

April 2008

Description of Proposed Action
Modification to the Interim Operations Plan at Jim Woodruff Dam

The proposed action does not represent a new water control plan for Jim Woodruff Dam. The proposed action is a modification of the current Interim Operations Plan (IOP), which is a definition of temporary discretionary operations within the limits and rule curves established by the existing water control plan (1989). The drought plan incorporated into the proposed action would require a temporary waiver from the existing water control plan to provide for minimum releases less than 5,000 cubic feet per second (cfs) from Jim Woodruff Dam when the appropriate triggers are met and would also include 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 in order to provide additional conservation storage for future needs. Operations under the proposed action will be implemented and continued until such time as additional formal consultation may again be initiated and completed, either in association with the proposed update and revision of water control plans for the Apalachicola-Chattahoochee-Flint (ACF) system, or sooner if conditions change or additional information is developed to justify a possible revision to operations.

The U.S. Army Corps of Engineers, Mobile District (Corps) operates five Federal reservoirs on the ACF as a system, and releases made from Jim Woodruff Dam under the proposed action reflect the downstream end-result for system-wide operations measured by daily releases from Jim Woodruff Dam into the Apalachicola River. The proposed action does not address operational specifics at the four federal reservoirs upstream of Jim Woodruff Dam or other operational parameters at these reservoirs unless the drought contingency operations have been triggered. At that time, temporary changes to the amount and timing of storage at the Walter F. George and West Point projects would be triggered. During normal operations, the proposed action does not include specific operational requirements at the upstream reservoirs other than the use of the composite reservoir storage of the system and releases from the upstream reservoirs as necessary to assure releases from Jim Woodruff Dam support and minimize adverse impacts to endangered or threatened species or critical habitat. Because the listed species and critical habitat areas of concern are predominately located only on the Apalachicola River downstream of Jim Woodruff Dam, the primary operational consideration for the IOP and the proposed modifications are the timing and quantity of flows released from the dam.

Like the current IOP, the proposed action specifies two parameters applicable to the daily releases from Jim Woodruff Dam: a minimum discharge and a maximum fall rate. Also like the current IOP, the proposed action places limitations on refill, but does not require a net drawdown of composite storage unless basin inflow is less than 5,000 cfs. However, the proposed action modifies how the minimum discharge is determined and identifies conditions under which maintenance of the maximum fall rate schedule is suspended and more conservative drought contingency operations begin. The proposed action does not change the current IOP basin inflow calculation (7-day moving average daily basin inflow), use of Chattahoochee gage to measure releases/river flow, use of volumetric balancing as described in the May 16, 2007 letter to the U.S. Fish and Wildlife Service (USFWS), nor the limited hydropower peaking operations

at Jim Woodruff Dam. A detailed description of the proposed action and how it modifies the current IOP is provided below.

Minimum Discharge: Like the current IOP, the proposed action varies minimum discharges from Jim Woodruff Dam by basin inflow and by month and the releases are measured as a daily average flow in cfs at the Chattahoochee gage. Table 1 shows minimum releases from Jim Woodruff Dam prescribed by the proposed action and shows when and how much basin inflow is available for increasing reservoir storage. Except when basin inflow is less than 5,000 cfs, the minimum releases are not required to exceed basin inflow. The current IOP defines three basin inflow threshold levels that vary by two seasons (spawning and non-spawning season). The proposed action defines additional basin inflow threshold levels that vary by three seasons: spawning season (March-May); non-spawning season (June-November); and winter (December-February). The proposed action further modifies the current IOP by also incorporating composite storage thresholds that factor into minimum release decisions. Composite storage is calculated by combining the storage of Lake Sidney Lanier, West Point Lake, and Walter F. George Lake. Each of the individual storage reservoirs consists of four Zones. These Zones are determined by the operational guide curve for each project. The composite storage utilizes the four Zone concepts as well; i.e., Zone 1 of the composite storage represents the combined storage available in Zone 1 for each of the three storage reservoirs.

