

# **Drought Plan Revision Savannah River Basin Appendices**



**US Army Corps of Engineers  
Savannah District  
July 2012**

# LIST OF APPENDICES

Appendix A – Savannah River Basin Maps

Appendix B – Savannah River System Pool Schematic and Downstream Hydrograph Example

Appendix C – Recommendations From 2003 Ecosystem Flow Workshop

Appendix D – List of Preparers

Appendix E – Public Notice

Appendix F – Comment Letters

Appendix G – Summary of Comments Received and Responses to Comments

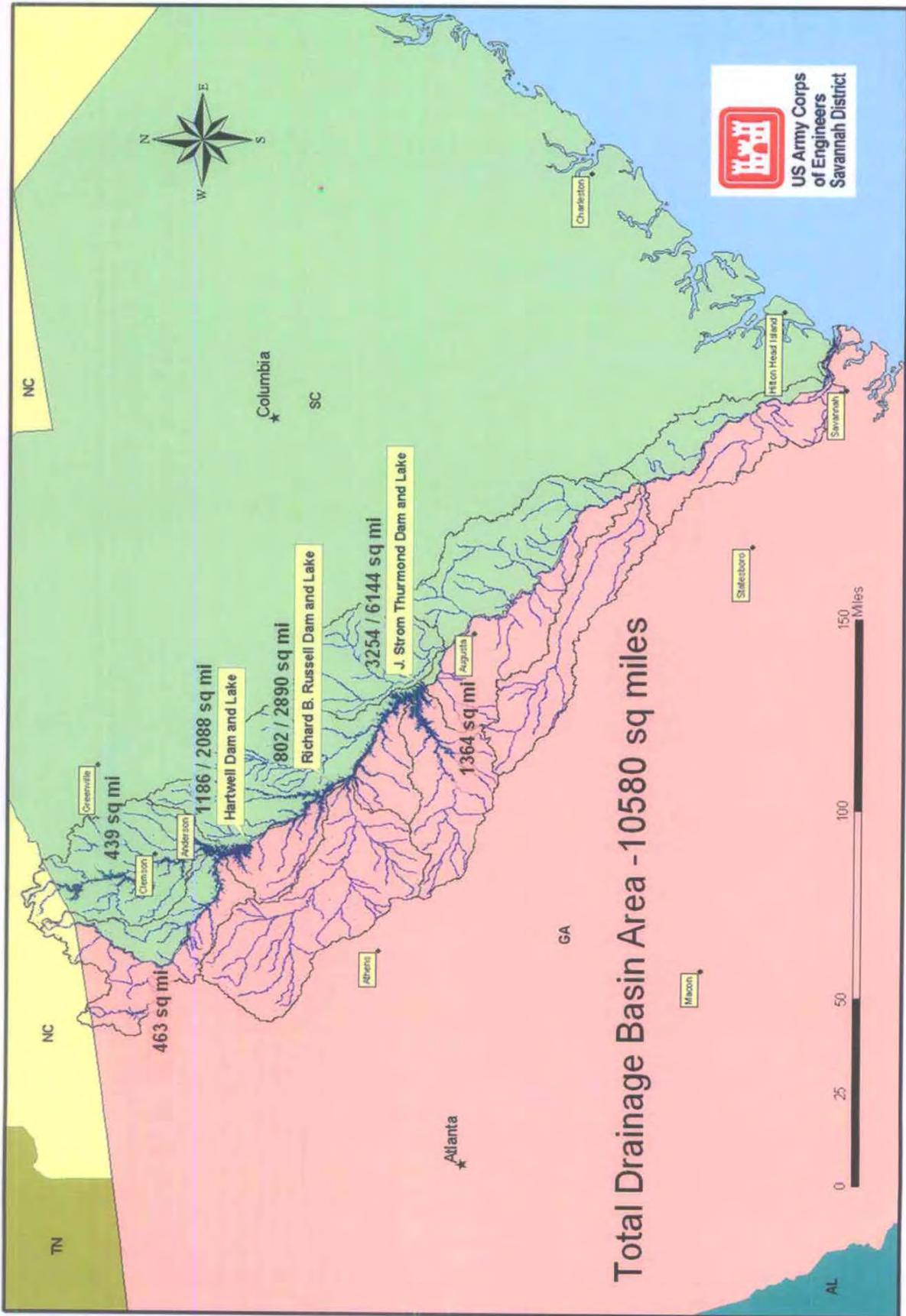
Appendix H – Draft Programmatic Agreement

Appendix I – EFM Result Tables and Graphs

Appendix J – Pool Elevation Tables with Bass Spawning Maximum Lake Level Drops

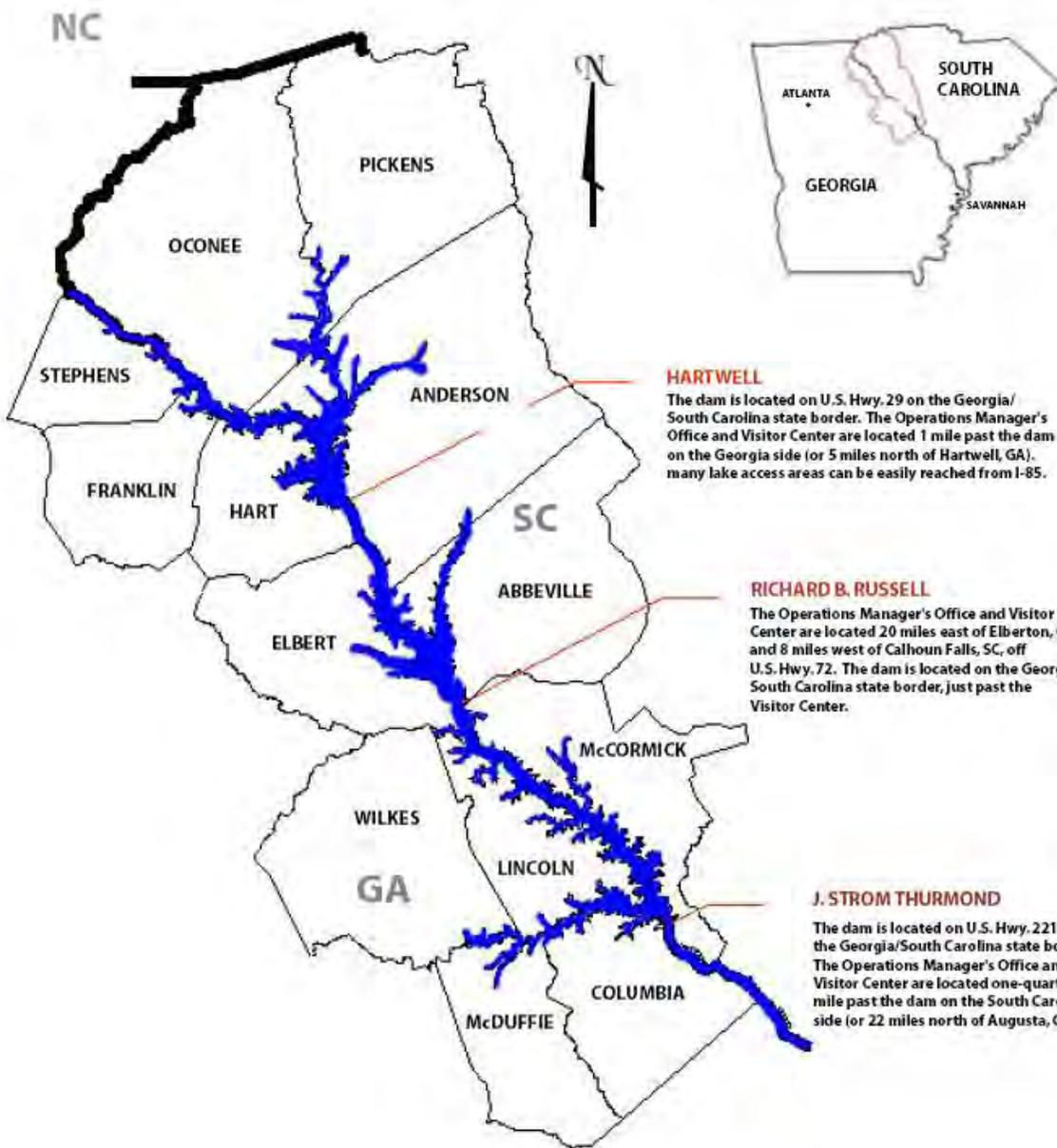
## **APPENDIX A**

### **SAVANNAH RIVER BASIN MAPS**



# Total Drainage Basin Area - 10580 sq miles





**HARTWELL**

The dam is located on U.S. Hwy. 29 on the Georgia/South Carolina state border. The Operations Manager's Office and Visitor Center are located 1 mile past the dam on the Georgia side (or 5 miles north of Hartwell, GA). many lake access areas can be easily reached from I-85.

**RICHARD B. RUSSELL**

The Operations Manager's Office and Visitor Center are located 20 miles east of Elberton, GA, and 8 miles west of Calhoun Falls, SC, off U.S. Hwy. 72. The dam is located on the Georgia/South Carolina state border, just past the Visitor Center.

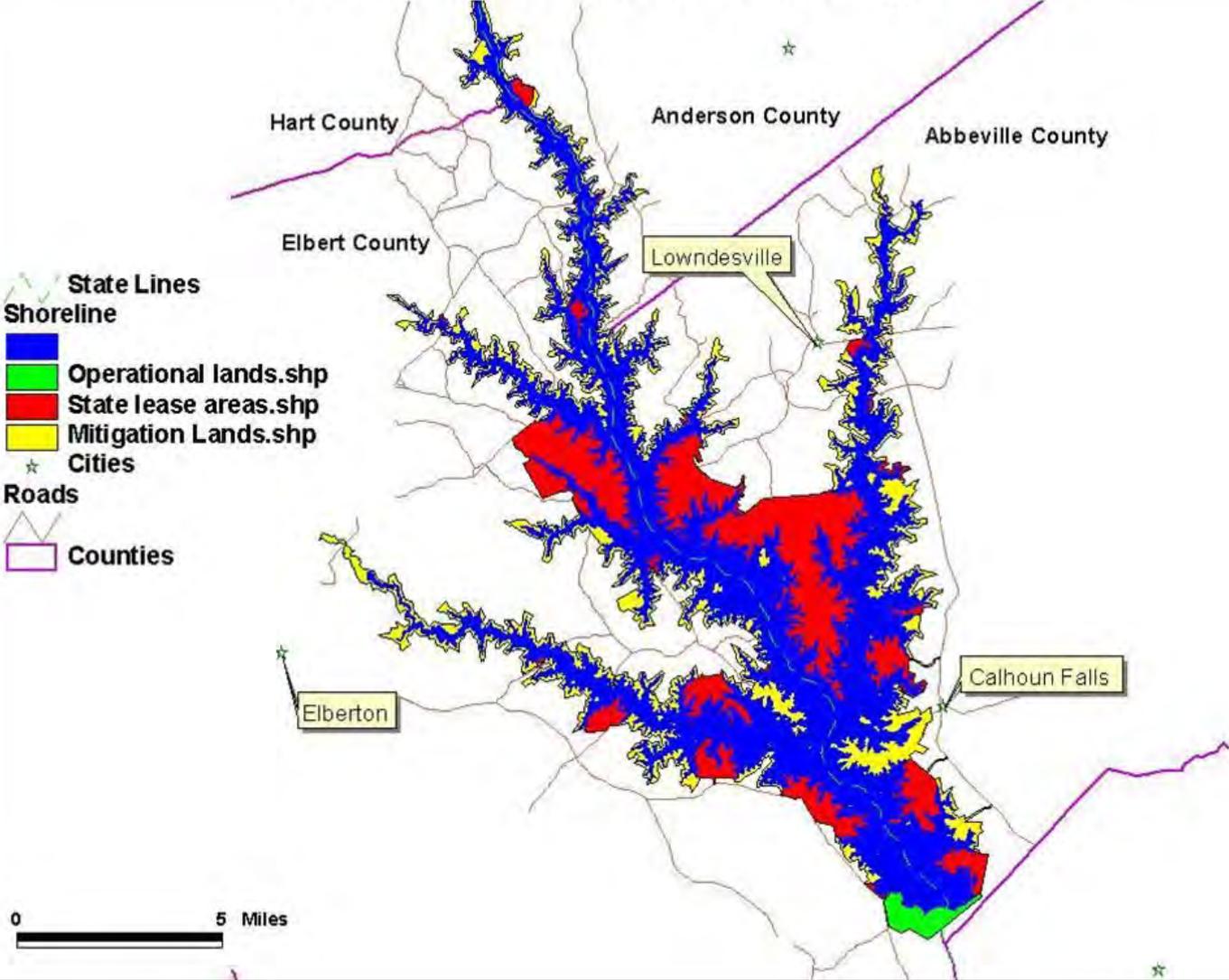
**J. STROM THURMOND**

The dam is located on U.S. Hwy. 221 on the Georgia/South Carolina state border. The Operations Manager's Office and Visitor Center are located one-quarter mile past the dam on the South Carolina side (or 22 miles north of Augusta, GA)

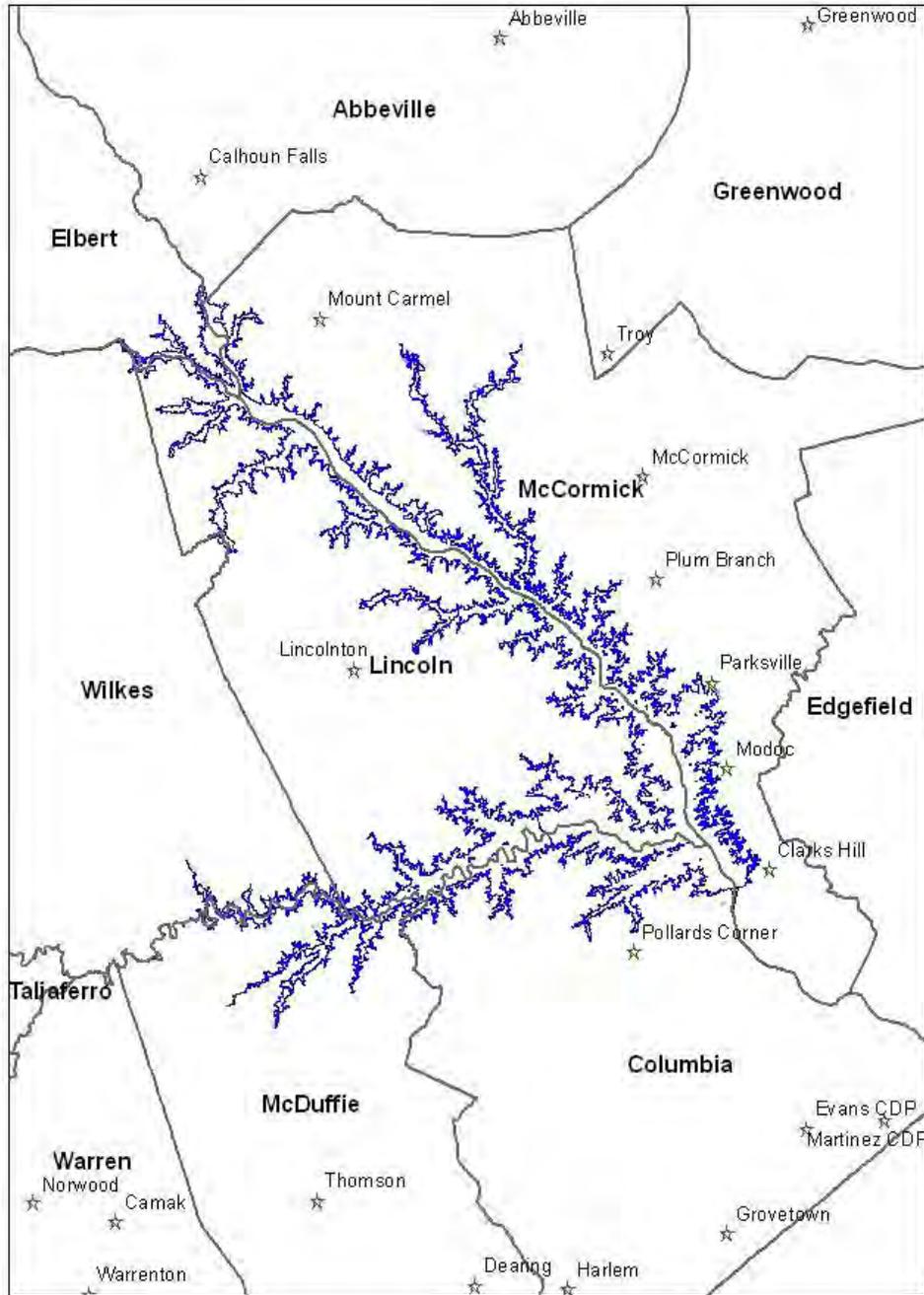
|    |                  |
|----|------------------|
| 37 | Cleveland*       |
| 38 | Gum Branch       |
| 39 | Long Point       |
| 40 | Duncan Branch*   |
| 41 | Powderbag Creek* |
| 42 | Elrod Ferry      |
| 43 | Hartwell Group   |
| 44 | Big Oaks         |
| 47 | Twin Lakes       |
| 53 | Georgia River    |

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# Richard B. Russell Lake Land Usage



# J. STROM THURMOND RESERVOIR



**APPENDIX B**

**SAVANNAH RIVER SYSTEM**

**POOL SCHEMATIC**

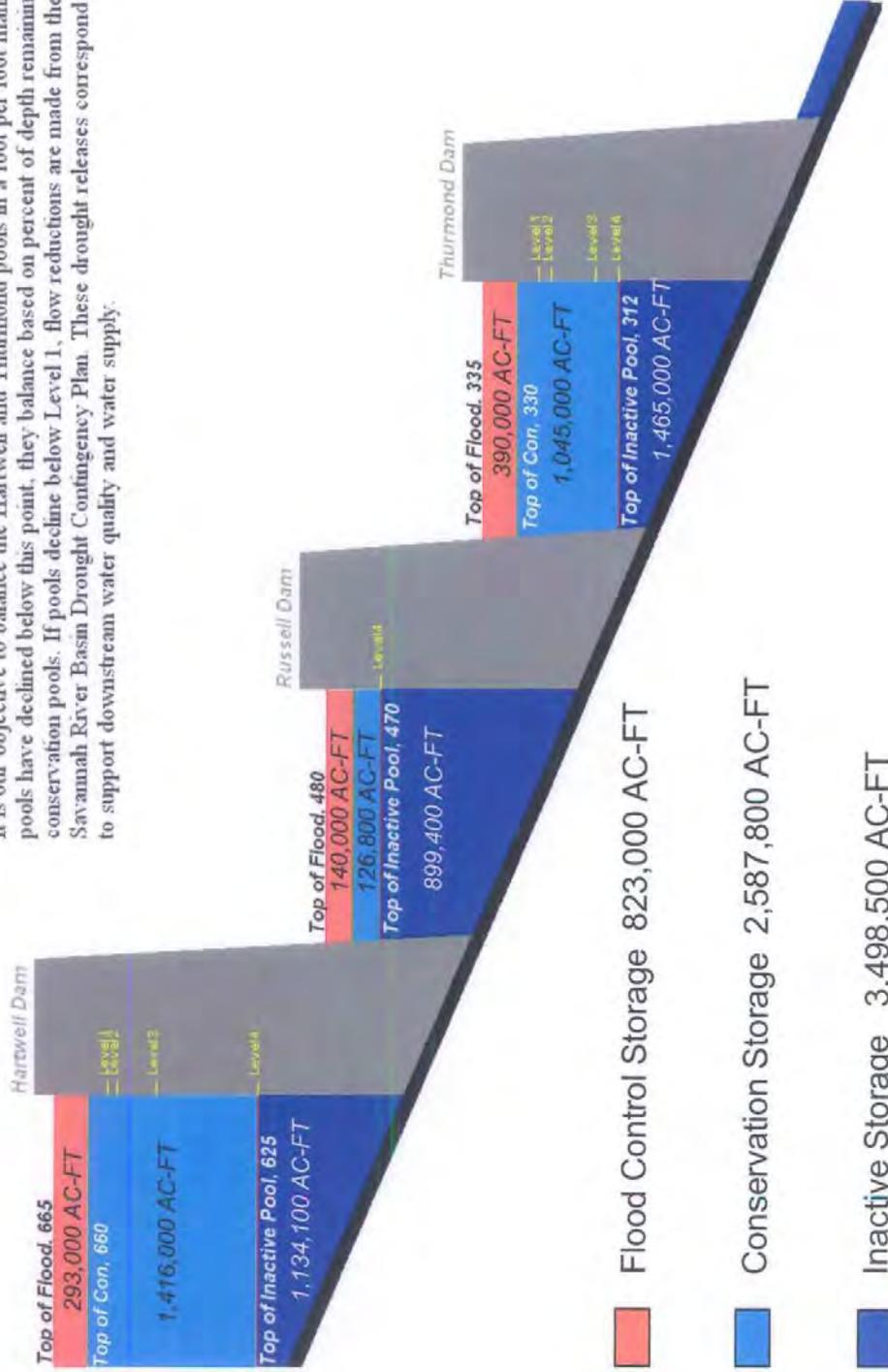
**AND**

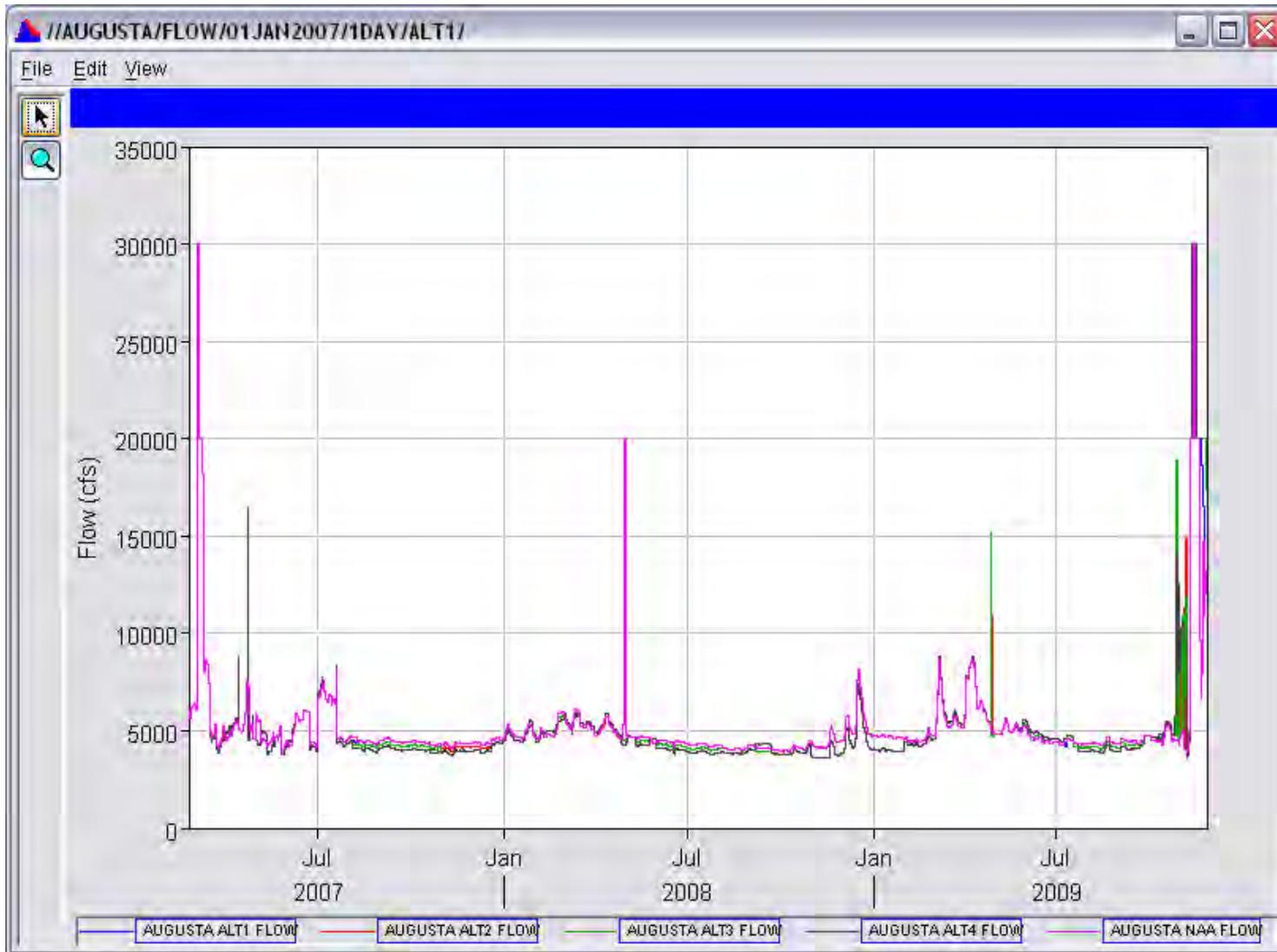
**DOWNSTREAM HYDROGRAPH**

**EXAMPLE**

## Savannah River System Pool Schematic

It is our objective to balance the Hartwell and Thurmond pools in a foot per foot manner for the top 15 feet. Once the pools have declined below this point, they balance based on percent of depth remaining in their respective conservation pools. If pools decline below Level 1, flow reductions are made from the system in accordance to the Savannah River Basin Drought Contingency Plan. These drought releases correspond to the minimum flows needed to support downstream water quality and water supply.





**Example of Downstream Hydrograph**

**APPENDIX C**

**RECOMMENDATIONS**

**FROM**

**2003 ECOSYSTEM FLOW WORKSHOP**

**FOR**

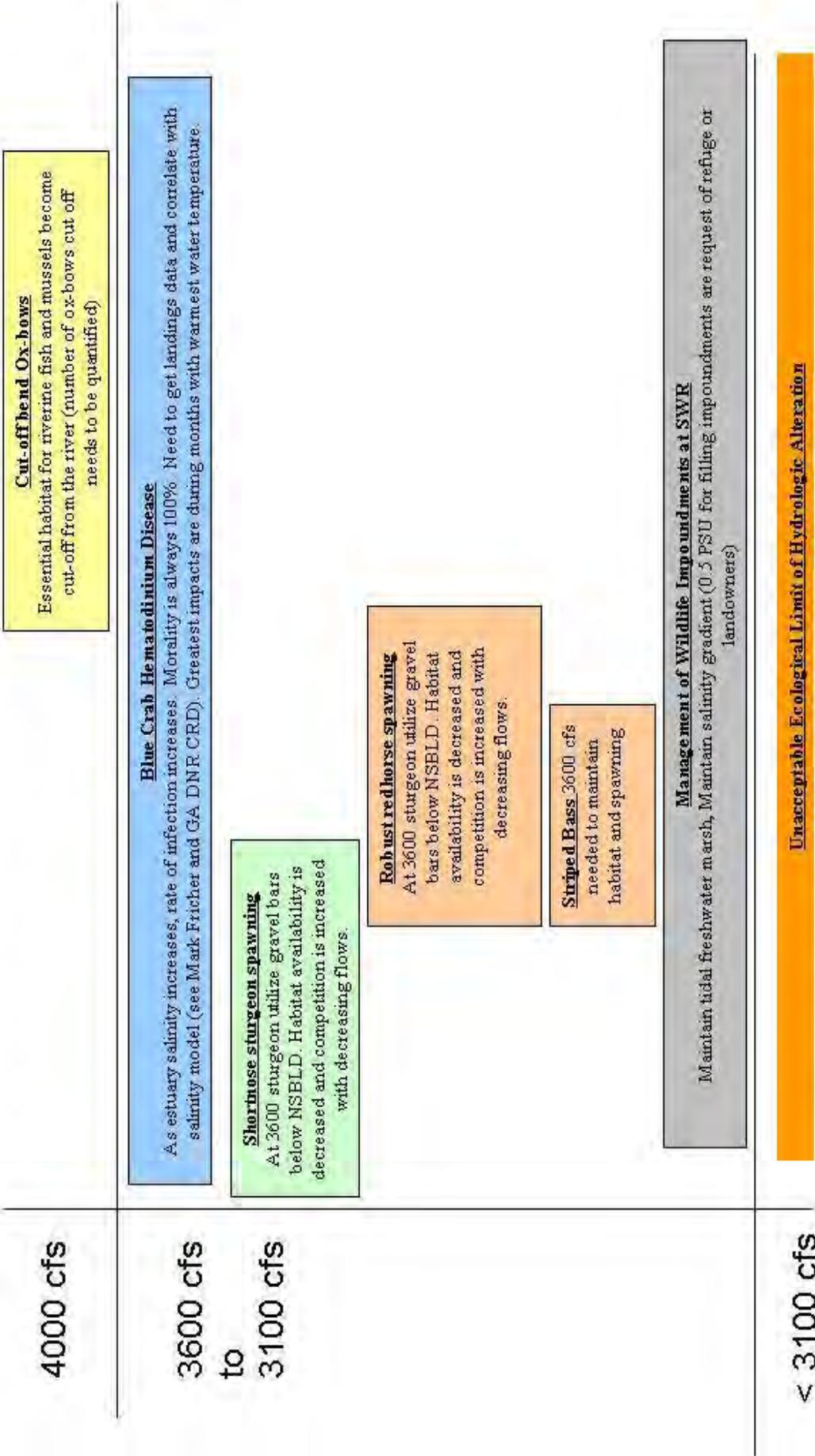
**SAVANNAH RIVER**

**DOWNSTREAM OF**

**THURMOND DAM**

# Ecosystem Flow Recommendations

## Savannah River, below Thurmond Dam (Extreme Low Flows)



JAN   FEB   MAR   APR   MAY   JUN   JUL   AUG   SEP   OCT   NOV   DEC

## **APPENDIX D**

### **LIST OF PREPARERS**

# LIST OF PREPARERS

|                                   |   |
|-----------------------------------|---|
| Larry Olliff<br>Biologist         | USACE Planning - Environmental          |
| Stan Simpson<br>Water Manager     | USACE Engineering - Water Management    |
| Jason Ward<br>Water Manager       | USACE Engineering - Water Management    |
| Jeff Morris<br>Regional Economist | USACE Planning – Economics              |
| Melissa Wolf<br>Project Manager   | USACE Operation and Maintenance – Lakes |
| Thomas Jester<br>Plan Formulator  | USACE Planning- Formulation             |
| Julie Morgan<br>Archeologist      | USACE Planning – Environmental          |

**APPENDIX E**

**PUBLIC NOTICE**



REPLY TO  
ATTENTION OF:

**DEPARTMENT OF THE ARMY  
SAVANNAH DISTRICT, CORPS OF ENGINEERS  
100 W. OGLETHORPE AVENUE  
SAVANNAH, GEORGIA 31401-3640**

Apr 12, 2012

Planning Division

**JOINT PUBLIC NOTICE  
US Army Corps of Engineers, Savannah District,  
and the  
Georgia Department of Natural Resources, Coastal Resources Division  
and the  
South Carolina Department of Health and Environmental Control Office of Ocean and  
Coastal Resource Management**

**TO WHOM IT MAY CONCERN:**

**SUBJECT:** Notice of Availability of a Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) for a modification to the US Army Corps of Engineers' Savannah River Basin Drought Contingency Plan (SRBDCP) on the Savannah River in Georgia and South Carolina.

Notice of the following is hereby given:

- a. Pursuant to the National Environmental Policy Act of 1969, notice is hereby given that the US Army Corps of Engineers, Savannah District proposes a modification to the March 1989 SRBDCP, as revised.
- b. The Savannah District announces the availability to the public of a Draft EA and Draft FONSI concerning the action. Copies of the Draft EA and unsigned FONSI can be obtained from the following website: <http://www.sas.usace.army.mil/planning/> or by calling Larry Olliff at (912)652-5690.
- c. Written statements regarding the Draft EA and FONSI for the proposed action will be received at the Savannah District Office until

**12 O'CLOCK NOON, May 12, 2012**

from those interested in the activity and whose interests may be affected by the proposed action.

**PROJECT DESCRIPTION:** The Proposed Action (Alternative 2) consists of retaining the major components of Alternative 1 and modifying the discharge of Levels 2 and 3. For Level 2 of this Alternative, if the current 28-day Broad River percentile inflow is greater than the historic 10<sup>th</sup> percentile flow, then the prescribed J. Strom Thurmond (JST) Dam release would be 4000 cfs from February through October. For Level 2 of this Alternative, if the current 28-day Broad River percentile inflow is less than or equal to the historic 10<sup>th</sup> percentile flow, then the prescribed JST release would be 3800 cfs from February through October. The November to January discharge for Level 2 would be 3600 cfs. For Level 3 of this Alternative, if the current percentile inflow is greater than the 10<sup>th</sup> percentile flow, then the prescribed JST release is 3800 cfs. For Level 3 of this Alternative, if the current percentile inflow is less than or equal to the 10<sup>th</sup> percentile flow, then the prescribed JST release is 3600 cfs. The Level 3 Thurmond discharge for November through January would also be reduced to 3100 cfs (extended through February with NOAA Fisheries pre-approval). For the 3100 cfs release in Level 3, the Corps would restore the Thurmond discharge above 3100 cfs and up to the 3600 cfs daily average if flow at the Savannah River at Augusta gage goes below 3600 cfs or if the increase is requested by either the State of Georgia or South Carolina. For Levels 1-3, the Hartwell discharge would be reduced as appropriate to maintain balanced pools.

Alternatives to the Proposed Action were developed as part of the planning process. The alternatives that were considered were as follows:

- a) No Action Alternative (NAA): Consists of the Corps taking no action to modify its existing 1989 SRBDCP, as amended in 2006 and 2011.
- b) Alternative 1: Consists of retaining the major components of the NAA (continuing with the 1989 SRBDCP, as amended in 2006 and 2011) with one modification. The modification is intended to improve drought response to include a representative of basin inflow as an operational trigger. This allows varying discharge within Levels 1 and 2 by referring to the historic 10<sup>th</sup> percentile flow at the USGS Broad River near Bell, GA streamgage.
- c) Alternative 3: Consists of retaining the major components of Alternative 1 and modifying the discharge of Levels 2 and 3. For Level 2 of this Alternative, the Thurmond discharge for November through January would be reduced to 3600 cfs. The Level 3 Thurmond release for February through October would be 3600 cfs and the target for November through January discharge would also be reduced to 3100 cfs (extended through February with NOAA Fisheries pre-approval).

- d) Alternative 4: Consists of retaining the major components of Alternative 1 and modifying the discharge of Levels 2 and 3. For Level 2 of this Alternative, if the percentile inflow is less than or equal to the historic 10<sup>th</sup> percentile flow, then the prescribed JST release is 3600 cfs. The Level 3 Thurmond release target would be 3600 cfs. The Level 3 Thurmond release target for November through January would also be reduced to 3100 cfs (extended through February with NOAA Fisheries pre-approval).

#### **AUTHORIZATIONS REQUIRED FROM THE STATE OF GEORGIA:**

**Coastal Zone Consistency:** Savannah District has evaluated the proposed project and believes it is consistent with the Georgia Coastal Zone Management Program to the maximum extent practicable. The District will submit its evaluation to the Georgia Department of Natural Resources, Coastal Resources Division in Brunswick, Georgia, who administers that program. The State will review the proposed action and determine whether it concurs that the proposed project is consistent with the State's Coastal Zone Management Program to the maximum extent practicable. Any person who desires to comment or object to Georgia Coastal Zone Management Consistency Certification must do so in writing within 30 days of the date of this notice to the Federal Consistency Coordinator, Georgia Department of Natural Resources, Coastal Resources Division, Suite 300, One Conservation Way, Brunswick, Georgia 31520-8687 and state the reasons or basis for the objections.

#### **AUTHORIZATION REQUIRED FROM THE STATE OF SOUTH CAROLINA:**

**Coastal Zone Consistency:** Savannah District has evaluated the proposed project and believes it is consistent with the South Carolina Coastal Zone Management Program to the maximum extent practicable. The District will submit its evaluation to the South Carolina Department of Health and Environmental Control, Office of Ocean and Coastal Resource Management in Charleston, South Carolina, who administers that program. The State will review the proposed action and determine whether it concurs that the proposed project is consistent with the State's Coastal Zone Management Program to the maximum extent practicable. Any person who desires to comment or object to South Carolina Coastal Zone Management Consistency Certification must do so in writing within 30 days of the date of this notice to the South Carolina Department of Health and Environmental Control, Office of Ocean and Coastal Resource Management; 1362

McMillan Avenue; Suite 400, Charleston, South Carolina 29405 and state the reasons or basis for the objections.

#### **DEPARTMENT OF THE ARMY EVALUATION:**

**Environmental Assessment:** Savannah District has prepared a Draft Environmental Assessment (EA) and found that an Environmental Impact Statement will not be required for this action. The Draft EA is being coordinated concurrently with this Notice to Federal and State natural resource agencies for review and comment. No wetlands would be filled, but riparian wetlands could be temporarily impacted by reduced river flows. No discharge of dredged or fill material into waters of the US is included in the proposed action, so no evaluation is required under Section 404 of the Clean Water Act.

**Threatened and Endangered Species:** The District reviewed the most recent information on Federally-listed endangered or threatened species and determined that the proposed action may effect, but is not likely to adversely affect Atlantic sturgeon, shortnose sturgeon, manatee, and the wood stork. This proposed action is being coordinated with the US Fish and Wildlife Service and the National Marine Fisheries Service under Section 7 of the Endangered Species Act.

**Cultural Resources:** In accordance with the National Historic Preservation Act (P.L. 89-655, as amended) and 36 CFR, Part 800, Savannah District has evaluated the proposed action's potential effect upon historic properties. The District has determined the proposed action will have no adverse effect upon historic properties beyond those identified under the NAA and has initiated consultation with the Georgia and South Carolina State Historic Preservation Officers and sixteen Native American Tribes.

**Essential Fish Habitat:** Savannah District evaluated the proposal's potential effects on Essential Fish Habitat. The District believes the proposed action would not produce long term effects on these valuable coastal habitats that warrant mitigation. The District is coordinating the proposed action with the National Marine Fisheries Service under the Magnuson-Stevens Fishery Conservation and Management Act.

**Coastal Zone Consistency:** Savannah District evaluated compliance of the proposed action with both the Georgia and South Carolina Coastal Management Programs (CMP). The District believes that the proposed action is consistent with the CMPs to the maximum extent practicable. The District will submit the EA to the Georgia Department of Natural Resources, Coastal Resources Division in Brunswick, Georgia and to the South Carolina Department of Health and Environmental Control, Office of Ocean and Coastal Resource Management in Charleston, South Carolina.

**Public Interest Review:** The decision whether to proceed with the project as proposed will be based on an evaluation of the probable impact, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both the protection and use of important resources. The benefits which reasonably may be expected to accrue from the proposal will be balanced against its reasonably foreseeable detriments. All factors that may be relevant to the proposal will be considered, including the cumulative effects thereof. Among these are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife, flood hazards, flood plains, land use, navigation, shoreline erosion/accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, consideration of property ownership, environmental justice, and, in general, the needs and welfare of the people.

**Consideration of Public Comments:** The US Army Corps of Engineers is soliciting comments from the public; Federal, State, and local agencies and officials; Native American Tribes; and other interested parties in order to consider and evaluate the impacts of the proposed activity. Any comments received will be considered by the US Army Corps of Engineers in its deliberations on this action. To make this decision, comments are used to assess impacts to endangered species, wetlands, historic properties, water quality, general environmental effects, socioeconomic effects, and the other public interest factors listed above. Comments are used in the preparation of the Environmental Assessment pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest concerning the proposed activity.

**Comment Period:** Anyone wishing to comment to the Corps on this proposed action should submit comments no later than the end of the comment period shown in this notice, in writing, to the US Army Corps of Engineers, Attn: PD, Savannah District, Savannah, Georgia 31402-0889,

by FAX to 912-652-5787, or by emailing the comments to the following address: CESAS-PD@usace.army.mil.

Any person who desires to comment or object to Georgia Coastal Zone Management Consistency Certification must do so in writing to the Georgia Department of Natural Resources, Coastal Resources Division, Federal Consistency Coordinator, Suite 300, One Conservation Way, Brunswick, Georgia 31520-8687.

Any person who desires to comment or object to South Carolina Coastal Zone Management Consistency Certification must do so in writing to the South Carolina Department of Health and Environmental Control, Office of Ocean and Coastal Resource Management; 1362 McMillan Avenue; Suite 400, Charleston, South Carolina 29405.

William G. Bailey  
Chief, Planning Division  
Savannah District  
US Army Corps of Engineers

## **APPENDIX F**

### **COMMENT LETTERS**

**From:** [Sandy Byrd](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Lake Thurmond  
**Date:** 15 April, 2012 11:13:43

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We would like to see the water level on Lake Thurmond closer to full. We can't even get our boats up to the docks.

**From:** [Jerry Clontz](#)  
**To:** [CESAS-PD\\_SAS](#)  
**Subject:** Comments on EA on Drought Plan for Savannah River Basin  
**Date:** 15 April, 2012 14:11:33

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We have reviewed the proposals in the draft EA on the Savannah River Basin Drought Plan and we see it as a definite improvement over the current drought plan. However we feel a more aggressive approach should be used to maintain lake levels. We continue to recommend that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. And we further recommend releases be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Furthermore we recommend releases from Thurmond Dam be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels.

Jerry Clontz, spokesman for Save Our Lakes Now

**From:** [Sheila Dew](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Lake Levels  
**Date:** 16 April, 2012 08:27:34

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This is just appalling that Lake Lanier is almost full and here we sit with docks on the shoreline in mud and no rain in the forecast during the spring month which will again lend itself to decrease in tourism during the summer months and at a time when our economy here in hartwell with 12% unemployment could use the water and what it brings to this small town and many area towns  
This is just another evidence of how our current administration is managing the Corps of engineers as we all other government agencies

Sincerely Sheila Dew, concerned citizen

**From:** [Keith, Brian B](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Thurmond Lake Levels  
**Date:** 16 April, 2012 08:37:35

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After review of the proposals in the draft EA on the Savannah River Basin Drought Plan, I feel a more aggressive approach should be used to maintain lake levels. It is recommend that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. Additionally, I recommend releases be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Furthermore we recommend releases from Thurmond Dam be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels

Brian Keith  
Morgan Stanley Smith Barney  
2nd Vice President  
Investment Management Consultant  
Financial Planning Specialist

For up-to-date market information or account specific information, please visit my web site:  
<http://fa.smithbarney.com/briankeith/> <<http://fa.smithbarney.com/briankeith/>>

One 10th Street, Suite 600  
Augusta, GA 30901  
(706)-823-8114 local direct  
(800)-241-2401 toll free  
(706) 722-2410 fax

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<<http://www.morganstanley.com/disclaimers/mssbemail.html>> . If you cannot access this link, please notify us by reply message and we will send the contents to you. By messaging with Morgan Stanley Smith Barney you consent to the foregoing.

**From:** [Fran Uteg - Gmail](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Lake water levels  
**Date:** 16 April, 2012 08:44:37

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I am a resident of Hart county and since moving here in 2005, there have been three years where I could not use my dock because of low, or no water. The lake level has severely effected my property value and has virtually "trapped " us in Hart county. We would do anything to move to another region of the country to escape the influence of the Corp of Engineers. The current water management plan is outdated and totally inflexible to rapidly changing water resources. The Corps has been a terrible steward of our natural resources and is oblivious to the real needs of the citizens it is supposed to serve.

Francis F Uteg  
64 Robin Hood Lane  
Hartwell, Ga 30643  
706-376-0104

**From:** [Bland Burkhardt](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Drought EA  
**Date:** 16 April, 2012 08:57:02

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I believe the new drought EA is a step in the right direction but doesn't go far enough. It is disappointing that the Corp of Engineers has been so slow to recognize the severity of the drought. It seems that with every rainfall you are ready to declare the "spring rains are here early this year" and when they don't continue we hear "mother nature really threw us a curveball." Please wake up and realize that a plan must be put into place to deal with the predicament we find ourselves in. "Hope and prayer for more rain" is not a plan.

J. Bland Burkhardt III CFP®, CPA, PFS [bland@gbmwc.com](mailto:bland@gbmwc.com)  
531 South Main Street Suite 303 Greenville, SC 29601  
864.370.3244 phone 866.492.0191 toll free 864.239.0760 fax

**From:** [Gary and Susan Bang](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Re: Improved Drought level releases  
**Date:** 16 April, 2012 09:55:52

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I appreciate the consideration again of lowering release levels from Thurmond during these drought stressed times....Even though the trend is in the right direction, I agree with the Save Our Lake plan which is slightly more aggressive than the current levels in drought stressed situations. Currently I am a resident of Lake Hartwell, and we are almost 8 ft down and dropping, with a projected level of 10 ft down by June...This is almost disastrous for Hartwell Lake and surrounding areas, as people just quit trying to enjoy the lake at levels this low.... the more shallow water docks are already starting to lose water, and with 2-3 more feet down, a large percentage will lose their docking ability for boating. The long and short of this is I appreciate the C of E listening to the organizations around the lake that also have the best interests of the lakes at heart, and have strong hopes that maybe just a LITTLE BIT more can be done to salvage the last couple feet of water that we need for a good summer of lake recreational activity...  
thank you very much  
Gary R Bang  
403 Cherrwood Dr  
(Tugaloo River section)  
Foxwood Hills

**From:** [Ken Graves](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Save Lake Thurmond  
**Date:** 16 April, 2012 10:08:36

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As a lake-front property owner on Lake Thurmond, I am appalled at the small concessions finally offered in the EA on the Savannah River Basin Drought Plan.

The proposal recommended by Save Our Lakes Now has apparently been totally discounted despite the obvious---- our lake is not going to reach and maintain an acceptable level without a much more aggressive approach than I am seeing.

We love our lake. We need more WATER!!!

Ken Graves  
Providence Ferry  
Lincolnton, GA

**From:** [Donald Sample](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Hartwell Lake Level  
**Date:** 16 April, 2012 11:12:54

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I have lived on lake Hartwell for over 20 years and it seems it has been below full pool during the summer for well over 10 of those years. This has surely been enough time for the Corps to solve this reoccurring problem. I recall a presentation by the Corps about 15+ years ago when it was announced that a new computer program was being put into use that would prevent future drastic drops in the lake level. Apparently that program didn't work! Now a real workable solution has been proposed by the Save Our Lakes organization. It seems like the actions recommended by Save Our Lakes should be implemented NOW rather than later. Let's make a real difference and do the right thing.

Don Sample

**From:** [Mary Ann Simpkins](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Cc:** [robert.simpkins@osp.ga.tech.edu](mailto:robert.simpkins@osp.ga.tech.edu)  
**Subject:** Comments on the Corps of Engineers EA Proposal....  
**Date:** 16 April, 2012 11:32:01

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As residents on Lake Hartwell we are extremely interested in the recent EA proposed by the Corps. While it seems to be an improvement over the current drought plan, we feel very strongly that a more aggressive approach should be used to maintain the lake levels. In agreement with the official comments from Save Our Lakes Now we ask that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. Also, releases should be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Most importantly, releases from Thurmond Dam should be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels.

As Lake Hartwell residents we greatly appreciate the work Corps has done over the years to maintain our lakes, and we appreciate your understanding and consideration of the above changes to the recent EA proposal. Thank you.

Robert & Mary Ann Simpkins

**From:** [C. Suzanne Doolan](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Hartwell Lake  
**Date:** 16 April, 2012 13:07:03

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Your proposals in the draft EA on the Savannah River Basin Drought Plan is a definite improvement over the current drought plan; however a more aggressive approach should be used to maintain lake levels.

The release rates from Thurmond Dam should be reduced more as per the plan proposed by "Save our Lakes" to allow those on Hartwell to enjoy the lake. Furthermore the releases from Thurmond Dam should be completely stopped during a drought anytime the river is swollen from rains downstream so as to maximize the rate the lakes regain normal levels.

Suzanne Doolan

**From:** [Roger.Johns@ch2m.com](mailto:Roger.Johns@ch2m.com)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** South Carolina lake levels  
**Date:** 17 April, 2012 05:50:14

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Greetings,

I would like to comment on the low lake levels.

