

# **DRAFT ENVIRONMENTAL ASSESSMENT**

## ***Hartwell Dam and Lake Project Master Plan***

### ***Savannah River, Georgia and South Carolina***

(Hart, Franklin, and Stephens Counties in Georgia and  
Anderson, Oconee, and Pickens Counties in South Carolina)

**April 2021**



**US Army Corps  
of Engineers®**  
Savannah District

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## **DRAFT ENVIRONMENTAL ASSESSMENT**

### ***Hartwell Dam and Lake Project Master Plan***

### ***Savannah River, Georgia and South Carolina***

#### **1.0 INTRODUCTION.**

The U.S. Army Corps of Engineers (USACE), Savannah District, has prepared this Environmental Assessment (EA) to evaluate the potential impacts of the Hartwell Dam and Lake Project (Hartwell Project) Master Plan (MP) hereinafter incorporated by reference. This EA has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) and the Council on Environmental Quality's (CEQ) Regulations (40 CFR 1500-1508), as reflected in the USACE Engineering Regulation (ER) 200-2-2. This EA provides information regarding the potential adverse and beneficial environmental effects to allow the USACE District Commander to make an informed decision on the appropriateness of signing a Finding of No Significant Impact (FONSI) or preparing an Environmental Impact Statement (EIS).

#### **1.1 Proposed Action.**

The proposed action consists of updating the Hartwell MP which is required for USACE water resource projects and other fee-owned lands where the USACE has administrative responsibility for the management of natural and manmade resources. The current MP was completed in 1981. The MP provides a programmatic approach to the management of all the lands included within the Hartwell Project boundary and serves as the basic document guiding USACE responsibilities pursuant to Federal laws to conserve, restore, maintain, manage, and develop the projects lands, waters, and associated resources. The MP is a planning document anticipating what could and should happen and is flexible based upon changing conditions. Detailed management and administrative functions are handled in the Operational Management Plan (OMP) which translates the concepts of the MP into operations terms.

All potential recreational improvements discussed in the MP (Table 1), as well as natural resource management actions, will be reviewed for compliance with applicable laws and regulations, notably the Endangered Species Act, the Fish and Wildlife Coordination Act, the National Historic Preservation Act, and the Clean Water Act. In accordance with ER 200-2-2, Procedures for Implementing NEPA, the proposed activity will be addressed by the appropriate categorical exclusion at the time of implementation. Recreational improvements will occur in areas designated by land classification as high-density recreation. For leased lands, the lessee must submit detailed plans prior to approval of such facilities, infrastructure, or rights-of-way. Engineer approved plans may be required and a feasibility and market analysis along with public comment may be required for larger, revenue producing facilities. All state and local ordinances apply.

**Table 1: Potential Recreational Facilities Development**

PUBLIC PARKS

Facilities approved on the lease development plan	Replacement, relocation, and/or modernization of existing facilities not to exceed 10% of the original facility's footprint
Campsites not to exceed 25% of the existing number of campsites	Picnic Sites not to exceed 50% of the existing number of picnic sites
Yurts not to exceed 25% of the existing number of campsites/yurts sites combined	Portable or fixed mini cabins not to exceed 25% of the existing number of campsites/yurts sites combined.
Sanitary facilities necessary to meet existing or expected demand including restrooms, shower houses, septic systems, and RV dump station	Conversion of picnic areas to campgrounds or campgrounds to picnic areas
Picnic shelter not to exceed 200-person capacity	Amphitheater not to exceed 250-person capacity
Designated parking lot(s) not to exceed 100 spaces	Disc golf course not to exceed 25 acres in size
Archery or skeet range not to exceed 25 acres in size	Additional lanes to existing boat ramps. Realignment of roads to improve safety and traffic flow at boat ramps
Playground(s)	Park office or gate house
Restaurant	Hiking, biking, interpretive, fitness, endurance, or equestrian trails or zip lines/high ropes courses
Courtesy dock, fishing pier	Park attendant/camp host sites
Fish cleaning station	Swim beach
Shoreline erosion control	Game court, ball field
Camp store not to exceed 1,000 square feet	Designated pet friendly areas
Interpretive center	Splash pad/mini water park not to exceed one acre



PUBLIC MARINAS

Facilities approved on the lease development plan	Replacement, relocation, and/or modernization of existing facilities not to exceed 10% of the original facility's footprint
Additional wet slip, dry stack, or open boat storage not to exceed 25% of the approved total of boat storage opportunities	Marina office, ships store or gate house
Sanitary facilities necessary to meet existing or expected demand including restrooms, shower houses, septic systems, and marine pump out station	Picnic shelters not to exceed 200-person capacity
Amphitheater not to exceed 250-person capacity	Marine service and sales facility not to exceed 1 acre
Playground(s)	Fish cleaning station
Courtesy dock, fishing pier	Restaurant

**1.2 Purpose and Need for the Proposed Action.**

The purpose of the proposed action is to update the Hartwell Project MP in accordance with the most recent guidance, EP 1130-2-550, dated 30 January 2013, and update resource objectives and associated design and management concepts, which:

1. Provide the best possible combination of responses to regional needs, resource capabilities and suitability, and expressed public interests and desires consistent with authorized project purposes;
2. Contribute towards providing a high degree of recreation diversity within the region;
3. Emphasize the qualities, characteristics, and potentials of the project;
4. Exhibit consistency and compatibility with national objectives and other state and regional goals and programs.

The MP guidance includes revised categories of Land Classifications used to manage project lands, as well as shifting from a construction-based document to a policy-based document. All lands were acquired for authorized project purposes and allocated for those uses. The classification process further distributes project lands by management categories which, based upon resources available and public needs, will provide for full utilization while protecting project resources. The guidance also includes requirements for an interdisciplinary team approach for the development, re-evaluation, and supplementation or updating of the MP. Coordination with other agencies and the public is an integral part of the process. Land and water classifications based on the revised categories are in Table 2.

**Table 2: Land and Water Classifications**

<b>Land Classification</b>	<b>Acres</b>
Project Operations	68.0
High Density Recreation (includes Future/Inactive)	5,875.5
Environmental Sensitive and Natural Areas	7,626.7
<b>MULTIPLE RESOURCE MANAGED LANDS</b>	
Low Density Recreation	8,345.8
Wildlife Management	1,650.0
Vegetative Management	0
<b>TOTAL LANDS</b>	<b>23,566.0</b>
<b>Water Classification</b>	
Surface Water: Restricted	37.6
Surface Water: Designated No-Wake	360.5
Surface Water: Fish and Wildlife Sanctuary	0
Surface Water: Open Recreation	55,562.5
<b>TOTAL WATER</b>	<b>55,960.6</b>

The MP serves two primary purposes that are equal in importance. First, it is the primary management document for the project and provides direction for many of the other plans that also guide the management of the Hartwell Project. Second, it is a land use management tool. This MP sets the stage for the update of many of the resource management plans, such as the Shoreline Management Plan (SMP).

As a land use tool, this MP provides the USACE, resource agencies, and the public with the classification and preferred future uses of project lands. The land classification of project lands allows the USACE and the public to visually evaluate the distribution of uses of project lands (Appendix A). For example, the identification of project lands that are suitable for the development of a new recreation facility by the USACE, a lease holder, or a future development is beneficial. Maintaining an up-to-date MP allows the USACE to respond effectively to internal and external development plans.

The Hartwell Project MP includes a Geographic Information Systems (GIS) database. The database can be continually updated throughout the life of the plan to allow the USACE to take proactive management actions and adapt existing strategies.

The policy-based MP, along with this EA, provides the USACE with a document that sets goals and objectives but does not establish concrete development plans. This allows the USACE flexibility in the management and development of the Hartwell Project within a clear policy framework.

### 1.3 Authority

Pursuant to USACE ER 1130-2-550, a MP is required for Civil Works projects and other fee-owned lands for which the USACE has administrative responsibility for management of natural, recreational, and cultural resources throughout the life of the water resource project. A general plan on the comprehensive development of the Savannah River Basin for flood control and other purposes was approved by the Flood Control Act of 17 May 1950 as the second unit in the comprehensive development of the Savannah River Basin.

Development and utilization of reservoir lands for public access and recreational use was authorized by Section 4 of the Flood Control Act of 1944, and as amended in 1946, 1954, and 1962. The Hartwell Powerplant became operational in April 1962. The lake impounded by Hartwell Dam covers 55,950 acres and extends 49 miles up the Tugaloo River and 45 miles up the Seneca River at the normal pool elevation of 660 feet above mean sea level (amsl) for a total shoreline of 962 miles. There are 76,450 acres of land and water in the Hartwell Project. Interstate 85 bisects Hartwell Lake and makes the area easily accessible to visitors.

### 1.4 Prior Reports

Design Memo	Title
22B(C-5)	Hartwell Reservoir Sept. 1970
	1981 Master Plan Update

### 1.5 NEPA Scoping

In June 2018, notification letters were sent to all stakeholders requesting input into proposed changes or improvements they would like evaluated and incorporated into the MP update. The Hartwell Project did not receive any responses.

In April 2021, the proposed action was coordinated with appropriate Federal, state, local agencies, businesses, organizations, and the public through a 30-day review and comment period on the draft EA and FONSI. In addition, the documents were posted on the Savannah District website.

## 2.0 ALTERNATIVES TO THE PROPOSED ACTION

The one alternative to the proposed action considered was no-action, or future without project condition. In the future without project condition (i.e. no-action), Hartwell Project would continue to operate under the 1981 MP. As a result, individual Environmental Assessments could be required for development of facilities or conducting activities not addressed in the 1981 MP. In accordance with ER 1130-2-550, an updated MP (5-year review) is required for civil works projects and other fee-owned lands for which USACE has administrative responsibility for management of natural, recreational, and cultural

resources throughout the life of the water resource project, therefore, no-action is not a viable alternative.

### 3.0 AFFECTED ENVIRONMENT

#### 3.1 General

The Hartwell Project extends 49 miles up the Tugaloo River and 45 miles up the Seneca River at the normal pool elevation of 660 feet amsl. There are 76,450 acres of land and water in the entire project. Interstate 85 bisects Hartwell Lake and makes the area easily accessible to visitors. Hartwell Project covers parts of Hart, Franklin, and Stephens Counties in Georgia, and Anderson, Oconee, and Pickens Counties in South Carolina. The Savannah River forms part of the boundary line between the States of Georgia and South Carolina, and the total lake acreage is 55,950 acres. The dam consists of a 204-foot high, 1,900-foot long concrete gravity structure flanked by two earth embankments for a total length of 17,852 feet. Detailed information about the Hartwell Project can be found on the District website at: <https://go.usa.gov/xENpE>.

