



DEPARTMENT OF THE ARMY  
MOBILE DISTRICT, CORPS OF ENGINEERS  
P.O. BOX 2288  
MOBILE, ALABAMA 36628-0001

May 16, 2007

REPLY TO  
ATTENTION OF

Inland Environment Team  
Planning and Environmental Division

Ms. Gail Carmody  
Field Supervisor  
U.S. Fish and Wildlife Service  
1601 Balboa Avenue  
Panama City, Florida 32405-3721

Dear Ms. Carmody:

This letter confirms the conclusions of recent informal consultation discussions between the U.S. Fish and Wildlife Service (USFWS) and the U.S. Army Corps of Engineers (Corps), Mobile District, regarding our releases under the Interim Operations Plan (IOP) at Jim Woodruff Dam in conformance with a Biological Opinion (BO) issued by USFWS on September 5, 2006 pursuant to Section 7 of the Endangered Species Act. Over the past few weeks, our two agencies have evaluated the process of accounting for volumetric balancing of flows as described in both the Corps IOP and the BO. Volumetric balancing of releases was included in a revised IOP submitted by the Corps to USFWS on June 12, 2006. Volumetric balancing is used to minimize impacts to reservoir storage due to specific constraints on down-ramping releases from Jim Woodruff Dam, and considers the realities of water management operations in allowing for adjustments of releases as necessary to achieve the IOP threshold goals. The revised IOP specified that computations of the volumes of the basin inflows and releases would be made on a continuous basis, and that readjustments in releases would be made, as necessary, to assure the required flow releases are made.

Volumetric balancing was reflected in the final BO language as follows:

“...To prevent a substantial drawdown of storage due to a gradual down ramping while following declining basin inflow, the Corps is tracking the volume of basin inflow and releases. When the volume of releases exceeds the volume of basin inflow during a given period by more than 5%, the Corps will adjust subsequent releases to replenish the storage that was used for down ramping. The adjustment will involve delaying and/or reducing an increase in releases during the next period of rising basin inflow. Similarly, if an inadvertent under-release occurs, the Corps will over-release that amount thereafter to re-establish consistency with Table 1.2.A....”

Since issuance of the BO, the Corps has been tracking the volumes of basin inflows and releases, and compared the releases to the required IOP minimum release schedule contained in Table 1.2.A. of the BO. This procedure accounts for the volumes of over-releases due to down

ramping requirements, as well as any inadvertent under-releases which may result due to the imprecise nature of water management operations (i.e., lags in releases due to travel time for moving water received in the upper basin; smoothing of rain peaks in anticipation of follow-on ramping volumes, etc.). The volume balance was credited when releases exceeded the IOP minimum release in order to comply with the down ramping schedule, but not when such releases were for other project purposes, such as hydropower generation, flood control, or to maintain head limits. Although the concept of volumetric balancing was intended to minimize the draw on storage due to down ramping requirements, a significant credit due to down ramping had accumulated in the Corps volumetric balancing account since September 2006. Sustained dry conditions experienced last year, followed by operations for flood control, had prevented or delayed opportunities to replenish the volume of storage used specifically for down ramping until this spring. The Corps determined that replenishment of storage during the traditional refill period would be most beneficial from both a water management operation perspective and for flow augmentation later in the year if dry conditions persist. Therefore, in April 2007, less than the IOP minimum flow was released to recover a portion of the storage previously used for down ramping. Regaining a portion of the storage previously used for down ramping at this time increases the likelihood of being able to sustain higher desired flows of 6,500 cubic feet per second (cfs), rather than the required minimum flow of 5,000 cfs, especially if basin inflows continue to fall this spring and summer under sustained dry conditions in the basin. The higher desired flow of 6,500 cfs is specified in revisions to the IOP required by reasonable and prudent measure (RPM) No.3 of the BO, as approved by USFWS on February 28, 2007.

Following an evaluation of the use of volumetric balancing in April 2007, it was clear that the overall volume of releases since September 2006 had exceeded the total volume required under the IOP and BO. However, in informal discussions with Mr. Jerry Ziewitz of your staff, and consistent with the RPM1 adaptive management provision of the BO, we agreed to improve the tracking procedures to more clearly address the goals of volumetric balancing, which is generally to assure that the required releases are made while recognizing the complexities of water management. It was also agreed to address issues related to the timing and volumes of volumetric balancing events. Our discussions focused on attempts to simplify a complex computation procedure and the development of a decision and accounting system that will clearly demonstrate the impacts on storage and whether releases meet the IOP flow releases schedule

As a result of our informal discussions, the following conventions have been agreed to for tracking and balancing volumes of releases and storage.

