



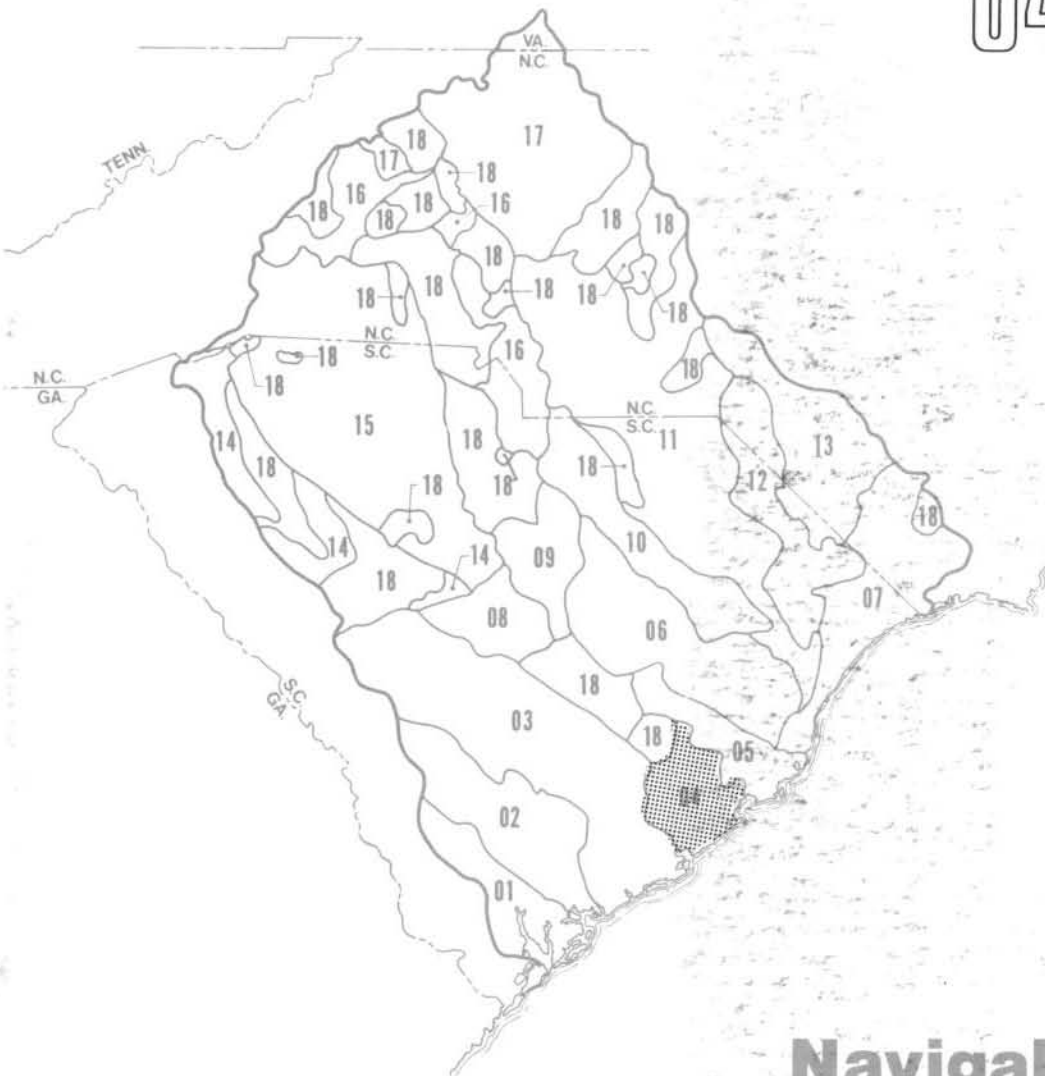
U.S. ARMY CORPS OF ENGINEERS  
CHARLESTON DISTRICT  
Charleston, South Carolina



# COOPER RIVER AREA

Report No.

04



**Navigability  
Study  
1977**



STANLEY CONSULTANTS

## CONTENTS

|   | <u>Page</u> |
|---|-------------|
| SECTION 1 - INTRODUCTION .....                                | 04-1        |
| Purpose .....   | 04-1        |
| Scope .....   | 04-1        |
| Related Reports .....   | 04-2        |
| Acknowledgements and Data Sources .....                       | 04-3        |
| SECTION 2 - PHYSICAL CHARACTERISTICS .....                    | 04-4        |
| SECTION 3 - NAVIGATION IMPROVEMENT PROJECTS .....             | 04-6        |
| Federal Navigation Projects .....                             | 04-6        |
| Other Navigation Projects .....                               | 04-6        |
| SECTION 4 - INTERSTATE COMMERCE .....                         | 04-11       |
| Past .....  | 04-11       |
| Present .....   | 04-15       |
| Future Potential .....  | 04-16       |
| SECTION 5 - LEGAL AUTHORITY .....                             | 04-18       |
| General .....   | 04-18       |
| Navigability Interpretations .....                            | 04-18       |
| General Federal Court Cases .....                             | 04-19       |
| Specific Federal Court Cases .....                            | 04-21       |
| South Carolina State Court Cases .....                        | 04-21       |
| Recent Federal Litigation .....                               | 04-23       |
| Federal Agency Jurisdiction .....                             | 04-25       |
| SECTION 6 - NAVIGATION OBSTRUCTIONS AND CLASSIFICATIONS ..... | 04-27       |
| Navigation Classification Procedures .....                    | 04-27       |
| Navigation Classification Categories .....                    | 04-31       |
| Present Navigable Waters of the U. S. ....                    | 04-31       |
| Historically Navigable Waters .....                           | 04-31       |
| Recommended and Practical Navigable Waters of the U. S. ....  | 04-32       |
| Obstructions to Navigation .....                              | 04-32       |
| Waters of the U. S. ....                                      | 04-33       |
| SECTION 7 - CONCLUSIONS AND RECOMMENDATIONS .....             | 04-37       |

CONTENTS (continued)

|  | <u>Page</u> |
|--|-------------|
| BIBLIOGRAPHY .....                                   | 04-39       |
| Cited References .....                               | 04-39       |
| Other Background Information .....                   | 04-41       |
| APPENDIX A - STREAM CATALOG .....                    | 04-A1       |
| APPENDIX B - SUMMARY OF 10 TO 1,000 ACRE LAKES ..... | 04-B1       |

TABLES

| <u>Number</u> |   | <u>Page</u> |
|---------------|---|-------------|
| 1             | Physical Characteristics .....  | 04-5        |
| 2             | Authorized Federal Navigation Projects .....  | 04-8        |
| 3             | Obstruction Listing from Tidal Influence Limit<br>to Recommended Limit of Navigable Waters of<br>the U. S. .... | 04-33       |

FIGURES

| <u>Number</u> |   | <u>Page</u> |
|---------------|---|-------------|
| 1             | Navigability Decision Diagram .....       | 04-28       |
| 2             | Utility Line .....                        | 04-34       |
| 3             | U. S. 52 and 17A Highway Bridge .....     | 04-34       |
| 4             | Utility Line .....                        | 04-35       |
| 5             | Seaboard Coast Line Railroad Bridge ..... | 04-35       |
| 6             | Pinopolis Lock and Dam .....              | 04-36       |

CONTENTS (continued)

PLATES

| <u>Number</u> |  | <u>Follows Page</u> |
|---------------|--|---------------------|
| 04-1          | Location Map .....                         | 04-41               |
| 04-2          | Significant Features .....                 | 04-41               |
| 04-3          | Significant Features .....                 | 04-41               |
| 04-4          | Significant Features .....                 | 04-41               |
| 04-5          | Significant Features .....                 | 04-41               |
| 04-6          | Plan and Profile - Miles 0.0 - 14.0 .....  | 04-41               |
| 04-7          | Plan and Profile - Miles 14.0 - 36.0 ..... | 04-41               |
| 04-8          | Plan and Profile - Miles 36.0 - 48.1 ..... | 04-41               |

## SECTION 1 - INTRODUCTION

### Purpose

The purpose of this study is to collect, develop, and evaluate information on waterbodies within the boundaries of the Charleston District, Corps of Engineers, for establishing the classification of "navigable waters of the U. S." and "waters of the U. S." (During the course of this study the term "navigable waters" was changed to "waters of the U. S." Herein references to "navigable waters" are synonymous with "waters of the U. S.") Study objectives include definition of the present head of navigation, the historic head of navigation, the potential head of navigation, and the headwaters of all waterbodies within the district.

The information generated as a part of the study will be utilized by the Charleston District in administration of its programs dealing with water resource project construction permits in "navigable waters of the U. S." (River and Harbor Act of 1899), and the deposition of dredge or fill material in "navigable waters" or their contiguous wetlands (Section 404 of PL 92-500).

### Scope

The scope of this project is generally summarized by the following:

1. Outline drainage areas, locate headwater points where mean flow is five cubic feet per second (cfs), summarize lake data (10 to 1,000 acres), establish stream mileage for "navigable waters of the U. S.", and prepare a stream catalog summary for the district.
2. Conduct field surveys of waterbodies to establish mean water levels and obstruction clearances for evaluating the potential head of navigation.
3. Analyze available hydrological data to estimate mean, maximum, and minimum discharge rates at obstructions and other selected locations.
4. Conduct a literature review to identify past, present, and future uses of waterbodies for interstate commerce.

5. Conduct a legal search to identify Federal and state court cases which impact on navigation classifications.
6. Prepare plan and profile drawings, maps of the district showing significant physical features, and a map delineating the recommended navigation classifications.
7. Prepare reports on all major river basins and large lakes (greater than 1,000 acres) including information on physical characteristics, navigation projects, interstate commerce, court decisions, navigation obstructions, and recommended classification of waterbodies for navigation.
8. Prepare a summary report outlining navigation-related information for the entire district as well as the methodology, procedures, and other factors pertinent to the development of each of the river basin reports.

Conduct of this study relies heavily upon available information. Compilation and evaluation of existing data from many sources and development of field survey information are the main contributions to the new water resource data base represented by this study.

#### Related Reports

Information pertaining to this navigability study for the Charleston District has been compiled into a series of reports, one of which is represented by this document. A complete listing of the reports is presented below to facilitate cross referencing.

| <u>Number</u> | <u>Title</u>             |
|---------------|--------------------------|
| --            | Summary Report           |
| 01            | Coosawhatchie River Area |
| 02            | Combahee River Area      |
| 03            | Edisto River Area        |
| 04            | Cooper River Area        |
| 05            | Santee River Basin       |
| 06            | Black River Area         |
| 07            | Waccamaw River Basin     |
| 08            | Congaree River Basin     |
| 09            | Wateree River Basin      |
| 10            | Lynches River Basin      |

| <u>Number</u> | <u>Title</u>                     |
|---------------|----------------------------------|
| 11            | Great Pee Dee River Basin        |
| 12            | Little Pee Dee River Basin       |
| 13            | Lumber River Basin               |
| 14            | Saluda River Basin               |
| 15            | Broad River Basin                |
| 16            | Catawba River Basin              |
| 17            | Yadkin River Basin               |
| 18            | Lakes - Greater Than 1,000 Acres |
| --            | Coastal Supplement               |

The eighteen reports covering various drainage areas in the district present information for the specific basins. The Summary Report provides an overview of the entire study of district waterbodies and presents information applicable to all waters in the district. Reference should be made to both the individual drainage area reports as well as the Summary Report to obtain a thorough understanding of the study approach and results.

#### Acknowledgements and Data Sources

The contribution of many project team members within the Corps of Engineers, Charleston District, and Stanley Consultants is gratefully acknowledged by Stanley Consultants. In addition to the legal search and other evaluations and input from Charleston District staff, several others made significant contributions to this study effort. Dr. John W. Gordon, Assistant Professor in the Department of History, The Citadel, prepared the narrative and literature review information for past and present interstate commerce.

Several state water resource, transportation, utility, and planning agencies also cooperated and provided useful data for compiling these reports. Federal water resource and regulatory agencies and private utilities provided information along with public and private operators of large reservoirs.

Specific numbered data sources are referenced in the reports in parentheses. These data sources are listed in the Bibliography of each report of the navigation study.

## SECTION 2 - PHYSICAL CHARACTERISTICS

The Cooper River was originally a Coastal Plain river. It comprises a tidal estuary extending approximately 48 miles northward from its outlet at Charleston Harbor to approximately 15 miles beyond the junction of its East and West Branches. The headwaters of these branches are approximately 20 miles farther upstream in a marsh-like area of Berkeley County.

The Cooper River presently has an effective drainage area of approximately 12,484 square miles due to the diverted flow of the Santee River through Pinopolis Dam and the Tailrace Canal. The stream flows for approximately 48 miles in a southeast direction from the Pinopolis Dam, at Lake Moultrie in Berkeley County, to Charleston Harbor at Charleston, South Carolina (see Plate 04-1 for location).

Before construction of Lake Moultrie in 1941, the West Branch of the Cooper originated near Moncks Corner, South Carolina and flowed south. Headwaters to the East Branch of the Cooper River are located in Hellhole Bay, a large swamp area of Francis Marion National Forest in Berkeley County. The elevation change on the river ranges from mean sea level at Charleston Harbor at Charleston, South Carolina, to approximately 5 feet above mean sea level at the upstream point of the report area. Since 1941, approximately 85 percent of the Santee River flow has been diverted to the Cooper River from Lake Marion via Lake Moultrie and the Tailrace Canal. This project is discussed in greater detail in Section 6. Plates 04-2 through 04-5 are detailed maps indicating the significant features found in the basin.

