CESAM-PD-EI 7 November 2006

MEMORANDUM FOR RECORD

SUBJECT: Jim Woodruff Interim Operations Plan – Meeting with US Fish and Wildlife Service to Discuss Compliance with Terms and Conditions of the Biological Opinion

1. Representatives of the US Army Corps of Engineers, Mobile District (CESAM) met with representatives of the US Fish and Wildlife Service (USFWS) at the Panama City Field Office on 26 October 2006, to discuss status of operations under the IOP and measures taken and planned to assure compliance with the terms and conditions of the Biological Opinion (BiOp), issued by USFWS on 5 September 2006. This meeting represented the first semi-annual meeting, as well as a planning meeting for implementation of the BiOp. The following representatives participated in the meeting discussions.

Gail Carmody, USFWS	850-769-0552, Ext. 225
Jerry Ziewitz, USFWS	850-769-0552, Ext. 223
Joanne Brandt, CESAM-PD-EI	251-690-3260
Brian Zettle, CESAM-PD-EI	251-690-2115
Memphis Vaughan, CESAM-EN-HW	251-690-2730
Cheryl Hrabovsky, CESAM-EN-HW	251-694-4018
James Hathorn, CESAM-EN-H	251-690-2735
Bill Stubblefield, CESAM-EN-HH	251-690-3116

2. Update on Current Operations. Immediately upon issuance of the BiOp, we began operating under the terms and conditions of RPM 2, and set up a procedure to track the number of taking days (days when daily releases are less than basin inflow when the daily basin inflow is between 8,000 cfs and 10,000 cfs) pursuant to RPM 5. Cheryl showed the spreadsheets which are set up on the Mobile District website, to track both the 3-day and 7-day, as well as daily inflows and releases from Jim Woodruff Dam. Cheryl also showed the spreadsheet that tracks the number of taking days. Cheryl also noted that there had been frequent "over-releases" (releases of greater than 5,000 cfs when basin inflows were below 5,000 cfs) which were due to head limits at Jim Woodruff Dam. At 5,000 cfs release the head limit is approximate elevation 76.5 feet.

3. EA/FONSI for IOP. Joanne noted that an Environmental Assessment and Finding of No Significant Impact was prepared following receipt of the BiOp. The EA describes the operation described in the terms and conditions of the BiOp, compared to a baseline/No Action alternative which describes how operations were being conducted prior to the initiation of formal Section 7 consultation (i.e., in early 2006). Copies of the EA and FONSI have been posted on the Mobile District website, under the Hot Topics item of Jim Woodruff Section 7 Consultation.

4. Draft Implementation Plan. Joanne distributed a copy of a draft plan and schedule for implementing the RPMs and terms of the BiOp. Each RPM was discussed and updates/revisions made to the plan or schedule accordingly, as noted below.

a. RPM 1: Adaptive Management.

(1) Semi-Annual Meetings. It is proposed that semi-annual meetings be conducted in the early fall and early spring, with August and February suggested as the appropriate meeting dates. This is the first semi-annual meeting, and also serves as the planning meeting for future actions. It was suggested that the February meeting be held in conjunction with the annual fish management/Morone meetings, either immediately prior to or following those annual meetings.

(2) Update Evaluation Tools. Mobile District is currently in process of converting the HEC-5 hydrologic model to HEC-ResSim. The ResSim model will be more flexible, and can be programmed to run model simulations with if/then/else statements. This conversion should be completed by January 2007 for the existing operations conditions, with the IOP as reflected in the BiOp integrated into the existing operations.

Mobile District also plans to extend the unimpaired flow data set through 2004 (and possibly through 2005 if additional demands data can be obtained from the States) – this will capture the recovery from the 1998-2002 drought. It is planned to use Georgia's Flint River Ag demand numbers as part of the unimpaired flow dataset.