During the spawning season, two sets of four basin inflow thresholds and corresponding releases exist based on composite storage. When composite storage is in Zones 1 and 2, a less conservative operation is in place. When composite storage is in Zone 3, a more conservative operation is in place while still avoiding or minimizing impacts to listed species and critical habitat in the river. When composite storage falls below the bottom of Zone 3 into Zone 4 the drought contingency operations are “triggered” representing the most conservative operational plan. A detailed description of the drought contingency operations is provided below. During the spawning season, a daily monitoring plan that tracks composite storage will be implemented in order to determine water management operations. Recent climatic and hydrological conditions experienced and meteorological forecasts will be used in addition to the composite storage values when determining the appropriate basin inflow thresholds to utilize in the upcoming days.

During the non-spawning season, one set of four basin inflow thresholds and corresponding releases exists based on composite storage in Zones 1-3. When composite storage falls below the bottom of Zone 3 into Zone 4 the drought contingency operations are “triggered”.

During the winter season, there is only one basin inflow threshold and corresponding minimum release (5,000 cfs) while in composite storage Zones 1-3. There are no basin inflow storage restrictions as long as this minimum flow is met under these conditions. When composite storage falls below the bottom of Zone 3 into Zone 4 the drought contingency operations are “triggered”.

The figures below provide a graphical comparison of the operational provisions of the current IOP and the proposed action.

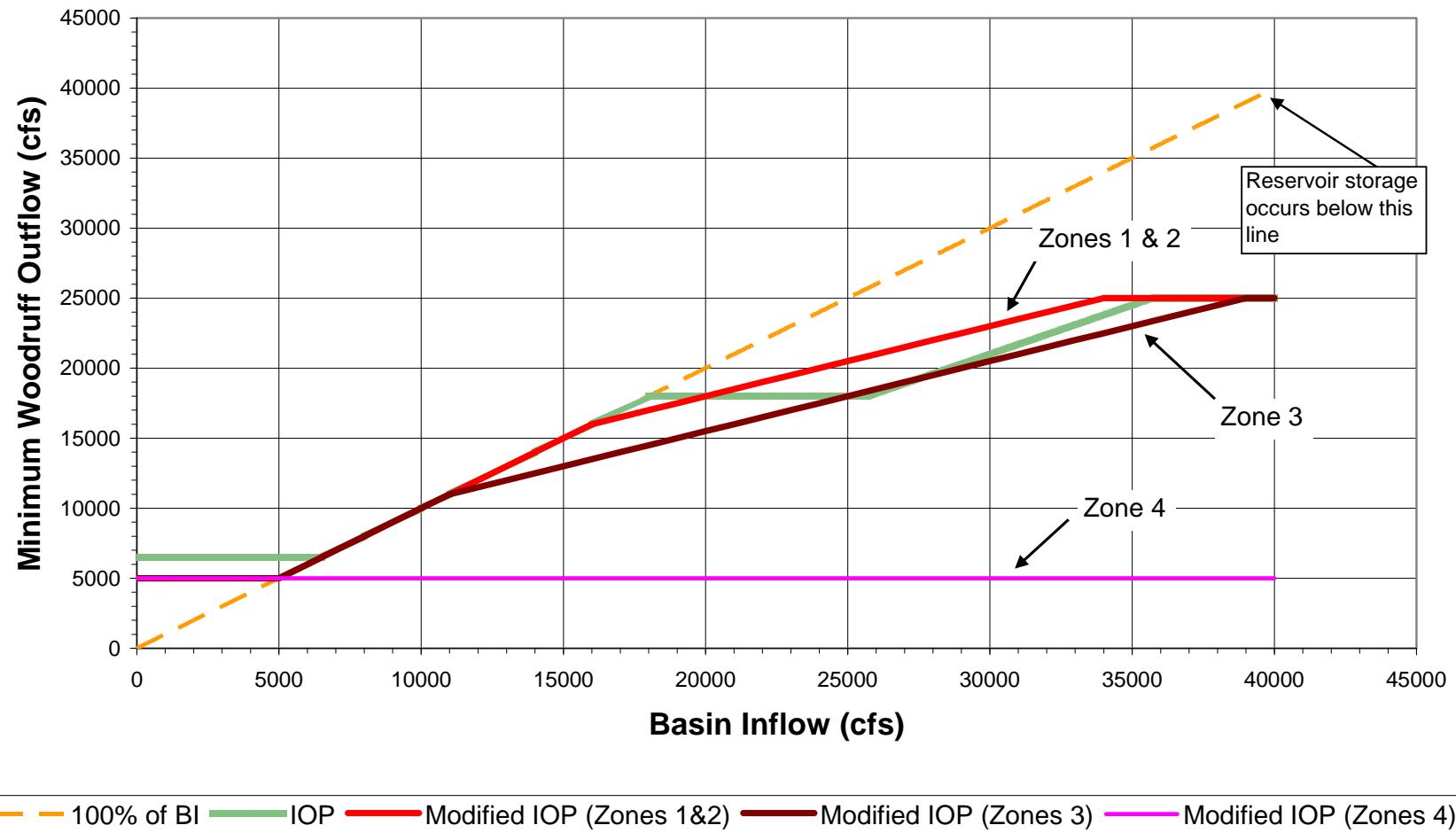
Table 1. Proposed Action Modified IOP Releases From Jim Woodruff Dam