#### 3.1.1 Description of the Watershed

The Savannah River Basin consists of 34 watersheds. Hartwell Project is in three hydrologic units (HUC) (Figure 3). They are HUC 03060101 (Seneca), 03060102, (Tugaloo), and 03060103 (Upper Savannah) <https://water.usgs.gov/wsc/>.

**Figure 1: USGS Hydrologic Units Hartwell Lake**



### 3.1.2 Climate

Hot, humid summers and mild, pleasant winters characterize the area on the shores of Hartwell Lake. The following climate data for 1981-2010 was taken from Anderson County, South Carolina which has a warm humid temperate climate with hot summers and no dry season. The average high annually is 71.8° F and the average low is 50.4° F.

Over the entire year, the most common forms of precipitation are thunderstorms, light rain, and moderate rain. Thunderstorms are more prevalent from May to August. The most rainfall occurs between mid-February and mid-March. The annual average rainfall is 49.59 inches.

Snowfall is uncommon in the region with 32 frozen precipitation events occurring from 1993-2016. The South Carolina State Climatology Office ([www.dnr.sc.gov/climate/sco/ClimateData/countyData/county\\_anderson.php](http://www.dnr.sc.gov/climate/sco/ClimateData/countyData/county_anderson.php)) reported the following climate summaries and severe weather events for Anderson County, SC in Table 3.

**Table 3: Weather Summaries and Severe Events (1949 – 2016)**

<b>Summary</b>	
<b>Temperature Summary (1952-2016)</b>	
Highest Maximum	108° F, July 29, 1952
Average High	71.8° F
Lowest Minimum	-6° F, January 21, 1985
Average Low	50.4° F
<b>Precipitation Summary (1949-2016)</b>	
Highest Daily Rainfall	12.81 Inches, August 27, 1995
Annual Average Rainfall	49.59 Inches
Wettest Year	77.41 Inches, 1964
Driest Year	29.08 Inches, 2016
Highest Daily Snowfall	9.0 Inches, December 17, 1930
<b>Severe Weather Events</b>	
Tornado	29 Tornadoes (1950-2016)
Thunderstorm Winds	330 Wind events (winds exceeding 50 knots or 58 miles per hour, 1955-2016) Hail (>1.0 inch) 106 events (1955-2016)
Lightning	18 Lightning events (1993-2016)

### 3.1.3 Physiography and Geology

The following information is incorporated by reference from the Savannah River Basin Watershed Protection Plan 2001, Georgia Department of Natural Resources, Environmental Protection Division (GA DNR-EPD).

#### *Physiography*

The Savannah River basin contains parts of the Blue Ridge, Piedmont, and Coastal Plain physiographic provinces, which extend throughout the southeastern United States. Like much of the Southeast, the basin's physiography reflects a geologic history of mountain building in the Appalachian Mountains and long periods of repeated land submergence in the Coastal Plain Province. The Fall Line is the boundary between the Piedmont and Coastal Plain provinces. This boundary approximately follows the contact between older crystalline metamorphic rocks of the Piedmont Province and the younger unconsolidated Cretaceous and Tertiary sediments of the Coastal Plain Province. As implied by the name, streams flowing across the Fall Line can undergo abrupt changes in gradient, which are marked by the presence of rapids and shoals. Geomorphic characteristics of streams differ between the Piedmont and Coastal Plain provinces. In the Coastal Plain, streams typically lack the riffles and shoals common to streams in the Piedmont and exhibit greater floodplain development and increased sinuosity.

#### *Geology*

The Savannah River basin is located within three physiographic provinces: Blue Ridge, Piedmont, and Coastal Plain. The Blue Ridge and Piedmont provinces, which constitute all of the Hartwell project and approximately 60 percent of the Savannah River basin, are underlain by crystalline metamorphic and igneous rocks. The metamorphic rocks originally were sedimentary, volcanic, and igneous plutonic rocks that have been altered by several stages of regional metamorphism as well as several episodes of granite intrusion.

The majority of the exposed rocks of the Savannah River basin consist of several types of gneiss, largely made up of biotite gneiss, granite gneiss, and amphibolite. Granites are locally important in the basin as are metasedimentary rocks such as metagraywackes, quartzites, and schists. Less than 0.1 percent of the Savannah River basin is occupied by ultramafic rock units. Coastal Plain sediments constitute approximately 40 percent of the Savannah River basin. Approximately 80 percent of the sediments are sands and clays. The rest include calcareous sediments and Quaternary alluvium.

The Coastal Plain sediments overlap the southern edge of the Piedmont Province at the Fall Line and those sediments nearest to the Fall Line are Cretaceous to Eocene in age. They are predominantly terrestrial to shallow marine in origin and consist of sand, kaolinitic sand, kaolin, and pebbly sand. These sediments host the major kaolin deposits in Georgia with many of these deposits found within the Savannah River basin. Much of the southeastern Piedmont is covered by deeply weathered bedrock called saprolite. Average saprolite thickness in the Piedmont rarely exceeds 20 meters, but

the thickness can vary widely within a short distance. A considerable amount of ground water flows through the saprolite and recharges streams in the Piedmont. Saprolite is easily eroded when covering vegetation and soil are removed. Extensive erosion of soil and saprolite caused by agricultural practices during the 1800s and early 1900s contributed a vast quantity of sediment into stream valleys, choking the streams and raising the streams base level.

As conservation practices stabilized erosion, streams began to reestablish grade and cut into the thick accumulations of sediments, remobilizing them into the major rivers and eventually into reservoirs.

### **3.1.4 Soils**

The Savannah River watershed in Georgia crosses 5 Major Land Resource Areas (MLRA) where soils vary widely, ranging from nearly level to very steep, from shallow to very deep, from excessively drained to very poorly drained, and from sandy to clayey. There are some general trends with soils across the watershed.

Going from north to south, degree of slope decreases, water tables are generally higher, and soil textures go from loamy in the Blue Ridge, to clayey in the Southern Piedmont, to sandy or sandy over loamy in the Sand Hills, Coastal Plain, and Atlantic Coast Flatwoods. About 6 percent of the watershed is in the Blue Ridge MLRA. Most of the soils in this area formed from weathered granite, gneiss, and schist. These are the steepest soils in the watershed, with slopes in most areas ranging from 25 to 60 percent.

Soils on the steeper slopes and higher elevations are commonly loamy throughout, are brown to yellowish red, and are shallow or moderately deep to bedrock. Deep to very deep, red clayey soils are common in less sloping areas at lower elevations. About 60 percent of the watershed is in the Southern Piedmont MLRA. Most of the soils in this region are very deep, well drained, red clayey soils that formed from felsic, high grade metamorphic or igneous rocks.

There is a significant area in the central part of this region that contains soils formed from intermediate and mafic crystalline rocks. These soils have slower permeability and are less acid than typical Piedmont soils. Also significant is an area in the lower portion of the Piedmont that has soils formed from Carolina slate. These soils are still clayey but have a higher silt content than typical Piedmont soils. The remainder of the Savannah River watershed does not include the Hartwell area, but approximately 8 percent of the watershed is in the Carolina and Georgia Sand Hills MLRA; 17 percent of the watershed is in the Southern Coastal Plain MLRA; and 9 percent of the watershed is in the Atlantic Coast Flatwoods MLRA.

The predominate soil associations within the Hartwell Project are Cecil, Madison, and Lloyd. Cecil soil associations generally consist of deep, well- drained soils that developed in material weathered from granite, gneiss, and schist. These soils are found

in the uplands on the tops of broad plateaus, ridge tops, and hillsides. Slopes range from 2 to 15 percent. Cecil soils are low in natural fertility, contain little organic matter, and are strongly acid throughout the profile.

The Madison series consists of moderately deep to deep, well-drained soils that are generally high micaceous throughout the profile. These soils formed on uplands in material weathered from quartz and mica schist. Most of the acreage is on broad stream divides and on smooth side slopes ranging from 2 to 15 percent.

Soils in the Lloyd association are situated on the Piedmont uplands with slopes ranging from 2 to 10 percent except for some steep slopes adjacent to drainage ways. They have a service layer of friable, sandy loam and a moderately permeable, dark red, clayey subsoil, relatively high in moisture-holding capacity. The smoothest ridge tops, which make up a large part of this association, are usually well managed and agriculturally productive.

Every soil type existing on project lands was placed into recreation capability categories, depending upon computed potential. For graphic conveyance of general soil potentials around the lake, recreation capability categories were divided into the best recreation potential, restricted recreation potential, and least recreation potential, as follows:

- The "best" soils category is generally composed of soils which have characteristics suitable to development. These soils are best suited for high density recreational activities requiring the least amount of rotational use for area recovery.
- "Restricted recreation potential" soils are those where a potential for recreation exists, but guarded development is required due primarily to slope and erodibility. These soils will support high density recreational use but will require substantial maintenance and more frequent rotational use to protect the natural resources. The soils are better suited for low density recreational use.
- "Least recreation potential" soils are those that include high water tables, susceptibility to frequent flooding, and excessive slopes with rapid runoff. These soils will support limited low-density recreational use but are best suited for natural areas with minimal disturbance.

### **3.2 Relevant Resources**

This section contains a description of the existing conditions of relevant resources that could be impacted by the project (Table 4). The significant resources described in this section are those recognized by laws, executive orders, regulations, and other standards of National, state, or regional agencies and organizations; technical or scientific agencies, groups, or individuals; and the general public. The following resources have been considered and were not found to be present within the project area: coastal wetlands, cypress tupelo swamp, coastal marshes, estuarine waters,



coastal wooded ridges, barrier islands, hard bottoms, essential fish habitat, and desert plains.

