

# **APPENDIX C**

## **COORDINATION / COMMENTS**

20 Apr 00

## MEMORANDUM FOR RECORD

SUBJECT: New Savannah Bluff Lock and Dam Section 106  
Coordination

1. In an April 20, 2000, meeting at Savannah District, district archaeologist Judy Wood discussed the New Savannah Bluff Lock and Dam (NSBLD) disposition study with members of the Georgia State Historic Preservation Office (GASHPO). GASHPO staff present were State Archaeologist Dr. David Crass, archaeologist Ronnie Rogers, and archaeologist and coordinator for the Georgia Department of Transportation (GADOT) ISTE A program funds, Betsy Shirk. Ms. Wood indicated that, apparently due to the sudden loss of a number of key review staff members, there had been some confusion about the project at the GASHPO when the draft study report and draft environmental assessment were reviewed. Although the project lies within Georgia and South Carolina, since the major portion of the structure lies within Georgia, the South Carolina SHPO has agreed to have the GASHPO serve as lead historic preservation office. The draft study report and draft Environmental Assessment served as the Section 106 coordination documents for the study. The GASHPO comment upon these documents was that since the structure was over 50 years old, it might meet eligibility requirements for inclusion in the National Register of Historic Places. The lock and dam was determined eligible for inclusion several years earlier when Savannah District made some repairs to the structure.

2. Ms. Wood reviewed the existing problem with the lock and dam project and the resulting on-going adverse effect to the National Register eligible structure through a history of inadequate and inconsistent funding for a regular program of repair. Repairs were made to the structure only when dam safety issues were noted. The repairs were made in consultation with the GASHPO in a historically sensitive manner, but only after the structure had been damaged.

3. Ms. Wood indicated that the District was working diligently to locate a cost-share sponsor for the project, but it appeared that this search would be unsuccessful. In previous conversations with Mr. Rogers and Mr. Richard Warner of the GASHPO staff, both had indicated that a sponsor might be found if the structure were found eligible for GADOT ISTE A funds.

CESAS-PD-E

SUBJECT: New Savannah Bluff Lock and Dam Section 106  
Coordination

They had indicated that Mobile District had found a sponsor for a lock and dam by following this route. Ms. Wood indicated at this meeting that she had investigated this alternative and had found that the initial repair costs alone for NSBLD were well beyond the funding cap for an ISTEPA project and this did not address the continued operation and maintenance costs. The GASHPO staff noted that, given the large cost of immediate and long-term repairs, it was unlikely that the District would be able to find a sponsor. They also noted that the existing program of "almost demolition by neglect" was not a realistic alternative. They indicated that, if a sponsor could not be located and de-authorization and partial demolition appeared to be the recommended alternative, some form of archival research and archival documentation would be required as mitigation. Ms. Wood indicated that all original construction and repair drawings were on file at Savannah District and that preservation of these drawings in a suitable archival repository, along with photographs of the structure and its contents done to Historic American Engineering Record standards, might be suitable mitigation.



JUDY L. WOOD  
Archaeologist, Environmental  
Resources Branch

Planning Division

December 20, 1999

JOINT  
PUBLIC NOTICE  
Savannah District, Corps of Engineers  
Post Office Box 889  
Savannah, Georgia 31402-0889  
and  
Georgia Department of Natural Resources

TO WHOM IT MAY CONCERN:

**SUBJECT:** Notice of Availability of Draft Environmental Assessment (EA) and Findings of No Significant Impact (FONSI) for the proposed deauthorization of the New Savannah Bluff Lock and Dam (NSBL&D) by Congress. This alternative would place the entire lock and dam system into a long-term inoperable condition. This would include the removal of all gates and appurtenances, emptying and filling valves, catwalks, hoisting equipment, and miscellaneous items. A security fence and buoys would be installed around the project area.

Notice of the following is hereby given:

- a. Pursuant to the National Environmental Policy Act of 1969, notice is hereby given that the U.S. Army Corps of Engineers, Savannah District, is proposing that Congress deauthorize the New Savannah Bluff Lock and Dam, cease all future Operation and Maintenance, Rehabilitation, Repair, and Replacement (O&MRR&R) funding, and place it in long-term inoperable condition. This would include the removal of all gates and appurtenances, emptying and filling valves, catwalks, hoisting equipment, and miscellaneous items. A security fence and buoys would be installed around the project area for safety measures.
- b. Copies of the draft EA and FONSI can be obtained from the Savannah District, U.S. Army Corps of Engineers, Planning Division, Environmental Resources Branch, ATTN: Ms. Maxine Inman, P.O. Box 889, 100 W. Oglethorpe Avenue, Savannah, Georgia 31402.
- c. Any person who has an interest which may be affected by this proposed action may request a public hearing. The request must be submitted in writing to the District Engineer, within the comment period of this notice, and must clearly set forth the interest which may be affected and the manner in which the interest may be affected by this action.

- d. Written statements regarding the draft EA and FONSI for the proposed project on New Savannah Bluff Lock and Dam will be received at the Savannah District Office until

12 O'CLOCK NOON, JANUARY 23, 2000

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

**BACKGROUND:**

This project consists of a lock chamber, dam, operation building, and a 50-acre park and recreation area. The dam is 360 feet long with five vertical lift gates. Each gate is 15 feet high and 60 feet long and all are remotely controlled from the J. Strom Thurmond project. The lock is on the Georgia side of the river adjacent to the dam. The lock's useable chamber is 56 feet wide and 360 feet long and the lift height is approximately 15 feet. Construction of this concrete gravity structure supported by timber piles was completed in 1937 (see Figure 1).

**PROJECT DESCRIPTION:**

Although the specific authority for this lock and dam project is commercial navigation, it has not been used for this purpose since 1979, except on particularly rare occasions. With insufficient commerce to justify operation of this project, Federal funding authorities required for proper maintenance of this project ceased, and, as a result, the structure has continued to physically deteriorate.

The U.S. Army Corps of Engineers, Savannah District, is proposing that Congress deauthorize the New Savannah Bluff Lock and Dam, cease all future O&MRR&R funds, and place it in long-term inoperable condition. This would include the removal of all gates and appurtenances, emptying and filling valves, catwalks, hoisting equipment, and miscellaneous items. A security fence and buoys would be installed around the project area for safety measures.

**PROJECT IMPACTS:** Savannah District has completed a draft Environmental Assessment on this proposed project and that document is being coordinated concurrently with this notice. The draft EA has been circulated to Federal and State resource agencies for review and comment, and is also available to interested members of the public. The draft EA addresses the potential impacts of this proposed project.

- a. Fisheries Effects. The NSBL&D presents a 15 foot impasse to upstream migration of anadromous fish such as American shad, blueback herring, and shortnose and Atlantic sturgeon when river flows are less than 16,000 cubic feet per second. The removal of the gates would eliminate this impasse and allow the fish to migrate upstream to spawn.
- b. Habitat Effects. Upstream of the NSBL&D is an area known as the Augusta shoals, one of a limited number of rocky shoals that remain not only in the Savannah River but in all of South Carolina's major

Piedmont areas. With the exception of short riverine segments, the Savannah River is essentially impounded by large and small reservoirs and small hydropower projects from River Mile 207.4 to its headwaters. Restoration of approximately 15.7 miles of riverine habitat, a portion of which is part of the Augusta shoals, would be a substantial environmental restoration benefit of the proposed project.

- c. River Elevation Effects. The removal of the gates from the lock and dam will decrease the river elevation, modifying the existing pool to a faster flowing river. The project pool provides an augmented water supply source for the city of North Augusta and 5 major industries in Georgia (PCS Nitrogen Fertilizer, DSM Chemical Augusta, Inc., and General Chemical Corp.) and South Carolina (Kimberly Clark and the Urquhart Fossil Fuel Plant). The pool is also used for outdoor recreation activities and events in Augusta, Georgia. Incidental users of this project benefit from higher water elevations, wider river, stable waters, and access to the ocean.
- d. Threatened and Endangered Species. A Biological Assessment of Endangered and Threatened Species (BATES) is included in the draft EA. A determination has been made that the proposed project would have some beneficial impact on the endangered shortnose sturgeon. This determination has been coordinated with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service to ensure their concurrence with this determination.
- e. Cultural Impacts. While current funding authorities allow emergency repairs to the structure when they are completed in a manner that complies with historic preservation regulations and standards, they do not allow routine maintenance of the structure that is also required by historic preservation regulations and standards. Repairs cannot be made until portions of the structure have failed or are expected to fail. This lack of maintenance results in a series of adverse affects to the property that must be mitigated by emergency repairs. Deauthorization of the lock and dam project would require dismantling and/or destruction of major portions of the structure and would constitute an adverse affect upon this National Register eligible property. This adverse effect could be mitigated through preservation of original drawings for construction and repairs and through some form of Historic American Engineering Record documentation. The level of documentation needed would need to be determined in consultation with the Georgia State Historic Preservation Officer in compliance with 36 CFR Part 800.

J. STROM THURMOND  
DAM & LAKE

SC

GA

UPSTREAM LIMIT  
FEDERAL PROJECT  
MILE 2026

Aiken

Thomson

MCDUFFIE

COLUMBIA

Augusta

M-200

M-190

NEW SAVANNAH  
BLUFF LOCK  
AND DAM

FORT  
GORDON

M-180

RICHMOND

M-170

M-160

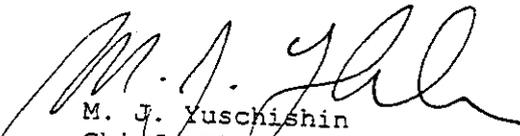
M-150

BURKE

Waynesboro

DEPARTMENT OF THE ARMY EVALUATION:

- a. Environmental Assessment. Savannah District has prepared a Draft Environmental Assessment and Draft Finding of No Significant Impact on the potential impacts of this proposed action. This assessment included the potential impacts to water quality, fisheries and wildlife, wetlands, endangered and threatened species, air quality, and cultural resources. The assessment is being coordinated with Federal and State resource agencies and interested members of the public.
- b. Threatened and Endangered Species. The District has reviewed the most recent information and has determined that the proposed action will not adversely impact the continued existence of any endangered or threatened species or result in the destruction or adverse modification of habitat of such species which has been determined to be critical. This determination has been coordinated with the U.S. Fish and Wildlife Service and National Marine Fisheries Service pursuant to Section 7 of the Endangered Species Act to ensure their concurrence with this no adverse impact determination.
- c. Cultural Resources. Savannah District will coordinate with the Georgia SHPO the findings and conclusions of the cultural resources survey for the New Savannah Bluff Lock and Dam.
- d. Evaluation Factors. The decision whether to proceed with the project as proposed will be based on an evaluation of the probable impacts, including cumulative impacts of the proposed action. That decision will reflect the national concern for both 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 which may be relevant to the proposal will be considered, including the cumulative effects thereof.
- e. Public Hearing. Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this proposed project. Requests for a public hearing shall state, with particularity, the reasons for requesting the public hearing.
- f. Comment Period. Anyone wishing to comment on this proposed action should submit comments, in writing, to the District Engineer, U.S. Army Corps of Engineers, Savannah District, ATTN: Maxine Inman, PD-E, P.O. Box 889, Savannah, Georgia 31402-0889, no later than 23 January 2000.
- g. Point of Contact. If there are any questions concerning this public notice, please contact Ms. Maxine Inman, Environmental Resources Branch, Planning Division, at (912) 652-6148.

  
M. J. Yuschishin  
Chief, Planning Division

STATE OF SOUTH CAROLINA  
State Budget and Control Board  
OFFICE OF STATE BUDGET



1122 LADY STREET, 12TH FLOOR  
COLUMBIA, SOUTH CAROLINA 29201  
(803) 734-2280

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ROBERT W. HARRELL, JR.  
CHAIRMAN, WAYS AND MEANS COMMITTEE

RICK KELLY  
EXECUTIVE DIRECTOR

*1 Mon*  
*PA 4*  
*PA 5*  
*CF: PM-CF*  
*PO E 113*

February 24, 2000

Chief, M. J. Yuschishin  
Planning Division  
Department of The Army Savannah District  
Corps of Engineers- Post Office Box 889  
Savannah, Georgia 31402-0889

Project Name: New Savannah Bluff lock & Dam Project Savannah River Georgia & South Carolina  
Section 216 Disposition Report Army Corps of Engineers Savannah

State Application Identifier SC000111-006

The Grant Services Unit, Office of State Budget, has conducted an intergovernmental review of the project referenced above as provided by Presidential Executive Order 12372. All comments received as a result of the review are enclosed for your information.

