.com> **Sun, Nov 23, 2008 at 1:26 AM**

To: comments@acf-wcm.com

WE ARE DESPERATELY NEED YOUR HELP WITH PERMANENT SOLUTION. PLEASE HELP!

Best regards, Sunny Park

Traveling over the river or through the woods this holiday season? Get the MapQuest Toolbar. Directions, Traffic, Gas Prices & More!

0065

Vern Herr <vherr@acf-wcm.com>

Lake Lanier Level

1 message

Vicky Ginn <vginn@charter.net> **Fri, Nov 21, 2008 at 9:11 AM**

To: Comments@acf-wcm.com

To Whom It May Concern:

Regarding the current level of Lake Lanier, we are concerned about the impact that this drastically and historically low level is having on the lake for several reasons:

Businesses that rely on recreational dollars are suffering due to decreased activity on the lake. Restaurants, marinas, lodging providers, fishing professionals and others that cater to the lake visitor are facing an increased strain on their livelihood already impacted due to the fragile economy.

Such low lake levels involve safety issues. Landforms are much closer to the surface of the water yet can still remain unseen by motorists until too late or dangerously late. Due to the decreased water level, swimmers have less shallow water before deep dropoffs, and inexperienced swimmers can find themselves in life threatening situations.

We are in favor of the following measures to increase the level of water in Lake Lanier:

During the rainy season, the Corps should allow Lake Lanier to reach full pool no later than June 1.

Lake Lanier should not be drawn down for mussels and other endangered species in the Apalachicola River.

Management prompts must be in place for Lake Lanier withdrawals during times of drought.

Raise Lake Lanier's full pool from 1071 ft above sea level to 1073 ft, thereby adding an additional 26 billion gallons of water to the lake.

We respectfully request that these measures be seriously considered and implemented.

Sincerely,

David and Vicky Ginn

Vern Herr <vherr@acf-wcm.com>

ACF Water Control Plan

1 message

Wilton Rooks <wrooks@omnemail.com> **Tue, Nov 18, 2008 at 10:26 AM**

To: comments@acf-wcm.com

I want to urge the Corps of Engineers to establish a water control plan that will incorporate the following:

1. Result in increased storage in the reservoirs when water is available rather than release so much of it into the Gulf of Mexico. I believe there are operating rules that will achieve this as well as meet the minimum required flow into Apalachicola River. The new ResSim modeling software should be used to maximum advantage to develop these new operating rules. The rules developed under the HEC-5 model are inadequate to do the job that is required. Other modeling software such as OASIS have developed these rules for the ACF. They should either be accepted or rejected for sound reasons rather than ignored.
2. The water control plan should be flexible enough to adapt to changing conditions.
3. The water control plan should establish a procedure to determine on a scientific basis the minimum required discharge from Woodruff Dam. The reported basis for the 5,000 cfs has varied so much that it is unclear what the actual number should be based on a scientific study. Perhaps the endangered species would actually be better at lower flows.
4. The water control plan should not stop at the Woodruff Dam for control purposes. If the oysters and endangered species are to become a basis for operational decision making then factors in the Apalachicola River and Bay that effect those elements should be included in the control mechanism. Require Florida to block Sikes Cut and to remove the straightening that has occurred in the Apalachicola River that was done for barge traffic convenience.
5. Require all water users on all three rivers to document their water consumptive uses and to establish plans to reduce their consumption. This goes beyond conservation. It includes fixing leaks and making investments in better industrial uses of water including power plant cooling technologies. I realize this might be outside the purview of the water control plan, but the Corps can use its influence to get the states to require this documentation and plan. This would include returning all water taken out of the rivers back to the same river rather than exporting water needed in the ACF to the Atlantic Ocean as is done now.
6. The Corps should request appropriations to remove the constraints imposed by the Woodruff Dam that result in water being removed from the reservoirs. During droughts this removal is very costly to all of the reservoir water users.
7. Fully commit to adding two additional feet to the full pool of Lake Lanier when water is available to do so. This is a small investment with a tremendous value. I am sure the necessary appropriations can be found to achieve this.

In summary it is recognized that during droughts everyone will suffer from lack of water, but the basis for the water control plan should be to look ahead to the future consequences of the operational rules that are established. Lake Lanier for example will be lower this year because of the discharges last year than it was last year. Unless the water control plan adopts the view that all of the reservoirs must recover prior to June, the reservoirs will lose their ability to provide water when and as it is needed. Lake Lanier will continue to achieve lower lows each year unless its replenishment is seen as a targeted goal.

Thank you

Wilton Rooks

Lake Lanier Resident

678 200 8070

LaGRANGE georgia
SMART MOVE

October 30, 2008

Col. Byron Jorns
Commanding Officer
U.S. Army Corps of Engineers
Mobile District
P.O. Box 2288
Mobile, AL 36628-0001

Subject :ACF Scoping

Dear Col. Jorns:

The City of LaGrange lies adjacent to West Point Lake in west central Georgia. No single public resource in the west Georgia, east Alabama region exerts more social, environmental, and economic influence than the West Point Lake Project. As such it is important that Scoping for the Environmental Impact Statement for updated and new Water Control Manuals for the Apalachicola-Chattahoochee–Flint River system recognize that critical operating changes must be made at West Point Lake for the project to fulfill its obligations as mandated by Congress when it authorized the project in 1962.

Congress established 5 specific PRIMARY authorized uses for the project:

- Hydropower
- Sport fishing and Wildlife development
- General recreation
- Navigation
- Flood Control

In the report of the Corps Chief Engineers to Congress it was clear that General Recreation and Sport fishing and Wildlife development when combined carried along with hydropower development the vast majority of the financial benefit assigned to the project. This report was completed in the context of development and social economic activity of the era around 1962 when west Georgia and east Alabama were largely rural and undeveloped.

Since that time, changes have occurred in this region that demand even more attention by the Corps of Engineers on the primary authorized uses of sport fishing, wildlife development, and general recreation. This region is growing rapidly and is now totally surrounded by the massive population growth of the Atlanta, Auburn Opelika, and Columbus MSA's. New influences have taken over and control the environment and socio-economic factors that relate to the utilization of the lake. Many of these have not

CITY OF LAGRANGE
OFFICE OF THE MAYOR
P. O. Box 430 • LaGrange, Georgia 30241 • (706) 883-2010 • Fax (706) 883-2020
www.lagrange-ga.org

been addressed or are ignored by the Corps in its operations. These include massive urbanization and growth of the area and counties surrounding the lake, industrial development form sources such as the KIA manufacturing complex, the growth of the Fort Benning complex and its contingent of citizens and soldiers that often rely on West Point Lake's facilities for recreation and sport fishing and wildlife.

Yet what we have observed is that the Corps operates the lake and the system in its own way that ignores the original PRIMARY congressional authorizations while focusing exclusively on flood control needs, and addressing downstream and upstream demands that may not even meet the purposes set forth by Congress. Our observations, and those of the stakeholders who surround, use and rely on the lake, is that the project has been used as, using the Corps terms, "the workhorse" of the basin. Nowhere in the Congressional authorization does Congress empower the Corps to take the resources at West Point and to use them exclusively for purposes other than those set by Congress. The system had been operated for many years without West Point Lake. Yet because the Corps found less development and population in the early years of development surrounding the lake, and by using the justification that it could refill the West Point project quickly, it thought it could utilize the water there to address other purposes.

Over the years we have seen the Corps focus on addressing flow needs :

- for thermo electric power plants lying south on the Chattahoochee and on the Apalachicola,
- to compensate for losses from consumptive use
- by making releases to provide supplemental waters on the Apalachicola from flows lost to agricultural and consumptive use on the Flint
- to provide for waste assimilation needs for communities lying south of West Point that fail to adequately clean their waste water

In the process the Corps has ignored the specific and primary authorizations for the West Point project to address needs it felt where important elsewhere , thus sacrificing the specific primary authorized purposes set by Congress.

Two key operational standards have, more than any other, empowered the Corps to operate the lake in this manner.

1. The Corps operates West Point Lake in a manner that assures only flood control is a primary authorized use, and all other purposes are relegated to a lesser importance. They have established a winter pool of 625-628 MSL, well below the initial recreational impact level of 632.5 set by the Corps as the level at which recreational use becomes compromised. Contrary to the Congressional authorizations, recreation and sport fishing and wildlife development are sacrificed- almost in their entirety- to meet this one purpose during the winter months. All the while the Corps refuses to adapt its management practices to adequately utilize flood storage capabilities between 633 and 641 MSL in the lake. By the Corps' own admittance, West Point Lake alone can not stop downstream

flooding. Such a goal would be impossible. At least 2 more lakes were to be developed above West Point Lake that were never authorized or built to adequately support that operational goal. Thus, attempting to manage a project for a task for which the lake was never capable of fulfilling, has had a devastating impact on the communities surrounding the lake.

This is a major error in current operations and alternatives must be developed to assure West Point Lake is operated with recreation as the PRIMARY purpose established by Congress.

2. When the lake was first conceived, the Corps arbitrarily assigned action zones to the lake. The zones allow the Corps to draw water to established levels in its operations with other lakes in the region during different types of drought conditions. The zones were not set up in the enabling legislation- they were established by the Corps. They were merely applied by the Corps to allow the operators of the system to use resources at West Point for other perceived needs, some of which were not authorized purposes. No factors have cause as much harm, especially during the fall and summer months, as the application of the rule curves and action zones at West Point Project. It is essential that this be corrected and that a maximum draw down level of 633 MSL for winter pool and a stable 635 summer pool under all but the most grave emergencies, be established for West Point Lake.

Thus, it is our contention that to meet the primary Congressional authorization of recreation, the Corps must fill and stabilize West Point Lake, basically as a "run of the river lake", while offering flows that mirror a natural flow regime- even during drought and flood conditions, for the rest of the system. Only then will the Congressional authorizations be met by the Corps.

The following additional factors must be addressed and alternatives for operations must be identified and considered within the EIS for the project. These factors are suggested as alternatives to the operations currently utilized under the Corps operations.

- The use of the waters from West Point Lake to provide minimum flows for waste assimilation or municipal or industrial needs downstream is contrary to the authorized use of the lake. Those wastewater treatment dischargers (municipal or industrial) downstream of West Point Dam have no entitlement or authority for any flow greater than the minimum flow of 650 CFS. This was the minimum flow authorized by Congress in accordance with the 1962 Chief of Engineers report that formed the basis for the Congressional authorization. Downstream users and permit holders must improve thier wastewater treatment systems to assure their discharges are treated to a level that complies with water quality standards. The use of West Point's waters to dilute substandard point and non point source discharges downstream, or to provide water for industrial and thermo electric power operations must be stopped and should not be included in any revised or new operating plan alternative.

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It is the responsibility of downstream wastewater treatment discharge permit holders, to design and operate their discharge systems in a manner that assures compliance with water quality standards without using the limited waters available in West Point Lake.

- In 2007 the LaGrange- Troup- Valley Chamber of Commerce commissioned and independent study by a qualified economic analyst to address the impacts of varying lake levels on the local economy. The results were astounding. The lost economic opportunity is essentially an adverse impact of the greatest magnitude,. Economic losses based on current operations by the Corps could approach $600 million dollars annually. The report is attached and tendered with this document for inclusion with the EIS. Only by raising and stabilizing lake levels to the 633-635 level can this be corrected. We ask that the report be included in its entirety and be considered as primary support for an alternative to current operations.

- The Corps has not adequately funded , nor maintained in operational condition many of the recreational facilities paid for or established by Congress for the project. The loss of these facilities, along with consistently low lake levels, has adversely impacted the recreational potential and capabilities of providing recreation at the lake. The Corps points to lower funding levels that prevent their continued operations of these facilities. All recreational facilities at the West Point Project must remain open and those that are closed must be reopened with adequate funding to comply with the Congressional authorization and to utilize the investment made by US Taxpayers in these facilities. The Corps must come to recognize that low visitor-ship is DIRECTLY tied to low lake levels and aesthetic damage to the project caused by winter draw downs and over use of project waters under the harsh action zone configuration. The Corps must also recognize that the mild climate in this region allow for recreational use of the project year round- not just during the warmer spring summer and fall. Rates for use of facilities must be market based and the Corps must be allowed to retain revenues collected on the project site for project maintenance and operations.

- We sense the federal government has not paid adequate attention to the critical issue of Environmental Justice. A preliminary report by LaGrange College (attached) and our own knowledge of our own communities make us keenly aware that the Corps has not addressed the needs and expectations of lower income and minority populations surrounding the West Point project that rely on the facility for sustenance, and for water based and shoreline recreation. A simple review of census data will reveal that this issue can not be ignored and that operations must be revised to raise and stabilize elevations at the lake to meet the needs to these populations. Lower income and minority families and individuals consistently rely on the project as their source of shoreline recreation and a source of fish for sustenance. The current operations work directly opposite of those interests. A full pool 633-635 MSL- "Run of the River" alternative must be considered to adequately address the needs of the families and individuals and to

comply with the letter of Executive Order 12898 that applies to Environmental Justice. Simply put, shoreline and water borne recreation are less desirable, inaccessible, are more dangerous or is eliminated totally during draw downs.

- Action zones at the West Point project must be eliminated or significantly reduced in their magnitude. The harshness and severity of action zones at West Point are far worse than any other lakes on the ACF system. Their use as a resource management tool compounds problems and makes the recreational use difficult if not impossible to achieve due to their widely ranging elevations. The use of these harsh action zones is made worse by the geographical relief that shapes the lake. West Point's location in the piedmont and its associated topography that shapes it like a salad bowl, exacerbate the massive differential in action zone elevations. The result is West Point is often left to being an unusable mud flat, while the action zone management tool proceeds to remove water form the lake to address other questionable non authorized uses in other parts of the basin.

  We ask that as an alternative to current operations that action zones be eliminated in thier entirety or be reduced to a complete range with a level never lower than 633 MSL- except for dire emergency. This basically puts the lake in the category of a "run of the river lake" with a constant stabile elevation to meet the Congressional authorizations for the project.

- The Interim Operating Plan (IOP) and the Revised Interim Operating Plan (RIOP) are inherently flawed with regards to their influence on West Point Lake. Major changes in operations were made throughout 2006, 2007, and into 2008 without adequate study or understanding of the impacts of IOP and RIOP operations on West Point Lake. No "in depth" study has been made of the presence of, or the impact on, endangered species or any other fish and wildlife that may exist in the lake or in the tributaries in West Point Lake that may be affected by rapid lake level fluctuations. Stakeholders in the area have observed massive kills of native mussels in the project boundaries when the Corps operates the dam to provide massive rapid draw downs for downstream flows. No studies of the impacts to flora and fauna have been completed to adequately assess these issues damages resulting from operations and lake fluctuations.

- At the same time adequate testing and study of the impacts on water quality at West Point associated with IOP an d RIOP operations were never completed. There was no "in depth" assessment of how the implementation of these two operating plans would affect water quality and maintain the Corps in compliance with the Clean Water Act. IOP and RIOP. All indication are that during the initial implementation of the IOP and RIOP that Water Quality was compromised as a result of the improper implementation of these two operating plan modifications. The further use of the plans, without adequate study and science to ascertain they are not damaging water quality or the ecosystem on West Point Lake is a critical action that can not be avoided by the Corps, in current operations or under proposed changes to the WCM.

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- West Point Lake has no Congressional authorization to provide water to supplement lost or reduced flows resulting from agricultural demands or drawdown's impacting the Flint river. All calculations for flows at Jim Woodruff Lock and Dam (JWLD) must be predicated only on available flows from the Flint. If agricultural interests are adversely impacting flows on the Flint it is improper to make up those lost flows using waters impounded in West Point Lake. Congress made no authorization to use West Point to supplement agricultural consumptive use. Thus any operating plan design that is based the use of West Point waters to make up for water consumed on the Flint must be eliminated.

- We contend the Corps can not select the IOP, RIOP or a designated baseline year as foundation for the development of the new Water Control manuals and associated EIS. Instead it is imperative that the Corps and all involved federal agencies engage in the WCM process with a "clean slate". Then and only then can the magnitude of the problems in the basin be corrected. Any thought by the Corps of selecting a given year of operations since the advent of West Point Lake as a baseline operating year must be abandoned. Such a concept would assume that during that year, the Corps operated the system in total compliance with all authorized uses on the system. In fact that has never occurred- especially at the West Point project.

- Water quality has suffered greatly as a result of the Corps rapid and frequent fluctuations of the lake. Compliance with the Clean Water Act by the Corps under current operations is at best highly questionable, if in fact it is being achieved. This year local stakeholders were stunned to find out that the largest and first federal impoundment south of one of the largest urbanized areas in the country, was only receiving the most minimal of attention. State testing regimes are only one time monthly, 6 months of the year, at only 2 locations. That is grossly inadequate to address water quality concerns for an impoundment of almost 28,000 acres of surface waters.

  In the summer of 2008, the City of LaGrange, Troup County, the West Point Lake Coalition and the West Point Lake Advisory Council of the Chamber of Commerce and other local interests began an extended Water Quality test regime for the lake that is far more in depth and extensive than any currently underway by state of federal resources.

  The Chlorophyll a benchmark for water quality is set at artificially high level at 27 Mg/l, far in excess of what appropriate standards are for southern lakes. Local efforts are underway to compel GA\EPD to improve the standard and to bring West Point Lake in line with other southern lakes.

  Most recently local stakeholders were alerted by information revealed in the local test program that the Total Nitrogen standard for the lake may be in violation of the standards set for the lake under the Clean Water Act. Third party

environmental engineers and scientist working with the City are deeply concerned that the lowering of lake levels may further damage WQ in the project. We believe that constant fluctuation of lake levels may be damaging the ecosystem and water quality within the project.

Further examples of this occurred in 2007 under IOP operations when West Point Lake was drained to near record lows during extremely warm weather. Algae blooms were experienced by the City of LaGrange's water intakes and processing operations. This was a clear indicator that nutrient levels at that time were likely at high level's, but testing of Chlor a and phytoplankton populations by state and federal agencies were inadequate to see and understand the effects of Corps operations on Water Quality. As of October 2, 2008, Total Nitrogen south of Franklin exceeded to water quality standards with a reading of 6 mg/L. Scientists and environmental engineers working with the City of LaGrange are concerned that the lowering of the lake for flood control or to meet downstream flows under the RIOP may be detrimental to water quality and exacerbate these apparent violations of the Clean Water Act. We believe the Corps must develop operating concepts and plans as an alternative that demonstrate improved water quality by maintaining lake elevations in the 633-635 MSL range.

Corps operations that result in fluctuations in elevation must be stopped and the lake must be stabilized at higher elevations. The relationship between adequate water quantity in the impoundment for water quality and the need for adequate water surface area can no longer be ignored by the Corps. An operations alternative must be developed as part that assures WQ standards are met, and that the WQ standards are at proper levels for the project. Simply put the Corps must operate the project in a manner that assures compliance with the Clean Water Act. The City of LaGrange will maintain its test regime and cooperate with the states and the Corps in sharing data to assure that data exists to use in this analysis. But the Corps must bring the project into compliance by maintaining higher and stabile lake levels.

- The use of West Point Lake to support downstream navigation should not be considered in any alternative in operation plans without adequate study of the ecological and other environmental damages caused by the likely lake fluctuations to support that activity. Water Quality will likely be impacted under such use that results in rapid lake elevation fluctuation .In addition the damage to the recreational use, and sport fishing and wildlife component of the lake must be assessed before giving any consideration of such alternative operations . Heretofore such operations were made whenever water was thought to be adequate, without any consideration of environmental or economic damages at West Point .

In summary we no longer live in the 1940's 50'60's70' or 80's. The ACF system operates in a new millennium. Demographics, development patterns, climate changes and other factors have brought forth an entirely new reality the Corps must contemplate and

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address in a new water Control manual for the basin. A "quick and dirty" EIS and shot at a new water control manual that skims through the massive issues facing West Point Lake and the ACF basin can not be an option for consideration by the Army. Only the most thorough study and vetting resulting in a cultural change in the Corps understanding and management of the system will assure a basin that meets the needs for future generations. Bringing basin operations back in line with what Congress intended at West Point is most important.

We ask that each of these items and the comments of local stakeholders be used to develop operations plan alternatives that yield a constantly higher lake elevation at the West Point project in the 633-635 range for this EIS and the resulting Water Control Manual.

The staff of the City of LaGrange, and other local stakeholders stand ready to engage the Corps on these issues and to supply supplemental information in support of the issues outlined in this submittal. Thank you for the opportunity to submit this statement.

Sincerely,

W. Jeff Lukken
Mayor

WJL/so

c: Senator Saxby Chambliss
Senator Johnny Isakson
Congressman Lyn Westmoreland
City Council Members

West Point Lake Coalition, Inc.

Non-Profit Organization
P.O. Box 3677 · LaGrange, Georgia 30241
706-884-5916
www.westpointlakecoalition.org

October 21, 2008

On behalf of the West Point Lake Coalition and its approximately 1,200 members and its Corporate Sponsors, we submit the following comments as part of the Scoping Process re: the revised Water Control Plan study:

No single public resource in the west Georgia, east Alabama region exerts more social, environmental, and economic influence than the management and operations of the West Point Project. As such it is important that Scoping for the Environmental Impact Statement for updated and new Water Control Manuals for the Apalachicola-Chattahoochee – Flint River system recognize that critical operating changes must be made at West Point Lake for the project to fulfill its obligations as mandated by Congress when it authorized the project in 1962.

Congress established 5 specific PRIMARY authorized uses for the project:

- Hydropower
- Sport fishing and Wildlife development
- General recreation
- Navigation
- Flood Control

In the report of the Corps' Chief Engineers to Congress it was clear that General Recreation, Sport Fishing and Wildlife Development, and Hydropower comprised the vast majority of the financial benefit assigned to the project. This report was completed in the context of real estate/industrial development and social economic activity of the era around 1962 when west Georgia and east Alabama were largely rural and undeveloped.

That has all changed! This region is growing rapidly and is now totally surrounded by massive population growth in the surrounding MSA's of Atlanta, Auburn/Opelika, and Columbus. New influences have taken over and control the environmental and socio economic factors that relate to the benefits and utilization of West Point Lake. Many of these have not been addressed and/or have been ignored by the Corps in its operations. These include massive urbanization and growth of the area and counties surrounding the lake, industrial development from sources such as the KIA manufacturing complex, the growth of Ft.Benning, and its contingent of citizens and soldiers that often rely on West Point Lake's facilities for recreation and sport fishing and wildlife

What we observe is that the Corps operates West Point Lake specifically and the ACF system in general in a way that ignores the original, PRIMARY congressional authorizations as a group and focuses extensively on flood control as well as downstream and upstream demands that do not meet the purposes set forth by Congress. It appears that the Corps has established the flood control authorization as THE primary purpose;

and therefore created a subset of SECONDARY authorizations for Recreation, Sport Fishing & Wildlife Development, Hydropower, and Navigation. The West Point Lake Coalition and the stakeholders who surround, use, and rely on the lake believe strongly that the resources at West Point Lake have been and continue to be utilized, as the Corps terms it, "the Workhorse" of the ACF basin. Nowhere in the Congressional authorization does Congress empower the Corps to take the resources at West Point and to use them exclusively for purposes other than those set by Congress. The system had been previously operated for many years prior to the development of West Point Lake. However, because the Corps found less development and population in the early years of development surrounding the lake, and by using the justification that it could refill the West Point project quickly, it consistently took the lake level up and down like a yoyo and utilized the water there to address other purposes.

Over the years we have seen the Corps focus on addressing flow needs as follows:

- for thermo electric power plants lying south on the Chattahoochee and on the Apalachicola Rivers
- to compensate for losses from consumptive use
- by making releases to provide supplemental waters on the Apalachicola from flows lost to agricultural and consumptive use on the Flint
- to provide for waste assimilation needs for communities lying south of West Point that fail to adequately clean their waste water

In the process the Corps has ignored the specific and primary authorizations for the West Point project to address needs it felt were important elsewhere , thus sacrificing the specific primary authorized purposes set by Congress.

Two key operational standards have, more than any other, empowered the Corps to operate the lake in this manner. The Corps has operated the project as if only flood control was a primary authorized purpose, with what they have established as a winter pool of 625-628 MSL, well below the initial recreational impact level of 632.5 and the secondary recreational impact level of 630 MSL set by the Corps, levels where they recognize recreational use becomes compromised. Contrary to the Congressional authorizations, recreation and sport fishing and wildlife development are hugely sacrificed to meet this one purpose during the winter months. All the while the Corps refuses to adapt its management practices to adequately utilize flood storage capabilities present in the lake between 633 and 641 MSL. By the Corps' own admission, West Point Lake can not stop downstream flooding. It never could! At least 2 more lakes were needed above West Point Lake that were never authorized or built to adequately support that operational goal. Consequently, managing West Point Lake in an attempt to guarantee flood protection has had a devastating economic impact on the communities surrounding the lake. No one can guarantee flood protection; Mother Nature, at some point, will always win. People and businesses who and which live and operate in flood plains do so at their own risk.

3.

When the West Point Project was authorized, the Corps "arbitrarily" assigned action zones to the lake. These zones allow the Corps to draw water to pre-established levels in its operations with other lakes on the system during different times of the year and during different types of conditions. The zones were not established in the enabling legislation- they were "arbitrarily" defined by the Corps. And they have been applied by the Corps to allow the operators of the system to use resources at West Point Lake for various perceived needs, most of which were not and are not authorized purposes. No two factors have caused as much harm and had such devastating economic impacts as the application of the rule curves and action zones at West Point Project. It is essential that this be corrected and that a maximum draw down level of 633 MSL for winter pool and a stable 635 summer pool under all but the most grave emergency, be established for West Point Lake.

Thus, it is our contention that to meet the primary congressional authorization, the Corps must fill and stabilize West Point Lake, basically as a "run of the river lake", while offering flows that mirror a natural flow regime- even during drought and flood conditions, for the rest of the system. Only then will the Congressional authorizations be met by the Corps as required by Congress.

The following additional factors must be addressed and alternative operations must be identified and adopted following the conclusion of the EIS process. These factors are suggested as viable options to the operations currently utilized under the Corps' management plan.

- In 2007 the LaGrange- Troup- Valley Chambers of Commerce commissioned an independent study by a qualified economic, analytical firm to address the impacts of varying lake levels on the local economy. The results were astounding. The lost economic opportunity is essentially an adverse impact of the greatest magnitude, based on current operations by the Corps, of hundreds of millions of dollars annually! The report is attached and tendered with this document for use with the EIS. Numerous small business owners have lost their businesses and their life savings; many are in bankruptcy. Only by raising and stabilizing lake levels to the 633- 635 level can this be corrected. We ask that the report be reviewed in its entirety and be considered as primary support for an alternative to current operations.
- We ask that, as an alternative to current operations, action zones be considerably narrowed and/or reduced to a range varying no more than three feet with a level never lower than 633 MSL- except for dire emergency. This basically puts the lake in the category of a "run of the river lake" with a constant stabile elevation to meet the Congressional authorizations for the project. This also puts the action zones/rule curves in line with Lake Lanier whose rule curve only varies one foot and with Lake Walter F George whose rule curve only varies two feet!

4.

- The Corps has not adequately funded, or maintained in good, operational condition many of the recreational facilities paid for by taxpayers and established by Congress for the project. The loss of these facilities, coupled with consistently low lake levels, has adversely impacted the recreational potential of West Point Lake as well as its economic benefit! The Corps points to lower funding levels that prevent their continued operations of these facilities. All recreational facilities at West Point Lake should remain open and those that are closed must be reopened with adequate funding to meet the Congressional authorization and to utilize the investment made by US Taxpayers in these facilities. The Corps must come to recognize that low visitor-ship is DIRECTLY tied to low lake levels and aesthetic damage to the project caused by winter draw downs and over use of project waters under the harsh action zone configuration. The Corps must also recognize that the mild climate in this region allows for recreational use of the project year round- not just during the warmer spring summer and fall. Rates for use of facilities must be market based and the Corps must be allowed to retain revenues collected on the project site to fund project maintenance and operations.
- We believe the federal government has largely ignored the critical issue of Environmental Justice. A preliminary report by LaGrange College and our knowledge of our own communities make us keenly aware that the Corps has not paid close enough attention to the needs and expectations of lower income and minority populations surrounding the West Point project who rely on the facility for sustenance, for water based recreation, and for shoreline recreation. A simple review of census data will reveal that this issue can not be ignored and that operations must be revised to raise and stabilize elevations at the lake to meet the needs of these populations. Lower income and minority families and individuals consistently rely on the project as their source of shoreline recreation and a source of fish for sustenance. The current operations work directly opposite of those interests. It is essential that the full pool/ run of the river alternative be considered to adequately address the needs of the families and individuals and to comply with the letter of the Executive Order that applies to Environmental Justice. Simply put, shoreline and water borne recreation are less desirable, inaccessible , and more dangerous, if not totally eliminated, during draw downs.
- Action zones at the West Point project must be significantly reduced in their magnitude. The harshness and severity of action zones at West Point are far worse than other lakes on the ACF system. Their use as a resource management tool compounds problems and makes year round recreational use difficult, if not impossible to achieve, due to their widely ranging elevations. The use of these harsh action zones is made worse by the geography that forms the lake. West Point's location in the piedmont and its associated topography shape it like a salad bowl and exacerbate the massive differential in action zone elevations. The result is that West Point Lake is often left as a largely unusable mud flat, while the action zone management tool proceeds to remove water from the lake to address other questionable and non authorized uses in other parts of the basin. At a winter

drawdown of 7 feet, 20% of West Point's surface area or 5,249 acres are exposed causing continual soil erosion and sedimentation.

- Water quality has suffered greatly as a result of the Corps' rapid and frequent fluctuations of the lake. Compliance with the Clean Water Act by the Corps under current operations is at best highly questionable, if in fact it is being achieved. This year local stakeholders were stunned to find out that the largest and first federal impoundment south of one of the largest urbanized areas in the country, was only receiving the most minimal of attention. State testing regimes are only one time monthly, 6 months of the year, at only 2 locations in a very large reservoir, approximately 26,000 surface acres.

In the summer of 2008, the City of LaGrange, Troup County, the Chamber of Commerce and other local interests began an extended Water Quality test regime for the lake that is far more in depth and extensive than any currently underway by state or federal agencies.

The Chlorophyll a benchmark for water quality is set at an artificially high level at 27 Mg/l, far in excess of what appropriate standards are for southern lakes. Most recently local stakeholders were shocked by information revealed in the local test program that the Total Nitrogen standard for the lake was in violation of the standards set for the lake under the Clean Water Act. Third party environmental engineers and scientist working with the City are deeply concerned that the lowering of lake levels may further damage WQ in the project. We believe that constant fluctuation of lake levels may be damaging the ecosystem and water quality within the project.

Further examples of this occurred in 2007 under IOP operations when West Point Lake was drained to near record lows during extremely warm weather. Blue-Green algae blooms were experienced by the City of LaGrange's water intakes and processing operations. This was a clear indicator that nutrient levels at that time were at high levels, but testing of Chlor a and phytoplankton populations by state and federal agencies was inadequate to see and understand the effects of Corps' operations on Water Quality.

Corps operations that result in fluctuations in elevation must be limited and the lake must be stabilized at higher elevations. The relationship between adequate water quantity in the impoundment for waste assimilation and the need for adequate surface area can no longer be ignored by the Corps. An operations alternative must be developed that assures WQ standards are met, and that the WQ standards are at proper levels for the project. Simply put, the Corps must operate the project in a manner that assures compliance with the Clean Water Act. The City of LaGrange will maintain its test regime and cooperate with the states and the Corps in sharing data to assure that good data exists to use in this analysis.

But the Corps must bring the project into compliance by maintaining higher and stabile lake levels.

We ask that each of these items and the comments of local stakeholders be used to develop an operations alternative that results in a constantly higher lake elevation at West Point Lake in the 633-635 range for this EIS and the resulting Water Control Plan.

The West Point Lake Coalition and other local stakeholders stand ready to engage the Corps on these issues and to supply any needed supplemental information. Thank you for the opportunity to submit this statement.

Dick Timmerberg
Executive Director
West Point Lake Coalition

Effects of Drawdown
Lakes Lanier, West Point & W. F. George

Drawdown (Below Normal Summer Pool)	**Exposed Ground Lake Lanier** (38,000 Acres) (Elevation / Acres / % of Reservoir Area)	**Exposed Ground West Point Lake** (25,900 Acres) (Elevation / Acres / % of Reservoir Area)	**Exposed Ground W. F. George** (45,181 Acres) (Elevation / Acres / % of Reservoir Area)
1 Foot	1070 / 518 Acres / 1%	634 / 797 Acres / 3%	189 / 1,516 Acres / 3%
2 Feet	1069 / 1,027 Acres / 3%	633 / 1,578 Acres / 6%	188 / 2,970 Acres / 7%
3 Feet	1068 / 1,527 Acres / 4%	632 / 2,344 Acres / 9%	187 / 4,446 Acres / 10%
4 Feet	1067 / 2,020 Acres / 5%	631 / 3,093 Acres / 12%	186 / 5,971 Acres / 13%
5 Feet	1066 / 2,506 Acres / 7%	630 / 3,827 Acres / 15%	185 / 7,397 Acres / 16%
7 Feet	1064 / 3,463 Acres / 9%	628 / 5,249 Acres / 20%	183 / 10,301 Acres / 23%
9 Feet	1062 / 3,932 Acres / 10%	626 / 6,612 Acres / 26%	181 / 13,284 Acres / 29%
10 Feet	1061 / 4,852 Acres / 13%	625 / 7,271 Acres / 28%	180 / 14,604 Acres / 32%
11 Feet	1060 / 5,304 Acres / 14%		
15 Feet	1056 / 7,081 Acres / 18%	620 / 10,352 Acres /40%	175 / 25,724 Acres / 57%

LaGrange Troup County Chamber of Commerce

RECEIVED 11-3

October 28, 2008

Colonel Byron Jorns
Commanding Officer
U.S. Army Corps of Engineers
Mobile District
P.O. Box 2288
Mobile, AL 36628-0001

RE: ACF Scoping

Dear Colonel Jorns:

The West Point Lake Advisory Council was established in January, 2007 by the Troup County Chamber of Commerce. Our initial goal was to raise $250,000.00 to fund separate studies on environmental issues relative to West Point Lake affected by how the United States Corps of Engineers manages the lake, an economic impact analysis of same, as well as to investigate whether there are any environmental justice issues resulting from their management. We raised $282,000.00 and all three studies have been completed. Since the inception of our council, we have worked very closely with the City of LaGrange. What follows is the letter they have sent you. Since the content of that letter has evolved with our council being very involved, we understand what is being said and endorse if 100%. Being a committee of the Chamber, we believe that it best serves our 800+ members.

No single public resource in the west Georgia, east Alabama region exerts more social, environmental, and economic influence than the West Point Lake Project. As such, it is important that Scoping for the Environmental Impact Statement for updated and new Water Control Manuals for the Apalachicola-Chattahoochee–Flint River system recognize that critical operating changes must be made at West Point Lake for the project to fulfill its obligations as mandated by Congress when it authorized the project in 1962.

Congress established 5 specific PRIMARY authorized uses for the project:

- Hydropower
- Sport fishing and Wildlife development
- General recreation
- Navigation
- Flood Control

In the report of the Corps Chief Engineers to Congress, it was clear that General Recreation and Sport fishing and Wildlife development when combined carried along with hydropower development the vast majority of the financial benefit assigned to the project. This report was completed in the context of development and social economic

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activity of the era around 1962 when west Georgia and east Alabama were largely rural and undeveloped.

Since that time, changes have occurred in this region that demand even more attention by the Corps of Engineers on the primary authorized uses of sport fishing, wildlife development, and general recreation. This region is growing rapidly and is now totally surrounded by the massive population growth of the Atlanta, Auburn Opelika, and Columbus MSA's. New influences have taken over and control the environment and socio-economic factors that relate to the utilization of the lake. Many of these have not been addressed or are ignored by the Corps in its operations. These include massive urbanization and growth of the area and counties surrounding the lake, industrial development from sources such as the KIA manufacturing complex, the growth of the Fort Benning complex and its contingent of citizens and soldiers that often rely on West Point Lake's facilities for recreation and sport fishing and wildlife.

Yet what we have observed is that the Corps operates the lake and the system in its own way that ignores the original PRIMARY congressional authorizations, while focusing exclusively on flood control needs and addressing downstream and upstream demands that may not even meet the purposes set forth by Congress. Our observations, and those of the stakeholders who surround, use and rely on the lake, is that the project has been used as, using the Corps terms, "the workhorse" of the basin. Nowhere in the Congressional authorization does Congress empower the Corps to take the resources at West Point and to use them exclusively for purposes other than those set by Congress. The system had been operated for many years without West Point Lake. Yet because the Corps found less development and population in the early years of development surrounding the lake, and by using the justification that it could refill the West Point project quickly, it thought it could utilize the water there to address other purposes.

Over the years we have seen the Corps focus on addressing flow needs:

- for thermo electric power plants lying south on the Chattahoochee and on the Apalachicola,
- to compensate for losses from consumptive use
- by making releases to provide supplemental waters on the Apalachicola from flows lost to agricultural and consumptive use on the Flint
- to provide for waste assimilation needs for communities lying south of West Point that fail to adequately clean their waste water

In the process the Corps has ignored the specific and primary authorizations for the West Point project to address needs it felt were important elsewhere, thus sacrificing the specific primary authorized purposes set by Congress.

Two key operational standards have, more than any other, empowered the Corps to operate the lake in this manner.

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1. The Corps operates West Point Lake in a manner that assures only flood control is a primary authorized use, and all other purposes are relegated to a lesser importance. They have established a winter pool of 625-628 MSL, well below the initial recreational impact level of 632.5 set by the Corps as the level at which recreational use becomes compromised. Contrary to the Congressional authorizations, recreation and sport fishing and wildlife development are sacrificed- almost in their entirety- to meet this one purpose during the winter months. All the while the Corps refuses to adapt its management practices to adequately utilize flood storage capabilities between 633 and 641 MSL in the lake. By the Corps' own admittance, West Point Lake alone cannot stop downstream flooding. Such a goal would be impossible. At least 2 more lakes were to be developed above West Point Lake that were never authorized or built to adequately support that operational goal. Thus, attempting to manage a project for a task for which the lake was never capable of fulfilling, has had a devastating impact on the communities surrounding the lake.

   This is a major error in current operations and alternatives must be developed to assure West Point Lake is operated with recreation as the PRIMARY purpose established by Congress.

2. When the lake was first conceived, the Corps arbitrarily assigned action zones to the lake. The zones allow the Corps to draw water to established levels in its operations with other lakes in the region during different types of drought conditions. The zones were not set up in the enabling legislation- they were established by the Corps. They were merely applied by the Corps to allow the operators of the system to use resources at West Point for other perceived needs, some of which were not authorized purposes. No factors have caused as much harm, especially during the fall and summer months, as the application of the rule curves and action zones at West Point Project. It is essential that this be corrected and that a maximum draw down level of 633 MSL for winter pool and a stable 635 summer pool under all but the most grave emergencies, be established for West Point Lake.

Thus, it is our contention that to meet the primary Congressional authorization of recreation, the Corps must fill and stabilize West Point Lake, basically as a "run of the river lake", while offering flows that mirror a natural flow regime - even during drought and flood conditions, for the rest of the system. Only then will the Congressional authorizations be met by the Corps.

The following additional factors must be addressed and alternatives for operations must be identified and considered within the EIS for the project. These factors are suggested as alternatives to the operations currently utilized under the Corps operations.

- The use of the waters from West Point Lake to provide minimum flows for waste assimilation or municipal or industrial needs downstream is contrary to the authorized use of the lake. Those wastewater treatment dischargers (municipal or

industrial) downstream of West Point Dam have no entitlement or authority for any flow greater than the minimum flow of 650 CFS. This was the minimum flow authorized by Congress in accordance with the 1962 Chief of Engineers report that formed the basis for the Congressional authorization. Downstream users and permit holders must improve their wastewater treatment systems to assure their discharges are treated to a level that complies with water quality standards. The use of West Point's waters to dilute substandard point and non point source discharges downstream, or to provide water for industrial and thermo electric power operations must be stopped and should not be included in any revised or new operating plan alternative.

It is the responsibility of downstream wastewater treatment discharge permit holders, to design and operate their discharge systems in a manner that assures compliance with water quality standards without using the limited waters available in West Point Lake.

- In 2007 the LaGrange-Troup-Valley Chamber of Commerce commissioned an independent study by a qualified economic analyst to address the impacts of varying lake levels on the local economy. The results were astounding. The lost economic opportunity is essentially an adverse impact of the greatest magnitude. Economic losses based on current operations by the Corps could approach $600 million dollars annually. The report is attached and tendered with this document for inclusion with the EIS. Only by raising and stabilizing lake levels to the 633-635 level can this be corrected. We ask that the report be included in its entirety and be considered as primary support for an alternative to current operations.

- The Corps has not adequately funded or maintained in operational condition many of the recreational facilities paid for or established by Congress for the project. The loss of these facilities, along with consistently low lake levels, has adversely impacted the recreational potential and capabilities of providing recreation at the lake. The Corps points to lower funding levels that prevent their continued operations of these facilities. All recreational facilities at the West Point Project must remain open and those that are closed must be reopened with adequate funding to comply with the Congressional authorization and to utilize the investment made by US Taxpayers in these facilities. The Corps must come to recognize that low visitor-ship is DIRECTLY tied to low lake levels and aesthetic damage to the project caused by winter draw downs and over use of project waters under the harsh action zone configuration. The Corps must also recognize that the mild climate in this region allow for recreational use of the project year round- not just during the warmer spring summer and fall. Rates for use of facilities must be market based and the Corps must be allowed to retain revenues collected on the project site for project maintenance and operations.

- We sense the federal government has not paid adequate attention to the critical issue of Environmental Justice. A preliminary report by LaGrange College (attached) and our own knowledge of our own communities make us keenly

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aware that the Corps has not addressed the needs and expectations of lower income and minority populations surrounding the West Point project that rely on the facility for sustenance, and for water based and shoreline recreation. A simple review of census data will reveal that this issue cannot be ignored and that operations must be revised to raise and stabilize elevations at the lake to meet the needs of these populations. Lower income and minority families and individuals consistently rely on the project as their source of shoreline recreation and source of fish for sustenance. The current operations work directly opposite of those interests. A full pool 633-635 MSL- "Run of the River" alternative must be considered to adequately address the needs of the families and individuals and to comply with the letter of Executive Order 12898 that applies to Environmental Justice. Simply put, shoreline and water borne recreation are less desirable, inaccessible, are more dangerous or is eliminated totally during draw downs.

- Action zones at the West Point project must be eliminated or significantly reduced in their magnitude. The harshness and severity of action zones at West Point are far worse than any other lakes on the ACF system. Their use as a resource management tool compounds problems and makes the recreational use difficult if not impossible to achieve due to their widely ranging elevations. The use of these harsh action zones is made worse by the geographical relief that shapes the lake. West Point's location in the piedmont and its associated topography that shapes it like a salad bowl, exacerbate the massive differential in action zone elevations. The result is West Point is often left to being an unusable mud flat, while the action zone management tool proceeds to remove water from the lake to address other questionable non authorized uses in other parts of the basin.

  We ask that as an alternative to current operations that action zones be eliminated in their entirety or be reduced to a complete range with a level never lower than 633 MSL- except for dire emergency. This basically puts the lake in the category of a "run of the river lake" with a constant stable elevation to meet the Congressional authorizations for the project.

- The Interim Operating Plan (IOP) and the Revised Interim Operating Plan (RIOP) are inherently flawed with regards to their influence on West Point Lake. Major changes in operations were made throughout 2006, 2007 and into 2008 without adequate study or understanding of the impacts of IOP and RIOP operations on West Point Lake. No "in depth" study has been made of the presence of, or the impact on, endangered species or any other fish and wildlife that may exist in the lake or in the tributaries in West Point Lake that may be affected by rapid lake level fluctuations. Stakeholders in the area have observed massive kills of native mussels in the project boundaries when the Corps operates the dam to provide massive rapid draw downs for downstream flows. No studies of the impacts to flora and fauna have been completed to adequately assess these issue damages resulting from operations and lake fluctuations.

- At the same time adequate testing and study of the impacts on water quality at West Point associated with IOP and RIOP operations were never completed. There was no "in depth" assessment of how the implementation of these two operating plans would affect water quality and maintain that the Corps was in compliance with the Clean Water Act. All indications are that during the initial implementation of the IOP and RIOP that Water Quality was compromised as a result of the improper implementation of these two operating plan modifications. The further use of the plans, without adequate study and science to ascertain they are not damaging water quality or the ecosystem on West Point Lake is a critical action that cannot be avoided by the Corps, in current operations or under proposed changes to the WCM.

- West Point Lake has no Congressional authorization to provide water to supplement lost or reduced flows resulting from agricultural demands or drawdown's impacting the Flint River. All calculations for flows at Jim Woodruff Lock and Dam (JWLD) must be predicated only on available flows from the Flint. If agricultural interests are adversely impacting flows on the Flint, it is improper to make up those lost flows using waters impounded in West Point Lake. Congress made no authorization to use West Point to supplement agricultural consumptive use. Thus any operating plan design that is based the use of West Point waters to make up for water consumed on the Flint must be eliminated.

- We contend the Corps cannot select the IOP, RIOP or a designated baseline year as foundation for the development of the new Water Control manuals and associated EIS. Instead it is imperative that the Corps and all involved federal agencies engage in the WCM process with a "clean slate". Then and only then can the magnitude of the problems in the basin be corrected. Any thought by the Corps of selecting a given year of operations since the advent of West Point Lake as a baseline operating year must be abandoned. Such a concept would assume that during that year, the Corps operated the system in total compliance with all authorized uses on the system. In fact that has never occurred- especially at the West Point project.

- Water quality has suffered greatly as a result of the Corps rapid and frequent fluctuations of the lake. Compliance with the Clean Water Act by the Corps under current operations is at best highly questionable, if in fact it is being achieved. This year local stakeholders were stunned to find out that the largest and first federal impoundment south of one of the largest urbanized areas in the country, was only receiving the most minimal of attention. State testing regimes are only one time monthly, 6 months of the year, at only 2 locations. That is grossly inadequate to address water quality concerns for an impoundment of almost 28,000 acres of surface waters.

  In the summer of 2008, the City of LaGrange, Troup County, the West Point Lake Coalition and the West Point Lake Advisory Council of the Chamber of Commerce and other local interests began an extended Water Quality test regime

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  for the lake that is far more in depth and extensive than any currently underway by state of federal resources.

  The Chlorophyll, a benchmark for water quality, is set at artificially high level at 27 Mg/l, far in excess of what appropriate standards are for southern lakes. Local efforts are underway to compel GA\EPD to improve the standard and to bring West Point Lake in line with other southern lakes.

  Most recently local stakeholders were alerted by information revealed in the local test program that the Total Nitrogen standard for the lake may be in violation of the standards set for the lake under the Clean Water Act. Third party environmental engineers and scientist working with the City are deeply concerned that the lowering of lake levels may further damage WQ in the project. We believe that constant fluctuation of lake levels may be damaging the ecosystem and water quality within the project.

  Further examples of this occurred in 2007 under IOP operations when West Point Lake was drained to near record lows during extremely warm weather. Algae blooms were experienced by the City of LaGrange's water intakes and processing operations. This was a clear indicator that nutrient levels at that time were likely at high levels, but testing of Chlor a and phytoplankton populations by state and federal agencies were inadequate to see and understand the effects of Corps operations on Water Quality. As of October 2, 2008, Total Nitrogen south of Franklin exceeded to water quality standards with a reading of 6 mg/L. Scientists and environmental engineers working with the City of LaGrange are concerned that the lowering of the lake for flood control or to meet downstream flows under the RIOP may be detrimental to water quality and exacerbate these apparent violations of the Clean Water Act. We believe the Corps must develop operating concepts and plans as an alternative that demonstrate improved water quality by maintaining lake elevations in the 633-635 MSL range.