I believe the Corps pushes out too much water each fall, I have lived on the lake for 15 years and I don't know the "logic" or lack of it to drain the lake by 5 feet or more each Sept. This puts us too far behind to ever catch up when we are not getting regular rainfall.

The lake can be regulated at virtually any level, this is important as we have been in a drought for some time now.

Another point is the value of water, good clean water will become much more valuable than the few cents generated by making electricity,

Let the professionals make power and you can someday figure out how to maintain the lake levels at a usable level.

Thanks,

Roger Johns

**From:** [Estes, Eljay J \(AdP/MEO4.2\)](#)  
**To:** [CESAS-PD\\_SAS](#)  
**Date:** 17 April, 2012 07:44:18

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Are you really looking for comments from the public on what to do about lake levels?  
Stop draining it. It's really very simple.  
Thank you.

**From:** [Sansom171@aol.com](mailto:Sansom171@aol.com)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Drought Plan Comments  
**Date:** 17 April, 2012 08:32:28

---

Why can't you find common sense? On Lake Hartwell, stop letting our more water than comes in after the lake reaches 655' in elevation. This should be easy to do. Downstream lakes should adjust accordingly. It seems that the Corps makes a career out of over thinking the obvious. People are very put out with government simply because it has no common sense in its function. The given is the flow in. Live with it.

John Sansom

**From:** [Glenn Cantrell](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Drought Proposal Feedback - Lake Thurmond  
**Date:** 17 April, 2012 09:30:52

---

As a full time resident and homeowner on Lake Hartwell – I recommend that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. And also further recommend releases be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Furthermore I recommend releases from Thurmond Dam be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels.

Thank You –

Glenn Cantrell  
635 Jackson Road  
Anderson, SC 29626  
864-314-5466

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**From:** [Brad Hobbs](#)  
**To:** [CESAS-PD\\_SAS](#)  
**Subject:** Comments  
**Date:** 17 April, 2012 17:23:42

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Thank you for considering improvements to the drought plan.

The proposals in the draft EA on the Savannah River Basin Drought Plan are an improvement over the current drought plan in place now. I believe that a more aggressive approach could be used to maintain higher lake levels without impacting river flow below the lake system. For example the "Save Our Lakes" recommendation that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills would assist in keeping both Thurmond and Hartwell. Further if releases were reduced to 3100cfs during winter months anytime Lake Thurmond is below 328' and if releases from Thurmond Dam were completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels; levels could be further improved - again without negative impact on river flow below the lake system.

Bottom line, I am pleased that improvements are being made. I am also frustrated that politics and bureaucracy appear to be slowing change so that it takes years and years to make any meaningful improvements. It appears that there is ample evidence to show that lake levels can be maintained at reasonable heights while fulfilling the other objectives of the system.

Brad Hobbs  
Fair Play SC

**From:** [Bill McLean](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Lake hartwell comment  
**Date:** 19 April, 2012 17:55:07

---

Please quit managing the lake for flood control only, it is contributing to the low summer levels. The recreation use is of more value nowadays.

Thank you.  
Bill McLean  
Piedmont SC

**From:** [Birdwell, Billy E SAS](mailto:Birdwell_Billy_E_SAS)  
**To:** [Vernon Sauer](mailto:Vernon.Sauer)  
**Subject:** RE: New proposal regarding outflow from Thurmond (UNCLASSIFIED)  
**Date:** 20 April, 2012 16:50:43

---

Classification: UNCLASSIFIED  
Caveats: NONE

Dear Vernon:

I can't answer this technical question. However, I will send it to the office taking comments on the EA and to the water managers. You may need to wait a while for a response.

-- Billy B. sends  
BILLY E. BIRDWELL  
Public Affairs Specialist  
Corporate Communications Office  
Savannah District, US Army Corps of Engineers  
912-652-5014 (office)  
912-677-6039 (mobile)

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-----Original Message-----

From: Vernon Sauer [<mailto:vbsauer@hartcom.net>]  
Sent: Friday, April 20, 2012 12:46 PM  
To: Birdwell, Billy E SAS  
Cc: 'Vernon Sauer'  
Subject: New proposal regarding outflow from Thurmond

Hi Billy, I've been playing with the new Corps proposal for adjusting outflow from Thurmond based on flow of the Broad River at Bell. I computed the long term mean flow at Bell as 1,728 cfs based on USGS records. If I interpret the proposal correctly, you are basing the 28-day mean-flow computations at Bell using a 28-day moving average. Moving average being the key.

As a trial, I ran the moving average computations for the period 1/1/2008 to 4/18/2012. Based on these computations I found only two periods where the 28-day moving average was less than 10% of the long term mean (173 cfs).

1. 19 days in 2008 (8/9/08-8/27/08)
2. 37 days in 2011 (9/6/11-10/12/11)

My question to you is, have I interpreted the proposal correctly. My numbers in this trial run may not be precisely correct, but are you proposing the use of a moving average. The info we've been getting in the newspaper does not mention a 28-day moving average, but just an average flow. It makes a

big difference on how this is interpreted.

Thanks for your help, Vernon

Classification: UNCLASSIFIED  
Caveats: NONE

**From:** [steve.long@emc.com](mailto:steve.long@emc.com)  
**To:** [CFSAS-PD\\_SAS](#)  
**Cc:** [longie@vmware.com](mailto:longie@vmware.com)  
**Subject:** Lake Hartwell/Savannah River Drought Plan - Feedback for Consideration  
**Date:** 21 April, 2012 14:51:23

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In response to: Corps releases Draft Environmental Assessment for proposed update to Savannah River Basin drought plan

I am a Hart County – Hartwell, Georgia homeowner on Lake Hartwell – 700 Ridgewood Drive, Hartwell, GA. My family as well as many within the community of Lake Hartwell – both South Carolina and Georgia are very concerned over eminent drought conditions and subsequently the continual fall of Lake Hartwell lake levels. Currently as of 4/21/2012 – the lake is near 8' below full level of 660'. It was less than 5 months ago the lake level reached nearly 12' below full level. Continued low lake levels will not only detour potential home buyers but poses significant and risks of injury or deaths concerning recreational boaters attempting to avoid tree stumps, debris, rocks, and low ground that would normally not be exposed if the lake was at full level. Furthermore the financial impact to Hart and surrounding counties in both Georgia and South Carolina is a concern and will grow if lake levels continue to suffer with lack of rain fall and further compounded with continued high volume discharges of water downstream to Thurmond and Russell. Less home buyers, tourism, lost jobs, and other financial impacts will continue to be a concern and magnify if the lake continues to drop at the current discharge rates. The lack of rainfall and potential dry summer forecasted for 2012 will only magnify these concerns.

We are asking the Army Corp of Engineers to please implement the proposed reduction in release flows to Thurmond as outlined in the draft environmental assessment for proposed update to Savannah River Basin drought plan.

Thank you in advance for your consideration into this matter and allowing me and my family to voice our opinion.

Steve & Jennifer Long  
700 Ridgewood Drive  
Hartwell, Georgia, 30643

CELL - 404.219.5271  
[steve.long@emc.com](mailto:steve.long@emc.com)

**From:** [Pat Cox](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Lake Hartwell Levels  
**Date:** 21 April, 2012 21:10:45

---

We have reviewed the proposals in the draft EA on the Savannah River Basin Drought Plan and we see it as a definite improvement over the current drought plan. However we feel a more aggressive approach should be used to maintain lake levels. We continue to recommend that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. And we further recommend releases be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Furthermore we recommend releases from Thurmond Dam be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels.

Pat & Billy Cox  
1380 Old Andersonville Road  
View Point D9 & D10  
Hartwell, GA 30643

**From:** [ksargent@hartcom.net](mailto:ksargent@hartcom.net)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Drought Contingency Plan  
**Date:** 22 April, 2012 11:42:03

---

I have been a long time Hartwell Lake supporter since 1965, and welcome any release level of 3,100 cfs or less. My suggestion would be that strong consideration should be given to Level 3 drought and only release cfs amounts equal to inflows except during heavy rains if we should receive any during that time. The Savannah District will continue to experience heavy demands due to the new port plan for Savannah and the metro Atlanta area who seeks to add water demands for 5+ million burbs folks. Thanks to the Corps' management team who realize something must be done to update a 50 year old plan when electrical and flood control were the only issues.

Thank you U.S. Corps, Savannah District for all that you do.

Silverback55@comcast.net

**From:** [CVCMINERALS@aol.com](mailto:CVCMINERALS@aol.com)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Lake Level Comment  
**Date:** 22 April, 2012 16:20:02

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Start on your upper lake, Hartwell, and adjust the outflow to match the inflow when the lake hits 655' elevation. Don't wait three months after a drought starts to react. Don't dump water quickly when we have a rain event. It is interesting that you can react to lots of water overnight and it takes months to react to drought conditions.

Every citizen is put out with government because government demonstrates no common sense and cannot react to anything quickly. Start a new trend. Impress the citizens.

Doug

**From:** [DMohn@ydr.com](mailto:DMohn@ydr.com)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Draft Assessment: Less water to be released.  
**Date:** 23 April, 2012 17:02:33

---

To whom it may concern,

Everyone seems to look at the economic side and benefits of have more water in Lake Hartwell. It is not all about money. It is about quality of life and family time that families get to enjoy when the lake has enough water in it to access. My Boat in my driveway today will probably be there most of the summer due the lake level. My dock is on land. As times are tough the lake is one of the few nice inexpensive whys to spend a vacation. It is too bad that it must be taken so far down during this drought. I would very much appreciate the new proposal and even encourage less outflow.

Thank you for your time and for all you do for our lake.

Sincerely,

Don Mohn  
Facility Manager  
G&D Integrated  
Intermodal Division

**From:** [SPOOHER@aol.com](mailto:SPOOHER@aol.com)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Proposed update to Savannah River Basin drought plan  
**Date:** 23 April, 2012 21:57:20

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Col. Jeff Hall,  
April, 2012  
Corps' Savannah District Commander.

23

Subject: Public Comments for the Proposed update to Savannah River Basin drought plan

The current system allows Augusta to divert as much water as the Augusta Canal can hold and even more resulting in water spilling over a dam located mid-canal into a small creek. While this has an undesirable impact of the shoals no one knows what long term impact this current diversion has caused during low flow periods.

Currently during drought conditions this continued excessive water diversion from the shoals has a terrible impact resulting often in a stench from many areas of the shoals due to no flow and resulting rotting vegetation.

Under your new Drought Plan and if you go to this reduced flow, without bringing Augusta/Richmond County government into an agreement and with an absence of Corps inspections that would insure a reduction of the current unlimited diversion of water into the canal, there will be no shoals still existing on the Savannah River.

You might as well publish new maps that shows the Savannah River has moved West and show the Augusta Canal flow as the Savannah River route, because that there will be nothing left alive in the shoals. Note you will also need to move the South Carolina State boundary line to mid-canal.

I am proving these comments because you said "Our intent was to identify ways to respond earlier in a drought to conserve additional water storage, while balancing the impacts of drought on our other project purposes."

Sam Booher  
4387 Roswell Dr  
Augusta, GA 30907

**From:** [James dennis](#)  
**To:** [Bailey, William G SAS](#)  
**Cc:** [CESAS-PO, SAS](#)  
**Subject:** Commet re: drought plan  
**Date:** 27 April, 2012 12:43:41

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I am 100% in favor of amending the drought plan and reducing the outflow of water from Lake Hartwell during periods of drought.

As a resident of Hartwell for the last 12 years it is also very clear to me that the governing authority needs to further evaluate its definition of "drought". The rainfall from year to year is extremely volatile and the use of averages is not appropriate. We seem to have 1 year of enormous rainfall every five years. The following 4 years, in my opinion, represent a drought. However, the Corp does not recognize the drought and start to take action until it is too late and too much water has already been let out.

PLEASE stop letting so much water out of the lake.

Thank you,  
Jim Dennis  
706-436-9094

**From:** [arendaramsey@yahoo.com](mailto:arendaramsey@yahoo.com)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Update to Savannah River Basin Drought Plan  
**Date:** 29 April, 2012 14:47:50

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The 50th anniversary of the Hartwell Dam should inspire all of us to do more to preserve and protect this site. In 50 years, many changes have been seen in our country and what was considered the right thing to do 50 years ago is probably contributing to the problems we are suffering in our area.

We support reducing the discharge rates at all levels. We feel this should have been done long ago but are glad to see this being addressed. Continued low lake levels has had a significant impact on lake safety, home sales in our area, business closures, visitors to the area and job losses. We live here year-round and we see evidence of this every day of our lives. When the lake is up, business is up; when the lake is down, businesses close or lay-off employees.

We were in Savannah visiting when the lake here was so low that grass and trees were growing where the lake should have been. Imagine our surprise to see lakes and rivers that Hartwell feeds into overflowing their banks. We have to find a balance and the reduction of discharge from Hartwell lake is a good place to start.

We certainly support the implementation of the Update to the Savannah River Basin Drought Plan.

Robert and Arenda Ramsey  
720 Ridgewood Drive  
Hartwell, GA 30643

**From:** [Brian White](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Lake Thurmond Drought EA  
**Date:** 29 April, 2012 15:28:47

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I totally agree with the position taken by SAVE OUR LAKES NOW. Their position is one of common sense. If there was no dam, outflow would equal inflow. Downstream stakeholders, who admit that they don't need the additional flow, should take action to protect themselves should an ongoing drought result in depletion of lake reserves. The dam outflow should never exceed inflow except when the lake is at full pool or during flood conditions which was one of the reasons that the dam was built.

Rates from Thurmond Dam be reduced to 3600 cfs whenever Lake Thurmond is below 328' until the lake refills. And we further recommend releases be reduced to 3100 cfs during winter months anytime Lake Thurmond is below 328'. Furthermore we recommend releases from Thurmond Dam be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels.

I am a supporter of the work that the COE does on Thurmond lake and applaud keeping the lakes natural and not overbuilt, however, as a lakefront property owner, I am greatly disturbed by the frequent low levels. Just today I encountered hidden hazards that could have resulted in physical damage to me, my wife and considerable damage to my boat. The fact that I was moving at idle speed prevented injury and damage, but could easily have resulted in serious injury/death. The fact that hazards not in the main channel are not marked, make maintenance of safe water levels essential to the safety of visitors to the lake.

Brian White

--  
I am using the free version of SPAMfighter.  
We are a community of 7 million users fighting spam.  
SPAMfighter has removed 187 of my spam emails to date.  
Get the free SPAMfighter here: <http://www.spamfighter.com/en>

The Professional version does not have this message

**From:** [PEGGY SINRAM](#)  
**To:** [CESAS-PD\\_SAS](#)  
**Date:** 29 April, 2012 16:51:21

---

I heartily agree with the stand of "Save Our Lakes" regarding the reduction of flows during periods of drought and low lake levels. I further would like to see reduction of flows from Lake Hartwell. Our local economy and property values is severely impacted by low lake levels. In this the 50 year celebration of Lake Hartwell it looks like we will have a much lower lake to "celebrate" again this summer. While I understand our rainfall is somewhat below normal the lake is WAY below normal. There seems to be a disconnect somewhere in the management of outflow.

Margaret H. Sinram  
458 Mt. View Ln  
Lavonia, GA

**From:** [Frank A. Carr](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Cc:** [Ann Merwarth](#); [Steve @ Work](#); [Kelly @ Work](#); [Cindy Dixon Young](#); [Lee Dixon](#); [KMDixon@clermson.edu](#)  
**Subject:** Lake Hartwell water level  
**Date:** 29 April, 2012 17:07:53

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Please be sensitive to the fact that many folk, including some friends and relatives have invested in Upstate South Carolina and are loosing--or have already lost-- their property due to the persistant and precipitous low water levels in Lake Hartwell. To some, this is a loss of life savings. While the current draft EA for the Sasvannah River Drought Plan may be a step in the right direction, we feel it does not go far enough to restoring the Upstate's economy and we urge a stronger effort to reduce the outflow of Hartwell and to achieve and maintain Hartwell's water level at full pool!

/s/ Frank A. Carr & Ann C. Merwarth, Port Laurel, SC

**From:** [Patricia](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Savannah River Basin Drought Plan  
**Date:** 29 April, 2012 17:38:41

---

I have reviewed the proposals in the draft EA on the Savannah River Basin Drought Plan and see it as a definite improvement over the current drought plan. However I feel a more aggressive approach should be used to maintain lake levels. I continue to recommend that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. And I further recommend releases be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Furthermore I recommend releases from Thurmond Dam be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels.

Thank you for your consideration!

Patty Howard

Patricia C. Howard

Howard Advisor Solutions, Inc.

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[www.howardadvisorsolutions.com](http://www.howardadvisorsolutions.com)

**From:** [Darragh Geist](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Hartwell lake level management  
**Date:** 29 April, 2012 18:57:07

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We understand that the Corps will have more flexibility in managing lake levels during drought conditions. While we applaud the ability to deviate from the drought plan, we urge you to go beyond this. In recent years the lake has been lowered to levels that destroy economic activity, devalue real estate prices and remove recreational opportunities from thousands of patrons. We respectfully ask you to exercise good analysis and decision making in dealing with drought or near drought conditions. We need to maintain lake levels so that taxpayers, homeowners and visitors can benefit from the beautiful lakes.

**From:** [Mark Kibilko](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Cc:** [saveourlakesnow@gmail.com](mailto:saveourlakesnow@gmail.com)  
**Subject:** Release Rates Lake Hartwell  
**Date:** 30 April, 2012 08:13:49

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I recently moved to Townville, SC and purchased lake front property on Lake Hartwell. If I knew the lake levels would be LOWERED AS DRAMATICALLY as they have this year our first full year on the lake WE NEVER WOULD HAVE BUILT HERE. We paid a PREMIUM for our lot based on the ability to have a dock and utilize the lake for our recreation. We are senior citizens. WE CAN NOT CONTINUE TO STRUGGLE with moving our dock out and so far this year have it remain to be hundreds of feet further away from the end of our path at full pool. I read from SAVE OUR LAKES that the US Army Corps is being more flexible with release rates but from my point of view the US Army Corp has been WOEFULLY WITHOUT CONCERN FOR LAKEFRONT OWNERS who continue to contact our Congressional and State Representatives to complain about the neglect and flat out disrespect of our wishes and situation by the Corp.

This e-mail is intended to bring to your attention the general feeling of all the shoreline home and property owners on Lake Hartwell. Pay attention and consider the funds generated by lake front home owners in all recreational aspects of water sports, fishing, camping, local businesses and your jobs with the US Government. Don't continue to bite the hand that feeds you. STOP THE LAKE RELEASE NOW!

--

Mark J. Kibilko  
SE Technical Sales, Inc.  
114 Tyra Lane  
Townville, SC 29689  
P:(407) 496-3621  
F:(864) 349-2091  
<http://www.setechsales.com>  
CAEN Catalog Link: [http://www.caen.it/nuclear/dw\\_area.php](http://www.caen.it/nuclear/dw_area.php)  
WIENER Catalog Link: [http://www.wiener-d.com/documents/uploads/Catalog\\_Wiener\\_2010.pdf](http://www.wiener-d.com/documents/uploads/Catalog_Wiener_2010.pdf)

**From:** [Monte Willford](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Fresh water  
**Date:** 30 April, 2012 08:26:07

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Lets turn fresh water into salt water,,sounds like a Govt job,,,,,,,, Hartwell,Ga

**From:** [Boyd, Debra](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Hartwell Lake Levels  
**Date:** 30 April, 2012 06:48:58

---

Gentlemen -

First let me thank you for the time and consideration of all those individuals involved in re-accessing the Savannah River Basin Drought Plan. It has been a long, arduous process I am sure, and one of extreme emotion from the Public and Shareholders of Lake Hartwell.

As a property owner bordering Lake Hartwell, our position supports a much more aggressive approach to maintain lake levels and avoid these high to low swings we have seen over the last several years. It negatively impacts businesses, home and property owners and so many others that have a share in and enjoy beautiful Lake Hartwell.

We are strong supporters of Save our Lakes Now and agree with their proposal as follows -

We have reviewed the proposals in the draft EA on the Savannah River Basin Drought Plan and we see it as a definite improvement over the current drought plan. However we feel a more aggressive approach should be used to maintain lake levels. We continue to recommend that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. And we further recommend releases be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Furthermore we recommend releases from Thurmond Dam be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels.

Please take this into consideration and enact stronger flow reductions in this time of drought. Thank you for your support.

Sincerely

Debra and William Boyd  
525 Wilmac Drive  
Anderson, SC 29626

**From:** [Wilkes, Lucia E](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Lake Strom Thurmond  
**Date:** 30 April, 2012 09:20:29

---

Dear Sir,

Please be aware that our lake levels are low and need to be evaluated to keep levels up. This is essential for our natural resources and the livelihood of our community.

Thank you,

LUCIA WILKES,RN

CANCER CENTERS OF THE CAROLINAS

ANDREWS-RADIATION ONCOLOGY

(P) (864) 269-4508

(F) (864) 269-5512

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**From:** [William Eleazer](#)  
**To:** [CESAS-PD\\_SAS](#)  
**Subject:** Concern over Lake Levels  
**Date:** 30 April, 2012 09:35:22

---

It seems, that once again, mother nature is dealing us a hand filled with not much rain and long hot days, all adding up to a summer with many docks in the mud and tourists finding other lake recreational sites. As a home owner, on the lake, I feel it is only responsible to add my two cents to the mix of information you are gathering.

For the past four or five years, I have followed much of the back and fourth rhetoric, concerning Corps policies, between the Corps, government organizations, private organizations, and, of course, the public who use and live on the lake. I have attended meetings and listened to both sides venting their emotions and discussing their mandates. One thing for certain, the current regulations, weather patterns, and demands upon the lake water are not working in favor of the lake home owners, lake recreation, and economic growth of the area. And, here lies the rub. The Corps' response is their mandate does not include the health of the economy and lake recreation. This is an easy platform to stand upon when the regulations are tilted in the direction of the environmental health of the basin and generation of power plus other political issues that never even enter into public debate. From our perspective, as home and business owners, and recreational users impacted by water levels, the platform was corrupted the minute land was sold on the lake, dock permits, by the thousands were issued, state parks and recreational facilities were built for public use, and businesses were encouraged to support these activities. The Savannah basin became a center for tourism and lake recreation.

It seems to me, and my neighbors and friends, that it is time to address both concerns and, maybe even, consider changing the regulations to fit the demands of the many factions that are concerned. We are not unreasonable and fully realize that when we have severe drought that the lake will go down, but we also fully understand that a great deal of fresh mountain water flows into the ocean every single day because of numbers dictated by outdated regulations. Nothing you have not already heard, but at least, I gave you my two cents.

Sincerely,  
Bill Eleazer

**From:** [Tom Greene](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Savannah River Basin EA Plan Comments  
**Date:** 30 April, 2012 11:01:47

---

It is great that the Corps of Engineers has completed their long awaited study and are offering some solutions to the earlier rigid guidelines for managing the water levels in the reservoirs in the Savannah River basin. However, there is no process that addresses the reduction or shut off of lake water release during times of heavy rains when the river is already swollen. It seems logical to hold this water to cover later needs while it is not needed for navigation, power generation, or supplying drinking water downstream. Additionally, shutting off release reduces the effects of erosion from the flood waters in the river.

The proposed reduction in the release of water in a series of steps and in response to the amount of rainfall is a step in the right direction but the steps before reductions are made are still too far apart. Conserving the water supply by reducing release should be made at more frequent steps. I have seen it suggested that release should be reduced to 3600 cfs whenever Lake Thurmond falls below 328'. I also saw the suggestion that release levels should be reduced to 3100 cfs during the winter months when the lake level falls below 328'. Power generation needs are lower at this time of year and this plan will conserve our water resources for later needs. These suggestions just seem to make sense.

Please make every effort to properly manage the people's water resources in a manner that satisfies all the needs of the Savannah River basin.

Tom Greene

[tgreene@tinks.com](mailto:tgreene@tinks.com) <<mailto:tgreene@tinks69.com>>

Phone: 678-342-9000

Fax: 678-342-9973

**From:** [ed hunt](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Lake Levels for the Savannah River Basin  
**Date:** 30 April, 2012 11:48:51

---

To Whom It May Concern,

I have owned Lot #27 in Tugaloo Heights, Fair Play, SC, and since 1982, I have spent way too many hours and way too many dollars trying to keep my dock in the water or the gang walks being covered by water. Reef'em in, reef'em out. I am a part time, seasonal resident, permanently living in Greenville, SC, and since 1982, I've gotten old, and retired on a fixed income. I no longer have the resources, either financially or physically to keep up with the water level at Lake Hartwell. I truly do, fundamentally, understand the concept of protecting the ecosystem of the Savannah River Basin, but I believe there are more practical ways to accomplish this objective.

The proposals set forth in the draft EA on the Savannah River Basin Drought Plan appears to be a step in the right direction, but lake residents want a more practical, aggressive approach to maintain lake levels. I, as a property owner, support the proposals of Save Our Lakes Now. Then we can get back to the business of enjoying the nature, peace and quiet that lakefront property brings to property owners on the lake, and quit worrying about lake levels and driving 100 miles every few days to 'check on the dock'.

A Concerned Lake Property Owner

Edwin F Hunt

**From:** [Duke duFrane](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** clarks hill / strom thummond lakes  
**Date:** 30 April, 2012 12:05:15

---

it seems to me that the downstream creatures have been dealing with high and low stream levels for millions of years

in order to keep them health and fit, that approach should continue..... therefore the policy should be to let as much water out as comes in

if during some extreme storm period, the lake could be filled, from then on, it could be kept full if as much was let out as was coming in

a second thought is that way back when the lake was justified to the American taxpayer, probably things like flood control, electrical generation, perhaps irrigation, perhaps fresh water for municipalities, but certainly Recreation were considered. Allowing the lake to go won more than 3 feet extremely negatively impacts recreation. when people cant get there boats to the water from their docks, it is bad

please consider the above thoughts as you deliberate the management of this great lake

respect fully

duke M duFrane

lot owner in Georgla

citizen of South Carolina

**From:** [Kassie Corder](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Lake Hartwell lake levels  
**Date:** 30 April, 2012 12:31:40

---

To whom it concerns, as a property owner on one of the coves, I know we are asked to participate in preserving the lake for generations to come. It is a responsibility we take on as being on the lake is something we don't take for granted. Please help us in enjoying the lake by keeping the lake levels from going to EXTREMES. The lake is down 8 ft. and me and my family and friends won't be able to use the lake from our dock if it falls another foot. Another summer without water.....  
HELP. Please consider requests from Save Our Lake. Thank you, Kassie Corder

**From:** [Rholmes270@aol.com](mailto:Rholmes270@aol.com)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Drought Plan  
**Date:** 30 April, 2012 12:38:03

---

I support the New plan to reduce the outflows based on lake levels.

Robert L Holmes  
Lake Hartwell

**From:** [Ken Jones](#)  
**To:** [CESAS-PD\\_SAS](#)  
**Date:** 30 April, 2012 16:29:38

---

This drought is really creating a hardship for the property owners. Most homes are being appraised based on the level of the lake. I have a nice log cabin on the lake in Indian Cove Subdivision. I keep my permits current. I abide by all corp policies as far as dock permits and underbrushing. I also willingly pay my fair share of taxes and I don't complain about it.

I know that sharing the water resources is a must. It's not all about me either. My question is this. Why am I last to have anything as far as a lake to enjoy when I do all that is required of me?

Ken Jones  
1775 Comanche Circle  
Lincolnton Ga 30817  
706-533-1550

**From:** [M. Howell](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Please Restore Our Lake  
**Date:** 30 April, 2012 19:49:10

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Please slow the out flow, and provide a better balance between energy needs and the human toll from inconsistency. I can not continue to "chase the water," with my dock due to health reasons. I can't afford to pay people to move my dock. Many people have just given up on the CORE. But I love the lake and don't understand why a reduced outflow management plan cannot be implemented. I am a good man who has always abided by CORE rules, and have helped to clean the lake on dozens of occasions. When I would ride in my boat, I always keep a net handy to retrieve the litter of others. I feel as though my reward for being a good steward of the land and water is to be forced to move because of a physical inability to adapt to the negative impact of improper planning. Please don't make that be the case.

I pray you will work to provide for the sustenance of this beautiful body of water. Thank you for allowing me to send this note.

Sincerely,  
Mark Howell

**From:** [Fred Munzenmaier](#)  
**To:** [CESAS-PD\\_SAS](#)  
**Subject:** EA on Release Rates Under the Drought Plan  
**Date:** 30 April, 2012 19:55:43

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Here is my comment on the new EA from the Corps giving you more flexibility on release rates than the current drought plan.

I vigorously support the Save Our Lakes Now position as follows:

A more aggressive approach should be used to maintain lake levels. The release rates from Thurmond Dam should be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. Releases should be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Furthermore releases from Thurmond Dam should be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels.

Not only would this benefit our region economically, it would help the status of Georgia and South Carolina as we welcome visitors from other parts of the U.S. Under current policies, when visitors see the lakes for the first time, their initial comment is how ugly it looks and how mismanaged it must be.

This is so unnecessary and could be so easily improved for the benefit of everyone.

Fred Munzenmaier

**From:** [Tom Miller](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Lake levels  
**Date:** 30 April, 2012 21:41:31

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I own three properties on Lake Hartwell and sell real estate here full time. My livelihood depends on the health of the lake. I respect the way the COE follows the plan that has been put in place, but I think that the plan needs to change. The fact that the Savannah River runs at a constant rate no matter how much rain is in the basin does not seem fair to me. If the dams were not in place, the river would run lower and the constituents on the river would have to deal with it. Why do the lake owners bare the full cost of the drought conditions?

I have reviewed the proposals in the draft EA on the Savannah River Basin Drought Plan and I see it as a definite improvement over the current drought plan. However I feel a more aggressive approach should be used to maintain lake levels. We continue to recommend that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. And we further recommend releases be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Furthermore we recommend releases from Thurmond Dam be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels.

Thanks for your consideration.

Tom Miller

M: 678.469.9917

F: 800.496.5681

TomMiller@KW.com

Lake Hartwell Best Buys <<http://www.georgiamls.com/agentsite/featuredproperties.cfm?SiteID=MILLERTOML>>

Description: Description: logo with com <<http://www.spotonthelake.com/>>

**From:** [Ann Daniel](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Agree with Save the Lake plan  
**Date:** 01 May, 2012 08:01:54

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We would love to see our lake levels up in the summer months so we can use our lake safely. It's so sad to live on the lake and not be able to use it for recreation. The Hydrilla issue is also one that needs to be looked at it is killing the Eagles on our lake after they eat the Coots.

We support the Save the Lake plan which I have copied below.

"We have reviewed the proposals in the draft EA on the Savannah River Basin Drought Plan and we see it as a definite improvement over the current drought plan. However we feel a more aggressive approach should be used to maintain lake levels. We continue to recommend that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. And we further recommend releases be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Furthermore we recommend releases from Thurmond Dam be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels. "

Dear Lord: It's me again. Please keep Your arm around my shoulders and Your hand over my mouth! Amen.

**From:** [David Alpers](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Lake levels  
**Date:** 01 May, 2012 11:06:25

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Nature has a way of correcting itself if just left alone. Why when we are in a drought, would releases from the lake be greater in volume than would "naturally" flow down stream when there is a shortage of rain??? If there were no dam and water control facilities in place, during a drought, the flow downstream would be reduced....BY NATURE. Do we know better than the natural order of water control and distribution? Why not let the amount that flows downstream be equal to the amount that would flow naturally based on our rainfall and water table????

David Alpers  
dave@replaprints.com

**From:** [Tvj/hyG@aol.com](mailto:Tvj/hyG@aol.com)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Lake Hartwell...water levels  
**Date:** 01 May, 2012 14:20:45

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Corp of Engineers.....

At the last meeting there was a discussion about lowering the draw from Lake Hartwell. Since we have not had the rain we need and we found out what happens when we hit 23 ft down. We need to be diligent that does not happen again. That could mean that we limit our draw and see if it affects down basin. If it does, then adjust. Engineering is great, but the process of elimination may be the best way to proceed with being 8 ft down in April and no rain being predicted for the future.

If industry and business cannot make a living, the taxes paid by the business and the employees will affect what is received by the state and federal revenue departments. This area has new businesses coming to the area dependant on lake water for their product.

Thank you for listening

Gretchen Fuller  
Moonlight Bay  
Lake Hartwell

**From:** [Mike Barry](#)  
**To:** [CESAS-PD\\_SAS](#)  
**Subject:** Comments around EA Proposal  
**Date:** 01 May, 2012 15:18:51

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Hi,

I would like understand why we cannot come up with a proposal that fixes the problem vs putting a small band aid on it. I have read several viable solutions from simply maintaining the flow rates before the dams were built to the results of credible studies and for some reason the Corps does not want to respond to any of these.

Why not publish a response that lists the issues, the possible solutions and the corps position on those solutions instead of always hiding behind "our hands are tied" which we know is not necessarily true. At the same time why not pick a solution that works or come up with your own that works and give it a try for a few years. This inaction of the last decade has been frustrating to everyone.

Thank you  
Mike Barry  
(770)439-0141

**From:** [Jeff Johnson](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** EA Comments  
**Date:** 01 May, 2012 16:08:32

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To USACE:

It appears the proposals of the EA draft are a step in the right direction. However, it is not nearly aggressive enough to make a difference for this year if something drastically is not done very soon. I have been on this lake for many years and we built our dream retirement home 5 years ago. However, I am simply tired of fighting the battles of the ever fluctuating water levels when it is not necessary. We can blame it on whomever we want, the COE, the state governments, federal governments, or a combination of all of these parties. The bottom line is, there is absolutely no reason to release the amount of water through the dams at Hartwell and Thurmond when prior studies at much lower flow rates did not impact anything! The flows were reduced to 3100 CFS for an extended period 2 or 3 years ago when we were at record low levels. You even stopped all flow through Hartwell for a few weeks, maybe a month. Did this affect anything downstream in a negative way? If it did, please advise me of what it did impact.

THE CURRENT CONDITIONS OF MANAGING THE FLOW RATES ARE DESTROYING THESE LAKES AND THE VALUES ASSOCIATED WITH THEM.

My permanent residence is in NC and all of our lakes are at, or close to full pool. This includes Kerr Lake and Lake Jordan, both USACE managed lakes. Our rainfall amounts are not much different than SC rainfall amounts, so how do you explain the constant lowering and releasing of water when it is not necessary. It is May 1st, and we are 7.5 ft. below full. History proves this will be a terrible summer for Lake Hartwell, and for no reason!

Perhaps I am missing something here, but if I am, would someone please explain why we continue to release water in great excess of the inflows? The COE says generating power is a by product of water releases, if that is so, why do we continue to drain our lakes if generating power is a by product of opening the gates? Why not leave the gates shut and allow our lake levels to be at a manageable level. As a Savannah River Basin stake holder, I would really appreciate some answers.

Respectfully,

Jeff Johnson  
127 Cox Circle  
Fair Play, SC 29643

919-820-9002 (Cell)

**From:** [Mark McDowell](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Save our Lake - Hartwell Resident  
**Date:** 01 May, 2012 19:46:16

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Dear COE,

First of all, we would like to thank all the guys and gals with the COE, with their boots on the ground trying to manage our lakes. You have a monumental task and we thank you for your efforts. We feel that if it was up to you the problems with the Savannah River Basin could be corrected in a matter of days. We are grateful for the small improvements and agree with the Save Our Lakes group. However, if the low water was just a drought issue all the power company lakes would also be low. Simply, why can't we match the outflow with the inflow?

In times of flood, we hold back water to protect downstream, but in times of drought, we keep downstream full. It seems that under these guidelines, to be fair, when we are over full we should flood downstream. The way in which it is managed now just doesn't make sense. We need to share the drought. Let mother nature's river flow remain natural except in times of flood! Let the reservoirs fill up!!! Hold back when downstream is in danger but don't use up our precious water reserve because of outdated rules.

Thank you for taking the time to listen,

Mark & Denise McDowell

**From:** [Stephan Farr](#)  
**To:** [CESAS-PD\\_SAS](#)  
**Cc:** [McCord, Janice](#); [Mel Bridges](#); [Rush Trammell](#); [Marie Hefferan](#); [Jack and Sylvia Roberts](#); [Don Hammons](#)  
**Subject:** EA Drought plan  
**Date:** 02 May, 2012 09:00:32

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Your studies for the drought plan for the Savannah River Basin are to be commended. However somebody has got to use some common sense and get a plan in place now. I think the help you need is available if you get the word to the right politicians. {should be the right engineers but that is too simple}

**From:** [Cathy Cameron](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Cc:** [Catherine Cameron](#); [Greg Thompson](#)  
**Subject:** In response to: Corps releases Draft Environmental Assessment for proposed update to Savannah River Basin drought plan  
**Date:** 02 May, 2012 11:13:20

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Good Afternoon,

I am a Hart County – Hartwell, Georgia homeowner on Lake Hartwell – 238 Attis Pointe Drive, Hartwell, GA. My family as well as many within the community of Lake Hartwell are very concerned over eminent drought conditions and subsequently the continual fall of Lake Hartwell lake levels. Currently as of 5/2/2012 – the lake is near 8' below full level of 660'. It was less than 6 months ago the lake level reached nearly 12' below full level. Continued low lake levels will not only detour potential home buyers but more importantly poses significant and risks of injury or deaths concerning recreational boaters attempting to avoid tree stumps, debris, rocks, and low ground that would normally not be exposed if the lake was at full level (We have personally experienced panic when we were out on the water - not very close to the shore - and all of a sudden we could see the ground no more than a few feet below us).

Furthermore the financial impact to Hart and surrounding counties in both Georgia and South Carolina is a concern and will grow if lake levels continue to suffer with lack of rain fall and further compounded with continued high volume discharges of water downstream to Thurmond and Russell. Less home buyers, tourism, lost jobs, and other financial impacts will continue to be a concern and magnify if the lake continues to drop at the current discharge rates. The lack of rainfall and potential dry summer forecast for 2012 will only magnify these concerns.

We are asking the Army Corp of Engineers to please implement the proposed reduction in release flows to Thurmond as outlined in the draft environmental assessment for proposed update to Savannah River Basin drought plan.

Thank you in advance for your consideration into this matter and allowing us to voice our opinion... it is very much appreciated

Cathy Cameron and Greg Thompson  
238 Attis Pointe Drive  
Hartwell, Georgia, 30643

**From:** [Jay Markham](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Lake Level drought proposal  
**Date:** 02 May, 2012 13:03:08

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We have reviewed the proposals in the draft EA on the Savannah River Basin Drought Plan and we see it as a definite improvement over the current drought plan. However we feel a more aggressive approach should be used to maintain lake levels. We continue to recommend that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. And we further recommend releases be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Furthermore we recommend releases from Thurmond Dam be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels.

Thank you,

Jay Markham  
Savannah River Basin Property Owner

**From:** [Charlene Reeve](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Lake Hartwell  
**Date:** 03 May, 2012 18:36:42  
**Importance:** High

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First, the contact information in the Anderson newspaper brings up a page not found message.

I have lived on Hartwell for 12 years and have watched as the Lake rose and fell. I have had to store my boat off of my dock during the winter as many times as I have been able to keep it at the dock. This early spring, we had rain and we watched as the rain fell and the lake continued to be drawn down. The value of the lake property is high because, we are lake property. However, with the current method of managing the lake, we are lucky to be lake property 1 out of every 2 years.

Certainly, the recreation dollars which flow into the area justify maintaining "good" water to tournaments and general lake recreation. Last spring, the lake was above full pool and still, we encountered low levels. That just has to be POOR management of resources. We on the lake feel as though we have no recourse, there is no authority which seems to be able to convince the ACE that the current management regiment of releasing water is just plain WRONG !!!!!!!

I am hopeful that the effort to solicit from the population will actually have an impact and that this effort is not something akin to "My mind is made up, don't confuse me with the facts".

Charlene Reeve  
Hart County Georgia

**From:** [John Dantzler](#)  
**To:** [CESAS-PD\\_SAS](#)  
**Subject:** Comments on Savannah River Basin Drought Plan  
**Date:** 06 May, 2012 17:26:04

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We agree with the position of the Save Our Lakes Now Organization:

"We have reviewed the proposals in the draft EA on the Savannah River Basin Drought Plan and we see it as a definite improvement over the current drought plan. However we feel a more aggressive approach should be used to maintain lake levels. We continue to recommend that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. And we further recommend releases be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Furthermore we recommend releases from Thurmond Dam be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels."

Why should Lake Hartwell continually be the lake that is by far the most below full pool, in all types of weather patterns? The reasons I have read are hollow at best. Please do not refrain from using common sense in addition to the never-ending studies.

Nancy D. Dantzler

**From:** [Rex.Allen@Fluor.com](mailto:Rex.Allen@Fluor.com)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Savannah River Basin: Comments on Draft Environmental Assessment/Drought Plan Revision  
**Date:** 07 May, 2012 10:47:46

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To Whom It May Concern:

I have two areas of concern, relative to low water levels in the Savannah River Basin lakes, that I do not see addressed in any past studies/assessments:

1. Low water levels expose soft shore line contours to extensive erosion. Shore line contours that are normally submerged are not as hardened as the shore line contours near the full pool line. As a result, wave action has a greater erosion impact on the softer contours and the displaced silt is carried into the lower depths of the lake. Over time, this extensive erosion has had and will continue to have destructive effect on the health of the lakes.
2. Low water levels also have a negative public safety impact. Exposed or slightly submerged trees and shoals present a serious danger for the recreational use on the lakes. A serious injury or death, related to these dangers, would be a high price to pay for the low water condition.

Rex Allen  
864-640-3362

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**From:** [Carl A. Griswell](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Comments on EA  
**Date:** 07 May, 2012 15:11:49

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To whom this E-mail applies:

I have taken a diligent and fair look at the proposal in the draft EA on the Savannah River Basin Drought Plan and do understand that there is good improvement over the current drought plan.

Unfortunately I believe that it is evident that this new approach does not go far enough and is not aggressive enough to maintain our Lake Levels. I think that the true meaning of the term "Reservoir" needs to be utilized in the application of the plan that is being proposed. We need to make sure that at all times there is sufficient pool at the upper portion of our system to fulfill our lakes requirements. This cannot be done if we continually do not hold an emergency level for the upper lake regardless of the time of the year or the status of the weather. It seems to me that we should be diligent to maintain the highest levels possible during the entire year and adjust the upper dam levels accordingly (keep the water in the upper dam higher year round to ensure that even in a draught scenario that we have sufficient flow to maintain the lower dam levels as required. I feel very good with the recommendation that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. And we further recommend releases be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Also I believe that the recommendation for the releases from Thurmond Dam be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels and maintain the pure term "Reservoir".

Thanks for giving us the opportunity to have input into the process and please take my E-mail into consideration!!

Carl Griswell

[carlgris@hartcom.net](mailto:carlgris@hartcom.net) <<mailto:carlgris@hartcom.net>>

357 Tugaloo Point, Hartwell, Ga.

**From:** [WILLIAM SOWERS](#)  
**To:** [CESAS-PD\\_SAS](#)  
**Subject:** Savannah River Basin Drought Plan - Comment  
**Date:** 07 May, 2012 16:29:30

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To whom it may concern:

May it be known that my only concern is that Lake Hartwell be maintained at full pool 660' above MSL. For all of the naturalists' studies, there are people who can remember walking across the Savannah River near Savannah during droughts before there were any dams. The wildlife survived then, and they will survive now. I cannot substantiate any of the justifications for the management of Lake Hartwell. The region around Lake Lanier was impacted \$300 Million during the 2008 drought. Lake levels are critical where lakes are utilized. I expect the governments to realize this during these lean economic times. Therefore, I concur with any proposal whereby the level of Lake Hartwell is maintained higher.

Sincerely,

William C. Sowers  
128 Ohara Drive  
Anderson, SC 29626

**From:** [Kishoni, Lisa](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Draft EA to Reduce CFS out of Thurmond in Drought  
**Date:** 08 May, 2012 12:26:14

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I fully support the draft EA to further help mitigate drought impacts on the SRB. Too bad these changes weren't mandated after our last drought, it could have helped us conserve what we have and helped mitigate drought impacts on the upper basin reservoirs, which are ground zero in droughts. As it is, recreation at the projects will be limited by disappearing lake levels. This effects businesses and homeowners along the lakes. I have had to refund most of my summer rental bookings at my vacation rental on Lake Hartwell. This is a severe impact to me, a small business person. Please do more to help those like me and to help conserve what we have, while meeting basin needs, so everyone suffers less in protracted periods of drought.

Lisa Kishoni  
413 Wyndward Pointe Drive  
Hartwell, GA 30643

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**From:** [Garland, Dan J \[SLS\]](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Cc:** [Garland, Dan J \[SLS\]](#)  
**Subject:** EA to Reduce CFS out of Thurmond in Drought  
**Date:** 08 May, 2012 13:05:50

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I am a stakeholder in the SRB and I fully support the proposed reduction in flows at Thurmond during drought.

I have two vacation homes on the lake and the limited water greatly affects the ability for our company to cover costs. It is imperative that the water is managed differently than the current stipulations.

Dan Garland  
494 Tugaloo Heights Circle  
Lavonia, GA 30553

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**From:** [Janet Appling](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Manage our LAKES responsibly - EA to Reduce CFS during drought  
**Date:** 08 May, 2012 13:49:28

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I am a stakeholder in the SRB and I fully support the proposed reduction in flows at Thurmond during drought.

As an individual who owns a home on Lake Hartwell and has treasured this lake most of my life, I urge you to act responsibly and reduce the flow from the feeder lakes during drought conditions. Wildlife, the area's economy and the quality of life is greatly reduced when Lake Hartwell is allowed to reach a water level crisis. I have witnessed many area businesses go out of business, rental homes go to foreclosure and fish and wildlife suffer due to low lake levels. It is time to change the rules and laws governing water release so that all concerned are treated fairly and responsibly.

Respectfully,

Janet Appling  
190 Sheriff Tarpley Rd.  
Lavonia, GA 30553

**From:** [Stockton, Manley](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Lake Hartwell  
**Date:** 08 May, 2012 14:20:37

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I am a stakeholder in the SRB and I fully support the proposed reduction in flows at Thurmond during drought.  
Thanks,

Manley Stockton  
Senior Marketing Consultant  
Harry Norman, REALTORS® Buckhead Office  
532 East Paces Ferry Road | Suite 200 | Atlanta, GA 30305  
manley.stockton@harrynorman.com <<http://www.harrynorman.com/>>  
manleystockton.harrynorman.com  
D:404-495-8336| C: 404-518-3601| F:404-497-5655  
Facebook <<http://www.facebook.com/HarryNormanRealtors#!/HarryNormanRealtors?v=wall>> Twitter  
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Information deemed to be reliable and true but not warranted. if you received this email and no longer want to be receiving this email please click here. <<mailto:manleystockton@comcast.net?subject=please%20remove>>

**Georgia Department of Natural Resources**

2 Martin Luther King Jr. Dr., S.E., Suite 1152 East, Atlanta, Georgia 30334-9000  
Mark Williams, Commissioner  
Judson H. Turner, Director  
Environmental Protection Division  
404/656-4713  
FAX : 404/651-5778

May 8, 2012

Mr. Larry Oliff  
PD, U.S. Army Corps of Engineers  
Savannah District  
100 West Oglethorpe Avenue  
Savannah, Georgia 31401-3640

RE: Environmental Assessment  
Proposed Modification to the Savannah River Basin  
Drought Contingency Plan

Dear Mr. Oliff:

We have received William Bailey's letter dated April 13, 2012 regarding the draft Environmental Assessment (EA) for modifying the Savannah River Basin Drought Contingency Plan. Based on our review of the EA, we understand that for Alternative 2 (the preferred alternative) the following is proposed as modifications to the No Action Alternative (NAA):

- 1) For Level 1:
  - a) If the current 28-day Broad River percentile inflow is greater than the 10th percentile flow, then the prescribed J. Strom Thurmond (JST) Dam release would be 4200 cubic feet per second (cfs); and
  - b) If the current 28-day Broad River percentile inflow is less than or equal to the 10th percentile flow, then the prescribed JST release would be 4000 cfs.
- 2) For Level 2:
  - a) If the current 28-day Broad River percentile inflow is greater than the 10th percentile flow, then the prescribed JST Dam release would be 4000 cfs from February through October;
  - b) If the current 28-day Broad River percentile inflow is less than or equal to the 10th percentile flow, then the prescribed JST release would be 3800 cfs from February through October; and
  - c) The November to January discharge for Level 2 would be 3600 cfs.
- 3) For Level 3:
  - a) If the current percentile inflow is greater than the 10th percentile flow, then the prescribed JST release would be 3800 cfs;
  - b) If the current percentile inflow is less than or equal to the 10th percentile flow, then the prescribed JST release would be 3600 cfs;
  - c) The Thurmond discharge for November through January would also be reduced to 3100 cfs (a February extension of 3100 cfs could be implemented with NOAA Fisheries pre-approval); and

Mr. Oliff  
Page 2  
May 8, 2012

- d) The Corps would restore the Thurmond discharge above 3100 cfs and up to the 3600 cfs daily average if flow at the Savannah River at Augusta gage goes below 3600 cfs or if the increase is requested by either the State of Georgia or South Carolina.