The State Application Identifier indicated above should be used in any future correspondence with this office. If you have any questions please contact me at (803) 734-0485.

Sincerely,

A handwritten signature in cursive script that reads "Angela F. Stoner".

Angela F. Stoner  
Grant Services Supervisor

Enclosures

STATE OF SOUTH CAROLINA  
*State Budget and Control Board*  
OFFICE OF STATE BUDGET

JIM HODGES, CHAIRMAN  
GOVERNOR

GRADY L. PATTERSON, JR.  
STATE TREASURER

JAMES A. LANDER  
COMPTROLLER GENERAL



1122 LADY STREET, 12TH FLOOR  
COLUMBIA, SOUTH CAROLINA 29201  
(803) 734-2280

LES BOLES  
DIRECTOR

JOHN DRUMMOND  
CHAIRMAN, SENATE FINANCE COMMITTEE

ROBERT W. HARRELL, JR.  
CHAIRMAN, WAYS AND MEANS COMMITTEE

RICK KELLY  
EXECUTIVE DIRECTOR

February 24, 2000

Chief, M. J. Yuschishin  
Planning Division  
Department of The Army Savannah District  
Corps of Engineers- Post Office Box 889  
Savannah, Georgia 31402-0889

Project Name: New Savannah Bluff lock & Dam Project Savannah River Georgia & South Carolina  
Section 216 Disposition Report Army Corps of Engineers Savannah

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Sincerely,

A handwritten signature in cursive script that reads "Angela F. Stoner".

Angela F. Stoner  
Grant Services Supervisor

Enclosures

## ACKNOWLEDGEMENT

January 6, 2000

Chief, M. J. Yuschishin  
Chief, Planning Division  
Department of the Army Savannah District,  
Corps of Engineers - Post Office Box 889  
Savannah, Georgia 31402-0889

Project Name: New Savannah Bluff lock and Dam Project Savannah River Georgia and South Carolina Section 216 Disposition Report Army Corps of Engineers Savannah District

Project Number: SC2000111-006

Suspense Date: 1/30/00

Dear Chief Yuschishin,

Receipt of the above referenced project is acknowledged. The Office of State Budget, has initiated an intergovernmental review of this project. You will be notified of the results of this review by the suspense date indicated above. South Carolina state agencies are reminded that if additional budget authorization is needed for this project, two copies of the completed GCR-1 form and two copies of the project proposal must be submitted to this office. This action should be initiated immediately, if required. You should use the State Application Identifier number in your correspondence with our office regarding this project. Contact me at (803) 734-0485 if you have any questions.

Sincerely,

Omeagia Burgess  
Grants Coordinator



# Office of State Budget

## South Carolina Project Notification and Review System

1122 Lady Street, 12th floor  
Columbia, SC 29201

|   |
|---|
| State Application Identifier<br>SC2000111-006 |
|---|

|                          |
|--------------------------|
| Suspense Date<br>1/20/00 |
|--------------------------|

Joel T. Cassidy  
South Carolina Employment Security Commission

The Office of State Budget is authorized to operate the South Carolina Project Notification and Review System (SCPNRS). Through the system the appropriate state and local officials are given the opportunity to review, comment, and be involved in efforts to obtain and use federal assistance, and to assess the relationship of proposals to their plans and programs.

Please review the attached information, mindful of the impact it may have on your agency's goals and objectives. Document the results of your review in the space provided. Return your response to us by the suspense date indicated above. Your comments will be reviewed and utilized in making the official state recommendation concerning the project. The recommendation will be forwarded to the cognizant federal agency.

Should you have no comment, please return the form signed and dated.

If you have any questions, call me at (803) 734-0485.

- Project is consistent with our goals and objectives.
- Request a conference to discuss comments.
- Please discontinue sending projects with this CFDA# to our office for review.
- Comments on proposed Application are as follows:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

|  |                        |
|--|------------------------|
| Signature: <u><i>Joel T. Cassidy</i></u> | Date: <u>02/14/00</u>  |
| Title: <u>Executive Director</u>         | Phone: <u>737-2617</u> |



# Office of State Budget

## South Carolina Project Notification and Review System

1122 Lady Street, 12th floor  
Columbia, SC 29201

State Application Identifier  
SC2000111-006

Suspense Date  
1/20/00

Elliot E. Franks, III  
S.C. Jobs-Economic Development Authority

The Office of State Budget is authorized to operate the South Carolina Project Notification and Review System (SCPNRS). Through the system the appropriate state and local officials are given the opportunity to review, comment, and be involved in efforts to obtain and use federal assistance, and to assess the relationship of proposals to their plans and programs.

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Should you have no comment, please return the form signed and dated.

If you have any questions, call me at (803) 734-0485.

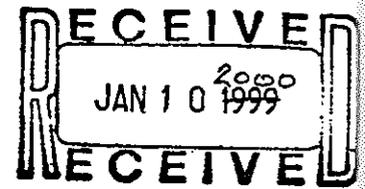
Project is consistent with our goals and objectives.

Request a conference to discuss comments.

Please discontinue sending projects with this CFDA# to our office for review.

Comments on proposed Application are as follows:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



|   |                        |
|---|------------------------|
| Signature: <u><i>Elliot E. Franks III</i></u> | Date: <u>01/14/00</u>  |
| Title: <u>CEO</u>                             | Phone: <u>737-0079</u> |



# Office of State Budget

## South Carolina Project Notification and Review System

1122 Lady Street, 12th floor  
Columbia, SC 29201

|   |
|---|
| State Application Identifier<br>SC2000111-006 |
| Suspense Date<br>1/20/00                      |

Michael LeFever  
Governor's Division of Health & Human Services

The Office of State Budget is authorized to operate the South Carolina Project Notification and Review System (SCPNRS). Through the system the appropriate state and local officials are given the opportunity to review, comment, and be involved in efforts to obtain and use federal assistance, and to assess the relationship of proposals to their plans and programs.

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Should you have no comment, please return **RECEIVED** be signed and dated.

If you have any questions, call me at (803) 734-0488 **RECEIVED** JAN 13 2000

Project is consistent with our goals and objectives.

Request a conference to discuss comments.

Please discontinue sending projects with this CFDA# to our office for review.

Comments on proposed Application are as follows:

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Signature: *Michael LeFever*

Date: 1-11-00

Title: \_\_\_\_\_

Phone: \_\_\_\_\_



# Office of State Budget

## South Carolina Project Notification and Review System

1122 Lady Street, 12th floor  
Columbia, SC 29201

|   |
|---|
| State Application Identifier<br>SC2000111-006 |
| Suspense Date<br>1/20/00                      |

George Bistany  
South Carolina Department of Commerce

The Office of State Budget is authorized to operate the South Carolina Project Notification and Review System (SCPNRS). Through the system the appropriate state and local officials are given the opportunity to review, comment, and be involved in efforts to obtain and use federal assistance, and to assess the relationship of proposals to their plans and programs.

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Should you have no comment, please return the form signed and dated

If you have any questions, call me at (803) 734-0485.

Project is consistent with our goals and objectives.

Request a conference to discuss comments.

Please discontinue sending projects with this CFDA# to our office for review.

Comments on proposed Application are as follows:

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**RECEIVED**  
JAN 13 2000  
Budget & Control Board  
OFFICE OF STATE BUDGET

|   |                        |
|---|------------------------|
| Signature: <u><i>George Bistany</i></u> | Date: <u>1-12-00</u>   |
| Title: <u><i>Grant Mgr.</i></u>         | Phone: <u>734-0651</u> |



# Office of State Budget

## South Carolina Project Notification and Review System

1122 Lady Street, 12th floor  
Columbia, SC 29201

State Application Identifier  
SC2000111-006

Suspense Date  
1/20/00

James Hugh Ryan  
S. C. Forestry Commission

JAN 10 2000

The Office of State Budget is authorized to operate the South Carolina Project Notification and Review System (SCPNRS). Through the system the appropriate state and local officials are given the opportunity to review, comment, and be involved in efforts to obtain and use federal assistance, and to assess the relationship of proposals to their plans and programs.

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Should you have no comment, please return the form signed and dated.

If you have any questions, call me at (803) 734-0485.

Project is consistent with our goals and objectives.

Request a conference to discuss comments.

Please discontinue sending projects with this CFDA# to our office for review.

Comments on proposed Application are as follows:

*None*

Signature: \_\_\_\_\_

*Joe M. Pickens*

Date: \_\_\_\_\_

*1/12/00*

Title: DIVISION DIRECTOR, ADMINISTRATION

Phone: \_\_\_\_\_

*896-80*



# Office of State Budget

## South Carolina Project Notification and Review System

1122 Lady Street, 12th floor  
Columbia, SC 29201

|   |
|---|
| State Application Identifier<br>SC2000111-006 |
| Suspense Date<br>1/20/00                      |

Steve Davis  
S.C. Department of Health and Environmental Control

The Office of State Budget is authorized to operate the South Carolina Project Notification and Review System (SCPNRS). Through the system the appropriate state and local officials are given the opportunity to review, comment, and be involved in efforts to obtain and use federal assistance, and to assess the relationship of proposals to their plans and programs.

Please review the attached information, mindful of the impact it may have on your agency's goals and objectives. Document the results of your review in the space provided. Return your response to us by the suspense date indicated above. Your comments will be reviewed and utilized in making the official state recommendation concerning the project. The recommendation will be forwarded to the cognizant federal agency.

Should you have no comment, please return the form signed and dated.

If you have any questions, call me at (803) 734-0485.

**RECEIVED**  
JAN 24 2000  
Budget & Finance  
OFFICE OF STATE BUDGET

- Project is consistent with our goals and objectives.
- Request a conference to discuss comments.
- Please discontinue sending projects with this CFDA# to our office for review.

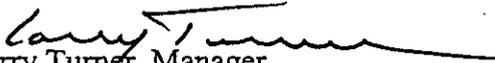
Comments on proposed Application are as follows:  
See attached - comments provided to  
Dept of Engineers

|  |                              |
|--|------------------------------|
| Signature: <u>Cary E. Turner</u>   | Date: <u>01/17/00</u>        |
| Title: <u>Manager, Water Quality Modeling</u><br><u>Section, SC DHEC</u> | Phone: <u>(803) 898-4005</u> |



MEMORANDUM

TO: Office of State Budget, South Carolina Project Notification and Review System

FROM:   
Larry Turner, Manager  
Water Quality Modeling Section

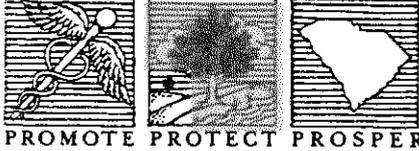
SUBJECT: SC2000111-006, New Savannah Bluff Lock and Dam

DATE: January 17, 2000

The proposed decommissioning of the New Savannah Lock and Dam on the Savannah River near North Augusta will result in a significant area that is now an impounded lake being returned to a riverine system. This action would result in the need to modify some discharge structures so they would remain in compliance with applicable water quality requirements. Also, certain municipal and industrial water withdrawals would have to be modified to allow them to continue operation with the anticipated lower water levels. These impacts on existing water users, though potentially significant, would not result in long term, adverse water quality impacts, though there could be some short term impacts due to physical relocation of the structures. These impacts would be considered to be insignificant. Therefore, we have no objection to the project described in SC2000111-006 and the accompanying documentation.

RECEIVED  
JAN 24 2000  
Budget & Control Board  
OFFICE OF STATE BUDGET

# D H E C



2600 Bull Street  
Columbia, SC 29201-1708

COMMISSIONER:  
Douglas E. Bryant

January 18, 2000

BOARD:  
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William M. Hull, Jr., MD  
Vice Chairman

Roger Leaks, Jr.  
Secretary

Mark B. Kent

Cyndi C. Mosteller

Brian K. Smith

Rodney L. Grandy

District Engineer

U.S. Army Corps of Engineers, Savannah District

Attn: Maxine Inman, PD-E

P.O. Box 889

Savannah, Georgia 31402-0889

Re: New Savannah Bluff Lock and Dam Environmental Assessment and  
Finding of No Significant Impact

Dear Sir:

The proposed decommissioning of the New Savannah Lock and Dam on the Savannah River near North Augusta will result in a significant area that is now an impounded lake being returned to a riverine system. This action would result in the need to modify some discharge structures so they would remain in compliance with applicable water quality requirements. Also, certain municipal and industrial water withdrawals would have to be modified to allow them to continue operation with the anticipated lower water levels. These impacts on existing water users, though potentially significant, would not result in long term, adverse water quality impacts, though there could be some short term impacts due to physical relocation of the structures. These impacts would be considered to be insignificant. Therefore, we have no negative comments on the proposed de-authorization of the New Savannah Bluff Lock and Dam project.