  Corps operations that result in fluctuations in elevation must be stopped and the lake must be stabilized at higher elevations. The relationship between adequate water quantity in the impoundment for water quality and the need for adequate water surface area can no longer be ignored by the Corps. An operations alternative must be developed as part that assures WQ standards are met, and that the WQ standards are at proper levels for the project. Simply put, the Corps must operate the project in a manner that assures compliance with the Clean Water Act. The City of LaGrange will maintain its test regime and cooperate with the states and the Corps in sharing data to assure that data exists to use in this analysis. But the Corps must bring the project into compliance by maintaining higher and stabile lake levels.

- The use of West Point Lake to support downstream navigation should not be considered in any alternative in operation plans without adequate study of the ecological and other environmental damages caused by the likely lake fluctuations

to support that activity. Water Quality will likely be impacted under such use that results in rapid lake elevation fluctuation. In addition the damage to the recreational use, and sport fishing and wildlife component of the lake must be assessed before giving any consideration of such alternative operations. Heretofore such operations were made whenever water was thought to be adequate, without any consideration of environmental or economic damages at West Point.

In summary, we no longer live in the 1940's, 50', 60's, 70' or 80's. The ACF system operates in a new millennium. Demographics, development patterns, climate changes and other factors have brought forth an entirely new reality the Corps must contemplate and address in a new water Control manual for the basin. A "quick and dirty" EIS and shot at a new water control manual that skims through the massive issues facing West Point Lake and the ACF basin cannot be an option for consideration by the Army. Only the most thorough study and vetting resulting in a cultural change in the Corps' understanding and management of the system will assure a basin that meets the needs for future generations. Bringing basin operations back in line with what Congress intended at West Point is most important.

We ask that each of these items and the comments of local stakeholders be used to develop operations plan alternatives that yield a constantly higher lake elevation at the West Point project in the 633-635 range for this EIS and the resulting Water Control Manual.

The West Point Lake Advisory Council stands ready to engage the Corps on these issues and to supply supplemental information in support of the issues outlined in this submittal. Thank you for the opportunity to submit this statement.

With regards,

Jeff Brown

Jeff Brown, Chairman
West Point Lake Advisory Council

Economic Impact of West Point Lake

At

Various Lake Water Levels

Prepared by:

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Prepared for:

City of LaGrange, GA and local stakeholders

December 15, 2007

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I. INTRODUCTION

A. Background

This study was commissioned by the City of LaGrange, Georgia, Troup County, LaGrange-Troup County Chamber of Commerce and other significant east Alabama/west Georgia stakeholders. The analyses were also prepared in partnership with the Valley Chamber of Commerce and the West Point Lake Coalition, a non-profit, non partisan group of area residents dedicated to the protection and promotion of West Point Lake. All of these entities are interested in maintaining stable and high water levels at full pool for recreational use at West Point Lake.

This analysis compares the total economic impact of West Point Lake at current depressed water levels, with the total potential economic impact of West Point Lake if water levels were to increase to specific levels all-year round. Much information was gained from researching past studies and conducting local interviews (see ***Appendix A*** for a list of stakeholders interviewed).

Estimates of economic impact and economic value associated with an increase in water levels are presented. These estimates capture the way in which spending ripples through the economy to support job and income creation.

The study provides estimates of net economic impact, i.e., the jobs and income that would accrue to the region from local and nonresident spending should lake levels be maintained all year round at or near 635 feet above mean sea level (msl), which represents the lake's "Normal Summer Level", according to the US Army Corps of Engineers (USACE or Corps), who constructed and manages this lake. Also presented are estimates of gross economic impact, which reflect changes in spending from a change in lake levels.

B. Purpose of Study

West Point Lake has been plagued by low water levels in recent years. As a man-made reservoir, water levels are controllable. The USACE manages the water levels and releases water at the dam site.

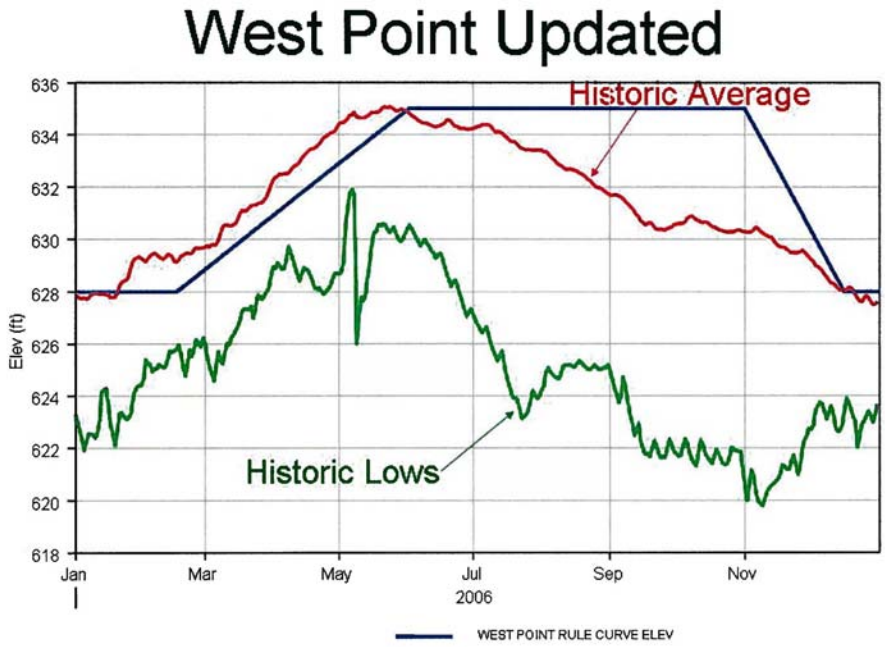
The chart below presented to City officials in November 2006 depicts the historical water levels as compared to the current USACE operating plan water

levels at West Point Lake. Water levels depicted in the red and green lines (historic highs and lows) as compared to blue line (USACE operating plan) explain that since about May 2006 the USACE has ***operated far below its own plan*** for water levels at West Point Lake. Further, the next chart shows that basin storage at West Point Lake (13% of storage capacity) is far below that of other USACE-operated lakes in the region, such as Buford/Lake Lanier (51%), WF George (21%) and Lake Seminole (51%).

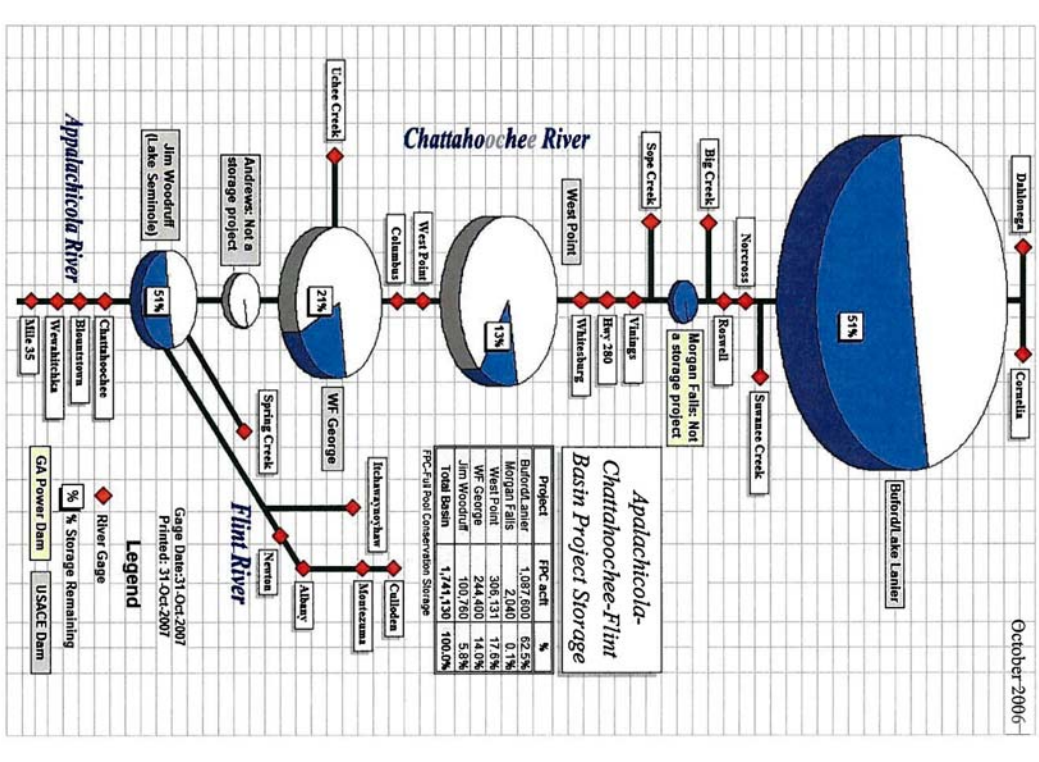
The water level is highly influenced by the level of rainfall that occurs, by inflow from upstream sources and by releases to downstream interests. In a period of prolonged drought, lake levels would logically be drawn down from lack of incoming water streams. At the same time decreased amounts of water would expect to be released from the dam, which would help to stabilize lake levels around a predictable range year-over-year. However, increased withdrawals from the Atlanta region and forced releases downstream to accommodate other demands results in low and volatile water levels.

When rainfall is abundant, officials would be expected to release greater amounts from the dam to stabilize water levels. In recent years lake water levels have been volatile, have reach surprising lows and have infrequently if ever returned to full pool in a few months. This volatility has local officials concerned enough to seek a study on the economic impact of volatile lake water levels.

Economic Impact of West Point Lake at Various Lake Water Levels



Economic Impact of West Point Lake at Various Lake Water Levels



Existing key pool lake level thresholds set by the USACE are:

- 641 feet msl: top flood capacity pool
- 635 feet msl: optimal pool level
- 632 feet msl: initial recreational impact level
- 630 feet msl: second recreational impact level
- 628 feet msl: winter flood control level

As of October 2007, though, the lake pool level was significantly lower at 622 feet msl. According to officials interviewed for this report, and to the USACE itself, for maximum enjoyment and safety, the full lake pool should be 635 feet msl. At levels of 633 feet msl and below, the lake and local economy are negatively affected in many ways including:

- diminished recreation value
- continued shoreline erosion and sedimentation
- significant financial impacts on marinas, lake related businesses, and home owners
- boat ramps and floating docks becoming grounded
- dangerous safety conditions
- environmental harm
- aesthetically displeasing to prospective industries
- disincentive to new development uses

Hence, BBPC has been commissioned to identify and, where possible, quantify these economic impacts. A baseline was established which described total direct and indirect economic impacts at current water levels. *Much of the data used to establish the baseline was derived using standards set by the US Army Corps of Engineers.* Then, two other analyses were performed to illustrate economic impacts if higher-than-current water levels were maintained.

Thus, the purpose of the study results can be used by decision makers to answer a fundamental question:

Do the economic benefits derived from higher lake water levels offset the costs of downstream flood measures, upstream uses and downstream demands, thereby making the case to incur these costs to realize the greater economic benefits of maintaining higher lake water levels?

C. Definition of Economic Impact

Economic impact occurs when a resident or visitor to an area spends money in that area – no matter what the reason. The benefits to local economy, however, go beyond the basic impact of the dollars spent in the area. These resident / visitor expenditures create a chain effect. The direct effects or impacts of these expenditures become evident as the recipients of these monies in turn pay wages, earn income and pay taxes.

Furthermore, these direct recipients spend their income, thereby creating indirect impact for more jobs, wages, salaries, proprietary income and tax revenues. These direct and indirect effects together equal the total economic impact of all expenditures in the area.

The primary economic effects of lake draw-downs are reduced recreation spending (restaurant, retail, motel/hotel, etc), reduced value (i.e. personal satisfaction, quality of life, leisure opportunities, etc) from the recreation experience and reduced property values that arise from limits on lake access and from deterioration in the quality of scenic views. Some of these impacts affect regional well being, while others may affect national welfare. These effects are the focus of this report.

Specifically, the analysis is intended to offer guidance on the economic benefits to a change in lake management policy that would raise West Point Lake to optimal levels year-round. The study provides estimates of economic impact, or the benefits that accrue from recreation-related spending within the region and the value of real estate immediately abutting West Point Lake and/or US Army Corps of Engineer property. There is also an undeniable "intrinsic value" to the public from higher average annual water levels. No economic impacts from hydroelectric generation were calculated.

Economic Impact Analysis

Economic impact analysis captures the way in which spending ripples through an economy creating income and expands government tax bases. Economic impact analysis is often used to examine the consequences of changes from external and internal events and practices on business activity on a regional economy. These economic impact analysis techniques have been used for the West Point

Lake study to estimate the economic affects arising from changes in recreation and tourism activity.

Regional economic impacts remain highly relevant from the perspective of the region that makes decisions and invests resources to enhance its own welfare. Residents, as well as state and local governments, are rightly concerned about the gains and losses that may be experienced through the economic development process.

Economic Value

Economic value is not the same as expenditures, income or jobs. Value is instead what persons are willing to pay to purchase a good or service above and beyond the cost to producers of supplying the good or service. Increased value means people are willing to pay more to buy and consume something; increased willingness to pay is a reflection of increased value. In the current context, if year-round lake levels could be increased to and sustained at a minimum of 633 feet msl, value and willingness to pay would likely increase on the part of many visitors and homeowners.

D. West Point Lake: Background and Characteristics

West Point Lake is a 25,864-acre mainstream Chattahoochee River impoundment that has been in existence since 1974, and is located an hour southwest of Atlanta. Escalating consumptive use of water by those areas north and upstream pose a real threat to activities at West Point Lake. Although most of West Point Reservoir is in Georgia, the lake lies on a 45 mile stretch of the Chattahoochee River between Franklin and West Point Georgia.

The lake was authorized by Congress to provide flood control, hydroelectric power, navigation, sport fishing and wildlife development, and general recreation for the region. The 7,250 foot long West Point dam is remote-control operated by the Mobile District via microwave signals from Walter F. George Dam, located about 90 miles downstream.

West Point Dam is located on the Chattahoochee River 3.2 river miles upstream from West Point, Georgia. West Point Lake's main water body is located in Troup County, Georgia, with the lake's upper reaches extending into Heard County. The southwestern portion

of the lake extends into Chambers County, Alabama, with a very small portion extending into Randolph County, Alabama.

From the dam site, the lake extends 35 river miles northward along the Chattahoochee River. The lake's shoreline stretches 525 miles and contains an area of 25,900 acres at the maximum power pool elevation 635.0 m.s.l. The total project acreage is 58,129 acres, which include a buffer area around the lake from 300 to 500 feet wide. The lake drains an area of 3,440 square miles. West Point Lake is shaped like a "shallow bowl," which causes the exposure of expansive mud flats when water levels drop even inches.

West Point Lake offers an abundance of wildlife and a number of ways to enjoy it. When the lake was created, a forested valley was flooded, trees and other structures were left standing to provide excellent fish habitat.

Man-made fish attractors also improve fishing at the lake. Short mild winters, long warm summers, and gradual transitions between seasons characterize the climate making the project conducive to year-round recreational use. There is some seasonal variation in rainfall with the heaviest rains occurring in the winter and the lightest during the fall.

E. West Point Lake: Water Levels Controversy

A key factor distinguishing management practices at West Point Lake from other multiple-purpose water reservoir projects managed by the USACE is that in November 1973, West Point Lake was identified by the US Congress and by the Chief of Engineers for development as a recreational demonstration project. As such, local officials and stakeholders contend that the Corps has a greater responsibility to ensure recreational uses are not negatively impacted in favor of other Corps responsibilities such as flood control, navigation and hydroelectric power generation, consumptive use upstream and other unauthorized downstream uses.

Local government contentions that Corps management practices must place greater emphasis on recreational impacts are further bolstered by the Corps own Master Plan for the lake, which states:

West Point Lake was developed as a demonstration project for the purpose of providing a wider variety of recreational facilities and opportunities for the public than normally provided at Corps Lakes (Preface to Master Plan).

The Master Plan further states:

As stewards of these lands in the public domain, the Corps of Engineers will continue to provide access and encourage use of the project to the fullest extent possible. We will continue to analyze the existing recreation areas and the changing demand to determine the proper facility mix and identify areas needing rehabilitation, closure or expansion (Master Plan, P.13) (see ***Appendix B*** *for additional related master plan excerpts reflecting USACE recreational goals).*

The USACE recreational plans for West Point Lake also have not been met. The USACE Master Plan (P.32) calls for future development of four (4) "public service areas" or marinas. To date, only two marinas exist -- Southern Harbor (a private property) and Highland. These four public service areas are:

- Crossroad – currently undeveloped
- Potts Road – currently undeveloped
- Wehadkee Creek – currently undeveloped
- Whitaker – currently undeveloped – Highland Marina holds lease

Further, since recreation is a Congressionally-authorized purpose at West Point Lake, and is the first US Army Corps of Engineers Lake in the US to have been specifically authorized and designated by Congress as a "demonstration recreation project," local officials and stakeholders feel justified in demanding that the Corps maintain higher water levels.

However, in recent years, the Corps has dropped water levels at West Point Lake for extended periods of time. Large expanses of exposed mud shoreline, bank erosion and smaller lake surfaces have become the norm, rather than the exception. Complaints from lakefront property owners, boat slip renters and a wide range of other lake uses and visitors have greatly risen.

Further, it is reported that the City of LaGrange spends more to treat drinking water when water levels fluctuate or inflows are lower than outflows to the lake.

In response to these concerns, the West Point Lake Coalition was founded in 2000 with the goal of promoting and protecting West Point Lake for the use of everyone in and around the community. Focuses of the Coalition include lake safety, water level, cleanliness and environmental protection and overall enjoyment and promotion of the lake.

The Coalition, joined by the City of LaGrange, Troup County, LaGrange-Troup County Chamber of Commerce and other interested parties, simply want the Corps to manage West Point Lake as it has been mandated to do—as a recreation project. Local officials and stakeholders point to an "antiquated and inequitable rule curve" being used by the USACE, and an Interim Operating Plan (IOP) that adversely impacts this lake. While other major lakes in the "system" (Lakes Lanier and George) are allowed to normally fluctuate 1-2 feet, resulting in a 1-7% loss of water surface, a 13 foot range resulting in a 33% loss of water surface and greater bank exposure is permitted at West Point Lake.

Demands for heightened downstream flows for Florida marine life has also risen from efforts to protect endangered sturgeon and two species of mussels. Many lawsuits have been filed in the last 15 years in the tri-state "water wars" by Georgia, Alabama and Florida over these issues.

Additionally, lake uses continue to be adversely affected. Below is a recitation of those impacts reported during stakeholder interviews:

- canceled fishing tournaments:
  - cancellation: Georgia Bass Federation Tournament, October 13th-14th, 2007
  - past event, return is contingent upon future water levels – FLW Wal-Mart Fishing Tournament in February 2007. This past winter tournament officials commented that they would not come back if the water levels were low, as they were in February.
- damages to boat bottoms and motorized propellers due to hitting submerged objects and obstructions
- boats aground that can not be retrieved or used until lake levels rise
- at local boat and tackle shops:
  - owner had to find a second job for supplemental income not only to keep his business alive, but himself. Still, everyday is a struggle.
  - revenue has decreased approximately $20,000 a month
  - foot traffic as well as total revenue has decreased approximately 45% - 50%

- as a result of the lack of business, the owners' gas contract with a local gas/oil company was terminated; the shop is now no longer providing unleaded fuel to consumers who once filled up their boats and/or vehicles.
- minnow, a small silvery fish used as bait, sales have dropped dramatically; at optimal water levels, the shop would easily sell 50-75 a day; today, with low water levels, it is a stretch to sell 15 a day; the sport of fishing at the lake has nearly disappeared.
- overall revenue has dropped more than 50%
- hard to keep business up and running
- foot traffic into the store has decreased by roughly 50%-80%
- recently, one shop spent $18,000 after clearing and prepping land located next to the shop, and built a fenced lot to store boats, boat trailers, and campers; currently, only one boat is in storage, even though the maximum capacity of lot is approximately 75 – 100 boats

- most public boat launching ramps are unusable

- the USACE IOP demands release of water downstream to Florida for endangered mussels, which results in inadequate time for the lakes to refill; because of the drought, what is going out is twice what is coming in

- low water levels have directly and indirectly negatively impacted the recruitment of industrial and commercial businesses in and around West Point Lake

  - direct impact

    - the recruitment of small businesses has been difficult greatly due to the fact that smaller businesses are more susceptible to the financial and market risk.
    - large corporations and businesses have much larger factors to take into consideration; however, after assessing the region and learning how the lake has effected the surrounding community in such a way, such impact becomes an important decision making factor.

  - indirect impact

    - drawing large numbers of people to the region has been challenging; West Point Lake is Troup "County's biggest tourist attraction, and now without it, it is hard to bring money and business to the local economy.

    - employees and their families who relocate to the region choose not to reside near the lake due to the poor quality of life and low water levels... why live near a lake where there is no water?; for example, one of the KIA executives decided to buy a house on Lake Harding rather than West Point Lake simply because Lake Harding has the competitive advantage of normal water levels; with West Point Lake's quality of life slowly deteriorating, money and business for the local economy has been redirected elsewhere.

F. Summary of Research Methods and Approach

Three alternative economic impact analyses were prepared:

- Alternative 1: Economic Impact and Value at Low Water Levels of 630 Feet MSL and Below (baseline)

- Alternative 2: Conservative Estimate of Economic Impact and Value at Higher Water Levels (range: 630-633 feet msl)

- Alternative 3: Moderate Estimate of Economic Impact and Value at Optimal Water Levels (range: 633-635 feet msl)

These three alternative calculations utilize and closely follow approaches used by the Corps and the Tennessee Valley Authority (TVA), another public steward of water reservoirs in this region, when it prepares economic impact analyses ("Economic Effects of TVA Lake Management Policy...", May 2003). As such, these figures should be considered defendable.

Those differences arise where the economic value of additional activity precipitated by higher sustained lake water levels has been added. Data was complied from several sources to calculate economic impacts for lake activity at West Point Lake. The lake is a revenue generator for multiple stakeholders including the U.S. Government, local land owners and real estate brokers, marina and tackle shop owners, fishing and boating guides, restaurants and retail store owners and the local citizenry in the form of jobs, which provide salaries and benefits.

In estimating economic impact to fluctuating lake levels, baseline data reflects the current economic impact with the lower than normal lake levels. In addition

to these direct impact analyses, indirect impacts have also been measured. The theory that links spending at more secondary levels of activity not directly traceable to an activity such as recreation and leisure is derived from economics and the models that posit that a dollar spent in the economy has a multiplier effect. This theory is particularly prevalent in Keynesian economic theory.

In Keynesian models, money that is introduced into an economy at any level will be spent several times before it is either saved or invested and therefore not turned over again. For example, a dollar in wages will be spent on groceries, housing, household effects, and leisure activities. A portion of that dollar may even be saved or invested. The dollar will continue to be spent as it changes hand.

Until the dollar is taken out of the economy through savings, investment or perhaps economic loss there will be a multiple of its value to its spending power. Based on this theory, economic agencies over the years have established data sets that are referred to as multipliers. These are simply whole or fractional numbers tied to specific economic sectors and activities.

Though a variety of multiplier models exist for engaging in economic impact analysis, data sets from the U.S. Commerce Department's Bureau of Economic Analysis were used. This model is widely-recognized in the industry as the best tool to use when calculating the economic impact of a change in demand, in earnings or in employment on a region's economy. These data sets are called RIMS II Multipliers, and they are used to gauge effects that spending directly attributable to one economic activity within a defined economic region will have on other activities. For this exercise the RIMS data covers the west Georgia and east Alabama region.

The data will predict spending that West Point Lake activities has on other related and unrelated activities. In order to prevent double-counting, the direct spending we already have noted is subtracted from the data that the RIMS model offers as an estimate of total economic activity—direct and indirect—that occurs from the activity under analysis.

See ***Appendix C*** for the sources and assumptions used in all economic impact calculations.

II. ALTERNATIVE ONE: ECONOMIC IMPACT AND VALUE AT CURRENT LOW WATER LEVELS

A. Economic Impact Categories

The set of tables below illustrates the elements that provide direct annual economic impacts to the region. The first set of data compiles revenues from Corps of Engineers campgrounds and marinas. This data includes land rents from those providing recreational services at West Point Lake. These figures assume no additional land is rented.

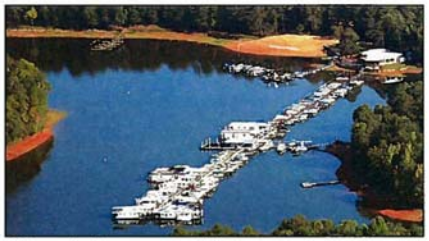
West Point Lake Annual Direct Economic Impacts	
Economic Impact Analysis Variables	**Alt. 1: Current Lake Levels**
	Impact
A. Corp of Engineers Revenue	**$879,148**
1. Land rent	$57,811
2. Visitor expenditures	
Camping expenditures	$654,186
Beach access fees	$34,760
Visitor Center fees	$46,440
Honor vault fees	$40,951
3. Per annum dock permits	$45,000
B. Real Estate	**$25,500,000**
1. Value added of real estate with docks.	$25,500,000
C. Marina / Recreation	**$3,006,652**
1. Boat Slip / Dry Dock Revenue	$916,652
2. Lodging Revenue	$1,840,000
3. Boat Rental Revenue	$250,000
D. Retail & Services	**$58,659,850**
1. Automotive Gasoline	$14,041,277
2. Gas/Oil for Boat	$9,094,124
3. Misc. Boat Expenditures	$1,676,612
4. Fishing Guide Fees	$650,000
5. Bait & Ice	$4,492,171
6. Tackle & Fishing Equip.	$3,675,266
7. Misc. Fishing Equip	$5,743,488
8. Beach Accessories	$1,598,426
9. Misc. Beach Expenses	$1,132,710
10. Camping Supplies	$3,849,788
11. Misc. Camping Expenses	$3,198,227
F. Hospitality & Food Services	**$31,899,787**
1. Hotel revenue	$6,120,000
2. Food & restaurant revenue	$25,779,787
H. Government Revenue	**$1,849,354**
1. License & registration fees	$933,379
3. Fishing licenses	$915,975
I. Jobs	**$3,300,000**
1. Direct lake jobs and avg. salaries	$3,300,000
Total	$125,094,791

Acreage is leased to: Georgia DNR at West Point Wildlife Management Area (12,000 ac.), Southern Harbor Marina (478 ac.), Highland Marina (198 ac.), Pyne Road Park (460 ac. to Troup County), Bush Creek Park (152 ac. to Heard County), Riverside Park (22 ac. to City of Franklin), Camps Lumpkin and Gallant BSA areas (900 ac.); and others for smaller areas.

The most recent available visitor expenditure figures covering camping, beach access, the lake's Visitor Center and honor vault fees and dock permit revenues were provided by the USACE at West Point Lake.

The value-added of real estate is also an important component of economic impact especially as it affects homeowners and their access to the lake for recreational uses. A key value-add for homeowners is direct access to boat docks or by proximity to lake shoreline adjoining their properties on lakefront areas. The permitting of such docks is believed to add considerable value to homes.

For those homeowners whose docks are currently unusable due to low lake water levels, property values were decreased by an assumed $50,000 per property (see Appendix C). The value added of real estate with docks was derived from estimates by multiple real estate brokers in the area, and by brokers at other nearby lakes.



Approximately 850 docks are permitted to homeowners on West Point Lake. The Corps states this lake will accommodate over 3,000 privately-owned docks, under current guidelines and shoreline allocations. At current lake levels it is estimated that nearly all of these docks are unusable or are non-functional in that inadequate surface water exists that would allow for boat mooring and full ingress and egress at the dock sites. It is conservatively estimated that current value-added of boat docks at West Point Lake is $25.5 million (assumed only 40% of docks were unusable; see Appendix C).

Private owners and operators of marinas at West Point Lake generate about $3 million in revenues annually under current conditions. These revenues are derived in part from the existing 664 boat slips and dry dock spaces. Lodging revenue is the biggest component of these revenues are about $1.8M, which was collected from 54 rental units at the two marinas. Boat rental revenue is about 10% of all other revenues, according to both existing marina owners.

Retail services that support the thousands of visitors each year also have a large impact on the local economy. Estimates updated from a TVA study in 1997 for Cherokee Lake can be used to project similar annual spending related to recreational pursuits at West Point Lake at $58.7M. Other retail-based revenues include hotel (hospitality) and restaurant revenues, which are estimated to be $31.8 million by the US Army Corps of Engineers and the TVA.

Government licensing and user fees in addition to the fees from Corps' sites listed earlier total $1.8 million. Salaries tied to jobs directly attributable to lake recreational and management activities total approximately $3.3 million. Both sets of figures were derived from the US Army Corps of Engineers and the TVA.

B. Total Economic Impact and Analysis

The sum of these direct economic impacts is $125.1M in current dollars. Indirect impacts are the outcome of the RIMS data generated by the US Bureau of Economic analysis (BEA) (see Section I (F) for explanation) and each economic activity already noted in this section. A total of $28.7M of indirect spending is attributable to current West Point Lake activities, as shown below:

INDIRECT IMPACTS GENERATED: CURRENT LAKE LEVELS (ALT. 1)	Retail trade	Amusements, gambling, and recreation	Accommodation	Food services and drinking places
1. Agriculture, forestry, fishing, and hunting	$32,977	$27,877	$17,136	$51,560
2. Mining	$2,537	$1,394	$2,448	$2,578
3. Utilities	$240,984	$174,232	$175,032	$327,403
4. Construction	$152,200	$170,050	$190,944	$208,816
5. Manufacturing	$900,517	$294,103	$292,536	$634,183
6. Wholesale trade	$388,110	$221,623	$214,200	$775,972
7. Retail trade	$26,536,092	$616,083	$565,488	$1,268,366
8. Transportation and warehousing	$352,597	$136,598	$118,728	$283,578
9. Information	$1,042,571	$578,449	$552,024	$1,013,146
10. Finance and insurance	$552,994	$323,374	$299,880	$551,687
11. Real estate and rental and leasing	$1,116,134	$648,141	$517,752	$1,067,283
12. Professional, scientific, and technical svcs.	$273,960	$174,232	$130,968	$211,394
13. Management of companies and enterprises	$1,463,658	$315,011	$264,384	$139,211
14. Administrative and waste management svcs.	$550,457	$281,558	$318,240	$268,110
15. Educational services	$114,150	$58,542	$52,632	$103,119
16. Health care and social assistance	$1,105,988	$590,993	$525,096	$1,036,347
17. Arts, entertainment, and recreation	$27,903	$13,953,856	$13,464	$28,358
18. Accommodation and food services	$390,647	$199,321	$12,432,168	$26,205,153
19. Other services	$337,377	$234,167	$231,336	$353,183
Total	$35,581,853	$18,999,601	$16,914,456	$34,529,447
Indirect Impacts Less Spending Noted	$10,215,165	$5,061,078	$4,674,456	$8,749,660
Sum of the total indirect impact columns	**$28,700,359**			
Source Data: Bureau of Economic Analysis -- U.S. Dept. of Commerce				

The total of direct and indirect economic impacts at West Point Lake at current lake water levels is over $153.8M, as shown below:

Total Spending for West Point Lake Activities	
Alternative 1	
Category (Direct Spending)	**Revenues**
Corp of Engineers Revenue	$879,148
Real Estate	$25,500,000
Marina / Recreation	$3,006,652
Retail & Services	$58,659,850
Hospitality & Food Services	$31,899,787
Government Revenue	$1,849,354
Jobs	$3,300,000
Total Direct Spending	**$125,094,791**
Category (Indirect Spending)	**Revenues**
Retail	$10,215,165
Ammusements, Recreation	$5,061,078
Accomodation	$4,674,456
Food/Drink Places	$8,749,660
Total Indirect Spending	**$28,700,359**
Total Direct and Indirect	**$153,795,150**
Sources: Corps of Engineers, BBPC Associates	

III. ALTERNATIVE TWO: CONSERVATIVE ESTIMATE OF ECONOMIC IMPACT AND VALUE AT HIGHER WATER LEVELS

A. Economic Impact Categories

Using the same baseline data for current lake conditions BBPC Associates constructed two additional estimates of economic impact from assumed higher lake levels than now exist. The first of the two estimates is illustrated below:

West Point Lake Alternate Economic Impact Estimate Economic Impact Analysis Variables	Alt. 2: Conservative Estimate
A. Corp of Engineers Revenue	**$934,137**
1. Land rent	$57,811
2. Visitor expenditures	
Camping expenditures	$684,082
Beach access fees	$36,349
Visitor Center fees	$48,562
Honor vault fees	$42,822
3. Per annum dock permits	$64,510
B. Real Estate	**$289,185,000**
1. Value added of real estate with docks.	$31,875,000
2. Premium: value added - lakefront lots	$257,310,000
C. Marina / Recreation	**$3,940,737**
1. Boat Slip / Dry Dock Revenue	$1,468,852
2. Lodging Revenue	$2,123,077
3. Boat Rental Revenue	$348,808
D. Retail & Services	**$51,398,338**
1. Automotive Gasoline	$14,682,963
2. Gas/Oil for Boat	$9,509,725
3. Misc. Boat Expenditures	$1,753,233
4. Fishing Guide Fees	$679,705
5. Bait & Ice	$4,697,464
6. Tackle & Fishing Equip.	$3,843,225
7. Misc. Fishing Equip	$6,005,966
8. Beach Accessories	$1,671,474
9. Misc. Beach Expenses	$1,184,475
10. Camping Supplies	$4,025,723
11. Misc. Camping Expenses	$3,344,386
F. Hospitality & Food Services	**$34,157,923**
1. Hotel revenue	$7,200,000
2. Food & restaurant revenue	$26,957,923
H. Government Revenue	**$1,933,869**
1. License & registration fees	$976,034
3. Fishing licenses	$957,835
I. Jobs	**$3,300,000**
1. Direct lake jobs and avg. salaries	$3,300,000
TOTAL DIRECT IMPACT	**$384,850,005**
Sources: Corps of Engineers, TVA, BBPC Associates	

The assumptions used to derive these estimates include increased levels of spending for camping and recreational opportunities, as well as increased level of spending for retail and restaurant activities, fishing licenses, boating rentals and accommodations. The increases are attributed to increases in visitation on an annual basis of approximately 4.57%, the same rate of increase in the Consumer Price Index (CPI) since 1995.

An additional 200 boat slips, 200 additional dry dock spaces and 10 additional rental lodging units were assumed to be added to marinas given higher lake levels and less water level volatility.

Per annum dock fees were also assumed to increase, as the planned 385 docks to be constructed at the Highland/Settings projects were added to the dock inventory. Also, it was assumed only 25% of docks would remain unusable at this higher water level. The greater utilization of privately owned boat docks on lakefront properties was also assumed to add significantly more value to homeowners properties.

Most importantly, if lake levels were maintained at higher levels, it is assumed that more of the available shoreline would be developed into residential units. As shown in Appendix C, Trimble Appraisal Services completed an analysis which concludes that the premium for a lakefront lot versus an interior lot currently is $67,500. Since 288 miles of shoreline can still be developed if lake water levels are attractive to builders and home purchasers, the premium value added of lakefront residential units (assume each lot has 200' of lake frontage) equates to over $0.5 Billion.

For purposes of Alternative 2 (conservative estimate), only one-half of the available shoreline is assumed to be developed ($257,310,000) at higher water levels. At optimal water levels (Alternative 3), 95% of the premium value ($488,889,000) is assumed.

B. Total Economic Impact and Analysis

The sum of these direct economic impacts is $384.9M in current dollars. Indirect impacts are the outcome of the RIMS data. A total of $34.5M of indirect

spending is attributable to this conservative estimate of economic activity at higher West Point Lake water level, as shown below:

INDIRECT IMPACTS GENERATED: CONSERVATIVE ESTIMATE (ALT. 2)	Retail trade	Amusements, gambling, and recreation	Accommodation	Food services and drinking places
1. Agriculture, forestry, fishing, and hunting	$34,484	$30,551	$17,919	$53,916
2. Mining	$2,653	$1,528	$2,560	$2,696
3. Utilities	$251,996	$190,941	$183,031	$342,366
4. Construction	$159,156	$186,359	$199,670	$218,359
5. Manufacturing	$941,671	$322,309	$305,905	$663,165
6. Wholesale trade	$405,847	$242,877	$223,989	$811,433
7. Retail trade	$27,748,791	$675,168	$591,331	$1,326,330
8. Transportation and warehousing	$368,711	$149,698	$124,154	$296,537
9. Information	$1,090,216	$633,925	$577,251	$1,059,446
10. Finance and insurance	$578,266	$354,387	$313,585	$576,900
11. Real estate and rental and leasing	$1,167,142	$710,301	$541,413	$1,116,058
12. Professional, scientific, and technical services	$286,480	$190,941	$136,953	$221,055
13. Management of companies and enterprises	$1,530,547	$345,222	$276,466	$145,573
14. Administrative and waste management services	$575,613	$308,561	$332,784	$280,362
15. Educational services	$119,367	$64,156	$55,037	$107,832
16. Health care and social assistance	$1,156,531	$647,673	$549,093	$1,083,709
17. Arts, entertainment, and recreation	$29,179	$15,292,102	$14,079	$29,654
18. Accommodation and food services	$408,500	$218,437	$13,000,318	$27,402,729
19. Other services	$352,795	$256,625	$241,908	$369,324
Total	$37,207,943	$20,821,760	$17,687,447	$36,107,442
Indirect Impacts Less Spending Noted	$11,841,256	$6,883,236	$5,447,447	$10,327,655
Sum of the total indirect impact columns	**$34,499,594**			
Source Data: Bureau of Economic Analysis – U.S. Dept. of Commerce				

The total of direct and indirect economic impacts at West Point Lake assuming conservative estimates at higher West Point Lake water levels is over $429.3M, as shown below:

Total Spending for West Point Lake Activities	
Alternative 2	
Category (Direct Spending)	Revenues
Corp of Engineers Revenue	$934,137
Real Estate	$289,185,000
Marina / Recreation	$3,940,737
Retail & Services	$51,398,338
Hospitality & Food Services	$34,157,923
Government Revenue	$1,933,869
Jobs	$3,300,000
Total Direct Spending	**$384,850,004**
Category (Indirect Spending)	Revenues
Retail	$11,841,256
Ammusements, Recreation	$6,883,236
Accomodation	$5,447,447
Food/Drink Places	$10,327,655
Total Indirect Spending	**$34,499,594**
Total Direct and Indirect	**$419,349,599**
Sources: Corps of Engineers, BBPC Associates	
TVA, Bureau of Economic Analysis	

IV. ALTERNATIVE THREE: MODERATE ESTIMATE OF ECONOMIC IMPACT AND VALUE AT HIGHER WATER LEVELS

A. Economic Impact Categories

The second alternate estimate assumes the optimum lake level for West Point Lake to be 635 ft. above msl. This final estimate of economic impact assumes that visitor levels would increase by more than 11.2% from current levels. These assumed increases apply the "conservative" estimate for higher water levels from the TVA study.

As well, boat slip revenues increase from the assumed addition of more than 600 additional boat slips and 500 dry dock spaces, if the Maple Creek site is developed (see below). Also, 25 new rental lodging units were assumed to be added to the marinas. And, property values will increase as all boat docks are fully functional and thus enhance home values to the maximum extent, as shown below:

West Point Lake Alternate Economic Impact Estimate Economic Impact Analysis Variables	Alt. 3: Moderate Estimate
A. Corp of Engineers Revenue	**$997,645**
1. Land rent	$57,811
2. Visitor expenditures	
Camping expenditures	$732,688
Beach access fees	$38,931
Visitor Center fees	$52,013
Honor vault fees	$45,865
3. Per annum dock permits	$70,337
B. Real Estate	**$531,389,000**
1. Value added of real estate with docks.	$42,500,000
2. Premium: valued added - lakefront lots	$488,889,000
C. Marina / Recreation	**$5,458,663**
1. Boat Slip / Dry Dock Revenue	$2,435,202
2. Lodging Revenue	$2,547,692
3. Boat Rental Revenue	$475,769
D. Retail & Services	**$54,657,129**
1. Automotive Gasoline	$15,613,902
2. Gas/Oil for Boat	$10,112,667
3. Misc. Boat Expenditures	$1,864,393
4. Fishing Guide Fees	$722,800
5. Bait & Ice	$4,995,295
6. Tackle & Fishing Equip.	$4,086,896
7. Misc. Fishing Equip	$6,386,760
8. Beach Accessories	$1,777,449
9. Misc. Beach Expenses	$1,259,574
10. Camping Supplies	$4,280,965
11. Misc. Camping Expenses	$3,556,429
F. Hospitality & Food Services	**$37,464,002**
1. Hotel revenue	$8,796,875
2. Food & restaurant revenue	$28,667,127
H. Government Revenue	**$2,056,482**
1. License & registration fees	$1,037,917
3. Fishing licenses	$1,018,564
I. Jobs	**$3,300,000**
1. Direct lake jobs and avg. salaries	$3,300,000
TOTAL DIRECT IMPACT	**$635,322,921**
Sources: Corps of Engineers, TVA, BBPC Associates	

Also, these estimates assume per annum dock permits increase to 1,388, or 500 more permits issued than under current conditions. And, it is assumed at these higher water levels that all docks are rendered usable.

B. Total Economic Impact and Analyses

The sum of these direct economic impacts is $635.3M in current dollars. Indirect impacts are the outcome of the RIMS data. A total of $47.2M of indirect spending is attributable to this moderate estimate of economic activity at higher West Point Lake water levels, as shown below:

INDIRECT IMPACTS GENERATED: MODERATE ESTIMATE (ALT. 3)	Retail trade	Amusements, gambling, and recreation	Accommodation	Food services and drinking places
1. Agriculture, forestry, fishing, and hunting	$36,670	$34,794	$23,150	$57,334
2. Mining	$2,821	$1,740	$3,307	$2,867
3. Utilities	$267,974	$217,464	$236,463	$364,073
4. Construction	$169,247	$212,245	$257,960	$232,204
5. Manufacturing	$1,001,375	$367,079	$395,208	$705,211
6. Wholesale trade	$431,579	$276,614	$289,378	$862,881
7. Retail trade	$29,508,138	$768,952	$763,958	$1,410,423
8. Transportation and warehousing	$392,088	$170,492	$160,398	$315,338
9. Information	$1,159,339	$721,980	$745,768	$1,126,618
10. Finance and insurance	$614,929	$403,613	$405,129	$613,477
11. Real estate and rental and leasing	$1,241,141	$808,965	$699,468	$1,186,819
12. Professional, scientific, and technical services	$304,644	$217,464	$176,934	$235,070
13. Management of companies and enterprises	$1,627,588	$393,174	$357,175	$154,802
14. Administrative and waste management services	$612,108	$351,421	$429,933	$298,138
15. Educational services	$126,935	$73,068	$71,104	$114,669
16. Health care and social assistance	$1,229,858	$737,637	$709,389	$1,152,419
17. Arts, entertainment, and recreation	$31,029	$17,416,238	$18,189	$31,534
18. Accommodation and food services	$434,400	$248,779	$16,795,493	$29,140,135
19. Other services	$375,163	$292,271	$312,528	$392,740
Total	$39,567,025	$23,713,988	$22,850,933	$38,396,750
TOTAL INDIRECT IMPACT	$14,200,338	$9,775,465	$10,610,933	$12,616,963
Indirect Impacts Less Spending Noted	**$47,203,698**			
Source Data: Bureau of Economic Analysis – U.S. Dept. of Commerce				

The only assumption that makes the final scenario different from the previous two is the addition of construction spending that is assumed to take place from optimal water levels. The one-time construction impact noted in the table below assumes additional economic impact due to construction of the planned 125-room hotel at the Maple Creek site (see ***Appendix D*** for details).

The total of direct, indirect and construction-related economic impacts at West Point Lake assuming moderate estimates at higher West Point Lake water levels is nearly $709.8M, as shown below:

Total Spending for West Point Lake Activities	
Alternative 3	
Category (Direct Spending)	**Revenues**
Corp of Engineers Revenue	$997,645
Real Estate	$531,389,000
Marina / Recreation	$5,458,663
Retail & Services	$54,657,129
Hospitality & Food Services	$37,464,002
Government Revenue	$2,056,482
Jobs	$3,300,000
Total Direct Spending	**$635,322,921**
Category (Indirect Spending)	**Revenues**
Retail	$14,200,338
Ammusements, Recreation	$9,775,465
Accomodation	$10,610,933
Food/Drink Places	$12,616,963
Total Indirect Spending	**$47,203,698**
Construction Spending Impact	$27,239,000
Total Direct and Indirect and Construction Spending	**$709,765,619**
Sources: Corps of Engineers, BBPC Associates	
TVA, Bureau of Economic Analysis	

V. ADDITIONAL DIRECT AND INDIRECT IMPACTS

A. Summary: Measurable Direct and Indirect Impacts

Shallow water levels at West Point Lake have impacted not only life on the lake, but the surrounding local economy as well. After consultation with several local officials and business owners, a general consensus can be made that such abnormal water levels have dramatically impacted the regions economic status.

- Individuals, businesses and land that are located on and/or near the 525 miles of shoreline have taken the brunt of the impact.
  - ➢ Local marina owners have reported that majority of the docks and boat slips available on the lake (about 40%-60%) have become grounded, disrupting their business and resulting in lost revenue. One individual stated that his business had missed out on "an easy $25,000 - $30,000" in revenue (equating to approximately 50% of his overall revenue) for the 2007 season. As a result, many owners have been forced to accept a financial loss. Others have taken a different approach by investing in the construction of costly slip extensions in hope of increased business. Most notably, one owner has been obligated to pursue alternative business practices.
  - ➢ Boat sales, service and water sport rentals have all decreased significantly.
  - ➢ Local lodging facilities along with restaurants, gas stations, bait/tackle, retail and convenience stores and all who service the thousands of tourists at West Point have all been negatively impacted.
- The safety and water conditions of West Point Lake have been questioned and placed under deep scrutiny.
  - ➢ With low water levels, it is natural to have increased water hazards (sticks, rocks, low depth, etc.) that one might not be aware of and that cause unsafe conditions. The Chattahoochee River area is known to be extremely dangerous due to low depths. If boaters remove themselves from the marked channel, they will go "from 20 feet of water to ankle deep in a matter of seconds." Even though, attempts have been made to

place markers where possible danger zones exist, several cases of minor boat damage have been reported.

- ➢ Many locals, all of whom are avid boaters, have been obligated to place their boats in storage for the past two years due to such conditions.
- ➢ As a result, many individuals, families and tourists have decided not to take part in such dangerous water activities.

It is safe to conclude that the water level of West Point Lake has a direct correlation with its local economy. At this time, with the water level below its optimal range, the lake has negatively impacted the local economy by deterring tourists and investors. Land values have decreased and less money has been attracted to the local economy. With less money being drawn into the West Point Lake region, in general, local businesses have reportedly seen annual revenues and sales decrease by approximately 30-60%. Home values and sales along with West Point's resort image have also been negatively affected.

As the summary table below shows, economic impact is expected to increase as West Point Lake water levels increase to optimal levels from currently lower than normal levels. At optimal levels, additional impacts to recurring impacts include additional construction activity for both residential and commercial uses.

West Point Lake – Comparison of Economic Impacts and Differing Water Levels

	Current Level	Higher Level	Optimal Level
Direct Spending Impact	$125,094,791	$384,850,005	$635,322,921
Indirect Spending Impact	$28,700,359	$34,499,594	$47,203,698
Total Consumer Impact:	$153,795,150	$419,349,599	$682,526,619
Impact from New Construction			$27,239,000
Total Impact	$153,795,150	$419,349,599	$709,765,619
Change for Each Scenario		$265,554,449	$290,416,020
Total Change in Impact			$555,970,469

Sources: Corps of Engineers, TVA, BBPC Associates

The total additional impact from returning West Point Lake to historic levels is estimated to be more than $556 million. That amount is about 362% more than the current impact. Such an impact would echo throughout the communities situated in and around the lake and would bring more stability to businesses located in the area who are dependent in part on the visitor spending generated by recreational activities at West Point Lake.

B. Additional Impacts and Multiplier Effects

1. impacts of KIA-related job growth

KIA, the world's sixth leading and fastest growing automaker, will soon open a new 28M SF plant in West Point. This plant, the largest project in state history, will create 2,500 direct jobs, 2,000 more indirect jobs and about 10,000 jobs with related suppliers, some of which will also locate in this area (see below). Automobile population at this $1B plant, which will have a 650-acre foundation, will begin in November 2009.