The Georgia Environmental Protection Division (EPD) has the following comments on the draft EA:

- 1) On page 64 of the document, under the section entitled "Effects of Alternative 2" the following is stated: "In applying the Georgia DO standard to Figure 16, the proposed reduction of Thurmond releases to 3600 (Level 4 and a portion of Level 2 and 3) could result in minor adverse impacts from May through November to the DO levels in the harbor without adequate inflows downstream of Thurmond. Impacts to DO would be avoided by implementing the previously-discussed adaptive management (restoring discharges to 3,600 cfs if requested by Georgia or South Carolina)."

While we appreciate that the Corps has identified that a minor impact may occur at the preferred alternative (at 3600 cfs), the language on page 64 as written does not appear to adequately address appropriate adaptive management. The language seems to imply that a return to a 3600 cfs flow would address a 3600 cfs related impact. Instead, for in-stream dissolved oxygen levels specifically, we recommend that if there are observed dissolved oxygen concentrations below 5 mg/l, as a daily average, or below 4 mg/l, as an instantaneous minimum, then the release would be returned to 3800 cfs (not 3600 cfs) at the request of either State. In this way, the dissolved oxygen levels would not change in the Savannah Harbor and be consistent with the NAA which has no associated impact at 3800 cfs. Changes regarding this language would need to be made to other affected areas of the document as well;

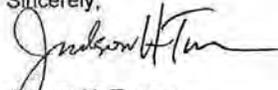
- 2) For clarity, on Page 45, Table 5, we recommend that the provision of Outflow=Inflow (i.e., continue Level 4 discharge as long as possible, thereafter Outflow=Inflow) be included in the Level 4 boxes for all listed alternatives;
- 3) On Page 24, in the section entitled "Downstream of JST Lake", the municipal surface water intake for the Augusta/Richmond County water treatment facility needs to be added to those intakes located in the New Savannah Bluff Lock and Dam pool;
- 4) We recommend removing pages 103 –111 and associated tables 32-53 which discuss projected water demands for Augusta Shoals and the Augusta Canal. No other projected water demands are included in the EA. The Georgia EPD will be evaluating projected water needs as part of its surface water permitting process for Augusta/Richmond County; and

Mr. Oliff  
Page 3  
May 8, 2012

- 5) This project does not require a CWA Section 401 water quality certification from EPD. The EA states that no discharge of dredged or fill material into waters of the U.S. are included in the proposed action, and no evaluation if therefore required under CWA Section 404.

We appreciate the opportunity to review and comment on this draft EA, and we look forward to continuing the important work – under the Savannah River Basin Comprehensive Study – that the Corps and the co-sponsors will be undertaking to further evaluate the effects of drought in the basin.

Sincerely,



Judson H. Turner  
Director

CC: Jim Biagi, Wildlife Resources Division  
Spud Woodward, Coastal Resources Division

**From:** [Ashton, Amber](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Manage our LAKES responsibly - EA to Reduce CFS during drought  
**Date:** 08 May, 2012 15:50:04

---

I am a stakeholder in the SRB and I fully support the proposed reduction in flows at Thurmond during drought.

I have been going to Lake Hartwell (the "Lake") my entire life. My parents and 4 other family members own property on the Lake. My parents, along with my grandmother, are now living full time at the Lake. My husband and I, as well as all of my friends and family, spend almost every vacation, Memorial Day, Labor Day, Fourth of July, and Thanksgiving on Lake Hartwell. We found out last week that we are expecting twins and it breaks my heart to think that my children may not have the opportunities to enjoy the lake that I have had my whole life.

I learned how to fish at the Lake, my cousins learned how to swim, we had girl scout camping trips to the Lake, we had canoe races and treasure hunts and we all learned how to waterski on Lake Hartwell. We have seen the Lake full to the brim and we have been able to walk all the way across our cove because the Core let so much water out. I truly hope that I never have to see that again.

Please make the right decision and conserve this special place for generations to come so that every visit to the Lake can be one where memories are made. Please let this Fifty Year Anniversary mark the beginning of Fifty more years where Lake Hartwell is allowed to thrive and support the communities and families that rely on it day after day and season after season.

Regards,

Amber Ashton

Amber Ashton  
Associate Attorney

de Beaubien, Knight, Simmons, Mantzaris & Neal, LLP  
609 West Horatio Street

Tampa, Florida 33606

Phone: 813-251-5825 | Fax: 813-254-1063

[www.dbksmn.com](http://www.dbksmn.com) <<http://www.dbksmn.com/>>

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**From:** [Kishoni, Eval](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Draft EA to Reduce CFS out of Thurmond in Drought  
**Date:** 08 May, 2012 16:03:49

---

I wanted to let you know that I support the reduction in flows from Thurmond in drought, pursuant to the draft EA now being considered.

Thank you

**From:** [Holly](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** EA to Reduce CFS out of Thurmond in Drought  
**Date:** 08 May, 2012 17:05:53

---

I am a stakeholder in the SRB and I fully support the proposed reduction in flows at Thurmond during drought.

We live on Lake Hartwell. Also, I am a Realtor and the limited water greatly affects the low interest in lake property. It is imperative that the water is managed differently than the current plan.

Jerry and Holly Caswell  
133 Collins Road  
Lavonia GA 30553

**From:** [NICK FISHER](#)  
**To:** [CFAS-PD\\_SAS](#)  
**Subject:** CoE Proposed EA  
**Date:** 08 May, 2012 19:06:29

---

I note that this past week Lake Hartwell is down 8 ft to 652 and projected in the Corps' current 10-week projection to fall 3 additional feet to minus 11 ft (649) by early July. This is not an acceptable drought plan and must be changed.

With help from SOLN's blog, I have reviewed the proposal in the draft EA on the Savannah River Basin Drought Plan and see it as a definite improvement over the current drought plan. However, I feel a more aggressive approach should be used to maintain lake levels. I continue to support the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' or Hartwell is below 658' until the lakes refill. And I further recommend releases be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328' or Hartwell is below 658'. Furthermore I recommend releases from Thurmond Dam be completely stopped during a drought anytime the river downstream is full due to rains.

Your favorable consideration of this proposal is appreciated.

R.S. Fisher  
PO Box 311  
Fair Play, SC 29643

**From:** [Ron Grimm](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Draft Environmental Assessment and Finding of No Significant Impact  
**Date:** 08 May, 2012 20:43:22

---

This is the response of the Tugaloo Bay Property Owners Association to your draft Environmental Assessment.

Your reduction in flow from 3800 cfs to 3600 cfs at Trigger Level 3 is a definite improvement over the current operating parameters. The immediate previous drought in 2008 has substantiated there is no significant environmental impact of the reduce flow in the Savannah River Basin. In addition, the lower levels of release during the extended winter season should help with recovery from drought conditions. We would encourage you to implement these new operating parameters as soon as possible.

However, we believe the real issue for the residents and visitors of Lake Hartwell and Thurmond is when the transition to this lower level of release from Lake Thurmond begins. Under current guidelines this level is implemented at Trigger Level 3 316 feet on Lake Thurmond. This level is 14 feet below full pool on Lake Thurmond. At this level, residents and visitors have been adversely affected as well as the economies of Georgia and South Carolina and their adjacent counties. By instituting the flow proposed for Trigger Level 3 at some higher lake level, the rate of impact of drought conditions would be lower than under the current operating parameters. At any given time under drought conditions the lake levels in Thurmond and Hartwell would be higher than with the current scheme.

From my discussions with property owners in Tugaloo Bay subdivision on Lake Hartwell, the current schemes are confusing and lead to attributing other motives to the decisions to set release levels through the Savannah River system. A simpler approach would, I believe, help all concerned to understand the system. This could be accomplished by reducing the number of levels to one or two from the current three, and to use the lower release level of 3600 cfs at the earliest level feasible. The guide curves for Thurmond level recognize a variation from full pool to 4 feet below full pool. Triggering the lowest release level at some reasonable level (say 2 feet) below full pool would make response to drought conditions occur early in the drought, and would lessen the affect of drought on the local area with little environmental impact.

We at Tugaloo Bay Property Owners Association applaud your proposed operating parameters, and encourage you to look for additional ways within the current charge of the Corp in operating Lakes Hartwell and Thurmond and the Savannah River system to reduce the impact of drought on the local areas surrounding Lake Thurmond and Hartwell.

Ron Grimm

President, Tugaloo Bay Property Owners Association

PO Box 544

Lavonia Georgia 30553

email: [grimm\\_r@windstream.net](mailto:grimm_r@windstream.net)

mobile: 404-304-8581

**From:** [Nancy Daffner](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Manage our LAKES responsibly - EA to Reduce CFS during drought  
**Date:** 09 May, 2012 14:37:50

---

I am a stakeholder in the SRB and I fully support the proposed reduction in flows at Thurmond during drought.

As an individual who owns a home on Lake Hartwell and has treasured this lake for over a decade, I urge you to act responsibly and reduce the flow from the feeder lakes during drought conditions. Wildlife, the area's economy and the quality of life is greatly reduced when Lake Hartwell is allowed to reach a water level crisis. I have witnessed many area businesses go out of business, rental homes go to foreclosure and fish and wildlife suffer due to low lake levels. It is time to change the rules and laws governing water release so that all concerned are treated fairly and responsibly.

Respectfully,

Nancy Daffner  
738 Tugaloo Heights Circle  
Lavonia, GA 30553

**From:** [Bedenbaugh, Kenneth R SAS](#)  
**To:** [Bailey, William G SAS](#)  
**Cc:** [Bramlette, George O SAS](#)  
**Subject:** FW: Hartwell Release Plan (UNCLASSIFIED)  
**Date:** Thursday, May 10, 2012 8:30:28 AM

---

Classification: UNCLASSIFIED  
Caveats: NONE

Mr. Bailey:

I am forwarding below email comment received at Hartwell concerning the Drought EA.

Thanks,

KB

Kenneth R. Bedenbaugh  
Supv. Natural Resources Program Manager  
U.S. Army Corps of Engineers, Hartwell Project  
888-893-0678, ext. 337  
kenneth.r.bedenbaugh@us.army.mil

-----Original Message-----

From: Payton, Rhonda A SAS On Behalf Of CESAS-OP-H, SAS  
Sent: Wednesday, May 09, 2012 10:56 AM  
To: Bramlette, George O SAS; Bedenbaugh, Kenneth R SAS  
Subject: FW: Hartwell Release Plan (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

-----Original Message-----

From: Doug Acker [<mailto:ackerdoug@gmail.com>]  
Sent: Tuesday, May 08, 2012 4:59 PM  
To: CESAS-OP-H, SAS  
Subject: Hartwell Release Plan

Dear Corps folks,

Please implement your new plan for released outflows. The lake cannot fulfill the recreational part of its purpose without a full pool.

Thank you,

Douglas L. Acker  
1097 Cleveland Mill Rd  
Hartwell, GA 30643

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**From:** [Bedenbaugh, Kenneth R SAS](#)  
**To:** [Bailey, William G SAS](#)  
**Cc:** [Bramlette, George O SAS](#)  
**Subject:** FW: Lake Hartwell (UNCLASSIFIED)  
**Date:** Thursday, May 10, 2012 8:31:18 AM

---

Classification: UNCLASSIFIED  
Caveats: NONE

Mr. Bailey:

An additional comment received at Hartwell concerning the Drought EA.

Thanks,

KB

Kenneth R. Bedenbaugh  
Supv. Natural Resources Program Manager  
U.S. Army Corps of Engineers, Hartwell Project  
888-893-0678, ext. 337  
kenneth.r.bedenbaugh@us.army.mil

-----Original Message-----

From: Payton, Rhonda A SAS On Behalf Of CESAS-OP-H, SAS  
Sent: Wednesday, May 09, 2012 10:56 AM  
To: Bramlette, George O SAS; Bedenbaugh, Kenneth R SAS  
Subject: FW: Lake Hartwell (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

-----Original Message-----

From: laura strickland [<mailto:laurastricklandacupuncture@gmail.com>]  
Sent: Tuesday, May 08, 2012 4:59 PM  
To: CESAS-OP-H, SAS  
Subject: Lake Hartwell

Dear Madam/Sir,

I am writing to let you know that I support the proposal to change the amount of water that is let out of Lake Hartwell. I am like many friends and neighbors living in a lake front home which is with out a lake. Please make the changes that will keep lovely Lake Hartwell at full pool.

Thank you,  
Laura Strickland  
79 Sawyer Lane  
Hartwell, Georgia 30643

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**From:** [Mike Quinton](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Drought control Lake Hartwell  
**Date:** Thursday, May 10, 2012 9:44:24 AM

---

Corps,

I'm not sure what all this means. What I do know is that my life savings are tied up in a Lake Hartwell house. Being in construction in a terrible economy, I am forced to put it on the market.

With the lake so low, for such a long period of time, it won't sell and I'll probably have to give it back to the bank.

You need to know that draining the lake like this for an extended period of time is destroying the financial life of many people that have invested at Hartwell.

Mike Quinton

C. 678-313-7455

**From:** [Bob Bedgood](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Drought Control Plan  
**Date:** Thursday, May 10, 2012 10:00:19 AM

---

Dear Sir(s),

I believe that the discharges from all the three lakes should be reduced to less than or equal to 3600 cfs max. until all lakes return to within 2 feet of full pool. At that point, the discharge rate could be raised to 3800 cfs max. and absolutely every issue involved would benefit tremendously.

This could and should be accomplished as soon as possible.

Sincerely,  
Bob Bedgood



HYDRO STRATEGY AND LICENSING

Duke Energy  
526 South Church St.  
Charlotte, NC 28202

Mailing Address:  
EC12Y / PO box 1006  
Charlotte, NC 28201-1006

May 9, 2012

US Army Corps of Engineers  
Attn: PD  
Savannah District  
100 Oglethorpe Ave  
Savannah, Georgia 31402-0889

Subject: Comments on Draft Environmental Assessment  
Modification to the Savannah River Basin Drought Contingency Plan (SRBDCP)

Dear Sir or Madam:

Duke Energy has reviewed the Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) dated April 2012 prepared by the US Army Corps of Engineers (Corps) for a revision to the Savannah River Basin Drought Contingency Plan (SRBDCP) for the Savannah River (Proposed Action). Duke Energy understands one of the general objectives of the Proposed Action is to determine the best way to operate the Corps reservoirs on the Savannah River when in drought conditions and we are very supportive of this effort. Duke Energy is providing the following comments on the Draft EA and Draft FONSI in accordance with the Joint Public Notice that was issued.

General Comments:

Duke Energy thinks it is appropriate to evaluate both the positive and negative effects, if any, of lowering flow releases from the Thurmond Powerhouse during times of low inflow. We note the EA evaluated the environmental and other resource impacts of five alternatives (No Action Alternative (NAA) and Alternatives 1, 2, 3 and 4). The NAA continues with the existing SRBDCP and Alternatives 1 - 4 adjust the flow releases within some SRBDCP levels based on the flow at the United States Geological Survey (USGS) streamflow gage on the Broad River near Bell, GA. Some of the alternatives also reduce flow during the November through January period in Level 2 and 3 of the SRBDCP.

Droughts are events of unknown duration and it is often the prolonged nature of a drought that makes its effects most serious. The Draft EA concludes, regardless of which alternative is selected; flow releases from Thurmond ranging from 4200 cfs down to 3100 cfs (during some months) do not adversely affect resources upstream or downstream of the Corps reservoirs. Duke Energy concurs with this conclusion.

As Duke Energy noted in its comments dated October 30, 2009, on an earlier draft EA related to flow reductions in the SRBDCP, under severe drought conditions lasting over an extended period of time, the probability of reaching Level 4 of the SRBDCP increases. If Level 4 is reached,

downstream flow releases from Thurmond may be reduced to very low flows. It is possible these flows could be well below 3100 cfs and could potentially adversely affect downstream resources. Therefore any alternative that conserves water storage in the Corp's reservoirs for as long as possible to prevent reaching Level 4 is preferable since all the alternatives provide flows during non-Level 4 periods in the same range (i.e., 3100 cfs to 4200 cfs).

Based on the above, Duke Energy recommends further consideration be given to Alternative 3 and Alternative 4 and that one of those alternatives should be the final selected alternative. In Alternatives 3 and 4, the Thurmond flow release is reduced to 3600 cfs (3100 cfs in November through January) in Level 3 without waiting on the USGS Broad River gage near Bell to be below a certain flow. If the Corps reservoirs reach Level 3 under any of the alternatives, conditions would be very dry and inflow would be very low. At that point, there is no need to wait on a USGS gage to read below a certain flow in order to further reduce flow releases from the Thurmond Powerhouse. Reservoir water storage needs to be conserved more aggressively in order to avoid going to Level 4 and Alternatives 3 and 4 allow for more reservoir water storage conservation than does Alternative 2.

Specific Comments:

- On page 46, a description of actions taken at each of the SRBDP levels is provided. For Levels 1 and 2, engineering judgment is used for transitioning from the maximum to the minimum flow within each level. Duke Energy recommends this flexibility be retained for Level 2 for all the alternatives for the February through October period instead of relying on the USGS Broad River gage near Bell.
- Alternative 2 could actually use more reservoir water storage than the NAA if the USGS Broad River gage near Bell continuously reads just above the 10<sup>th</sup> percentile 28-day average flow in Level 2. In such a situation, the Thurmond flow release would be required to stay at 4000 cfs instead of using engineering judgment to reduce the flow as in the NAA. This would mean more water volume could potentially be released from February through October than is saved by the reduction to 3600 cfs flow from November through January.
- Additional explanation needs to be provided on how the flow indicator for the USGS Broad River gage near Bell would be calculated and used. It is unclear what the "10<sup>th</sup> percentile 28-day average flow" means under Table 5 on page 45.
- An additional evaluation of selecting the 25<sup>th</sup> percentile 28-day average flow instead of the 10<sup>th</sup> percentile 28-day average flow should be done in order to more proactively conserve reservoir water storage.

Duke Energy hopes these comments are helpful to the Corps as the EA and FONSI are finalized. We commend the Corps for taking a proactive approach to adapt operations to increasingly severe droughts.

US Army Corps of Engineers  
May 9, 2012  
Page 3

If there are any questions, please feel free to contact me at 704-382-5239 or George Galleher at 704-382-5236.

Sincerely,

A handwritten signature in cursive script that reads "Edward D. Bruce".

Edward D. Bruce, P.E.  
Senior Engineer, Hydro Strategy & Licensing  
Duke Energy

cc: Stan Simpson (Corps)  
George Bramlette (Corps)  
Sandy Campbell (Corps)  
Douglas Spencer (SEPA)  
George Galleher (Duke)

**From:** [Phil Dixon](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Comments  
**Date:** Thursday, May 10, 2012 10:22:19 AM

---

Dear Sirs,

I have never been to the property I really can't comment, sorry I live in Palm Beach Count Florida

Phil Dixon

**From:** [Sullivan, Fran \(GCG-PFS\)](#)  
**To:** [CESAS-PD, SAS](#)  
**Subject:** Hartwell Drought Control  
**Date:** Thursday, May 10, 2012 11:04:46 AM

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In these economic times, many of us are just trying to hold onto our properties to rent or sell. The biggest selling or renting point is water. I want to rent my house but I can't get a boat to it. I want to sell my house but the dock sits on 3 feet. The home I bought in 2001 had water when I bought it and it became a hay field the following summer at the end of July.

You guys control this and Lake Russell stays full due to your efforts. Why do you maintain Russell and allow Hartwell to drop so significantly.

In addition to my property value, I'm concerned with the local jobs and businesses that are lost because no one is using the lake. That lake should be a boon for locals in both Georgia and South Carolina but it isn't when water levels are dangerous. Do you have any idea how many props are lost to these conditions?

Enough complaints from me, what are you going to do about the conditions? I'm praying for a hurricane.

Fran Sullivan  
Phone (770) 564-6340  
Fax (770) 279-5641

**From:** [Ron Grimm](#)  
**To:** [CFAS-PD\\_SAS](#)  
**Subject:** Correction to Draft Environmental Assessment and Finding of No Significant Impact  
**Date:** Thursday, May 10, 2012 11:46:56 AM

---

In the email sent to you on May 5th there was an error in the next to last paragraph. The words: full pool in this paragraph should be replaced with the words: guide curve. The corrected full text should read as follows (note the corrected words are in italics and underlined):

This is the response of the Tugaloo Bay Property Owners Association to your draft Environmental Assessment.

Your reduction in flow from 3800 cfs to 3600 cfs at Trigger Level 3 is a definite improvement over the current operating parameters. The immediate previous drought in 2008 has substantiated there is no significant environmental impact of the reduce flow in the Savannah River Basin. In addition, the lower levels of release during the extended winter season should help with recovery from drought conditions. We would encourage you to implement these new operating parameters as soon as possible.

However, we believe the real issue for the residents and visitors of Lake Hartwell and Thurmond is when the transition to this lower level of release from Lake Thurmond begins. Under current guidelines this level is implemented at Trigger Level 3 316 feet on Lake Thurmond. This level is 14 feet below full pool on Lake Thurmond. At this level, residents and visitors have been adversely affected as well as the economies of Georgia and South Carolina and their adjacent counties. By instituting the flow proposed for Trigger Level 3 at some higher lake level, the rate of impact of drought conditions would be lower than under the current operating parameters. At any given time under drought conditions the lake levels in Thurmond and Hartwell would be higher than with the current scheme.

From my discussions with property owners in Tugaloo Bay subdivision on Lake Hartwell, the current schemes are confusing and lead to attributing other motives to the decisions to set release levels through the Savannah River system. A simpler approach would, I believe, help all concerned to understand the system. This could be accomplished by reducing the number of levels to one or two from the current three, and to use the lower release level of 3600 cfs at the earliest level feasible. The guide curves for Thurmond level recognize a variation from full pool to 4 feet below full pool. Triggering the lowest release level at some reasonable level (say 2 feet) below guide curve would make response to drought conditions occur early in the drought, and would lessen the affect of drought on the local area with little environmental impact.

We at Tugaloo Bay Property Owners Association applaud your proposed operating parameters, and encourage you to look for additional ways within the current charge of the Corp in operating Lakes Hartwell and Thurmond and the Savannah River system to reduce the impact of drought on the local areas surrounding Lake Thurmond and Hartwell.

Sorry for the error. I believe this approach can be work for all parties involved.

Ron Grimm

President, Tugaloo Bay Property Owners Association

PO Box 544

Lavonia Georgia 30553

email: [grimm\\_r@windstream.net](mailto:grimm_r@windstream.net)

mobile: 404-304-8581

**From:** [SPOOHER@aol.com](mailto:SPOOHER@aol.com)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Public Comment to Savannah River Basin Level 4 Drought Operations Study-FINAL  
**Date:** Thursday, May 10, 2012 2:16:48 PM

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Corps

The City of Augusta does not take drought conditions into account at all as to the amount of water they take from the Savannah River and release into the Augusta Canal. Also, the Canal Authority has no say at all on water flow in the canal.

During drought periods when you reduce the Clark Hill flow to 3,100 cubic feet per second, that is the same amount of water that is still allowed through the Augusta Canal - 3,100 cubic feet per second. Thus the only water available for the Augusta Shoals is side streams that are also very low flow due to the drought.

The people that are supposed to regulate the canal flow is the city water department. Because they have NO drought plan nor any interest in the shoals, they seem to just want high flow all the time especially during droughts.

I ask that the Savannah Corps work with FRIC and the National Park Service and put drought conditions on the Augusta Canal that require a reduced flow through the canal so that some minimum flow is available for the shoals during drought conditions. A reduced flow through the canal will have no visible nor actual impact on the water takeout by the city of Augusta. Currently and during drought conditions excess water in the canal currently flows over the Raes Creek spillway. This spillway water is needed in the shoals year round but especially during drought conditions.

Without including this issue in the Corps Savannah River Basin Drought Plan, FIRC action or National Park Service Management this situation is not going to be corrected by the Augusta Water Department.

Sam Booher  
4387 Roswell Dr  
Augusta, GA 30907

**From:** [Samuel G. Church, Attorney at Law](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Date:** Thursday, May 10, 2012 3:00:42 PM

---

Low water levels have a negative financial impact on the local area.

**From:** [Horton, Kevin](#)  
**To:** [CISAS-PO, SAS](#)  
**Subject:** Lake Hartwell Lake Levels  
**Date:** Thursday, May 10, 2012 6:27:20 PM

---

Any consideration in maintaining current Lake Levels would certainly be appreciated. Being both in the Banking Industry and a resident of Hart Co for the most part of my life, Hartwell Lake Level does in fact have a large economic impact upon our local economy. Praying for rain.

Thanks for your consideration.

Kevin R Heaton 706 376 2211 or 706 856 5587(fax)

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=====



**LAKE HARTWELL ASSOCIATION, INC.**

P.O. Box 2122 • Anderson, SC 29622  
864-224-LAKE (5253) • [www.lakehartwellassociation.org](http://www.lakehartwellassociation.org)

May 10, 2012

US Army Corps of Engineers  
Attn: PD, Savannah District  
Savannah, GA31402-0889

Subject: LHA's Response to Corps' Draft Environmental Assessment (EA)

The Lake Hartwell Association (LHA) thanks the Corps for drafting and processing this interim EA to decrease flows from Lake Thurmond by 200 cfs based on flows in the Broad River. Although minimal, LHA sees this action as a timely attempt to provide some relief for the upstream lakes' continuing low water levels. We would have preferred additional monitoring upstream of the Hartwell Dam and downstream of Thurmond, as well as other adaptive management actions; however, LHA does not want to impede implementation.

It is our understanding that if there are no "findings of significant impact" the proposed flow reductions could begin as early as June. Considering the current severe drought conditions and the likelihood of a hot dry summer, flow reductions cannot be applied soon enough. We also understand that, unlike previous EA's that expired in 30 days, this one will remain active until the current Drought Contingency Plan is studied, revised and implemented (Phase 2). LHA is very aware that the scope and conduct of that study is critical to the sustainability of the Savannah River Basin, and intends to be an active contributor.

Sincerely,

A handwritten signature in black ink, appearing to read "Herb Burnham".

Herb Burnham  
President, LHA

**From:** [Harry Shelley](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Cc:** [Barbara Shelley](#); [Harry Shelley](#)  
**Subject:** FSRB EA response  
**Date:** Thursday, May 10, 2012 9:43:15 PM  
**Attachments:** [image.png](#)  
[ATT00001.txt](#)

---

Attached please find the Friends of the Savannah River Basin formal comments concerning the Draft Environmental Assessment and Draft Finding of No Significant Impact for a modification to the Savannah River Basin Drought Contingency Plan. The release was announced in the Joint Public Notice dated April 13, 2012.

Harold and Barbara Shelley  
Facilitators

**From:** [Barb](#)  
**To:** [Bailey, William G SAS](#)  
**Subject:** Fwd: Fwd: FSRB Interim EA Response  
**Date:** Thursday, May 10, 2012 10:53:00 PM  
**Attachments:** FSRB Interim EA Response.pdf  
Attached Message Part

---

Bill,

We tried to send this using the email address in the EA announcement( CESAS-PD.army.mil) but it would not go through.

Please let us know if you received this.

Thank you, Harry and Barb Shelley

- > Attached please find the Friends of the Savannah River Basin formal
- > comments concerning the Draft Environmental Assessment and Draft
- > Finding of No Significant Impact for a modification to the Savannah
- > River Basin Drought Contingency Plan. The release was announced in
- > the Joint Public Notice dated April 13, 2012.
- >
- > Harold and Barbara Shelley
- > Facilitators
- >

US Army Corps of Engineers  
Attn: PD, Savannah District  
Savannah, Georgia 31402-0889

RE: Modification to the US Army Corps of Engineers' Savannah River Basin Drought Contingency Plan (SRBDPC) on the Savannah River in Georgia and South Carolina.

Dear Planning Department:

The Friends of the Savannah River Basin (FSRB) appreciates the opportunity to respond to the Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) for a modification to the US Army Corps of Engineers' Savannah River Basin Drought Contingency Plan (SRBDPC) on the Savannah River in Georgia and South Carolina.

The proposed action, as summarized in the Joint Public Notice, consists of a modification to the 1989 SRBDPC as amended in 2006 and 2011 including a representation of basin inflow and modifying the discharge of Levels 2 and 3 from J. Strom Thurmond (JST) Dam during low basin inflows. Further reductions in both levels would be initiated during the November-January colder months. Releases from JST would be 3,600 cubic feet per second (cfs), with a reduction to 3,100 cfs during November-January when the reservoirs on the Savannah River are in Level 4 drought conditions.

The FSRB continues to support proactive efforts between the States of Georgia and South Carolina, the Army Corps of Engineers, and other Federal Agencies to aggressively manage the water resources to maintain conservation pools at the highest possible levels while protecting downstream water needs and resources. The last three droughts have each been the drought of record. However the the 2006-2009 drought graphically illustrated that the water in the SRB is indeed a finite resource. The lakes dropped faster than any previous drought on record. There was less than 25% conservation storage left in the system. Hartwell and Russell were at their lowest levels since they were initially filled and Thurmond was down to 10% of it conservation storage left. In November 2011 the Corps signed the Level 4 Drought Operations EA which defined operations in drought level 4.

We believe that the current EA is a step in the right direction and are strongly in favor of expediting its implementation as soon as the required processes can be completed. Including an assessment of the hydrologic conditions of the basin rather than just relying on static lake elevations is an important step towards more proactive dynamic management of the SRB. Also the concept of ranges of values within each of the drought trigger levels allows greater flexibility in the conservation of water within the lakes minimizing the economic and environmental impact on the lake region while allowing the basin to ride out multiple year droughts. We also understand the rationale to "institutionalize" the previous temporary EA's needed to conserve water in the last drought rather than accomplish a larger update with a longer period of coordination and reviews.

The operational concept contained in the signed Level 4 EA would allow the extreme lowering of the Lakes and continued operation in the inactive storage domain before input would equal output. As a result, major impacts to water users, industry, municipal water supplies, private property owners, wildlife in the lake region are inevitable. Potentially water quality issues could be exacerbated downstream with the release of the inactive storage water. It is also unclear how long lasting are these effects when conditions improve. The entire SRB has evolved to the point that the flows of an unregulated river can not be tolerated. Phase 2 must re-look at the entire contingency planning concepts. This must include the definition of mandatory steps by the Corps and the States to decrease the probability of occurrence to a level so as to preclude it ever happening.

Friends of the Savannah River Basin feels that the following issues need to be examined during Phase 2:

- Re-examine the number and spacing of the drought trigger points. There is too much water lost between the existing second and third levels. Maintain a range of acceptable flows within each response range and extend the magnitude of that range as much as possible.
- Model a drought contingency operational plan that would maintain the lake elevations within 7 feet of the full pool guide curves for a minimum of three years in the current drought of record. This would minimize the impact on recreation and economics and reduce the likelihood of exhausting the conservation pools as well as protect downstream interests if the drought persists.
- Eliminate the need to have winter drawdowns (lowering of the guide curves) for any of the drought trigger levels.
- Refine an approach of assessing the current hydrologic conditions that is consistent with the States' methodology of assessing the severity of a drought and also include climatic conditions.
- Return to the requirements of the 1989 DCP that maintains lower releases until the lake elevations have risen to the full pool guide curve.
- Incorporate, in coordination with the State resource agencies, announcements of the need for conservation measures to the general public at each trigger level.
- Integrate the City of Augusta into the DCP to ensure that operational flexibility is not lost due to aquatic baseline flows in the shoals.
- Integrate parameters reflecting the drought impact on the lakes into the basin critical monitoring objectives.
- Incorporate the cumulative effects on the Savannah Harbor, Plant Vogle expansion, the TMDL reduction and the Duke relicensing in the plan.
- Develop a comprehensive list of user mitigation actions to minimize required flows, including a schedule for implementation, that would be invoked as the lakes approach 10 feet from full summer pool to further reduce the probability of reaching the bottom of the conservation pools.

Recently the Weather Channel had a discussion piece on its website concerning major water issues around the US. Many of the regions discussed had common issues that emphasized changing older plans, re-prioritization of purposes and need for additional conservation. A key point in the article was: "There may never be a definitive resolution to this conflict, but one thing is clear. Americans will soon be forced to decide how to allocate our most valuable resource, and adapt to the ensuing culture shift." The current drought plan is 23 years old and was written as a result of a drought of record. Since then the SRB has experienced two additional droughts of record, with required operational adaptations, and is currently in another drought. It is clearly time for a complete reexamination of every facet of the DCP.

We look forward to a near term implementation of the proposed modification and working with the Corps and the States toward a comprehensive update of the 1989 Drought Contingency Plan including aggressive proactive management early in the drought.

Friends of the Savannah River Basin  
 Barb and Harry Shelley  
 Facilitators

**From:** [MLTIADFSANN@comcast.net](mailto:MLTIADFSANN@comcast.net)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** hartwell  
**Date:** Friday, May 11, 2012 7:26:59 AM

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PLEASE!!! we need water! property values are going down around the lake because of no water.

ann miltiades

111 alderman ln.

hartwell, ga.

**From:** [Rholmes270@aol.com](mailto:Rholmes270@aol.com)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** EA Interim  
**Date:** Friday, May 11, 2012 8:06:40 AM

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The interim EA proposal a needed first step until the Phase 2 proposal is funded and implimented.

Robert Holmes  
Lake Hartwell- Westminster

**From:** [Glenn Chaoman](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Hartwell Lake and your impact on the level  
**Date:** Friday, May 11, 2012 10:26:34 AM

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It does little good (if any) to talk to anyone from the Corp but here goes.

Have some compassion on the people who live upstream and how much the drought has already effected lake levels much less the amount of lake water you are pulling each day. The lake level at Hartwell is already dangerous for boaters and the impact from dropping the lake level more will become a financial burden for an already hard hit area.

I have very little faith in your concern for Lake Hartwell residents but all we can do is have faith in the goodness of God to send plenty of rain.



## United States Department of the Interior

**Fish and Wildlife Service**  
105 West Park Drive, Suite D  
Athens, Georgia 30606

West Georgia Sub Office  
P.O. Box 52560  
Ft. Benning, Georgia 31995-2560

Coastal Sub Office  
4980 Wildlife Dr.  
Townsend, Georgia 31331

May 11, 2012

Mr. Larry Olliff  
ATTN: PD, US Army Corps of Engineers  
Savannah District 100 West Oglethorpe Avenue  
Savannah, Georgia 31401-3640

Dear Mr Olliff:

Thank you for the opportunity to review the April 13, 2012, Draft Environmental Assessment (Draft EA) and Finding of No Significant Impact (FONSI) for a permanent modification to the U.S. Army Corps of Engineers (ACOE) 1989 Savannah River Basin Drought Contingency Plan (DCP) for ACOE projects on the Savannah River in Georgia and South Carolina. Our understanding is that this modification will be permanent until the drought component of the comprehensive study is updated. Given the short timeframe for our review, we have focused on sections with relevance to our interests and authority. We hereby reserve our authority to provide further comment as we continue to review the document and analyze potential effects of the proposal as needed. In general it is a comprehensive document that meets purposes and content requirements set forth in Council on Environmental Quality (CEQ) regulations (40 CFR 1500-1508) and §5.6 of ACOE's Regulations (33 CFR 230). However, there are some differences in perspective between our agencies. The U.S. Fish and Wildlife Service (Service) submits the following comments under provisions of the Fish and Wildlife Coordination Act (FWCA) (44 Stat. 401, as amended, 16 U.S.C. 661 et seq.) and the Endangered Species Act (ESA) of 1973 as amended (16 U.S.C. 1531 et seq.).

In the Draft EA, the ACOE considered five alternatives including the No Action Alternative (NAA) and preferred alternative (Alternative 2), as described in the table:

| Level | NAA          | Alt 1              | Alt 2                                    | Alt 3                                    | Alt 4              |
|-------|--------------|--------------------|--|--|--------------------|
| 1     | Max 4200     | 4200; BI > 10% Qin | 4200; BI > 10% Qin                       | 4200; BI > 10% Qin                       | 4200; BI > 10% Qin |
|       | Min 4000     | 4000; BI ≤ 10% Qin | 4000; BI ≤ 10% Qin                       | 4000; BI ≤ 10% Qin                       | 4000; BI ≤ 10% Qin |
| 2     | Max 4000     | 4000; BI > 10% Qin | 4000; BI > 10% Qin<br>3800; BI ≤ 10% Qin | 4000; BI > 10% Qin<br>3800; BI ≤ 10% Qin | 4000; BI > 10% Qin |
|       | Min 3800     | 3800; BI ≤ 10% Qin | 3600 Nov-Jan                             | 3600 Nov-Jan                             | 3600; BI ≤ 10% Qin |
| 3     | 3800         | 3800               | 3800; BI > 10% Qin                       | 3600                                     | 3600               |
|       |              |                    | 3600; BI ≤ 10% Qin                       |  |                    |
| 4     | 3600         | 3600               | 3600                                     | 3600                                     | 3600               |
|       | 3100 Nov-Jan | 3100 Nov-Jan       | 3100 Nov-Jan                             | 3100 Nov-Jan                             | 3100 Nov-Jan       |

BI = (Basin Inflow) Current 28 day average streamflow at Broad River near Bell gage  
10% Qin is defined as the 10<sup>th</sup> percentile 28-day average flow at the Broad River near Bell

### Baseline and Alternative Formulation

The No Action Alternative (NAA) is a newly defined mode of operation, developed recently (continuing with the 1989 SRBDP, as amended in 2006 and 2011, and now proposed with one additional modification); no baseline is available to clearly consider this "baseline" operation or its effects across a range of hydrology/meteorology. For example, low flows under the NAA are less frequent and not as low as observed flows during the same time period in 2007-2009. It is unclear whether this difference reflects the recent 2011 change in the SRDCP, greater inflows, or if the higher flows under the NAA represents a modeling bias. A baseline for comparison and an explanation for the cause of the difference are required so that correct conclusions can be made regarding the alternatives.

The Project Delivery Team did not include the Service or National Marine Fisheries Service (NMFS). The FWCA requires an action agency to first consult with wildlife agencies (Federal and State) "with a view to the conservation of fish and wildlife resources" when a water body is proposed to be controlled or modified "for any purpose whatever". Doing so enables the ACOE to develop an informed alternative that minimizes impacts to fish, wildlife, and ecosystems while meeting project objectives. To ensure sustainability for aquatic resources affected by your project operation, the Service and NMFS can, and should, be an integral part of the ongoing formulation and evaluation of operational alternatives.

### Recently quantified effects associated with NAA vs. Alternative 2 implementation

The proposal to modify the SRBDP will affect natural resources. As part of an effort to improve coordination with the Savannah District and to quantify several priority natural resource effects resulting from alternative flow management scenarios, the Service recently initiated several investigations with partners in the Savannah River. We measured response to flow reductions in several focal areas: (a) mussel habitats, (b) oxbow connectivity, (c) shoal habitat, and (d) salinity at freshwater marshes. Although some of these investigations are ongoing, results are already available for use in evaluating alternatives. We have been able to make several conclusions using empirical data we collected, in concert with analysis of USGS data and the ACOE's synthetic discharge files (.dss files for the 1008-day modeled period are February 23, 2007 to November 26, 2009). These conclusions made below are limited by the input parameters used to develop the synthetic flows for the modeled period. We recommend in the

future 1) including a larger range of water year types to place the 2007-2009 period in a hydrological and an ecological context and 2) including a range of realistic and hypothesized basin inflow estimates for thorough evaluation of multiple flow management scenarios.

- We measured mussel habitat changes in response to flow reductions and compared the average amount of habitat available for mussels for each day. The NAA consistently provided the same amount (50% of daily values) or more (44% of daily values) habitat for the Savannah lilliput (*Toxolasma pullus*) mussel in mainstem habitats in the lower river compared to Alternative 2. At the most extreme, the NAA provides up to 14% more habitat than Alternative 2. Sites that are lower sloped (e.g. Site 5) will have proportionally more habitat emersion resulting from reduced river flows compared to other sites. Across sites, these results suggest that less habitat will be available for the Savannah lilliput mussel and the other mussels with which it is associated if Alternative 2 is chosen.
- We modeled the number of occasions that mussels must move distances  $\geq 1.6$  ft/day to avoid stranding from receding water. (The  $\geq 1.6$  ft/day movement rate corresponds to the slower end of measured movement distances of the larger and probably more motile fat threeridge (*Amblema neislerii*) during flow recession (USFWS 2011)). The number of days that mussels must move distances  $\geq 1.6$  ft/day to avoid stranding was nearly identical between the NAA (28 occasions) and Alternative 2 (27 occasions). This means that there is essentially no difference between the two alternatives with regards to the number of predicted mussel stranding events. However, movement and stranding rates likely vary by species, thereby warranting further investigation.
- We measured changes in connectivity of important river oxbows relative to flow reductions. The number of days that oxbows are connected to the mainstem river (oxbow days) was summed separately for the NAA and Alternative 2 for 10 surveyed oxbows. The estimated cumulative number of oxbow days that are connected to the mainstem, expressed as a percentage of the total potential number of oxbow days (1,008 days), is 62% and 59% for the NAA and Alternative 2, respectively. This equates to a 210 oxbow-day difference between the two alternatives over the modeled period. Periodic connectivity is important for fish to seek water velocity refugia, maintenance of oxbow dissolved oxygen and temperatures, and inundation of habitat for State-listed mussels and mussels petitioned for Federal listing.
- The estimated cumulative number of oxbow days accessible by boat (using South Carolina 1-way boat passage criteria) is 4.7% higher (298 days) for the NAA than Alternative 2, meaning that recreational fishing opportunities will be reduced in the lower river under Alternative 2.
- We modeled salinity changes at the Savannah NWR. The probability that salinity will exceed 0.5 ppt at the Savannah National Wildlife Refuge (Refuge) intake for the September to January impoundment refill period is 35% for the NAA and 40% for Alternative 2. This means that the Refuge will have greater difficulty accessing freshwater to inundate waterfowl impoundments under Alternative 2.

#### **Ongoing concerns**

Most of the natural resources concerns cited in past correspondence to the ACOE are pertinent to this EA/FONSI, and we refer the reader to past letters concerning flow reductions (06/04/2009,

10/30/2009, 09/23/2010, 01/03/2011, 07/13/2011, 10/13/2011, and 11/04/2011). We also provide the following summaries of natural resource concerns related to flow reductions and provide new information when available.

- We measured flow - habitat relationships for priority species in the Augusta Shoals<sup>1</sup>. The degree of shoal inflow remains a concern. A recent shoals spiderlily (*Hymenocallis coronaria*) study conducted by the Service from January 10 to April 17, 2012, indicated that shoal inflow was as low as 10 cfs (based on a subtraction of canal discharge (USGS gage # 02196485) from Savannah River at Augusta discharge (USGS gage # 02197000)). Low estimated shoal inflow suggests that the assumption of “a 50/50 split in the 500 cfs flow reduction” will require a more detailed, explicit reevaluation. Other studies have found detrimental effects on shoals spiderlily during periods of low inflow. Gordon and Wear (2011) observed desiccated seeds and seedlings during very low flows in June - September 2008. It is likely that shoal inflow will continue to be reduced to levels that limit or eliminate habitat for numerous fluvial species, including robust redhorse (*Moxostoma robustum*) and its very limited spawning habitat. One possible approach toward a solution is (1) for the City of Augusta to reaffirm their commitment to maintain shoal inflow, and (2) conduct a weekly coordination between the City and ACOE to help ensure that flow targets are met in the shoals. The re-regulation of flows into the Augusta Shoals by the City of Augusta is a cumulative effect of the ACOE's proposed drought response that has not been evaluated explicitly in the Draft EA.
- The water quality model used in the Draft EA analysis probably represents the best available water quality model for the Savannah River, but it may require additional calibration. The model predicts dissolved oxygen for a location, regardless of habitat type and antecedent conditions. For example, the Augusta Shoals have experienced a prolonged period of low flows. Low flows are conducive to algal growth. Observations in September 2011, January 2012, and April 2012 have noted an abundance of filamentous green algae (probably *Spirogyra* or *Cladophora glomerata*; Kalina Manoylov, Georgia College, May 2012, pers. comm.) carpeting large expanses of sunlit areas. We hypothesize that these conditions contribute to high biological oxygen demands at night, possibly resulting in dissolved oxygen concentrations that may not meet State standards. The algae likely also shades riverweed (*Podostemum ceratophyllum*), a macrophyte that is important structural component for macroinvertebrate habitat and production. Because of the linkage to flow management and water quality standards, this concern merits investigation and possibly calibration of the water quality model. Similarly, the evaluation of dissolved oxygen effects in the Savannah Harbor may require additional calibration and analyses and should include the cumulative effects associated with harbor expansion.

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<sup>1</sup> The Augusta Shoals is recognized as the 4 1/2- mile reach of the Savannah River that is currently bounded by the Augusta Diversion Dam at its upstream, and the impounded backwaters of the New Savannah Bluff Dam. Prior to the construction of the Augusta Diversion Dam in 1875 at RM 207.2 and the New Savannah Bluff Dam in 1937 at RM 187.4, and other COE dams later, the Augusta Shoals spanned more than 30 miles, and were mostly contiguous with similar streambed features to Trotters Shoals some 70 miles upstream.

- The Augusta Shoals harbor many native fish species, and snorkel surveys below the Augusta Diversion Dam prior to the 3,800 cfs flow reduction in 2011 detected striped bass (*Morone saxatilis*), largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), American eel (*Anguilla rostrata*), various sunfishes, and an array of nongame species (Will Duncan, September 12, 2011, M.Cantrell, August 25, 2011). Anglers present at the time of the survey reported significant difficulty accessing normally fishable areas by boat due to the low flows (3,600-3,700 cfs) on that date. Should flows be reduced, we can reasonably expect increased difficulty accessing these normally fishable areas by boat.
- Atlantic sturgeon (*Acipenser oxyrinchus*) and shortnose sturgeon (*A. brevirostrum*) are federally-endangered species that spawn below New Savannah Bluff Lock and Dam. Occurrence of Atlantic sturgeon in September 2011 at the gravel bar below NSBLD likely indicates a fall spawning event (prior flow-habitat considerations focused on spring spawning flows for these and other species). The gravel bars below NSBLD are also important sucker spawning habitats, including for the imperiled robust redbhorse (petitioned for listing under the ESA) and American shad (*Alosa sapidissima*). The reduction in discharge that would result from implementation of Alternative 2 could result in reduced spawning habitat for these species. However, the amount of habitat lost from a 200 cfs flow reduction requires more detailed evaluation. The ACOE will need to coordinate with NMFS regarding potential sturgeon impacts. Once fish passage at NSBLD is achieved, more spawning habitat will be accessible to these species (Dial Cordy and Assoc. 2010), likely providing more flow management flexibility.
- Alternative 2 indicates that when in Drought Level 3, discharge is 3,800 cfs when Broad River Inflow (BI) is greater than the 10<sup>th</sup> percentile 28-day average flow near Bell, GA. However, flows automatically drop to 3,100 cfs in November regardless of Broad River inflow when in Drought Level 3. A low flow fall rate of this magnitude equates to an estimated 1.04-1.25 ft per day stage decrease at the Burtons Ferry gage. The corresponding average linear travel distance for mussels is 6.8 ft over a 24 hour period, and a maximum of 17 ft at one site. This distance likely exceeds movement capability of mussels, including the imperiled Savannah lilliput. For comparison, the larger and probably more motile fat threeridge (*Amblema neislerii*) is capable of moving 1.6-3.3 ft per day to avoid exposure from receding water levels (USFWS 2011). Should the ACOE proceed with implementation of a 3,100 cfs J. Strom Thurmond Dam (JSTD) discharge, we strongly recommend a gradual flow recession to allow for the movement of mussels. We also recommend consideration of gradual flow increases to help ensure that mussels are not unintentionally transported from suitable habitat. We are prepared to work with the ACOE to inform an analysis of discharge changes as they relate to mussel habitat, movement, and survival in the Savannah River.
- The most critical period when the Savannah NWR requires freshwater is during the November – January period. This is the period when flows are targeted for the greatest reduction in the proposed modifications. A large portion of the Savannah River watershed lies below the JSTD. Inflow from this portion of the watershed is critical to supplement discharges from the dam and provide adequate freshwater to the lower portion of the basin; thus, maintaining the integrity of the remaining tidal freshwater wetlands and providing a reliable source of fresh water for the managed impoundments. Drought operations imply a shortfall of precipitation with an associated decrease in

downstream input below the JSTD. The saltwater interface would shift upstream even farther and potentially move into the Diversion Canal (Lucknow Canal) impeding the Refuge's ability to flood the impoundments. Additionally, the increase in salinity adds stress to an already stressed environment where approximately two-thirds of the tidal freshwater marsh has been lost to conversion to salt and brackish marsh. Implementation of Alternative 2 will decrease the Refuge's ability to manage the freshwater impoundment system and increase operational and maintenance costs associated with this system, which is the keystone to meeting its legal mandate. However, several options have been discussed among Service personnel that may provide opportunities to reduce JSTD outflow while minimizing impacts to the Refuge and adjoining freshwater marsh. These options include consideration of the timing and duration of low flows. We are prepared to discuss these options with the ACOE.