USFWS suggested Mobile District investigate the use of the NWFWMD hydrodynamic model of Apalachicola Bay in order to assess potential impacts to sturgeon feeding habitat in the estuarine areas in future consultations. This model was developed by Florida State University during the Comprehensive Study and used in the ACF Water Allocation Draft EIS; the model is based on Sumatra gage data; run by folks in St. Petersburg; and then model data was post-processed by NWFWMD; model outputs were used to characterize anticipated impacts on oyster mortality, but can also measure changes in salinity in sturgeon feeding areas. If the Interim Storage Contracts at Lake Lanier would result in substantive changes in IOP operation and potential changes in freshwater flows, this model could assist in the required Section 7 consultation regarding potential modifications to sturgeon habitat in Apalachicola Bay and the estuarine channel areas.

Precipitation/flow relationship could also be investigated. Memphis will check with the Southeast River Forecasting Center to see if they have new or better predictive tools. He also offered to invite USFWS to attend a future meeting with the SRFC folks, who meet periodically with Mobile District to update us on their procedures and services.

Mobile District also has on hand flow/velocity meters that could be used to measure velocities at particular sites and depths, as determined necessary.

(3) Annual Report. Report will be due 31 January 2007.

b. Adjust June to February Lower Threshold to 10,000 cfs (RPM 2). As noted above, this RPM was implemented immediately upon issuance of the BiOp. Whenever the 7-day basin inflow is less than 10,000 cfs, at least basin inflow but not less than 5,000 cfs will be released. A

copy of the revised IOP table was provided to USFWS by letter dated 7 September 2006 and has been posted on the Mobile District website: http://www.sam.usace.army.mil/ACF.htm.

c. Drought provisions (RPM 3). RPM 3 requires the Mobile District to identify the reservoir, climatic, hydrologic, and/or listed species conditions that would allow supporting a higher minimum flow in the Apalachicola River, and identify recommended water management measures when conditions reach the identified drought "triggers". Gail suggested that the Chattahoochee gage conditions be identified that would provide a "flow-through" conditions at swift Slough and adequate depths at the impacted "hooks and bays"; and also that we determine if there were ways to store more water in the March – May timeframe that would provide sufficient storage to augment flows in later months for support of mussels. Based on the sturgeon spawning habitat data, Jerry suggested that lower thresholds for March – May be considered in three preliminary modeling scenarios (as shown in the below table); with the absolute minimum flow set at 5,800 cfs, 6500 cfs, and 7,000 cfs respectively for the three scenarios (revised thresholds shaded below):

		Basin Inflow (cfs)	Release
Mar-May	High	≥ 25,000	not less than 25,000
	Mid	≥ 16,000 and <25,000	≥ 70% BI, not less than 16,000
	Low	<16,000	≥ BI, not less than 5,800 (Scenario 1) 6,500 (Scenario 2) 7,000 (Scenario 3)
Jun-Feb	High	≥ 23,000	not less than 16,000
	Mid	≥ 10,000 and < 23,000	≥ 70% BI, not less than 10,000
	Low	< 10,000	≥ BI, not less than 5,800 (Scenario 1) 6,500 (Scenario 2) 7,000 (Scenario 3)

(The 5,800 cfs and 6,500 cfs scenarios were selected based on operational constraints while making releases through the turbines during low flow conditions.)

James agreed to run these preliminary model scenarios and provide outputs to Jerry for his review during the first week in November. The prelim model runs will be used as a screening tool to see if the system "breaks" in attempt to meet the higher minimum flows and/or if these adjustments would provide any meaningful benefits in providing higher support flows for mussels. This will allow for some discussions; "tweaking" of additional model runs; and a re-grouping meeting in Tallahassee, FL on 6 December (when public scoping meetings on Lanier interim storage contracts are scheduled). Additional discussions would occur as necessary to identify possible drought provisions by January 2007.

d. Sediment dynamics and channel morphology evaluation (RPM 4). RPM 4 requires Mobile District, in coordination with USFWS, and other experts jointly identified, to evaluate the current status of sediment transport and channel stability in the Apalachicola River as it relates to the distribution of listed mussels and their vulnerability to low flow conditions, based on available information and tools and best professional judgement. The goal is to identify (1)

feasible water and/or habitat management actions that would minimize listed mussel mortality; (2) current patterns and trends in morphological changes; and (3) additional information needed, if any, to predict morphological changes that may affect the listed mussels. The evaluation is to be completed and recommendations are to be completed by 30 March 2007.