**Table 4: Relevant Resources**

<b>Resource</b>	<b>Institutionally Important</b>	<b>Technically Important</b>	<b>Publicly Important</b>
<b>Wetlands</b>	Clean Water Act of 1977, as amended; Executive Order 11990 of 1977, Protection of Wetlands; Coastal Zone Management Act of 1972, as amended; and the Estuary Protection Act of 1968, and Fish and Wildlife Coordination Act.	They provide necessary habitat for various species of plants, fish, and wildlife; they serve as ground water recharge areas; they provide storage areas for storm and flood waters; they serve as natural water filtration areas; they provide protection from wave action, erosion, and storm damage	The high value of wetland functions and values. Environmental organizations and the public support the preservation of wetlands.
<b>Aquatic Resources Fisheries</b>	Fish and Wildlife Coordination Act of 1958, as amended.	They are a critical element of many valuable freshwater and marine habitats; they are an indicator of the health of the various freshwater and marine habitats; and many species are important commercial resources.	The high priority that the public places on their aesthetic, recreational, and commercial value.
<b>Bottomland Hardwood Forest</b>	Section 906 of the Water Resources Development Act of 1986 and the Fish and Wildlife Coordination Act of 1958, as amended.	Provides necessary habitat for a variety of plant, fish, and wildlife species; it often provides a variety of wetland functions and values; it is an important source of lumber and other commercial forest products	The high priority that the public places on its aesthetic, recreational, and commercial value.
<b>Wildlife</b>	Fish and Wildlife Coordination Act of 1958, as amended and the Migratory Bird Treaty Act of 1918	They are a critical element of many valuable aquatic and terrestrial habitats; they are an indicator of the health of various aquatic and terrestrial habitats; and many species are important commercial resources.	The high priority that the public places on their aesthetic, recreational, and commercial value.
<b>Threatened and Endangered Species</b>	Endangered Species Act of 1973, as amended; Marine Mammal Protection Act of 1972; and Bald and Golden Eagle Protection Act of 1940 (as amended in 1962).	USACE along with other Federal and state agencies to protect these species. The status of such species provides an indication of the overall health of an ecosystem.	The public supports the preservation of rare or declining species and their habitats.

<b>Cultural and Archaeological Resources</b>	National Historic Preservation Act of 1966, as amended; Native American Graves Protection and Repatriation Act of 1990; and Archeological Resources Protection Act of 1979	State and Federal agencies document and protect sites. Their association or linkage to past events, to historically important persons, and to design and construction values; and for their ability to yield important information about prehistory and history.	Preservation groups and private individuals support protection and enhancement of historical resources.
<b>Recreation Resources</b>	Federal Water Project Recreation Act of 1965 as amended, and Land and Water Conservation Fund Act of 1965 as amended	Provide high economic value to local, state, and national economies.	The public places a high value on public fishing, hunting, and boating areas.
<b>Aesthetics</b>	USACE ER 1105-2-100, and National Environmental Policy Act of 1969.	Visual accessibility to unique combinations of geological, botanical, and cultural features that may be an asset to a study area.	Environmental organizations and the public support the preservation of natural pleasing vistas.
<b>Socio-Economic Resources</b>	River and Harbor Flood Control Act of 1970 (PL 91-611).	N/A	Social concerns and items affecting area economy are of significant interest to community.
<b>Environmental Justice and Protection of Children</b>	Executive Order 12898 and the Department of Defense's Strategy on Environmental Justice of 1995, E.O. 13045, Protection of Children from Environmental and Safety Health Risks	The social, environmental health, and economic welfare of minority, children, and low-income populations may be positively or disproportionately impacted by the tentatively selected plans.	Public concerns about the fair and equitable treatment (fair treatment and meaningful involvement) of all people.
<b>Air Quality</b>	Clean Air Act of 1963	State and Federal agencies recognize the status of ambient air quality in relation to the NAAQS.	Virtually all citizens express a desire for clean air.
<b>Hydrology, Water Quality, and Water Supply</b>	Clean Water Act of 1977; Fish and Wildlife Coordination Act; Coastal Zone Mgt Act of 1972; and Water Supply Act of 1958 (43 US Code §390b)	USACE and other Federal agencies along with State DNR and wildlife/fishery offices recognize value of fisheries and good water quality. National and state standards have been established to assess water quality.  State and Federal agencies recognize the value of drinking water and maintain a reliable source of clean water.	Enviro. Org. and public support preservation of water quality, fishery resources and the desire for clean drinking water. This legislation gives communities throughout the Savannah River Basin option to receive water supply allocations from reservoirs. Basin supplies drinking water to more than 1.2 million people in GA and SC from headwaters to the estuary.

The resources listed below are those relevant resources that can be encountered at the Hartwell project: wetlands; aquatic resources/fisheries; forest and vegetation resources; wildlife; threatened and endangered species; cultural and archaeological resources; recreation; aesthetics; and water quality.

### 3.2.1 Wetlands and Aquatic Vegetation

Based on National Wetlands Inventory (NWI) mapping, there are approximately 1,885 acres of various types of wetlands adjacent to Hartwell Lake (Table 5). Approximately 850 acres are classified as palustrine emergent wetland habitat, 338 acres as palustrine scrub-shrub wetland habitat, and 597 acres are estimated to be palustrine forested wetland. There are approximately 54,518 acres of lacustrine habitat created by the dam, not including riverine habitat that would also be part of the lake.

**Table 5: Wetland Summary**

Wetland Class	Acres
Palustrine	
Aquatic Bed	3.98
Emergent Wetland	850.17
Forested Wetland	597.12
Scrub-Shrub Wetland	338.94
Unconsolidated Bottom	69.56
Unconsolidated Shore	25.67
Total Palustrine	1,885.44
Riverine	
Streambed	117.81
Unconsolidated Bottom	99.83
Unconsolidated Shore	24.28
Total Riverine	241.92
Lacustrine	54,518.20
Total Wetlands	56,645.56

### **3.2.2 Aquatic Resources and Fisheries**

Since the construction of the Hartwell Project, recreational sport fishing has significantly increased both in terms of fishing pressure and harvest above and below the dam. The major reason for the increased fishery resources is the fishery management program with the cooperation of the Georgia Department of Natural Resources and the South Carolina Department of Natural Resources. Hartwell Lake supports popular cool-water and warm-water fisheries. The reservoir is populated by a variety of native species of freshwater fish, crustaceans, and freshwater mussels, many endemic to the Savannah River system. Popular game fish within the reservoir are largemouth bass, spotted bass, striped bass, black crappie, hybrid bass (white bass crossed with striped bass), bluegill, red ear sunfish, channel catfish, and flathead catfish. Some game fish are also annually stocked (striped bass, hybrid bass) within the reservoir to support recreational fishing. Other fish naturally enter the system from the reservoir's tributaries. Blueback herring and threadfin shad are important forage fish in Hartwell Lake.

A one-mile stretch of the Savannah River below Hartwell Dam serves as a put-and-take trout fishery. The feasibility of this fishery is due to the cold-water discharges from Hartwell Dam supplemented by routine stocking of trout by Georgia and South Carolina DNR's.

Wetland and open water habitats support many aquatic species of frogs including the bullfrog, green frog, southern leopard frog, several species of tree frogs, cricket frogs, and chorus frogs. Turtles found in the wetlands include the river cooter, Florida cooter, eastern chicken turtle, snapping turtle, and common musk turtle. Snakes found in the wetlands include the numerous water snake species and eastern mud snake.

### **3.2.3 Forest, Vegetation, and Bottomland Hardwoods**

The Hartwell Project is located in the oak-pine forest region of the United States. Prior to inundation, 64 percent of Hartwell land was timberland. The remaining area was mostly open farm and pastureland on the gently to moderately rolling upland slopes. The major forest types present are pine, pine-hardwood, and oak-hickory. These types are listed in the order of evolution to the climax forest.

Presently, pine forest occurs on approximately 50 percent of the project lands and consists of a mixture of shortleaf pine, loblolly pine, and Virginia pine. Slash and loblolly pine have been planted on abandoned cropland over the past 25 years. The pine-hardwood forest occupies approximately 25 percent of the project lands' upper slopes and ridges and is comprised of the native pines - shortleaf pine, loblolly pine and in limited areas, Virginia pine in combination with hardwood species, such as sweet gum, yellow poplar, black gum, white oaks, post oak, and willow oak.

The oak-hickory forest is the climax forest covering approximately 20 percent of the project area. Species such as white oak, northern red oak, southern red oak, chestnut oak, water oak, willow oak, post oak, black oak, shagbark hickory, pignut hickory,

mockernut hickory, river birch, hackberry, American elm, American beech, and sycamore are strong dominant trees of this hardwood forest type.

The old abandoned home sites in the area are often identified with introduced and exotic species such as northern catalpa, tree of heaven, mimosa, empress tree, and privet which have escaped and become acclimated. These areas generally have a weed/grass cover and occur on about 5 percent of the project lands.

The Hartwell Project, due to its geographic location, provides a large variety of natural plant species. Eastern white pine, eastern hemlock, cucumber-tree, sweet shrub, and mountain laurel are uncommon because they are at the extremes of their natural ranges. Bottomland hardwood forest infrequently occurs at the project. The American chestnut is extremely rare due to its destruction in past years by the chestnut blight disease. Some of these plants represent flora generally found in the Appalachian Mountains. The faded trillium (*Trillium discolor*) is known to occur in the Walker Creek ramp area. In addition, the state-listed Goldenseal (*Hydrastis canadensis*) and Ozark Bunchflower (*Veratrum woodii*) are known to occur on the project near the Stephens County Park.

Other trees and shrubs – fringe tree, strawberry bush, silverberry, sweetshrub, pawpaw, flame azalea, and fragrant azalea are uncommon because they naturally occur infrequently. Oconee bells (*Shortia galacifolia*) are found in the Keowee River portion of the lake in the northern parts of Oconee County and western edge of Pickens County. This area is one of the very few places in North America where this plant is found.

The vegetative resources of the Hartwell Project were classified using information derived from the FY2019 Project Site Vegetative Resource Records reported in Operations and Maintenance Business Information Link (OMBIL). These data are displayed in Table 6.

**Table 6: Vegetative Resources**

<b>Division</b>	<b>Order</b>	<b>Class</b>	<b>Sub-Class</b>	<b>Acreage</b>
Vegetated	Herb Dominated	Herbaceous Vegetation	Annual Graminoid or forb vegetation	712
Vegetated	Tree Dominated	Closed Canopy	Deciduous Closed Tree Canopy	3,140
Vegetated	Tree Dominated	Closed Canopy	Evergreen Forest	7,325
Vegetated	Tree Dominated	Closed Canopy	Mixed Evergreen-Deciduous Closed Tree Canopy	9,631
Vegetated	Shrub Dominated	Shrub	Deciduous	125
<b>Total Vegetated</b>				<b>20,933</b>

### 3.2.4 Wildlife

Wildlife species can be found in various habitats within and immediately adjacent to Hartwell Lake. Commonly occurring plants and wildlife are listed in Appendix B. Habitats include open water; wetlands (emergent, shrub/scrub and forested); and uplands (forested, open/field, and disturbed). Some of these habitats can be affected by fluctuations in reservoir levels and others are likely to remain unaffected. Upland habitats are less likely to be impacted by water level changes due to their elevation above normal pool. In addition, wetland habitats that do not depend upon reservoir level as a source of hydrology are less likely to be impacted. However, open water and wetland habitats dependent on reservoir level for hydrology and primary productivity, such as fringe wetlands, are affected by reservoir fluctuations (e.g., 10 feet or more). Therefore, wildlife species using those habitats are also affected. Reservoir Dependent Wetland (RDW) habitats are composed of emergent, shrub/scrub, and forested wetland habitats existing due to the water level in the reservoirs. As with the open-water habitat, RDW are widely used by wildlife during various parts of their life cycle.

