

# **Georgia Department of Natural Resources**

2 Martin Luther King Jr. Drive, Suite 1152 East Tower, Atlanta, Georgia 30334

Noel Holcomb, Commissioner

Carol A. Couch, Ph.D., Director

Environmental Protection Division

(404) 656-4713

January 9, 2007

Ms. Joanne Brandt  
Environmental Compliance Manager  
Inland Environmental Team  
U.S. Army Corps of Engineers, Mobile District  
P.O. Box 2288  
Mobile, Alabama 36628-0001

**Re: Alteration of IOP in Response to RPM3**

Dear Ms. Brandt:

Thank you for holding the December 13, 2006 workshop in Columbus, Georgia to discuss potential alterations of the Interim Operations Plan ("IOP") in response to Reasonable and Prudent Measure No. 3 ("RPM3") of the Biological Opinion ("BO") that the United States Fish & Wildlife Service issued on September 5, 2006. We appreciate the opportunity to participate and to comment on potential revisions to the IOP in light of RPM3.

RPM3 instructs the Corps to "[d]evelop modifications to the IOP that provide a higher minimum flow to the Apalachicola River [above 5,000 cfs] when reservoir storage and hydrologic conditions permit." BO at p. 141. The rationale for RPM3 states, in part:

The available data indicates that higher minimum flows are supportable during normal and wet hydrologic periods, and during dry periods when the reservoirs are relatively full. Conversely, during extended drier than normal conditions, it may be prudent to store more water than allowed under the IOP during certain times of the year to insure minimum water availability later. Possible components and triggers of the drought plan could be, but are not limited to: Corps reservoir action zones, cumulative reservoir storage remaining, total basin inflows, indicators of fish spawn, climatic condition indices, and flow levels at gages

downstream of the Chattahoochee gage, such as the gage at Wewahitchka.

*Id.* While Georgia does not agree with some of the key findings of the BO<sup>1</sup>, Georgia agrees with the rationale of RPM3 in several important respects. First, Georgia very much agrees that the Corps needs to take into account reservoir levels (“reservoir action zones” and “reservoir storage remaining”) as well as the actual (observed) spawning activity of the Gulf sturgeon in establishing appropriate reservoir releases during the Gulf sturgeon spawning season (March-May). Second, Georgia concurs with the finding that the flows prescribed in the IOP for Gulf sturgeon spawning can and should be reduced. We further agree that storing more water during the Gulf sturgeon spawning season, which corresponds to the same time period when top of conservation of all major storage reservoirs in the Basin rise to their summer levels, should make more water available for releases in excess of 5,000 cfs during June-February, provided that safe reservoir levels (levels that allow the reservoirs to refill safely) are maintained.

Georgia’s specific concerns regarding the IOP provisions for the Gulf sturgeon spawning period and our suggestion of modifications to the IOP in response to RMP3 are set forth in greater detail below.

#### Flaws in the IOP During the Spawning Season

The IOP’s flow thresholds are flawed and warrant revision consistent with RPM3 for the following reasons.

1. The releases that the IOP prescribes from March through May are not warranted by any demonstrated need of the Gulf sturgeon. The Corps established the 37,400 cfs and 20,400 cfs flow thresholds<sup>2</sup> based solely on the finding that Gulf sturgeon eggs were detected on a few days in 2005 when the flow was within that range. The assumption that the Gulf sturgeon required such flows to spawn appears to have been invalidated by data collected by Pine *et al.*, in 2006. Pine collected Gulf sturgeon eggs on 12 specific 2-3 day periods when flows were between 12,700 cfs and 22,400 cfs. Slides 3 and 4 of Dr. Wei Zeng’s presentation to the workshop (a copy of which is attached) illustrate the 2006 data.
2. Even if one assumes that maximizing the amount of available Gulf sturgeon habitat at known Gulf sturgeon spawning sites in the Apalachicola River significantly benefits spawning activity (which has not been proven or suggested by any available data or studies of which we are aware), the IOP’s flow thresholds

---

<sup>1</sup> As the Corps is aware, Georgia has filed a legal challenges to the BO in federal court. This submission in no way waives the positions taken by the State of Georgia in the litigation.

