ENVIRONMENTAL ASSESSMENT

GEORGIA ENVIRONMENTAL PROTECTION DIVISION PROPOSAL FOR A TEMPORARY REDUCED MINIMUM WATER QUALITY FLOW REQUIREMENT IN THE CHATTAHOOCHEE RIVER AT PEACHTREE CREEK FOR DROUGHT CONTINGENCY WATER MANAGEMENT OPERATION IN THE ACF RIVER BASIN AND TEMPORARY WAIVER FROM ACF WATER CONTROL PLAN

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1. INTRODUCTION

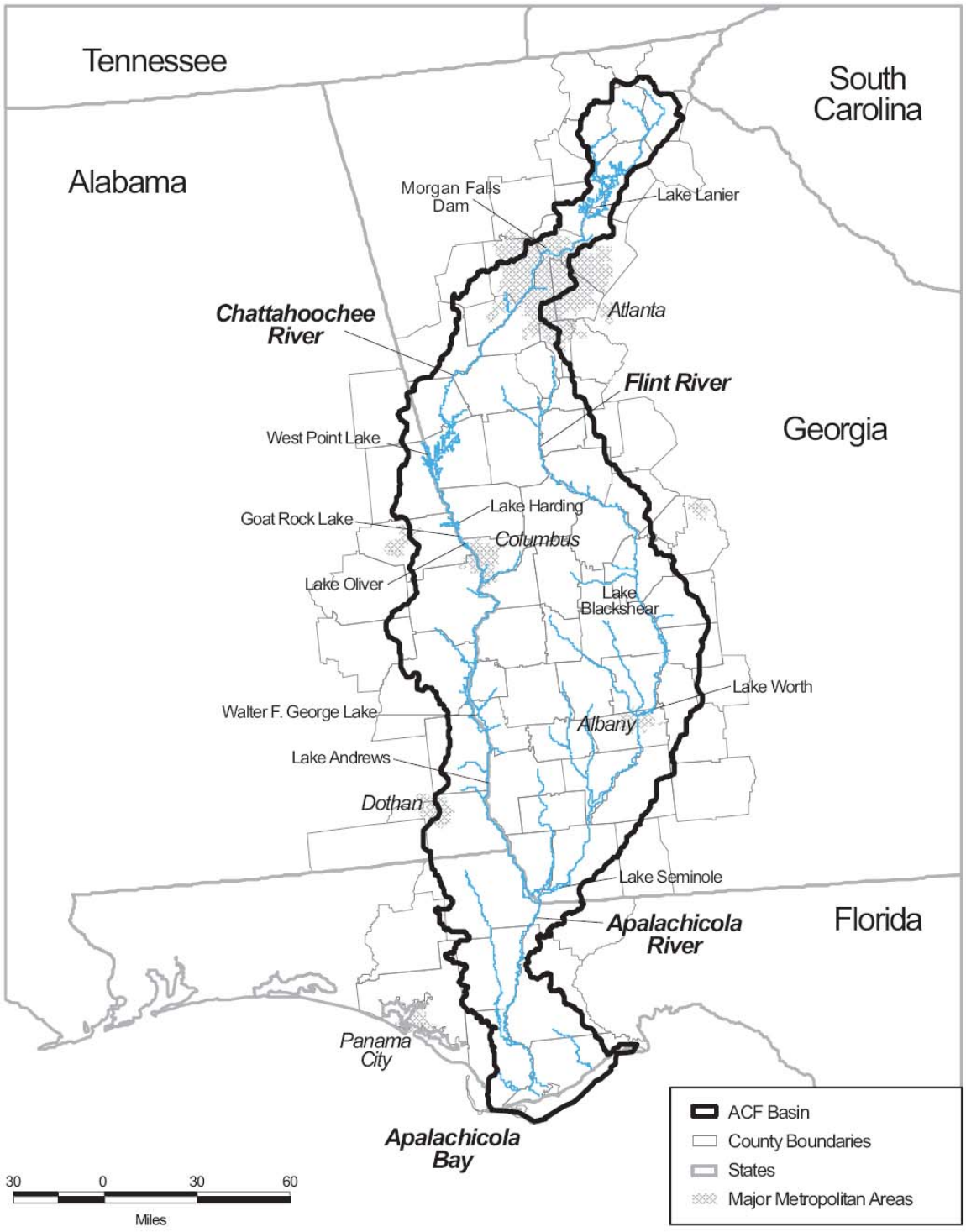
This Environmental Assessment was prepared in response to a request by the Georgia Environmental Protection Division (EPD) to the U.S. Army Corps of Engineers, Mobile District (Corps) to temporarily modify water management operations to meet a reduced water quality requirement in the Chattahoochee River at Peachtree Creek. The minimum water quality flow requirement is incorporated into the Apalachicola Basin Reservoir Regulation Manual-Appendix B - Buford Dam (1991). The EPD request is in response to record low ACF composite storage levels due to the extended drought conditions experienced during 2007 and projected to continue in 2008. The proposed action would require a temporary waiver from the existing ACF Water Control Plan to allow a reduction in the minimum water quality flow requirement under the current water control plan operations.

a. Location: Buford Dam is located at the headwaters of the Apalachicola-Chattahoochee-Flint (ACF) River basin. Buford Dam is at river mile 348.3 on the Chattahoochee River in Gwinnett and Forsyth Counties, Georgia, about 35 miles northeast of Atlanta and 4.5 miles northwest of the town of Buford, Georgia. Lake Lanier extends up the Chattahoochee and Chestatee Rivers and lies within Gwinnett, Forsyth, Hall, Dawson, and Lumpkin Counties. The dam controls an area of 1,040 square miles on the southern slope of the Blue Ridge Mountains.

The proposed action directly impacts flows in the Chattahoochee River downstream of the dam. The five Federal projects (Buford, West Point, Walter F. George, Andrews, and Woodruff) within the ACF Basin are operated as a system, and reduced flows could impact downstream users of the Chattahoochee River, who may have certain minimum flow or water level requirements. Therefore the project area includes the ACF Basin, the Apalachicola River and distributaries, and Apalachicola Bay.

The location of the Apalachicola-Chattahoochee-Flint (ACF) River basin and Federal projects is shown in Figure 1.

Figure 1. ACF Basin and Reservoirs



b. Proposed Action: The proposed action was initiated in the form of a letter dated 11 February 2008 addressed to the Corps Mobile District Commander Colonel Byron Jorns, from Dr. Carol Couch, Director, EPD. The letter stated that in order to conserve valuable storage in Lake Lanier for future use during this exceptional drought, the EPD had evaluated the use of a lower minimum water quality flow requirement in the Chattahoochee River at Peachtree Creek. Their request proposed a reduction in the required minimum water quality flow measured at Peachtree Creek from an instantaneous daily value of 750 cubic feet per second (cfs) to a minimum as low as 550 cfs beginning immediately and continuing until 30 April 2008. The EPD further proposed 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. During discussions following receipt of the letter, the Corps notified EPD staff that there may be authority limitations that would prevent releases that result in flows below 650 cfs at Atlanta due to language in the project authorization contained in 80th Congress, 1st Session, House Document 300, South Atlantic Division report, 20 March 1946 (reference paragraph 80). Therefore, by letter dated 3 March 2008, Dr. Couch modified the EPD request to provide for an intermediate reduced water quality flow requirement of 650 cfs at the confluence of Peachtree Creek until 30 April 2008, if authority limitations are applied. The proposed action would also require a temporary waiver from the existing ACF Water Control Plan to allow a reduction in the minimum water quality flow requirement under the current water control plan operations.

This request is consistent with previous requests by EPD to conserve storage during the cooler water months during extended drought conditions in 2001-2002. By letter dated 23 February 2001, EPD requested a temporary reduction to the minimum flow requirement at Peachtree Creek through 30 April 2002. At that time, the Corps reviewed the project authorization and the 1974 Buford Dam EIS, and found that both reports referenced a minimum flow of 650 cfs at Atlanta at all times. Therefore, in 2001 the Corps determined that it was within our project authority to reduce the minimum flow at Peachtree Creek as long as the minimum flow requirement of 650 cfs at Atlanta and water quality standards was met. The Corps also determined that there would not be a requirement to prepare additional NEPA documentation since the 1974 EIS addressed the minimum flow of 650 cfs. The reduced minimum flow agreement (650 cfs) was implemented for a short period in the spring of 2001 and then the minimum flow of 750 cfs was re-instated. By letter dated 20 September 2001, the EPD again requested to reduce the minimum flow agreement below 750 cfs during the upcoming cool water months. The reduced minimum flow agreement (650 cfs) was again implemented in winter 2001-02 until dissolved oxygen (DO) monitoring data indicated the need to re-instate the 750 cfs minimum in spring 2002.

c. Purpose and Need for the Proposed Action: The purpose of the proposed action is to conserve storage in Lake Lanier by making allowances for increased storage opportunities and/or reductions in the demand of storage in order to provide continued support to the multiple project purposes; minimize impacts to municipal and industrial water supply, water quality, and fish and wildlife conservation; and provide greater assurance of future sustained flows for species and

other users during a severe multi-year drought, currently being experienced in the ACF basin.

Lake Lanier is currently experiencing record low lake levels due to the extended drought conditions experienced during 2006 and 2007, and projected to continue in 2008. Due to the relatively small drainage basin that feeds Lake Lanier and the continuing drought conditions, refill of the lake to the operating rule curve will take an extended amount of time. The lake is currently in composite zone 4 and is predicted to remain there throughout the remainder of the year. Preservation of storage during the normal refill period will benefit conditions at the lake itself, as well as downstream areas, by accommodating future augmentation flow during the hot and dry conditions anticipated to persist during the upcoming critical summer-fall months.

d. Authority: A Federal interest in the Apalachicola-Chattahoochee-Flint River basin dates to the 1800's when river improvements for navigation were authorized under the River and Harbor Act of 1874. The River and Harbor Acts of 1945 and 1946 provided for the initiation of construction of the Apalachicola River navigation project and a series of multipurpose reservoirs on the system. Modifications of this plan have resulted in the completion of five Corps dams in the basin, four on the Chattahoochee River, and one at the confluence of the Chattahoochee and Flint Rivers. The Buford project was completed in 1956, the Jim Woodruff project in 1957, the Walter F. George and George W. Andrews projects in 1963. The West Point project was completed in 1984 (operations began in late 1974), pursuant to authorization by the River and Harbor Act of 1962 (Title I) and the Flood Control Act of 1962 (Title II). These projects are operated as a system to provide the authorized project purposes of flood control, fish and wildlife conservation, navigation, hydroelectric power, water supply, water quality, and recreation.

The Corps is given discretion to manage its reservoirs by the Flood Control Act of 1944. The procedures for water management actions at Corps projects are set out in Engineer Regulation 1110-2-240 (33 C.F.R. Part 222.5), which states as follows in regard to droughts:

> "*Continuous examination should be made of regulations schedules, possible need for storage reallocation (within existing authority and constraints) and to identify needed changes in normal regulation. Emphasis should be placed on evaluating conditions that could require deviation from normal release schedules as part of drought contingency plans (ER 1110-2-1941).*"

Engineering Regulation 1110-2-1941 requires water managers to reexamine procedures and reservoirs to determine whether improvement can be made during low water periods within current authorities. Under this regulation, the Mobile District developed the "Interim Drought Management Plan for the Apalachicola-Chattahoochee-Flint River Basin" (IDMP) in April 1985. The IDMP called for the establishment of a Drought Management Committee (DMC) to coordinate drought management actions and develop management recommendations. However, because the DMC was not operating fully in accordance with the requirements of the Federal Advisory Committee Act (Public Law 92-463) it ceased to operate as a formally constituted body. Since that time, the Corps has coordinated water management during drought with other

Federal agencies, private power companies and navigation interests, the three States, other interested parties, and local parties as necessary.

80th Congress, 1st Session, House Document 300, South Atlantic Division report, 20 March 1946 – adopted in 1946 by the U.S. Congress as the basis of project authorization – provided that the completed project release "varying flows up to a maximum of 600 second-feet… from Buford so as to insure at all times a flow at Atlanta not less than 650 second-feet" (H.D. 300, p 34, par. 80).

Subsequent to the project authorization and about the time Buford became operational, the City of Atlanta and Georgia Power Company jointly financed the addition of 8 foot high tainter gates to Morgan Falls Dam to raise the water surface. The addition of these gates increased the storage at Morgan Falls and allowed the project to a limited degree to re-regulate the releases from Buford. The addition of gates at Morgan Falls physically modified the water control mechanisms so that the Corps alone would not be responsible to operate to provide the 650 cfs at Atlanta. In 1976 the State of Georgia evaluated the need for instream flow in the Chattahoochee River and determined that a minimum flow of 750 cfs in the Chattahoochee River just upstream of the confluence with Peachtree Creek (all metro-Atlanta water supply withdrawals are made above this point), would be necessary for the assimilation of wastewater return flows to the river.

An operating procedure designated the "Modified Interim Plan" was agreed to, which committed the Georgia Power Company to schedule a portion of the weekly power generation on the weekend and committed the Corps to provide certain minimum summer weekly flows from Buford Dam. These two commitments allowed for increased water supply withdrawals while maintaining the 750 cfs minimum flow. This plan was replaced by the "Short Term Plan" in 1986 which established the "River Management System" agreement under which the Corps when possible and practical would endeavor to make only those releases specifically required for water supply and maintaining the 750 cfs minimum instream flow at Peachtree Creek. Georgia Power Company agreed to continue to use Morgan Falls reservoir to re-regulate Buford releases.

The Endangered Species Act of 1973 (P.L. 93-205) requires consultation with the Department of the Interior, Fish and Wildlife Service or the National Oceanic and Atmospheric Administration, National Marine Fisheries Service and provides authority for operating federal projects to protect endangered and threatened species. The Fish and Wildlife Coordination Act (P.L. 85-624) requires consultation with the Fish and Wildlife Service and State fisheries management agencies regarding project impacts on other fish and wildlife.

Per the authority under the Clean Water Act amendments of 1977, the Corps may modify operations at Federal reservoir projects to meet water quality standards.

2. AFFECTED ENVIRONMENT

a. General Environmental Setting. The ACF basin drains 19,800 square miles in parts of southeastern Alabama, northwest Florida, and central and western Georgia. About 74 percent of

the ACF basin lies in Georgia, 15 percent in Alabama, and the remaining 11 percent in Florida. The basin extends approximately 385 miles from the Blue Ridge Mountains to the Gulf of Mexico and has an average width of approximately 50 miles. The basin covers 50 counties in Georgia, 8 counties in Florida, and 10 counties in Alabama.

The ACF system empties into the Gulf of Mexico. The main tributaries of the basin are the Chattahoochee and Flint Rivers. These tributaries merge at Lake Seminole to form the Apalachicola River near the State lines of Florida and Georgia. The Apalachicola River flows into the Gulf of Mexico at Apalachicola Bay.

The ACF basin is characterized by a warm and humid, temperate climate due to its latitude, altitude, and proximity to the Gulf of Mexico. Average annual temperature ranges from about 60^{o} Fahrenheit (F) in the north to 70^{o}F in the south. Average daily temperatures in the ACF basin range from about 40 to 50^{o}F in January to 75 to 80^{o}F in July. Summer temperatures are typically in the 70s to the 90s. Freezing temperatures in winter occur for only short periods (USGS, 1996).

Precipitation is typically highest at the north end of the basin in the mountains and at the south end of the basin near the Gulf of Mexico. Average annual precipitation is about 60 inches per year at both the north and south ends of the basin. The east-central part of the basin receives less precipitation, with an annual average of 45 inches (USGS, 1996). Precipitation varies substantially on an annual basis, however. Precipitation is generally highest in late winter and early spring, and then again in mid- to late summer, when tropical depressions and tropical storms occasionally track up the basin.

Over half the water that falls as precipitation in the ACF basin is returned to the atmosphere as evapotranspiration (direct evaporation plus transpiration by plants). Evapotranspiration ranges from about 32 to 42 inches of water per year in the ACF basin, generally increasing from north to south (USGS, 1996). Average annual runoff basinwide ranges from 12 to 40 inches (or about 25 to 65 percent of average annual precipitation). Runoff is greatest in the Blue Ridge Mountains and near the Gulf coast (USGS, 1996).

The Corps operates five dams in the ACF River Basin: (in downstream order) Buford Dam (Lake Lanier), West Point Dam and Lake, Walter F. George Dam and Lake (also known as Lake Eufaula), W. C. Andrews Dam and Lake, and Jim Woodruff Dam (Lake Seminole). All are located wholly on the Chattahoochee River arm of the basin except the downstream-most dam, Woodruff, which is located immediately below the confluence of the Chattahoochee and Flint rivers and marks the upstream extent of the Apalachicola River. Andrews is a lock and dam without any appreciable water storage behind it, but Buford, West Point, George, and Woodruff dams are larger impoundments with extensive overbank water surface areas, with a combined conservation storage capacity (relative to the top of each reservoirs' full summer pool) of about 1.6 million acre-feet (1,049,400 acre-feet at Lanier; 306,100 acre-feet at West Point, and 244,000 acre-feet at W.F. George). Because Jim Woodruff Dam/Lake Seminole is operated as a run-of-

river project, only very limited storage is available for support of project purposes. For about half of its length, the Chattahoochee River forms the boundary between Georgia and Alabama. Lake Seminole straddles the boundary between Florida and the southwest corner of Georgia and a very small area in the southeast corner of Alabama.

The ACF system of reservoirs are operated to provide for the authorized purposes of flood control, fish/wildlife, navigation, hydroelectric power, water supply, water quality, and recreation. In order to provide the authorized project purposes of navigation, certain fish and wildlife needs, hydroelectric power, certain water supply needs, recreation, and water quality; flow must be stored during wetter times of each year, and released from storage during drier periods of each year. Traditionally this means that water is stored in the lakes during the spring, and released for authorized project purposes in the summer and fall months. In contrast, some authorized project purposes such as lakeside recreation, water supply, and lake fish spawn are achieved by retaining water in the lakes, either throughout the year or during specified periods of each year. The flood control purposes at certain reservoirs requires drawing down reservoirs in the fall through winter months to store possible flood waters and refilling of pools in the spring months to be used for multiple project purposes throughout the remainder of the year. The conflicting water demands on the system require that the Corps operate the system in a balanced operation in an attempt to meet all authorized purposes, while continuously monitoring the total system water availability to insure that minimum project purposes can be achieved during critical drought periods. In order to help do this, the Corps has defined four (4) Action Zones in each of the major ACF storage projects of Buford, West Point, and Walter F. George. Action Zone 1 is the highest in each lake, and defines a reservoir condition where all authorized project purposes should be met. As lake levels decline, Action Zones 2 through 4 define increasingly critical system water shortages, and guide the Corps in reducing flow releases as pool levels drop as a result of drier than normal or drought conditions. The Action Zones also provide a guide to the Corps to help balance the remaining storage in each of the three major storage reservoirs. The following describe each of the authorized project purposes in more detail:

1. Flood Control. Flood control is achieved by storing damaging flood waters, thus reducing downstream river levels below that which would have occurred without the dams in place. Of the five (5) Corps reservoirs, only the Buford (Lake Lanier) and West Point projects were designed with space to store flood waters. In addition to providing for space above the conservation pool to hold flood waters throughout the year, the Buford project is drawn down one (1) additional foot, and the West Point project is drawn down at least seven (7) additional feet beginning in the Fall season, through winter and into the early Spring season to provide additional capacity to protect life and property within the basin. In November 2008, in conjunction with the Exceptional Drought Operations (EDO), the Mobile District requested and was granted a temporary variance from the draft 1989 ACF Water Control Plan at the West Point and Walter F. George Dams to allow for refill of the reservoirs above the Top of Conservation level in the event that adequate rainfall occurs and that meteorological forecasts continue to call for drought conditions in the basin. However, in the event, that forecast conditions indicate that

severe flooding could occur in the basins above these projects and it would be prudent to evacuate some of this storage, the Mobile District will follow the normal flood operations.

