

**UNITED STATES DISTRICT COURT  
Middle District of Florida  
Jacksonville Division**

In re: Tri State Water Rights Litigation

Case No. 3:07-MD-1-PAM

**GEORGIA PARTIES' FACTUAL APPENDIX IN SUPPORT OF MOTION FOR  
SUMMARY JUDGMENT ON PHASE 2 CLAIMS**

State of Georgia, the Atlanta Regional Commission, the City of Atlanta, Georgia, Fulton County, DeKalb County, the Cobb County-Marietta Water Authority, the City of Gainesville, Georgia, Gwinnett County, and the Lake Lanier Association file this statement of uncontested material facts in support of their motion for summary judgment on Phase 2 claims.

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## **I. GEOGRAPHY**

1. The Apalachicola, Chattahoochee, and Flint River (“ACF”) Basin drains areas of northern and western Georgia, southeastern Alabama and northwest Florida. The main tributaries of the basin are the Chattahoochee and Flint Rivers which join to form the Apalachicola River at the Georgia-Florida border. The drainage areas above their confluence is shared almost equally by the two rivers (44.6 % for the Chattahoochee River and 43.2 % for the Flint), with the remaining 13.2 % of the basin draining directly into the Apalachicola River. GAI000299.

2. The U.S. Army Corps of Engineers (the “Corps”) operates five federal reservoirs in the ACF Basin and controls releases from each of the reservoirs. GAI000299.

3. Lake Sidney Lanier is the northernmost of the five federal projects positioned on the Chattahoochee River. This project provides 65% of the total conservation storage capacity available in the ACF Basin for flow regulation, though it controls runoff from only 5.3 % of the basin’s total drainage area. GAI000299.

4. Lesser amounts of storage are also provided by West Point Lake and Walter F. George Lake. The conservation storage capacity of West Point Lake is 306,131 af, while the conservation storage capacity of Walter F. George is only 244,400 af. GAI000299-300.

5. Lake Andrews and Lake Seminole are essentially run-of-river projects. Lake Seminole, which is formed by Jim Woodruff Lock & Dam (“JWLD”) at the confluence of the Chattahoochee and Flint Rivers, is the last of the federal reservoirs, and is positioned at the Georgia-Florida border. JWLD controls flows into the Apalachicola River below the dam. GAI000299-300.

6. Because there are no significant storage reservoirs on the Flint River, run-off from 57% of the ACF Basin cannot be stored in any reservoir. Moreover, 80% of the ACF Basin is controlled by the smallest reservoir, Walter F. George, which has only 244,400 af of conservation storage capacity. As a result, the ability of the reservoirs in the ACF Basin to control flows in the Apalachicola River for any extended period of time is limited. Doc. 522, FWS AR Page 013794.

7. As a result of the location and distribution of storage within the ACF Basin, only a small fraction of basin inflow can actually be captured and stored in the federal reservoirs, no matter what the rules theoretically allow. Doc. 522, FWS AR Page 013795.

8. For example, for the period from January 2007 to present, the provision in the Corps' Revised Interim Operating Plan ("RIOP") that allows storage of up to 50% of basin inflow would have resulted in the actual storage of only 8% of Basin Inflow—the remaining 92% would pass downstream to Florida regardless of the Corps' operation of the ACF Basin reservoirs. Similarly, for the period from 2003 to 2004, the Corps would actually have been able to store only 1% of basin inflow under the provisions of the RIOP, whereas 99% would be passed downstream to Florida. Doc. 522, FWS AR Page 01379.

## **II. HYDROLOGY AND RESERVOIR OPERATIONS**

9. As a "run-of-river" reservoir, "inflow" into JWLD roughly equals "outflow" from JWLD on any given day. As a result, except for hourly variations in flow caused by hydropower operations, JWLD has very little effect on the stage of the Apalachicola River from one day to another. Any flow targets for the Apalachicola River must be met by releasing storage from the upstream reservoirs. GAII000299.

10. The Corps implemented an Interim Operations Plan (“IOP”) in March, 2006, which required a minimum flow of 5,000 cfs at the Chattahoochee Gage. *See infra* at Section VII. The Chattahoochee Gage is an instrument maintained by the United States Geological Survey (“USGS”) that measures the flow of the Apalachicola River just downstream of Woodruff Dam.

[http://waterdata.usgs.gov/ga/nwis/uv/?site\\_no=02358000&PARAMeter\\_cd=00065,00060,00062](http://waterdata.usgs.gov/ga/nwis/uv/?site_no=02358000&PARAMeter_cd=00065,00060,00062).

11. During the period from May to November of 2007, the amount of water delivered to the Apalachicola River from the Corps’ reservoirs in the ACF Basin amounted to 220% of the river’s natural, unimpaired flow—*i.e.*, the flow that would have been experienced if there were no reservoirs and no depletions anywhere in the ACF Basin. Doc. 546, FWS AR Page 014183-84. Because Lake Lanier provides 65% of the total conservation storage capacity available in the ACF Basin for flow regulation, Lake Lanier took the brunt of the burden of providing flow augmentation to the Apalachicola River. *See* GAI000299.

12. Lake Lanier alone cannot provide enough water to be the sole source of augmentation flows to meet the Apalachicola River required minimum flow under circumstances such as those of the 2006-2007 drought without being depleted. *Alabama*, No. 1:90-cv-1331-KOB, [Doc. 504, Ex. 1 at 6].

13. By December 26, 2007, the change in operations mandated by the IOP “resulted in a loss of roughly 850,000 acre-feet of storage throughout the ACF system” and reduced Lake Lanier to its lowest level in history. By November 2007, “only 33% of all conservation storage within the system remained.” Doc. 544, FWS AR, Page 014121.

### **III. FLOODPLAIN CONNECTIVITY AND HOST FISH**

#### **A. Channel Degradation Caused by Dams**

14. Construction of the Corps' Reservoir system in the ACF Basin has resulted in changes to the Apalachicola River channel and floodplain, due to the degradation of the upper river channel following construction of the upstream dams, and a gradual deepening and widening of the river channel. GAI005897.

15. Entrenchment is a typical process that occurs downstream of dams in the first 1 to 3 decades after dam construction. Coarse sediment carried downstream along the riverbed is trapped in the reservoir behind the dam. Water lacking coarse sediment is released below the dam and tends to erode the riverbed, lowering the elevation of the bed. GAI000820.

16. Additionally, the sediment in the streambed below the dam is naturally mobilized and transported downstream. Prior to dam construction, those transported sediments were replaced by sand from upstream sources. Such transport does not occur now that the dams are in place because sediments are trapped in the reservoirs. GAI005123.

17. For many years, the Corps also dredged areas of the ACF Basin. Dredging permanently removed streambed sediment from the channel environment and lowered the streambed surface when it was accompanied by disposal of dredged material on the floodplain (a common practice prior to 1973). GAI005085.

18. Deposition of sediment and debris at the mouths of many sloughs that empty into the Apalachicola River reduces connectivity between these tributaries and the river at

low water. Such discontinuity is greatest at low flow. Lack of confluence leads to stagnant conditions in the sloughs and tends to reduce water and sediment quality. GAI001385.

**1. Environmental effects of channel widening/deepening**

19. Entrenchment has lowered the elevation of the riverbed in the upper reach of the Apalachicola River since the construction of the JWLD. GAI000805.

20. The lowering of the streambed elevation is exacerbated by deepening rock sills, cutting out river bends, and repeated dredging to maintain the channel. GAI00654. Channel widening has been relatively widespread throughout the entire nontidal river and probably also contributed to the water-level decline. GAI005085; GAI009790.

21. Entrenchment of the Apalachicola River is the major cause of drying of the floodplain and disconnection of the River from the floodplain. This is because, where the bed of a river is lowered, the water surface (stage) for a given discharge will also be lowered by that amount, and less water will pass on to the floodplain. GAI009790.

22. The reduced amount of floodplain inundation caused by bed degradation and channel widening has affected many species. For example, floodplain inundation during the growing season (generally April through October) is critical to reproduction of many fish species, including some identified host species for the listed mussels. These fish require enough prolonged inundation of the floodplain for movement from the main channel into the floodplain, courtship, spawning behaviors, egg incubation, and juvenile growth to a size comparable of moving to and surviving in the main channel. GAI005705.

23. The lowering of the streambed also has resulted in elimination of some habitats for the Gulf sturgeon. As a result of streambed degradation, access to spring-fed tributary creeks has been reduced during low water periods. GAI000653.

24. Finally, water decline in the Apalachicola River appears to be an important limiting factor for rare mussels because of its effects on the persistence of flowing water conditions in floodplain streams of the nontidal lower reach. GAI005130.

25. Due to the decline in the water level of the channel, some of the intermittent loop streams are dewatered completely when water levels are low and others become a series of isolated pools along the streambed. These pools can become hypoxic during extended periods of isolation, especially in warm weather. Many species of freshwater mussels, including threatened and endangered species, exhibit high mortality in the absence of flowing water and ensuing hypoxic conditions. GAI005129.

## **2. Potential solutions to channel widening/deepening**

26. Scouring of the bed of the Apalachicola River could be halted by reestablishment of the lost sand supply at or somewhat below JWLD. GAI009794.

27. Dredging of selected slough mouths may help restore aquatic habitat for the diverse assemblage of fish in the Apalachicola River. GAI001385.

28. It is possible that decreased slope in the upper 40 miles of the Apalachicola River will serve as a counter-balancing influence to downstream-progressing riverbed degradation. Future water-level decline in this reach may depend on the degree to which this decrease in slope acts to decrease both stream velocities and sand transport, which is unknown. GAI005138.

29. Changes made in the navigation project in the 1970s to reduce environmental impacts on the river ecosystem have resulted in partial recovery of the water level decline in certain portions of the Apalachicola River. This partial recovery indicates that future channel change (except for minor deepening that may gradually continue because of the presence of the dam) could be minimized by avoiding the channel modification activities that cause the observed change. Unfortunately, it is not clear yet which activities played the greatest role in channel enlargement, particularly channel widening. If the specific activities responsible for most of the widening could be identified and halted, there is a possibility that the river would narrow by natural processes, allowing a more widespread recovery of the water-level decline by some as yet unknown amount. Prevention efforts will be more effective when the causes of these changes are better understood. GAI005138.

30. Recovery options to raise water levels in selected reaches of the river could have large potential benefits, with low-water connections and flowing conditions restored to many miles of streams and sloughs, and a more natural flood regime restored to thousands of acres of floodplain forests. GAI005138.

31. One example of a potential restoration project to raise water levels is the rerouting of the river back through the bendway of the artificial meander cutoff at Battle Bend. The Battle Bend cutoff, which shortened the river by more than a mile, was the largest of seven artificial cutoffs and bed easings excavated by the Corps from 1956 to 1969 along the Apalachicola River, all of which were located in the lower reach. Restoring Battle Bend cutoff might reverse the channel deepening that has occurred in this straightened reach of the river, raising water levels for many miles upstream. GAI005138.

32. Another example of a large-scale restoration project is a sand bypass or sand recycling project, which could move sand from the reservoir and deposit it in the thalweg of the upper reach of the river or move sand upstream to the upper reach of the river from large dredged material disposal sites in the lower reach. GAI005138.

33. Local-scale remediation efforts do not raise water levels, but can increase the size and connectivity of limited areas of aquatic habitat by removing sediments and lowering bed elevations in selected sloughs or backwaters. GAI005138.

34. The dams have blocked the natural riverine flux of sand. In order to retain the riverine system in the most natural state possible, sand needs to be retained on the bed of the river rather than being transported out of the system. To retain sand in the bed a new supply must be provided. Conceptually the sand dredged from the river could provide the new supply if it were barged upstream and put back into the river. GAI009798.

## **B. Other water quality issues impacting species habitat**

### **1. Chipola Cutoff**

35. The Chipola Cutoff is a navigation channel created by the Corps connecting the Apalachicola River and the Chipola River. Report of the Chief of Engineers, Operations During the Year Ending June 30, 1899.

36. The Chipola Cutoff reach is one of the most historically unstable reaches of the Apalachicola River. Shoaling in this reach of the river has generally increased since approximately 1970. GAI005215. The shoaling trend may be caused by recently naturally altered flow distribution at the Chipola Cutoff where the percentage of flow leaving the Apalachicola River to the Chipola Cutoff is increasing every year. GAI005215. Up to 40

percent of the flow in the Apalachicola River is now captured by Chipola Cutoff.

GAI004826.

37. The main channels of the lower Chipola River and Chipola Cutoff total 17 miles in length. GAI000822. The lower Chipola River below Dead Lakes receives approximately 70 percent of its flow from the main channel of the Apalachicola River by way of the Chipola Cutoff during low flows and approximately 75 percent during medium flows. GAI000836.

38. A recent study by the USGS (Light, 2006) has documented morphological changes in the river since the 1950s resulting in declining river stages. Also, some significant sedimentation has been observed in the Apalachicola below the Chipola Cutoff since the effective cessation of dredging in 2000. GAI005910.

39. Declining river stages and the capture of the Apalachicola River's flow by Chipola Cutoff prevents flows from reaching the many distributaries, including Swift Slough, located downstream of the cutoff and upstream of the point where the Chipola River enters the main river channel. GAI004823.