Not only will the new residents taking jobs with KIA utilize West Point Lake, but also business visitors to the plant will stimulate local businesses, such as hotels and restaurants. Lodging patronage mix will likely shift from the current 60% leisure/40% business ratios to more business overnight stays. More business-oriented restaurant offerings likely will occur, as well.

2. planned local residential and commercial project construction

Given that the West Point Lake area is the only non-metropolitan area in the state where two interstate highways cross, and given how close this area is to Atlanta, much more development activity is anticipated. More residential and commercial construction has already been announced that will generate additional economic impacts at West Point Lake.

About 12,000 additional housing units will be added to the local housing inventory when numerous residential projects in the planning stages of development are built. These projects have been discussed with local officials, most would be located within a few miles of LaGrange and most are part of the anticipated wave of growth heading toward West Point Lake from Atlanta.

Inevitably, some of this residential growth will gravitate to the shoreline of West Point Lake; as such, additional dock construction will occur. Economic impacts tied to dock construction and maintenance activities will be generated. Due to recent changes in regulations at the lake, dock construction can now occur 100' (was 80') from the 635' pool level for privately-owned boat docks. And, projects like the Settings at West Point Lake (470 acres, 220 lots) will generate dock construction activity. Home site sales at The Settings has not suffered as much due to the fact that majority of the properties are fortunately located near the deepest parts of the lake. As a preventative measure, though, management at The Settings has decided not to install private docks for each home site, but to instead construct seven

large community multi-slip docks strategically placed where fluctuating water level has very little influence on its use.

Moreover, as noted in Alternatives 2 and 3 above, if water levels were higher and more stable, over 7,600 residential units could be constructed on lakefront lots not yet developed. The one-time construction impacts of these residential units would be tremendous; but, to be conservative, **none** of this construction spending was included in the economic impact figures detailed in Alternatives 2 and 3.

Likewise, more commercial construction is anticipated. A 100-room Courtyard by Marriott will soon be built in downtown LaGrange. And, several business/industrial expansions will occur near West Point Lake due to the opening of the new KIA automobile plant in West Point in 2009 (see above). Included will be new job creation (150 jobs) at the Molded Products facility in LaGrange, a new Dae-Lim USA facility in LaGrange (75 jobs) and a new auto supplier facility (Mobis) next to the KIA plant (600 jobs) in 2010.

3. impacts of expansion of Fort Benning

As a result of recent DoD decisions related to base realignment and closure nationwide, nearby Fort Benning located south of LaGrange will experience a significant increase in personnel. Home of the US Infantry School and headquarters of the 3rd Brigade and 3rd Infantry Division, Fort Benning will grow by 5,500 permanent military and 5,600 civilian employees and contractors by 2011.

Estimates are that an additional 17,000 new jobs will result in the surrounding 7-county area in Georgia and Alabama. And, several surrounding residential projects under discussion -- one is a new 1,200 unit subdivision, and the other is a new 2,000 unit project on 1,100 acres that will also have over 3M SF of commercial space -- will undoubtedly also generate economic impacts at West Point Lake.

C. Matrix: Future Development Potential and Ability to Attract Commerce

Six types of impact are likely as future developments occur and the region's ability to attract commerce is enhanced:

- impacts on visitor expenditures

- impacts on marina and recreation services
- impacts on retail and services revenues
- impacts on hospitality and food services revenues
- impacts on government revenues and jobs
- impacts on industrial recruitment

The cumulative effect of the new KIA plant and its spin-off activities, the planned residential/commercial construction in the area and the expansion of the Fort Benning personnel and its economic multiplier impacts will generate impacts on a number of lake-related activities. Below is a matrix depicting the expected degree and timing of these six types of impacts:

Impacts Matrix

Impacts On	Likely Degree of Impacts			Impact Timing	
	Low	Medium	High	Next 3-5 Years	Thereafter
Visitor Expenditures at Lake		✓		✓	
Marina and Recreation Expenditures			✓	✓	
Retail and Services Revenues		✓		✓	✓
Hospitality and Food Services Revenues		✓			✓
Government Revenues and Jobs			✓	✓	✓
Industrial Recruitment		✓		✓	✓

The degree of impacts on these six categories should range from medium to high; given the influx of residents, businesses and related activities, no low degrees of impacts are projected. And, given the resulting time it may take for support activities (retail and hospitality services) and resulting taxes/jobs to occur, more immediate impacts are foreseen on existing lake activities, such as campgrounds, marinas, fishing and the lake.

D. Floodplain Real Estate Valuation and Cost/Benefit Analysis

1. downstream flood prevention/real estate acquisition costs

According to the 1998 Draft Environmental Impact Statement, in the 500 year flood plain south of the dam there were 11 residential structures, 18 public buildings and 220 commercial structures. Total value of these structures and buildings, including contents, inventory and equipment, at the time was about $130 million.

However, the same document stated that if flood storage was completely eliminated, possible downstream flooding would be limited to only $5.1 million in annualized damages. Accordingly, even doubling this figure would result in a possible $10 million in annualized cost.

2. comparison: value of economic benefits vs. downstream costs

Comparing a possible one-time $10M cost to a net annual economic benefit ranging from $265.5M to $528.7M (difference between Alternative 1, and Alternatives 2 and 3) is not a difficult exercise.

VI. Conclusions

It is clear that USACE operating and management practices at West Point Lake have negatively impacted the economy of this region in a significant way. While the USACE may attempt to point to the drought being experienced as the reason for those adverse impacts, that would be subterfuge to divert attention away from the facts.

This lake was mandated by Congress nearly 35 years ago to be a recreational demonstration project. The USACE had devised plans to respect this mandate by monitoring water levels high enough to the allow recreational pursuits intended. However, the USACE has failed to adhere to both this mandate and its own operating plans since about May 2006.

Instead, the USACE has allowed water levels to drop to disastrous levels. The havoc created in terms of lost recreational opportunities, missed economic benefits, damages to business retention and industrial recruitment, and other negative impacts have been thoroughly documented and detailed in this report.

It is now the responsibility of the USACE to reform its efforts at West Point Lake to stem these damages and restore water levels to accommodate the pursuits Congress intended and authorized to benefit citizens in this region.

Appendix A

List of Stakeholders Interviewed

Representing	Participant
Introductory Mtg & Overview	Joe Maltese & Dick Timmerberg
Co-Chairs of SOS Committee City of LaGrange et al	Mayor Jeff Lukken, Jeff Brown and Patrick Crews et al
Realtor Developer	Jim Daniel, Daniel Realty
Realtor Developer	Roy Spinks, Spinks Brown Durand
Leisure Industry	Scott Malone, Best Western
Realtor Developer	Joe and Rob Upchurch
Realtor Developer	Joyce Trimble, Cornerstone Properties
Major Development	Mike Agee et al "The Settings" Development
City of West Point	Darren Kelley (Councilman) and Ed Moon CM
New Interviews	Jennifer Schrader LDN
Local Government Official	Richard English (Co)
Local Government Official	Norma Tucker (City)
Major Developer	Ron Orr
Chamber and Tourism	Jane Fryer
Local Government Official	Rick Wolfe (Chair) and Mike Dobbs (CM)
Chamber and Tourism	Dianne Holbrook
Valley Chamber	Eleanor Crowder
Economic and Industrial Development – KIA	Mike Criddle, Ray Coulombe
Corps (Land Use)	Stephen Logan and Bob Chitwood(at Corps Office)
Marina Operator	Robbie Nichols (at Southern Harbor)
Marina Operator	Danny and Chris Elrich at Highland Marina
Major Development	Brian McQuarters, The Settings Development
Marina Dock Construction	Don Hale, Don's Dock's
Boat Sales	Adam Mitchell, Mitchell Marine
Bait and Tackle Shop (Grasshoppers)	Amanda Bowen
Bait and Tackle Shop (DJ's)	Larry Grizzard
Fishing Guide	Keith Hudson
Fishing Guide	Joey Mines
Fishing Guide	Paul Parsons

Appendix B

Excerpts: USACE Master Plan

3.3.3 PROTECT AND FURTHER DEVELOP THE FISH AND WILDLIFE MANAGEMENT PROGRAMS ON ALL PUBLICLY OWNED LANDS AND WATERS TO INSURE THE CONTINUED PUBLIC ENJOYMENT OF BOTH CONSUMPTIVE AND NONCONSUMPTIVE USE OF THE FISH AND WILDLIFE RESOURCES OF THE PROJECT.

All Forest and fish and wildlife management activities will be coordinated with the Georgia Game and Fish Division or the Alabama Department of Conservation as appropriate. We will plan f o r the development of facilities and activities for compatible nonconsumptive use and provide for sound game and nongame management practices. Fishery benefits will be maintained through a variety of the following methods, all of which will be coordinated with the appropriate State fishery agencies:

Protection of existing water quality
Replacement and addition of fish attractors and shelters
Maintenance of boat ramps and Fishing piers
Dissemination of public information
Management of lake water levels
Conducting fish population studies.

4.1 RESOURCE CAPACITY AND ANALYSIS.

b. The U.S. Army Corps of Engineers Institute for Water Resources (IWR) Research Report 74-R1 was used as a guide to check the previous attendance projection and to make final determination for the facility design day load and maximum practical use of the natural resources of the project. This analysis determined that the 6,900,000 visitors projected for the year 1985 is the optimum visitation. Studies indicate that when space requirements for boating related activities were applied to the size of the lake using the IWR guide formulas, a good correlation was achieved. This verified that the optimum use of the lake will occur when the ultimate visitation of 6,900,000 is reached.

Appendix C

Economic Impact Calculations: Sources and Assumptions

West Point Lake Annual Direct Economic Impacts

SOURCE	Economic Impact Analysis Variables
	A. Corp of Engineers Revenue
Army Corps	1. Land rent
	2. Visitor expenditures
Army Corps/TVA Study	Camping expenditures
Army Corps/TVA Study	Beach access fees
Army Corps/TVA Study	Visitor Center fees
Army Corps/TVA Study	Honor vault fees
Army Corps/TVA Study	3. Per annum dock permits
	B. Real Estate
Estimates decrease property value by $50,000 per unusable dock, value added as estimated by multiple local real estate brokers.	1. Value added of real estate with docks.
Trimble Appraisal Services	2. Premium: value added - lakefront lots
	C. Marina / Recreation
Estimates based on conversations with local marina owners.	1. Boat Slip / Dry Dock Revenue
Estimates based on conversations with local marina owners.	2. Lodging Revenue
Estimates based on conversations with local marina owners.	3. Boat Rental Revenue
	D. Retail & Services
Army Corps/TVA Study	1. Automotive Gasoline
Army Corps/TVA Study	2. Gas/Oil for Boat
Army Corps/TVA Study	3. Misc. Boat Expenditures
Army Corps/TVA Study and local guide interviews	4. Fishing Guide Fees
Army Corps/TVA Study	5. Bait & Ice
Army Corps/TVA Study	6. Tackle & Fishing Equip.
Army Corps/TVA Study	7. Misc. Fishing Equip
Army Corps/TVA Study	8. Beach Accessories
Army Corps/TVA Study	9. Misc. Beach Expenses
Army Corps/TVA Study	10. Camping Supplies
Army Corps/TVA Study	11. Misc. Camping Expenses
	F. Hospitality & Food Services
Army Corps/TVA Study	1. Hotel revenue
Army Corps/TVA Study	2. Food & restaurant revenue
Army Corps/TVA Study	**H. Government Revenue**
Army Corps/TVA Study	1. License & registration fees
Army Corps/TVA Study	3. Fishing licenses
	I. Jobs
	1. Direct lake jobs and avg. salaries
	TOTAL DIRECT IMPACT
BEA (US Dept. of Commerce)	**TOTAL INDIRECT IMPACTS**
	TOTAL DIRECT AND INDIRECT IMPACTS
Army Corps	**TOTAL CONSTRUCTION SPENDING (ONE TIME REVENUE)**
	TOTAL ECONOMIC IMPACT

Economic Impact of West Point Lake at Various Lake Water Levels

West Point Lake Annual Direct Economic Impacts

Economic Impact Analysis Variables	ASSUMPTIONS
A. Corp of Engineers Revenue	
1. Land rent	Assumes no new additional land rented.
2. Visitor expenditures	
Camping expenditures	Alt 2: Assumes visitation grew @ 4.57%; Alt 3: Assumes visitation grew @ 11.2% (conservative estimate for higher water levels from TVA study)
Beach access fees	Alt 2: Assumes visitation grew @ 4.57%; Alt 3: Assumes visitation grew @ 11.2% (conservative estimate for higher water levels from TVA study)
Visitor Center fees	Alt 2: Assumes visitation grew @ 4.57%; Alt 3: Assumes visitation grew @ 11.2% (conservative estimate for higher water levels from TVA study)
Honor vault fees	Alt 2: Assumes visitation grew @ 4.57%; Alt 3: Assumes visitation grew @ 11.2% (conservative estimate for higher water levels from TVA study)
3. Per annum dock permits	Alt 2: Assumes 385 docks constructed as planned @ Highland/Settings; Alt 3: assumes these 1388 docks total (500 more than current number)
B. Real Estate	
1. Value added of real estate with docks.	Alt 1: 40% unusable, Alt 2 Low: 25% unusable, Alt 3 High: All usable
2. Premium: value added - lakefront lots	Trimble Appraisal Services report, November 2007
C. Marina / Recreation	
1. Boat Slip / Dry Dock Revenue	Alt 2: +200 boat slips; Alt 3: +600 boat slips (Assm. Maple Creek Marina built)
	Alt 2: +200 dry dock spaces Alt 3: +500 dry dock spaces (Assm. Maple Creek Marina built)
2. Lodging Revenue	Alt 2: assumes 10 cabins added; Alt 3: assumes 25 cabins added
3. Boat Rental Revenue	Boat rental is 10% of all other revenues (both marina owners offered the same figure)
D. Retail & Services	
1. Automotive Gasoline	Alt 2: Assumes visitation grew @ 4.57%; Alt 3: Assumes visitation grew @ 11.2%
2. Gas/Oil for Boat	Alt 2: Assumes visitation grew @ 4.57%; Alt 3: Assumes visitation grew @ 11.2%
3. Misc. Boat Expenditures	Alt 2: Assumes visitation grew @ 4.57%; Alt 3: Assumes visitation grew @ 11.2%
4. Fishing Guide Fees	Alt 2: Assumes visitation grew @ 4.57%; Alt 3: Assumes visitation grew @ 11.2%
5. Bait & Ice	Alt 2: Assumes visitation grew @ 4.57%; Alt 3: Assumes visitation grew @ 11.2%
6. Tackle & Fishing Equip.	Alt 2: Assumes visitation grew @ 4.57%; Alt 3: Assumes visitation grew @ 11.2%
7. Misc. Fishing Equip	Alt 2: Assumes visitation grew @ 4.57%; Alt 3: Assumes visitation grew @ 11.2%
8. Beach Accessories	Alt 2: Assumes visitation grew @ 4.57%; Alt 3: Assumes visitation grew @ 11.2%
9. Misc. Beach Expenses	Alt 2: Assumes visitation grew @ 4.57%; Alt 3: Assumes visitation grew @ 11.2%
10. Camping Supplies	Alt 2: Assumes visitation grew @ 4.57%; Alt 3: Assumes visitation grew @ 11.2%
11. Misc. Camping Expenses	Alt 2: Assumes visitation grew @ 4.57%; Alt 3: Assumes visitation grew @ 11.2%
F. Hospitality & Food Services	
1. Hotel revenue	Alt 2: Assumes visitation grew @ 4.57% ; Alt 3: estimate assumes hotel growth of 11.2% PLUS a new hotel, 60% occupancy, $100 per room (includes associated food/restaurant revenue), 125 rooms.
2. Food & restaurant revenue	Alt 2: Assumes visitation grew @ 4.57%; Alt 3: Assumes visitation grew @ 11.2%
H. Government Revenue	
1. License & registration fees	
3. Fishing licenses	
I. Jobs	
1. Direct lake jobs and avg. salaries	Includes Army Corps job revenue
TOTAL DIRECT IMPACT	
TOTAL INDIRECT IMPACTS	Utilizes BEA RIMS II Model Impacts
TOTAL DIRECT AND INDIRECT IMPACTS	Alt 3: Adds in indirect impacts from construction
TOTAL CONSTRUCTION SPENDING (ONE TIME REVENUE)	Construction Assumptions detailed in Appendix D
TOTAL ECONOMIC IMPACT	

Economic Impact of West Point Lake at Various Lake Water Levels

West Point Lake - Marina Slip/Dock Revenue

Highland Marina	Docks
Wet	206
Dry	198
Total	*404*

Wet Dock	% of Total Space	
$660	10%	$66
$1,155	70%	$809
$1,595	20%	$319
Avg Annual Cost of Wet Slip		***$1,194***

Dry Dock	% of Total Space	
$550	10%	$55
$1,375	20%	$275
$1,045	25%	$261
$1,155	25%	$289
$1,265	10%	$127
Avg Annual Cost of Dry Slip		***$1,007***

Southern Harbor	Docks
All Slips	260
Total	*260*

Docks	% of Total Space	
$1,925	5%	$96
$3,300	5%	$165
$3,410	5%	$171
$3,630	5%	$182
$3,740	5%	$187
$1,155	10%	$116
$1,375	15%	$206
$1,155	10%	$116
$1,485	15%	$223
$1,155	10%	$116
$1,925	5%	$96
$2,695	10%	$270
Avg Annual Cost of Slip		***$1,942***

Alternative 1: Current Water Level

664 **Current Number of Slips/Docks**
$1,380.50 **Average Price**

$916,652.00 **Marina/Slip Revenue**

Alternative 2: Higher Water Level

1,064 **Estimated Number of Slips/Docks**
$1,380.50 **Average Price**

$1,468,852.00 **Marina/Slip Revenue**

Alternative 3: Optimal Water Level

1,764 **Estimated Number of Slips/Docks**
$1,380.50 **Average Price**

$2,435,202.00 **Marina/Slip Revenue**

Calculation:
Premium-Value Added of Lakefront Lots
West Point Lake, GA

Miles of Shoreline:	525 miles
Miles of Limited Development of Protected Shoreline [1]/	288 miles
• linear feet	1,524,746 LF
Average Width – Lakefront Lot [2]/	200 LF
Remaining Lake Lots to be Developed	7624 lots
Lot Values	
Premium for a Lakefront Lot [2]/	$67,500 [3]/
Value of Remaining Lakefront Lots to be Developed if Lake Levels Attract Builders and Buyers	$514,620,000

For Alternative 2, assume 50% impact: $257,310,000
For Alternative 3, assume 95% impact: $488,889,000

Notes

[1]/ source: City of LaGrange, GA
[2]/ source: Trimble Appraisal Services, LaGrange, GA
[3]/ as a check, Trimble determined that the average recent sales price of 40 lakefront homes was $283,500, and the average sales price of 886 other Troup County homes was $139,300, a difference of $144,300 (only $67,500 is used above)

TRIMBLE
APPRAISAL SERVICES
P.O. BOX 357 LAGRANGE, GA.30241
PHONE 706-883-6554 FAX 706-883-6555

November 14, 2007

Ralph Basile
BASILE BAUMANN PROST & ASSOCIATES INC.
Nichols Center, Suite 10
177 Defense Highway
Annapolis, MD 21401-7006

Dear Mr. Basile:

Re: West Point Lake
LaGrange, Georgia

In an effort to determine the premium for lakefront lots vs. interior lots, I have employed the sales comparison method, specifically analyzing paired sales using the method of extraction. The sales adjustment process, which is at the heart of sales comparison analysis, is based on identification and measurement of the effect that the presence or absence of a characteristic has on a sale price.

Using sales from the same subdivision eliminated the location factor. The sales used in each pair were chosen because they were similar in condition and quality of construction. Data in our market is plentiful and by placing it on a sales comparison grid, adjustments can then be made for square footage, age and various amenities such as basements, pools or tennis courts. Removing these differences from the equation allows a reliable pattern to develop clustering around one figure – the premium for lakefront lots.

Sales from within the following ten subdivisions were analyzed and resulted in the lake lot premiums as shown below and outlined on the following pages:

Moss Creek	$125,000
Eagles Rest	$100,000
Foxcroft	$ 90,000
Creek Ridge	$ 75,000
Willowcrest	$ 75,000
Morgans Landing	$ 60,000
Riverside	$ 60,000
The Cloisters	$ 45,000
Graysons Landing	$ 40,000
Indian Bend	$ 30,000

1

It is assumed that if the lake were to be fully developed, it would include different price points in the future just as it has in the past. Since future values can not be predicted, it seems reasonable to measure the above value indications by the median which is a positional average that eliminates extreme indications. Therefore, the premium for a lakefront lot vs. and interior lot is indicated at $67,500.

Sincerely,

Joyce A. Trimble
Certified General Real Property Appraiser

cc: Joe Maltese - City of LaGrange

PAIRED SALES DATA ANALYSIS

The following sub-sets of data show the subdivision name, address of each dwelling, type of lot (lake or interior), sale price, square foot and age for both sales. The lake lot premium is the difference between the sale price of the lake house (i.e. $583,000 at 117 Woodchase Drive and the adjusted sale price of the interior dwelling at 110 Hunters Ridge for $458,000 = $125,000, the lake lot premium).

Subdivison	Lake Lot	Sale Price	Sq. Ft.	Age	Adjusted Sale Price	Lake Lot Premium
Moss Creek						**$125,000**
117 Woodchase Dr.	Y	$583,000	4868	17		
110 Hunters Ridge	N	$415,000	4248	8	$458,000	
Adjustments were made for square footage and age.						

Subdivison	Lake Lot	Sale Price	Sq. Ft.	Age	Adjusted Sale Price	Lake Lot Premium
Eagles Rest						**$100,000**
224 E. Yorktown	Y	$377,250	2751	22		
317 W. Yorktown	N	$265,000	2160	12	$277,000	
Adjustments were made for square footage, age and unfinished basement.						

Subdivison	Lake Lot	Sale Price	Sq. Ft.	Age	Adjusted Sale Price	Lake Lot Premium
Foxcroft						**$90,000**
2004 Foxcroft Dr.	Y	$513,000	2388	19		
1005 Foxcroft Dr.	N	$468,000	4219	25	$420,000	
Adjustments were made for square footage, age and a tennis court.						

Subdivison	Lake Lot	Sale Price	Sq. Ft.	Age	Adjusted Sale Price	Lake Lot Premium
Creek Ridge						**$75,000**
144 North Shore	Y	$313,500	2728	12		
43 Creek Ridge Dr.	N	$189,000	1761	17	$238,000	
Adjustments were made for square footage and age.						

Subdivison	Lake Lot	Sale Price	Sq. Ft.	Age	Adjusted Sale Price	Lake Lot Premium
Willowcrest						**$75,000**
230 Baywood Cr.	Y	$380,000	3374	18		
223 Baywood Cr.	N	$255,000	2633	27	$305,000	
Adjustments were made for square footage and age.						

Subdivison	Lake Lot	Sale Price	Sq. Ft.	Age	Adjusted Sale Price	Lake Lot Premium
Morgans Landing						**$60,000**
131 Morgan Drive	Y	$550,000	4240	2		
120 Morgan Drive	N	$439,900	2811	2	$490,000	
Adjustments were made for square footage and a finished basement.						

Subdivison	Lake Lot	Sale Price	Sq. Ft.	Age	Adjusted Sale Price	Lake Lot Premium
Riverside						**$60,000**
509 Riverside Dr.	Y	$373,000	4002	9		
1040 Riverside Dr.	N	$350,000	2702	19	$313,000	
Adjustments were made for square footage, age and unfinished basement.						

Subdivison	Lake Lot	Sale Price	Sq. t.	Age	Adjusted Sale Price	Lake Lot Premium
The Cloisters						**$45,000**
103 Canterbury Ct.	Y	$325,000	3369	10		
302 Canterbury Dr.	N	$249,900	2226	12	$280,000	
Adjustments were made for square footage and a slight adjustment for age.						

Subdivison	Lake Lot	Sale Price	Sq. Ft.	Age	Adjusted Sale Price	Lake Lot Premium
Graysons Landing						**$40,000**
302 S. Grayson Tr.	Y	$198,000	1818	18		
352 Grayson Tr.	N	$140,000	1870	29	$158,000	
Adjustments were made for square footage, age and lot size.						

Subdivison	Lake Lot	Sale Price	Sq. Ft.	Age	Adjusted Sale Price	Lake Lot Premium
Indian Bend						**$30,000**
155 Indian Bend Tr.	Y	$232,000	2220	8		
43 Indian Bend Dr.	N	$174,900	1584	9	$202,000	
Adjustments were made for square footage and a pool						

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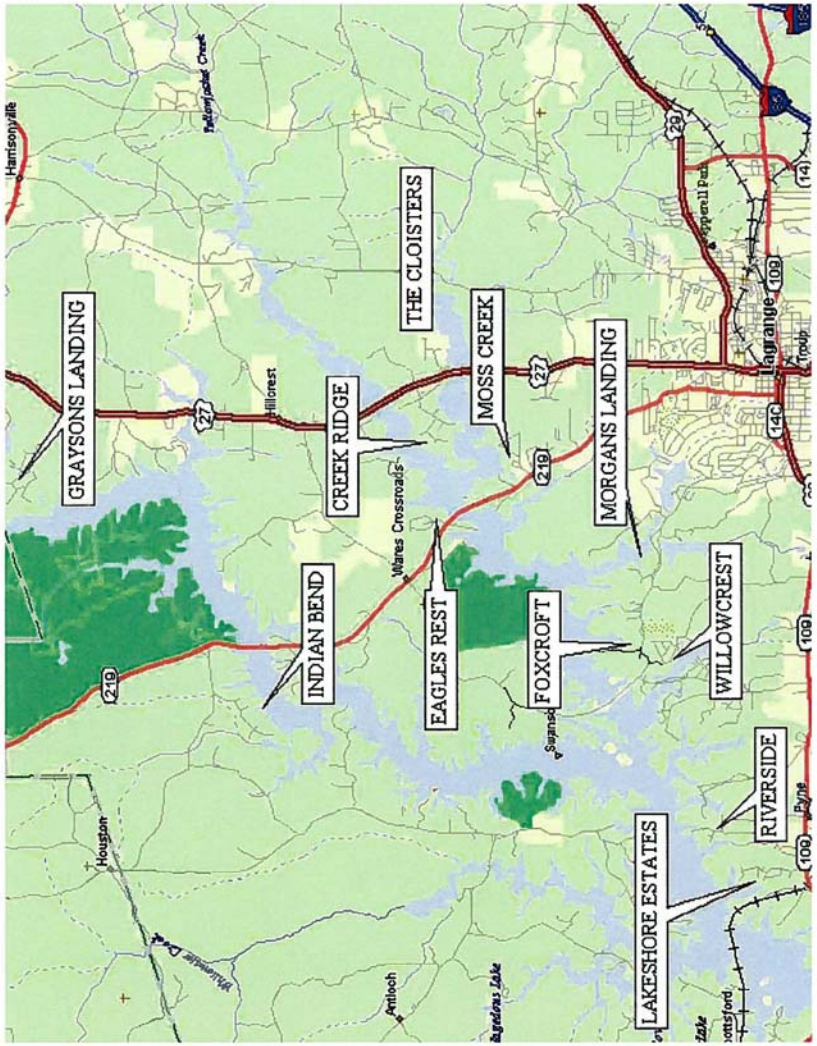
Economic Impact of West Point Lake at Various Lake Water Levels



Fishing Guide Fee's

Based on telephone interviews with multiple fishing guides who service West Point Lake, financial information was obtained determining the amount of fishing guide revenue that is generated annually. Currently, approximately ten (10) fishing guides operate their business at West Point Lake. Majority of the guides are considered part-time with the exception of two (2) who operate full-time and may account for 40% of total revenue of fishing guides at West Point Lake.

The following data was obtained regarding sales revenue for fishing guides:

- Fishing Guide #1 operates part-time and accounts for 10% - 15% of the fishing guide business at West Point Lake. The guide stated that he operates nearly 175 trips/year charging $475/trip. As a result, annual revenue generated from Fishing Guide #1 equates to $83,125.

  Fishing Guide #1 suggested the following information regarding full-time fishing guides and stated that another full-time guide he knows may account for nearly 15% - 20% of the fishing guide business at West Point Lake. The full-time guide operates nearly 250 trips/year charging $525/trip. As a result, annual revenue generated from the full-time Fishing Guide equates to $131,250.

- Fishing Guide #2 operates part-time and typically accounts for 10% of the fishing guide business at West Point Lake. The guide stated that he operates nearly 100 trips/year charging $550/trip. As a result, annual revenue generated from Fishing Guide #2 equates to $55,000.

- Fishing Guide #3 operates part-time and accounts for 5% - 10% of the fishing guide business at West Point Lake. The guide stated that he operates nearly 75 trips/year charging $450/trip. As a result, annual revenue generated from Fishing Guide #3 equates to $33,750.

	% of Total Fishing Guide Business	Revenue
Part Time Guide	10% - 15%	$83,125
Full Time Guide	15% - 20%	$131,250
Part Time Guide	10%	$55,000
Part Time Guide	5% - 10%	$33,750
Totals	***40% - 55%***	***$303,125***

It can be concluded that based off the information provided, 40% - 55% of the overall business generated from fishing guide services equates to about $300,000. Therefore, annual revenue generated from all fishing guides at West Point Lake is approximately $550,000 - $750,000, or on average about $650,000 per year.

Appendix D

Information on Proposed Project on Maple Creek Site:

Amendment #2 to the US Corps of Engineers
Master Plan for West Point Lake, GA

Background

The US Army Corps of Engineers commissioned a "Feasibility and Economic Study for Developing the Maple Creek Site at West Point Lake". The study concluded the following:

The time period 2000-2002 appears to be appropriate to support a 100-125 unit lodging/conference complex with an 18-hole golf course operation, and possibly a marina.

The surrounding lake offers appealing views and extensive water access...(the site offers) panoramic lake views and extensive water front access.

Additional amenities such as a campground, tennis courts, picnicking facilities, a beach and trails should be provided to enhance the overall development.

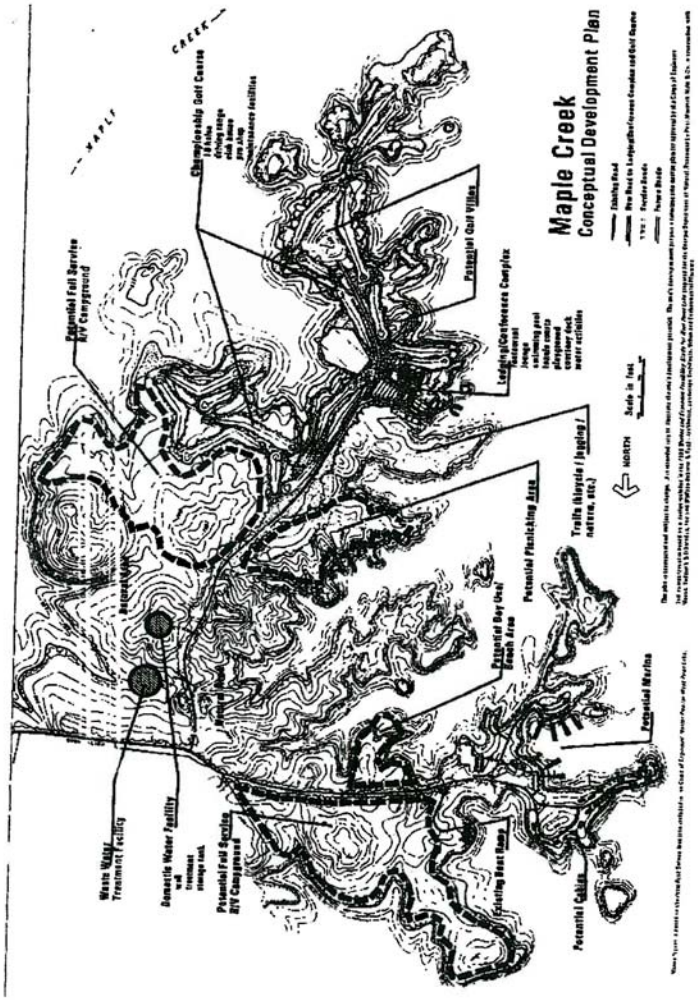
The ability to offer access to lake cruises, dinner boats, fishing excursions, pleasure craft rentals is attractive to meeting planners.

Volatile water levels, in part, likely played a role in the delay of construction of this project. Low water levels in the protected cove discouraged dock construction, and the lack of water front access and pleasurable waterfront views mitigated interest in lodging and meetings uses. These conditions, which occurred in a climate of favorable business conditions and a hospitable lending climate in the early 2000's, certainly could have contributed to missing the 2000-2002 window of market opportunity.

Since no competing facilities have been contributed elsewhere at the lake, if higher water levels could be maintained, market conditions could still lead to development of this project. Below is a summary of projected direct project costs and indirect economic impacts.

0069

Economic Impact of West Point Lake at Various Lake Water Levels



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Economic Impact of West Point Lake at Various Lake Water Levels

PROPOSED NEW FACILITIES @ MAPLE CREEK SITE: HIGH SCENARIO			
Facility	**Units**	**Avg. Cost / Unit**	**Total Cost to Build**
Hotel (Rooms)	125	$140,000	$17,500,000
Hotel Parking (spaces)	250	$1,500	$375,000
Meeting Space (sq.ft.)	12,000	$150	$1,800,000
Golf Course (holes)	18	$220,000	$3,960,000
Restaurant / Lounge (sq. ft.)	5,600	$100	$560,000
Campgrounds (spaces)	193	$8,000	$1,544,000
Marina (slips)	200	$7,500	$1,500,000
TOTAL			$27,239,000

RIMS II CONSTRUCTION MULTIPLIER		
Industry	**Construction Multiplier**	Total Yield
Agriculture	0.0023	$62,650
Mining	0.0049	$133,471
Utilities	0.0054	$147,091
Construction	1.0028	$27,315,269
Manufacturing	0.0617	$1,680,646
Wholesale Trade	0.028	$762,692
Retail Trade	0.1072	$2,920,021
Transportation	0.013	$354,107
Information	0.0299	$814,446
Finance	0.018	$490,302
Real Estate	0.0417	$1,135,866
Professional services	0.0155	$422,205
Management	0.011	$299,629
Admin	0.0148	$403,137
Education	0.0048	$130,747
Health Care	0.0481	$1,310,196
Arts, entertainment.	0.0012	$32,687
Accomodation	0.0145	$394,966
Other services	0.0142	$386,794
Total with Multipliers		$11,957,921

Economic Impact of West Point Lake at Various Lake Water Levels

Year	Cost / Hotel Room	Cost / Boat Slip
1992	$85,000	$4,500
1993	$87,550	$4,635
1994	$90,177	$4,774
1995	$92,882	$4,917
1996	$95,668	$5,065
1997	$98,538	$5,217
1998	$101,494	$5,373
1999	$104,539	$5,534
2001	$107,675	$5,700
2002	$110,906	$5,871
2003	$114,233	$6,048
2004	$117,660	$6,229
2005	$121,190	$6,416
2006	$124,825	$6,608
2007	$128,570	$6,807
2008	$132,427	$7,011
2009	$136,400	$7,221
2010	$140,492	$7,438

*Assumes 3% yearly increase

Appendix E

USACE PLAN FOR WATER LEVELS
During Recreation Season at
West Point Lake

WEST POINT PROJECT
PLAN FOR LOW WATER LEVELS
DURING RECREATION SEASON
Jul 99

1. Water levels determined to adversely impact recreational use of West Point Project during the period 1 May - 8 Sep, are as follows:

   a. Normal Summer Level - 635 ft., NGVD
   b. Initial Impact Level - 632.5 ft., NGVD
   c. Major Impact Level - 629 ft., NGVD
   d. Severe Impact Level - 627 ft., NGVD

2. Potential impacts on swimming areas, marinas, boat launching ramps, navigation, and private boat docks, and actions to be taken at each of these lake levels are listed below.

   a. Initial Impact Level (632.5 ft., NGVD)

Recreational use and safety impacts become significant at or near this level. Actions to be taken are primarily concerned with cautioning the public about potential hazards and preparation for worsening conditions.

Impacts	Actions
1. Swimming area buoy lines are established at 629' NGVD. Levels at or near 632.5' NVGD render all swimming areas only marginally usable.	1. Post caution signs at beaches Advising of shallow depths and potential hazards. Cease charging fees for beach use. Monitor swimming areas for hazards.
2. Marina operators must prepare to shift docks outward to deeper water.	2. Notify marina operators and other lessees of lake level forecast, in coordination with Water Management Officials in District Office.
3. Some unmarked shoals and other potential hazards to navigation may begin to appear.	3. Monitor boating channels for hazards during weekend boat patrols. Mark significant hazards as necessary.
4. Approx. 35% of private docks become marginally usable with approximately 2' of water depth under them.	4. Coordinate with District Water Management and Public Affairs officials on periodic news releases advising the public of lake level forecast. Refer lake level inquiries to these officials.
5. Boat launching ramps may become partially blocked by silt in some locations.	5. Monitor ramp conditions and remove silt as necessary.

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b. Major Impact Level (629 ft. NGVD)

Recreation and public safety impacts increase in significance at this level, and actions will be taken to identify hazards and inform the public of potentially dangerous conditions.

Impacts	Actions
1. All swimming areas become unusable.	1. Continue to monitor swimming areas for hazards.
2. Marina operators must shift boat dock positions to prevent them from becoming unusable. Approximately 40-50% of private boat docks become unusable.	2. Coordinate with District Water Management officials on issuance of news releases to inform the public of lake level forecasts and local issues such as boating and swimming hazards. Keep marina operators informed.
3. Unmarked navigation hazards continue to emerge. Some areas may become unsafe for skiing.	3. Continue to monitor lake area on weekend boat patrol. Mark hazards as necessary.
4. Approximately 10% of project boat launching ramps are impacted with less than 6' of water on the end of the concrete surface. Other ramps have frequent silt build-up. Approximately 30% of courtesy docks at ramps become unusable.	4. Monitor conditions at all boat launching ramps. Remove silt and post closure notices as appropriate. Issue news releases to identify closed ramps and direct boaters to deeper ramps.

c. Severe Impact Level (627 ft. NGVD)

Conditions worsen significantly at this level, with water-related recreation activities severely restricted. Activities such as skiing and swimming became dangerous in many portions of the lake.

Impacts	Actions
1. Water is 50-100' from the normal shoreline and access to water is limited by mud. Navigation hazards continue to emerge and skiing is limited to main bodies of the lake.	1. Continue all actions outlined above.
2. Business at local marinas, bait and tackle shops and other lake-related establishments begins to decline significantly. Boat ramp at Highland Marina becomes unusable.	2. Expand area for news releases beyond local area. Stress available recreation activities in releases.
3. Over 50% of courtesy docks at boat ramps are unusable. Problems with silt and drop-offs at boat launching ramps increase	3. Initiate scheduled work items that must be accomplished during low lake levels such as beach nourishment, shoreline protection, launching ramp extension, installation of shoal markers, etc.
4. Approximately 70% of private docks are unusable.	4. Continue public information efforts outlined above.

November 17, 2008

To: Col. Byron Jorns

Mobile District Commander

USACE

Mobile, AL 36628-0001

Subject: Stakeholder Comment on Environmental Impact Assessment of Proposed Update to ACF Water Control Manual

We want to take this opportunity as provided for under the National Environmental Policy Act (NEPA) to address some of the concerns we have with the proposed action of updating the Water Control Manuals that will govern the operation of water management of the Apalachicola, Chattahoochee, and Flint Rivers.

First of all, the process:

The Corps has responsibility to consider carefully the impact of the proposed action, the update of the master Water Control Plans (WCP) on the Congressionally approved project uses. We would assert you also have under NEPA the responsibility to consider carefully the broader impact on the social and economic fabric of the communities throughout the ACF Basin, and indeed on the survival, health and productivity of the waters that comprise this eco-system. If the waters of that eco-system are depleted below the minimum required to sustain that system, all users lose. The on-going EIS assessment must have, and be seen to have, a direct input into the shape and content of the WCM. A flowchart or some other form of audit trace should be constructed to demonstrate the influence of the stakeholder concerns on the WCM. A fair and equitable distribution of and public access to these waters must be an explicit aim of the proposed WCP. Therefore the scope of your EIS/WCP assessment

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should have a historically and scientifically-verifiable baseline for impact comparison. We understand the Commander of the Corps' South Atlantic Division will meet with the National Research Council soon; he should discuss with them the NRC's active involvement in the WCM/EIS process. The credibility of the process would be greatly enhanced.

Secondly, the workproduct, the Water Control Manuals themselves:

It would be simpler and quicker for the Corps to accept the current Revised Interim Operations Plan (RIOP) with minor modifications as the updated Water Control Manual. After all, the RIOP has gone through a"Biological Opinion" review by the US Fish and Wildlife Service already. However, the RIOP and the Biological Opinion were limited to consider the impact of the reduced downstream flows on four (4) endangered species – 3 mussels and the Gulf Sturgeon. A "biological opinion" so constrained did not consider the impact of the drastically reduced flows on the health and productivity of the coastal fisheries and the NOAA-approved Coastal Zone Management plans, nor on the proper natural functioning of the floodplain, and the health and productivity of the downstream eco-system itself. Options like incorporating enforceable demand management and reduced consumption, must be incorporated in the Corps' existing and proposed contracts with upstream water users to ensure sustainable freshwater flows. These are critical missing components in the current RIOP. On a basin of interstate waters, such as the ACF, these water contracts between the Corps and the variety of users of water stored in Federal reservoirs must incorporate safeguards for downstream users of these interstate waters, and not be limited to upstream needs alone.

Finally, the Water Management structure for the ACF:

The management objective for the interstate waters of the ACF Basin should be the identification, construction and enforcement of a water budget that recognizes and balances the competing needs of all riparian users. No such record of in-stream flow requirements for the ACF as a sustainable resource now exists. Fundamental inequities now exist in the water management structures and laws of the riparian states, and States' rights in managing the waters of their states is, and can remain, the governing management structure for waters that rise and fall in a single state. But the management of the surface waters of the interstate ACF basin must be managed by joint agreement. Over 18 years of negotiation, mediation, and litigation have failed to achieve that objective. That failure will persist so long as an objective, scientifically valid assessment of the in-stream flow requirements of all users has not been completed and institutionalized. The Corps' updated WCM can be a critical tool in achieving the

interstate water management objective. An updated WCM that is not grounded in the firm foundation of objective scientific water needs assessment sustains an unacceptable status quo and exposes the Corps to attack from multiple, competing users, including the Congress. An investment in empowering and funding such an assessment of in-stream flows for the ACF as part of the WCM/EIS process is highly recommended.

Comment ID: 0071
Author Name: Steven J. Herrington
Organization: The Nature Conservancy

21 November 2008

The U.S. Army Corps of Engineers Mobile District
107 Saint Francis Street, Suite 1403
Mobile, AL 36602-9986

Re: Comments for EIS for the ACF River Basin Water Control Manual Update

To Whom It May Concern:

The Nature Conservancy appreciates the opportunity to comment on the Environmental Impact Statement (EIS) for the Water Control Manual Update for the Apalachicola-Chattahoochee-Flint (ACF) River Basin. The challenges presented by several years of drought underscore the necessity to update the manual to balance the long-term economic and environmental needs in this important watershed. The Conservancy is a recognized global leader in environmental flow science for managed rivers and has extensive experience working collaboratively with the Corps and other water managers on revising reservoir operations. We respectfully offer the following recommendations as well as our expertise to assist the Corps' efforts to define comprehensive, science-based environmental flow requirements as the agency develops the EIS and updates the water control manual:

Develop a scientific consensus of environmental flow needs of the ACF
The goal of this EIS is to determine the environmental impacts of U.S. Army Corps of Engineers (USACE) operations in the ACF River Basin. Although there has been a tremendous amount of publically available ecological data collected over the past several decades in the system, there is still not a scientific consensus on the physical and biological effects of operations in the ACF River Basin, particularly in the Apalachicola River and Bay. Because this constitutes the foundation of the EIS, the lack of such a consensus on the environmental flow needs of the system can severely undermine the quality and utility of the EIS and thus the Water Control Manual for the basin.

Reaching consensus on environmental flow requirements is a complex process. It involves scientists and engineers from many disciplines using existing data to define the basic flow regime required to support the native fauna and functions of the river ecosystem. The Conservancy has developed this process through work with many partners in important river systems in the U.S. and elsewhere in the world. We have worked with the USACE for nearly ten years through the Sustainable Rivers Program, a partnership to find new ways of conserving and protecting freshwater habitats while meeting human needs for water. As of 2008, this program has helped improve management of eight river basins involving 36 USACE river projects across the country. Further, the process has been used in several Federal Energy Regulatory Commission dam re-licensing projects which resulted in ecologically improved river flows while maintaining the viability of dams for electric power generation and other uses. This process has also been adopted by other agencies, such as the National Park Service in South Carolina, to apply to their own water management issues.

The Savannah River is an example of how we facilitate scientific consensus to approach water management problems. Under contract with the Savannah District of the USACE, we facilitated a meeting of over 50 leading scientists from the Georgia and South Carolina state agencies, federal agencies, academic institutions, and other non-governmental organizations to develop environmental flow recommendations for the Lower Savannah River ecosystem. The outcome of the workshop was a report authored by the participants that conveyed the flow recommendations to the District in terms of flow releases from Thurmond Dam. The Conservancy and partners continue to work with the USACE to incorporate the environmental flow recommendations into their water control plans and improve the ecological health of the river downstream. We offer our expertise in facilitating science-based environmental flow consensus for the foundation needed to develop a meaningful EIS and Water Control Manual for the ACF River Basin.

Continuation of fish passage operations at Jim Woodruff Lock and Dam

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In 2004, the USACE began collaborating with the Conservancy, the U.S. Fish and Wildlife Service, the U.S. Geological Survey co-op at Clemson University, the Florida Fish and Wildlife Conservation Commission, the Georgia Department of Natural Resources, and several other partners to determine the viability of adjusting the operation of the lock at Jim Woodruff Lock and Dam for improving upstream movement of migratory fish species in the ACF River Basin. Several years of scientific study clearly demonstrated that running the lock at times when migratory fishes, such as the Alabama shad and Gulf strain of striped bass, were moving upstream substantially improved their ability to pass through the lock upstream to over 150 miles of additional riverine habitat for reproduction and other important biological needs. In 2008, The USACE agreed to continue to operate the lock (which does not release any more or less water downstream) to support fish passage. Because this action is critical in the population recovery of migratory fish species, as well as the ecology of the system, the Conservancy strongly supports the continuation of fish passage operations at Jim Woodruff Lock and Dam in the ACF River Basin. In addition, we recommend consideration of similar fish passage operations at other USACE operated facilities throughout the basin. Potential impacts on migratory fishes related to USACE operations should be considered in the upcoming EIS.

The Conservancy has long provided objective, scientific expertise for water management in the ACF River Basin. We have had staff dedicated to working on river issues in the basin for nearly a decade, and our knowledge of the tri-state water issues, expertise in international water planning, and pioneering process for helping define environmental flow needs make the Conservancy uniquely qualified to assist in the development of the EIS and the Water Control Manual for the basin. Please visit us at www.nature.org/freshwater or feel free to contact me for more information.

