CORPS LAKES ON THE SAVANNAH RIVER

US Army Corps of Engineers®
Savannah District
Welcome to the Savannah River Basin Lakes

The U.S. Army Corps of Engineers' Savannah District operates three interconnected dams and lakes in the upper reaches of the Savannah River Basin — Hartwell, Richard B. Russell, and J. Strom Thurmond. Together they form a scenic chain of lakes 120 miles long. To make the most complete use of the basin's water resources, the lakes are managed as a multipurpose integrated system, giving consideration to all Congressionally authorized purposes — hydropower, flood risk management, recreation, fish and wildlife, water quality, water supply, and downstream navigation.

Hartwell, one of the most highly visited Corps lakes, has the most private boat docks of any Corps lake nationwide; Russell, with minimal shoreline development, offers a quieter recreation experience in a pristine environment; Thurmond, the largest Corps lake east of the Mississippi River, has a very large land base surrounding the lake and offers some unique recreation opportunities, including horseback trail riding. This brochure compares the lakes in land acreage, land use, permitted activities, and recreation development. It also presents historical information and insights on how these public lands and waters are managed.

How the U.S. Army Corps of Engineers got into the outdoor recreation business

Normally, you wouldn't associate an organization like the U.S. Army Corps of Engineers with outdoor recreation. But where there's a dam, there's a lake; and in the 1900s Congress authorized the Corps to build numerous dams for flood control, hydroelectric power generation, and commercial navigation. Later, Congress authorized other purposes, including outdoor recreation.

The Corps traces its service to the nation back to Bunker Hill, which was the first of many fortifications [the origin of the Corps’ castle emblem] the Corps built during the Revolutionary War. After the war, the engineers were mustered out of service. But in 1802, Congress recognized the importance of having a continuous national engineering capability and re-established the engineers as the U.S. Army Corps of Engineers.

In addition to its role in wars during the country’s early history, the Corps also surveyed roads and canals, built coastal fortifications, improved harbors, and cleared major rivers as the nation expanded westward. The agency was among the first to explore Yellowstone National Park and promote the preservation and protection of that national treasure.

Today, the Corps serves as custodian to over 12 million acres of land and water. With 90 percent of its lakes located within 50 miles of a major metropolitan area, it has become the leading federal provider of outdoor recreation in the nation. Recreational use of Corps lakes provides about $16 billion in visitor spending and supports approximately 270,000 jobs. One third of these jobs are created locally, supporting sustainable economic development for communities around Corps lakes. These dam and lake projects also provide 24 percent of the nation’s hydroelectric power.

For more information on the history of the Corps, go to www.usace.army.mil/about/history.aspx

HISTORY

Aerial view of Fort Pulaski on Cockspur Island at the mouth of the Savannah River. Completed by the Corps in 1847, the fort still stands in near-perfect condition, despite having borne the brunt of numerous powerful hurricanes and one unrelenting bombardment during the Civil War.

Two Corps snagboats and a dredge clear the Savannah River at Augusta, Ga., in the 1920s.

When Robert E. Lee was fresh from the U.S. Military Academy, he was assigned to assist in the work on Cockspur Island at the mouth of the Savannah River.

(Photo Courtesy of the Washington-Curtis-Lee Collection: Washington and Lee University, Lexington, VA)
The land base at Corps projects varies across the nation, based on when Congress authorized the project and the acquisition policy in use at the time the land was acquired. Each of the three Savannah District dam and lake projects was authorized by different legislation enacted between 1944 and 1966 and the land for each project was acquired under a different acquisition policy, resulting in a large land base at Thurmond, a very small land base at Hartwell, and a moderately sized land base at Russell.

### J. Strom Thurmond Dam and Lake
— the first of three projects approved for construction under the general plan for developing the upper Savannah River Basin. Thurmond was authorized by the Flood Control Act of 1944 and the land acquired under the Pre-1953 Acquisition Policy (commonly referred to as the Truman Policy). Under the Truman Policy, land acquisitions were determined on a case-by-case basis.

Thurmond’s full pool elevation (top of the conservation pool) was set at 330 feet mean sea level (msl) and the top of the flood pool set at 335 ft. msl. In general, land below 346 ft. msl. was acquired. Distances from the boundary line to full pool typically range from 400 to 600 feet or more.

