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

REPLY TO
ATTENTION OF

August 8, 2008

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:

This letter confirms the conclusions of recent informal 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 Revised Interim Operations Plan (RIOP) at Jim Woodruff Dam in conformance with a Biological Opinion (BO) issued by USFWS on June 1, 2008 pursuant to Section 7 of the Endangered Species Act. On August 4, 2008, we notified your office of a discrepancy between the primary and secondary gage sensors at the U.S. Geological Survey (USGS) Apalachicola River at Chattahoochee, Florida gage. The result of the discrepancy was a daily average flow of 4,940 cubic feet per second (cfs) on August 3, 2008, (Figures 1 and 2). As you know, this was 60 cfs less than the RIOP daily average minimum flow of 5,000 cfs at the Chattahoochee gage based on current basin inflow, composite storage level, and season. This letter provides (1) clarifications on the circumstances that resulted in the minor deviation; (2) analysis of possible impacts to listed mussel species as a result of the action; and (3) additional actions to ensure that continuing operations achieve the minimum flow provisions of the RIOP.

As described in the BO, the RIOP specifies two parameters applicable to the daily releases from Woodruff: a minimum discharge in relation to average basin inflows (daily average in cfs) and maximum fall rate (vertical drop in river stage [feet per day]). Data for both parameters are collected by the USGS at gage number 02358000, Apalachicola River at Chattahoochee, Florida, which is located 0.6 mile downstream of Jim Woodruff Dam. The Chattahoochee gage has two sensors primary and secondary that measure gage height and a corresponding flow. The gage data is collected continuously at 15 minute intervals. The primary sensory data is transmitted directly to the Power House at Jim Woodruff Dam and remotely to the USGS database and are available as real-time data on their website. The secondary sensory data are also available as real-time data on the USGS website. Water managers at the Mobile District Office and project operators at the dam use the primary sensory data to inform decisions regarding releases from Jim Woodruff Dam and ensure that minimum flow provisions are met under the RIOP. The secondary sensor was installed approximately one

year ago as a back-up to the primary sensor in the event that equipment malfunctions prevented the collection or transmittal of data. We have recently experienced problems with both gage sensors due to lightning and thunderstorms.

On the evening of August 2, 2008, Corps Water Management staff made the determination to reduce the Jim Woodruff discharge from 5,800 cfs to 5,400 cfs due to basin inflow less than 5,000 cfs and the need to conserve storage in the upstream storage projects in accordance with the drought plan incorporated into the RIOP. On the morning of August 4, 2008, Corps Water Management staff noticed a difference between the primary and secondary sensor gage data of approximately 0.4 feet (approximately 5 inches). This discrepancy is illustrated in Figure 3. Upon noting the discrepancy, Corps Water Management staff immediately notified the USGS Florida office and they immediately sent a crew to service the Chattahoochee gage. USGS completed maintenance of the sensors at approximately 11:00 a.m. on August 4, 2008 and determined that the primary sensor was reporting gage heights incorrectly, but that the secondary gage was correct. Due to the incorrect data transmitted by the primary sensor, discharges from Jim Woodruff Dam resulted in a daily average flow for Sunday, August 3, 2008, of 4,940 cfs instead of the intended flow adjustment of 5,400 cfs. As soon as the USGS identified the error, the operator at Jim Woodruff Dam gradually brought the discharge back above 5,000 cfs and we notified your office of this inadvertent deviation from the RIOP minimum flow provision. Based on the feedback of the USGS, we began operating based on the readings of the secondary sensor until a new primary sensor is calibrated and in place.