40. The diversion of water from the mainstem of the river into the Chipola Cutoff is partially responsible, along with other factors such as the build up of sediment at the head of the slough, for the dewatering of Swift Slough in 2006 and 2007. Doc. 82, 013359.

41. Although criticized by Florida, one remedy to the diversion of the Apalachicola River's flow into the Chipola Cutoff would be to construct a weir across the cutoff. Doc. 470, FWS AR Page 012726.

#### **IV. GULF STURGEON**

##### **A. History as Commercial Fish**

42. The Gulf sturgeon is currently listed as a “threatened” species. GAI000511; Doc. 304, FWS AR Page 6999.

43. Many members of the sturgeon family, including the Gulf sturgeon, virtually disappeared at the turn of the 20th Century. GAI000649; Doc. 309, FWS AR Page 7210.

44. The Gulf sturgeon has historically been commercially exploited, with its eggs used to produce caviar, its meat used as smoked fish, and its swim bladder used for isinglass—a gelatin used in food products and glues. GAI000511; Doc. 304, FWS AR Page 6999. The Gulf sturgeon continued to be heavily exploited for this purpose throughout most of the twentieth century. See GAI000512; Doc. 304, FWS AR Page 7000.

45. Although the principal historic fisheries were located in Florida and Alabama, GAI000512; Doc. 304, FWS AR Page 7000, the only consistent fisheries for Gulf Sturgeon were located in West Florida. GAI000650; Doc. 309, FWS AR Page 7211.

46. The Apalachicola River historically “provided the largest and most economically important commercial sturgeon fishery in Florida.” Doc. 309, FWS AR Page 7199. Early in the twentieth century, large numbers of Gulf sturgeon were taken from the Apalachicola River and Bay, with landings totaling 84,000 pounds in 1900. Doc. 292, FWS AR Page 6025. Anywhere from 20,000 to 60,000 pounds were landed between 1903 and 1917. *Id.*

47. As early as 1917, it was observed that the average size of commercially-caught Gulf sturgeon was decreasing, leading to concern that the species was over-exploited

and nearing extinction. Nevertheless, the fishery continued unabated. And although catches declined due to over-exploitation, the fishery continued throughout most of the twentieth century, with 10,600 pounds of Gulf sturgeon landed from the Apalachicola River and Bay in 1970. Doc. 292, FWS AR Page 6025.

48. Even as commercial harvests declined, a recreational fishery for Gulf sturgeon was popular on the Apalachicola River and continued until 1984, when the State of Florida finally enacted protective measures. GAI000650; Doc. 309, FWS AR Page 7211.

49. Even under ideal circumstances, biologists predict the sturgeon's recovery will be slow due to its life history. *See* GAI000514; Doc. 304, FWS AR Page 7002. The sturgeon is a long-lived fish, with adults living at least 42 years. Doc. 510, FWS AR Page 13502; Doc. 211, FWS AR Page 3151.

50. Females do not reach spawning age until they are between 8 and 17 years old, and males do not reach sexual maturity until they are between 7 and 21 years old. Doc. 510, FWS AR Page 13502; Designation of Critical Habitat for the Gulf Sturgeon, 68 Fed. Reg. 13,370, 13,372 (Mar. 19, 2003); *see also* Doc. 211, FWS AR Page 3163 (finding age sexual maturity ranges from 8-12 years for females and 7-9 years for males).

51. Moreover, even when they reach sexual maturity, female Gulf sturgeon likely spawn only once every 3 to 5 years. Doc. 510, FWS AR Page 13503; Doc. 211, FWS AR Page 3152; Doc. No.185, FWS AR Page 2687.

52. Notwithstanding these facts, the Gulf sturgeon population in the Apalachicola River is increasing. Doc. 510, FWS AR Page 13544; Doc. 260, FWS AR Page 4950; *id.* at Page 4952.

**B. Apalachicola River Population**

53. The Gulf sturgeon is an anadromous fish, which means that it spends part of its life in salt water and part of its life in freshwater. Adults summer in the Gulf of Mexico but return to their natal streams in the spring to spawn. GAI000511; Doc. 304, FWS AR 6999.

54. The Apalachicola River is just one of many rivers utilized by the species. *See* GAI000511; Doc. 304, FWS AR 6999; Doc. 309, FWS AR 7192-7200. The U.S. Fish and Wildlife Service (“Fish and Wildlife”) has identified extant breeding populations in seven river basins. These include (from west to east)—the Pearl, Pascagoula, Escambia, Yellow/Blackwater, Choctawhatchee, Apalachicola, and Suwannee Rivers. Doc. 510, FWS AR Page 13509, 13526; 68 Fed. Reg. at 13,387-88 (Mar. 19, 2003).

55. JWLD impedes access to historical spawning sites upstream. This effect is often cited as an example of “habitat fragmentation” caused by the construction of JWLD. GAI000511; Doc. 304, FWS AR 6999.

56. Nevertheless, there is a significant amount of spawning habitat available in the Apalachicola River. Below JWLD, Fish and Wildlife has identified 10 areas that provide suitable Gulf sturgeon spawning habitat. Collectively, these 10 sites contain about 117 acres of potentially suitable spawning habitat, including an area of about 30 acres within which Gulf sturgeon eggs have been collected. Doc. 510, FWS AR Page 13562.

57. Aside from such “habitat fragmentation effects” caused by the physical presence of the dam, however, there is no evidence in the record that the regulation of flows

by the Chattahoochee Reservoir System has contributed to the decline of the Gulf sturgeon populations.

### **C. Spawning Requirements**

58. As justification for the restrictive provisions of the IOP, Fish and Wildlife has speculated that low flows might adversely affect the Gulf sturgeon by reducing the amount of habitat available for spawning. GAI005722 (stating that “[f]low may affect habitat availability or suitability for young-of-the-year (YOY) fish in the river; however, we have no data that would describe the relationship or a threshold flow below or above which adverse effects may occur”).

59. However, there is no evidence in the record to suggest that Gulf sturgeon have experienced problems spawning. Nor is there any evidence in the record to suggest that the availability of habitat has been a factor in determining spawning success. Nor is there any evidence, more generally, of a correlation between river flows and spawning success. Indeed, the Corps documented successful migration of the Gulf sturgeon to spawning grounds during the extremely low flows experienced in 2007, at the nadir of one of the worst droughts on record. Doc. 455, FWS AR Page 012280.

60. Fish and Wildlife has concluded that spawning habitat availability is a function of the stage of the Apalachicola River. The Gulf sturgeon generally spawns at depths between 8.5 and 18 feet, although eggs have been collected as shallow as about 6 feet. Fish and Wildlife considers suitable substrates that are inundated to depths between 8.5 and 18 feet to be available for spawning. Doc. 510, FWS AR Page 13564, 13616.

61. Table 1 sets out Fish and Wildlife’s data regarding the relationship between Gulf sturgeon spawning habitat and flow in the Apalachicola River.

*Table 1. Available Gulf sturgeon spawning habitat available in acres at a given level of flow*

Flow (cfs)	Available Spawning Habitat at RM 105.5	Available Spawning Habitat at Documented Sites	Available Spawning Habitat at All Suitable Sites
0	0	0	0
4500	3.9	4.5	27.5
5000	4.0	5.7	30.2
5500	4.2	8.3	35.6
6000	4.2	9.7	40.1
6500	4.4	11.1	43.8
7000	4.8	13.0	47.6
7500	5.1	13.8	49.2
8000	5.3	14.6	50.5
8500	5.5	15.2	51.6
9000	5.6	16.0	53.4
9500	5.8	16.7	55.6
10000	5.9	17.7	57.7

Source: Doc. 873 Sturgeon Analysis, hard acres duration 2008.xls, Worksheet “Ac v Q”, Col. E:F (columns 1 and 2); Doc. 873 Sturgeon Analysis, hard cells2.xls, Worksheet “ChtDat2”, Col. B (column 3).

62. As Table 1 demonstrates, even at a flow of 5,000 cfs, approximately 4 acres of spawning habitat are available at river mile (“RM”) 105.5. If other areas where documented spawning has occurred are included, the amount of Gulf sturgeon spawning habitat available at 5,000 cfs increases to 5.7 acres. If all suitable habitat is included, the amount of habitat available at a flow of 5,000 cfs increases to 30.2 acres.

63. As Table 1 also demonstrates, at a flow of 10,000 cfs, the amount of habitat available at the three documented Gulf sturgeon spawning sites increases to 17.7 acres. If habitat from all suitable sites is included, the amount of habitat available increases to 57.7 acres

64. Fish and Wildlife has estimated that the size of the Gulf sturgeon population in the Apalachicola River ranges from 270 to 321 individuals. Doc. 510, FWS AR Page 13526; Doc. 260, FWS AR Pages 4950, 4966.

65. Approximately 50% of the Gulf sturgeon population is female. Doc. 211, FWS AR Pages 3156-57.

66. Because female Gulf sturgeon spawn at 3-5 year intervals, Doc. 510, FWS AR Page 13503; Doc. 211, FWS AR Page 3152; Doc. No.185, FWS AR Page 2687, only 3% to 10% of the female Gulf sturgeon spawn in a given year. Doc. 261, FWS AR Page 4974.

67. Through simple arithmetic, it is possible to calculate the total number of fish that spawn each year in the Apalachicola River. This is done by multiplying the total Gulf sturgeon population size by the percentage of females that spawn in a given year. These results are summarized in the table below:

Total Population Size Range	270	270	321	321
Percent Female	50%	50%	50%	50%
Percent Spawning	3%	10%	3%	10%
Total Number of Spawning Fish	4.1	13.5	4.8	16.1

See ¶¶ 30-32.

68. As shown in the table above, anywhere from 4 to 16 female Gulf sturgeon spawn each year in the Apalachicola River.

69. Because there is 17.7 acres of spawning habitat available at the three documented Gulf sturgeon spawning sites at a flow of 10,000 cfs, *see* Table 1, *supra*, anywhere from 1 to 4.3 acres of spawning habitat would be available per female. There is no evidence in the record—and no reason to believe—that Gulf sturgeon need from 1 to 4.3 acres per female to spawn.

**D. The Effect of Channel Degradation on the Availability of Gulf Sturgeon Spawning Habitat**

70. Due to the effects of channel degradation, the amount of flow required to inundate the same amount of sturgeon spawning habitat has increased dramatically since JWLD was constructed. According to a report prepared by the USGS, the water level stage of the Apalachicola River at RM 105.5 at a flow of 10,000 cfs would have been 46.12 ft before JWLD was constructed. Doc. 232, FWS AR Page 4118. Today, it would take a flow of approximately 19,200 cfs to maintain the same water level. *See id.*

**E. Apalachicola Bay**

71. Sikes Cut is a man-made pass across St. George Island between the Apalachicola Bay and the Gulf. GAI005375. Sikes Cut is a major contributor to salinity in the bay. Doc 522, FWS AR Page 013811.

72. There is no evidence in the record, however, that Gulf sturgeon are affected by changes in salinity in Apalachicola Bay.

**V. MUSSELS**

73. The Apalachicola River is home to three species of freshwater mussels listed by Fish and Wildlife as either endangered or threatened under the Endangered Species Act:

the endangered fat threeridge, the threatened Chipola slabshell and the threatened purple bankclimber. GAI001188.

74. Freshwater mussels live on the bottom of rivers and streams and feed by filtering out microorganisms, such as plankton, from the flowing water around them.

GAI001189.

75. Freshwater mussels, as a group, are extremely long-lived, with life spans of up to 130 years for certain species. GAI001189.

#### **A. Host Fish**

76. Freshwater mussels, such as those found the Apalachicola River, depend on “host fish” to complete their life cycle. Fertilized eggs develop into parasitic larvae called “glochidia” that develop within the gills of certain species of fish. The glochidia are released in a white, sticky, web-like mass, which expands and wraps around a fish, thus facilitating attachment to the gills. The glochidia transform into juveniles while parasitizing the fish. The juveniles detach from the host fish when the metamorphosis is complete. Doc. 504.84, FWS AR at 46-47.

77. Although many mussel species require specialized hosts, the fat threeridge appears to be a “host-fish generalist” that may infect at least five types of host fish, three of which—the bluegill, largemouth bass, and redear sunfish (also called yellow perch or bream)—are common sportfish. Doc. 504.84, FWS AR at 48.

78. There is no suggestion in the record that any of these species of host fish are considered to be in decline. Nor is there any evidence in the record that reservoir operations

have had an adverse effect on these fish. Therefore, there is no evidence in the record to suggest that these fish require any special management to benefit the fat threeridge.

79. Although sport fishing can reduce the number of host fish available for attachment by glochidia, the record does not indicate that the State of Florida has taken any action to ban the fishing of the host sportfish (bluegill, largemouth bass, and redear sunfish).

#### **B. Causes of Decline**

80. Water decline in the Apalachicola River appears to be an important limiting factor for rare mussels because of its effect on the persistence of flowing water conditions in floodplain streams of the nontidal lower reach. GAI005130.

81. Due to the decline in the water level of the channel, some of the intermittent loop streams are dewatered completely when water levels are low and others become a series of isolated pools along the streambed. These pools can become deprived of sufficient dissolved oxygen during extended periods of isolation, especially in warm weather, which also affects federally listed mussel species. GAI005129.