Table 1 presents selected physical characteristics of the river basin. Included are the approximate values for drainage area, mean discharge, and elevation change. Methodology for determining the numerical values of physical characteristics is defined in the Summary Report.

There are no key stream gaging stations in the Cooper River report area.



TABLE 1  
PHYSICAL CHARACTERISTICS (1)(2)(3)\*

|  |                      |
|--|----------------------|
| Length-Mouth to Headwaters <sup>1)</sup>           | 48.1 miles           |
| Elevation Change                                   | 5 feet               |
| Drainage Area <sup>2)</sup>                        | 340 square miles     |
| Mean Discharge at Mouth <sup>3)</sup>              | 15,150 cfs           |
| Limit of Tidal Influence                           | River Mile (R.M.) 45 |
| Length of Present<br>Navigable Waters of the U. S. | Throughout           |

- 
- 1) Report area only. Total length to headwaters is shown in Reports 14, 15, and 16. Headwaters are defined as the point on the stream having a mean annual flow of five cfs.
- 2) Drainage area is for report area only.
- 3) Discharge at mouth includes approximately 14,885 cfs of flow diverted from Lake Marion (Santee River basin) to Lake Moultrie for generation of power and for navigation. Water is discharged from Pinopolis Dam power plant and navigation lock into Tailrace Canal and West Branch Cooper River.
- \* See Bibliography for these references.

## SECTION 3 - NAVIGATION IMPROVEMENT PROJECTS

### Federal Navigation Projects

A number of navigation projects relating to the Cooper River and its receiving waters, Charleston Harbor, have been authorized by Congress. As a result of these projects, the river has been used extensively for navigation. An examination of recent Corps of Engineers annual reports indicates four projects involving river and harbor improvements in the Cooper River report area. This information is summarized in Table 2. Currently there are ongoing navigation projects in the Cooper River report area and one future project planned by Federal agencies which is also listed in Table 2 and discussed in greater detail in "Other Navigation Projects".

### Other Navigation Projects

As discussed in Section 4, the state of South Carolina passed several acts in the 1700's and early 1800's to open navigation on the Cooper River.

Inquiries made at various state and Federal agencies indicates one future project, the Cooper River Rediversion Project, that will influence the Cooper River report area. This project is presently under construction and would improve or substantially affect navigation on the Cooper River.

The Cooper River Rediversion Project will divert waters presently diverted into the Cooper River back into the Santee River. This will be done by the construction of a canal between the northeast corner of Lake Moultrie and the lower Santee River. All project features are located in Berkeley County, South Carolina, near the Town of St. Stephen. For descriptive purposes, the project has been divided into three sections. A brief description of the proposed work in each section is presented in the following paragraphs:

Entrance Channel - The entrance channel is the first portion of the project and will be located in Lake Moultrie. It will consist of a new channel approximately 2.6 miles in length with widths varying from 375 feet to 1,500 feet and elevations varying from 64 feet above mean sea

level to 54 feet respectively. The amount of lake bottom that will be affected by the entrance channel totals approximately 174 acres. (4)

Intake Canal - The intake canal, the second portion of the project, will extend from Lake Moultrie to the proposed powerhouse. The intake canal will be approximately 4.3 miles in length with a bottom width of 285 feet and a maximum depth of 34 feet. The excavated material will be used to construct levees on both sides of the proposed canal. Excess material will be placed behind the levee in designated areas. Excavation of the intake canal will necessitate the construction of up to three highway bridges to provide canal crossings for U. S. Highway 52 and S. C. Highways 35 and 45. Traffic on existing State Roads 64 and 293 will be routed across the U. S. Highway 52 bridge. Each of the new bridges will provide at least 16 feet vertical clearance for small boat navigation. A new hydroelectric powerhouse will be constructed at the east end of the intake canal to partially compensate for the loss in generating capacity that will result from the flow reduction at the existing hydroelectric generating plant at Pinopolis. The average discharge of 12,600 cfs at the new power plant plus the 3,000 cfs release planned for the Cooper River at Pinopolis will approximate the present average discharge at Pinopolis (15,600 cfs)\*. (4)

Tailrace Canal - The third portion of the project is a tailrace canal. It will extend from the new powerhouse to the Santee River. The meandering tailrace canal will be excavated by dragline and will be approximately five miles in length with a bottom width of 285 feet and a depth of approximately 22 feet at maximum flow.

The purpose of the Cooper River Rediversion Project is to provide navigation benefits to commercial shipping and the U. S. Navy in Charleston Harbor through the reduction of shoaling and related costs of dredging. In addition, benefits will accrue to fish and wildlife and area redevelopment. The need for additional areas for disposal of dredged materials in the harbor will also be substantially reduced. (4)

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\* This data is inconsistent with data compiled by Stanley Consultants.

TABLE 2

## AUTHORIZED FEDERAL NAVIGATION PROJECTS (4) (5) (6)

|                  |  |
|------------------|--|
| Waterbody        | Atlantic Intracoastal Waterway   |
| Work Authorized  | 12 ft deep (at mean low water) not less than 90 ft wide channel  |
| Date Completed   | 1940   |
| Project Location | Between Norfolk, Virginia and St. Johns River, Florida   |
| Authorization    | River and Harbor Acts:<br>19 September 1890; 13 June 1902 - H. Doc. 56th Congress, 1st Session; 3 March 1925 - H. Doc. 237, 68th Congress, 1st Session; 3 March 1925 - S. Doc. 178, 68th Congress, 2nd Session; 3 July 1930 - H. Doc. 41, 71st Congress, 1st Session; 30 August 1935 - Rivers and Harbors Committee Doc. 14, 72nd Congress, 1st Session; 30 August 1935 - H. Doc. 129, 72nd Congress, 1st Session; 31 August 1935 - Rivers and Harbors Committee Doc. 11, 72nd Congress, 1st Session; 26 August 1937 - Harbors and Rivers Committee Doc. 6, 75th Congress, 1st Session; 2 March 1945 - H. Doc. 327, 76th Congress, 1st Session |
| -----            |  |
| Waterbody        | Charleston Harbor  |
| Work Authorized  | Channelization of harbor and tributary streams and construction of two stone jetties. Additional channelization to Naval Commandants Wharf and anchorage basin is authorized but will only be constructed in the importance of national defense  |

TABLE 2 (continued)

## AUTHORIZED FEDERAL NAVIGATION PROJECTS (4) (5) (6)

|                  |   |
|------------------|---|
| Date Completed   | Jetties protecting entrance channel in 1895. Existing project in 1965   |
| Project Location | Charleston, S. C.   |
| Authorization    | River and Harbor Acts:<br>18 June 1878; 8 August 1917 - H. Doc. 288, 62nd Congress, 2nd Session; 18 July 1918 - H. Doc. 1916, 64th Congress, 2nd Session; 21 January 1927 - H. Doc. 249, 69th Congress, 1st Session; 17 October 1940 RH40HD 259/7611 - H. Doc. 259, 76th Congress, 1st Session; 2 March 1945 - H. Doc. 156, 77th Congress, 1st Session; 3 September 1954 - S. Doc. 136, 83rd Congress, 2nd Session - H. Doc. 35, 86th Congress, 1st Session |
| Waterbody        | Shipyard River  |
| Work Authorized  | 30 ft deep (at mean low water) and 200 ft wide channel, widened to 300 feet at the entrance, from deep water in Cooper River to the vicinity of the Airco Alloys Company plant, with a turning basin 30 ft deep opposite the Gulf Oil Corporation terminal and a turning basin 30 ft deep at the upper end of the project with flared entrance  |
| Date Completed   | 1951  |
| Project Location | Charleston, S. C.   |
| Authorization    | River and Harbor Acts:<br>3 July 1930 - Rivers and Harbors Committee Doc. 13, 71st Congress, 2nd Session; 20 August 1935 - Rivers and Harbors Committee Doc. 43, 73rd Congress, 2nd Session; 26 August 1937 - Rivers and Harbors Committee Doc. 38, 75th Congress, 1st Session; 2 March 1945 - H. Doc. 93, 79th Congress, 1st Session   |

TABLE 2 (continued)

## AUTHORIZED FEDERAL NAVIGATION PROJECTS (4)(5)(6)

|                  |   |
|------------------|---|
| Waterbody        | Beresford Creek   |
| Work Authorized  | Provides for a channel 6 ft deep at mean low water and 60 ft wide, with widening at bends, from deep water in Cooper River via Clouter Creek to mile 1.8 subject to the provision; that until a width of 60 ft is needed throughout and is authorized by the Chief of Engineers, a channel 6 ft deep and 60 ft wide shall be dredged only in the sharper bends and in the reaches where the existing width of 6 ft depth is less than 20 ft |
| Date Completed   | No work has been done on the project. Deauthorization recommended in 1975 (H. Doc. No. 94-192, 94th Congress, 1st Sess.)  |
| Project Location | Beresford Creek, S. C.  |
| Authorization    | River and Harbor Act, 2 March 1945, H. Doc. 602, 76th Congress, 3rd Sess.   |
| <hr/>            |   |
| Waterbody        | Cooper River, Santee River, and Lake Marion   |
| Work Authorized  | Project will provide for construction of a diversion canal (approx. 15 mi) from Lake Moultrie to the lower Santee River with an 84,000 Kw hydroelectric generation plant  |
| Date Completed   | Construction started, 1977  |
| Project Location | St. Stephens Project, near St. Stephens, S. C.  |
| Authorization    | River and Harbor Act 1968, Public Law 90-483, Senate Document 88  |

#### SECTION 4 - INTERSTATE COMMERCE

##### Past

The first English settlement in South Carolina was founded on the west bank of the Ashley River in 1670. Within two years, however, a new settlement was established at Oyster Point on the tip of what is now the Charleston peninsula. Before the settlement's capital was officially relocated to this point on the apex of the Cooper and Ashley Rivers, the Cooper had already become a significant avenue of approach to the Carolina hinterland. It and the various tidewater tributaries which branched off into the low country provided the waterborne mode of transportation and communications which serviced the rice plantations.

Yet even while these rice-growing plantations were developing, "Early traders with the Indians," or Carolina traders as they were called, "took their furs, hides, and skins [from the up country] over Indian trails to a landing on Biggin Creek." From that point, these goods "went in boats through this creek to the west branch of Cooper River and on to Charleston."

(7) From the first decade of the 18 Century and at least as late as the third, "Goods and traders came up the Cooper River to Strawberry, about thirty miles from Charleston, or by pack train along the road to the west of the river." (8)

In these same years a healthy trade in the production and exportation of naval stores developed. England's Parliament had fixed a subsidy on the production of turpentine, rosin, tar, pitch, and lumber, and these were transported from Charleston and thence across the Atlantic to the mother country. In addition, the colony of South Carolina produced shingles and barrel staves from cypress and cedar trees. Such products were loaded aboard sloops and other small vessels and sent down such navigable streams as Wadboo Creek to reach the Cooper River and Charleston, and finally, the West Indies. (9)

The advent of rice-production in the 1730's saw an even more intensive use of the Cooper and its lower tributaries. "Rice planters," by using the small streams which fed into the Cooper, "hailed their rice to Stones Landing to be loaded on flat boats or schooners and transported to Charleston." (10)

The obvious importance of such streams to the economic, political, and military well-being of the colony early prompted the General Assembly of South Carolina into attempts directed towards the improvement of the Cooper network of waterbodies. In 1719 that body passed the first of such acts and soon followed with others. In 1726, for example, there was passed an act which called for "cutting and clearing a creek, commonly called Biggon Creek." (11) Sixty years later, in 1786, the Assembly passed "An Act to establish a Company for the Inland Navigation from Santee to Cooper River." (12) In 1809, a similar act called for the establishment of "a Company for the inland navigation from Sampit into Santee, and from Santee into Cooper or Wando River." (13)

Such efforts were indicative of Royal and early Federal and South Carolina's involvement with programs for improving the navigation of the Cooper and its tributaries. In the second decade of the 19th Century the state embarked upon what was, in relative terms, a massively expensive program of inland navigation. To that end, John Wilson, a major in the U. S. Army Corps of Engineers, was hired as the Civil and Military Engineer of South Carolina. In the first year of his new position, Wilson reported that the "Cooper River is navigable for the distance of 40 miles from the ocean." The Cooper's eastern branch, Wilson indicated, was navigable "for vessels drawing 5 feet water," and terminated "at Huger's bridge," whereas the western branch of the Cooper was navigable as far upstream as "Watboo bridge." (14) As for the Wando, it was "navigable up to Wappetaw bridge, 25 miles by the windings of the river, for vessels drawing 4 to 5 feet water." (15)

The relative proximity of the headwaters of the Wando River to Winyah Bay produced early schemes to join the navigation of the two. One such scheme was that of the Winyah and Wando Canal Company, which "hoped to join the waters of Winyah Bay and of Wando River, which flowed into Charleston Harbor." Incorporated by the General Assembly in 1816, a "Series of canals and locks were to ... [provide] a safe intracoastal route to market." (16) However, the scheme failed.