Joanne noted that the Corps draft plan suggests that a panel of experts be selected, with first meeting scheduled in November 2006, and second meeting in Feb 2007 with a report due in March 2007. However, due to budget constraints (the Corps is currently operating under continuing resolution funding) and the time required to procure expert services, it was jointly agreed to defer a panel meeting until around the second week in January. Bill noted that Mobile District has discussed the needed expert services with Dr. Biedenharn of the Corps Engineer Research and Development Center (ERDC) in Vicksburg, MS, and also with a 3rd party private consultant that reviewed the previous Simon and Li report on the Apalachicola River. It was also suggested that a potomologist from St. Louis District (Claude Strauser) or other expertise from Missouri River District could be consulted, or perhaps those involved in the Lidstone and Anderson report be considered. It was recommended that the Mobile District provide an expert from ERDC and/or a private consulting geomorphologist or potomologist. USFWS also recommended inclusion of the USGS geomorphologist from Denver, CO (Kirk Vincent) that worked with USGS on the recent study on declining river levels on the Apalachicola River. The Mobile District would fund services for the ERDC, other Corps, and/or private consultant; and USFWS would fund the services of USGS (another DOI agency).

Additional funding constraints could delay initiation or completion of this action. We will revisit the situation in January 2007 or before, and initiate additional consultation with UFWS if necessary regarding completion of this action.

e. Monitoring (RPM 5).

(1) Monitoring for take. The BiOp requires monitoring for take, as defined by the number of days when daily releases are less than the daily basin inflow when basin inflows are between 8,000 cfs and 10,000 cfs. Take would occur whenever the total number of days in this range is greater than 39. Consultation would be re-initiated immediately if take occurs. This take is being monitored based on a count of the number of days in the calendar year, beginning 1 January 2006.

As previously noted, Mobile District has set up a system to monitor the number of day falling within this range and the number of potential "taking days". The monitoring system is based on the current water management database, as posted on the water management web site; and automatically computes the number of "taking days". USFWS was pleased that the system was comprised of a database, which would help in developing a future interactive "query-based" system. Memphis indicated we were consulting with our counterparts in Savannah District to assist in setting up such a system in the future. Due to sustained low flows and several recent rain events, there have been several days since 1 June that fall within this range. At the time of the meeting the number of days was approaching 20 days. Dependent upon future hydrological conditions between now and the end of the year, there was concern that we may approach the taking limit before the end of the calendar year. It was agreed to continue to monitor the "taking

days" and it they reach 30 prior to 15 November, then we would immediately telephonically consult with USFWS to determine the recommended operations for the remaining 45 days of the calendar year.

It was agreed that we would not publicly post the "takings" table on the public access web site, but wanted USFWS to understand how we were tracking our operations. We could make it accessible to USFWS for monitoring purposes, if necessary.

(2) Develop plan for monitoring total abundance of listed mussels in the action area and fraction of the population located in habitats that are vulnerable to low-flow impacts. This plan is to be developed on or before 30 March 2007.

Joanne summarized a recon level study, as suggested by Dr. Drew Miller (retired from ERDC), comprised of Drew and a river hydraulic scientist to review aerial photography and/or flow down the river to observe potential habitat and river hydraulic conditions. The purpose would be to identify those areas with potential habitat and those areas with stable or unstable river conditions, which would assist in development of a survey/sampling design. This effort is currently delayed due to funding constraints (continuing resolution level of funding). Gail and Jerry also recommended recent research papers that may assist in developing a study design. (Strayer, flow habitat limitations publication (hydraulic study on flow/velocity relationships; flow refuges for mussels; Univ of Iowa study on stable areas used by mussels; Morales, et al; and Weber?)

Additional funding constraints could delay initiation or completion of this action. We will revisit the situation in January 2007 or before, and initiate additional consultation with UFWS if necessary regarding completion of this action.