82. Channel construction for navigation has been shown to increase flood heights, which exacerbates the impacts of flood events that convey large quantities of sediments and contaminants in streams. Channel maintenance may also result in downstream impacts, such as increases in turbidity and sedimentation, which may smother bottom-dwelling organisms such as freshwater mussels. Doc. 504.84, FWS AR at 54.

83. Studies of freshwater mussels have found that mussel distributional patterns are influenced by river bed stability. Channel instability most likely explains a substantial

redistribution of sediments and mussels, which resulted in unprecedented mussel mortality during low flows that occurred in the summer of 2006. GAI005726.

84. In the past 50 years, a precipitous decline in freshwater mussels appears to have occurred in the ACF Basin. Causes of the decline in the ACF Basin, although not quantitatively documented, probably include construction of dams and impoundments. GAI005128.

85. Contaminants entering rivers and streams from point and non-point discharges (stormwater) can also have a negative impact on freshwater mussels. Mussels appear to be among the most intolerant organisms to heavy metals and other contaminants such as ammonia, several of which are lethal, even at relatively low levels, particularly for juveniles and glochidia. Doc. 504.84, FWS AR at 55-56. Several segments of the Apalachicola and Chipola Rivers do not meet water quality standards established pursuant to the Clean Water Act due to levels of turbidity, coliform bacteria, mercury, and dissolved oxygen, and chronic pesticides have been detected at levels that are toxic to aquatic life. Doc. 611, FWS AR Page 16245. There are at least 15 domestic and industrial point sources currently permitted by the Florida Department of Environmental Protection to discharge wastes into the Apalachicola River. Doc. 610, FWS AR Page 16094.

86. Non-native aquatic species such as Asian clams also pose a risk to freshwater mussels by occupying habitat that could otherwise be used by the native species and by ingesting glochidia and small juveniles. Doc. 504.84, FWS AR at 63.

87. The harvesting of mussels for the use of the shell—such as occurred in the 1980s when an increase in the price of shells led to an increase in harvesting in the

Apalachicola Region—also may have contributed to the decline in rare mussel species.

GAI001206.

88. In past years, large mussel species such as the purple bankclimber have been collected to be dissected as part of introductory biology studies. GAI001206.

### **C. Fat Threeridge**

#### **1. The fat threeridge is “remarkably abundant” in the Apalachicola River**

89. The “fat threeridge inhabits the main channel of small to large rivers in slow to moderate current. Substrate used by this mussel varies from gravel to cobble to a mixture of sand and sandy mud (Williams and Butler 1994). Brim Box and Williams (2000) found 60 percent of the specimens were located in a sandy silt substrate.” Doc. 504.84, FWS AR at 42.

90. All of the specific host fishes for the fat threeridge are unknown. GAI001189. Fish and Wildlife notes that five potential host fishes have been identified for the fat threeridge. In the Biological Opinion, Fish and Wildlife reviews a number of studies regarding fish abundance in the Apalachicola River and states that “data indicate that host fish are present in the main channel in areas where the fat threeridge occur, and, with the exception of the blackband darter, they comprise relatively large proportions of the fish assemblage (particularly weed shiners and bluegills).” Doc. 510, FWS AR Page 013576.

91. Despite its legal status as an “endangered” species, recent surveys have shown that the fat threeridge is doing quite well in the Apalachicola River. According to Andrew Miller, the Ph.D. mussel expert most familiar with the species, the species is “remarkably abundant” for a species that is supposed to be endangered. Doc. 707, FWS AR Page 018828.

92. Florida's own expert, EnviroScience, noted in a 2006 report that the fat threeridge was the fourth-most common species detected, was occasionally locally abundant, and made up to 19% of the total unionid mussels collected. Doc. 176, FWS AR Page 2125.

93. The EnviroScience study noted that the fat threeridge was locally abundant in part of the Chipola River. Doc. 176, FWS AR Page 2129.

94. EnviroScience reported that the fat threeridge made up as much as 49% of the total number of mussels collected in some areas. Doc. No. 176, FWS AR Page 2138.

95. Sampling of the fat threeridge conducted in 1996, 1997, 1999, 2001, 2003, and 2007 shows strong evidence of recruitment throughout much of the Apalachicola River. Doc. 709, FWS AR Page 18813.

96. The 2007 report by Miller and Payne also noted that the fat threeridge "comprised nearly 37% of the mussel fauna" and that "approximately 30% of the quadrants had at least one individual present." Miller and Payne further noted the irony in having an endangered species "dominate the mussel assemblage." Doc. 709, FWS AR Page 18822.

97. Based on these and other studies, Dr. Miller has concluded that the fat threeridge is not endangered, but that it is and has always been abundant in the Apalachicola River, stating:

As illustrated by results of this and previous surveys, high density recruiting populations of *A. neislerii* [fat threeridge] exist in the Apalachicola River and probably always have. Although intensive searching nearly always yield a few specimens even in poor habitat, this species reaches its greatest numerical abundance in moderately depositional sites immediately downriver of point bars in the middle reach of the river. As described above, eddies typically develop in these areas, which could further concentrate fine-grained sediments, organic matter, and if present, glochidia larvae. *If earlier*

*workers had access to powerboats and divers and conducted intensive and extensive surveys at appropriate locations, they would have also concluded that A. neislerii was common-to-abundant. An alternative hypothesis is unlikely.* It is difficult to believe that *A. neislerii* was previously uncommon in the Apalachicola River and that it has become more abundant during the last 30 years. Although Swift Slough has supported moderately dense populations, typically sloughs and tributaries do not provide long-term mussel habitat.

Doc. 709, FWS AR Page 18828 (emphasis added).

98. In selecting sites for a 2007 study, Miller and Payne chose sites with the following characteristics: “1) stable, gently sloping banks primarily vegetated with newly established black willow, 2) dense and species-rich mussel assemblages, 3) firm substratum consisting of silty sand, and/or 4) signs of recent mussel mortality from low water in 2006 and 2007. Most areas were along a moderately depositional reach immediately downriver of a point bar.” Doc. 52, USACE AR Page 11521.

99. Prior to Miller and Payne’s study in 2007, most of the studies funded by the Corps for the Apalachicola River were conducted mainly to assess the impact of the Corps’ maintenance dredging. As a result, approximately half of the sites surveyed in those prior studies were located in erosional zones immediately upriver of point bars where mussels would not likely be found. Doc. 709, FWS AR Page 18816.

## **2. Risk of Mortality Due to Low Flows**

100. Fish and Wildlife considers permanently flowing water to be a necessary constituent of a freshwater mussel’s habitat. Designation of Critical Habitat for Five Endangered and Two Threatened Mussel, 72 Fed. Reg. 64,286 at 64,299 (Nov. 15, 2007).

101. The fat threeridge is generally found at depths less than 5 feet in the Apalachicola River. The fat threeridge is most abundant at depths ranging from 3 to 5 feet with the highest abundance around 4 feet, making the fat threeridge subject to reductions in flow. Doc. 504.85, FWS AR at 14.

102. When the IOP was developed, Fish and Wildlife assumed that the fat threeridge had very limited ability to move to track water levels. For example, the incidental take statement in the original Biological Opinion for the Original IOP assumed that “incidental takings” would occur when flows dropped below certain thresholds. These estimates were based on the locations where mussels were found during specific sampling events in 2006. Fish and Wildlife assumed that individuals located at a particular spot when the survey was conducted would become “exposed” if that spot became exposed. In other words, the estimate assumed that the mussels would remain in place even as their habitat became dewatered. GAI005791-91.

103. Subsequent studies have shown that the fat threeridge are quite capable of moving to track water levels. In comparing the results of 2003 and 2007 mussel studies, which found the fat threeridge at approximately the same depth even though the respective water levels were different, Miller and Payne concluded that the fat threeridge are capable of moving into deeper water in response to reduced flows. Doc. 52, USACE AR Page 11525.

104. Even if the fat threeridge could not move to track water levels, exposure does not necessarily equate to death. Miller and Payne note in a 2006 report that “most thick-shelled mussel species have the ability to withstand limited exposure and survive low water.

If sediments are moist and ambient temperatures stay low because of shading or groundwater input, some can stay alive for weeks or longer.” Doc. 709, FWS AR Page 018824.

### **3. Swift Slough**

105. According to *Unionid Mussels of the Apalachicola Basin in Alabama, Florida, and Georgia*, Alabama Museum of Natural History Bulletin 21 (Apr. 2, 2000), “The [fat threeridge is endemic to the main channels of the Apalachicola and Chipola Rivers in Florida, and the Flint River in Georgia. There are no historic records from tributaries.” See also GAI001190.

### **4. Hurricane Dennis and Mortality During 2006-2008 Drought**

106. Swift Slough was sampled for threatened and endangered mussels, including the fat threeridge, in August 2000. Only 18 fat threeridge mussels were found in Swift Slough at that time. Another survey of the mouth of Swift Slough was conducted in May of 2001. The 2001 survey did not find any live fat threeridge mussels in the mouth of the slough. GAI001492.

107. EnviroScience found large numbers of fat threeridge in Swift Slough in 2005. Doc. 176, FWS AR Page 2135.

108. Based on the small numbers of fat threeridge found in Swift Slough in the 2000 and 2001 surveys, Fish and Wildlife concluded in the 2008 Biological Opinion that large numbers of fat threeridge were deposited in Swift Slough in 2005 during the flooding caused by Hurricane Dennis. Doc. 510, FWS AR Pages 013550-51.

109. The 2008 BIOP also concluded that Hurricane Dennis or some other flood event deposited a large amount of sediment within the main channel of the Apalachicola

River at the head of Swift Slough. Whatever the cause of this sedimentation, USGS documented an increase from 2000 to 2006 in the level of the “sill” that affects the flow from the Apalachicola River into Swift Slough. In 2006, the sill was inhibiting water from entering Swift Slough when the flow of the Apalachicola River at the Chattahoochee gage was less than 5,600 cfs. GAI004636.

110. As a result of the increased height of the sill caused by the accumulation of sediment, Swift Slough was disconnected from the main channel of the Apalachicola River for extended periods in the summers of 2006 and 2007. Approximately 98% of the mussels trapped in the slough perished. The remaining few survived in isolated shallow pools or by burying themselves in the wet streambed. Doc. 510 FWS AR, Page 013459, 013574-75.

#### **5. Marginal Habitat**

111. Although the fat threeridge was collected in Swift Slough in 2006, it appears this is the only slough in which substantial numbers of the fat threeridge have ever been collected. The species remains abundant in the mainstem of the River. Doc. 709, FWS AR Page 018828.

112. Based on the fact that Swift Slough is the only slough in which the fat threeridge has been collected, and the fact that slough habitat is inherently ephemeral—as demonstrated by the loss of Swift Slough in 2006 and 2007—Dr. Miller has disputed that Swift Slough is necessary to the survival and recovery of the fat threeridge by stating as follows:

The report of EnviroScience (2006a) illustrates the low value of sloughs for native mussels; only Swift Slough supported substantial populations prior to the drought. It is unclear how many *A. neislerii* were in Swift Slough prior to the low water.

Regardless, it is difficult to imagine that a 1-mile segment of ephemeral habitat contributed substantially to *A. neislerii* populations in the river. The species is abundant and shows good evidence of recent recruitment at many sites, regardless of the recent low water. There is no reason to believe that a 3,000 m slough could be of much value for a species that is remarkably abundant in moderately depositional habitats that are common in the main stem of the river.

Doc. 709, FWS AR Page 18828.

113. Fish and Wildlife has explained how the Corps' inability to dredge the Apalachicola River has harmed connected sloughs:

After many years of impacts from dredging for commercial barge traffic, logging, and transportation development, many portions of the Apalachicola River floodplain sloughs have become disconnected hydrologically. Impacted sloughs and tributaries along the Apalachicola are critical to survival of fish and other aquatic species that use the floodplain for spawning, feeding, and as a cool water refuge from the warm waters of the main channel during the hot summer months. At first, some sloughs deepened as the main stem of the Apalachicola River was dredged and sediment was removed from the system. This can be shown by major channel incision along the river and in adjacent sloughs, such as Swift Slough. Many other sloughs became completely disconnected because as the elevation of the river bottom lowered, the frequency and duration of the overbank flows decreased and the floodplain areas dried out. Since the dredging has ceased on the Apalachicola River, sedimentation in and around the mouths of some tributaries and sloughs has increased. Blockage of these tributaries and sloughs by sediment greatly reduced valuable aquatic habitat along the Apalachicola River and its floodplain.

At the same time of channel incision, the river began to widen due to severe bank erosion caused by high shear stress, lower thalweg depths, and infrequent floodplain flow energy relief. Channel widening near Swift Slough over a 63 year period has increased by approximately 160 feet (Price et. al., 2006). As the dredging has stopped on the river, side channel depositional areas are being noticed. Additionally, sloughs that were connected to the Apalachicola River are now being blocked by

sediment, and/or aggrading within their channel beds. This is the case for Swift Slough. It was observed that an estimated discharge of about 1 cubic foot per second was flowing in the channel. It was also noticed that an extensive amount of sediment was depositing at the head of Swift Slough. Currently, several sills along the first 1,000 feet of Swift Slough are maintaining shallow and deep water habitat for mussel species. However, further reduction in flow elevation from the Apalachicola River will reduce flows to little or no discharge.