Sincerely,

Steven J. Herrington, Ph.D.
Director of Freshwater Projects
The Nature Conservancy, Florida Chapter
10394 NW Longleaf Drive
Bristol, FL 32321
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ACF Water Control Manual Update

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- ○ *Academic Institution*
- ○ *Local Gov't Agency*
- ○ *State Gov't Agency*
- ○ *Federal Gov't Agency*
- ○ *Other* _____

Please Check a Comment Area:
- ○ *ACF Basin*
- ○ *Blackshear Dam and Lake*
- ○ *Flint River Dam and Lake*

Water Control Manual Update
- ☑ *Lake Sidney Lanier/Buford Dam*
- ○ *Morgan Falls Dam*
- ○ *West Point Lake and Dam*
- ○ *Goat Rock Dam*
- ○ *Oliver Dam*
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- ○ *Bartlett's Ferry Dam & Harding Lake*
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Environmental Resources
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- ○ *Air Quality*
- ○ *Cultural Resources*

Water Management for Multiple Federal Project Purposes
- ○ *Action Zones*
- ○ *Drought Operations Management*
- ○ *Hydropower*
- ○ *Navigation*
- ○ *Recreation*
- ○ *Flood Damage Reduction*
- ○ *Water Quality*
- ○ *Water Supply*

NEPA Process
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- ○ *Baseline*
- ○ *Impacts Analysis*
- ○ *Public Involvement*

- ○ ***Shoreline Management***
- ○ ***Revised Interim Operations Plan***
- ○ ***Socioeconomics***
- ○ ***Recommended Modeling Tools and Data Source***
- ○ ***Other*** _____

Comments

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Name: Matt Frend Address:

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November 21, 2008

Colonel Byron Jorns
US Army Corps of Engineers - Mobile District
PO Box 2288
Mobile AL 36628-0001

RE: Scope of Environmental Impact Statement (EIS) for the Update of the Water Control Manual for the Apalachicola–Chattahoochee–Flint (ACF) River Basin in Georgia, Florida, and Alabama

Dear Colonel Jorns:

The Upper Chattahoochee Riverkeeper submits these comments on behalf of the Southern Environmental Law Center and Georgia River Network. We are writing in response to the September 19, 2008 Public Notice published in the Federal Register (FR Doc. E8–21912) concerning the Water Control Manual Update for the Apalachicola-Chattahoochee-Flint ("ACF") River Basin.

Upper Chattahoochee Riverkeeper ("UCR") is a non-profit environmental advocacy organization dedicated to the protection and restoration of the Chattahoochee River, its tributaries, and watershed. UCR represents more than 5,000 members who use and enjoy the river and its resources and depend on the Chattahoochee River and its lakes as a source of drinking water and for recreation. The Southern Environmental Law Center ("SELC") is a regional nonprofit legal organization whose mission is to protect and restore the natural resources of the Southeastern United States. The Georgia River Network works to ensure a clean water legacy by engaging and empowering Georgians to protect and restore our rivers from the mountains to the coast.

Our comments focus primarily on the operation of Buford Dam and its impacts on water quality, recreation, fishing, and water supply downstream from the Lake Lanier project on the Chattahoochee River.

Background

The Chattahoochee River is the most heavily-used water resource in Georgia. *See* USGS, Influences of Environmental Settings on Aquatic Ecosystems in the Apalachicola-Chattahoochee-Flint River Basin, Water Resources Investigations Report 95-4278 (1995). The quality of the water is a result of the complex interaction of natural and human influences on land and water. Metro Atlanta, the largest and fastest growing metro area in the Southeast, is in

the river basin's headwaters. *Id.* The basin's growing population presents challenges to balancing human and ecosystem needs for water of sufficient quantity and quality. *Id.*

Urban runoff and other nonpoint sources, such as eroded soil from construction activities, constitute approximately 75% of the pollution problems. *Id.* Various state and federal laws mandate the control of stormwater runoff in order to protect downstream water quality and property values; however, enforcement is severely lacking at all levels of government. *Id.* Silvicultural and agricultural activities can also influence aquatic ecosystems primarily through nonpoint source inputs of pesticides, nutrients and sediment, and by physical alteration of riparian and stream margin habitats. *Id.* The cumulative effect of these activities has not been systematically evaluated in the ACF basin. *Id.* UCR urges the Corps to take the requisite hard look at these factors as well as those issues outlined below.

Purpose and Need

The statement of purpose and need must "specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action." 40 CFR § 1502.13. At the outset, we note that a decision from Judge Paul Magnuson in the U.S. District Court for the Middle District of Florida is pending. In all likelihood, his decision will address the key issue of whether any of Lake Lanier can be used for water supply, and if so, how much. Until we know the judicial outcome, we believe it is premature to move forward with drafting of the EIS, and encourage the Corps to either provide for another scoping period in response to that pending decision or to include reasonable alternatives that explore all the potential water supply allocation outcomes.

Alternatives Analysis

The alternatives analysis is "the heart of the environmental impact statement." 40 CFR § 1502.14. Its purpose is to "[provide] a clear basis for choice among options by the decisionmaker and the public." *Id.* The analysis should include a thorough discussion of available alternatives to a project that fulfills the project's underlying purpose and need, including "reasonable alternatives not within the jurisdiction of the lead agency." *Id.* at § 1502.14(c). One required alternative to consider is the alternative of taking no action. *Id.* at § 1502.14(d). Some reasonable alternatives outside the Corps' jurisdiction ought to be considered, including more aggressive water conservation and efficiency measures adopted at both the Metropolitan North Georgia Water Planning District ("Metro District") and the state level.

UCR has been an active participant in the Metro District's water planning effort. Unfortunately, we remain concerned over what appears to be a lack of commitment to meaningful water conservation and efficiency and a determination to rely on dedication of more storage in Lake Lanier for water supply, more impoundments on the Chattahoochee and Flint Rivers, and more interbasin transfers. For example, the draft 2008 update to the District's Water Supply and Water Conservation Management Plan continues to rely on securing maximum (i.e., 22%) water supply from Lanier to meet projected water demand, while setting weak conservation goals that amount to an active water savings of at most 8% by 2035. *See* attached letter from S. Bethea,

UCR, to J. Hinkle, Metro Water Planning District, Re: Metro District's draft 2008 District-Wide Water Supply & Water Conservation Management Plan (Aug. 29, 2008).

In contrast to the Metro District, both Georgia Environmental Protection Division (EPD) Director Dr. Carol Couch and Georgia Governor Sonny Perdue acknowledge that 25-33% water savings over the next 25 years is feasible. *See* interview of Dr. C. Couch by Georgia Public Broadcasting, Re: Georgia's Water Crisis, available at http://www.gpb.org/georgiaweekly/2008/09/28l; press release from Gov. S. Perdue, Re: Governor highlights the conservation benefits of fall planting (Oct. 31, 2008), available at http://gov.georgia.gov/00/press/detail/0,2668,78006749_101951868_126635478,00.html.

We have been active participants in Georgia's statewide water planning effort, which now seems to be slowly entering the implementation phase. We await the long overdue draft Water Conservation Implementation Plan (WCIP), noting that delay and deliberation over finalizing the draft WCIP stem from concerns that concrete water savings goals may or may not be included in the final plan. *See* attached notes from A. Murphy, GA EPD, Re: August 4, 2008 Stakeholder Meeting Convened by Dr. C. Couch to Discuss the WCIP; attached email from D. Denion, GA EPD, to WCIP Sectors, Re: WCIP Meeting on Aug 4 (Aug. 6, 2008).

We strongly urge the Corps to consider more aggressive water conservation and efficiency measures at regional and state levels during its alternatives analysis, including exploring existing and potential conservation efforts in Florida and Alabama as well as Georgia.

Baseline and Affected Environment

Any NEPA analysis should establish the magnitude and significance of impacts to the human environment by comparing the environment in its naturally occurring state with the expected impacts of other actions. Use of a baseline for comparing predicted effects of the proposed action and its reasonable alternatives is an essential part of the NEPA process. A description of the baseline condition should address "…how conditions have changed over time and how they are likely to change in the future without the proposed action." If unable to establish a "naturally occurring" condition, a description of a modified but ecologically sustainable condition can be used instead. "Ecologically sustainable" means the artificial system supports biological processes, maintains its level of biological productivity, functions with minimal external management, and repairs itself when stressed. (*See* EPA, 1999, Consideration of Cumulative Impacts in EPA Review of NEPA Documents, 315-R-99-002).

We believe there are several basic questions that must be addressed in this section of the EIS. Namely,

- How will the Corps model pre-dam, post-dam, and alternative regimes in the context of ecological, hydrological, and water quality response? How will the Corps ensure integration of ecological variables into the ResSim's hydrological and water quality models?

- How will the Corps capture temporal and spatial variation? How will the Corps address uncertainty, including that due to drought, flooding, and climate change? What sensitivity analyses will the Corps perform?
- What does current data suggest regarding inflow into Lake Lanier? To what extent is the current drought impacting the Upper Chattahoochee River's watershed?
- Will the Corps develop a "budget" for the ACF River Basin that finally tells us how much instream flow is needed to maintain the ecological integrity of the natural system?
- If the National Research Council (NRC) proceeds with the ACF study proposed by Florida's U.S. Congressional leaders, what is its timeline relative to this EIS process? How will the Corps include the NRC's findings in the draft/final EIS? To the extent the NRC study ignores the ecological and hydrological needs of the Chattahoochee and Flint rivers, will the Corps support and/or commit to a similar study to address the two upper ACF Basin rivers?

Direct Effects

Direct effects are defined as those impacts which are caused by the action and occur at the same time and place. 40 CFR § 1508.8(a). We are concerned about several potential effects that past and ongoing Corps operations of reservoirs in the ACF River Basin have had and will continue to have on the Chattahoochee River's water quality, wetlands, riparian buffers, fish habitat, recreational opportunities, and water supply for these and other uses. We strongly encourage the Corps to consider the following during preparation of the EIS:

Water Quality—We are concerned that current and future Corps operations in the ACF River Basin may adversely affect water quality preventing attainment of the Chattahoochee River's designated uses (fishing, recreation, and drinking), particularly at low flow conditions. As the Corps is well aware, we have repeatedly shared our concerns over the lack of real-time water quality monitoring in conjunction with instantaneous flow monitoring on the Chattahoochee River at Peachtree Creek. *See* attached letter from S. Bethea, UCR, to E.P. Robbins, Corps, Re: Release No. 08-053—Corps reviews request for reductions from Lake Lanier (Oct. 27, 2008). Our water quality concerns do not end there.

Elsewhere along much of the Chattahoochee River, water quality standards are not being met, designated uses are not being achieved, and numerous segments have been designated as impaired. Moreover, Georgia EPD is slow to develop total maximum daily loads (TMDLs) to address these water quality deficiencies. These water quality problems appear to be chronic and intensifying.

In 1991, the ACF River Basin was selected by the U.S. Geological Survey (USGS) for investigation in the National Water Quality Assessment (NAWQA) Program. *See* USGS, Influences of Environmental Settings on Aquatic Ecosystems in the Apalachicola-Chattahoochee-Flint River Basin, Water Resources Investigations Report 95-4278 (1995). The objective was to provide a broad synthesis of topics relevant to understanding the health of the aquatic ecosystem and water quality conditions in the ACF River Basin. *Id.*

Among other conclusions, the USGS NAWQA study determined that two-thirds of the 938 stream miles in the Georgia portion of the ACF River Basin had water quality that did not meet or only partially met the designated use criteria. *Id.* In particular, fishing as a designated use went unmet in more than 80 percent of impaired stream miles. *Id.* EPA's National Study of Chemical Residues in Fish (1991) revealed that tissue in fish caught in the Chattahoochee River below Atlanta contained chemical concentrations that were among the highest in the nation. *See* USGS, Influences of Environmental Settings on Aquatic Ecosystems in the Apalachicola-Chattahoochee-Flint River Basin, Water Resources Investigations Report 95-4278 (1995).

A review of Georgia's 2008 list of impaired surface waters shows little if any signs of improvement over the 20-plus years elapsing since completion of the USGS NAWQA study; today, numerous segments of the Chattahoochee River below Buford Dam remain impaired for fecal coliform bacteria, biota, pH, PCBs, dissolved oxygen (DO), and temperature. (Georgia 2008 305(b)/303(d) List Documents, Appendix A Waters Assessed for Compliance with Designated Uses, at A-4-7).

The most recent TMDLs were issued in January 2008 for biota and fecal coliform. The TMDL analysis shows that 25 stream segments located in the Chattahoochee River Basin were biota impacted due to sedimentation. (*See* GA EPD, Evaluation for Twenty Five Stream Segments in the Chattahoochee River Basin for Sediment (Biota Impacted), iv (Jan. 2008)). The TMDL analysis also identified seven stream segments located below Buford Dam in the Chattahoochee River Basin as water quality limited due to fecal coliform bacteria. (*See* GA EPD, Total Maximum Daily Load Evaluation for Nine Stream Segments in the Chattahoochee River Basin for Fecal Coliform, January 2008, iv (Jan. 2008)).

With respect to the lakes in the Chattahoochee River Basin, at least three separate locations in Lake Lanier have been classified as 'impaired" for violating the chlorophyll *a* criteria. (2006 Lakes/Reservoirs Not Fully Supporting Designated Uses, GA EPD, available at http://www.gaepd.org/Files_PDF/305b/Y2006_303d/Y2006_Lakes_Not_Fully_Supporting.pdf). West Point Lake was also designated as impaired for Fish Consumption Guidance and PCBs. *Id.* Nevertheless, GA EPD is attempting to further weaken water quality standards—particularly for chlorophyll *a*—in all of Georgia's lakes including Lake Lanier and West Point Lake, a change that is contrary to the federal Clean Water Act. 33 U.S.C. § 1313(b)(2); 40 C.F.R. § 131.5(a)(1); *see* Notice of Public Hearing and Proposed Amendments to Rules and Regulations for Water Quality Control, Chapter 391-3-6, GA EPD, October 1, 2008).

Most recently, the City of LaGrange has documented nutrient problems in West Point Lake including elevated nitrogen levels that exceed the water quality standards for the lake. *See* attached letter from Mayor W. Lukken, City of LaGrange, to Colonel B. Jorns, Corps, Re: GA EPD's request for reduced flows in the Chattahoochee River at Peachtree Creek (Oct. 15, 2008).

We strongly urge the Corps to evaluate the effects ACF River Basin operations have on water quality in the Chattahoochee River below Buford Dam, particularly during summer drought conditions and periods of low flow.

Wetlands & Riparian Buffers—In addition to considering effects on water quality standards, we also urge the Corps to carefully consider the effects ACF River Basin operations may have on wetlands and riparian buffers. Wetlands and riparian buffers are important features that provide beneficial ecological services including protecting and improving water quality, providing fish and wildlife habitat, storing floodwater, reducing stormwater runoff, maintaining stream channel integrity, and maintaining surface water flows during dry periods. *See* J. Meyer et al., Implications of Changes in Riparian Buffer Protection for Georgia's Trout Streams (Oct. 2005), available at http://www.rivercenter.uga.edu/publications.htm.

Fish Habitat--Changes in Corps operations in the ACF River Basin have the potential to affect fish habitat in the Chattahoochee River. We note in particular the importance of preserving the disappearing trout habitat in the Chattahoochee River below Buford Dam as well as providing sufficient, healthy flows for the Buford Trout Hatchery. *See* J.P. Runge *et al.*, Survival and dispersal of hatchery-raised rainbow trout in a river basin undergoing urbanization, North American J. of Fisheries Management, 2008 (28): 745-757.

Recreation—UCR shares the concerns of the National Park Service with respect to boating prospects in the Chattahoochee River National Recreation Area during low flows. See attached letter from D. Brown, NPS, to District Engineer, Corps, Re: GA EPD's request for reduced flows in the Chattahoochee River at Peachtree Creek (Nov. 4, 2008). Moreover, during UCR's river patrol trips, we have observed firsthand that when the flow in the river at Peachtree Creek is less than 750 cfs, the Chattahoochee River is virtually impassible by motor boats from Buford Dam to West Point Lake.

We strongly urge the Corps to evaluate the effects ACR River Basin operations have on recreational opportunities in the Chattahoochee River below Buford Dam to, and including, West Point Lake, particularly during times of low flow.

Downstream water supply—UCR notes that ACF River Basin operations tend to be largely driven by Metro Atlanta's demand for Lanier as a water supply. As the Corps knows, water supply is not the primary purpose of Lanier; in fact, current water supply allocation may be in excess of that authorized by Congress. We strongly urge the Corps to evaluate water supply needs for all downstream purposes, including drinking water, fish habitat, recreation, agricultural, and power supply. With respect to the latter, we strongly urge the Corps to secure, analyze, and provide for public scrutiny water consumption data pertaining to coal-fired and nuclear power plants along the Chattahoochee River.

Indirect Effects

NEPA's implementing regulations define indirect effects as those effects that are later in time or farther removed in distance from a given project, but still reasonably foreseeable. They may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. 40 CFR § 1508.8(b).

Again, we are concerned about several potential impacts Corps operations of reservoirs in the ACF River Basin have had and will continue to have on the Chattahoochee River. Those indirect impacts of greatest concern include those due to population growth and development facilitated by increasing water supply.

Such impacts include water quality degradation, wetland loss and destruction, riparian buffer loss and destruction, fish habitat degradation, and impaired recreational opportunities, outlined above. Additionally, we are concerned that Corps ACF River Basin operations will result in further impaired headwater stream habitat for imperiled species; reduced base flow, degraded water quality, and impaired fish habitat and survivorship due to increased impervious surfaces; reduced instream flows due to additional and/or modified reservoirs; and increased reliance on ecologically damaging interbasin transfers. We strongly encourage the Corps to consider all of these indirect effects during preparation of the EIS.

The uses of both the Chattahoochee and Flint River Basins for increased water supply will unquestionably result in more growth and the attendant impacts described above. The Corps must consider the direct, indirect, and cumulative impacts of all current and proposed water supply reservoirs and intakes in the ACF Basin, including those listed in the Metro District's water supply plans and those included in studies by the Georgia Environmental Facilities Authority, as described below.

Increased Impervious Surfaces--Using satellite data from 2005, we see that the 15-county Metro Atlanta region has lost over 6,000 acres of tree canopy while adding nearly 4,000 acres of hard (impervious) pavement. Data available at http://narsal.uga.edu/glut/. Impervious surfaces, including roads, parking lots, and building rooftops, reduce the ability of the Chattahoochee River's watershed to absorb rain. As a result, base flow is reduced and the river receives diminished recharge. Instead, runoff collects and dumps oil, bacteria, sediment, grease and other pollutants into our rivers and streams, contaminating drinking water sources.

The amount of impervious surface in a watershed is directly related to the health of that watershed, and whether or not it will be able to continue to supply clean water to communities. Generally, when 10-15 percent of a watershed is covered by impervious surfaces, the increased sediment and chemical pollutants in runoff have a measurable affect on water quality. Center for Watershed Protection, Impacts of Impervious Cover on Aquatic Systems (Mar. 2003), available at http://www.cwp.org/Resource_Library/Center_Docs/BSD/ELC_BSDpart2.pdf.

These impervious surfaces also may impair fish habitat and survival. *See* J.P. Runge *et al.*, Survival and dispersal of hatchery-raised rainbow trout in a river basin undergoing urbanization, North American J. of Fisheries Management, 2008 (28): 745-757; S. Wenger et al., Stream fish occurrence in response to impervious cover, historic land use, and hydrogeomorphic factors, Can. J. Fish. Aquat. Sci. 65: 1250-1264 (2008).

Degraded Headwater Stream Habitat for Imperiled Species—We are concerned that continuing efforts to increase storage in Lake Lanier serves to facilitate more growth and development not only for the Metro Atlanta area but also locally in the Chattahoochee River's headwaters. *See*

attached UCR, Chattahoochee Headwaters Aquatic Biodiversity Assessment and Conservation Project (Sept. 30, 2004).

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We strongly urge the Corps to carefully examine the potentially adverse indirect effects Corps existing and future ACF River Basin operations will have on listed and sensitive species in headwater streams feeding the Upper Chattahoochee River's watershed.

Future Impoundments—The Metro District is proposing four new reservoirs in the Chattahoochee River Basin to meet 2035 projected water demand for the region. *See* Metropolitan North Georgia Water Planning District, Preliminary Draft, Water Supply & Water Conservation Management Plan, 2-4 (July 2008). The Metro District is also considering an additional two to three reservoirs on the Chattahoochee River and two reservoirs on the Flint River for meeting post-2035 projected water demand. *See id.* at 6-10 & 6-13. These reservoirs are in addition to the assumed maximum water supply allocation out of Lake Lanier.

However, as we note in our comments on the draft 2008 update for the Metro District's Water Supply & Water Conservation Management Plan, those water projections are deeply flawed—driven by improperly selected and adjusted initial conditions as well as high population and economic growth scenarios. *See* attached letter from S. Bethea, UCR, to J. Hinkle, Metro Water Planning District, Re: Metro District's draft 2008 District-Wide Water Supply & Water Conservation Management Plan (Aug. 29, 2008).

Furthermore, the Georgia Environmental Facilities Authority (GEFA) has surveyed and inventoried feasible sites for the purpose of water supply. GEFA, Georgia Inventory and Survey of Feasible Sites for Water Supply Reservoirs (Nov. 3, 2008), available at http://www.gefa.org/Index.aspx?page=465. Notably, that study concluded that the more cost-effective and least ecologically-damaging and therefore preferred alternative is to expand existing reservoirs rather than to build new ones or raise Lake Lanier. *Id.*

Consistent with this GEFA study, we strongly urge the Corps to reject the Metro District's approach to assessing and meeting future water demands, instead considering reasonable alternatives to building more reservoirs or raising Lake Lanier levels.

Interbasin Transfer (IBT)—Whether involving diversion of water from the Coosa River Basin into the Chattahoochee River Basin to meet Metro District water supply needs, or the diversion of water out of the Chattahoochee River into the Ocmulgee River Basin to meet other water demands, Corps ACF River Basin operations are likely to indirectly affect the degree to which these and other IBTs impact the Chattahoochee River. We strongly urge the Corps to carefully consider reasonable and ecologically less destructive alternatives to IBTs during preparation of the EIS. Furthermore, because of existing and planned transfers between the Coosa and Chattahoochee River Basins, the Corps must also consider the connections between the ACF water control manual and the concurrent revisions to the Alabama-Coosa-Tallapoosa water control manual. Any decisions about dam management and interbasin transfers in one basin will have significant effects on the other basin.

Cumulative Impacts

Cumulative impacts result from the incremental impacts on the environment from a project when added to past, present, and reasonably foreseeable future actions in the same area. These impacts can arise from individually minor but collectively significant actions taking place over a period of time. 40 C.F.R. § 1508.7. Ongoing and future Corps operations within the ACF River Basin have potentially significant cumulative impacts on the human environment, including incremental changes in water quality, fish habitat, recreational opportunities, water storage, interbasin transfers, and ACT River Basin operations. Moreover, these impacts will be further exacerbated by future reservoirs, prolonged drought, and climate change.

The Water Control Manual for the Corps ACF River Basin operations should contain a long-term, comprehensive, science-based drought management plan. GA EPD's continuing ad hoc requests for temporary flow reductions in the Chattahoochee River at Peachtree Creek during heightened drought conditions is having unknown cumulative impact on the Chattahoochee River's water quality and instream flows. One reason that it is difficult to determine impacts on the river downstream of Peachtree Creek in Atlanta is the lack of adequate *real time* flow and water quality monitoring data. In fact, the lack of adequate flow and water quality monitoring throughout the ACF Basin is a significant problem that the Corps must address in its EIS.

The Corps must consider the cumulative effects of all proposed and existing withdrawals on the ACF system. These should particularly include the significant withdrawals for agricultural water use in the Lower Flint Basin, the proposed coal-fired power plant on the Chattahoochee River in Early County, GA, and the existing and future needs of the Farley Nuclear Plant in southeastern Alabama. We strongly encourage the Corps to consider these cumulative impacts as it drafts the EIS.

Conclusion

Thank you for the opportunity to help frame the EIS for the Water Control Manual Update pertaining to the ACF River Basin. We look forward to further participation in the NEPA process as it continues to unfold. Please don't hesitate to contact us if you have any questions.

Sincerely,

Sally Bethea, Executive Director & Riverkeeper
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October 15, 2008

Colonel Byron G. Jorns
District Commander
US Army Engineer District, Mobile
P.O. Box 2288
Mobile, AL 36628-0001

Dear Col. Jorns:

Recently Dr. Carol Couch of GA EPD made a request to your command that minimum flows on the Chattahoochee River as measured at Peachtree Creek should be reduced from 750 CFS to 650 CFS during the winter months to provide additional storage at Lake Lanier. Dr. Couch's goal is worthy and important and the restoration of elevations at Lake Lanier is critical to the entire ACF basin. It is also critical that other resources in the basin not be compromised to support such an adjustment.

As you know, the West Point Lake project has been stressed many years with low lake elevations and water quality issues. Most recently I was shocked when my staff shared with me that they had observed possible Water Quality (WQ) standard violations for Total Nitrogen in the north end of West Point Lake. They have shared that data with your staff and GA EPD.

While we support the state's efforts to work to restore Lake Lanier, any compromise of WQ standards at the West Point project is unacceptable. We have been exploring the problem and believe there is a solution that would allow for flow reductions while achieving better water quality and provide for more storage in the northern 2 lakes of the ACF system with water that is so desperately needed during the drought.

Our consulting environmental engineers and scientists studying West Point Lake recently offered these comments and observations:

"1) We have observed numerous recent violations of the Nitrogen Water Quality Standard at West Point Lake. The City of LaGrange's testing efforts indicate the nitrogen standard of 4.0 mg/l was violated on four separate occasions at the Franklin Sampling Location and two occasions at the North Intake Location during the months of July, August, and September. Testing indicated Total Nitrogen levels of up to 4.6 mg/l at the Franklin location and up to 4.8 mg/l at the North Intake Sampling Location. Given that these nitrogen levels far exceed both recent EPD sampling results and every historical sampling effort we could locate on record at the EPD office of Watershed Protection, we believe these concentrations are reason for significant concern. Many of the sampling efforts and studies we have reviewed were completed at times when the health of West

CITY OF LAGRANGE
OFFICE OF THE MAYOR
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www.lagrange-ga.org

Point Lake was in a highly eutrophic state and Water Quality Standards were in the Process of being developed, during these studies Total Nitrogen Levels rarely exceeded 2.5 mg/l."

"2) Due to the fact that we are observing elevated nutrient concentrations in West Point Lake, we feel it is even more important to maintain high water levels over the coming months. A significant volume of water is required to help dilute high nutrient inflows and sustain primary productivity in the lake. Primary productivity is also critical to maintain so that nutrients in the reservoir continue to be consumed. Primary productivity and algal growth will increase with lake volume and surface area that is exposed to sunlight. It is paramount to control nitrogen and other nutrient levels in the reservoir to a manageable concentration during the cooler seasons, so that eutrophication does not become even more of a problem with elevated temperatures, longer hours of sunlight and lower lake levels that are typical of the regions warmer seasons. We have been monitoring algal species composition and diatoms have been the dominant algal group in the lake. If nutrient levels increase, with low water levels and higher temperature there is a potential for a significant change in algal species composition from diatoms to toxin producing blue-green algae. "

As you can see we think there is a solution here for all stakeholders that has many multifaceted benefits for the basin. Maintaining an elevation of not less than 633 msl in West Point Lake during the winter, instead of drawing the lake down makes sense and represents a solution. Sustaining this elevation assures good Water Quality in West Point Lake that complies with mandatory standards, and provides more storage of water in the northern projects of the basin is desperately needed to meet the environmental, municipal, industrial, economical and recreational demands for the coming year.

The City extends its gratitude to Dr. Couch and her staff for working so closely with us in the exploration of the concerns related to the proposed change and the issues of water quality at West Point. We appreciate her suggestion and her recognition of the impacts at West Point Lake. My staff, local stakeholders and I stand ready to work with you as you review this request. We hope you will give favorable consideration to Dr. Couch's request and our proposed additional suggestion.

Please contact Joe Maltese of my staff should you wish to follow up with any additional discussion on this matter.

Sincerely

W. Jeff Lukken

W. Jeff Lukken

Mayor

CITY OF LAGRANGE

c:
Dr Carol Couch, GA EPD
Tim Cash, GA EPD
Jeff Brown, West Point Lake Advisory Council
Dick Timmerberg, West Point Lake Coalition
Sen. Johnny Isakson
Sen. Saxby Chambliss
Rep. Lynn Westmoreland
Ga Rep. Randy Nix
Troup Co. Commission
LaGrange City Council

United States Department of the Interior

NATIONAL PARK SERVICE
CHATTAHOOCHEE RIVER NATIONAL RECREATION AREA
1978 Island Ford Parkway
Atlanta, Georgia 30350-3400

IN REPLY REFER TO:

November 4, 2008

District Engineer, U.S. Army Engineer District, Mobile
Post Office Box 2288
Mobile, Alabama 36628-0001

Dear Sir:

In response to the October 10, 2008 news release from the US Army Corps of Engineers Mobile District, the National Park Service (NPS) has reviewed the request submitted by the Georgia Environmental Protection Division (GA-EPD) to preserve storage in Lake Lanier by temporarily reducing the instantaneous minimum flow of the Chattahoochee River at Peachtree Creek from 750 cfs to 650 cfs beginning November 1, 2008 and continuing through April 30, 2009.

The current request expands on a previous GA-EPD request made in February of 2008 to reduce flows in March and April, which was later amended to include May. The NPS expressed some concerns with this initial request in a memorandum dated February 28, 2008 and has since voiced other concerns in monthly ACF conference calls. Although we are pleased to note that many of these concerns have been addressed in the current GA-EPD request, we would like to clarify our position on a few remaining issues.

First, we feel that any decision to reduce the minimum flow should be accompanied by an effort to accurately gauge the instantaneous flow at Peachtree Creek. Although the current EPD request downplays the significance of 750 cfs as a meaningful threshold for preserving water quality and biological health in the river, past research and experience indicates that it provides better support for recreation and resources than would lower flows. We understand that there are geographic and logistical barriers to establishing a more accurate measure of instantaneous flows at Peachtree Creek; however, we would like to see all options explored and will offer our assistance in resolving the issue.

Second, although a reduction in flows through the colder winter months is less likely to diminish water quality or pose a threat to aquatic life, we are concerned that the current request covers a period extending through April of 2009. By that time of year, potential temperature increases and reductions in dissolved oxygen could threaten components of the fishery. In their request letter, GA-EPD states their willingness to coordinate closely with the Wildlife Resources Division of the Georgia Department of Resources on an adaptive management strategy to protect the fishery

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in warmer months, and we would like to ensure that this occurs.

Finally, during the period of lower flows this past spring, a number of recreational paddlers contacted us regarding the emergence of aquatic weeds in the backwater of Bull Sluice Lake. In particular, rowing clubs were having difficulty with their oars dragging through the weeds. We suspect that the accelerated growth of weeds in Bull Sluice is related to increased exposure to sunlight due to lower water levels related to reduced flows. Although this should not be a problem through the winter months, it could recur as an issue in the spring and provides another reason to ensure that flows are accurately measured and adaptive management is pursued.

We appreciate the opportunity to submit comments at this time and hope that you will take them into consideration. We will continue to be engaged in the process and appreciate opportunities to further collaborate. Should you have additional questions or comments, you can contact Rick Slade, Chief of Science and Resource Management at 678-538-1321 or at rick_slade@nps.gov.

Sincerely,

Daniel R. Brown
Superintendent

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Keeping Watch Over Our Waters
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Joy Hinkle
Metro Water Planning District
40 Courtland Street, NE
Atlanta, GA 30303
Fax: 404-463-3254

August 29, 2008

Re: Metro District's draft 2008 District-Wide Water Supply & Water Conservation Management Plan

Dear Joy,

Upper Chattahoochee Riverkeeper (UCR) is a non-profit environmental advocacy organization with 5,000 members dedicated to the protection and stewardship of the Chattahoochee River, its tributaries and watershed. As you know, UCR was actively involved in the development of the three water management plans (Plans) adopted by the North Georgia Metropolitan Water Planning District (Metro District) in 2003. We continue to follow the implementation of these Plans, including amendments made in 2005, and how the Plans may impact the Chattahoochee watershed and the people who live, work and play in the area. We appreciate the opportunity to comment on the 2008 update of the three Plans. Our comments here focus on the latest draft of the District-wide Water Supply & Water Conservation Management Plan (WSWCP).

General Observation and Comments

Many of our comments here mirror those we submitted on August 1, 2008 concerning the Watershed Management Plan. As before, we again note several overarching issues we would like to see addressed in the final 2008 WSWC plan. As the Metro District is aware, water is a limiting resource when it comes to further growth and development. Therefore, we strongly urge the Metro District to require local governments to adopt policies of not approving large-scale developments unless they can certify they have sufficient water available to supply any proposed large-scale development for a minimum of 20 years.

We also have the following general comments concerning integration, progress, implementation, enforcement, and assumptions.

Integration

First, we would like to see clearer integration not only among the three Metro District Plans but also between the Plans and Georgia's Statewide Comprehensive Water Management Plan (State Water Plan). In particular, how will the District Plans further the goals of the State Water Plan? For example, the draft 2008 WSWCP relies on 15 MGD expected monthly average withdrawals from West Point Lake

(WPL) to meet 2035 water demands. We note that WPL is actually outside the Metro District, in the Middle Chattahoochee Water Planning District. Similarly, the draft 2008 WSWCP proposes three future reservoirs in the Flint River Basin for a combined total of 553 AAD-MGD to satisfy post-2035 water demands. Two of those reservoirs would lie outside the Metro District, in the Upper Flint Water Planning District.

We fail to see how the Metro District planning effort can further the goals of the statewide effort if it ignores the water supply needs of neighboring districts, especially before those districts have had a chance to start their planning processes. Rather, in the interest of fair dealing and transparency, the Metro District should remove any references to water supplies lying outside its own district, and instead insert language committing to further collaborative efforts with neighboring districts in order to actually implement the State Water Plan.

Progress to Date
We remain disappointed in the lack of any "progress reports" within the latest drafts, which we believe are necessary to assess whether local jurisdictions are implementing the requisite action items, whether those actions are successful, and whether all of the actions taken as a whole are sufficient for achieving our water supply and conservation goals.

For example, the draft 2008 WSWCP states:

> "Implementation of the ten measures adopted in 2003 has been very successful. The majority of the population in the Metro Water District is currently billed based on increasing block or tiered rate structures; thus the higher water use is charged at a higher rate to encourage conservation. Leak detection programs in the Metro Water District have advanced in efforts to reduce water loss. Participation in the District-wide toilet rebate program is growing and encouraging homeowners to retrofit older, less efficient plumbing fixtures in the Metro Water District." (draft 2008 WSWCP, 1-5).

As with the Watershed Management Plan and the Long-term Wastewater Management Plan, we recognize that these qualitative assessments illustrate that positive steps are occurring, but we again question the degree to which actual progress has been made in terms of implementing the specific management measures referenced in the WSWCP. So, for instance, how many local governments have adopted conservation pricing and to what degree has water use been effected by the pricing structure? How many leaks have been detected since 2003 and how much water has been saved as a result of repairs? How many toilets have been retrofitted and/or how many rebates have been issued?

At a minimum, the 2008 updates should include a progress report, detailing which jurisdictions have adopted which model ordinances (or their functional equivalent) and summarizing the progress made to date in terms of implementation.

We also strongly recommend that the Metro District make readily available for public review (perhaps through a query database) the results of the Environmental Protection Division (EPD) audits which catalogue compliance with the action items. Only with this information in hand can we begin to determine whether the WSWCP is on the right track or whether additional revisions and updates are necessary. We were dismayed to learn at the August 5, 2008 Technical Coordinating Committee (TCC) meeting that this information does not appear to be readily available. We have serious concerns with the

lack of such key information, given that we are talking about what certainly amounts to a very basic spreadsheet which should be relatively easy to update with each audit.

Implementation
As with the Watershed Management Plan, we note several apparent shifting (or absent) timelines for completion that the Metro District needs to justify. According to the 2003 WSWCP, local governments

- beginning in 2005, were to perform rate studies;
- beginning in 2006, were implement multi-tiered rate structures;
- by the end of 2006, were to have adopted local ordinances or policies requiring new multi-family buildings to be built with individual water meters or sub-unit meters that bill based on volume of use;
- were to demonstrate compliance with state requirements concerning rain sensor irrigation shut-off switches on all new irrigation systems;
- by the end of 2008, were to identify single and multifamily residences and commercial buildings that contain pre-1993 plumbing fixtures;
- were to develop programs for distributing, installing, or providing incentives to replace higher flow fixtures on accounts owning pre-1993 built structures;
- by January 2009, are to have inventoried all existing food service establishments and distributed educational materials to promote installation of low-flow pre-rinse spray valves;
- beginning in 2005, were to conduct system water audits;
- beginning in 2006, were to perform leak detection and repairs;
- beginning in 2004, were to implement programs to provide water audits to residential customers;
- beginning in 2005, were to develop and implement programs to provide water audits to commercial customers;
- beginning in 2005, were to develop and implement programs to provide low-flow retrofit kits to residential users;
- beginning in 2005, were to implement public education and awareness campaigns;
- between 2005 and 2006, were to develop local water management plans that conform to the WSWCP;
- in 2007, were to implement these local water management plans;
- in 2006, were to establish local interconnection reliability targets;
- beginning in 2004, were to conduct detailed hydraulic studies;
- beginning in 2004, were to inventory distribution system components, including location and size of pipes, valves, and storage facilities;
- beginning in 2004, were to modify their system operations to be compatible with interconnected utilities;
- beginning in 2004, were to install required water system connections;
- beginning in 2004, were to secure funding for capital and non-capital improvements;
- beginning in 2005, were to enter into water sharing agreements, both for routine and emergency needs; and
- beginning in 2007, were to develop or update emergency plans for water sharing.

To what extent have any of the above occurred? How many local governments are in compliance for each bulleted item? How effective have these actions been? Are more needed to help us achieve our watershed, wastewater, and water conservation/supply management goals?

Enforcement
One the of most important components of the Metro District's water planning process, required by state law, is that the implementation of the District Plans must be tied to the issuance or re-issuance of water permits by EPD. The audits that are performed by EPD to review a local government's compliance with the District Plans must be thorough and comprehensive. With 16 counties and close to 100 cities in the Metro District, this process is necessarily time-consuming and made more so by the District's allowance of compliance options for local governments in a number of program areas. It is our understanding that EPD is understaffed to perform these tasks. Currently, there is only one individual who must handle all of the audits for local governments in the District; a second EPD position has been vacant for more than a year and may now be frozen given the recent state budget cuts. Staffing transitions in this program area have not helped the situation. We strongly recommend that the Metro District work collaboratively with the EPD to request the funds needed to fill this second position as soon as possible. The success of this entire program rests largely on its enforceability through the water permitting process.

Data and Underlying Assumptions: Water Supply; Water Demand Projections
The entire WSWCP is predicated on the assumption that the Metro District may lay claim to roughly 22% of Lake Lanier to meet its water supply needs. Given recent federal court actions, including a recent order from Judge Magnuson of the Middle District of Florida suggesting that a ruling on the legality of Lake Lanier withdrawals for Atlanta water supply may moot other claims, this is a bold assumption. (See also Southeastern Federal Power Customers, Inc. v. Geren, 514 F.3d 1316 (D.C. Cir. 2008)). A more prudent approach to long-term planning would be to consider a range of values with respect to water supply sources, acknowledging that the Metro District may have access to far less than 705 MGD of water out of Lake Lanier. (draft 2008 WSWCP, 2-1).

The draft 2008 WSWCP acknowledges that "natural replacement of less efficient plumbing fixtures is expected to reduce future water demand by 5% in 2035." (draft 2008 WSWCP, 3-11). This percentage is then added to water conservation scenarios that yield 7 or 8 % water savings by 2035, to reach a rather unimpressive total savings of 12 or 13%. (draft 2008 WSWCP, 4-9). We can do better. For example, California is currently considering a goal of 20% water savings by 2020. Stated another way, California will take 12 years to reach a 20% savings versus metro Atlanta taking 27 years to reach 13%.

In fact, the Metro District had a more ambitious goal of 20% water savings set in the 2003 WSWCP, imposing an 11% savings on top of the default 9% savings generated through existing efforts and plumbing code requirements. (2003 WSWCP, 4-1). Moreover, this more aggressive goal was to be met by 2030 as opposed to the new planning horizon of 2035. The Metro District must provide a rationale for backsliding from what was originally a rather modest goal, especially given the urgency of our ongoing water crisis.

Figure 3-2 depicting water production by county does not identify the proportion of unaccounted for water. (draft 2008 WSWCP, 3-2). Please provide an updated table showing county water withdrawals and losses equivalent to Table 4-3 in the 2003 WSWCP with a total for each.

Explain exactly how "2006 demands were adjusted to take into account drought management restrictions." (draft 2008 WSWCP, 3-5). The current drought is not over. Also, more frequent droughts in the near future are likely. Was that adjustment made as well?

Please quantify the change in per capita water use comparing the 2001 withdrawal data from the 2003 WSWCP (Table 4-5, 4-12) with the 2006 withdrawal data from the draft 2008 WSWCP (Table 3-4, 3-10). Also, please explain how that change does or does not reflect progress toward the Metro District's water savings goals.

The draft 2008 WSWCP water use projections suggest a lower demand by 2035 (1034 MGD, Table 3-6, 3-13), compared to the 2003 WSWCP water projections for 2030 (1081 MGD, Table 4-8, 4-15). Please explain this result, especially given that the 2008 update reflects less aggressive rather than more aggressive conservation efforts.

Finally, we again note that the Metro District continues to rely on high population growth scenarios to project future water demand. This approach is particularly problematic given the recent economic downturn we are experiencing in the state. Not only are we facing a water crisis, but we also are in the midst of an economic recession. We strongly urge the Metro District to revisit these population and employment projections, incorporating a reasonable range of growth scenarios given current and near-term economic conditions.

Section-Specific Comments

Water Conservation Analysis (Sec. 4)
Given the obvious water savings generated through replacement of water-inefficient washing machines (see Table 3-2, draft 2008 WSWCP, 3-7), please explain why rebates or other incentives to encourage their replacement are not featured more prominently in the Plan.

Please explain why option packages (Table 4-3, draft 2008 WSWCP, 4-6) only looked at conservation measures yielding 7 or 8% water savings. At a minimum, the Metro District should present packages yielding 15% (which added to the 5% savings we get if we do nothing will get us 20% savings). The Metro District should then provide a cost-benefit analysis, so we can evaluate whether the cost of reaching 20% savings is really prohibitive.

Also, please explain why the "pre-rinse spray valve retrofit education program" 2003 conservation measure (Table 4-1, draft 2008 WSWCP, 4-1) was eliminated from those conservation measures evaluated in Table 4-3 (draft 2008 WSWCP, 4-6).

Please clarify that the 12 or 13% 2035 water savings includes 7 or 8% due to implementation of these conservation programs, and that 5% will occur on its own because of "natural replacement of less efficient plumbing fixtures." (draft 2008 WSWCP, Table 4-5). We believe it is very misleading to suggest that additional conservation efforts will yield 12-13% water savings when in fact these conservation measures will only add 7 to 8% to the baseline savings of 5%.

Given the severity of our water crisis, please further justify the choice of conservation program (B) which yields lower water savings. (draft 2008 WSWCP, 4-12). Simply pointing to greater expenditure is not enough to conclude that costs outweigh benefits. Moreover, examining just three suites of options without further analysis is not rigorous and should not form the basis of a decision. Please perform a sensitivity analysis on the conservation measures to identify which measures and costs are driving the cost-benefit ratios. If one has been done already, then please provide it.

Also, please provide a summary of the reduction in wastewater generated under each option, analogous to that in the 2003 plan. (2003 WSWCP, 5-21).

Water Conservation Programs (Sec. 5)
We note the addition of an irrigation rate in those instances where water providers use irrigation meters. (draft 2008 WSWCP, 5-3). However, irrigation meters themselves are not required. We question whether this will really be effective or if it will simply result in the elimination of outdoor meters. We urge the Metro District to add irrigation meter installation as a conservation measure and add it to the cost-benefit analysis for inclusion into a conservation program option.

We note the addition of action items 11 and 12. We concur with the Metro District that it is important to lead through example—installation of high efficiency toilets and urinals in government buildings is certainly a good place to start. (draft 2008 WSWCP, 5-18). Given the current budget crisis, however, we hope that there will be sufficient funds to make significant progress on this action item. We encourage the Metro District to identify additional measures that they may take to further lead in water conservation.

With respect to action item 12, we also concur with the Metro District that requiring new car washes to recycle water will yield some savings. (draft 2008 WSWCP, 5-19). We also recommend more emphasis on education and outreach efforts to let car users know exactly how much water they do consume everytime they wash their cars and to urge them to do so on an as-needed basis, drought or no drought.

Water Supply Sources (Sec. 6)
As noted above, we are very concerned that the Metro District is considering major withdrawals from outside the Metro District, namely West Point Lake, which lies in the Middle Chattahoochee Water Planning District, and two future reservoirs in the Flint River Basin, which lie in the Upper Flint Water Planning District. We are greatly disturbed by the Metro District's reliance on water supplies lying outside its own boundaries, particularly when other planning districts have yet to prepare their water supply plans.

The 15 MGD expected from West Point Lake to help meet water supply demands through 2035 appears new and has no explanation for its addition to the 2008 plan. Please remove it from Table 6-1. (draft 2008 WSWCP, 6-3).

Also, please remove any reference to those reservoirs in the Flint River Basin lying outside the Metro District boundaries, namely Water Supply Source 13, options 1 and 2, in Table 6-4. (draft 2008 WSWCP, 6-13).

Also, please add a footnote acknowledging that expected withdrawals from Lake Lanier are contingent upon future court rulings which will decide how much of the lake can be used for Atlanta's water supply and may in fact be less than that indicated in Table 6-1. Please provide a range of values in the table itself reflecting that differential.

Please explain the statement, "Forsyth County/City of Cumming may develop an intake on the Chattahoochee during the planning horizon if additional supplies from Lake Lanier are not obtained." (draft 2008 WSWCP, 6-5).

Post-2035 Water Supply Options
We are dismayed to note a heightened emphasis placed on future reservoir construction to meet future water demand. Before considering new reservoirs as a water supply option, the Metro District must demonstrate real progress toward achieving water conservation goals, not just meeting the baseline expectations. Also, the Metro District must substantiate the high growth scenario used to derive future water demands. We remain in a recession, with no signs of immediate relief. Until we achieve meaningful water conservation and have concrete evidence of high future demand associated with high growth, the Metro District should not consider reservoir construction as a viable option. We strongly urge the Metro District to remove discussion of post-2035 reservoir construction, and revisit the option in 2013 during the next five-year update.

Planned Water Supply Facilities (Sec. 8)
Action item 8.1 specifies that the Metro District will support new reservoirs if they are consistent with the WSWCP. (draft 2008 WSWCP, 8-2). This Plan also specifies that potential reservoirs beyond the four explicitly identified "may be investigated, and if possible constructed." (draft 2008 WSWCP, 8-2). This amounts to a blank check authorizing future reservoir construction. Please outline the decisionmaking process that the Metro District will use prior to authorizing new reservoir construction. For example, please explain the circumstances under which ratcheting up conservation measures would not be a more cost-effective and less environmentally destructive alternative to reservoir construction.

Water Resource Issues (Sec. 10)
Section 10 begins with what can only be described as a unsubstantiated attack against the U.S. Army Corps of Engineers for their Lake Lanier operations. It is inappropriate to pit endangered species against people, when in fact there are people and businesses downstream that depend upon the Chattahoochee for their water supply. (draft 2008 WSWCP, 10-1). Such ill-informed finger-pointing is counterproductive to solving the Metro Atlanta water crisis. We strongly urge the Metro District to revise this discussion, focusing on facts and history.

In addition to consumptive uses listed in the draft 2008 WSWCP—namely, water reuse, on-site sewage management systems, land application systems, interbasin transfers—septic systems and private wells also are consumptive and should be listed.

At the August 7, 2008 Metro District Governing Board meeting, Mark Landers (USGS) gave an interesting presentation entitled *Consumptive Use of Septic Wastewater Treatment Systems: Demonstration of a Paired Watershed Approach*. In his presentation, Mr. Landers summarized some of his preliminary findings with respect to the consumptive use of septic systems. Mr. Landers did an excellent job of clarifying what his results did and did not show with respect to the degree of consumptive use, emphasizing that with proper 95% confidence intervals consumptive use could be as little as 0% but as high as 73%. He also identified further limitations, including the need to investigate further the effects that different geologies/soils, seasons, land uses, and watershed scales may have on the consumptive use of septic systems. We all agree that septic systems are consumptive—the only issue is to what degree.

With respect to private wells, this issue was raised by several members of the TCC during their August 5, 2008 meeting. We share the Committee's concerns with respect to their consumptive yet unregulated use. In fact, a recent story run by 11 Alive highlights this growing concern. (see J. Watson, *Buckhead Streams Run Dry, Wells to Blame?* (Aug. 22, 2008)).