- (1) The tracking procedures will clearly demonstrate when the following events occur:
  - (a) releases are greater than the minimum required by the IOP minimum release schedule, either to accomplish down ramping or to compensate for unavoidable or inadvertent under-release relative to the IOP minimum release schedule (credits); and
  - (b) releases are less than the minimum required by the IOP minimum release schedule, either to compensate for a previous

down ramping drawdown, or as the result of an unavoidable or inadvertent under-release (debits).

(2) Under volumetric balancing, credits will be accumulated when using storage (either conservation or flood control storage) either to compensate for a previous under-release or to accomplish the required down ramping. When not down ramping, the credit would be only for the amount of the previous under-release.

(3) To qualify as storage credits used for down ramping that can be recovered later, the following four conditions must be met: a) the actual release is greater than the minimum IOP required release; b) the release required to comply with the fastest ramping rate allowed is greater than the minimum IOP required release; c) today's release is less than yesterday's release (i.e., down ramping is occurring); and d) today's total storage is less than yesterday's total storage (Seminole included). When all of these conditions are met, a credit is equal to the lesser of either (a) the decline in storage or (b) the difference between the actual release and the minimum IOP required release.

(4) It is anticipated that, in general, balancing of credits and debits will be accomplished within 10 days and involve not more than 10,000 day-second-feet (dsf) of storage. However, climatic and hydrologic conditions may affect the timing or scheduling of balancing volumes used for down ramping and such a limitation may not be practicable in all cases. The Corps will manage releases to accomplish recovery of storage used for down ramping as soon as possible; and will generally limit the recovery of storage to 10,000 dsf. The actual amount of accumulated storage credits will continue to be tracked in the accounting system. In the event that more than 10,000 dsf credits accumulate due to down ramping requirements, the Corps will informally consult with USFWS to determine the timing and volume for balancing of these credits, if possible and appropriate, to assure that the impacts on storage and species would be minimal and/or the timing of subsequent releases would be most beneficial.

(5) It was also agreed that applying volumetric balancing when releases are less than 10,000 cfs will be avoided to the extent practicable.

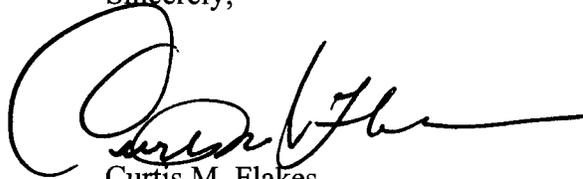
Both agencies agreed to implement the above-described updated volumetric accounting system effective May 1, 2007. The differences in balances that would have accumulated using both the previous Corps volumetric balancing accounting system and the updated system are shown in the enclosed graphs. Both versions of the accounting system demonstrate that more releases have been made than required under the IOP minimum release schedule and that the total volume of releases since September 2006 has exceeded the total volume of required minimum releases; i.e. the volume of daily over-releases has exceeded the volume of under-releases relative to the IOP minimum release schedule. This is appropriate since the IOP minimum release schedule is a minimum flow schedule rather than a target flow schedule. One distinction in the updated procedures, however, is that there would be some limit on the timing and volumes of credits and debits used during routinely scheduled balancing events as described

above. In order to avoid unnecessary loss of storage credits, we will continue to informally consult on opportunities to recover storage if practicable and appropriate. We also intend to continue to monitor the effectiveness of the updated procedures for tracking volumetric balancing operations, and will re-initiate informal discussions between our two agencies if necessary in accordance with the adaptive management provisions of RPM1.

A significant amount of time and resources was dedicated by both of our agencies to the updating and clarifying of the volumetric balancing accounting system. We especially appreciate the efforts of Mr. Ziewitz to assist our water managers in making this complicated accounting system more straightforward.

I am also providing copies of this response to Mr. Trey Glenn of the Alabama Department of Environmental Management; Mr. Michael Sole, of the Florida Department of Environmental Protection; and Dr. Carol Couch of the Georgia Department of Natural Resources, Environmental Protection Division. If you have any further questions or comments regarding our operations under the Jim Woodruff Dam IOP and our efforts to minimize or avoid impacts to the listed species on the Apalachicola River, please feel free to contact Ms. Joanne Brandt, (251) 690-3260, email [joanne.u.brandt@sam.usace.army.mil](mailto:joanne.u.brandt@sam.usace.army.mil); or Mr. Brian Zettle, (251) 690-2115, email [brian.a.zettle@sam.usace.army.mil](mailto:brian.a.zettle@sam.usace.army.mil).

Sincerely,

A handwritten signature in black ink, appearing to read 'Curtis M. Flakes', with a large, stylized initial 'C' on the left and a long horizontal flourish extending to the right.

Curtis M. Flakes  
Chief, Planning and Environmental  
Division

Enclosures