Sincerely,

Larry Turner, Manager  
Water Quality Modeling Section



# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
P.O. Box 12559  
217 Fort Johnson Road  
Charleston, South Carolina 29422-2559

November 29, 1999

Colonel Joseph Schmitt  
District Engineer  
U.S. Army Corps of Engineers  
P.O. Box 899  
Savannah, GA, 31402-0889

Re: Draft Fish and Wildlife Coordination Act 2b Report on the New Savannah Bluff Lock and Dam 316 Decommissioning Study

Dear Colonel Schmitt:

Enclosed please find one bound and one unbound copy of the above-referenced report submitted in partial fulfillment of Section 2(b) of the Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). The report is based on the information contained in the October and November, 1999 drafts of the Section 216 Disposition Study Report provided by Savannah District personnel.

The FWCA report supports the study's chosen alternative and concurs with the recommendation to deauthorize the project. The report further recommends additional actions including remedial studies for fish passage and riverine restoration and seeking funding for municipal, industrial and private interests who may suffer economic losses during the transition to a river based system.

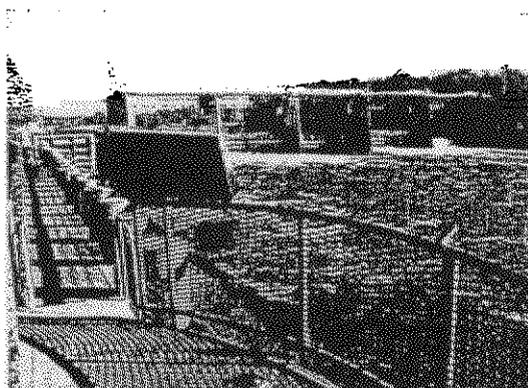
The report has been reviewed and its recommendations concurred with by the other Fish and Wildlife Coordination Act agencies - the National Marine Fisheries Service, the South Carolina Department of Natural Resources, and the Georgia Department of Natural Resources and is ready to be appended to your draft study report.

Sincerely yours,

Edwin M. EuDaly  
Acting Field Supervisor

EME/SSG

**DRAFT FISH AND WILDLIFE COORDINATION ACT REPORT  
ON  
NEW SAVANNAH BLUFF LOCK AND DAM PROJECT  
SECTION 216 DISPOSITION STUDY**



Prepared by:  
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Under the Supervision of  
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Division of Ecological Services  
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November, 1999

U.S. Fish and Wildlife Service  
Southeast Region  
Atlanta, Georgia



# United States Department of the Interior

FISH AND WILDLIFE SERVICE

P.O. Box 12559

217 Fort Johnson Road

Charleston, South Carolina 29422-2559

November 29, 1999

Colonel Joseph Schmitt  
District Engineer  
U.S. Army Corps of Engineers  
P.O. Box 899  
Savannah, GA, 31402-0889

Re: Draft Fish and Wildlife Coordination Act 2b Report on the New Savannah Bluff Lock  
and Dam 316 Decommissioning Study

Dear Colonel Schmitt:

Enclosed please find one bound and one unbound copy of the above-referenced report submitted in partial fulfillment of Section 2(b) of the Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). The report is based on the information contained in the October and November, 1999 drafts of the Section 216 Disposition Study Report provided by Savannah District personnel.

The FWCA report supports the study's chosen alternative and concurs with the recommendation to deauthorize the project. The report further recommends additional actions including remedial studies for fish passage and riverine restoration and seeking funding for municipal, industrial and private interests who may suffer economic losses during the transition to a river based system.

The report has been reviewed and its recommendations concurred with by the other Fish and Wildlife Coordination Act agencies – the National Marine Fisheries Service, the South Carolina Department of Natural Resources, and the Georgia Department of Natural Resources and is ready to be appended to your draft study report.

Sincerely yours,

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Acting Field Supervisor

EME/SSG

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## EXECUTIVE SUMMARY

The purpose of this U.S. Army Corps of Engineer's (Corps) study is to examine the operation procedures and uses of the New Savannah Bluff Lock and Dam (NSBL&D) project and recommend its future disposition to Congress. The goal is to discontinue all Federal future Operation and Maintenance, Rehabilitation, Repair and Replacement costs by either recommending deauthorization to Congress or by identifying an interested non-Federal entity to sponsor all future costs. This draft Fish and Wildlife Coordination Act (FWCA) report describes existing fish and wildlife resources within the New Savannah Bluff Lock and Dam (NSBL&D) Savannah River study area, the future of these resources with and without the project, evaluates the selected plan and alternatives, and identifies fish and wildlife conservation measures, opportunities and recommendations. This report is based on the alternatives described in the October and November, 1999 draft study reports supplied to us for these purposes by the Savannah District Corps.

The NSBL&D facility is a major obstruction to the upstream passage of anadromous fishes, which during the early part of the nineteenth century annually migrated to the headwaters of the Savannah River, through the Tugaloo River, and up the Tallulah River to Tallulah Falls, approximately 384 river miles from the ocean. Historic spawning habitat limits have essentially been cut in half. The NSBL&D at River Mile 187.3 was constructed in 1937 for commercial navigation purposes. This solely authorized purpose is no longer valid. Construction of a series of large Corps reservoirs and other hydropower and small reservoirs has essentially eliminated riverine Piedmont habitats in the Savannah River with the exception of the Augusta shoals just above the NSBL&D project. The project impounds a portion of these shoals. Opportunities exist to provide unimpeded fish passage and restore over 15 miles of Piedmont riverine habitat. Passage of native riverine fishes would improve population connectivity and the genetic health of fish populations, including the imperiled robust redhorse, (Moxostoma robustum).

The Service recommends the following actions/alternatives to reduce and eliminate the continuing impact of the NSBL& D project on fish and wildlife resources and provide for a clearer decision making process.

1. Select the dam decommissioning alternative but develop sub-alternatives which include:

- Subsequent studies and identified remedial actions (including dam removal or notching if necessary and/or construction of a European fishway) to enhance fish passage and riverine and riparian habitat restoration (e.g., sediment flushing flows, riparian plantings) above the dam.
- Subsequent studies and actions which would foster the continued high use recreational bank fishery. These should include access to the river lock wall or a replacement access facility and to mitigate any lost angling opportunities through construction of fish attraction sites and improved bank angler access.

- Seeking Congressional funding or other innovative funding or financial incentives and partnerships to aid transitions for industrial, commercial and private interests which may be economically affected by project decommissioning. These monies should be obtained prior to or in conjunction with decommissioning to help mitigate incidental economic burdens due to the decommissioning.
2. For any selected alternative other than dam decommissioning and remedial study of fish passage, design and construct a passive fishway alternative which would provide unimpeded passage for all aquatic organisms in this area of the Savannah River. Such fishway should ideally be based on a "European fishway" design which incorporates construction of a morphologically natural stream segment around the dam site. The constructed stream should be designed to dissipate energy and provide suitable fish passage velocities by mimicking geomorphically natural features such as meander bends, and pool/riffle complexes. It should be noted that the SCDNR recommends a South Carolina side alternative with an educational facility and bank and boat angler access. Based on review of the site, it appears that if the navigation lock remains functional, a South Carolina side fishway may be the only effective location to attract fish into the fishway.
  3. Provide additional studies on project economics which include the positive benefits of dam decommissioning to anadromous fish stocks and consequently long term recreational fishing benefits, river and shoal habitat restoration and restoration of native fisheries and unique plants such as the robust redhorse and rocky shoals spider lily. Such information will require economic studies utilizing contingent valuation methods. The inclusion of such information will better balance the economics of the decommissioning alternative to which the study currently attributes no economic benefits. We also recommend a review of other economic factors used in determining the NED alternative. This review should be done after the surface elevation model has been verified and alternatives for water withdrawal have been explored. Particular emphasis should be placed on the projected NED losses due to energy loss to the grid at the Uruquart project. Any such costs should be minimized annually by using the existing intake for cooling water at other than low flow conditions.
  4. Provide studies and simulations demonstrating the anticipated post-sediment flushed river channel morphology above the NSBL&D. While we anticipate the return of aesthetic riverine conditions for the current backwater area, the modeling and simulation of these conditions should provide a higher degree of aesthetic comfort level to those interests concerned with this element of the project.

# NEW SAVANNAH BLUFF LOCK AND DAM PROJECT 216 STUDY

## INTRODUCTION

### AUTHORITY

This study is being conducted under the authority of Section 216 of the Flood Control Act of 1970 (Public Law 91-611) which authorizes the Corps of Engineers to review the operation of Corps constructed projects when significantly changed physical or economic conditions warrant and to report to Congress "... with recommendations on the advisability of modifying the structures or their operation, and for improving the quality of the environment in the overall public interest." The Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) (FWCA) authorizes the U.S. Fish and Wildlife Service's (Service) involvement in this study. The Service prepared this report with funds transferred from the Corps under the National Letter of Agreement between our agencies for funding of FWCA activities.

### PURPOSE AND SCOPE

The purpose of the Corps' study is to examine the operation procedures and uses of the New Savannah Bluff Lock and Dam (NSBL&D) project and recommend its future disposition to Congress. The goal is to discontinue all Federal future Operation and Maintenance, Rehabilitation, Repair and Replacement costs by either recommending deauthorization to Congress or by identifying an interested non-Federal entity to sponsor all future costs. This draft FWCA report describes existing fish and wildlife resources within the NSBL&D Savannah River study area, the future of these resources with and without the project, evaluates the selected plan and alternatives, and identifies fish and wildlife conservation measures, opportunities and recommendations.

### PRIOR STUDIES AND REPORTS

The Service provided has been corresponding with the Savannah District relative to fish passage problems at the NSBL&D project since the early 1980's. In July, 1985, the Service prepared a Reconnaissance Planning Aid Report for the Savannah River Basin Study which identified the Augusta Shoals area as a "unique aquatic area", addressed anadromous fish issues in the Savannah River including blockage by NSBL&D, and included recommendations to enhance fish passage at NSBL&D. In February, 1996, the Service prepared an FWCA report on the Lower Savannah River Basin Study which primarily addressed environmental enhancements to the Savannah River below the NSBL&D.

## FWCA AGENCY COORDINATION

The following report has been coordinated with the National Marine Fisheries Service (NMFS), the South Carolina Department of Natural Resources (SCDNR) and the Georgia Department of Natural Resources (GDNR). All three agencies concur with the recommendations contained in this report (see Appendix A for agency letters). The NMFS has requested that the recommendations in this report be considered as joint recommendations of the Service and the NMFS. In addition to supporting the recommendations, SCDNR and GDNR have included technical input and suggestions for inclusion in the FWCA report. This draft 2(b) report has been amended to incorporate all the comments from these agencies.

## DESCRIPTION OF THE STUDY AREA

### GENERAL DESCRIPTION

The Savannah River is a major interstate river with a drainage basin of over 10,000 square miles and forms the border between the States of Georgia and South Carolina. The upper natural river system has been fragmented by a series of reservoirs. The NSBL&D project is the lowest dam on the Savannah at River Mile 187.3, approximately 13 river miles downstream from the city of Augusta in Richmond County, Georgia and the city of North Augusta in Aiken County, South Carolina.

The NSBL&D project is physically located just below the fall line in the Sand Hills Region of the of the Savannah River Watershed between the Piedmont and Upper Coastal Plain Provinces. The project affects a river reach upstream which extends above the fall line into the Piedmont Province. The Sand Hills Region is a belt of deep sandy soils on gently sloping to strongly sloping uplands. Soils in this area were derived from marine sands, loams, and clays that were deposited on acid crystalline and metamorphic rocks. Elevation ranges from 350 to 500 feet M.S.L. (Smith and Hallbick 1979, Perkins and Shaffer, 1977). The Piedmont Province consists of gently rolling to hilly slopes. This area is underlain by acid crystalline and metamorphic rock of Pre-Cambrian origin. Elevations range from 600 to 1200 feet M.S.L. (Smith and Hallbick 1979, Perkins and Shaffer, 1977). As the river transitions from the Sandhills to the Piedmont, substrate and structure change from sandy to bedrock and cobble/gravel shoals.

Land uses surrounding the project area include recreational and commercial developments on the Georgia side and primarily agricultural uses on the South Carolina side. In its natural state, much of the area surrounding the project was forested floodplain. The City of Augusta on the Georgia side is protected with a levee.