... We noted that Swift Slough was severely incised, probably a direct reflection of the Apalachicola River. However, it was mentioned that Swift Slough has aggraded over the last 5 years, since the dredging has stopped. All these characteristics are an indication that Swift Slough is trying to restore itself naturally, but at the same time, becoming disconnected at lower flows.

GAI004830-31.

114. Fish and Wildlife has acknowledged that channel instability in the river reach around Swift Slough is the most likely explanation for the mussel mortality that occurred during the summer of 2006. Doc. 504.85, FWS AR at 19.

115. In addition to sediment deposition caused by Hurricane Dennis, the flow in Swift Slough has also been affected by the Chipola Cutoff. GAI004823.

#### **6. Management Alternatives to Keep Swift Slough Inundated**

116. To the extent it is determined that water must be kept in Swift Slough to benefit the mussels—notwithstanding the ephemeral nature of this habitat under natural conditions—several alternatives have been suggested. One alternative is to dredge the sill that controls the flow of water into the slough. GAI001385. Another alternative is pump water from the main channel into the slough. GAI004832.

**D. Purple Bankclimber**

**1. Historically Rare**

117. The purple bankclimber has long been considered “relatively rare.” Doc. 504.84, FWS AR at 40.

118. Only about 23% of the purple bankclimber’s currently-occupied range falls within the area affected by the RIOP. Doc. 510, FWS AR Page 013557.

**2. Preferred habitat of the purple bankclimber**

119. The purple bankclimber appears to prefer deeper water. Based on river sampling from October 23 and November 10, 2005, EnviroScience noted that the purple bankclimber was found at an average depth of 9 feet and at a maximum depth of 19 feet. The study noted: “Purple bankclimbers typically occurred in deep (>6ft) water in moderate to fast flow, near large woody debris, gravel, bedrock or other large, stable substrates in the main channel of the Apalachicola River.” Doc. 176, FWS AR Pages 2126, 2139.

**E. Chipola slabshell**

120. Fish and Wildlife notes that researchers have only recently documented the presence of the Chipola slabshell within the action area. The Service states: “If we assume that its range may include the full length of the Chipola River that is downstream of Dead Lake, the portion within the action area (13.8 river miles) would represent 13% of the total range of the Chipola slabshell.” Doc. 510, FWS AR Page 013559.

## **VI. PROCEDURAL HISTORY OF IOP/RIOP**

### **A. Coordination Between the Corps and Fish and Wildlife Prior to the Corps' March 7, 2006 Request for Formal Consultation**

121. On March 7, 2006 the Corps requested initiation of formal consultation with Fish and Wildlife pursuant to Section 7 of the Endangered Species Act (“ESA”) for the Corps’ Interim Operations Plan (“IOP”). GAI002499.

122. Prior to March 7, 2006, Fish and Wildlife had requested that the Corps initiate consultation for the “existing water control operations within the ACF system, as well as formal consultation for proposed updates and revisions to water control plans necessary to implement water supply reallocations in the [ACF] basin.” GAI002500.

#### **1. Factors cited by the Corps to explain why it had been unable to update the water control plan for the ACF Basin until 2006.**

123. The State of Alabama instituted litigation in 1990, *State of Alabama v. U.S. Army Corps of Engineers*, MDL Case No. 3:07-cv-249 ( “Alabama”), which sought to enjoin, and ultimately stalled, the Corps’ further development and enactment of its 1989 draft water supply reallocation report for Lake Lanier and draft water control plan for the ACF system. GAI002500.

124. The “comprehensive study” initiated by the States of Alabama, Florida, and Georgia caused further delay in developing the water control plan and formal consultation. The comprehensive study analyzed “the water resources in the basin and possible mechanisms for allocation of water resources and management of the basin.” GAI002500.

125. The January 3, 1992 Memorandum of Agreement executed by Alabama, Florida, Georgia (the “States”), and the Corps required the Corps to withdraw its water

supply reallocation report and draft water control plan for the ACF Basin. The Memorandum of Agreement was followed by the ACF River Basin Compact in 1997, which was entered into by States and the Corps. GAI002500.

126. *Alabama* was revived in August 2003 after the Compact expired without the parties being able to reach an agreement on the allocation formula for the basin.

GAI002500.

**2. Informal Consultations with the Fish & Wildlife Service from 2000 to 2006.**

127. Although the Corps initiated formal consultation with Fish and Wildlife in March 2006, the Corps had engaged in informal consultations with Fish and Wildlife beginning in the spring of 2000 regarding “overall project operations associated with a revision or update[] of the water control plan” and “the potential for impacts to the endangered and threatened species on the Apalachicola River, and possible adjustments to operations at Jim Woodruff Dam and its releases into the Apalachicola River that could minimize or avoid impacts to or enhance the conservation of the species.” GAI002500-501.

128. In an April 28, 2000 letter to the Corps, Fish and Wildlife stated that “fluctuating water levels associated with a navigation window conducted in late April and early May of 2000 were detrimental to spring spawning activities in the upstream reservoir projects and the Apalachicola River, and could potentially impact Gulf sturgeon spawning activities or host fish for listed mussel species.” Fish and Wildlife offered to provide guidance and requested a meeting with the Corps “to discuss the impacts of current operations.” GAI002501.

129. Drought conditions during the summer of 2000 prompted concerns that storage from upstream reservoirs could be depleted and that “releases to meet the 5,000 cfs minimum flow on the Apalachicola River could not be sustained indefinitely if dry conditions persisted in the summer and fall months.” GAI002502.

130. In an August 10, 2000 letter, Fish and Wildlife “advised [the Corps] that reduction of releases from Jim Woodruff Dam below 5,000 cfs may adversely affect the federally listed mussel species, and requested that formal consultation be initiated . . . in the event the drought contingency measure was pursued.” GAI002502.

131. Although drought contingency measures were no longer being pursued by November 2000, in a letter dated November 17, 2000, the Corps documented its informal consultation activities with Fish and Wildlife since August 2000 “to determine the potential impacts on mussels in the event of a possible drought contingency measure to reduce releases to the Apalachicola River below 5,000 cfs.” GAI002502.

132. The Corps and Fish and Wildlife continued informal consultations, including collecting data to be used for a biological assessment in the event that drought contingency efforts were raised at a later date. As a result of continued informal consultation and data collection, the agencies completed “a study of the potential effects of low flow conditions on protected mussel species.” GAI002502.

133. On June 11, 2002, Fish and Wildlife notified the Corps that “low flow conditions had potentially impacted Gulf sturgeon spawning activities,” and requested a meeting to discuss “Section 7 consultation responsibilities relative to Gulf sturgeon and protected mussel species.” GAI002502.

134. After the August 12, 2002 meeting, the agencies “developed a strategy and approach for additional data collection and analysis that would be incorporated into a biological assessment of the impacts of low flow operations on the protected species in the Apalachicola River.” GAI002502-03.

135. During the informal consultation period, “[a]nnual fish management and coordination meetings” were held with Fish and Wildlife “and the state fish management agencies from Alabama, Florida, and Georgia in 2003, 2004, 2005 and 2006, during which the current draft [standard operating procedure] on fish management and coordination was developed and implemented for demonstration purposes,” and “[l]ow flow operation protocols were coordinated and developed with [Fish and Wildlife] and the state fishery agencies and implemented in 2004 and 2005.” GAI005931.

136. During informal consultations, the Corps and Fish and Wildlife had “previously agreed” to use the information and data gathered “during informal consultations, including data collection and analysis of habitat distribution and flow requirements” in developing “the biological assessment for future formal Section 7 consultation on the impacts of proposed updates to the water control plans for the ACF Basin, and “to complete this data gathering and analysis for input into the biological assessment *prior to* initiation of formal section 7 consultation on the water control plans.” GAI002501. The ongoing informal consultation efforts and data collections were compiled in a January 2006 draft report discussing the potential effects of low flow conditions on the protected mussel species. GAI005930.

137. Based on the Corps' informal consultation with Fish and Wildlife, the Corps implemented the following actions with regard to the Gulf sturgeon: (a) the use of routine navigation windows was discontinued and any other special water management actions outside the fish spawning periods were rescheduled; (b) Division Regulation DR1130-2-16 and CESAM SOP 1130-2-9 were updated; (c) coordination and communications were enhanced, and informal consultation discussions during fish spawn or low flow periods were initiated; (d) important Gulf sturgeon habitat at the rock ledge located immediately below JWLD and associated flow requirements were identified; (e) a low flow coordination and operations protocol to minimize or avoid impacts to Gulf sturgeon spawning activities was developed; (f) additional data on potential Gulf sturgeon spawning habitat was collected; and (g) sturgeon migration and spawning activities were monitored. GA002503-GAII002510.

138. Based on the Corps' informal consultation with Fish and Wildlife, the Corps implemented the following actions with regard to the federally-protected mussel species: (a) minimum flows above 5,000 cfs during extended low flow or drought conditions were maintained; (b) impacts of low flow levels on mussels were evaluated; (c) informal consultation during low flow conditions was initiated; and (d) low flow operations protocol were adopted. GAII002510-GAII002511.

139. Prior to initiating formal consultation with Fish and Wildlife in March 2006, the Corps had determined that its operations at JWLD and the associated releases into the Apalachicola River under the operating plan "are not likely to jeopardize the continued existence of federally listed species or result in the adverse modification or destruction of designated critical habitat." The Corps found that the plan of "operations will also not

foreclose future options available in issuing new reasonable and prudent alternative measures.” GAI002499.

**B. Formal Consultation with Fish and Wildlife for the IOP in 2006.**

**1. The Corps’ initial consultation request.**

140. On March 7, 2006, the Corps submitted a request to initiate formal consultation pursuant to Section 7 of the Endangered Species Act regarding the impact of releases from JWLD to the Apalachicola River under the IOP, on federally-listed endangered or threatened species and critical habitat for those species. Doc. 455, FWS AR Page 12258.

141. The Corps began operating the ACF Basin in accordance with the terms of the IOP in March 2006. GAI002513.

142. The critical habitat at issue in the March 2006 IOP is the main stem of the Apalachicola River from the JWLD in Gadsden and Jackson Counties, Florida, downstream to its discharge point at East Bay or Apalachicola Bay in Franklin County, Florida. GAI002513.

143. According to the Corps, “[o]perations at Jim Woodruff Dam conducted in accordance with . . . the Interim Operations Plan will assure that in most cases low flow conditions experienced on the Apalachicola River will not be the result of a discretionary action by the Mobile District, but would be the consequence of extended low and/or declining basin inflows during extended dry or drought periods.” GAI002519.

144. The Corps developed the March 2006 IOP “in close coordination with [Fish and Wildlife] consistent with the previous low flow operation protocol agreed to and implemented in 2004 and 2005.” The Corps noted that Fish and Wildlife “previously agreed

that operating as described above [under the IOP as revised] would not represent a discretionary action by the Mobile District that adversely impacts the listed species.” In addition, Fish and Wildlife “proposed several additional operating conditions that would be necessary to support the determination of not likely to adversely affect the species.”

GAI005932.

145. The Corps believed that its operations under the IOP “were conducted in a manner that minimized impacts to listed species and critical habitat to the maximum extent practicable,” but Fish and Wildlife “could not determine that listed species would not be adversely affected by discretionary actions taken by the Mobile District during low flow operations.” As a result, “at the conclusion of informal consultation discussions undertaken with [Fish and Wildlife] in early 2006, it was mutually agreed that formal consultation on project operations . . . would be initiated and an incidental take statement would be issued pursuant to Section 7 of the ESA.” GAI005932-33.

**2. Early problems with the original IOP required the Corps to make initial modifications.**

146. As a result of discussions between the Corps and Fish and Wildlife in April 2006, the Corps developed and submitted a proposed revision to the IOP to Fish and Wildlife on June 12, 2006. *See* GAI003996.

147. In the June 12, 2006 proposed revision, the Corps identified “lessons learned” during its operations under the IOP in the spring of 2006. The Corps identified “proposed adjustments to the IOP that could minimize unintended impacts on project operations and improve [the Corps’] ability to manage releases from Jim Woodruff Dam to meet the needs of the federally-listed species.” GAI003996.

148. In its letter, the Corps indicated that the revised IOP had been outlined during the April 25, 2006 teleconference with Fish and Wildlife and suggested adjustments to the IOP were discussed at a “May 24-25, 2006 hydrological modeling technical workshop held with representatives from [Fish and Wildlife] and the States of Alabama, Florida, and Georgia.” GAI005933.

149. The Corps concluded that the IOP, as modified by the proposed adjustments, “will . . . not result in the irreversible or irretrievable commitment of resources that would foreclose the development of reasonable or prudent alternatives to avoid jeopardy, or reasonable prudent measures to minimize adverse effects on the listed species or critical habitat. The Corps requested that Fish and Wildlife include the June 12, 2006 proposed “adjustments into the IOP and the description of the action being considered [by Fish and Wildlife] under our request for formal consultations under Section 7.” GAI003997-GAI003998.

150. To consider the proposed adjustments to the IOP and the impacts resulting from the proposed adjustments, by letter dated June 28, 2006, Fish and Wildlife granted an extension of the consultation period to September 5, 2006. GAI005933.