### Hartwell Dam and Lake — the second multipurpose project constructed on the Savannah River. Hartwell was authorized by the Flood Control Act of 1950 and the land acquired under the 1953-1962 Acquisition Policy (commonly referred to as the Eisenhower Policy), which limited land acquisition to what was required for operational purposes, as a cost-saving measure.

Hartwell’s full pool elevation was set at 660 ft. msl and the top of the flood pool set at 665 ft. msl. Therefore, lands were acquired to 670 ft. msl and the top of the flood pool set at 480 ft. msl. Therefore, lands were acquired to 485 ft. msl or to a 300-foot horizontal distance from the top of the flood pool, whichever was greater, resulting in approximately a 300-foot buffer of land around the lake.

### Richard B. Russell Dam and Lake — the last of the three projects constructed on the Savannah River. It was authorized by the Flood Control Act of 1966 and the land acquired under the Joint Acquisition Policy (so named because it was the “joining” of land acquisition policies from the Department of the Army and the Department of the Interior). The Joint Policy, like the Eisenhower Policy, limited land acquisition to what was required for project purposes. However, to increase the buffer between the lake and private property, it also required acquisition of land to a 5-foot vertical elevation or a 300-foot horizontal distance above the top of the flood pool, whichever resulted in more land. Russell’s full pool elevation was set at 475 ft. msl and the top of the flood pool set at 480 ft. msl. Therefore, lands were acquired to 485 ft. msl or to a 300-foot horizontal distance from the top of the flood pool, whichever was greater, resulting in approximately a 300-foot buffer of land around the lake.

**Acquisitions**

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<tr>
<th>Project</th>
<th>Years Authorized</th>
<th>Policy Description</th>
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<td>Eisenhower, Joint</td>
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<tr>
<td>RUSSELL</td>
<td>1962-present</td>
<td>Truman, Joint</td>
</tr>
<tr>
<td>THURMONDT</td>
<td>Pre-1953</td>
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**Comparisons**

<table>
<thead>
<tr>
<th></th>
<th>Hartwell</th>
<th>Thurmond</th>
<th>Russell</th>
<th>J. Strom Thurmond</th>
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<td>Miles of Boundary Line</td>
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**Authorized purposes**

The Congressionally authorized project purposes for Thurmond and Hartwell lakes are hydroelectric power, water supply, water quality, recreation, fish and wildlife, flood risk management, and downstream navigation. Russell Lake has the same project purposes as the other projects, minus downstream navigation. The lake has a small conservation storage (see FAQs on Lake Levels) and essentially just passes water from Hartwell Lake through to Thurmond Lake; it is not designed to store enough water to supplement downstream navigation needs.
Recreation Benefits: Recreation at Savannah District lakes averages $2 million in user fees, 16 million visits, $464 million in visitor spending and supports over 5,500 jobs on an annual basis.

How Recreation Areas are Operated

At Russell Lake, almost all recreation areas are leased to and operated and maintained by either Georgia or South Carolina. The cost of the land, as well as the costs for construction and development of these recreation areas, was shared 50/50 (cost sharing) by the Corps and the state where the recreation facility is located, all in accordance with the Federal Water Project Recreation Act of 1965 (Public Law 89-72). Only two small recreation areas, developed in conjunction with facilities for other authorized project purposes, are operated and maintained by the Corps on Russell.

By contrast, Thurmond and Hartwell were built prior to passage of the Water Project Recreation Act and do not fall under this guidance. The Corps purchased all recreation area land at both lakes, and it developed, operates and maintains 85 recreation areas at the two lakes. But Thurmond and Hartwell also have recreation areas that are leased to the states, local agencies, and individuals/companies (e.g., marinas). Although these leased areas are on land purchased by the Corps, the facilities were developed and are operated and maintained at the expense of the lessees.

The lakes offer something for everyone

Visitors to Hartwell, Thurmond and Russell can enjoy a wide variety of recreational activities, including water sports, hunting, hiking, picnicking, camping, and fishing—all in very different settings. For instance, Hartwell, being close to a major population area, has high public use (more than 10 million visitors annually) and a decidedly suburban flavor; Russell offers a more rural, pristine setting; Thurmond, with its large lake and land base, offers a combination of the two environments and unique features such as Dorn Sport Fishing and Boating facility, Wildwood Park and Mega-ramp, the Bartram Trail and the International Disk Golf Center and Hall of Fame.