- The Service is concerned that the Draft EA/FONSI is incomplete because it does not evaluate the relationship to another large proposal and an essential element in managing natural resources within the Savannah River Basin; that is, the expansion of the Savannah Harbor. The ACOE is required by the Council on Environmental Quality to analyze the impacts of an action when added to "past, present, and reasonably foreseeable future actions." Expansion of the Savannah Harbor will profoundly change the lower Savannah River estuary, which is inextricably and obviously linked with the upper portions of the Savannah River Basin. We disagree with the ACOE that "no long term significant adverse cumulative impacts are expected." Long-term adverse impacts are expected on the Refuge with the expansion of the harbor. Reduced flows during periods of drought could exacerbate these adverse impacts. Indeed, short-term impacts could become long-term effects. The absence of an analysis that explicitly examines the potential effects of the harbor expansion (Final EIS January 2012) in conjunction with the reduced flows (this proposal), especially within the tidally influenced portions of the river, is a critical omission and should be addressed. Although, general performance targets for monitoring objectives are listed in Table 8, "water level at the intakes" is nebulous. Better definitions of the variables, measurement methods, performance targets, and if possible the personnel responsible for monitoring is appropriate. Additionally, for the release of 3,100 cfs in Drought Levels 3 and 4, the ACOE would restore flow to 3,600 cfs if the discharge at the Savannah River at Augusta gage goes below 3,100 cfs. This variable should be included in Table 8.
- We have concerns about the use of HEC-EFM as the only tool for the evaluation of threatened and endangered species. The EFM approach and methodology need clarification to avoid the misinterpretation described to you in email (email from W. Duncan to L. Olliff 05/11/2012). The analyses should be specific to the period during which sturgeon are either migrating or spawning. The analysis also should consider the specific flow component(s) most likely to affect the life history of sturgeon. The use of median or average values on flow data that potentially includes high and low flows might obscure the actual hydrological effect resulting from more ecologically meaningful timing, duration, and magnitude analyses. The proposed action was developed for extreme low flow operations, not median or average conditions. Although we broadly support the use of HEC-EFM, we have concerns regarding the adequacy and thoroughness of your determination regarding the endangered Atlantic sturgeon and

shortnose sturgeon. We are prepared to work with you in the future prior to issuing a Draft EA/FONSI to help ensure that these EFM-related issues are addressed.

**Potential benefits resulting from Alternative 2 implementation**

Although flow reductions are often associated with negative environmental consequences, there are several perceived and measurable benefits that could result from the implementation of an alternative similar to Alternative 2.

- In prior letters, we encouraged the ACOE to consider managing outflows partly as a function of inflow (see letter 07/13/2011) instead of solely by reservoir levels. We are encouraged by the management alternatives presented here that show a concerted effort to consider inflow (the Broad River reference gage) in management decisions. Provision of a greater range of low flows can provide for a greater degree of interannual low flow variation, within the range of what would have occurred under pre-dam conditions. Compared to static low flows, having some low flow years interspersed with average and wet year flows helps to ensure that good breeding/spawning habitat exists every few years for more wildlife.
- The Service is completing a comparative analysis of sandbar habitat between the regulated and dredged Savannah River and less-regulated and less-modified Altamaha River. Sandbar habitat in the Savannah River Coastal Plain is more limited than in the adjacent Altamaha River during low flows of similar percentiles. Most sandbars in the Savannah River are less than two acres (96%), whereas in the Altamaha River, 46% are greater than two acres. The reduced sandbar habitat in the lower Savannah River is probably attributed to artificially higher low flows and channel alteration for navigation purposes. Sandbars are important breeding locations for freshwater turtles. Based on our observations in the Savannah River in 2011, we speculate that there are fewer turtles than in neighboring large rivers. Provision of lower flows in some years could potentially increase breeding habitat and turtle populations.
- Shallow sandy portions of submerged point bars are used by a diversity of fishes for foraging and rearing in other large Southeastern rivers. Based on the previously described analyses and field observations, these habitats are strikingly less common in the Savannah River than in neighboring large rivers. Lower flows could potentially increase the amount of shallow sandy habitats for these fishes.
- If the ACOE proceeds with the implementation of Alternative 2 this year in coordination with natural resource agencies, and if implementation of Alternative 2 translates into a larger range of low-flow releases this summer and fall, the implementation of Alternative 2 can be used as an opportunity to clearly identify environmental effects at a range of low flows. These datasets can then be used to inform the more comprehensive revision to the drought plan that is soon to be underway, giving the studies direct management relevance.

### **Adaptive Management**

The Service broadly supports the adaptive management concept<sup>2</sup> of using the results of monitoring to inform management (Williams et al. 2009, Williams and Brown 2012). However, we are concerned with the adaptive management strategy outlined in the Draft EA/FONSI. The Savannah River Basin Drought Coordination Committee (Committee) is comprised of agencies within Federal and State governments. However, if monitoring parameters fall outside acceptable levels, only the States of Georgia or South Carolina are identified to review the information, discuss results with the Committee, and recommend adjustments. Exceptions are made for NOAA and the Department of Energy, Savannah River Site. We believe that all parties within the Committee, including the Service, should be given the opportunity to raise concerns directly with the Committee and request modifications to flows.

Another shortfall in the adaptive management strategy as proposed is the lack of an identified timeline or schedule for review of results, recommendations from the Committee, and potential actions by the ACOE. The concept of adaptive management has taken on many different meanings in natural resource management. Adaptive management, as it appears to be used in this EA/FONSI, is to respond to adverse actions or those monitored parameters that fall outside acceptable levels. Responses should be in a timely manner to prevent or minimize damage to the natural resources. The nature of the resources affected by reduced flows, especially those in the upper reaches of the basin, requires timely action as these are less resilient and more vulnerable to immediate damage by reductions in flow. Explicit timelines should be developed as part of a framework to consider the species, season, and other pertinent variables to successfully implement adaptive management for these resources to minimize or prevent damage. This is especially true given the statement in the EA/FONSI (p. 50) that "Failure to achieve the desired targets would initiate an evaluation of impacts, which *could* (emphasis added) lead to a request by the State of Georgia...". Given the statutory authority of the Service and State wildlife agencies to protect trust resources, and our expertise in monitoring, we request a revision to provide all natural resources agencies a direct voice in the development of monitoring (e.g. Table 8 and 9) and adaptive management strategies. This issue has been raised to the Corps in previous letters from the Service and Environmental Protection Agency concerning flow reductions.

### **Coordination and ESA consultation**

We concur with your determination that the proposed action is not likely to adversely affect the wood stork or manatee. NMFS is the designated lead agency and will need to address your determination regarding potential impacts to Atlantic and shortnose sturgeon.

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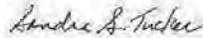
<sup>2</sup> Adaptive Management is a decision process that promotes flexible decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. Careful monitoring of these outcomes both advances scientific understanding and helps adjust policies or operations as part of an iterative learning process. Adaptive management also recognizes the importance of natural variability in contributing to ecological resilience and productivity. It is not a 'trial and error' process, but rather emphasizes learning while doing. Adaptive management does not represent an end in itself, but rather a means to more effective decisions and enhanced benefits. Its true measure is in how well it helps meet environmental, social, and economic goals; increases scientific knowledge; and reduces tensions among stakeholders.

## Conclusion

We cannot support a permanent adoption of the preferred alternative because of the concerns outlined in this letter. However, if the ACOE is willing to continue working with the Service and other natural resource agencies to develop a framework for solutions and quantification of environmental effects in the near future, we expect that some of these concerns can be addressed within a relatively short period of time. Should the ACOE decide to reduce discharge despite our concerns, it is imperative that the ACOE and natural resource agencies use this as an opportunity to clarify low flow effects on species and their habitats so that dam operation alternatives can be developed and implemented in an informed manner. We recommend a collaborative strategy that identifies resources affected by the proposed modification to the drought contingency plan, coordinates the schedule of flow reductions, and would include reimbursable agreements to support travel and equipment needs.

We appreciate the opportunity to comment on these important drought-related issues. If you have questions, please contact Sandy Tucker (sandy\_tucker@fws.gov, 706.613.9493 x 230).

Sincerely,



Sandra S. Tucker  
Field Supervisor

cc: South Carolina ES, USFWS, Charleston, SC  
Savannah NWR, USFWS, Hardeeville, SC  
Georgia ES, USFWS, Townsend, GA  
Asheville ES, USFWS, Asheville, NC  
Stephania Bolden, NMFS, St. Petersburg, FL  
Prescott Brownell, NMFS, Charleston, SC  
Ed Bettross, GDNR, Thomson, GA  
Bill Bailey, ACOE, Savannah, GA  
Stan Simpson, ACOE, Savannah, GA  
Andy Ashley, ACOE, Savannah, GA  
Melissa Wolf, ACOE, Savannah, GA

#### Citations

- Dial Cordy and Assoc. 2010. Evaluation of Shortnose Sturgeon Spawning Habitat, Savannah River, Georgia and South Carolina. Report to Savannah District U.S. Army Corps of Engineers, 13pp + appendices.
- Gordon, J.E., and D.J. Wear. 2011. Parameters affecting the success of protected shoals spider lily, *Hymenocallis coronaria*, in the Savannah River Basin, Georgia. *Natural Areas J.* 31:34-42.
- USFWS 2011. An investigation of movement, exposure, and mortality of fat threeridge mussels (*Amblema neislerii*) at Apalachicola and Chipola River sites during Spring 2011 DRAFT Summary Report (Aug 15, 2011). Panama City Field Office, Panama City, Florida.
- Williams, B.K., R.C. Szaro, and C.D. Shapiro. 2009. Adaptive Management: The U.S. Department of the Interior Technical Guide. Adaptive Management Working Group, U.S. Department of the Interior, Washington, DC.
- Williams, B. K., and E.D. Brown. 2012. Adaptive Management: The U.S. Department of the Interior Applications Guide. Adaptive Management Working Group, U.S. Department of the Interior, Washington, DC.

**From:** [williamsloan](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Draft Environmental Assessment  
**Date:** Friday, May 11, 2012 11:33:07 AM

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As a member of the Lake Hartwell Association (LHA), I support the LHA position regarding the Corps' Draft EA.

Sincerely, William Sloan

# SOUTHERN ENVIRONMENTAL LAW CENTER

Telephone 404-521-9900

THE CANDLER BUILDING  
127 PEACHTREE STREET, SUITE 605  
ATLANTA, GA 30303-1840

Facsimile 404-521-9908

May 11, 2012

**Via Email (CESAS-PD@usace.army.mil) and U.S. Mail**

Colonel Jeffrey M. Hall  
District Commander  
U.S. Army Corps of Engineers  
Savannah District  
100 West Oglethorpe Avenue  
Savannah, GA 31401-3640  
ATTN: PD, Larry Olliff

**Re: Savannah River Basin Drought Contingency Plan**

Dear Colonel Hall:

The Southern Environmental Law Center is writing this letter on behalf of Center for a Sustainable Coast, Coastal Conservation League, Glynn Environmental Coalition, Ogeechee Riverkeeper, Savannah Riverkeeper, and Upstate Forever to offer our comments on the Army Corps of Engineer's proposal to modify the Savannah River Basin Drought Contingency Plan (SRBDGP). Because the proposed changes to the SRBDGP will remain in place until the Plan is officially amended, and because the status of those amendments are unclear, we have no choice but to view the proposed changes as permanent changes to the SRBDGP.

**The Corps Should Employ a Watershed Approach to Managing Savannah River Flows.**

How the Corps manages the Savannah River water levels should be based on the overall health of the watershed. The river serves many important independent and overlapping roles. In times of drought, the limits of the river to serve those roles become quite apparent. For example, unless sufficient flow is in the river to prevent saltwater intrusion, higher chloride levels could impair Savannah's drinking water, as well as thousands of acres of freshwater wetlands. Similarly, the ability of the river and estuary to assimilate municipal and industrial wastes is severely tested during periods of low flow. To protect the Savannah River, the Corps must analyze and manage the river holistically. Interests upstream should not be allowed to trump those downstream and vice versa. The Savannah River is a natural resource of tremendous value both ecologically and economically and should be protected for all of those who depend on what it offers.

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**The Environmental Assessment does not Adequately Discuss the Impact that the Proposed Savannah Harbor Expansion Project will have on the Proposed Drought Contingency Plan.**

The impact of the proposed modifications to the SRBDCP needs to be discussed in light of the Savannah Harbor Expansion Project (SHEP). The SRBDCP EA must discuss in greater detail how SHEP will impact the drought conditions on the River. It should also discuss how specific elements of SHEP would impact flow levels and aquatic habitat in the Savannah River. For instance, the SHEP Final Environmental Impact Statement (FEIS) includes a proposed fish ladder at the New Savannah Bluff Lock and Dam. Yet, the DEA does not discuss the proposed structure. Nor does the DEA discuss the impact that the "re-plumbing" of the lower Savannah River will have on the species that are dependent on that reach of the river. The DEA should be expanded to discuss in detail the interplay between the SRBDCP and SHEP.

As a further example, the DEA does not adequately discuss the impact that the lower flows would have on the salinity levels in the Savannah National Wildlife Refuge. Without such a discussion, the DEA is not complete. Likewise, the DEA modeling shows that dissolved oxygen levels in the Savannah Harbor would likely be made worse during times of drought. How would this affect the proposed SHEP project? The DEA must take into account the proposed SHEP activities. It is worth noting that Section 8.0 of the DEA, which includes a list of all the literature consulted in preparing the DEA, does not list the SHEP FEIS, while it does list all of the EA's prepared relating to changes in the Savannah River flow levels.

**The Corps Must Ensure that the Augusta Shoals Receive Sufficient Water.**

As mentioned above, one component of the mitigation proposed as part of SHEP is that the Corps would install a fish ladder at the New Savannah Bluff Lock and Dam so that diadromous and freshwater fish could gain access to the August Shoals for spawning. Although the Corps has failed to demonstrate the efficacy of this fish passage facility to mitigate for impacts to shortnose sturgeon habitat in the estuary and similarly failed to show that this proposed facility will pass shortnose sturgeon and other species, the fish passage facility is intended to compensate for impacts to fish species that would suffer in the event that Savannah Harbor is deepened. In light of this intent, it is imperative that the Shoals receive appropriate flow. According to the U.S. Fish and Wildlife Service, the Augusta Shoals should have a minimum flow of 1,800 cfs February through April and 1,500 cfs the remainder of the year.

However, since the mid-1800's, when the Augusta Canal and the Diversion Dam were constructed, the majority of the flows in the Savannah River have been diverted into the Augusta Canal. The City still uses the flows through the Canal for power generation, pollution assimilation, and water supply. During its thirty-year-long negotiations with the Federal Energy Regulatory Commission concerning the relicensing of the Augusta Canal Diversion Dam, the City of Augusta has agreed that it will put forth its "best efforts" to ensure the Shoals receive

Colonel Jeffrey M. Hall  
May 11, 2012  
Page 3 of 6

1,800 cfs of flow February through April and 1,500 cfs of flow the remainder of the year *when releases from Thurmond Dam are 3,600 cfs*. Unfortunately, as late as two weeks ago, flows through the Shoals have been in the 500 cfs to 1,100 cfs range. As Dr. Frank Carl, the former Savannah Riverkeeper, reported in a recent email message to SELC:

[The Augusta Canal gage] indicates that over the past week the diversion of water into the canal has been generally between 3000 and 3500 cfs. The release from Thurmond Dam during that period has been generally about 3800 cfs. Contributions from streams between Thurmond and the diversion dam are no more than 300 cfs under current weather conditions. So we are looking at a maximum of 1100 cfs in the shoals but maybe as low as 500 cfs.

Email message from Dr. Frank Carl to Bill Sapp, May 4, 2012. Instead of analyzing recent data of the actual flows through the Shoals such as those provided by Dr. Carl, the Corps appears to rely solely on the City of Augusta's statement that it will use its "best efforts" to maintain adequate flows in the Shoals. The DEA must include data demonstrating that those "best efforts" are consistently yielding adequate flows in the Augusta Shoals.

The Corps' analysis of the Augusta Shoals is also problematic because it does not adequately address the uncertainty surrounding what the City of Augusta would do in the event that flows from Thurmond Dam are reduced to 3,100 cfs as the DEA proposes for Tier 4 drought conditions. The DEA discusses this scenario in the following troublesome paragraph:

Although the City is not required to implement the provisions of the yet-to-be finalized Settlement Agreement, it states that it will "use its *best efforts* to meet the terms for flows as set forth therein, including the higher flows during the month of February as set forth in the respective tiers." If the City fulfills this commitment, the impacts of the proposed flow reduction on biota within the Shoals would be minimal. If the City does not fulfill its commitment, impacts to the Shoal communities would be greater. The Corps believes that a 50/50 split in the 500 cfs flow reduction is probably a good assumption for prediction of future impacts. Under that scenario, the Shoals would experience a 250 cfs reduction in flow from what they presently receive with the 3,600 cfs average daily discharge from Thurmond Dam. This amount of flow reduction is expected to result in minor effects to those biotic communities.

DEA at Section 4.3 (emphasis added). Without a further explanation of what the City's "best efforts" would entail, this Settlement Agreement appears meaningless.

Furthermore, the paragraph actually foreshadows that the City may break the Agreement, but then the Corps "assumes" without stating any basis for doing so that the Shoals will get a 50/50 split of any reductions in flow below 3,600 cfs. This paragraph layers uncertainty upon

Colonel Jeffrey M. Hall  
May 11, 2012  
Page 4 of 6

uncertainty. A Finding of No Significant Impact cannot be based on such vacillation. Either the Corps must conclude that the biota in the Shoals will be safe regardless of the levels of flow through the Shoals, which it cannot, or the Corps must ensure that the City has made enforceable commitments to ensure that the Shoals receive adequate flows at all times of the year.

**The DEA does not Discuss the Endangered Atlantic Sturgeon.**

Although the DEA does discuss the impact that the lower flows will have on the Shortnose Sturgeon, the DEA does not discuss what impacts the lower flows will have on the Atlantic Sturgeon. While the Atlantic Sturgeon was only listed as endangered earlier this year (see 77 Fed. Reg. 5914, Feb. 6, 2012), the DEA must discuss this species as well and determine what impact the lower flows would have on it. In light of the importance of flow to sturgeon migration and the impacts that flow modifications may have on both the Shortnose Sturgeon and the Atlantic Sturgeon, the Corps is required under the Endangered Species Act to complete biological assessments for both species of sturgeon and seek concurrence from the National Marine Fisheries Service before issuing a final FONSI for this proposed action.

**January is a Critical Month for Fish Migration.**

January is a critical time for diadromous fish located below the Corps dams. This is the period when higher winter-spring flows trigger diadromous fish to start migrating upstream. Telemetry data on sturgeon in the Savannah have confirmed this relationship between higher flows and migration. The Corps should take a hard look at whether it needs to commence higher flows during January, as opposed to waiting until February.

**The Draft Environmental Assessment does not Adequately Discuss the Proposed Plant Vogtle Expansion.**

Although the Corps states in Section 4.15 of the DEA that it "is aware" of the proposed Plant Vogtle expansion, it does not explain the potential impact that adding two new nuclear reactors to Plant Vogtle would have on the proposed Drought Contingency Plan. By some estimates, the new reactors at Plant Vogtle will require withdrawals of 55-88 million gallons of water per day from the Savannah River. Only a fraction of this amount will be returned to the river. Yet the DEA does not explain what impact these withdrawals would have on the Savannah River water levels, water quality, or aquatic habitat. In order to be complete, the DEA must describe whether the SRBDPC will continue to be viable should these two proposed reactors come on line.

**Based on the Eleventh Circuit's Four-Part Test, the Corps' Finding of No Significant Impact is not Supportable.**

Colonel Jeffrey M. Hall  
May 11, 2012  
Page 5 of 6

In *Hill v. Boy*, the Eleventh Circuit adopted a four-part test to determine whether a FONSI is valid. 144 F.3d 1446, 1450 (11<sup>th</sup> Circuit 1998). As described here, the Corps fails each of the four elements of this test.

First, the agency must have accurately identified the relevant environmental concerns. *Id.* In the DEA, by leaving out of its analysis of the endangered Atlantic Sturgeon, for example, the Corps has failed to identify all of the environmental impacts associated with its proposal.

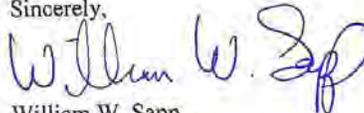
Second, the agency must take a "hard look" at those concerns. *Id.* For the environmental concerns it has included, the Corps has not provided sufficient data or results (such as hydrographs) to support its conclusions, much less demonstrate that it has taken a "hard look" at the likely impacts of its actions.

Third, the agency must make a convincing case that its proposal does not involve significant impacts. *Id.* Without sufficient data there is no way that the Corps could make a convincing case that Alternative 2 would not have significant impacts. In fact, the Corps has not even explained satisfactorily why Alternative 2 is superior to the other alternatives discussed. In particular, the DEA does not provide adequate data on what the likely impacts would be to the aquatic community or to water quality in the lower Savannah River should releases from the Thurmond Dam be reduced 3,100 cfs in times of severe drought. The only other period that such low levels were experienced was during a time in 2008 when the 3,100 cfs releases were accompanied by significant rainfall.

And fourth, if significant impacts are identified, the agency must explain how those impacts are being mitigated. *Id.* The Corps does not discuss mitigation because it assumes that its proposed changes to the SRBDCP will not cause significant impacts to the environment.

In short, the Corps cannot support a FONSI based on the analysis it has completed thus far. Without more, the Corps must follow the no action alternative provided in the DEA or prepare an environmental impact statement to support its proposed action. Thank you for the opportunity to submit comments on this project. Should you have any questions concerning these comments, please contact me.

Sincerely,



William W. Sapp  
Senior Attorney

Colonel Jeffrey M. Hall  
May 11, 2012  
Page 6 of 6

cc: Center for a Sustainable Coast  
Coastal Conservation League  
Glynn Environmental Coalition  
Ogeechee Riverkeeper  
Savannah Riverkeeper  
Upstate Forever

**From:** [Harry Brooks](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** EA Savannah River Basin  
**Date:** Friday, May 11, 2012 1:19:48 PM

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As a landowner on Hartwell Lake I am concerned that the upper basin lakes continue to suffer from the effects of the current drought AND the excess water release that, if continued, will have a very adverse affect on the lake and the local economy.

I support the EA and the suggested reduction in out flow from Hartwell Lake and Thurmond Lake.

Thanks,

Harry Brooks

404/234-3200

Fax: 770/446-5945

**From:** [Bailey, William G SAS](#)  
**To:** [Olliff, Larry B SAS](#)  
**Cc:** [Simson, Stanley L SAS](#)  
**Subject:** FW: Savannah River Drought Plan Revision EA-EPA Comments (UNCLASSIFIED)  
**Date:** Friday, May 11, 2012 2:56:43 PM  
**Attachments:** [savannah drought plan revisions-April 2012 EPA Comments.pdf](#)  
[EMAIL TO Savannah District ref savannah drought level 4 EA-July 14, 2011 EPA Comments.pdf](#)

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Classification: UNCLASSIFIED  
Caveats: NONE

From: Jamie Higgins [<mailto:Higgins.Jamie@epamail.epa.gov>]  
Sent: Friday, May 11, 2012 2:50 PM  
To: Wolf, Melissa L SAS; Bailey, William G SAS  
Cc: Stephen Maurano; Joel Hansel; William Melville; Heinz Mueller; [higgins.jamie@epa.gov](mailto:higgins.jamie@epa.gov)  
Subject: Savannah River Drought Plan Revision EA-EPA Comments

Melissa/Bill,  
Attached and below are EPA's comments regarding the Savannah River Drought Plan Revisions EA.  
Please include this email with our comments in the public record.

Also, we would appreciate further discussions regarding the DO issues related to the proposed flow reductions. Thank you for the opportunity to review and comment on the Draft EA/FONSI.

Jamie

(See attached file: savannah drought plan revisions-April 2012 EPA Comments.pdf)(See attached file: EMAIL TO Savannah District ref savannah drought level 4 EA-July 14, 2011 EPA Comments.pdf)

Jamie Higgins  
EPA, Region 4  
NEPA Office

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Draft Environmental Assessment and Finding of No Significant Impact  
Drought Plan Revision, Savannah River Basin  
May 11, 2012

U.S. Environmental Protection Agency Advisory Comments:

1. On July 14, 2011, EPA commented on the Corps (Savannah District), Draft Environmental Assessment (July 2011 EA) for the Level 4 Draft Operations Savannah River Basin. In that review, EPA listed several concerns (see attachment) and most of those concerns remain.

2. Regarding Section 4.1 Water Quality, operations should be consistent with Georgia's water quality standards at 391-3-6-.03(6): Dissolved Oxygen (D.O.): A daily average of 5.0 mg/L and no less than 4.0 mg/L at all times. If it is determined that the 'natural condition' in the waterbody is less than the values stated above, then the criteria will revert to the 'natural condition' and the water quality standard will allow for a 0.1 mg/L deficit from the 'natural' dissolved oxygen value. Up to a 10% deficit will be allowed if it is demonstrated that resident aquatic species shall not be adversely affected." Furthermore, 391-3-6-.03(3)(h) clarifies that, "For this purpose the Division defines 'natural conditions' as those that would remain after removal of all point sources and water intakes, would remain after removal of man made or induced nonpoint sources of pollution, but may include irretrievable effects of man's activities, unless otherwise stated. Natural conditions shall be developed by an examination of historic data, comparisons to reference watersheds, application of mathematical models, or any other procedure deemed appropriate by the Director." The modeling in "Figure 16 -- Simulated Surface Dissolved Oxygen in Savannah Harbor" may be indicative of deviations below these criteria, potentially during November and December. Additionally, impacts on the modeling assumptions for the Draft Revised TMDL for Dissolved Oxygen In Savannah Harbor, Savannah River Basin, and the Savannah Harbor expansion project should be considered. EPA requests further discussion with the Corps regarding this issue.

3. EPA appreciates the delicate balance in which the Corps must balance the many competing needs within the basin. However, we are concerned regarding the cumulative impacts associated with the many flow reductions that have taken place since the original development of the 1989 Savannah River Drought Contingency Plan. The reduced flow regime combined cumulatively with the many other uses within the basin could impact water quality standards, downstream water supply, TMDL implementation, NPDES permitting and aquatic species and habitat. We understand the Corps is currently considering conducting a Savannah River Comprehensive Study to analyze the flow regime especially during times of drought. EPA highly supports this initiative and encourages the Corps, the states of Georgia and South Carolina to begin this study. EPA thinks such a study would help address some of the uncertainties and cumulative impacts associated with Corps project operations. In the interim, EPA recommends that the Corps host a problem solving workshop (similar to the 2003 Scientific Stakeholders Workshop) with the resource agencies and other appropriate stakeholders to discuss the recent flow reductions and possible impacts to water quality and other resources.

4. The EA lacks a comprehensive discussion of the background and history of previous actions relating to drought operations. There have been many previous studies and NEPA documents since the development of the Drought Contingency Plan in 1989, but the current document doesn't clearly articulate these changes. The untitled table on page 7 briefly discusses the drought timeline, but doesn't outline the operational changes. For proper public disclosure, EPA recommends that the many temporary deviations and revisions of the plan should be clearly displayed in a table format and then discussed more thoroughly within the EA.

5. In previous EAs, the Corps discusses collaboration with other state and Federal resource agencies, but has not disclosed those collaborative efforts. On page 44 ( 3.1 Alternative Formulation), the Corps states that the alternatives formulation was conducted with a "District-level Project Delivery Team (PDT) ...formed to develop a basic set of alternatives for consideration. Subsequent meetings were held to review model output, allowing comparison between the proposed alternatives and the No Action Alternative." Did the PDT coordinate the various alternatives with federal and state resource agencies to ensure that alternatives formulation was conducted to limit impacts to the resource? EPA appreciates the Corps efforts to inform the resource agencies during the Savannah River Drought Contingency Plan Conference Calls; however, more formal meetings and briefings regarding the specifics of the EA with the state and federal resource agencies and other applicable stakeholders might be beneficial. EPA recommends the Corps work closely with the resource agencies and other stakeholders to resolve issues related to the decreases in flow resulting from this proposed action.

6. As previously stated in our comment review of the July 2011 EA, the Corps discusses the member composition Savannah River Basin Drought Coordination Committee (SRBDCC) and Table 9: Offices

Representing Agencies (page 51) lists different agencies, but there is no mention of Georgia WRD or USFWS. Given the sensitive nature of the estuary habitats (including the Savannah National Wildlife Refuge) and federal candidate and state listed endangered species, it would seem important to include these resource agencies on any drought operations decisions. EPA recommends that USFWS and Georgia WRD be invited to participate on the SRBDCC. If these agencies have been invited to participate and have declined participation, then the Corps should explain their attempts to include these agencies in the body of the EA.

7. In the previous July 2011 EA, the Corps discussed impacts regarding biotic communities of the Augusta Shoals. As with the July 2011 EA, EPA remains concerned regarding the possible impacts of flow reductions to this fragile shoal habitat. There seems to be a lack of coordination with the appropriate resource agencies regarding possible impacts to the shoal habitat. As with the July 2011 EA, the Corps determined that the reduced flows, "is expected to result in minor effects to those biotic communities." (page 71). Additionally, on page 75, the Corps discusses the flow to habitat relationships of the shoals area and states, "...based on the 130 cfs reduction in median flows from the NAA and the above percent changes that are between 10% and 20%, Alternative 2 would produce a moderate adverse impact on the resources." In both instances, there is no discussion in the EA as to the USFWS, NFMS, SCDNR or GADNR's opinion on the impacts of the decrease in flow over the shoals. As with the previous July 2011 EA, EPA recommends that the Corps consult with USFWS, NFMS, SCDNR AND GADNR regarding the potential impacts to the Augusta Shoals. EPA further recommends that a discussion be added to the Effects of Recommended Alternative section and explain the views of these resource agencies. As stated in Comment #3, EPA recommends the Corps host a problem solving workshop with the appropriate resource agencies to work through any issues relating to decreases in flow.

8. The Corps briefly discusses the Savannah National Wildlife Refuge (NWR) in 4.5 Biotic Communities-Estuary (page 81) section of the EA and on then briefly discusses impacts of the preferred alternative (page 83) stating, "...based on the 132 cfs reduction in median flows from the NAA and the above percent changes that are below 10%, Alternative 2 would produce a minor adverse impact on the resources." Has the Corps consulted with the USFWS regarding impacts to Savannah NWR? If so, is the USFWS supportive of the decreases? As with the previous July 2011 EA, EPA recommends that the Corps consult with the USFWS regarding potential impacts to the NWR. Additionally, EPA recommends that the Corp include a more thorough discussion of potential impacts to the NWR as well as discuss the USFWS views (positively or negatively) toward the preferred alternative.

9. As in the previous July 2011 EA, the Corps has made the determination that the preferred alternative "may affect, but not likely to adversely affect the shortnose sturgeon, manatee and wood stork." (page 86, 4.6 Threatened and Endangered Species). In the EA Public Notice dated April 12, 2012, the Corps states, "This proposed action is being coordinated with the US Fish and Wildlife Service and the National Marine Fisheries Service under Section 7 of the Endangered Species Act." EPA recommends that the Corps consult with both the USFWS and the National Marine Fisheries Service (NMFS) before the FONSI is signed to ensure the decision makers are given appropriate information to make the final decision regarding the proposed action. Additionally, Section 7 of the Endangered Species Act and ER 1105-2-100, Appendix C, (page C-8) requires the written concurrence from USFWS or NFMS (as appropriate) regarding any "may affect, not likely to adversely affect" determinations. EPA recommends that any significant findings from consultation with USFWS and NFMS be briefly described in the FONSI. Also for future EAs/FONSIs regarding drought operations, EPA recommends the Corps have a more robust discussion of impacts to federal and state listed and candidate species. EPA also recommends that the Corps collaboratively engage the USFWS and NMFS and as previously stated in Comments #3 and #7, by hosting a problem solving workshop that could assist the Corps in solving some of the issues associated with the threatened and endangered species (federal and state listed and candidate species).

10. As with previous EAs regarding drought operations, the Corps has received several concerns from the USFWS (USFWS letter dated June 24, 2009). In response to the July 2011 EA, the USFWS again listed many concerns regarding the decrease in flows. USFWS states, "The Service objected to previous discharge reduction proposals because of the anticipated levels of adverse impacts to downstream

resources. Potential impacts to downstream ecosystems are associated with each proposed flow reduction-these ecosystems have already been severely impacted or geographically limited by anthropogenic factors." The USFW further states, "Multiple consecutive years of extremely reduced flows could have potentially devastating impacts on population sizes of early spring spawning species (including shortnose and Atlantic sturgeon)...The ACOE analysis should give additional treatment to these impacts, and propose alternatives (e.g., provision of occasional flow pulses as outlined in the Savannah River Ecosystem Flow Prescription ) that could temporarily offset negative habitat effects..." It appears that none of the USFWS concerns were addressed in previous EAs or the current EA. Does the Corps intend to mitigate for any of these habitat losses? EPA recommends that the Corps disclose the USFWS concerns in the FONSI and better describe and evaluate their concerns in future EAs. As with previous comments, many of the USFWS concerns could be addressed through the Savannah River Comprehensive Study and a problem solving workshop.

11. The Corps discusses the socio-economic impacts of recreation on the lakes within the EA; however, there is no discussion regarding the socio-economic impacts on downstream businesses and users. For example, will reduced flows impact industrial plants and other businesses such as the Vogtle Power Plant that relies on adequate water for operational withdrawals? Will the reduce flow impact businesses that have NPDES permits that might have to reduce discharges to meet state water quality standards? It would appear that reducing flow could have both positive and negative impacts to local businesses that rely upon the Savannah River system. EPA recommends that the Corps conduct a thorough socio-economic analysis regarding the preferred alternative's impacts to the local communities impacted (both within the reservoirs and downstream of the reservoirs).

12. The Corps does not discuss Climate Change in the EA. CEQ recently released draft guidance (Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions, dated February 18, 2010, <http://www.whitehouse.gov/sites/default/files/microsites/ceq/20100218-nepa-consideration-effects-ghg-draft-guidance.pdf>) requesting agencies to consider conducting climate change analysis within the NEPA process. The purpose of the guidance is to encourage Federal Agencies to, "(1) The GHG emissions effects of a proposed action and alternative actions; and (2) The relationship of climate change effects to a proposed action or alternatives, including the relationship to proposal design, environmental impacts, mitigation and adaptation measures." Additionally, the Corps recently adopted a Climate Change Adaptation Policy (<http://www.corpsclimate.us/docs/USACEAdaptationPolicy3June2011.pdf>) requiring the Corps to consider potential climate change impacts and it states, "...USACE shall consider potential climate change impacts when undertaking long-term planning, setting priorities, and making decision affecting its resources, programs, policies, and operations." Additionally, a climate changes discussion could assist the Corps in justifying the need for reduce flow during times of drought. In fact, the proposed action could be viewed as an adaptive measure for addressing ever increasing drought conditions resulting from climate change. The Corps also states, "It is the policy of USACE that mitigation and adaptation investments and responses to climate change shall be considered together to avoid situations where near-term mitigation measures might be implemented that would be overcome by longer-term climate impacts requiring adaptation, or where a short-term mitigation action would preclude a longer-term adaptation action." Clearly, this recent Climate Change Adaption Policy applies to the Drought Contingency Plan. EPA recommends that the Corps address both the adaptation and mitigation aspects regarding this action and all future drought actions in the context of new climate change stressors (in this case more frequent droughts).

Classification: UNCLASSIFIED  
Caveats: NONE

**From:** [Pis Foster](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Date:** Friday, May 11, 2012 3:59:48 PM

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I have been a resident of upstate SC since 1977. During that time I have enjoyed the use of Hartwell Lake and Lake Keowee - sometimes as a land owner but mostly as a day-user for fishing, boating and swimming.

Over the last 35 years I have observed the lake levels impacted by weather, energy generation and Army Corps of Engineer management changes. I suspect that I have more history with these lakes than any of the current Corps personnel. I've seen it all and experienced numerous changes in Corps management staff. So please allow me to make a few educated comments regarding the low lake levels.

I see on your website that the Corps carefully selected data that supports (or defends your positions). One example would be the real estate data you posted, which is not confirmed by local realtors. Land values have most certainly been impacted by the low lake level - but I digress... It is my intent to provide positive comments for improvement.

First - a few problems caused by low lake levels:

A major problem caused by low lake level would be the dramatic erosion of the lakeshore. Low water levels have exposed soft shore lines to extensive erosion. This displaced silt is carried into lower depths and is slowly filling the lake with silt. As care-takers of the wellness of the lake for future generations, why isn't the Corps fulfilling its duty?

Danger - Low water levels present a safety issue to the public. Exposed or slightly submerged trees and shoals present a serious danger which I experienced first-hand a few years ago. A boat I was on went over a submerged (unmarked) tree and we barely made it to shore while the boat was sinking. Serious injury or death could have resulted.

Second - Suggestions

LISTEN to your employers - "We the people." We've been here, we've seen it and experienced low water levels. Corps personnel are transients - on the way to their next posting. The "locals" see a cause and effect due to weather and also the Corps' management techniques which don't adjust quickly enough to drought conditions.

It is clear, the Corps must do a better job of managing the lake level. We are often at the mercy of mother nature. However, knowing that droughts can occur, the Corps must be proactive in its management techniques and initiate quicker reduced water release plans. The Corps should treat EVERY year as a potential drought year. The water in the lake is a precious commodity - once it passes over

the damn, we can never recover it. As much water as possible should be retained through the winter – which hasn't been the case – that's a fact! Hartwell is the source of the entire watershed.

Action Items:

1. Stop or decrease water release during the winter.
2. Respond quicker to drought conditions by reducing flow or stopping it entirely when it is raining downstream.
3. Mark all shoals and submerged trees.
4. Be more responsive to the public. Don't make excuses for mistakes, correct them.

Sincerely,

Pris Foster

864-270-1699

**From:** [Tim Broome](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Comment on the Drought Control Plan for the Lakes  
**Date:** Friday, May 11, 2012 4:27:47 PM

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I am a lake front owner on Lake Hartwell and someone who has loved the lake since moving over here from Georgia near the Alabama line back in 65. I think the Lake is still beautiful but I see a lot more red clay this past ten years than before and know it will only get worse if you don't bring your engineering up to date. Times have changed since the ideas of 1962 were put in place, the Lakes are big business now. More and more people use the Lakes as a place to get away from the stresses of life than ever before. We need the Lakes as a stress relief not as a stress maker as it is becoming. The plan you have proposed as I see it will help but it will not be enough to make a big difference and a big difference is what needs to take place. You need to stop letting out way more water than what is coming in!! I remember what times were like back in 1962. It was a lot more simple time and if you tried to compare the technological aspect then and now would be to compare an ant hill to a mountain, Please be more aggressive with your approach to this plan. Please bring the technology up to date that can balance the needs of all concerns and keep our Lakes at the very least-- almost full.  
Thank You

**From:** [Reinhardt](#)  
**To:** [CESAS-PD\\_SAS](#)  
**Subject:** Comments on EA on Savannah River Basin  
**Date:** Friday, May 11, 2012 8:50:44 PM

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Since lake records have been kept for Hartwell Lake there has only been a few times when the lake level were extremely low (more than 10ft). And even fewer in the months that the lake is enjoyed the most (Jun, July, and August). But, they are becoming more frequent, and now we are on pace to match the worst on record (2008). I know it has been dry – but not historically dry. And records show that for 68 days between 9/1/2011 and 5/10/2012 the discharge rate has been above 4,000 cfs. (approximately 350 million gallons).

It is mandated that we have “low water” toilets in our homes; why have we flushed more than 350 million gallons “down the toilet” 68 times in these drought conditions? My drought plan is manage as usual until 655 then outflow= inflow. The lake is at or above 655 for 77% of the time, so much of the time management would be unchanged. At 655, outflow = inflow, just as conditions would be down stream if the lake was not here. The lake is vital – VITAL – to local businesses, home sales, and recreation. Why should our local economy and recreation suffer at the expense to keep downstream flows artificially high?

I grew up on this lake. I bleed lake water and red mud. I’ve seen lows and historic lows. Sadly, my eight year old son has witnessed the worst ever and it isn’t looking good for this year either. I beg for a change that will keep water in the lake, protect our economy, and keep recreation safe.

The current draft is an improvement but still has a long way to go.

With respect,

Tre’ Reinhardt

250 Jenkins Mill Rd

Westminster, SC

**From:** [Darcy Maixner](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** water  
**Date:** Saturday, May 12, 2012 10:32:55 AM

---

Please institute new drought plans to retain more water in Lake Hartwell.

Darcy

Cell 706-371-5170

[DarcyMaixner@gmail.com](mailto:DarcyMaixner@gmail.com)

Coldwell Banker Fort Realty

205 E Franklin St

Hartwell,GA 30643

**From:** [rooke57@frontier.com](mailto:rooke57@frontier.com)  
**To:** [CFSAS-PD\\_SAS](mailto:CFSAS-PD_SAS)  
**Cc:** [SGE@scsenate.org](mailto:SGE@scsenate.org); [WES@schouse.org](mailto:WES@schouse.org); [David@DLThomasLaw.com](mailto:David@DLThomasLaw.com)  
**Subject:** Response to Corps' Draft Environmental Assessment (EA)  
**Date:** Saturday, May 12, 2012 11:01:22 AM

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May 12, 2012

US Army Corps of Engineers  
Attn: PD, Savannah District  
Savannah, GA31402-0889

Subject: Response to Corps' Draft Environmental Assessment (EA) and Lake Hartwell

While I support any change that gives broader flexibility regarding Lake Hartwell level control to the Corp during drought periods, I would like to know the answer to the following:

1) Back in 2008, we were at similar levels on Hartwell as today. We all know that by Dec the lake level reached -22 feet. Are you going to let that happen again? In Feb of 2009 the Corps dropped the outflow to 0 for an entire month, and the lake level rose rapidly. Why don't we do that again to avoid these catastrophic levels?

2) The Corps laments the same old rhetoric - we are experiencing drought conditions, there's nothing we can do. Why is it that Lake Murray is only 3.5' below normal while the Columbia area has recently experienced the worst drought in their history?

3) Even though I am a resident of Greenville County (also a property owner on Lake Hartwell, Oconee County), I believe Greenville County should not be allowed to withdraw water from Lake Keowee, based on current "inter basin transfer" water management strategies. The only exception should be if they pipe a percentage of their outflow back into Lake Hartwell. Otherwise we are basically diverting all of that water taken from Keowee into the Reedy river and Lake Greenwood.

Thank you for your time,

Robert Cooke  
200 Foxhound Rd.  
Simpsonville, SC 29680

**From:** [Hailey Appling](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** NO reduction  
**Date:** Saturday, May 12, 2012 5:10:24 PM

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I am a stakeholder in the SRB and I fully support the proposed reduction in flows at Thurmond during drought.

Description: Description: Walton\_W tiny

Hailey Appling | Business Manager

Walton Reserve | Serving with Excellence

7075 Walton Reserve LN | Austell, GA 30168

678.945.4739 | [www.waltoncommunities.com](http://www.waltoncommunities.com) <<http://www.waltoncommunities.com/>>

**From:** [Wade Jim](#)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Drought Plan  
**Date:** Sunday, May 13, 2012 3:00:11 PM

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I have lived on Lake Hartwell for 24 years, and have used Hartwell and Thurmond for 38 years. Rainfall amounts in our basin, and in the entire Southeast, has been significantly below previous historical averages, and we may never return to the previous averages. Lake levels 8 feet below full pool are horrendous for those of us living at the headwaters of Lake Hartwell, and boating is unsafe in several areas. Lake real estate values are depressed in Stephens county. Water is a precious resource, and the responsible management plan would conserve this resource more aggressively when rainfall is depressed.

In addition, please start managing your hydropower production as a business, since I, as a taxpayer, deserve better. It is foolish and a waste of my dollar for you to guarantee power generation amounts, resulting in the purchase of power from Ga Power and others, while selling it to Oglethorpe at rates well below market. I don't see corporate welfare as one of your stated mandates for water management.

Thanks for your attention!

Jim Wade  
906 Ridgemore Drive  
Toccoa, GA 30577  
706-779-5004

**From:** [sweeks325@aol.com](mailto:sweeks325@aol.com)  
**To:** [CFSAS-PD\\_SAS](#)  
**Subject:** Manage our LAKES responsibly - EA to Reduce CFS during drought  
**Date:** Sunday, May 13, 2012 7:26:40 PM

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I have concern in the SRB and I fully support the proposed reduction in flows at Thurmond during drought.

As an individual who knows home owners on Lake Hartwell and who enjoys visiting and spending time on the lake, I urge you to act responsibly and reduce the flow from the feeder lakes during drought conditions. Wildlife, the area's economy and the quality of life is greatly reduced when Lake Hartwell is allowed to reach a water level crisis. It is time to change the rules and laws governing water release so that all concerned are treated fairly and responsibly.

Respectfully,  
Susan Weeks  
4024 Forest Grove  
Acworth, GA 30101

**From:** [Bedenbaugh, Kenneth R SAS](#)  
**To:** [Bailey, William G SAS](#)  
**Cc:** [Bramlette, George O SAS](#); [Campbell, Sandra M SAS](#)  
**Subject:** FW: lake levels (UNCLASSIFIED)  
**Date:** Monday, May 14, 2012 8:21:24 AM

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Classification: UNCLASSIFIED  
Caveats: NONE

Mr. Bailey:

First sentence of below indicates this is a comment to the EA. Just want to insure you received as it was originally sent on 12 May.

Thanks,

KB

-----Original Message-----

From: Payton, Rhonda A SAS On Behalf Of CESAS-OP-H, SAS  
Sent: Monday, May 14, 2012 8:14 AM  
To: Bramlette, George O SAS; Bedenbaugh, Kenneth R SAS; Campbell, Sandra M SAS  
Subject: FW: lake levels (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

-----Original Message-----

From: Tammy Hutchinson [<mailto:tammyhut@yahoo.com>]  
Sent: Saturday, May 12, 2012 12:14 PM  
To: CESAS-OP-H, SAS  
Subject: lake levels

To whom it may concern:

Since your e-mails are still open for public comment today, I would like to be very succinct in my effort to reach you.

WHATEVER HAPPENED TO LETTING NATURE WIN A BATTLE? Except in extreme drought, I would imagine a natural course of events would allow our lake to maintain much higher levels than when your daily need to "open the gates" manually occurs.