Ten years later, Robert Mills, architect, designer of the Washington Monument, and inland-navigation visionary, assessed the Cooper network



and the new Santee Canal. "The Cooper River," he wrote in 1826, "is a good navigable stream to the entrance of Biggon Creek, 34 miles by land from Charleston." Above that point and reaching to the Santee River, "the Santee Canal, 22 miles long, has been constructed." Over this canal "a great part of the produce from the upper Santee, Congaree, Broad, Saluda, Wateree, and Catawba Rivers pass ... in boats carrying 120 bales of cotton, or 25 tons of merchandise." (17) As to the Wando, it was "navigable for vessels of 20 tons, and some of 50 tons." (18)

The construction of the Santee Canal, which opened in 1801, began in 1793. (19) As early as 1773, the Grand Jury at Charleston had recommended the building of a canal to connect the Santee and the Cooper. When the canal finally opened, it had cost some \$750,000 to build. In May of 1827, the Charleston Mercury reported that a boat from Columbia, loaded with a hundred bales of cotton, had needed only four days to make the trip down to Charleston. This seems to have been a record, since "The distance from this city by water is 350 miles\*, and the navigation has seldom been accomplished in less than twelve to fourteen days." (20) Thereafter the Santee Canal suffered -- it was frequently troubled by floating debris and, perhaps more serious, by periods of low water. Having been mostly shut down for this reason from 1848 to 1852, it briefly re-opened in the latter year, only to fall victim to competition from the railroads. (21)

During the Civil War, from 1861 until the Federal seizure of Charleston early in 1865, the Cooper River -- at least in its lower Charleston Harbor stretch -- enjoyed a unique form of international waterborne commerce. In those years a specialized variety of fast, shallowdraft, low-payload steamships traveled to and from Charleston and the British ports in Bermuda and the West Indies. Breaking the Federal naval blockade to run in some war and many luxury goods, these vessels were of course known as "blockade runners". They earned their owners and captains -- many of whom were British subjects -- a handsome return in the Confederacy's limited supply of gold. In order to make

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\* This distance does not correspond to river miling developed as a part of this study. This study shows a distance of about 176 miles.

the blockade more effective, the U. S. Navy attempted, early in the war, to blockade the port of Charleston -- literally, that is, by sinking stone-filled hulks across the harbor channels. This "stone fleet" failed, however, being very soon swept out of position by the force of the tide. (22)

In the year following that war, and rather ironically, the first officer named to head the newly-created Charleston District, Corps of Engineers, was Colonel (sometime Brevet Major General) Quincy Gillmore, who commanded the Union Army's efforts to take Charleston from Folly and Morris Islands during the Civil War. By 1871, some of Gillmore's time seems to have been spent in trying to remove from the Cooper's channels, various hulks or wrecks, sunk during that war. These wrecks were the CSS Palmetto State, "an ironclad gunboat sunk in the mouth of Town Creek just above the city in 1865," plus two other Confederate vessels, the Charleston and the Chicora, and perhaps a torpedo boat as well. (23) The degree of success obtained in this venture is not clear from the records available, and the wrecks appear not to have caused any significant dislocation in the Cooper's commercial traffic. (24)

Competition from other Southern ports was taking shipping away from the Cooper River's wharves. Although various dredging and other projects were established -- including the construction of two harbor entrance jetties completed by the Corps of Engineers in 1895, whose idea may have come from the Federals' stone fleet in the Civil War, the Cooper's commerce was gradually eroding away by the first decades of the 20th Century. (25) In 1920, Mayor John P. Grace of Charleston commissioned a Port Study by Edwin Clapp of New York in order to "do something to check the decay of the port," whose foreign trade had been "stagnant for years." (26) Mobile, Norfolk, and New Orleans were the chief rivals. The main thrust of Clapp's study was that Charleston had to build modern port facilities, and create an infrastructure of agencies to gain and manage foreign trade. (27)

Between 1930 and 1937, Congress passed the four major Rivers and Harbors Acts which authorized completion of the Atlantic Intracoastal Waterway. By 1940, the channels facilitated the internal movement of

commodities and products, and reinforced the obvious usefulness of a major stream like the Cooper River. (28)

A major project was started in the late 1930's which, it was thought, would boost the Cooper River's traffic. In 1939, work began on this plan, known as the Santee-Cooper project. When it was completed in 1942, there was added to the two newly-created lakes -- Lake Marion and Lake Moultrie -- plus various dams and dikes, a ship lock intended to handle any waterborne commerce traveling up or down the Cooper River. In addition, a "ten-foot channel was provided from a remote spot in the wide Congaree Swamp down to the deep water channel of the lower Cooper." (29)

During World War II, the U. S. Army Corps of Engineers improved various portions of the lower Cooper and its tributaries in order to meet the expanded needs of the Charleston Naval Shipyard, the Naval Ammunition Depot (completed in 1941) at Goose Creek, as well as the Army Port of Embarkation - Charleston. (30) Also, in 1942 South Carolina created the first unified State Ports Authority in the United States, and this institution aided in the massive effort of mounting the convoys of ships which left the Cooper to brave the German submarines which lurked in the Atlantic. (31)

Traffic on the Cooper River fluctuated greatly in those years. In 1939, for example, only some 7,269 tons were moved on the river as compared to 38,980 tons in the very next year. By 1947, however, the totals had dropped below the 1939 figure, but shot up again in 1948 to 246,475 tons of traffic. (32) In 1953, 26,799 tons (some of it fuel oil, lumber, timber, etc.) were moved on the Cooper, plus 1,341 tons (including posts, poles, and pilings) moved on the Wando River. (33) In 1975, some 890,537 tons of freight traffic traveled on the Cooper's Shipyard River tributary. (34)

### Present

The Cooper River is currently being used for purposes of waterborne commerce of an interstate and international variety.

During the late 18th and early 19th Centuries, the head of navigation for pole boats and other small vessels on the Cooper appears to have

been, on the eastern branch, at "Huger's bridge." On the western branch, the head of navigation was at "Watboo bridge." The Wando River appears to have been navigable up to "Wappetaw bridge." (15)

In 1965, the Cooper River was described as follows: Goose Creek to "T", "Navigable length in miles (16.8 miles)"; Cooper River Backwater, "Navigable length in miles (1 mile)"; East Branch, "Navigable length in miles (12 miles)"; "Cooper River Navigation Approved to Huger Br."; West Branch, "Navigable length in miles (14.2 miles)"; "Cooper River Navigation approved to Wadboo Br." The Wando River was described as follows: "Navigable length in miles (19.2 miles)"; "Trib. of Charleston Harbor, Nav. approved to S. C. Hwy. 98 (Mi. 19.2)." (5)

Various projects currently under construction will affect the nature and volume of commercial traffic on the Cooper or its tributaries. One of these projects is a plan of the South Carolina State Ports Authority to construct a terminal on the Wando River, just across the Cooper from Charleston. A further scheme was authorized in the Rivers and Harbors Act of 1968 and involves redirection. This project is to reduce "shoaling in Charleston Harbor by causing fresh water inflows to bypass Charleston Harbor and enter the ocean by way of the Santee River (see Report 05). (35)

#### Future Potential

The use of the Cooper River and its tributaries for interstate commerce in future years is difficult to predict. Comprehensive analysis of the regional economics (income, education, employment, community facilities, transportation systems, and similar factors), which would indicate growth patterns and the services needed to sustain various types of industrial and commercial activities, is beyond the scope of this study. However, some analysis and judgments have been made concerning future commerce to assist in establishing navigation classifications.

As discussed later in Section 6, the Cooper River is classified "navigable waters of the U. S." from its mouth at Charleston Harbor and the Atlantic Ocean to the Pinopolis Lock and Dam via the Tailrace Canal.

The Cooper River is currently used for interstate commerce. This commerce is anticipated to continue in the future since the river is connected to Charleston Harbor, the Atlantic Intracoastal Waterway, and the Atlantic Ocean. However, as regional economic trends change the degree of demand of commerce activity on the Cooper may also change. Future potential commerce could be significant on the Cooper due to its established interstate commerce and its location near the coast.

## SECTION 5 - LEGAL AUTHORITY

### General

This section presents information pertaining to the legal aspects of the navigability investigation. Such Federal and state court decisions as apply to the specific basin reported on herein are outlined. The Summary Report presents more complete documentation and references to the court cases dealing with navigation classifications and legal jurisdiction.

### Navigability Interpretations

The term "navigable waters of the U. S." is used to define the scope and extent of the regulatory powers of the Federal government. Precise definitions of "navigable waters" or "navigability" are ultimately dependent on judicial interpretation, and are not made conclusively by administrative agencies.

Definitions of "navigability" are used for a wide variety of purposes and vary substantially between Federal and state courts. Primary emphasis must therefore be given to the tests of navigability which are used by the Federal courts to delineate Federal powers. Statements made by state courts, if in reference to state tests of navigability, are not authoritative for Federal purposes.

Federal courts may recognize variations in definition of navigability or its application where different Federal powers are under consideration. For instance, some tests of navigability may include:

1. Questions of title to beds underlying navigable waters.
2. Admiralty jurisdiction.
3. Federal regulatory powers.

This study is concerned with Federal regulatory powers. Unfortunately, courts often fail to distinguish between the tests, and instead rely on precedents which may be inapplicable. Thus, a finding that waters are "navigable" in a question dealing with land title may have a somewhat different meaning than "navigable waters of the U. S." which pertains to Federal regulatory functions.

In this study, the term "navigable waters of the U. S." is used to define the extent and scope of certain regulatory powers of the Federal government (River and Harbor Act); this is distinguished from the term "navigable waters" which refers to other Federal regulatory powers (Section 404 of PL 92-500).

Administratively, "navigable waters of the U. S." are determined by the Chief of Engineers and they may include waters that have been used in the past, are now used, or are susceptible to use as a means to transport interstate commerce landward to their ordinary high water mark and up to the head of navigation. "Navigable waters of the U. S." are also waters subject to the ebb and flow of the tide shoreward to their mean high water mark. These waters are deemed subject to a Federal "navigation servitude". The term "navigable waters of the U. S." defines the more restricted jurisdiction which pertains to the River and Harbor Acts -- particularly the one of 1899 which specifically defined certain regulatory functions for the Corps of Engineers.

In contrast, the term "navigable waters" defines the new broader jurisdiction with respect to Section 404 of the Federal Water Pollution Control Act Amendments of 1972. Accordingly, "navigable waters" not only include those waters subject to the navigation servitude, but adjacent or contiguous wetlands, tributaries, and other waters, as more fully defined in revised Corps of Engineers Regulations.

Although this navigability study covers both "navigable waters of the U. S." and "navigable waters", the analysis of judicial interpretation has only focused upon determining "navigable waters of the U. S." to the head of navigation. Due to common usages in court cases, the terms "navigability" and "navigable waters" may herein appear interchangeably with the term "navigable waters of the U. S." However, the summary of court cases is directed at the Federal regulatory jurisdiction of the River and Harbor Acts, and not necessarily regulatory jurisdiction under the Federal Water Pollution Control Act.

#### General Federal Court Cases

Powers of the Federal government over navigable waters stem from the Commerce Clause of the U. S. Constitution (Art. I, §8). Pursuant

to its powers under the Commerce Clause, Congress enacted the River and Harbor Act of 1899 which particularly specifies regulatory powers of the Federal government in "navigable waters of the U. S."

The well-established Federal test of navigability is whether a body of water is used or is capable of being used in conjunction with other bodies of water to form a continuous highway upon which commerce with other states or countries might be conducted.

Several Federal court decisions make it clear that a waterway which was navigable in its natural or improved state retains its character as "navigable in law" even though it is not presently used for commerce. The test of navigability is not whether the particular body of water is in fact being used for any form of commerce but whether it has the capacity for being used for some type of commerce. Several cases substantiate this (see the Summary Report for details on the court decisions).

The ebb and flow of the tide is another test which remains a constant rule of navigability in tidal areas, even though it has sometimes been disfavored as a test of Federal jurisdiction. Several cases note that ebb and flow should not be the sole criterion of navigability, but that extension of Federal jurisdiction into the major non-tidal inland waters is possible by an examination of the waters "navigable character". The ebb and flow test, however, remains valid as a rule of navigability in tidal areas; it is merely no longer a restriction for non-tidal areas. For bays and estuaries, this extends to the entire surface and bed of all waterbodies subject to tidal action, even though portions of the waterbody may be extremely shallow or obstructed by shoals, vegetation, or other barriers as long as such obstructions are seaward of the mean high tidal water line. Marshlands and similar areas are thus considered "navigable in law" insofar as they are subject to inundation by the mean high waters. The relevant test is therefore the presence of the mean high tidal waters. Navigable waters are considered navigable laterally over the entire surface regardless of depth.

Another factor relevant to navigability determinations is land title. Whatever title a party may claim under state law, the private ownership of the underlying lands has no bearing on the existence or



extent of the dominant Federal jurisdiction over "navigable waters of the U. S." Ownership of a river or lake bed will vary according to state law; however, the Supreme Court has consistently held that title to the bottomlands is subordinate to the public right of navigation.

#### Specific Federal Court Cases

Navigability, in the sense of actual usability for navigation or as a legal concept embracing both public and private interests, is not defined or determined by a precise formula which fits every type of stream or body of water under all circumstances and at all times. A general definition or test which has been formulated for Federal purposes is that rivers or other bodies of water are navigable when they are used, or are susceptible of being used, in their ordinary condition as highways for commerce over which trade and travel are or may be conducted in the customary modes of trade and travel on water.