The Piedmont area of the Savannah River and adjacent tributary streams has been converted to a series of large reservoirs (Lakes Hartwell, Richard B. Russell and Strom Thurmond or

Clarks Hill). (Figure 1). These Corps of Engineers reservoirs are managed for hydroelectric power generation, flood control, recreation, fishing, and largely control all flows in the Savannah River below them including the project area. As a result of this regulation, the magnitude of historic high and low flows has been tempered. The effects of hydropeaking operations, are somewhat moderated by re-regulation at the Stevens Creek project, a small hydropower operation above NSBL&D. However, seasonal hypolimnetic releases and pulsing from hydropeaking operations affect the quality of aquatic habitat above the NSBL&D.

## EXISTING NSBL&D PROJECT

The NSBL&D project was authorized by the 1922 Rivers and Harbors Act for commercial navigation purposes and was completed in 1937. The current project consists of a 360 foot long dam, an operation building, a 50 acre park and recreation area, and a 56 foot wide by 360 foot long by 15 foot high lock chamber located on the Georgia side of the river. The dam contains five vertical lift gates which are 15 feet high and 60 feet long and are remotely controlled from the upstream J. Strom Thurmond Dam project. The two end gates are overflow gates with elevations three feet lower than the three non-overflow gates.

The only authorized purpose of the NSBL&D project is to provide for commercial navigation. However, the last time it was used for these purposes was in 1978, more than two decades ago. Current project use relates primarily to uses that have been fostered by the flat water pool above the dam. These include water withdrawal and recreational uses.

## WATER QUALITY

The project area supports a "Freshwaters" classification by the South Carolina Department of Health and Environmental Control (SCDHEC 1998). This designation is defined as:

*"freshwaters suitable for primary and secondary contact recreation and as a source for drinking water supply after conventional treatment in accordance with the requirements of the Department. Suitable for fishing and the survival and propagation of a balanced indigenous aquatic community of fauna and flora. Suitable also for industrial and agricultural uses".*

The Georgia Environmental Protection Division of the Georgia Department of Natural Resources has classified the project area as "Fishing" waters (GDNR 1995).

There are no known significant water quality problems in the immediate project vicinity. Seasonal dissolved oxygen sags caused by hypolimnetic release from the J. Strom Thurmond project are ameliorated by reoxygenation in the Augusta shoals below the Augusta Diversion Dam some twenty miles upstream of the NSBL&D.

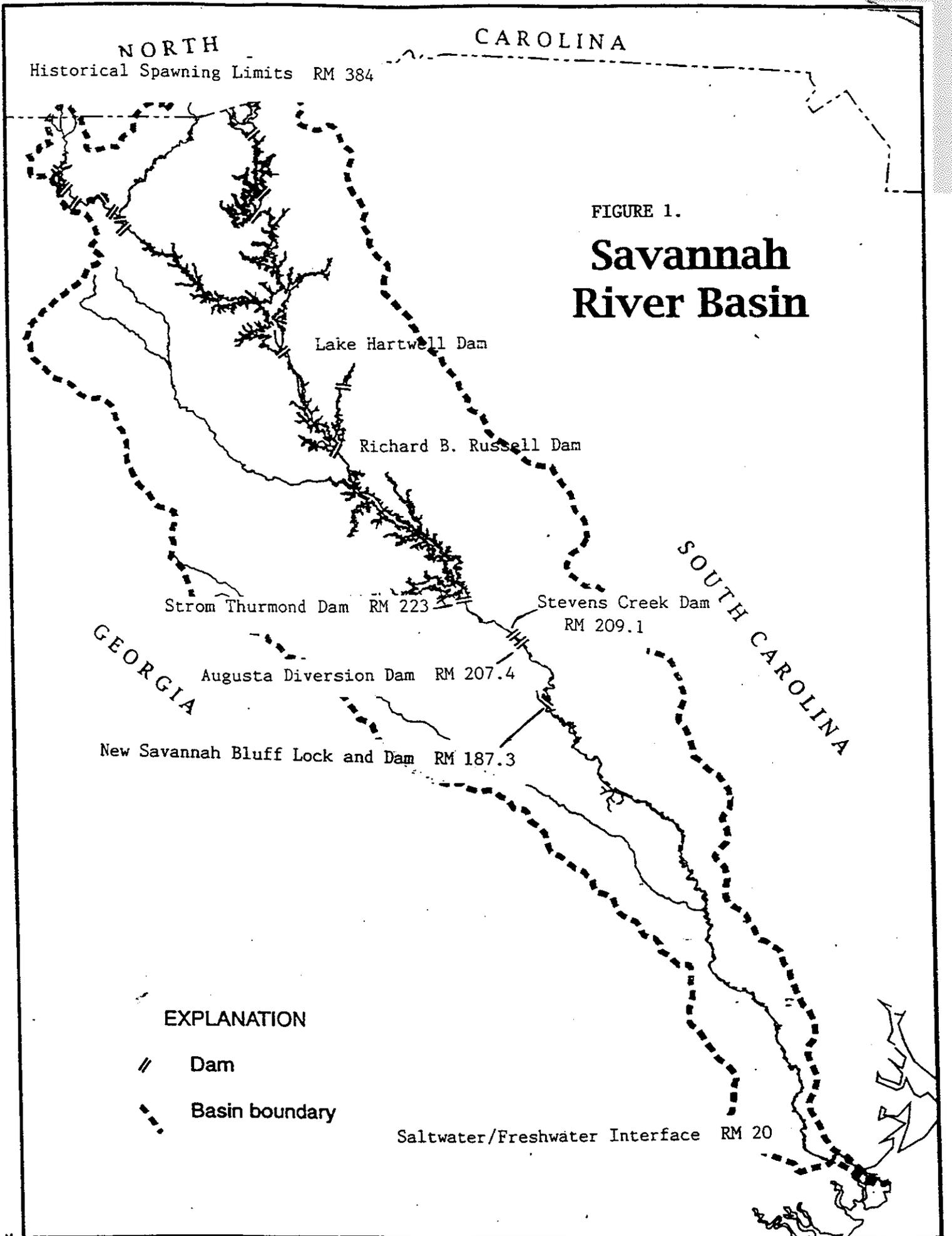


Figure 1. Savannah River Basin

## EXISTING FISH AND WILDLIFE RESOURCES

### FISH

A comprehensive five year fishery survey concluded that the Savannah River supports an abundant, diversified fish community (Schmitt and Hornsby 1985). Based on number and weight collected the most abundant game fish were largemouth bass, chain pickerel, black crappie, yellow perch, redbreast sunfish, bluegill, redear sunfish, warmouth, flier and pumpkinseed. Important non-game fish include longnose gar, bowfin, white catfish, channel catfish, common carp, spotted sucker, silver redhorse, striped mullet, and brown bullhead. The most important forage fish are gizzard shad and a number of minnow species. Anadromous fish found in the project area include striped bass, striped bass x white bass hybrids, American shad, hickory shad, blueback herring, shortnose sturgeon and Atlantic sturgeon. The catadromous American eel also migrates through the project area.

A recent creel survey conducted by the SCDNR from February 1 through June 30, 1999 (Boltin 1999) indicates that a variety of fish are recreationally harvested from the project area (Table 1). The value of the recreational fishery estimated by the creel was over \$897,000 annually. This included trip costs, consumer surplus (willingness to pay) and durable goods expenses.

The NSBL&D presents a 15 foot impasse to upstream migration of anadromous fish such as American shad, blueback herring, and shortnose and Atlantic sturgeon when river flows are less than 16,000 cubic feet per second (cfs). Above these flows, with the dam gates fully raised, water surface elevations above and below the dam equalize sufficiently that fish may swim through the dam thus eliminating the barrier. This appears to work well for surface oriented fish such as shad. It is unknown as to whether passage opportunities for bottom oriented species such as sturgeon are afforded during these "passage flows". Beginning in 1986, through cooperative efforts between the U.S. Fish and Wildlife Service, The Corps of Engineers, the States of Georgia and South Carolina, and the City of Augusta, a passage regimen was developed utilizing the navigation lock on the Georgia side of the project.

The current lease agreement between the Corps of Engineers and the City of Augusta provides between 30 and 50 annual lock cycles between March 15 and June 15 for fish passage. Between 1996 and 1998, while the lock was non-operational, the Corps of Engineers agreed to release available water from upstream storage reservoirs to effect a passage equalization scenario at the dam (where headwaters and tailwaters equalization facilitated passage through the dam with the gates raised). While both methods have been shown to pass fish, the effectiveness of either passage alternative (i.e. the number of fish passed relative to the number at the dam) is unknown. Observations based on fishing success below the dam indicate that opening the gates during high flows may episodically pass significantly more shad than lock operations. However, such passage is limited to one or two events per season thereby limiting passage opportunities for early, mid and late season runs.

TABLE 1. Estimate of total number (N), weight (lbs) (WT), and associated percentages (%) of fish species harvested from New Savannah Bluff Lock and Dam during the 1999 access creel. (February through June, 1999).

| Species             | N       | %    | WT      | %    |
|---------------------|---------|------|---------|------|
| American eel        | 15.9    | 0.1  | 6.9     | 0.1  |
| American shad       | 3,827.7 | 31.2 | 8,645.2 | 75.8 |
| Blue catfish        | 615.6   | 5.0  | 412.9   | 3.6  |
| Bowfin              | 15.9    | 0.1  | 8.4     | 0.1  |
| Black bullhead      | 15.9    | 0.1  | 1.3     | 0.0  |
| Black crappie       | 242.0   | 2.0  | 109.5   | 1.0  |
| Bluegill            | 1,240.2 | 10.1 | 101.0   | 0.9  |
| Blueback herring    | 95.2    | 0.8  | 19.1    | 0.2  |
| Brown bullhead      | 39.0    | 0.3  | 14.1    | 0.1  |
| Channel catfish     | 302.9   | 2.5  | 353.1   | 3.1  |
| Chain pickerel      | 22.7    | 0.2  | 14.0    | 0.1  |
| Flathead catfish    | 14.3    | 0.1  | 33.8    | 0.3  |
| Gizzard shad        | 49.6    | 0.4  | 9.6     | 0.1  |
| Hybrid striped bass | 28.6    | 0.2  | 21.4    | 0.2  |
| Largemouth bass     | 71.9    | 0.6  | 16.1    | 0.1  |
| Quillback           | 15.9    | 0.1  | 17.8    | 0.2  |
| Redbreast sunfish   | 2,282.0 | 18.6 | 312.7   | 2.7  |
| Redear sunfish      | 429.1   | 3.5  | 70.0    | 0.6  |

Source: Boltin 1999

## WILDLIFE

Lands in the immediate vicinity of the dam have been converted to agricultural and recreational uses and do not support natural forested communities. Upstream of the dam, many forested areas remain adjacent to the river. These support mixed hardwood communities including white oak, black oak, willow oak, sweetgum, pignut hickory, tulip poplar, sycamore, red mulberry and pines. In the vicinity of the project, wetlands are somewhat limited to a narrow fringe along the river's edge and bordering islands in the river.

Wildlife species in the vicinity include whitetailed deer, wild turkey, raccoon, beaver, mink and muskrat. Forested areas are used by a variety of neotropical migrant songbirds, reptiles and amphibians. Waterfowl and wading birds make use of forested wetland areas, while raptor species such as red-tailed and red-shouldered hawks utilize a variety of habitats in the project area.

## ENDANGERED SPECIES

We have checked our records for species listed in Columbia County, Georgia and Aiken County, South Carolina. The lists below represent those federally listed species known to occur in these counties. This list should be used only as a guideline, not as the final authority. The list includes known occurrences and areas where the species has a high possibility of occurring. Records are updated continually and may be different from the following.