WHEN IT RAINS IN HARTWELL, THE WATER NATURALLY FLOWS SOUTH WHERE IT IS NEEDED. DUH.

WHY NOT AT LEAST MAKE AN EFFORT TO CUT BACK HALF THE TIMES YOU CHOOSE TO "OPEN THE GATES? sounds simplistic, but I think less emphasis on calculated formulas and a little more street smarts may be needed here. Seriously, HAS THIS EVER OCCURED TO YOU? It's similar to your attention to planting thousands of trees on what you perceive to be unforested lake lots just because they are there--no thought is given to their need to have water from the lake to survive! Another DUH. It must be another calculated effort to use more red tape to fight mother nature....

Tammy Hutchinson  
Resident of Hartwell, Ga.

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**From:** [Bedenbaugh, Kenneth R SAS](#)  
**To:** [Bailey, William G SAS](#)  
**Cc:** [Bramlette, George O SAS](#); [Campbell, Sandra M SAS](#)  
**Subject:** FW: Lake Levels at Hartwell (UNCLASSIFIED)  
**Date:** Monday, May 14, 2012 8:23:38 AM

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Classification: UNCLASSIFIED  
Caveats: NONE

Mr. Bailey:

Although not specifically referenced, I believe this may be another comment to the draft EA.

Thanks,

KB

Kenneth R. Bedenbaugh  
Supv. Natural Resources Program Manager  
U.S. Army Corps of Engineers, Hartwell Project  
888-893-0678, ext. 337  
[kenneth.r.bedenbaugh@us.army.mil](mailto:kenneth.r.bedenbaugh@us.army.mil)

-----Original Message-----

From: Payton, Rhonda A SAS On Behalf Of CESAS-OP-H, SAS  
Sent: Monday, May 14, 2012 8:15 AM  
To: Bramlette, George O SAS; Bedenbaugh, Kenneth R SAS; Campbell, Sandra M SAS  
Subject: FW: Lake Levels at Hartwell (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

-----Original Message-----

From: Carl Oberg [<mailto:carlo@pharma-tech.com>]  
Sent: Saturday, May 12, 2012 2:08 PM  
To: CESAS-OP-H, SAS  
Subject: Lake Levels at Hartwell

Dear Army Corp

The charter of Lake Hartwell is documented and the priorities are generally understood. It continues to be a point of confusion, however, why more moderation and balance isn't demonstrated when it comes to lake water releases. Please consider the "walking of a finer line" in an effort to protect the interests of the Hartwell lake community and the lake's ecology.

Thank you!

Carl Oberg  
Lake Hartwell Resident  
Hartwell, Ga

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**From:** [Bedenbaugh, Kenneth R SAS](#)  
**To:** [Bailey, William G SAS](#)  
**Cc:** [Bramlette, George O SAS](#); [Campbell, Sandra M SAS](#)  
**Subject:** FW: lake levels (UNCLASSIFIED)  
**Date:** Monday, May 14, 2012 8:32:05 AM

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Classification: UNCLASSIFIED  
Caveats: NONE

Mr. Bailey:

And yet one more. I believe the nature of the comments and the fact that they all were submitted on 12 May indicates an attempt to comment on the EA, although some submittals are very general in nature and offer no real detailed agreement/disagreement.

Thanks,

KB

-----Original Message-----

From: Payton, Rhonda A SAS On Behalf Of CESAS-OP-H, SAS  
Sent: Monday, May 14, 2012 8:15 AM  
To: Bramlette, George O SAS; Bedenbaugh, Kenneth R SAS; Campbell, Sandra M SAS  
Subject: FW: lake levels (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

-----Original Message-----

From: Henley Cleary [<mailto:henleycleary@gmail.com>]  
Sent: Saturday, May 12, 2012 2:21 PM  
To: CESAS-OP-H, SAS  
Subject: lake levels

I am asking that you please be a good steward of the natural resource you are charged with caring. Let common sense prevail.

Henley Cleary  
Resident, Hart County

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

# South Carolina Department of Natural Resources

1000 Assembly Street Suite 336  
PO Box 167  
Columbia, SC 29202  
803.734.3766 Office  
803.734.9809 Fax  
[perryb@dnr.sc.gov](mailto:perryb@dnr.sc.gov)



Alvin A. Taylor  
Director  
Robert D. Perry  
Director, Office of  
Environmental Programs

May 14, 2012

Mr. William G. Bailey  
Chief, Planning Branch  
U.S. Army Corps of Engineers  
Savannah District  
Savannah Planning Unit  
PO Box 889  
Savannah, GA 31402-0889

REFERENCE: Notice of Availability of Draft Environmental Assessment and Finding of No Significant Impact for a Modification of the U. S. Army Corps of Engineers Savannah River Drought Contingency Plan on the Savannah River in Georgia and South Carolina

Dear Mr. Bailey,

Please be advised personnel of the South Carolina Department of Natural Resources (DNR) have performed a comprehensive review of the April 13, 2012 Draft Environmental Assessment (Draft EA) and Draft Finding of No Significant Impact (Draft FONSI) for a modification to the U.S. Army Corps of Engineers (Corps) *1989 Savannah River Basin Drought Contingency Plan (SRBDGP)* on the Savannah River in Georgia and South Carolina.

The Proposed Action (Alternative 2) consists of retaining the major components of Alternative 1 and modifying the discharge of Levels 2 and 3. For Level 2 of this Alternative, if the current 28-day Broad River percentile inflow is greater than the 10<sup>th</sup> percentile flow, then the prescribed J. Strom Thurmond (JST) Dam release would be 4,000 cfs from February through October. For Level 2 of this Alternative, if the current 28-day Broad River percentile inflow is less than or equal to the 10<sup>th</sup> percentile flow, then the prescribed JST release would be 3,800 cfs from February through October. The November through January discharge for Level 2 would be 3,600 cfs. For Level 3 of this Alternative, if the current percentile inflow is greater than the 10<sup>th</sup> percentile flow, then the prescribed JST release would be 3,800 cfs. For Level 3 of this Alternative, if the current percentile inflow is less than or equal to the 10<sup>th</sup> percentile flow, then the prescribed JST release would be 3,600 cfs. The Level 3 Thurmond discharge for November through January also would be reduced to 3,100 cfs (February extension of 3,100 cfs could be implemented with NOAA Fisheries pre-approval). For the 3,100 cfs release in Level 3, the Corps would restore the Thurmond discharge above 3,100 cfs and up to the 3,600 cfs daily average if flow at the Savannah River at Augusta gauge goes below 3,600 cfs or if the increase is requested by either the State of Georgia or South Carolina. For Levels 1-3, the Hartwell discharge would be reduced as appropriate to maintain balanced pools.

Mr. William Bailey, Chief, Planning Branch, U.S. Army Corps of Engineers, Savannah District  
Draft EA and Draft FONSI for a Modification to the Corps SRBDCP  
May 14, 2012

DNR acknowledges and gives credit to the Corps for moving in the direction of using basin inflow as a trigger for initiating flow reductions as opposed to relying solely on lake levels. We believe this to be a much more proactive approach in managing drought in the Savannah Basin. DNR staff has exhaustively reviewed the Draft EA and considered all options that would benefit lake interests while not causing risk to downstream aquatic resources and users, but we believe that only will come with an entirely new approach in balancing water use that sacrifices some component of hydropower; that option is not available for us to review in the current Draft EA.

**General DNR Comments on the Draft EA:**

- The Draft EA provides very little data or results from model runs (such as hydrographs), rendering it difficult to review the supporting conclusions and decisions.
- The rationale for selecting Alternative 2 as the Proposed Action is not very well explained, as arguments could be made that Alternatives 3 or 4 could also be reasonably good choices over the No Action Alternative (NAA).
- Always reducing Lake Thurmond releases to 3,100 cfs from November through January when in Level 3 may be somewhat draconian. The impacts of a 3-month continuous release of 3,100 cfs on the lower Savannah River are not well understood, and the Draft EA does not demonstrate that such a release would not have a significant negative effect on the river. The only time the States agreed to such a low release was in late 2008, when the lakes were deep in Level 3, and that 3,100 cfs release happened to coincide with significant rainfall events that maintained river flows higher than 3,600 cfs at Augusta for much of that winter.
- The Draft EA lacks a description of how releases are managed as the lake levels recover. Is it Standard Operating Procedure that minimum drought releases are continued until the lakes recover to full pool, or are larger releases phased in as the lake levels rise into zones designated as less severe drought levels? The protocol for coming out of drought levels is not described in the Draft EA.
- Because the Draft EA is supposed to result in a new and comprehensive Drought Contingency Plan, it should include a better description of how, when in Level 4, releases would transition from 3,600 or 3,100 cfs to “outflow equals inflow” if conditions in the basin ever were to get that bad.
- DNR has significant concerns over any flow reduction that would further impair water quality in the Savannah Harbor. The Draft EA concludes this to be a reality, and this reality cannot be adequately balanced with the minor improvement in storage capacity in the Corps managed Savannah River lakes. All water level interests must be protected in the Savannah River basin, including lake interests as well as downstream interests.
- Reducing releases from JST Dam outside of the existing drought response plan also could contribute to additional water quality problems in the Savannah Harbor since the dissolved oxygen measured in the Savannah Harbor is already below a desirable standard for a significant period of the year. The Draft EA modeling confirms DO in the Savannah Harbor would likely be made worse under the Proposed Action.
- With respect to the Savannah Harbor, DNR agrees with the essential fish habitat assessments as presented in the Draft EA, however we do not agree that water quality impacts predicted to occur to essential fish habitat will have no measurable impact and produce no long term effects on endangered species such as shortnose sturgeon (*Acipenser brevirostrum*) and

Mr. William Bailey, Chief, Planning Branch, U.S. Army Corps of Engineers, Savannah District  
Draft EA and Draft FONSI for a Modification to the Corps SRBDCP  
May 14, 2012

Atlantic sturgeon (*Acipenser oxyrinchus*). In fact, we believe there could be drastic impacts to Atlantic sturgeon if the Proposed Action were to be implemented.

- Further, DNR has concerns over the construction of the Draft EA. There is an overreliance on cutting-and-pasting sections from earlier EAs. This type of document construction does not address specific issues that must be evaluated and causes DNR to have serious concerns with the Corps moving forward with the Proposed Action.

### Conclusions

As required, the Draft EA considered a NAA. The NAA is published as continuing with the 1989 SRBDCP as updated in 2006 and 2011. DNR therefore recommends the Corps adhere to the SRBDCP as it is written. DNR does not support further reduction of downstream flows in the Savannah River Basin and believes there is inadequate hydrological justification to do so at this time.

DNR, through its comprehensive review of the Draft EA and Draft FONSI has determined the Proposed Action to modify the SRBDCP would result in significant environmental impacts and the NAA represents the best natural resource management practices and environmental standards.

Thank you for the opportunity to comment on this issue. Please do not hesitate to contact me if any additional information will be required in order to properly address this issue.

Very truly yours,



Bob Perry  
Director, Office of Environmental Programs

cc: Jeff Larson – GA DNR  
Brad Gane – GA DNR-CRD  
Barbara Neale – SC DHEC-OCRM  
Blair Williams – SC DHEC-OCRM  
David Baize – SC DHEC  
Heather Preston – SCDHEC  
Jay Herrington – FWS  
Sandra Tucker – FWS  
Pace Wilber – NMFS  
John P. Evans, Chairman DNR Board  
Alvin Taylor  
Ken Rentiers  
Robert Boyles  
Emily Cope  
Breck Carmichael

**From:** [Birdwell, Billy E SAS](#)  
**To:** [CESAS-PD, SAS](#)  
**Subject:** FW: A public comment on the drought EA (UNCLASSIFIED)  
**Date:** Monday, May 14, 2012 3:14:34 PM

---

Classification: UNCLASSIFIED  
Caveats: NONE

PD:

This e-mail followed a telephone call I had with the caller earlier today. I told the caller I'd forward it to you.

-- Billy B. sends

SAS - CCO

912-652-5014 (office)

912-677-6039 (mobile)

From: Fernandez, Louis [<mailto:fernandez@toccoaclinic.com>]  
Sent: Monday, May 14, 2012 1:49 PM  
To: Birdwell, Billy E SAS  
Cc: cesas/cco@usace.army.mil  
Subject:

Mr. Birdwell,

Thanks so much for taking my call today. It was good to speak with you again. You are a great resource to the Corp. You are always cordial and professional.

I was pleased to talk with you about the computational model of "average rainfall" within the Savannah River Basin. As you and I concluded, this number is a simple calculation of 1/365th of the annual rainfall numbers averaged over 50 years with the addition of some data prior to the impoundment. As we discussed, this use of the 365 days to obtain the average rainfall for any given day of the year is somewhat limited in its ability to alleviate fluctuations within the pool of the lakes. The goal of efficient power production is to use the deepest possible water column at the head of the turbine. So, when the lake fluctuates, it costs efficiency. Droughts are often unpredictable, but seasonal variations are largely predictable. The NWS is able to tell the exact rainfall average for any given day of the year in any given area of the country. These numbers could be of great value to avoid some of the large fluctuations in lake levels without any real surprises. Average rainfall data could be used on a weekly, monthly or quarterly basis to establish a more realistic expectation of the resource.

This approach allows for a more accurate "budget" of the water and will allow it to be controlled in a more predictable pattern with an ability to react to changes sooner. We should not be surprised by our

seasonal changes. They have been occurring for hundreds of years. As we discussed; in business we do not empty the bank account ahead of the first quarter since we know that we will be slow for receipts then, but we still have employees to pay, so we set some aside for the slow months. We cannot wait for the slow months and hope that it averages out next year. We would be forced to fire our employees or go out of business.

I would love to see some further discussion regarding this data. It could definitely avoid some of the frustrations around the lake and some of the hard feelings around the lake. We really are all partners in the upkeep of the lake and it's waters. Hope we can use every ounce of knowledge to make it a better place and a better resource for all.

Thanks again,

Louis Fernandez

Classification: UNCLASSIFIED  
Caveats: NONE

May 11, 2012



Mr. William G. Bailey  
Corps of Engineers, Savannah District  
100 W. Oglethorpe Avenue  
Savannah, GA 31401-3640

Re: Savannah River Basin Drought Contingency Plan Programmatic Agreement  
Multiple Counties, South Carolina  
SHPO No. 11JB0050

Dear Mr. Bailey:

Thank you for your letter which we received on April 13, regarding the above-named project. We also received the draft environmental assessment and programmatic agreement as supporting documentation for this undertaking. The State Historic Preservation Office is providing comments to U.S. Army Corps of Engineers pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR 800. Consultation with the SHPO is not a substitution for consultation with Tribal Historic Preservation Offices, other Native American tribes, local governments, or the public.

Our office has only minor comments on the programmatic agreement. Information on South Carolina's standards and guidelines for archaeological investigations can be found here: [www.palmettohistory.org/archaeology/SHPOGuidance.htm](http://www.palmettohistory.org/archaeology/SHPOGuidance.htm)

Our office prefers that the term potentially eligible not be used. I have included a copy of statement regarding the term.

The signatory for the programmatic agreement will be the Deputy SHPO, Elizabeth Johnson.

If you have any questions, please contact me at (803) 896-6181 or [jbarnes@scdah.state.sc.us](mailto:jbarnes@scdah.state.sc.us).

Sincerely,

Jodi Barnes, PhD  
Staff Archaeologist/GIS Coordinator  
State Historic Preservation Office

## **SHPO Statement on the Use of the Term *Potentially Eligible***

### **Background:**

The National Register of Historic Places (NRHP) is the official list of the Nation's historic places. Authorized under the National Historic Preservation Act of 1966, it is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect our historic and archeological resources. Properties listed in the NRHP include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture.

Under the National Historic Preservation Act, the State Historic Preservation Office (SHPO) is tasked with several duties, including nominating properties to the NRHP, conducting and maintaining an ongoing list of historic properties as part of a statewide survey, and participating as a consulting party under Section 106 of the Act. Federal agencies are responsible for determining the NRHP eligibility of properties in the Section 106 process through consultation with the SHPO and other interested parties. Only those properties that are eligible for listing in the NRHP are afforded additional consideration under Section 106. In situations where the agency and the SHPO disagree on eligibility or the agency wishes to have additional guidance, the Keeper of the National Register may be consulted for a Formal Determination of Eligibility. The Keeper is the final authority on eligibility for the NRHP.

In the past, the term *potentially eligible* was used mostly for large-scale projects where eligibility determinations were not made for each property and additional research into the historic significance and integrity of the property was needed. In some situations, properties referred to as *potentially eligible* were treated as if they were eligible. While this practice expedited the survey process at the time, it requires a reevaluation of eligibility for future projects. Increasingly, the term *potentially eligible* has been used less precisely and for all types of projects and situations.

Section 106 review requires sites to be determined as eligible or not eligible for the NRHP. Therefore, properties determined *potentially eligible* will need additional investigation and research if they may be affected by a federal project. For projects reviewed by the South Carolina Department of Health and Environmental Control – Ocean and Coastal Resource Management, only properties previously determined to be eligible for the NRHP by the S.C. Institute of Archaeology and Anthropology or the SHPO are afforded a measure of protection with the opportunity for professional examination and/or excavation, or preservation. When a property has been determined *potentially eligible*, the property is treated as not eligible unless there is enough information for the SHPO to determine that it meets the criteria for listing on the NRHP.

### **SHPO Statement:**

The South Carolina SHPO recommends eliminating the term *potentially eligible* from all cultural resource survey reports and documents. The term *potentially eligible*, while

having a specific meaning to the archaeological community, may not have the same meaning to the larger client/compliance/preservation planning community. Our office suggests that agencies and consultants use more specific language such as “requires additional testing or research for eligibility” or “unevaluated, requires testing or research for eligibility” regarding these sites. This language should be applied until additional research and/or field evaluation can be completed to adequately assess eligibility as either “eligible” or “not eligible.” It is important for SHPO staff to have a solid assessment of eligibility as well as the documentation supporting that determination. Any above-ground and archaeological survey reports should provide specific eligibility recommendations and justifications that include detailed discussion of why the property could be significant within its historic context, which criteria it might meet, what types of questions may be asked, and what additional work needs to be conducted.

June 2011

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May 14, 2012

Mr. Larry Olliff  
ATTN: PD, US Army Corps of Engineers  
Savannah District  
100 West Oglethorpe Ave.  
Savannah, Georgia 31401-3640

Re: Drought Contingency Plan  
Draft Environmental Assessment

Dear Mr. Olliff:

The South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed the April 13, 2012 Draft Environmental Assessment (EA) document. Alternative 2 is proposed as the modification to the No Action Alternative (NAA). DHEC's comments are focused on the water quality, especially Dissolved Oxygen (DO), in the lower Savannah Basin and Harbor. Comments relative to fish habitat will be provided by the South Carolina Department of Natural Resources.

Balancing needs in the lakes, river, and harbor areas is a complicated effort, but the change to linking drought level maximum and minimum releases directly to basin hydrology seems to be an improvement over the existing plan. However, the technical justifications provided in the draft EA for Alternative 2 are insufficient to justify a permanent modification from the NAA. The draft EA notes on page 64 that the proposed reductions of releases from Thurmond to 3600 cfs could have minor adverse impacts on DO levels in the harbor from May through November without adequate inflow downstream of Thurmond. While adaptive management and restoring releases if problems occurred worked for the previous temporary deviations from the drought plan, we believe potential impacts to harbor DO should be quantified in advance of permanent changes to the plan. Additional evaluation and modeling, such as that envisioned under the Savannah River Basin Comprehensive Study, should help provide the necessary information to justify a permanent modification to the NAA.

When deviations from the NAA were sought in during past droughts, the States and Corps of Engineers evaluated the current basin hydrology, drought status, etc., and made decisions about reduced flows on a "real time" basis. SCDHEC suggests that this process continue and any deviation from the

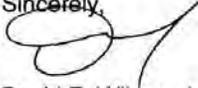
Mr. Larry Olliff  
May 14, 2012  
Page 2

existing drought response plan be evaluated by the States and the Corps of Engineers on a case-by-case basis until such time as the additional modeling can be performed.

If deviations from the NAA are implemented, since the 10<sup>th</sup> percentile flow is a key trigger for flow reductions, it might be useful to more clearly define exactly how the 10th percentile flow will be computed to avoid any possibility of confusion. Also, per the adaptive management plan as described on page 64, we suggest flow be restored to 3800 cfs rather than 3600 cfs if requested by the States.

Thank you for the opportunity to provide comments on the draft EA and to continue working with the Corps of Engineers on drought response in the Savannah Basin.

Sincerely,



David E. Wilson, Jr., P.E., Chief  
Bureau of Water

CC: Elizabeth Dieck, SCDHEC  
Ken Rentiers, SCDNR  
Bob Perry, SCDNR  
Jeff Larson, GaEPD



MARK WILLIAMS  
COMMISSIONER

DR. DAVID CRASS  
DIVISION DIRECTOR

May 14, 2012

William G. Bailey  
Chief, Planning Division  
Savannah District, Corps of Engineers  
100 W. Oglethorpe Avenue  
Savannah, Georgia 31401-3640  
Attn: Julie Morgan, [julie.a.morgan@usace.army.mil](mailto:julie.a.morgan@usace.army.mil)

RE: Deviate from 1989 Savannah River Basin Drought Contingency Plan  
Statewide, Georgia  
HP-091005-002

Dear Mr. Bailey:

The Historic Preservation Division (HPD) has reviewed the Draft Environmental Assessment and Finding of No Significant Impact for the Drought Plan Revision, Savannah River Basin dated April 2012. Our comments are provided to assist the US Army Corps of Engineers (USACE) in complying with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended.

Based on the information provided, HPD agrees that the draft Programmatic Agreement (PA) is adequate to address the treatment of historic properties for this undertaking. HPD offers the following comments for revisions/additions to the draft PA:

1. A section specifying the duration of the PA should be added.
2. A section specifying a reporting schedule should be added. This could be an annual report that details activities undertaken as part of the PA.

We look forward to receiving a revised draft PA when available. If you have any questions concerning our comments, please feel free to contact Elizabeth Shirk, Environmental Review Coordinator, at 404-651-6624 or via email at [elizabeth.shirk@dnr.state.ga.us](mailto:elizabeth.shirk@dnr.state.ga.us).

Sincerely,

Karen Anderson-Cordova, Program Manager  
Environmental Review & Preservation Planning

KAC/ECS



MARK WILLIAMS  
COMMISSIONER

A.G. 'SPUD' WOODWARD  
DIRECTOR

May 18, 2012

US Army Corps of Engineers  
Attn: PD, Savannah District  
100 West Oglethorpe Avenue  
Savannah, Georgia 31401-3640

RE: Conditional Consistency Determination for USACE DEA/FONSI for SRBDCP  
Modifications, Savannah River, Georgia and South Carolina

Dear Mr. Bailey:

Staff of the Georgia Coastal Management Program (GCMP) has reviewed your April 13, 2012 joint public notice and attachments announcing the availability of the Draft Environmental Assessment (DEA) and Finding of No Significant Impact (FONSI) for modifications to the United States Army Corps of Engineers' (USACE) Savannah River Basin Drought Contingency Plan (SRBDCP) on the Savannah River in Georgia and South Carolina.

Proposed changes to the drought plan (Alternative 2) include, among other things:

- For Level 2:
  - Discharge of 3600 cfs between November and January;
- For Level 3:
  - Discharge of 3600 cfs if inflow is less than or equal to the 10<sup>th</sup> percentile flow;
  - Discharge of 3100 cfs between November and January;
  - November – January flows would be increased above 3100, and up to 3600 cfs, upon request by either Georgia or South Carolina.

Impacts to coastal resources, including reduced dissolved oxygen (DO) levels in the Savannah Harbor, are reasonably foreseeable if flows fall below 3800 cfs. The Georgia Water Quality Control Act, an enforceable policy of the Georgia Coastal Management Program, requires dissolved oxygen levels in the Harbor of 5 mg/l as a daily average or 4 mg/l as an instantaneous minimum [O.C.G.A. 12-5-20, et seq.]. Therefore, a drought contingency management plan that proposes discharges below 3800 cfs when DO levels of the Savannah Harbor are less than 5 mg/l average (4 mg/l instantaneous) for Level 2 and Level 3 drought conditions is not consistent to the maximum extent practicable with Georgia's Coastal Management Program (GCMP).

Modification of the proposed action so that Level 2 and Level 3 discharges are returned to full minimum flow (3800 cfs) if dissolved oxygen levels in the Savannah Harbor fall below a 5 mg/l daily average or 4 mg/l instantaneous minimum will bring this proposal into compliance with the Georgia Water Quality Control Act and make it fully consistent with the GCMP.

SRBDCP 2012  
May 18, 2012  
Page 2

The Program concurs with your federal consistency determination **with the condition** that Level 2 and Level 3 discharges are returned to 3800 cfs at any time dissolved oxygen in the Savannah Harbor is below a 5 mg/l daily average or 4 mg/l instantaneous minimum.

If the proposed project is not modified to include the above condition, all parties shall treat this conditional concurrence letter as an objection letter pursuant to 15 C.F.R. §930.43. The Corps' must notify us immediately if these conditions are not acceptable [15 C.F.R. §930.4(a)(2)].

Sincerely,



A.G. "Spud" Woodward  
Director

SW/km

Cc: Jeff Larson, GaDNR/EPD  
Matt Thomas GaDNR/WRD/Nongame  
Bob Perry, SCDNR

Savannah River Basin Drought Contingency Plan South Carolina.txt  
From: Lisa LaRue-Baker - UKB THPO [ukbthpo-larue@yahoo.com]  
Sent: Monday, April 23, 2012 11:58 PM  
To: Morgan, Julie A SAS  
Cc: Tstapleton@unitedkeetoowahband.org  
Subject: Savannah River Basin Drought Contingency Plan, South Carolina

The United Keetoowah Band of Cherokee Indians in Oklahoma has reviewed your project and has no objection or comments at this time. However, if any remains are inadvertently discovered, please cease all work and contact us immediately.

Lisa LaRue-Baker  
Acting THPO  
United Keetoowah Band of Cherokee Indians in Oklahoma  
PO Box 748  
Tahlequah, OK 74465

c 918.822.1952 f 918.458.6889  
ukbthpo-larue@yahoo.com



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Southeast Regional Office  
263 13<sup>th</sup> Avenue South  
St. Petersburg, FL 33701-5505  
727.824.5312, FAX 824.5309  
<http://sero.nmfs.noaa.gov>

F/SER31:RGH

Colonel Jeffrey M. Hall  
Commander, Savannah District  
U.S. Army Corps of Engineers  
100 W. Oglethorpe Avenue  
Savannah, Georgia 31401-3640

JUN 18 2012

Attention: Larry Olliff

Dear Colonel Hall:

This is in response to your April 13, 2012, letter requesting the National Marine Fisheries Service's (NMFS) comments on your draft Environmental Assessment (EA) regarding a change in the minimum average discharge from the J. Strom Thurmond (JST) Reservoir. The Army Corps of Engineers (COE) is proposing to modify the Savannah River Basin Drought Contingency Plan (SRBDCP) that was updated in 2006. NMFS and the COE previously consulted on the SRBDCP under Section 7 of the Endangered Species Act (ESA) and concluded that the action was not likely to adversely affect the shortnose sturgeon (I/SER/2006/04409). The SRBDCP required water releases from the JST Dam at rates no less than 3,600 cubic feet per second (cuffs). Subsequently in November 2008, NMFS agreed that a temporary deviation from the SRBDCP reducing flow from 3,600 cuffs to 3,100 cuffs through January 31 would not adversely affect shortnose sturgeon (I/SER/2008/06975), but extending the reduced flow period into February would harm shortnose sturgeon spawning. On June 24, 2009, NMFS transmitted a letter outlining issues and concerns with the reduced flow regimes and recommended actions and research that should be undertaken to better understand potential impacts of reduced flow, particularly to shortnose sturgeon. In September 2009 the COE again requested to extend the deviation through February; NMFS replied on November 6, 2009, that we could not concur that the shortnose sturgeon would not be adversely affected by the continued reduction of flow because appropriate information was not available (T/SER/2009/05470). In June 2011 the COE requested to deviate from the SRBDCP by reducing discharge from the JST Dam from 3,600 cuffs to 3,100 cuffs from November 1 through February 28 when the COE reservoirs on the Savannah River are in Level 4 drought conditions. NMFS replied on June 29, 2011, that we again could not concur that the shortnose sturgeon would not be adversely affected by the continued reduction of flow because appropriate information was not available (T/SER/2009/05470).

The April 2012 draft EA proposed action (Alternative 2) consists of retaining the major components of the 1989 SRBDCP, as amended in 2006 and 2011, with one modification. The modification is intended to improve drought response to include a representative of basin inflow as an operational trigger (see Table 1).



**Table 1: Thurmond Release Targets for Drought Plan Revision Alternatives**

| Level | NAA      | Alt 1              | Alt 2                                    | Alt 3                                    | Alt 4              |
|-------|----------|--------------------|--|--|--------------------|
| 1     | Max 4200 | 4200; BI > 10% Qin | 4200; BI > 10% Qin                       | 4200; BI > 10% Qin                       | 4200; BI > 10% Qin |
|       | Min 4000 | 4000; BI ≤ 10% Qin | 4000; BI ≤ 10% Qin                       | 4000; BI ≤ 10% Qin                       | 4000; BI ≤ 10% Qin |
| 2     | Max 4000 | 4000; BI > 10% Qin | 4000; BI > 10% Qin<br>3800; BI ≤ 10% Qin | 4000; BI > 10% Qin<br>3800; BI ≤ 10% Qin | 4000; BI > 10% Qin |
|       | Min 3800 | 3800; BI ≤ 10% Qin | 3600 Nov-Jan                             | 3600 Nov-Jan                             | 3600; BI ≤ 10% Qin |
| 3     | 3800     | 3800               | 3800; BI > 10% Qin                       | 3600                                     | 3600               |
|       |          |                    | 3600; BI ≤ 10% Qin                       |  |                    |
|       |          |                    | 3100 Nov-Jan                             | 3100 Nov-Jan                             | 3100 Nov-Jan       |
| 4     |          |                    |  |  |                    |

BI = (Basin Inflow) (cubic feet per second)

10% Qin is defined as the 10th percentile 28-day average flow at the Broad River near Bell

Using basin inflow as a trigger allows varying discharge within Levels 1 and 2 by referring to the 10th percentile flow at the USGS Broad River near Bell, GA stream gage. The 10th percentile flow is defined as the 28 consecutive day average of stream flow data compared to the same 28-day average for the historic flow at the gage. Weekly reservoir release calculations will be conducted each Wednesday and the current 28 day average percentile will be compared to the 10th percentile to determine the following week's release target from JST Dam.

For Level 1 of this Alternative, if the current percentile inflow is greater than the 10th percentile flow, then the prescribed JST release is 4200 cufs. Alternatively, if the current percentile inflow is less than or equal to the 10th percentile flow, then the prescribed JST release is 4000 cufs.

For Level 2 of this Alternative, if the current percentile inflow is greater than the 10th percentile flow, then the prescribed JST release is 4000 cufs from February through October. Alternatively, if the current percentile inflow is less than or equal to the 10th percentile flow, then the prescribed JST release is 3800 cufs from February through October. The November to January discharge for Level 2 would be 3600 cufs.

For Level 3 of this Alternative, if the current percentile inflow is greater than the 10th percentile flow, then the prescribed JST release is 3800 cufs. Alternatively, if the current percentile inflow is less than or equal to the 10th percentile flow, then the prescribed JST release is 3600 cufs. The November through January discharge for Level 3 would be reduced to 3100 cufs. While in Level 3, if flow at the Savannah River at Augusta gage goes below 3600 cufs or if the increase is requested by either the State of Georgia or South Carolina, the Corps would restore the JST discharge above 3100 cufs and up to the 3600 cufs daily average. For Levels 1-3, the Hartwell discharge would be reduced as appropriate to maintain balanced pools.

Action for Level 4 is the same as the no action alternative. During November through January, once a 3,100 cufs discharge is targeted at Thurmond in a given year, monitoring efforts associated with an adaptive management strategy would be coordinated through the Savannah River Basin Drought Coordination Committee (SRBDCC). This Committee consists of representatives from each of the following organizations: Savannah District Engineering Division, South Atlantic Division Engineering Division, Georgia Department of Natural Resources (GADNR), South Carolina Department of Natural Resources (SCDNR), U.S. Fish and Wildlife Service (USFWS) and NMFS. The flow reduction would be maintained through the end of January or earlier if a monitoring parameter, as defined in Table 2, is outside of acceptable levels. If concerns arise, the monitoring organization would notify the State, who would review the information and discuss the results with the SRBDCC. If appropriate, the State would

recommend to the Savannah District adjustments to Thurmond release levels. If requested by either the State of Georgia or South Carolina, the Corps will make a decision about restoring the JST discharge to as much as the 3,600 cufs daily average. NMFS will also be involved in monitoring and will initiate discussions with the SRBDCC concerning the potential impact to spawning shortnose sturgeon or other aquatic resources. Savannah District COE will accept a request from the Department of Energy's Savannah River Site to increase flows during a 3,100 cufs flow window. If the District receives such a request, it would coordinate with the States as part of its evaluation.

**Table 2: Critical Monitoring Objectives and Responsible Parties**

| <b>Location</b>                | <b>Target</b>   | <b>Monitoring Organization</b> |
|--------------------------------|---|--------------------------------|
| Augusta Canal                  | Flow < 2,900 cfs  | City of Augusta                |
| USGS 021989773<br>(USACE Dock) | DO > 5.0 mg/L daily average<br>DO > 4.0 mg/L instantaneous<br>Temperature ≤ 90 °F<br>pH 6.5-8.5 | GA DNR-EPD                     |
| USGS 02198840<br>(I-95 Bridge) | Conductivity < 10,000 μS/cm   | GA DNR-EPD                     |
| Abercorn Creek                 | Chloride < 16 ppm   | City of Savannah               |
| USGS 02198500<br>(Clyo)        | Flow > 4,500 cfs  | SC DHEC                        |
| Various                        | Water level at the intakes  | Intake operators               |
| Various                        | Sturgeon migration  | SC DNR and NOAA Fisheries      |

Herein NMFS provides a consolidated response from both the Protected Resources Division under the authority of the Endangered Species Act (ESA), and the Habitat Conservation Division under the authority of the Fish and Wildlife Coordination Act (FWCA) on the draft EA.

A reduction in flow pattern is likely to affect both diadromous fish spawning and recruitment potential in the Savannah River. In particular the federally-listed shortnose and Atlantic sturgeon are known to utilize the gravel bar just below New Savannah Bluff Lock and Dam (NSBLD) as spawning habitat; all habitat upstream of this location is not accessible due to severely limited fish passage. NMFS believes that the augmentation in flow during the months of February and March will provide, at a minimum, access to this extremely limited spawning habitat by keeping these areas submerged and provide the water velocity and flow regime required to cue sturgeon spawning, stimulating adult fish to move up to spawning grounds.

Given that the COE will return the flows to 3,600 cufs or higher by February 1, sturgeon will have access to some spawning habitat below NSBLD. However, little information exists on how flow rates impact the availability of spawning habitat on the Savannah River in terms of water depth, substrate availability, migratory cues, and larval dispersal. Given the gap in information, NMFS recommends that an instream flow and habitat suitability research study, in collaboration with the involved state and federal agencies, be implemented for the Savannah River. This study is needed to provide an adequate basis for evaluation of potential effects on sturgeon and other diadromous species spawning habitats, and to support operational management of instream flows to protect and recover habitats for sturgeon and other diadromous species. In preparation for this study, NMFS recommends that the COE hold an instream

flow workshop with state and federal stakeholders, including instream flow/habitat modeling experts recommended by NMFS, USFWS, SCDNR, and GADNR. This workshop should be held before the fall of 2012 to plan how the study is approached, which species are to be considered, which habitat considerations are to be evaluated, and which instream flow methodologies will be utilized.

We appreciate the opportunity to provide comments on the draft EA and look forward to continued cooperation with the COE in conserving our resources. Related correspondence regarding the FWCA should be directed to Mr. Prescott Brownell at our Atlantic Branch Habitat office, 219 Fort Johnson Road, Charleston, South Carolina, 29412. He may be reached by telephone at (843) 762-8609, or by e-mail at Prescott.Brownell@noaa.gov. For information specific to the endangered shortnose sturgeon, correspondence should be directed to Dr. Stephania Bolden, Protected Resources Division, at the letterhead address, by telephone at (727) 824-5312, or by e-mail at Stephania.Bolden@noaa.gov. For information specific to the endangered Atlantic sturgeon, correspondence should be directed to Ms. Kelly Shotts, Protected Resources Division, at the letterhead address, by telephone at (727) 824-5312, or by e-mail at Kelly.Shotts@noaa.gov.

Sincerely,



David M. Bernhart  
Assistant Regional Administrator  
for Protected Resources

Enclosure

cc: F/SER47/Brownell and Wilber

File: 1514.22.F.3

Ref: T/SER/2012/01314



*the*  
**Chickasaw**  
*Nation* HEADQUARTERS

Arlington at Mississippi / Box 1548 / Ada, OK 74821-1548 / (580) 436-2603

*Bill Anoatubby*  
Governor

*Jefferson Keel*  
Lieutenant  
Governor

June 21, 2012

Colonel Jeffrey M. Hall  
Department of the Army  
Savannah District, Corps of Engineers  
100 W. Oglethorpe Avenue  
Savannah, GA 31401-3640

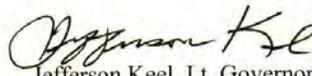
Dear Colonel Hall:

Thank you for the letter regarding the proposed modifications to the Savannah River Basin Drought Contingency Plan which would affect how water is managed in the Corps' three Savannah River reservoirs during times of drought.

After reviewing the information, we are in agreement with the assessment and have no objections to the proposed undertaking. We concur with the finding of no adverse effect to historic properties and we accept the special conditions set forth in this report. We do not presently know of any specific historic properties or properties of significant religious or sacred value.

In the event the agency becomes aware of the need to enforce other statutes we request to be notified under NEPA, NAGPRA, AIRFA, ARPA and NHPA Professional Standards. If you have any questions, please contact Ms. LaDonna Brown, historic preservation officer at (580)272-5593, [Ladonna.brown@chickasaw.net](mailto:Ladonna.brown@chickasaw.net) or Ms. Amber Jarrett, preservation and repatriation manager, at (580)559-0825, [amber.jarrett@chickasaw.net](mailto:amber.jarrett@chickasaw.net).

Sincerely,

  
Jefferson Keel, Lt. Governor  
The Chickasaw Nation



**God Bless America!**

## **APPENDIX G**

**SUMMARY OF COMMENTS RECEIVED**

**AND**

**RESPONSES TO COMMENTS**

**Summary of Comments Received on Draft EA  
(13 April 2012-12 May 2012 Public Comment Period)**

Upon distribution of the Savannah River Basin-Drought Plan Revision Draft EA on April 13, 2012, Savannah District received 111 written letters, e-mails and dictated responses from Federal and state agencies, environmental groups, civic organizations and private citizens.

There were 26 respondents that provided general statements in support of the action. Of the remaining 85 respondents, many submitted more than one comment. Of these 85 respondents, 75 stated that the reductions should have gone farther.

The District received a total of 139 comments. These comments and resulting responses are included in this Appendix.

**Public Comment - Sandy Byrd**

**01-LO-01-EV01**

**Comment:** “We would like to see the water level on Lake Thurmond closer to full. We can't even get our boats up to the docks.”

**Response:** The Proposed Action calls for periodic reduction in flow from Hartwell and Thurmond.

## Public Comment – Jerry Clontz

### 02-LO-01-EN01

**Comment:** *“We continue to recommend that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. And we further recommend releases be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Furthermore we recommend releases from Thurmond Dam be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels.”*

**Response:** Any drought alternatives that target the minimum flow requirement of the river at elevation 328 are beyond the scope of the EA currently being evaluated. During the winter season, the guide curves at Hartwell and Thurmond are at 326 ft-NGVD and 656 ft-NGVD to provide adequate flood storage for large storm events. To implement your suggestion, a portion of the flood storage pools would need to be re-authorized as conservation storage. In addition to congressional re-authorization of flood control storage, reduction to an immediate minimum flow would require an evaluation by resource agencies and other stakeholders potentially affected by this proposal. The Savannah River Comprehensive Basin Study can more adequately evaluate alternatives such as this.

During drought, inflow from the area below Thurmond Dam is not dependable. Inflows from storms events below Thurmond tend to be flashy, rising quickly and then falling quickly. Due to the small size of the local drainage area between Thurmond and Augusta, there is not a great deal of opportunity to conserve large quantities of water. While rainfall in the Augusta, GA area can cause temporary, significant inflows into the river, the duration is not long enough to allow rescheduling of dam operation, considering the lag time between when releases are made from Thurmond Dam and when that water reaches Augusta.

The current EA does recommend winter-time flow reductions when conditions are appropriate.

**Public Comment – Shelia Dew**

**03-LO-01-EC01**

**Comment:** *“This is just appalling that Lake Lanier is almost full and here we sit with docks on the shoreline in mud and no rain in the forecast during the spring month which will again lend itself to decrease in tourism during the summer months and at a time when our economy here in Hartwell with 12% unemployment could use the water and what it brings to this small town and many area towns.”*

**Response:** Hartwell Lake, one of the most highly visited Corps lakes, has the most private boat docks of any Corps lake nationwide. The Corps recognizes that those who feel the economic effects the most are those business, property owners, and communities located closest to a lake who rely heavily on it as the sole resource for their livelihood and well-being. However, to make the most complete and balanced use of the basin's water resources, the lakes are managed as a multi-purpose integrated system, giving consideration to all Congressionally authorized purposes: hydropower, flood control, recreation, fish and wildlife, water quality, water supply, and navigation.

**Public Comment – Brian Keith**

**04-LO-01-EN01**

**Comment:** *“It is recommend that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. Additionally, I recommend releases be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Furthermore we recommend releases from Thurmond Dam be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels.”*

**Response:** Refer to 02-LO-01-EN01.

**Public Comment – Fran Uteg**

**05-LO-01-EC01**

**Comment:** *“I am a resident of Hart county and since moving here in 2005, there have been three years where I could not use my dock because of low, or no water. The lake level has severely effected my property value and has virtually “”trapped “ us in Hart county.”*

**Response:** Although the impact of low lake levels on real estate sales are measureable, the national housing crisis that began in 2007 and other economic factors like the recession would have been the primary factors driving the declines in real estate transactions.

**Public Comment – Gary and Susan Bang**

**07-LO-01-EN01**

**Comment:** *“I appreciate the consideration again of lowering release levels from Thurmond during these drought stressed times....Even though the trend is in the right direction, I agree with the Save Our Lake plan which is slightly more aggressive than the current levels in drought stressed situations.”*

**Response:** Refer to 02-LO-01-EN01.

**Public Comment – Ken Graves**

**08-LO-01-EN01**

**Comment:** *“The proposal recommended by Save Our Lakes Now has apparently been totally discounted despite the obvious----our lake is not going to reach and maintain an acceptable level without a much more aggressive approach than I am seeing.”*

**Response:** Refer to 02-LO-01-EN01.

**Public Comment – Donald Sample**

**09-LO-01-EN01**

**Comment:** *“I recall a presentation by the Corps about 15+ years ago when it was announced that a new computer program was being put into use that would prevent future drastic drops in the lake level. Apparently that program didn't work! Now a real workable solution has been proposed by the Save Our Lakes organization. It seems like the actions recommended by Save Our Lakes should be implemented NOW rather than later.”*

**Response:** Refer to 02-LO-01-EN01.

**Public Comment – Mary Ann Simpkins**

**10-LO-01-EN01**

**Comment:** *“In agreement with the official comments from Save Our Lakes Now we ask that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. Also, releases should be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Most importantly, releases from Thurmond Dam should be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels.”*

**Response:** Refer to 02-LO-01-EN01.

**Public Comment – Suzanne Doolan**

**11-LO-01-EN01**

**Comment:** *“The release rates from Thurmond Dam should be reduced more as per the plan proposed by "Save our Lakes" to allow those on Hartwell to enjoy the lake. Furthermore the releases from Thurmond Dam should be completely stopped during a drought anytime the river is swollen from rains downstream so as to maximize the rate the lakes regain normal levels.”*

**Response:** Refer to 02-LO-01-EN01.

## **Public Comment – Roger Johns**

### **12-LO-01-EN01**

**Comment:** *“I believe the Corps pushes out too much water each fall, I have lived on the lake for 15 years and I don’t know the “logic” or lack of it to drain the lake by 5 feet or more each Sept. This puts us too far behind to ever catch up when we are not getting regular rainfall.”*

**Response:** The guide curve is designed to provide flood storage during winter-spring seasons. If the pool elevations are already below the guide curve at that time of year, there are no increases in releases for flood management. It is only when the pool elevations are higher than the guide curves that releases are increased to draw the pools down to the guide curves.

**Public Comment – Glenn Cantrell**

**15-LO-01-EN01**

**Comment:** *“As a full time resident and homeowner on Lake Hartwell – I recommend that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. And also further recommend releases be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Furthermore I recommend releases from Thurmond Dam be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels.”*

**Response:** Refer to 02-LO-01-EN01.

**Public Comment – Brad Hobbs**

**16-LO-01-EN01**

**Comment:** *“I believe that a more aggressive approach could be used to maintain higher lake levels without impacting river flow below the lake system. For example the "Save Our Lakes" recommendation that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills would assist in keeping both Thurmond and Hartwell. Further if releases were reduced to 3100cfs during winter months anytime Lake Thurmond is below 328' and if releases from Thurmond Dam were completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels; levels could be further improved - again without negative impact on river flow below the lake system.”*

**Response:** Refer to 02-LO-01-EN01.

**Public Comment – Bill McLean**

**17-LO-01-EV01**

**Comment:** *“Please quit managing the lake for flood control only, it is contributing to the low summer levels. The recreation use is of more value nowadays.”*

**Response:** We meet the authorized project purposes.

## Public Comment – Vernon Sauer

### 18-LO-01-EN01

**Comment:** *“I’ve been playing with the new Corps proposal for adjusting outflow from Thurmond based on flow of the Broad River at Bell. I computed the long term mean flow at Bell as 1,728 cfs based on USGS records. If I interpret the proposal correctly, you are basing the 28-day mean-flow computations at Bell using a 28-day moving average. Moving average being the key.*

*As a trial, I ran the moving average computations for the period 1/1/2008 to 4/18/2012. Based on these computations I found only two periods where the 28-day moving average was less than 10% of the long term mean (173 cfs).*

- 1. 19 days in 2008 (8/9/08-8/27/08)*
- 2. 37 days in 2011 (9/6/11-10/12/11)*

*My question to you is, have I interpreted the proposal correctly. My numbers in this trial run may not be precisely correct, but are you proposing the use of a moving average. The info we’ve been getting in the newspaper does not mention a 28-day moving average, but just an average flow. It makes a big difference on how this is interpreted.”*

**Response:** *The USGS defines the 10 percentile flow as the breakpoint between below normal flows and drought level streamflows. The 10 Percentile flow is computed by the USGS and is explained on their web page at (<http://waterwatch.usgs.gov/new/index.php?m=pa28d&r=ga&w=map>).*

*The “28-day average streamflow” shows the average streamflow conditions for the past 28 days. By averaging over the past 28 days, the values are more indicative of longer-term streamflow conditions than real-time or daily conditions. The data represents 28-day average streamflow compared to percentiles of historical 28-day average streamflow for the day of the year. The USGS only uses gages with at least 30 years of record to assess drought conditions. The Broad River near Bell, GA streamgage has a period of record of over 79 years of daily data. Streamflow at this location is a good representation of inflow into the basin as a whole because the Broad River is a large unregulated basin within the Savannah River Basin with a long period of record.*

*Additionally, the Broad River near Bell, GA streamgage is a part of the USGS Hydro-Climatic Data Network. This is a subset of all USGS streamgages where streamflow conditions primarily reflect climatic variations; that is, streamflow conditions are minimally affected by human disturbance. Although most streamgages reflect some level of human activity, total water*

*extractions or diversions at HCDN sites are generally less than 5 percent of the mean annual discharge.*

*The concept of using this as an indicator is that climatic conditions would additionally trigger flow reductions than solely relying on pool levels to decline as a trigger.*

## Public Comment – Steve and Jennifer Long

### 19-LO-01-EC01

**Comment:** *“It was less than 5 months ago the lake level reached nearly 12’ below full level. Continued low lake levels will not only detour potential home buyers but poses significant and risks of injury or deaths concerning recreational boaters attempting to avoid tree stumps, debris, rocks, and low ground that would normally not be exposed if the lake was at full level. Furthermore the financial impact to Hart and surrounding counties in both Georgia and South Carolina is a concern and will grow if lake levels continue to suffer with lack of rain fall and further compounded with continued high volume discharges of water downstream to Thurmond and Russell. Less home buyers, tourism, lost jobs, and other financial impacts will continue to be a concern and magnify if the lake continues to drop at the current discharge rates. The lack of rainfall and potential dry summer forecasted for 2012 will only magnify these concerns.”*

**Response:** The implementation of the proposed alternative in the current EA will provide more water conservation opportunities than in the past. It was as recent as spring 2009 that the pools had declined to 12 feet below full summer pool. The low lake levels are a side-effect of drought. Drought combined with the downturn in the economy exacerbates economic impacts.