151. By letter dated June 28, 2006, the States of Alabama, Florida, and Georgia were notified of Fish and Wildlife’s letter granting the extension and were provided a web address to locate the modeling information on the adjusted IOP. Further modeling information was discussed “with technical representatives of the States of Alabama, Florida, and Georgia and significant stakeholders during a follow-on hydrological modeling technical workshop held on 12 July 2006 in Columbus, Georgia.” GAI005933.

**3. Stakeholders' Concerns Related to the Corps' Development of the IOP.**

152. In a letter dated March 9, 2006, a representative of the Florida Department of Environmental Protection ("FDEP") noted that the State of Florida had filed suit seeking a preliminary injunction against the Corps and specifically requesting that "at least 22,000 cfs be released in support of Gulf sturgeon spawning beginning 15 March [2006] until the spawning activities were complete." GAI005936.

153. On March 24, 2006, the Director of the Georgia Environmental Protection Division ("GAEPD"), Carol Couch, requested to be "kept informed on the progress of the development of the consultation process, offered to share information to be included in the evaluation of impacts, in particular on Georgia's resources, and requested that GAEPD be allowed to review the draft biological opinion." GAI005937.

154. On March 24, 2006, Couch forwarded a memorandum summarizing Georgia's modeling of the IOP and expressed concerns that the "over-releases above the IOP requirements could significantly deplete storage in the ACF reservoirs." GAI005937-38.

155. On May 17, 2006, Couch repeated her concerns, provided clarification on Georgia's modeling assumptions, and asked the Corps to "share their modeling results." On May 19, 2006, the Corps stated that differences in their modeling results could be discussed at an upcoming modeling technical workshop, at which "Georgia provided both biological and modeling experts." GAI005937-38.

156. On June 1, 2006, Couch requested that the Corps "reconsider the IOP, confirm that measures would be implemented to mitigate for over-releases . . . and requested an

extension of the consultation . . . to allow for more information on the downstream flow needs for endangered and threatened species.” GAI005937-38.

157. On June 2, 2006, Couch provided additional modeling results to the Corps and Fish and Wildlife showing “significant impacts on reservoirs and other project purposes due to operations to meet the IOP and firm hydropower generation.” The Corps responded on June 12, 2006 that the modeling differences resulted from higher demands used by Georgia for firm hydropower production, agricultural withdrawals on the Flint River, and minimum releases of 90% instead of 70% for the middle flow ranges. GAI005937-38.

158. By letter dated June 2, 2006 from Governor Sonny Perdue to Secretary of the Army Harvey, Georgia requested the Corps modify the IOP to reduce over-releases and “reassess the assumptions in the IOP.” GAI005937-38.

159. In a letter dated June 12, 2006, a representative of the Alabama Department of Environmental Management (“ADEM”) requested that the consultation process be extended and “that the Corps provide additional information regarding the impacts of the IOP operations.” GAI005936.

160. The Corps provided ADEM with a summary of the proposed adjustments to the IOP in a letter dated July 7, 2006 and invited ADEM to attend “the follow-on workshop” held on July 12, 2006. GAI005936.

161. On June 20, 2006, Georgia filed a Complaint in the U.S. District Court for the Northern District of Georgia to enjoin the Corps from implementing the IOP. GAI005937-38.

162. On August 28, 2006, Couch provided the Corps and Fish and Wildlife with a memorandum prepared by Dr. Douglas Peterson of the University of Georgia assessing the 2005-2006 Gulf sturgeon spawning data and the assumptions underlying the IOP. Couch requested that the comments of GAEPD “be taken under consideration in the Section 7 consultation and any future refinements of the IOP.” GAI005937-38.

163. In a May 25, 2006 letter from the Southeastern Power Administration (“SEPA”) to the Corps, SEPA “express[ed] concern that they had not been invited to participate in development of the IOP and that the IOP could potentially result in reduced releases for hydropower production.” SEPA asked that “lost benefits be compensated” and “impacts on authorized project purposes and upstream stakeholders be addressed.” GAI005940.

164. During the July 12, 2006 hydrological modeling technical workshop, the Atlanta Regional Commission (“ARC”) brought a technical consultant who discussed modeling on the IOP and suggested improvements to the modeling. GAI005940.

165. In a letter dated August 17, 2006, “ARC expressed concern that the Section 7 consultation was being conducted on the IOP rather than beginning consultation on the existing water control plan, that the IOP be in place only until the final biological opinion has been issued, and suggested that they would be providing alternatives for consideration.” GAI005940.

#### **4. Biological Opinion for IOP**

166. On September 5, 2006, Fish and Wildlife issued a Biological Opinion for the IOP, which included an incidental take statement and five Reasonable and Prudent Measures

to limit the amount of incidental take associated with water management operations at the dam. Doc. 455, FWS AR Page 12258.

167. Fish and Wildlife issued a corrected version of the September 2006 Biological Opinion on September 22, 2006. GAI005639.

168. On September 7, 2006, pursuant to Reasonable and Prudent Measure 2 and Term and Condition 7.4.2, Adjust June to February Lower Threshold to 10,000 cubic feet per second (cfs) (“RPM2”), the Corps revised the minimum discharges that would be released under the IOP and issued a revised table documenting the release regime. Doc. 345, FWSAR Page 9437.

169. In a September 7, 2006 letter enclosing the revised IOP table of minimum discharges, the Corps agreed “to track the number of days the release from Jim Woodruff Dam is less than the average daily basin inflow when the daily basin inflow is less than 10,000 cfs but equal to or greater than 8,000 cfs.” The Corps also noted that it would continue to review the Biological Opinion issued by Fish and Wildlife on September 6, 2006 and planned to “discuss a schedule for implementing the other requirements outlined in the terms and conditions” of the Biological Opinion. Doc. 345, FWSAR Page 9437.

## **5. The Corps’ NEPA documentation for the original IOP**

### **a. Environmental Assessment for original IOP.**

170. On October 2, 2006, the Corps issued its Environmental Assessment (“EA”) for the Interim Operations Plan for Support of Endangered and Threatened Species Jim Woodruff Dam Gadsden and Jackson Counties, Florida and Decatur County, Georgia (“October 2, 2006 EA”). GAI005877.

171. In the October 2, 2006 EA, the Corps listed the alternatives it considered in its development of the EA. The “No Action” alternative the Corps considered was “‘no change’ from the current management direction or level of management intensity,” or “water control operations at Jim Woodruff Dam without implementation of the IOP.” “Other Alternatives Considered During Section 7 Consultation” included a “3-day average for managing releases to basin inflow as opposed to a 7-day average, an upper flow threshold of 37,400 cfs, and a lower flow threshold of 8,000 cfs for months of June through February.” This alternative represented the IOP as originally implemented by the Corps prior to the revisions suggested by Fish and Wildlife in June 2006. GAII005907-08.

172. The Corps noted that the “adjusted IOP” included the change to a 7-day average, “volumetric computations of inflows and releases,” “a lower upper flow threshold of 23,000 cfs for June through February,” and that Fish and Wildlife also imposed the RPM2 recommendation for the final IOP. GAII005908.

173. The October 2, 2006 EA found that “the IOP will reduce flows sometimes in the range of 8,000 to 10,000 cfs when compared to a run-of-river (RoR) operation (*i.e.*, the ‘no-action’ alternative identified in the biological opinion, which differs from the no action alternative described in this environmental assessment).” GAII005917.

**b. Finding of No Significant Impact for IOP**

174. On October 4, 2006, the Corps issued a Finding of No Significant Impact for the Interim Operations Plan for Support of Endangered and Threatened Species Jim Woodruff Dam Gadsden and Jackson Counties, Florida and Decatur County, Georgia (“October 4, 2006 FONSI”). In the October 4, 2006 FONSI, the Corps listed the two

alternatives listed in the October 2, 2006 EA as alternatives to the IOP. The FONSI stated that “an environmental impact statement is not required” because “the Environmental Assessment describing the proposed action [operations under the IOP] shows that the proposed action would have no significant environmental or human impacts.” GAI005987-88.

**C. Implementation of RPM3.**

**a. Development of “Concept 5”**

175. The Corps prepared a February 2, 2007 Biological Assessment (“BA”) for the modifications to the IOP that were necessary “to address the potential effects of proposed modifications to the IOP as prescribed under RPM3 and the terms and conditions of the BO [Biological Opinion].” GAI009078.

176. In the February 2, 2007 BA, the Corps stated that Fish and Wildlife and the Corps had “discussed possible elements of a drought provision and identified alternative minimum flows of 5,800 cfs, 6,500 cfs and 7,000 cfs to model and evaluate” during an October 2006 “semi-annual/planning meeting.” GAI009079.

177. The proposed action at issue, “Concept 5,” “is a modification of the IOP as described in the September 7, 2006 letter from the Corps to [Fish and Wildlife] which incorporated requirements of RPM2, and was “developed in accordance with RPM3 of the BO.” GAI009080-81.

178. The proposed action consisted of modifications to the IOP to provide a higher minimum flow to the Apalachicola River when reservoir storage and hydrologic conditions permit in support of endangered and threatened species and critical habitat, as required by

Reasonable and Prudent Measure Number 3 (RPM3) of the BIOP issued on September 5, 2006. GAI009338.

179. The proposed action specified two parameters applicable to the daily releases from the dam: (a) a minimum discharge in relation to average basin inflows and a maximum fall rate, in the same fashion as the IOP, with incorporation of a desired minimum flow (6,500 cfs) and required minimum flow (5,000 cfs); and (b) a drought trigger to determine those conditions when the required minimum flow would be more prudent than the desired minimum flow. GAI008763.

180. On February 16, 2007, the Corps submitted the BA, which described the drought provision modifications to the IOP and associated impacts, to Fish and Wildlife. Doc. 455, FWS AR Page 12258.

181. The Corps had “determined that it is feasible to provide greater minimum flow than 5,000 cubic feet per second (cfs) most of the time by storing more water in the reservoirs during the normal refill period than is currently allowed under the IOP.” The Corps determined that proposed modifications to the IOP as contained in the Concept 5 drought provisions were not likely to adversely impact listed species or critical habitat for listed species. The Corps requested Fish and Wildlife’s approval of modification of the IOP to include Concept 5. GAI008522-23.

182. As part of the implementation of RPM3, the State of Georgia and the Atlanta Regional Commission submitted comments and proposals outline reservoir operations that would satisfy the requirements of RPM3 and the needs of the stakeholders in the ACF Basin. Doc. 364, FWS AR Page 10647; Doc. 365, FWS AR Page 10652.

183. On February 23, 2007, the Corps provided “additional information and clarifications in response to a request from [Fish and Wildlife] regarding our review and evaluation of stakeholder comments during development of an RPM3 drought provision operation.” GAI008536.

184. In the February 23, 2007 letter, the Corps referenced the Annual Report on activities completed pursuant to the September 2006 Biological Opinion. The Annual Report, which was submitted on January 13, 2007, included the Corps’ “determination that each of the [stakeholders’] suggested concepts as a whole would constitute a change to the water control plan,” while “the intent of the IOP and the RPM3 drought provision is to identify adjustments to water management operations within the constraints of the existing water control plan that would support or minimize harm to the federally protected endangered and threatened species and critical habitat for those species.” GAI008536-37.

185. “[T]he concepts presented by the stakeholders that represent changes to the existing water control plan, would more appropriately be addressed in proposals to update the water control plans at a future date.” GAI008537.

186. On February 28, 2007, Fish and Wildlife responded to the Corps’ request for approval to implement Concept 5. Fish and Wildlife stated, “[u]ntil the Corps evaluates and proposes alternative operations via the adaptive management process under RPM1, the Service agrees to Concept 5 as the means of implementing RPM3 beginning March 1, 2007.” GAI008609-10.

**b. NEPA Documentation for “Concept 5”**

187. On March 3, 2007 the Corp prepared an Environmental Assessment (“EA”) for the Concept 5 modifications to the IOP. GAI008758.

188. The EA described the proposed action as providing minimum releases and maximum fall rates for the releases from the JWLD to the Apalachicola River to minimize or avoid adverse impacts or provide support for the threatened Gulf sturgeon and critical habitat for the Gulf sturgeon, the endangered fat threeridge mussel, the threatened purple bankclimber mussel, and the Chipola slabshell mussel. GAI008762.

189. Operations under the proposed action were to be implemented and continued until such time as additional formal consultation would again be initiated and completed, either in association with the proposed update and revision of water control plans for the ACF system, or sooner if conditions change or additional information is developed to justify a possible revision to operations. GAI008763.

190. On March 6, 2007 the Corps issued a FONSI for the Concept 5 modifications to the IOP. GAI009338.

191. The scope of the Corps’ EA was limited to the “No Action” alternative and other alternatives previously addressed during Section 7 consultation. The Corps designated the IOP, as previously implemented, as the “No Action” alternative. GAI009339.

192. The Corps concluded that the proposed action had no significant environmental or human impacts. GAI009339.

**D. Changes to IOP to address Drought Operations.**

**1. Corps' correspondence and discussions regarding the detrimental impact of the IOP on reservoir storage**

193. By letter dated May 16, 2007, the Corps submitted documentation to Fish and Wildlife clarifying the volumetric balancing accounting system prescribed by the IOP. The IOP had included a volumetric balancing of releases in cases where storage is used to follow the ramping rates specified in the IOP, consistent with the operation decisions approved in the September 5, 2006 BIOP. The Corps' accounting system, as clarified in its May 16, 2007 letter, more clearly demonstrated the impacts on storage. Doc. 455, FWS AR Page 12258.