Reptiles and amphibians use open water habitats of the reservoir. Species such as Eastern painted turtle, common musk turtle, snapping turtle, spiny softshell turtle, yellow-bellied slider, numerous species of water snakes, newt, and frogs are predominantly associated with the shallow water areas of reservoirs. These species use the open water habitats for breeding, foraging, and hibernation. Reptiles and amphibians use RDW habitats near the shorelines of reservoirs. For example, a variety of turtles and snakes use RDW for feeding and basking, and numerous amphibians breed, lay eggs, forage, and undergo their aquatic larval stage in these habitats. Some species, such as the Eastern newt, could spend their entire life cycle in RDW habitats.

Similar to reptiles and amphibians, birds use the shoreline and shallow open water habitats within the reservoir. These open water habitats are used as migration stopovers (resting habitat) for numerous species of ducks and geese as well as wading birds such as egrets, herons, and sandpipers. During the migration stopover, these species also use these areas for feeding prior to continuing their migration. Some of these migratory species use the reservoir as overwintering habitat including Bonaparte's and ring-billed gulls, American coots, common loons, and hooded mergansers.

In addition to the use of these habitats for feeding and overwintering by migratory species, resident avian species use open water for feeding. Examples of birds identified in the study area using the reservoir for feeding during the winter include belted kingfishers and great blue herons feeding in the shallow waters of the open water habitat. Avian species use RDW habitats adjacent to the reservoir as a migration stopover. Examples include numerous species of ducks and geese, as well as Neotropical migrants such as flycatchers, vireos, thrushes, and warblers.

During the migration stopover, these species also use vegetated areas for feeding prior to continuing their migration. Some of these migratory species use RDW habitats as their overwintering habitat including swamp sparrows, yellow-rumped warblers, and

Wilson's snipe. In addition, RDW habitats also provide food and nesting for resident avian species. Chipping and field sparrows, yellow warblers, eastern kingbirds, mallard, wood duck, and Canada geese are a few examples of species that nest and raise their young in RDW habitats.

Several of the most common bird species noted in the immediate vicinity of Hartwell Project include red-shouldered hawk, red-tailed hawk, ruby-throated hummingbird, Eastern kingbird, blue jay, American crow, Carolina chickadee, tufted titmouse, white-breasted nuthatch, American robin, Northern mockingbird, brown thrasher, Northern cardinal, red-winged blackbird, ring-necked duck, lesser scaup, and brown-headed cowbird. Additionally, some avian species commonly seen or heard in the surrounding uplands include wild turkey, American bittern, great blue heron, osprey, mourning dove, whip-poor-will, belted kingfisher, red-headed woodpecker, Eastern bluebird, gray catbird, and Northern parula.

Mammals commonly use open water, wetlands, and RDW habitats. Bats often feed over open water and wetland habitats as they forage for flying insects such as midges and mosquitoes. Furbearers and other mammals that are important components of these wetlands include American beaver, muskrat, mink, and northern river otter. These mammals use shallow water for feeding and as a means of transportation to other habitats. Palustrine emergent wetlands also provide excellent habitat for furbearing mammals. In addition, the opossum, white-tailed deer, and other mammals use RDW habitats for foraging and raising young (USACE 2014). White-tailed deer, and even black bear in the more isolated areas, often use the bottomlands. Terrestrial species from surrounding areas often use the fresh marsh edge for shelter, food, and water. These include Northern raccoon, Virginia opossum, cottontails, coyote, and bobcat (USACE 1981).

A total of 3,235 acres of project lands are managed as wildlife management areas by the SC DNR. The USACE manages 874 acres as wildlife management and hunting areas.

### **3.2.5 Threatened, Endangered and Other Protected Species**

A copy of the 2010 Memorandum of Agreement between the U.S. Army Corps of Engineers, Savannah District, and the U.S. Fish and Wildlife Service Concerning Protected Species Surveys at J. Hartwell, Richard B. Russell, and Hartwell Lakes is on file at the Hartwell Operations Project Manager's Office (Appendix C). In accordance with this agreement, endangered species surveys are performed by qualified USACE team members prior to the initiation of any land disturbing activities to determine if endangered species or habitat is present in the affected area. This includes recreational development, firebreaks, thinning, regeneration cuts, new food plots and openings, or any "action" authorized under USACE's Regulatory Jurisdiction including rip-rap or headwall placement.

The U.S. Fish and Wildlife Service (USFWS) Information, Planning, and Conservation System (<http://ecos.fws.gov/ipac/>) website provides a current inventory of federally listed

threatened and endangered species. There are no known individuals or populations of Threatened or Endangered species within the Hartwell Project area. Additionally, there is no listed Critical Habitat on project lands.

Those species federally-protected by other laws include bald eagle, golden eagle, osprey, and peregrine falcon which may be transient visitors during migration. In 2007, the USFWS removed the bald eagle from the list of threatened and endangered species under the ESA (72 FR 37345, July 9, 2007), but the species continues to be protected by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act (the Eagle Act). A condition of the delisting requires the USFWS to work with State wildlife agencies to monitor eagles.

Habitat may exist for the federally-listed northern long-eared bat; however, there are no known occurrences, maternity sites, or hibernacula on the project. Potential habitat may also exist for the eastern black rail though there are no known occurrences on the project. Historically, there have been two active bald eagle nests at Hartwell project. The bald eagle (*Haliaeetus leucocephalus*) is protected under the Federal Bald and Gold Eagle Protection Act, and species listed under the Migratory Bird Treaty Act. Although there are no know individuals or populations of Federally-listed threatened and endangered species on the project site, Table 7 lists species with potential habitat on Hartwell Lake fee lands, as identified by the USFWS.

**Table 7: Protected Species Potentially Present at Hartwell Lake**

	Status	Has Critical Habitat
<b>Flowering Plants</b>		
Dwarf-flowered Heartleaf	T	No
Mountain sweet pitcherplant	E	No
White fringeless orchid	T	No
Small-whorled Pogonia	T	No
Persistent Trillium	E	No
Smooth Coneflower	E	No
<b>Mammals</b>		
Northern Long-eared Bat	T	No
<b>Reptiles</b>		
Southern Bog Turtle	T(SA)*	No
<b>Birds</b>		
Eastern Black Rail	T	No

\* Threatened due to similarity of appearance, not subject to Section 7 consultation

### 3.2.6 Cultural Resources

The archaeological record details a long and continuous occupation of the Savannah River Valley extending from the Paleoindian period (ca 14,000 to 8,000 BC) through the Historic period (post-1930 AD).



Construction of the Hartwell Dam prompted the first archaeological investigations of the area by Joseph Caldwell in 1952. The reconnaissance-level survey examined the uppermost eight miles of the Savannah River, approximately 40 miles of the Tugaloo River, and 32 miles of the Seneca-Keowee Rivers (Caldwell 1953). Caldwell recorded 54 archaeological sites and provided management recommendations based on a flood pool level of 665 amsl for the proposed lake. Six of the sites were recommended for additional excavations and one site was recommended for additional testing. Among the sites excavated were three mound sites, Chauga, Estatoe, and Tugalo. A recent review of the Caldwell survey indicated that several of the sites had been incorrectly plotted and steps have been taken to provide suggestions on the true locations of the sites (Sweeney and Whitley 2011). Rectification of the data suggests that at least four of the sites noted as inundated are outside of the flood pool (i.e., above 665 feet amsl).

Cultural resources investigations of upland areas at the Hartwell Project were conducted in the late 1970s and early 1980s to comply with Section 106 of the National Historic Preservation Act (NHPA), resulting in the identification of 92 archaeological sites. A large-scale, approximately 3,727-acre Section 110 of the NHPA survey was conducted in 2010 (Sweeney and Whitley 2011). Water levels during the field survey ranged from 660.58 - 661.19 feet amsl which prohibited investigation of shoreline areas. The survey resulted in the recordation of 47 previously unrecorded archaeological sites, none of which were recommended eligible for the National Register of Historic Places (NRHP).

The Hartwell Project manages six archaeological sites that have been determined eligible for the NRHP. Five of the sites are prehistoric sites, one of which is a petroglyph. One site is a historic farmstead. None of the sites are located along the shoreline.

Activities could potentially impact archaeological and historic resources due to the associated ground disturbance. Restrictions and processes in the MP for conducting these activities minimize the potential impacts to intact cultural deposits and historic resources substantially. Ground disturbing activities will be evaluated based on a survey of the area and eligible or potentially eligible sites will be avoided or mitigated.

### **3.2.7 Recreational Resources**

Recreational resources are described in detail within the MP. Recreational opportunities at Hartwell Project include camping, biking, picnicking, hunting, hiking, wildlife viewing, outdoor sports activities, and water sport/leisure activities (boating, swimming, fishing, skiing, wake boarding, etc.). Hartwell Project offers recreation to more than eight million visitors every year. Hartwell Project provides 91 recreation areas with 44 of those areas being managed by the USACE. In addition, there are four state parks, two commercial campgrounds, and four private leases. Hartwell Project also provides 25 boat ramps, five marinas, and nine quasi-public recreation areas that are currently leased to various organizations.

### 3.2.8 Aesthetics

Hartwell Project contains a large land base consisting primarily of both open areas and woodlands. Although Hartwell has the most shoreline permits in the nation and many public recreation facilities, there are still significant areas of undisturbed shoreline. These extensive woodlands provide a pleasant visual experience and serve to minimize conflicting activities.

The natural beauty of Hartwell Project is a recreational asset which offers almost unlimited opportunities for outdoor oriented activities such as sightseeing and hiking as well as provides a pleasant environment for campers, mountain bikers, hunters, and anglers.

### 3.2.9 Socio-Economic

#### 3.2.9.1 Population Demographics

The total population for the zone of interest is 474,012 as shown in Table 8. Of that population, 42 percent is in Anderson County, 16 percent is in Oconee County, and 26 percent is in Pickens County. Each of the remaining counties makes up less than 6 percent of the zone of interest total population.

From 2017 to 2060, the population in the zone of interest is expected to increase to 589,766, an increase of 24 percent. By comparison, the population of Georgia is projected to increase by 35 percent and South Carolina by 34 percent during the same period. The distribution of the population by gender is approximately 48.7 percent male and 51.3 percent female in the zone of interest (Table 9).