As noted in the BO, incidental take of listed mussel species may occur in moderately depositional microhabitats that become exposed or isolated from flowing water when releases from Jim Woodruff Dam result in average daily flows less than 5,000 cfs. Therefore, we evaluated the magnitude and duration of flows less than 5,000 cfs (and equivalent stage heights) at the three gages on the Apalachicola River (Chattahoochee, Blountstown, and Wewahitchka) to determine the likelihood of any incidental take of listed mussel species occurring. Apalachicola River flows at the Chattahoochee gage fell below 5,000 cfs at approximately 0400 on August 3, 2008 and remained below 5,000 cfs for approximately 32 hours with one 15 minute measurement as low as 4,580 cfs. The average daily flow for Monday, August 4, 2008 was 5,030 cfs. Figures 4 and 5 illustrate the magnitude and duration of the flow reduction further downstream. The Blountstown gage (River Mile [RM] 78) recorded stage heights below the elevation that corresponds to 5,000 cfs at the Chattahoochee gage for approximately 14 hours on August 4-5. The lowest stage recorded was approximately 27.34 feet which corresponds to a stage reduction of approximately 0.05 feet (approximately ½ inch) as compared to the elevation that corresponds to 5,000 cfs at the Chattahoochee gage (approximately 27.39 feet). The Wewahitchka gage (RM 44) never recorded stage heights below the elevation that corresponds to 5,000 cfs at the Chattahoochee gage since the short term flow reduction was attenuated at this downstream location.

In November 2007, the Corps and USFWS conducted incidental take monitoring on the Apalachicola River in association with a reduction in minimum flow to 4,750 cfs per the provisions of the Exceptional Drought Operations (EDO) for Jim Woodruff Dam. This flow

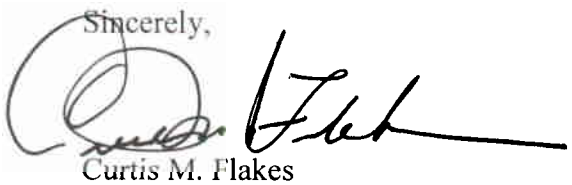
reduction resulted in a stage height of 27.29 feet at the Blountstown gage and 10.88 feet at the Wewahitchka gage. While operating under the EDO, flows between 5,000 and 4,750, cfs at the Chattahoochee gage, occurred for approximately one month. During the incidental take monitoring, no incidental take of listed mussels was observed or estimated in the river above RM 60 (reference Corps December 7, 2007 letter to USFWS), and no purple bankclimbers were exposed on the rock shoals downstream of Jim Woodruff Dam. In this case, it is possible that a few purple bankclimber mussels located on the rock shoals downstream of the dam could have been exposed during the brief 1.5 hour period that flows at the Chattahoochee gage were less than 4,750 cfs (the minimum flow experienced in November 2007) on the morning of August 4, 2008. However, due to the uneven topography of the limestone substrate it is difficult to estimate. The Corps is currently arranging a quantitative survey of purple bankclimber mussel numbers at depth at this site as part of a new river-wide depth distribution survey. The results of this survey will clarify how many, if any, live mussels were potentially exposed at flows less than 4,750 cfs. Regardless, it is unlikely that an exposure of this duration would result in mortality (mussels can normally handle exposures of up to a couple of hours without mortality). Although incidental take was observed in the portion of the river below RM 60 during the November 2007 monitoring, it is unlikely that the temporary, minor stage reduction (approximately ½ inch) experienced downstream of the Blountstown gage and upstream of the Wewahitchka gage on August 4-5, 2008 resulted in any exposure, much less mortality, of listed mussel species. This reduction in stage is not as great as that experienced in November 2008 and occurred for a much shorter time frame. Furthermore, Table 4.3.2.4.A of the BO documents that fat threeridge mussels are generally found at depths greater than those exposed by this minor stage reduction. The fat threeridge mussel depth distribution studies at 11 sites in the RM 40-50 reach estimated that only 0.2 percent of this species occurred in the shallowest (0.2 foot deep) portions of the habitat sampled. Given the magnitude of stage reduction, the general lack of mussels in the shallowest depths, the short duration of the flow reduction, and the results of the November 2007 incidental take monitoring, we have determined that it is highly unlikely that any incidental take of listed mussel species occurred from this event.

The quick action of Corps and USGS staff in identifying the gage sensor discrepancy and correcting the Woodruff Dam releases minimized the potential impact of this mechanical failure. Project operations under the RIOP are dependent upon mechanical devices that can and do occasionally fail. Recognition of the potential for mechanical malfunction led to the installation of the secondary gage sensor which, in this case, provided the accurate, back-up information. We will continue to refine our responses to such failures. In order to minimize the likelihood of future releases less than the minimum daily average flow, 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 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. Additionally, the Corps will continue to work with the USGS to identify additional measures or refinements that can be implemented to ensure that accurate data continues to be transmitted from the Chattahoochee gage to the maximum extent practicable.