The question of navigability of water when asserted under the Constitution of the U. S., as is the case with "navigable waters of the U. S.", is necessarily a question of Federal law to be determined according to the general rule recognized and applied in the Federal courts.

Review of Federal Case History reveals no decisions which apply specifically to navigation in the Cooper River report area. (36)

#### South Carolina State Court Cases

The South Carolina legislative enactment defining navigability and requiring freedom from obstruction may be found in Section 70-1 of the South Carolina Code of Laws. This Section essentially provides that all streams which can float rafts of lumber or timber are considered navigable by state law.

Many of the South Carolina State cases reported are primarily concerned with state ownership questions. While the majority of states actually own streams and exercise control over their navigable waters the ultimate authority has been granted to the Federal government by the Commerce Clause of the Constitution. The general rule, then, is that the states both own and control the navigable streams within their

borders, subject to exercise of the superior right of control by the U. S. Although case histories show that state and Federal concepts of navigability do not always agree, when Federal interests are at stake, the Federal test will govern.

There are exceptions, however, to the "overwhelming majority rule of state ownership of lands beneath navigable waters," and South Carolina is in the minority. In the minority states, it was considered that property rights were vested at the time of independence from England and that the state took title only to tidal-navigable streams while riparian owners took title to all stream beds, both navigable and non-navigable, if non-tidal. Even in the minority states, however, private ownership of the bed does not affect the rights of the public to the use of navigable waters.

A legal search indicates that there are three South Carolina state court cases which specifically deal with navigation considerations in the Cooper River basin. (36)

Cape Romain Land and Improvement Co. v. Georgia Carolina Canning Co.\* - This case, concerned with a trespass action to determine whether the plaintiff or the defendant had the right to harvest oysters on a large tract of land between the high- and low-water mark of a tidal navigable stream off of Bull's Bay, reaffirmed the notion of tidal navigability. The contest was between one who held title under a grant from the State and one who held under a lease by a state commission. The court found for the lessee stating:

"The title to land below high-water mark on tidal navigable streams, under the well-settled rule, (citing nothing) is in the State, not for the purpose of sale, but to be held in trust for public purposes."

Rice Hope Plantation v. South Carolina Public Service Authority\*\* - This case concerned a suit for damages resulting from construction and operation of a dam on the river, which caused an infiltration of salt water into streams that ran through plaintiff's property. The court stated that the rights and powers of the Federal government with

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\* 148 S. C. 428, 146 S. E. 434 (1926).

\*\* 216 S. C. 500, 59 S. E. 2d 132 (1950).

reference to navigation are paramount to the rights of the state, but rights of the state remain in effect until Congress acts upon the subject. It went on to state:

"... we hold that the liability of the South Carolina Public Service Authority to a riparian owner for damages, if any, alleged to have been sustained by reason of the diversion of waters from the Santee River to the Cooper River, is substantially the same as that which would be applicable, if the United States were involved."

These statements seem to implicitly recognize the Santee and Cooper Rivers as "navigable waters of the U. S."

Early v. South Carolina Public Service Authority\* - Although this case concerned the plaintiff's seeking of compensation by inverse condemnation for damages brought about by the backing of salt water into the otherwise fresh water Santee River, the court recognized that the Congaree, Wateree, Santee and Cooper Rivers were all navigable rivers of the state and subject to a navigation servitude. The court, in setting the rights and limits of the state held:

"The right of the sovereign, in the exercise of the navigation servitude, to take or damage or destroy private property without obligation to compensate therefor extends to the bed of the navigable stream, i.e., to mean high water mark on either bank - and no farther; for damage beyond that boundary the constitution requires just compensation."

Thus, the reservation of the title between high- and low-water in the state allows the freedom and flexibility necessary, in some cases, to exercise the navigation servitude without the requirement of compensation.

#### Recent Federal Litigation

A review of recent Federal litigation concerning the Charleston District revealed three court actions pertaining to the Cooper River report area. (36)

Milton P. Demetre v. Howard Callaway and Harry S. Wilson, Jr.\*\* - On 20 June 1969, plaintiff applied for a permit to construct two rock groins at Charleston Harbor on the north shore of James Island, Charleston County, South Carolina. Upon discovering that plaintiff had exceeded the scope of his permit by constructing an embankment and filling marsh

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\* 228 S. C. 392, 90 S. E. 2d 472 (1955).

\*\* U.S.D.C., South Carolina, Civil Action No. 74-553.

behind it, a cease and desist order was issued by the Charleston District Engineer. In July 1970 plaintiff applied for a permit to complete the embankment and filling operation that had already begun. The U. S. Department of Interior objected to this permit proposal and recommended that tidal circulation be restored to the impounded area. After coordination with the Office, Chief of Engineers and the Under Secretary of the Department of Interior, in November 1973 the Charleston District Engineer advised plaintiff that his permit had been denied. On 1 May 1974 plaintiff filed this civil action to have the cease and desist order lifted so that he could continue with his filling project. Pursuant to a Court Order dated 7 May 1975, revised permit application submissions outlining the project development were made by plaintiff limiting the entire subject property to a public boating facility. With the concurrence of the Federal District Judge and pursuant to Corps regulations, a public hearing pertaining to the newly revised permit application was held 16 December 1975. In accordance with Court directives, processing of the permit was to be expedited to the utmost extent consistent with an adequate, thorough public interest review. Recommendations were forwarded on 27 January 1976 to Office, Chief of Engineers for a final administrative determination. This determination is currently being coordinated with the Department of Interior.

John D. Chappelmann Jr., et al. v. Gary E. Everhardt, National Park Service Director, et al.\* - On 9 March 1976 a suit was filed against the National Park Service and Corps of Engineers (among others) seeking to halt the issuance of a permit to the National Park Service to dredge a channel and construct a dock at Ft. Moultrie, Sullivans Island, Charleston County, South Carolina. The government moved to dismiss the action as premature in that the Corps was then processing the permit application. The government further countered plaintiff's allegations by stating that the Environmental Impact Statement prepared by the National Park Service adequately set forth the project, including the dredging and dock facility aspects. At a hearing on the motion on 14 July 1976, the court retained jurisdiction over the matter pending a

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\* U.S.D.C., South Carolina, Civil Action No. 76-387.

final administrative determination on the permit application. The District conducted a public hearing on 6 May 1976 and subsequently offered the National Park Service a permit conditioned on excluding utilization of the dock as a point of initial embarkation. The applicant has not as yet responded to the conditioned permit proposal.

U. S. v. E. Stanley Barnhill\* - This civil complaint seeking an injunction, restoration, and civil monetary penalties was filed on 19 May 1976, and alleges that defendant unlawfully excavated and deposited dredged and fill material in the marsh and waters of Inlet Creek, Charleston County, South Carolina, in violation of Section 10 of the River and Harbor Act of 1899 and Sections 301(a) and 404(a) of the Federal Water Pollution Control Act Amendments of 1972. Subsequent to answering this suit, defendant removed the unlawful fill. A Consent Decree has been proposed reflecting defendant's restoration and assessing a civil penalty of \$500.00 under Section 309(d) of the Federal Water Pollution Control Act.

#### Federal Agency Jurisdiction

The delineation of "navigable waters of the U. S.", as discussed earlier, in essence, defines the Federal navigation servitude and is applicable to Federal jurisdiction generally (not merely applicable to the Corps of Engineers). No matter which Federal agency or activity may be involved, the assertion of "navigability" ("navigable waters of the U. S.") arises under the U. S. Constitution, or under application of Federal statute.

By virtue of the Commerce Clause of the Federal Constitution, and the clause empowering Congress to make all laws necessary to carry into execution the Federal judicial power in admiralty and maritime matters, "navigable waters of the U. S." are under the control of Congress, which has the power to legislate with respect thereto. It is for Congress to determine when and to what extent its power shall be brought into activity. It may be exercised through general or special laws, by Congressional enactments, or by delegation of authority.

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\* U.S.D.C., South Carolina, Civil Action No. 76-883.

Thus, Congress has power which is paramount to that of the states to make improvements in the navigable streams of the U. S. and for this purpose to determine and declare what waters are navigable. The Federal government also has the power to regulate the use of, and navigation on, navigable waters.

The above presents the basis upon which Federal jurisdiction in "navigable waters of the U. S." is established. The basic definition or jurisdictional concept of "navigable waters of the U. S." remains consistent, irrespective of which department or office of the Federal government may be delegated particular responsibility. For instance, the safety, inspection, and marine working functions of the U. S. Coast Guard embrace vessel traffic within "navigable waters of the U. S." as previously defined.

With specific reference to agency regulation of construction or work within "navigable waters of the U. S.", other than by the Corps of Engineers, the Department of Transportation Act of 15 October 1966 (PL 89-670) transferred to and vested in the Secretary of Transportation, certain functions, powers, and duties previously vested in the Secretary of the Army and the Chief of Engineers. By delegation of authority from the Secretary of Transportation, the Commandant, U. S. Coast Guard, has been authorized to exercise certain of these functions, powers, and duties relating to the location and clearances of bridges and causeways in the "navigable waters of the U. S."

An additional agency of particular interest concerning work or construction within "navigable waters of the U. S." is the Federal Power Commission. The Federal Power Act, Title 16, United States Code, Sections 791 et. seq., contemplates the construction and operation of water power projects on navigable waters in pursuance of licenses granted by the Federal Power Commission. The statute was enacted to develop, conserve, and utilize the navigation and water power resources of the nation. The act provides for the improvement of navigation, development of water power, and use of public lands to make progress with the development of the water power resources of the nation.

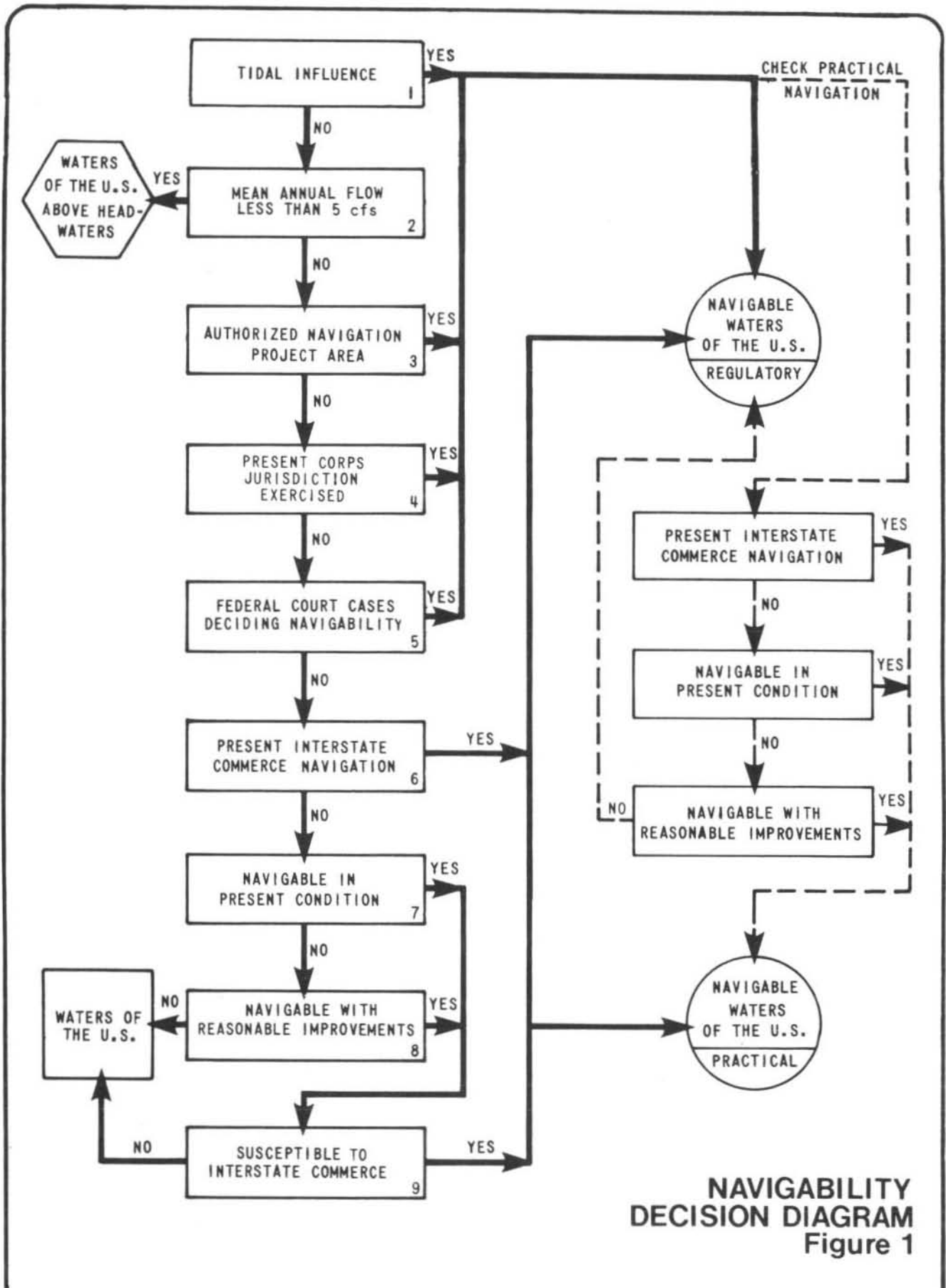
## SECTION 6 - NAVIGATION OBSTRUCTIONS AND CLASSIFICATIONS

### Navigation Classification Procedures

As noted in Section 5, definition of navigability is not subject to a single precise formula which applies to every circumstance. Many factors including stream physical characteristics (depth, width, flow, slope, etc.), presence of obstructions, court decisions, authorized navigation projects, potential for reasonable improvements, and susceptibility of a stream to interstate commerce activities, play a role in the decision-making process for classifying waterbodies in the Charleston District. In an effort to make the analytical process concerning stream classifications as systematic as possible, a "Navigability Decision Diagram" has been developed and is presented in Figure 1. This diagram has been utilized as a guide in assessing the various navigation classifications for streams in the Charleston District. The Summary Report includes a detailed presentation on the methodology and approaches used in the analysis; however, the following presents a brief synopsis of the techniques as indicated in Figure 1.