**Table 8: 2017 Population Estimates and 2060 Projections**

	2017 Population	2060 Projection	2017 Percent of Zone of Interest	Annual Growth Rate
States:				
Georgia	10,439,379	14,085,359		0.81%
South Carolina	5,024,369	6,714,826		0.78%
Counties:				
Franklin, GA	22,820	24,665	4.81%	0.19%
Hart, GA	25,794	24,122	5.44%	-0.15%
Stephens, GA	25,890	27,360	5.46%	0.13%
Anderson, SC	198,759	259,605	41.93%	0.71%
Oconee, SC	77,270	88,976	16.30%	0.35%
Pickens, SC	123,479	165,038	26.05%	0.78%
Zone of Interest Total	474,012	589,766		0.57%

Source: U.S. Bureau of the Census, 2017 Estimate; Georgia Governor's Office of Planning and Budget

**Table 9: Percent of Population Estimate by Gender**

	Male	Percent Male	Female	Percent Female
States:				
Georgia	4,968,887	48.7%	5,232,748	51.3%
South Carolina	2,376,759	48.6%	2,516,685	51.4%
Counties:				
Franklin County, GA	10,852	48.6%	11,476	51.40%
Hart County, GA	12,502	49.0%	13,033	51.04%
Stephens County, GA	11,930	46.6%	13,695	53.44%
Anderson County, SC	93,474	48.1%	100,700	51.86%
Oconee County, SC	37,417	49.3%	38,509	50.72%
Pickens County, SC	60,358	49.7%	61,091	50.30%
Zone of Interest	226,533	48.7%	238,504	51.3%

Source: U.S. Bureau of the Census, 2017 Estimate

Table 10 shows the population composition by age group. The distribution by age group is similar among the counties, zone of interest, and the state overall. The largest age group is the 18 to 64, with 53.9 percent of the total population in the zone of interest.

**Table 10: Age Distribution**

	Under 18	18 to 64	65 and Over
States:			
Georgia	22.6%	61.8%	15.6%
South Carolina	22.0%	60.8%	17.2%
Counties:			
Franklin County, GA	22.9%	59.1%	18.0%
Hart County, GA	22.0%	59.1%	18.9%
Stephens County, GA	19.0%	64.5%	16.5%
Anderson County, SC	25.6%	61.4%	13.0%
Oconee County, SC	21.8%	57.8%	20.4%
Pickens County, SC	19.3%	57.5%	23.2%
Zone of Interest	21.8%	53.9%	18.3%

Source: U.S. Bureau of the Census, 2017 Estimate

Population by Race Alone or in Combination with Other Races is displayed in Table 11. For the zone of interest, 84.7 percent of the population is White, 11.8 percent is Black, 4.3 percent are Hispanic or Latino, 1.9 percent are two or more races, and 1.2 percent are Asian. The remainder of the races makes up less than 1 percent of the zone of interest population each.

By comparison, for the state of South Carolina, 68.5 percent of the population is White, 27.3 percent is Black or African American, and the remaining races constitute a slightly

greater percentage of the total population than in the zone of interest. For Georgia, 60.8 percent of the population is White, 32.2 percent is Black or African American and the remaining races constitute a slightly greater percentage of the total population than in the zone of interest.

**Table 11: 2017 Population Estimate by Race/Hispanic Origin**

	White Alone	Black or African American Alone	American Indian and Alaska Native Alone	Asian Alone	Native Hawaiian or Other Pacific Islander Alone	Two or more races	Hispanic or Latino
States:							
Georgia	60.8%	32.2%	0.5%	4.2%	0.1%	2.1%	9.6%
South Carolina	68.5%	27.3%	0.5%	1.7%	0.1%	1.9%	5.7%
Counties:							
Franklin, GA	86.8%	9.7%	0.4%	1.2%	0.1%	1.8%	4.6%
Hart, GA	77.9%	19.1%	0.2%	1.1%	0.0%	1.7%	3.9%
Stephens, GA	85.0%	11.0%	0.5%	0.9%	0.1%	2.4%	3.6%
Anderson, SC	80.6%	16.3%	0.3%	1.0%	0.0%	1.7%	3.9%
Oconee, SC	89.2%	7.6%	0.4%	0.9%	0.0%	1.8%	5.7%
Pickens, SC	88.9%	7.0%	0.3%	2.1%	0.0%	1.8%	3.8%
Zone of Interest Total	84.7%	11.8%	0.4%	1.2%	0.0%	1.9%	4.3%

Source: U.S. Bureau of the Census, 2017 Estimate

### 3.2.9.2 Education and Employment

Table 12 shows the population over 25 years of age by highest level of educational attainment for each of the geographical areas. In the zone of interest, for 5.4 percent of the population 25 years old and older, the highest level of education attained is below the ninth-grade level. Another 10.9 percent attended high school but did not graduate. For 32.2 percent of the population, the largest in the zone of interest, a high school degree is the highest level of educational attainment. Another 20.5 percent attended some college but did not graduate. Bachelor's degrees were the highest educational attainment of 12.9 percent, while associate degrees were such for 9.9 percent. The smallest group is those that have graduate or professional degrees, at 8.2 percent.

By comparison, in Georgia 5.0 percent have less than ninth grade education, 8.7 percent attended some high school, 28.0 percent graduated high school, 20.8 percent attended some college but did not graduate, 7.5 percent obtained an associate's degree, 18.6 percent obtained a bachelor's degree, and 11.4 percent have a graduate or professional degree. For South Carolina, 4.5 percent have less than ninth grade education, 9.0 percent attended some high school, 29.4 percent graduated high school, 20.8 percent attended some college, 9.3 percent obtained an associate degree, 17.2

percent obtained a bachelor’s degree, and 9.8 percent have a graduate or professional degree.

**Table 12: Population Over 25 Highest Level of Education Attainment**

	Less than 9th grade	9th to 12th grade, no diploma	High school graduate (includes equivalency)	Some college no degree	Associate's degree	Bachelor's degree	Graduate or professional degree
South Carolina	4.5%	9.0%	29.4%	20.8%	9.3%	17.2%	9.8%
Georgia	5.0%	8.7%	28.0%	20.8%	7.5%	18.6%	11.4%
Anderson County, SC	5.1%	10.5%	31.5%	21.5%	10.6%	13.2%	7.5%
Oconee County, SC	6.2%	9.8%	30.8%	19.5%	9.6%	14.2%	10.0%
Pickens County, SC	4.9%	10.5%	30.3%	20.4%	10.4%	14.1%	9.5%
Hart County, GA	4.8%	14.1%	39.2%	20.4%	7.8%	8.3%	5.4%
Franklin County, GA	8.3%	14.4%	39.1%	17.6%	7.7%	8.1%	4.6%
Stephens County, GA	5.4%	12.9%	36.1%	18.9%	7.0%	10.6%	9.0%
Zone of Interest	5.4%	10.9%	32.2%	20.5%	9.9%	12.9%	8.2%

Source: U.S. Bureau of the Census, 2017 Estimate

Employment by sector is presented in Table 13. Each figure represents the percentage of the employed civilian population in each area. In the zone of interest, the largest sectors are educational services, health care, and social assistance, with 24.1 percent of the civilian employed population. The second largest sector is manufacturing, which employs 19.7 percent. This is followed by retail trade with 11.5 percent. The remaining sectors each fall under 7 percent.

Similarly, the largest employment sectors for Georgia and South Carolina are also educational services, health care and social assistance, with 20.8 percent and 21.7 percent, respectively, of the total employment. While manufacturing has importance in both the zone of interest and state, employment is driven by service sector employment.

**Table 13: Employment by Sector (Percentage of Employed Civilian Population)**

	Agriculture, forestry, fishing and hunting, and	Construction	Manufacturing	Wholesale trade	Retail trade	Transportation and warehousing, and utilities	Information	Finance and insurance, and real estate and rental	Professional, scientific, and management, and administrative and waste	Educational services, and health care and social	Arts, entertainment, and recreation, and accommodation and food	Other services, except public administration	Public administration
South Carolina	1.0	6.5	13.8	2.6	12.2	4.8	1.8	5.7	9.9	21.7	10.4	5.1	4.6
Georgia	1.1	6.5	10.6	2.9	11.8	6.2	2.5	6.3	11.8	20.8	9.4	4.9	5.1
Anderson County, SC	0.7	5.7	21.3	3.3	12.5	3.7	1.3	3.9	7.9	24.0	8.0	4.9	3.0
Oconee County, SC	1.2	7.9	20.0	1.3	9.2	5.3	1.0	4.1	8.2	22.5	11.2	5.7	2.4
Pickens County, SC	0.9	7.2	16.0	2.5	11.0	5.5	1.1	4.5	7.8	25.6	9.9	4.9	3.1
Hart County, GA	5.2	6.9	24.2	1.9	14.0	4.8	1.1	3.5	5.7	16.4	7.4	3.6	5.3
Franklin County, GA	4.2	8.2	18.6	2.0	11.0	5.2	1.1	4.0	5.3	24.9	6.3	5.3	3.7
Stephens County, GA	1.5	6.6	21.2	3.0	10.8	2.8	1.8	3.3	4.5	28.5	5.3	5.7	5.0
Zone of Interest	1.2 %	6.7 %	19.7 %	2.6 %	11.5 %	4.5 %	1.2 %	4.0 %	7.5%	24.1 %	8.8%	5.0 %	3.2 %

Source: U.S. Bureau of the Census, 2017 Estimate

As shown in Table 14, the unemployment rate for the zone of interest is in line with that of Georgia and South Carolina at 6.9 percent. Stephens County’s unemployment rate of 11.7 percent is significantly higher than that of any other county.

**Table 14: Labor Force, Employment and Unemployment Rates**

	Civilian Labor Force	Employed	Unemployed	Unemployment Rate
Anderson County, SC	91,772	85,591	6,181	6.7%
Oconee County, SC	33,420	31,227	2,193	6.6%
Pickens County, SC	57,182	53,267	3,915	6.8%
Hart County, GA	10,483	9,989	494	4.7%
Franklin County, GA	8,911	8,353	558	6.3%
Stephens County, GA	11,453	10,114	1,339	11.7%
Zone of Interest	213,221	198,541	14,680	6.9%

Source: U.S. Bureau of the Census, 2017 Estimate

### 3.2.9.3 Households and Income

There are approximately 181,613 households in the zone of interest with an average household size of 2.6 persons. For Georgia, there are 3.7 million households and in South Carolina, 1.9 million, with an average size of households at 2.8 for Georgia and 2.6 for South Carolina, as shown in Table 15.