E - Endangered

T - Threatened

\* - Responsibility of the National Marine Fisheries Service

|  |   |
|--|---|
| Red-cockaded woodpecker ( <i>Picoides borealis</i> )   | E |
| Wood stork ( <i>Mycteria americana</i> )               | E |
| Shortnose sturgeon ( <i>Acipenser brevirostrum</i> )*  | E |
| Relict trillium ( <i>Trillium reliquum</i> )           | E |
| Piedmont bishop-weed ( <i>Ptilimnium nodosum</i> )     | E |
| Smooth coneflower ( <i>Echinacea laevigata</i> )       | E |
| Mat-forming quillwort ( <i>Isoetes tegetiformans</i> ) | E |
| Michaux's sumac ( <i>Rhus michauxii</i> )              | E |
| Little amphianthus ( <i>Amphianthus pusillus</i> )     | T |

We recommend that in-house surveys be conducted by comparing the habitat requirements for these listed species with available habitat types within the action area of the project. Action area is defined at 50 CFR 402.02 as "... all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." Field surveys for the species should be performed if habitat requirements overlap with that available at the project site. Surveys for protected plant species must be conducted by a qualified biologist during the flowering or fruiting period(s) of the species. Please notify the Service with the results of any

surveys for the above species and an analysis of the "effects of the action," as defined by 50 CFR 402.02 on any listed species including consideration of direct, indirect, and cumulative effects. Please reference Log No. 4-6-00-018 relative to responses concerning endangered species under the purview of the Service. For the shortnose sturgeon, please notify the NMFS Protected Resources Division. The appropriate contact for matters pertaining to shortnose sturgeon is Mr. Charles Oravetz. He may be reached at by telephone at (813) 570-5312.

We also recommend contacting the SCDNR, Data Manager, Wildlife Diversity Section, Columbia, SC 29202 and the GDNR, Georgia Natural Heritage Program, 2117 US Hwy 278 SE, Social Circle, GA 30279 (706-557-3032) concerning known populations of federal and/or state endangered or threatened species, and other sensitive species in the project area. Additional habitat information may also be available from the SCDNR and GDNR.

In that all proposed alternatives would have little if any affect on terrestrial resources, we probably could concur with a "not likely to adverse effect" determination for the majority of the species listed above. However, an analysis of the effects of the alternatives on the shortnose sturgeon, coordinated through the endangered species office of the NMFS, would be prudent.

Also, a state listed, federal species of concern, the rocky shoals spider lilly (*Hymenocallis coronaria*) has known populations in the South Carolina side of the Augusta shoals above the project. The NSBL&D is thought to have backed water over a portion of the Augusta shoals and hence habitat for this species. This rare spider lily is proposed for federal endangered status and is known from fewer than twelve total populations in South Carolina, Georgia and Alabama. The Augusta shoals has historical significance as this was the location from which this species was originally described by John Bartram. *Hymenocallis* depends on swiftly flowing water of a certain depth for its existence. Therefore alternatives which result in restoring riverine habitat are likely to result in restoring additional habitat for this species. While not officially listed, recovery efforts for this species in the project area would be most beneficial.

The conservation of the imperiled robust redhorse, is being managed through the Robust Redhorse Conservation Committee (RRCC). The RRCC uses a cooperative approach to species conservation involving stakeholder partnerships and an interdisciplinary approach to species conservation which utilizes a broad spectrum of experience, expertise and management authorities. The RRCC consists of state and federal agencies including the Service and the Savannah District Corps of Engineers, private interests, and conservation organizations with the common purpose of improving the status of the robust redhorse to prevent the need to list the species as federally threatened or endangered. The robust redhorse is currently listed as endangered by the state of Georgia. The RRCC has developed a Conservation Strategy for the robust redhorse which establishes long term goals for the recovery of the species, including the establishment of three naturally reproducing populations within the species former range, and improving essential habitats. The robust redhorse has been found above and below the NSBL&D. Enhanced passage opportunities and restoration of habitats critical to this species through project decommissioning would enhance efforts for population recovery in the Savannah River.

## FISH AND WILDLIFE RESOURCE CONCERNS AND PLANNING OBJECTIVES

### MIGRATORY FISH

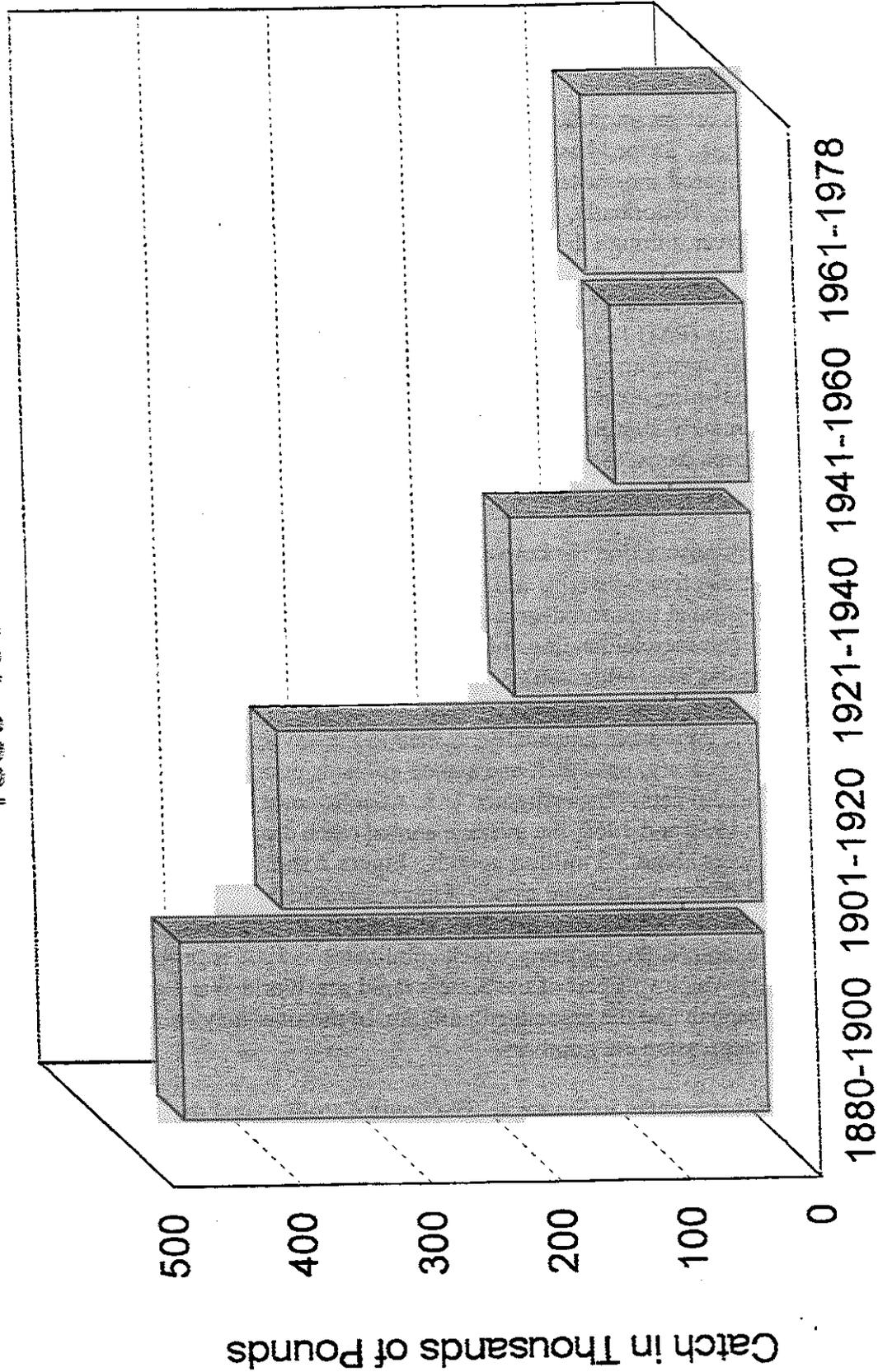
Anadromous fishes are an important component of the commercial and sport fisheries of South Carolina and Georgia. Striped bass, American shad, hickory shad, blueback herring and the Atlantic and endangered shortnose sturgeon annually migrate to spawning and nursery grounds in the Savannah River. Historically, some anadromous species annually migrated to the headwaters of the Savannah River, through the 49-mile long Tugaloo River to Tallulah Falls, Georgia, located on the Tallulah River about 10 miles upstream of the convergence of the Tallulah and Chattooga Rivers (Stevenson 1899, as cited by Mansueti and Kolb, 1953). Today the NSBL&D, located at River Mile (RM) 187.3, represents the first major obstruction to upstream migrants and limits movement to upstream spawning and nursery grounds. Still, some migrants do pass this facility to reach spawning areas below the next upstream dam, the Augusta Diversion Dam which is located approximately 20 miles upstream of the NSBL&D. Beginning at approximately RM 223, a series of Corps dams, (Strom Thurmond, Richard B. Russell, and Hartwell Dams) impound a significant portion of the Savannah River's Piedmont area..

Dam and reservoir construction has converted or blocked access to approximately one half of the historical anadromous fish spawning and nursery habitat of the Savannah River. Water pollution has resulted in additional loss and degradation of these valuable spawning and nursery grounds. Major declines in commercial landings of all Atlantic coast anadromous species have occurred since their peak in the late 1800's, with some fisheries virtually collapsing.

By the early 1950's, there were practically no shad in the Savannah River. Extensive shad fisheries in the 19<sup>th</sup> century, used drift and staked gill nets, pound nets, haul seines, weirs, fyke nets, bow nets, and dip nets. The estimated U.S. Atlantic coast catch in 1896 was 50 million pounds. Between 1930 and 1960, the average annual catch dropped to about 10 million pounds. In 1983, landings were about 3.5 million pounds. Figure 2 shows that South Carolina and Georgia landings followed this same national trend. Figure 3 provides a more detailed look at shad catch statistics in Georgia. However, it is difficult to separate out fishing effort from actual stock fluctuation. For example, the big jump which culminates in 1908 is probably associated with an activated economy which was part of the State's rapid pre-World War I growth. Industrial growth in the Savannah and the associated pollution of the river may be related to the consistently low depression era numbers.

More recent data is presented in Figure 4. The South Carolina creel data shows a general small decline in recent years. However, the data is from a very small sampling effort, sometimes as low as one or two fishermen (Billy McCord, personal communication). The Georgia landings data has a broader sampling base, all from wholesalers. The reliability of the data is still somewhat questionable, but it does mirror the South Carolina data, showing a small decline in recent years. Based on this data and conversations with South Carolina and Georgia Department of Natural Resources biologists, shad stocks appear to be relatively stable, perhaps slightly declining, but are very depressed relative to historic levels. This reduction from historic levels is inferred from .

**Figure 2. AVERAGE AMERICAN SHAD LANDINGS IN SOUTH CAROLINA AND GEORGIA IN TWENTY YEAR BLOCKS FROM 1880-1978**



Number of years of data: 1880-1900, n=6; 1901-1920, n=3; 1921-1940, n=13; 1941-1960, n=12; 1961-1978, n=18