2. Fish and Wildlife. In addition to providing for minimum flow and water quality releases, the Corps operates the system to provide favorable conditions for annual fish spawning, both in the reservoirs and the Apalachicola River. In most water years (1 October – 30 September) it is not possible to hold both lake levels and river stages at a steady or rising level for the entire spawning period, especially when upstream lakes and/or the Apalachicola River spawning periods overlap. During the fish spawning period for each specific water body, the goal of the Corps is to operate for a generally stable or rising lake level and a generally stable or gradually declining river stage on the Apalachicola River for approximately 4 to 6 weeks during the designated spawning period. When climatic conditions preclude a favorable operation for fish spawn, the Corps consults with the State fishery agencies and the USFWS on balancing needs within the system and minimizing the impacts of fluctuating lake or river levels. These fish spawn operations were incorporated into a draft Mobile District Standard Operating Procedure (CESAM SOP 1130-2-9) in February 2005, following consultation since 2002 with USFWS and State fishery management agencies from Alabama, Florida and Georgia.

In addition to fish spawn, the Corps was in Informal Consultation with the USFWS from 2000 until 7 March 2006, when the Corps and USFWS entered into Formal Consultation regarding the federally-listed Gulf sturgeon (*Acipenser oxyrinchus desotoi*); (the endangered fat threeridge mussel (*Amblema neislerii*); the threatened purple bankclimber mussel (*Elliptoideus sloatianus*); and the Chipola slabshell mussel (*Eliptio chipolaensis*) in the Apalachicola River. Prior to the Formal Consultation, the Corps and the USFWS had agreed since 2004 to implement a low flow operations protocol for the Apalachicola River similar to a “run-of-river” operation. The low flow operations protocol attempts to mimic the hydrologic conditions of a natural flow regime during low flow conditions and thereby minimizes impacts to Gulf sturgeon or protected mussels that occur on the Apalachicola River from falling river stages and discretionary reservoir operations. The low flow operations protocol is implemented whenever it appears that flows on the Apalachicola River are falling or predicted to fall below the levels identified as necessary to support Gulf sturgeon spawning. The low flow operations protocol instituted in 2004 included ensuring that releases to the Apalachicola River approximated or exceeded inflows into the basin whenever basin inflows approached 21,000 cfs or lower during the Gulf sturgeon spawning period. It was also recognized that some reservoir storage should be conserved in the spring months during sustained dry periods in order to provide sustained augmentation flows in support of the needs of protected mussel species during the later summer and fall months, which are typically the driest part of the year. The low flow operations protocol was also implemented when flows approached levels less than 8,000 cfs later in the year in order to minimize the impacts to the mussel species. Following continued consultation with USFWS, the low flow operations protocol was incorporated into the IOP describing operations in support of endangered and threatened species in early 2006, and included in the request dated 7 March 2006 to initiate formal consultation with the USFWS pursuant to the Endangered Species Act. A final Biological Opinion (BO) for the Jim Woodruff Dam IOP was issued by the U.S. Fish and

Wildlife Service, Panama City Field Office on 5 September 2006, and incorporated additional modifications to the IOP in order to avoid or minimize incidental take of listed mussels. This BO included five reasonable and prudent measures (RPMs) for further limiting the amount of incidental take associated with water management operations at Jim Woodruff Dam. For each of the five RPMs, the BO also included specific terms and conditions which must be met in order to assure compliance with the RPMs. The current IOP was developed in accordance with RPM3 of the BO, which required modifying the IOP to provide a higher minimum flow to the Apalachicola River when reservoir storage and hydrologic conditions permit. By letter dated 26 January 2007, an extension was requested until 28 February 2007 to develop the RPM3 drought provision; and by letter dated 2 February 2007, the USFWS approved the extension. On 16 February 2007, the Corps submitted the proposed RPM3 drought provision to the USFWS. In a letter dated 28 February 2007, the USFWS approved immediate implementation of the EDO in accordance with the provisions of RPM3 of the BO. On 8 March 2007, a Finding of No Significant Impact (FONSI) was signed for the RPM3 drought provision modification of the IOP and operations at Jim Woodruff Dam have been implemented accordingly since that time.

Consistent with the operational decisions approved in the September 2006 BO, the current IOP also includes a volumetric balancing of releases in cases where storage is used to follow the ramping rates specified in the IOP. Following rain events, the required ramping rates are often more gradual than the actual decline in basin inflows, and potential over-releases and additional drain on reservoir storage could occur, especially when trying to match releases to the computed 7-day average basin inflow. In order to avoid over-releases and conserve storage during critical periods, the volume of releases can be balanced during and following rain events. Releases after the rainfall events are adjusted to account for any computed under-release or over-release, to assure that net releases are balanced to meet the computed volume of basin inflow over time. The volumetric balancing computations do not include releases for flood control or other special releases not prescribed by the IOP, but primarily account for possible over-releases that occur due to the ramping rate restrictions. Due to a significant credit accumulating in the Corps volumetric balancing account since September 2006 (attributable to down ramping) and subsequent volumetric balancing activities in April 2007, the Corps and USFWS mutually agreed to improvements in the tracking procedures that more clearly address the goals of volumetric balancing were needed, i.e. generally assure required releases are made while recognizing the complexities of water management. Therefore, by letter dated 16 May 2007 the Corps submitted documentation of these clarifications to the volumetric balancing accounting system that simplified a complex computation procedure and refined the decision and accounting system to more clearly demonstrate the impacts on storage and whether releases meet the IOP flow releases schedule.

The IOP was developed in consultation with the USFWS to provide for releases in support of federally listed species on the Apalachicola River, consistent with the requirements of the current water control plan (1989 Draft Water Control Plan for the ACF Basin). During development of the IOP it was agreed that HEC-5 hydrologic modeling data for the 1939-2001 period would be used to analyze the impact of the IOP on listed species. The results of this analysis indicated that

the IOP would manage composite storage in the federal reservoirs in a manner that met the needs of consumptive demands and minimum releases through the worst drought of record (1999-2001 drought representing the critical period). However, in 2007 throughout much of the ACF Basin various precipitation and drought indices reached record lows and reservoir elevations at the federal projects were lower than observed or simulated with the IOP in place during this time of year for the critical period evaluated.

Throughout the summer of 2007 the Corps monitored the composite storage within the system and the forecast of an exceptionally severe and long lasting drought. In early September 2007 the Corps and USFWS began informal consultation discussions regarding the potential need to modify the IOP to allow temporary deviations due to the extraordinary drought conditions occurring in the ACF Basin and the likelihood of these conditions persisting throughout the remainder of this year and the following year. As discussed between the Corps and USFWS, in conformance with the Draft Water Control Plan (1989) for the ACF Basin and the provisions of the IOP, the Corps had been releasing a minimum flow of at least 5,000 cfs from Jim Woodruff Dam since late May 2007. The 7-day basin inflows during this same period were considerably lower than 5,000 cfs for substantial periods (average approximately 2,500 cfs during July - September) resulting in a substantial reduction in storage from the upstream reservoirs. In mid October, the Corps informed USFWS that recent 7-day basin inflows were averaging less than 2,000 cfs and that the composite storage for the system was in Zone 4 (lowest zone) and projected to continue to drop significantly over the next 30-60 days. Lake Lanier was the only federal reservoir within the ACF basin with conservation storage remaining to support downstream water users and the 5,000 cfs minimum flow and the extremely dry conditions were resulting in rapidly declining availability of this storage. Due to the likelihood of current conditions continuing through the end of this year and into the winter and spring of 2008, and only a limited amount of conservation storage being available to support the 5,000 cfs minimum flow, it was mutually agreed to consider immediate measures to reduce the continuing drawdown of Composite Storage and to maintain the Corps' ability to serve the various authorized project purposes for the federal reservoirs including fish and wildlife conservation.

During these discussions, it was determined that some of the drought contingency measures under consideration would require further evaluation and consultation discussion, but certain measures could be implemented immediately without causing adverse effects to the listed species. Therefore, both agencies agreed on 17 October 2007 to use volumetric balancing credits to allow storage of inflows greater than 5,000 cfs (storage volume limited to account balance) in the event of rainfall within the basin. Also, by letter dated 19 October 2007, the Corps requested a temporary modification of the IOP consisting of an immediate suspension of the maximum fall rate schedule until 1 March 2008. As described in the letter, elimination of the down-ramping provision would improve our ability to conserve storage to the maximum extent practicable. The Corps determined that temporary suspension of the maximum fall rate schedule may affect, but was not likely to adversely effect the threatened Gulf sturgeon, endangered fat threeridge mussel, threatened purple bankclimber mussel, and threatened Chipola slabshell; and would not result in destruction or adverse modification of habitat designated and proposed as critical habitat for the

Gulf sturgeon and the mussels. By letter dated 19 October 2007 the USFWS concurred with this determination and approved the immediate suspension of the maximum fall rate schedule until 1 March 2008. On 1 November 2007, Mobile District submitted a request to USFWS requesting the initiation of formal consultation on the proposed Exceptional Drought Operations (EDO) plan to relax the IOP provisions and consider reduction of the minimum release from Jim Woodruff Dam to 4,150 cfs. The EDO incorporated the suspension of down ramping modification, among others, in order to reduce the continuing drawdown of Composite Storage and to maintain the Corps' ability to serve the various authorized project purposes for the federal reservoirs including fish and wildlife conservation. A copy of a biological assessment of the impacts of the EDO was enclosed. At that time it was noted that both agencies had agreed to complete expedited formal consultation with the issuance of a biological opinion by the USFWS by 15 November 2007, due to the urgency presented by the severe drought conditions.

Mobile District submitted on 7 November 2007 an amendment to the biological assessment for the EDO including the consideration of incremental reductions in flow of 4,750 cfs and 4,500 cfs in order to minimize potential harm to mussels. This amendment was based on additional data provided by USFWS on 1 November 2007 regarding mussel distribution and anticipated impacts, and additional modeling completed by Mobile District on 3 November 2007.

On 15 November 2007, USFWS issued a final Amended Biological Opinion for the proposed EDO. The Biological Opinion included an Incidental Take Statement for incremental reductions in flow of 4,750 cfs and 4,500 cfs. Additional triggers would have to be developed and agreed to by both agencies prior to reduction to 4,500 cfs or 4,150 cfs; and re-initiation of consultation would be required prior to reduction to 4,150 cfs. Additional monitoring requirements would also be necessary for the proposed reductions in flow. Upon completion of an Environmental Assessment and signing of a Finding of No Significant Impact on 16 November 2007, the Corps implemented the provisions of the EDO and is currently operating according to the EDO. Flows were reduced to 4,750 on 16 November 2007, but returned to 5,000 cfs or higher by mid-December 2007.

An additional trigger for a proposed reduction to 4,500 cfs was submitted to USFWS on 7 December 2007, but not implemented due to rainfall experienced in the basin beginning in early to mid-December through the present. However, drought conditions are predicted to continue into the spring and summer of 2008.

3. Navigation. The existing project authorizes a 9-foot deep by 100-foot wide waterway from Apalachicola, Florida to Columbus, Georgia, on the Chattahoochee River, and to Bainbridge, Georgia on the Flint River. Conditions on the Apalachicola River have been such in recent years that a 9-foot deep channel has not been available for much of the year. Due to deteriorating channel conditions and limited channel availability during the low flow months, navigation windows were routinely scheduled during the low flow months in the 1990s. Navigation windows were comprised of storing water in the upstream reservoirs for several weeks, and then making increased releases for a 10-day to 2-week period to allow commercial

barge navigation to make a round-trip up river for scheduled delivery of commodities. Concerns were raised regarding the fluctuations of both reservoir and river stages associated with navigation window releases, and the continued use of navigation windows became increasingly controversial, especially during sustained low flow periods when observed fluctuations were more extreme. As a result of fluctuating river stages during navigation windows, gradual ramping rates were developed in coordination with the USFWS and Florida Fish and Wildlife Conservation Commission, with the goal to provide for ramping down rates of not more than ½ foot per day during fish spawn activities, and no more than one foot per day during other periods of the year, whenever flows were below 20,000 cfs. The last navigation window was provided in the Spring of 2000, and precipitated complaints that the navigation window was scheduled during the period of fish spawn and had adversely impacted both reservoir and riverine fish spawn activities. No navigation windows have been scheduled since that time, and none are planned in the foreseeable future. Dredging on the Apalachicola River also was reduced since the 1980s due to a lack of adequate disposal area capacity in certain reaches of the river. No dredging was conducted in 2000 or 2002 due to sustained drought conditions in the basin, and only very limited dredging was conducted in 2001 and then shutdown due to sustained low flow conditions. No dredging has been conducted since that time, for a variety of reasons related to flow or funding levels, and currently has been indefinitely deferred due to denial of a Section 401 water quality certificate from the State of Florida and restricted congressional funding for dredging operations in the ACF basin. The lack of dredging and routine maintenance has led to inadequate depths in the Apalachicola River navigation channel, and commercial navigation has only been possible on a seasonal basis when flows in the river are naturally high, with flow support for navigation suspended during drier times of the year. On a case-by-case basis, limited releases for navigation have been made for special shipments when a determination can be made that other project purposes will not be significantly impacted and any fluctuations in reservoir levels or river stages would be minimal.

4. Hydroelectric Power. The Buford, West Point, Walter F. George, and Jim Woodruff projects include hydroelectric power plants as part of those projects. The total generation capacity of these four (4) ACF plants is 336 megawatts. Through the Department of Energy's Southeastern Power Administration (SEPA), these power plants provide power to over 300 preference customers throughout the Southeastern United States. In 2005, the ACF hydroelectric power plants generated nearly 1.1 million megawatt-hours, enough electricity to supply approximately 110,000 households. In 2006 the same power plants generated approximately 717, 178 megawatt-hours. This supplied approximately 70,000 households. The decrease in generation was due to a combination of equipment outages and sustained drought conditions. Hydroelectric power generation is achieved by passing flow releases to the maximum extent possible through the turbines at each project, even when making releases to support other project purposes. The Buford, West Point, and Walter F. George projects are operated as "peaking plants", and provide electricity during the peak demand periods of each day and week. Hydropower peaking involves increasing the discharge for a few hours each day to near the full capacity of one or more of the turbines. During dry periods, as the lake levels drop below Zone 1, hydroelectric power generation is reduced proportionally as pool levels decline to as low as 2

hours per day generation at each "peaking plant" project during extreme low flow conditions. Peak generation may be eliminated or limited to conjunctive releases during severe drought conditions.

The main hydropower units and small unit intakes at Buford Dam/Lake Lanier have a bottom elevation of 919 feet above mean sea level (msl). However, severe cavitation occurs to the main hydropower turbines when the water surface falls to 1035 ft msl or below, at which time the units are taken out of service and generation ceases. The small unit goes off line when water elevations reach approximately 1020 ft msl.

Because it does not have the ability to store appreciable amounts of flow, the Jim Woodruff plant is operated as a "run-of-the-river" plant where inflows are passed continuously and electricity is generated around the clock. The current IOP includes a limited hydropower peaking operation at Jim Woodruff Dam when daily average releases are less than the combined capacity of the powerhouse turbines (about 16,000 cfs) in order to deliver extra power during hours of peak demand for electricity. These peaking releases are included in the daily average discharge computations for the minimum flow provisions. The peaks are also included in the stage computations for the IOP maximum fall rate schedule; however, the maximum fall rate schedule addresses the difference between the average river stage of consecutive calendar days, not the shorter-term differences that result from peaking operations within a calendar day. The relative drop in river stage from the peak to the base release will vary with different flows, but becomes more pronounced as flows decline, typically not more than 2.5 foot fluctuation per day above the base flow. The current IOP includes a provision that discontinues peaking operations at the Jim Woodruff plant as average daily releases approach 6,000 cfs, in order to maintain instantaneous releases greater than or equal to the 5,000 cfs minimum flow requirement.

5. Water Supply. Various municipal and industrial (M&I) entities withdraw water directly from Lake Lanier and others withdraw directly from the Chattahoochee River downstream of Lake Lanier. To a lesser degree, M&I entities also withdraw water directly from West Point Lake and the Chattahoochee River downstream of West Point. Water management in the ACF basin is also impacted by agricultural water withdrawals on the Flint River. Agricultural demands vary depending on the climatic conditions, but are generally 1.5 to 2 times the withdrawals for M&I (USFWS 2006). These Flint River agricultural water withdrawals can result in the need to augment flows from storage in the Federal reservoirs on the Chattahoochee River in order to maintain the minimum flow requirement at Jim Woodruff Dam. Water withdrawals within the State of Georgia are made pursuant to water withdrawal permits issued by the Georgia Department of Natural Resources. Previous water supply contracts issued by the Corps for withdrawals from Lake Lanier expired by 1990 and have not been re-issued. The Water Supply Act of 1958 provides authority for reallocation or addition of storage within Corps reservoirs for water supply, with the cost of storage and associated facilities to be reimbursed by a non-Federal entity via water storage contracts. No storage within the ACF projects is currently allocated to water supply, although there was currently a proposal being considered by the Corps to enter into interim water storage contracts at Lake Lanier for several municipalities and local

governments, pursuant to the Southeastern Federal Power Customers, Inc. settlement agreement (1:00CV02954–TPJ), with the potential for the interim water storage contracts to roll over to permanent reallocation storage contracts in the future. This settlement agreement has since been invalidated by the U.S. Court of Appeals for the District of Columbia Circuit (No. 06-5080), in its 5 February 2008 decision. The Mobile District has also recently published a notice of intent to initiate updates to the existing water control manuals, published in the Federal Register on 22 February 2008.

As a result of significantly reduced inflows to the ACF Basin and continued releases necessary to meet minimum flow requirements downstream during the projected sustained drought conditions, there is concern that Lake Lanier may deplete its conservation storage if severe drought conditions continue into 2008. Even if conservation storage is depleted, over 40% of Lake Lanier's water is located in the "inactive" storage zone (below elevation 1035 feet msl) and could support limited water supply and certain other critical water requirements in the system, although most other project purposes would be severely impacted or eliminated.

Gwinnett County has multiple elevation intakes ranging from 1062, 1045, and 1025 feet, and has withdrawn from the 1025-foot intake (within the inactive storage zone) for many years.

City of Cumming intakes range from elevation 1053 down to 1032 feet, but the lowest intake is in a "hole" surrounded by lake bottom at elevation 1045 feet. They are currently making adjustments to that intake that should allow withdrawals down to elevation 1032 feet.