**Table 15: 2017 Households and Household Size**

	Households	# per Household
South Carolina	1,871,307	2.6
Georgia	3,663,104	2.8
Anderson County, SC	76,234	2.5
Oconee County, SC	31,354	2.4
Pickens County, SC	46,428	2.6
Hart County, GA	9,848	2.6
Franklin County, GA	8,322	2.7
Stephens County, GA	9,427	2.7
Zone of Interest	181,613	2.6

Source: U.S. Bureau of the Census, 2017 Estimate

As shown in Table 16, households in the zone of interest were generally poorer than the Georgia and South Carolina state averages in 2017. In the counties in zone of interest, the median household income ranges from \$39,246 in Franklin County to \$45,551 in Anderson County. These all fall below the Georgia median household income of \$52,977 and the South Carolina median household income and \$48,781.

Similarly, counties in the zone of interest had a lower 2017 per capita income. In the counties in zone of interest, per capita incomes ranged from \$19,663 in Franklin County to \$39,246 in Franklin County to \$24,485 in Anderson County. These all fall below the Georgia per capita income of \$28,015 and the South Carolina per capita income of \$26,645.

**Table 16: Median Household and Per Capita Income, 2017**

	Median Household Income (2017 Dollars)	Per Capita Income (2017 Dollars)
South Carolina	\$ 48,781	\$ 26,645
Georgia	\$ 52,977	\$ 28,015
Anderson County, SC	\$ 45,551	\$ 24,485
Oconee County, SC	\$ 43,978	\$ 26,798
Pickens County, SC	\$ 45,332	\$ 23,501
Hart County, GA	\$ 41,216	\$ 21,668
Franklin County, GA	\$ 39,246	\$ 19,663
Stephens County, GA	\$ 39,756	\$ 21,657

Source: U.S. Bureau of the Census, 2017 Estimate

The percentage of persons whose income was below the poverty level in the zone of interest was above that of Georgia and South Carolina. A “low-income person” is

defined as a person whose household income is at or below the income level stated in the U.S. Department of Health and Human Services' poverty guidelines, which in the 2017 guidelines was \$20,420 for a family of three.

Most of the counties in the zone of interest showed between 18 and 19 percent of all persons having incomes below the poverty level. Anderson County had the lowest percentage below the poverty threshold at 15.6 percent. Franklin County had the highest percentage below the poverty threshold at 25.4 percent.

**Table 17: Population below Poverty Threshold, 2017**

	Population for whom Poverty Status is Determined	Below Poverty Level	Percent Below Poverty Level
South Carolina	4,751,345	790,657	16.6%
Georgia	9,931,935	1,679,030	16.9%
Anderson County, SC	191,170	29,776	15.6%
Oconee County, SC	75,156	13,993	18.6%
Pickens County, SC	114,654	20,987	18.3%
Hart County, GA	24,642	4,642	18.8%
Franklin County, GA	21,680	5,503	25.4%
Stephens County, GA	24,898	4,504	18.1%
	452,200	79,405	17.6%

Source: U.S. Bureau of the Census, 2017 Estimate

### 3.2.10 Environmental Justice and Protection of Children

Executive Order 12898 and Department of Defense's Strategy on Environmental Justice, dated March 24, 1995, directs Federal agencies to identify and address the disproportionately high adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law (Table 17). The order also directs each agency to develop a strategy for implementing environmental justice. Minority populations are those persons who identify themselves as Black, Hispanic, Asian American, American Indian/Alaskan Native, and Pacific Islander. A minority population exists where the percentage of minorities in an affected area either exceeds 50 percent or is meaningfully greater than in the general population. No environmental justice communities exist within the project area based on the 2017 census data (Table 11).

Executive Order 13045, (Protection of Children from Environmental Health Risks and Safety Risks) requires each federal agency, to the extent possible, to make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children; and ensure its policies, programs, activities, and standards address disproportionate risks to children resulting from environmental health or safety risks (White House Press Release 1997).



### **3.2.11 Air Quality**

Hartwell Project includes Anderson, Oconee, and Pickens counties in South Carolina, and Hart, Franklin, and Stephens counties in Georgia. All of these counties are considered in attainment for all federal air quality standards (<http://www3.epa.gov/airquality/greenbk/astate.html>). Despite being in compliance with these standards, portions of the Hartwell project area are at times subjected to temporary impacts to air quality resulting from activities such as large-scale construction projects and prescribed burning.

Minor, localized influences on air quality within the project boundary may occur from exhaust from motor vehicles and boats, the use of grills and fire pits, and other regional activities (such as large-scale construction projects, prescribed burning). The large open area created by the reservoir allows strong air currents to reduce and/or eliminate localized air quality concerns caused by these pollutants. Air quality is strongly influenced by external factors such as urban areas and factories located as far away as Augusta and Atlanta, GA.

Air quality is regulated by the Clean Air Act Section 176 (c) and implemented by the United States Environmental Protection Agency (EPA), the South Carolina Department of Health and Environmental Control (SC DHEC), and GA DNR Environmental Protection Division (EPD). Air quality standards are defined in the National Ambient Air Quality Standards. Actions which result in increased emissions may require a permit issued by SC DHEC or GA DNR EPD.

### **3.2.12 Hydrology, Water Quality, and Water Supply**

Water quality in Hartwell Lake is measured by Georgia and South Carolina DNR's. There are seven SC DHEC monitoring stations (Figure 2) along Hartwell Lake. Aquatic life and recreational uses are fully supported at all SC DHEC monitoring sites. Both states have identified fish consumption advisories for all species in the Seneca River and 12-Mile Creek arms for Polychlorinated biphenyls (PCBs), and for Hybrid/Striped bass, Largemouth bass, Spotted bass, and Channel catfish throughout the lake due to potential mercury levels.

The presence of PCBs in Twelve Mile Creek/Hartwell Lake was discovered when surface water, sediment, and fish from the area were sampled in the mid-1970s. The source of this contamination was determined to be the Sangamo-Weston, Inc. capacitor manufacturing plant in Pickens, South Carolina. Sangamo-Weston, Inc. operated the plant from 1955 to 1987. The liabilities associated with that operation were subsequently assumed by Schlumberger Technology Corporation (STC). Dielectric fluids, used in the manufacture of capacitors until 1977, contained PCBs, and materials containing these fluids were disposed via land burial. In addition, PCBs were present in discharges from the plant to Town Creek (a tributary of Twelve Mile Creek). Surface water and sediment contaminated by the discharged PCBs eventually migrated downstream to Twelve Mile Creek and Hartwell Lake.

In 1994, the United States Environmental Protection Agency (EPA) issued a Record of Decision (ROD) for the Twelve Mile Creek/Hartwell Lake area that included natural recovery of PCB-contaminated sediments. This alternative was supported by studies showing that PCB-contaminated sediments are expected to be continually buried by sediment entering Twelve Mile Creek and Hartwell Lake. In addition, the ROD called for ongoing monitoring of biota, adoption of risk-based guidelines for human consumption of Hartwell Lake fish, and a public education program designed to increase public awareness of the current fish consumption advisory.

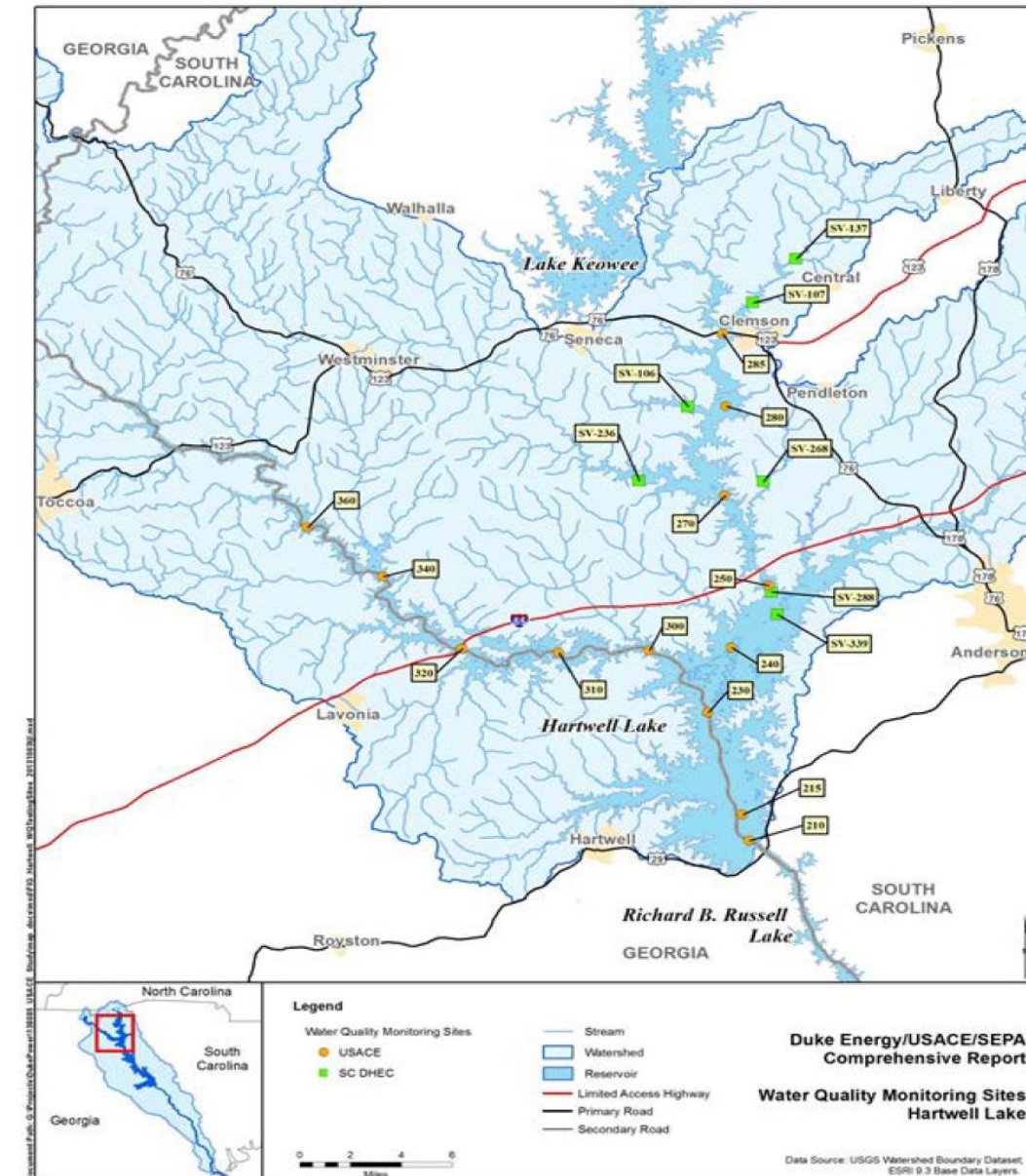
The U.S. District Court for the District of South Carolina entered a Consent Decree in May 2006 which resolved a natural resource damages claim brought by the natural resource trustees, including the USACE, Department of the Interior, the State of Georgia and the State of South Carolina, against STC for PCB contamination at or from the site known as Sangamo Weston/Twelve Mile Creek/Hartwell Lake PCB Contamination Superfund Site. Under the terms of the Consent decree STC paid \$11,960,000 into the Hartwell Lake Restoration Account which financed projects to restore, replace and/or protect natural resources damages as a result of the PCB contamination. In addition, STC removed two hydroelectric power dams know as Woodside I and Woodside II on Twelve Mile Creek to address the ecological injury to Twelve Mile Creek and Hartwell Lake.