FAQs

Q. Can I make camping reservations at all three lakes using the same reservation system?
A. No. Hartwell and Thurmond have campground facilities that are operated by the Corps and can be reserved through the National Recreation Reservation Service by going online to www.recreation.gov or by calling 1-877-444-6777. Information on campgrounds and reservations for state parks is available at www.gastateparks.org and www.southcarolinaparks.com

Q. Is the Corps Annual Pass good at all ramps around the lakes?
A. No, the Annual Pass is good only at Corps-managed day-use areas. Leased areas (e.g., state parks, marinas or county parks) may have their own fees. The passes issued by these leased areas are not honored at Corps ramps.

Q. Is the America the Beautiful Interagency Annual Pass accepted at Corps facilities?
A. No, the America the Beautiful Interagency Annual Pass applies only to entrance fees at federal recreation areas. The Corps charges for the use of recreational facilities (campgrounds/day use areas). The Corps does accept the America the Beautiful Senior Pass (for individuals 62 and older) and Access Pass (for handicapped individuals) as well as Golden Age and Golden Access Passes.
Lake levels at Hartwell and Thurmond often fluctuate more than at Russell, leading people to believe Russell is always full. Russell Lake’s 5 foot conservation storage (defined in FAQ section) is considerably less than Hartwell’s, at 35 feet, and Thurmond’s, at 18 feet. Russell Dam was designed after the other two lakes satisfied most of the conservation storage needs on the Savannah River and was designed as a pump storage facility to operate efficiently by minimizing the drawdown or lowering of the lake, thus Russell’s lake levels is normally maintained within 5 feet of full pool.

For more information about lake level management, current lake levels, historical data, Savannah River Basin Fact Sheets, and more, go to http://water.sas.usace.army.mil.

Lake Level Management

Changing lake levels is a sign of a lake doing its job. The amount of water released is based on conditions throughout the Savannah River Basin. The three lakes and dams are operated as a system of multipurpose projects, with consideration given to all authorized purposes — water supply, water quality, recreation, fish and wildlife management, hydropower, flood risk management, and downstream navigation. Hydrologists (“water resource managers”) must balance these competing needs considering rainfall and runoff, hydrologic and climatologic factors, threats of flood or drought, downstream river conditions, and lake levels.

Lake levels are maintained as close to their respective full pool level as possible. However the lake levels typically start falling in late summer, due to the low seasonal rainfall, high evaporation rate.

Water released to maintain water quality and water supply on the lower Savannah River is run through the hydropower generators to efficiently use the water. The water also supports downstream recreation and other activities. The typically heavy winter and spring rains replenish the lakes, refilling them to summer full pool levels by April.

Hydropower plants generate more than 1.5 million megawatt hours (MWH) of low cost, renewable, clean energy each year, which is marketed to public and private utilities by the Department of Energy’s Southeastern Power Administration (SEPA).

Drought Management. During a drought, the Corps follows the Savannah River Basin Drought Management Plan—a management tool to help balance the negative impacts of a drought. The Corps must manage for all authorized purposes during a drought; however, the focus turns toward water supply and water quality. For more information about the Drought Plan go to http://water.sas.usace.army.mil.

Water Supply

Savannah District lakes provide water to 29 communities, generating $53,000 in annual revenue.

FAQs

Q. What are the storage zones of the lakes?
A. There are three storage zones: conservation, flood control, and inactive. Conservation storage refers to the amount of “usable water” in a lake — water that can be used to meet the lakes authorized purposes. If a lake exceeds the conservation storage, it is in the flood control zone. Runoff from storms is temporarily stored in this zone and then released after the storm at a non-damaging rate. Below the conservation storage zone is the inactive storage zone. At Corps dams, water cannot be released from this zone through the turbines.

