



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

August 29, 2008

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

Dear Ms. Carmody:

Reference is made to the Biological Opinion on the U.S. Army Corps of Engineers, Mobile District, Revised Interim Operating Plan (RIOP) for Jim Woodruff Dam and the Associated Releases to the Apalachicola River, issued by the U.S. Fish and Wildlife Service on June 1, 2008. In accordance with Reasonable and Prudent Measure Number 2008-2, and Terms and Conditions 7.4.2.a, 7.4.2.b, and 7.4.2.c we are hereby submitting clarifications of the process and criteria that shall apply to the decision to implement the drought contingency component of the RIOP that provides for reducing the minimum release to 4,500 cubic feet per second.

The enclosed information was developed in coordination with your staff. However, it is considered provisional pending approval of your agency. We will continue to work closely with your staff to make any necessary refinements to the decision making process.

If you have any questions or suggestions for further refinements to the enclosed information, please feel free to contact Mr. Brian Zettle, 251-690-2115, email: [brian.a.zettle@usace.army.mil](mailto:brian.a.zettle@usace.army.mil).

Sincerely,

A handwritten signature in black ink, appearing to read "Curtis M. Flakes".

Curtis M. Flakes  
Chief, Planning and Environmental  
Division

Enclosure

29 August 2008

**Drought Operations Clarifications**  
**By the U.S. Army Corps of Engineers (Corps) for the**  
**Revised Interim Operations Plan (RIOP) for Jim Woodruff Dam and the Associated**  
**Releases to the Apalachicola River**

**“RPM 2008-2. Drought Operations. Clarify the drought contingency component of the RIOP that provides for reducing the minimum release to 4,500 cfs so that this option is exercised only when necessary to balance impacts to other project purposes that are reasonably certain to occur without the reduction.**

**Rationale.** Take of listed species will occur when minimum releases are reduced below 5,000 cubic feet per second (cfs). This occurs under the RIOP when composite storage declines into the drought zone and considering “recent climatic and hydrological conditions experienced and meteorological forecasts.” Reducing the minimum release at certain times of year under certain circumstances may result in little improvement in composite storage levels. The Corps can minimize mussel mortality by using a minimum flow reduction only when it is reasonably certain that doing so will result in an appreciable increase in storage and thereby avoid impacts to other project purposes, including support of minimum releases for water quality and fish and wildlife conservation.”

**7.4.2.a) “In consultation with the Service, the Corps shall provide to the Service by August 30, 2008, written clarification of the process and criteria that shall apply to the decision to reduce minimum releases to levels less than 5,000 cfs.”**

**Corps Clarification.** As described in the Biological Opinion (BO), under the drought plan provisions of the RIOP, the minimum discharge from Jim Woodruff Dam is determined in relation to composite storage and not average basin inflow. The drought plan is triggered when composite storage falls below the bottom of Zone 3 into Zone 4. At that time, all RIOP provisions applicable when composite storage is within Zones 1-3 (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.

The minimum releases from Jim Woodruff Dam under the drought plan are keyed to the level of composite storage within Zone 4, which is seasonally divided into an upper and a lower portion. The lower portion is referred to as the Drought Zone. The Drought Zone delineates a volume of water roughly equivalent to the inactive storage in Lakes Lanier,

West Point and Walter F. George plus the Zone 4 storage in Lake Lanier, but is adjusted to include a smaller volume of water than this at the beginning and end of the calendar year. When composite storage is within the upper portion of Zone 4 (above the Drought Zone), the minimum release from Jim Woodruff Dam is 5,000 cfs, and the Corps may store all available basin inflow in excess of 5,000 cfs that is capable of being stored. Once the composite storage has fallen within the Drought Zone, the minimum release from Jim Woodruff Dam is 4,500 cfs, and the Corps may store all basin inflow in excess of 4,500 cfs that is capable of being stored. When transitioning from a minimum release of 5,000 to 4,500 cfs, the Corps will limit fall rates to 0.25 feet/day. 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 will be re-instated. The drought plan is effective until composite storage returns to 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 other provisions of the RIOP are re-instated. This describes the criteria that must be met prior to considering a reduction in the minimum release to 4,500 cfs and needs no further clarification.

The decision-making process once this criteria is met, is not so "clear cut" in order to allow for the flexibility needed to make daily water management operational decisions based on the current and forecasted conditions. Determinations on the criteria and corresponding general water management operations are made on a monthly basis in order to avoid situations where the trigger between operational scenarios is crossed multiple times in a short duration. During drought contingency operations, the Corps will assess the status of water management operations relative to the criteria described above on the first day of each month. The decision made at that time will dictate what the minimum flow from Jim Woodruff Dam will be for the remainder of the month. However, this decision is not based purely on the drought zone storage level. Water managers will also consider the conservation storage at each individual storage project, consumptive demands, current and forecast impacts to authorized project purposes, recent climatic and hydrological conditions experienced (to evaluate recent trends), and short/long-term meteorological forecasts. If this analysis suggests that composite storage levels will improve or not significantly deteriorate from the current level, a decision may be made to continue to operate for a 5,000 cfs minimum flow rather than reducing to a 4,500 cfs minimum flow. This flexibility not only assists our water managers, but also provides additional minimization of harm to listed species.