Tidal Influenced Areas - Tidal areas (see Item 1 in Figure 1) which are affected by mean high water are classified "navigable waters of the U. S." according to various legislative and judicial actions. The "navigable waters of the U. S." are subject to regulatory jurisdiction by the Corps of Engineers and other agencies. Even though all tidal areas are so classified and subject to regulatory procedures, many are not practically navigable based upon past and/or present requirements for vessels. Figure 1 shows that some additional "check" analyses are necessary to distinguish those tidal waters which are actually capable of practical navigation. Investigation of the tidal areas is beyond the scope of this study; however, drawings showing the "plan" of major rivers to their mouth, often tidal influenced, are presented in the interest of continuity.

Waters of the U. S. Above Headwaters - Section 404 of PL 92-500 considers the headwaters of waterbodies to be the point at which the mean annual flow is five cfs. Waterbodies or portions of waterbodies



**NAVIGABILITY  
DECISION DIAGRAM  
Figure 1**





located upstream of the headwaters are nationally permitted by law and will not require an individual application for dredge or fill discharge permits provided the proposed work will meet certain conditions.

However, these waters are classified "waters of the U. S." and are within Corps of Engineers jurisdiction as applicable to Section 404. Item 2 in Figure 1 shows the testing procedure for the five cfs point.

Authorized Navigation Project Area - Any streams which currently have authorized Federal projects to aid navigation are classified as "navigable waters of the U. S." (Item 3 in Figure 1). Many of the projects thus authorized were based upon conditions which are not currently applicable (for example, use of pole boats or steamboats for justifying the navigation benefits). Consequently, many of the streams having older authorized projects will not allow passage of present-day commercial navigation vessels without some additional improvement. Thus, some portions of the authorized project areas are not considered practical for navigation. Figure 1 shows the additional "check" procedure which has been followed to assess the practical limit of "navigable waters of the U. S."

Present Corps Jurisdiction Exercised - The Corps of Engineers is exercising jurisdiction on several non-tidal waterbodies which are not covered by authorized projects (Item 4 in Figure 1). (5) Determinations previously made on these waterbodies under the River and Harbor Act indicated use for interstate commerce and hence the current classification as "navigable waters of the U. S." Some of these streams are not currently navigable by present-day commercial vessels and thus have practical limits. Figure 1 shows the "check" used to assess the practical limits of "navigable waters of the U. S."

Federal Court Decisions - As noted in Section 5, Federal case law is the predominant indicator which is to be used for establishing Federal jurisdiction over waterbodies in the Charleston District (Item 5 in Figure 1). Several decisions have been rendered which classify certain streams in the district as "navigable waters of the U. S." However, some of these court decisions have been arrived at under different circumstances or without the benefit of the data developed as a part of this investigation. Therefore, even though some of the

streams are classified by judicial review as "navigable waters of the U. S.", they are not practical for navigation with present-day vessels. Figure 1 shows the steps necessary to "check" those portions of the "navigable waters of the U. S." which are capable of practical navigation.

Present Interstate Commerce Navigation - Any rivers currently involved in interstate commerce activities are classified as "navigable waters of the U. S." from both the regulatory and practical standpoint (see Item 6 in Figure 1).

Waters of the U. S. Below Headwaters - For those streams, or portions of streams, not subject to authorized projects, court cases, or present interstate commerce navigation, several additional tests for determining navigability are required (Items 7 and 8 in Figure 1). If the waterbody is not judged to be navigable in its present state or with reasonable improvements, then it is beyond the limit of "navigable waters of the U. S." and is termed "waters of the U. S." over the remaining length. These "waters of the U. S." (as well as the "navigable waters of the U. S.") up to the headwaters (five cfs points) of the streams are subject to jurisdiction under Section 404 of PL 92-500. A general or individual permit is required for discharge of dredged or fill material below the headwaters (five cfs point) of "waters of the U. S." Discharges above the headwaters are discussed in the previous subsection, "Waters of the U. S. Above Headwaters."

Interstate Commerce - Some non-tidal waters in the district are not now subject to authorized projects, court decisions, or interstate commerce navigation, but can be navigated under present or reasonably improved conditions. These streams may be considered for classification as "navigable waters of the U. S." if they are susceptible to interstate commerce activities (past, present, or future). A combined judgment considering both "reasonable improvement" factors (Item 8 in Figure 1) and "interstate commerce" factors (Item 9 in Figure 1) has often been utilized in arriving at the conclusions and recommendations concerning navigability of waterbodies in the Charleston District. The Summary Report provides further details on these factors.

### Navigation Classification Categories

This study classifies streams into several different categories, each of which is discussed subsequently:

1. Present "navigable waters of the U. S." (by regulatory procedures).
2. Historically navigable waters (based on literature review).
3. Recommended "navigable waters of the U. S." (based upon data developed as a part of this investigation).
4. Recommended waters for practical navigation (within "navigable waters of the U. S.").
5. Headwaters for all waterbodies (five cfs points).

The first four navigation classifications are displayed on the plates presented later in this report. The headwater limits are summarized in Appendix A.

### Present Navigable Waters of the U. S.

Currently the Cooper River is classified as "navigable waters of the U. S." from its confluence with Charleston Harbor at R.M. 0.0 near Charleston, South Carolina, to Huger Branch on the East Cooper River, (tidally influenced) a distance of approximately 12.0 miles from the East and West Branch confluence ("T"); and to Wadboo Creek (R.M. 44.0) on the West Branch Cooper River, approximately 14.2 miles above the "T". The Cooper is then navigable via the Tailrace Canal for 4.0 miles to the Pinopolis Lock and Dam (R.M. 48.1). (See Plate 04-2 for location.) (5) Navigation is also possible above this point via the lock at Pinopolis Dam (see Lakes Report for further information and navigation classifications).

### Historically Navigable Waters

Various types of vessels ranging from cypress log canoes to steamboats have navigated the Cooper River from the 1700's and well into the 20th Century. The Cooper River was navigated by large vessels to what was known as the "T" (confluence of East Branch Cooper and West Branch Cooper) at R.M. 29.8, while smaller craft navigated to Wadboo Creek (R.M. 44) on the West Branch and to Hugers bridge (estimated R.M. 11.0) on the East Branch. For short periods of the time, navigation extended

to the Santee, Congaree, Wateree, and Broad Rivers via the Santee Canal (see Section 4 - Interstate Commerce and Plate 04-2 for location).

#### Recommended and Practical Navigable Waters of the U. S.

The recommended and practical limit of "navigable waters of the U. S." on the Cooper River is R.M. 48.1 at the Pinopolis Lock and Dam. Navigation is also possible beyond this point via the lock at Pinopolis Dam (see Lakes Report for further information and navigation classifications concerning the area above the dam). Field investigation of all bridges crossing the Cooper River between the limit of tidal influence (R.M. 45.0) and the upper reach of the report area reveals sufficient water depth of at least 7 feet and channel width of at least 50 feet in all cases. At the U. S. 52 highway bridge (R.M. 45.8) and Seaboard Coast Line Railroad bridge (R.M. 47.4) a channel depth of 24.0 feet and 29.0 feet, respectively, is estimated at mean water level.

Plan and profiles of the recommended "navigable waters of the U. S." are shown on Plates 04-6 through 04-8. The plan and profile plates show mean water surface as determined from USGS maps, stream bed depth, 50-foot wide navigable channel depth, pier spacing for bridges crossing the river, and vertical clearances at structures. Approximate vertical clearances for overhead utilities are shown later in Table 3. It is emphasized that all references to elevation are approximate since vertical control was established from USGS contour maps and not field instrument surveys. Water depth and structure vertical clearance measurements are also approximate due to the accuracy inherent in the field techniques. (See Summary Report for a detailed description of the field procedures and the methodology used to calculate water depth at mean flow.)

#### Obstructions to Navigation

Table 3 is a listing of all obstructions within the recommended "navigable waters of the U. S." on the Cooper River. Mean water level and mean water slope values are presented at each obstruction, and mean discharge is presented at each bridge in the table. It is emphasized that mean discharge, slope, and vertical clearances are only approximations based on best available data. Specific procedures for determining mean flow and average slope are discussed in the Summary Report.

### Waters of the U. S.

"Waters of the U. S." are considered to be all streams beyond the recommended limits of "navigable waters of the U. S." "Waters of the U. S." with more than five cfs mean annual flow require a permit for discharge of dredged or fill material. "Waters of the U. S." with less than five cfs mean annual flow are nationally permitted by law and will not require an individual application for dredge or fill discharge permits provided the proposed work will meet certain conditions.

Appendix A lists all the five cfs water flow points associated with the Cooper River report area. Each point is located by stream code, stream name, latitude and longitude, and a mileage reference.

Appendix B lists the lakes located in the Cooper River report area which have surface areas between 10 and 1,000 acres. The lake summary identifies the stream basin code, lake name or owner, county location, and where data is available, the surface area and gross storage.

TABLE 3

OBSTRUCTION LISTING FROM TIDAL INFLUENCE LIMIT TO  
RECOMMENDED LIMIT OF NAVIGABLE WATERS OF THE U. S. (2)

| <u>Cooper<br/>River<br/>Mile</u> | <u>Description</u>                        | <u>Mean<br/>Discharge</u> <sup>1)</sup><br>(cfs) | <u>Mean<br/>Water Slope</u><br>(ft/mi) | <u>Approximate<br/>Vertical<br/>Clearance To<br/>Obstruction</u><br>(ft) |
|----------------------------------|---|--|--|--|
| 45.8                             | U. S. 17A, U. S. 52 High-<br>way Bridge   | 14,890   | 0.66                                   | 50.0   |
| 45.8                             | Utility Line (power)                      | --   | 0.66                                   | 70.0   |
| 46.1                             | Utility Line (underground<br>telephone)   | --   | 0.66                                   | On Bed   |
| 47.4                             | Utility Line (power)                      | --   | 0.66                                   | 60.0   |
| 47.4                             | Seaboard Coast Line<br>Railroad Bridge    | 14,890   | 0.66                                   | 13.5 (53.5) <sup>2)</sup>  |
| 47.7                             | Utility Line (power)                      | --   | 0.66                                   | 74.0   |
| 48.1                             | Pinopolis Lock and Dam<br>(Lake Moultrie) | --   | --                                     | --   |

1) Discharge is regulated.

2) Vertical clearance of draw bridge in raised position.



FIGURE 2 - UTILITY LINE (R.M. 45.8) (U. S. 52 AND 17A HIGHWAY BRIDGE)



FIGURE 3 - U. S. 52 AND 17A (R.M. 45.8) (UTILITY LINE)

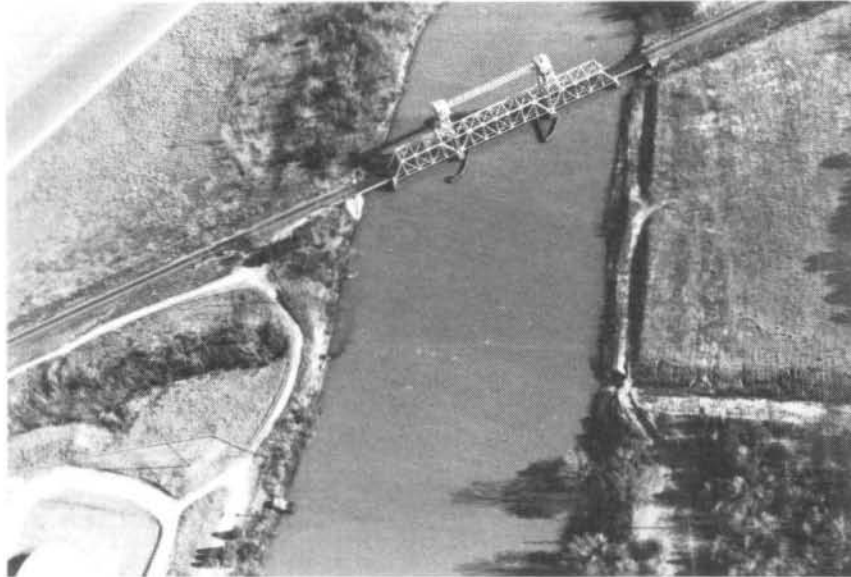


FIGURE 4 - UTILITY LINE AND SEABOARD COAST LINE RAILROAD BRIDGE (R.M. 47.4) AND UTILITY LINE (R.M. 47.7)



FIGURE 5 - SEABOARD COAST LINE RAILROAD BRIDGE (R.M. 47.4) (UTILITY LINE)



FIGURE 6 - PINOPOLIS LOCK AND DAM (R.M. 48.1)



## SECTION 7 - CONCLUSIONS AND RECOMMENDATIONS

Five classifications of navigation on streams in the Cooper River report area have been determined and are presented below. The first two are classifications developed from historical evidence and current Federal stream classifications. Classification 3 is based on field measurements, observations, and data analysis for the river. Classification 4 is based on review of all previously determined limits with a recommendation of the most upstream locations with supporting evidence of navigability. The fifth classification accounts for all streams not otherwise classified and was determined based on the drainage area and hydrological aspects of the stream.