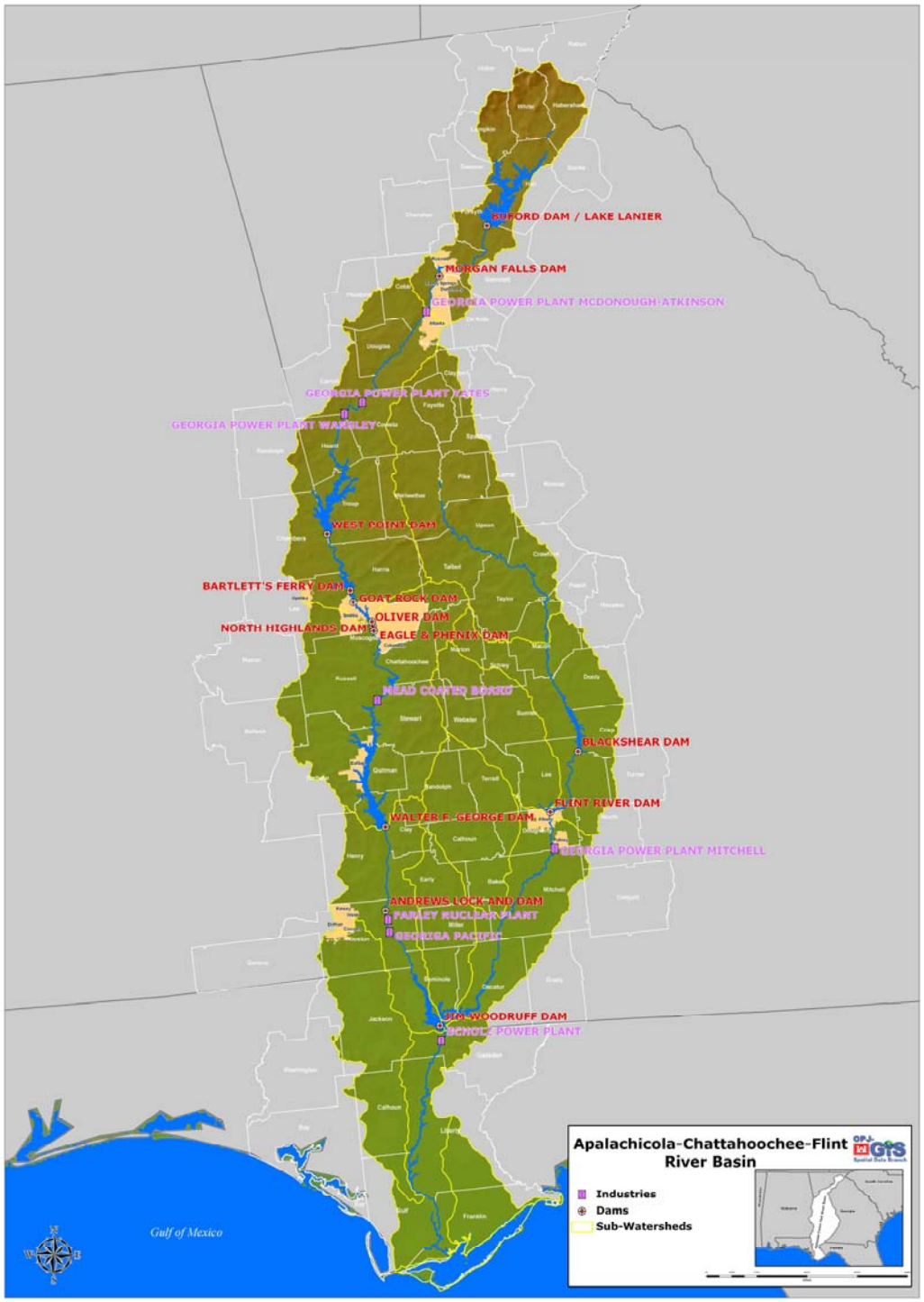
City of Buford intakes are at elevations 1062, 1052, 1042, and 1032 feet. The 1032-foot intake did have some sediment buildup around it, but that has been removed so that the intake is functional if needed.

City of Gainesville has three intake structures, each with multiple intake ports ranging from elevation 1063 down to 1025 feet (within the inactive storage zone).

Releases through Buford Dam to the Chattahoochee River currently draw from the inactive storage zone (releases from the hydropower units and the sluice gates), and these release waters make up the Chattahoochee River that flows downstream to the Atlanta area municipal water intakes downstream. Releases from Lake Lanier also support a number of other downstream M&I water supply needs including City of LaGrange, City of West Point, and the City of Columbus, as well as a number of industries shown in Figure 2.

Flow releases also support Georgia Power Company hydropower facilities (Plant McDonough, Plant Yates, and Plant Wansley) and cooling water withdrawals for several industries including critical power plants, such as the Farley Nuclear Plant which requires a minimum elevation of 74.5 ft msl and the Plant Scholz located immediately downstream of Jim Woodruff Dam which requires a minimum flow of 5,000 cfs but can temporarily operate at water elevation of 37.5 ft msl (equivalent to flows of 4,200 cfs).

Figure 2 – Municipal and Industries in the ACF basin



6. Water Quality. Buford, West Point, and Jim Woodruff dams all provide continuous flow releases. Walter F. George has no such minimum flow provision; however, when low dissolved oxygen (DO) values are observed below the dam, spillway gates are opened until the DO readings return to an acceptable level. Occasional special releases are also made at Buford to insure adequate DO and water temperature at the Buford Fish Hatchery located downstream of the dam. Additionally, self-aspirating turbines were recently installed at Buford to improve DO levels downstream. At Buford Dam the small turbine-generator is run continuously to provide a minimum flow from the dam which ranges up to approximately 600 cfs. In the event of outages for the small turbine, releases are made through sluice gates to provide the required minimum continuous flows into the Chattahoochee River. In addition to these flows, Buford Dam is operated in conjunction with the downstream Georgia Power Dam at Morgan Falls to insure a minimum instream flow of 750 cfs on the Chattahoochee River at Peachtree Creek to meet State water quality commitments. The EPD has classified the Chattahoochee River from Buford Dam to the I-285 West Bridge in Atlanta as a secondary trout stream. The water quality standards for secondary trout streams require a DO daily average value of 6.0 mg/l and a value of 5.0 mg/l at all times. The Chattahoochee River from Atlanta (Peachtree Creek) to Cedar Creek is classified as "fishing". The water quality standards for this classification require a dissolved oxygen daily average value of 5.0 mg/l and a value of 4.0 mg/l at all times. At West Point Dam, a similar small generating unit to that at Buford provides a continuous release of approximately 675 cfs.

Although there is no Corps requirement to maintain minimum flows for assimilative capacity at Columbus, GA, the Georgia Power Projects above Columbus are required in their Federal Energy Regulatory Commission (FERC) licenses to provide 1,850 cfs weekly average, 1,350 cfs daily average, and 800 cfs instantaneous minimum flow at Columbus. Releases from the Georgia Power Projects are dependent on upstream releases from West Point Dam. Georgia Pacific and Farley Nuclear Plant located below George W. Andrews Dam have stated a requirement of 2,000 cfs for assimilative capacity needs.

Generally a 5,000 cfs minimum flow is maintained as a release from the Jim Woodruff Dam to the Apalachicola River, which assures an adequate water supply for downstream industrial use. Due to the exceptional drought conditions experienced during most of 2007, the Corps implemented the EDO operations at Jim Woodruff Dam which provided for flows as low as 4,500 cfs. However, flows below 4,750 cfs have not occurred to date under the EDO operations. No water quality problems below Jim Woodruff Dam have been identified in the Apalachicola River in association with project operations. However, the extraordinary drought conditions experienced during much of 2007, resulted in salinity changes in Apalachicola Bay and increased water temperatures and associated localized DO changes in the river due to extended periods of low flow (approximately 5,000 cfs).

The 11 February 2008 letter from EPD states that consistent with their rules, the EPD finds that Chattahoochee River flows at Peachtree Creek can be reduced below 750 cfs if the dissolved oxygen water quality criteria (daily average of 5.0 mg/l and no less than 4.0 mg/l at all times) can

be met. These conditions can typically be met with a reduced flow during the cooler water months in the winter and early spring.

7. Recreation. The ACF basin contains approximately 2 million acres of public lands and resource protection areas including heavily used federal reservoirs, national forests, national and state parks, and resort communities. The five Corps projects in the basin account for 235,291 total acres of land and water. A wide variety of recreational opportunities are provided at these lakes including boating, fishing, picnicking, sightseeing, water skiing, and camping. These reservoirs support popular sport fisheries, some of which have achieved national acclaim for trophy-size catches of largemouth bass.

All of the Corps lakes have become important recreational resources on the ACF system. Of these projects, Lake Lanier (Buford Dam) is one of the most visited Corps lakes in the entire United States. The West Point and Walter F. George lakes also rank among the top ten most visited Corps lakes in the United States. Park attendance has been relatively stable at most lakes (Table 1). The exception has been at West Point Lake, Walter F. George Lock and Dam and the Apalachicola and Flint Rivers. West Point Lake experienced a slight decline in attendance in FY07 as did the Apalachicola and Flint Rivers. Walter F. George has experienced alternating years of increase and decline since fiscal year 2002 (FY02).

Table 1. Annual Park Visitation on the Four Reservoirs

Annual Park Visitation by Lake

	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007
BUFORD DAM -	7,359,181	7,697,482	7,698,005	7,725,328	7,552,119	7,738,041
WEST POINT LAKE	2,620,642	2,691,920	2,947,170	3,199,052	3,300,836	3,200,083
WALTER F GEORGE LOCK AND DAM	4,397,237	4,384,766	4,423,694	3,693,899	4,340,890	3,792,794
APALACHICOLA CHATTAHOOCHEE AND FLINT RIVERS	252,967	253,289	304,412	269,801	241,980	231,869

Note: Apalachicola Chattahoochee and Flint Rivers denotes visitation at Woodruff and the Apalachicola River

In 2007, virtually all marinas experienced some degree of recreational reductions due to declining water levels. The Corps owned boat launches also experienced a noticeable reduction in accessibility (Table 2). Nearly all swimming areas were closed in 2007.

Table 2. Boat Ramp Availability at the Four Reservoirs (as of 14 November 2008).

Boat Ramp Availability

	Total Number of Ramps	Ramps Open	Marginal Ramps
Buford Dam	40	2	1
West Point Lake	27	5	1
ACF (Walter F George, ACF, Seminole)	25	16	4

A wide variety of recreational opportunities are provided at the lakes including boating, fishing, picnicking, sightseeing, water skiing, and camping. The economic benefits of recreation at the lakes is significant resulting in visitor spending in 2005 of over $125 million at Lake Lanier, $36 million at West Point, and $111 million at Walter F. George. Recreation benefits are maximized at the lakes by maintaining full or nearly full pools during the primary recreation season of 1 May through 8 September. In response to meeting other authorized project purposes, lake levels can and do decline during the primary recreation period, particularly during drier than normal years. Recreation impact levels have been identified for various lake elevations at each of the reservoir projects (Table 3). The first impact level is generally characterized by marginal impacts to designated swimming areas, increased safety awareness regarding navigation hazards, minimal impacts to Corps boat ramps, and minimal impacts to private marina and dock owners. More substantial impacts begin to occur at the second impact level and continue as lake elevations drop due to drought conditions.

Table 3. **Recreation Impact Levels**

Corps Project	First Impact Level	Second Impact Level
Lake Lanier (msl)	1066	1063
West Pont (NGVD)	632.5	629
Walter F. George (NGVD)	187	185
Lake Seminole (msl)	76	NA

The National Park Service (NPS) manages, via the Chattahoochee River National Recreational Area (CRNRA), 48 miles of the Chattahoochee River from Buford Dam to Peachtree Creek. Studies suggest that instantaneous flows of 1000 to 1,500 cfs in the Chattahoochee River reach from Buford Dam to Peachtree Creek are advantageous for recreational opportunities and resources supported by the river as it flows through the CRNRA (Nestler, et al. 1986).

Recreation in the Apalachicola River is based primarily on its warm water fishery. Bass, sunfish and catfish are the preferred game species. Public and private land holdings are located throughout the Apalachicola River basin. Significant portions of the Apalachicola River floodplain are owned and managed as natural resource areas by the NWFWMD; the Florida Fish and Wildlife Conservation Commission (FWCC) (Lower Apalachicola River Basin

Environmentally Endangered Lands); U.S. Forest Service (Apalachicola National Forest); Florida Department of Environmental Protection (Three Rivers State Recreation Area, Torreya State Park and the Apalachicola National Estuarine Research Reserve); and The Nature Conservancy (Apalachicola Bluffs and Ravines Preserve, "Garden of Eden"). These publicly held lands include wildlife management areas, reserves, refuges, forests, state parks, recreation areas, conservation lands and special feature sites that are used for hunting, as well as non-consumptive recreational uses such as hiking, nature study, and picnicking.

Apalachicola Bay is part of the Apalachicola National Estuarine Research Reserve and thus provides educational and recreational opportunities as well.

b. Significant Resource Description**.** As described above, the Corps operates the five federal reservoirs on the ACF as a system and releases from Buford could have impacts throughout the basin. However, modeling results described in detail below, suggest that impacts to reservoir and river levels associated with the proposed action are limited to the portion of the basin above West Point Dam. Therefore, the significant resource description and associated impacts to significant resources sections will primarily focus on the resources in the Chattahoochee River above West Point Dam, West Point Lake, and Lake Lanier. However, a general discussion of the resources in the lower part of the basin (specifically those related to authorized project purposes) is included also.

1. Hydrology. The ACF basin is a dynamic hydrologic system containing interactions between aquifers, streams, reservoirs, floodplains, and estuaries. Water resources in the ACF basin have been managed to serve a variety of purposes, including navigation, hydroelectric power, flood control, water quality, fish and wildlife conservation, water supply, and recreation. There are 16 reservoirs on the mainstems of the Apalachicola, Chattahoochee, and Flint Rivers (5 Federal and 11 non-Federal projects), which have altered the natural streamflow and provided potential for water supply improvements and recreational opportunities for the public in addition to other project purposes in these resource areas. These reservoirs attenuate high river flows during wet periods and augment low flows during dry weather periods. The interrelationship between operation of the dams and the resulting river flows has resulted in a highly regulated system over much of the basin. Water resources in the ACF basin include both surface water and groundwater. There is significant interaction in the basin between the surface water and groundwater, particularly in the lower half of the basin (Comprehensive Water Resources Study Partners, 1995).

In the southeast U.S., rain falls nearly every month. However, seasonal trends generally include a wetter period between December and March and a notably drier period in the fall (September – November). The summer months can be dry also, but vary due to the influences of thunderstorms and tropical storms. Differences in monthly river flows are generally attributable to a combination of climatic differences, higher consumptive uses, and reservoir operations. However, hydrologic patterns within the basin vary from year to year and may not conform to the seasonal trends during any given year. The basin is currently in the third year of a

particularly extreme drought and forecasts suggest that the remainder of 2008 could likely see well below normal precipitation.

2. Fishery Resources. The ACF reservoirs support popular sport fisheries, some of which have achieved national acclaim for trophy-size catches of largemouth bass. Important game species in the Federal reservoirs include crappie, largemouth bass, spotted bass, striped bass, walleye, white bass, gizzard shad, hybrid bass (striped bass-white bass hybrid), threadfin shad, bluegill, and redear sunfish.

The Chattahoochee River downstream of Buford Dam includes three regulated, isolated, unimpounded reaches totaling 115 river miles: Buford Dam to upstream end of Morgan Falls Lake (32 river miles); Morgan Falls Dam to the upstream end of West Point Lake (77 river miles); and West Point Dam to the upstream end of Langdale Lake (6 river miles). The reach from Buford Dam to the confluence of Peachtree Creek supports a valued stocked trout fishery and has been classified by the EPD as secondary trout waters. This classification includes regulatory criteria for water quality specifying limits to elevations of natural stream temperatures and minimum dissolved oxygen standards (5.0 mg/l and 6.0 mg/l daily average). The Chattahoochee River system between Morgan Falls Dam and West Point Lake includes an extensive reach of riverine habitat with shoals (near Franklin, GA) that provide spawning habitat for white bass migrating upstream from West Point Lake. However, degraded water quality may impact faunal integrity in this reach (USFWS 1998). The low diversity and abundance of native fishes in the Chattahoochee River downstream of Atlanta may be largely attributable to decades of industrial and municipal wastewater discharge, and sedimentation and other nonpoint source run-off from the rapidly growing metropolitan area (USFWS 1998).

Nine dams impound nearly the entire reach of the Chattahoochee River between West Point Dam and Walter F. George Lock and Dam. Riverine habitat exists as short fragments isolated between an upstream dam and the backwaters of the next downstream impoundment.

The upper Flint River system supports a large fraction of the native ACF fish assemblage, including five endemic species. Important habitat for fishes and mussels occurs in mainstem and tributary habitats. This reach is particularly unique in retaining the connectivity of riverine habitat from the Piedmont to the Coastal Plain physiographic province. This connectivity between the distinct habitats above and below the Fall Line facilitates the natural flow of water, energy, and nutrients to downstream habitats, and allows the potential exchange of individuals among populations experiencing different habitat regimes. The lower Flint River system is regulated by two upstream impoundments and supports sport fisheries as well as summer refuge and spawning habitat for Gulf striped bass (USACE 1998).

The Apalachicola River flows freely from Jim Woodruff Lock and Dam, and represents the only unimpounded large-river habitat remaining in the ACF basin. The Apalachicola River system comprises, in addition to the mainstem, tributaries (including the Chipola River) and distributaries in a matrix of forested wetlands of exceptional extent. Flow is regulated by

Woodruff Dam and upstream dams, and the channel was maintained for navigation until 2001. Diverse fish assemblages persist in the natural channel habitats and anadromous species such as the Gulf sturgeon, striped bass, and Alabama shad ascend the river to potential spawning habitat in the upper portion of the river (USFWS 1998).

3. Essential Fish Habitat. The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) mandates designation and protection of essential fish habitat (EFH). EFH is defined as … "those waters and substrates necessary to fish for spawning, breeding, feeding or growth to maturity." The designation and conservation of EFH seeks to minimize adverse effects on habitat caused by fishing and non-fishing activities. The National Marine Fisheries Service (NMFS) has identified EFH habitats for the Gulf of Mexico in its Fishery Management Plan Amendments. These habitats include estuarine areas such as estuarine emergent wetlands, seagrass beds, algal flats, mud, sand, shell and rock substrates, and the estuarine water column. EFH in the project area includes the Apalachicola River/Bay system up to the limit of permanent fresh water. Species managed by NMFS under the Fishery Management Plan that occur in the area of influence for the project include red drum; gray snapper; brown, white, and pink shrimp; and Gulf stone crab.

4. Floodplain/Wetlands. Most of the wetland area within the ACF basin is represented by forested palustrine wetlands located within the floodplains of rivers. These riparian (river-associated) forested systems are often referred to as bottomland hardwoods. Riparian palustrine systems within the ACF basin also include small areas of non-forested wetlands such as marsh or shrub wetlands. Riparian systems depend on the natural flooding regime of rivers and, in turn, influence the water and habitat quality of riverine ecosystems. The remaining wetland area within the ACF basin consists of estuarine wetlands, and palustrine wetlands that occur along reservoirs (reservoir-associated). Estuarine wetlands constitute a relatively small percentage of the total wetland area within the basin (USACE 1998).

Estimates of wetland acreage within the ACF basin as a whole vary because of differences in methods used to classify and inventory wetlands. However, approximately 5 percent (633,600 acres) of the basin was wetlands in the 1970's (USGS, 1996). Because of hilly topography, wetlands in the Blue Ridge and Piedmont provinces are small and scattered. Most wetlands of significant size are in the Coastal Plain province in the Flint River and the Apalachicola River basins. Approximately 90,000 acres are in the forested floodplain of the Flint River basin and in the floodplain and swamps associated with the Chickasawhatchee and Spring Creeks (USFWS, 1998). The Apalachicola River basin contains about 27,000 acres of wetlands in the Chipola River floodplain, and 130,000 acres of wetlands in the floodplain and tidal marshes of the Apalachicola River (Wharton et al., 1977; Leitman, 1984).

5. Wildlife Resources. The wildlife resources found in the ACF basin vary greatly with the vegetative community, although some generalist species, such as white-tail deer, raccoon, Virginia opossum, and grey squirrel are found throughout the basin in a number of habitat types. Habitat types within the basin include mixed hardwood forests, rock outcrops, grasslands,

longleaf pine-turkey oak sandhill communities, bottomland hardwood forests, and maritime communities.