Q. What is full pool?
A. Full pool or guide curve elevation is the top of the conservation storage zone. In late spring and summer, full pool (commonly referred to as summer full pool) is 330, 475, and 660 ft. msl for Thurmond, Russell, and Hartwell respectively. During fall and winter, the top of the conservation storage zone at Thurmond and Hartwell is gradually reduced 4 feet to 326 and 656 ft. msl respectively, to make room for potentially heavy spring rainfall. Russell has no seasonal variation in its full pool level.

Q. Can recreation be given a higher priority among the authorized purposes of the lakes?
A. Authorizing legislations mandate a balance among the authorized purposes. There is no priority among the purposes or one that “drives the train” at all times. However, at times one may have priority, such as flood control during flood conditions, or fish and wildlife during fish spawning, when lake levels are kept as stable as possible for about six weeks. In order for any specific purpose to be designated as a “higher” priority, Congress would have to change the existing authorizations.

What is Pumped Storage?

Pumped storage hydroelectricity stores energy in the form of water, by pumping it from a lower elevation to a higher elevation reservoir. At times of lower electrical demand, lower-priced electricity is used to pump water from Thurmond Lake back up into Russell Lake. When demand is higher, water is released back into Thurmond through the Russell turbines, generating hydropower.

Reversible turbines allow the Corps to re-use water already stored in the reservoir system multiple times to increase hydropower production.

The conservation storage at Hartwell is 35 feet and at Thurmond, 18 feet. Russell has only 5 feet of conservation storage, which is why it appears fuller than Hartwell and Thurmond during a drought.

The dams and lakes of the Savannah River Basin have prevented more than $211 million in flood damages.
Where private shoreline use is and is not permitted — and why

Private shoreline use may be permitted on Thurmond and Hartwell lakes but is prohibited on Russell Lake. Many Corps lakes, like Thurmond and Hartwell, were built between 1940 and 1970 in rural areas. To encourage public use of the lakes, the Corps implemented liberal management practices, allowing private facilities such as boat docks, boat ramps, roads, picnic shelters, improved walkways, and utility rights-of-way to be built on public lands and significant amounts of vegetation to be removed (underbrushing).

In the late 1960s and early 1970s, environmental concerns moved to the forefront of the nation’s consciousness. While continuing to promote the safe and healthful use of public land and water by the general public, the Corps began developing management practices and environmental safeguards to ensure the quality of those resources for future generations. Changes in Corps policy prohibited private shoreline uses on lakes built after Dec. 13, 1974, or on lakes where no private uses existed as of that date. Russell Lake, completed in 1985, falls under this guidance. Lakes like Thurmond and Hartwell, where the practice already existed, could continue permitting certain private shoreline uses such as boat docks, walkways, utility rights-of-way, and underbrushing. These new policies required zoning the shoreline (public recreation, limited development, protected, and prohibited) and developing a Shoreline Management Plan (SMP) for each lake allowing private shoreline uses.

The SMPs and zoning were developed with public input. Both focus on maintaining a healthy balance between permitted private uses and long-term protection of natural resources. The amount of public land surrounding each lake influenced the zoning and, in conjunction with other factors such as accessibility and proximity to metropolitan areas, contributed to the development of three distinct lakes that offer the public quality recreation alternatives.

Thurmond Lake has a combination of areas. Eighteen percent of its shoreline is zoned as limited development, where boat docks may be permitted. Segments of the shoreline in this zone have underbrushed areas on public land and private facilities on public land and water. However, much of Thurmond’s shoreline is pristine and undeveloped, with abundant wildlife habitat and no visible adjacent private development.

Adjacent private development is visible along most of Hartwell Lake’s shoreline, given that 50 percent of the shoreline is zoned as limited development. With significant numbers of permitted private facilities on public land and water and much of the shoreline underbrushed, Hartwell has the largest Shoreline Management Program of any Corps lake nationwide.

With a 300-foot collar of public land around Russell Lake, most development on adjacent private property is not visible on the shoreline underbrushed, Hartwell has the largest Shoreline Management Program of any Corps lake nationwide.

Environmental Stewardship Benefits: Savannah District lakes average $750,000 in shoreline use revenues on an annual basis.