We recommend adding a fifth and sixth bullet to the list on p. 10-4 to acknowledge that septic systems and private wells are both consumptive uses.

State and Regional Policy Recommendations (Sec. 11)
The 2008 update recommends the creation of a regional or state-wide Section 404 permit for impacts to waters of the state as a result of water supply source development. We are strongly opposed to this recommendation, because such permits fail to adequately assess the cumulative impacts of each project on the human environment (in violation of the National Environmental Policy Act) and fail to involve a site-specific assessment to assure that avoidance precedes minimization and mitigation (in violation of the Clean Water Act). We strongly urge the Metro District to remove this recommendation.

During the August 5, 2008 TCC meeting, there was considerable discussion concerning the highly consumptive yet unregulated nature of private wells withdrawing water at the rate of 100,000 gpd or less. Committee members generally agreed that withdrawals below this threshold also are highly consumptive and ought to be subject to the same outdoor watering restrictions as other water uses. At that August meeting, the Metro District recommended that EPD require permits for these smaller withdrawals. We concur. At that August meeting, the Metro District also recognized that state legislation may be required to enable local governments to enforce these permits. Again, we concur, and we encourage the Metro District to work with state officials to regulate these smaller withdrawals.

Conclusion

As an organization that has participated in all stages of the development of these Plans, Upper Chattahoochee Riverkeeper remains deeply committed to their success. We appreciate this and other opportunities to fully engage in the five-year update and will continue to offer our assistance to ensure an effective planning process. We hope the Metro District will carefully consider our comments and concerns during the update process. If you have any questions or would like to discuss our comments and concerns further, please do not hesitate to contact me by email (lhartt@ucriverkeeper.org) or phone (404- 352-9828, x 15).

Sincerely,

Laura Hartt
Water Policy Director
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0075

October 27, 2008

E. Patrick Robbins
Lisa Coghlan
Attn: Comments to Request for Reductions From Lake Lanier
District Engineer
U.S. Army District, Mobile
PO Box 2288
Mobile, AL 36628-0001

RE: Release No. 08-53 – Corps reviews request for reductions from Lake Lanier

Dear Mr. Robbins and Ms. Coghlan:

I am on writing on behalf of the Upper Chattahoochee Riverkeeper in response to the U.S. Army Corps of Engineers' ("Corps'") October 10, 2008, notice regarding the Georgia Department of Natural Resources, Environmental Protection Division's ("EPD's") request to provide a temporary deviation from the current water management operation at Buford Dam/Lake Lanier to achieve a minimum flow of 650 cfs in the Chattahoochee River at Peachtree Creek beginning November 1, 2008, and continuing through April 30, 2009.

Upper Chattahoochee Riverkeeper ("UCR") is a non-profit environmental advocacy organization dedicated to the protection and restoration of the Chattahoochee River, its tributaries, and watershed. UCR represents more than 5,000 members who use and enjoy the river and its resources and depend on the Chattahoochee River and its lakes as a source of drinking water and for recreation.

While we understand the importance of restoring the elevation of Lake Lanier, it is critical that other resources in the river basin not be compromised to support this major change in flow in the most heavily-used river in the state of Georgia. It is troubling that this is the *third time* this year that the state has asked for an expedited review and approval by the Corps to hold more water in Lake Lanier at the expense of downstream communities and water users. The requested reduction in river flow will further stress a waterway that is already close to being tapped out in its ability to supply drinking water and dilute millions of gallons of treated waste, while continuing to offer quality recreational opportunities at the lakes and state, federal and local parks in the river basin. Any reduction in water quality is simply unacceptable.

Most frustrating of all is the fact that the state and federal agencies have failed to provide adequate instream monitoring devices to measure river flow and quality on a *real-time* basis. Instead, the state is relying on computer modeling, a water quality monitoring station that can only be read manually once a week, and after-the-fact calculations of daily average flow and quality data from multiple sources to ensure that river flow and water quality standards are met at all times. An adaptive management approach, such as the state says it is using, will not work without sufficient monitoring. Nor are statements by EPD that it cannot afford to improve its monitoring capabilities in the Chattahoochee River below Buford Dam convincing. What is being described, yet again, as a "temporary" reduction in river flow looks more like a permanent desire to keep the river as low as possible for as much of the year as possible, significantly narrowing the margin of safety for the river's health.

Earlier this year, UCR submitted two comment letters to the Corps in response to EPD's two similar requests to reduce releases from Buford Dam.[1] We have reviewed EPD's current request and supporting documents, and remain opposed to a reduction in releases from Buford Dam for reasons more fully described below.

A. Overview of Corps' previous Lake Lanier operations with respect to EPD flow reduction requests at Peachtree Creek.

EPD has requested, and the Corps has granted, similar requests during prior drought conditions. In February 2001, EPD requested a reduction to the minimum flow requirement at Peachtree Creek to 650 cfs. The Corps granted the request without any further National Environmental Policy Act (NEPA) documentation, relying instead on a 1974 Environmental Impact Statement (EIS) prepared for Buford Dam control operations.

In September 2001, EPD again requested a flow reduction going into the 2001-2002 winter months which the Corps again granted. In the spring of 2002, after monitoring showed that reduced flows resulted in low dissolved oxygen levels, the 750 cfs minimum requirement was reinstated.

More recently, in February 2008, EPD made a request to lower the minimum flow requirement at Peachtree Creek to 550 cfs beginning immediately and continuing through April 2008. After the Corps notified EPD that implementing their request would require addition authorizations, EPD changed its request to a reduced flow of 650 cfs. In March 2008, the Corps again determined that no EIS was required, this time issuing an Environmental Assessment/Finding of No Significant Impact (EA/FONSI) document. Once again, in April 2008, EPD requested and the Corps approved an extension of the flow reduction through May. The Corps relied on its March 2008 EA/FONSI to determine no significant adverse impacts and authorized EPD's request.

Fall 2008 has is now here, and once again, EPD has requested a reduction in flows at Peachtree Creek to carry through the upcoming winter months. Given long-term drought projections, undoubtedly this will not be EPD's last request for such

[1] See UCR letters dated February 25, and May 7, 2008.

reductions—at this rate we will see similar request for flow reductions in the spring of 2009.

B. Before approving EPD's latest request, the Corps must take the requisite hard look at the potential impacts of the proposed flow reduction on the human environment, including the Chattahoochee River.

The National Environmental Policy Act ("NEPA")[2] is triggered and imposes procedural obligations on federal agencies that undertake "major Federal actions significantly affecting the quality of the human environment." If a proposed action meets this standard, an Environmental Impact Statement ("EIS") must be prepared, describing the purpose and need for the action, "rigorously explore and objectively evaluate all reasonable alternatives," and discuss the direct, indirect, and cumulative effects of the environmental consequences of the proposed action.[3]

Only in cases where it is not clear whether effects "may" be significant, an Environmental Assessment ("EA") is prepared as a means of evaluating this question. If the EA determines that effects will be significant, an EIS is then prepared. The EA is "concise public document" that provides sufficient evidence and analysis for determining whether to prepare an EIS.[4] Specifically, the EA will include brief discussions of the need for the proposal, of alternative courses of action for any proposal which involves unresolved conflicts concerning alternative uses of available resources, of the environmental impacts of the proposed action and alternatives, and a listing of agencies and persons consulted. Otherwise, the agency issues a Finding of No Significant Impact ("FONSI").

NEPA requires federal agencies to take a hard look at the effects of proposed actions on the human environment before acting. Given the repeated nature of these requests, EPD's ongoing reluctance to address outstanding issues, and the potentially cumulative adverse impacts of these flow reductions on the Chattahoochee River, we strongly urge the Corps to prepare an EIS to take a more comprehensive, hard look at the potentially significant impacts this flow reduction will have on the human environment.

The Corps must address outstanding issues remaining after issuing its March 4, 2008 EA/FONSI—In the March 4, 2008, EA/FONSI approving EPD's original February 25, 2008, request, the Corps defined the proposed action not only in terms of a flow reduction, but also in terms of an EPD commitment to use "water quality monitoring and an adaptive management approach regarding the minimum flow as actual water quality data is collected and as other actual data and information becomes clear."[5] In that EA/FONSI, the Corps also emphasized the importance of monitoring and adaptive

[2] See National Environmental Policy Act ("NEPA"), 42 U.S.C. § 4332(C); see also 40 C.F.R. § 1508.18 (defining major federal action as that which has effects that may be major and which are potentially subject to Federal control and responsibility).
[3] See 40 C.F.R. §§ 1502 &1508.3.
[4] See 40 C.F.R. § 1508.9.
[5] See Corps, EA/FONSI (May 13, 2008), EA-3.

management as a "necessary component" of ensuring that water quality standards were met during inevitable future flow reductions.[6]

In its May 14, 2008 response to EPD's April 25, 2008 request for an extension of the flow reduction through May 2008, the Corps identified "several outstanding issues" requiring resolution before future reduction requests would be considered:

(1) The EPDRiv1 hydrodynamic and water quality model must be continually updated and compared to the continuous water quality data collected near Capps Ferry in order to verify that the model assumptions are appropriate and that outputs are appropriate for estimating impacts and predicting potential problem areas.
(2) EPD must take additional efforts to estimate the instantaneous flow data in the Chattahoochee River immediately upstream of the confluence with Peachtree Creek. Potential methods include installation and maintenance of a real-time stream gage or providing real-time instantaneous water withdrawal data from the City of Atlanta water intake structure located immediately upstream of this point. The withdrawal data could be used in conjunction with the "Vinings" U.S. Geological Survey (USGS) gage No. 02336000 data to better estimate the instantaneous flows at Peachtree Creek.
(3) EPD must provide a more detailed monitoring and adaptive management plan with clear triggers for returning the water quality flow requirement to 750 cfs during the summer months. This plan should include sharing monitoring data with the Corps and EPA weekly and verifying.

EPD's October 10, 2008 request asserts that these conditions were only applicable if the spring 2008 flow reduction was extended into the summer. However, the Corps' May 14, 2008 letter states not only that efforts to resolve the issues enumerated in (1)-(3) above should "be commenced as soon as possible so as not to delay the consideration of any future reduced water quality flow request" but also that "any additional request for reduced water quality flows be submitted well in advance of the desired implementation date." Moreover, as stated above, the March 4, 2008 EA/FONSI is clear on this point—any request for flow reductions below the 750 cfs standard must be accompanied by adequate monitoring and adaptive management to ensure state water quality standards are met.

After stating that it need not take such actions because their October 2008 request is post-summer, EPD provides its "analysis" of these outstanding issues. Unfortunately, EPD's self-assessment leaves most outstanding issues unresolved. Although EPD has made some progress with respect to updating its models (i.e., (1) above), we again note the lack of any real progress in addressing two major issues remaining—estimating instantaneous flow immediately above Peachtree Creek and completion of a detailed monitoring and adaptive management plan.

[6] See Corps, EA/FONSI (May 13, 2008), EA-26.

With respect to the former, merely discarding options for estimating instantaneous flows at Peachtree Creek does not demonstrate meaningful progress on the issue. Moreover, asserting that because "permitted discharges are only discharging at approximately twelve percent of their allowable loading, assessment of a minimum instantaneous flow at Peachtree Creek takes on less significance from the standpoint of assuring protection of in-stream standards" does not make it so. Where is the data to support this assumption? And where is the data to support the conclusion that must follow—namely, in the near future permittees will not increase discharges given they are permitted to do so? Clearly, EPD needs to provide the data underlying their 12% assumption, which may necessitate revisiting the discharge permits to consider whether even the current 750 cfs flow requirements is adequate if and when permittees decide to discharge anywhere between 12 and 100% of their allowable loading.

We discuss our concerns with EPD's inadequate monitoring and subsequent inability to adaptively manage based on insufficient data collected in more detail below (see Section C).

Because several major outstanding issues identified in earlier NEPA documentation remain, we strongly encourage the Corps to prepare an EIS to fully examine these and other issues to determine the effects of the proposed action on the human environment.

The Corps must justify the need for the proposed action—The Corps must provide a clear statement of the purpose of the proposed action. Merely stating that flows will be reduced or that lake levels will be increased is not in and of itself a justification for a deviation from Corps operations. In other words, why is the flow reduction necessary?

We also note that EPD has not provided a rationale for the sudden urgency of their request which will result in the bypass of meaningful agency deliberation and public participation. In fact, EPD's October 10 request, made available to the public October 13, provides a mere ten working days for public and agency input. The Corps then has five days to review the comments before issuing either an EA/FONSI or deciding to prepare the more comprehensive EIS we believe is warranted. If the Corps issues the EA/FONSI, then the reduced releases are to commence as soon as November 1.

Because time does not appear to be of the essence, we strongly encourage the Corps to prepare an EIS in order to allow a meaningful opportunity for public participation and careful agency deliberation.

The Corps must consider alternatives to the proposed action—Even in the course of preparing a less-comprehensive EA/FONSI, federal agencies are required to consider reasonable alternatives to the proposed action. We are concerned that this expedited process will lack a thoughtful consideration of alternatives to flow reduction in order to achieve increased storage in Lanier which appears to have been the case earlier this year.

In its March 4, 2008 EA/FONSI, after eliminating EPD's original flow reduction request of 550 cfs as lacking in Congressional authority, the Corps considered just two alternatives: no action and the revised proposed flow reduction of 650 cfs. NEPA clearly requires an analysis of the "no action" alternative as well as other reasonable alternatives. Unfortunately, in its 2008 EA/FONSI, the Corps failed to do just that. At a minimum, the Corps must consider at least one other legal alternative to the proposed action.

Reduced water withdrawals through water conservation is an obvious alternative that will have less harmful impacts to the river while achieving the benefit of increasing the storage pool in the lake. We note other alternatives may involve a combination of lesser flow reductions (e.g., 700 cfs), reduced duration for the reduction (e.g., 2 or 4 months instead of the 6 months proposed), and increased water conservation effort.

We also note that a similar expedited request has been made for reduced flows in the Savannah River below Thurmond Dam. We are concerned that EPD is setting an ill-advised precedent, favoring water hoarding in reservoirs over less expensive, less environmentally-damaging, and more sustainable long-term water conservation measures.

The Corps must consider all potentially significant environment impacts, including cumulative ones—Whether preparing an EA/FONSI or EIS, the Corps must evaluate the direct, indirect, and cumulative impacts of the proposed flow reduction on the human environment, including the Chattahoochee River downstream of Buford Dam. Potentially significant adverse impacts include those not only to water quality, but also to fish, recreation, hydroelectric power, and downstream water supply.

We are particularly concerned over the cumulative impacts of this flow reduction combined with previous requests, inevitable future requests, and the ongoing drought, both in terms of water quality and instream flows needed to maintain a healthy watershed. We also are aware that the Corps is preparing long-term projections for operating the ACF reservoir system under different hydrological conditions—these projections should be considered in the Corps' analysis of the current EPD request.

In order to fully assess these and other potentially significant impacts of the flow reduction on the human environment, including the Chattahoochee River, we strongly urge the Corps to prepare a comprehensive EIS.

C. EPD has not made the requisite showing that the assimilative capacity of downstream waters can tolerate a reduced flow at Peachtree Creek.

As you know, EPD requires a river flow at Peachtree Creek of 750 cubic feet per second (cfs) to protect water quality and the Corps releases water from Buford Dam to

accommodate this flow target.[7] This requirement has been in place since the 1970s, and forms the basis for the pollution limits in the National Pollutant Discharge Elimination System (NPDES) permits for metro Atlanta wastewater discharges, which are currently not even at the full capacity allowed by these permits.

A review of Georgia's 2008 list of impaired surface waters shows that numerous segments of the Chattahoochee River below Buford Dam are already impaired for various pollutants and do not support their designated uses. Specifically, the river below Peachtree Creek is impaired for temperature and fecal coliform bacteria; fish consumption guidelines have also been issued due to toxic levels of contaminants in aquatic species.

In addition, nutrient problems have been documented recently in West Point Lake by the City of LaGrange including nitrogen levels that exceed the 4 mg/l standard for the lake.[8] Since July 2008, LaGrange has collected and analyzed water samples at seven locations throughout the lake, which indicate that the lake's nitrogen standard of 4.0 mg/l was violated numerous times at several stations. No violations were observed at the two stations maintained by EPD located further down in the lake at the LaGrange Intake or in the Dam Forebay.

EPD claims that because none of the samples that showed nitrogen levels exceeding 4.0 mg/l were collected at its two monitoring stations (LaGrange Intake and Dam Forebay), there has not been a violation of the nitrogen lake standard.[9] This assertion is not supported by EPD water quality regulations. EPD regulations define West Point Lake as "those waters impounded by West Point Dam and downstream of U.S. 27 at Franklin." Furthermore, the specific criteria regulations state that the Total Nitrogen limitation for the West Point Lake waters is "[n]ot to exceed 4.0 mg/l as nitrogen in the photic zone."[10] Unlike other water quality limitations for West Point Lake, such as chlorophyll *a*, which limits sampling to the LaGrange Water Intake, the Total Nitrogen standard is not so limited. Thus, despite EPD's assertion that the nitrogen standard is strictly limited to the LaGrange Water Intake, the water quality regulations do not support this limited reading with respect to Total Nitrogen.

It is further troubling that the state is currently requesting a weakening in the water quality standards for West Point Lake, a change in its methodology that would require standard exceedances for two years out of five before a violation would occur.[11]

Compounding the problems above is the fact that, at this time, the Corps cannot confirm in *real-time* that EPD is meeting the existing 750 cfs requirement and will not be able

[7] See Letter from Mike McGhee, EPA, Director, Water Management Division to Lindsay Thomas, ACF/ACT River Basins Commissioner, December 28, 1999 (stating that the ". . . current permitted allocations are based on the 750 cfs minimum flow.")
[8] See Letter from W. Jeff Lukken, Mayor, City of LaGrange, to Colonel Byron G. Jorns, District Commander, U.S. Army Corps of Engineers, dated October 15, 2008.
[9] See EPD Talking Points on Nitrogen Issues at West Point Lake, dated October 23, 2008.
[10] See GA EPD Regs. 391-3-6-.03(17)(a).
[11] See GA EPD Notice of Public Hearing and Proposed Amendments to GA Rules and Regulations for Water Quality Control Chapter 391-3-6, dated October 1, 2008.

to confirm on an instantaneous basis that a new river flow target of 650 cfs will be met. As recently as October 14, the daily average flow at Peachtree Creek dropped to 721 cfs.[12] Without real-time baseline data, EPD's attempt to employ an adaptive management approach to the release reduction will be of no consequence. EPD admits that upon the discovery of any condition warranting the need for a resumption of flows at Peachtree Creek to 750 cfs, a minimum of seven days will have passed. At that point, any adverse effects to water quality will have already occurred and will be irreversible.

In sum, EPD has not made the requisite showing that the assimilative capacity of the river can tolerate a reduced flow at Peachtree Creek and it has not provided necessary measures to closely monitor the ability of the river and West Point Lake to handle lower flows on a sustained basis. If this reduction is approved, all of the NPDES permits in this stretch of the river will need to be revised and tightened to account for the lower flows and provisions must be made for sufficient monitoring for river flow and quality. UCR is willing to fund a monitoring station at the city of Atlanta's water intake to help measure flow on a real-time basis at Peachtree Creek, one of the options suggested by the Corps in May 2008.

D. Conclusion

We understand that the ongoing drought has put significant stress on the entire Chattahoochee River Basin, and we recognize the important role that Lake Lanier plays in storing and releasing water for downstream needs. Preserving water in the lake should be a priority. We are not convinced, however, that such a drastic lowering of flow requirements downstream is either necessary or prudent as a response to the persistent drought conditions, especially because conservation measures have not been fully exhausted. Thank you for the consideration of these comments. We look forward to receiving a response from the Corps once it decides what action, if any, to take regarding EPD's request. Please contact me if you have any further questions.

Sincerely,

Sally

Sally Bethea
Executive Director and Riverkeeper

[12] This number is derived from the 861 cfs (daily average) reading taken at the U.S.G.S. Vinings station and subtracting the City of Atlanta intake of 140 cfs (daily average).

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Chattahoochee Headwaters Aquatic Biodiversity Assessment and Conservation Project

Halloween darter (*Percina sp. cf. P. palmaris*)

A Project of the Upper Chattahoochee Riverkeeper

Final Report
September 30, 2004

Chattahoochee Headwaters Aquatic Biodiversity Assessment and Conservation Project

A project of the Upper Chattahoochee Riverkeeper

Final Report

Project Number 2002-0078-000

Project Manager:

Darcie Boden, Director of Headwaters Conservation, UCR

Funding Provided For The Project By:

National Fish and Wildlife Foundation
Compton Foundation
Turner Foundation

In Cooperation With:

University of Georgia's Institute of Ecology

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The Upper Chattahoochee Riverkeeper's (UCR) Headwaters Aquatic Biodiversity Assessment and Conservation Project began in February 2002.

Project Background

Despite the growing body of knowledge about aquatic biodiversity and abundance in many southeastern rivers, a comprehensive understanding of aquatic diversity in the Chattahoochee has been non-existent. One of the main reasons for this deficiency stems from a largely qualitative perception that the Chattahoochee historically supports fewer species than the "richer" adjacent river systems, such as the Etowah and Conasauga drainages. As a result, little effort has been focused on this basin and consequently, knowledge of the occurrence and distribution of aquatic fauna in this watershed has been severely lacking.

Scientists from the Georgia Department of Natural Resources have stressed the need for a basic aquatic inventory in the Headwaters, but due to rotating assessment schedules, budget concerns and other resource constraints, this has not been made a priority by the Department. Scientists from the University of Georgia and the U.S. Geological Survey have also stressed the need for a baseline assessment after discovering the rare Halloween darter in the watershed. They have also postulated that one to two additional undescribed species of darters may be extant in the Chattahoochee Headwaters.

As a result of unprecedented growth, the Upper Chattahoochee River system is under extreme pressure from sprawl development, water supply reservoir proliferation, increased water withdrawal, wastewater discharge increases and other threats as metro Atlanta continues to creep northward. The headwaters area of the Chattahoochee above Lake Lanier is just beginning to see the detrimental affects of habitat modification, introduction of wild species and urbanization. It is critical, therefore, to establish and understand the existence and distribution of native aquatic fauna now before these animals are further imperiled or even eliminated from the basin.

In addition, many governmental and non-governmental entities have initiated a number of conservation programs aimed at protecting and restoring native aquatic communities, especially in the southeastern United States which is widely known for being a "hotspot" of aquatic diversity. A variety of funding sources are available for protecting species and habitats these "hot spots" or critical areas; however, historically there hasn't been enough scientific data collected to even substantiate the existence or vulnerability of aquatic species in the Chattahoochee basin; much less designate critical areas or implement conservation strategies. As the amount of land development in Georgia continues to increase on a daily basis it is imperative to take immediate steps to document the current status of our aquatic resources, as well as the need for any protection or restoration efforts necessary to sustain the health of existing populations. Furthermore, without action, we may forever lose the opportunity to acquire funding for any necessary on-the-ground protection and habitat restoration efforts that may be needed in the Upper Chattahoochee basin.

The aforementioned issues provided the impetus for the Upper Chattahoochee Headwaters Biodiversity Project, which will serve as an essential building block in laying the foundation for future aquatic studies and implementation of conservation strategies.

Project Objectives

Objectives of the Chattahoochee Headwaters Aquatic Biodiversity Assessment and Conservation Project (CHABAC) included:

1) Establish historical distributions of native fishes and crayfishes in the Upper Chattahoochee River watershed.
2) Assess current distributions and abundance of native fishes and crayfishes throughout the Upper Chattahoochee River watershed.
3) Develop and recommend strategic conservation actions to conserve, protect and restore native fish and crayfish populations and their associated habitats.
4) Disseminate findings widely for use by scientists, resources managers, nongovernmental organizations, and local government decision makers for use in specific management actions.

From the project's inception, UCR worked closely with Dr. Bud Freeman from the University of Georgia's Institute of Ecology. Dr Freeman, who has worked extensively on fisheries issues throughout the Southeastern United States, provided project oversight and field technicians to collect and analyze relevant data at UGA.

The portion of the Chattahoochee River Basin chosen for these analyses included all streams draining into the Chattahoochee River at and above Lake Sidney Lanier. To meet the first objective, 190 historical collection records were combined into one database. This compendium of records was compiled from collections at the Georgia Museum of Natural History, Cornell, Tulane, University of Alabama, Florida Museum of Natural History, and field notes from various collectors. The records were then geo-spatially cataloged to create a total of 104 distinct collection sites.

A review of the historical records and mapped data coverage helped to pinpoint gaps in fish distribution data for the watershed. Only 24 of 104 sites had collections made at them since 1990 and two sub-watersheds, Wahoo Creek and Hazel Creek, had never been sampled at all. In addition, several of the sampled watersheds had only been sampled at a single location at a single point in time. Finding these large gaps in the historical data set only served to reinforce the need to conduct sampling efforts across the *entire* Upper Chattahoochee watershed to document how rapid land use changes are affecting the native fish populations and their distributions.

A GIS database (housed at UGA) was created from the available data, the historical collections of native fish and crayfish species were reviewed and a targeted sampling plan was developed and implemented to enhance the currently known distributions of ten fish species of interest in the basin. Included in the Appendix to this Report is a summary of the historical collections known from the Upper Chattahoochee River Basin, a description of the fish species selected for this project, and historical distribution maps

for each species. The effort to examine crayfish data was less extensive than the examination of fish data due to the fact that there is such a limited amount of crayfish data available.

The second phase of the project included site selection, sampling and data analysis. Ten species were chosen for the study based on whether they are *native* or *rare* to the Chattahoochee or Upper Chattahoochee basin, and have limited distribution or are listed species. Originally, a list of 23 possible sampling sites was formulated, however, due to various factors such as lack of access and extremely high water levels, the actual number of sites surveyed for the study was 11—concentrated in Lumpkin and White Counties. Species of stream-dwelling crayfish were collected at each of the 11 sites along with the fish samples. Since burrowing species of crayfish rarely (if ever) enter the stream, they have to be sampled using a different method and therefore were not included during these surveys.

Sampling efforts began late in 2002, but were hindered by excessive rainfall and high water levels throughout the first half of 2003. The final collections of fish and crayfish were made in early August 2003. Unfortunately, the main stem site on the Chestatee was never sampled as anticipated because water levels remained too high throughout the entire study period.

Sampling Results

Many of the tributaries above Lake Lanier support reproducing populations of rainbow, brown and brook trout, as well as several species of fishes and crayfishes that are limited in distribution and sensitive to habitat degradation. While sampling for this project, UGA scientists discovered two rare fishes (Coosa Shiner and the Tennessee Shiner) previously thought to be extirpated from the Chattahoochee Basin. In addition, the first collections of the coastal chub and Coosa shiner were made in Chickamauga Creek, representing the easternmost records of these species found in the basin to date. The highscale shiner was collected for the first time in Sautee Creek and the previously known Halloween darter was collected at a new site. These findings are very encouraging and reinforce the importance of additional studies to continue to expand our limited base of knowledge.

All the newly collected fish and crayfish data was added into the GIS database and combined to document the newly established fish distributions. It was then analyzed along with land use information to generate a prioritization scheme for the subwatersheds in the basin. The prioritization activity, conducted by UGA associates in support of project objective number three, is considered in a separate document that follows the report on current and historical distributions. The prioritization methodology was based on an approach used in the adjacent Etowah basin which has subsequently been accepted by the U.S. Fish and Wildlife Service and serves as a guide when designating locations for stream mitigation projects (Freeman and Wenger 2000).

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Conservation Strategies

Decreases in fish populations in the Southeast result from habitat loss and degraded environmental conditions. The principal causes of freshwater fish imperilment here as well as other areas of the United States are dams and channelization of large rivers, mining, urbanization, agriculture, deforestation, erosion, pollution, introduced species, and the cumulative effects of all these factors (Moyle and Leidy 1992; Warren and Burr 1994). Cumulative effects of physical habitat modifications have caused widespread fragmentation and isolation of many fish populations, while sedimentation resulting from poor land-use, construction and development patterns have eliminated the habitat required by many of the bottom-dwelling species.

As the north Georgia region continues to grow at an ever increasing rate, so will the threats faced by aquatic species and ecosystems. Drought and an increasing demand for water is a major concern of those advocating for instream flows necessary to ensure the continued ecological integrity of Georgia's headwater streams and rivers. Impacts from increased impervious surfaces, loss of riparian stream cover, hydrologic modifications and stormwater runoff are also contributing to the decline of our aquatic species. Although not a current problem, the introduction of non-native (or invasive) species such as hydrilla and zebra mussels, can also have a devastating effect on native aquatic species. One of the ways that crayfish are commonly introduced into new watersheds is through fishermen's bait buckets: non-native species of crayfish purchased at a bait shop may be released at the end of a day of fishing, resulting in an introduction.

Conservation of southeastern fishes will require significant changes in land management and socioeconomic factors (Moyle and Leidy 1992; Warren and Burr 1994) to stem future losses of biodiversity. The first step required is to promote resource stewardship by improving public education on the value and status of native aquatic organisms. For resource managers and policy makers, increased efforts must be made to proactively manage entire watersheds and ecosystems; establish networks of aquatic preserves; restore degraded habitats; establish long-term research, inventory, and monitoring programs on fishes; and adopt improved environmental ethics concerning aquatic ecosystems (Warren and Burr 1994).

A cooperative community-level conservation effort is needed, one that involves all public and private sectors within the region. All stakeholders in this group must work together to develop a strategy that outlines and prioritizes the conservation actions needed in these priority watersheds. A group working in the Coosa River Basin in northwest Georgia has formulated a similar strategy in support of their mission statement: ". . . advance conservation and recovery of southeastern imperiled fishes and their aquatic ecosystems for the benefit of current and future generations through scientific based research, management, communication, education and cooperation" (Bibb 2003).

The fourth and final objective of the project was to disseminate findings to scientists, resource managers, nongovernmental organizations, and local government decision-makers for use in specific management actions. Copies of this final report have been

distributed to local governments as well as to two active watershed groups and four local colleges.

UCR has submitted a request to present the results of this study at the 2005 Georgia Water Resources Conference to be held on April 25-27, 2005 at the University of Georgia. Upon acceptance by the conference planning committee as a session topic, a 2-4 page report and abstract will be submitted for inclusion in the official conference proceedings and an 15-20 minute oral presentation will be developed using Microsoft PowerPoint and/or other suitable media.

The project has been publicized through *RiverChat*, UCR's quarterly newsletter and through our website at www.chattahoochee.org. This report is being used by one of the local watershed groups as a source of data for a watershed assessment currently being conducted in the Soque River watershed. A new chapter of Trout Unlimited has recently received a grant to enhance fish habitat on Cane Creek in Lumpkin County. Both of these watersheds were identified as priority areas in this study.

A copy of the project can be obtained on a CD that includes data and maps: Contact Darcie Boden at Upper Chattahoochee Riverkeeper 770-531-1064 or by email dboden@ucriverkeeper.org. The actual GIS database is housed at UGA. For more information contact Dr. Bud Freeman at the UGA Institute of Ecology at 706-542-6032 or by email at bud@ttrout.ecology.uga.edu.

Conclusions

During this project, data was collected at 11 locations throughout the Upper Chattahoochee Watershed to provide additional data on aquatic species diversity. The data collection focused primarily on a set of ten target fish species that were historically found, or expected to be found within the watershed. The discovery of two rare fishes (Coosa shiner and the Tennessee shiner) previously thought to be extirpated from the Chattahoochee Basin reinforces the need for obtaining more comprehensive data throughout the watershed. Additionally, the Halloween darter, which is considered to be *one* of the *two most imperiled fish* (the other being the Bluestripe shiner) *in the Chattahoochee*, was collected for the first time in White County's Sautee Creek. It should be noted that these shiners were found in the most pristine streams in the watershed and were consistently absent from Headwater streams degraded by habitat alterations and poor development practices, highlighting the connection between high quality waters and aquatic biodiversity. To verify this assumption, future sampling efforts should be conducted to compare several of the relatively forested, undisturbed subwatersheds with some of those that are more pressured by urban development and anthropogenic sources of disturbance.

Future Actions

The aquatic species that live in the headwaters of the Chattahoochee River face an uncertain future as the north Georgia region continues to grow. Although this project has successfully served to increase our limited knowledge of the aquatic biodiversity in the watershed, it seems to have raised more questions than answers. Future studies are needed to continue to fill in the large gaps in fish distribution data, a necessary precursor for formulating a more targeted and effective conservation strategy. At a minimum, the watersheds containing the rare target species should be resurveyed to identify any historical trends in the species' status.

Since Lake Lanier divides the upper basin into two watersheds and acts as an effective barrier to the movement of many of the lotic (stream and river) species between the two, the eastern (Chattahoochee, Sautee and Soque Rivers) and western (Chestatee and Tesnatee) watersheds of the upper basin should be considered as separate management areas, with distinct populations of fishes and crayfishes. Therefore, additional data should be collected on the mainstem of the Chattahoochee, Soque and the Chestatee to provide pertinent information for the two systems.

Genetic research is also suggested to determine whether or not the species collected are actually new distinct species or whether they are one and the same with the populations becoming isolated as the result of human activities.

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Historical and current collections and distributions of selected native fishes in the Upper Chattahoochee River Basin.

Prepared for:
Upper Chattahoochee Riverkeeper

for the Chattahoochee Headwaters Aquatic Biodiversity Assessment and Conservation Project

Prepared by:
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August 2003

Introduction

The Chattahoochee Headwaters Aquatic Biodiversity Assessment and Conservation Project involved a review of historical collections of native fish and crayfish species as well as additional sampling that would enhance the current known distributions. In the July 2002 report, we provided a summary of the historical collections known from the Upper Chattahoochee River Basin, described ten fish species of interest selected for this project and provided distribution maps for each species (Appendix A). The targeted species include the river chub (*Nocomis micropogon*), coastal chub (*Hybopsis sp. cf. H. winchelli*), bluestripe shiner (*Cyprinella callitaenia*), highscale shiner (*Notropis hypsilepis*), Tennessee shiner (*Notropis leuciodus*), longnose shiner (*Notropis longirostris*), Coosa shiner (*Notropis xaenocephalus*), shoal bass (*Micropterus cataractae*), Halloween darter (*Percina sp. cf. P. palmaris*) and blackbanded darter (*Percina nigrofasciata*). These fishes were selected because they are either: listed as threatened by Georgia, have a limited distribution, are endemic to the basin, or are rare in the Chattahoochee basin or the Upper Chattahoochee basin. Herein, we provide the results of eleven fish and crayfish surveys conducted in the Upper Chattahoochee watershed, with particular interest in the target species for this project.

One of the original target species, the river chub (*Nocomis micropogon*), was selected as a species of interest because we thought it to be occurring sympatrically in the basin with the bluehead chub (*Nocomis leptocephalus)*. Along with tubercle pattern, the shape of the intestine is a character used to differentiate the bluehead chub from the river chub in current literature, including the Freshwater Fishes of Virginia (Jenkins and Burkhead, 1994). During the course of this research, we collected several specimens that had the tubercle pattern of a bluehead chub, but the coiled gut typical of the river chub. The discovery of seemingly incongruous characters prompted a literature review which revealed that the subspecies of the bluehead chub that occurs in the Chattahoochee River system, *Nocomis leptocephalus interocularis,* can have either a coiled or straight intestine, but does not differ in tubercle pattern or other physical characteristics from *Nocomis leptocephalus* (Lachner and Wiley, 1971). The intestine is not a distinctive character in this subspecies (Lachner and Wiley, 1971). Tubercle pattern is the best character for differentiating between the river chub and the bluehead chub. Thus, our selection of the river chub as a target species for this project was based on incomplete information since we were using an unreliable character to identify it. The river chub is unlikely to inhabit the area of our study. It is interesting, however, that the bluehead chub takes two distinct forms, and this raises the question of whether or not the two forms should be considered distinct species. Future taxonomic work with *Nocomis* in the Chattahoochee system would be valuable.

Site selection

We began site selection by using GIS to choose sub-watersheds that had historical records of the fish species of interest (see Appendix) or that lacked any records, but were near watersheds that harbored species of interest. Because our goal was to assess the distribution of rare, endemic, or state listed animals, we selected locations that were not in or downstream of urban areas. For ease of access, all sites were located at or near road crossings.

After selecting 23 possible sample locations that spanned the Upper Chattahoochee watershed, we conducted reconnaissance at each site and eliminated ten sites because we were denied or could not obtain landowner permission to access the property, or because the site was heavily affected by ongoing farming practices. Two other prospective sites, the Chattahoochee River between State Route (SR) 255 and SR 115 and the Chestatee River at SR 60, south of Dahlonega, were not sampled due to an unusually wet spring and summer which maintained high water levels at those sites. We conducted fish and crayfish surveys at 11 sites (Table 1, Figure 1).

Although watershed sizes ranged from 5 - 87 km^2, (Table 1), land use patterns within the study watersheds did not greatly differ among sites. Urban land cover accounted for less than 5% of land cover types in each of the collection point watersheds. Forested land cover types accounted for more than 50% of the land cover types in each of the collection point watersheds. The second most common land use was classified as pasture.

Methods

Fish surveys were conducted using a Smith Root Model 12B POW backpack electrofisher, dip nets (1/8" mesh) and an 8'x 6' seine (1/8" mesh). Sampling methods were based on the protocols of the Georgia Department of Natural Resources (DNR) (GDNR 2000), which specify quantitative electrofishing of a reach length 35 times the mean stream width, with a minimum reach length of 100m. This length is sufficient to include multiple repetitions of available habitat types, ensuring a high probability that all species present in the stream will be collected. Our method varied from DNR sampling protocols by using a single backpack shocker and employing seine-hauling and kick-seining, which increases sampling effectiveness, especially for benthic species. All surveys were conducted in an upstream direction. The survey of Little Mud Creek was conducted in November 2002. All other sampling was conducted between May - July 2003.

Two surveys conducted did not meet the requirements of the protocol described above. The survey on the Chestatee River (MMH 03-06) was 20 times, rather than 35 times, the mean stream width due to an omission of 150 consecutive meters which were too high and fast to hold a seine in. Additionally, two thirds of the survey conducted on Chickamauga Creek (JCS 03-08) was conducted without the use of a backpack electrofisher due to the failure of our main and back-up electrofishing wands.

We preserved collected fishes in 10% formalin and returned them to the University of Georgia (UGA) for subsequent verification of identification and for measurement. Though none were encountered, it is our policy to measure and release all state and federally listed fishes. We also release stocked trout. Some abundant fish species were identified, counted and released after a voucher sample was preserved. Tables 3-13 show the total number of each fish species collected at each site. Table 14 provides a summary of the fish species of interest collected at the survey sites. Fish samples will be accessioned into the Georgia Museum of Natural History (GMNH) ichthyology collection at UGA.

During the course of the fish survey, we collected crayfishes with the seine using the same survey techniques. Most specimens were preserved in 70% ethanol, however, some were preserved in 10% formalin. Where crayfishes were present, we preserved at least one voucher specimen. As male forms are more clearly described in dichotomous keys, they were commonly retained, while females were released. The crayfishes were returned to the lab and identified to species. We provide the number of individuals preserved in the results section of this report; however, these numbers do not provide an indication of species

abundance at a site. A summary of the crayfish species present at each site is provided in Table 15. Crayfish samples will be accessioned into the GMNH at UGA.

We recorded physical habitat characteristics at each site, including minimum and maximum stream width, maximum water depth and stream bed sediment composition. We measured turbidity with a Hach® model 2100P turbidimeter or with a Hydrolab® Datasonde 4a. Specific conductivity, pH, water temperature and dissolved oxygen were measured with the Hydrolab (Table 3).

Results

MMH 02-73. Little Mud Creek at CR 939, Mud Creek Road.

Little Mud Creek was first sampled at Mud Creek Road in 1990. Our survey was conducted on November 8, 2002. The watershed size upstream of our sample site was 48.8km^2 (18.8 square miles). The stream width ranged from 4 -11m, with an average width of 7.5m. Survey reach length was 252m. Maximum water depth was greater than 1.2m. Both stream banks were forested throughout the surveyed reach. Stream bed sediments were primarily sand and silt, with a few small gravel and cobble riffles. A total of 12 species of fishes were collected. The most common species was the yellowfin shiner (*Notropis lutipinnis*), followed by the bluehead chub (*Nocomis leptocephalus*), Alabama hogsucker (*Hypentelium etowanum*) and blackbanded darter (*Percina nigrofasciata*) (Table 3). The blackbanded darter (n=69) was the only fish species of interest collected at this site, though the 1990 record indicates that the bluestripe shiner (*Cyprinella callitaenia*) and longnose shiner (*Notropis longirostris*) were collected there. Crayfishes were not abundant at this site; the only crayfish species collected was *Procambarus speculifer* (n=1).

JCS 03-04. Frogtown Creek at CR 153, Edwards Parkway.

Frogtown Creek is located east of the headwaters of the Chestatee River. It is a tributary to the Chestatee River; the confluence of the two streams lies approximately 1.6 air kilometers (1 air mile) south of our sample site. Although the headwaters of the Chestatee had been sampled previously, the May 21, 2003 collection represents the first known collection made in Frogtown Creek. The watershed area upstream of our sample site was 14.9km^2 (5.7 square miles). Stream width ranged from 4 - 10m, with an average width of 8.4m. Survey reach length was 294m. Maximum stream depth was approximately one meter. Stream bed sediments consisted mostly of bedrock, with some boulders, cobble, gravel and sand. Both stream banks were forested throughout the surveyed reach. A total of four fish species were collected (Table 4). The most abundant fish species was the bandfin shiner (*Luxilus zonistius*). No fish species of interest were collected at this site. *Cambarus bartonii* was the only crayfish species collected (n=6).

JCS 03-06. Unnamed tributary to the Chestatee River at CR 48, Roy Grindle Road.

This unnamed tributary to the Chestatee River had not been sampled for fishes until our survey on May 28, 2003. The watershed area upstream of our sample site was 7.7km^2 (3.0 square miles). The stream width ranged from 3.5 - 9m, with an average width of 5.5m. Survey reach length was 192.5m. Both stream banks were fringe wooded throughout the sampled reach. Stream bed sediments were mostly sand, with bedrock, cobble and gravel. A long sandy reach divided the riffle areas, the upstream of which contained a bedrock cascade. The maximum stream depth was approximately 0.75m. Nine fish species were collected (Table 5). The bluehead chub and the bandfin shiner were the most abundant

species. The blackbanded darter (n=5) was the only fish species of interest collected at this site. One species of crayfish, *Cambarus bartonii* (n=3), was collected.

JCS 03-07. Tesnatee Creek at CR 299, Cabin Creek Road.

Tesnatee Creek had last been sampled in 1963, approximately 2.4 air kilometers (1.5 air miles) downstream of our May 30, 2003 survey site. The watershed area at our study site was 19.8km^2 (7.6 square miles). The stream width ranged from 6 – 7.5m, with an average width of 6.2m. The survey reach length was 217m. Within the surveyed reach, the river left bank was forested and the river right bank was fringe wooded. Stream bed sediments consisted mostly of sand and silt, with some gravel. The maximum stream depth was approximately one meter. A total of eight species of fishes were collected (Table 6). The most abundant species was the bandfin shiner. The blackbanded darter (n=61) was the only fish species of interest collected at this site. Three species of crayfishes were collected. These were *Procambarus speculifer* (n=1), *Cambarus bartonii* (n=2) and *Cambarus latimanus* (n=1).

JCS 03-08. Chickamauga Creek off of CR 103, 0.2 river miles upstream of Nester Branch.

Chickamauga Creek had been sampled at several locations prior to our survey on June 5, 2003. The most recent collection was conducted in 1958. Our survey site had not previously been sampled. At our sample location, the watershed area was 30km^2 (11.6 square miles). The stream width ranged from 6.5 – 10m, with an average stream width of 8.7m. Survey reach length was 305m. Due to problems with our equipment, we were only able to use the backpack shocker for approximately 1/3 of the survey reach. We extensively used seine-hauling and kick-seining techniques to achieve a thorough sample at this site. The maximum stream depth was greater than 1.5m. The river left bank was fringe wooded or forested and the river right bank was cleared or fringe wooded within the surveyed reach. Stream bed sediments consisted of cobble, boulder and sand, with some gravel. The downstream half of the reach contained large cobble riffles and sandy runs. The upstream most 25m of the reach was sandy and homogeneous; not many fishes were collected in this area. A total of 13 species of fishes were collected, including one individual clear chub (*Hybopsis sp. cf. H. winchelli*), one individual Coosa shiner (*Notropis xaenocephalus*) and 65 blackbanded darters, all species of interest for this project (Table 7). The most abundant species were the yellowfin shiner and the bandfin shiner. Crayfish species collect at Chickamauga Creek include *Procambarus speculifer* (n=3) and *Cambarus bartonii* (n=1).

JCS 03-09. Yahoola Creek at CR99, Walnut Valley Drive.

The study site on Yahoola Creek had been previously sampled in 1958. The 2003 survey took place on June 10. The watershed area at the sample site was 34.1km^2 (13.2 square miles). Stream width ranged from 5.5 - 7.5m, with an average stream width of 6.7m. The survey reach length totaled 235m. Bed sediments consisted of bedrock, cobble, gravel, sand and silt. Maximum stream depth was approximately 1.2m. The stream banks within the surveyed reach were cleared or fringe wooded on river left and fringe wooded or forested on river right. Upstream of CR 99, the land was used as a horse pasture. We collected eight species of fishes, the most common of which was the bandfin shiner (Table 8). None of the fish species of interest were collected at this site. One crayfish species, *Cambarus bartonii* (n=5), was collected.

JCS 03-10. Jenny Creek at CR 124, Jenny's Cove Road.

Jenny Creek, a tributary of Town Creek, which flows into the Tesnatee River, had not been sampled prior to the June 10, 2003 survey. The watershed area upstream of our survey reach was 12.5km^2 (4.8 square miles). Stream width ranged from 5 - 6m, with an average stream width of 5.3m. The survey reach length totaled 185m. Within the surveyed reach, both stream banks were forested. A small beaver dam was encountered within the downstream most 50m the reach. Bed sediments consisted mainly of sand, silt, gravel and some mud, cobble and boulder. The upstream most 30m of the reach was sandy and homogenous. The maximum stream depth was approximately one meter. Eleven fish species were collected. The most abundant species were the yellowfin shiner and the bluehead chub (Table 9). The only species of interest collected was the blackbanded darter (n=16). *Procambarus speculifer* (n=1) was the only crayfish species collected at this site.

MMH 03-05. Sautee Creek at CR 101, Lynch Mountain Road.

Known collections in Sautee Creek occurred as early as 1957 and as recently as 1996, however the previous two sample locations were located upstream of the confluence of Chickamauga Creek. On June 23, 2003, we surveyed Sautee Creek approximately 0.9km (0.6 miles) upstream of its confluence with the Chattahoochee River. At our survey location the watershed area was 87.4km^2 (33.8 square miles). Stream width ranged from 9 - 12m, with an average width of 10m. Survey reach length was 350m. The stream banks on river left were forested, while on the right they were fringe wooded or forested. Stream bed sediments consisted of large boulder, cobble, gravel and sand, with some bedrock and clay. The runs contained large boulders and bedrock. The riffles tended to have smaller cobble and gravel at the upstream end of the survey reach and large cobble in the downstream portion. On the day of our survey the stream was high from rain the previous week, making it difficult to effectively hold the seine in the most swiftly flowing water. Maximum stream depth with the reach was approximately 1.2m. Seventeen species of fishes were collected (Table 10). The most abundant species was the yellowfin shiner. Three species of interest were collected, including the highscale shiner (*Notropis hypsilepis*, n=1), the blackbanded darter (n=90), and the Halloween darter (*Percina sp. cf. P. palmaris*, n=4). *Procambarus speculifer* (n=1) was the only crayfish species collected at this site.

MMH 03-06. Chestatee River at the intersection of SR 129 and SR 60, Turners Corner.