We appreciate your continued cooperation regarding operations at Jim Woodruff Dam in support of endangered and threatened species during the recent exceptional drought period and persisting drought. Should you have any questions, comments, or recommendations, please contact Mr. Brian Zettle, (251) 690-2115 Email: brian.a.zettle@sam.usace.army.mil.

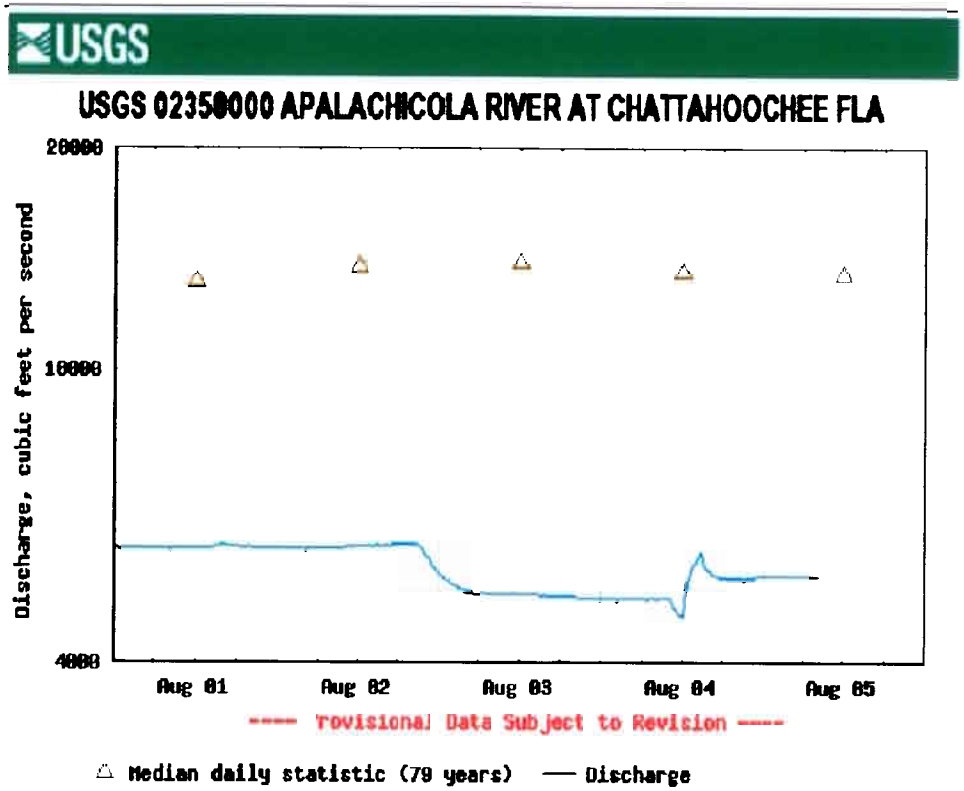
Sincerely,



Curtis M. Flakes
Chief, Planning and Environmental
Division

Enclosures

Figure 1.



Date	Dis-charge, cfs (Mean)	Gage height, feet (Mean)
08/01/2008	5,700 P	Eqp P
08/02/2008	5,680 P	Eqp P
08/03/2008	4,940 P	Eqp P
08/04/2008	5,030 P	

Explanation

Eqp	Equipment malfunction
P	Provisional data subject to revision.

Figure 2.