Reduced Dissolved Oxygen (D.O.) levels resulting from reservoir stratification are monitored both upstream and downstream of the Hartwell Dam. Temperature, D.O., and specific conductance are monitored continuously. In general, D.O. concentrations downstream of the dam are approximately 1 to 2 mg/L higher than the upstream D.O. concentrations. The increase in D.O is the result of turbine venting and other re-aeration effects in the tailrace area.

The Hartwell Project conducts monthly sampling of dissolved oxygen and temperature at established locations in the reservoir. The routine monthly sampling is conducted only at the forebay station from December through March when reservoir conditions are isothermal and oxygen concentrations are near saturation. From April through November, stratification drives reservoir processes that lead to reduced oxygen conditions, and the reservoir is sampled at 12 established locations throughout the mainstem and major tributaries. Sampling locations are shown in Figure 2. Additional sampling may occasionally be required for special studies (i.e. blueback herring entrainment).

Hartwell Lake experiences thermal stratification from April to September. Thermal stratification in the downstream region of the reservoir usually begins late-April with the establishment of a thermocline (20-26 feet) in mid-May. Temperatures range from 57.2°F to 86°F and the thermocline remains near a depth of 26 to 33 feet throughout the stratification period. The thermocline begins to weaken in late-September when seasonal cooling begins, until the reservoir conditions are almost completely isothermal by mid-October.

**Figure 2: Sampling Locations**



### 3.2.13 Hazardous, Toxic and Radioactive Waste (HTRW)

Under ER 1165-2-132, USACE assumes responsibility for the reasonable identification and evaluation of all Hazardous, Toxic, and Radioactive Waste (HTRW) contamination within the vicinity of proposed actions. This policy avoids the use of project funds for HTRW removal and remediation activities.

In accordance with ER 1165-2-132, Section 13b, USACE conducts Environmental Review Guide for Operations (ERGO) inspections every five years, using an external team. In addition, SAS performs an internal ERGO review annually. Those inspections include developed areas around the lake that are operated by the USACE, as well as

outgrant areas for commercial concession (marinas) and state parks. USACE tracks the results and findings of these inspections in the OMBIL to better track any needed corrective actions. USACE prepares an Environmental Condition of Property (ECP) report (in place of a Phase 1 Site Assessment in accordance with ASTM standards) on lands that the USACE leases to other agencies, non-profit organizations, and private entities.

## **4.0 ENVIRONMENTAL CONSEQUENCES**

The changes being considered from the 1981 MP to this revision are consistent with regulations and policies. All proposed improvements, as well as natural resource management actions, will be individually reviewed for compliance with Endangered Species Act, the Fish and Wildlife Coordination Act, the National Historic Preservation Act, the Clean Water Act, etc., in accordance with ER 200-2-2, Procedures for Implementing NEPA, and will be addressed by the appropriate categorical exclusion at the time of implementation. Consequences were considered only for those resources that could be affected by activities resulting from the revised MP.

### **4.1 Wetlands**

#### **4.1.1 Future Conditions with No Action**

Without implementation of the proposed action, there would be no additional direct or indirect adverse impacts to the wetland resources.

#### **4.1.2 Future Conditions with the Proposed Action**

With implementation of the proposed action, the MP has been updated and includes maps of recreation areas with proposed improvements (Appendix A of the MP). Proposed recreation area improvements avoid impacts to wetlands.

Natural resources management activities that may impact wetlands will be conducted in accordance with the appropriate state Best Management Practices (BMP). Activities beyond the scope of the BMPs will require permits in accordance with Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act.

### **4.2 Aquatic Resources/Fisheries**

#### **4.2.1 Future Conditions with No Action**

Without implementation of the proposed action, there would be no additional direct or indirect adverse impacts to the aquatic resources/fisheries.

#### **4.2.2 Future Conditions with the Proposed Action**

With implementation of the proposed action, there may be direct positive impacts to the aquatic resources/fisheries. Improved angler access and proposed improvements to aquatic plant habitat would have minor positive impacts by potentially increasing the abundance of game and non-game fish and access to the fishery.

### **4.3 Floodplains**

#### **4.3.1 Future Conditions with No Action**

Without implementation of the proposed action, there would be no additional direct or indirect adverse impacts to floodplains or management of floodplains.

#### **4.3.2 Future Conditions with the Proposed Action**

With implementation of the proposed action there would be no adverse impacts to floodplains or management of floodplains.

### **4.4 Terrestrial Resources**

#### **4.4.1 Future Conditions with No Action**

Without implementation of the proposed action, there would be no additional direct or indirect adverse impacts to the terrestrial resources.

#### **4.4.2 Future Conditions with the Proposed Action**

With implementation of the proposed action, recreation facilities will be constructed in areas designated for recreational use.

Natural resources management activities described in the proposed action, mainly timber harvesting, will have no long-term adverse impacts on terrestrial resources. The short-term impacts of timber harvest will be offset by site restoration (replanting) in areas that are clear cut. The short-term impacts to timber stands that are thinned are offset by providing short-term early successional habitat and long-term improvements to the residual stand. These short-term negative impacts to the terrestrial vegetation caused by timber harvesting have the long-term benefits of diversifying wildlife habitat.

## **4.5 Bottomland Hardwood Forest**

### **4.5.1 Future Conditions with No Action**

Without implementation of the proposed action, there would be no additional direct or indirect adverse impacts to the bottomland hardwoods.

### **4.5.2 Future Conditions with the Proposed Action**

With implementation of the proposed action, there would be no additional direct or indirect adverse impacts to the bottomland hardwoods. Adverse impacts will be minimized using BMP for forest roads and accepted trail construction standards.

## **4.6 Wildlife**

### **4.6.1 Future Conditions with No Action**

Without implementation of the proposed action, there would be no additional direct or indirect adverse impacts to the wildlife.

### **4.6.2 Future Conditions with the Proposed Action**

With implementation of the proposed action, minor positive impacts to wildlife could occur with additional improvements to wildlife habitat, timber stand diversity, and incorporation of former quasi-public lease areas into wildlife management areas.

## **4.7 Threatened and Endangered Species (TES)**

### **4.7.1 Future Conditions with No Action**

Without implementation of the proposed action, there would be no direct or indirect adverse impacts to any TES, or their designated critical habitats.

### **4.7.2 Future Conditions with the Proposed Action**

With implementation of the proposed action, there would be no direct or indirect adverse impacts to any TES and their critical habitats. Recreation area development will not occur in critical habitats or if a TES is present. TES will be better protected as maps of Environmentally Sensitive Areas are maintained within the GIS and made available to natural resources management personnel. A protected species survey will be completed prior to constructing any new facilities to ensure no adverse effects to any Federally listed TES or their habitat. Protected species surveys are valid for two years in accordance with the Memorandum of Agreement between the USACE and the USFWS dated May 28, 2010.

## **4.8 Waterbodies**

### **4.8.1 Future Conditions with No Action**

Without implementation of the proposed action, there would be no additional direct or indirect adverse impacts to Hartwell Lake and its tributaries.

### **4.8.2 Future Conditions with the Proposed Action**

The proposed action would result in no adverse impacts to Hartwell Lake and its tributaries. Erosion control measures will be implemented during proposed recreation area development and BMP will be followed during timber harvest and wildlife management activities.

## **4.9 Cultural Resources**

### **4.9.1 Future Conditions with No Action**

Without implementation of the proposed action, there would be no direct or indirect impacts on any cultural resources. Management of cultural resources would continue in accordance with the Hartwell Project Historic Properties Management Plan, updated April 2001 and the Programmatic Agreement Among the U.S. Army Engineer District, Savannah, the Georgia State Historic Preservation Officer, the South Carolina Historic Preservation Office, and the Advisory Council on Historic Preservation for the Operation and Maintenance of the Hartwell Lake Project, Georgia and South Carolina, dated 2003. This plan and agreement define policies and procedures implemented at Hartwell Project to assure compliance with federal cultural resources laws and regulations.

### **4.9.2 Future Conditions with the Proposed Action**

With implementation of the proposed action, there would be no direct adverse impacts on any cultural resources. Management of cultural resources would continue in accordance with the Hartwell Project Historic Properties Management Plan, updated April 2001 and the Programmatic Agreement Among the U.S. Army Engineer District, Savannah, the Georgia State Historic Preservation Officer, the South Carolina Historic Preservation Office, and the Advisory Council on Historic Preservation for the Operation and Maintenance of the Hartwell Lake Project, Georgia and South Carolina, dated 2003. This plan and agreement define policies and procedures implemented at Hartwell Project to assure compliance with federal cultural resources laws and regulations.

## **4.10 Recreational Resources**

### **4.10.1 Future Conditions with No Action**

Without implementation of the proposed action, there would be minor direct and indirect adverse impacts to recreation resources. Existing facilities would deteriorate more

rapidly due to overuse if additional facilities are not provided to keep pace with current and future visitation.

#### **4.10.2 Future Conditions with the Proposed Action**

There could be both direct and indirect minor positive impacts to recreation due to the updated MP. With implementation of the proposed action, more recreation resources may be provided. The additional facilities are proposed within existing recreational areas.

### **4.11 Aesthetics**

#### **4.11.1 Future Conditions with No Action**

Without implementation of the proposed action, there would be no adverse impacts to aesthetics or any view of the watershed.

#### **4.11.2 Future Conditions with the Proposed Action**

With implementation of the proposed action, additional recreational facilities would not have an adverse impact to the aesthetics or view of the watershed since these areas are already used for recreation and the view would not change.

### **4.12 Socio-Economic Resources**

#### **4.12.1 Future Conditions with No Action**

Without implementation of the proposed action, there would be no direct or indirect adverse impacts on the socio-economic resources.