The Chestatee River had been sampled at our survey site as recently as 1996. Several species of interest had been collected at this site in the past (fish surveys date back to 1947). The watershed area at our survey location was 82.7km^2 (31.9 square miles). Stream width ranged from 11 - 26m, with an average width of 17m. This average stream width provided for a survey reach length of 500m, however, due to high water levels we had to omit approximately 150m of a deep, swift run in the middle of the surveyed reach. Both stream banks were fringe wooded throughout the reach. An RV campground was located on the river right bank and SR 60 paralleled the left bank for most the surveyed reach. Stream bed sediments included bedrock, boulder, cobble and sand, with some gravel and silt. The survey ended at a bedrock outcrop that fell approximately 20 feet. Maximum stream depth was greater than 1.2m. Thirteen species of fishes were collected (Table 11). The most abundant species were the Tennessee shiner (*Notropis leuciodus*) and the bandfin shiner. The Tennessee shiner (n=347), the Coosa shiner (*Notropis xaenocephalus*, n=5) and the Halloween darter (n=1) were the species of interest collected at this site. One species of crayfish, *Cambarus bartonii* (n=6), was collected.

JCS 03-23. Jarrard Creek at CR 83, Yahoola Road.

Jarrard Creek was previously sampled in 1954 near its headwaters. At that time, a single Coosa shiner was collected. We returned to the stream on July 28, 2003. Our survey was conducted close to the mouth of the stream. At our survey site the watershed area was 5.2km^2 (2.0 square miles). The stream width ranged from 2.5 - 5m, with an average width of 3.3m. The survey reach length was 115m. Maximum stream depth was 0.7m. On the day of our survey the stream appeared fairly clear, however, the previous week we were unable to sample the stream due to high water and very high turbidity. The downstream most 30m of our reach was fringe wooded, with a large family garden on the left bank. The stream banks were forested throughout the remainder of the surveyed reach. Stream bed sediments consisted primarily of sand, with cobble, gravel and some bedrock. The stream was fairly high gradient and thick rhododendron (*Rhododendron sp.*) crossed the stream in several places. Fishes were not common Jarrard Creek. Only four fish species were collected (Table 12). The bluefin stoneroller (*Campostoma pauciradii*) was the most abundant. None of the fish species of interest were collected. One species of crayfish, *Cambarus bartonii* (n=1), was collected.

JCS 03-24. Town Creek at CR 130, Paradise Valley Road.

Town Creek had not been surveyed for fishes prior to our July 28, 2003 survey. The watershed area at our survey location was 8.3km^2 (3.2 square miles). Stream width ranged from 6 - 15m, with an average width of 8.7m. Survey reach length was 305m. Maximum stream depth within the surveyed reach was approximately 1.2m. The portion of stream that we surveyed was in an RV community. Both stream banks were fringe wooded or cleared, though the community enforced a minimum stream buffer width of 20ft. Stream bed sediments consisted of sand and silt, with cobble, bedrock, and gravel. Town Creek is stocked with trout at Paradise Valley Road. We collected seven species of fishes (Table 13). The bandfin shiner and a sculpin species (*Cottus sp. cf. C. carolinae*) was the most abundant fish species collected. No fish species of interest were collected. Two species of crayfishes, *Cambarus bartonii* (n=4) and *Cambarus howardi* (n=1), were collected.

Discussion

Ten fish species of interest were selected as target species for the project (Appendix A). The river chub was later omitted. Three of the remaining species were not collected during any of the eleven surveys of 2002-2003. These were the bluestripe shiner, longnose shiner and shoal bass (*Micropterus cataractae*). Six species of interest were collected during the surveys (Table 15). The coastal chub (n=1) and highscale shiner (n=1) were found at only one collection site. The collection of the coastal chub from Chickamauga Creek represents the first collection in that watershed and is currently our eastern most record of that species in the basin (Figure 2). We also made the first known collection of the highscale shiner from Sautee Creek (Figure 3). The Tennessee shiner (n=347) was only found at the Chestatee River, where it was previously known. Although this animal was abundant at the site, its distribution may be localized and warrants further investigation.

The Coosa shiner was collected from the Chestatee River (n=5) and from Chickamauga Creek (n=1). Despite six previous sample locations upstream of the 2003 sample site, the collection of the Coosa shiner from Chickamauga Creek represents the first collection in that watershed (Figure 4). This record is currently our eastern most record of the Coosa shiner the Upper Chattahoochee basin.

The blackbanded darter was collected at 8 survey sites and capture abundance ranged from 4 - 91 individuals. It was most abundant at Sautee Creek (n=91), Little Mud Creek (n=69), Chickamauga Creek (n=65) and Tesnatee Creek (n=61). Six new collection localities for the blackbanded darter were added following the 2002-2003 sampling (Figure 5).

The Halloween darter was collected from Sautee Creek (n=4) and the Chestatee River (n=1). The Halloween dater was previously known from Sautee Creek, but this was the first collection from the 2003 site (Figure 6).

None of the fish species of interest were collected at three of the survey sites, including Frogtown Creek, Yahoola Creek and Jarrard Creek. There were no historical records from Frogtown Creek. The Frogtown Creek watershed was primarily forested, but the high gradient and abundant bedrock substrate likely contributed to low species richness. Jarrard Creek was sampled near its headwaters in 1954. At that time one individual Coosa shiner and 29 blackbanded darters were collected. In 2003, we were not allowed access to the site sampled in 1954, and found low numbers of fairly ubiquitous and tolerant species of fishes at the site we surveyed near the mouth of Jarrard Creek. Yahoola Creek had been sampled at our survey location in 1958 and approximately 0.6 river km (0.4 river miles) downstream of that site in 1990. None of the fish species of interest were collected during either of those surveys.

The largescale stoneroller (*Campostoma oligolepis*) is not historically known from the ACF Basin, though Burr and Cashner collected individuals they identified as *Campostoma pauciradii x C. oligolepis* hybrids from the Chestatee River (1983). They did not find any hybrids outside of the Chestatee River system within the upper Chattahoochee. We identified 23 hybrid stonerollers (*C. pauciradii x C. oligolepis*) from the Chestatee River and 29 from an unnamed tributary to the Chestatee. These individuals have broadly overlapping characters, but were more like the largescale stoneroller in number of gill rakers on the first arch. More work is needed to determine if these individuals represent intergrades between *C. pauciradii* and *C. oligolepis* or are actually hybrids between extant populations of both species.

We identified one flat bullhead (*Ameiurus platycephalus*) from Jenny Creek, using characters as defined by Yerger and Relyea (1968). The know distribution of this species does not include any Gulf Coast drainages, thus it is not historically known to occur in the Chattahoochee. However, flat bullheads have been collected from the middle Chattahoochee to upstream of Lake Lanier (Georgia Museum of Natural History). Because of the widespread distribution of flat bullheads in the Chattahoochee, it seems unlikely that they have been introduced. There is a need for taxonomic work on this animal, as it may be a new cryptic species, easily confused with the snail bullhead (*Ameiurus brunneus*).

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Yerger, R. W. and K. Relyea. 1968. The flat-headed bullheads (Pisces: Ictaluridae) of the Southeastern United Stated, and a new species of *Ictalurus* for the Gulf Coast. Copeia 2: 361-384.

Table 1. Field number, sample date and locality information of all sites surveyed for fishes and crayfishes.

Field number	Locality	County	Date sampled	Watershed area km^2	UTM 16 Coordinates Easting	Northing
MMH 02-73	Little Mud Creek at CR 939 (Mud Creek Road), 4.1 air miles WSW of Alta, GA city center.	Hall	11/8/2002	48.8	808326.50	3817531.64
JCS 03-04	Frogtown Creek at Edwards Parkway CR 153, 10.5 air miles NW of Cleveland, GA city center.	Lumpkin	5/21/2003	14.8	782795.70	3842262.62
JCS 03-06	Unnamed tributary to Chestatee River at CR 48 (Roy Grindle Road), 7.0 air miles WSW of Cleveland, GA city center.	Lumpkin	5/28/2003	7.7	785914.47	3831246.50
JCS 03-07	Tesnatee Creek at CR 299 (Cabin Creek Road), 2.1 air miles N of Cleveland, GA city center.	White	5/30/2003	19.8	797046.69	3836639.82
JCS 03-08	Chickamauga Creek approximately 0.2 river miles upstream of Nester Branch and off of CR 103 (Skylake Road), 10.7 air miles NE of Cleveland, GA city center.	White	6/6/2003	30.0	806589.36	3847539.24
JCS 03-09	Yahoola Creek at CR 99 (Walnut Valley Drive), 5.6 air miles NNW of Dahlonega, GA city center.	Lumpkin	6/10/2003	34.1	775908.35	3834564.54
JCS 03-10	Jenny Creek at CR 124 (Jenny's Cove Road), 3.7 air miles WNW of Cleveland, GA city center.	White	6/10/2003	12.5	790835.38	3834163.53
MMH 03-05	Sautee Creek at CR 101 (Lynch Mountain Road), 8.0 air miles NE of Cleveland, GA city center.	White	6/23/2003	87.4	805160.88	3842936.96
MMH 03-06	Chestatee River at Turners Corner (SR 129 and SR 60 intersection), 9.2 air miles NW of Cleveland, GA city center.	Lumpkin	6/24/2003	82.7	783932.18	3840116.82
JCS 03-23	Jarrard Creek at CR 83 (Yahoola Road), 6.0 air miles N of Dahlonega, GA city center.	Lumpkin	7/28/2003	5.2	776296.71	3835027.13
JCS 03-24	Town Creek at CR 130 (Paradise Valley Road), 5.9 air miles NW of Cleveland, GA city center.	White	7/28/2003	8.3	788330.46	3837285.69

Table 2. Water quality parameters measured for each site before the survey was conducted.

Field number	Specific conductivity (µs)	Dissolved oxygen (mg/l)	pH	Turbidity (NTU)	Water temperature (C)
MMH 02-73	45	11.8	7.1	7.7	9.0
JCS 03-04	11	9.9	7.2	1.7	13.9
JCS 03-06	29	9.6	6.5	5.1	16.6
JCS 03-07	30	9.0	6.3	7.3	15.2
JCS 03-08	17	10.7	6.4	7.4	15.6
JCS 03-09	25	9.5	6.3	0.0	16.2
JCS 03-10	26	7.8	6.4	0.0	22.2
MMH 03-05	27	9.1	7.8	6.1	17.5
MMH 03-06	12	10.4	7.8	3.3	15.8
JCS 03-23	21	8.3	6.6	3.8	22.9
JCS 03-24	14	8.9	6.6	7.5	19.5

Table 3. Fishes collected from Little Mud Creek (MMH 02-73).

Scientific name	Common Name	Preserved	Released	Total
Ichthyomyzon gagei	Southern brook lamprey	2		2
Campostoma pauciradii	bluefin stoneroller	25		25
Semotilus atromaculatus	creek chub	7		7
Nocomis leptocephalus	bluehead chub	343		343
Notropis lutipinnis	yellowfin shiner	1282		1282
Hypentelium etowanum	Alabama hog sucker	82		82
Scartomyzon rupiscartes	striped jumprock	4		4
Ameiurus brunneus	snail bullhead	4		4
Cottus sp. cf. C. carolinae	sculpin sp.	21		21
Lepomis auritus	redbreast sunfish	6		6
Lepomis macrochirus	bluegill	2		2
Percina nigrofasciata	blackbanded darter	69		69

Table 4. Fishes collected from Frogtown Creek (JCS 03-04).

Scientific name	Common Name	Preserved	Released	Total
Campostoma pauciradii	bluefin stoneroller	4		4
Nocomis micropogon	river chub	43		43
Luxilus zonistius	bandfin shiner	241		241
Oncorhynchus mykiss	rainbow trout		10	10

Table 5. Fishes collected from an unnamed tributary to the Chestatee River (JCS 03-06).

Scientific name	Common Name	Preserved	Released	Total
Campostoma pauciradii x. C. oligolepis	stoneroller hybrid	29		29
Campostoma pauciradii	bluefin stoneroller	8		8
Semotilus atromaculatus	creek chub	8		8
Nocomis leptocephalus	bluehead chub	211		211
Luxilus zonistius	bandfin shiner	195		195
Hypentelium etowanum	Alabama hog sucker	6	36	42
Oncorhynchus mykiss	rainbow trout		1	1
Lepomis macrochirus	bluegill	5	8	13
Percina nigrofasciata	blackbanded darter	5		5

Table 6. Fishes collected from Tesnatee Creek (JCS 03-07).

Scientific name	Common Name	Preserved	Released	Total
Campostoma pauciradii	bluefin stoneroller	1		1
Semotilus atromaculatus	creek chub	1		1
Nocomis leptocephalus	bluehead chub	19		19
Luxilus zonistius	bandfin shiner	48		48
Scartomyzon lachneri	greater jumprock	4		4
Lepomis cyanellus	green sunfish	14		14
Lepomis macrochirus	bluegill	5		5
Percina nigrofasciata	blackbanded darter	61		61

Table 7. Fishes collected from Chickamauga Creek (JCS 03-08).

Scientific name	Common Name	Preserved	Released	Total
Campostoma pauciradii	bluefin stoneroller	24		24
Semotilus atromaculatus	creek chub	1		1
Nocomis leptocephalus	bluehead chub	45		45
Hybopsis sp cf. H. winchelli	coastal chub	1		1
Luxilus zonistius	bandfin shiner	134		134
Notropis lutipinnis	yellowfin shiner	167		167
Notropis xaenocephalus	Coosa shiner	1		1
Hypentelium etowanum	Alabama hog sucker	13	2	15
Ameiurus brunneus	snail bullhead	2		2
Cottus sp. cf. C. carolinae	sculpin sp.	28		28
Micropterus salmoides	largemouth bass	1		1
Lepomis macrochirus	bluegill	9		9
Percina nigrofasciata	blackbanded darter	65		65

Table 8. Fishes collected from Yahoola Creek (JCS 03-09).

Scientific name	Common Name	Preserved	Released	Total
Campostoma pauciradii	bluefin stoneroller	8		8
Nocomis leptocephalus	bluehead chub	10	1	11
Luxilus zonistius	bandfin shiner	116	63	179
Ameiurus brunneus	snail bullhead	14		14
Oncorhynchus mykiss	rainbow trout	1	5	6
Ambloplites ariommus	shadow bass	11		11
Lepomis auritus	redbreast sunfish	7	3	10
Lepomis macrochirus	bluegill	8		8

Table 9. Fishes collected from Jenny Creek (JCS 03-10).

Scientific name	Common Name	Preserved	Released	Total
Campostoma pauciradii	bluefin stoneroller	1		1
Semotilus atromaculatus	creek chub	15		15
Nocomis leptocephalus	bluehead chub	117		117
Luxilus zonistius	bandfin shiner	36		36
Notropis lutipinnis	yellowfin shiner	320		320
Scartomyzon lachneri	greater jumprock	4		4
Ameiurus platycephalus	flat bullhead	1		1
Micropterus salmoides	largemouth bass	3		3
Lepomis auritus	redbreast sunfish	1		1
Lepomis macrochirus	bluegill	5		5
Percina nigrofasciata	blackbanded darter	16		16

Table 10. Fishes collected from the Sautee River (MMH 03-05).

Scientific name	Common Name	Preserved	Released	Total
Ichthyomyzon sp.	lamprey sp.	4		4
Campostoma pauciradii	bluefin stoneroller	19		19
Nocomis leptocephalus	bluehead chub	31		31
Luxilus zonistius	bandfin shiner	65		65
Notropis hudsonius	spottail shiner	3		3
Notropis hypsilepis	highscale shiner	1		1
Notropis lutipinnis	yellowfin shiner	203		203
Ericymba buccata	silverjaw minnow	4		4
Hypentelium etowanum	Alabama hogsucker	20	1	21
Scartomyzon lachneri	greater jumprock	1		1
Moxostoma sp. cf. M. poecilurum	Apalachicola redhorse	1		1
Ameiurus brunneus	snail bullhead	17		17
Oncorhynchus mykiss	rainbow trout		2	2
Cottus sp. cf. C. carolinae	sculpin sp.	20		20
Micropterus coosae	redeye bass	3		3
Percina nigrofasciata	blackbanded darter	91		91
Percina sp. cf. P. palmaris (crypta)	Halloween darter	4		4

Table 11. Fishes collected from the Chestatee River (MMH 03-06).

Scientific name	Common Name	Preserved	Released	Total
Campostoma pauciradii x C. oligolepis	stoneroller hybrid	23		23
Campostoma pauciradii	bluefin stoneroller	7		7
Nocomis leptocephalus	bluehead chub	74		74
Luxilus zonistius	bandfin shiner	181	6	187
Notropis leuciodus	Tennessee shiner	347		347
Notropis xaenocephalus	Coosa shiner	5		5
Hypentelium etowanum	Alabama hog sucker	18	3	21
Ameiurus brunneus	snail bullhead	1		1
Oncorhynchus mykiss	rainbow trout	2		2
Micropterus coosae	redeye bass	3		3
Lepomis macrochirus	bluegill	2		2
Percina nigrofasciata	blackbanded darter	37		37
Percina sp. cf. P. palmaris (crypta)	Halloween darter	1		1

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Table 12. Fishes collected from Jarrard Creek (JCS 03-23).

Scientific name	Common Name	Preserved	Released	Total
Campostoma pauciradii	bluefin stoneroller	20		20
Luxilus zonistius	bandfin shiner	12		12
Lepomis auritus	redbreast sunfish	7		7
Lepomis macrochirus	bluegill	1		1

Table 13. Fishes collected from Town Creek (JCS 03-24).

Scientific name	Common Name	Preserved	Released	Total
Campostoma pauciradii	Bluefin stoneroller	11		11
Nocomis leptocephalus	bluehead chub	40		40
Luxilus zonistius	bandfin shiner	335		335
Oncorhynchus mykiss	rainbow trout		8	8
Cottus sp. cf. C. carolinae	sculpin sp.	102	91	193
Lepomis macrochirus	bluegill	1		1
Percina nigrofasciata	blackbanded darter	4		4

Table 14. Summary of fish species of interest present at each site during the 2002-2003 surveys. The number collected is provided where each species was present. Blank spaces indicated that a species was not collected at a site.

Field number	Stream name	Coastal chub *Hybopsis sp. cf. H. winchelli*	Highscale shiner *Notropis hypsilepis*	Tennessee shiner *Notropis leuciodus*	Coosa shiner *Notropis xaenocephalus*	Blackbanded darter *Percina nigrofasciata*	Halloween darter *Percina sp. cf. P. palmaris*
MMH 02-73	Little Mud Creek					69	
JCS 03-04	Frogtown Creek						
JCS 03-06	Unnamed tributary to the Chestatee River					5	
JCS 03-07	Tesnatee Creek					61	
JCS 03-08	Chickamauga Creek	1			1	65	
JCS 03-09	Yahoola Creek						
JCS 03-10	Jenny Creek					16	
MMH 03-05	Sautee Creek		1			91	4
MMH 03-06	Chestatee River			347	5	37	1
JCS 03-23	Jarrard Creek						
JCS 03-24	Town Creek					4	

Table 15. Summary of crayfish species present at each site. C = collected, blank spaces = not collected.

Field number	Stream name	*Cambarus bartonii*	*Cambarus howardi*	*Cambarus latimanus*	*Procambarus speculifer*
MMH 02-73	Little Mud Creek				C
JCS 03-04	Frogtown Creek	C			
JCS 03-06	Unnamed tributary to the Chestatee River	C			
JCS 03-07	Tesnatee Creek	C		C	C
JCS 03-08	Chickamauga Creek	C			C
JCS 03-09	Yahoola Creek	C			
JCS 03-10	Jenny Creek				C
MMH 03-05	Sautee Creek				C
MMH 03-06	Chestatee River	C			
JCS 03-23	Jarrard Creek	C			
JCS 03-24	Town Creek	C	C		

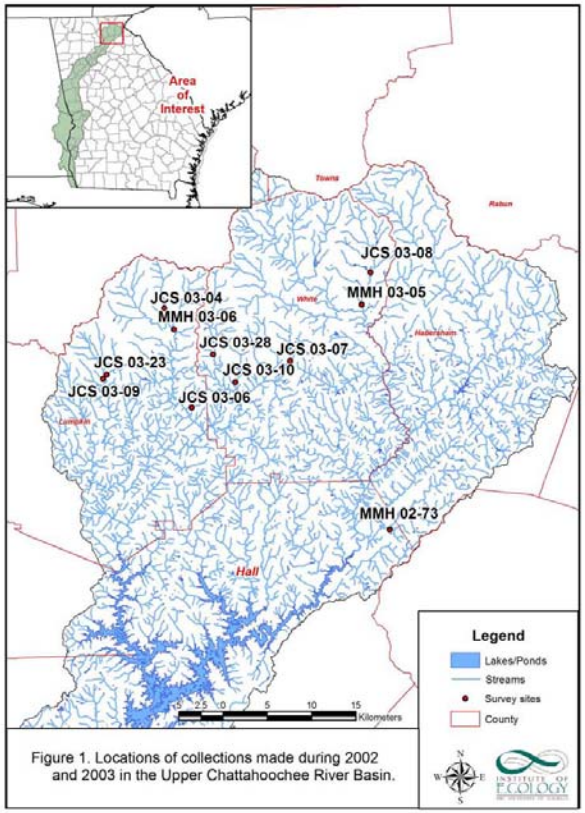

Figure 1. Locations of collections made during 2002 and 2003 in the Upper Chattahoochee River Basin.

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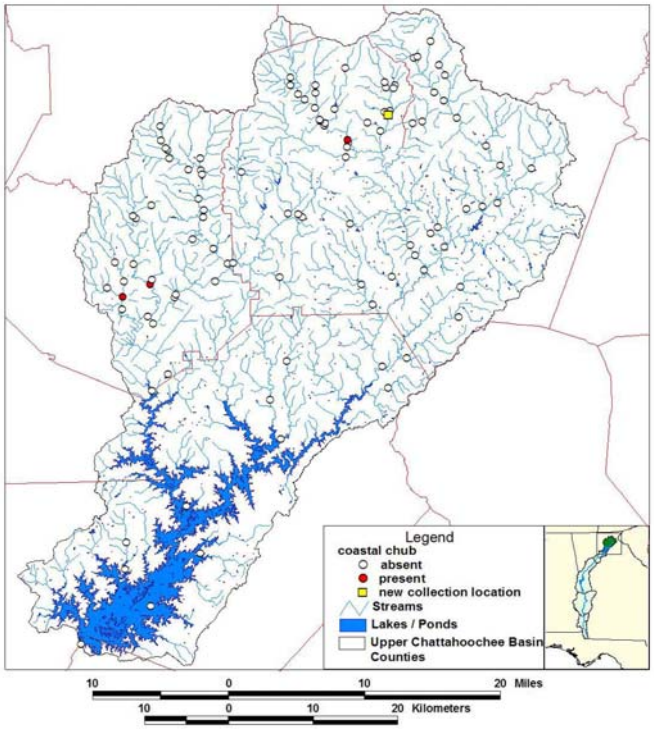

Figure 2. Distribution of coastal chub (Hybopsis sp. cf. H. winchelli) in the Upper Chattahoochee River Basin.

Source:
Streams, lakes,ponds: 1:100,000 USGS NHD
Counties: 1:24,000 DOT

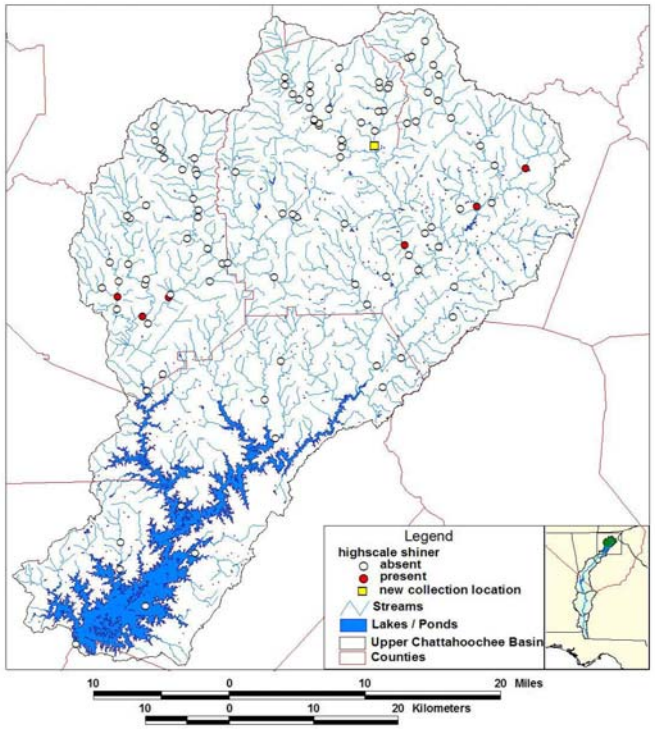

Figure 3. Distribution of highscale shiners (Notropis hypsilepis) in the Upper Chattahoochee River Basin.

Source:
Streams, lakes,ponds: 1:100,000 USGS NHD
Counties: 1:24,000 DOT

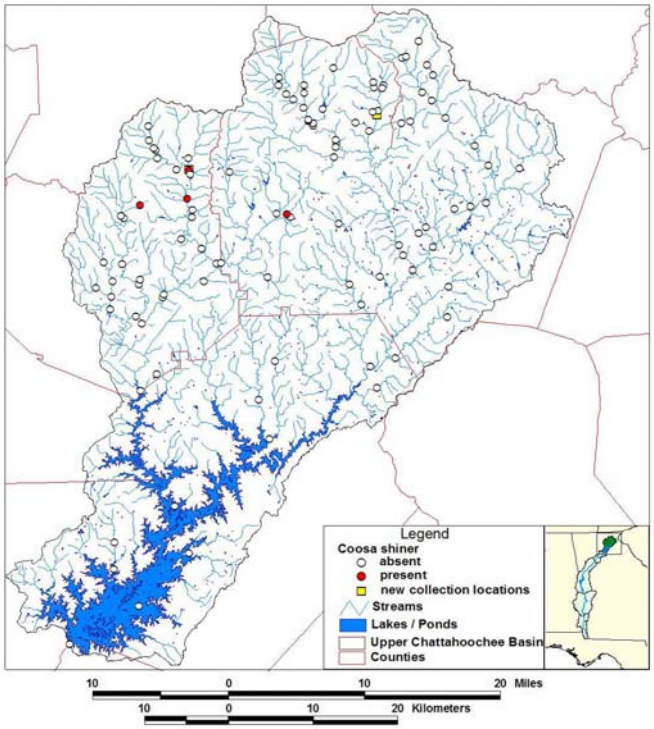

Figure 4. Distribution of Coosa shiners (Notropis xaenocephalus) in the Upper Chattahoochee River Basin.

Source:
Streams, lakes,ponds: 1:100,000 USGS NHD
Counties: 1:24,000 DOT

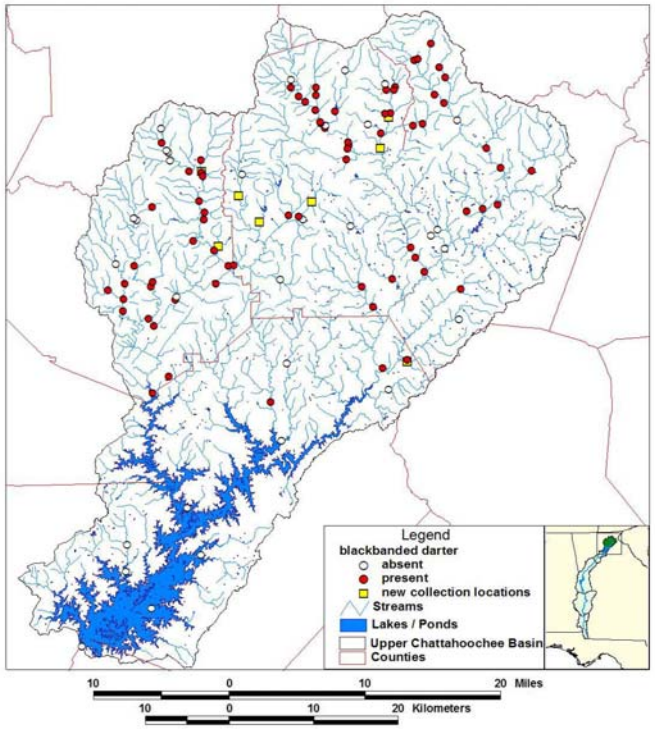

Figure 5. Distribution of blackbanded darters (Percina nigrofasciata) in the Upper Chattahoochee River Basin.

Source:
Streams, lakes,ponds: 1:100,000 USGS NHD
Counties: 1:24,000 DOT

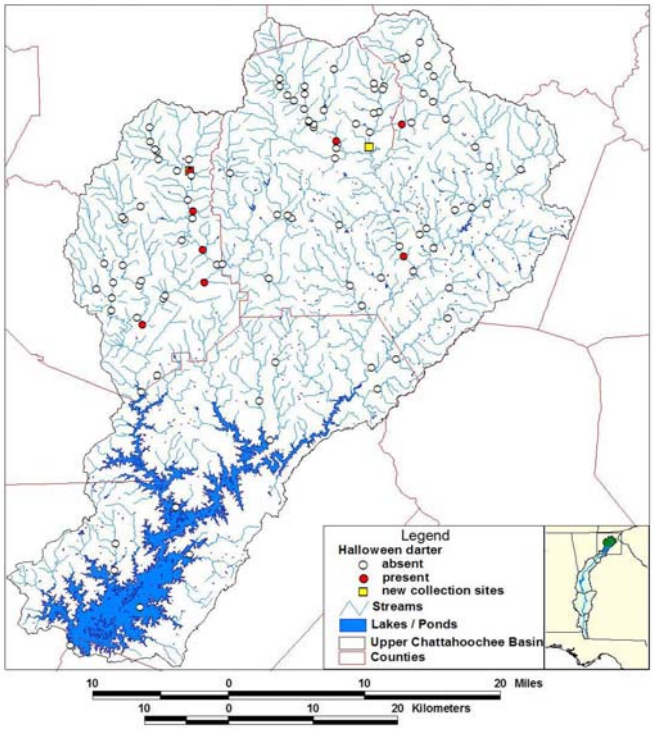

Figure 6. Distribution of Halloween darters (Percina sp. cf. P. palmaris) in the Upper Chattahoochee River Basin.

Source:
Streams, lakes,ponds: 1:100,000 USGS NHD
Counties: 1:24,000 DOT

Appendix A.

Collection database and distributions of selected native fishes in the Upper Chattahoochee River Basin.

Prepared for:
Kristen Costley
Upper Chattahoochee Riverkeeper

for the
Chattahoochee Headwaters Aquatic Biodiversity Assessment and Conservation Project

Prepared by:
Carrie A. Straight
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30 July 2002

Introduction and Methods

Overall, 190 historical collections were combined into this database most ranging in collection dates from 1929 to 1998. Although, one collection was dated 1876 and numerous collections did not list collection dates. Most collections in the database were made from 1957-1959 to correspond with the 1962 Fisheries Survey of Georgia. The collections gathered for this database contain records from collections from the Georgia Museum of Natural History, Cornell, Tulane, University of Alabama, Florida Museum of Natural History, and field notes from various collectors. This database includes information we requested at or before the time of this report and should not be considered inclusive of all possible records. After compiling the database, we conducted different quality control measures. One measure included checking the fish species list for species not found in the Upper Chattahoochee Basin and checking the listed locality of the collections. These collection localities were either corrected or the collection eliminated from the database. We geo-spatially cataloged the final 190 collections in the database to create 104 distinct collection sites (Table 1; Figure 1). Within the drainage, the lowest collection site was located at an elevation of 326 meters and the highest site occurred at 773 meters in elevation. The collection site with the smallest drainage area was on a tributary to the Soquee River that drained less than 15 hectares. The site with the largest drainage area was on Lake Sidney Lanier at Buford Dam, which drained the whole of the study extent of 268,412 hectares.

The portion of the Chattahoochee River Basin chosen for these analyses was all streams draining into the Chattahoochee River at and above Lake Sidney Lanier. This area includes streams in Forsyth, Gwinnett, Habersham Hall, White, and Lumpkin Counties, Georgia. This portion of the watershed includes part of the Chattahoochee River and all of the Chestatee River and the Soquee River systems.

Species chosen

The species chosen for this study included ten species listed in Table 2 for easy reference. These species were chosen because they were either: a listed species with the State of Georgia, have limited distribution, are endemic to the basin, or are rare in the Chattahoochee basin or the Upper Chattahoochee basin.

River chub (*Nocomis micropogon*) is a member of the Cyprinidae family (carps and minnows). This species is also known to occur in the Coosa, Savannah and Tennessee drainages in Georgia. It frequents rivers and a variety of stream sizes with high flow levels (Mettee *et al*. 1996; Etnier and Starnes 1993). It inhabits waters with gravel to boulder substrates (Mettee *et al*. 1996).

Coastal chub (*Hybopsis sp. cf. H. winchelli*) is an undescribed species currently grouped with the clear chub (*Hybopsis winchelli*) in the family Cyprinidae. According to descriptions the form of clear chub in the Apalachicola River drainage is probably a distinctly separate species with differences in "shape of snout, position of mouth, head length, and especially in size and position of nuptial tubercles" (Lee *et al*. 1980: 195). This species occurs in mainstems, large tributaries, and slightly smaller streams. In smaller streams it is found in pools over a gravel, sand, and/or silt substrate and in larger streams/rivers populations occur over sand and/or gravel shoals (Mettee *et al*. 1996).

Bluestripe shiners (*Cyprinella callitaenia*) are a State listed Threatened species, and are listed as a Species of Concern Federally. This species is a cyprinid endemic to the Apalachicola River drainage, being found in the mainstems of the Chattahoochee as well as the Flint, Apalachicola, and other large tributaries. This species is vulnerable to degradation of its habitat (riffles and runs with gravel or sand bed sediments) through stream impoundment and/or sedimentation (GDNR 1999).

Highscale shiners (*Notropis hypsilepis*), a member of the family Cyprinidae, are also listed as Threatened in the state, as a Species of Concern Federally. The range of this species occurs mostly in the Apalachicola River drainage with a few individuals being known from a tributary to the Tallulah River. The habitat used by highscale shiners includes pools and runs in tributaries to the mainstem, which can also be impacted by impoundment and sedimentation, as well as contamination of streams (GDNR 1999).

Tennessee shiners (*Notropis leuciodus*) occur throughout most of the state of Tennessee and are found in the Savannah and Tennessee River drainages in Georgia. They inhabit pools and runs with gravel to boulder-type substrates. It occurs in a wide variety of sized rivers, but is rarely found in reservoirs (Etnier and Starnes 1993).

Longnose shiner (*Notropis longirostris*) occurs in the Upper Coosa, ACF, and Altamaha River drainages in Georgia, although it is absent from most of the middle and lower Coosa basin. This species occurs often in waters over a sand substrate in slower moving waters (Lee *et al*. 1980).

Coosa shiner (*Notropis xaenocephalus*) is a species native to the Coosa and Tallapoosa river system and was listed as a probable introduced species into the Upper Chattahoochee River System (Lee *et al*. 1980). This species inhabits cool waters of streams with gravel to bedrock substrates (Mettee *et al*. 1996).

Shoal bass (*Micropterus cataractae*), of the Centrarchidae family, is a newly (1999) described species of bass that was formerly grouped with redeye bass (*Micropterus coosae*). This species is native to the Apalachicola drainage, but has been stocked by the Georgia Department of Game and Fish in the Ocmulgee River (Altamaha River drainage). This species is found in association with shoals in large rivers. The creation of large reservoirs has likely reduced the range of this species on the Chattahoochee River, as well as throughout its range (Williams and Burgess 1999). Although this species is not listed with the state of Georgia, it is listed federally as a Species of Concern.

Halloween darter (*Percina sp. cf. P. palmaris*) is an undescribed species of darter currently grouped with members of the subgenus *Ericosma*. The Halloween darter is not state listed but is listed as a Species of Special Concern by the USFWS. The Halloween darter has been long confused with the more common **blackbanded darter** (*Percina nigrofasciata*) and there is a distinct possibility of misidentification by untrained or inexperienced observers. Both of these fish species are members of the family Percidae. Also in the *nigrofasciata* complex is another possible species, referred to by some ichthyologists as "coppertop". Blackbanded darters have a wide distribution occurring through large parts of the Gulf and Atlantic coast drainages. It occurs throughout the state of Georgia and in a variable list of habitat types as long as they contain some form of current. In contrast, the Halloween darter is endemic to the Chattahoochee and Flint river systems. Several characteristics distinguish this species

from the blackbanded darter, some of which include having "usually 7 closely spaced rectangular dorsal saddles, broad subocular bar, and an orange submarginal band in the first dorsal fin of nuptial males and females" (Freeman *et al*. 2002: 3). Halloween darters occur in shallow riffle and runs in medium- to large-sized streams with swiftly flowing water. Their habitat association also includes gravel, cobble or bedrock substrate and commonly with riverweed (*Podostemum certophyllum*) (Freeman *et al*. 2002).

Results and Discussion

River chubs (Figure 2) occurred at only two collection sites. One site on Jasus Creek drains 490 hectares of area and is a tributary of the Chattahoochee in the Blue Ridge physiographic province. This site is near the origin of the Chattahoochee at 585 meters in elevation. The other site is on Cane Creek, a tributary to the Chestatee River in the Piedmont physiographic province. The second site drains a larger area of 2935 hectares. This second site is on a larger stream and at an elevation of 368 meters.

Coastal chubs (Figure 3) only occurred at three collection sites. One site on Cane Creek drained 5625 hectares and occurred at 360 meters in elevation. One site on Yahoola Creek drained 8124 hectares and occurred at 371 meters in elevation. The last site drained 12337 hectares of area into the Chattahoochee River at 426 meters in elevation. All three sites are located in the Piedmont physiographic province.

Bluestripe shiners (Figure 4) range was restricted not being found in points where the drainage area was smaller than 4355 hectares. This result is not surprising given its known preference for mainstems and large tributaries. Its distribution included larger drainage areas up to 97172 hectares. The elevation of the seven sites where this species was found ranged from 326 to 414 meters in elevation. All seven collection sites where this species occurred in the Upper Chattahoochee basin were in the Piedmont physiographic province.

Highscale shiners (Figure 5) occurred at 6 collection points ranging in drainage area from 3533 hectares to 49201 hectares and from 343 to 409 meters in elevation. All six locations are in the Piedmont physiographic province.

Tennessee shiners (Figure 6) had a very limited range, being only found at three collection points ranging from 384 hectares of drainage area to 8277 hectares and ranging in elevation from 449 to 480 meters. One collection point is in Boggs Creek, a tributary to the Chestatee River, and two are in the Chestatee River. The Boggs Creek site is in the Blue Ridge physiographic region and one Chestatee collection site is also in the Blue Ridge and the other is in the Piedmont.

Longnose shiners (Figure 7) occurred at six different collection sites. Three of the sites are located on the Chestatee River and one is on Cane Creek, a tributary to the Chestatee. One site is on Little Mud Creek and the last site is on the West Fork of the Little River. These sites drain areas ranging from 4743 to 49201 hectares and occur at elevations ranging from 337 to 360 m. All six site are located in the Piedmont physiographic province.

Coosa shiners (Figure 8) occurred at four collection sites, two on the Chestatee River, one on Jarrad Creek (a tributary to Yahoola Creek, which is a tributary to the Chestatee), and the last site is on the Tesnatee Creek, which is also a tributary to the Chestatee River. The sites ranged in drainage area from 207 to 10480 hectares and in elevation from 441 to 507 m. The Tesnatee Creek site was located in the Piedmont physiographic province, and the other 3 sites were in the Blue Ridge physiographic province.

Shoal bass (Figure 9) occurred at four different sites, all in the Chestatee River system, two sites on the Chestatee, and one on Cane Creek and the other on Dicks Creek, both tributaries to the Chestatee River. These fish occurred only in larger drainage area sites ranging from 2380 to 40196 hectares. The elevation at these sites ranged from 341 to 488 m. The Dicks Creek site is located in the Blue Ridge physiographic province and the remaining three sites are all located within the Piedmont physiographic province.

Halloween darters (Figure 10) occurred at 8 different collection sites in a variety of sized drainages (ranging from 384 to 40196 hectares). The collection points ranged from 342 to 463 meters in elevation. Seven of the collection sites occurred in the Piedmont and the remaining site occurred in the Blue Ridge physiographic province. Freeman *et al*. (2002) list the only functional population of this species in the Chattahoochee Basin is in the area above Lake Sidney Lanier, because the remainder of the Chattahoochee is affected by impoundments and other anthropogenic changes to the hydrology. The population of Halloween darters above Lake Sidney Lanier "is threatened by increasing development of mountain areas of second homes including large golf-course communities, and a water park adjacent to the Chattahoochee in Helen GA" (Freeman *et al*. 2002: 5).

Blackbanded darters (Figure 11) occurred at 73 collection points. These collection drainages ranged from 14 to 97172 hectares in size and from 326 to 573 meters in elevation. These collection points were split between Piedmont and Blue Ridge physiographic provinces.

Gaps in collection coverage

As mentioned in the introduction, the data for these fish distributions is based primarily on historical records, with only 24 of the 104 sites having collections made at them since 1990 (Figure 12). As is seen by this map, these sites are spatially grouped and some subwatersheds in the Upper Chattahoochee have not been sampled since 1990. Two subwatersheds, containing Wahoo Creek and Hazel Creek, have never been sampled according to our data (Figure 13). Additional subwatersheds that have not been sampled since 1990 include Yellow Creek, Lower Chestatee, Lower Tesnatee, Upper Tesnatee, Town Creek, Dukes Creek, Low Gap, Raper, Beaverdam, Soquee, Flat, and East Fork Little River. Some of these watersheds were only sampled at a single location one time. This information overlayed with the landuse in the Upper Chattahoochee Basin (Figure 14) warrants a need for thorough sampling throughout the drainage to attempt to assess how the rapid land use changes since the 1950's and 60's have altered the distribution of the less common species chosen as target species for this report.

Minimally, the watersheds containing the rare target species should be resurveyed to determine each species' status at historical locations. Additionally, the mainstem of the Chattahoochee, Soquee, and Chestatee should be sampled to obtain baseline information for these major systems in the Upper Chattahoochee Basin. A comparison of relatively forested subwatersheds (i.e. Cane, Yahoola, Dicks, Town, Dukes, Low Gap, Smith, Upper Sautee, Raper Creek, and Shoal Creek) and subwatersheds that are more pressured by urban development and anthropogenic sources of disturbance (i.e. Hazel, Mud, Beaverdam, Upper Tesnatee, East Fork Little River, and Mossy Creek) might provide needed insight into conservation of fishes in the basin.

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Table 1. cont.

Site	Waterbody	Locality	Easting	Northing	County	No. of collections	First collection	Last collection
673	Chestatee River	Chestatee River at Hwy 60, ca. 3 airmiles SSE of Dahlonega,	778337.17185	3821800.97300	Lumpkin	5	5/20/1970	10/30/1996
674	Chestatee River	Chestatee River at mouth of Yahoola Creek, 2.1 air miles SE of Dahlonega on Rt. 249	777673.65825	3822644.79973	Lumpkin	2	3/26/1951	7/17/1961
675	Mossy Creek	Mossy Creek at New Bridge Rd (CR 9) 7.3 air miles SSE of Cleveland city center, GA	804299.59073	3824071.74287	White	3	11/2/1993	10/25/1994
677	Chestatee River	Chestatee River at St Hwy 52, 4.2 mi E of Dahlonega, GA city center.	780827.67497	3824924.94771	Lumpkin	5	5/15/1937	4/21/1968
678	Cane Creek	Cane Creek on US 19, 1.5 mi. SW of Dahlonega, GA city center.	774718.91525	3824993.26757	Lumpkin	8	8/25/1939	10/30/1996
679	Chestatee River	Chestatee River 2 mi. E of Dahlonega, GA city center.	780990.75717	3825243.12503	Lumpkin	1	4/3/1949	4/3/1949
680	Yahoola Creek	Yahoola Creek on GA Hwy 52, 1 mi. E of Dahlonega, GA city center.	777984.57391	3826478.58149	Lumpkin	3	3/26/1951	10/30/1996
681	Mossy Creek	Mossy Creek on State Route 254, 6.8 air miles NE of Clermont, GA city center.	802925.39519	3826485.09641	White	3	4/18/1967	10/9/1979
682	White Creek	White Creek at New Bridge Rd (CR 9); 7.0 air miles SE of Cleveland, GA city center.	806547.57888	3827384.75168	White	3	11/2/1993	10/25/1994
683	Shoals Creek	Shoals Creek at State Route115, 4.25 air miles SW of Cleveland, GA city center.	793275.05613	3827315.71458	White	2	4/25/1954	10/26/1963

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Table 1. Collection sites in the Upper Chattahoochee River Basin.

Site	Waterbody	Locality	Easting	Northing	County	No. of collections	First collection	Last collection
9	Tesnatee River	Tesnatee River Hwy.129, 7.1miles NW of Cleveland	788734.12633	3839782.37338	White	1	10/16/1959	10/16/1959
304	Turner Creek	Turner Creek at Georgia Hwy.129, 2.0 mi. NW of Cleveland	794300.77049	3834906.38457	White	3	11/13/1931	6/21/1965
662	Lake Sidney Lanier	Lake Sidney Lanier at Buford Dam, 5 mi NW of Buford	769803.34890	3783840.81703	Gwinnett	1	3/15/1978	3/15/1978
664	Lake Sidney Lanier	Lake Sidney Lanier at Balus Creek Landing, 6.0 mi S.W. Gainesville off Hwy 141	783912.18984	3794670.82058	Hall	1	12/18/1967	12/18/1967
665	Lake Sidney Lanier	Lake Sidney Lanier at Duckett Mill Landing, 6.0 mi. W of Gainesville of Hwy. 53	782269.03644	3800251.17338	Hall	1	12/17/1967	12/17/1967
667	Lake Sidney Lanier	Lake Sidney Lanier, East Fork Little River Arm, Bells Mill Landing, 3.6 mi N.Gainesville on HWY 11	793449.98557	3808230.04165	Hall	2	6/10/1952	12/19/1967
668	West Fork Little River	West Fork Little River at County Road 49 (Helton Rd.); 5.10 air miles SSW of Clermont city center	792158.30000	3812788.23063	Hall	9	6/15/1993	6/9/1995
669	Hagen Creek	Hagen Creek, at Grove St., 2.2 mi. N Lula	806134.97936	3814227.92107	Hall	1	5/11/1961	5/11/1961
670	Chestatee River	Chestatee River at New Bridge, Station 2, 7.25 air miles SSE of Dahlonega city center	778192.50731	3813838.61927	Hall	3	5/22/1958	5/22/1958
671	East Fork of the Little River	East Fork of the Little River at E. Butler Highway (GA Hwy 11), 2.1 air miles SW of Clermont city center.	794091.35182	3817362.78431	Hall	1	6/10/1952	6/10/1952
672	Little Mud Creek	Little Mud Creek at Mud Creek Rd, 4.3 air miles NE Lula city center, GA	808327.18732	3817746.99686	Hall	1	5/5/1990	5/5/1990

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Table 1. cont.

Site	Waterbody	Locality	Easting	Northing	County	No. of collections	First collection	Last collection
695	Trib of Tesnatee Creek	Trib of Tesnatee Creek on State Route 129, 1 air mile NW of Cleveland, GA city center.	795961.91221	3834440.49545	White	1	4/3/1949	4/3/1949
696	Yaholla Creek	Yaholla Creek at CR 99 (Manley Rd.) - downstream of bridge; 5.6 air miles N of Dahlonega, GA city center.	776248.50586	3834339.10337	Lumpkin	1	11/10/1990	11/10/1990
697	Tesnatee Creek	Tesnatee Creek, trib. to Chattahoochee River at State Route 129, 1.4 air miles NW of Cleveland, GA city center.	795477.30532	3834794.23205	White	4	11/13/1931	4/14/1963
698	Soquee River, tributary	Trib of Soquee River on St Rte 115, 1.5 air miles W of Clarkesville, GA city center.	815344.10736	3835451.38161	Habersham	1	7/16/1961	7/16/1961
699	Chestatee River, tributary	Trib. of Chestatee River off of County Road 357, 7.5 air miles NE Dahlonega, GA city center.	784264.68458	3834447.25089	Lumpkin	1	5/8/1954	5/8/1954
700	Sutton Mill Creek	Sutton Mill Creek, trib. of Soque R. on State Route 115, 0.4 air miles W of Soque River and 1.5 air miles W of Clarksville, GA city center.	817264.48376	3835700.91168	Habersham	1	4/1/1950	4/1/1950
701	Yahoola Creek	Yahoola Creek at bridge behind Yahoola Church (CR 99, Manley Rd.), 5.8 air miles N of Dahlonega, GA city center.	775898.78012	3834577.86085	Lumpkin	1	10/21/1958	10/21/1958
702	Unnamed trib. to Soquee River	Unnamed tributary to the Soque River on State Route 17, 0.3 mi N. of Clarkesville, GA city center.	819044.62874	3836164.96659	Habersham	1	4/22/1967	4/22/1967

Upper Chattahoochee River Basin Fish species, July 2002

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Table 1. cont.