194. In late summer 2007, it became apparent to the Corps that exceptional drought conditions were developing in the basin that were more severe than any drought conditions previously considered or modeled to predict the impacts of the IOP.

[http://www.sam.usace.army.mil/ACF%20Water%20Resources%20Management/ACFDrought\\_Consultation2007/ENVIRONMENTAL\\_ASSESSMENT\\_TempModtoIOP.pdf](http://www.sam.usace.army.mil/ACF%20Water%20Resources%20Management/ACFDrought_Consultation2007/ENVIRONMENTAL_ASSESSMENT_TempModtoIOP.pdf) (“EDO EA”) at 69.<sup>1</sup>

195. By September 2007, the record drought conditions were being experienced in significant portions of the ACF Basin. EDO EA at 69.

196. In September 2007, the Corps and Fish and Wildlife began informal consultation regarding the potential need to modify the IOP to allow temporary deviations due to the extraordinary drought conditions that were occurring. Doc. 455, FWS AR Page 12258.

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<sup>1</sup> Documents for which website citations are listed could not be located in the AR.

197. On September 7, 2007, the Corps conducted a teleconference with Fish and Wildlife to: (a) share preliminary modeling results of the predicted impacts of the IOP operations on system hydrology if the severe drought conditions were to persist as predicted; and (b) initiate informal consultation discussions on possible modifications to the IOP as drought contingency measures. EDO EA at 69.

198. By letter on September 14, 2007, GAEPD expressed concern regarding the status of the Federal reservoirs as a result of the continued drought conditions and advised that extreme caution be exercised in operating the ACF system in the event of the predicted multi-year drought. GAEPD also suggested that modification of the IOP be considered as necessary to assure sustainability of the reservoirs in continuing severe drought conditions. EDO EA at 70.

199. On September 20, 2007, the Corps began conducting bi-weekly Stakeholder Drought Summit Teleconferences for the ACF Basin to inform the stakeholders and water users within the basin of developing drought conditions in the basin and drought contingency operations planned by the Corps, to allow the stakeholders a means to inform the Corps of other user needs and contingency actions being taken, and to provide sufficient notice to the stakeholders of drought contingency measures. EDO EA at 70.

200. During the fall bi-annual meeting on September 25, 2007, and in subsequent teleconferences, additional informal consultation was conducted with Fish and Wildlife. EDO EA at 70.

201. By letter dated October 12, 2007, GAEPD repeated concerns regarding the impacts to the reservoirs due to severe drought. GAEPD requested that the IOP be modified

immediately to eliminate any augmentation to maintain minimum flows below Jim Woodruff Dam and that any ramp down restrictions be eliminated. EDO EA at 70.

202. On October 15, 2007, the Mobile District provided a draft report on the effects of reductions of minimum flow on listed mussels on the Apalachicola River, with mussel density and percentage data estimated at on-foot depth increments, corresponding to flow increments of 4,150 cfs, 3,200 cfs and 2,200 cfs. EDO EA at 70.

203. By letter dated October 17, 2007, the FDEP expressed concern that the proposed modifications requested by GAEPD would severely impact Florida's resources and suggested that the States and Federal agencies work together to address drought contingency measures. EDO EA at 70.

204. On October 17, 2007, the Corps responded to the GAEPD. The Corps stated that they had initiated discussions with Fish and Wildlife to address concerns that remaining storage within the ACF may be depleted before drought conditions abate, due to the severe nature and predicted duration for the continuing drought conditions. The Corps' discussions with Fish and Wildlife also included possible contingency plans that may temporarily modify the IOP to allow additional water storage. EDO EA at 70.

205. By email dated October 17, 2007, the Corps announced its intent to use volumetric balancing to store any additional rainfall that may occur in the event basin inflow increased above 5,000 cfs, within the balance of previously accumulated credits. According to Fish and Wildlife, this action would be consistent with the procedures under the IOP.

Doc. 455, FWS AR Page 12258.

206. On October 19, 2007, the State of Georgia filed a motion for a preliminary injunction against the Corps, requesting immediate modification of the IOP. EDO EA at 71.

207. By letter dated October 19, 2007, the Corps requested a temporary modification of the IOP consisting of an immediate suspension of the maximum fall rate schedule until March 1, 2008. Fish and Wildlife approved the temporary modification on that same day, October 19, 2007. Doc. 455, FWS AR Page 12258.

208. The following day, on October 20, 2007, Georgia Governor Perdue sent a letter to President Bush requesting that: (a) a major disaster be declared for the State of Georgia due to the drought; (b) an exemption from the Endangered Species Act be determined to allow drought contingency measures to be implemented; and (c) the drought contingency measures in the GAEPD's October 12, 2007 letter be implemented. EDO EA at 71.

209. In response to Governor Perdue's letter, Alabama Governor Riley sent a letter to President Bush on October 22, 2007 and Florida Governor Crist sent a letter to President Bush on October 24, 2007. In these letters, the Alabama and Florida Governors objected to declaring a disaster in Georgia and allowing Georgia an exemption from the Endangered Species Act. EDO EA at 71.

210. On October 25, 2007, the ARC provided modeling results forecasting the worst case drought conditions and requested specific modifications of the IOP. EDO EA at 71.

211. On October 26, 2007, the Corps and Fish and Wildlife outlined various options to improve water storage and minimize harm to endangered species. EDO EA at 71.

212. On October 31, 2007, the Corps provided Fish and Wildlife with preliminary modeling results for a proposed reduction of minimum flows at Jim Woodruff Dam to 4,150 cfs. EDO EA at 71-72.

## **2. Exceptional Drought Operations**

### **a. Biological Assessment for the EDO**

213. On November 1, 2007 the Corps issued a BA for a Temporary Modification to the IOP to incorporate Exceptional Drought Operations (“EDO”) and initiated formal consultation with Fish and Wildlife for the EDO. Doc. 455, FWS AR Page 12258.

214. The EDO included the following provisions and triggers: (a) immediate suspension of all existing IOP provisions whenever composite storage falls below the bottom of Zone 3; (b) immediate reduction of the 5,000 cfs minimum flow requirement in the Apalachicola River to 4,150 cfs; (c) implementation of a monthly monitoring plan that tracks composite storage in order to determine water management operations; (d) re-instatement of the 5,000 cfs minimum flow requirement, but none of the other IOP provisions once the composite storage level returns to Zone 3; and (e) suspension of all EDO provisions and re-instatement of IOP provisions once the composite storage level returns to Zone 2. Doc. 455, FWS AR 12264-65.

215. In the November 1, 2007 BA, the Corps concluded that it was necessary and beneficial to prevent more severe adverse and long-lasting effects that have a high probability of occurring if operations under the IOP are continued during the exceptional drought, although the EDO resulted in some immediate adverse effects to listed species,

especially the fat threeridge and purple bankclimber mussels. Doc. 455, FWS AR Page 12308.

216. “Based on the . . . Interim Operations protocols proposed for implementation in 2006, and the associated more conservative avoidance and minimization measures established to protect listed species, the Mobile District has determined that operations at Jim Woodruff Dam and releases to the Apalachicola River during low flow conditions may affect but are non-jeopardizing to the federally threatened Gulf sturgeon, federally endangered fat threeridge mussel, or federally threatened purple bankclimber mussel and will not result in the destruction or adverse modification of Gulf sturgeon critical habitat.” Doc. 455, FWS AR Page 12308.

217. Also on November 1, 2007, the governors of Alabama, Georgia and Florida met with a task force formed by President Bush to discuss drought contingency measures and possible resolutions regarding water allocations between the States. EDO EA at 72.

218. Based on the Corps’ submission of the request for formal consultation on the proposed EDO, Georgia withdrew its motion for a preliminary injunction on November 6, 2007. EDO EA at 71.

219. On November 7, 2007, the Corps notified Fish and Wildlife of an amendment to the EDO to include incremental minimum flow reduction of 4,750 and 4,500 cfs and initial minimum flow reduction to 4,750 cfs as well as additional consultation to identify criteria to determine “triggers” for additional reductions to 4,500 and 4,150 cfs. EDO EA at 72.

220. On November 8, 2007 the FDEP sent a letter to the Corps and Fish and Wildlife expressing its continued opposition to the EDO. EDO EA at 72.

**b. Environmental Assessment for EDO**

221. On November 15, 2007, the Corps issued an Environmental Assessment (“EA”) for the EDO. EDO EA at 1.

222. In the November 15, 2007 EA, the Corps noted that the ACF Basin was currently experiencing exceptional drought conditions, resulting in extremely low basin inflows, and, in some reservoirs, long periods of negative inflows over the past summer and fall. EDO EA at 2.

223. The stated purpose of the EDO was to “minimize the adverse impacts to listed species in the Apalachicola River while making allowances for increased storage opportunities and/or reductions in the demand of storage in order to provide continued support to project purposes, minimize impacts to other water users, and provide greater assurance of future sustained flows for species and other uses during a severe multi-year drought . . . .” EDO EA at 3.

**c. Alternatives to the EDO considered by the Corps**

224. Each of the alternatives to the EDO the Corps considered were focused on flow manipulation. EDO EA at 39-44.

225. The Corps considered taking no action, but concluded that this alternative was not feasible given the intensity of the drought. The Corps considered suspending the down ramping requirement until March 1, 2008, but found that this alternative would not avoid depletion or near depletion of the composite storage. The Corps also considered maintaining 5,000 cfs minimum releases and eliminating all other IOP provisions until the composite storage entered Zone 2, but the Corps found that this alternative did not provide a fair

balance between providing opportunities to conserve storage and continued flow to support endangered species. EDO EA at 39.

226. Additionally, the Corps considered delaying the decision to maintain 5,000 cfs minimum releases and eliminate all other provision of the IOP until composite storage enters Zone 2. Again, the Corps found that this alternative did not provide a fair balance between providing opportunities to conserve storage and continued flow to support endangered species. EDO EA at 40.

227. The Corps also considered maintaining a 4,150 cfs minimum release and eliminating all other provisions of the IOP until composite storage entered Zone 2. The Corps rejected this option because it gave higher preference to conserving storage than supporting endangered species. EDO EA at 41.

228. The Corps also considered the immediate suspension of the 5,000 cfs minimum releases and immediate suspension of maximum fall rate schedule. The GAEPD suggested that the minimum releases from the dam should match basin inflow while basin inflow values are less than 5,000 cfs. The Corps refused to incorporate this provision. EDO EA at 42.

229. Finally, the Corps partially analyzed the recommendations of the ARC, which were set forth in a letter dated October 25, 2007. The ARC's plan included three phases; however, the only phase the Corps found relevant to the EDO was phase 1, which provided for an Emergency Operations Plan. The Emergency Operations Plan provided for a minimum discharge in relation to average basin inflows and a maximum fall rate. EDO EA at 43-44.

230. The Corps did not consider any non-flow restoration measures in the EDO EA. *See generally* EDO EA at 39-44.

**d. Other documentation of the EDO**

231. On November 15, 2007, Fish and Wildlife issued a final Biological Opinion for the EDO modifications to the IOP. Fish and Wildlife determined that no jeopardy was associated with the EDO and incorporating temporary modifications to the IOP, which would allow for increased storage to provide for augmentation flows during predicted sustained drought conditions, while still minimizing harm to mussels and sturgeons and providing for an allowable incidental take of listed mussels associated with the drought contingency plan. EDO EA at 53.

232. On November 16, 2007, the Corps issued a FONSI for the EDO. ([http://www.sam.usace.army.mil/ACF%20Water%20Resources%20Management/ACFDrought\\_Consultation2007/EDO-FONSI-11-16-07.pdf](http://www.sam.usace.army.mil/ACF%20Water%20Resources%20Management/ACFDrought_Consultation2007/EDO-FONSI-11-16-07.pdf)).

233. The FONSI also set forth the alternatives to the EDO, as addressed in the EA for the EDO. EDO FONSI at 2-5.

234. The Corps concluded that the EA describing the EDO showed that the EDO would have no significant environmental or human impacts and therefore no EIS was required. EDO FONSI at 6.

**3. Development of the Revised IOP**

235. On November 16, 2007, Fish and Wildlife provided the Corps data describing its observations of federally listed mussels in the action area from 1990-present. The data included approximately 370 records, including multiple transect-based observations within

sites visited on a single date as well as multiple visits to sites on different dates, and was used by the Corps to estimate both the number of sites for each species of mussel and the number of mussels exposed by implementation of an incremental flow reduction at the Apalachicola River. Doc. 485, FWS AR Page 12850.

236. On November 21, 2007, the Corps sent a letter to Gail Carmody at Fish and Wildlife regarding a provision in the BIOP which provided: "By December 7, 2007, the Corps shall, in cooperation with the Service, determine appropriate criteria for initiating a reduction from 4,750 cfs to 4,500 cfs in the EDO minimum releases from Woodruff Dam." Doc. 487, FWS AR Page 12917. The Corps suggested that the flow reduction to 4,500 cfs should be initiated as early as December 1, 2007 and suggested the following triggers to reduce flows to 4,500 cfs: (a) cumulative annual basin inflow above W.F. George Dam < 5<sup>th</sup> Percentile, and (b) monthly basin inflow above the Newton Gage on the Flint River < 5<sup>th</sup> Percentile. Doc. 487, FWS AR Page 12917-12918.