Encl
Agenda
BiOp Terms & Conditions
Draft Implementation Schedule

JOANNE BRANDT
Compliance Manager
Inland Environment Team

Jim Woodruff Dam
Interim Operations Plan
Implementation of the Biological Opinion Reasonable and Prudent Measures
Planning Meeting
26 October 2006

AGENDA

Update on Current Operations

EA/FONSI for IOP

Draft Implementation Plan

RPM1 Adaptive Management

Semi-Annual Meetings
Update Evaluation Tools
Annual Report

RPM2 Adjust June to February Lower Threshold to 10,000

RPM3 Drought Provision

Possible drought triggers?

Assess how IOP would have affected previous operations/releases; affects to spawning habitat and floodplain inundation; and Flow/velocity effects?

Additional Consultation

RPM4 Sediment Dynamics and Channel Morphology Evaluation

Panel to assess current status, patterns and trends
ID feasible management actions to minimize mortality
ID additional information needed to predict morphological changes

RPM5 Monitoring

Monitor No. Days < BI for flows between 8,000 – 10,000 cfs ($\leq$ 39 days)

Develop Plan to monitor total abundance mussels/fraction in vulnerable habitats

Implement Mussel Monitoring Plan

Next Actions?

JWD Interim Operations Plan - Implementation Schedule

Reasonable and Prudent Measures/Terms and Conditions:	FY 2006 Sep 2006	FY-2007 Oct 2006	Nov 2006	Dec 2006	Jan 2007	Feb 2007	Mar 2007	Apr 2007	May 2007	Jun 2007	Jul 2007	Aug 2007	Sep 2007	FY 2008
RPM1 - Adaptive Management:														
Semi-Annual Meetings		Meeting				Meeting						Meeting		2 Meetings
Evaluate Refinements to tools Convert to HEC-ResSim Update Unimpaired Flow Dataset Precip/Flow relationship trends		Define Actions											Complete	ID Add'l tools
Annual Report					Report due									Ann Rpt
RPM2 - Adjust Jun-Feb Lower Threshold	Done													
RPM3 - Drought Provision														
Identify Drought provision -Assess how IOP would have affected operation/releases in 2003-2005? -Assess affects to spawn habitat and floodplain inundation (135 days) -flow/velocity data collection?		Define DP Initiate BA	Follow-up Mtg	Complete BA	Due Date			Implement??						
RPM4 - Sediment/Morphological Evaluation														
Panel to assess current status, patterns, and trends in morphological change -ID Feasible management actions to minimize mortality -ID additional information need to predict morphological changes		ID Panel/Plan			1st Panel Mtg	2nd Panel Mtg	Panel Rpt Due							Add'l Study
RPM5 - Monitoring														
Monitor # days < BI for flows between 8,000 - 10,000 cfs (≤ 39 days)	Implement													
Develop plan to monitor total abundance mussels/fraction in vulnerable habitats		Discuss actions		Recon/Mtg			Plan due date							
Implement Mussel Monitoring Plan -Review mussel data & aerial photos -Recon survey -Abundance/depth/distribution surveys														Collect Data

Jim Woodruff Dam Interim Operations Plan
Section 7 Consultation Biological Opinion
Reasonable & Prudent Measures, Terms & Conditions, and Conservation Recommendations

7.3 REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize the impacts of incidental take of fat threeridge and purple bankclimber on the Apalachicola River.

RPM1. Adaptive management. Identify ways to minimize harm as new information is collected.

Rationale. Additional information will be collected about the listed species and their habitats in the action area, water use upstream, and climatic conditions. This information needs to be evaluated to determine if actions to avoid and minimize take associated with the Corps' water management operations are effective or could be improved.

RPM2. Adjust June to February Lower Threshold to 10,000 cfs. Replace the proposed 8,000 cfs threshold in the IOP with a threshold of 10,000 cfs.

Rationale. Mussels may be in vulnerable areas where take may occur when flows are less than 10,000 cfs. Not increasing reservoir storage when basin inflow is 10,000 cfs or less from June to February will avoid and minimize the potential for take in the zone of 8,000 to 10,000 cfs.

