

# SAVANNAH RIVER BASIN STUDY - REASSESSMENT OF BASIN NEEDS AND PRIORITIES

Leroy G. Crosby

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*AUTHOR:* Leroy G. Crosby, Chief, Plan Formulation Branch, Planning Division, U.S. Army Corps of Engineers Savannah District, Attn: CESAS-PD-P, P.O. Box 889, Savannah, Georgia 31402-0889.

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## BACKGROUND

The Savannah District, U.S. Army Corps of Engineers, has recently completed an assessment of the water-related resources needs of the Savannah River Basin (Corps of Engineers, 1990). This paper discusses the needs that were examined. It then discusses possible management techniques that could be applied by the Corps in the management of its multipurpose projects. Since this study was reconnaissance in nature, the major conclusion and recommendation was that a comprehensive survey should be conducted on how to meet various needs through reallocating portions of storage in the multipurpose projects.

Throughout the past 100 years, the Corps of Engineers has conducted a number of studies on the water resources needs of the Savannah River Basin. In February 1987, the Corps of Engineers prepared a reconnaissance level report (Corps of Engineers, 1987), assessing the need for reallocation of storage at the three Federal reservoirs--J. Strom Thurmond, Richard B. Russell, and Hartwell. At that time, there was no identified need for specific reallocation studies.

The successive droughts of the eighties have since prompted new concerns over the allocated storage. Additional water supply requests, not anticipated in the earlier study, have occurred. The continued, drought-induced drawdown prompted concerns about providing more stable pool levels for recreation. Furthermore, the prolonged nature of this drought cycle has caused heightened concerns over water quality in the lower Savannah River. Hydropower customers are concerned over the curtailment of power production to accommodate what, they feel, are unauthorized or nonpaying purposes.

## NEED FOR STUDY

These concerns provided sufficient reason for the reconnaissance phase of the Savannah River Basin Study (Corps of Engineers, 1987) to be reviewed. This review

consisted of a preliminary assessment of the need for a comprehensive reevaluation of upstream and downstream uses and needs. A review of the ability to meet these needs by using the present storage of the three Federal reservoirs along the Savannah River was also conducted.

One such purpose for conducting such a review would be to address the many conflicts concerning present operations and authorized purposes that the recent drought has brought to light. These conflicts tend to be expressed in the views of various groups of users as they were impacted during the drought. Recreation users felt they were made to suffer a loss in recreation experience at the expense of releasing stored water to meet power needs. Hydropower users felt they were made to suffer losses to meet purposes not provided in the original authorizations.

## IDENTIFICATION OF NEEDS

Based on concerns raised from public review of the drought contingency plan (Corps of Engineers, 1989) and from a general review by the Savannah District of reservoir operations over the past few years, there is a need to determine if the authorized storage is sufficient to meet current needs. This examination must consider all of the authorized purposes (shown in table 1), as well as the need to provide storage for any additional purposes, such as future water supply storage or storage for use in supplementing low drought flows. These purposes are discussed below and are not expressed in any particular order of need or priority.

**Downstream Flow Needs.** The present Drought Contingency Plan is, in part, based on meeting downstream requirements, which were determined through coordination to be met by a 3600 cfs release at J. Strom Thurmond. While intended to be limited to short duration events, the prolonged nature of the last drought has created concerns over long term water quality degradation of the Savannah River. The study assessed the feasibility of allocating a portion of storage to provide



for higher flow releases during drought and other operational measures to offset effects.

**Recreation Storage.** Although an authorized purpose, recreation does not have assigned storage. The Preliminary Assessment (Corps, 1990) assessed the feasibility of providing for more sustained recreation opportunities by allocating storage to recreation, and it considered mechanisms to finance such reallocations. Although the assessment showed this could be done, the cost to purchase conservation storage to maintain a high pool appears prohibitively high.

**Hydropower Needs.** The majority of active conservation storage is allocated to the production of hydroelectric power. The Southeastern Power Administration (SEPA) and its customers are concerned about reduced power generation during droughts in order to conserve water for, what they believe, are unauthorized purposes. Future studies should investigate methods to offset power reduction as storage is allocated to other purposes.

**Water Supply Needs.** The District is processing several requests for the reallocation of storage to water supply under the provisions of the Water Supply Act of 1958. This Act allows the Secretary of the Army to allocate portions of Corps of Engineers reservoirs for municipal and industrial (M&I) water supply. While this will satisfy known immediate needs, future needs were identified in the Preliminary Assessment (Corps, 1990). Many of the requests being processed now were not known during the February 1987 (Corps, 1987) study and were prompted by the recent drought. The reservoirs represent an attractive, reliable resource for M&I water supply.

**Flood Control Needs.** Concern has been expressed about the degree of flood control protection afforded by the projects and its adequacy and appropriateness. The adequacy of the current downstream protection should be evaluated under at least two scenarios. One of these would be to explore operational changes which could be made to provide the same degree of protection without the need for additional storage. The other scenario would explore the appropriateness of using a portion of any surplus flood control storage at each project for other purposes, such as future water supply or to provide for additional dilution for wastewater effluent during low-flow conditions.

#### PUBLIC PARTICIPATION AND COORDINATION

As indicated by the many different study objectives, a variable number of study participants would be involved. Initially, contacts were made to determine respective State positions and priorities of Georgia and South Carolina.