Months	Composite Storage Zone	Basin Inflow (BI) (cfs)	Releases from JWLD (cfs)	Basin Inflow Available for Storage¹
March - May	Zones 1 and 2	$\geq 34,000$	$\geq 25,000$	Up to 100% BI $> 25,000$
		$\geq 16,000 \text{ and } < 34,000$	$\geq 16,000 + 50\% \text{ BI} > 16,000$	Up to 50% BI $> 16,000$
		$\geq 5,000 \text{ and } < 16,000$	$\geq \text{BI}$	
		$< 5,000$	$\geq 5,000$	
	Zone 3	$\geq 39,000$	$\geq 25,000$	Up to 100% BI $> 25,000$
		$\geq 11,000 \text{ and } < 39,000$	$\geq 11,000 + 50\% \text{ BI} > 11,000$	Up to 50% BI $> 11,000$
		$\geq 5,000 \text{ and } < 11,000$	$\geq \text{BI}$	
		$< 5,000$	$\geq 5,000$	
June - November	Zones 1,2, and 3	$\geq 24,000$	$\geq 16,000$	Up to 100% BI $> 16,000$
		$\geq 8,000 \text{ and } < 24,000$	$\geq 8,000 + 50\% \text{ BI} > 8,000$	Up to 50% BI $> 8,000$
		$\geq 5,000 \text{ and } < 8,000$	$\geq \text{BI}$	
		$< 5,000$	$\geq 5,000$	
	Zones 1,2, and 3	$\geq 5,000$	$\geq 5,000 \text{ (Store all BI } > 5,000\text{)}$	Up to 100% BI $> 5,000$
December - February		$< 5,000$	$\geq 5,000$	
At all times	Zone 4	NA	$\geq 5,000$	Up to 100% BI $> 5,000$
At all times	Drought Zone	NA	$\geq 4,500^2$	Up to 100% BI $> 4,500$

¹ Consistent with safety requirements, flood control purposes, and equipment capabilities.