Because the proposed action would most directly affect wildlife resources occurring in or directly associated with flow or water levels on the Apalachicola, Chattahoochee and Flint Rivers this section will focus on wildlife associated with aquatic and riparian habitats.

a. Aquatic Fauna: The ACF basin supports a wide variety of aquatic vertebrates requiring freshwater to complete their lifecycles, including aquatic turtles, salamanders, frogs, snakes, lizards and the American alligator in the Apalachicola River. Invertebrates also comprise a significant percentage of the biomass in the basin. Aquatic insects probably constitute the largest and most diverse group of aquatic invertebrates in the basin. However, research into the aquatic insects is limited and comprehensive data regarding taxa and habitat throughout the ACF basin is not available. The Apalachicola and Flint Rivers also support a large number of endemic freshwater gastropods and bivalves including several federally listed threatened and endangered species.

The Apalachicola Bay supports an important commercial fishery for American oyster, penaeid shrimp (brown, white, and pink shrimp), and blue crab. The bay accounts for approximately 90 percent of the oysters harvested in Florida. In addition to the commercial value of the oyster itself, the oyster reefs of the Apalachicola Bay estuary support numerous fish and aquatic invertebrates that are important components of the estuarine foodweb.

b. Terrestrial Fauna: As described above, the basin exhibits a range of habitats and conditions and thus supports a commensurate variety of terrestrial vertebrates and invertebrates. Generally, the floodplain can be divided into a detritus-dominated aquatic area that graduates to drier, upland areas as elevation and distance from the aquatic community increases. The near-upland areas of floodplain forests typically support a greater diversity of animals than the wetter areas because they provide greater amounts of food for herbivorous and omnivorous species.

6. Threatened and Endangered Species. In the September 2006 Biological Opinion and Conference Report (BO) on the U.S. Army Corps of Engineers, Mobile District, Interim Operating Plan for Jim Woodruff Dam and the Associated Releases to the Apalachicola River, the USFWS identified 37 threatened and endangered species (including critical habitat if designated or proposed) that occur in the ACF River Basin. In the BO, it was determined that due to the nature of proposed action (IOP operations), only those species that depend primarily on riverine habitat are likely to be effected and there should be no effect or an insignificant effect (*i.e.,* any impacts should never reach the scale where take occurs) on all but the riverine- and estuarine-dependent species occurring in the project area. Only the federally threatened Gulf sturgeon and federally endangered fat threeridge, federally threatened purple bankclimber, and federally threatened Chipola slabshell mussels and designated Gulf sturgeon critical habitat and designated critical habitat for the mussels were identified to possibly be effected by the proposed

action. The temporary minimum flow reduction at Peachtree Creek is also likely to only affect those species that depend primarily on riverine habitat. The September 2006 Biological Opinion and Conference Report and the November 2007 Amended Biological Opinion and Conference Report provide a detailed and current description of the status and distribution of these species in the project area, and thus they are incorporated by reference here.

Two species of sea turtles and the West Indian manatee may sometimes occur in Apalachicola Bay or the lower Apalachicola River; however, any effects of the proposed action to these species would be insignificant also, due to their low numbers and only occasional seasonal residence in the river and bay. Three listed species of fresh water mussels occur in headwater areas upstream of the Corps' ACF projects: the shiny-rayed pocketbook, Gulf moccasinshell, and oval pigtoe. The proposed action will have no effect on these mussels as they occur outside of the project area. Altogether, the proposed action will have either no effect or an insignificant effect on the species listed in Table 4 and these are not further discussed in this environmental assessment.

Table 4. Species and critical habitat evaluated for effects but not discussed further in this Environmental Assessment.

Species or Critical Habitat	
Flatwoods salamander (*Ambystoma cingulatum*)	Black-spored quillwort (*Isoetes melanospora*)
Loggerhead turtle (*Caretta caretta caretta*)	Pondberry (*Lindera melissifolia*)
Eastern indigo snake (*Drymarchon corais couperi*)	White birds-in-a-nest (*Macbridea alba*)
Atlantic ridley (*Lepidochelys kempi*)	Canby's dropwort (*Oxypolis canbyi*)
Piping plover (*Charadrius melodus*)	Godfrey's butterwort (*Pinguicula ionantha*)
Bald eagle (*Haliaeetus leucocephalus*)	Harperella (*Ptilimnium nodosum)*
Wood stork (*Mycteria Americana*)	Chapman's rhododendron (*Rhododendron chapmanii*)
Gray bat (*Myotis grisescens*)	Michaux's sumac (*Rhus michauxii*)
Indiana bat (*Myotis sodalis*)	Green pitcherplant (*Sarracenia oreophila*)
West Indian manatee (*Trichechus manatus*)	American chaffseed (*Schwalbea Americana*)
Shiny-rayed pocketbook (*Lampsilis subangulata*)	Florida skullcap (*Scutellaria floridana*)
Gulf moccasinshell (*Medionidus penicillatus*)	Fringed campion (*Silene polypetala*)
Oval pigtoe (*Pleurobema pyriforme*)	Gentian pinkroot (*Spigelia gentianoides*)
Little amphianthus (*Amphianthus pusillus*)	Cooley meadowrue (*Thalictrum cooleyi*)
Apalachicola rosemary (*Conradina glabra*)	Florida torreya (*Torreya taxifolia*)
Telephus spurge (*Euphorbia telephioides*)	Relict trillium (*Trillium reliquum*)
Harper's beauty (*Harperocallis flava*)	

7. Historic and Archeological Resources. During preparation of the 1998 draft Water Allocation for the ACF River Basin EIS, the Mobile District completed a basinwide evaluation of cultural resources to summarize the existing conditions and to estimate the potential impacts on the resources from a change in water management. No site-specific surveys were completed. Instead, the Corps used an extensive literature search and predictive modeling based on information provided by the Alabama, Georgia, and Florida State Historic Preservation Office site files to evaluate cultural resources at a programmatic level. The area of cultural resources in the ACF basin encompasses a wide range of phenomena, including:

- Archaeological sites — artifact concentrations, features, or structural remains
- Standing structures — commercial or residential dwellings, schools, bridges, or other facilities
- Landscapes and multiple resources — battlefields, rural or residential districts, and associated groups of buildings, facilities, or communities
- Traditional cultural properties — places of particular traditional importance to Native Americans
- American communities or tribes

The Corps identified three types of effects that would be expected to occur in association with water management activities. These effects include erosion that removes soil or other material that protects or supports a resource, deposition of sediment or other materials to a resource, and any effect that allows access to a resource.

8. Soils/Sediments. Soils of the ACF basin are divided into six major land-resource areas, formerly called soil provinces. Four of these, the Southern Piedmont, Georgia Sand Hills, Southern Coastal Plain, and Eastern Gulf Coast Flatwoods land-resource areas, cover 97 percent of the basin. The Southern Piedmont is dominated by ultisols, which are acid and low in nitrogen and phosphorous. These soils generally lack the original topsoil because of erosion that began with intensive cultivation of cotton in the 1800s (Wharton, 1978).

Soils in the Southern Coastal Plain and the Georgia Sand Hills land-resource areas are derived from marine and fluvial sediments eroded from the Appalachian and Piedmont Plateaus. Ultisols are found throughout Southern Coastal Plain, with the exception of some areas in the Georgia Sand Hills and Dougherty Plain where entisols are locally present.

The Eastern Gulf Coast Flatwoods land-resource area, which comprises much of the Apalachicola River basin, is dominated by spodosols, which are poorly to very-poorly drained (Couch et al., 1996).

The two most significant ongoing processes that can impact the stability of soils in the area of the ACF basin are erosion and sedimentation. In river environments, erosional areas occur along unstable slopes, on the cut banks in stream bends, along reservoir banks, and in other areas where waters travel at velocities high enough to pick up the soil or rocks. Also, rapid water level

fluctuation can contribute to increased bank erosion. While erosion is a natural process, variations in flow rates can seriously affect localized areas in which stream banks are cut further back, structural features are undermined, or slopes become unstable and dangerous. Similar patterns of induced erosion are also associated with increased fluctuations in reservoir levels. In contrast, deposition, sedimentation, or siltation occurs when the velocities of flowing water are reduced and can no longer carry the suspended load of soil and rock. Deposition can occur under a variety of conditions, such as when a stream enters a larger water body or shallower environment, or floods onto a broader flood plain, or when flows are reduced as a result of surface water withdrawal from the channel or surface water losses to groundwater (USACE, 1998).

9. Hazardous and Toxic Materials. Predominant land uses in the ACF basin include forest land (66.0 percent), agricultural production land (24 percent), and residential (6.0 percent). A USEPA review of published accounts of abandoned contaminated waste sites on the USEPA National Priorities List (NPL) identified four contaminated sites of sufficient concern to apply Superfund Criteria and warrant listing on the NPL. However, none of these four sites is situated along main river channels that may be affected by the recommended plan or alternatives. There are no anticipated environmental consequences to surface water quality due to the presence of the Superfund sites (USACE, 1998).

3. DESCRIPTION OF THE RECOMMENDED ACTION

The recommended action is to temporarily reduce the water quality flow requirement at Peachtree Creek, which would allow the immediate reduction in water quality releases from Buford Dam in order to meet a a reduced minimum flow measured at Peachtree Creek from an instantaneous daily flow value from 750 cfs to 650 cfs and continue to operate for this value during the cooler water months until as late as 30 April. Beginning 1 May (or earlier if monitoring data determines higher flows are necessary to meet water quality standards), releases for water quality from Buford Dam would be made to meet a minimum instantaneous daily flow value of 750 cfs. The proposed action also includes a temporary waiver from the existing ACF Water Control Plan to allow a reduction in the minimum flow agreement which specifies maintenance of a minimum instantaneous daily flow value of 750 cfs in the Chattahoochee River measured just upstream of the confluence with Peachtree Creek.

The Georgia EPD has agreed to use an adaptive management approach regarding the minimum water quality flow requirement as actual water quality data is collected and as other actual data and information become clear. The EPD will monitor DO near the Dog River during the period of reduced minimum flow. In the event that monitoring indicates the reduced minimum flow is not supporting the water quality criteria or other resource needs, adjustments to releases can be made. In addition, the Corps will coordinate closely with the Atlanta Regional Commission (ARC) regarding daily withdrawals for the City of Atlanta intake in order to ensure that we are making releases that provide at least the minimum flow at Peachtree Creek at all times.

The requirement for a lower water quality flow at Peachtree Creek was similarly relaxed in previous drought years (2001-2002), and could also be implemented in future drought conditions if determined necessary and if there are assurances that State water quality standards can be met. Monitoring and adaptive management would continue to be a necessary component of any future drought contingency plan.

4. ALTERNATIVES TO THE RECOMMENDED ACTION

"No Action" Alternative (Alternative 1)
The CEQ regulations require analysis of the "no action" alternative 40 C.F.R. § 1502.14. Based on the nature of the proposed action, "no action" represents "no change" from the current water management practices at Buford Dam, and no change from the existing minimum flow requirements described in the Apalachicola Basin Reservoir Regulation Manual-Appendix B - Buford Dam (1991) would be made. Therefore, under the "no action" alternative, the Corps would continue to make releases from Buford Dam in order to meet the 750 cfs instantaneous minimum daily flow value at Peachtree Creek while operating consistent with the existing water control plan and the IOP/EDO operations during an extended drought period. This alternative fails to take advantage of the cool weather months allowing for a potential reduction on the demand of valuable stored water in Lake Lanier. Therefore, additional alternatives were considered.

Maintain 550 cfs Minimum Flow at Peachtree Creek (Alternative 2)
This alternative represents the original proposal by EPD and is similar to the recommended plan, with the exception of maintaining a 550 cfs instantaneous minimum daily flow value at Peachtree Creek between now and 30 April 2008. The impact analysis suggests that this alternative may provide additional benefits to storage at Lake Lanier, without significantly impacting downstream resources. However, 80th Congress, 1st Session, House Document 300, South Atlantic Division report, 20 March 1946 – adopted by Congress on the basis of project authorization – provided that the project release "varying flows up to a maximum of 600 second-feet… from Buford so as to insure at all times a flow at Atlanta not less than 650 second-feet" (H.D. 300, p 34, par. 80). Due to the apparent need for additional studies and coordination to reduce the minimum flow values at Peachtree Creek below 650 cfs and the likelihood that these studies would prevent implementation of the reduced minimum flow for any significant period between now and 30 April 2008, EPD requested that flows in the Chattahoochee River, as measured at the confluence of Peachtree Creek, be immediately reduced to 650 cfs at a minimum until 30 April 2008. The Corps concurs that alternatives requiring additional authorization may result in an inability to realize all the potential storage benefits of reducing the minimum flow requirement immediately. Therefore, this alternative was not carried forward for further consideration.

5. ENVIRONMENTAL IMPACTS OF THE RECOMMENDED PLAN

The recommended action was designed to allow conservation of water stored at Lake Lanier in

anticipation of continuing drought conditions this year, while minimizing or avoiding adverse effects to other water resource users in the basin, endangered and threatened species and the overall aquatic environment. To determine the future environmental impacts of the recommended plan, we compare the environmental conditions expected to occur under it to those expected to occur if no action were taken (current EDO). Since the future hydrologic conditions are unknown, we analyze a range of river flow conditions and reservoir elevations that could occur as a result of two simulated drought conditions under various Chattahoochee River at Peachtree Creek minimum flow scenarios. For the purposes of this analysis, we assume that drought conditions will continue throughout 2008 and have synthesized two flow regime scenarios to represent a range of possible conditions that could be experienced under the two minimum flow scenarios and "no action". It should be noted that these synthesized flow regimes are based on continuing drought conditions and thus the hydrological data input into the model represents reasonable "worst case scenario" hydrological conditions. HEC-5 model simulations were run for the "no action" and 650 cfs and 550 cfs minimum flow scenarios under the two simulated flow regimes and graphical representations of the results were generated for various analyses (reservoir elevations and river flows). These figures are provided in Appendix A. The recommended plan represents a temporary modification of the "no action" alternative. A detailed description of how this hydrological input data for the model was developed is provided below.

Basin inflow is the amount of water that would flow by Jim Woodruff Dam during a given time period if all of the Corps reservoirs maintained a constant water surface elevation during that period, such that the reservoirs would only release the net inflow into the dam. Basin inflow is not the natural flow of the basin at the site of Jim Woodruff Dam, because it reflects the influences of reservoir evaporative losses, inter-basin water transfers, and consumptive water uses, such as municipal water supply and agricultural irrigation. The "no action" and reduced minimum flow scenarios include these influences, and use the same estimates of reservoir evaporation and current water demands; therefore, the difference between these actions is the net effect of continued operation under each alternative including the effect of influences that are unrelated to project operations.

The consumptive water demands used in the models represent an estimate of year 2000 levels of the net depletion due to municipal, industrial, and agricultural water uses and evaporative losses from the four largest reservoirs, Lanier, George, West Point, and Seminole. These depletions vary by month and in the case of agricultural demands and reservoir evaporation, also by year (wet, normal, dry). These consumptive demand estimates and the other model settings and techniques are consistent with those utilized during the development of the IOP and EDO.

To provide a potential range of flows and reservoir elevations that might be experienced under continuing drought conditions while the recommended plan is in effect, we have utilized two flow scenarios (one observed and one synthesized). The HEC-5 model simulates river flow and reservoir levels using a daily time series of synthesized flow data for a certain period of record. For the purposes of this analysis we selected hydrological conditions that represent 1) the critical

drought period for the ACF basin prior to the current drought (referred to as the 2000 hydrology); and 2) an extreme drought that reflects very low incremental flow for inflow into the upper Chattahoochee reaches (between Buford Dam and Whitesburg gage) which is more severe than observed during the critical period prior to the current drought (referred to as the 7Q10 hydrology).

The unimpaired flow data set is a product of the Alabama, Coosa, Tallapoosa (ACT) and ACF River Basins Comprehensive Study, and has been extended to include water years through 2001. Whereas basin inflow is computed to remove the effects of reservoir operations from observed flow, unimpaired flow is computed to remove the effects of both reservoir operations and consumptive demands from observed flow.

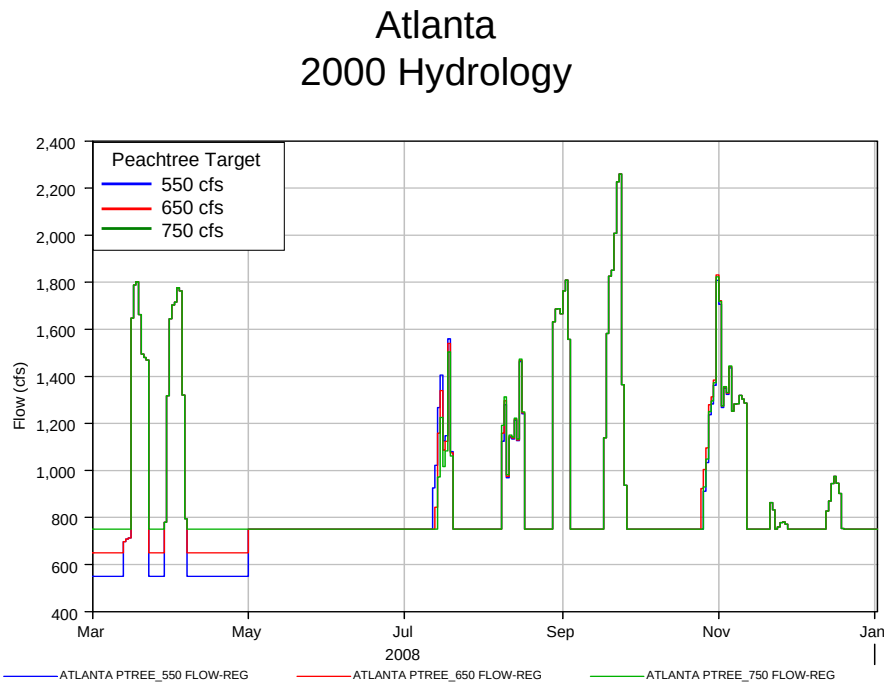
The model simulation period is 27 February 2008 to 31 December 2009. The observed elevation for 27 February 2008 is used as the initial elevation for the four ACF reservoirs; Lake Lanier, West Point Lake, Walter F. George Lake and Lake Seminole. The HEC-5 reservoir simulation model uses unimpaired local flow at 25 control points (nodes) as the flow data input for the ACF Model. The year 2000 represents the driest single year period in the unimpaired flow data set and thus was selected as one of the hydrological conditions input into the model. To increase the drought severity and test the system with extreme stress, the 7Q10 level flow or 7-day average flow that is not exceeded only 10% of the time, was input as inflow to the system for the upper Chattahoochee reaches. The year 2000 observed data was used for the remainder of the basin. It is unlikely that the actual hydrology occurring over the next year will exactly match these simulated hydrological conditions. However, with the growing threat of continuing drought conditions this summer and fall, it is likely that whatever hydrology occurs could result in a continuation of significant depletion of Composite Storage within the system.
The HEC-5 model imposes reservoir operations and consumptive demands onto the synthesized flow-time series to simulate flows and levels under those operations and demands. The following describes the range of potential environmental impacts associated with implementation of the recommended plan.