**Figure 3. HISTORICAL ANNUAL CATCH STATISTICS OF SHAD IN GEORGIA**

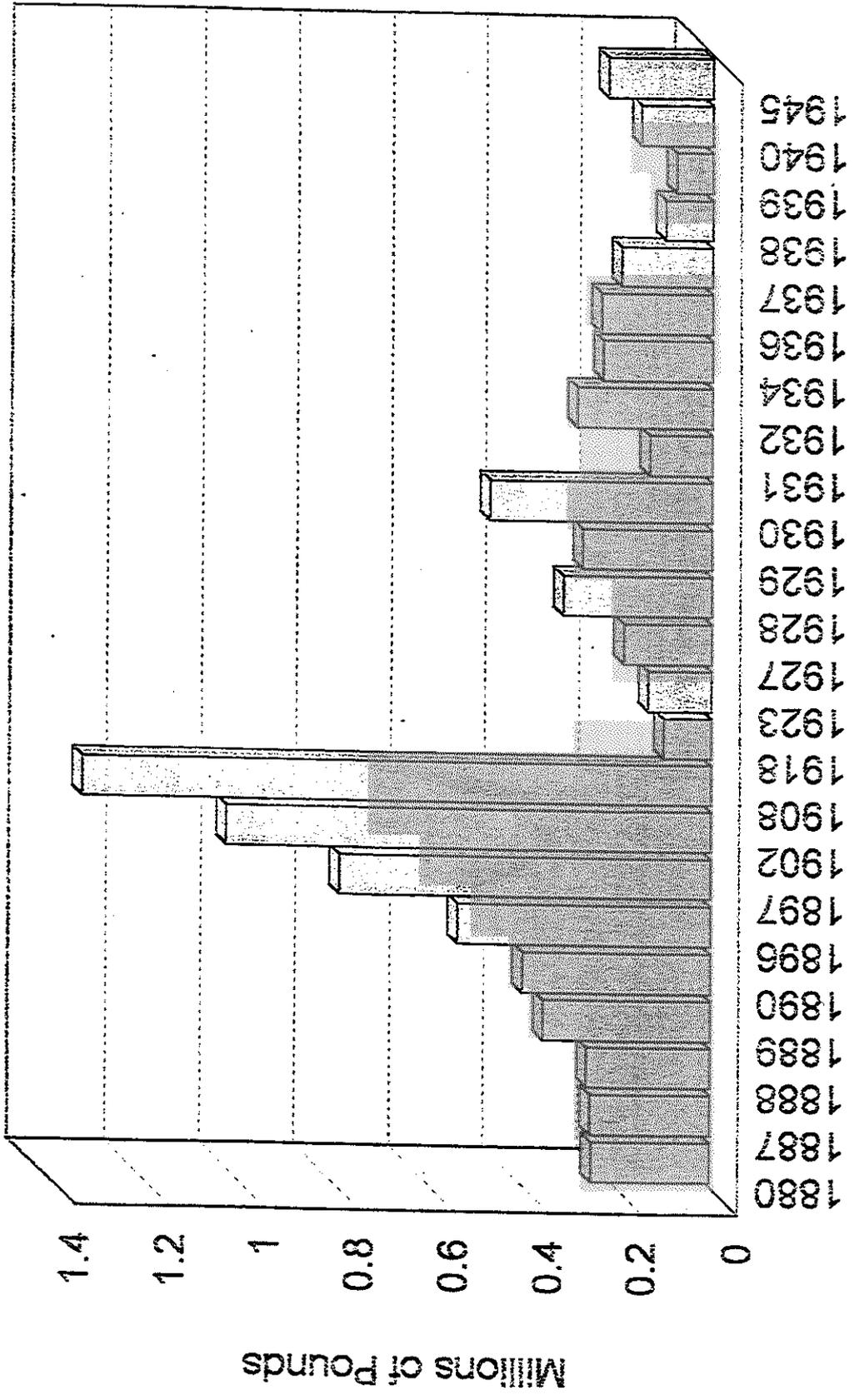
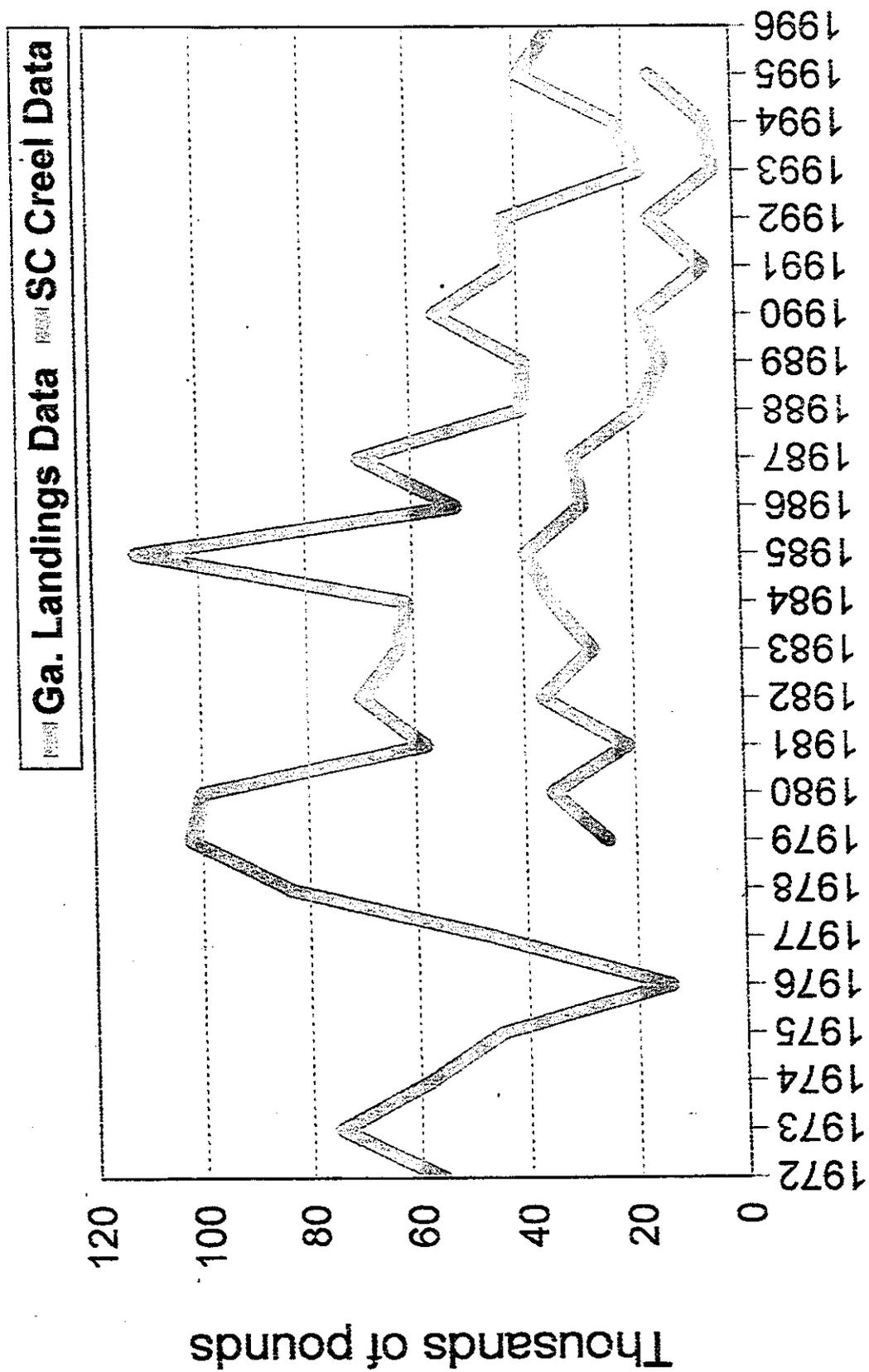


Figure 4. SHAD LANDINGS IN THE SAVANNAH RIVER



declining trends in Savannah River commercial landings in the Atlantic States Marine Fisheries Commission shad and river herring plan (ASMFC 1998). Fishing mortality does not appear to be a problem or limiting factor. It is estimated at 20 to 30 percent, way below the problem threshold for stock recovery

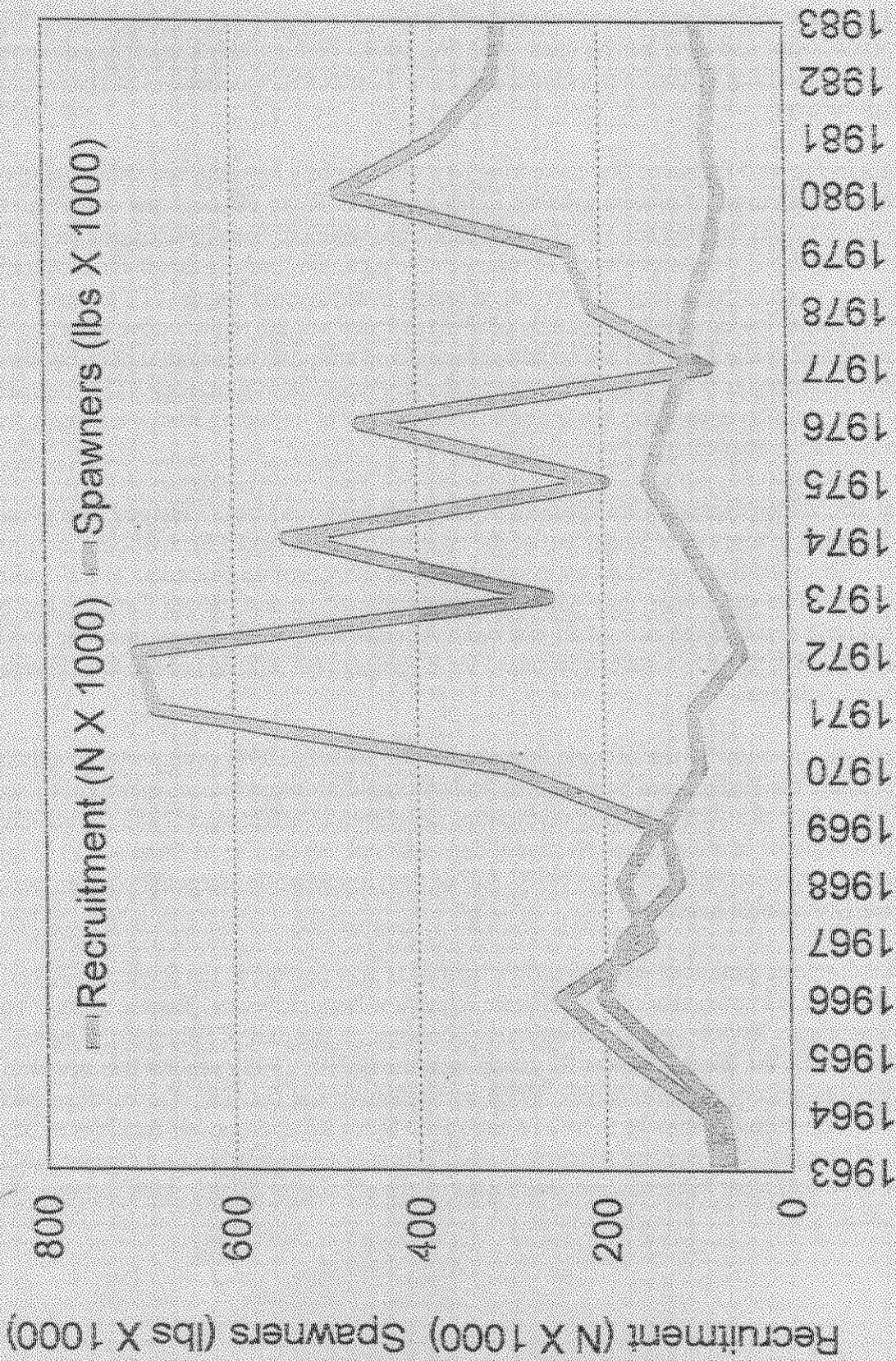
The data in Figure 5 indicates that there may be an uncoupling between spawning population numbers and recruitment success for shad in the Savannah River although the document from which the data was derived had very limited data from which to base conclusions on the Savannah River. If we assume some accuracy to the data, the limiting factor for successful recruitment in this system may be survival of early larval/juvenile stages. To enhance this stage of the life cycle, it would be ecologically prudent to space out the reproductive effort both temporally and spatially. Shad are serial spawners, and temporal and spatial distribution of reproductive energies is the crux of their evolutionary reproductive strategy. The fragmentation of the Savannah River by dams has thwarted this strategy by reducing spatial and temporal opportunities for spawning and recruitment.

Similar abundance decreases are apparent in other anadromous stocks. Striped bass populations have declined in more than 50 percent of the river systems surveyed from South Carolina to Florida. Recorded landings of Atlantic sturgeon in South Carolina peaked at 219,200 kilograms (kg) in 1897; five years later, only 42,600 kg were reported landed. South Carolina and North Carolina have reported the bulk of all east coast Atlantic sturgeon landings since the turn of the century; in 1976, these two states accounted for 84 percent (60,800 kg) of the total landings from Maine to Louisiana.

A recent status review of the Atlantic Sturgeon (NMFS/FWS, 1998) in response to a listing request under the Endangered Species Act, endorses habitat improvement measures to accelerate rebuilding of stocks. While fishing restrictions have been in effect since 1985 (South Carolina), southeast regional landings data effectively demonstrates the decline of these stocks (Figure 6). The document specifically cites the NSBL&D as denying Atlantic sturgeon to seven percent of historically available habitat.