#### **4.12.2 Future Conditions with the Proposed Action**

Implementation of the proposed action provides for economically and socially productive uses of the project. Minor positive impacts on the socio-economic resources are expected to result. Enhancing the recreational capacity of the project will increase public use and draw more visitors to the area to the benefit of the local economy. Proper management of the natural resources will have a minor positive impact on the timber industry and business that support outdoor enthusiasts. Minor positive effects on residential property values in the surrounding area can also be expected, which can lead to proportionally higher property tax revenues for local governments.



### **4.13 Environmental Justice and Protection of Children**

#### **4.13.1 Future Conditions with No Action**

Without implementation of the proposed action, there would be no direct or indirect adverse impacts on environmental justice.

#### **4.13.2 Future Conditions with the Proposed Action**

With implementation of the proposed action, there would be no direct or indirect adverse impacts on environmental justice.

### **4.14 Air Quality**

#### **4.14.1 Future Conditions with No Action**

Without implementation of the proposed action, there would be no additional direct or indirect adverse impacts on air quality.

#### **4.14.2 Future Conditions with the Proposed Action**

With implementation of the proposed action, there would be no additional direct or indirect adverse impacts on air quality.

All of these counties are considered to be in “Attainment” for all federal air quality standards (EPA 2014). Despite being in compliance with these standards, portions of the area that contains the Reservoir are at times subjected to temporary impacts to air quality as a result of activities like large-scale construction projects on and off Project lands.

Air quality within the project boundary is influenced by exhaust from motor vehicles and boats, the use of grills and fire pits, and other regional activities (such as large-scale construction projects and prescribed burning). The large open area that is created by the reservoir allows for strong air currents to reduce and/or eliminate any localized air quality concerns caused by these pollutants. Air quality is strongly influenced by external factors, such as urban areas, factories, and the proximity to Interstate 85.

### **4.15 Water Quality**

#### **4.15.1 Future Conditions with No Action**

Without implementation of the proposed action, there would be no additional direct or indirect adverse impacts on water quality.

#### **4.15.2 Future Conditions with the Proposed Action**

With implementation of the proposed action, there could be minor direct or indirect adverse impacts on water quality due to an increased number of boats, construction projects, and timber logging operations. The impacts of increased number of boats would be minimal due to the reservoir size. Construction activities are required to follow state regulations for stormwater and erosion control measures and permitting as required. Natural resources management activities that may impact water quality will be conducted in accordance with the appropriate state BMPs. Off-site activities such as major construction, road maintenance, timber logging operations, and agricultural uses have the largest impact of water quality.

#### **4.16 Hazardous, Toxic and Radioactive Waste (HTRW)**

##### **4.16.1 Future Conditions with No Action**

Without implementation of the proposed action, there would be no direct or indirect adverse impacts on HTRW.

##### **4.16.2 Future Conditions with the Proposed Action**

With implementation of the proposed action, the probability of encountering HTRW is low. Any change in the storage or use of hazardous materials must comply with federal and state regulations. The Hartwell Project is responsible for ensuring compliance with EPA, SC DHEC, and GA DNR EPD regulations on public lands at the Hartwell Project. The EPA EnviroMapper website was researched and identified no known hazardous waste sites at the Hartwell Project.

### **5.0 CUMULATIVE IMPACTS**

The Council on Environmental Quality's (CEQ) regulations (40 CFR 1500-1508) implementing the procedural provisions of the NEPA of 1969, as amended (42 U.S.C. 4321 et seq.) define cumulative effects as:

“The impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR 1508.7)”.

Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impacts of activities in and around the Hartwell Project. Past actions include the construction and operation of the reservoir, the recreation sites surrounding the reservoir, as well as residential, commercial, and industrial facilities throughout the region. All of these developments have had varying levels of impacts on the physical and natural resources in the region.

Implementing management plans like the MP help to ensure a balance between public uses and stewardship of the natural environment. The proposed updates to the MP involve the additional recreational facilities and changes to natural resources management practices. Additional recreational facilities will be developed in areas that are already designated for recreational use. Natural resource management activities will be conducted in accordance with BMP standards. The proposed MP would update the prescribed overall land and water management plan, resource objectives, and associated design and management concepts, which would not have any effects on the natural resources.

## **6.0 COORDINATION**

Preparation of this EA and FONSI is being coordinated with appropriate Congressional, Federal, state, and local interests, as well as environmental groups and other interested parties. The following is a list of the federal and state agencies and Non-Governmental Organizations (NGOs) that were contacted during the evaluation and will receive a copy of the EA for review.

### **6.1 Agencies and NGOs**

#### **Federal Agencies**

- U.S. Department of the Interior - Office of Environmental Policy & Compliance
- U.S. Fish and Wildlife Service

#### **State Agencies**

##### **South Carolina**

- South Carolina Department of Archives and History
- South Carolina Department of Health and Environmental Control
- South Carolina Department of Natural Resources
- South Carolina Department of Parks, Recreation & Tourism

##### **Georgia**

- GA Department of Natural Resources, Environmental Protection Division
- GA Department of Natural Resources, Historic Preservation Division
- GA Department of Natural Resources, Wildlife Resources Division

#### **Conservation Groups**

- The Nature Conservancy
- The Georgia Conservancy

### **6.2 Public Involvement**

The Master Plan was made available for public comment through the USACE website and by public notice. The 30-day comment period was used to develop the Hartwell

MP. Please see Appendix D for comments that were received and responses to those comments.

## 7.0 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

Environmental compliance for the proposed action would be achieved upon:

- Coordination of this EA and FONSI with appropriate agencies, organizations, and individuals for their review and comments;
- Receipt of the Georgia and South Carolina Historic Preservation Officer concurrence in the District’s determination of No Effect on cultural resources;
- Receipt and acceptance or resolution of all USFWS Fish and Wildlife Coordination Act recommendations; and

The draft FONSI will not be signed until the proposed action achieves environmental compliance with applicable laws and regulations, as described above.

**Table 18: Relationship of the Proposed Action to Applicable Federal Laws and Policies**

Public Laws		
Title of Public Law	U.S. Code	Compliance Status*
Anadromous Fish Conservation Act of 1965, as amended	16 U.S.C. §757a <i>et. seq.</i>	Full Compliance
Archaeological and Historic Preservation Act, as amended	P.L. 93-29	Full Compliance
Archeological Resources Protection Act	P.L. 96-95	Full Compliance
Bald and Golden Eagle Act of 1972	16 U.S.C. §§668-668d	Full Compliance
Clean Air Act of 1972, as amended	42 U.S.C. Chapter 85	Full Compliance
Clean Water Act of 1971, as amended	33 U.S.C. §1251 <i>et. seq.</i>	Full Compliance
Endangered Species Act of 1973	16 U.S.C. §1531 <i>et. seq.</i>	Full Compliance
Fish and Wildlife Coordination Act of 1958, as amended	16 U.S.C. §§661-665; 665a; 666; 666a-666c	Full Compliance
Flood Control Act of 1944, as amended, Section 4	P.L. 78-534	Full Compliance
Migratory Bird Conservation Act of 1928, as Amended	16 U.S.C. §715	Full Compliance
Migratory Bird Treaty Act of 1918, as amended	16 U.S.C. §§703-712	Full Compliance
National Environmental Policy Act of 1969, as amended	42 U.S.C. §4321 <i>et. seq.</i>	Full Compliance

National Historic Preservation Act of 1966, as amended	54 U.S.C. §300101 <i>et. seq.</i>	Full Compliance
Noise Control Act of 1972, as amended	42 U.S.C. §4901 <i>et. seq.</i>	Full Compliance
Safe Drinking Water Act	42 U.S.C. §§300f-300j	Full Compliance

<b>Executive Orders</b>		
<b>Title of Executive Order</b>	<b>Executive Order Number</b>	<b>Compliance Status*</b>
Protection and Enhancement of Environmental Quality	11514/11991	Full Compliance
Protection and Enhancement of the Cultural Environment	11593	Full Compliance
Floodplain Management	11988	Full Compliance
Protection of Wetlands	11990	Full Compliance
Federal Compliance with Pollution Control Standards	12088	Full Compliance
Procurement Requirements and Policies for Federal Agencies for Ozone-Depleting Substances	12843	Full Compliance
Federal Compliance with Right-To-Know Laws and Pollution Prevention	12856	Full Compliance
Federal Actions to Address Environmental Justice and Minority and Low-Income Populations	12898	Full Compliance
Federal Acquisition and Community Right-To-Know	12969	Full Compliance
Indian Sacred Sites	13007	Full Compliance
Protection of Children from Environmental Health Risks and Safety Risks	13045	Full Compliance
Invasive Species	13112	Full Compliance
Consultation and Coordination with Indian Tribal Governments	13175	Full Compliance
Responsibilities of Federal Agencies to Protect Migratory Birds	13186	Full Compliance
Executive Order Facilitation of Cooperative Conservation	13352	Full Compliance

**\*Compliance Status:**

*Full Compliance:* Having met all requirements of the statute, E.O., or other environmental requirements.

*Partial Compliance:* Not having met some of the requirements at current stage of planning. Compliance with these requirements is ongoing.

*Non-Compliance:* Violation of a requirement of the statute, E.O., or other environmental requirement.

*Not Applicable:* No requirements for the statute, E.O, or other environmental requirement for the current stage of planning.

## 8.0 CONCLUSION

The proposed action consists of updating the Hartwell Project MP. The USACE has assessed the environmental impacts of the proposed action and has determined that it would have no adverse impact upon cultural resources, protected species, and either not adverse impact or potentially only minor adverse cumulative impacts on other resources. The creation of additional recreation facilities within existing recreation areas would provide for additional recreational benefits to lake visitors with a net positive socioeconomic benefit.

The Proposed Plan is not expected to adversely affect the quality of the environment; therefore, an EIS would not be required. The appropriate application of mitigation is to formulate an alternative that first avoids adverse impacts, then minimizes adverse impacts, and lastly, compensates for unavoidable impacts. At this time, compensation for unavoidable impacts is not warranted, nor included as part of the proposed action. For all alternatives, the potential effects were evaluated, as appropriate. A summary assessment of the potential effects of the recommended plan are listed in Table 19:

**Table 19: Summary of Potential Effects of the Proposed Action**

	Insignificant effects	Insignificant effects due to mitigation*	Resource unaffected by action
Aesthetics	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Air quality	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Aquatic resources/wetlands	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Invasive species	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish and wildlife habitat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Threatened/Endangered species/critical habitat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Historic properties	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other cultural resources	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Floodplains	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hazardous, toxic & radioactive waste	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hydrology	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Land use	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Navigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Noise levels	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public infrastructure	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Insignificant effects	Insignificant effects due to mitigation*	Resource unaffected by action
Socio-economics	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental justice	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soils	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tribal trust resources	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Climate change	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## 9.0 PREPARERS

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