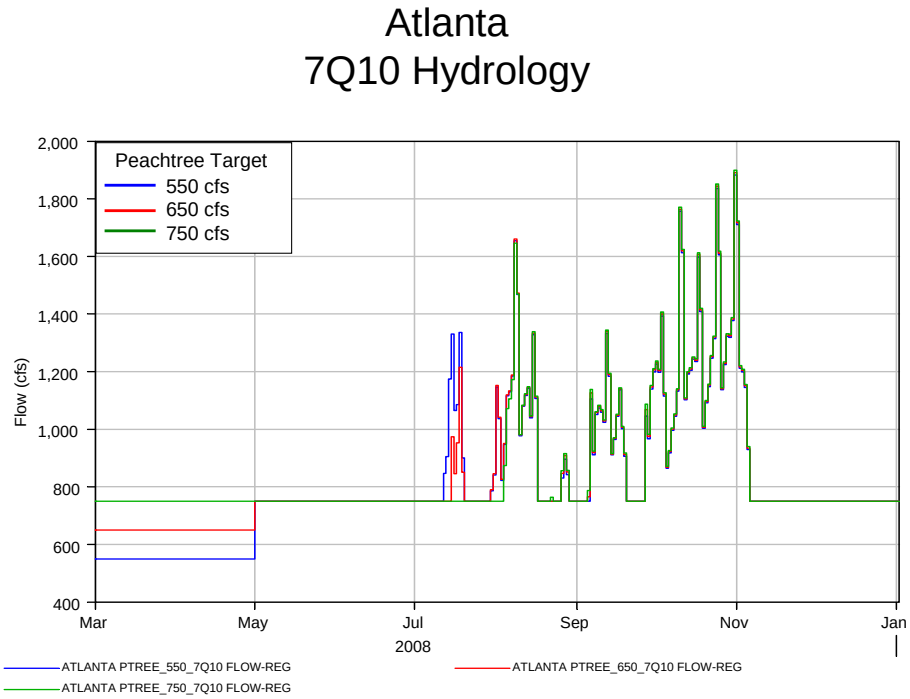
1. Hydrology. The purpose of the recommended plan is to conserve storage at Lake Lanier while avoiding or minimizing impacts to downstream reservoirs and water resources. The HEC-5 model results provided in Appendix A illustrate that implementation of the various minimum flow scenarios does not result in significantly different reservoir levels. However, under the 2000 and 7Q10 hydrological scenarios, the recommended plan results in increases in composite storage of 4,293 ac-ft and 6,186 ac-ft respectively. The changes in storage occur at Lake Lanier and West Point, and essentially no changes occur in the lower reservoirs. The net gain in storage occurs by conserving storage in Lake Lanier, although the recommended plan does result in slightly less storage in West Point Lake. However, most of the differences at storage at West Point occur while the lake is being held above the rule curve per the approved drought contingency deviation from the Water Control Plan. The short term loss of storage at West Point during the refill period is outweighed by the long term benefit of increasing the storage at Lake Lanier for use in augmenting flows below Buford Dam during the critical

summer and fall months. It should also be noted that any increase in composite storage in the basin is beneficial as the basin composite storage is currently well below the historic minimum value observed for this time of year and is predicted to remain well below historic minimums throughout the spring and summer of 2008.

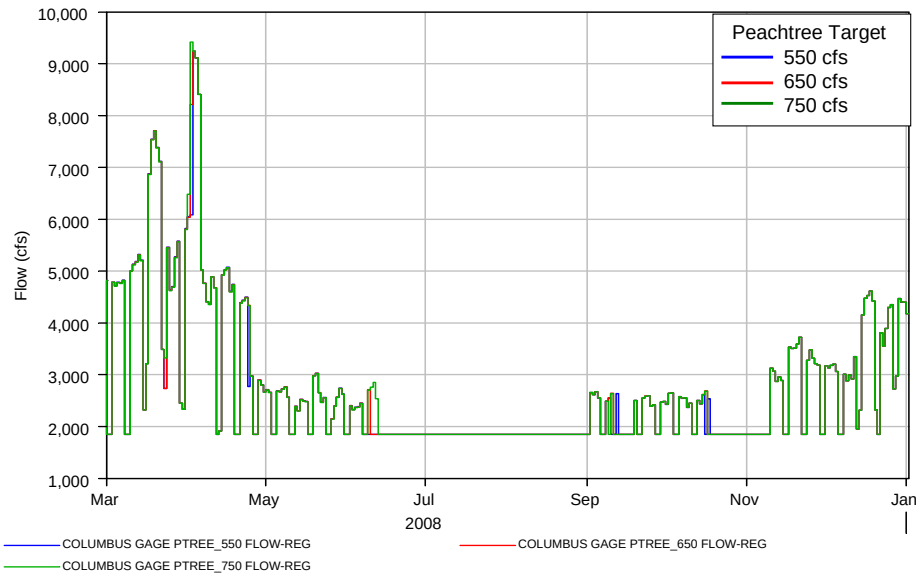
In order to assess the hydrological impacts of the minimum flow scenarios in the Chattahoochee and Apalachicola Rivers, we compare the simulated flows at three gage locations that roughly represent the upper, middle, and lower basin. The upper basin location is the USGS gage located on the Chattahoochee River just upstream of the Peachtree Creek confluence near Atlanta, GA. The middle basin location is the USGS gage located on the Chattahoochee River near Columbus, GA. The lower basin location is the USGS gage located on the Apalachicola River near Chattahoochee, FL. The HEC-5 model results for these locations are provided in Figure 3 below. Reduction of the minimum flow requirement at Peachtree Creek results in essentially no change to river flows in the middle and lower basin under both hydrological scenarios. Changes in Chattahoochee River flow at the Atlanta gage are generally limited to the March-April period and are dependent on the minimum flow requirement in place. The remainder of the year results in very similar flows at Atlanta for the various minimum flow scenarios under the 2000 hydrology. Under the more extreme 7Q10 hydrology, the 650cfs and 550 cfs scenarios result in increased flows at Atlanta during August 2008. This difference in flow compared to the no action alternative is attributable to the scenario described above where the storage gained in Lake Lanier in March and April is used to balance reservoir conditions in West Point and the lower reservoirs during the drier months. Implementation of the recommended plan will not significantly impact the hydrology of the Chattahoochee River, Apalachicola River and bay system, or the reservoirs.

Figure 3. HEC-5 Simulated River Flow at Atlanta, Columbus, and Chattahoochee Gages.

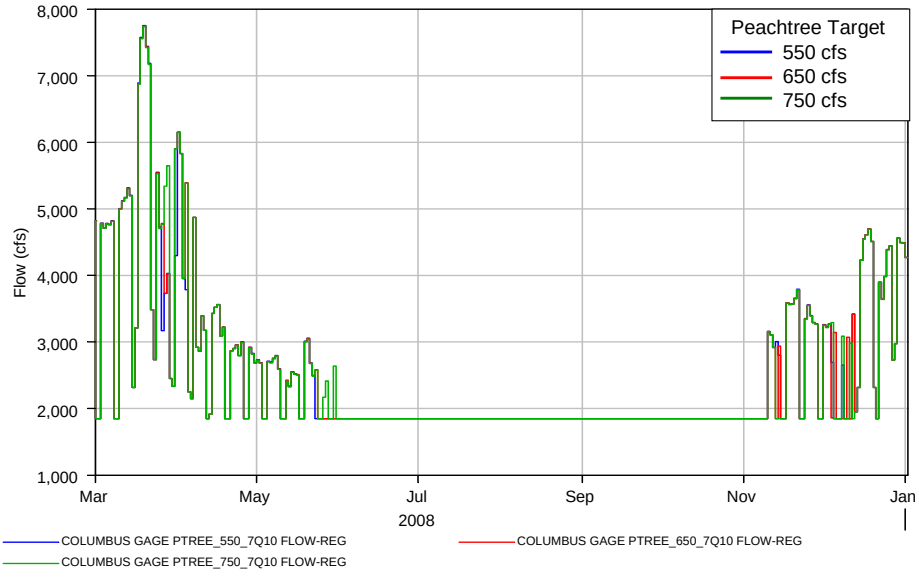




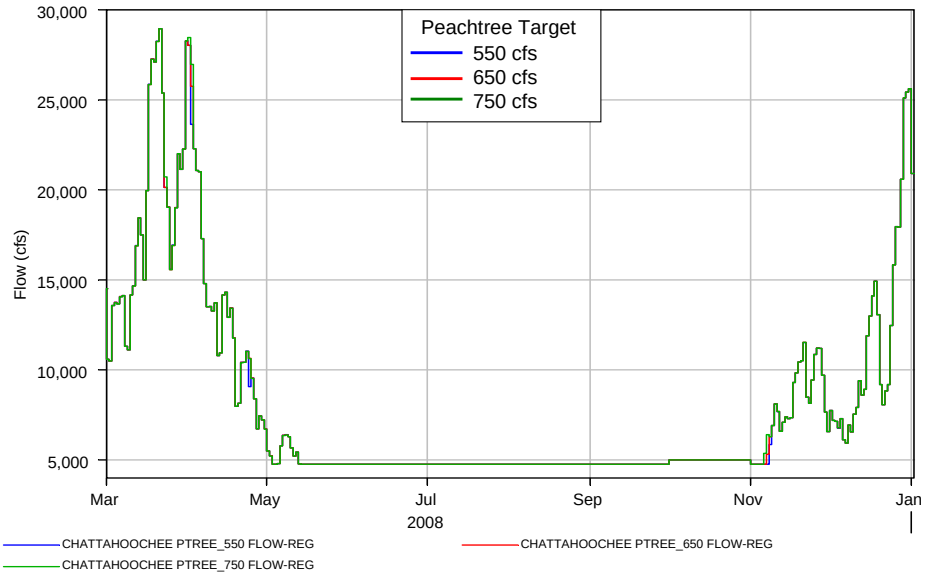
Columbus
2000 Hydrology



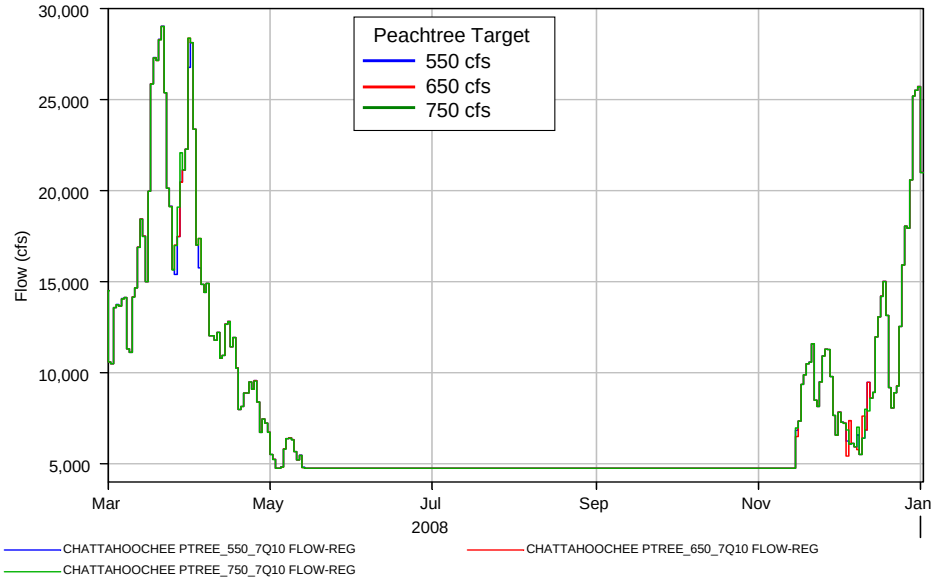
Columbus
7Q10 Hydrology



Chattahoochee
2000 Hydrology



Chattahoochee
7Q10 Hydrology



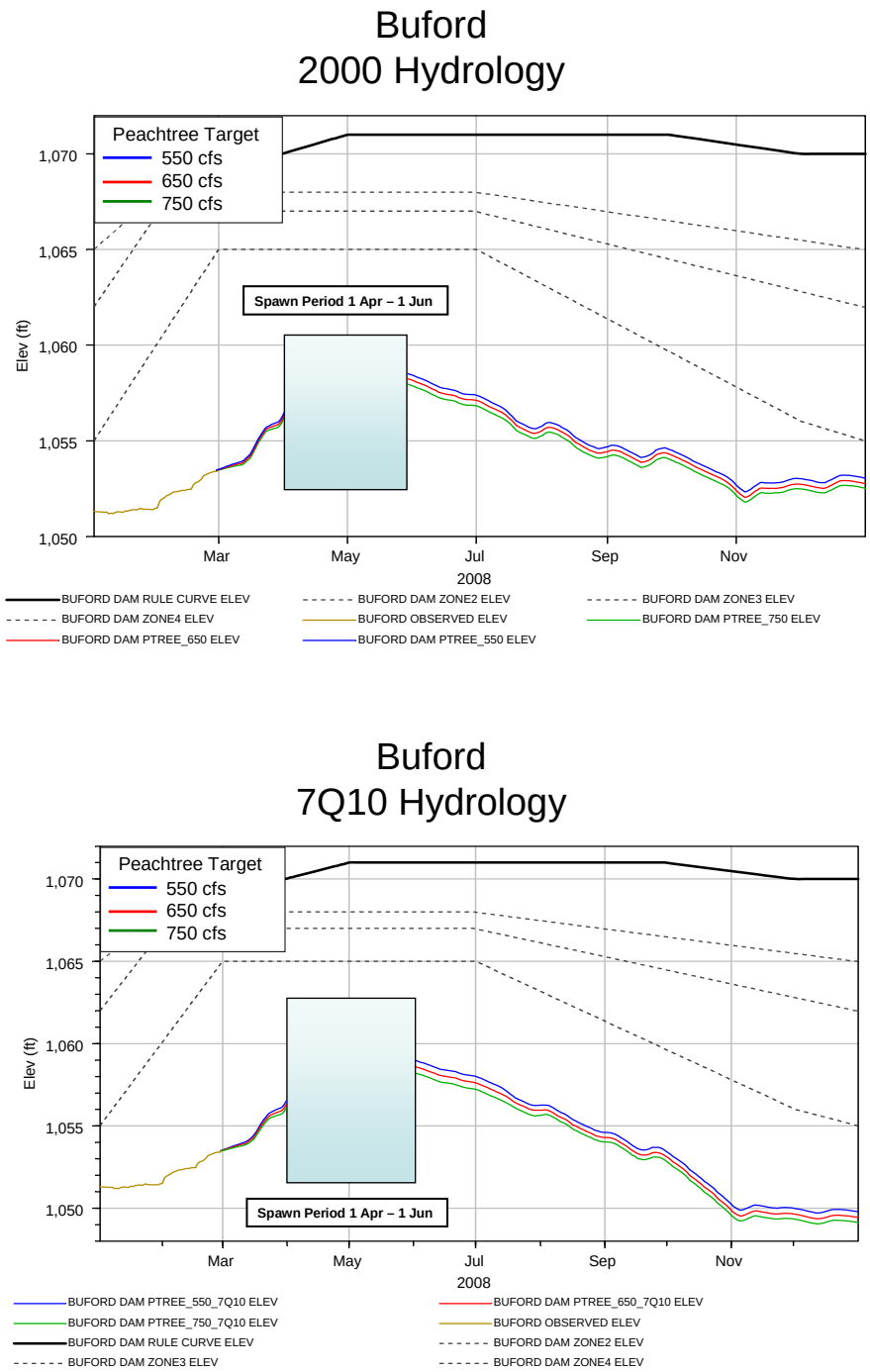
2. Physical Impacts. Physical habitat conditions in the project area are largely determined by flow regime. As described in the Hydrology section above, implementation of the recommended plan will not significantly alter the flow regime in the basin. It is unlikely that erosion rates will increase in the upper basin in response to the relatively minor short term reduction in flows. Increased erosion is generally attributable to significant changes of the flow regime or reduction in sediment supply, which are not likely to occur as a result of the recommended plan. We have no ability at this time to predict specific effects on channel morphology due to the influence of the recommended plan on the flow regime. However, generally channel morphology alterations are more closely associated with increased duration and frequency of high flow events rather than low flow events associated with the recommended plan. Moreover, the recommended plan is not expected to adversely impact stream channel stability; nor alter bottom substrates or result in significantly altered erosion or sedimentation rates. Therefore, the recommended plan will not significantly impact physical habitat conditions in the project area including conditions within critical habitat areas.

3. Fisheries. The recommended plan is consistent with the Division Regulation DR 1130-2-16 and draft CESAM SOP 1130-2-9 regarding project operations in support of reservoir fish management. The goal of the SOP is to manage the reservoir conditions such that they are relatively stable or rising for a minimum 4-6 week period within the principal fish spawning period for each project site; while also providing for relatively stable or gradually declining Apalachicola River stages for a minimum designated period (Table 5). A review of Figure 4 indicates that the 4-6 week goal for holding steady or rising levels at the reservoirs and steady or declining river levels is not impacted by implementation of the recommended plan or alternatives.

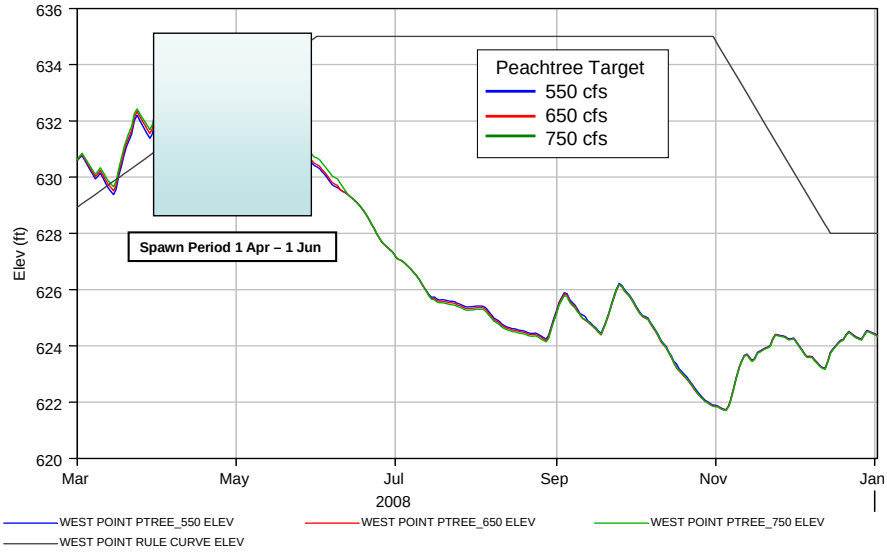
Table 5. Project Specific Principal Fish Spawning Period for Operational Considerations.

Project	Fish Spawn Period
Lake Lanier	01 Apr – 01 Jun
West Point	01 Apr – 01 Jun
Walter F. George	15 Mar – 15 May
Lake Seminole	01 Mar – 01 May
Apalachicola River	01 Apr – 01 Jun

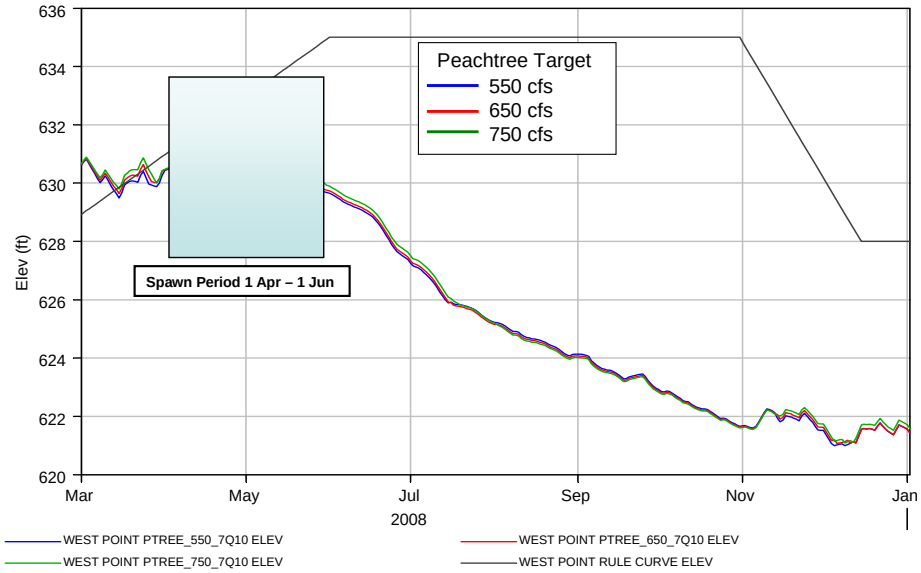
Figure 4 – Fish Spawn Analysis for the Simulated Reservoir Elevations and River Flows.