FAQs

Q. How often are Hartwell and Thurmond's Shoreline Management Plans (SMP) reviewed and updated?
A. The Savannah District Commander reviews SMPs at least once every five years to determine if they need to be updated. Historically, updates are needed every 8-10 years. Hartwell and Thurmond began developing their SMPs in 1974. After considerable public input, Hartwell’s plan was finalized in 1979, with updates in 1989, 1998, and 2007. Thurmond began implementing its first SMP in 1974, with updates in 1983, 1993, and 2001.

Q. What determines if private property adjacent to Thurmond or Hartwell lake is dockable?
A. Dockability depends on many factors, such as shoreline zoning and spacing from other structures maintaining safe, navigable water way. A field inspection is required to determine the dockability of adjacent private property because each site is unique. Prospective buyers are encouraged to inquire about dockability prior to purchasing property adjacent to Thurmond and Hartwell lakes.

Q. If I purchase adjacent private property with a permitted dock or other facilities, can they automatically be permitted to me?
A. No. Although the vast majority of permitted facilities can be permitted to a new owner, this is not always the case. Prospective buyers are encouraged to contact the lake office to inquire whether facilities may be permitted to a new owner.

Q. Why is it important to maintain trees and other vegetation on public land around the lakes?
A. Maintaining vegetation along the shoreline is important to prevent erosion, maintain good water quality, and provide necessary habitat for fish and wildlife. Vegetation helps hold soil in place and traps sediments and pollutants, providing an area where chemicals, pesticides, and fertilizers can be filtered rather than flow directly into the lakes, adversely affecting water quality. A healthy vegetative buffer also shields water areas near the shoreline from extreme summer temperatures, providing cooler areas for aquatic life. Cooler areas hold more dissolved oxygen, which fish need to breathe. Shoreline vegetation provides food, cover, nesting, and sanctuary for animals and is essential to maintaining the natural beauty of the lakes.

Q. Why are there reddish-orange markings on many of the trees near the lakes?
A. These markings are located on “witness” trees along the government boundary line to help identify where private property ends and public property begins. It is important to remember that the marked trees are not the exact boundary line, but instead identify the general location of the line. To identify the exact location of the line, adjacent private property owners are encouraged to use a licensed surveyor to prevent encroachments of unauthorized private structures onto public land.
Volunteers play an important role in the Corps mission, supporting park rangers in their program areas and dedicating their services to improving public facilities and natural resources for current and future generations. In the Savannah District, approximately 900 volunteers provide over 28,000 hours of service on an annual basis. The benefits of these services are valued at over $60,000!

Volunteers perform a variety of work, to include park attendant services, cleaning, maintenance, painting, boundary line marking, buoy inspections, timber cruising, fee collection, water safety education, administrative work and so much more.

If you are interested in volunteering in the Savannah District or at any other Corps project visit the Corps’ Volunteer Clearinghouse at http://www.usace.army.mil/Missions/CivilWorks/Recreation/VolunteerClearinghouse.aspx.

Savannah District Lakes accomplish many missions through partnerships. Numerous partners provide about $15,000 in volunteer service hours, and overall partnership investment is valued at over $25,000 on an annual basis!

Partnerships can come in different forms like Memorandums of Understanding, Cooperative Agreements, Challenge Cost-Share Agreements and others. Each type of agreement allows the Corps to partner in a unique way with different groups for different needs in order to provide enhanced public services.

Through strong partnerships, Savannah District lakes have been able to develop bike trails, provide youth and disabled hunts and fishing days, construct campsites, provide life jackets in support of the Corps’ water safety program, develop wildlife habitat and study wildlife diseases, and so much more.

If you are interested in partnering with the Savannah District lakes, you can contact any of the lake offices listed on the back cover for more information.
Fish and wildlife mitigation required at Russell Lake

Unavoidable and significant loss of wildlife and fisheries resources occurred due to the construction of the dams along the Savannah River. Terrestrial habitats of wildlife were converted to open water and fish habitat was converted from streams to open water. The Fish and Wildlife Coordination Act of 1958 required the Corps to mitigate for the loss of habitat due to the construction of Russell Dam. Land purchased to mitigate for the loss of habitat at Russell is specifically managed for wildlife. They consist of 20,590 acres around Russell Lake (300-foot buffer lands), 6,858 acres at Thurmond, and 21,788 acres of "separable" land located away from the lake and managed by Georgia and South Carolina Departments of Natural Resources (DNR). The total area of mitigation land is 49,236 acres, which compensates for the loss of 26,650 acres of fish and wildlife habitat. In addition, specific fisheries mitigation measures include habitat structures, tree shelters and trout stocking.