In a study conducted by the Strom Thurmond Institute of Government and Public Affairs at Clemson University titled, “An Economic Analysis of Low Water Levels in Hartwell Lake”, dated November 8, 2010, the regional economic impacts of low lake levels on the six county region bordering Hartwell Lake were examined. Although the impact of low lake levels on real estate sales is measurable, the national housing crisis that began in 2007 and other economic factors like the recession were the primary factors driving the decline in real estate transactions. The economic effects of the drought of record on counties surrounding Hartwell Lake in both Georgia and South Carolina, while measurable, are small when compared to the overall regional economy. It is estimated that output was reduced only approximately one-tenth of one percent in the six county region surrounding Hartwell Lake during the drought of record. Hartwell Lake is not the primary economic driver in the region. It is important, but the region is not critically dependent on Hartwell Lake for its economic well-being. The presence of Hartwell Lake draws visitors to the region, but it is not the only attraction. While tourism and lake-related recreation activity is an important contributor to the economic activity, residents should consider lake recreation and tourism as one piece in their basket of economic growth and development options. Regional breadth and depth of economic activity is the objective for sustainable growth and development. The counties surrounding Hartwell Lake have sufficient breadth and depth to weather prolonged low lake levels without realizing substantial declines in their economic well-being.

Economic fluctuations tend to be felt by the people most vulnerable to changes in specific areas of economic activity. In the case of lower lake levels, the Corps recognizes that those who feel the economic effects the most are those businesses, property owners, and communities located closest to the lake who rely heavily on it as the sole resource for their livelihood and well-being. However, to make the most complete and balanced use of the basin's water resources, the lakes are managed as a multi-purpose integrated system, giving consideration to all Congressionally

authorized purposes: hydropower, flood control, recreation, fish and wildlife, water quality, water supply, and navigation.

**Public Comment – Pat and Billy Cox**

**20-LO-01-EN01**

**Comment:** *“We continue to recommend that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. And we further recommend releases be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Furthermore we recommend releases from Thurmond Dam be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels.”*

**Response:** Refer to 02-LO-01-EN01.

## Public Comment – Doug

### 22-LO-01-EN01

**Comment:** *“Start on your upper lake, Hartwell, and adjust the outflow to match the inflow when the lake hits 655' elevation. Don't wait three months after a drought starts to react. Don't dump water quickly when we have a rain event. It is interesting that you can react to lots of water overnight and it takes months to react to drought conditions.”*

**Response:** The implementation of the proposed alternative in the current EA will provide more water conservation opportunities than in the past. The current drought management strategy uses pool elevation as the only drought criteria that designates how much the Corps should release out of the reservoirs. While this is easy to understand, the pool elevation trigger reductions do not get initiated until the pools have already fallen to specified trigger levels. The Corps intends to use the 28 day average flow at the USGS gage on the broad River at Bell, GA as the index site for the inflow based trigger. The Broad River is an unregulated drainage basin with 1430 square miles above the gage site. The Broad River ultimately flows into Thurmond Reservoir downstream of Richard B. Russell Dam. The current drought plan does not require a flow reduction until the pools have fallen to the next drought trigger. With this proposed revision, inflows will help us make that decision.

The guide curve defines full pool. It is our objective to maintain the integrity of the dam, and the safety of downstream communities by keeping pool elevations no higher than the guide curve. This provides adequate flood storage in the event of a large storm. Once the pools have declined below the guide curves, we do not increase our releases to fight storm events. The concept of flood storage is to store the rainfall from a storm event and then let it out after the storm at a non-damaging rate.

**Public Comment – Don Mohn**

**23-LO-01-EC01**

**Comment:** *“Everyone seems to look at the economic side and benefits of have more water in Lake Hartwell. It is not all about money. It is about quality of life and family time that families get to enjoy when the lake has enough water in it to access. My Boat is in my driveway today will probably be there most of the summer due the lake level.”*

**Response:** In the case of lower lake levels, the Corps recognizes that those who feel the societal effects the most are those communities located closest to a lake who rely heavily on it as the sole resource for their quality of life. However, to make the most complete and balanced use of the basin's water resources, the lakes are managed as a multi-purpose integrated system, giving consideration to all Congressionally authorized purposes: hydropower, flood control, recreation, fish and wildlife, water quality, water supply, and navigation.

## **Public Comment – Sam Booher**

### **24-LO-01-EV01**

**Comment:** *“The current system allows Augusta to divert as much water as the Augusta Canal can hold and even more resulting in water spilling over a dam located mid-canal into a small creek. While this has an undesirable impact of the shoals no one knows what long term impact this current diversion has caused during low flow periods.*

*Currently during drought conditions this continued excessive water diversion from the shoals has a terrible impact resulting often in a stench from many areas of the shoals due to no flow and resulting rotting vegetation.*

*Under your new Drought Plan and if you go to this reduced flow, without bringing Augusta/Richmond County government into an agreement and with an absence of Corps inspections that would insure a reduction of the current unlimited diversion of water into the canal, there will be no shoals still existing on the Savannah River.*

*You might as well publish new maps that shows the Savannah River has moved West and show the Augusta Canal flow as the Savannah River route, because that there will be nothing left alive in the shoals. Note you will also need to move the South Carolina State boundary line to mid-canal.*

*I am proving these comments because you said "Our intent was to identify ways to respond earlier in a drought to conserve additional water storage, while balancing the impacts of drought on our other project purposes."”*

**Response:** The U. S. Army Corps of Engineers has no inspection authority concerning Augusta Canal flows.

## Public Comment – James Dennis

### 25-LO-01-EN01

**Comment:** *“As a resident of Hartwell for the last 12 years it is also very clear to me that the governing authority needs to further evaluate its definition of "drought". The rainfall from year to year is extremely volatile and the use of averages is not appropriate. We seem to have 1 year of enormous rainfall every five years. The following 4 years, in my opinion, represent a drought. However, the Corp does not recognize the drought and start to take action until it is too late and too much water has already been let out.”*

**Response:** The implementation of the proposed alternative in the current EA will provide more water conservation opportunities than in the past. The current drought management strategy uses pool elevation as the only drought criteria that designates how much the Corps should release out of the reservoirs. While this is easy to understand, the pool elevation trigger does not get initiated until the pools have already fallen to specified trigger levels. We are proposing to use the 28 day average flow at the USGS gage on the broad River at Bell, GA as the index site for the inflow based trigger. The Broad River is an unregulated drainage basin with 1430 square miles above the gage site. The Broad River ultimately flows into Thurmond Reservoir downstream of Richard B. Russell Dam. The current drought plan does not require a flow reduction until the pools have fallen to the next drought trigger. In the past, the Corps has tended to transition to the next lower drought state as forecasts changed. In the future, inflows will help us make that decision.

## Public Comment – Robert and Arenda Ramsey

### 26-LO-02-EC01

**Comment:** *“Continued low lake levels has had a significant impact on lake safety, home sales in our area, business closures, visitors to the area and job losses. We live here year-round and we see evidence of this every day of our lives. When the lake is up, business is up; when the lake is down, businesses close or lay-off employees.”*

**Response:** In a study conducted by the Strom Thurmond Institute of Government and Public Affairs at Clemson University titled, “An Economic Analysis of Low Water Levels in Hartwell Lake”, dated November 8, 2010, the regional economic impacts of low lake levels on the six county region bordering Hartwell Lake were examined. Although the impact of low lake levels on real estate sales is measurable, the national housing crisis that began in 2007 and other economic factors like the recession were the primary factors driving the decline in real estate transaction. The economic effects of the drought of record on counties surrounding Hartwell Lake in both Georgia and South Carolina, while measurable, are small when compared to the overall regional economy. It is estimated that output was reduced only approximately one-tenth of one percent in the six county region surrounding the Hartwell Lake during the drought of record. Hartwell Lake is not the primary economic driver in the region. It is important, but the region is not critically dependent on Hartwell Lake for its economic well-being. The presence of Hartwell Lake draws visitors to the region, but it is not the only attraction. While tourism and lake-related recreation activity is an important contributor to the economic activity, residents should consider lake recreation and tourism as one piece in their basket of economic growth and development options. Regional breadth and depth of economic activity is the objective for sustainable growth and development. The counties surrounding Hartwell Lake have sufficient breadth and depth to weather prolonged low lake levels without realizing substantial declines in their economic well-being.

Economic fluctuations tend to be felt by the people most vulnerable to changes in specific areas of economic activity. In the case of lower lake levels, the Corps recognizes that those who feel the economic effects the most are those businesses, property owners, and communities located closest to the lake who rely heavily on it as the sole resource for their livelihood and well-being. However, to make the most complete and balanced use of the basin's water resources, the lakes are managed as a multi-purpose integrated system, giving consideration to all Congressionally authorized purposes: hydropower, flood control, recreation, fish and wildlife, water quality, water supply, and navigation.

### 26-LO-02-EV01

**Comment:** *“We were in Savannah visiting when the lake here was so low that grass and trees were growing where the lake should have been. Imagine our surprise to see lakes and rivers that Hartwell feeds into overflowing their banks. We have to find a balance and the reduction of discharge from Hartwell lake is a good place to start.”*

**Response:** The City of Savannah is within the tidal zone.

**Public Comment – Brian White**

**27-LO-01-EN01**

**Comment:** *“Rates from Thurmond Dam be reduced to 3600 cfs whenever Lake Thurmond is below 328' until the lake refills. And we further recommend releases be reduced to 3100 cfs during winter months anytime Lake Thurmond is below 328'. Furthermore we recommend releases from Thurmond Dam be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels.”*

**Response:** Refer to 02-LO-01-EN01.

**Public Comment – Peggy Sinram**

**28-LO-01-EN01**

**Comment:** *“I heartily agree with the stand of "Save Our Lakes" regarding the reduction of flows during periods of drought and low lake levels.”*

**Response:** Refer to 02-LO-01-EN01.

## Public Comment – Frank A. Carr and Ann C. Merwarth

### 29-LO-01-EC01

**Comment:** *“Please be sensitive to the fact that many folk, including some friends and relatives have invested in Upstate South Carolina and are loosing--or have already lost-- their property due to the persistant and precipitous low water levels in Lake Hartwell. To some, this is a loss of life savings. While the current draft EA for the Sasvannah River Drought Plan may be a step in the right direction, we feel it does not go far enough to restoring the Upstate's economy and we urge a stronger effort to reduce the outflow of Hartwell and to achieve and maintain Hartwell's water level at full pool!”*

**Response:** Although the impact of low lake levels on real estate sales is measurable, the national housing crisis that began in 2007 and other economic factors like the recession were the primary factors driving the decline in real estate transactions.

In a study conducted by the Strom Thurmond Institute of Government and Public Affairs at Clemson University titled, “An Economic Analysis of Low Water Levels in Hartwell Lake”, dated November 8, 2010, the regional economic impacts of low lake levels on the six county region bordering Hartwell Lake were examined. The estimated economic impacts of low water levels on the six counties bordering Hartwell Lake in both Georgia and South Carolina, while measurable, are small when compared to the overall regional economy. It is estimated that output resulting from the low lake levels was reduced only approximately one-tenth of one percent of the value of total regional output in the six county region bordering Hartwell Lake during the drought of record. This study demonstrates that Hartwell Lake is not the primary economic driver in the region. It is important, but the region is not critically dependent on Hartwell Lake for its economic well-being. The economy of Upstate South Carolina, while historically dependent on agriculture and textiles, is now relatively diverse; so no single factor is the primary driver of economic activity. The study provides evidence that the counties bordering Hartwell Lake have sufficient breadth and depth to weather prolonged low lake levels without realizing substantial declines in their economic well-being. Oconee County, South Carolina, actually shows an increase in employment, output, income, and net government revenue when Hartwell Lake water levels decrease because there appears to be a substitution effect for lake recreation activity between Hartwell Lake and Lake Keowee. This inverse economic impact from Lake Keowee was found in select business sectors in Pickens and Anderson counties as well.

The study acknowledges that economic fluctuations tend to be felt by the people most vulnerable to changes in specific areas of economic activity. In the case of lower lake levels, the Corps recognizes that those who feel the economic effects the most are those businesses, property owners, and communities located closest to the lake who rely heavily on it as the sole resource for their livelihood and well-being. However, to make the most complete and balanced use of the basin's water resources, the lakes are managed as a multi-purpose integrated system, giving consideration to all Congressionally authorized purposes: hydropower, flood control, recreation, fish and wildlife, water quality, water supply, and navigation.

**Public Comment – Patricia Howard**

**30-LO-01-EN01**

**Comment:** *“I continue to recommend that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. And I further recommend releases be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Furthermore I recommend releases from Thurmond Dam be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels.”*

**Response:** Refer to 02-LO-01-EN01.

## Public Comment – Darragh Geist

### 31-LO-01-EC01

**Comment:** *“In recent years the lake has been lowered to levels that destroy economic activity, devalue real estate prices and remove recreational opportunities from thousands of patrons. We respectfully ask you to exercise good analysis and decision making in dealing with drought or near drought conditions. We need to maintain lake levels so that taxpayers, homeowners and visitors can benefit from the beautiful lakes.”*

**Response:** Although the impact of low lake levels on property value may be measurable, the national housing crisis that began in 2007 and other economic factors like the recession would have likely been the primary factors driving the more permanent decline in your property values.

In a study conducted by the Strom Thurmond Institute of Government and Public Affairs at Clemson University titled, “An Economic Analysis of Low Water Levels in Hartwell Lake”, dated November 8, 2010, the regional economic impacts of low lake levels on the six county region bordering Hartwell Lake were examined. The estimated economic impacts of low water levels on the six counties bordering Hartwell Lake in both Georgia and South Carolina, while measurable, are small when compared to the overall regional economy. It is estimated that output resulting from the low lake levels was reduced only approximately one-tenth of one percent of the value of total regional output in the six county region bordering Hartwell Lake during the drought of record. This study demonstrates that Hartwell Lake is not the primary economic driver in the region. It is important, but the region is not critically dependent on Hartwell Lake for its economic well-being. The study provides evidence that the counties bordering Hartwell Lake have sufficient breadth and depth to weather prolonged low lake levels without realizing substantial declines in their economic well-being.

The study acknowledges that economic fluctuations tend to be felt by the people most vulnerable to changes in specific areas of economic activity. In the case of lower lake levels, the Corps recognizes that those who feel the economic effects the most are those businesses, property owners, and communities located closest to the lake who rely heavily on it as the sole resource for their livelihood and well-being. However, to make the most complete and balanced use of the basin's water resources, the lakes are managed as a multi-purpose integrated system, giving consideration to all Congressionally authorized purposes: hydropower, flood control, recreation, fish and wildlife, water quality, water supply, and navigation.

## Public Comment – Mark Kibilko

### 32-LO-01-EC01

**Comment:** *“I recently moved to Townville, SC and purchased lake front property on Lake Hartwell. If I knew the lake levels would be LOWERED AS DRAMATICALLY as they have this year our first full year on the lake WE NEVER WOULD HAVE BUILT HERE. We paid a PREMIUM for our lot based on the ability to have a dock and utilize the lake for our recreation. We are senior citizens. WE CAN NOT CONTINUE TO STRUGGLE with moving our dock out and so far this year have it remain to be hundreds of feet further away from the end our our path at full pool. I read from SAVE OUR LAKES that the US Army Corps is being more flexible with release rates but from my point of view the US Army Corp has been WOEFULLY WITHOUT CONCERN FOR LAKEFRONT OWNERS who continue to contact our Congressional and State Representatives to complain about the neglect and flat out disrespect of our wishes and situation by the Corp.*

*This e-mail is intended to bring to your attention the general feeling of all the shoreline home and property owners on Lake Hartwell. Pay attention and consider the funds generated by lake front home owners in all recreational aspects of water sports, fishing, camping, local businesses and your jobs with the US Government. Don't continue to bite the hand that feeds you. STOP THE LAKE RELEASE NOW!”*

**Response:** In a study conducted by the Strom Thurmond Institute of Government and Public Affairs at Clemson University titled, “An Economic Analysis of Low Water Levels in Hartwell Lake”, dated November 8, 2010, the regional economic impacts of low lake levels on the six county region bordering Hartwell Lake were examined. The estimated economic impacts of low water levels on the six counties bordering Hartwell Lake in both Georgia and South Carolina, while measurable, are small when compared to the overall regional economy. It is estimated that output resulting from the low lake levels was reduced only approximately one-tenth of one percent of the value of total regional output in the six county region bordering Hartwell Lake during the drought of record. This study demonstrates that Hartwell Lake is not the primary economic driver in the region. It is important, but the region is not critically dependent on Hartwell Lake for its economic well-being. The study provides evidence that the counties bordering Hartwell Lake have sufficient breadth and depth to weather prolonged low lake levels without realizing substantial declines in their economic well-being.

The study acknowledges that economic fluctuations tend to be felt by the people most vulnerable to changes in specific areas of economic activity. In the case of lower lake levels, the Corps recognizes that those who feel the economic effects the most are those businesses, lake-access property owners, and communities located closest to the lake who rely heavily on it as the sole resource for their livelihood and well-being. However, to make the most complete and balanced use of the basin's water resources, the lakes are managed as a multi-purpose integrated system,

giving consideration to all Congressionally authorized purposes: hydropower, flood control, recreation, fish and wildlife, water quality, water supply, and navigation.

## Public Comment – Debra and William Boyd

### 34-LO-02-EC01

**Comment:** *“As a property owner bordering Lake Hartwell, our position supports a much more aggressive approach to maintain lake levels and avoid these high to low swings we have seen our the last several years. It negatively impacts businesses, home and property owners and so many others that have a share in and enjoy beautiful Lake Hartwell.”*

**Response:** In a study conducted by the Strom Thurmond Institute of Government and Public Affairs at Clemson University titled, “An Economic Analysis of Low Water Levels in Hartwell Lake”, dated November 8, 2010, the regional economic impacts of low lake levels on the six county region bordering Hartwell Lake were examined. The estimated economic impacts of low water levels on the six counties bordering Hartwell Lake in both Georgia and South Carolina, while measurable, are small when compared to the overall regional economy. It is estimated that output resulting from the low lake levels was reduced only approximately one-tenth of one percent of the value of total regional output in the six county region bordering Hartwell Lake during the drought of record. This study demonstrates that Hartwell Lake is not the primary economic driver in the region. It is important, but the region is not critically dependent on Hartwell Lake for its economic well-being. The economy of Upstate South Carolina, while historically dependent on agriculture and textiles, is now relatively diverse; so no single factor is the primary driver of economic activity. The study provides evidence that the counties bordering Hartwell Lake have sufficient breadth and depth to weather prolonged low lake levels without realizing substantial declines in their economic well-being. Oconee County, South Carolina, actually shows an increase in employment, output, income, and net government revenue when Hartwell Lake water levels decrease because there appears to be a substitution effect for lake recreation activity between Hartwell Lake and Lake Keowee. This inverse economic impact from Lake Keowee was found in select business sectors in Pickens and Anderson counties as well.

The study acknowledges that economic fluctuations tend to be felt by the people most vulnerable to changes in specific areas of economic activity. In the case of lower lake levels, the Corps recognizes that those who feel the economic effects the most are those businesses, property owners, and communities located closest to the lake who rely heavily on it as the sole resource for their livelihood and well-being. However, to make the most complete and balanced use of the basin's water resources, the lakes are managed as a multi-purpose integrated system, giving consideration to all Congressionally authorized purposes: hydropower, flood control, recreation, fish and wildlife, water quality, water supply, and navigation.

**34-LO-02-EN01**

**Comment:** *“We continue to recommend that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. And we further recommend releases be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Furthermore we recommend releases from Thurmond Dam be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels.”*

**Response:** Refer to 02-LO-01-EN01.

**Public Comment – Lucia Wilkes**

**35-LO-01-EV01**

**Comment:** *“Please be aware that our lake levels are low and need to be evaluated to keep levels up. This is essential for our natural resources and the livelihood of our community.”*

**Response:** The Proposed Action calls for periodic reductions in flows from Hartwell and Thurmond.

## Public Comment – William Eleazer

### 36-LO-01-EC01

**Comment:** *“One thing for certain, the current regulations, weather patterns, and demands upon the lake water are not working in favor of the lake home owners, lake recreation, and economic growth of the area. And, here lies the rub. The Corps' response is their mandate does not include the health of the economy and lake recreation. This is an easy platform to stand upon when the regulations are tilted in the direction of the environmental health of the basin and generation of power plus other political issues that never even enter into public debate. From our perspective, as home and business owners, and recreational users impacted by water levels, the platform was corrupted the minute land was sold on the lake, dock permits, by the thousands were issued, state parks and recreational facilities were built for public use, and businesses were encouraged to support these activities. The Savannah basin became a center for tourism and lake recreation.*

*It seems to me, and my neighbors and friends, that it is time to address both concerns and, maybe even, consider changing the regulations to fit the demands of the many factions that are concerned.”*

**Response:** In a study conducted by the Strom Thurmond Institute of Government and Public Affairs at Clemson University titled, “An Economic Analysis of Low Water Levels in Hartwell Lake”, dated November 8, 2010, the regional economic impacts of low lake levels on the six county region bordering Hartwell Lake were examined. Although the impact of low lake levels on lake-access real estate sales is measurable, the national housing crisis that began in 2007 and other economic factors like the recession were the primary factors driving the decline in real estate transaction. The estimated economic effects of the drought of record on counties surrounding Hartwell Lake in both Georgia and South Carolina, while measurable, are small when compared to the overall regional economy. It is estimated that output was reduced only approximately one-tenth of one percent in the six county region surrounding the Hartwell Lake during the drought of record. Hartwell Lake is not the primary economic driver in the region. It is important, but the region is not critically dependent on Hartwell Lake for its economic well-being. The presence of Hartwell Lake draws visitors to the region, but it is not the only attraction. While tourism and lake-related recreation activity is an important contributor to the economic activity, residents should consider lake recreation and tourism as one piece in their basket of economic growth and development options. Regional breadth and depth of economic activity is the objective for sustainable growth and development. The counties surrounding Hartwell Lake have sufficient breadth and depth to weather prolonged low lake levels without realizing substantial declines in their economic well-being.

The study acknowledges that economic fluctuations tend to be felt by the people most vulnerable to changes in specific areas of economic activity. In the case of lower lake levels, the Corps recognizes that those who feel the economic effects the most are those businesses, lake-access property owners, and communities located closest to the lake who rely heavily on it as the sole resource for their livelihood and well-being. However, to make the most complete and balanced use of the basin's water resources, the lakes are managed as a multi-purpose integrated system,

giving consideration to all Congressionally authorized purposes: hydropower, flood control, recreation, fish and wildlife, water quality, water supply, and navigation.

## Public Comment – Tom Greene

### 37-LO-01-EN01

**Comment:** *“I have seen it suggested that release should be reduced to 3600 cfs whenever Lake Thurmond falls below 328’. I also saw the suggestion that release levels should be reduced to 3100 cfs during the winter months when the lake level falls below 328’. Power generation needs are lower at this time of year and this plan will conserve our water resources for later needs. These suggestions just seem to make sense.”*

### **Response:**

Any drought alternatives that target the minimum flow requirement of the river at elevation 328 are considered beyond the scope and authority of the EA currently being evaluated. This is not to say that this recommendation could not be evaluated. However, additional rigor beyond the budget and timeline of this EA is required to evaluate the impacts of such a recommendation. During the winter season, the guide curves at Hartwell and Thurmond are at 326 ft and 656 ft to provide adequate flood storage for large storm events. To implement your suggestion, part of the flood storage pools would need to be re-authorized as conservation storage. The Savannah River Comprehensive Basin Study can more adequately evaluate alternatives such as this.

The current EA does recommend winter time flow reductions when conditions are appropriate.

In the past, we have attempted to lower flows during downstream storm events. Due to the small size of the local drainage area between Thurmond and Augusta, there is not a great deal of opportunity for conserving large quantities of water. Storm inflows below Thurmond tend to be flashy, rising quickly and then falling quickly. If the inflow estimate is overestimated and less local inflow fell than the downstream needs, water supply problems could occur.

**Public Comment – Edwin F. Hunt**

**38-LO-01-EN01**

**Comment:** *“I, as a property owner, support the proposals of Save Our Lakes Now.”*

**Response:** Refer to 02-LO-01-EN01.

## **Public Comment – Duke DuFrane**

### **39-LO-02-EN01**

**Comment:** *“it seems to me that the downstream creatures have been dealing with high and low stream levels for millions of years*

*in order to keep them health and fit, that approach should continue..... therefore the policy should be to let as much water out as comes in*

*if during some extreme storm period, the lake could be filled, from then on, it could be kept full if as much was let out as was coming in”*

**Response:** Whenever the Corps proposes to change the way it manages the reservoirs, it must address impacts of the operational change on what habitat exists there at present.

### **39-LO-02-EC01**

**Comment:** *“a second thought is that way back when the lake was justified to the American taxpayer, probably things like flood control, electrical generation, perhaps irrigation, perhaps fresh water for municipalities, but certainly Recreation were considered. Allowing the lake to go won more than 3 feet extremely negatively impacts recreation. when people cant get there boats to the water from their docks, it is bad”*

**Response:** In this EA, when evaluating the impacts of various alternatives, the Corps looks at impacts on all authorized project purposes. We have selected the alternative that we believe is the best plan across all of these authorized project purposes.

**Public Comment – Kassie Corder**

**40-LO-01-EN01**

**Comment:** *“Please consider requests from Save Our Lake.”*

**Response:** Refer to 02-LO-01-EN01.

## Public Comment – Ken Jones

### 42-LO-01-EC01

**Comment:** *“This drought is really creating a hardship for the property owners. Most homes are being appraised based on the level of the lake. I have a nice log cabin on the lake in Indian Cove Subdivision. I keep my permits current. I abide by all corp policies as far as dock permits and underbrushing. I also willingly pay my fair share of taxes and I don't complain about it.*

*I know that sharing the water resources is a must. It's not all about me either. My question is this. Why am I last to have anything as far as a lake to enjoy when I do all that is required of me?”*

**Response:** The Corps recognizes that those who feel the hardships the most are those businesses, property owners, and communities located closest to the lake who rely heavily on it as the sole resource for their livelihood and well-being. However, to make the most complete and balanced use of the basin's water resources, the lakes are managed as a multi-purpose integrated system, giving consideration to all Congressionally authorized purposes: hydropower, flood control, recreation, fish and wildlife, water quality, water supply, and navigation.

No property in Lincoln County is appraised based on lake level fluctuations. It is appraised based on the location of the lot in terms of deep or shallow water.

**Public Comment – Mark Howell**

**43-LO-01-EV01**

**Comment:** *“I can't afford to pay people to move my dock. Many people have just given up on the CORE. But I love the lake and don't understand why a reduced outflow management plan cannot be implemented.”*

**Response:** The Proposed Action calls for periodic reductions in flows from Hartwell and Thurmond.

**Public Comment – Fred Munzenmaier**

**44-LO-01-EN01**

**Comment:** *“I vigorously support the Save Our Lakes Now position as follows:*

*A more aggressive approach should be used to maintain lake levels. The release rates from Thurmond Dam should be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. Releases should be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Furthermore releases from Thurmond Dam should be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels.”*

**Response:** Refer to 02-LO-01-EN01.

**Public Comment – Tom Miller**

**45-LO-01-EN01**

**Comment:** *“We continue to recommend that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. And we further recommend releases be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Furthermore we recommend releases from Thurmond Dam be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels.”*

**Response:** Refer to 02-LO-01-EN01.

**Public Comment – Ann Daniel**

**46-LO-02-EV01**

**Comment:** *“The Hydrilla issue is also one that needs to be looked at it is killing the Eagles on our lake after they eat the Coots.”*

**Response:** We are aware of Avian Vacuolar Myelinopathy (AVM) and research since 1994. The differences in abundance of cyanobacterial colonies on hydrilla are not measurable in relation to drought alternative lake levels.

**46-LO-02-EN01**

**Comment:** *“We continue to recommend that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. And we further recommend releases be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Furthermore we recommend releases from Thurmond Dam be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels.”*

**Response:** Refer to 02-LO-01-EN01.

## Public Comment – David Alpers

### 47-LO-01-EN01

**Comment:** *“Why when we are in a drought, would releases from the lake be greater in volume than would "naturally" flow down stream when there is a shortage of rain??? If there were no dam and water control facilities in place, during a drought, the flow downstream would be reduced....BY NATURE. Do we know better than the natural order of water control and distribution? Why not let the amount that flows downstream be equal to the amount that would flow naturally based on our rainfall and water table????”*

**Response:** The reservoirs were designed not only to lower the impacts of floods, but also to help get through periods of drought. Water is stored during normal and wet times and drawn against in times of need. If the reservoirs were not present, the river would only be flowing at what little inflow comes in from upstream tributaries.

While floods are obviously a hazard to the river downstream, so are low flows. The river has a breaking point at which lesser flows would result in water quality problems. The industry that has grown up along the river is dependent on a minimum amount of flow being present. Below that point, industry has to shut down or the water quality will drop to a point where fish kills will occur. The states have based their industrial point source discharge permits on our minimum release. The Corps seeks to provide the flows required to maintain that minimum level of water quality.

**Public Comment – Gretchen Fuller**

**48-LO-01-EV01**

**Comment:** *“At the last meeting there was a discussion about lowering the draw from Lake Hartwell. Since we have not had the rain we need and we found out what happens when we hit 23 ft down. We need to be dilligent that does not happen again. That could mean that we limit our draw and see if it affects down basin. If it does, then adjust. Engineering is great, but the process of elimination may be the best way to proceed with being 8 ft down in April and no rain being predicted for the future.”*

**Response:** Similar to 02-LO-01-EN01.

## **Public Comment – Mike Barry**

### **49-LO-01-EN01**

**Comment:** *“I would like understand why we cannot come up with a proposal that fixes the problem vs putting a small band aid on it. I have read several viable solutions from simply maintaining the flow rates before the dams were built to the results of credible studies and for some reason the Corps does not want to respond to any of these.*

*Why not publish a response that lists the issues, the possible solutions and the corps position on those solutions instead of always hiding behind "our hands are tied" which we know is not necessarily true. At the same time why not pick a solution that works or come up with your own that works and give it a try for a few years.”*

**Response:** The Corps of Engineers does not hold a position other than following the current rules of operation in an attempt to best meet the authorized project purposes. The Corps is in the process of assessing the impacts associated with several operational changes in accordance with all applicable laws and regulations.

## Public Comment – Jeff Johnson

### 50-LO-03-EV01

**Comment:** *“The flows were reduced to 3100 CFS for an extended period 2 or 3 years ago when we were at record low levels. You even stopped all flow through Hartwell for a few weeks, maybe a month. Did this affect anything downstream in a negative way? If it did, please advise me of what it did impact.”*

**Response:** The reduction to 3100 cfs occurred during the winter period that various agencies have identified as acceptable under certain conditions. Stopping flow through Hartwell was a part of normal “pool balancing” with Thurmond.

### 50-LO-03-EN01

**Comment:** *“My permanent residence is in NC and all of our lakes are at, or close to full pool. This includes Kerr Lake and Lake Jordan, both USACE managed lakes. Our rainfall amounts are not much different than SC rainfall amounts, so how do you explain the constant lowering and releasing of water when it is not necessary.”*

**Response:** Rainfall amounts across the southeast have varied significantly. The project purposes and release requirements associated with reservoirs are also quite different. The Savannah River basin has been one of the hardest hit by lack of rainfall.

Releases from Corps of Engineers projects are based solely on rules found in the water control plans for the projects. In times of drought, our releases follow the objectives developed in the drought contingency plans. The initial design of the projects establishes a specific volume of water utilized to attempt to meet all of the authorized project purposes. The required releases to balance the project purposes are developed in the initial design. The conservation pool is sized such that if releases were made in accordance with the water control plans and drought contingency plans, the entire volume would be utilized to meet the project purposes. Due to the uncertainty of future droughts, there has been added a factor of safety to ensure that the conservation pools are never fully depleted.

The magnitude and timing of the releases in the drought plan has been determined through much stakeholder input and is specifically focused on supporting the authorized project purposes. The objective is to balance impacts to project purposes as pool levels drop.

## Public Comment – Mark and Denise McDowell

### 51-LO-01-EN01

**Comment:** “Simply, why can't we match the outflow with the inflow?”

*In times of flood, we hold back water to protect downstream, but in times of drought, we keep downstream full. It seems that under these guidelines, to be fair, when we are over full we should flood downstream. The way in which it is managed now just doesn't make sense. We need to share the drought. Let mother nature's river flow remain natural except in times of flood! Let the reservoirs fill up!!! Hold back when downstream is in danger but don't use up our precious water reserve because of outdated rules.”*

**Response:** The reservoirs were designed not only to lower the impacts of floods, but also to help get through periods of drought. Water is stored during normal and wet times and drawn against in times of need. If the reservoirs were not present, the river would only be flowing at what little inflow comes in from upstream tributaries.

While floods are obviously a hazard to the river downstream, so are low flows. The river has a breaking point at which lesser flows would result in water quality problems. The industry that has grown up along the river is dependent on a minimum amount of flow being present. Below that point, industry has to shut down or the water quality will drop to a point where fish kills will occur. The states have based their industrial permits on our minimum release which seeks to provide the flows required to maintain that minimum level of water quality.

**Public Comment – Jay Markham**

**54-LO-01-EN01**

**Comment:** *“We continue to recommend that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. And we further recommend releases be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Furthermore we recommend releases from Thurmond Dam be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels.”*

**Response:** Refer to 02-LO-01-EN01.

## Public Comment – John Dantzler

### 56-LO-02-EN01

**Comment:** *“We continue to recommend that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. And we further recommend releases be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Furthermore we recommend releases from Thurmond Dam be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels.”*

**Response:** Any drought alternatives that target the minimum flow requirement of the river at elevation 328 are beyond the scope of the EA currently being evaluated. During the winter season, the guide curves at Hartwell and Thurmond are at 326 ft-NGVD and 656 ft-NGVD to provide adequate flood storage for large storm events. To implement your suggestion, a portion of the flood storage pools would need to be re-authorized as conservation storage. In addition to congressional re-authorization of flood control storage, reduction to an immediate minimum flow would require an evaluation by resource agencies and other stakeholders potentially affected by this proposal. The Savannah River Comprehensive Basin Study can more adequately evaluate alternatives such as this.

During drought, inflow from the area below Thurmond Dam is not dependable. Inflows from storms events below Thurmond tend to be flashy, rising quickly and then falling quickly. Due to the small size of the local drainage area between Thurmond and Augusta, there is not a great deal of opportunity to conserve large quantities of water. While rainfall in the Augusta, GA area can cause temporary, significant inflows into the river, the duration is not long enough to allow rescheduling of dam operation, considering the lag time between when releases are made from Thurmond Dam and when that water reaches Augusta.

The current EA does recommend winter-time flow reductions when conditions are appropriate.

### 56-LO-02-EN02

**Comment:** *“Why should Lake Hartwell continually be the lake that is by far the most below full pool, in all types of weather patterns?”*

**Response:** The Hartwell and Thurmond reservoirs are balanced in a foot for foot manner for the first 15 feet. Once the pools have declined to this point, they are balanced based on the percent of depth remaining in their respective conservation pools. This balancing strategy is an attempt to balance the impacts of falling pools on users of both reservoirs. Russell is built as a pumped-storage facility and not intended to balance with Hartwell and Thurmond. It is designed to fluctuate much more each day and during the week than the other two.

**Public Comment – Rex Allen**

**57-LO-01-EN01**

**Comment:** *“Low water levels expose soft shore line contours to extensive erosion. Shore line contours that are normally submerged are not as hardened as the shore line contours near the full pool line. As a result, wave action has a greater erosion impact on the softer contours and the displaced silt is carried into the lower depths of the lake. Over time, this extensive erosion has had and will continue to have destructive effect on the health of the lakes.”*

**Response:** The Corps of Engineers monitors the effects of sedimentation at their reservoirs. Periodically, hydrographic surveys are made in key locations so that the effects of sedimentation can be measured over time.

**Public Comment – Carl Grisswell**

**58-LO-01-EN01**

**Comment:** *“I feel very good with the recommendation that the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' until the lake refills. And we further recommend releases be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328'. Also I believe that the recommendation for the releases from Thurmond Dam be completely stopped during a drought anytime the river is swollen from rains so as to maximize the rate the lakes regain normal levels and maintain the pure term “Reservoir”.”*

**Response:** Refer to 02-LO-01-EN01.

## Public Comment – GADNR

### 64-LO-04-EV01

**Comment:** *“While we appreciate that the Corps has identified that a minor impact may occur at the preferred alternative (at 3600 cfs), the language on page 64 as written does not appear to adequately address appropriate adaptive management. The language seems to imply that a return to a 3600 cfs flow would address a 3600 cfs related impact. Instead, for in-stream dissolved oxygen levels specifically, we recommend that if there are observed dissolved oxygen concentrations below 5 mg/l, as a daily average, or below 4 mg/l, as an instantaneous minimum, then the release would be returned to 3800 cfs (not 3600 cfs) at the request of either State. In this way, the dissolved oxygen levels would not change in the Savannah Harbor and be consistent with the NAA which has no associated impact at 3800 cfs. Changes regarding this language would need to be made to other affected areas of the document as well.”*

**Response:** The portion of Level 3 flows in Alternative 2 designated as 3600 cfs have been revised to 3800 cfs. For adaptive management in Level 3, the flow would be returned to a maximum of 3800 cfs.

### 64-LO-04-EN01

**Comment:** *“For clarity, on Page 45, Table 5, we recommend that the provision of Outflow=Inflow (i.e., continue Level 4 discharge as long as possible, thereafter Outflow=Inflow) be included in the Level 4 boxes for all listed alternatives.”*

**Response:** Concur. We will include this reference in each Level 4 box. Below the table will be included “\* Continue level 4 releases as indicated for as long as possible, thereafter Outflow = Inflow”.

### 64-LO-04-EC01

**Comment:** *“On Page 24, in the section entitled “Downstream of JST Lake”, the municipal surface water intake for the Augusta/Richmond County water treatment facility needs to be added to those intakes located in the Savannah Bluff Lock and Dam pool.”*

**Response:** Concur

### 64-LO-04-EC02

**Comment:** *“We recommend removing pages 103-111 and associated tables 32-53 which discuss projected water demands for Augusta Shoals and the Augusta Canal. No other projected water*

*demands are included in the EA. The Georgia EPD will be evaluating projected water needs as part of its surface water permitting process for Augusta/Richmond County.”*

**Response:** Non-concur. This analysis was performed because adequate information was available. Other projected water demands were not included because the information was not usable or readily available.

**Public Comment – Nick Fisher**

**68-LO-01-EN01**

**Comment:** *“However, I feel a more aggressive approach should be used to maintain lake levels. I continue to support the release rates from Thurmond Dam be reduced to 3600cfs whenever Lake Thurmond is below 328' or Hartwell is below 658' until the lakes refill. And I further recommend releases be reduced to 3100cfs during winter months anytime Lake Thurmond is below 328' or Hartwell is below 658'. Furthermore I recommend releases from Thurmond Dam be completely stopped during a drought anytime the river downstream is full due to rains.”*

**Response:** Refer to 02-LO-01-EN01.

## Public Comment – Ron Grimm

### 69-LO-02-EN01

**Comment:** *“By instituting the flow proposed for Trigger Level 3 at some higher lake level, the rate of impact of drought conditions would be lower than under the current operating parameters.”*

**Response:** The EA proposes to implement flow reductions earlier in drought and at a higher pool elevation.

### 69-LO-02-EN02

**Comment:** *“From my discussions with property owners in Tugaloo Bay subdivision on Lake Hartwell, the current schemes are confusing and lead to attributing other motives to the decisions to set release levels through the Savannah River system. A simpler approach would, I believe, help all concerned to understand the system. This could be accomplished by reducing the number of levels to one or two from the current three, and to use the lower release level of 3600 cfs at the earliest level feasible. The guide curves for Thurmond level recognize a variation from full pool to 4 feet below full pool. Triggering the lowest release level at some reasonable level (say 2 feet) below full pool would make response to drought conditions occur early in the drought, and would lessen the affect of drought on the local area with little environmental impact.”*

**Response:** Keeping it simple is important. The upcoming portion of the Savannah River Basin Comprehensive Basin Study will specifically address how low flows can go with respect to releases from the system. The Corps will look at both lower flows and earlier implementation.

## **Public Comment – Bob Bedgood**

### **74-LO-01-EN01**

**Comment:** *“I believe that the discharges from all the three lakes should be reduced to less than or equal to 3600 cfs max. until all lakes return to within 2 feet of full pool. At that point, the discharge rate could be raised to 3800 cfs max. and absolutely every issue involved would benefit tremendously.”*

**Response:** The 1989 Drought plan implemented a rule that once level 3 was triggered, a daily flow target of 3600 cfs would be initiated and remain in place until the pools had completely recovered to full pool. This specific rule was evaluated in the 2006 drought plan update and it was determined that the pools typically refill quickly during drought recovery whether or not the 3600 cfs was maintained all the way to full pool. At that time it was deemed a greater importance to have an earlier response to drought by adding larger flow reductions at a higher pool elevations.

The upcoming portion of the Savannah River Basin Comprehensive Basin Study will specifically address how low flows can go with respect to releases from the system. The Corps will look at both lower flows and earlier implementation. The persistence of level 3 flows may be reassessed at that point.

## Public Comment – Duke Energy

### 75-LO-05-EN01

**Comment:** *“Reservoir water storage needs to be conserved more aggressively in order to avoid going to Level 4 and Alternatives 3 and 4 allow for more reservoir water storage conservation than does Alternative 2. Duke Energy recommends further consideration be given to Alternative 3 and Alternative 4 and that one of those alternatives should be the final selected alternative.”*

**Response:** Under all operational alternatives assessed, none showed the reservoirs reaching Level 4, the bottom of the conservation pool. While alternatives 3 and 4 result in higher pool elevations, they also result in higher impacts to downstream interests.

### 75-LO-05-EN02

**Comment:** *“On page 46, a description of actions taken at each of the SRBDPCP levels is provided. For Levels 1 and 2, engineering judgement is used for transitioning from the maximum to the minimum flow within each level. Duke Energy recommends this flexibility be retained for Level 2 for all the alternatives for the February through October period instead of relying on the USGS Broad River gage near Bell.”*

**Response:** The primary reason for inclusion of an index inflow gage as an indicator of drought is for transparency. The public has requested clarity and simplicity. The decision without this indicator will likely replicate our decision using the indicator. However, the public will now understand the when and why behind the decision.

### 75-LO-05-EN03

**Comment:** *“Alternative 2 could actually use more reservoir water storage than the NAA if the USGS Broad River gage near Bell continuously reads just above the 10<sup>th</sup> percentile 28-day average flow in Level 2.”*

**Response:** The use of the indicator gage on an unregulated drainage basin within the Savannah River watershed will reflect drought conditions on the basin.

### 75-LO-05-EN04

**Comment:** *“Additional explanation needs to be provided on how the flow indicator for the USGS Broad River gage near Bell would be calculated and used. It is unclear what the “10<sup>th</sup> percentile 28-day average flow” means under Table 5 on page 45.”*

**Response:** *The USGS defines the 10 percentile flow as the breakpoint between below normal flows and drought level streamflows. The 10 Percentile flow is computed by the USGS and is explained on their web page at (<http://waterwatch.usgs.gov/new/index.php?m=pa28d&r=ga&w=map>).*

*The “28-day average streamflow” shows the average streamflow conditions for the past 28 days. By averaging over the past 28 days, the values are more indicative of longer-term streamflow conditions than real-time or daily conditions. The data represents 28-day average streamflow compared to percentiles of historical 28-day average streamflow for the day of the year. The USGS only uses gages with at least 30 years of record to assess drought conditions. The Broad River near Bell, GA streamgage has a period of record of over 79 years of daily data. Streamflow at this location is a good representation of inflow into the basin as a whole because the Broad River is a large unregulated basin within the Savannah River Basin with a long period of record.*

*Additionally, the Broad River near Bell, GA streamgage is a part of the USGS Hydro-Climatic Data Network. This is a subset of all USGS streamgages where streamflow conditions primarily reflect climatic variations; that is, streamflow conditions are minimally affected by human disturbance. Although most streamgages reflect some level of human activity, total water extractions or diversions at HCDN sites are generally less than 5 percent of the mean annual discharge.*

*The concept of using this as an indicator is that climatic conditions would additionally trigger flow reductions than solely relying on pool levels to decline as a trigger.*

#### **75-LO-05-EN05**

**Comment:** *“An additional evaluation of selecting the 25<sup>th</sup> percentile 28-day average flow instead of the 10<sup>th</sup> percentile 28-day average flow should be done in order to more proactively conserve reservoir water storage.”*

**Response:** The 10 percentile used is to maintain consistency with the USGS in their definition of hydrologic drought conditions.

**Public Comment – Fran Sullivan**

**77-LO-01-EN01**

**Comment:** *“You guys control this and Lake Russell stays full due to your efforts. Why do you maintain Russell and allow Hartwell to drop so significantly.”*

**Response:** The Russell project was designed specifically as a pump storage facility with frequent daily fluctuation but only a 5 foot total fluctuation in the conservation pool. The pump storage units did not require a deeper conservation pool to justify the project.

In contrast, the Hartwell project has less daily fluctuation but was designed to fluctuate a total of 35 feet in its conservation pool between elevation 660 ft-msl and 625 ft-msl.

## Public Comment – Sam Booher

### 79-LO-02-EN01

**Comment:** *“During drought periods when you reduce the Clark Hill flow to 3,100 cubic feet per second, that is the same amount of water that is still allowed through the Augusta Canal - 3,100 cubic feet per second.”*

**Response:** This EA assesses the impacts of reducing flows to 3100 cfs Nov-Jan if pools have declined to level 3. The diversion of water into the Augusta Canal away from the shoals is currently under analysis in preparation for the Augusta Canal FERC license. The FERC license will establish a minimum flow target in the shoals for various seasons, and hydrologic conditions.

### 79-LO-02-EN02

**Comment:** *“I ask that the Savannah Corps work with FRIC and the National Park Service and put drought conditions on the Augusta Canal that require a reduced flow through the canal so that some minimum flow is available for the shoals during drought conditions.”*

**Response:** It is the Corps’ intention to work with Augusta and the resource agencies to ensure adequate flows for habitat and endangered species. The development of our future drought rules will take the FERC requirements into consideration.

**Public Comment – Harold and Barbara Shelley, FSRB**

**83-LO-01-EN01**

**Comment:** *“The current drought plan is 23 years old and was written as a result of a drought of record. Since then the SRB has experienced two additional droughts of record, with required operational adaptations, and is currently in another drought. It is clearly time for a complete reexamination of every facet of the DCP.”*

**Response:** Each drought plan update (2006 and 2011) has re-evaluated operations across a newer drought of record. Each drought plan update has also imposed new rules to react earlier to drought.

The upcoming interim study of the Savannah River Basin Comprehensive Basin Study will specifically address how low flows can go with respect to releases from the system. The water quality and habitat impacts will be more robustly appraised. The Corps will again look at both lower flows and earlier implementation.