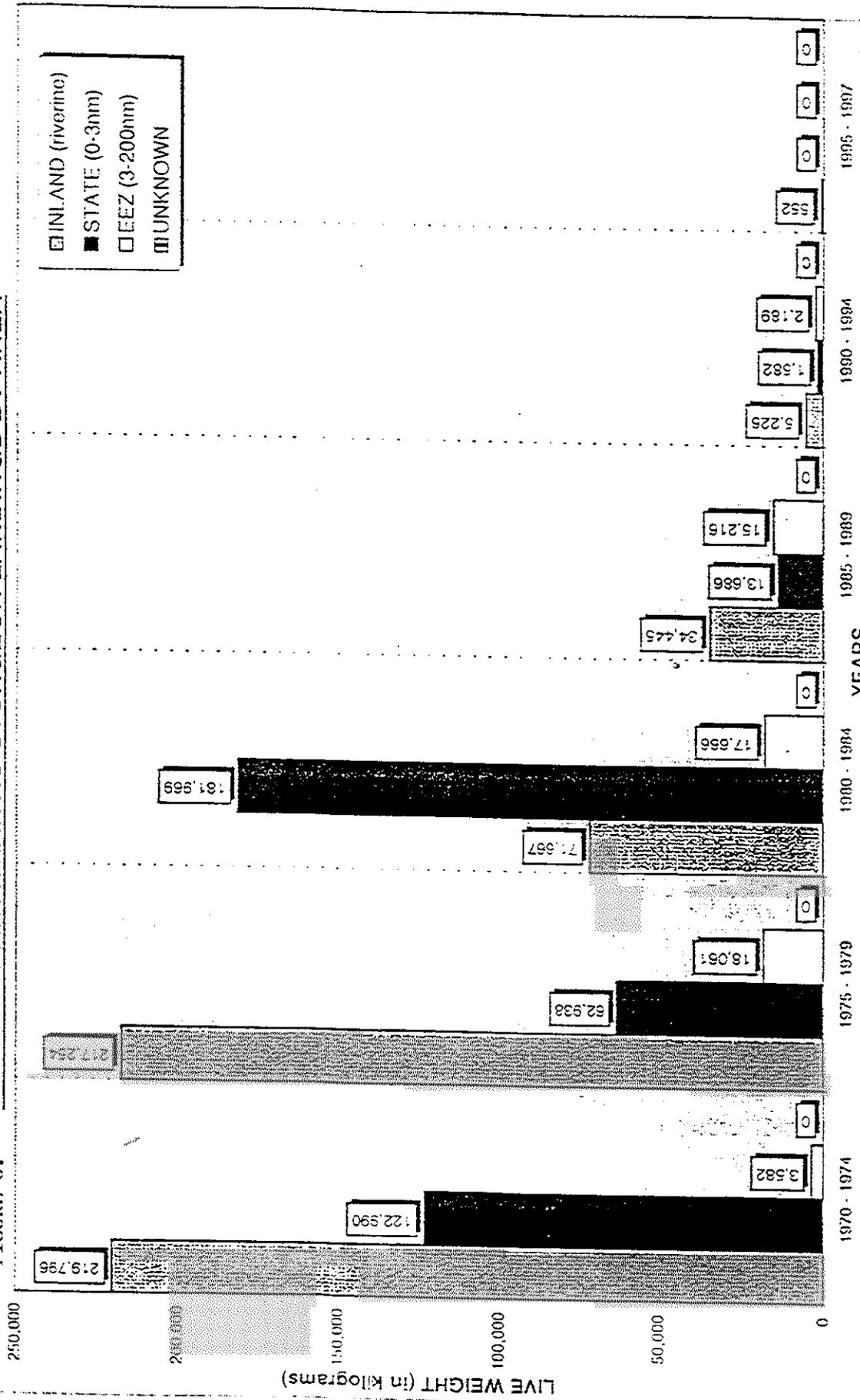
The catadromous American eel (*Anguilla rostrata*) is also present in the Savannah River, although little is known about its abundance relative to historic levels. Recent apparent declines in eel abundance have triggered management concerns on the part of fisheries managers. A recent report by the Electric Power Research Institute (EPRI, 1999), reports that upstream passage of migratory elvers at dams may be cost-effective and feasible. Downstream passage of adults through turbines may be more of a problem. Since no hydropower facilities exist at the NSBL&D project, downstream passage of adult eels is not projected to be a current problem. We do not have sufficient information to speculate on the efficiency of upstream passage of elvers at NSBL&D.

Figure 5. SAVANNAH RIVER SHAD RECRUITMENT 1962-1983



FROM: Stock Assessment of Am. Shad From Selected Atlantic Coastal Rivers, ASMFC Spec. Rpt 15, 1988

FIGURE 6. SE REGIONAL ATLANTIC STURGEON LANDINGS BY AREA



\*SE REGION includes the following states: North Carolina, South Carolina, Georgia, and the Florida east coast.

Source: NMFS/FWS 1998

## ROBUST REDHORSE

The robust redhorse, (*Moxostoma robustum*), is the largest and rarest redhorse sucker in the Southeast. A single remnant population was discovered in 1991 by GDNR fisheries biologists along a 60 mile reach of the Oconee River, Georgia. An additional population of unknown size was discovered in the Savannah River in 1998 during extensive electrofishing surveys. The conservation of the imperiled robust redhorse, is being managed through the Robust Redhorse Conservation Committee (RRCC). The RRCC uses a cooperative approach to species conservation involving stakeholder partnerships and an interdisciplinary approach to species conservation which utilizes a broad spectrum of experience, expertise and management authorities. The RRCC consists of state and federal agencies including the Service and the Savannah District Corps of Engineers, private interests, and conservation organizations with the common purpose of improving the status of the robust redhorse to prevent the need to list the species as federally threatened or endangered. The robust redhorse is currently listed as endangered by the state of Georgia. The RRCC has developed a Conservation Strategy for the robust redhorse which establishes long term goals for the recovery of the species, including the establishment of three naturally reproducing populations within the species former range, and improving essential habitats.

A single robust redhorse was identified from the Pee Dee River in 1987 and one individual was collected from the Savannah River in 1989. The fish were not correctly identified as robust redhorse until the discovery of the Oconee River population. Biologists familiar with the robust redhorse captured a single female during standardized electrofishing below NSBL&D in 1997. A subsequent cooperative search of the Augusta Shoals area using six electrofishing boats captured four female robust redhorse in June of 1998. A similar effort in May of 1999 captured 23 robust redhorse from the Savannah River near the Augusta Shoals area, including five individuals immediately below NSBL&D. Eggs were collected from two females and sent to GDNR's McDuffie Fish Hatchery and the Service's Warm Springs Fish Technology Center. All fish were tagged and future mark/recapture data will help develop a population estimate for the Savannah River.

The robust redhorse requires clean gravel substrates and stable river flows to successfully spawn. The gravel bar habitats essential to the robust redhorse exist near and below the fall line and are associated with the presence of shoals. The presence of robust redhorse above and below the dam indicates that the species may be permanently separated by the presence of the dam and that access to essential spawning habitats may be severely impaired. The NSBL&D also impounds a significant portion of riverine habitat that could provide suitable spawning habitat for the robust redhorse, including essential rearing habitats for juvenile fish.

The redhorse is a highly migratory species. Restoration of a significant portion of the Savannah River would provide access to significant upstream spawning habitats to fish currently isolated to downstream reaches. The preferred alternative may also increase available spawning and rearing habitats and add significantly to the pre-listing recovery efforts of the RRCC by reducing the

threats from habitat losses and further reducing the potential need to list the species as federally threatened or endangered. Furthermore, the robust redhorse may be an indicator of native shoal species which have experienced significant habitat declines in the Savannah due to loss of almost all Piedmont riverine habitats.

## RIVERINE HABITAT

Important fish and wildlife resource opportunities in the project area of the Savannah River are not confined to anadromous fisheries. Upstream of the NSBL&D is an area known as the Augusta shoals, one of a limited number of rocky shoals that remain not only in the Savannah River but in all of South Carolina's major Piedmont rivers. According to the South Carolina Heritage Trust Advisory Board, "rocky shoals are unique biogeomorphic features that are worthy of protection in and of themselves." These habitats are given equivalent status with wetlands as special aquatic sites in the regulations implementing Section 404 of the Clean Water Act.

The Savannah River has cumulatively lost a significant portion of its Piedmont riverine habitat. Above the NSBL&D, a series of dams impounds the river (Figure 1). With the exception of short riverine segments, the Savannah is essentially impounded by large Corps of Engineers reservoirs and small hydropower projects and other small reservoirs from River Mile 207.4 to its headwaters. Restoration of approximately 15.7 miles of riverine habitat, a portion of which is part of the Augusta shoals, would be a cumulatively significant environmental restoration benefit of project decommissioning.

## RECREATIONAL FISHING

A high use recreational fishery currently exists at the NSBL&D primarily for American shad, redbreast sunfish and bluegill. Boltin (1999) estimated 126,666 hours of fishing effort in this area from February through June of 1999. Bank anglers alone spent 54,486 hours fishing in the tailwater area of the project. This document also reported that direct consumer costs (trip expenditures) incurred while fishing at NSBL&D during the February through June 1999 time period totaled \$423,305.07. The report also indicated that consumers surplus, or willingness to pay equaled \$391,730.83 over the survey period. It was also estimated that anglers spent \$82,408.78 on fishing related equipment during the survey period. The total value of the recreational fishery estimated by the creel was over \$897,000 for the five month period. While a portion of this fishery relates to the "stacking" of American shad trying to pass upstream, we do not anticipate a major change in fishing opportunity, especially in the redbreast and bluegill fishery provided that bank access is not altered. While shad passage is expected to be facilitated by project decommissioning, these fish are still expected to pass along the lock river wall in abundant numbers. There also may be a slowing of upstream migratory movements at the remaining dam weir. Bank and small boat fishing opportunities are expected to increase upstream as more fish traverse the upstream shoals. Such opportunities should be explored in the event that anadromous fishing opportunities at the NSBL&D decrease.

## ROCKY SHOALS SPIDER LILY

The rocky shoals spider lily (*Hymenocallis coronaria*) is a bulbous, emergent perennial plant that grows on rocky shoals in Piedmont streams and rivers at and above the Fall line. Ideal conditions appear to be flowing water with high dissolved oxygen content, little or no sedimentation, with the bulbs and at least the lower portion of the leaves submerged at all times. Plants usually occur as assemblages or clumps of several to as many as 150 bulbs, or more (Aulbach-Smith 1998).

This rare spider lily is proposed for federal endangered status and is known from fewer than twelve total populations in South Carolina, Georgia and Alabama. The Augusta shoals has historical significance as this was the location from which this species was originally described by John Bartram. *Hymenocallis* depends on swiftly flowing water of a certain depth for its existence. A flow regime that mimics a natural high flows in late winter and spring with flows lessening in time for plant emergence in April and flowering in May and June appears to be beneficial to the plant (Aulbach-Smith 1998). The plant becomes established in relatively shallow areas, i.e., less than 6 inches of water, during low flows in the summer months (Hearn, 1995). However, some flow over the bulbs should always be maintained, especially during times of temperature extremes in the late summer and winter. Ideal water level should range from 1 to 1.5 feet over the bulb. The plants also require relatively high dissolved oxygen levels to produce healthy, vigorous plants (Aulbach-Smith 1998).

Alternatives which result in restoring riverine habitat are likely to result in restoring additional potential habitat for this species. Modification of flow regimes through the Augusta Shoals and improvement in dissolved oxygen condition may also be necessary for effective recovery efforts. Re-establishing riverine shoal conditions above NSBL&D could facilitate experimental planting efforts for this species. Establishment of this species in the shoals above the NSBL&D would result in unique and enhanced aesthetics.

## WILDLIFE HABITATS AND WETLANDS

Former floodplain wetlands and forested riparian zones which have been eliminated in the reservoir pool which is flooded by the backwater effects of the dam represent a continuing impact of the project. There is a good potential to restore these habitats if a decommissioning and riverine restoration alternative is chosen.

## PLANNING OBJECTIVES

The following planning objectives were developed considering the above resource concerns.

1. *Provide unimpeded passage of migratory and riverine fishes.*

Anadromous species have been blocked from significant lengths of historic spawning habitats in the Savannah River. A preliminary management plan for anadromous fish on the Savannah River was reached through elements of interagency consensus in 1992. Involved agencies

included the Service, GDNR and SCDNR. Among other actions, this plan supported unrestricted passage to the base of the Strom Thurmond dam, restoring access to 35.7 miles of historic spawning habitat. The plan has been accepted by the Federal Energy Regulatory Commission as a Comprehensive Plan under Section 10(a)(2) of the Federal Power Act. Restored or enhanced passive passage opportunities for all migratory species should be a part of any chosen alternative.

2. *Restore riverine and shoal habitat in the project vicinity.*

Remaining Savannah river riverine Piedmont habitat is negligible. This is due to large and small reservoir developments throughout the Piedmont province. Particularly absent are important shoal habitats, the last vestige of which are the Augusta shoals upstream of the project. In that a portion of these shoals (4 to 5 miles) lie under the backwaters of the NSBL&D, restoration of this habitat should be an important consideration in any chosen alternative. Such restoration would also provide opportunities for recovery of native fish including the imperiled robust redhorse, restoration of associated forested wetland and riparian zones and reestablishment of the rare rocky shoals spider lily.