237. The Corps sent a supplemental letter to Fish and Wildlife on December 7, 2007 in which they set forth an additional trigger to be used to determine when an additional reduction in flows from Jim Woodruff Dam would be prudent to manage remaining storage in the ACF Basin under the EDO. The Corps added a third component to trigger a reduction in flow to 4,500 cfs: Composite Storage trigger zone for 4,500 cfs incremental reduction in flow. Under this component, the reduction in flow is triggered if a storage condition equivalent to all three reservoirs being within drought management conditions (Zone 4) occurs and all flows in support of meeting the downstream minimum releases are being drawn from Lake Lanier. In support of the decision to reduce releases, the Corps cited to

hydrological trends, multi-year drought concerns and forecast storage impacts, benefits to project storage and purposes, climatic and hydrological forecasts, operations using inactive storage, and monitoring data on incidental take of mussels due to 4,750 cfs incremental reduction in flow. The Corps concluded that the second EDO incremental reduction in flows to 4,500 cfs should be implemented. Doc. 496, FWS AR Page 13026-32.

238. On April 15, 2008, the Corps sent a letter to Fish and Wildlife requesting the initiation of formal consultation pursuant to Section 7 of the Endangered Species Act on proposed modifications to the IOP. Doc. 524, FWS AR Page 13825.

239. The Corps requested that Fish and Wildlife review the proposed action with respect to ESA compliance and provide a biological opinion. Doc. 524, FWS AR Page 13826.

240. The Corps enclosed a "Description of Proposed Action Modification to the Interim Operations Plan at Jim Woodruff Dam," dated April 2008, with the letter. Doc. 523, FWS AR Page 13815.

241. The proposed action was a modification of the current IOP. The proposed action included a drought plan that would require a temporary waiver from the existing water control plan to provide for minimum releases less than 5,000 cfs from JWLD when appropriate triggers are met. Additionally, the proposed action would allow for temporary storage above the winter pool rule curve at the Walter F. George and West Point projects. After implementation, the proposed action would continue until additional formal consultation was again initiated or conditions changed, whichever occurred first. Doc. 523, FWS AR Page 13815.

242. The April 15, 2008 letter noted that the Incidental Take Statement for the EDO was set to expire on June 1, 2008. Doc. 523, FWS AR Page 13816.

243. On June 1, 2008, the Corps issued a Supplemental Environmental Assessment for the Modifications to the Interim Operations Plan for Support of Endangered Species (“RIOP”).

[http://www.sam.usace.army.mil/ACF%20Water%20Resources%20Management/May\\_2008\\_Consultation/Final%20Supplemental%20ENVIRONMENTAL%20ASSESSMENT%20Modified%20IOP\\_1-6-08.pdf](http://www.sam.usace.army.mil/ACF%20Water%20Resources%20Management/May_2008_Consultation/Final%20Supplemental%20ENVIRONMENTAL%20ASSESSMENT%20Modified%20IOP_1-6-08.pdf) (“RIOP EA”).

244. The Supplemental EA supplemented the EA and FONSI prepared in March 2007. The proposed action represented a general integration of the prior actions considered in the March 2007 EA and FONSI and the EDO previously considered in November 2007. RIOP EA at 1.

245. On June 1, 2008, the Corps also issued a FONSI for the RIOP. [http://www.sam.usace.army.mil/ACF%20Water%20Resources%20Management/May\\_2008\\_Consultation/Signed\\_FONSI\\_6-1-08.pdf](http://www.sam.usace.army.mil/ACF%20Water%20Resources%20Management/May_2008_Consultation/Signed_FONSI_6-1-08.pdf) (“RIOP FONSI”).

246. The FONSI stated, “the proposed action was developed based on review of the current species information, basin stakeholder input, lessons learned from 2006-7 and continuing discussion between the Corps and [Fish and Wildlife],” and “additional needs realized throughout our previous consultation on the IOP and its implementation by incorporating a drought contingency plan that allows for additional storage conservation and system recovery during periods of extreme drought.” RIOP FONSI at 1.

247. Like the IOP, the proposed action addressed minimum discharges and maximum fall rates. However, the proposed action modified how the minimum discharge rate is determined and identified conditions under which maintenance of the maximum fall rate schedule would be suspended and more conservative drought contingency operations begun. RIOP FONSI at 1.

248. The alternatives to the proposed action considered in the Supplemental EA and FONSI were focused solely on manipulation of flows from the ACF Basin reservoirs, including: no action, lowering the drought zone trigger, incorporating the EDO into the current IOP, and continuing EDO operations. The Corps designated the IOP, as modified to incorporate Concept 5, as the “No Action” alternative. RIOP FONSI at 2.

249. In the June 1, 2008 FONSI, the Corps referenced the RIOP EA, concluded that the proposed action would have no significant environmental or human impact, and stated that consultation and coordination had been completed with federal and state agencies, Fish and Wildlife, the States of Alabama, Florida, and Georgia, and other interested stakeholders in the basin. RIOP FONSI at 3.

250. On June 1, 2008, Fish and Wildlife issued a final BIOP determining no jeopardy associated with the proposed action and an Incidental Take Statement for Gulf sturgeon and the listed mussel species. RIOP FONSI at 6.

251. The RIOP, as proposed, did not change the IOP basin inflow calculations, the use of Chattahoochee gage to measure relative releases/river flow, or volumetric balancing, as described in the Mary 16, 2007 letter to Fish and Wildlife. RIOP EA at 7.

**VII. FLORIDA'S MOTIONS FOR INJUNCTIVE RELIEF**

**A. Florida's January, 2006 motion for preliminary injunction and the Corps' resulting request for formal consultation**

252. On January 31, 2006, the State of Florida filed a motion for preliminary injunction alleging that the Corps had violated Section 7 of the ESA because it had failed to formally consult with Fish and Wildlife regarding the Corps's operations in the ACF Basin and that the Corps' operations violated Section 9 because those operations resulted in a "take" of the Gulf sturgeon. *Alabama v. United States Army Corps of Engineers*, No. 1:90-cv-1331-KOB, [Doc. 383 at 4].

**1. Florida's demands in its motion:**

253. In addition to asking for an order "directing the Corps to consult formally with the U.S. Fish and Wildlife Service" pursuant to Section 7 of the ESA, Florida sought an order enjoining the Corps from "taking" any threatened or endangered species or jeopardizing or adversely modifying designated critical habitat in violation of the ESA. *Alabama*, No. 1:90-cv-1331-KOB, [Doc. 382 at 2].

254. In its motion for preliminary injunction and supporting brief, Florida never specified the particular flows that the Corps should be ordered to provide, only that the Corps be required to maintain flows that would prevent the loss of even a single federally endangered or threatened mussel, or any individual Gulf sturgeon egg or larvae, for lack of water. *Alabama*, No. 1:90-cv-1331-KOB, [Docs. 382, 383].

255. In its reply brief on the preliminary injunction motion, Florida finally specified its flow demands, declaring that, to protect the Gulf sturgeon, the Corps must ensure flows of at least 16,000 cfs in the months of March-May to prevent the take of

sturgeon eggs. *Alabama*, No. 1:90-cv-1331-KOB, [Doc. 425 at 8]. Florida also insisted at that time that the unauthorized take of fat threeridge would occur if the Corps were to allow flows in the Apalachicola River to fall below 8,000 cfs. *Id.* at 10.

256. Florida's reply did not contain any computer modeling of the effect of producing the flows that it was demanding.

## **2. Rebuttal Evidence**

257. The Corps presented evidence from the record that spawning was occurring and that the eggs that had been discovered to date were at a level that would be inundated by a flow of 3,500 cfs. *Alabama*, No. 1:90-cv-1331-KOB, [Doc. 438, Ex. 2].

258. Model evidence presented by the State of Georgia demonstrated that, as a result of operating the federal reservoirs as Florida proposed, during moderate to severe droughts, the federal reservoirs would be depleted of all conservation storage, at which times the Corps would be unable to provide any further augmentation of stream flow, or to operate for any other purposes including water supply, hydropower, and navigation. *Alabama*, No. 1:90-cv-1331-KOB, [Doc. 439 at 10].

259. In some instances, Florida's plan would cause stream flow during May and later in the year to fall to levels below what Florida or the Corps proposed. Flows could fall to as low as 1,557 cfs (just over a third of the 4,530 cfs all-time historical low), and the flow could fall below 5,000 cfs for up to 69 days over an eight and half month period and below 4,000 cfs for 59 of those days. *Alabama*, No. 1:90-cv-1331-KOB, [Doc. 439 at 11].

260. Flow in the Chattahoochee River at the Columbus gage could fall to below 1,000 cfs for 73 days, with a low of 148 cfs (far below the historical low of 921 cfs).

*Alabama*, No. 1:90-cv-1331-KOB, [Doc. 439 at 13].

261. Lake Lanier would reach the bottom of conservation storage on multiple occasions (six of the years over which the reservoir operations were simulated), remaining at the bottom of conservation storage for up to 156 consecutive days. West Point Lake would be drained to the bottom of conservation storage in five of the years over which the reservoir operations were simulated and would remain at the bottom of conservation storage for up to 104 consecutive days. Lake Walter F. George would be drained to the bottom of conservation storage in nine of the years over which the reservoir operations were simulated and would remain at the bottom of conservation storage for up to 154 consecutive days.

*Alabama*, No. 1:90-cv-1331-KOB, [Doc. 439 at 14-15].

262. Testimony from an expert biologist noted that based upon Corps data in the record, even using Florida's unproven assumptions regarding river elevations necessary for Gulf sturgeon spawning, 6 acres of spawning habitat (34% of the possible maximum spawning area) are available at RM 105.5 at flows of only 5,000 cfs, over 11 acres of suitable habitat (62% of the maximum) would be available with flows of 15,000 cfs, 13 acres would be available at 20,000 cfs (73% of the maximum), and 15 acres (84% of the maximum) at 25,000 cfs. *Alabama*, No. 1:90-cv-1331-KOB, [Doc. 441, Ex.1 at 12]. The expert opined that it is reasonable to assume that since only 4 to 8 fish were estimated to spawn in a given year, 6 acres of habitat would be sufficient habitat if other conditions were acceptable, and it

was unlikely that all 17.6 acres would be required. *Id.* He also opined that the additional spawning habitat “might not improve spawning in those years.” *Id.* at 16.

263. The expert biologist concluded that the flows demanded by Florida would put the Gulf sturgeon and the fat threeridge and purple bankclimber mussels at greater risk than the Corps’ IOP. *Alabama*, No. 1:90-cv-1331-KOB, [Doc. 441, Ex.1 . at 22].

264. An expert hydrologist opined: “Requiring the Corps to use all or a substantial amount of water available [in] storage to augment spring flows consistent with the schedule described in Florida’s Reply Brief would reduce the water available at the end of spring seasons,” and would eliminate the Corps’ ability to augment flows as may be needed at other times of the year. *Alabama*, No. 1:90-cv-1331-KOB, [Doc. 441, Ex.2 at 13].

**3. Statements by Florida’s counsel at April 14, 2006 evidentiary hearing.**

265. Florida’s counsel disputed the suggestion that the flows that Florida was demanding would drain the federal reservoirs. Florida’s counsel stated that “it’s very unlikely that we’re going to get in a situation this year where [the Corps] would have to augment flows at even 5,000 cfs.” *Alabama*, No. 1:90-cv-1331-KOB, [Transcript of April 14, 2006 Hearing at 26].

266. In fact, the Corps did end up having to augment basin inflow to provide 5,000 cfs during the summer of 2006. See *infra* at 288.

267. Florida’s counsel stated that Florida was not asking for an order requiring flows of 30,000 or 20,400, but was “prepared today to agree to” a flow of 16,000 cfs until May 15, with a “gradual ramp-down to no less than 8 [8,000 cfs], but a commitment that we

could come back to this Court and ask for further relief.” *Alabama*, No. 1:90-cv-1331-KOB, [Transcript of April 14, 2006 Hearing at 48].

#### **4. Denial of Preliminary Injunction**

268. On April 17, 2006, the Court entered an order denying Florida’s motion for preliminary injunction. The Court stated that “the court finds that Florida did not meet its burden of showing a substantial likelihood of success or that an irreparable injury will be suffered during the pendency of this suit unless the injunction issues immediately.”

*Alabama*, No. 1:90-cv-1331-KOB, [Doc. 443 at 1].

#### **B. Florida’s Motion for TRO, Seeking Greater Flow Augmentation for Mussels, June 2006**

269. On June 21, 2006, the State of Florida filed a motion for temporary restraining order in the *Alabama* case. Florida asked the Court to “compel the Corps to maintain releases of 8,000 cubic feet per second (“cfs”) from Jim Woodruff Lock and Dam from today until the Corps completes its ongoing formal Section 7 consultation.” *Alabama*, No. 1:90-cv-1331-KOB, [Doc. 460 at 1].

270. Modeling evidence presented by the State of Georgia showed that, under Florida’s TRO Demand, the entire ACF system would be severely impacted, with lake levels reaching historical lows in this year and next year, given the historical hydrological conditions that occurred in the years 2000 and 2001. Both West Point and Walter F. George (Eufala) would be empty or virtually empty. *Alabama*, No. 1:90-cv-1331-KOB, [Doc. 473, Ex. 2 at 3].