## Public Comment – U. S. Fish and Wildlife Service

### 87-LO-12-EN01

**Comment:** *“Low flows under the NAA are less frequent and not as low as observed flows during the same time period in 2007-2009. It is unclear whether this difference reflects the recent 2011 change in the SRDCP, greater inflows, or if the higher flows under the NAA represents a modeling bias. A baseline for comparison and an explanation for the cause of the difference are required so that correct conclusions can be made regarding the alternatives.”*

**Response:** The difference between the NAA and observed flows are caused by the recent 2011 change in the Savannah River Basin Drought Plan, which dealt with flows in Level 4. For this period, none of the alternatives entered Level 4. The primary difference can be explained by the observed data reflecting operations that included a prolonged temporary deviation at 3,600 cfs. The NAA is modeled output that did not include actual temporary deviations. A minor modeling bias may be attributed to using calculated inflows from project data rather than actual inflows in the observed data.

### 87-LO-12-EV01

**Comment:** *“Low estimated shoal inflow suggests that the assumption of “a 50/50 split in the 500 cfs flow reduction” will require a more detailed, explicit reevaluation.”*

**Response:** Low estimated shoal inflow will not result if the City of Augusta carries through with their proposal, which is similar to what most parties have wanted for years.

### 87-LO-12-EV02

**Comment:** *“The re-regulation of flows into the Augusta Shoals by the City of Augusta is a cumulative effect of the ACOE's proposed drought response that has not been evaluated explicitly in the Draft EA.”*

**Response:** Cumulative effects will not result if the City of Augusta carries through with the proposal, which is similar to what most parties have wanted for years.

### 87-LO-12-EV03

**Comment:** *“Because of the linkage to flow management and water quality standards, this concern merits investigation and possibly calibration of the water quality model. Similarly, the evaluation of dissolved oxygen effects in the Savannah Harbor may require additional calibration and analyses and should include the cumulative effects associated with harbor expansion.”*

**Response:** Harbor expansion is expected to have no net effect on harbor dissolved oxygen.

**87-LO-12-EV04**

**Comment:** *“The reduction in discharge that would result from implementation of Alternative 2 could result in reduced spawning habitat for these species. However, the amount of habitat lost from a 200 cfs flow reduction requires more detailed evaluation.”*

**Response:** The amount of lost spawning habitat associated with a 200 cfs reduction is expected to be small, because drought river flows are usually confined to the main channels during drought.

**87-LO-12-EN02**

**Comment:** *“Should the ACOE proceed with implementation of a 3,100 cfs J. Strom Thurmond Dam (JSTD) discharge, we strongly recommend a gradual flow recession to allow for the movement of mussels. We also recommend consideration of gradual flow increases to help ensure that mussels are not unintentionally transported from suitable habitat. We are prepared to work with the ACOE to inform an analysis of discharge changes as they relate to mussel habitat, movement, and survival in the Savannah River.”*

**Response:** The Corps of Engineers will work with the State and Federal resource agencies including U.S. Fish & Wildlife Service to adaptively manage low-flows. The implementation will likely be modified as we learn more about how downstream habitat is impacted by changes in the flow and stage.

**87-LO-12-EN03**

**Comment:** *“Several options have been discussed among Service personnel that may provide opportunities to reduce JSTD outflow while minimizing impacts to the Refuge and adjoining freshwater marsh. These options include consideration of the timing and duration of low flows. We are prepared to discuss these options with the ACOE.”*

**Response:** The Savannah District is open to continued discussion with the USFWS.

**87-LO-12-EV05**

**Comment:** *“The Service is concerned that the Draft EA/FONSI is incomplete because it does not evaluate the relationship to another large proposal and an essential element in managing natural resources within the Savannah River Basin; that is, the expansion of the Savannah Harbor. The ACOE is required by the Council on Environmental Quality to analyze the impacts of an action when added to “past, present, and reasonably foreseeable future actions.”*

*Expansion of the Savannah Harbor will profoundly change the lower Savannah River estuary, which is inextricably and obviously linked with the upper portions of the Savannah River Basin. We disagree with the ACOE that “no long term significant adverse cumulative impacts are expected.” Long-term adverse impacts are expected on the Refuge with the expansion of the harbor. Reduced flows during periods of drought could exacerbate these adverse impacts. Indeed, short-term impacts could become long-term effects. The absence of an analysis that explicitly examines the potential effects of the harbor expansion (Final EIS January 2012) in conjunction with the reduced flows (this proposal), especially within the tidally influenced portions of the river, is a critical omission and should be addressed.”*

**Response:** Several sentences will be added to the Cumulative Effects section, including: “The Savannah River Basin Drought Plan Revision FONSI will likely be signed before the Savannah Harbor Expansion Project Record of Decision” and “the Savannah Harbor Expansion Project would result in environmental conditions comparable to the conditions before implementation”.

#### **87-LO-12-EV06**

**Comment:** *“We have concerns about the use of HEC-EFM as the only tool for the evaluation of threatened and endangered species.”*

**Response:** The EFM Model inputs include both .dss flow files and resource relationships based on information from the 2003 Scientific Stakeholders Workshop.

#### **87-LO-12-EV07**

**Comment:** *“The analyses should be specific to the period during which sturgeon are either migrating or spawning. The analysis also should consider the specific flow component(s) most likely to affect the life history of sturgeon.”*

**Response:** Lower flows discussed in the DEA should have very limited effect on migration due to the sturgeon movement through the bottom of the water column. NOAA-NMFS has authority to pre-approve flows of 3100 cfs for February.

#### **87-LO-12-EN04**

**Comment:** *“The Savannah River Basin Drought Coordination Committee (Committee) is comprised of agencies within Federal and State governments. However, if monitoring parameters fall outside acceptable levels, only the States of Georgia or South Carolina are identified to review the information, discuss results with the Committee, and recommend adjustments. Exceptions are made for NOAA and the Department of Energy, Savannah River Site. We believe that all parties within the Committee, including the Service, should be given the opportunity to raise concerns directly with the Committee and request modifications to flows.”*

**Response:** If monitoring parameters fall outside of acceptable levels, the problem will be vetted with the states. If warranted, the flow will be increased up to a maximum of 3600 cfs or 3800 cfs as appropriate. The Corps of Engineers will work with the State and Federal resource agencies including U.S. Fish & Wildlife Service to adaptively manage low-flows.

**87-LO-12-EN05**

**Comment:** *“Explicit timelines should be developed as part of a framework to consider the species, season, and other pertinent variables to successfully implement adaptive management for these resources to minimize or prevent damage.”*

**Response:** This EA considers seasonality in flow reductions based on water quality assumptions attempting to avoid key spawning periods.

## Public Comment – SELC

### 89-LO-11-EV01

**Comment:** *“How the Corps manages the Savannah River water levels should be based on the overall health of the watershed. Interests upstream should not be allowed to trump those downstream and vice versa.”*

**Response:** Upstream interests, including economics, and downstream interests, including Threatened and Endangered Species, dissolved oxygen and salinity have been considered in the evaluations.

### 89-LO-11-EV02

**Comment:** *“Unless sufficient flow is in the river to prevent saltwater intrusion, higher chloride levels could impair Savannah’s drinking water, as well as thousands of acres of freshwater wetlands. Similarly, the ability of the river and estuary to assimilate municipal and industrial wastes is severely tested during periods of low flow.”*

**Response:** The Draft EA acknowledges that adaptive management may be utilized for specified flows from Thurmond Dam.

### 89-LO-11-EV03

**Comment:** *“The SRBDCP EA must discuss in greater detail how SHEP will impact the drought conditions on the River. The DEA modeling shows that dissolved oxygen levels in the Savannah Harbor would likely be made worse during times of drought. How would this effect the proposed SHEP project?”*

**Response:** Harbor expansion is expected to have minimal net effect on harbor dissolved oxygen. Dissolved oxygen would be mitigated by the use of Speece Cones. Adaptive management may be utilized for specified flows from Thurmond Dam.

### 89-LO-11-EV04

**Comment:** *“The SRBDCP EA should also discuss how specific elements of SHEP would impact flow levels and aquatic habitat in the Savannah River.”*

**Response:** The following sentences will be added to the Cumulative Effects section, “The Savannah Harbor Expansion Project would result in environmental conditions comparable to the conditions before its implementation. The Savannah Harbor Expansion Project would mitigate for its effects on the environment. No significant permanent long-term effects would result if both projects were implemented.”

**89-LO-11-EV05**

**Comment:** *“The SHEP FEIS includes a proposed fish ladder at the New Savannah Bluff Lock and Dam. Yet, the DEA does not discuss the proposed structure.”*

**Response:** Information on the fish bypass was placed in Sections 2.9.1 and 4.4 and states “The proposed Savannah Harbor Expansion Project includes a fish bypass with all flows up to 8,000 cfs going through the bypass.

**89-LO-11-EV06**

**Comment:** *“The DEA does not discuss the impact that the “re-plumbing” of the lower Savannah River will have on the species that are dependent on that reach of the river.”*

**Response:** Floodplain reach impacts are discussed in Section 4.4.

**89-LO-11-EV07**

**Comment:** *“The DEA does not adequately discuss the impact that the lower flows would have on the salinity levels in the Savannah National Wildlife Refuge.”*

**Response:** Specific data for the Wildlife Refuge for the proposed flow reductions is not available. Adaptive Management can be used for specified Thurmond Dam releases.

**89-LO-11-EV08**

**Comment:** *“The DEA must include data demonstrating that those “best efforts” are consistently yielding adequate flows in the Augusta Shoals.”*

**Response:** The DEA will not be able to guarantee adequate flows to the Augusta Shoals. The Corps is not a party to the Settlement Agreement between FERC, the City of Augusta, USFWS and NOAA-Fisheries.

**89-LO-11-EV09**

**Comment:** *“The DEA discusses this scenario in the following troublesome paragraph: Although the City is not required to implement the provisions of the yet-to-be finalized Settlement Agreement, it states that it will “use its best efforts to meet the terms for flows as set forth therein, including the higher flows during the month of February as set forth in the respective tiers.” If the City fulfills this commitment, the impacts of the proposed flow reduction on biota within the Shoals would be minimal. If the City does not fulfill its commitment, impacts to the*

*Shoal communities would be greater. The Corps believes that a 50/50 split in the 500 cfs flow reduction is probably a good assumption for prediction of future impacts. Under that scenario, the Shoals would experience a 250 cfs reduction in flow from what they presently receive with the 3,600 cfs average daily discharge from Thurmond Dam. This amount of flow reduction is expected to result in minor effects to those biotic communities.”*

*“ The Corps “assumes” without stating any basis for doing so that the Shoals will get a 50/50 split of any reductions in flow below 3,600 cfs.*

**Response:** The Corps assumes a 50/50 split of up to a 500 cfs reduction and that the City will put forth its best efforts and maintain adequate flows in the Shoals. The Corps is not a party to the Settlement Agreement between FERC, the City of Augusta, USFWS and NOAA-Fisheries.

#### **89-LO-11-EV10**

**Comment:** *“While the Atlantic Sturgeon was only listed as endangered early this year, the DEA must discuss this species as well and determine what impact the lower flows would have on it.”*

**Response:** The Atlantic Sturgeon was discussed in the Draft EA.

#### **89-LO-11-EV11**

**Comment:** *“The Corps should take a hard look at whether it needs to commence higher flows during January, as opposed to waiting until February.”*

**Response:** The Natural Resource Agencies have not been suggesting higher flows in January.

#### **89-LO-11-EC01**

**Comment:** *“By some estimates, the new reactors at Plant Vogtle will require withdrawals of 55-88 million gallons of water per day from the Savannah River. Only a fraction of this amount will be returned to the river. Yet the DEA does not explain what impact these withdrawals would have on the Savannah River water levels, water quality, or aquatic habitat.”*

**Response:** At 3100 cfs, the 88 million gallon estimate represents 4% of the daily Savannah River flow. Withdrawals are permitted by the State agencies.

**89-LO-11-EV12**

**Comment:** *“Based on the Eleventh Circuit’s Four-Part Test, the Corps Finding of No Significant Impact is supportable.”*

**Response:** This statement is a conclusion of law to which no response is required.

## Public Comment – EPA

### 91-LO-14-EV01

**Comment:** *“Regarding Section 4.1 Water Quality, operations should be consistent with Georgia's water quality standards at 391-3-6-.03(6): Dissolved Oxygen (D.O.): A daily average of 5.0 mg/L and no less than 4.0 mg/L at all times. If it is determined that the 'natural condition' in the waterbody is less than the values stated above, then the criteria will revert to the 'natural condition' and the water quality standard will allow for a 0.1 mg/L deficit from the 'natural' dissolved oxygen value. Up to a 10% deficit will be allowed if it is demonstrated that resident aquatic species shall not be adversely affected.”*

**Response:** The dissolved oxygen standard was added to EA Section 4.1.1.

### 91-LO-14-EV02

**Comment:** *“The modeling in "Figure 16 -- Simulated Surface Dissolved Oxygen in Savannah Harbor" may be indicative of deviations below these criteria, potentially during November and December.”*

**Response:** The portion of Level 3 flows in Alternative 2 designated as 3600 cfs have been revised to 3800 cfs. For adaptive management in Level 3, the flow would be returned to a maximum of 3800 cfs.

### 91-LO-14-EV03

**Comment:** *“We are concerned regarding the cumulative impacts associated with the many flow reductions that have taken place since the original development of the 1989 Savannah River Drought Contingency Plan.”*

**Response:** This analysis has taken into account those previous studies.

### 91-LO-14-EN01

**Comment:** *“In the interim, EPA recommends that the Corps host a problem solving workshop (similar to the 2003 Scientific Stakeholders Workshop) with the resource agencies and other appropriate stakeholders to discuss the recent flow reductions and possible impacts to water quality and other resources.”*

**Response:** A workshop similar to the “2003 Scientific Stakeholders Workshop” is being scheduled as part of the Savannah River Basin Comprehensive Study.

#### **91-LO-14-EN02**

**Comment:** *“For proper public disclosure, EPA recommends that the many temporary deviations and revisions of the plan should be clearly displayed in a table format and then discussed more thoroughly within the EA.”*

**Response:** Concur. A table documenting the history of temporary deviations and revisions will be included in Section 1.1.1.

#### **91-LO-14-EN03**

**Comment:** *“Did the PDT coordinate the various alternatives with federal and state resource agencies to ensure that alternatives formulation was conducted to limit impacts to the resource? EPA appreciates the Corps efforts to inform the resource agencies during the Savannah River Drought Contingency Plan Conference Calls; however, more formal meetings and briefings regarding the specifics of the EA with the state and federal resource agencies and other applicable stakeholders might be beneficial.”*

**Response:** The Corps proposed the changes to the other natural resource agencies and the public. A series of alternatives from No Action to considerable changes were evaluated to help determine what magnitudes of flow reduction are acceptable. The Corps concurs that additional collaboration and funding to help define future operational rules that meet the authorized purposes is helpful.

#### **91-LO-14-EN04**

**Comment:** *“As previously stated in our comment review of the July 2011 EA, the Corps discusses the member composition Savannah River Basin Drought Coordination Committee (SRBDCC) and Table 9: Offices Representing Agencies (page 51) lists different agencies, but there is no mention of Georgia WRD or USFWS. Given the sensitive nature of the estuary habitats (including the Savannah National Wildlife Refuge) and federal candidate and state listed endangered species, it would seem important to include these resource agencies on any drought operations decisions. EPA recommends that USFWS and Georgia WRD be invited to participate on the SRBDCC.”*

**Response:** The Corps of Engineers will work with the State and Federal natural resource agencies, including GA DNR and the U.S. Fish & Wildlife Service to adaptively manage low-flows.

#### **91-LO-14-EV04**

**Comment:** *“As with the July 2011 EA, EPA remains concerned regarding the possible impacts of flow reductions to this fragile shoal habitat. There seems to be a lack of coordination with the appropriate resource agencies regarding possible impacts to the shoal habitat. In both instances, there is no discussion in the EA as to the USFWS, NMFS, SCDNR or GADNR’s opinion on the impacts of the decrease in flow over the shoals. As stated in Comment #3, EPA recommends the Corps host a problem solving workshop with the appropriate resource agencies to work through any issues relating to decreases in flow.”*

**Response:** The Corps is not a party to the Settlement Agreement. The Corps assumes a 50/50 split of up to a 500 cfs reduction for the Shoals and Augusta Canal.

#### **91-LO-14-EV05**

**Comment:** *“Has the Corps consulted with the USFWS regarding impacts to Savannah NWR? If so, is the USFWS supportive of the decreases? Additionally, EPA recommends that the Corp include a more thorough discussion of potential impacts to the NWR as well as discuss the USFWS views (positively or negatively) toward the preferred alternative.”*

**Response:** USFWS concerns are being added to Section 7.0.

#### **91-LO-14-EV06**

**Comment:** *“EPA recommends that the Corps consult with both the USFWS and the National Marine Fisheries Service (NMFS) before the FONSI is signed to ensure the decision makers are given appropriate information to make the final decision regarding the proposed action.”*

**Response:** Coordination has occurred with both USFWS and NMFS.

#### **91-LO-14-EN05**

**Comment:** *“The USFW further states, “Multiple consecutive years of extremely reduced flows could have potentially devastating impacts on population sizes of early spring spawning species (including shortnose and Atlantic sturgeon)...The ACOE analysis should give additional treatment to these impacts, and propose alternatives (e.g., provision of occasional flow pulses as outlined in the Savannah River Ecosystem Flow Prescription ) that could temporarily offset negative habitat effects...” Does the Corps intend to mitigate for any of these habitat losses?”*

**Response:** The Corps of Engineers is proposing an alternative that does not result in a significant impact on habitat. The Corps of Engineers will work with the State and Federal resource agencies to adaptively manage the low-flow elements of the proposal to prevent impacts. While the Corps can utilize the reservoirs to conserve water, we chose to collaborate with resource agencies to help assess impacts to water supply users and habitat health.

**91-LO-14-EV07**

**Comment:** *“EPA recommends that the Corps disclose the USFWS concerns in the FONSI and better describe and evaluate their concerns in future EAs.”*

**Response:** USFWS concerns are being added to Section 7.0.

**91-LO-14-EC01**

**Comment:** *“The Corps discusses the socio-economic impacts of recreation on the lakes within the EA; however, there is no discussion regarding the socio-economic impacts on downstream businesses and users. For example, will reduced flows impact industrial plants and other businesses such as the Vogtle Power Plant that relies on adequate water for operational withdrawals? Will the reduce flow impact businesses that have NPDES permits that might have to reduce discharges to meet state water quality standards? It would appear that reducing flow could have both positive and negative impacts to local businesses that rely upon the Savannah River system. EPA recommends that the Corps conduct a thorough socio-economic analysis regarding the preferred alternative’s impacts to the local communities impacted (both within the reservoirs and downstream of the reservoirs).”*

**Response:** A comprehensive socio-economic analysis is outside the scope of this EA, but could be included in the upcoming Savannah River Basin Comprehensive Study.

**91-LO-14-EV08**

**Comment:** *“The Corps does not discuss Climate Change in the EA. EPA recommends that the Corps address both the adaptation and mitigation aspects regarding this action and all future drought actions in the context of new climate change stressors (in this case more frequent droughts).”*

**Response:** Section 2.15 and a brief sentence segment at the beginning of 4.0 were added.

## Public Comment – Pris Foster

### 92-LO-03-EC01

**Comment:** *“I see on your website that the Corps carefully selected data that supports (or defends your positions). One example would be the real estate data you posted, which is not confirmed by local realtors. Land values have most certainly been impacted by the low lake level.”*

**Response:** Although the impact of low lake levels on real estate sales are measurable, the national housing crisis that began in 2007 and other economic factors like the recession would have been the primary factors driving the declines in real estate transactions.

### 92-LO-03-EN01

**Comment:** *“A major problem caused by low lake level would be the dramatic erosion of the lakeshore. Low water levels have exposed soft shore lines to extensive erosion. This displaced silt is carried into lower depths and is slowly filling the lake with silt. As care-takers of the wellness of the lake for future generations, why isn’t the Corps fulfilling its duty?”*

**Response:** The Corps of Engineers monitors the effects of sedimentation of their reservoirs. Periodically, hydrographic surveys are made in key locations so that the effects of sedimentation can be measured over time.

### 92-LO-03-EN02

**Comment:** *“However, knowing that droughts can occur, the Corps must be proactive in its management techniques and initiate quicker reduced water release plans. The Corps should treat EVERY year as a potential drought year.”*

**Response:** While the Corps must be prepared for every year to be a potential drought year, we must be prepared every year for flooding. The Corps operates its reservoirs according to the Savannah River Basin Water Control Manual and Drought Contingency Plan for the most prudent operation under all conditions to best meet all authorized project purposes.

**Public Comment – Tim Broome**

**93-LO-01-EN01**

**Comment:** *“Please bring the technology up to date that can balance the needs of all concerns and keep our Lakes at the very least-- almost full.”*

**Response:** The Corps uses the best technology that it can afford in our operation of the Savannah River reservoirs.

## Public Comment – Robert Cooke

### 96-LO-02-EN01

**Comment:** *“Back in 2008, we were at similar levels on Hartwell as today. We all know that by Dec the lake level reached -22 feet. Are you going to let that happen again? In Feb of 2009 the Corps dropped the outflow to 0 for an entire month, and the lake level rose rapidly. Why don't we do that again to avoid these catastrophic levels?”*

**Response:** The projects were not designed or authorized to maintain near full pool elevations at all times. They were designed to serve multiple objectives. They were designed not only to lower the impacts of floods, but also to help get through periods of drought. The Corps stores water during normal and wet times and draws against that storage in times of need. During times of drought, the objective is to release only what is required and no more.

There have been times in which Hartwell has dropped its release for months as we attempted to keep its pool in balance with Thurmond's pool. The Corps attempts to keep the Hartwell and Thurmond pools in balance foot for foot for the first 15 feet below full pool. Below that, storage is balanced on the percent of depth remaining in the conservation pools. If the inflows below Hartwell improve and Thurmond rises, Hartwell's outflow would be reduced to help it come back into balance. As in past droughts, the Corps will continue to use this strategy.

### 96-LO-02-EN02

**Comment:** *“The Corps laments the same old rhetoric - we are experiencing drought conditions, there's nothing we can do. Why is it that Lake Murray is only 3.5' below normal while the Columbia area has recently experienced the worst drought in their history?”*

**Response:** Lake Murray is not a Corps of Engineers project and its owners constructed and operate it for different purposes. The Savannah River projects were constructed to meet a variety of project purposes, and they are operated by a set of rules defined in the Savannah River Basin Drought Contingency Plan. This plan was created and refined through extensive resource agency and stakeholder input. This EA is the second formal update of the drought plan. Each new drought of record has initiated an update of the drought plan. Each update has reduced outflows or initiated reductions earlier in drought.

Downstream infrastructure and environment has developed around the minimum releases of the projects. The Corps is not opposed to reducing releases further on a permanent basis; however the costs of impacts on the authorized project purposes would have to be justified. The costs of re-tooling downstream intakes would have to be assessed. The impacts on downstream water quality and environmental habitat will have to be reconciled. These questions can be best answered in a comprehensive basin study.

## Public Comment – Jim Wade

### 98-LO-01-EC01

**Comment:** *“Please start managing your hydropower production as a business, since I, as a taxpayer, deserve better. It is foolish and a waste of my dollar for you to guarantee power generation amounts, resulting in the purchase of power from Ga Power and others, while selling it to Oglethorpe at rates well below market. I don't see corporate welfare as one of your stated mandates for water management.”*

**Response:** The Corps of Engineers does not have contracts guaranteeing generation amounts. SEPA, the Southeastern Power Administration, maintains contracts with power cooperatives to deliver specified amounts of energy, which in turn recoup the principal costs of the facilities and cover O&M related expenses. The Corps of Engineers does not guarantee that the water will be available in the quantities required to meet the contractual agreements between SEPA and its customers. It is the cooperatives and their customers that ultimately cover the costs of replacement energy during droughts. The Government is made whole at a pre-determined rate. The Government and the cooperatives typically operate as non-profit, to break even.

**Public Comment – Susan Weeks**

**99-LO-01-EV01**

**Comment:** *“It is time to change the rules and laws governing water release so that all concerned are treated fairly and responsibly.”*

**Response:** The USACE manages the basin to meet all authorized project purposes in accordance with the Water Control Manual, including the DCP, and all applicable Federal and State laws and regulations.

## Public Comment – SCDNR

### 103-LO-10-EV01

**Comment:** *“The Draft EA provides very little data or results from model runs (such as hydrographs), rendering it difficult to review the supporting conclusions and decisions.”*

**Response:** Flow .dss files are incorporated into the HEC-EFM model.

### 103-LO-10-EC01

**Comment:** *“The rationale for selecting Alternative 2 as the Proposed Action is not very well explained, as arguments could be made that Alternatives 3 or 4 could also be reasonably good choices over the No Action Alternative (NAA).”*

**Response:** Each of the alternatives have aspects to be considered. The selection was made by the Project Delivery Team.

### 103-LO-10-EN01

**Comment:** *“Always reducing Lake Thurmond releases to 3,100 cfs from November through January when in Level 3 may be somewhat draconian. The impacts of a 3-month continuous release of 3,100 cfs on the lower Savannah River are not well understood, and the Draft EA does not demonstrate that such a release would not have a significant negative effect on the river. The only time the States agreed to such a low release was in late 2008, when the lakes were deep in Level 3, and that 3,100 cfs release happened to coincide with significant rainfall events that maintained river flows higher than 3,600 cfs at Augusta for much of that winter.”*

**Response:** The conclusions of the EA find that the selection of Alternative 2 would not have a significant negative effect on the river. The Draft EA acknowledges uncertainty and proposes that adaptive management be utilized for flows below 3600 cfs from Thurmond Dam.

### 103-LO-10-EN02

**Comment:** *“The protocol for coming out of drought levels is not described in the Draft EA.”*

**Response:** The protocol for coming out of drought levels are described in Section 3.2.1.

### 103-LO-10-EN03

**Comment:** *“Because the Draft EA is supposed to result in a new and comprehensive Drought Contingency Plan, it should include a better description of how, when in Level 4, releases would transition from 3,600 or 3,100 cfs to “outflow equals inflow” if conditions in the basin ever were to get that bad.”*

**Response:** This EA does not address changes to Level 4 operation. However, the 2011 Level 4 EA states that once in level 4, the Thurmond release of 3600 cfs will be maintained with the addition of a 3100 cfs window November thru January. Once inactive storage is fully depleted or until it becomes physically impossible to maintain that release, then the release target will transition to outflow equal to inflow.

### **103-LO-10-EC02**

**Comment:** *“DNR has significant concerns over any flow reduction that would further impair water quality in the Savannah River. The Draft EA concludes this to be a reality, and this reality cannot be adequately balanced with the minor improvement in storage capacity in the Corps managed Savannah River lakes.”*

**Response:** Comments have been noted that the SC DNR position is that there is inadequate hydrologic justification to reduce flows further at this time.

### **103-LO-10-EV02**

**Comment:** *“The Draft EA modeling confirms DO in the Savannah Harbor would likely be made worse under the Proposed Action.”*

**Response:** The EA acknowledges that adaptive management may be utilized for specified flows from Thurmond Dam. The portion of Level 3 flows in Alternative 2 designated as 3600 cfs have been revised to 3800 cfs. For adaptive management in Level 3, the flow would be returned to a maximum of 3800 cfs.

### **103-LO-10-EV03**

**Comment:** *“We do not agree that water quality impacts predicted to occur to essential fish habitat will have no measurable impact and produce no long term effects on endangered species such as shortnose sturgeon (*Acipenser brevirostrum*) and Atlantic sturgeon (*Acipenser oxyrinchus*). In fact, we believe there could be drastic impacts to Atlantic sturgeon if the Proposed Action were to be implemented.”*

**Response:** We will consider implementation based on NOAA-NMFS responses.

**103-LO-10-EC03**

**Comment:** *“DNR does not support further reduction of downstream flows in the Savannah River Basin and believes there is inadequate hydrological justification to do so at this time.”*

**Response:** The Corps understands that the SC DNR position is that there is inadequate hydrologic justification to reduce flows any further at this time.

**103-LO-10-EV04**

**Comment:** *“DNR, through its comprehensive review of the Draft EA and Draft FONSI has determined the Proposed Action to modify the SRBDCP would result in significant environmental impacts and the NAA represents the best natural resource management practices and environmental standards.”*

**Response:** Our analysis does not agree with your conclusions.

**Public Comment – Louis Fernandez**

**104-LO-01-EN01**

**Comment:** *“Average rainfall data could be used on a weekly, monthly or quarterly basis to establish a more realistic expectation of the resource.”*

**Response:** Hourly basin average precipitation is computed for the projects. Daily, weekly and monthly precipitation forecasts are used to prepare our weekly water release declarations and extended pool projections. However, precipitation forecasts often do not materialize. For this reason alone, the release declaration is made on a weekly or shorter interval.

**Public Comment – South Carolina SHPO**

**105-LO-01-EV01**

**Comment:** *“Our office prefers that the term potentially eligible not be used. I have included a copy of statement regarding the term.”*

**Response:** The Corps acknowledges your concern for that wording.

## Public Comment – South Carolina-DHEC

### 106-LO-03-EN01

**Comment:** *“While adaptive management and restoring releases if problems occurred worked for the previous temporary deviations from the drought plan, we believe potential impacts to harbor DO should be quantified in advance of permanent changes to the plan. Additional evaluation and modeling, such as that envisioned under the Savannah River Basin Comprehensive Study, should help provide the necessary information to justify a permanent modification to the NAA.”*

**Response:** The changes being proposed adaptively adjust flows in response to drought while targeting a minimum acceptable DO level in the harbor. The comprehensive study will refine our assessment on how much flows can be reduced and what time of year is appropriate to do so. The portion of Level 3 flows in Alternative 2 designated as 3600 cfs have been revised to 3800 cfs. For adaptive management in Level 3, the flow would be returned to a maximum of 3800 cfs.

### 106-LO-03-EN02

**Comment:** *“When deviations from the NAA were sought during past droughts, the States and Corps of Engineers evaluated the current basin hydrology, drought status, etc., and made decisions about reduced flows on a “real time” basis. SCDHEC suggests that this process continue and any deviation from the existing drought response plan be evaluated by the States and the Corps of Engineers on a case by case basis until such time as the additional modeling can be performed.”*

**Response:** A deviation is intended to be a one-time change to the rules by which the projects operate. This EA implements features of past deviations and proposes adding them to the existing rule set rather than going to the expense of conducting a new EA each time we have a drought that warrants use of these features. The re-introduction of the features is tied to adaptive management which targets acceptable levels of impact. Water management is not an exact science and is adaptive in its very nature. Our operational rules require the flexibility to adapt to changing hydrologic conditions. These changes are often real-time decisions which cannot be made thru case by case consensus.

**106-LO-03-EN03**

**Comment:** *“If deviations from the NAA are implemented, since the 10<sup>th</sup> percentile flow is a key trigger for flow reductions, it might be useful to more clearly define exactly how the 10<sup>th</sup> percentile flow will be computed to avoid any possibility of confusion. Also, per the adaptive management plan as described on page 64, we suggest flow be restored to 3800 cfs rather than 3600 cfs if requested by the States.”*

**Response:** The EA will be revised to include the following  
The 10 Percentile flow is being computed by the USGS and is explained on their web page at <http://waterwatch.usgs.gov/new/index.php?m=pa28d&r=ga&w=map>.

The portion of Level 3 flows in Alternative 2 designated as 3600 cfs have been revised to 3800 cfs. For adaptive management in Level 3, the flow would be returned to a maximum of 3800 cfs.

**Public Comment – Georgia-DNR Historic Preservation Division**

**107-LO-01-EV01**

**Comment:** *“HPD offers the following comments for revisions/additions to the draft PA:*

- 1. A section specifying the duration of the PA should be added.*
- 2. A section specifying a reporting schedule should be added. This could be an annual report that details activities undertaken as part of the PA.”*

**Response:** Changes will be made to the PA in accordance with the comments.

## Public Comment – Georgia-DNR-Coastal Resources Division

### 108-LO-01-EN01

**Comment:** *“Impacts to coastal resources, including reduced dissolved oxygen (DO) levels in the Savannah Harbor, are reasonably foreseeable if flows fall below 3800 cfs. The Georgia Water Quality Control Act, an enforceable policy of the Georgia Coastal Management Program, requires dissolved oxygen levels in the Harbor of 5 mg/l as a daily average or 4 mg/l as an instantaneous minimum [O.C.G.A. 12-5-20, et seq.]. Therefore, a drought contingency management plan that proposes discharges below 3800 cfs when DO levels of the Savannah Harbor are less than 5 mg/l average (4 mg/l instantaneous) for Level 2 and Level 3 drought conditions is not consistent to the maximum extent practicable with Georgia’s Coastal Management Program (GCMP).*”

*Modification of the proposed action so that Level 2 and Level 3 discharges are returned to full minimum flow (3800 cfs) if dissolved oxygen levels in the Savannah Harbor fall below a 5 mg/l daily average or 4 mg/l instantaneous minimum will bring this proposal into compliance with the Georgia Water Quality Control Act and make it fully consistent with the GCMP.*

*The Program concurs with your federal consistency determination with the condition that Level 2 and Level 3 discharges are returned to 3800 cfs at any time dissolved oxygen in the Savannah Harbor is below a 5 mg/l daily average or 4 mg/l instantaneous minimum.*

*If the proposed project is not modified to include the above condition, all parties shall treat this conditional concurrence letter as an objection letter pursuant to 15 C.F.R. §930.43. The Corps’ must notify us immediately if these conditions are not acceptable [15 C.F.R. §930.4(a)(2)].”*

**Response:** The portion of Level 3 flows in Alternative 2 designated as 3600 cfs have been revised to 3800 cfs. For adaptive management in Level 3, the flow would be returned to a maximum of 3800 cfs.

## Public Comment – NOAA-Fisheries

### 110-LO-01-EV01

**Comment:** *“Given the gap in information, NMFS recommends that an instream flow and habitat suitability research study, in collaboration with the involved state and federal agencies, be implemented for the Savannah River. This study is needed to provide an adequate basis for evaluation of potential effects on sturgeon and other diadromous species spawning habitats, and to support operational management of instream flows to protect and recover habitats for sturgeon and other diadromous species. In preparation for this study, NMFS recommends that the COE hold an instream flow workshop with state and federal stakeholders, including instream flow/habitat modeling experts recommended by NMFS, USFWS, SCDNR, and GAIJNR. This workshop should be held before the fall of 2012 to plan how the study is approached, which species are to be considered, which habitat considerations are to be evaluated, and which instream flow methodologies will be utilized.”*

**Response:** We welcome the opportunity for a workshop followed by a study assuming the funding is available.

## **APPENDIX H**

# **PROGRAMMATIC AGREEMENT**

**PROGRAMMATIC AGREEMENT  
AMONG THE US ARMY CORPS OF ENGINEERS, SAVANNAH DISTRICT,  
THE GEORGIA STATE HISTORIC PRESERVATION OFFICER, AND  
THE SOUTH CAROLINA STATE HISTORIC PRESERVATION OFFICER**

WHEREAS, the US Army Corps of Engineers, Savannah District (Savannah District), operates and maintains Hartwell Lake and J. Strom Thurmond Lake (the Projects), and

WHEREAS, the Corps managed-lands associated with management of the Projects also include the banks of the Savannah River on the Georgia and South Carolina sides stretching from the headwaters of Hartwell Lake to below J. Strom Thurmond Dam; and

WHEREAS, the Projects were constructed prior to the passage of the National Historic Preservation Act (P.L. 89-665, as amended) and the now inundated lands and associated banks of the Savannah River were not surveyed for historic properties prior to inundation; and,

WHEREAS, since their creation, the lake elevations have been managed using criteria developed to address the needs of hydropower, water supply, environmental resources, and recreation; and,

WHEREAS, the Savannah District proposes to alter the criteria for managing lake elevations and the effects of the existing criteria and the proposed criteria upon historic properties are unknown; and,

WHEREAS, the Projects lie within the States of South Carolina and Georgia, and

WHEREAS, the Savannah District recognizes that the changing elevations of the lakes may have an effect upon historic properties included in or eligible for inclusion in the National Register of Historic Places and has consulted with the Advisory Council on Historic Preservation (Council), the Georgia State Historic Preservation Officer (Georgia SHPO), the South Carolina State Historic Preservation Officer (South Carolina SHPO), and Native American Tribes pursuant to regulation 36 CFR, Part 800 implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470h-2(f), and

WHEREAS, the Council was invited to consult on this undertaking and has chosen **not** to participate; and

NOW THEREFORE, the Savannah District, the Consulting Parties composed of the Georgia SHPO and the South Carolina SHPO agree that the project shall be administered in accordance with the following stipulations to satisfy Savannah District's Section 106 responsibilities for all individual aspects of the project.

**Stipulations**

The Savannah District, subject to availability of funds, shall reinitiate consultation under Section 106 with the Georgia SHPO, South Carolina SHPO, and Native American Tribes and shall ensure that the following measures are carried out:

1. Savannah District and the consulting parties shall identify the need for and scope of, archeological surveys of areas that are affected by changes in lake elevations. The surveys shall be conducted in a manner consistent with the Secretary of Interior's Standards and Guidelines for Identification (48 F.R. 44720-23) and any standards and guidelines developed by the Georgia SHPO and the South Carolina

SHPO. The surveys shall be conducted in consultation with the Georgia SHPO and the South Carolina SHPO, and reports of the survey shall be submitted to the Georgia SHPO and the South Carolina SHPO for review and comment.

2. The Savannah District shall evaluate properties identified through the surveys in accordance with 36 CFR, Part 800.4. If the survey results in the identification of properties that are eligible for, or included in, the National Register of Historic Places, Savannah District shall determine the effect of the proposed project upon those resources in accordance with 36 CFR, Part 800.5.

3. The Savannah District shall identify and evaluate alternatives to avoid and/or mitigate adverse effects to properties determined eligible for inclusion, or included in, the National Register of Historic Places in accordance with 36 CFR, Part 800.6.

4. The Savannah District shall insure that data recovery plans are developed in consultation with the Georgia SHPO or South Carolina SHPO (as appropriate) for the recovery of archaeological data from properties determined eligible for inclusion in the National Register of Historic Places. The plans shall be consistent with the Secretary of the Interior's Standards and Guidelines for Archeological Documentation (48 F.R. 44734-37) and take into account the Council's publication, *Treatment of Archeological Properties* (Advisory Council on Historic Preservation 1980), and any standards and guidelines set forth by the Georgia SHPO and South Carolina SHPO. The plans shall specify, at a minimum:

- a. the property, properties, or portions of properties where data recovery is to be carried out;
- b. any property, properties, or portions of properties that will be destroyed without data recovery;
- c. the research questions to be addressed through the data recovery, with an explanation of their relevance and importance;
- d. the methods to be used, with an explanation of their relevance to the research questions;
- e. the methods to be used in analysis, data management, and dissemination of data, including a schedule;
- f. the proposed disposition of recovered materials and records;
- g. proposed methods for involving the interested public in the data recovery;
- h. proposed methods for disseminating results of the work to the interested public;
- i. proposed methods by which local historic sites and historic preservation agencies and individuals will be kept informed of the work and afforded the opportunity to participate; and,
- j. a proposed schedule for the submission of progress reports to the Savannah District, the Georgia SHPO, and the South Carolina SHPO.

5. The data recovery plans shall be submitted by the Savannah District to the Georgia SHPO and/or South Carolina SHPO (as appropriate) for 45 days review. Unless the Georgia SHPO or South Carolina SHPO objects within 45 days after receipt of a data recovery plan, the Savannah District shall ensure that it is implemented.
6. The Savannah District shall ensure that all archeological survey, testing, and data recovery work carried out pursuant to this Programmatic Agreement is carried out by or under the direct supervision of a person or persons meeting at a minimum the standards for archeologist set forth in the Secretary of the Interior's Standards and Guidelines for Archeological Documentation (48 F.R. 44716-42).
7. The Savannah District shall ensure that all materials and records resulting from survey, testing, and data recovery are curated in accordance with 36 CFR, Part 79.
8. The Savannah District shall ensure that all final archeological reports resulting from actions pursuant to this agreement will be provided to the Georgia SHPO and the South Carolina SHPO. The Savannah District shall ensure that all such reports are responsive to the contemporary professional standards, and to the Department of Interior's Format Standards for Final Reports of Data Recovery Programs (42 F.R. 5377-79).
9. Any party to this Programmatic Agreement may request that it be amended, whereupon the parties will consult in accordance with 36 CFR, Part 800.6(c)(7) to consider amendment.
10. The Georgia SHPO and the South Carolina SHPO may monitor activities carried out pursuant to this Programmatic Agreement, and the Council will review such activities if so requested. The Savannah District will cooperate with the Georgia SHPO and the South Carolina SHPO in carrying out their monitoring and review responsibilities.
11. The parties to this agreement shall consult to review implementation of the terms of this agreement and determine whether revisions are needed. If revisions are needed, the parties to this agreement will consult in accordance with 36 CFR, Part 800 to make such revisions.
12. Any party to this agreement may terminate it by providing 30 days notice to the other parties, provided that the parties will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. In the event of termination, the Savannah District will comply with 36 CFR, Parts 800.4 through 800.6 with regard to individual undertakings covered by this Programmatic Agreement.
13. Should the Georgia SHPO or South Carolina SHPO object within 45 days to any actions proposed pursuant to the agreement, the Savannah District shall consult with the objecting party to resolve the objection. If the Savannah District determines that the objection cannot be resolved, the Savannah District shall request further comments of the Council pursuant to 36 CFR, Part 800.7. Any Council comment provided in response to such a request will be taken into account by the Savannah District in accordance with 36 CFR, Part 800.7 with reference only to the subject of the dispute; the Savannah District's responsibility to carry out all actions under this agreement that are not the subjects of the dispute will remain unchanged.

14. If any unanticipated archaeological sites and/or human skeletal remains are discovered during archaeological surveys, Savannah District shall secure the area in the immediate vicinity of the discovery and shall notify the Georgia SHPO or the South Carolina SHPO, as applicable, and interested Native American Tribes, by telephone, followed by written communication, as soon as practicable. Savannah District, the Georgia SHPO or South Carolina SHPO, as applicable, and Native American Tribes shall assess the situation and recommend a course of action within two business days after such notification.

15. Until such time as all surveys have been completed in accordance with the terms of this agreement, Savannah District will provide an annual status report to the Council, Georgia and South Carolina SHPOs, and affiliated Federally-recognized Native American Tribes to review implementation of the terms of this agreement and to determine whether amendments are needed. If amendments are needed, the signatories to this agreement will consult, in accordance with Stipulation 9 of this agreement, to make such revisions. The first status report will be submitted to the consulting parties one year after the date this agreement is ratified. Alternatively, an annual meeting may occur to review implementation of the terms of this agreement and to determine whether amendments are needed, and will serve in lieu of an annual report.

16. At any time during implementation to the measures stipulated in this agreement, should an objection to any such measure be raised by a Native American Tribe or another member of the public, the Savannah District shall take the objection into account and consult as needed with the objecting party, the Georgia SHPO, and the South Carolina SHPO to resolve the objection.

17. In the event the Savannah District does not carry out the terms of the Programmatic Agreement, the Savannah District will comply with 36 CFR, Parts 800.4 through 800.6 with regard to individual undertakings covered by this Programmatic Agreement.

18. This Agreement shall be effective when all Signatories have signed it and will automatically terminate on the tenth anniversary thereof, unless each of the Signatories agrees to extend the term hereof through an amendment per Stipulation 9. All Signatories will meet prior to the termination date to discuss extending the term.

19. Execution and implementation of this Programmatic Agreement evidences that the Savannah District has satisfied its Section 106 responsibilities for all individual undertakings of the program.

20. Nothing herein shall constitute, or be deemed to constitute, an obligation of future appropriations by the United States.

US ARMY CORPS OF ENGINEERS, SAVANNAH DISTRICT:

\_\_\_\_\_  
Jeffrey M. Hall  
Colonel, US Army  
Commanding

DATE: \_\_\_\_\_

GEORGIA STATE HISTORIC PRESERVATION OFFICER:

\_\_\_\_\_ DATE: \_\_\_\_\_  
David Crass, Ph.D., Division Director and Deputy State Historic Preservation Officer

SOUTH CAROLINA STATE HISTORIC PRESERVATION OFFICER:

\_\_\_\_\_ DATE: \_\_\_\_\_  
Elizabeth Johnson, Deputy State Historic Preservation Officer

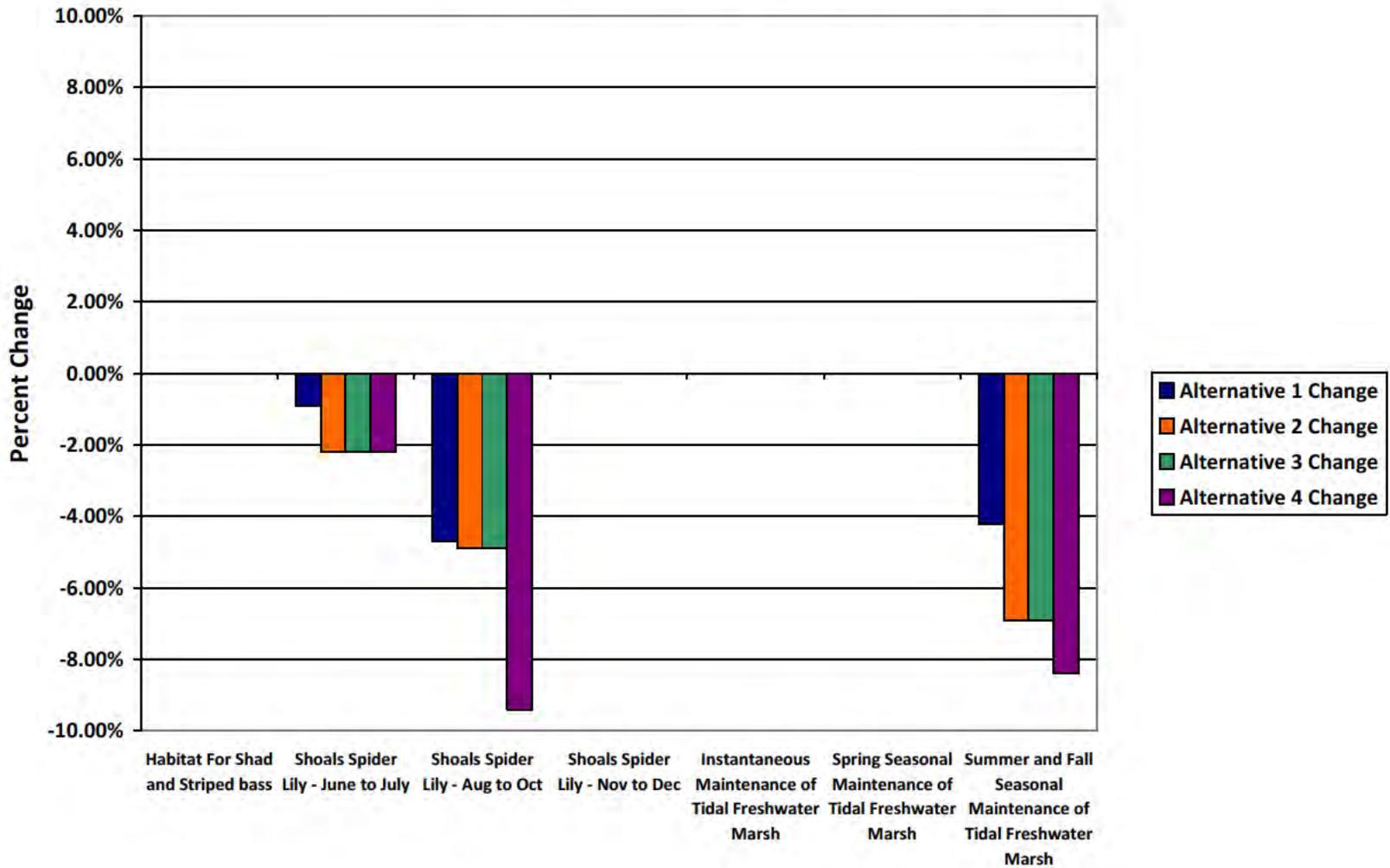
.