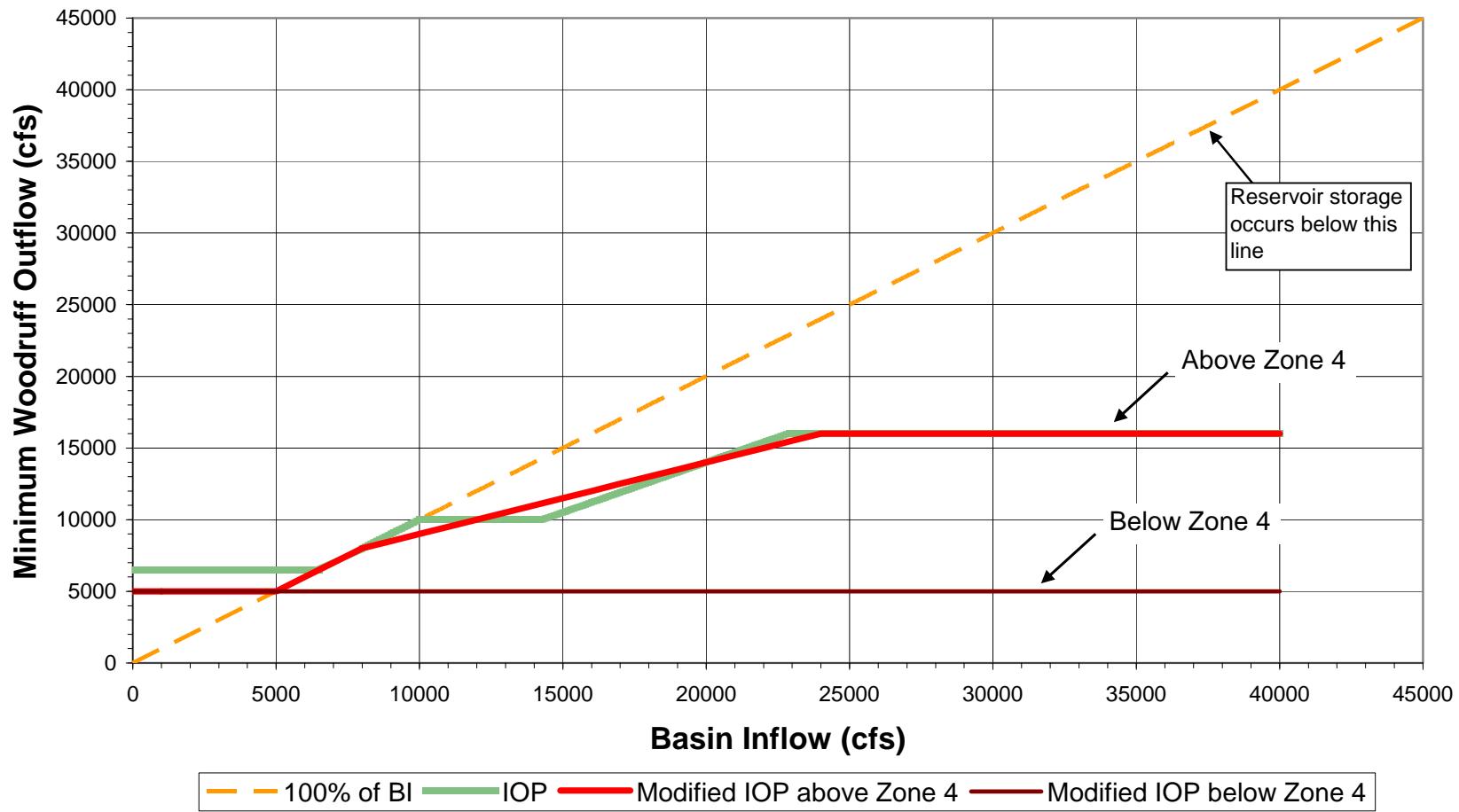
² Once composite storage falls below the top of the Drought Zone ramp down to 4,500 cfs will occur at a rate of 0.25 ft/day drop.

Jim Woodruff Outflow Based on Basin Inflow March-May; Spawning Period; Revised Down