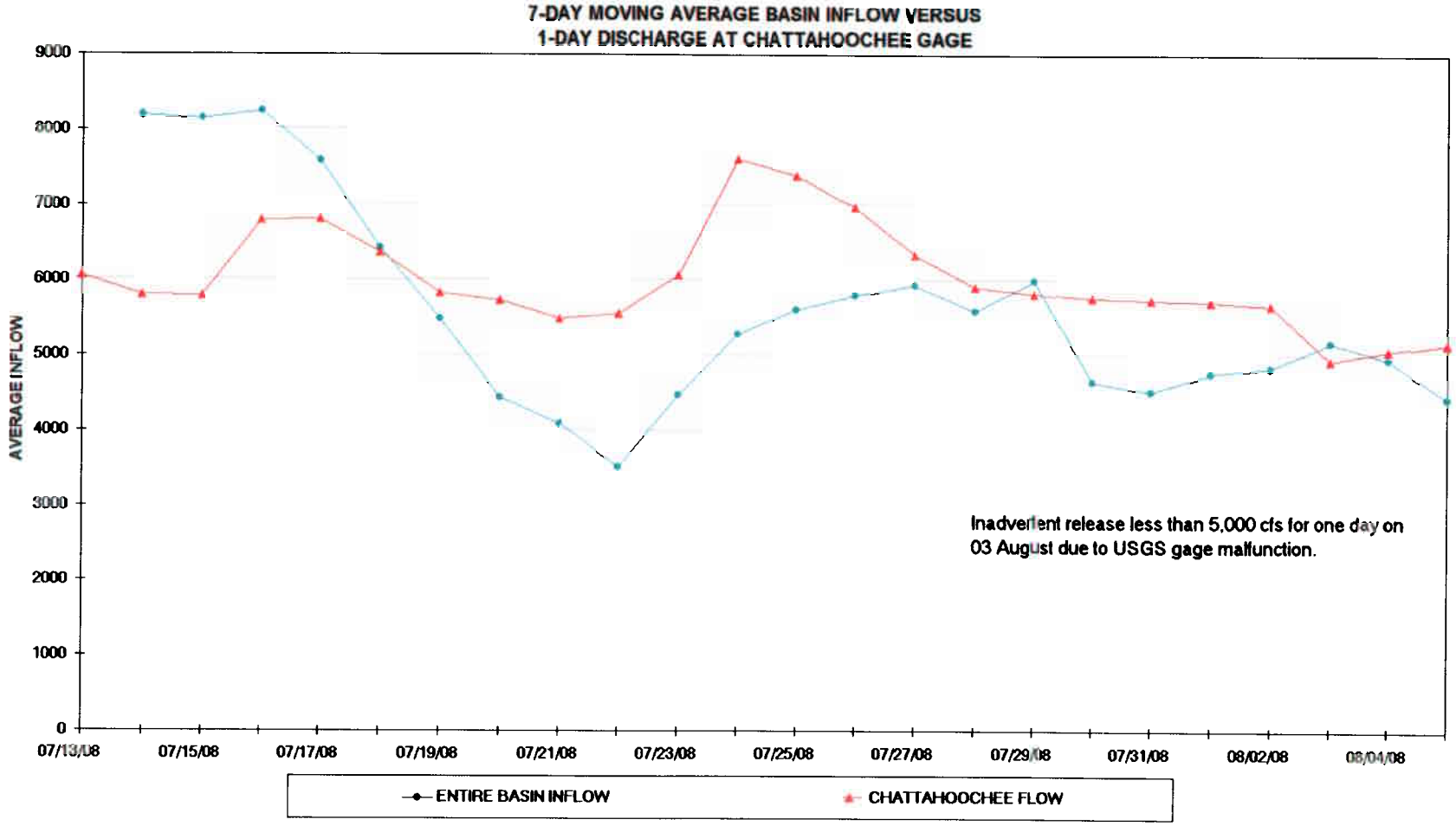

7-DAY MOVING AVERAGE BASIN INFLOW VERSUS
1-DAY DISCHARGE AT CHATTAHOOCHEE GAGE
AVERAGE INFLOW
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
07/13/08
07/15/08
07/17/08
07/19/08
07/21/08
07/23/08
07/25/08
07/27/08
07/29/08
07/31/08
08/02/08
08/04/08
Inadvertent release less than 5,000 cfs for one day on
03 August due to USGS gage malfunction.
ENTIRE BASIN INFLOW
CHATTAHOOCHEE FLOW

Figure 3.