## **APPENDIX I**

### **EFM RESULT TABLES AND GRAPHS**

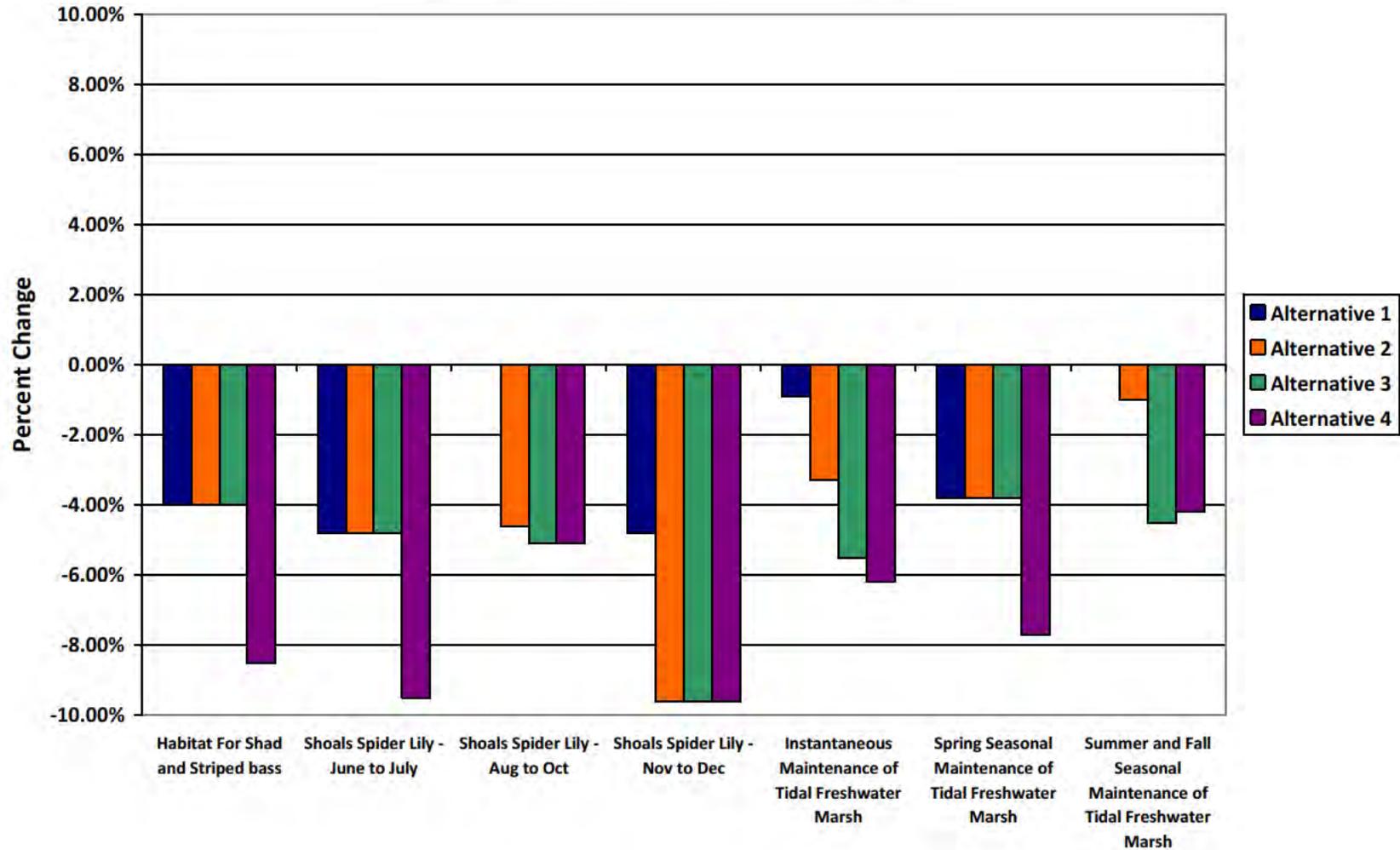
| Relationship   | Augusta 2007 Flows (cfs) |               |                      |               |                      |               |                      |               |                      |
|--|--------------------------|---------------|----------------------|---------------|----------------------|---------------|----------------------|---------------|----------------------|
|  | No Action Alternative    | Alternative 1 | Alternative 1 Change | Alternative 2 | Alternative 2 Change | Alternative 3 | Alternative 3 Change | Alternative 4 | Alternative 4 Change |
| Habitat For Shad and Striped bass                              |                          |               |                      |               |                      |               |                      |               |                      |
| Shoals Spider Lily - June to July                              | 4275                     | 4236          | -0.9%                | 4179          | -2.2%                | 4179          | -2.2%                | 4179          | -2.2%                |
| Shoals Spider Lily - Aug to Oct                                | 4263                     | 4063          | -4.7%                | 4053          | -4.9%                | 4053          | -4.9%                | 3863          | -9.4%                |
| Shoals Spider Lily - Nov to Dec                                |                          |               |                      |               |                      |               |                      |               |                      |
| Instantaneous Maintenance of Tidal Freshwater Marsh            |                          |               |                      |               |                      |               |                      |               |                      |
| Spring Seasonal Maintenance of Tidal Freshwater Marsh          |                          |               |                      |               |                      |               |                      |               |                      |
| Summer and Fall Seasonal Maintenance of Tidal Freshwater Marsh | 4790                     | 4590          | -4.2%                | 4459          | -6.9%                | 4459          | -6.9%                | 4390          | -8.4%                |

### Augusta 2007-Flow Change Relative to NAA



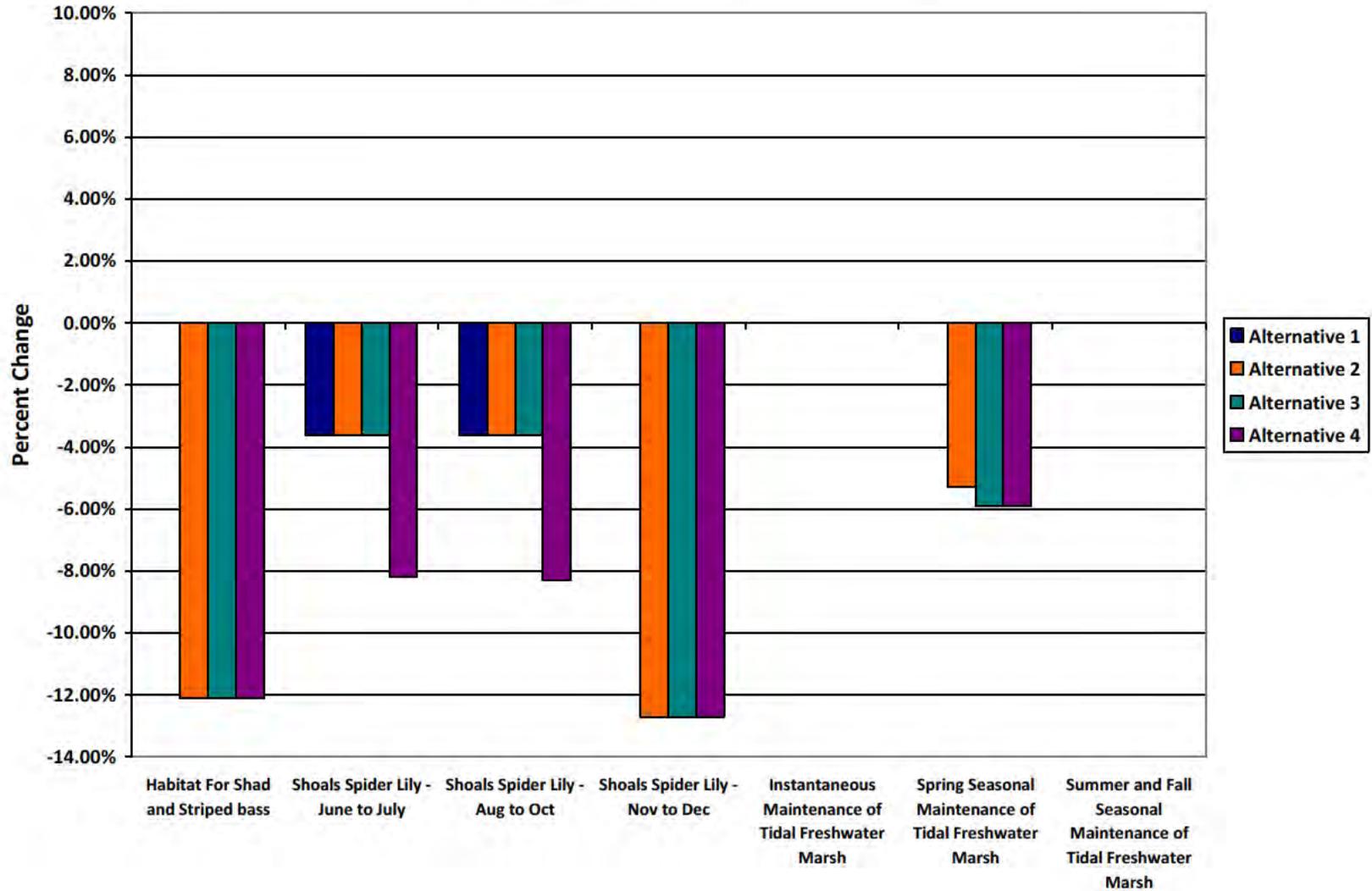
| Relationship   | Augusta 2008 Flows (cfs) |               |                      |               |                      |               |                      |               |                      |
|--|--------------------------|---------------|----------------------|---------------|----------------------|---------------|----------------------|---------------|----------------------|
|  | No Action Alternative    | Alternative 1 | Alternative 1 Change | Alternative 2 | Alternative 2 Change | Alternative 3 | Alternative 3 Change | Alternative 4 | Alternative 4 Change |
| Habitat For Shad and Striped bass                              | 4455                     | 4275          | -4.0%                | 4275          | -4.0%                | 4275          | -4.0%                | 4075          | -8.5%                |
| Shoals Spider Lily - June to July                              | 4191                     | 3991          | -4.8%                | 3991          | -4.8%                | 3991          | -4.8%                | 3791          | -9.5%                |
| Shoals Spider Lily - Aug to Oct                                | 3977                     | 3977          | 0.0%                 | 3793          | -4.6%                | 3776          | -5.1%                | 3776          | -5.1%                |
| Shoals Spider Lily - Nov to Dec                                | 4184                     | 3984          | -4.8%                | 3784          | -9.6%                | 3784          | -9.6%                | 3784          | -9.6%                |
| Instantaneous Maintenance of Tidal Freshwater Marsh            | 4453                     | 4413          | -0.9%                | 4304          | -3.3%                | 4210          | -5.5%                | 4176          | -6.2%                |
| Spring Seasonal Maintenance of Tidal Freshwater Marsh          | 5221                     | 5021          | -3.8%                | 5021          | -3.8%                | 5021          | -3.8%                | 4821          | -7.7%                |
| Summer and Fall Seasonal Maintenance of Tidal Freshwater Marsh | 4468                     | 4468          | 0.0%                 | 4422          | -1.0%                | 4268          | -4.5%                | 4279          | -4.2%                |

### Augusta 2008-Flow Change Relative to NAA





### Augusta 2009-Flow Change Relative to NAA



## **APPENDIX J**

### **POOL ELEVATION TABLES WITH BASS SPAWNING MAXIMUM LAKE LEVEL DROPS**

**No Action Alternative**

| <b>Date</b>   | <b>HARTWELL<br/>POOL</b> | <b>RUSSELL<br/>POOL</b> | <b>THURMOND<br/>POOL</b> |
|---------------|--------------------------|-------------------------|--------------------------|
| 4-1-2007 Sun  | 659.49                   | 474.37                  | 328.93                   |
| 4-2-2007 Mon  | 659.43                   | 474.47                  | 328.93                   |
| 4-3-2007 Tue  | 659.35                   | 474.5                   | 328.97                   |
| 4-4-2007 Wed  | 659.3                    | 474.54                  | 329.02                   |
| 4-5-2007 Thu  | 659.23                   | 474.57                  | 329                      |
| 4-6-2007 Fri  | 659.11                   | 474.66                  | 329.07                   |
| 4-7-2007 Sat  | 659.14                   | 474.31                  | 328.98                   |
| 4-8-2007 Sun  | 659.17                   | 474.31                  | 328.87                   |
| 4-9-2007 Mon  | 659.09                   | 474.36                  | 328.82                   |
| 4-10-2007 Tue | 658.86                   | 474.71                  | 328.78                   |
| 4-11-2007 Wed | 658.86                   | 474.7                   | 328.94                   |
| 4-12-2007 Thu | 658.86                   | 474.68                  | 328.85                   |
| 4-13-2007 Fri | 658.86                   | 474.57                  | 328.85                   |
| 4-14-2007 Sat | 658.86                   | 474.69                  | 328.81                   |
| 4-15-2007 Sun | 658.86                   | 474.83                  | 328.9                    |
| 4-16-2007 Mon | 658.86                   | 474.74                  | 328.93                   |
| 4-17-2007 Tue | 658.86                   | 474.65                  | 328.89                   |
| 4-18-2007 Wed | 658.86                   | 474.59                  | 328.88                   |
| 4-19-2007 Thu | 658.86                   | 474.5                   | 328.87                   |
| 4-20-2007 Fri | 658.86                   | 474.56                  | 328.85                   |
| 4-21-2007 Sat | 658.86                   | 474.59                  | 328.76                   |
| 4-22-2007 Sun | 658.86                   | 474.54                  | 328.66                   |
| 4-23-2007 Mon | 658.86                   | 474.54                  | 328.52                   |
| 4-24-2007 Tue | 658.86                   | 474.34                  | 328.52                   |
| 4-25-2007 Wed | 658.86                   | 474.16                  | 328.52                   |
| 4-26-2007 Thu | 658.86                   | 474.16                  | 328.52                   |
| 4-27-2007 Fri | 658.86                   | 474.16                  | 328.51                   |
| 4-28-2007 Sat | 658.86                   | 474.16                  | 328.44                   |
| 4-1-2008 Tue  | 650.72                   | 473.37                  | 320.71                   |
| 4-2-2008 Wed  | 650.77                   | 473.36                  | 320.76                   |
| 4-3-2008 Thu  | 650.62                   | 473.36                  | 320.86                   |
| 4-4-2008 Fri  | 650.82                   | 473.36                  | 320.83                   |
| 4-5-2008 Sat  | 650.87                   | 474.04                  | 320.81                   |
| 4-6-2008 Sun  | 651.02                   | 474.38                  | 320.82                   |
| 4-7-2008 Mon  | 651.13                   | 474.38                  | 320.87                   |

|               |        |        |        |
|---------------|--------|--------|--------|
| 4-8-2008 Tue  | 651.26 | 473.43 | 321.28 |
| 4-9-2008 Wed  | 651.28 | 473.43 | 321.27 |
| 4-10-2008 Thu | 651.22 | 473.43 | 321.33 |
| 4-11-2008 Fri | 651.21 | 473.43 | 321.39 |
| 4-12-2008 Sat | 651.31 | 473.43 | 321.41 |
| 4-13-2008 Sun | 651.27 | 473.43 | 321.5  |
| 4-14-2008 Mon | 651.49 | 473.43 | 321.51 |
| 4-15-2008 Tue | 651.49 | 473.43 | 321.55 |
| 4-16-2008 Wed | 651.41 | 473.43 | 321.58 |
| 4-17-2008 Thu | 651.48 | 473.43 | 321.5  |
| 4-18-2008 Fri | 651.46 | 473.43 | 321.55 |
| 4-19-2008 Sat | 651.38 | 473.43 | 321.59 |
| 4-20-2008 Sun | 651.44 | 473.43 | 321.5  |
| 4-21-2008 Mon | 651.44 | 473.43 | 321.44 |
| 4-22-2008 Tue | 651.35 | 473.43 | 321.47 |
| 4-23-2008 Wed | 651.39 | 473.43 | 321.41 |
| 4-24-2008 Thu | 651.29 | 473.43 | 321.44 |
| 4-25-2008 Fri | 651.35 | 473.43 | 321.35 |
| 4-26-2008 Sat | 651.25 | 473.94 | 321.19 |
| 4-27-2008 Sun | 651.32 | 474.26 | 320.98 |
| 4-28-2008 Mon | 651.58 | 474.26 | 320.98 |
| 4-1-2009 Wed  | 648.57 | 473.48 | 322.34 |
| 4-2-2009 Thu  | 648.78 | 473.48 | 322.84 |
| 4-3-2009 Fri  | 648.98 | 473.48 | 323.28 |
| 4-4-2009 Sat  | 649.14 | 473.79 | 323.37 |
| 4-5-2009 Sun  | 649.28 | 474.12 | 323.33 |
| 4-6-2009 Mon  | 649.6  | 474.12 | 323.37 |
| 4-7-2009 Tue  | 649.67 | 473.12 | 323.72 |
| 4-8-2009 Wed  | 649.57 | 473.12 | 323.76 |
| 4-9-2009 Thu  | 649.5  | 473.12 | 323.9  |
| 4-10-2009 Fri | 649.86 | 473.12 | 324.07 |
| 4-11-2009 Sat | 650.08 | 473.12 | 324.48 |
| 4-12-2009 Sun | 650.02 | 473.86 | 324.42 |
| 4-13-2009 Mon | 650.21 | 473.86 | 324.61 |
| 4-14-2009 Tue | 650.38 | 473.49 | 325    |
| 4-15-2009 Wed | 650.51 | 473.29 | 325.19 |
| 4-16-2009 Thu | 650.61 | 473.29 | 325.24 |
| 4-17-2009 Fri | 650.7  | 473.29 | 325.22 |
| 4-18-2009 Sat | 650.79 | 473.29 | 325.17 |
| 4-19-2009 Sun | 650.92 | 473.29 | 325.14 |
| 4-20-2009 Mon | 651.2  | 473.29 | 325.19 |
| 4-21-2009 Tue | 651.34 | 473.29 | 325.17 |

|               |        |        |        |
|---------------|--------|--------|--------|
| 4-22-2009 Wed | 651.2  | 473.29 | 325.17 |
| 4-23-2009 Thu | 651.28 | 473.29 | 325.12 |
| 4-24-2009 Fri | 651.38 | 473.29 | 325.08 |
| 4-25-2009 Sat | 651.46 | 473.29 | 325.02 |
| 4-26-2009 Sun | 651.55 | 473.29 | 324.92 |
| 4-27-2009 Mon | 651.62 | 473.29 | 324.84 |
| 4-28-2009 Tue | 651.71 | 473.29 | 324.76 |

| <b>Alternative NAA Summary</b> |                              |          |
|--------------------------------|------------------------------|----------|
| Time Frame                     | Greatest Elevation Drop (ft) |          |
|                                | Hartwell                     | Thurmond |
| April 1-28, 2007               | 0.63                         | 0.63     |
| April 1-28, 2008               | 0.24                         | 0.61     |
| April 1-28, 2009               | 0.17                         | 0.48     |

### Alternative 1

| Date          | HARTWELL<br>POOL | RUSSELL<br>POOL | THURMOND<br>POOL |
|---------------|------------------|-----------------|------------------|
| 4-1-2007 Sun  | 659.49           | 474.37          | 328.93           |
| 4-2-2007 Mon  | 659.43           | 474.47          | 328.93           |
| 4-3-2007 Tue  | 659.35           | 474.5           | 328.97           |
| 4-4-2007 Wed  | 659.3            | 474.54          | 329.02           |
| 4-5-2007 Thu  | 659.23           | 474.57          | 329              |
| 4-6-2007 Fri  | 659.11           | 474.66          | 329.07           |
| 4-7-2007 Sat  | 659.14           | 474.31          | 328.98           |
| 4-8-2007 Sun  | 659.17           | 474.31          | 328.87           |
| 4-9-2007 Mon  | 659.09           | 474.36          | 328.82           |
| 4-10-2007 Tue | 658.86           | 474.71          | 328.78           |
| 4-11-2007 Wed | 658.86           | 474.7           | 328.94           |
| 4-12-2007 Thu | 658.86           | 474.68          | 328.85           |
| 4-13-2007 Fri | 658.86           | 474.57          | 328.85           |
| 4-14-2007 Sat | 658.86           | 474.69          | 328.81           |
| 4-15-2007 Sun | 658.86           | 474.83          | 328.9            |
| 4-16-2007 Mon | 658.86           | 474.74          | 328.93           |
| 4-17-2007 Tue | 658.86           | 474.65          | 328.89           |
| 4-18-2007 Wed | 658.86           | 474.59          | 328.88           |
| 4-19-2007 Thu | 658.86           | 474.5           | 328.87           |
| 4-20-2007 Fri | 658.86           | 474.56          | 328.85           |
| 4-21-2007 Sat | 658.86           | 474.59          | 328.76           |
| 4-22-2007 Sun | 658.86           | 474.54          | 328.66           |
| 4-23-2007 Mon | 658.86           | 474.54          | 328.52           |
| 4-24-2007 Tue | 658.86           | 474.34          | 328.52           |
| 4-25-2007 Wed | 658.86           | 474.16          | 328.52           |
| 4-26-2007 Thu | 658.86           | 474.16          | 328.52           |
| 4-27-2007 Fri | 658.86           | 474.16          | 328.51           |
| 4-28-2007 Sat | 658.86           | 474.16          | 328.44           |
| 4-1-2008 Tue  | 651.22           | 473.43          | 321.22           |
| 4-2-2008 Wed  | 651.27           | 473.42          | 321.26           |
| 4-3-2008 Thu  | 651.13           | 473.42          | 321.36           |
| 4-4-2008 Fri  | 651.33           | 473.42          | 321.33           |
| 4-5-2008 Sat  | 651.38           | 474.08          | 321.32           |
| 4-6-2008 Sun  | 651.52           | 474.42          | 321.33           |
| 4-7-2008 Mon  | 651.64           | 474.42          | 321.37           |
| 4-8-2008 Tue  | 651.76           | 473.46          | 321.79           |

|               |        |        |        |
|---------------|--------|--------|--------|
| 4-9-2008 Wed  | 651.69 | 473.46 | 321.86 |
| 4-10-2008 Thu | 651.77 | 473.46 | 321.82 |
| 4-11-2008 Fri | 651.75 | 473.46 | 321.87 |
| 4-12-2008 Sat | 651.85 | 473.46 | 321.9  |
| 4-13-2008 Sun | 651.81 | 473.46 | 321.99 |
| 4-14-2008 Mon | 652.01 | 473.46 | 322.01 |
| 4-15-2008 Tue | 652    | 473.46 | 322.06 |
| 4-16-2008 Wed | 651.93 | 473.46 | 322.09 |
| 4-17-2008 Thu | 651.99 | 473.46 | 322.01 |
| 4-18-2008 Fri | 651.97 | 473.46 | 322.06 |
| 4-19-2008 Sat | 651.9  | 473.46 | 322.1  |
| 4-20-2008 Sun | 651.96 | 473.46 | 322    |
| 4-21-2008 Mon | 651.55 | 473.46 | 322.27 |
| 4-22-2008 Tue | 651.55 | 473.46 | 322.22 |
| 4-23-2008 Wed | 651.59 | 473.46 | 322.16 |
| 4-24-2008 Thu | 651.64 | 473.46 | 322.08 |
| 4-25-2008 Fri | 651.75 | 473.46 | 321.95 |
| 4-26-2008 Sat | 651.79 | 473.46 | 321.9  |
| 4-27-2008 Sun | 651.66 | 473.46 | 322    |
| 4-28-2008 Mon | 651.91 | 473.46 | 322.02 |
| 4-1-2009 Wed  | 650.65 | 473.36 | 322.75 |
| 4-2-2009 Thu  | 650.84 | 473.48 | 323.2  |
| 4-3-2009 Fri  | 651.04 | 473.48 | 323.65 |
| 4-4-2009 Sat  | 651.19 | 473.8  | 323.74 |
| 4-5-2009 Sun  | 651.32 | 474.13 | 323.7  |
| 4-6-2009 Mon  | 651.63 | 474.13 | 323.75 |
| 4-7-2009 Tue  | 651.7  | 472.85 | 324.21 |
| 4-8-2009 Wed  | 651.32 | 472.85 | 324.48 |
| 4-9-2009 Thu  | 650.98 | 473.99 | 324.35 |
| 4-10-2009 Fri | 651.33 | 473.49 | 324.74 |
| 4-11-2009 Sat | 651.54 | 473.49 | 325.13 |
| 4-12-2009 Sun | 651.7  | 473.49 | 325.2  |
| 4-13-2009 Mon | 651.89 | 473.49 | 325.37 |
| 4-14-2009 Tue | 652.05 | 473.49 | 325.56 |
| 4-15-2009 Wed | 652.18 | 473.49 | 325.68 |
| 4-16-2009 Thu | 652.28 | 473.49 | 325.72 |
| 4-17-2009 Fri | 652.36 | 473.49 | 325.71 |
| 4-18-2009 Sat | 652.45 | 473.49 | 325.66 |
| 4-19-2009 Sun | 652.57 | 473.49 | 325.63 |
| 4-20-2009 Mon | 652.84 | 473.49 | 325.67 |
| 4-21-2009 Tue | 652.98 | 473.49 | 325.64 |
| 4-22-2009 Wed | 652.92 | 473.74 | 325.5  |

|               |        |        |        |
|---------------|--------|--------|--------|
| 4-23-2009 Thu | 653.01 | 473.74 | 325.45 |
| 4-24-2009 Fri | 653.1  | 473.49 | 325.5  |
| 4-25-2009 Sat | 653.18 | 473.49 | 325.44 |
| 4-26-2009 Sun | 653.26 | 473.49 | 325.35 |
| 4-27-2009 Mon | 653.33 | 473.49 | 325.28 |
| 4-28-2009 Tue | 653.42 | 473.49 | 325.21 |

| <b>Alternate 1 Summary</b> |                                 |          |
|----------------------------|---------------------------------|----------|
| Time Frame                 | Greatest Elevation Drop<br>(ft) |          |
|                            | Hartwell                        | Thurmond |
| April 1-28, 2007           | 0.63                            | 0.63     |
| April 1-28, 2008           | 0.46                            | 0.37     |
| April 1-28, 2009           | 0.72                            | 0.51     |

## Alternative 2

| Date             | HARTWELL<br>POOL | RUSSELL<br>POOL | THURMOND<br>POOL |
|------------------|------------------|-----------------|------------------|
| 4-1-2007 Sun     | 659.46           | 474.38          | 329.03           |
| 4-2-2007 Mon     | 659.4            | 474.48          | 329.02           |
| 4-3-2007 Tue     | 659.32           | 474.5           | 329.04           |
| 4-4-2007 Wed     | 659.28           | 474.54          | 329.08           |
| 4-5-2007 Thu     | 659.21           | 474.57          | 329.04           |
| 4-6-2007 Fri     | 659.1            | 474.65          | 329.1            |
| 4-7-2007 Sat     | 659.13           | 474.32          | 329.01           |
| 4-8-2007 Sun     | 659.16           | 474.32          | 328.9            |
| 4-9-2007 Mon     | 659.08           | 474.36          | 328.85           |
| 4-10-2007 Tue    | 659.01           | 474.38          | 328.8            |
| 4-11-2007<br>Wed | 658.96           | 474.48          | 328.95           |
| 4-12-2007 Thu    | 658.92           | 474.55          | 328.85           |
| 4-13-2007 Fri    | 658.92           | 474.52          | 328.73           |
| 4-14-2007 Sat    | 658.92           | 474.64          | 328.69           |
| 4-15-2007 Sun    | 658.92           | 474.78          | 328.78           |
| 4-16-2007 Mon    | 658.92           | 474.69          | 328.8            |
| 4-17-2007 Tue    | 658.92           | 474.61          | 328.77           |
| 4-18-2007<br>Wed | 658.92           | 474.55          | 328.75           |
| 4-19-2007 Thu    | 658.92           | 474.46          | 328.75           |
| 4-20-2007 Fri    | 658.92           | 474.52          | 328.73           |
| 4-21-2007 Sat    | 658.92           | 474.54          | 328.64           |
| 4-22-2007 Sun    | 658.92           | 474.49          | 328.27           |
| 4-23-2007 Mon    | 658.92           | 474.49          | 328.22           |
| 4-24-2007 Tue    | 658.92           | 474.41          | 328.22           |
| 4-25-2007<br>Wed | 658.92           | 474.31          | 328.2            |
| 4-26-2007 Thu    | 658.92           | 474.36          | 328.2            |
| 4-27-2007 Fri    | 658.92           | 474.24          | 328.2            |
| 4-28-2007 Sat    | 658.92           | 474.24          | 328.13           |
| 4-1-2008 Tue     | 651.2            | 473.43          | 321.19           |
| 4-2-2008 Wed     | 651.06           | 473.77          | 321.24           |
| 4-3-2008 Thu     | 651.11           | 473.43          | 321.33           |
| 4-4-2008 Fri     | 650.98           | 474.03          | 321.3            |
| 4-5-2008 Sat     | 651.19           | 474.41          | 321.29           |
| 4-6-2008 Sun     | 651.33           | 474.75          | 321.29           |

|                  |        |        |        |
|------------------|--------|--------|--------|
| 4-7-2008 Mon     | 651.44 | 473.47 | 321.89 |
| 4-8-2008 Tue     | 651.57 | 473.47 | 321.89 |
| 4-9-2008 Wed     | 651.63 | 473.47 | 321.86 |
| 4-10-2008 Thu    | 651.71 | 473.47 | 321.81 |
| 4-11-2008 Fri    | 651.57 | 473.47 | 321.97 |
| 4-12-2008 Sat    | 651.67 | 473.47 | 321.99 |
| 4-13-2008 Sun    | 651.77 | 473.47 | 321.97 |
| 4-14-2008 Mon    | 651.61 | 473.47 | 322.27 |
| 4-15-2008 Tue    | 651.76 | 473.47 | 322.2  |
| 4-16-2008<br>Wed | 651.83 | 473.47 | 322.11 |
| 4-17-2008 Thu    | 651.89 | 473.47 | 322.03 |
| 4-18-2008 Fri    | 651.73 | 473.47 | 322.2  |
| 4-19-2008 Sat    | 651.8  | 473.47 | 322.12 |
| 4-20-2008 Sun    | 651.86 | 473.47 | 322.03 |
| 4-21-2008 Mon    | 651.92 | 473.47 | 321.92 |
| 4-22-2008 Tue    | 651.76 | 473.47 | 321.99 |
| 4-23-2008<br>Wed | 651.8  | 473.47 | 321.94 |
| 4-24-2008 Thu    | 651.84 | 473.47 | 321.85 |
| 4-25-2008 Fri    | 651.69 | 473.47 | 321.94 |
| 4-26-2008 Sat    | 651.73 | 473.47 | 321.89 |
| 4-27-2008 Sun    | 651.8  | 473.47 | 321.82 |
| 4-28-2008 Mon    | 651.64 | 473.47 | 322.17 |
| 4-1-2009 Wed     | 651.89 | 473.22 | 324.05 |
| 4-2-2009 Thu     | 652.08 | 473.49 | 324.43 |
| 4-3-2009 Fri     | 652.27 | 473.49 | 324.88 |
| 4-4-2009 Sat     | 652.42 | 473.8  | 324.97 |
| 4-5-2009 Sun     | 652.55 | 474.13 | 324.93 |
| 4-6-2009 Mon     | 652.85 | 474.13 | 324.98 |
| 4-7-2009 Tue     | 652.92 | 472.81 | 325.4  |
| 4-8-2009 Wed     | 652.51 | 472.81 | 325.66 |
| 4-9-2009 Thu     | 652.11 | 474.05 | 325.55 |
| 4-10-2009 Fri    | 652.45 | 473.49 | 325.91 |
| 4-11-2009 Sat    | 652.66 | 473.49 | 326.26 |
| 4-12-2009 Sun    | 652.82 | 473.49 | 326.33 |
| 4-13-2009 Mon    | 653    | 473.49 | 326.5  |
| 4-14-2009 Tue    | 653.16 | 473.49 | 326.69 |
| 4-15-2009<br>Wed | 653.28 | 473.49 | 326.81 |
| 4-16-2009 Thu    | 653.38 | 473.49 | 326.85 |
| 4-17-2009 Fri    | 653.46 | 473.49 | 326.84 |
| 4-18-2009 Sat    | 653.55 | 473.49 | 326.79 |

|                  |        |        |        |
|------------------|--------|--------|--------|
| 4-19-2009 Sun    | 653.67 | 473.49 | 326.75 |
| 4-20-2009 Mon    | 653.93 | 473.49 | 326.8  |
| 4-21-2009 Tue    | 654.07 | 473.52 | 326.76 |
| 4-22-2009<br>Wed | 654.03 | 473.52 | 326.69 |
| 4-23-2009 Thu    | 653.99 | 473.52 | 326.74 |
| 4-24-2009 Fri    | 654.08 | 473.52 | 326.69 |
| 4-25-2009 Sat    | 654.16 | 473.77 | 326.54 |
| 4-26-2009 Sun    | 654.24 | 474.06 | 326.35 |
| 4-27-2009 Mon    | 654.28 | 474.06 | 326.31 |
| 4-28-2009 Tue    | 654.25 | 473.63 | 326.31 |

| <b>Alternate 2 Summary</b> |                              |          |
|----------------------------|------------------------------|----------|
| Time Frame                 | Greatest Elevation Drop (ft) |          |
|                            | Hartwell                     | Thurmond |
| April 1-28, 2007           | 0.54                         | 0.97     |
| April 1-28, 2008           | 0.28                         | 0.45     |
| April 1-28, 2009           | 0.81                         | 0.54     |

### Alternative 3

| Date          | HARTWELL<br>POOL | RUSSELL<br>POOL | THURMOND<br>POOL |
|---------------|------------------|-----------------|------------------|
| 4-1-2007 Sun  | 659.46           | 474.38          | 329.03           |
| 4-2-2007 Mon  | 659.4            | 474.48          | 329.02           |
| 4-3-2007 Tue  | 659.32           | 474.5           | 329.04           |
| 4-4-2007 Wed  | 659.28           | 474.54          | 329.08           |
| 4-5-2007 Thu  | 659.21           | 474.57          | 329.04           |
| 4-6-2007 Fri  | 659.1            | 474.65          | 329.1            |
| 4-7-2007 Sat  | 659.13           | 474.32          | 329.01           |
| 4-8-2007 Sun  | 659.16           | 474.32          | 328.9            |
| 4-9-2007 Mon  | 659.08           | 474.36          | 328.85           |
| 4-10-2007 Tue | 659.01           | 474.38          | 328.8            |
| 4-11-2007 Wed | 658.96           | 474.48          | 328.95           |
| 4-12-2007 Thu | 658.92           | 474.55          | 328.85           |
| 4-13-2007 Fri | 658.92           | 474.52          | 328.73           |
| 4-14-2007 Sat | 658.92           | 474.64          | 328.69           |
| 4-15-2007 Sun | 658.92           | 474.78          | 328.78           |
| 4-16-2007 Mon | 658.92           | 474.69          | 328.8            |
| 4-17-2007 Tue | 658.92           | 474.61          | 328.77           |
| 4-18-2007 Wed | 658.92           | 474.55          | 328.75           |
| 4-19-2007 Thu | 658.92           | 474.46          | 328.75           |
| 4-20-2007 Fri | 658.92           | 474.52          | 328.73           |
| 4-21-2007 Sat | 658.92           | 474.54          | 328.64           |
| 4-22-2007 Sun | 658.92           | 474.49          | 328.27           |
| 4-23-2007 Mon | 658.92           | 474.49          | 328.22           |
| 4-24-2007 Tue | 658.92           | 474.41          | 328.22           |
| 4-25-2007 Wed | 658.92           | 474.31          | 328.2            |
| 4-26-2007 Thu | 658.92           | 474.36          | 328.2            |
| 4-27-2007 Fri | 658.92           | 474.24          | 328.2            |
| 4-28-2007 Sat | 658.92           | 474.24          | 328.13           |
| 4-1-2008 Tue  | 651.44           | 473.44          | 321.44           |
| 4-2-2008 Wed  | 651.3            | 473.78          | 321.48           |
| 4-3-2008 Thu  | 651.35           | 473.45          | 321.57           |
| 4-4-2008 Fri  | 651.22           | 474.03          | 321.54           |
| 4-5-2008 Sat  | 651.43           | 474.41          | 321.52           |
| 4-6-2008 Sun  | 651.57           | 474.75          | 321.52           |
| 4-7-2008 Mon  | 651.69           | 473.24          | 322.22           |
| 4-8-2008 Tue  | 651.81           | 473.24          | 322.22           |

|               |        |        |        |
|---------------|--------|--------|--------|
| 4-9-2008 Wed  | 651.87 | 473.24 | 322.18 |
| 4-10-2008 Thu | 651.96 | 473.24 | 322.12 |
| 4-11-2008 Fri | 651.68 | 473.24 | 322.38 |
| 4-12-2008 Sat | 651.78 | 473.24 | 322.4  |
| 4-13-2008 Sun | 651.88 | 473.24 | 322.37 |
| 4-14-2008 Mon | 652.12 | 473.24 | 322.36 |
| 4-15-2008 Tue | 651.99 | 473.24 | 322.49 |
| 4-16-2008 Wed | 652.06 | 473.24 | 322.4  |
| 4-17-2008 Thu | 652.13 | 473.24 | 322.32 |
| 4-18-2008 Fri | 651.85 | 473.24 | 322.58 |
| 4-19-2008 Sat | 651.92 | 473.24 | 322.49 |
| 4-20-2008 Sun | 651.98 | 473.24 | 322.39 |
| 4-21-2008 Mon | 651.7  | 473.24 | 322.56 |
| 4-22-2008 Tue | 651.75 | 473.24 | 322.46 |
| 4-23-2008 Wed | 651.79 | 473.24 | 322.4  |
| 4-24-2008 Thu | 651.52 | 473.24 | 322.56 |
| 4-25-2008 Fri | 651.52 | 473.24 | 322.52 |
| 4-26-2008 Sat | 651.52 | 473.24 | 322.5  |
| 4-27-2008 Sun | 651.52 | 473.24 | 322.48 |
| 4-28-2008 Mon | 651.52 | 473.24 | 322.71 |
| 4-1-2009 Wed  | 652.25 | 473.21 | 324.44 |
| 4-2-2009 Thu  | 652.44 | 473.49 | 324.82 |
| 4-3-2009 Fri  | 652.63 | 473.49 | 325.23 |
| 4-4-2009 Sat  | 652.78 | 473.8  | 325.3  |
| 4-5-2009 Sun  | 652.91 | 474.13 | 325.26 |
| 4-6-2009 Mon  | 653.2  | 474.13 | 325.3  |
| 4-7-2009 Tue  | 653.27 | 472.83 | 325.71 |
| 4-8-2009 Wed  | 652.87 | 472.83 | 325.96 |
| 4-9-2009 Thu  | 652.49 | 474.05 | 325.85 |
| 4-10-2009 Fri | 652.82 | 473.56 | 326.17 |
| 4-11-2009 Sat | 653.04 | 473.56 | 326.52 |
| 4-12-2009 Sun | 653.19 | 473.56 | 326.6  |
| 4-13-2009 Mon | 653.37 | 473.56 | 326.76 |
| 4-14-2009 Tue | 653.53 | 473.56 | 326.96 |
| 4-15-2009 Wed | 653.65 | 473.56 | 327.07 |
| 4-16-2009 Thu | 653.75 | 473.56 | 327.12 |
| 4-17-2009 Fri | 653.83 | 473.04 | 327.29 |
| 4-18-2009 Sat | 653.55 | 474.05 | 327.13 |
| 4-19-2009 Sun | 653.67 | 474.35 | 326.99 |
| 4-20-2009 Mon | 653.93 | 474.35 | 327.03 |
| 4-21-2009 Tue | 654.07 | 473.79 | 327.21 |
| 4-22-2009 Wed | 654.08 | 473.79 | 327.11 |

|               |        |        |        |
|---------------|--------|--------|--------|
| 4-23-2009 Thu | 654.09 | 473.79 | 327.12 |
| 4-24-2009 Fri | 654.12 | 474    | 327.03 |
| 4-25-2009 Sat | 654.2  | 474.25 | 326.88 |
| 4-26-2009 Sun | 654.28 | 474.53 | 326.69 |
| 4-27-2009 Mon | 654.23 | 473.82 | 326.69 |
| 4-28-2009 Tue | 654.31 | 473.82 | 326.63 |

| <b>Alternate 3 Summary</b> |                                 |          |
|----------------------------|---------------------------------|----------|
| Time Frame                 | Greatest Elevation Drop<br>(ft) |          |
|                            | Hartwell                        | Thurmond |
| April 1-28, 2007           | 0.54                            | 0.97     |
| April 1-28, 2008           | 0.61                            | 0.19     |
| April 1-28, 2009           | 0.78                            | 0.66     |

### Alternative 4

| Date          | HARTWELL<br>POOL | RUSSELL<br>POOL | THURMOND<br>POOL |
|---------------|------------------|-----------------|------------------|
| 4-1-2007 Sun  | 659.46           | 474.38          | 329.03           |
| 4-2-2007 Mon  | 659.4            | 474.48          | 329.02           |
| 4-3-2007 Tue  | 659.32           | 474.5           | 329.04           |
| 4-4-2007 Wed  | 659.28           | 474.54          | 329.08           |
| 4-5-2007 Thu  | 659.21           | 474.57          | 329.04           |
| 4-6-2007 Fri  | 659.1            | 474.65          | 329.1            |
| 4-7-2007 Sat  | 659.13           | 474.32          | 329.01           |
| 4-8-2007 Sun  | 659.16           | 474.32          | 328.9            |
| 4-9-2007 Mon  | 659.08           | 474.36          | 328.85           |
| 4-10-2007 Tue | 659.01           | 474.38          | 328.8            |
| 4-11-2007 Wed | 658.96           | 474.48          | 328.95           |
| 4-12-2007 Thu | 658.92           | 474.55          | 328.85           |
| 4-13-2007 Fri | 658.92           | 474.52          | 328.73           |
| 4-14-2007 Sat | 658.92           | 474.64          | 328.69           |
| 4-15-2007 Sun | 658.92           | 474.78          | 328.78           |
| 4-16-2007 Mon | 658.92           | 474.69          | 328.8            |
| 4-17-2007 Tue | 658.92           | 474.61          | 328.77           |
| 4-18-2007 Wed | 658.92           | 474.55          | 328.75           |
| 4-19-2007 Thu | 658.92           | 474.46          | 328.75           |
| 4-20-2007 Fri | 658.92           | 474.52          | 328.73           |
| 4-21-2007 Sat | 658.92           | 474.54          | 328.64           |
| 4-22-2007 Sun | 658.92           | 474.49          | 328.27           |
| 4-23-2007 Mon | 658.92           | 474.49          | 328.22           |
| 4-24-2007 Tue | 658.92           | 474.41          | 328.22           |
| 4-25-2007 Wed | 658.92           | 474.31          | 328.2            |
| 4-26-2007 Thu | 658.92           | 474.36          | 328.2            |
| 4-27-2007 Fri | 658.92           | 474.24          | 328.2            |
| 4-28-2007 Sat | 658.92           | 474.24          | 328.13           |
| 4-1-2008 Tue  | 651.84           | 473.47          | 321.84           |
| 4-2-2008 Wed  | 651.7            | 473.8           | 321.88           |
| 4-3-2008 Thu  | 651.75           | 473.47          | 321.97           |
| 4-4-2008 Fri  | 651.62           | 474.06          | 321.93           |
| 4-5-2008 Sat  | 651.83           | 474.43          | 321.91           |
| 4-6-2008 Sun  | 651.97           | 474.77          | 321.92           |
| 4-7-2008 Mon  | 652.08           | 473.48          | 322.52           |

|               |        |        |        |
|---------------|--------|--------|--------|
| 4-8-2008 Tue  | 652.21 | 473.48 | 322.52 |
| 4-9-2008 Wed  | 652.26 | 473.48 | 322.48 |
| 4-10-2008 Thu | 652.35 | 473.48 | 322.43 |
| 4-11-2008 Fri | 652.2  | 473.48 | 322.58 |
| 4-12-2008 Sat | 652.3  | 473.48 | 322.6  |
| 4-13-2008 Sun | 652.4  | 473.48 | 322.57 |
| 4-14-2008 Mon | 652.25 | 473.48 | 322.87 |
| 4-15-2008 Tue | 652.39 | 473.48 | 322.79 |
| 4-16-2008 Wed | 652.46 | 473.48 | 322.7  |
| 4-17-2008 Thu | 652.53 | 473.48 | 322.61 |
| 4-18-2008 Fri | 652.38 | 473.48 | 322.77 |
| 4-19-2008 Sat | 652.45 | 473.48 | 322.68 |
| 4-20-2008 Sun | 652.51 | 473.48 | 322.58 |
| 4-21-2008 Mon | 652.36 | 473.48 | 322.64 |
| 4-22-2008 Tue | 652.41 | 473.48 | 322.55 |
| 4-23-2008 Wed | 652.45 | 473.48 | 322.48 |
| 4-24-2008 Thu | 652.3  | 473.48 | 322.55 |
| 4-25-2008 Fri | 652.42 | 473.48 | 322.42 |
| 4-26-2008 Sat | 652.27 | 473.48 | 322.52 |
| 4-27-2008 Sun | 652.34 | 473.48 | 322.46 |
| 4-28-2008 Mon | 652.19 | 473.48 | 322.81 |
| 4-1-2009 Wed  | 652.91 | 473.21 | 325.11 |
| 4-2-2009 Thu  | 653.09 | 473.49 | 325.43 |
| 4-3-2009 Fri  | 653.28 | 473.49 | 325.81 |
| 4-4-2009 Sat  | 653.42 | 473.81 | 325.88 |
| 4-5-2009 Sun  | 653.55 | 474.14 | 325.85 |
| 4-6-2009 Mon  | 653.85 | 474.14 | 325.88 |
| 4-7-2009 Tue  | 653.91 | 473.11 | 326.19 |
| 4-8-2009 Wed  | 653.66 | 473.11 | 326.34 |
| 4-9-2009 Thu  | 653.42 | 474.06 | 326.23 |
| 4-10-2009 Fri | 653.75 | 473.69 | 326.51 |
| 4-11-2009 Sat | 653.96 | 474.12 | 326.69 |
| 4-12-2009 Sun | 654.11 | 474.46 | 326.64 |
| 4-13-2009 Mon | 654.17 | 473.97 | 327.08 |
| 4-14-2009 Tue | 654.29 | 473.86 | 327.34 |
| 4-15-2009 Wed | 654.39 | 473.86 | 327.47 |
| 4-16-2009 Thu | 654.45 | 473.86 | 327.54 |
| 4-17-2009 Fri | 654.47 | 473.86 | 327.57 |
| 4-18-2009 Sat | 654.55 | 474.16 | 327.41 |
| 4-19-2009 Sun | 654.67 | 474.46 | 327.26 |
| 4-20-2009 Mon | 654.87 | 474.46 | 327.35 |
| 4-21-2009 Tue | 654.86 | 474.13 | 327.55 |

|               |        |        |        |
|---------------|--------|--------|--------|
| 4-22-2009 Wed | 654.89 | 474    | 327.48 |
| 4-23-2009 Thu | 654.91 | 474.04 | 327.47 |
| 4-24-2009 Fri | 654.9  | 474.22 | 327.42 |
| 4-25-2009 Sat | 654.99 | 474.47 | 327.27 |
| 4-26-2009 Sun | 655.07 | 474.75 | 327.08 |
| 4-27-2009 Mon | 655.04 | 473.94 | 327.38 |
| 4-28-2009 Tue | 655.11 | 473.94 | 327.32 |

| <b>Alternate 4 Summary</b> |                                 |          |
|----------------------------|---------------------------------|----------|
| Time Frame                 | Greatest Elevation Drop<br>(ft) |          |
|                            | Hartwell                        | Thurmond |
| April 1-28, 2007           | 0.54                            | 0.97     |
| April 1-28, 2008           | 0.34                            | 0.45     |
| April 1-28, 2009           | 0.49                            | 0.47     |