1. The Cooper River is presently classified as "navigable waters of the U. S." from its confluence with Charleston Harbor at R.M. 0.0 near Charleston, South Carolina to Huger Branch on the East Cooper River (tidally influenced), a distance of approximately 12.0 miles from the East and West Branch confluence ("T"); and to Wadboo Creek (R.M. 44.0) on the West Branch Cooper River, approximately 14.2 miles above the "T". The Cooper is then navigable via the Tail-race Canal for 4.0 miles to the Pinopolis Lock and Dam (R.M. 48.1). Navigation is also possible beyond this point via the lock at Pinopolis Dam (see Lakes Report for further information and navigation classifications).
2. Historically, navigation has extended over the entire length of the Cooper River and its lower tributaries. As indicated in Section 4 - Interstate Commerce, the Cooper River was navigable for 40 miles from the ocean, the eastern branch was navigable to Huger's bridge whereas the western branch of the Cooper was navigable to "Watboo Bridge". For short periods of time, navigation was possible to the Santee, Congaree, Wateree, and Broad Rivers via the Santee Canal.
3. The recommended practical limit of navigation for the Cooper River report area is the Pinopolis Lock and Dam

(R.M. 48.1) via the West Branch Cooper River and the Tailrace Canal. Practical navigation is also possible beyond this point via the lock at Pinopolis Dam (see Lakes Report for further recommendations).

4. It is recommended that the Cooper River be classified "navigable waters of the U. S." throughout (from its mouth at Charleston Harbor near Charleston, South Carolina to the Pinopolis Dam at R.M. 48.1). Since navigation is possible beyond this point via the lock at Pinopolis Dam, further information and navigation classifications concerning the area above the dam are presented in the Lakes Report (Report 18).
5. All streams not recommended for classification as "navigable waters of the U. S." are recommended for classification as "waters of the U. S." throughout their entire length.

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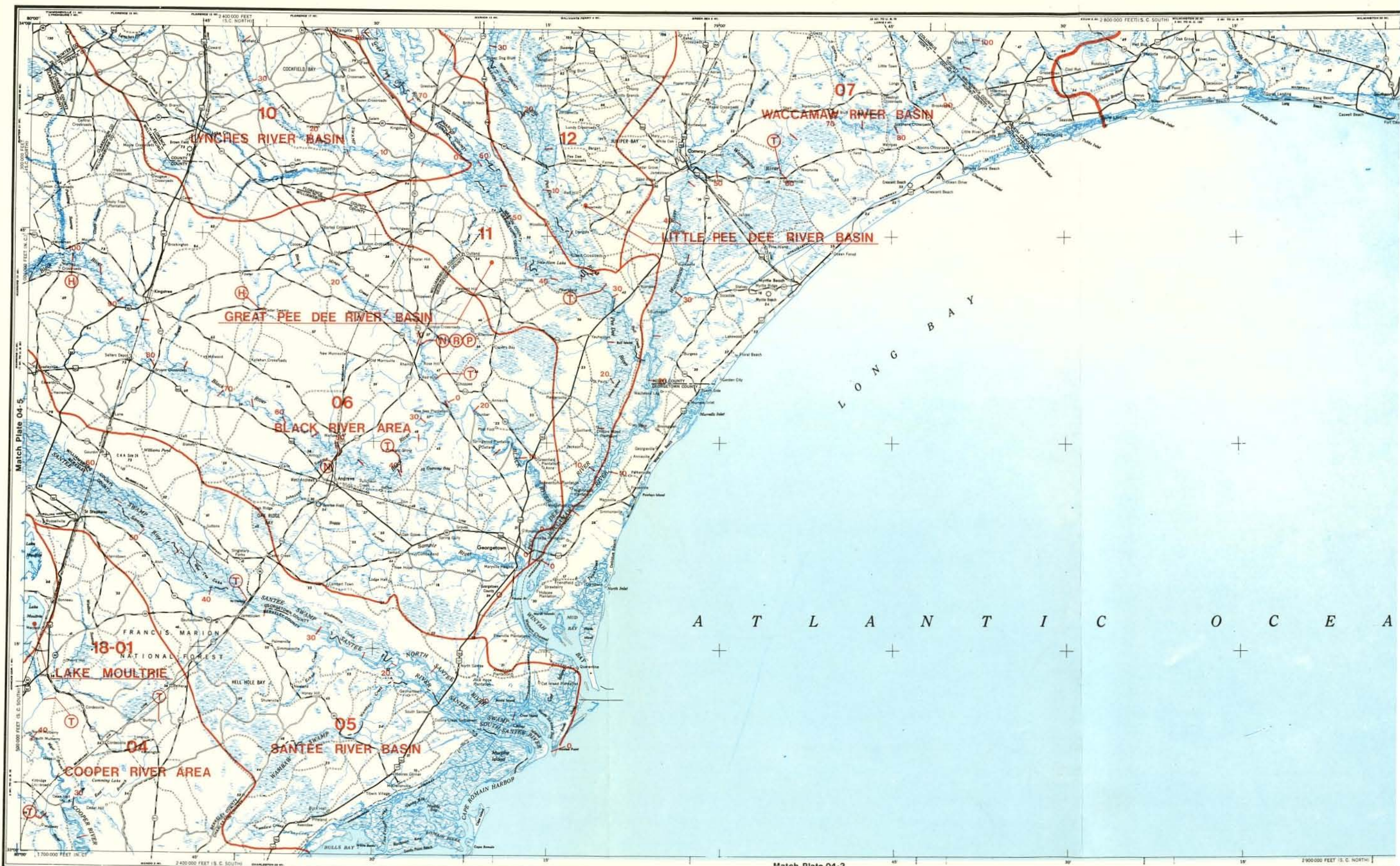
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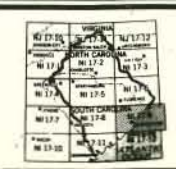
| POPULATED PLACES |            |
|------------------|------------|
| NEW ORLEANS      | 1,000,000+ |
| CHARLOTTE        | 250,000+   |
| CHARLESTON       | 100,000+   |
| Other            | 50,000+    |
| Other            | 25,000+    |
| Other            | 10,000+    |
| Other            | 5,000+     |
| Other            | 2,500+     |
| Other            | 1,000+     |
| Other            | 500+       |
| Other            | 250+       |
| Other            | 100+       |
| Other            | 50+        |
| Other            | 25+        |
| Other            | 10+        |
| Other            | 5+         |
| Other            | 2+         |
| Other            | 1+         |
| Other            | 0+         |

**USGS BASE MAP**  
**GEORGETOWN, S.C. ; N.C.**  
**NI 17-9**

0 5 10  
 scale in miles

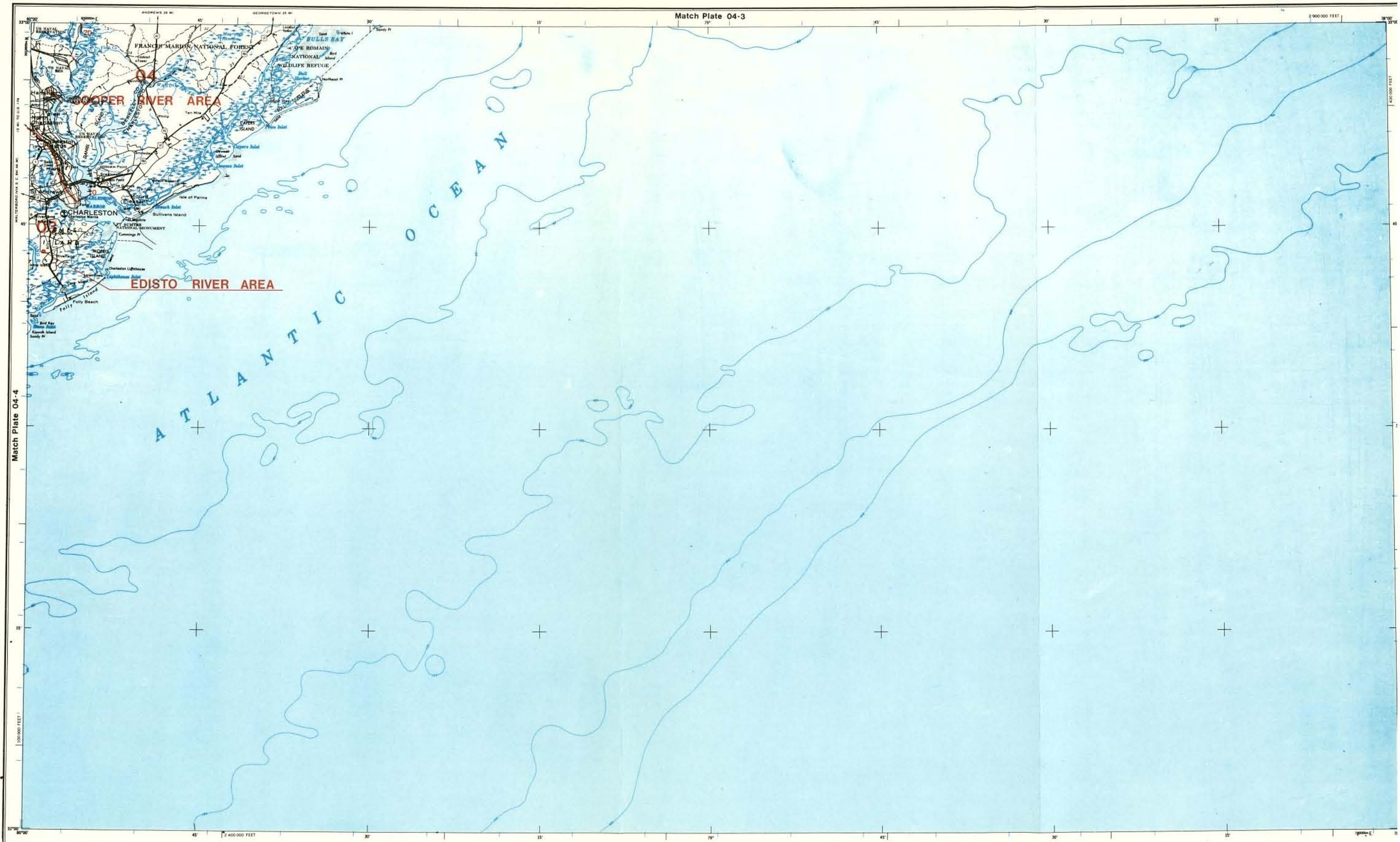
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  - (H) HISTORIC LIMIT OF NAVIGATION
  - (P) PRACTICAL LIMIT OF NAVIGATION (RECOMMENDED)
  - (R) LIMIT OF NAVIGABLE WATERS OF THE U.S. (RECOMMENDED)

- (T) APPROXIMATE LIMIT OF TIDAL INFLUENCE
- RM RIVER MILE



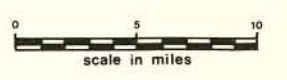
**U.S. ARMY CORPS OF ENGINEERS**  
**CHARLESTON DISTRICT**  
 Charleston, South Carolina

**SIGNIFICANT**  
**COOPER RI**  
 Report No. 04,05,(  
**NAVIGABILITY**

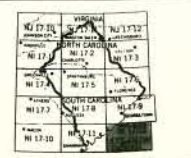


| POPULATED PLACES                          |   |
|---|---|
| Over 100,000                              | NEW ORLEANS                             |
| 25,000 to 100,000                         | CHARLOTTE                               |
| 10,000 to 25,000                          | CHARLESTON                              |
| 5,000 to 10,000                           | Georgetown                              |
| Under 5,000                               | Other                                   |
| ROADS                                     |   |
| Primary, all-weather, hard surface        | Secondary, all-weather, hard surface    |
| Light duty, all-weather, improved surface | Far of the weather, unimproved surface  |
| Track                                     | Interconnector                          |
| Other                                     |   |
| ROCK MARKERS                              |   |
| Rock markers, International, U.S. State   |   |
| Power line                                | Landmark, School, Church, Other, 2 1/2' |
| Light structure, 10'                      | Light structure, 10'                    |
| Major or secondary                        | Minor or tertiary                       |
| Intermediate or by stream                 |   |
| Other Symbols                             |   |
| Standard Edge                             | Standard Edge                           |
| Shaded Edge                               | Shaded Edge                             |
| Black                                     | Black                                   |
| White                                     | White                                   |
| Red                                       | Red                                     |
| Green                                     | Green                                   |
| Blue                                      | Blue                                    |
| Yellow                                    | Yellow                                  |
| Orange                                    | Orange                                  |
| Purple                                    | Purple                                  |
| Brown                                     | Brown                                   |
| Grey                                      | Grey                                    |
| Black                                     | Black                                   |
| White                                     | White                                   |
| Red                                       | Red                                     |
| Green                                     | Green                                   |
| Blue                                      | Blue                                    |
| Yellow                                    | Yellow                                  |
| Orange                                    | Orange                                  |
| Purple                                    | Purple                                  |
| Brown                                     | Brown                                   |
| Grey                                      | Grey                                    |