Regional objectives and priorities were determined by coordinating with the various Regional Development

TABLE 1. Project Authorizations

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#### STROM THURMOND DAM & LAKE:

**AUTHORIZATION:** Flood Control Act of 1944, in accordance with House Doc. 657, 78th Congress, 2nd Session.

**PURPOSE:** Flood Control, Hydropower, Navigation.

**OTHER:** Water Supply Allocations in accordance with Water Supply Act of 1958. Recreation and Fish & Wildlife Management in accordance with P.L. 99-662.

**MODIFICATIONS:** P.L. 99-662, Sec 864 - formally adds recreation and fish and wildlife management as project purposes.

#### HARTWELL DAM & LAKE:

**AUTHORIZATION:** Flood Control Act of 1958 authorized completion as approved by the Flood Control Act of 1944 and the Flood Control Act of 1950, in accordance with House Doc. 657, 78th Congress, 2nd Session.

**PURPOSE:** Flood Control, Hydropower, Navigation.

**OTHER:** Water Supply Allocations in accordance with Water Supply Act of 1958. Recreation, Fish & Wildlife Management, in accordance with general authorities for such activities; PL 89-72 and FCA of 1944 for recreation; PL 85-624 for Fish and Wildlife.

**MODIFICATIONS:** Water Resources Development Act of 1976 authorized the addition of a fifth hydropower unit.

#### RICHARD B. RUSSELL DAM & LAKE:

**AUTHORIZATION:** Flood Control Act of 1966, in accordance with Senate Doc. 52, 89th Congress, 1st Session.

**PURPOSE:** Hydropower, General Recreation, Fish and Wildlife Recreation, Flood Control.

**OTHER:** Pending Water Supply Allocations will be in accordance with Water Supply Act of 1958.

**MODIFICATIONS:** P.L. 99-662, Sec 601a - Authorizes Fish and Wildlife Mitigation.

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Centers (GA) and Council of Governments (SC). Other contacts were made with various municipalities, resources agencies, SEPA, and local interest groups interested in the uses of J. Strom Thurmond, Richard B. Russell, and Hartwell reservoirs.

## SUMMARY

The Preliminary Assessment concluded that there are a number of pressures on the water resources of the SRB. The assessment indicated that the Savannah Basin Projects can be used to meet future needs of water supply and drought management; further studies to address this are desirable.

We noted that there are a number of independent study efforts by the Corps of Engineers and other agencies concerning various problems in operating the basin. These efforts are advancing independently of each other. Each of these efforts would benefit by being encompassed under a central authority, such as the Savannah River Basin Study Authority. This would allow mutual data sharing and assure that the individual efforts be integrated into the overall basin system.

The assessment noted that, potentially, two levels of management efforts could be developed to meet short-term and long-term needs of the basin. The short-term efforts are those activities that can be implemented by the Corps without additional authorization from the Congress. In stewardship activities, the Chief of Engineers has some discretionary authority under the project operations and maintenance authorities.

Long-term activities are those activities that would involve eventual reallocation of storage requiring Congressional approval. Reallocation related activities should be examined under authorized study authorities. While actions could be taken under each of these directions, it may be more desirable to keep everything under one overall study approach and source of funding. This would hopefully ensure that the interrelatedness of all actions is considered.

More and more Corps studies under authorized study authorities are being cost-shared. Cost sharing of study expenses for a full comprehensive basin was considered and found to have several problem areas. Normally, cost-sharing partners are selected based on who benefits. However, a comprehensive basin, by its very nature, has a multiplicity of beneficiaries. Not all of these beneficiaries share mutual interests and priorities. Nor, are all likely to be represented by identifiable local, regional, or state governments who could provide the cost-sharing dollars. True distribution of study costs among all beneficiaries could potentially result in a cumbersome and virtually unmanageable agreement. Moreover, aggregating these study costs at the State level was not considered an appropriate or efficient approach either, as the States are

not always representative of all interests nor do they tend to view all basin problems and needs with the same level of emphasis or priority.

While cost-sharing is a desirable mechanism and required by law for Corps feasibility studies, it appears, from this review, to have several problem areas when applied to comprehensive basin efforts. Nevertheless, both States have been asked for their view on participation.

In summary the Preliminary Assessment of the Savannah River Basin (Corps, 1990) concluded that water resources management is vital to water resources needs along the corridor forming the Georgia - South Carolina border. Further, the Federally-operated reservoir system of J. Strom Thurmond, Richard B. Russell, and Hartwell Lakes presents both short- and long-range opportunities to provide for the varied water resources needs of the basin. Lastly, a study framework needs to be developed and coordinated to address these actions in a comprehensive manner.

Due to the lack of a specific, cost-sharable item of study, the study is being recommended for termination. Such action should allow formation of either a new congressional study direction focused on comprehensive planning, or for project operations and Maintenance funding of such an action.

## LITERATURE CITED

- Corps of Engineers, Savannah District. February 1987. Reconnaissance Report; Savannah River Basin, Georgia, South Carolina, and North Carolina; Water Resources Management Study.
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- Corps of Engineers, Savannah District. March 1990, revised November 1990. Preliminary Basin Assessment; Savannah River Basin, Georgia, South Carolina, and North Carolina; Water Resources Management Study.