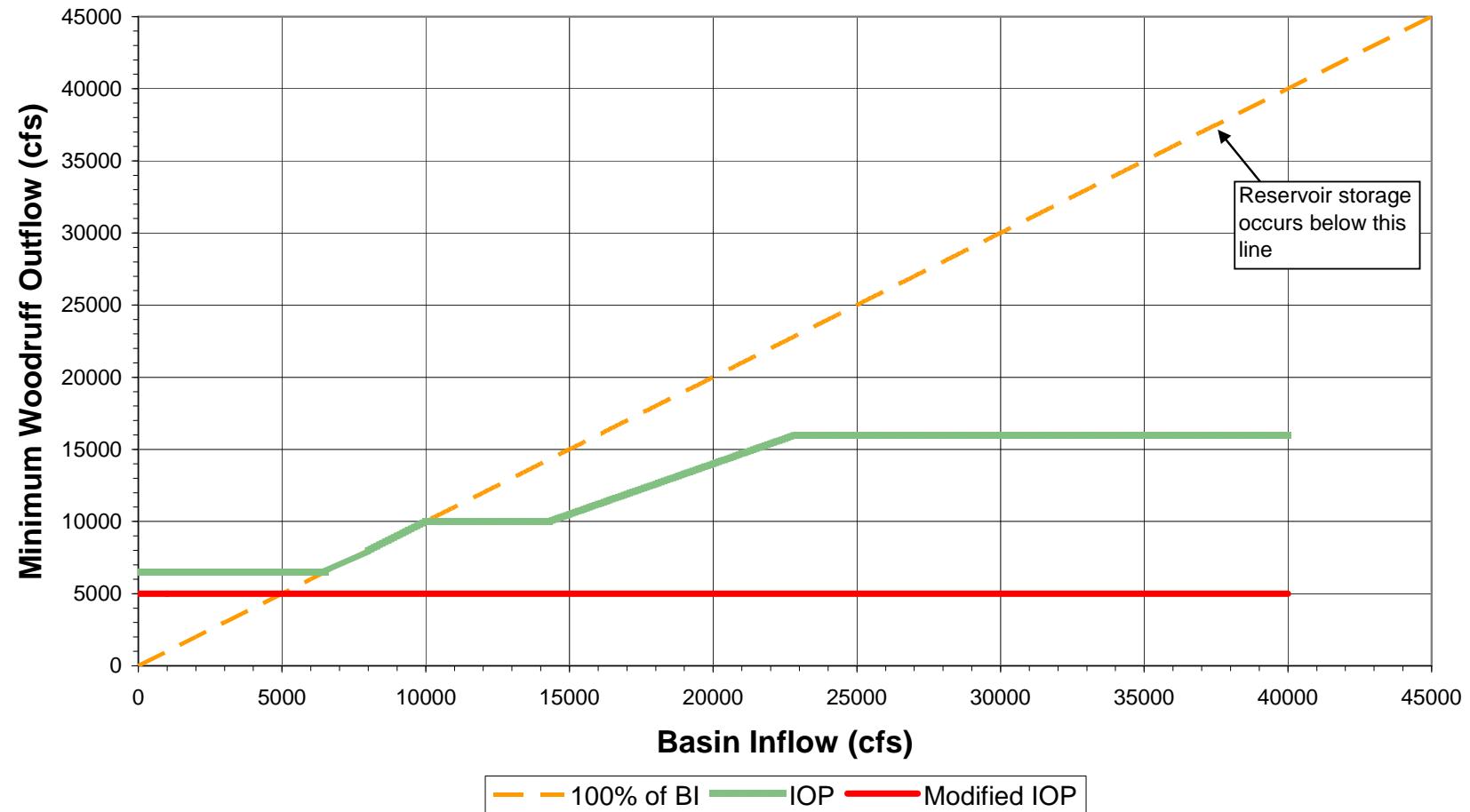
Jim Woodruff Outflow Based on Basin Inflow

June- Nov; Non-Spawning Period



Jim Woodruff Outflow Based on Basin Inflow

Dec-Jan; Winter Period



According to Reasonable and Prudent Measure (RPM) 3 of the Biological Opinion (BO), the current IOP includes a higher minimum flow provision that identified conditions where a desired minimum flow (6,500cfs) would be maintained and a “trigger” to determine those conditions when the required minimum flow (5,000 cfs) would be more prudent than the desired minimum flow. The proposed action does not include this higher minimum flow provision. We believe incorporation of additional basin inflow thresholds for the spawning and non-spawning seasons as well as composite storage thresholds meets the intent of the higher flow provision.

Like the current IOP, the flow rates included in Table 1 prescribe minimum, and not target, releases for Jim Woodruff Dam. During a given month and basin inflow rate, releases greater than the Table 1 minimum releases may occur consistent with the maximum fall rate schedule, described below, or as needed to achieve other project purposes, such as hydropower or flood control.

Maximum Fall Rate: Fall rate, also called down-ramping rate, is the vertical drop in river stage (water surface elevation) that occurs over a given period. The fall rates are expressed in units of feet per day (ft/day), and are measured at the Chattahoochee gage as the difference between the daily average river stage of consecutive calendar days. Rise rates (*e.g.*, today’s average river stage is higher than yesterday’s) are not addressed. The proposed action does not change the maximum fall rate schedule (Table 2) prescribed by the current IOP other than to suspend it when composite storage is in Zone 4 and the drought contingency operation described below is implemented. Unless otherwise noted, fall rates under the drought contingency operation would be managed to match the fall rate of the basin inflow. Also, the proposed action does not change the use of volumetric balancing as described in the May 16, 2007, letter to the USFWS, which is intended to prevent a substantial drawdown of storage due to gradual down ramping while following declining basin inflow.