USGS BASE MAP  
 JAMES ISLAND, S.C.  
 1969  
 NI 17-12



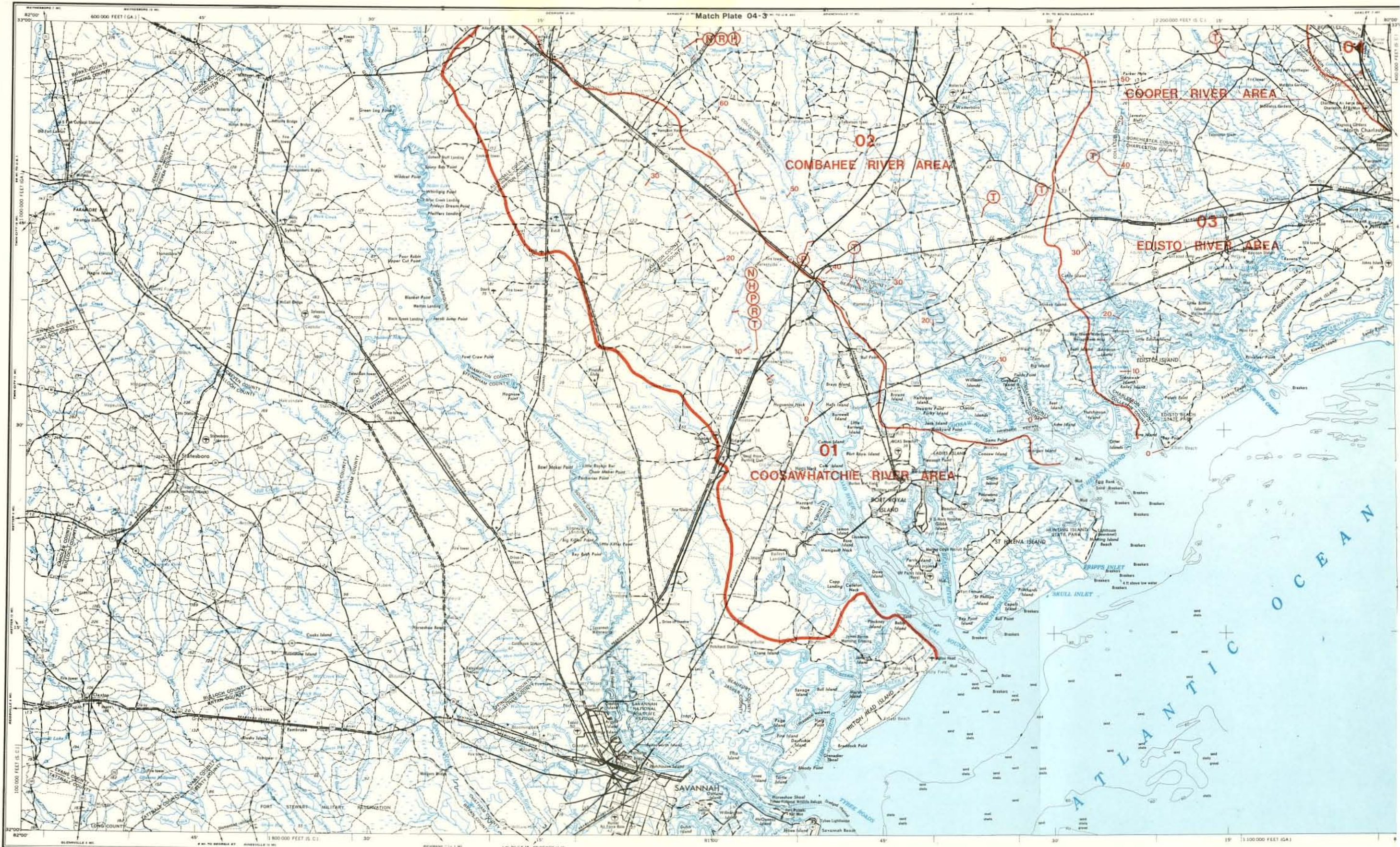
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  - (P) PRACTICAL LIMIT OF NAVIGATION (RECOMMENDED)
  - (R) LIMIT OF NAVIGABLE WATERS OF THE U.S. (RECOMMENDED)
  - 20 RIVER MILE



1977

U.S. ARMY CORPS OF ENGINEERS  
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 Charleston, South Carolina  
 STANLEY CONSULTANTS

SIGNIFICANT FEATURES  
 COOPER RIVER AREA  
 Report No. 03,04  
 NAVIGABILITY STUDY  
 Plate 04-2



**POPULATED PLACES**

|                    |             |
|--------------------|-------------|
| Over 500,000       | NEW ORLEANS |
| 100,000 to 500,000 | CHARLOTTE   |
| 25,000 to 100,000  | CHARLESTON  |
| 5,000 to 25,000    |             |
| 1,000 to 5,000     |             |
| Under 1,000        |             |

**ROADS**

|   |  |
|---|--|
| Primary, all weather, hard surface        |  |
| Secondary, all weather, hard surface      |  |
| Light duty, all weather, improved surface |  |
| Foot or dirt roads, unimproved surface    |  |
| Unimproved                                |  |
| Seasonal                                  |  |

**BOUNDARIES**

|                 |  |
|-----------------|--|
| State boundary  |  |
| County boundary |  |
| Water boundary  |  |
| Other           |  |

**Other Symbols:**

- Star: State capital
- Circle with 'S': State seat
- Circle with 'C': County seat
- Circle with 'M': Municipal government
- Circle with 'T': Township government
- Circle with 'R': Railroad
- Circle with 'A': Airfield
- Circle with 'L': Light
- Circle with 'B': Buoy
- Circle with 'D': Dam
- Circle with 'W': Well
- Circle with 'F': Ferry
- Circle with 'S': School
- Circle with 'C': Church
- Circle with 'O': Other

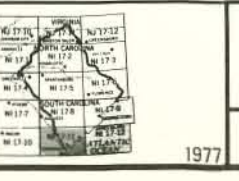
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**SAVANNAH, GA., S.C.**  
 1957 Revised 1967  
 NI 17-11

0 5 10  
 scale in miles

N

**LEGEND:**

- (H) PRESENT LIMIT OF NAVIGABLE WATERS OF THE U.S.
- (N) HISTORIC LIMIT OF NAVIGATION
- (P) PRACTICAL LIMIT OF NAVIGATION (RECOMMENDED)
- (R) LIMIT OF NAVIGABLE WATERS OF THE U.S. (RECOMMENDED)
- (T) APPROXIMATE LIMIT OF TIDAL INFLUENCE
- 20 RIVER MILE



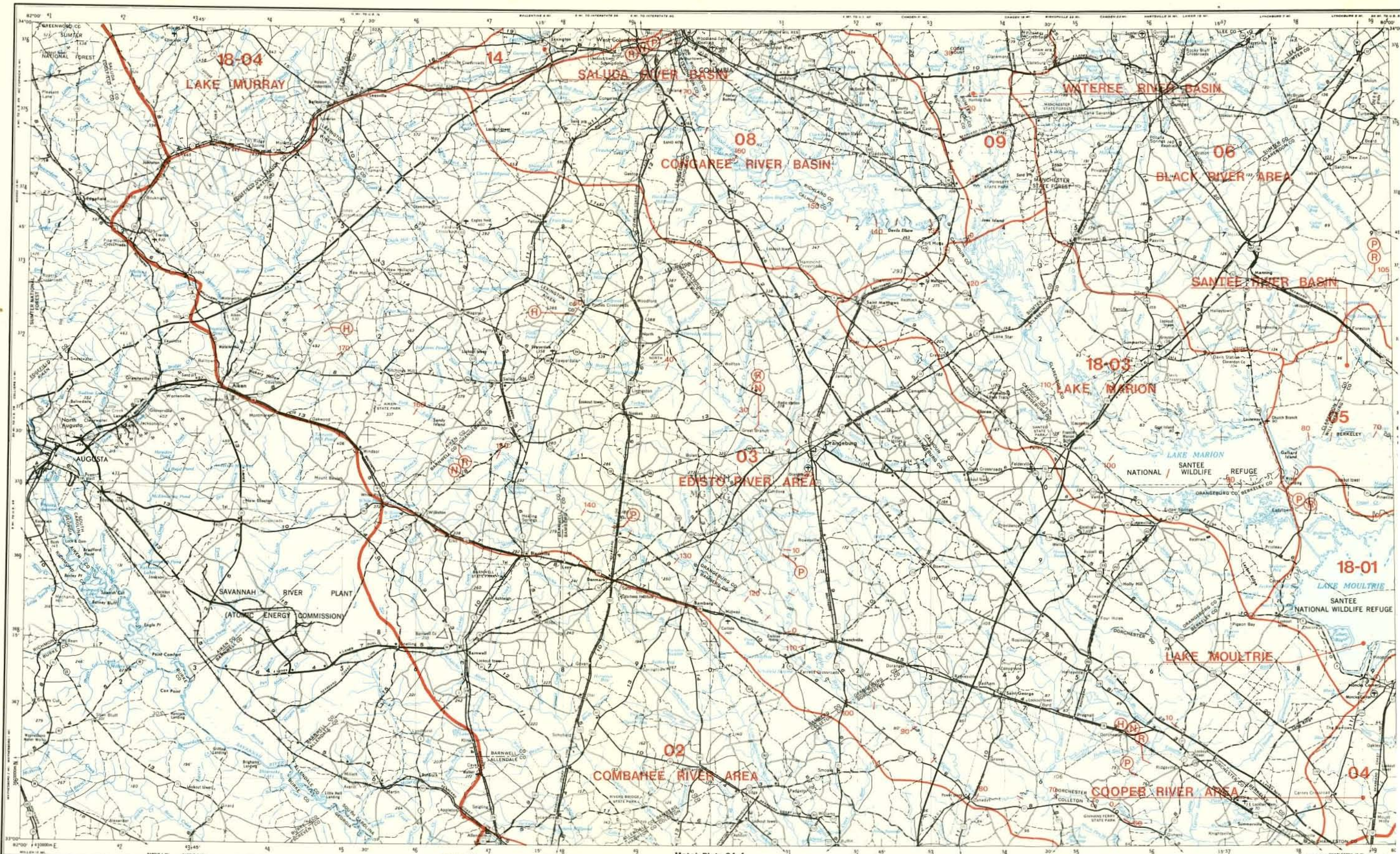
**U.S. ARMY CORPS OF ENGINEERS**  
 CHARLESTON DISTRICT  
 Charleston, South Carolina

**STANLEY CONSULTANTS**

**SIGNIFICANT FEATURES**  
**COOPER RIVER AREA**  
 Report No. 01,02,03,04  
**NAVIGABILITY STUDY**  
 Plate 04-4

1977





POPULATED PLACES:  
 Over 100,000  
 25,000 to 100,000  
 10,000 to 25,000  
 5,000 to 10,000  
 Under 5,000

NEW ORLEANS  
 CHARLOTTE  
 CHARLESTON

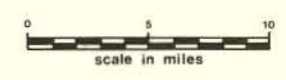
ROADS:  
 Primary, all weather, hard surface  
 Secondary, all weather, hard surface  
 Tertiary, all weather, improved surface  
 Unimproved surface  
 Footpath

RAILROADS:  
 Standard gauge  
 Narrow gauge  
 Electric  
 Light rail  
 Streetcar  
 Trolley  
 Tram

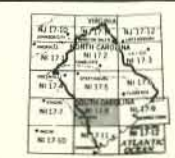
POWERS:  
 Power line  
 Transmission line  
 Substation  
 Dam  
 Lock  
 Weir  
 Sluiceway  
 Barrage  
 Dam  
 Lock  
 Weir  
 Sluiceway  
 Barrage

Other markers: Intentional U.S. State  
 Boundary  
 International  
 State  
 County  
 City  
 Town  
 Village  
 Hamlet  
 Unincorporated place  
 Post office  
 School  
 Church  
 Cemetery  
 Public building  
 Industrial building  
 Warehouse  
 Gas station  
 Gasoline pump  
 Telephone exchange  
 Telephone booth  
 Telephone office  
 Telephone pole  
 Telephone wire  
 Telephone cable  
 Telephone line  
 Telephone tower  
 Telephone antenna  
 Telephone mast  
 Telephone pole  
 Telephone wire  
 Telephone cable  
 Telephone line  
 Telephone tower  
 Telephone antenna  
 Telephone mast