RPM3. Drought provisions. Develop modifications to the IOP that provide a higher minimum flow to the Apalachicola River when reservoir storage and hydrologic conditions permit.

Rationale. Take of listed species due to the IOP may occur when the Corps is using a portion of basin inflow to increase ACF reservoir storage. The Corps can minimize mussel mortality due to low-flow conditions by supporting a higher minimum flow when total reservoir storage and/or hydrologic conditions permit. As proposed, the IOP uses reservoir storage to support a 5,000 cfs minimum flow. 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, indictors of fish spawn, climatic condition indices, and flow levels at gages downstream of the Chattahoochee gage, such as the gage at Wewahitchka.

RPM4. Sediment dynamics and channel morphology evaluation. Improve our understanding of the channel morphology and the dynamic nature of the Apalachicola River.

Rationale. The dynamic conditions of the Apalachicola need to be evaluated to monitor the zone at which take may occur and to identify alternatives to minimize effects to listed mussels in vulnerable locations. Both sediment transport and channel morphology need to be considered to provide a basis for predicting changes in morphology that may affect the relative vulnerability of mussels to take due to the IOP. The amount of mussel habitat and thus IOP-related take depends on channel morphology. This evaluation will inform alternatives that may be considered under RPM1 and RPM3.

RPM5. Monitoring. Monitor the level of take associated with the IOP and evaluate ways to minimize take by studying the distribution and abundance of the listed mussels in the action area.

Rationale. Take needs to be monitored monthly to insure that the level of take identified in the biological opinion is not exceeded. As natural conditions change, the populations of the species need to be assessed and the amount of take evaluated relative to any new information. Since this is an interim plan and there will be additional consultations on the overall operations of the ACF project for flood control, water supply contracts, hydropower, and navigation, the monitoring information is needed to prepare the biological assessments for these future consultations.

7.4 TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the Act, the Corps must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are mandatory. Studies and other outreach programs in the RPMs and conservation measures are subject to the availability of funds by Congress. The Corps will exercise its best efforts to secure funding for those activities. In the event the necessary funding is not obtained to accomplish the RPM activities by the dates established, the Corps will reinitate consultation with USFWS.

7.4.1 Adaptive management (RPM1)

a. The Corps shall organize semi-annual meetings with the Service to review implementation of the IOP and new data, identify information needs, scope methods to address those needs, including, but not limited to, evaluations and monitoring specified in this Incidental Take Statement, review results, formulate actions that minimize take of listed species, and monitor the effectiveness of those actions.

b. The Corps shall assume responsibility for the studies and actions that both agencies agree are reasonable and necessary to minimize take resulting from the Corps' water management actions.

c. The Corps shall evaluate refinements to predictive tools.

d. The Corps shall provide an annual report to the Service on or before January 31 each year documenting compliance with the terms and conditions of this Incidental Take Statement during the previous federal fiscal year, any conservation measures

implemented for listed species in the action area; and recommendations for actions in the coming year to minimize take of listed species.

7.4.2 Adjust June to February Lower Threshold to 10,000 cfs. (RPM2)

a. The Corps shall immediately release the 7-day moving average basin inflow, but not less than 5,000 cfs, when the 7-day moving average basin inflow is less than 10,000 cfs for the months of June to February, and shall incorporate this revision into the IOP table of minimum discharges.

7.4.3 Drought provisions (RPM3).

a. The Corps, with Service concurrence, shall initiate by January 30, 2007, IOP drought provisions that identify the reservoir, climatic, hydrologic, and/or listed species conditions that would allow supporting a higher minimum flow in the Apalachicola River, and that identify recommended water management measures to be implemented when conditions reach the identified drought trigger point(s).

b. If modifications to the IOP parameters for the months of March through May are adopted as part of the drought provisions, the Corps shall assess potential affects to Gulf sturgeon spawning and floodplain inundation. The Corps shall provide the models and a biological assessment of the effects of the drought provisions on listed species at least 135 days in advance of implementing the drought provisions in order to reinitiate this consultation relative to any proposed changes in the IOP.