Drought Contingency Operations: The proposed action incorporates a drought contingency operation (referred to as drought plan) that does not exist in the current IOP. The drought plan is similar to the current Exceptional Drought Operations (EDO) in that it specifies a minimum release from Jim Woodruff Dam and temporarily suspends the other minimum release and maximum fall rate provisions until composite storage within the basin is replenished to a level that can support them. The minimum discharge is determined in relation to composite storage and not average basin inflow under the drought plan. The drought plan is “triggered” when composite storage falls below the bottom of Zone 3 into Zone 4. At that time all the composite storage Zone 1-3 provisions (seasonal storage limitations, maximum fall rate schedule, minimum flow thresholds, and volumetric balancing accounting) are suspended and management decisions are based on the provisions of the drought plan. The drought plan includes a temporary waiver from the existing water control plan 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 in order to provide additional conservation storage for future needs as well as provide for a minimum releases less than 5,000 cfs from Jim Woodruff Dam.

Table 2. Proposed Action Modified IOP Maximum Fall Rate Schedule Composite Storage Zones 1,2, and 3*

Release Range (cfs)	Maximum Fall Rate (ft/day), measured at Chattahoochee gage
> 30,000**	No ramping restriction***
> 20,000 and <= 30,000*	1.0 to 2.0
Exceeds Powerhouse Capacity (~ 16,000) and <= 20,000*	0.5 to 1.0
Within Powerhouse Capacity and > 8,000*	0.25 to 0.5
Within Powerhouse Capacity and <= 8,000*	0.25 or less

*Maximum fall rate schedule is suspended in Composite Zone 4

**Consistent with safety requirements, flood control purposes, and equipment capabilities.

***For flows greater than 30,000 cfs, it is not reasonable and prudent to attempt to control down ramping rate, and no ramping rate is required.

The drought plan prescribes two minimum releases based on composite storage in Zone 4 and an additional zone referred to as the Drought Zone (see Composite Storage Zones figure on the following page). The Drought Zone delineates a volume of water roughly equivalent to the inactive storage in lakes Lanier, West Point and Walter F. George plus Zone 4 storage in Lake Lanier. The Drought Zone line has been adjusted to include a smaller volume of water at the beginning and end of the calendar year. When the composite storage is within Zone 4 and above the Drought Zone, the minimum release from Jim Woodruff Dam is 5,000 cfs and all basin inflow above 5,000 cfs that is capable of being stored may be stored. Once the composite storage falls below the Drought Zone, the minimum release from Jim Woodruff Dam is 4,500 cfs and all basin inflow above 4,500 cfs that is capable of being stored may be stored. When transitioning from a minimum release of 5,000 to 4,500 cfs, fall rates will be limited to a 0.25 ft/day drop. The 4,500 cfs minimum release is maintained until composite storage returns to a level above the top of the Drought Zone, at which time the 5,000 cfs minimum release is re-instated. The drought plan provisions remain in place until conditions improve such that the composite storage reaches a level above the top of Zone 3 (i.e., within Zone 2). At that time, the temporary drought plan provisions are suspended, and all the other provisions are re-instated. During the drought contingency operations a monthly monitoring plan that tracks composite storage in order to determine water management operations (the first day of each month will represent a decision point) will be implemented to determine which operational triggers are applied. In addition, recent climatic and hydrological conditions experienced and meteorological forecasts will be used when determining the set of operations to utilize in the upcoming month.

Although the drought plan provides for flows lower than 5,000 cfs in the river, incorporation of provisions that allow for reduced flows during the refill period when system storage is lower and storage conservation measures when composite storage is in Zone 4 should result in fewer occasions when these low flows are triggered or in occasions where storage shortages result in flows less than 5,000 cfs.

Composite Storage Zones