<sup>2</sup> The IOP provides that from March through May, when Basin Inflow (“BI”) is equal to or greater than 37,400 cfs, the Corps will release not less than 37,400 cfs; when BI is between 20,400 cfs and 37,400 cfs, the Corps will release not less than 20,400 cfs; and when BI is less than 20,400 cfs, the Corps will release an amount equal to BI.

still are wasteful, counterproductive, and may even be detrimental as compared with a regime that would allow the Corps to store more water. Slide 5 of Dr. Zeng's presentation (a marked version of Figure 3.6.1.4.C from the BO) illustrates that the cumulative amount of available habitat at known Gulf sturgeon spawning sites increases as flow in the Apalachicola River increases from 5,000 cfs to between 10,000 cfs and 11,000 cfs, then levels off until the flow is in excess of 20,000 cfs; that less than four acres of habitat is gained as the flow increases from 20,000 cfs to approximately 23,000 cfs; and that available habitat actually decreases after the flow exceeds approximately 23,000 cfs, with available habitat at flows of between approximately 27,000 cfs and 38,000 cfs being *less* than the amount of habitat available when flows are in the 10,000-11,000 cfs range. Similarly, slide 7 (a marked version of Figure 3.6.1.4.D from the BO) illustrates that little, if any, habitat is gained, and habitat instead may actually decrease, at eight potential Gulf sturgeon spawning sites as the flow exceeds 10,000 cfs. Slide 6 (showing the flow velocity above which small pallid sturgeon cannot tolerate, based upon the information on page 72 of the BO) illustrates that the velocity associated with a flow in excess of 28,000 cfs could be harmful to young sturgeon.

3. Release decisions under the IOP are dictated almost entirely by Basin Inflow ("BI"), which is a computed quantity of inflows to Lakes Lanier, West Point, Walter F. George, and Seminole. If one does not consider the locations at which inflows enter the Basin, one might conclude that when BI is high enough, the Corps necessarily would be able to store water. In reality, however, because more than 55% of the drainage area upstream of Jim Woodruff Dam is not regulated by Lake Lanier, West Point Lake, or Lake Walter F. George, a large portion of actual inflows to the Basin cannot be stored. Thus, major inflows to the system from the Flint River and from the Chattahoochee River downstream of Walter F. George are released, not stored. The opportunity to store water when BI is high in many instances is only an illusion.
4. Even putting aside the fact of where inflows enter the Basin, the IOP as currently written does not allow sufficient opportunity for the reservoirs to refill. During the Gulf sturgeon spawning season in particular, only when BI is higher than 20,400 cfs (which happened only in 9 days in the spawning season in 1999 and 18 days in 2000) can there be even a theoretical opportunity to store *any* water. Only when BI is higher than 37,400 cfs (which did not happen in a single day in the Gulf sturgeon spawning season in either 1999 or 2000) does the IOP allow a substantial quantity of water to be stored. This problem exists during the June-February timeframe as well, but the effect on the refilling of the reservoirs is less pronounced. At the same time, the IOP requires the Corps to sustain a minimum flow of no less than 5000 cfs and to augment BI with releases from system storage as necessary to meet the 5,000 cfs minimum. The Corps' BI computation shows 73 days in 1999 and 125 days in 2000 when BI was lower than 5,000 cfs, meaning that augmentation would have been needed on those days to release 5,000 cfs. The IOP allows few opportunities to gain any storage, while imposing

on the system a heavy burden to augment flows during dry periods. Our analysis indicates that this manner of operations could cause flows to drop to 5,000 cfs during droughts more often than it would if it was able to store more water, and that the IOP could deplete storage to the point where the Corps could not even sustain a release of 5,000 cfs.