Thurmond and Hartwell have active wildlife management programs; however, they were not required to purchase and manage additional mitigation land to compensate for habitat loss since these projects were authorized and construction initiated before the passage of the Fish and Wildlife Coordination Act of 1958.

Forest, Fish and Wildlife Management
All three lakes have natural resource management programs designed to enhance and maintain their forests, wildlife, and fisheries.

Forest Management. The goals of the forest management program are to sustain and improve the health, vigor, and diversity of the forest to support recreation and wildlife management programs; protect and improve water quality; facilitate and improve public use and enjoyment of public property; and provide a sustained yield of quality forest products. Accepted forest management practices, including insect and disease suppression, timber harvesting, prescribed fires, chemical and mechanical site preparation, and regeneration, are methods employed to assure the continuation of the resource. Revenues generated from the sale of forest products are returned to the lakes to support recreation and natural resources management programs.

Fisheries Management. Fisheries management at the lakes blends programs carried out by both the Georgia and South Carolina DNR in concert with the Corps. The states regulate fishermen and stock fish, while the Corps operates the dams and manages the surrounding federal land affecting fishermen, fish and their habitat. Overall, the fisheries management program objectives are: maintain lake conditions favorable to fish spawning and survival, coordinate and assist state agency personnel with population surveys and other activities, and encourage and accommodate public use and appreciation of the fisheries resource.

Wildlife Management. Portions of Corps land around each lake are planted as wildlife openings in the spring and fall to enhance wildlife habitat by providing valuable sources of food and cover for deer, duck, turkey, dove, quail, and a variety of songbirds. Thousands of ducks use the impoundments, adjacent ponds and wetlands as staging areas (for feeding and resting) as they migrate south for the winter. Small impoundments, designed and managed specifically for waterfowl, are located at Hartwell, Russell and Thurmond. Nesting boxes are provided for the resident wood ducks at all three lakes. Appropriate management techniques are used to protect and improve rare plant and animal communities. Biologists and park rangers conduct surveys to evaluate populations and nesting success of both eagle and osprey.

With development pressures continuing around Thurmond, Hartwell, and Russell lakes, stewardship of the natural resources is and will continue to be necessary for the benefit of the Savannah River Basin and the southeastern United States.

FAQs

Q. What is the disease that is killing eagles and other birds at Thurmond Lake and other lakes in the Southeast?
A. Avian Vacular Myelinopathy (AVM). It affects the central nervous system of birds by creating lesions within the brain and spinal cord. It appears that eagles contract the disease by feeding on infected coots and other waterfowl. Recent studies have suggested that AVM may be caused by a toxin produced by a previously unidentified species of blue-green algae, which is found in large concentrations on some aquatic plants.

Q. What hunting or fishing regulations apply on the lakes?
A. All state hunting and fishing regulations apply in the respective state where you are hunting or fishing. There is a reciprocal fishing agreement between Georgia and South Carolina whereby you can fish on the Georgia or South Carolina side of the lake with a fishing license from either state; however, all other fishing regulations apply for each state where fishing occurs. The reciprocal fishing license agreement applies to the impoundments, not to tributary streams to those impoundments. There is no reciprocal agreement for hunting licenses.

Q. What is being done to reduce the impacts of nuisance aquatic vegetation, mainly hydrilla?
A. The Aquatic Plant Management Plan (APMP) for the U.S. Army Corps of Engineers, Savannah District Water Resources Project, South Carolina and Georgia was prepared in 1998 and updated in 2003 in response to the presence of hydrilla in Thurmond Lake as well as other aquatic plants of concern in Hartwell Lake, Richard B. Russell Lake, and the New Savannah Bluff Lock and Dam. The APMP establishes treatment priorities based on impacts to authorized Project purposes, funding, treatments by others, and environmental impacts.

Environmental Stewardship Benefits: Forestry Management at Savannah District lake projects averages over $1.5 million in timber receipts annually.