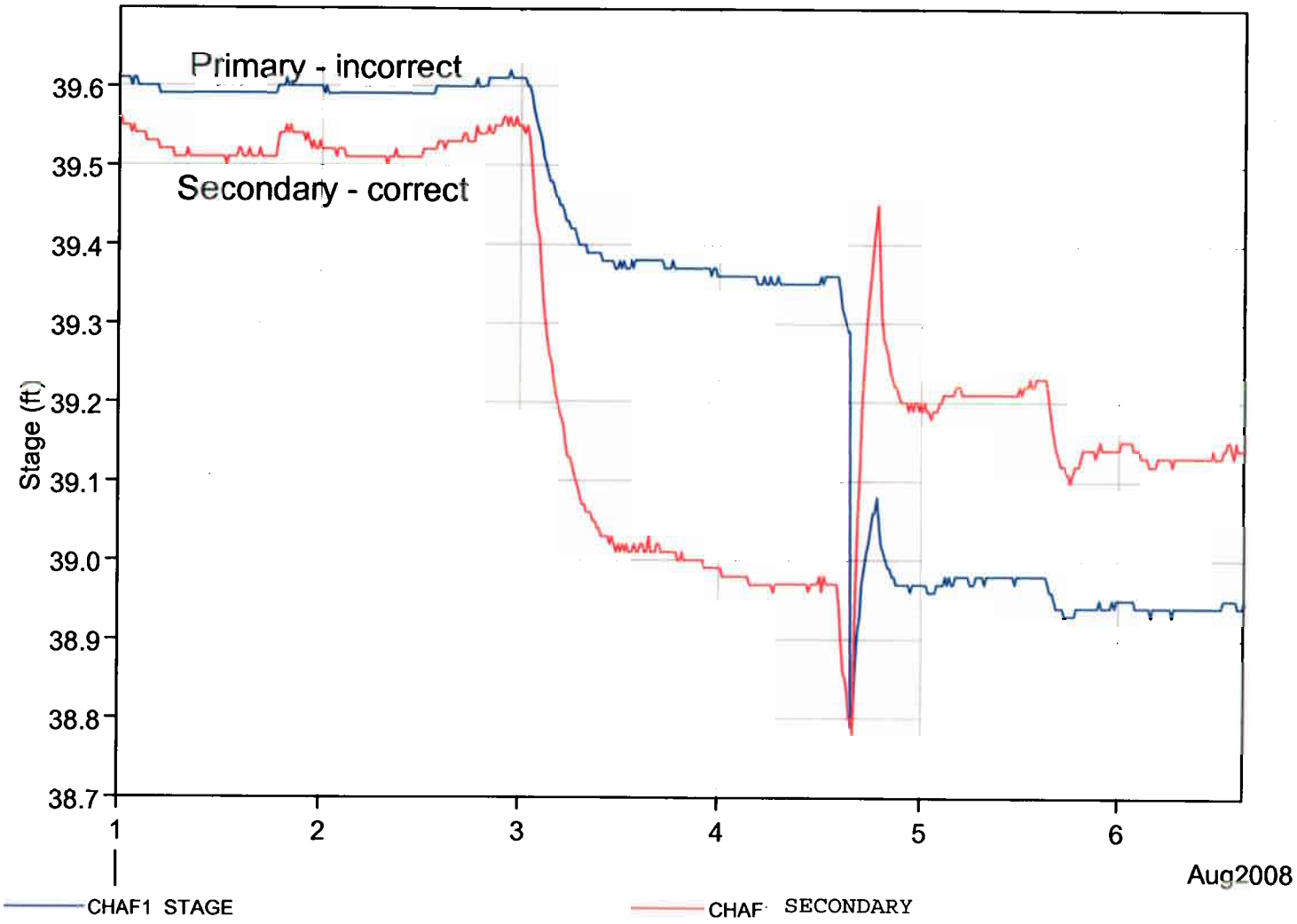

Primary - incorrect
Secondary - correct
Stage (ft)
39.6
39.5
39.4
39.3
39.2
39.1
39.0
38.9
38.8
38.7
1
2
3
4
5
6
Aug2008
CHAF1 STAGE
CHAF SECONDARY

Figure 4.