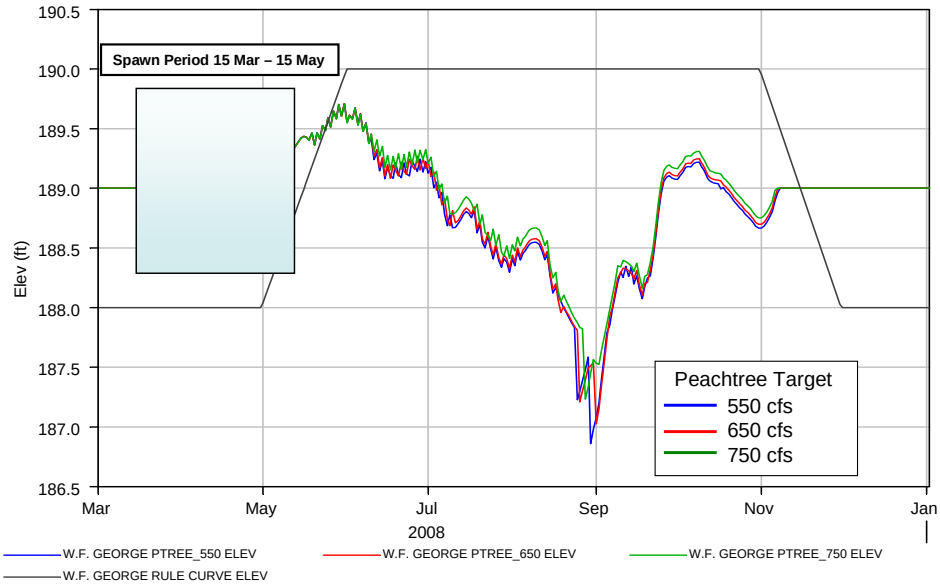
West Point
2000 Hydrology



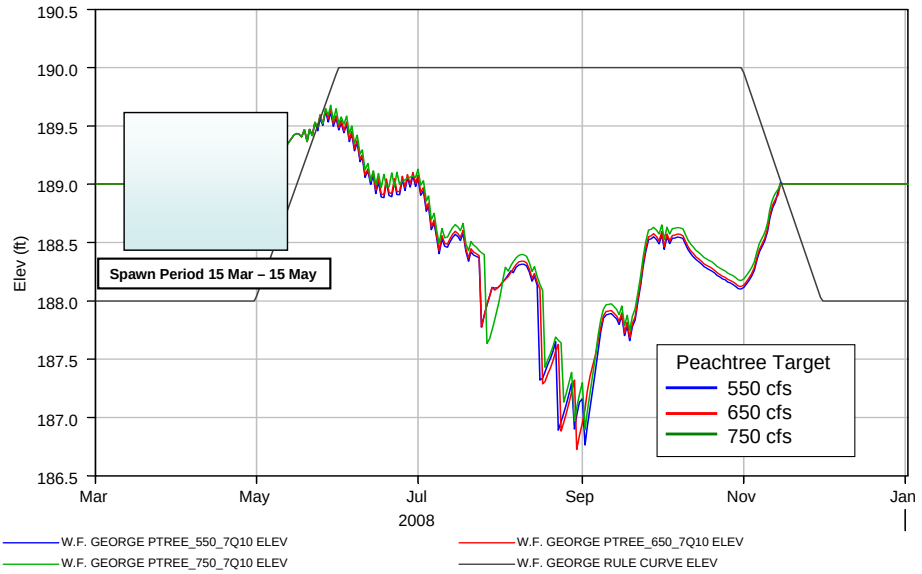
West Point
7Q10 Hydrology



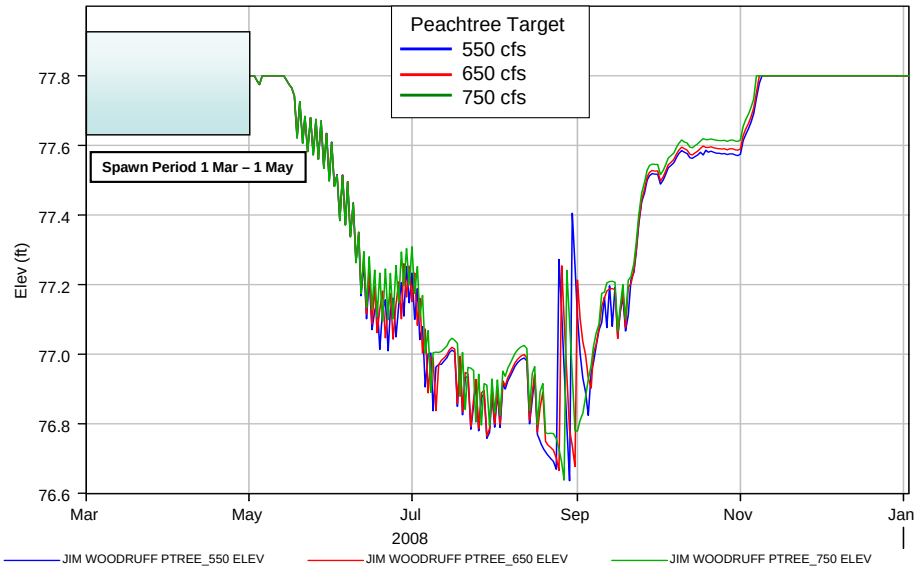
WF George
2000 Hydrology



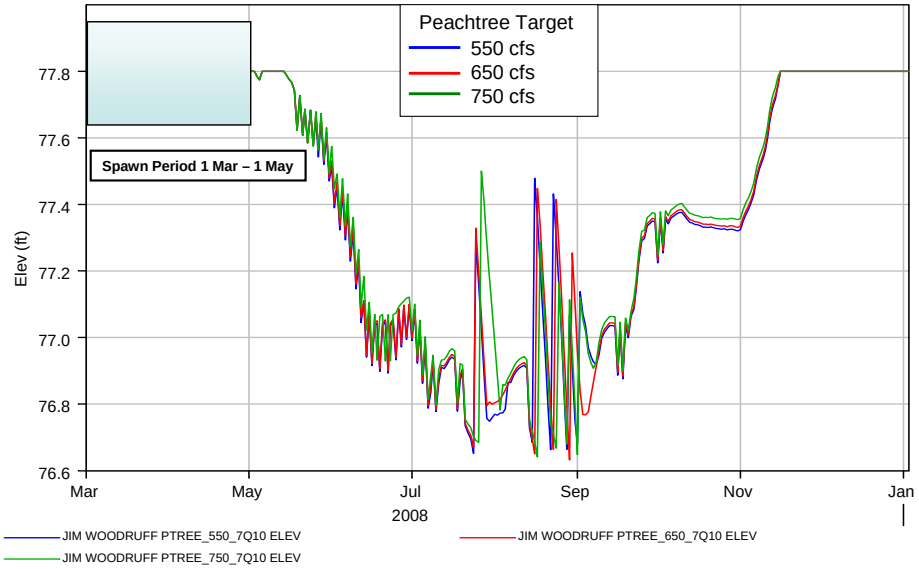
WF George
7Q10 Hydrology



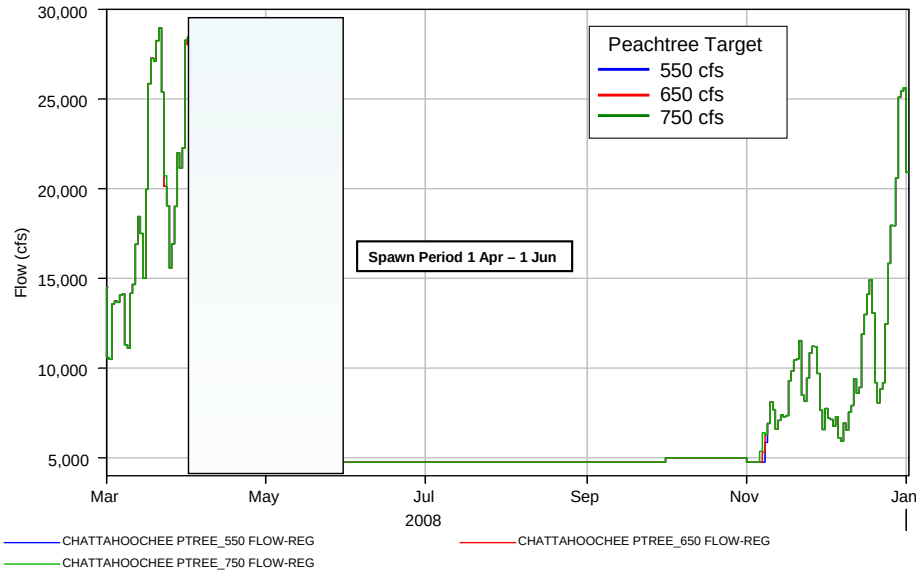
Jim Woodruff
2000 Hydrology



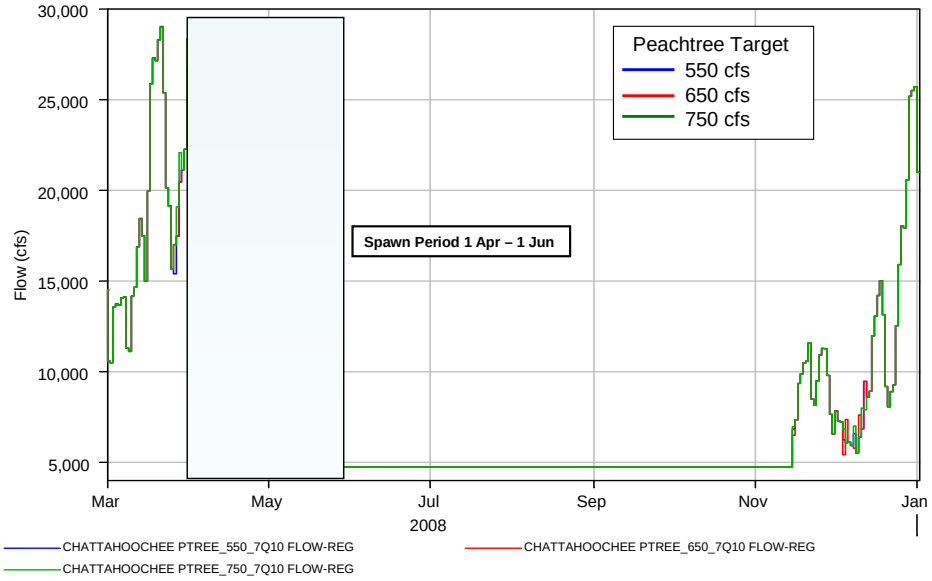
Jim Woodruff
7Q10 Hydrology



Chattahoochee
2000 Hydrology



Chattahoochee
7Q10 Hydrology



As described above, the Chattahoochee River between Buford Dam and I-285 West has been classified by EPD as a secondary trout stream and thus is regulated by certain water quality criteria. In an email dated 29 February 2008, GADNR stated that they had reviewed the water quantity and water quality model results provided by the EPD and determined that no noticeable impacts on Buford Trout Hatchery or the downstream trout fishery were expected to result from a temporary reduction in the minimum flow requirement. Furthermore, they stated that the Buford Trout Hatchery's intake has proven to be operable when minimum instantaneous flows are 538 cfs or greater in the Chattahoochee River. In the past, releases as low as 450 cfs have been made from Buford Dam while still maintaining the minimum flow provision at Peachtree Creek due to intervening flows from tributaries and water returns between the dam and Peachtree Creek. We are not aware of any impacts to fishery resources associated with releases from Buford in this range. In order to realize the maximum benefit to storage of this short term operational change, flexibility in the minimum releases from Buford Dam is required. However, releases less than 450 cfs would not occur, as the impact to fishery resources associated with flows less than this value are not known. Per the adaptive management provisions of the recommended plan, during implementation, the Corps will coordinate closely with GADNR regarding releases from Buford Dam and will adjust releases accordingly should any unanticipated impacts to the trout hatchery or fishery resources occur. Therefore, implementation of the recommended plan is not anticipated to result in any significant impact to fisheries in the ACF basin.

4. Essential Fish Habitat. Implementation of the recommended plan will not significantly impact hydrology or water quality in the Apalachicola River or Bay. As demonstrated in the Hydrology section above, none of the alternatives result in significantly different flows on the Apalachicola River. Therefore, the EFH in the Apalachicola Bay system will not be significantly impacted by the recommended plan.

5. Floodplain/Wetlands. As described in the Hydrology section above, implementation of the recommended plan will not significantly alter the flow regime in the basin. Frequency and timing of inundation are major factors regulating riparian and reservoir wetlands ecology and estuarine wetland ecology in Apalachicola Bay. Implementation of the recommended plan will not significantly impact the frequency and timing of inundation as compared to the no action alternative and therefore will not significantly impact floodplain and wetland habitats in the ACF basin. Low flows or low reservoir elevation conditions that impact floodplain and wetland communities are attributable to the continuing drought conditions and not discretionary operations on the part of the Corps.

6. Wildlife. Due to the nature of the recommended plan, the evaluation of potential impacts focused on those species associated with aquatic and riparian communities. Implementation of the recommended plan will not significantly impact hydrology or water quality in the project area and impacts if any will be temporary. Therefore, aquatic and riparian habitats supporting wildlife species in the ACF basin should not be adversely impacted. The aquatic and terrestrial wildlife resources occurring in the project area will not be significantly

impacted by the recommended plan.

7. Threatened and Endangered Species. Implementation of the recommended plan may effect, but is not likely to adversely affect, listed species in the project area and will not result in the adverse modification or destruction of designated critical habitat. The listed species potentially impacted by implementation of the recommended plan occur only in the Apalachicola River and bay system. As described above, only minor differences in Apalachicola River flows are expected to occur between the various minimum flow alternatives as compared to the No Action alternative. Implementation of the recommended plan will not result in an inability to operate Jim Woodruff Dam according to the IOP/EDO provisions agreed to in Formal Section 7 Consultation with the USFWS. By email dated 7 March 2008 the Corps requested from the USFWS concurrence with this determination. By email dated 7 March 2008 the USFWS concurred that implementation of the recommended plan may affect, but is not likely to adversely affect listed species in the project area and will not result in the adverse modification or destruction of designated critical habitat. Therefore, listed species and critical habitat will not be significantly impacted by the recommended plan.

8. Recreation. Implementation of the recommended plan will not significantly impact recreational opportunities at the Federal reservoirs. The relatively minor changes in lake elevations associated with implementation of the recommended plan occur at Lake Lanier and West Point, and essentially no changes occur in the lower reservoirs. The exceptional drought resulted in reservoir levels below the recreational impact elevations at most of the reservoirs during extended periods in 2007. Many of the existing boat ramps in the reservoirs are not being utilized due to current low water conditions. This is especially true at Lake Lanier where the lake elevation is well below the second recreation impact level (1063) and if drought conditions continue it is unlikely that the reservoir will refill to above recreation impact levels this year regardless of whether or not the recommended plan is implemented. It is anticipated that Lake Lanier will only rise 0.28 to 0.38 ft if the recommended plan is implemented. The HEC-5 model results suggest that West Point Lake could experience a 0.12 to 0.28 ft decrease in elevation if the recommended plan is implemented. However, most of the differences in elevation at West Point occur while the lake is being held above the rule curve per the approved drought contingency deviation from the Water Control Plan and essentially no difference in elevation occurs throughout the majority of the peak recreational season. It is likely that West Point Lake will fall below the recreation impact levels during the 2008 primary recreation season regardless of whether or not the recommended plan is implemented. As described above, the lower reservoirs elevations are not impacted by implementation of reduced minimum flows and the modeling suggests that Walter F. George Lake and Lake Seminole will remain above the recreational impact levels throughout the 2008 peak season (May-September). In general, only minor differences in lake elevation occur through implementation of the recommended plan as compared to the no action plan. However, reservoir elevations in the upper basin under both the no action and the recommended plan generally remain within or below the recreational impact levels. The recommended plan is also consistent with support of reservoir fish spawning and Apalachicola fish spawn during spring months, and could benefit sport fish accordingly.

In a letter dated 28 February 2008, the NPS stated that instantaneous flows of 750cfs in the river at Peachtree Creek, although not optimal, provide better support for recreation and resources than would lower flows and that the specific effects on park resources and recreational opportunities for levels below the established base flow are not known. Based on the relatively minor reduction of the minimum flow and the temporary (approximately 45 days) period of implementation, it is unlikely that recreation and resources within the CRNRA will be significantly impacted as compared to the No Action alternative. This is further supported by the hydrology analysis provided above. Implementation of the recommended plan will not significantly impact recreational opportunities on the Apalachicola River or Apalachicola Bay. In general, impacts to any component of the National Wild and Scenic Rivers System; and any park, parklands, ecologically critical areas or other areas of ecological, recreational, scenic or aesthetic importance are attributable to the continuing exceptional drought conditions and not the recommended plan. Therefore, implementation of the recommended plan will not significantly impact water resource recreational opportunities in the ACF basin.

9. Water Quality. Buford, West Point, and Jim Woodruff dams all provide minimum continuous flow releases to meet State water quality commitments. Walter F. George provides occasional releases, as needed, to maintain acceptable DO values below the dam. Occasional special releases are also made at Buford to insure adequate DO and water temperature at the Buford Fish Hatchery located downstream of the dam. Implementation of the recommended plan will not affect water quality releases at the reservoirs below Buford and will not result in reservoir levels that limit the ability to support water quality releases and provide adequate flows for the estimated assimilative capacity needs on the Chattahoochee River near Columbus, Georgia. Under the recommended plan, releases from Buford Dam will be reduced in order to meet a reduced minimum water quality flow requirement on the Chattahoochee River near Peachtree Creek. In response to a Corps request for additional information dated 20 February 2008, the EPD on 25 February 2008 provided the water quality assessment they conducted regarding the proposed minimum flow reductions. A copy of this report is provided in Appendix B. The EPD used their own EPDRiv1 hydrodynamic and water quality model to assess the water quality effects of reducing minimum flows in the Chattahoochee River at Peachtree Creek from 750 to 650, 600, and 550 cfs. The water quality parameters assessed in the model included dissolved oxygen, ammonia toxicity, and whole effluent toxicity (WET). In order to analyze the effect of reducing the minimum flows in the river on DO, two scenarios were run in the EPDRiv1 model simulating extreme drought conditions. The model predicted that the water quality standard for DO could be protected under conditions for both scenarios for the recommended plan.

Ammonia toxicity is computed based on water temperature and pH. Ammonia concentration results from the water quality model were compared to computed toxicity levels according to predicted river water temperatures and pH. The predicted ammonia concentrations are less than the toxic concentrations for pH values as high as 8.0, which are not expected to occur in the River.

WET is determined by comparing the critical instream wastewater concentration (IWC) to the No Observable Effect Concentration (NOEC). The WET analysis included ten municipal wastewater treatment facilities. The predicted river flows from the water quality model were used to compute the IWC concentration at each facility in order to verify that it was less than the NOEC concentration. None of the WET tests failed because NOEC values were greater than the IWC value for each facility.

EPD has requested that existing permitted dischargers maintain their discharges at the 2007 loads and thus modeled loads at these levels. The modeling indicates that ambient criteria will be met at these loads through the implementation period.

In an email dated 24 February 2008, the Columbus Water Works stated support for the reduced EPD request, provided the flows at the Columbus gage continue to meet the GPC Federal Energy Regulatory Commission (FERC) license levels. The hydrology section above documents that modeling indicates these flow levels can be maintained if the recommended plan is implemented. Furthermore, the GPC stated in a letter dated 26 February 2008, that the hydro facilities on the Chattahoochee River will continue to operate according to their FERC licenses if the EPD request is granted. This includes Morgan Falls Dam below Buford, which is required by Article 27 of the FERC license to make minimum flow releases as requested by the ARC, designed to meet a flow target (at Peachtree Creek) not to exceed 750 cfs.