Site	Waterbody	Locality	Easting	Northing	County	No. of collections	First collection	Last collection
684	Cane Creek	Cane Creek at Co. Rte. 75 (Oak Grove Rd.; Jay Bird Rd.), 0.6 mi. WSW of junct. of St. Rte. 60, about 1.5 air miles NW of Dalhonega, GA city center.	774881.50772	3826844.38994	Lumpkin	5	10/20/1958	1/22/1992
685	Ward Creek	Ward's Creek , trib. of Yahoola Creek , 1.3 air miles NE of Dahlonega, GA city center.	778155.64537	3827008.30714	Lumpkin	1	3/26/1951	3/26/1951
686	Chattahoochee River	Chattahoochee R., 200 yds. above where the Soque enters NW Cornelia; approximately 4.4 air miles WSW of Demorest, GA city center.	810378.56334	3828189.33062	Habersham	1	6/4/1951	6/4/1951
689	Soque River	Soque River at State Route 105, ca 5.5 air mi NW of Cornelia, GA city center.	812792.24724	3830952.01876	Habersham	2	4/18/1967	4/18/1967
690	Chattahoochee River	Chattahoochee River Ga HWY 115 to SR 1759 (Habersham CR 389), 5.15 air miles WNW of Demorest, GA city center.	808745.41386	3831107.41554	White	1	6/28/1985	6/28/1985
692	Yellowbank Creek	Yellowbank Creek, Trib. of Soque R., 2.7 mi. E of Chatahoochee R. on Rt. 115; 3.9 air miles NW of Demorest, GA city center.	811130.94465	3832531.68199	Habersham	1	4/1/1950	4/1/1950
693	Unnamed Stream	Small trib. of Chesatee River, 6 air miles NE Dahlonega, GA city center.	783009.24545	3831874.89092	Lumpkin	1	5/8/1954	5/8/1954
694	Yellowbank Creek	Yellowbank Creek , trib. to Soque R., Hwy. 115 bridge, 4.3 air miles WSW of Clarksville, GA city center.	811947.87128	3833268.57103	Habersham	1	5/14/1969	5/14/1969

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Table 1. cont.

Site	Waterbody	Locality	Easting	Northing	County	No. of collections	First collection	Last collection
713	Dicks Creek	Dicks Creek trib. to Chestatee River, ca. 1.5 airmi. above mouth; 11.4 air miles NNE of Dahlonega, GA city center.	779216.05419	3843537.20300	Lumpkin	1	11/15/1968	11/15/1968
714	Bean Creek	Bean Creek near State Route 255; 8.9 air miles NE of Cleveland, GA city center.	805232.26813	3844691.94402	White	1	8/13/1957	8/13/1957
715	Unnamed Stream	Small unnamed stream on State Route 75; 0.5 mi. N of Helen, GA city center.	798592.53959	3845286.60942	White	1	8/13/1948	8/13/1948
716	Bean Creek	Bean Creek at Bean Creek Baptist Church Road (County Road 106); 8.9 air miles NE of Cleveland, GA city center.	803627.02348	3845696.65512	White	1	8/13/1957	8/13/1957
717	Smith Creek	Trib of [2] Chattahoochee River, at Robertstown, GA (plotted on Smith Creek).	798613.17184	3845575.91923	White	1	11/8/1956	11/8/1956
718	Chattahoochee River	Chattahoochee River, headwaters at State Route 105; 1.1 air miles NW of Helen, GA city center.	798054.04043	3845902.48457	White	2	8/13/1948	8/13/1948
719	Chattahoochee River	Chattahoochee River at Alternate State Route 75 bridge, 0.5 mi. N Robertstown, GA city center.	798039.80321	3846033.21065	White	1	4/24/1954	4/24/1954
720	Trib. to Chickamauga Creek	Trib. of Chickamauga Creek just above proposed SCS dam; 4.1 air miles ENE of Helen, GA city center.	805684.19742	3846978.52714	White	1	8/14/1957	8/14/1957
721	Blood Mountain Creek	Blood Mountain Creek 3.7 mi. by road from jct. of Dick's & Water's Creeks; 13.4 air miles NW of Cleveland, GA city center.	779144.33814	3845249.09588	Lumpkin	1	10/9/1958	10/9/1958

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Table 1. cont.

Site	Waterbody	Locality	Easting	Northing	County	No. of collections	First collection	Last collection
703	Chestatee River	Chestatee River at Frogtown Road (County Road 134); 8 air miles NNE of Dahlonega, GA city center.	784317.76202	3835301.83481	Lumpkin	2	4/25/1954	11/16/1996
704	Deep Creek	Deep Creek at CR 207 (Lovett Boyd Woods Rd); 1.6 air miles WNW of Hollywood, GA city center.	823059.60846	3840254.89667	Habersham	3	11/3/1993	10/24/1994
705	Chestatee River	Chestatee River at Turner's Corner (Jct. 19 and 129); 9.2 air miles NW of Cleveland, GA city center.	783962.59475	3840040.71341	Lumpkin	4	4/10/1947	11/16/1996
706	Dukes Creek	Dukes Creek, Trib. to Chattahoochee River at State Route 75, 1.0 air mile SW of Nacoochee, GA city center.	801108.47249	3841591.16715	White	4	8/26/1954	8/16/1962
707	Boggs Creek	Boggs Creek, Forest Rd. 443 at US HWY 19/129; 9.7 air miles NW of Cleveland, GA city center.	783861.99444	3841464.05540	Lumpkin	2	8/27/1954	11/10/1990
708	Dicks Creek	Dicks Creek along Forest Service Road 34-2, 0.5 road miles NW of Forest Service Road 144-1 (Waters Creek Road); 10.75 air miles NNE Dahlonega, GA city center.	780009.70831	3842425.79818	Lumpkin	3	10/17/1940	11/14/1996
709	Chattahoochee River	Chattahoochee River at State Route 17-75 at Nacoochee, GA.	801388.38649	3843278.38921	White	3	4/24/1954	4/23/1958
710	Dicks Creek	Dick's Creek 0.8 mi. above confluence of Water's Creek; 10.9 air miles NNE of Dahlonega, GA city center.	779779.10220	3842606.24930	Lumpkin	1	10/9/1958	10/9/1958

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Table 1. cont.

Site	Waterbody	Locality	Easting	Northing	County	No. of collections	First collection	Last collection
731	Right Fork Soque River	Soque River, Right Fork at Fred Wilson Rd. (County Road 250); 10.2 air miles WSW of Tiger, GA city center.	811131.40148	3855315.75192	Habersham	2	9/30/1958	5/6/1980
741	Dicks Creek	Dicks Creek, downstream Waters Creek confluence at Waters Creek Campground, 9.95 air miles NNE Dahlonega, GA city center.	782456.23551	3840121.76740	Lumpkin	1	11/14/1996	11/14/1996
742	Chestatee River	Chestatee River at County Road 41 (Copper Mine Road) 5.5 air miles E of Dahlonega, GA city center	785662.91049	3826839.02775	Lumpkin	1	11/13/1996	11/13/1996
743	Soquee River	Soquee River at State Route 197; approximately 4.3 air miles NNW Clarkesville, GA city center.	817710.03678	3842934.95829	Habersham	1	10/20/1996	10/20/1996
744	Chestatee River	Chestatee River upstream of County Road 190 (Garnett Bridge Road), approximately 6.0 air miles NE of Dahlonega, GA city center	785427.26869	3830738.16967	Lumpkin	1	11/13/1996	11/13/1996
745	Sautee Creek	Sautee Creek, at Alternate State Route 255; approximately 6 air miles ENE of Helen, GA city center.	809044.08776	3845620.34432	Habersham	3	10/22/1958	9/14/1996
792	Soquee River	Soquee River, near Chimney Mtn. Farm (County Road 325); approximately 8.0 air miles NE of Helen, GA city center.	809147.76450	3853337.30346	Habersham	1	9/30/1958	9/30/1958
793	Goshen Branch	Goshen Branch off of County Road 248 (Goshen Rd.); 8.3 air miles NE of Helen, GA city center.	809613.38714	3853486.97529	Habersham	1	10/13/1958	10/13/1958

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Table 1. cont.

Site	Waterbody	Locality	Easting	Northing	County	No. of collections	First collection	Last collection
722	Smith Creek	Smith Creek just below Unicoi Lake; 1.6 air miles NNE of Helen, GA city center.	799760.14015	3847285.30693	White	1	8/21/1959	8/21/1959
723	Chickamauga Creek	Chickamauga Creek 1 mi. above State Route 255; 4.5 air miles NE of Helen, GA city center.	806318.91495	3847061.03772	White	1	10/22/1958	10/22/1958
724	Spoilcane Creek	Spoilcane Creek at jct. with Chattahoochee River at State Route 75; 6.6 miles S of Towns-White Co. line; 2.1 air miles NW of Helen, GA city center.	797457.12819	3847421.76776	White	1	8/16/1962	8/16/1962
725	Soque River	Soque River at Watt's Mill on State Route 197; 9 air miles N of Clarksville, GA city center.	812684.15614	3848292.78642	Habersham	4	4/3/1949	10/9/1979
726	Chattahoochee River	Chattahoochee River at Mgmt. Area Boundary; 2.9 air miles NW of Helen, GA city center.	796269.74084	3848423.00884	White	2	8/21/1959	8/21/1959
727	Soque River	Soque River, 3/4 mi. upstream from Watts' Mill; 9.5 air miles NW of Clarkesville, GA city center.	811539.70479	3849258.07480	Habersham	1	10/21/1958	10/21/1958
728	Chattahoochee River	Chattahoochee River 3.6 air miles NW of Helen, GA city center.	795467.05684	3849069.50968	White	1	10/21/1940	10/21/1940
729	Spoilcane Creek	Spoilcane Creek 3/4 mi. above its mouth; 3 air miles NNW of Helen, GA city center.	797527.07696	3849177.93684	White	1	10/8/1958	10/8/1958
730	Spoilcane Creek	Spoilcane Creek 1 mi. upstream from Chattahooshee Mgmt. Area Boundary; 3.5 air miles NNW of Helen, GA city center.	797523.36277	3850132.41588	White	1	10/8/1958	10/8/1958

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Table 1. cont.

Site	Waterbody	Locality	Easting	Northing	County	No. of collections	First collection	Last collection
820	Raper Creek	Raper Creek at CR 418; 10.3 air miles NW of Clarkesville, GA city center.	812799.82266	3851324.94741	Habersham	1	10/13/1958	10/13/1958
822	Chattahoochee River	Chattahoochee River ca. 1 mile downstream (South) of State Route 115 bridge crossing; 7.5 air miles ESE Cleveland, GA city center.	809279.49846	3829941.00449	Habersham/ White	4	10/24/1963	8/28/1998
823	Unnamed trib. to Little Mud Creek	Unnamed trib. to Little Mud Creek on US 23 / SR 365; 2.9 mi. SW of Cornelia, GA city center.	814469.59754	3822601.92066	Habersham	1	6/8/1952	6/8/1952
824	Lake Sydney Lanier	Lake Sydney Lanier near Flowery Branch (plotted approximately 3.4 air miles WNW of Flowery Branch, GA city center).	778031.05142	3788367.53369	Hall	1	7/9/1958	7/9/1958
825	Trib. to trib. to trib. of Yellow Creek	Trib. to trib. to trib. of Yellow Creek on Rt. 249; 12.6 air miles NNW of Gainesville, GA city center.	780105.08153	3815836.42177	Lumpkin	1	3/26/1951	3/26/1951
826	Jarrard Creek	Jarrard Creek at Stone Pile Gap Road (CR 84); 6.6 air miles NNE of Dahlonega, GA city center.	778110.82042	3835894.48341	Lumpkin	3	5/8/1954	9/11/1954
827	Chestatee River	Chestatee River near Tate Bridge (CR 134); 8.5 air miles WNW of Cleveland, GA city center.	783710.14346	3836609.65163	Lumpkin	1	4/24/1958	4/24/1958
828	Chestatee River	Chestatee River at Roy Grindle Rd. (CR 49); approximately 7 air miles E of Dahlonega, GA city center.	787149.01343	3828950.59594	Lumpkin	1	5/15/1958	5/15/1958

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Table 1. cont.

Site	Waterbody	Locality	Easting	Northing	County	No. of collections	First collection	Last collection
800	Fourmile Creek	Fourmile Creek, 1.4 miles up from State Route 369 bridge, approximately 2 air miles SW of Chestatee, GA city center.	775121.82140	3795883.16964	Forsyth	1	6/19/1990	6/19/1990
801	Lake Sidney Lanier	Lake Sidney Lanier, Fourmile Creek Arm; approximately 7 air miles ENE of Cumming, GA city center.	775031.71484	3792708.80605	Forsyth	1	6/23/1962	6/23/1962
803	Trib. of Soque River	Trib. of Soque R., 3 air miles NE of Clarkesville, GA city center.	819379.06277	3840561.59352	Habersham	1	4/9/1947	4/9/1947
813	Soque River	Branch of Soque River, State Route 17, 7 air miles NW of Clarksville, GA city center.	814247.50394	3846215.76480	Habersham	1	10/5/1967	10/5/1967
814	South Branch Mud Creek	South Branch Big Mud Creek off of CR 42 (Jess Ivey Rd.), 2.9 air miles NW of Cornelia, GA city center.	814637.70250	3826186.87509	Habersham	1	5/24/1951	5/24/1951
816	Sautee Creek	Sautee Creek at site of SCS dam; 8.1 air miles NW of Clarkesville city center.	810130.70497	3845815.12259	Habersham	1	8/14/1957	8/14/1957
817	Chickamauga Creek	Chickamauga Creek above site of SCS dam; 5.75 air miles NE of Helen, GA city center.	806934.84697	3850155.62112	White	1	8/14/1957	8/14/1957
818	Chickamauga Creek	Chickamauga Creek just below site of SCS dam; 5.5 air miles NE of Helen, GA city center.	806764.79598	3849791.04551	White	1	8/14/1957	8/14/1957
819	Raper Creek	Raper Creek at Wikle Store, GA; 11.2 air miles NW of Clarkesville, GA city center.	812109.23721	3852518.03404	Habersham	1	10/13/1958	10/13/1958

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Table 1. cont.

Site	Waterbody	Locality	Easting	Northing	County	No. of collections	First collection	Last collection
838	Tesnatee Creek	Tesnatee Creek off of County Road 46 (Slabton Rd.); 6.25 air miles SW of Cleveland, GA city center.	787758.02487	3829013.24200	White	1	12/13/1979	12/13/1979
839	Smith Creek	Smith Creek ca. 200 yards above higher falls of Anna Ruby Falls, 2 miles north of Unicoi State Park; approximately 4.7 air miles NNE of Helen, Ga city center.	801007.93316	3852162.21650	White	1	10/6/1968	10/6/1968
840	Blue Creek	Blue Creek (plotted at State Highway 255; approximately 3 air miles E of Cleveland city center)	801618.57377	3833652.47350	White	1	9/25/1959	9/25/1959
841	Chattahoochee River	Chattahoochee River at Nora Mills; 1.4 air miles SE Helen, GA city center.	801295.82558	3843627.25557	White	3	6/26/1950	5/17/1994
842	Chattahoochee River	Chattahoochee River at Ga. Hwy. 75, 1.70 air miles SSE the center of Helen, GA city center.	801265.81165	3842805.51887	White	1	5/17/1994	5/17/1994
843	Jasus Creek	Jasus Creek (plotted at FS road 52; Chattahoochee River Rd.; 4.95 air miles NW of Helen, GA city center).	794563.28568	3851032.93655	White	1	10/6/1958	10/6/1958
844	Low Gap Creek	Low Gap Creek (plotted at FS 52; Chattahoochee River Rd.; 4.5 air miles NW of Helen, GA city center).	794535.55877	3850137.93958	White	1	10/7/1958	10/7/1958
845	McClure Creek	McClure Creek 0.25 miles upstream from Sky Lake Rd (CR 103) bridge; 5.1 air miles NE of Helen, GA city center.	805820.74777	3849829.67871	White	1	10/22/1958	10/22/1958

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Table 1. cont.

Site	Waterbody	Locality	Easting	Northing	County	No. of collections	First collection	Last collection
829	Chattahoochee River	Chattahoochee River at Bellton Bridge (CR 943); 4 mi upstream from Ga Hwy 52 bridge (Station #2); approximately 3.8 air miles NNW Lula, GA city center.	805407.40104	3816768.84243	Hall	1	6/18/1958	6/18/1958
830	Cane Creek	Cane Creek; 1.6 air miles WSW of Dahlonega, GA city center.	774633.68402	3823535.56851	Lumpkin	1	4/10/1947	4/10/1947
833	Cane Creek	Cane Creek at bridge on Hidden Acres Road; (plotted approximately 3 air miles NW of Dahlonega, GA city center).	773816.22341	3829108.84356	Lumpkin	1	10/20/1958	10/20/1958
834	Chestatee River	Chestatee River at mouth of unnamed creek; approx. 9 air miles NW of Dahlonega, GA city center.	784097.91292	3839562.64003	Lumpkin	1	8/26/1939	8/26/1939
835	Clay Creek	Clay Creek, at Co. Rte. 81 (Clay Creek Falls Rd.), 0.9 mi. NW of junct. of St. Rte. 9, 2.5 air miles WNW of Dalhonega, GA city center.	772905.49689	3826048.89283	Lumpkin	1	1/22/1992	1/22/1992
836	Waters Creek	Waters Creek, trib. to Dicks Cr., trib. to Chestatee R., 6.1 airmi SW of White - Union county line, Forest Service Road 144-1; 11.6 air miles NW of Cleveland, GA city center.	780211.90482	3841422.34945	Lumpkin	1	11/15/1968	11/15/1968
837	Yahoola Creek	Yahoola Creek at US Hwy.19/ GA Hwy 9/ GA Hwy 60; 2.4 air miles NNW of Dahlonega, GA city center.	776018.81739	3828898.21690	Lumpkin	2	6/21/1965	4/16/1966

Table 2. List of fish species chosen for distribution study.

Scientific name	Common name	Federal* status	State* status
Nocomis micropogon	river chub	NL	NL
Hybopsis sp. cf. H. winchelli	coastal chub	NL	NL
Cyprinella callitaenia	bluestripe shiner	SOC	T
Notropis hypsilepis	highscale shiner	SOC	T
Notropis leuciodus	Tennessee shiner	NL	NL
Notropis longirostris	longnose shiner	NL	NL
Notropis xaenocephalus	Coosa shiner	NL	NL
Micropterus cataractae	shoal bass	SOC	NL
Percina sp. cf. P. palmaris	Halloween darter	SOC	NL
Percina nigrofasciata	blackbanded darter	NL	NL

* E = endangered; T= threatened; SOC = species of concern; NL= not listed.

Table 1. cont.

Site	Waterbody	Locality	Easting	Northing	County	No. of collections	First collection	Last collection
846	McClure Creek	McClure Creek at State Highway 356; 5.3 air miles NE of Helen, GA city center.	805733.25496	3850491.85849	White	1	9/25/1959	9/25/1959

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Table 3. cont.

Site	Waterbody	Drainage Area	river chub	coastal chub	bluestripe shiner	highscale shiner	Tennessee shiner	longnose shiner	Coosa shiner	shoal bass	Halloween darter	blackbanded darter
693	Unnamed Stream	282.0	0	0	0	0	0	0	0	0	0	4
694	Yellowbank Creek	860.0	0	0	0	0	0	0	0	0	0	0
695	Trib of Tesnatee Creek	134.0	0	0	0	0	0	0	0	0	0	0
696	Yahoola Creek	3435.4	0	0	0	0	0	0	0	0	0	0
697	Tesnatee Creek	2269.9	0	0	0	0	0	0	6	0	0	57
698	Soquee River, tributary	14.9	0	0	0	0	0	0	0	0	0	8
699	Chestatee River, tributary	15.9	0	0	0	0	0	0	0	0	0	12
700	Sutton Mill Creek	3533.5	0	0	0	6	0	0	0	0	0	7
701	Yahoola Creek	3409.6	0	0	0	0	0	0	0	0	0	0
702	Unnamed trib. to Soquee River	235.3	0	0	0	0	0	0	0	0	0	12
703	Chestatee River	384.0	0	0	0	0	1	0	0	0	13	47
704	Deep Creek	4197.6	0	0	0	1	0	0	0	0	0	83
705	Chestatee River	8277.8	0	0	0	0	1	0	10	0	3	85
706	Dukes Creek	5094.3	0	0	0	0	0	0	0	0	0	16
707	Boggs Creek	1996.7	0	0	0	0	24	0	0	0	0	15
708	Dicks Creek	2260.4	0	0	0	0	0	0	0	0	0	0
709	Chattahoochee River	12347.2	0	0	0	0	0	0	0	0	0	6
710	Dicks Creek	1969.2	0	0	0	0	0	0	0	0	0	0
713	Dicks Creek	1691.6	0	0	0	0	0	0	0	0	0	2
714	Bean Creek	867.6	0	0	0	0	0	0	0	0	0	4
715	Unnamed Stream	370.4	0	0	0	0	0	0	0	0	0	4
716	Bean Creek	462.1	0	0	0	0	0	0	0	0	0	0
717	Smith Creek	2608.4	0	0	0	0	0	0	0	0	0	0
718	Chattahoochee River	8377.2	0	0	0	0	0	0	0	0	0	2
719	Chattahoochee River	8280.0	0	0	0	0	0	0	0	0	0	35
720	Trib. to Chickamauga Creek	716.5	0	0	0	0	0	0	0	0	0	6

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Table 3. Total numbers of selected fish species at collection sites in the Upper Chattahoochee River Basin.

Site	Waterbody	Drainage Area	river chub	coastal chub	bluestripe shiner	highscale shiner	Tennessee shiner	longnose shiner	Coosa shiner	shoal bass	Halloween darter	blackbanded darter
9	Tesnatee River	2128.0	0	0	0	0	0	0	0	0	0	0
304	Turner Creek	2233.0	0	0	0	0	0	0	0	0	0	64
662	Lake Sidney Lanier	268412.2	0	0	0	0	0	0	0	0	0	0
664	Lake Sidney Lanier	2398.3	0	0	0	0	0	0	0	0	0	0
665	Lake Sidney Lanier	518.3	0	0	0	0	0	0	0	0	0	0
667	Lake Sidney Lanier	4883.2	0	0	0	0	0	0	0	0	0	0
668	West Fork Little River	4743.0	0	0	0	0	0	142	0	0	0	148
669	Hagen Creek	1229.7	0	0	0	0	0	0	0	0	0	0
670	Chestatee River	61965.8	0	0	4	0	0	0	0	0	0	5
671	East Fork of the Little River	2086.8	0	0	0	0	0	0	0	0	0	0
672	Little Mud Creek	4935.9	0	0	5	0	0	3	0	0	0	4
673	Chestatee River	40196.4	0	0	0	0	0	4	0	2	1	68
674	Chestatee River	49201.9	0	0	0	9	0	4	0	0	0	22
675	Mossy Creek	7170.0	0	0	0	0	0	0	0	0	0	78
677	Chestatee River	39101.4	0	0	3	4	0	5	0	0	0	12
678	Cane Creek	5625.9	0	4	0	1	0	1	0	0	0	81
679	Chestatee River	39060.1	0	0	0	0	0	0	0	0	0	0
680	Yahoola Creek	8124.3	0	12	0	0	0	0	0	0	0	85
681	Mossy Creek	4355.4	0	0	1	0	0	0	0	0	0	15
682	White Creek	2147.7	0	0	0	0	0	0	0	0	0	24
683	Shoals Creek	1553..3	0	0	0	0	0	0	0	0	0	0
684	Cane Creek	2935.1	7	0	0	0	0	0	0	0	0	16
685	Ward Creek	1615.9	0	0	0	0	0	0	0	0	0	11
686	Chattahoochee River	40284.7	0	0	0	0	0	0	0	0	0	29
689	Soque River	40273.9	0	0	0	0	0	0	0	0	0	0
690	Chattahoochee River	39209.0	0	0	0	7	0	0	0	0	0	10
692	Yellowbank Creek	194.1	0	0	0	0	0	0	0	0	0	0

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Table 3. cont.

Site	Waterbody	Drainage Area	river chub	coastal chub	bluestripe shiner	highscale shiner	Tennessee shiner	longnose shiner	Coosa shiner	shoal bass	Halloween darter	blackbanded darter
820	Raper Creek	958.7	0	0	0	0	0	0	0	0	0	10
822	Chattahoochee River	39871.0	0	0	22	0	0	0	0	0	1	190
823	Unnamed trib. to Little Mud Creek	62.1	0	0	0	0	0	0	0	0	0	0
824	Lake Sydney Lanier	2356.7	0	0	0	0	0	0	0	0	0	0
825	Trib. to trib. to trib. of Yellow Creek	65.4	0	0	0	0	0	0	0	0	0	3
826	Jarrard Creek	207.5	0	0	0	0	0	0	1	0	0	24
827	Chestatee River	10480.6	0	0	0	0	0	0	8	0	0	4
828	Chestatee River	16203.4	0	0	0	0	0	0	0	0	0	2
829	Chattahoochee River	97172.3	0	0	2	0	0	0	0	0	0	1
830	Cane Creek	6308.7	0	0	0	0	0	0	0	0	0	5
833	Cane Creek	2380.2	0	0	0	0	0	0	0	2	0	0
834	Chestatee River	8795.7	0	0	0	0	0	0	0	0	0	14
835	Clay Creek	2065.8	0	0	0	0	0	0	0	0	0	9
836	Waters Creek	1357.0	0	0	0	0	0	0	0	0	0	0
837	Yahoola Creek	5766.9	0	0	0	0	0	0	0	0	0	45
838	Tesnatee Creek	18498.2	0	0	0	0	0	0	0	0	0	25
839	Smith Creek	410.3	0	0	0	0	0	0	0	0	0	0
840	Blue Creek	1138.6	0	0	0	0	0	0	0	0	0	0
841	Chattahoochee River	12337.7	0	2	0	0	0	0	0	0	1	23
842	Chattahoochee River	12520.3	0	0	3	0	0	0	0	0	0	11
843	Jasus Creek	490.3	6	0	0	0	0	0	0	0	0	0
844	Low Gap Creek	1399.5	0	0	0	0	0	0	0	0	0	3
845	McClure Creek	1276.4	0	0	0	0	0	0	0	0	0	3
846	McClure Creek	850.8	0	0	0	0	0	0	0	0	0	0

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Table 3. cont.

Site	Waterbody	Drainage Area	river chub	coastal chub	bluestripe shiner	highscale shiner	Tennessee shiner	longnose shiner	Coosa shiner	shoal bass	Halloween darter	blackbanded darter
721	Blood Mountain Creek	374.8	0	0	0	0	0	0	0	0	0	0
722	Smith Creek	2222.4	0	0	0	0	0	0	0	0	0	4
723	Chickamauga Creek	3521.9	0	0	0	0	0	0	0	0	0	4
724	Spoilcane Creek	2109.9	0	0	0	0	0	0	0	0	0	7
725	Soque River	5655.7	0	0	0	0	0	0	0	0	0	70
726	Chattahoochee River	5177.3	0	0	0	0	0	0	0	0	0	4
727	Soque River	5381.9	0	0	0	0	0	0	0	0	0	3
728	Chattahoochee River	4906.1	0	0	0	0	0	0	0	0	0	5
729	Spoilcane Creek	1902.3	0	0	0	0	0	0	0	0	0	13
730	Spoilcane Creek	1811.3	0	0	0	0	0	0	0	0	0	2
731	Right Fork Soque River	1705.9	0	0	0	0	0	0	0	0	0	5
741	Dicks Creek	4200.1	0	0	0	0	0	0	0	1	0	29
742	Chestatee River	35589.8	0	0	0	0	0	0	0	0	131	21
743	Soquee River	13419.2	0	0	0	0	0	0	0	0	0	34
744	Chestatee River	14641.3	0	0	0	0	0	0	0	1	29	20
745	Sautee Creek	2063.2	0	0	0	0	0	0	0	0	6	18
792	Soquee River	1598.9	0	0	0	0	0	0	0	0	0	12
793	Goshen Branch	202.0	0	0	0	0	0	0	0	0	0	10
800	Fourmile Creek	1117.2	0	0	0	0	0	0	0	0	0	0
801	Lake Sidney Lanier	2360.8	0	0	0	0	0	0	0	0	0	0
803	Trib. of Soque River	175.2	0	0	0	0	0	0	0	0	0	1
813	Soque River	8795.1	0	0	0	0	0	0	0	0	0	0
814	South Branch Mud Creek	674.9	0	0	0	0	0	0	0	0	0	5
816	Sautee Creek	674.5	0	0	0	0	0	0	0	0	0	10
817	Chickamauga Creek	703.7	0	0	0	0	0	0	0	0	0	4
818	Chickamauga Creek	847.7	0	0	0	0	0	0	0	0	0	2
819	Raper Creek	865.3	0	0	0	0	0	0	0	0	0	15

Prioritization of Watersheds in the Upper Chattahoochee River Basin for Preservation of Sensitive Fish and Crayfish Species

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November 19, 2003

0075

Introduction

The Upper Chattahoochee River Basin above Lake Lanier supports several species of fishes and crayfishes that are limited in distribution and sensitive to habitat degradation. Although none of these species are currently considered endangered, we believe that unchecked urbanization, poor agricultural practices and other human activities threaten the long-term survival of these organisms. In contrast, a program of land preservation, growth management and other proactive approaches can ensure the persistence of healthy populations of these sensitive species. These efforts should be targeted at priority watersheds where they can have the greatest effect at the most reasonable cost. The purpose of this study is to identify those priority watersheds.

This is the final component of a three-part project. We previously reported on the results of the other components, which involved (1) a review of historic collection records of target fish and crayfish species, and (2) a series of field surveys for fishes and crayfishes to increase our understanding of the distribution of these species.

Note: In this report, the terms "Upper Chattahoochee Basin" and "Upper Chattahoochee" refer to the portion of the Chattahoochee basin that drains to Lake Lanier.

Priority Aquatic Species

At the outset of this project, we identified ten fish species of interest in the Upper Chattahochee (Table 1). With the exception of the blackbanded darter, these were selected because they were endemic to the system, have some federal or state status as imperiled species, or are greatly restricted in range. Evaluation of museum specimens revealed that one of these species, the river chub (*Nocomis micropogon*) was erroneously identified in historic collections. We now believe that this species does not and never has occurred in the Upper Chattahoochee, and have therefore removed it from the list of species of interest. The blackbanded darter (*Percina nigrofasciata*) was included solely because of possible historic misidentification with the closely related Halloween darter (see below). It is not considered a species of interest in and of itself. The remaining eight species are priorities for management and protection in the Upper Chattahoochee: the Halloween darter (*Percina* sp. cf. *P. palmaris*),

the bluestripe shiner (*Cyprinella callitaenia*), the shoal bass (*Micropterus cataractae*) the Coosa shiner (*Notropis xaenocephalus*), the Tennessee shiner (*Notropis leuciodus*), the longnose shiner (*Notropis longirostrus*), the highscale shiner (*Notropis hypsilepis*) and the coastal chub (*Hybopsis* sp. cf. *H. Winchelli*). In addition, one species of crayfish, *Cambarus howardii*, is endemic to the Upper Chattahoochee and is also considered a priority.

The Halloween darter and the bluestripe shiner are considered federal species of concern, designations that are merited considering their limited distributions and apparent declines in population from historic levels. We consider these two species to be the most imperiled aquatic organisms in the basin. The shoal bass is also listed as a species of concern because it is endemic to the Chattahoochee system, although it is abundant across its native range and has been introduced elsewhere. Both the Coosa shiner and the Tennessee shiner populations are disjunct from the general distributions of those species. This could be a result of bait-bucket introductions, or a product of stream capture, or it could represent a decline in range ("stream capture" is when a stream shifts from one basin to another as a result of a geologic event that changes topography). If either of the latter two explanations prove true, then it is possible that the Coosa shiner and Tennessee shiner populations represent genetically distinct forms. The highscale shiner is limited to the Appalachicola River Basin, except for a small population in the upper Savannah, and has only been found in low abundances. The longnose shiner and the coastal chub also have limited ranges and may be sensitive to disturbance. In previous reports, we provided a summary of known historic collections of these species and the results of new collections made in 2003. The distributions of these eight fish species and one crayfish species form the basis of the prioritization scheme presented in this report.

Threats to Aquatic Species in the Upper Chattahoochee

Urbanization

The Upper Chattahoochee region of North Georgia is growing rapidly. Every county in which the Upper Chattahoochee basin occurs has sustained a population growth from 1990 to 2000 exceeding the state average of 26.4% and the federal average of 13.1% (Table 2; U.S. Census Bureau 2003). This trend is expected to continue. Currently, the land area covered by urban uses is small: based on 1998 classified satellite imagery only 4.1% of the total is in strictly urban uses. However, the amount of urban and suburban land is expected to increase, with

corresponding decreases in forest cover (Table 3; NARSAL 2001). This is likely to emerge as a significant threat to fish and crayfish species. Effects of urbanization on streams include:

- Erosion and sedimentation from construction sites
- Increased turbidity
- Alteration of flows due to stormwater runoff
- Increased water temperature from stormwater runoff
- Chemical pollutants
- Excess nutrients

Each of these can have detrimental impacts on sensitive fish and crayfish species.

Fragmentation: Impoundments and Road Crossings

Populations of aquatic organisms that are fragmented are more vulnerable to extinction. Isolation can lead to genetic conditions that may reduce fitness, and barriers may prevent recolonization if a subpopulation is extirpated. The two most common barriers are impoundments (reservoirs) and road crossings. Impoundments range from farm ponds and amenity lakes to drinking water reservoirs and flood-control dams. The number of reservoirs in the Upper Chattahoochee Basin is unknown, but undoubtedly is in the hundreds. The largest, of course, is Lake Lanier, which divided the upper basin into western and eastern watersheds, with the Chestatee and Tesnatee River systems in the west and the Chattahoochee, Sautee, and Soque Rivers in the east (Figure 1). For many lotic (stream and river) species, the lentic waters of Lake Lanier are severely hostile environments that constitute a nearly complete barrier to movement. Therefore, the eastern and western watersheds of the Upper Chattahoochee River Basin must be considered separate management areas, with distinct populations of fishes and crayfishes.

Road crossings vary in the degree to which they block movement of aquatic species. Perched pipe culverts may completely block upstream movement for fishes (although some crayfish may cross them), while freespan bridges generally do not pose a barrier. Box culverts are usually intermediate in their effects. Road crossings are ubiquitous, even in forested landscapes (for logging roads), but naturally increase in density with urbanization.

Agriculture & Forestry

Approximately 13.6% of the Upper Chattahoochee Basin is in agricultural uses, of which pasture is the dominant form in terms of land area (Table 3, NARSAL 2001). Poultry production is the dominant agricultural practice in terms of farm income (Boatright and Bechtel 2002), and a

significant amount of the pasture land may be used for spreading poultry litter. Row cropping is relatively rare (Boatright and Bechtel 2002). Some agricultural practices can lead to eutrophication, sedimentation where cattle access streams, pollution from agrichemicals and animal pharmaceuticals and other deleterious effects.

The majority of the basin (63.1%) is in forest cover. Much of this is the Chattahoochee National Forest, but much is in private ownership as well. Forestry generally has lower, shorter-term impacts to streams than urban uses and agriculture, although poor logging practices can cause considerable erosion and sedimentation. According to Frank Green of the Georgia Forestry Commission, the most frequent violations of Best Management Practices are for those involving Streamside Management Zones (personal communication).

Prioritization methods

Prioritization was performed at the scale of 12-digit HUCs (Hydrologic Unit Codes), the finest-scale watersheds delineated by the USGS (Figure 1). The proposed prioritization scheme takes into consideration the distribution of target species, land cover and road crossings. It gives highest priority to watersheds that support target species, are well-forested and have few road crossings. Table 4 summarizes the prioritization scheme. The methodology was based on an approach we used to prioritize watersheds in the Etowah Basin, now used as a guide for stream mitigation by the U.S. Fish and Wildlife Service (Freeman and Wenger 2000).

Watersheds that support the Halloween darter and the bluestripe shiner are given high priority, since we consider these to be the two most imperiled species in the Upper Chatahoochee. Watersheds that support other target species are scored according to the number of other species present. Figure 2 shows the relative scores for watersheds based on the presence of target species. Watersheds upstream of those supporting target species are also weighted highly, because they provide connections for the populations and because protecting these will protect habitat downstream.

Because forested landscapes generally support healthier streams than agricultural and urban ones, we scored watersheds according to proportion forest cover. Because urban uses are the most detrimental (per unit area), we also scored watersheds in inverse proportion to the density of roads, which we used as a surrogate for impervious cover and therefore urbanization. We also scored watersheds based on the density of road crossings. Figure 3 shows the relative scoring for watersheds based on these three factors.

A factor we considered, but rejected, was the proportion of land currently under protection for some type of conservation purpose. It can be argued that preservation efforts should target watersheds with existing protected areas to build onto and enhance the benefit of these preserves; on the other hand, it can be argued that unprotected high quality areas should be priorities because they are at greatest risk of land conversion. Both arguments have merit. In addition, it is worth noting that although large areas of the Upper Chattahoochee are in government ownership, mostly in the form of National Forest lands, this does not necessarily equate to protection. We have decided that the most prudent course is not to consider the conservation status of lands in this prioritization scheme. In this approach, all watersheds with populations of imperiled species and low amounts of urbanization are priorities. Unprotected areas within these watersheds warrant preservation, and lands with some form of conservation status warrant permanent protection.

We also considered water quality and stream impairment. We examined the 303d list of waters that do not meet their designated uses, considering whether to use this as a factor in stream prioritization. We rejected this for two reasons. First, there is not a consistent scientific method for surveying and identifying impaired streams. Thus, while it is likely that all listed streams are truly impaired, it is unknown whether most unlisted streams are impaired or not. Second, the number and length of impaired streams is very small compared to the total stream length in any watershed. Impairment of 1.0% of streams in a watershed rather than 0.5% of streams is probably not a strong indicator of the overall health of the aquatic system.

Results

The highest scoring watersheds can be grouped geographically into three areas:

- The Chestatee system in the west (HUCs 501, 502, 601), along with the neighboring Cane Creek watershed (HUC 603).
- The Soquee River (HUCs 201, 202).
- The Chattahoochee mainstem headwaters (HUCs 102 and 106, as well as 101, 102, 103, 105)

Of secondary priority are Mossy Creek (HUC 302), Mud Creek (HUC 303), Flat Creek (HUC 304), Little River (HUC 402 and 403) and the remainder of the Chestatee system (HUCs 602, 604 and 701). The other watersheds are considered medium-low and low priority.

Table 1. Priority species for conservation in the Upper Chattahoochee Basin.

Common Name	Species
River Chub	*Nocomis micropogon*
Blackbanded Darter	*Percina nigrofasciata*
Halloween Darter	*Percina* sp. cf. *P. Palmaris*
Bluestripe Shiner	*Cyprinella callitaenia*
Shoal Bass	*Micropterus cataractae*
Coosa Shiner	*Notropis xaenocephalus*
Tennessee Shiner	*Notropis leucoidus*
Longnose Shiner	*Notropis longirostrus*
Highscale Shiner	*Notropis hypsilepis*
Coastal Chub	*Hybopsis* sp. cf. *H. winchelli*
Chattahoochee Crayfish	*Cambarus howardii*

Table 2. Population growth from 1990-2000 in the six main counties of the Upper Chattahoochee River basin (U.S. Census Bureau 2003).

	Population		Growth: % change	
County	1990	2000	4/1/2000-7/1/2001	1990-2000
Dawson	9,429	15,999	7.4	69.7
Forsyth	44,083	98,407	12.1	123.2
Habersham	27,621	35,902	3.5	30.0
Hall	95,428	139,277	4.6	45.9
Lumpkin	14,573	21,016	4.0	44.2
White	13,006	19,944	6.2	53.3

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Table 3. 18-class land cover classification (NARSAL 2001) of the Upper Chattahoochee basin above and draining to Lake Sydney-Lanier.

Land cover classification	% of the basin	Acres (hectares)
Beaches/Dunes/Mud	0.1	564.2 (228.3)
Open water	6.1	40,192.1 (16,265.2)
Transportation	7.3	48,445.2 (19,605.1)
Utility swaths	0.3	1,698.4 (687.3)
Urban types:	4.1	26,792.3 (10,842.5)
Low intensity urban	*3.2*	*21,108.6 (8,542.3)*
High intensity urban	*0.9*	*5,683.7 (2,300.1)*
Clearcut/Sparse	5.3	35,030.5 (14,176.3)
Quarries/Strip mines	0.0	279.3 (113.0)
Rock outcrop	0.0	284.2 (115.0)
Forest types:	63.1	418,309.1 (169,283.7)
Deciduous forest	*39.0*	*258,735.7 (104,706.6)*
Evergreen forest	*12.2*	*80,891.9 (32,735.8)*
Mixed forest	*11.9*	*78,681.5 (31,841.3)*
Golf courses	0.1	946.7 (383.1)
Pasture	13.0	86,153.3 (34,865.0)
Row crop	0.6	3,997.5 (1,617.7)
Forested wetland	0.1	570.2 (230.8)
	Total area	663,261 (268,412)

Table 4. Prioritization baseline scoring using data extracted from GIS coverages. Watersheds with a cumulative score of <10 rate “Low”, 10-13 rate “Medium Low”, 14-18 rate “Medium High”, and scores at 19 or above rate “High”.

Category	Description	Scoring		
High-priority fishes	Watersheds that support known populations of Halloween darters or bluestripe shiners.	3 points for each species		
Other target species	Watersheds that support known populations of other target species.	1 point for each species		
		1 pt	3 pts	5 pts
Proportion Forested	Proportion of the watershed forested as of 1998 (NARSAL 2001).	≤ 40%	41-74%	≥ 75%
Road Crossings	Density of road crossings (based on 1998 1:24,000 DOT roads and 1998 1:24,000 USGS hydroline streams).	>8	5-8	<5
Road Density	Density of roads in each watershed (surrogate for amount of impervious surface; based on 1998 1:24,000 DOT roads).	≥ 2.0	1.6-1.9	≤ 1.5
Connectivity for Imperiled Fish/Crayfish	Distance (counted in the number of watersheds) downstream to nearest watershed with an imperiled species or a species of concern.	≥ 3	2	≤ 1

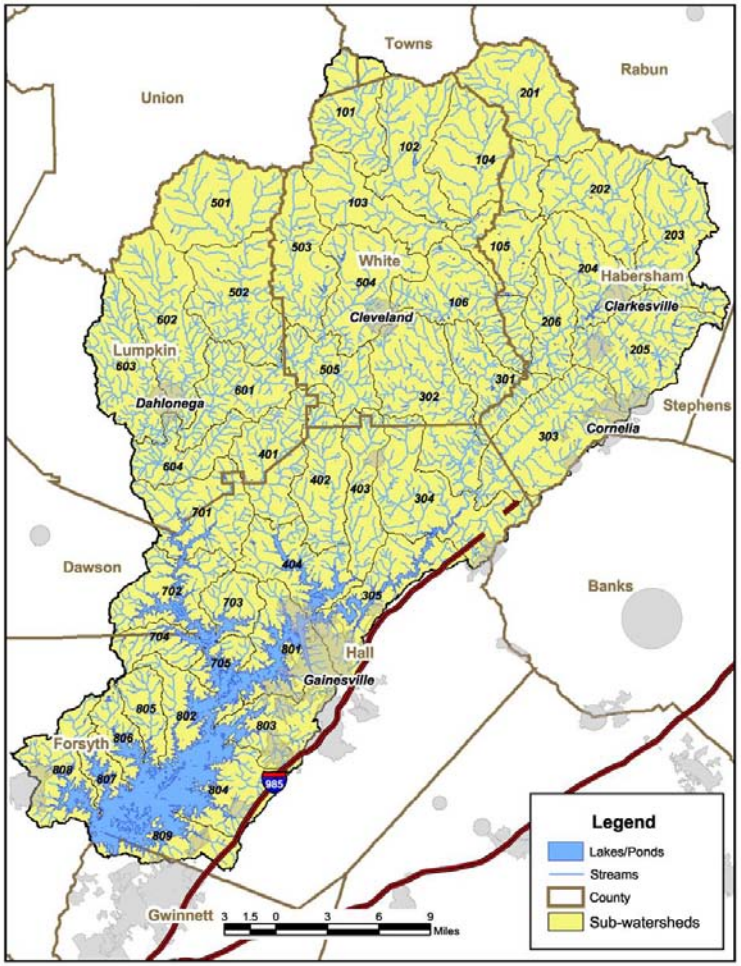

Figure 1. Locations and identification numbers of the HUC-12 watersheds of the Upper Chattahoochee River above Lake Lanier.

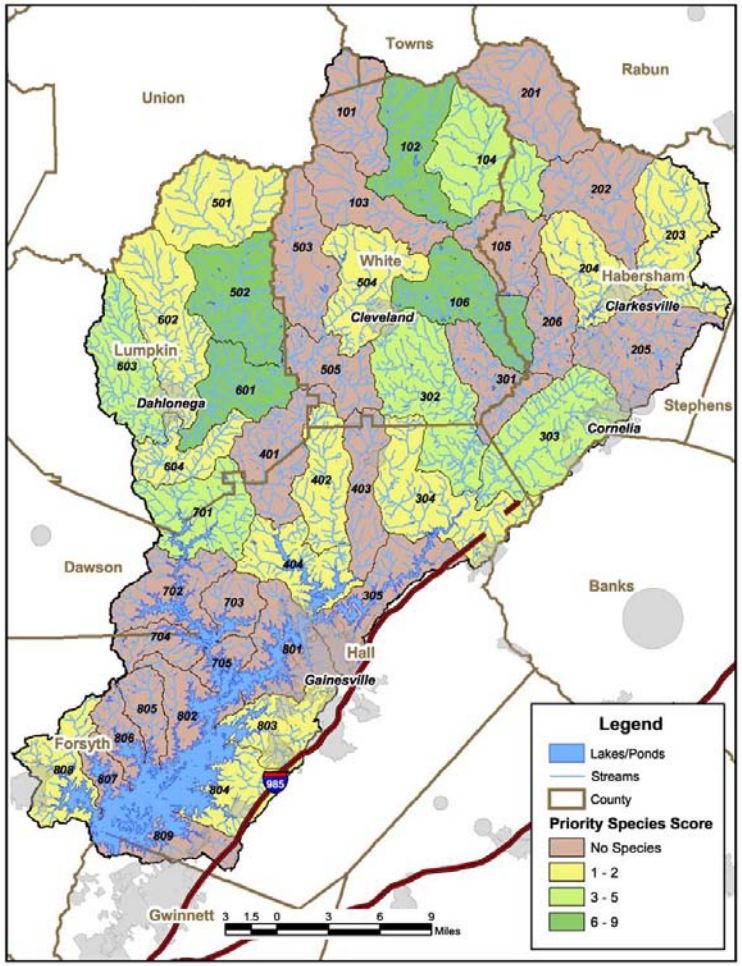

Figure 2. Fish distribution scores for subwatersheds. Numbers on map are abbreviated HUC-12 ID codes.