271. In evidence presented by the Atlanta Regional Commission, an expert biologist concluded:

The request by Florida for an 8,000 cfs minimum flow is arbitrary and ignores key processes that influence mussel survival, most notably longer term natural flow fluctuations and the rate of change in water level. Considerable further evaluation is necessary before a target flow regime that is suitably protective yet consistent with natural flows and reasonable water uses can be set. Setting an arbitrary minimum flow of 8,000 cfs might actually cause more harm to protected species of mussels than providing a lower flow with less variability, especially if it may prove impossible to maintain the 8,000 cfs level for a sustained period of time.”

*Alabama*, No. 1:90-cv-1331-KOB, [Doc. 472 at 7].

272. An expert engineer and economist presented evidence that limitations on water supply withdrawals “would have a small to negligible impact on downstream flows.”

*Alabama*, No. 1:90-cv-1331-KOB, [Doc. 474 at 10]. The expert stated that during the 2003-04 period, prior to the implementation of certain conservation measures, the net diversion of water from the ACF Basin within the 16-county Metropolitan North Georgia Water Planning District was “approximately one percent of the unimpaired average day flow at the Jim Woodruff dam.” *Id.* at 13.

### **1. Temporary Settlement**

273. At a June 22, 2006 hearing on Florida’s TRO, the three States engaged in negotiations over a plan for operating the federal reservoirs and reached an agreement in principle. *Alabama*, No. 1:90-cv-1331-KOB, [Doc. 482 at 1].

274. The parties reached a temporary settlement that was encompassed in the Interim Reservoir Management Agreement. That Interim Reservoir Management Agreement provided that through July 24, 2006, the Corps would maintain a minimum flow in the Apalachicola River of 5,000 cfs, and gave Florida the right to direct the use of a specified

amount of storage within the ACF Basin (55,100 acre-feet) to produce higher flows over the period of the Agreement. *Alabama*, No. 1:90-cv-1331-KOB, [Doc. 490, Ex. 1, at 9].

**C. Florida's Renewed Motion for TRO for Greater Flow Augmentation for Mussels, July 2006**

**1. Florida's Claims**

275. The parties were unable to reach agreement upon an extension or modification of the Interim Reservoir Management Agreement, and, on July 21, 2006, Florida filed a renewed motion for TRO. *Alabama*, No. 1:90-cv-1331-KOB, [Doc. 496].

276. Florida's motion asked for a temporary restraining order that would "compel the Corps to maintain releases of water from Jim Woodruff Lock and Dam to maintain a flow of 6,300 cfs in the Apalachicola River, as measured at the Chattahoochee gage, beginning at 12:01 on July 24, 2006, until the Corps completes its ongoing formal Section 7 consultation under [the ESA]," which was scheduled to be completed September 5, 2006. *Alabama*, No. 1:90-cv-1331-KOB, [Doc. 492 at 1-2].

277. At the time Florida filed its Renewed Motion for TRO, the flow in the Apalachicola River had been approximately 6,000 cfs for more than three weeks. *Alabama*, No. 1:90-cv-1331-KOB, [Doc. 502, Ex. 1, at 9]. The three-day basin inflow to the ACF system as of July 22, 2006 was 1,886 cfs. *Id.* at 10. As a result, the Corps had been releasing water from storage to augment flows of 6,000 cfs and even 5,000 cfs. *Id.* at 10-11.

278. Florida claimed, "By maintaining a flow in the Apalachicola River of 5,000 cfs, the Corps will directly cause the deaths of many of the remaining mussels and effectively render meaningless the previous efforts of this Court to preserve those populations." *Alabama*, No. 1:90-cv-1331-KOB, [Doc. 497 at 3]. Florida argued that if flows of 6,300 cfs

were not maintained, Swift Slough would be disconnected from the main channel, mussels present in Swift Slough would be stranded and would die, and the Corps' operations would be to blame for these deaths. *Id.* at 4.

279. Florida also claimed that “the 5,000 cfs flows resulting from operations under the IOP, will likely result in killing over half of the entire population” of fat threeridge mussels. *Alabama*, No. 1:90-cv-1331-KOB, [Doc. 497 at 8].

## **2. Evidence in opposition of TRO**

280. Evidence from the Corps demonstrated that, during 2000, when the Basin was experiencing a drought similar to the drought of 2006, “flows of less than 5,000 cfs were experienced for nearly 34 consecutive days, with the exception of a 2-day period; flows were less than 5,500 cfs for 60 continuous days; and flows were less than 6,300 cfs for 189 continuous days, with the exception of one day in August of that year.” *Alabama*, No. 1:90-cv-1331-KOB, [502, Ex. 1 at ¶ 37].

281. Georgia and ARC provided a Declaration by Dr. Wei Zeng analyzing the effect of providing the flows that Florida was demanding over the short and longer term. Dr. Zeng concluded that then-current hydrologic conditions were similar to those experienced during the drought of 1999 and 2000, and that, if the Corps were forced to release 6,300 cfs during such drought conditions, over a six month period, the Court would expend, 1,033,500 acre feet of storage simply augmenting basin inflows. *Alabama*, No. 1:90-cv-1331-KOB, [Doc. 504, Ex. 1 at 6]. To put that number in perspective, Zeng noted that total system storage within the ACF Basin is 1,637,920 acre-feet. Over a fifteen-month period, system storage could be drawn down to 220,500 acre-feet, or 13% of full capacity. *Id.* at 11. Thus,

providing augmentation to release 6,300 cfs would expend approximately 63% of total system storage and draw federal reservoirs down to historically low levels. *Id.* at 6, 10. Dr. Zeng concluded that in light of the potential for a multi-year drought, the Corps should operate the federal reservoirs conservatively to prevent depletion of system storage that might be needed to augment flows at other times or for vital human needs. *Id.* at 11.

**3. Testimony presented at hearing on July 24, 2006**

**a. Testimony of Gail Carmody**

282. Gail Carmody, Field Supervisor of the Panama City Field Office of Fish and Wildlife, whose Declaration had been submitted to the Court on July 14, 2006, testified at the hearing, stating that Fish and Wildlife is more concerned about the effect of the IOP on the fat threeridge than the purple bankclimber because the purple bankclimber is more common in areas outside of the Apalachicola River, and, therefore, the IOP would be expected to have less of an effect upon the purple bankclimber species population as a whole than on the fat threeridge. *Alabama*, No. 1:90-cv-1331-KOB, [Transcript of July 24, 2006 hearing at 31-32].

283. Asked the hypothetical whether if 53% of fat threeridge mussels were exposed and died during the drought, that would “that quantity likely jeopardize the continued existence of the species,” Carmody stated not necessarily, that it would depend upon other information, including the expected extent and duration of potential future droughts, the reproductive capacity of the species, and other variables. *Alabama*, No. 1:90-cv-1331-KOB, [Transcript of July 24, 2006 hearing at 31].

**b. Testimony of Douglas Otto**

284. Douglas Otto, Chief of the Hydrology Branch for the Corps' Mobile District, also testified at the hearing. During his testimony, he stated the following:

285. That unimpaired flows (natural flows that would occur were there no withdrawals, evaporation, or other losses caused by human activity) were less than 5,000 cfs in 1981, 1986, 1987, 1988, 1997, 1999, 2000, and 2001. *Alabama*, No. 1:90-cv-1331-KOB, [Transcript of July 24, 2006 hearing at 63].

286. In response to the question whether the Corps had considered alternatives for protecting the species other than "raising the CFS level," Otto stated, "We thought about a couple of things that we could do. One of them would be to try to remove some of the sediments from the mouth of Swift Slough where the obstruction is. We have even talked about trying to pump water into Swift Slough to provide a water. But we really haven't explored those options to any depth." *Alabama*, No. 1:90-cv-1331-KOB, [Transcript of July 24, 2006 hearing at 74].

287. That one of the reasons that the Corps had been unable to perform dredging in the area where sedimentation had altered the elevation of the controlling sill for Swift Slough was that the State of Florida had denied the Corps water quality certification for such dredging since 2005. *Alabama*, No. 1:90-cv-1331-KOB, [Transcript of July 24, 2006 hearing at 75].

288. That the Corps was making releases higher than unimpaired flows, that is, it was augmenting flows that would occur naturally. *Alabama*, No. 1:90-cv-1331-KOB, [Transcript of July 24, 2006 hearing at 80].

289. That if the Corps used up all of the storage in the federal reservoirs, it would only be able to release basin inflow, which during droughts like the one currently being experience would be less than 5,000 cfs. *Alabama*, No. 1:90-cv-1331-KOB, [Transcript of July 24, 2006 hearing at 81].

**c. Statements by Counsel for the State of Florida**

290. In questioning by the Court, counsel for Florida stated as follows:

THE COURT: Are there not some deaths that would, in an unimpaired system, result from drought?

MR. WILMOTH: Well, Your Honor, that question is not a yes, no answer. The fact of the matter is, I didn't get into this level of detail because I didn't anticipate this particular question. But the fact of the matter is, the system has degraded significantly below the dam. The elevation of the riverbed has gone down dramatically since the time these dams were put in. Those old flows of five thousand CFS or four thousand CFS simply don't do the same thing they used to do. And that is just the shear affect of the existence and operation of a dam, scours out the channel, it lowers the water level.

*Alabama*, No. 1:90-cv-1331-KOB, [Transcript of July 24, 2006 hearing at 95-97].

**4. Denial of the Renewed Motion for TRO**

291. In denying Florida's Renewed Motion for TRO, the Court held as follows:

292. Florida "has not demonstrated 'but for' causation between the Corps' actions in implementing the IOP and the take of these mussels. *Alabama v. United States Army Corps of Engineers*, 441 F. Supp.2d 1123, 1132 (N.D. Ala. 2006).

293. "[E]ven assuming the loss of any mussel qualifies as a take, Florida has not established the necessary causal link between the actions of the Corps and the harm to the mussels. As the Corps asserts, not every take violates the ESA. Section 9 prohibits takes by

“any person.” 16 U.S.C. § 1538(a)(1)(B). Takes that result from acts of nature do not fall within the prohibition of § 9 and cannot be blamed on the Corps. *See* 16 U.S.C. § 1532(19).

294. The Court held:

Florida urges this court to find that the Corps’ choice as to the amount of water to retain in storage versus the amount to release downstream to support protected mussels violates the anti-taking provision of the ESA. The court is not convinced that the predicament faced by these protected mussels rests at the feet of the Corps. Instead, the weight of evidence points to other causes for the exposure of the mussels and harm to their habitat. No one disputes that the ACF basin suffers from severe drought conditions. Evidence from [Fish and Wildlife] indicates that the drought conditions have become more severe than droughts were in the years prior to constructing of dams on these affected rivers. . . . The court cannot hold the Corps responsible for the absence of rain.

441 F. Supp.2d at 1134.

295. The Court also held that as to the amount of water entering Swift Slough, “the weight of evidence points to factors other than the IOP that affect the availability of water flow into this slough,” including “the build up of sedimentation at the entrance to the slough.” 441 F. Supp.2d at 1134.

296. “Florida argues, however, that the Corps should do more to protect these mussels than the protection that nature provides. The court can find no controlling authority that requires the Corps to do more than what it currently is doing. . . . [the Corps] has already taken affirmative action to provide more protection to the mussels than the natural flow of unhindered water would provide the mussels during the drought period.” 441 F. Supp.2d at 1135.

297. “Exposure does not automatically result in death.” 441 F. Supp.2d at 1136 (citing Carmody Decl. at p. 7).

298. In holding that Florida had not met its burden of proving irreparable harm, the Court stated:

As the agency charged with the primary responsibility for overseeing the protection of these endangered mussels, [Fish and Wildlife’s] preliminary conclusions warrant deference by the court. Fish and Wildlife-not the court-is in the best position to determine the appropriate steps to protect these mussels over the long run. Although the release of more water from the upstream reservoirs would benefit the mussels in the short term, the long term effect of drawing down water could be more deleterious to the actual survival of the mussel species; using the reserves now would mean that less water will be available in the future to combat the effects of this drought should it continue as anticipated.

441 F. Supp.2d at 1136.

299. In holding that the injunction sought by Florida was not in the public interest, the Court stated:

The court cannot say based on the evidence before it that the injunction sought by Florida-mandatory minimum flows of 6,300 cfs until Fish and Wildlife issues its biological opinion on September 5, 2006-will not do more harm than good to the mussels and the ACF ecosystem. . . . The reduction of water stored in the upstream reservoirs as estimated by the experts may well affect the ability to protect these mussel species and the endangered sturgeon over the long term. As recognized by Fish and Wildlife, instantaneous measures to alleviate some of the potential harm to all the protected species may not be sustainable. Thus, the court cannot find in this case that the public interest in preserving the endangered species would be served by granting the injunction.

441 F. Supp.2d at 1137.

Respectfully submitted, this 9th day of December, 2009.

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**CERTIFICATE OF SERVICE**

This is to certify that on December 9, 2009, a copy of the foregoing GEORGIA PARTIES' FACTUAL APPENDIX IN SUPPORT OF MOTION FOR SUMMARY JUDGMENT ON PHASE 2 CLAIMS was electronically filed with the Clerk of Court by using the CM/ECF System and served to all counsel of record for all parties to this proceeding by means of electronic notification.

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