Based on their water quality assessment, the EPD has determined that instream water quality and NPDES discharges will not be impacted by the proposed reduction in flow. The U.S. Environmental Protection Agency (EPA), Region 4, indicated concurrence with these findings during an ACF basin stakeholder teleconference on 28 February 2008. Therefore, implementation of the recommended plan will not significantly impact water quality in the ACF basin. Furthermore, water quality monitoring by EPD and adaptive management during the implementation period will ensure that water quality standards are not violated.

10. Water Supply. In 2007, concerns were expressed by the public that drought conditions could restrict water supply withdrawals from the Corps reservoirs to deeper waters within the inactive storage zone which could potentially present water quality problems to the public drinking supply. However, investigations have confirmed that the quality of water in inactive storage is suitable for consumers. In fact, several water supply users already withdraw from this part of the lake. In order to address the public concerns, several water samples were collected from the inactive storage zone in the fall of 2007, and subjected to independent water quality testing by the City of Gainesville. City of Gainesville, City of Buford and Gwinnett County currently withdraw and treat water from the inactive zone using standard water treatment methods for possible increased levels of manganese, iron, or other chemical parameters affecting odor or taste. Dr. Soballe (water quality expert from the Corps Engineering Research and Development Center) has stated very clearly that upon analysis of the field data taken from various locations and depths within the inactive storage zone that even at the very bottom of the

lake the physical/chemical makeup "could easily be reduced to acceptable drinking water levels....by conventional treatment [methods]". If Lake Lanier continues to decline, there may be additional costs for water treatment, but safe water will still be available for water supply and other critical water needs in the ACF system. Implementation of the recommended plan results in increased elevation at Lake Lanier and will not adversely impact entities withdrawing water from the lake.

By email dated 26 February 2008, the City of LaGrange expressed concern regarding the potential for recurrence of blue-green algae blooms in West Point Lake as occurred in the summer of 2007 and the associated water treatment problems for the City of LaGrange. The algae bloom is believed to have resulted from high temperatures and low lake elevations and persisted until additional releases from Lake Lanier were provided for downstream flow support. Implementation of the recommended plan does not significantly reduce the lake elevation at West Point Lake as compared to the No Action alternative and the minor differences are generally limited to the period prior to July 2008. Algae blooms in West Point Lake in 2008 would be more attributable to continuing exceptional drought conditions than implementation of the recommended plan. Furthermore, as described above in the Hydrology section, the short term loss of storage at West Point during the refill period is outweighed by the long term benefit of increasing the storage at Lake Lanier for use in augmenting flows below Buford Dam during the critical summer and fall months. These augmentation flows would assist in preventing or abating recurring blue-green algae blooms.

By email dated 21 February 2008, the City of West Point stated that their current water intake is located on the Chattahoochee River just below West Point Dam and it requires flows greater than 550 cfs for proper operation. Implementation of the recommended plan will not result in river flows less than 550 cfs.

In the 11 February 2008 letter (Appendix C) requesting the reductions in minimum flow, the EPD provided an analysis of the river stage as compared to necessary operating levels for water withdrawals between Buford Dam and the USGS Whitesburg gage. For the purposes of the analysis, seven water intakes were evaluated including the GADNR Trout Hatchery intake at Buford Dam, the Atlanta-Fulton intake, DeKalb intake near Norcross, GA, Cobb intake below Morgan Falls, City of Atlanta intake at Peachtree Creek, Georgia Power Company Plant McDonough intake at Peachtree Creek, and the Georgia Power Company Plant Yates near Whitesburg gage. The necessary operating levels (required minimum water surface elevation for proper operation) were determined through discussions with the facility operators. The modeled river flows and associated surface elevations indicate that implementation of the recommended plan does not result in river stages less than the necessary operating levels provided by the facility operators. As described in the Coordination section below, the City of Atlanta, Atlanta Regional Commission (ARC), GADNR, and Georgia Power Company have all provided support for implementation of the recommended plan.

Implementation of the recommended plan will not affect water supply for M&I use in the ACF

basin. The recommended plan will not result in reservoir levels or river levels that limit the ability to support water supply, and its intent is to conserve storage as much as possible in order to support water supply, water quality, and fish and wildlife needs. EPD has determined that drinking water supplies and all water intakes between Buford Dam and the USGS Whitesburg gage will not be impacted by the proposed reduction in flow. The recommended plan does not result in significantly different river flows or stages below the Whitesburg gage. Therefore, implementation of the recommended plan will not significantly impact water supply.

11. Flood Control. The purpose of the proposed action is to conserve storage in Lake Lanier, if possible. A temporary waiver from the existing water control plan including provisions to allow temporary storage above the winter pool rule curve at the Walter F. George and West Point projects if the opportunity presents itself and/or begin spring refill operations at an earlier date is currently being implemented in order to provide additional conservation storage during this exceptional drought period. This waiver was granted in part due to the unlikely threat of flood conditions during predicted extended drought conditions. Implementation of the recommended plan would not result in reservoir levels that limit the ability to manage flood waters and will not significantly impact flood control.

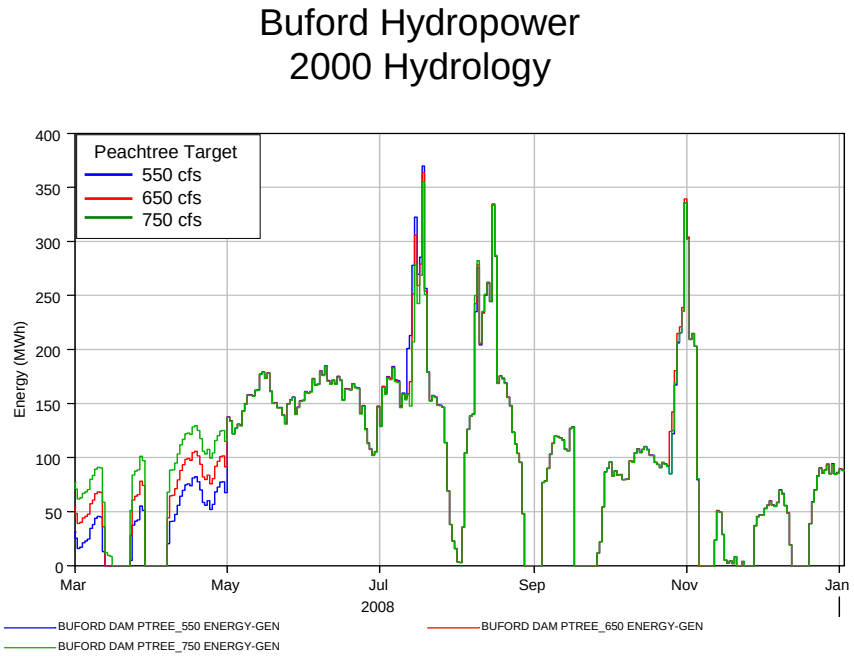
12. Navigation. The lack of dredging and routine maintenance since the late 1990's has led to inadequate depths in the Apalachicola River navigation channel, and commercial navigation has only been possible on a seasonal basis when flows in the river are naturally high, with flow support for navigation suspended during drier times of the year. On a case-by-case basis, limited releases for navigation have been made for special shipments when a determination can be made that other project purposes will not be significantly impacted and any fluctuations in reservoir levels or river stages would be minimal. During sustained drought or low flow periods, as reservoir elevations fall below Zone 1 and lower, navigation support is reduced and eventually eliminated in accordance with the water control plan, since navigation support typically requires such large volumes of flow support. Since releases for navigation support have already been eliminated due to the severe drought conditions, implementation of the recommended plan is not expected to affect commercial navigation. Therefore, implementation of the recommended plan will not significantly impact navigation.

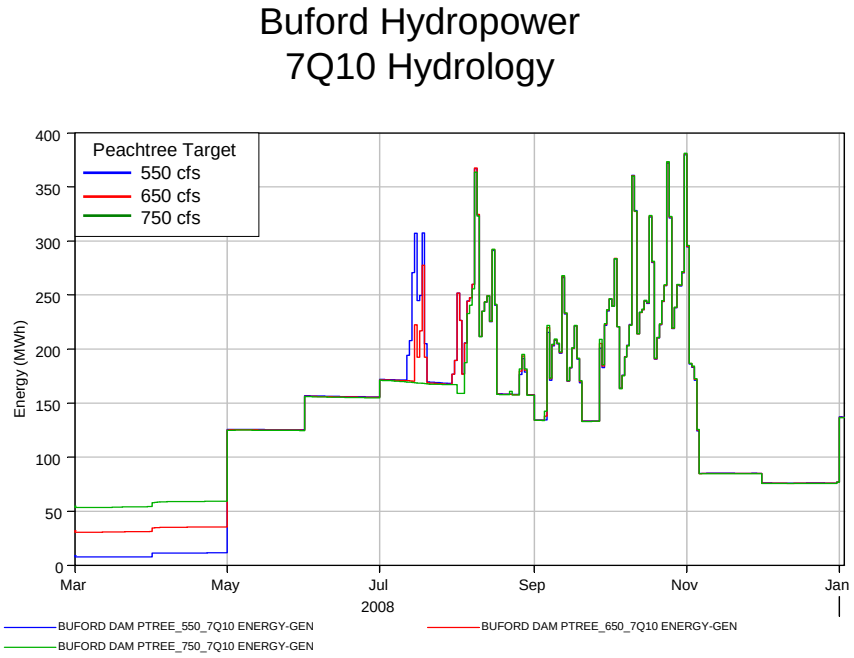
13. Hydropower. Figure 5 illustrates average generation at the four Federal reservoirs under the simulated no action and minimum flow scenarios. Under both the 2000 and 7Q10 hydrology, average hydropower generation at the four reservoirs is quite similar regardless of the minimum flow scenario. The largest differences in generation are mostly limited to Buford during March and April, which is to be expected given the various minimum flow scenarios, would require different releases from the dam. Minor differences also occur at Buford in July and August resulting in generally higher average generation under the recommended plan. Average generation at Walter F. George during the July-September period is also effected by the various minimum flow alternatives. However, it appears that the recommended plan provides for slightly more hydropower generation than the no action alternative under the two hydrology scenarios. June to September represents the critical demand period for hydropower generation.

By letter dated 29 February 2008 the Southeastern Federal Power Customers, Inc. (SEFPC) stated support for the temporary reduction through 30 April 2008, in order to conserve storage for hydropower production during the summer months. In the letter SEFPC noted that although further reduction in releases would require the purchase of additional replacement power this spring, the cost of replacement power during the summer would be much greater. Therefore implementation of the recommended plan will not significantly impact hydropower generation at the four Federal reservoirs as compared to the No Action Alternative.

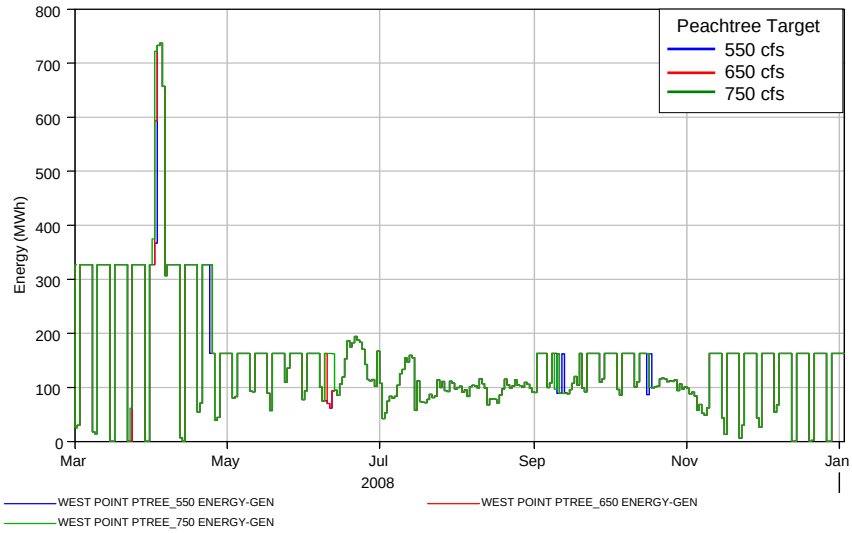
As described above, non-Federal hydropower facilities occur in the ACF basin as well. By letter dated 26 February 2008, the Georgia Power Company stated they evaluated the potential impacts of the reduced flow through April 30 on their power generating facilities on the Chattahoochee River and that no operational issues for Plant McDonough, Plant Yates and Plant Wansley generating facilities were anticipated at this time. By letter dated 28 February 2008, the Southern Nuclear Operating Company, which operates the Farley Nuclear Plant near Dothan, AL, indicated support for the proposed reduction provided that 1) adequate storage remains in West Point and Walter F. George to ensure minimum flows at Farley through prolonged periods of drought; 2) the proposed reduction does not prevent the lower reservoirs from storing all necessary water prior to the onset of the dry months; and 3) the Corps consider House Document 300 – adopted by Congress on the basis of project authorization – which requires minimum releases from Buford should be such that a minimum flow at Atlanta of 650 cfs is maintained at all times. We believe the recommended plan meets the needs of the non-Federal power generating facilities and that they will not be significantly impacted by the recommended plan as compared to the No Action Alternative.

Figure 5. Average generation at the four Federal reservoirs under the 750cfs, 650 cfs, and 550 cfs minimum flow scenarios (2000 hydrology HEC-5 simulated flow and 7Q10 hydrology HEC-5 simulated flow).

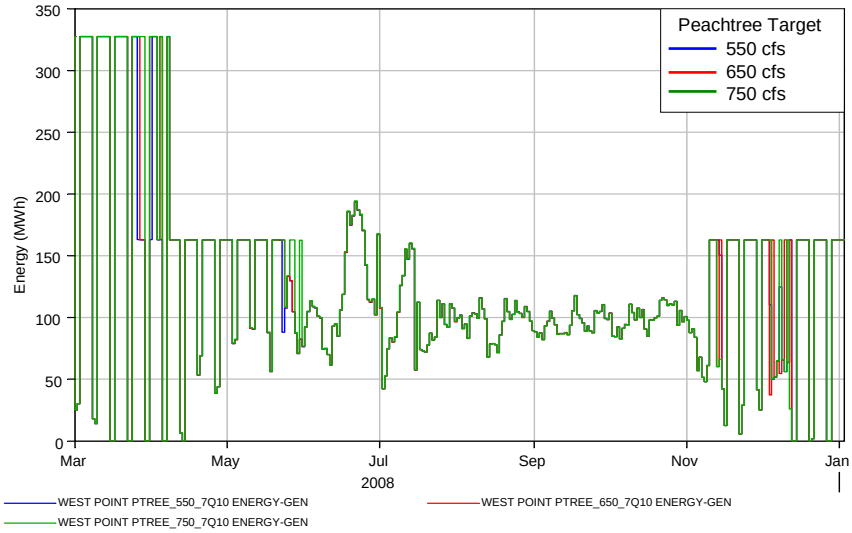




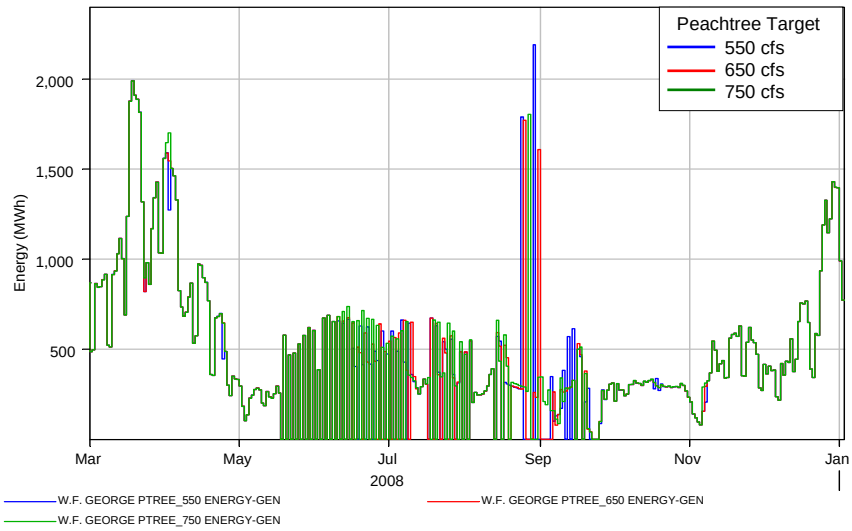
West Point Hydropower
2000 Hydrology



West Point Hydropower
7Q10 Hydrology



WF George Hydropower
2000 Hydrology



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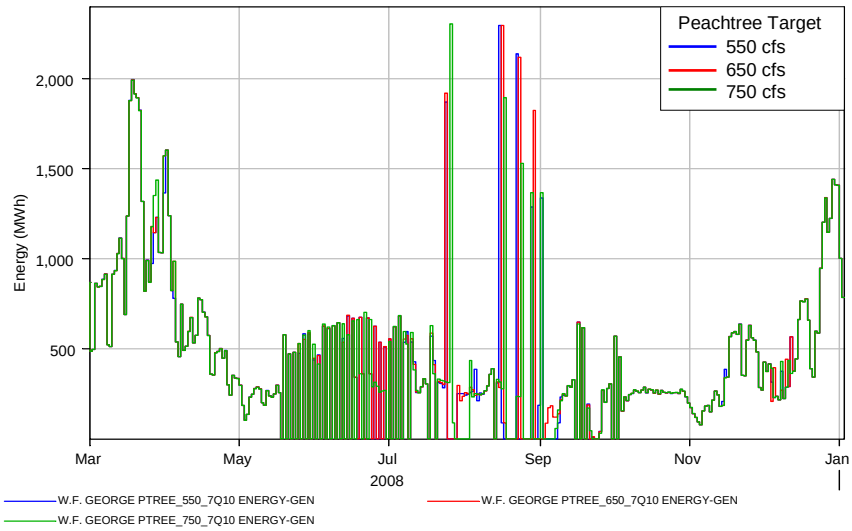
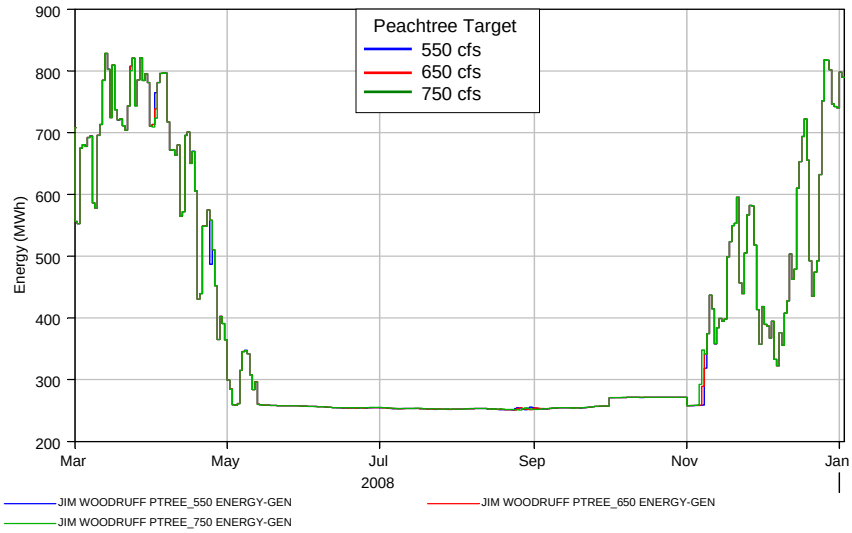
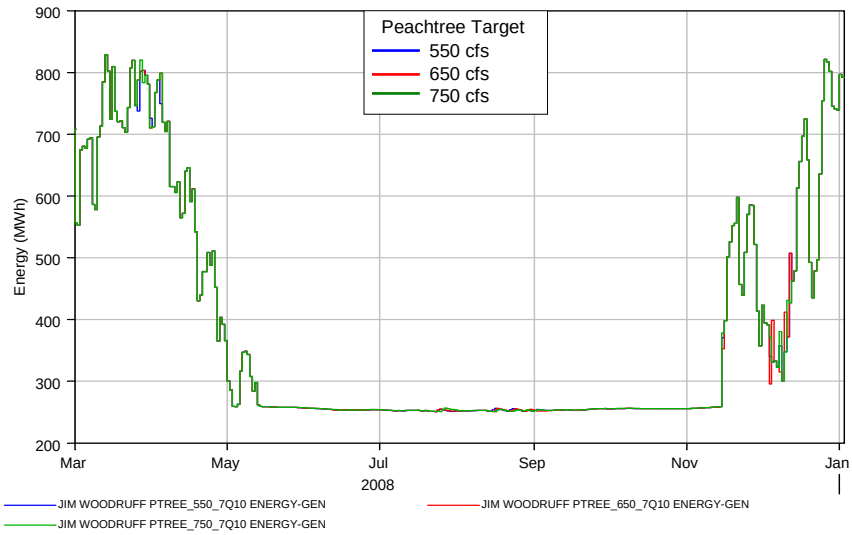
7Q10 Hydrology



Jim Woodruff Hydropower
2000 Hydrology



Jim Woodruff Hydropower
7Q10 Hydrology



14. Historic and Archaeological Resources. As described above, implementation of the recommended plan is not expected to impact stream channel stability or alter channel substrates. Therefore, potentially adverse effects to cultural resources, such as increased erosion, increased deposition, and increased access to historic and archaeological sites will not significantly change through implementation of the recommended plan.