3. *Maintain existing or replacement opportunities for recreational fishing in the vicinity of the project.*

Currently, the NSBL&D supports a sizable recreational fishery. While certain elements of this fishery may change with increased opportunities for fish passage, it is important for any chosen alternative to maintain or replace access and fishing opportunities at the project.

## **FUTURE OF FISH AND WILDLIFE RESOURCES WITHOUT THE PROJECT**

The without project scenario is described in the study as the "no action" or "base condition" alternative. Under this scenario "no action is taken to resolve problems" and it "would most likely lead to continued inadequate maintenance and rehabilitation and, in due course, an increased probability of structural failure". Further discussions with Savannah District staff indicated that this alternative would be consistent with the continuing trend of "fixing it as it breaks". Under this scenario it is projected that the navigation lock would continue to be operated during the spring for passage of migratory species as long as it could be safely operated.

The reliability and efficiency of this passage device, particularly for all migratory species, is questionable. The lock was closed for repairs for almost three years during 1996 through 1998. Although passage was effected through gate openings and release of upstream waters, such alternatives are limited by the availability of excess waters. During low water years, if the lock is non-operational supplemental passage would probably not occur. This would likely result in poor year classes of American shad in the Savannah system. A further problem is relying on upstream releases for passage is that limited opportunity for such passage occurs on a seasonal basis. Therefore, passage for early, mid and some late season spawners would not occur. Judging from the lack of maintenance and the current condition of the project described in the Corps' study, additional mechanical breakdown of the lock is anticipated.

While current non-passive passage alternatives employed at the project may continue to be available, these pose limitations of effectiveness for bottom oriented species. The lock's entrance location relative to the spillway reduces its passage efficiency. Facilitating passage using flow release and gate manipulation are dependent upon available water. Both mechanisms are non-passive and require physical manipulation at a given time to effect passage and only provide temporal "snapshot" type passage. For unimpeded passage for all species at all times a passive mechanism should be considered.

In the future without the project scenario, the continuing project impacts of impounding riverine habitat including a portion of the Augusta shoals would persist. Opportunities for restoration of cumulatively important impacted Piedmont riverine habitat, forested wetlands and riparian zones, robust redhorse and rocky shoals spider lily populations would not occur.

### **SELECTED PLAN AND ALTERNATIVES**

As described in the draft study plan provided by the Corps to prepare this report, the recommended plan is Congressional deauthorization and placement of the project into a long-term inoperable condition. This would entail removal of the weir gates on the lock and vertical lift gates on the dam. This would reduce the backwater effects of the project which currently extend to river mile 203 restoring about 15.7 miles of riverine habitats.

No other alternatives, other than "no action" are addressed or analyzed in the Corps' report. Should the recommended alternative be selected, it would be important to consider more refined alternatives within the broad deauthorization alternative. Further studies and actions would probably be needed to enhance fish passage and riverine habitat restoration opportunities and maintain and enhance bank fishing access. These include an analysis of fish passage effectiveness over the sill left by the concrete portion of the dam, reforestation of riparian zones along the river, planting and propagation of rocky shoal spider lilies, tracking progress of sediments flushing from behind the existing dam, and exploration of alternatives for maintenance and enhancement of bank fishing access.

### **COMPARISON OF IMPACTS OF ALTERNATIVE PLANS**

As mentioned earlier, alternatives to the project being considered in the Corps' study are limited to the no action alternative which seeks to continue to operate and maintain the project and structure status quo and the decommissioning alternative. The no action alternative is projected to result in continued improper maintenance, and, in due course, an increased probability of structural failure.

Relative to fish and wildlife impacts, the "with project" scenario (dam decommissioning) offers positive impacts when compared to the "without project" (status quo) scenario. Positive impacts include enhanced passive fish passage which would yield ecological and population benefits for anadromous and catadromous species and foster the tenants of an interagency anadromous fish plan which calls for restoration of access to 35.7 miles of historic spawning habitats above the

NSBL&D. It would also expand feeding, breeding and nursery area sites for native riverine species including the imperiled robust redhorse, who could pass the dam site at will. Opportunities to restore over 15 miles of riverine habitat including several miles of rocky shoals could be realized. Restoration of forested wetlands and riparian zones and populations robust redhorse and rocky shoals spider lily could likewise be realized.

We anticipate several major riverine habitat types would be restored above the dam. In upstream reaches, rocky shoal habitat exemplified by the Augusta Shoals, would be restored. As the river passes through the downtown Augusta area and the area of "Riverwalk" there is a change in morphology to a narrower, deeper section with lower sinuosity. Substrate also appears to change from the gravel/cobble with rocky outcrops characteristic of the Augusta shoals. Rip-rap type stone placed in the early 1900's along the river slope in the downtown area protected by embankment may still be in place. More of this stone would be exposed as river levels drop.

Existing uses which have manifested as a result of the "flat water" reservoir behind the dam, including industrial and municipal water withdrawals, waterfront developments including a marina and certain recreational uses would be affected by decommissioning and have to undergo certain transitions to a more riverine system. However, these incidental uses would also be affected by project failure which is portrayed as imminent under the without project alternative. Under the decommissioning alternative, industrial and municipal water intakes may have to be relocated or extended. Waterfront developments would go through an aesthetic transition from flat water, to mud flats to riverine flowing water. Any temporary mud flat transition could be greatly temporally accelerated through flushing flows to move built up sediments downstream and riparian plantings to accelerate successional revegetation. Motor boat racing events would have to relocate to other open water locations. Recreational activities would transition from large motorized boats to canoeing, kayaking, rafting and small boat use. Recreational fishing (including fly fishing for American shad) could be promoted and help supplant, along with increased paddling use, any recreationally based economic losses to the area. Decommissioning the project with adequate planning efforts would allow for a smooth transition of incidental uses currently dependent on the impounded water behind the dam. Failure of the project due to insufficient maintenance could result in potential severe, immediate and unplanned impacts to these uses.

## CUMULATIVE IMPACTS

The Savannah River has been fragmented by a series of dams. Historically, anadromous fish traveled 384 miles from the ocean to the limits of their historic spawning habitat in the headwaters. If we assume that suitable spawning habitat begins at the saltwater/ freshwater interface (roughly RM 20), approximately 364 miles of spawning habitat was available. After 1846, the Augusta Diversion Dam acted as a barrier to the further ascent of anadromous species. In 1883 a fishway was constructed in this dam because of complaints by residents above Augusta about the injurious effect of the dam on the shad fishery. Completion of the NSBL&D project in 1937 at what is now RM 187.3 restricted migrations beyond that point, further reducing available spawning and nursery habitat for anadromous fishes utilizing the Savannah River. Essentially,

historic spawning habitat in the Savannah has been cut in half. The NSBL&D project has cumulatively added to the loss of access to remaining suitable spawning habitat. While some passage has been effected both naturally and artificially, its relative effectiveness is generally unknown.

Essentially all of the Piedmont riverine habitat in the Savannah River has been lost through dam construction. Historically, approximately 180 miles of the Savannah river flowed through the Piedmont Province. A small section of Piedmont riverine habitat, approximately 4 miles, remains below the Augusta Diversion Dam. However, the quality of habitat in this section is affected by controlled flow releases from upstream dams and diversions into the Augusta Canal. Some riverine-like habitat exists between Strom Thurmond Dam and the Stevens Creek dam. This has been judged to be suitable for anadromous fish spawning and recruitment if low oxygen hypolimnetic releases from the Strom Thurmond Dam are improved.

Under the status quo alternative the NSBL&D project would continue to contribute to the cumulative impacts to anadromous fish and riverine habitat in the Piedmont section of the Savannah River. The decommissioning alternative would provide for restoration of over 15 miles of riverine habitat, of which about half is in the Piedmont province. It would more than double the remnant 4 miles of Piedmont riverine habitat below the Augusta Diversion Dam thereby somewhat ameliorating the cumulative Piedmont riverine habitat loss experienced in the Savannah River. It would also be the first step in restoring passage to the base of the Strom Thurmond Dam which is in accord with the interagency anadromous fish plan for the Savannah. While passage beyond the Strom Thurmond Dam would accomplish little because of the lack of riverine habitats, passage to the base of the dam at RM 223 would restore access to 35.7 miles of historic spawning habitat, an increase of over 21 percent over what currently exists thereby reducing the cumulative loss of historic anadromous fish habitat.

## RECOMMENDATIONS

Based on the projected impacts of the with and without project alternatives as discussed above, The Service recommends the following actions/alternatives to reduce and eliminate the continuing impact of the NSBL& D project on fish and wildlife resources and provide for a clearer decision making process.

I. Select the dam decommissioning alternative but develop sub-alternatives which include:

- Subsequent studies and identified remedial actions (including dam removal or notching if necessary and/or construction of a European fishway) to enhance fish passage and riverine and riparian habitat restoration (e.g., sediment flushing flows, riparian plantings) above the dam.
- Subsequent studies and actions which would foster the continued high use recreational bank fishery. These should include access to the river lock wall or a

replacement access facility and to mitigate any lost angling opportunities through construction of fish attraction sites and improved bank angler access.

- Seeking Congressional funding or other innovative funding or financial incentives and partnerships to aid transitions for industrial, commercial and private interests which may be economically affected by project decommissioning. These monies should be obtained prior to or in conjunction with decommissioning to help mitigate incidental economic burdens due to the decommissioning.
2. For any selected alternative other than dam decommissioning and remedial study of fish passage, design and construct a passive fishway alternative which would provide unimpeded passage for all aquatic organisms in this area of the Savannah River. Such fishway should ideally be based on a "European fishway" design which incorporates construction of a morphologically natural stream segment around the dam site. The constructed stream should be designed to dissipate energy and provide suitable fish passage velocities by mimicking geomorphically natural features such as meander bends, and pool/riffle complexes. It should be noted that the SCDNR recommends a South Carolina side alternative with an educational facility and bank and boat angler access. Based on review of the site, it appears that if the navigation lock remains functional, a South Carolina side fishway may be the only effective location to attract fish into the fishway.
  3. Provide additional studies on project economics which include the positive benefits of dam decommissioning to anadromous fish stocks and consequently long term recreational fishing benefits, river and shoal habitat restoration and restoration of native fisheries and unique plants such as the robust redhorse and rocky shoals spider lily. Such information will require economic studies utilizing contingent valuation methods<sup>1</sup>. The inclusion of such information will better balance the economics of the decommissioning alternative to which the study currently attributes no economic benefits. We also recommend a review of other economic factors used in determining the NED alternative. This review should be done after the surface elevation model has been verified and alternatives for water withdrawal have been explored. Particular emphasis should be placed on the projected NED losses due to energy loss to the grid at the Uruquart project. Any such costs should be minimized annually by using the existing intake for cooling water at other than low flow conditions.

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<sup>1</sup>Contingent Valuation Method (CVM) is a means of deriving the value of a natural resource not typically priced in market activity, and where other methods such as travel cost or hedonic prices are inappropriate. CVM is the only methodology that attempts to measure the non-use attributes such as option, existence and bequest values. Using surveys by mail, telephone, or in person, the CVM asks respondents about their willingness to pay (WTP) for a resource. WTP is expressed in the form of an offer or bid for the specified resource. Unlike the travel cost and hedonic price method, no actual market values or expenditure data is used in deriving the estimated value (Dolan & Field 1995).

4. Provide studies and simulations demonstrating the anticipated post-sediment flushed river channel morphology above the NSBL&D. While we anticipate the return of aesthetic riverine conditions for the current backwater area, the modeling and simulation of these conditions should provide a higher degree of aesthetic comfort level to those interests concerned with this element of the project.

#### **POSITION OF THE U.S. FISH AND WILDLIFE SERVICE**

The NSBL&D is the lowest dam and hence the first blockage to migratory species on the Savannah River where approximately half of historic spawning habitat has been lost. Its sole Congressionally authorized purpose of commercial navigation has long ceased to be valid. The project works are in a poor state of repair and would require significant federal dollars to maintain in a safe condition. Decommissioning the project would provide the opportunity for provision of unrestricted fish passage and restoration of important riverine habitats including rocky shoal habitat which is relatively rare in the Piedmont section of the Savannah River due to a series of large and small reservoirs which occupy almost all Piedmont segments of the Savannah. Current users of the impounded section above the NSBL&D would have to make adjustments and/or transition to other uses. If Congressional funding could be sought to facilitate this transition, the one-time expenditures may represent a savings over long-term maintenance of a facility which has outlived its original intent.

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APPENDIX A

Comment Letters from sister FWCA agencies - National Marine Fisheries Service,  
South Carolina Department of Natural Resources and Georgia Department of Natural Resources