**7.4.2.b) "The clarification of the RIOP shall describe, at minimum, the methods by which the Corps will estimate the impacts to other project purposes if a minimum release reduction is not implemented and the expected magnitude and duration of the reduction."**

**Corps Clarification.** Authorized project purposes are met using conservation storage at the Corps projects and project operations accommodate these purposes in a complimentary fashion. Depletion of the conservation storage restricts the Corps' ability to meet all of the authorized project purposes. Without the discretion to reduce project releases, the risk of depleting the conservation storage is increased. In order to estimate

the impacts to project purposes if a reduction in release at Jim Woodruff Dam is not made, the Corps will evaluate various hydrologic scenarios with a hydrologic model. One of the major considerations for assessing impacts to project purposes is when composite conservation storage would be depleted. As operations would then be tied to inactive storage, evaluations would be made to see how long releases could be met to meet public health and safety concerns and to a very limited extent concurrent authorized purposes.

In general, the magnitude of the reduction in minimum flow will be approximately 500 cfs per the provisions of the RIOP. During the development of the RIOP, it was determined that the composite storage values defined by the Drought Zone warranted a reduction in the use of storage and thus the 4,500 cfs minimum flow operation was evaluated. However, if the model analysis described above suggests that a lesser magnitude reduction will provide beneficial relief to composite storage while not significantly impacting authorized project purposes, then that option may be implemented. Again, this flexibility is intended to not only assist our water managers, but also provide additional minimization of harm to listed species. The duration of any of the minimum flow provisions is one month, until the next decision date occurs. As stated in the BO, the RIOP flow provisions describe minimum, not target, releases and discharge into the river can and often does exceed these provisions due to rainfall events, head limitations, or other operational decisions. Thus, the duration of a minimum flow less than 5,000 cfs is difficult to predict.

**7.4.2.c) “The Corps shall establish internal communication procedures to address unanticipated events that could have adverse effects to listed species. These procedures should be written and include 1) alerting the Service and appropriate State agencies, and 2) completing a summary on how the event was handled and recommendations to further improve procedures that will assist in minimizing harm to listed species.”**

**Corps Clarification.** As described in our April 24, 2008 and August 8, 2008 letters to your agency, we have implemented and continue to refine Standard Operating Procedures (SOP) for daily operational decisions at projects in the ACF river basin, and in particular Jim Woodruff Dam, in an effort to minimize the likelihood and impact of unanticipated events. Firstly, the Chief of the Hydrology and Hydraulics Branch has assigned both a primary and secondary Basin Manager to the ACF river basin. Subject to availability, the two Water Managers will jointly agree on operational decisions. Secondly, once an operational decision is made, the proposed operation will then be subject to review by a Senior Water Manager familiar with the ACF river basin and Jim Woodruff Dam operations. Finally, all major operational decisions will be approved by either the Chief of the Hydrology and Hydraulics Branch, or his designated representative. In addition, our Corps Water Management staff will be drafting and implementing a Standard Operating Procedure (SOP) that will accelerate our recognition and response to mechanical failures. The SOP will include provisions requiring project operators to regularly evaluate and compare the primary and secondary gage sensor data transmitted from the U.S. Geological Survey Chattahoochee gage to ensure these sensors are

providing consistent readings as we are reducing releases to near the 5,000 cfs minimum daily average and when discrepancies or other failures are identified, to implement more conservative operations until the gage service technicians have verified the accuracy of gage data, and corrected any mechanical problems necessary to avoid releases less than the daily average minimum flow. The SOP will also identify an appropriate timeframe for responding to these events.

In the event equipment malfunction, storm events, or other unforeseen circumstances result in temporary operations that are inconsistent with the provisions of the RIOP, the following internal communication procedures will be followed.

- As soon as an issue is identified, Water Management staff and project operators will make the appropriate adjustments to regain consistency with the RIOP;
- The Corps will contact the Panama City Field Office of the USFWS and describe the circumstances that led to the unanticipated event and the actions taken to rectify it, discuss potential impacts of the action to listed species in the Apalachicola River, and discuss additional actions needed, if any, to ensure that continuing operations are consistent with the provisions of the RIOP; and
- The Corps will document the discussion with the USFWS in a letter and post the letter on the Corps website for other State agencies, stakeholders, and interested public to access.