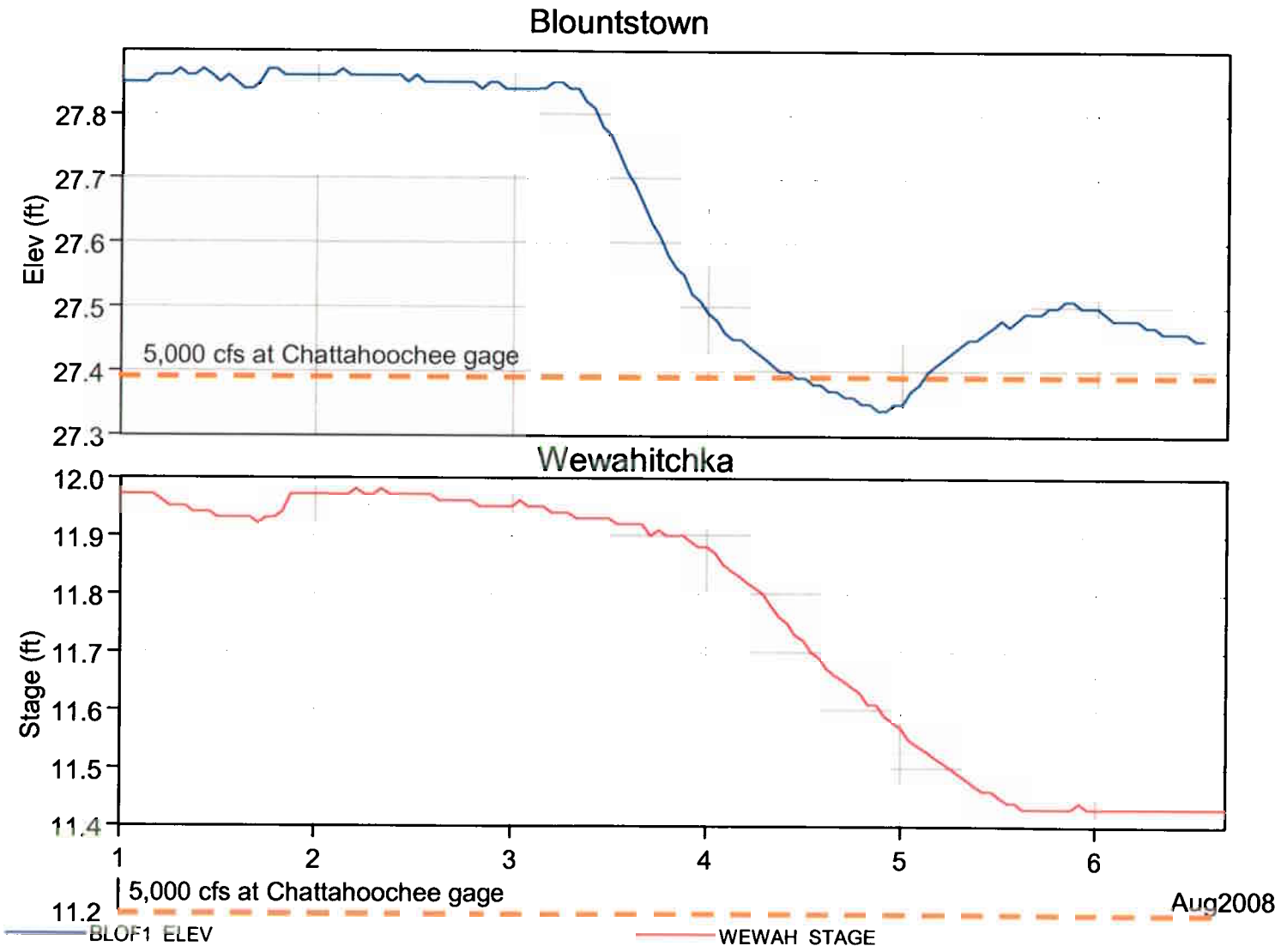
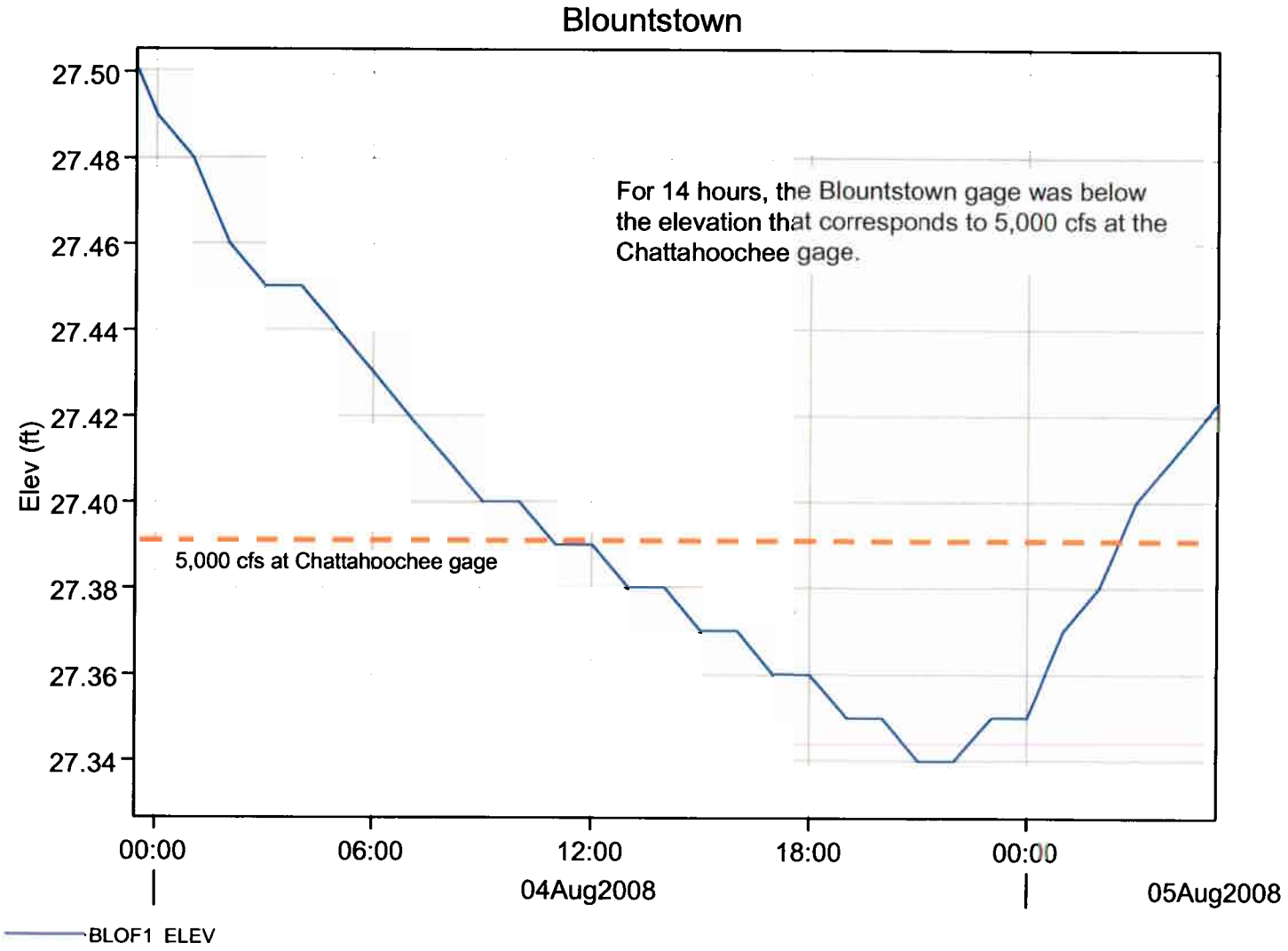

Blountstown
Elev (ft)
27.8
27.7
27.6
27.5
27.4
27.3
5,000 cfs at Chattahoochee gage
Wewahitchka
Stage (ft)
12.0
11.9
11.8
11.7
11.6
11.5
11.4
11.2
1
2
3
4
5
6
5,000 cfs at Chattahoochee gage
Aug2008
BLOF1 ELEV
WEWAH STAGE

Figure 5.


Blountstown
27.50
27.48
27.46
27.44
27.42
27.40
27.38
27.36
27.34
Elev (ft)
For 14 hours, the Blountstown gage was below the elevation that corresponds to 5,000 cfs at the Chattahoochee gage.
5,000 cfs at Chattahoochee gage
00:00
06:00
12:00
18:00
00:00
04Aug2008
05Aug2008
BLOF1 ELEV