5. The IOP's ramping limitation further prevents storing of water. Again, this may be most pronounced during the Gulf sturgeon spawning season, when BI is high. What is even worse is that the ramping limitation has an unnaturally mild slope (the permitted rampdown is more gradual than would occur in nature), meaning that it requires significant augmentation. In many instances, this requirement to augment eliminates potential gains in storage and actually causes depletion of storage during high flow periods.
6. The net effect of the foregoing is that the months of March through May, which should be the time period when storage is replenished for use later in the year, ends up being a time of flow augmentation and consequently net storage loss. This further means that under the IOP, much of the time the ACF Basin system will be run in a year-round augmentation mode, causing the system to lose storage on a sustained basis and to lose its capability to meet the needs of all interests, including those of the protected species, under adverse conditions.
7. The year 2006 provided an example of the catastrophic effect that the IOP could have. Early in the year, before the IOP went into effect, the ACF Basin reservoirs were nearly full. By mid-October, system storage had declined to approximately 60% of full. This loss of system storage was worse than the loss that occurred during the severe drought years of 1986, 1988, 1999, and 2000 and was mitigated only by the return of near-normal precipitation later in the year.

#### Needed Changes Consistent with RPM3

Based on the foregoing, the following alterations to the IOP are needed.

1. The Corps should establish flow thresholds that are soundly supported by the best available scientific information. For the months of March through May, the best available scientific information appears to be the 2006 Gulf sturgeon egg collection data and data concerning the relationship between flows and the amount of available Gulf sturgeon spawning habitat. Based upon this data, flows of approximately 10,000 cfs to 11,000 cfs appear to be adequate and potentially preferable to higher flows for Gulf sturgeon spawning habitat. For the period of June-February, the best available information would appear to show that there may be benefits to providing flows in excess of 5,000 cfs when the water is available to provide it, but that the Corps must be cautious of providing such higher flows particularly during droughts and must have as its highest priority maintaining sufficient storage to refill the reservoirs and thereby ensure that the 5,000 cfs can be maintained at all times.

Ms. Joanne Brandt  
U.S. Army Corps of Engineers  
Alteration of IOP  
January 9, 2006  
Page 5

2. If it does not replace the IOP entirely, at a minimum the Corps should make the following specific adjustments to the flow thresholds under the IOP: (A) abolish the year-round 37,400 cfs upper flow threshold completely; (B) for the Gulf sturgeon spawning season, establish 10,000 to 11,000 cfs as the desired flow when inflow permits, and store inflows above this level; (C) avoid releases above 23,000 cfs except when necessary for flood control operations; and (D) for the months of June-February, store 100% of inflow above the 5,000 cfs minimum flow unless reservoir levels are such that, based upon best available climate forecasts, the reservoirs are likely to refill during the following spring.
3. Loosen rampdown rate restrictions and offset loss of storage due to rampdown by releasing less than actual BI as BI rises and peaks and at other times.
4. Establish as a primary factor determining reservoir release rates the current reservoir levels (for Lake Lanier in particular, given its size and limited drainage area) and remaining system storage. When there is sufficient water in storage so as to not prevent refilling of the federal reservoirs, the Corps can and should provide higher flows than 10,000-11,000 during the Gulf sturgeon spawning season and 5,000 cfs during the non-spawning season, in conjunction with other purposes.

Please let know if you have any questions. If further information or analysis from Georgia would assist in the Corps' consideration of revisions to the IOP, we would be pleased to provide it.

Sincerely,



Carol A. Couch

cc: Brig. Gen. Joseph Shroedel, Commander, South Atlantic Division, U.S. Army  
Corps of Engineers  
Col. Peter F. Taylor, District Commander, Mobile District, U.S. Army  
Corps of Engineers  
Ms. Gail Carmody, U.S. Fish & Wildlife Service