By letter dated 26 February 2008, the Historic Preservation Division of the GADNR stated that no historic properties or archaeological resources that are listed in or eligible for listing in the National Register of Historic Places will be affected by implementing the temporary reduction in minimum flow. Therefore, implementation of the recommended plan will not significantly impact historic and archaeological resources in the ACF basin.

15. Land Use Changes. The 1998 draft ACF Water Allocation EIS categorizes the major land cover uses in the ACF basin as residential (6.0 percent), commercial and industrial (2.0 percent), agricultural production land (24 percent), confined feeding operations (0.1 percent), forest land (66.0 percent), barren land (0.1 percent), and water (2.0 percent). The recommended plan does not change land use within the project area and will not impact State, area-wide and local plans and programs for land use in the area.

16. Prime and Unique Farmland. The recommended plan will have no effect on prime farmlands or unique agricultural lands.

17. Aesthetics. The recommended plan will not permanently affect the aesthetics in the project area. Lake Lanier will likely continue to sustain below normal pool elevations during implementation of the recommended plan and still be in low water conditions during the prime recreational season. Exposed shoreline and bottom areas could continue, and boat docks could still be exposed, which could affect property values along the lake shore areas. Although the recommended plan will temporarily reduce flows on the Chattahoochee River between Buford Dam and West Point Lake, it is unlikely that a 100 cfs reduction will result in significant discernable differences in appearance. These impacts are generally attributable to the regional drought conditions, and not the recommended plan, which should mitigate some of these drought impacts.

18. Environmental Justice. Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations (11 February 1994) requires that Federal agencies conduct their programs, policies, and activities that substantially affect human health or the environment in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under such programs, policies, and activities because of their race, color, or national origin.

The recommended plan is not designed to create a benefit for any group or individual, nor does it

create disproportionately high or adverse human health or environmental impacts on any low-income populations of the surrounding area. Review and evaluation of the recommended plan have not disclosed the existence of any identifiable minority or low-income communities that would be adversely affected by its implementation.

19. Protection of Children. The EO 13045, Protection of Children from Environmental Health Risks and Safety Risks (21 April 1997), recognizes a growing body of scientific knowledge that demonstrates that children may suffer disproportionately from environmental health risks and safety risks. These risks arise because children's bodily systems are not fully developed; because children eat, drink, and breathe more in proportion to their body weight; because their behavior patterns may make them more susceptible to accidents. Based on these factors, the President directed each Federal agency to make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children. The President also directed each Federal agency to ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

Implementation of the recommended plan does not involve activities that would pose any disproportionate environmental health risk or safety risk to children.

20. Cumulative Impacts. The CEQ regulations define cumulative impacts as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other action." 40 C.F.R. § 1508.7. Actions considered in the cumulative impacts analysis include implementation of the recommended plan and other Federal, State, Tribal, local or private actions that impact the resources affected by the recommended plan. The resources affected are described above and are generally limited to habitat conditions and species closely linked to the flow regime and reservoir conditions in the ACF basin.

Within the project area, various past Federal, State, and private actions have impacted the ACF basin riverine habitat and natural flow regime including construction of the Corps' dams, urban development, agricultural activities, navigation channel maintenance dredging and disposal, water withdrawals, and small impoundments. The five Corps' dams continue to affect the Chattahoochee and Apalachicola Rivers by trapping sediment in reservoirs that would otherwise move as bed load through the system. The interruption of this bed load movement and past navigation channel maintenance dredging and disposal activities have contributed to the altered channel morphology in portions of the project area. Channel morphology sets the context for the flow regime. Urban development and agricultural activities have adversely affected water quality and riverine and floodplain habitat. The associated water withdrawals have also impacted the flow regime.

Adverse effects to riverine habitat from continued urbanization and agricultural activities in the

ACF basin are reasonably certain to occur. However, state and local governments have regulations in place to minimize these effects, including regulations regarding construction best management practices, storm water control, and treatment of wastewater.

Additionally, an increase in net consumptive depletions due to water supply are reasonably certain to occur based on increased M&I demands in the ACF basin (particularly in the upper basin) and agricultural withdrawals. The EPD has determined that the most acres in the basin for which irrigation is economically feasible are already irrigated, and that agricultural demand has likely "plateaued" at close to the year 2000 demands. However, increases in the amount of water applied per acre would occur if the current crops are converted to more water intensive crops. Implementation of the recommended plan would not contribute to cumulative impacts affecting resources on the Flint River since there are no Corps projects controlling water releases in this system. However, increases in consumptive depletions in the ACF basin could adversely affect habitat throughout the basin by further altering the natural flow regime.

Accordingly, due to the short duration and intensity of the recommended plan, the cumulative adverse effects associated with this action on the ACF River Basin resources (including fish and wildlife, water supply, and water quality) are considered minor. The implementation of the recommended plan could include potential beneficial cumulative impacts, as it provides a method to store water, which might be essential to augment flow for these resources if the severe drought conditions continue or worsen.

In order to ensure that the combined effects of the ongoing drought and the reductions in minimum flow at Peachtree Creek do not result in more than minor impacts as discussed in this and other sections, conditions relating to the drought, climate and weather forecasts, drought impacts and impacts of reduced flows will be closely monitored. The EPD has committed to monitoring DO levels near the Dog River during the period of reduced flow in order to ensure that water quality criteria are not violated. The Corps and ARC will closely coordinate regarding water withdrawals in the Chattahoochee River reach above Peachtree Creek in order to that the reduced minimum flow is met at all times. The Corps and GADNR will closely coordinate regarding unanticipated impacts to the Buford Trout Hatchery and fishery resources between Buford Dam and Peachtree Creek. All lake levels and flow rates previously discussed will continue to be monitored. The majority of this type information is readily available on websites such as the Corps Water Management homepage and USGS website. Likewise key parameters including hydropower production/demand, dissolved oxygen, water temperatures, water supply intake levels, and issues relating to industry capacity to discharge effluent/maintain current production etc. should be monitored by the appropriate entities and coordinated with the Corps as needed. Use of such data and adaptive management of the ACF system water resources will further ensure that unanticipated impacts are avoided or minimized to an insignificant level.

6. ANY IRREVERSIBLE OR IRRETRIEVABLE COMMITMENTS WHICH WOULD BE INVOLVED SHOULD THE RECOMMENDED PLAN BE IMPLEMENTED

Any irreversible or irretrievable commitments of resources involved in the proposed action have been considered and are either unanticipated at this time, or have been considered and determined to present minor impacts.

7. ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

Any adverse environmental effects, which cannot be avoided during implementation of the recommended plan, are expected to be minor both individually and cumulatively. Furthermore, monitoring and adaptive management should ensure that they are minor.

8. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The proposed action constitutes a short-term use of man's environment. The proposed action is a temporary waiver to the water control plan which will allow reduced releases to meet a lower minimum water quality flow requirement in response to extreme and ongoing drought conditions. It will be implemented for only a short period of time during the cooler water months (not later than 30 April) and will be managed by the Corps through monitoring and adaptive management in a manner that optimizes storage preservation at Lake Lanier while still balancing the needs of water users throughout the ACF system in accordance with existing Water Control Manuals. The modeling results included in this environmental assessment demonstrate the benefits of conserving storage during a limited time during the cooler water months (March through May). Additional benefits would be obtained if the reduction in the minimum water quality flow requirement could be implemented early during the cool water season (such as December through April).

9. COORDINATION

The Corps provided electronic mail notice of the EPD request to the ACF basin stakeholder group on 21 February 2008, and asked for written comments by 28 February 2008. Appendix D contains a copy of the EPD amended request and stakeholder notification as well as copies of comments received in response to the proposed action. An overview of the comments received is summarized below.

Tribal Consultation:

The proposed action was coordinated with the tribes which had previously indicated an interest in activities at Lake Lanier and the upper Chattahoochee River (Cherokee Nation, Cherokee Nation of Oklahoma, Choctaw Nation of Oklahoma, and the Muscogee-Creek Nation). The

Cherokee Nation indicated that they would be unlikely to comment within the abbreviated comment period. The Choctaw Nation of Oklahoma, email dated 22 February 2008 agreed with the proposed EPD request.

National Park Service, letter dated 28 February 2008:

The National Park Service offered the following comments regarding implementation the EPD request. 1) Has there been any analysis of the impacts on aquatic habitat, mussels, trout, and recreation at Peachtree Creek in drought conditions with a low flow at 550 cfs? Is the proposal for instantaneous flow or daily average flow? 2) Dissolved oxygen is an indicator for water quality, the Corps should also determine what measures will be taken if the DO parameter falls below the water quality criteria. Also, what are the anticipated effects of the lower minimum flow on other water quality parameters such as temperature, bacteria, ammonia, etc.? 3) Important to identify the critical factors or indicators that will need to be monitored that would trigger a change in the minimum flow or other management approaches. 4) What possible impacts will this change of flow have on the operation of Morgan Falls Dam and would the operation of Morgan Falls have to change in response to reduced flows? What would be the correlated reduction of flow at the outfall of Buford Dam? 5) With lower water regime, we would expect to see greater portions of the banks of the river exposed, which may result in even greater erosion and sediment during high flow events. Some analysis of this issue should also be factored into the potential effects from any change in flow regime.

U.S. Fish and Wildlife Service, Email dated 7 March 2008:

USFWS provided concurrence with Corps determination that the proposed temporary deviation from water control plan to meet a reduced water quality flow requirement at Peachtree Creek through 30 April 2008 is not likely to adversely affect the Federally listed species or adversely modify or destroy designated critical habitat in the Apalachicola River system.

Georgia Department of Natural Resources, Georgia Environmental Protection Division, letters dated 11 February 2008 and 3 March 2008:

EPD requested temporary reduction of water quality minimum flow requirement at Peachtree Creek from 750 cfs to 550 cfs until 30 April 2008. EPD determined that the water quality standards can be met with reduced flows and that reservoir levels and water withdrawal structures are protected. In the 3 March 2008 letter, EPD amended the request to include a minimum flow of 650 cfs at Peachtree Creek due to potential need for prolonged studies required for additional authorities to reduce to 550cfs.

Georgia Department of Natural Resources, Wildlife Resources Division, letter dated 29 February 2008:

The Wildlife Resources Division stated that they had worked with EPD to analyze impacts ant

that there were no expected noticeable impacts on Buford Trout Hatchery or the downstream trout fishery. They also stated that the Buford Trout Hatchery's intake has proven to be operable when minimum instantaneous flows are 538 cfs or greater.

Georgia Department of Natural Resources, Historic Preservation Division, letter dated 26 February 2008:

The Georgia SHPO determined that no historic properties or archaeological resources that are listed in or eligible for listing in the National Register of Historic Places will be affected by this undertaking. They also noted that historic and/or archaeological resources may be located within the projects' area of potential effect, however, at this time it has been determined that they will not be impacted by the project and that any changes to the proposed project would require further review by our office for compliance with GEPA or Section 106.

State of Alabama, Office of the Governor, letter dated 28 February 2008:

The State of Alabama stated that based upon review of the EPD information submitted and the basis for the minimum flow established for the Chattahoochee River at Peachtree Creek, that the request to reduce the minimum flow from 750 cfs to 550 cfs should be denied. Further support for this position, provided in the letter, includes questions regarding authority to go below 650 cfs at Atlanta, violation of the Georgia anti-degradation policy, need for additional water quality and wastewater assimilative capacity analysis, and NEPA study. Furthermore, the State of Alabama requested that if the EPD request was granted in whole or in part, that it be terminated if 1) the flow at Columbus, GA falls below 1,850 cfs weekly average; 2) the flow at Columbia, AL falls below 2,000 cfs at any time; 3) the DO content at Peachtree Creek is measured at less than 5.0 mg/l at any time; and 4) the temporary reduction in minimum flow should be terminated on 30 April 2008.

Florida Department of Environmental Protection, letter dated 28 February 2008:

FDEP stated that it generally opposes the proposed reduction, but will not object to its temporary implementation, provided the measure does not continue beyond 1 April 2008. This position is based on the FDEP determination that potential adverse impacts associated with implementation of the proposed reduction could become severe, if the reduction were continued into the spring spawning season or summer dry season. Furthermore, FDEP stated that more emphasis should be placed on actions that do not harm downstream users, such as conservation measures being implemented and consistently in place.

City of West Point, email dated 21 February 2008

The City of West Point is concerned that the reduction of flow would negatively impact the city's water supply since the City of West Point current water intake on the Chattahoochee River, just below West Point Dam, will be out of the water at 550 cfs and the community would be

negatively impacted by any reduction in flow.

The City of LaGrange, GA, email dated 26 February 2008

The City of LaGrange stated opposition to any prolonged reduction in lake elevation at West Point and any action that may result in adverse environmental impacts to the West Point project or its waters as a result of the proposed action. Furthermore, the City expressed numerous concerns regarding implementation of the EPD request including impacts to water quality, recreation, reservoir fish spawn, wildlife resources, socio-economics, and general questions regarding the modeling and EPD analysis.

City of Atlanta, email dated 28 February 2008:

City of Atlanta stated support for the EPD request. However, the City stated that clear communication lines need to be in place prior to implementation and that incremental flow reductions should occur in order to facilitate monitoring of downstream effects.

Gwinnett County, letter dated 22 February 2008:

Gwinnett County stated support for the EPD request based on review of the EPD evaluation and previous reductions to the minimum flow requirement at Peachtree Creek under similar conditions.

Columbus Water Works, email dated 24 February 2008

The Columbus Water Works sated support for the EPD request provided the flows at the Columbus gage continue to meet the Georgia Power Company FERC license levels and requested that the Corps work closely with the Georgia Power Company to assure the minimum flow releases are able to sustain the FERC license flows.

Atlanta Fulton County Water Treatment Plant, email dated 28 February 2008:

The Atlanta Fulton County Water Treatment Plant stated support for the EPD request.

Metro Atlanta Chamber of Commerce, letter dated 28 February 2008:

The Metro Atlanta Chamber of Commerce stated support for the EPD request and noted that similar temporary contingency measures were implemented during past periods of drought with no detrimental effects to the environment or the economy.

Atlanta Regional Commission, letter dated 28 February 2008:

The ARC stated support for the EPD request and requested that the Corps operate Buford Dam

with the same drought contingency measures as was done in the winter and spring of 2002 when releases from Buford Dam were approximately 500 cfs for extended periods.

Georgia Power, letter dated 26 February 2008:

GPC stated that they reviewed the EPD request and assessment and evaluated potential impacts associated with the EPD request. There are no anticipated operational issues for Plant McDonough, Plant Yates and Plant Wansley generating facilities at this time and GPC will closely monitor any impacts to Plant Wansley's ability to operate river pumps that supply a service water make-up pond. Furthermore, GPC stated that the hydro facilities on the Chattahoochee River will continue to operate according to their Federal Regulatory Commission licenses.

Southern Company - Generation, email dated 28 February 2008:

Per a Corps request regarding FERC license commitments at Morgan Falls Dam, the Southern Company transmitted the Statement of Policy and Article 27 of Morgan Falls Dam FERC license (the minimum flow article). Southern Company stated that the article requires operations in accordance with the "Statement of Policy" between GPC and the ARC; and the Statement of Policy requires GPC to make the minimum flow releases requested by the ARC, which are designed to meet a flow target (at Peachtree Creek) not to exceed 750 cfs.

Southern Nuclear Operating Company, Inc., letter dated 28 February 2008:

Southern Nuclear Operating Company, Inc. provided several comments on the EPD request including concerns over impacts to reservoir elevations at West Point and Walter F George, and authority for minimum flows below 650 cfs at Atlanta. Southern Nuclear also stated opposition to any departure from the required flows if they prevent the lower reservoirs from storing all necessary water prior to the onset of the dry months.

Southeastern Federal Power Customers, Inc., dated 29 February 2008:

SEFPC stated support for the EPD request in order to conserve storage for hydropower production during the summer months. SEFPC acknowledged that further reductions in releases from Buford would require the purchase of additional replacement power this spring but that the cost of replacement power during the summer would be much greater.

Lake Lanier Association, email dated 28 February 2008:

The Lake Lanier Association stated support for the EPD request and requested that it be implemented as soon as possible in order to assist in bringing the water level in Lake Lanier back to normal pool.

Apalachicola Riverkeeper, letter dated 27 February 2008:

Apalachicola Riverkeeper submitted numerous comments and questions regarding the EPD request and the recent Court of Appeals decision in the settlement agreement in the SEFPC vs. the U.S. Department of Army case. Most of the comments and questions were directly related to the Court of Appeals decision and not relevant to the EPD request. Although, they did state that the EPD request adds significant complexities to the water allocation process for the ACF River System and to the EDO and that from a downstream perspective, the EPD request could essentially be seen as a further reduction of flows available to support needed flows to the Apalachicola River and should be considered within the context of the EDO and water allocation discussion.

Southern Environmental Law Center, letter dated 25 February 2008:

The Sothern Environmental Law Center submitted comments on the EPD request on behalf of the Upper Chattahoochee Riverkeeper (UCR) and stated opposition to the EPD request. The UCR stated several concerns regarding potential impacts to water quality and water supply for the City of Atlanta and surrounding communities during the implementation period as well as the Corps responsibility to fully comply with the requirements NEPA, the water control plan for the ACF, and the Water Supply Act.

Preserve Alabama, email dated 28 February 2008:

Preserve Alabama stated concern over the EPD request based on potential adverse effects to NRHP listed and potentially eligible archaeological sites due to erosion effects caused by decreased flow and exposure of previously submerged or obscured archaeological sites to looting as experience in other Alabama Rivers due to lower water levels caused by drought.

Property owners, other public comments:

Approximately 413 comments were received from members of the public that generally supported the EPD request, 1 comment in opposition of the EPD request, and 3 undecided. Members of the public with property near Lake Lanier were supportive of the EPD request based on needs ranging from boating access, dock and pier access, fishing, economic impacts to small businesses, recreation, and water supply. Other comments ranged from questions regarding water management decisions to inquiry regarding whether or not other mechanisms were in place to lower the required minimum flow for maintenance of engendered species habitat during a drought condition.

ACF Drought Teleconference:

On 28 February 2008, an ACF Drought Teleconference was conducted to obtain stakeholder and agency feedback on the proposed flow reduction.

10. REFERENCES CITED

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