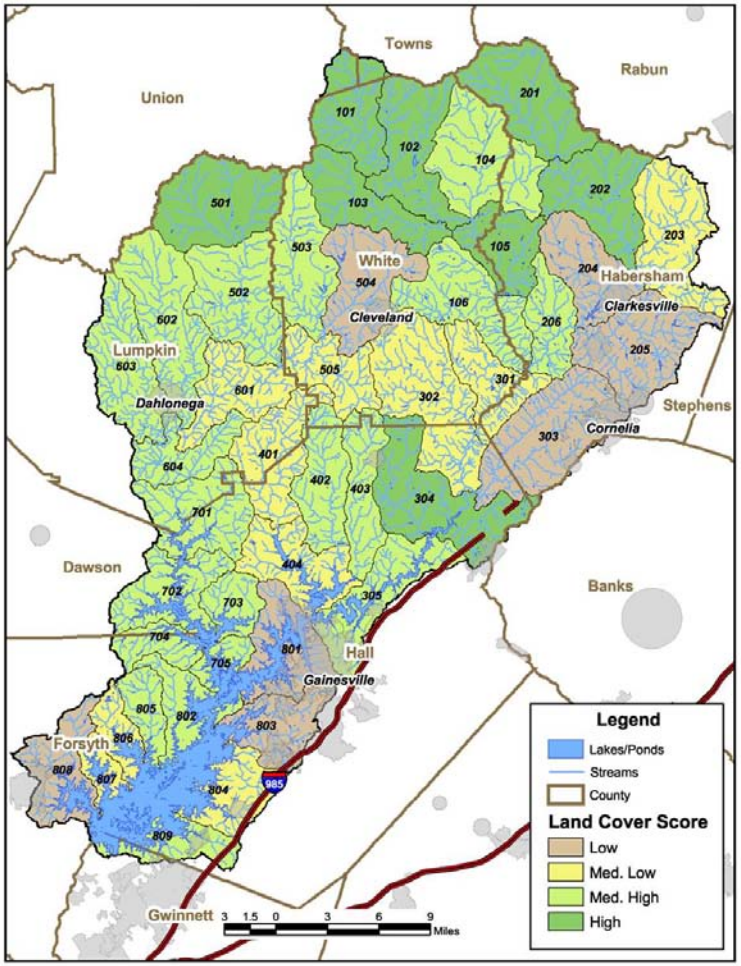

Figure 3. Land use/road crossing scores for subwatersheds. Numbers on map are abbreviated HUC-12 ID codes.

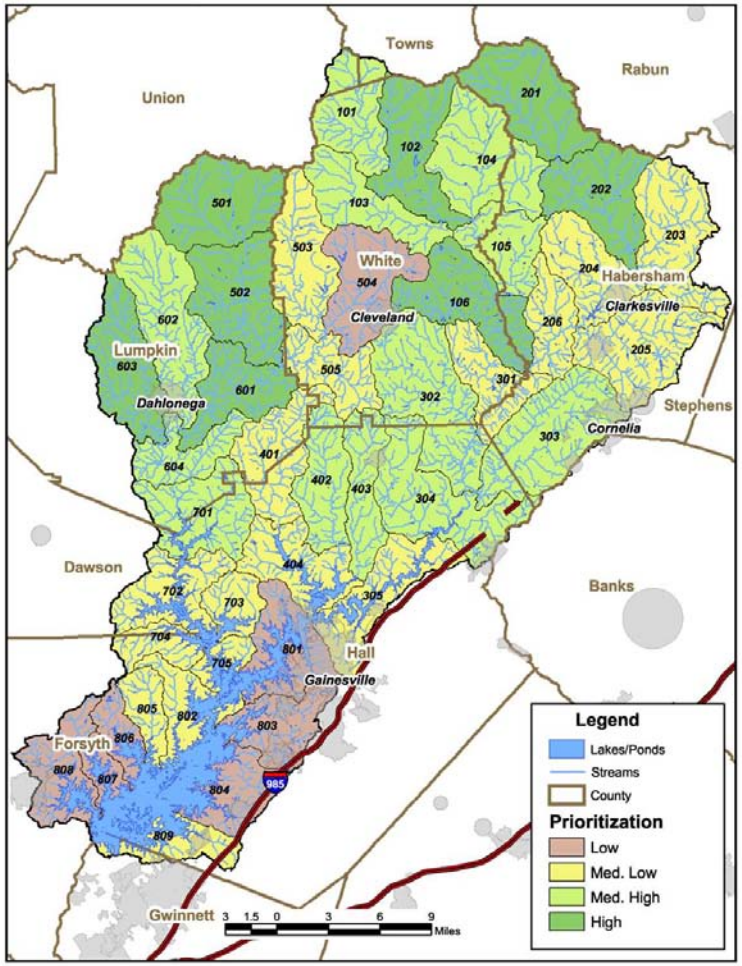

Figure 4. Prioritization of subwatersheds. Numbers on map are abbreviated HUC-12 ID codes.

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Water Conservation Implementation Plan
Stakeholder Meeting

August 4, 2008
Capitol Education Center

NOTES, QUESTIONS & ANSWERS

Welcome and Purpose of Meeting – *Alice Miller Keyes, Georgia EPD*

Thanks to the volunteers who have participated in the sector teams thus far. We are making great progress toward developing a draft Water Conservation Implementation Plan (WCIP.) The working drafts of the sector-specific information are evolving, as is the process for working with stakeholders to develop a draft WCIP for public comment.

The purpose of the meeting today is to provide a forum for stakeholders to engage with EPD Director Carol Couch to discuss three issues that have risen to the top of the list of concerns and interest:

- WCIP and its relationship to the SWP
- WCIP and how it can inform the Regional Water Planning efforts (as described in the SWP)
- WCIP and how it can inform future water withdrawal permitting decisions.

Introductory Comments - *Carol A. Couch, Georgia EPD* (see Power Point Presentation attached)

Water conservation, and how it is described in the State-wide Water Management Plan (SWP) is not viewed as independent of overall water management strategies. Water conservation must be woven into long-term planning decisions regarding future demands and supplies of water.

Overall purpose of the WCIP

The end result of all the goals, benchmarks, practices and actions described in this plan is to reduce water waste, water loss, and where necessary, water use in an effort to help sustain Georgia's water resources.

Proposed structure of WCIP

As the document continues to form, a structure has arisen that we are presenting to you today for the first time. You all have been working in your sector teams on the Main Body of the WCIP. This will contain introductory information regarding water conservation and Sector-Specific Chapters outlining goals, benchmarks, and practices for each sector. Additionally we plan to include a Technical Appendix for Practices that will include, but may not be limited to: 1) detail descriptions of practices, 2) applicability

(i.e. who should consider that practice), 3) suggested steps to implement 4) potential water savings, 5) cost of implementing, and 6) ways to demonstrate implementation of practices. Much of the information we have at this level of specificity originates from other states. For a technical appendix to be helpful, we intend to use the information from other states, and provide additional information that is Georgia-specific.

WCIP & State-wide Water Management Plan

Section 8 of SWP: Demand Management Practices describes water conservation and the components of the WCIP. DNR and stakeholders are to develop WCIP and it is to be subject to public notice, review, and comment.

The SWP calls for the WCIP to include: Water conservation goals, benchmarks, best management guidelines (A Menu of Options), state resources (implementation actions), funding mechanisms, and guidance on flexibility in implementation.

> *Goals are defined as sector-specific and provide a long-term outcome that water users within that particular sector can achieve. Benchmarks are defined as quantifiable metrics (or measures) of efficiency to help water users within a sector and others recognize progress toward a long-term goal. (If data are needed to set metrics, benchmarks may be time-oriented activities to collect and evaluate data to determine if, and what, the metric may be.) The guidance for best management refers to a menu of options for water conservation practices. Practices are defined as activities that can be implemented by water users and/or water or electric providers to reach benchmarks and goal(s). Lastly, state resources refer to the Implementation actions defined as activities to be performed by an agency, association, organization or other group to support water users and/or water or electric providers implementing the recommended best practices.*

Regarding benchmarks, we may not have the information available to be quantitative. We recognize that we have data shortcomings that will need to be improved. In such cases we will not be driving towards "the number." An alternative is to look at ranges to decide what is an efficient use of water.

Regarding funding mechanisms, we recognize much of the water conservation activities and goals identified in the working drafts will require investments from tax payers on the local government level However, there are existing investments at all levels of government, and EPD and other state agencies will examine how these existing resources can be more efficiently applied.

WCIP, Regional Planning & Water Withdrawal Permitting

Permit decisions will have to be done in the context of individual permit holders and applicants in 2 primary ways:

1) Within the structure of the SWP (page 21), two choices are offered for water withdrawal permit holders (who will be renewing permits or expanding permit): Applicants have the opportunity to show they are improving their water efficiency or they are implementing appropriate practices to improve their efficiency. Permit holders will identify which the appropriate practices.
2) Once the regional water development and conservation plans are adopted in 2011, individual permits will be evaluated on a permit-by-permit basis.

Regional Water Councils have no role in decision making on permitting. Permitting decisions remain as the authority of the EPD Director. Furthermore, until the state goes through a proper rule-making process and rules are adopted by the DNR Board, there will be no decisions based on the SWP. The WCIP will inform the rule-making process, but the WCIP will not be developed as a rule.

Question & Answer Session *

PROCESS of DEVELOPING WCIP

Q: Since the strawman material came out, have there been updated drafts sent out for review?

A: Yes, the strawman material distributed in May 2008, was the beginning of the discussion about long-term water conservation in Georgia. Since then, each sector team (agricultural irrigation, industrial and commercial, golf, public supply, state agencies, landscape and electric generation) has been developing "working drafts".

To make sure you have the most up-to-date information, contact the team leader for the sector in which you are interested and make sure he/she has your name and contact information.

Q: When is the public comment period for this and how will the edits be handled? Will the team leaders be responsible for making edits?

A: The draft WCIP will be available for the first round of public comment around the 2nd week in September. EPD is driving for plan adoption by late January or early February.

The process has been designed to gather sector-specific information from stakeholders within the major water use sectors. Drafts of sector-specific information are due to EPD by August 13th so that a technical writer can pull it all together. After the public comment period, team leaders will filter the comments

* *Several answers to the questions posed to EPD Director Carol Couch have been expanded to provide more clarity on the subject matter.*

and, when necessary, take some comments/questions back to the sector teams for deliberation.

Q: Is there an opportunity to work with and share information between sectors?

A: There are a lot of areas where overlap exists between the sectors. The team leaders have discussed this issue and recognize the need to better coordinate these issues. Suggestions on how to pull overlapping issues together are welcome. EPD will look for ways to facilitate exchange.

If you are interested in getting working drafts from other sectors or in providing information to other sectors, please contact the appropriate team leader.

Q: Many team members would appreciate more time to work on the sector-specific pieces and would appreciate the chance to review the introductory chapter(s) of the WCIP.

A: EPD and the team leaders will consider this. However, the limiting factor is that the regional water planning councils will be in place by the end of the year and the sooner they have access to the WCIP as a resource, the more informed their decisions will be.

We will develop ways for you to review introductory information.

EDUCATION and MESSAGING

Q: Education is a big part of the implementation process, especially during the next 2-3 years before regional plans are completed. How will Georgia citizens and regional water council members be educated about all of these issues?

A: Education is an important piece of implementing the SWP (and WCIP) and we have an ongoing dialogue about how to achieve that. An effort to align educational efforts among state agencies has already begun and will continue to grow over the next 2 to 3 years.

Q: It is important that WCIP tone and message be right. So far, many of the various messages from the sector-specific teams have been conflicting and we would like to see it broader focus on promoting Georgia and water efficiency in Georgia. We should not send the message, through this plan or others, that Georgia is not "open for business" or that we are rationing water.

A: If there are mixed messages being sent, we will work to fix that.

Q: Within business sectors, the message is being sent, "Don't grow in Georgia because water is not available." How can we support the development of the WCIP, the aggressive conservation actions within it, and still encourage growth in the state?

A: The conversation about don't locate in Georgia goes well beyond the WCIP. I have been working with our economic leaders on how to frame drought/water concerns and respond to the perception of limited resources. In the face of regional competitiveness for economic development, we have to get the message out that we are open for business AND we are planning for a future where water resources are sustainable and secure.

REGULATORY PROCESS / PERMITTING

Q: How will the state evaluate prior water conservation effort/results against the water conservation efforts in the WCIP? Will permit applicants get credit for efforts they have already made? (Example, I am a water provider with a large industrial customer base and we have already invested in significant water conservation efforts with them, how can I get credit for that?)

A: Permit decisions will need to be based on information appropriate to your situation. If you are a water provider with a customer base primarily industrial, when making permitting decisions, EPD will consider at information, data or statistics related to your industrial water conservation efforts, as appropriate. So, "credit" for existing measures can be factored into permitting decisions.

The SWP was written to provide choices for water withdrawal permit holders and applicants. Applicants can either demonstrate compliance with water efficiency standards (in the WCIP these could be goals or benchmarks) or demonstrate implementation of water conservation practices. In the example provided here, the applicant could demonstrate they have achieved a particular level of efficiency (through prior conservation efforts with their industrial customers) rather than demonstrate implementation of additional conservation practices that may not provide significant benefits.

GOALS and BENCHMARKS

Q: How should we set goals for our sectors? Are the goals intended to be aspirational?

A: It depends. We are not conserving just to be conserving. Rather we are conserving because greater efficiency has been shown to be necessary to sustain water resources, long term. Goals are aspriational as they are broad enough for all water users within a sector to consider (regardless of where they are in their conservation efforts.)

The degree to which water use efficiency and conservation are incorporated into long-term resource management plans will depend on regional water management decisions. How aggressively and how quickly water users progress toward those goals, should, in large part, depend on water resource conditions, cost-effectiveness of the effort and other factors.

Q: Many stakeholders involved are concerned that if there is a specific numeric benchmark/standard put in the WCIP it will become a mandatory statewide target (i.e. a one-size-fits-all approach). How do we resolve the conflict of needing to provide specific standards, but still allowing and encouraging flexibility?

A: There does not seem to be a conflict. EPD conducted some work to help better understand water used by customers of water utilities. With the cooperation of 8 diverse utilities, we evaluated water customer bills in small utilities and large utilities throughout the state. We found that the number of overall water use (defined as total water used divided by the population served) varies across the state.

We know that one-size-does-not-fit-all and there are numerous factors influencing potential water conservation standards (such as age of system, customer base, number of connections, etc.). EPD is looking to the sector teams to provide input to help us frame the process for determining which numeric benchmarks/standards could be incorporated into planning efforts in the future.

Q: The description today describes that a permit applicant may EITHER demonstrate progress toward water conservation goals (or efficiency standards) OR demonstrate the implementation of water conservation practices. This represents what many stakeholders have been asking for. Why has such emphasis been put on numeric benchmarks in the sector team meetings?

A: The effort to develop numeric benchmarks or water efficiency standards is intended to provide information on the two permit options described in the SWP. Any water efficiency standards or numeric benchmarks should be based on the best research and information available. However, if the consensus of a sector team is that a numeric benchmark is too restrictive or unrealistic at this time, then we should look for alternatives to demonstrate water use efficiency.

One alternative may be to outline time-oriented activities to either develop a numeric benchmark. Another alternative may be to use best available information for establishing a range of standards for water efficiency and a process for determining where the water user falls within that range.

Q: The information being shared today is positive. However, there is a disconnect between what is said today and what is being said within the sector groups – particularly regarding benchmarks and metrics of water efficiency. (Example: using a measurable

metric of residential per capita water use as a benchmark for the public water providers.)

A: If there is a disconnect in what is being said today and the work being done within the sector teams, we will work to fix it.

COORDINATING WCIP with other PLANS and RULES

Q: How will this plan be integrated in the Metropolitan North Georgia Water Planning District (MNGWPD) update efforts?

A: The MNGWPD is taking a look at water conservation in their long-term demand forecasts. We are working on the MNGWPD staff to coordinate the planning efforts. The MNGWPD Board recently adopted a new timeline and the updates to their plans are not due until March 2009.

Q: How will the outdoor water use rules fit into the WCIP or will they remain separate?

A: In compliance with House Bill 1281, the state is required to update the outdoor water use rules (Section 391-3-30). That rule-making process will take place consistent with statutory requirements. The WCIP may help inform that rule-making, but will not be oriented for developing new rules.

Q: When is the state going to look at drought management plan? It seems that a lot of the same people will be providing input on that, so why the disconnect?

A: The WCIP should be a resource to help water users in Georgia become more resilient to drought conditions. The drought management plan should outline and describe short-term actions to deal with drought. The same players are involved in both.

There are two areas of drought management that have been adopted by the state: 1) the 2003 Drought Management Plan and 2) the rules related to drought management and outdoor water use. The plan was conducted first and then the rules were developed and adopted.

We are still considering how and when the drought management plan will be revised. HB 1281 mandates that DNR revise the rules related to drought response by June 2009. In that time, we may not have the resources to revise both the rules (as now required by statute) and the drought management plan (adopted by the DNR Board as a policy statement). The Drought Management Plan addresses topics of drought declaration, agency coordination and other topics that go well beyond just the specific restrictions that are the subject of rule making. Ideally, both the plan and the rules will be updated in a coordinated

manner. The HB 1281 mandate, in the face of budget and resource constraints, places real unintended consequences on the quality of what we can accomplish.

OTHER ISSUES

Q: In the SWP various water conservation practices are described. Specifically, one practice talks about requiring gray water as a method to dispose wastewater. Do you think it is a good idea to tie sewage disposal strategies into the WCIP?

A: Using reclaimed water or graywater as a substitute for a higher quality water is not appropriate for every place and is not required for every place. Using reclaimed water may be most appropriate in the areas that have the most restraints for water. Specific analysis must be conducted before making that determination; and should be evaluated as part of your long-term infrastructure and supply plan.

Q: There is concern that, with water becoming more valuable, EPD or possibly the Public Service Commission (PSC) will begin to regulate how much water utilities should charge for water and water services. As new pieces of legislation emerge, possibly related to this, EPD will need to be more sensitive to the local utilities.

A: Importing water laws and regulations from other states and setting rates structure at the legislative level is not the answer to our challenges in Georgia.. Consideration of water rate regulation in Georgia. If it is eve considered, is premature for a variety of reasons too numerous to discuss today. EPD does not endorse this concept.

The WCIP and the SWP address conservation-oriented rates, but there are a variety of conservation-oriented rates and methods of implementation from which water utilities can choose. The WCIP will not dictate how utilities should deal with revenue issues.

Q: Do you see the WCIP as a means of making the connection with water and energy?

A: We are not ignoring water demands and accounting for future energy demands on water, but we cannot make a full connection in the WCIP. We have an available set of technology at the moment, and utilities have been adapting as the drought has unfolded.

The WCIP does address electric generation, however there are some limitations on what we know and what we are able to do at this point.

Q: We have heard you say a permittee does not have to do each thing outlined in the SWP or the WCIP. However, within the WCIP, there are several activities that are

counter to the activities we are doing to comply with water quality standards and mandatory control and management activities. How do we resolve this conflict?

> *A: The WCIP is not addressing water quality standards. However, the SWP does integrate water quantity and water quality management in a comprehensive fashion. This integration will be further realized in the implementation of the regional water management planning.*

Next Steps:

Sector teams will continue to meet, if necessary, to finalize their draft information. The drafts will be compiled and sent to the technical writer on contract with EPD to pull together the comprehensive Draft WCIP. Teams should have their drafts to EPD by August 13th.

EPD staff will take the questions and comments shared today and compile them into notes, questions and answers. In a few days we will distribute the presentation and notes to the attendees.

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From: Deatre Denion [ddenion@dca.state.ga.us]
Sent: Wednesday, August 06, 2008 9:32 AM
To: generalmanager@etowahwater.org; jbarbour@garealtor.com; sarah_barlow@savannahga.gov; glen_behrend@dnr.state.ga.us; Sally Bethea; isaac@sog.unc.edu; jason@gefa.ga.gov; robert@abr.org; jclayton@hazenandsawyer.com; ecrussel@cityofdouglas.com; jokidd@rocktenn.com; charlesdavis@accessatc.net; mdavis@atlantaregional.com; Deatre Denion; gadewitt@hotmail.com; jdozier@gawp.org; tedwards@accg.org; dfranz@brwncald.com; sfuller@gainesville.org; jjgask@charter.net; tgehl@gmanet.com; dgriffin@ccwageorgia.com; kharriso@uga.edu; Laura Hartt; khatcher@garealtor.com; chobby@bainbridgecity.com.; jhoffner@americanrivers.org; bihubb@alltel.net; ajabbar@valdostacity.com; bjarrett@milledgevillega.us; njohnson@geosyntec.com; cjonaitis@youneedresults.com; bkeller@cityofgriffin.com; alice_keyes@dnr.state.ga.us; kkirkpatrick@macoc.com; dkubala@earthlink.net; CLLAMBERT@co.dekalb.ga.us; mlangston@atlantaga.gov; cleballe@gaconservancy.org; katherine.lewis@jjg.com; jmaldonado@columbiacountyga.gov; mmcmichael@atlantaga.gov; dougmiell@gmail.com; tonja.mincey@hcwsa.com; Kathy.Nguyen@cobbcounty.org; jo@councilforqualitygrowth.org; jpatterson@cwwga.org; dphillips@columbiacountyga.gov; gpihera@ccwa1.com; courtneyreich@ecologicalplanning.net; tonyr@maconwater.org; lross@romega.us; krowles@h2opolicycenter.org; jrussell@atlantaga.gov; stevesadler@postproperties.com; brian.skeens@ch2m.com; bsleeth@hbag.org; kathy.stege@stantec.com; haydon@fiveashstanley.com; frank.stephens@gwinnettcounty.com; pstevens@atlantaregional.com; btant@cwwga.org; tthigpen@coweta.ga.us; alex@tomasandassociates.com; cogordon4@alltel.net; sudvardy@gaconservancy.org; bwagoner@gawp.org; laura_walker@savannahga.gov; malta@mindspring.com; mwyzalek@maconwater.org
Cc: Randy Hartmann; carol_couch@dnr.state.ga.us
Subject: WCIP Meeting on Aug 4

I wanted to remark on the discussion that was held at the WCIP meeting on Aug. 4. It seems that there has been some confusion to the directive I was given as a team leader. EPD staff had made it clear to me that a numerical goal was required for the plan to be accepted. The information that was covered in the meeting was completely new to me and there for clarification from Dr. Couch is needed on how she wishes this sector group to proceed. Until such clarification is given in writing, we will proceed with no numbers in the draft document.

Deatre N. Denion
Program Coordinator - WaterFirst
Office of Environmental Management
Department of Community Affairs
60 Executive Park, South, N.E.
Atlanta, GA 30329-2231
912-704-4136 (phone)

Congress of the United States
Washington, DC 20515

RECEIVED 11/25/08

November 21, 2008

Colonel Byron Jorns
U.S. Army Corps of Engineers - Mobile District
P.O. Box 2288
Mobile, AL 36628-0001

Re: Input on the Scoping Process for the Environmental Impact Statement for the Apalachicola-Chattahoochee-Flint River Basin Water Control Manual Update

Dear Colonel Jorns:

The update of the Water Control Manual for the Apalachicola-Chattahoochee-Flint (ACF) River System by the U.S. Army Corps of Engineers presents a significant opportunity for more responsible management of the ACF basin. One of the first and most critical aspects of this update is setting the appropriate scope for the development of the Environmental Impact Statement (EIS). In order for the Corps to develop the most equitable water control manual for the ACF, we believe the EIS must be truly comprehensive in scope and must have a considerable impact on the updated ACF Water Control Manual. Therefore, we offer the following recommendations on the scoping process and the development of an appropriate document under the National Environmental Policy Act (NEPA).

The Council on Environmental Quality's (CEQ's) NEPA regulations (found generally at 40 C.F.R. Parts 1500-1508) state that "there shall be an early and open process for determining the scope of issues to be addressed" which "shall be termed scoping." According to CEQ's guidance, "scoping helps insure that real problems are identified early and properly studied," and that appropriate related analyses are identified and considered.

In light of this guidance, it is critical that this scoping process consider all aspects of the "affected environment" in the ACF river system. Chronic drought conditions in the southeastern U.S. have led to dramatic decreases in the quantity of water entering the ACF system. Both these natural fluctuations in water supply and human-related uses have led to unprecedented reductions in freshwater inflow entering Apalachicola Bay. The water and nutrients that the Apalachicola River delivers to the bay are critical to the health and productivity of the estuary and adjacent coastal waters of the Gulf of Mexico. This area supports significant recreational and commercial fisheries, including oysters (90 percent of Florida's fishery), shrimp, grouper, and other high-value species. As such, the baseline for scoping should include an analysis of all impacts not only to the Apalachicola River, but to the Apalachicola Bay ecosystem that depends on the fresh water flows from the river.

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We encourage the development of a baseline for the EIS that is comprehensive, complete, and includes actions initiated and undertaken since previous environmental assessments of the ACF System. The impact of these actions should be broadly assessed if the total effects to the ACF System, particularly downstream, are to be determined.

We recommend that the Corps' EIS scoping address the following specific items:

- **The accumulation of scientifically-based data on the available water and current water withdrawals along the ACF System.**
- **Adequate in-stream flow requirements to fulfill the authorized uses of the ACF System and protect the water quality, health, and productivity of the ACF basin ecosystem.**
- **An assessment of the impact of variations of freshwater flow on the ecology of the Apalachicola River and downstream coastal ecosystems, to include comparing the unimpaired flow regime, the historical flow records, and the flows imposed in the current Revised Interim Operations Plan (RIOP) for exceptional drought conditions.**
- **An assessment of water availability, supply options, demand-management alternatives, and socioeconomic factors that influence uses in the ACF System.**

In sum, the updated Water Control Manual for the ACF System must establish a scientifically-based and equitable distribution of the waters of the ACF System. This can be achieved in a manner which sustains the health and productivity of the Apalachicola River, floodplain, and estuary.

We also strongly encourage the Corps to continue working with the National Research Council (NRC) to facilitate a complementary study to the Corps' EIS. These assessments could jointly yield the base knowledge needed for determining how the ACF Water Control Manual updates should be shaped. It is our hope that this joint effort by the Corps and the NRC will support decision makers in reaching a long-term, responsible, and scientific basis for the equitable management of water along the ACF System. The NRC has produced over 200 reports and assessments of water issues across the U.S., particularly the management of the Colorado River Basin, and should be a partner in our effort to balance the needs of all users along the ACF System.

Thank you for the opportunity to provide comments and for your assistance in this most pressing matter.

Sincerely,

Bill Nelson
U.S. Senator Bill Nelson

Allen Boyd
U.S. Congressman Allen Boyd

Corrine Brown-White

Ron Klein

Kathy Castor

Corrine Brown

Lynch Jim-Brown

Alcee L. Hastings

Andre Carson

Jeff Miller

Kendrick B. Meek

Debbie Wasserman Schultz

0076

cc: Brig. General Joseph Schroedel, South Atlantic Division Commander, U.S. Army Corps of Engineers

TROUP COUNTY BOARD OF COMMISSIONERS

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KEN SMITH, SR., DISTRICT 3
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RECEIVED 11-24

Colonel Byron Jorns
Commanding Officer
U.S. Army Corps of Engineers
Mobile District
P.O. Box 228
Mobile, AL 36628-0001

Dear Colonel Jorns:

We are writing as a unified Troup County Board of Commissioners to express our views regarding the sustainability of West Point Lake, out of deep concern that our past requests have largely been seemingly ignored. We have for many years now been deeply concerned with the levels maintained by the U.S. Army Corps of Engineers and we have come to a point now where we feel we must take a proactive approach to the restoration and preservation of West Point Lake for its original purposes.

In 1962 Congress authorized the project for 5 primary uses, which were, hydropower, sport fishing & wildlife development, general recreation, navigation and flood control. Today, nearly 26 years later we find ourselves with lake levels inadequate to meet its initial uses. Rapid population and industrial growth in the area have prompted increased environmental concerns associated with lake levels, which are far below the minimum year round optimal level of 633-635 msl; Conditions of a low pool are extremely hazardous to those who use the lake for recreation and as a means of daily sustenance.

We implore you to consider six critical issues that we have identified though study groups which are vital to West Point Lake and they are as follows:

- Maintain minimum lake level of 633-635 msl
- Maximize positive economic impact
- Return to managing the Lake consistent with Congressionally authorized purposes
- Restore and maintain recreational facilities
- Ensure recreational access for low income and minority families
- Water Quality

Findings indicate that due to our growth the low levels adversely affect economic opportunities and the action zones established by the Corps are not in keeping with and were not part of the original authorization by Congress. We believe that if the Corps were to fill and stabilize West Point Lake as a "run of the river lake" with flows that would

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mirror a more natural flow during drought and flood conditions it would revitalize the lake and the rest of the system. We have worked to improve county controlled recreational areas around the Lake and have found that the Corps has not funded or maintained many of the recreational areas paid for or established by Congress for the project. The severity of the action zones at West Point Lake are much worse that other lakes in the system and makes recreational use quite difficult if not impossible to achieve. The Lake has suffered under such rules causing rapid and frequent fluctuations in lake levels and this is causing compliance issues with the Clean Water Act, which again affects the quality of substance and recreation.

We implore you to take the needs of the people and communities surrounding West Point Lake into strong consideration as you reflect on the present use of the Lake. We need for the Corps to help us to all better utilize this great investment made by the Taxpayers and Citizens of the United States.

Thank you for your thoughtful and careful consideration of our request.

Sincerely,

Richard C. Wolfe, Chairman

Richard English, Jr. Commissioner

Buck Davis, Commissioner

Kenneth M. Smith, Sr.

Julian Morris Jones, III

US Army Corps of Engineers®
Mobile District

ACF Water Control Manual Update

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Name: RALPH + ANN GAGE Address: 5786 HIDDEN COVE RD.
City: GAINESVILLE, State: GA Zip: 30504 Email: rgadgage@charter.net

Primarily Participating as a...
- ✓ *Local Resident*
- o *Elected Official*
- o *Industry/Commercial*
- o *Native American Tribe*
- o *Nongovernmental Organization*
- o *Academic Institution*
- o *Local Gov't Agency*
- o *State Gov't Agency*
- o *Federal Gov't Agency*
- o *Other* _____

Please Check a Comment Area:
- o *ACF Basin*
- o *Blackshear Dam and Lake*
- o *Flint River Dam and Lake*

Water Control Manual Update
- ✓ *Lake Sidney Lanier/Buford Dam*
- o *Morgan Falls Dam*
- o *West Point Lake and Dam*
- o *Goat Rock Dam*
- o *Oliver Dam*
- o *North Highlands Dam*
- o *Bartlett's Ferry Dam & Harding Lake*
- o *Walter F. George Lake & Dam*
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- o *Air Quality*
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- o *Action Zones*
- o *Drought Operations Management*
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- o *Navigation*
- o *Recreation*
- o *Flood Damage Reduction*
- o *Water Quality*
- o *Water Supply*

NEPA Process
- o *Alternatives*
- o *Baseline*
- o *Impacts Analysis*
- o *Public Involvement*

- o ***Shoreline Management***
- o ***Revised Interim Operations Plan***
- o ***Socioeconomics***
- o ***Recommended Modeling Tools and Data Source***
- o ***Other*** _____

Comments

Enclosed please read our comments about the Lake Lanier Dilemma.

Thank You
Ann Gage

www.acf-wcm.com
Scoping comments will be collected by Tetra Tech for the U.S. Army Corps of Engineers, Mobile District through ***November 21, 2008.***

0078

LAKE LANIER DILEMMA

Do we have 2 years to wait for the "WATER CONTROL MANUAL" to be completed? Or is this just another procrastination ploy?

For 40+ years there have been many studies, surveys, tests, forums, public hearings, research, media news stories and then, more studies. Now, we are told that the lake is impaired. Perhaps, soon, it will be extinct, if we do nothing. We do not need more studies to inform us that the lake is in trouble. One needs only to look at the lake and observe the shrinking level. This observation needs to be translated into a VISION for the future.

In this age of technology and engineering marvels one would think that something could physically be done to fix the dilemma of 'lack of water in Lake Lanier.'

I am aware of the fact that the residents of Hall County have been conserving water, Mother Nature has not cooperated with our need for more rain, Atlanta needs water, plus all the other uses that have put a strain on the supply and integrity of the quality of the water. However, all of the excuses, and more regulations and studies have not solved the problem. Also, the passing the buck from the one of the 10 regulatory agencies to another has not solved the problem.

In the first century, the Romans built aqueducts to get water from the mountains to the cities. I am not expecting us to do the same.....but, can't someone DO SOMETHING, NOW, instead of waiting for the "WATER CONTROL MANUAL" to be completed?

Ann Gage.

November 10, 2008

0079

U.S. Army Corps of Engineers, Mobile District
107 Saint Francis Street, Suite 1403
Mobile, AL 36602-9986

re: Water Control Manual Update and Environmental Impact Statement/ Chattahoochee- Flint River Basin

To Whom It May Concern:

We are Lake Lanier residents and have great concerns regarding the Corps' oversight of Lake Lanier during the last 5 years. Regarding the water level of the lake the following comments need to be made:

— During the rainy season, the Corps should allow Lake Lanier to reach full pool no later than June 1;
— Lake Lanier should not be drawn down for mussels and other endangered species in the Apalachicola River;
— Management triggers must be in place for Lake Lanier withdrawals during times of drought;
— Raise Lake Lanier's full pool from 1071 ft above sea level to 1073 ft, thereby adding an additional 26 billion gallons of water to the lake.

Sincerely,

James and Letha Griffin
LYG/ctt

9065 Old Keith Bridge Road
Gainesville, Georgia 30506
November 10, 2008

0080

U.S. Army Corps of Engineers, Mobile District
107 Saint Francis Street, Suite 1403
Mobile, AL 36602-9986

To Whom It May Concern:

We are homeowners on Lake Lanier in Gainesville, Georgia. We are and have been very concerned about the ever-decreasing lake levels. The Lake Lanier Association has kept us apprised of the ongoing decisions made by the Army Corps.

We would like:
-for the Corps to allow Lake Lanier to reach full pool no later than June 1, regulating the water levels accordingly during the rainy season;
-Lake Lanier not to be drawn down for mussels and other endangered species in the Apalachicola River;
-management triggers to be in place for Lake Lanier withdrawals during times of drought;
-to raise Lake Lanier's full pool from 1071 ft above sea level to 1073 ft, thereby adding an additional 26 billion gallons of water to the lake.

Please heed our requests and keep Lake Lanier the great resource that it has been for years.

Sincerely,

Greg Drummer
Mary Drummer

Greg and Mary Drummer

0081

Comment ID: 0081
Author Name: Bill Shilling
Organization:

Please use more up to date science to maintain this lake. Try to stay out of the political issues, and focus on what sound science can provide as guidelines for this lake.

0082

Comment ID: 0082
Author Name: Vince Foody
Organization:

As a resident of Troup County, we rely on West Point Lake for clean drinking water, recreation, and Business generated from tourism. The Lake must be managed for consistent full pool (633 to 635) and the cleanliness and quality of the water must be maintained. When the lake levels were so mismanaged a year ago, it was very dangerous to use the lake as tree stumps and other hazards made navigating the lake very risky and dangerous.

Comment ID: 0083
Author Name: Steven Voige
Organization:

0083

I feel water releases should be lowered until lake levels are at full pool. When less rain falls during a given time period the river levels below the lakes would have been naturally at lower levels also.

I feel water s/b released according to the percentage of average rainfall for the region. Period. Consider first the needs of the residents, commercial users and wildlife, then recreation, local property values and of course all other aspect. Lake levels should be managed more precisely. Only lowering pool levels when tropical storms or flooding weather front are predicted.

Additional water sheds should be developed to keep up with population growth!

Why were release levels not curtailed during times of drought previously?

Comment ID: 0084
Author Name: Ronnie Segree
Organization:

0084

Problem not enough fresh water from the Apalachicola river into the Apalachicola Bay.

Solution- Close Bob Sikes cut distrubting the fresh water east and west in the bay keep what fresh that you have in the bay longer.

Problem - Old fill(Bird Sanctuary) sets East of the new St. George IsLand bridge. to much nitrogen run off into the bay. the birds have the Little St. George Island and St. Vencent Island to nest on. average 1 Sea Gull eating one pound of shrimp in one day x 1000 when you dont have shrimp your not gonna have Red Fish or Speckel Trout or other game fish

Solutions- either take out this man made bird Sanctuary or cut channels where the current can fowl how it used to flow.

East rived flows from the Apalachicola River. this is what is know as the log jam. escacvate and clean out these areas. when they was plent of water these places was cleaned out by the high rises of the River, now they need our help. un-stop the glogged up stream and allow more water to flow down to the bay.

0085

Comment ID: 0085
Author Name: Charles Chapman
Organization:

As a representative appointed by the County Manager of Gadsden County, hydropower is a significant concern. Our residents in the municipality of Chattahoochee are reliant upon hydropower for their basic utilities. In addition, in an era of energy diversification, the inadequate levels of flow coming to Jim Woodruff Dam provide adverse conditions for generating alternative energy sources. Overall, an increase in flows would help to provide clean and affordable energy to our residents.

0086

Comment ID: 0086
Author Name: Charles Chapman
Organization:

Gadsden County Florida borders the Apalachicola River and its wester basin. The flood controls and multitude of wildlife and environmental treasures of the basin and the river are non-comparable any where else in the State of Florida. The recent operational modes during the drought"" conditions have led to many traditionally wet areas to become dry and boggy. Many of our residents have commented on the lack of water in traditional fishing areas along the river as well as trouble with navigating their personal watercraft along the river and its corresponding estuaries."

0087

Comment ID: 0087
Author Name: Charles Chapman
Organization:

Bottom line is we need more flow. The river is down and the bay is affected. The study you propose should solidify this with scientific fact. With low flows we have less hydropower and less water to counter balance the salinity of the upstream river near Chattahoochee. Point in case, bull sharks were recently seen and documented near the Jim Woodruff Dam. Understanding this is not uncommon for bull sharks in the genetic makeup, however, this is discussion worthy.

0088

Comment ID: 0088
Author Name: Charles Chapman
Organization:

More so than simple dollars and cents, the lifestyle and the historical heritage of our natural Florida area is at risk. We are not arguing people versus mussels. We are discussing metropolitan residents on Atlanta versus rural communities who have historically been founded in the industry the Apalachicola River provides a foundation for.

Comment ID: 0089
Author Name: Charles Chapman
Organization:

0089

Georgia should not be bailed out of their lack in effectively planning water management. If Lake Lanier is the only resource from which the Metro-Atlanta area can draw from, then certainly they need to embark on more research endeavors. Proper water management controls and alternative water resources are surely available (i.e. offshore drilling debate) Florida needs water too, and Georgia should look at their own ability to tap into the ground water sources, or better control their waste water. Poor Planning on Georgia's part should not penalize Floridians.

Comment ID: 0090
Author Name:
Organization:

0090

Please maintain historical flow levels to Apalachicola Bay

0091

Comment ID: 0091
Author Name: alan pierce
Organization:

I very concerned that the Apalachicola Bay ecosystem is not being considered when it comes to developing the Water Control Manual. The Bay is the most pristine and productive body of water in the southeastern US. Everybody benefits from the shrimp,,oysters, blue crabs,etc thata come out of the Bay. Please include the Bay in the Environmental Impact Statement.

0092

MR. LAWRENCE DURDEN: I am a property owner in Walter F. George, and all I want -- my comments would be we just want our fair share of Alabama -- for Alabama to get their fair share of the water without others taking it all and putting us in a dangerous situation. If it's one drought, then let it affect everybody.

0093

Comment ID: 0093
Author Name: Marilyn Blackwell
Organization:

I have deep concerns on the following issue which is not being addressed or suggested in any of the options to comment on.
There exist a disconnect on the issue of "maintaining" a healthy eco system in the Apalachicola River System as to maintain suggest that this system exist in a healthy state.
This system has been degraded severely for sixty plus years as a result of the COE maintenance practices. During this time, little care has been afforded to the health of this system. The river, creeks, sloughs, the off river mud flats, lakes and ponds have been impacted by dredged spoil.
Prior to the early 1970s, spoil was placed in the flood plain where erosion during flood season smothered plant life and elevated the ground level.
After the early 1970s, spoil was placed on the banks of the river, within banks and in open water. There now exist 135 within bank disposal sites, 26 dike fields and three open water sites. These practices have resulted in major oposite bank erosion, eroding not only spoil from below the water line but also causing banks above the water line to fall in which added to the overload of sediment in the system.
The flood plain has undergone alarming changes as a result of these practices. Fish and other marine life no longer have access to the flood plain water bodies to spawn and forage. Native plants and wildlife has been adversly effected.
Within bank ddredged spoil sites and dike fields produce the same effect in that both channel water to a desired section of the river bed. The size of the within bank disposal sites, visual at low water is only a small portion of the existing portion below the water level. These structures displace a large amount of water in the river, cause oposite bank erosion and help to blanket the flood plain, creeks and sloughs. Many of the within bank disposal sites have been located adjoining or just upstream from the mouths of sloughs and creeks.
The Apalachicola River System is very unhealthy. Past restoration projects have been failures. All were stated to need future maintenance in plans that were developed for them. A number of these restoration projects resulted in further degradation to the system. The Battle Bend project cost two million was a good example of this.
I would appreciate the consideration of water in the amount that would allow the Apalachicola River System to heal. There are clear signs that this process is begining. Although healing would involve years, once healed there would be no need for maintenance.
To maintain a healthy system, there first must be a healthy system to maintain. This system needs only waterlife blood and time.

0094

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ACF Water Control Manual Update

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Name: Joe J. Shield III Address: 260 Dr. Frederick S. Humphries St.

City: Apalachicola State: ____ Zip: _____ Email: _____

***Primarily* Participating as a...**

- o *Local Resident*
- o *Elected Official*
- o *Industry/Commercial*
- o *Native American Tribe*
- o *Nongovernmental Organization*
- o *Academic Institution*
- o *Local Gov't Agency*
- ● *State Gov't Agency*
- o *Federal Gov't Agency*
- o *Other* _____

Please Check a Comment Area:

- ● *ACF Basin*
- o *Blackshear Dam and Lake*
- o *Flint River Dam and Lake*

Water Control Manual Update

- o *Lake Sidney Lanier/Buford Dam*
- o *Morgan Falls Dam*
- o *West Point Lake and Dam*
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Environmental Resources

- ● *Biological Resources*
- o *Air Quality*
- o *Cultural Resources*

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- o *Action Zones*
- o *Drought Operations Management*
- o *Hydropower*
- o *Navigation*
- o *Recreation*
- o *Flood Damage Reduction*
- ● *Water Quality*
- o *Water Supply*

NEPA Process

- o *Alternatives*
- o *Baseline*
- o *Impacts Analysis*
- o *Public Involvement*
- o ***Shoreline Management***
- o ***Revised Interim Operations Plan***
- o ***Socioeconomics***
- o ***Recommended Modeling Tools and Data Source***
- o ***Other*** _____

Comments

Comments attached in typed written form.

www.acf-wcm.com
Scoping comments will be collected by Tetra Tech for the U.S. Army Corps of Engineers, Mobile District through ***November 21, 2008.***

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Mobile District

ACF Water Control Manual Update

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Name: Alice Jean Gibbs Address: 59 Prado

City: Apalachicola State: FL Zip: 32320 Email: _____

Primarily Participating as a...

- ☒ *Local Resident*
- ○ *Elected Official*
- ○ *Industry/Commercial*
- ○ *Native American Tribe*
- ○ *Nongovernmental Organization*
- ○ *Academic Institution*
- ○ *Local Gov't Agency*
- ○ *State Gov't Agency*
- ○ *Federal Gov't Agency*
- ○ *Other* _____

Please Check a Comment Area:

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Water Control Manual Update

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- ○ ***Other*** _____

Comments

Save our River!!

www.acf-wcm.com

Scoping comments will be collected by Tetra Tech for the U.S. Army Corps of Engineers, Mobile District through ***November 21, 2008.***

Comments from Joe J. Shields, FDACS, Div of Aquaculture, Bureau of Aquaculture ~~Development~~ Development

The Bureau is responsible for conducting oyster population assessments; determining optimal location for oyster reef construction by evaluating site characteristics; and restoring historically productive public oyster reefs through cultch deposition, transplanting and relaying projects.

Starting in late March 2007, Bureau personnel began observing significant oyster mortality events in St. Vincent Sound (western Apalachicola Bay). During the 2007 and 2008 summer seasons, oyster mortalities were observed on oyster bars closer to the mouth of the Apalachicola River. During our most recent sampling this month, we observed mortalities throughout Apalachicola Bay; with higher mortalities observed on Catpoint and Easthole Bars in St. George Sound.

This pattern of observed mortality is associated with the Apalachicola River's influence, reduced freshwater inflows, elevated salinity and other environmental stressors. We attribute the most recent high mortality levels observed to a combination of factors which are exacerbated by reduced freshwater inflows - Most notably, predation by organisms with marine affinities (stone crabs and oyster drills). These predators increase during periods of high salinities and high water temperatures. This quarter's sampling yielded significant predation observations. Additionally, we did not observe the smaller class sizes (i.e. the future crop) throughout our sampling regime in Apalachicola Bay – this too is indicative of predation. Lastly, we observed a loss of total numbers of oysters throughout our sampling regime.

If adverse environmental conditions (e.g. reduced freshwater inflow) persist, then the ecology of Apalachicola Bay will be disrupted or shifted, and oyster habitat and oyster populations will become debilitated.

<400 – Not commercially viable
Catpoint: Bushels/Acre: 381
Easthole: Bushels/Acre: 370
Dry Bar/St. Vincent: Bushels/Acre: 784
North Spur: Bushels/Acre: 431
11 Mile: Bushels/Acre: 1,266
Cabbage Lumps: Bushels/Acre: 805
North Spur: Bushels/Acre: 431

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City: Apalachicola State: FL Zip: 32320 Email: LYNNWILSON2@aol.c

***Primarily* Participating as a...**
- [x] Local Resident
- [ ] Elected Official
- [ ] Industry/Commercial
- [ ] Native American Tribe
- [ ] Nongovernmental Organization
- [ ] Academic Institution
- [ ] Local Gov't Agency
- [ ] State Gov't Agency
- [ ] Federal Gov't Agency
- [ ] Other _____

Please Check a Comment Area:
- [x] ACF Basin
- [ ] Blackshear Dam and Lake
- [ ] Flint River Dam and Lake

Water Control Manual Update
- [ ] Lake Sidney Lanier/Buford Dam
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Environmental Resources
- [x] Biological Resources
- [x] Air Quality
- [x] Cultural Resources

Water Management for Multiple Federal Project Purposes
- [ ] Action Zones
- [x] Drought Operations Management
- [ ] Hydropower
- [ ] Navigation
- [x] Recreation
- [x] Flood Damage Reduction
- [x] Water Quality
- [x] Water Supply

NEPA Process
- [ ] Alternatives
- [ ] Baseline
- [x] Impacts Analysis
- [ ] Public Involvement

- [x] ***Shoreline Management***
- [ ] ***Revised Interim Operations Plan***
- [ ] ***Socioeconomics***
- [ ] ***Recommended Modeling Tools and Data Source***
- [ ] ***Other*** APALACH/ RIVER & BAY

Comments

SAVE OUR WATER/WILDLIFE SYSTEM
prevent Atlanta Development from
diverting our Water System

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Name: John Richards Address: 534 Oyster Rd
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- [ ] ***Socioeconomics***
- [ ] ***Recommended Modeling Tools and Data Source***
- [ ] ***Other*** _____

Comments

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Name: Candace Springer Address: 36 9th St.
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- o ***Other*** _____

Comments

Thorough presentation with Knowledgeable U.S. Army Corps of Engineers Representati
Concern over length of project - was told EIS wouldn't be complete until 201
Concern that priorities will need to be set - can't be all things to all people
and of course our concern as a resident of the ACF Basin is Fish + wildlife,
water supply + water quality

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Comments

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City: EASTPOINT State: FL Zip: 32328 Email: carbonejack@yahoo.com

***Primarily* Participating as a...**

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- ○ *Elected Official*
- ○ *Industry/Commercial*
- ○ *Native American Tribe*
- ○ *Nongovernmental Organization*
- ○ *Academic Institution*
- ○ *Local Gov't Agency*
- ○ *State Gov't Agency*
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- ○ *Other* _____

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Comments

We need a solution to the water supply issue w/ the state of Georgia. The Apalachicola River and Bay are vital to the economic and cultural viability of the community. Twenty years of conflict over this is enough. Get the required scientific data and let's have a rational conversation about the various needs, and how they can be met.

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JCarbone