7.4.4 Sediment dynamics and channel morphology evaluation (RPM4).

a. In coordination with the Service, and other experts jointly identified, the Corps shall evaluate before March 30, 2007, the current status of sediment transport and channel stability in the Apalachicola River as it relates to the distribution of listed mussels and their vulnerability to low-flow conditions. The goals of the evaluation are to identify: 1) feasible water and/or habitat management actions that would minimize listed mussel mortality; 2) current patterns and trends in morphological changes; and 3) additional information needed, if any, to predict morphological changes that may affect the listed mussels. This evaluation shall be based on available information and tools and best professional judgement.

7.4.5 Monitoring (RPM5).

a. The Corps shall monitor the number of days that releases from Woodruff Dam (daily average discharge at the Chattahoochee gage) are less than the daily basin inflow when daily basin inflow is less than 10,000 cfs but greater or equal to 8,000 cfs. If the total number of days of releases in this range in a calendar year is projected to exceed the total number of days of daily basin inflow in this range by more than 39, the Corps shall reinitiate consultation immediately.

b. In coordination with the Service, the Corps shall develop on or before March 30, 2007, a feasible plan to monitor listed mussels in the action area. The goals are to:
1) periodically estimate total abundance of listed mussels in the action area; and
2) determine the fraction of the population that is located in habitats that are vulnerable to low-flow impacts.

c. The Corps shall implement the studies outlined above as soon as is practicable.

d. The Corps shall include monitoring results in the annual report provided to the Service under Condition 1.c.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. The Service believes that the action will result in no more than 39 days per year when project operations reduce basin inflow when it is in the range of 8,000-10,000 cfs. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring the reinitiation of consultation and review of the reasonable and prudent measures provided. The Corps must immediately provide an explanation of the causes of the taking, and review with the Service the need for possible modification of the reasonable and prudent measures.

8 CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by conducting conservation programs for the benefit of endangered and threatened species. Towards this end, conservation recommendations are discretionary activities that an action agency may undertake to minimize or avoid the adverse effects of a proposed action, help implement recovery plans, or develop information useful for the conservation of listed species.

The Service recommends that the Mobile District of the U.S. Army Corps of Engineers:

1. Identify watershed-planning opportunities that would assist in identifying alternatives to reduce overall depletions in the ACF basin, particularly the Flint River, thereby increasing baseline flow to the Apalachicola River.

2. Improve the public understanding of water management of the ACF system, the related conservation needs of listed species, and the management of the multiple purposes of the federal reservoirs.

3. Consider alternatives that would increase flexibility in the management of reservoir storage including the feasibility of flood control alternatives (e.g. moving structures from the floodplain, land acquisition) and providing for recreational access at a variety of pool elevations.

4. Provide additional data and hydrodynamic models that would assist in determining areas of bed stability that should be surveyed for listed mussels.

5. Implement freshwater mussel recovery actions including developing habitat suitability indices, conducting a population assessment of the listed mussels of the Apalachicola River, restoring reaches to provide stable habitat, and validating aging techniques for these species.

6. Use the models developed for the Tri-State Comprehensive Study to determine if changes in flow compared to pre-Lanier flows are significant relative to Gulf sturgeon juvenile growth and if changes in the operation of the reservoirs will benefit Gulf sturgeon recovery.

7. Implement Gulf sturgeon recovery actions such as studies of Gulf sturgeon ecology in Apalachicola Bay and possible effects of reduced basin inflow on the ability of the bay to support sturgeon and providing for fish passage at Jim Woodruff Dam.

8. Establish a clearinghouse for biological and water resource information about the ACF system and make such information readily available in several key locations in the basin.

9. Participate in stakeholder discussions to develop a long-term biological monitoring program for the ACF system and support, as feasible, implementation of a long-term program.

10. Update, as soon as practicable, tools for assessing the effects of ongoing and future system operations, including estimates of basin inflow and consumptive demands. The tools should assist in identifying flows that provide sufficient magnitude, duration, frequency, and rate of change to support the survival and recovery of the listed species in the ACF.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.