USGS BASE MAP  
 AUGUSTA, GA., S.C.  
 1957, Revised 1969  
 NI 17-8

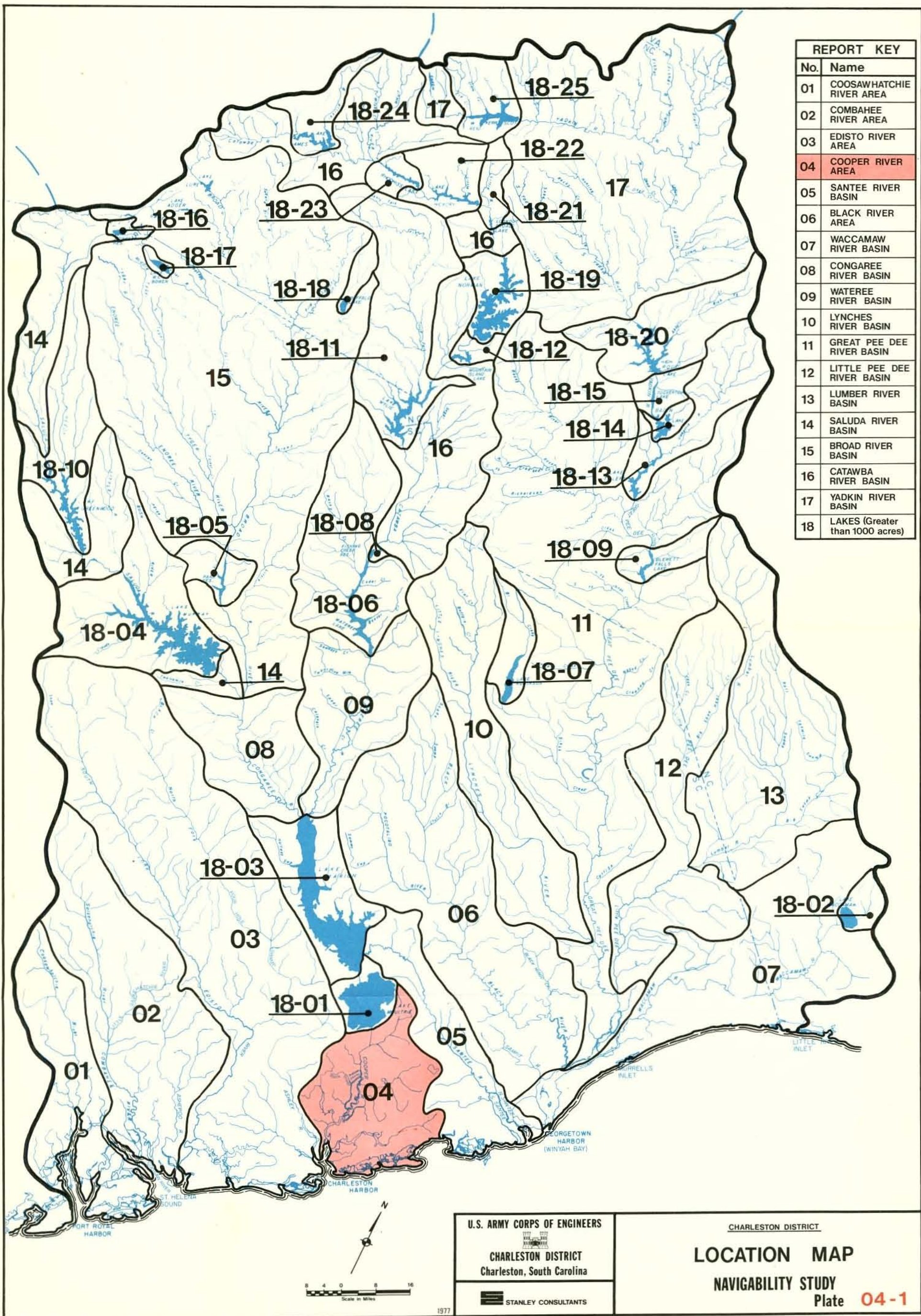


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 (H) HISTORIC LIMIT OF NAVIGATION  
 (P) PRACTICAL LIMIT OF NAVIGATION (RECOMMENDED)  
 (R) LIMIT OF NAVIGABLE WATERS OF THE U.S. (RECOMMENDED)  
 (RM) RIVER MILE



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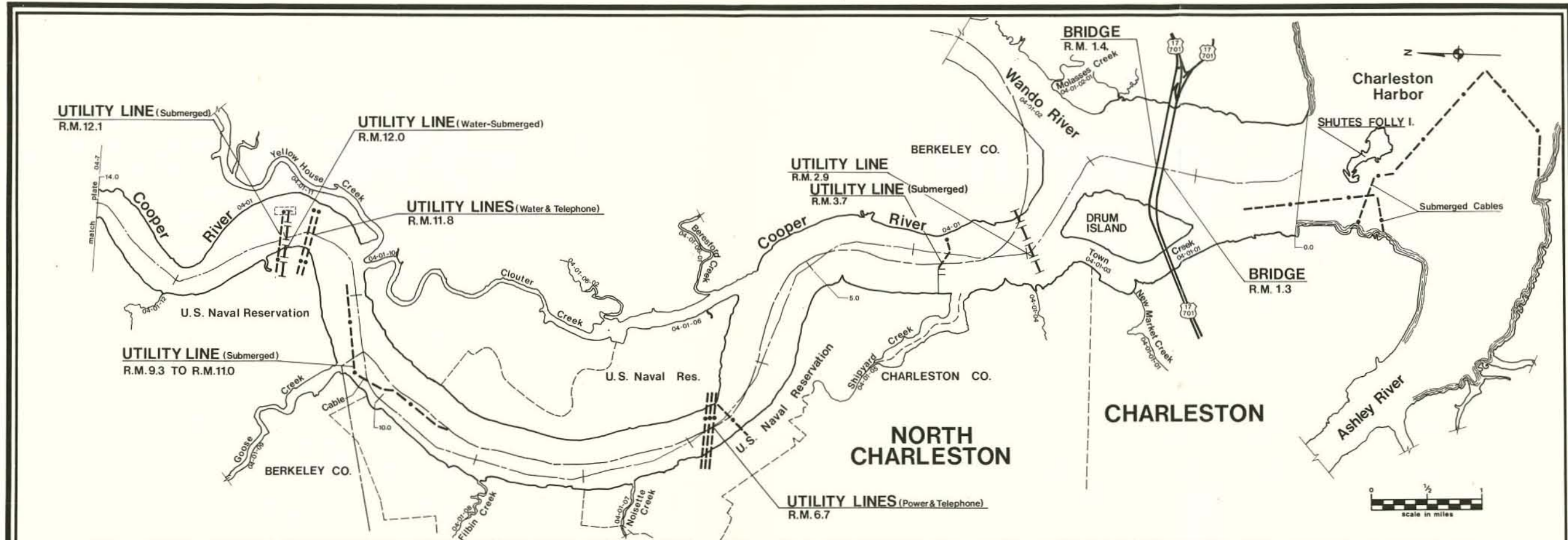
SIGNIFICANT FEATURES  
 COOPER RIVER AREA  
 Report No. 01, 02, 03, 04, 05, 06, 08, 09, 14, 18  
 NAVIGABILITY STUDY  
 Plate 04-5



| REPORT KEY |                                 |
|------------|---------------------------------|
| No.        | Name                            |
| 01         | COOSAWHATCHIE RIVER AREA        |
| 02         | COMBAHEE RIVER AREA             |
| 03         | EDISTO RIVER AREA               |
| 04         | COOPER RIVER AREA               |
| 05         | SANTEE RIVER BASIN              |
| 06         | BLACK RIVER AREA                |
| 07         | WACCAMAW RIVER BASIN            |
| 08         | CONGAREE RIVER BASIN            |
| 09         | WATEREE RIVER BASIN             |
| 10         | LYNCHEs RIVER BASIN             |
| 11         | GREAT PEE DEE RIVER BASIN       |
| 12         | LITTLE PEE DEE RIVER BASIN      |
| 13         | LUMBER RIVER BASIN              |
| 14         | SALUDA RIVER BASIN              |
| 15         | BROAD RIVER BASIN               |
| 16         | CATAWBA RIVER BASIN             |
| 17         | YADKIN RIVER BASIN              |
| 18         | LAKES (Greater than 1000 acres) |

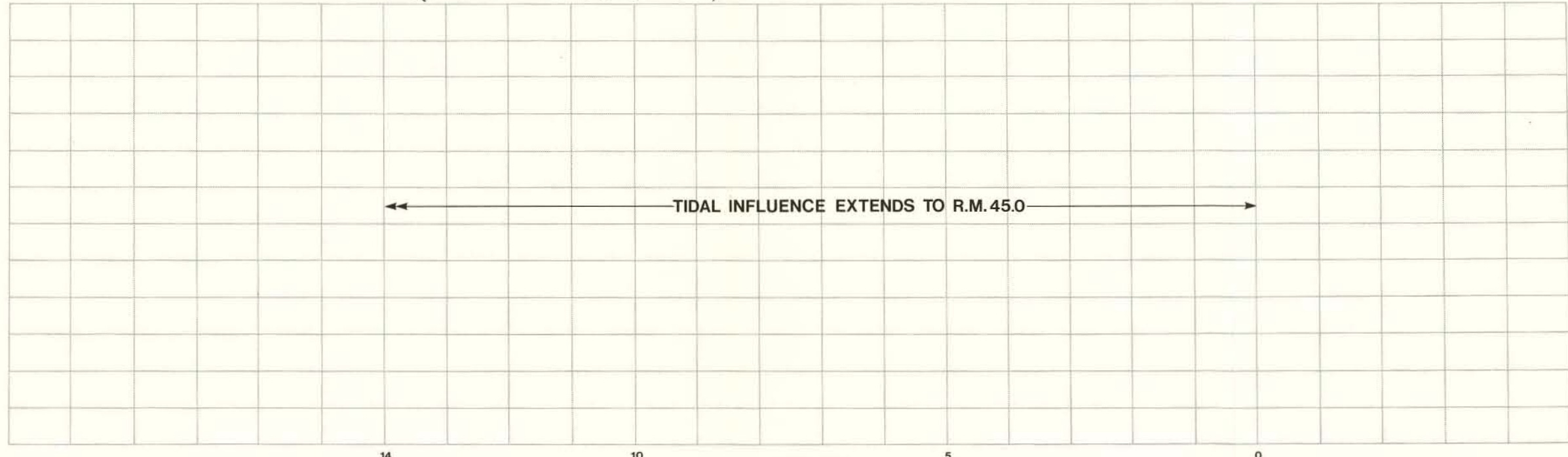
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CHARLESTON DISTRICT  
**LOCATION MAP**  
 NAVIGABILITY STUDY  
 Plate 04-1



ELEVATION FEET ABOVE MSL

ELEVATION FEET ABOVE MSL



**LEGEND:**

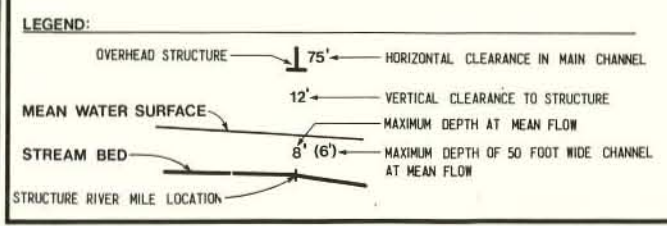
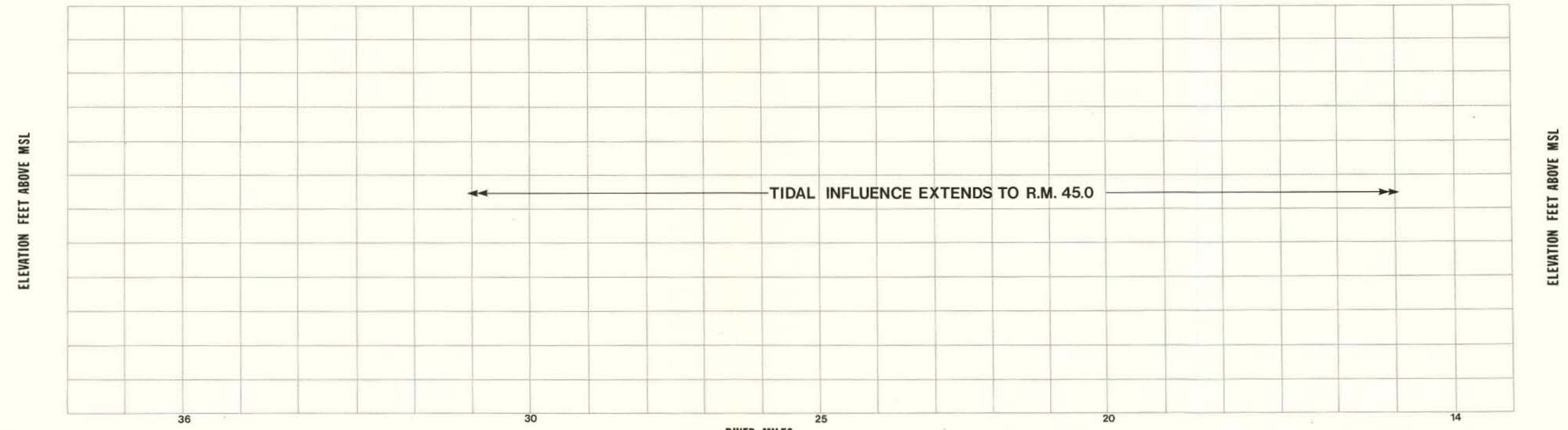
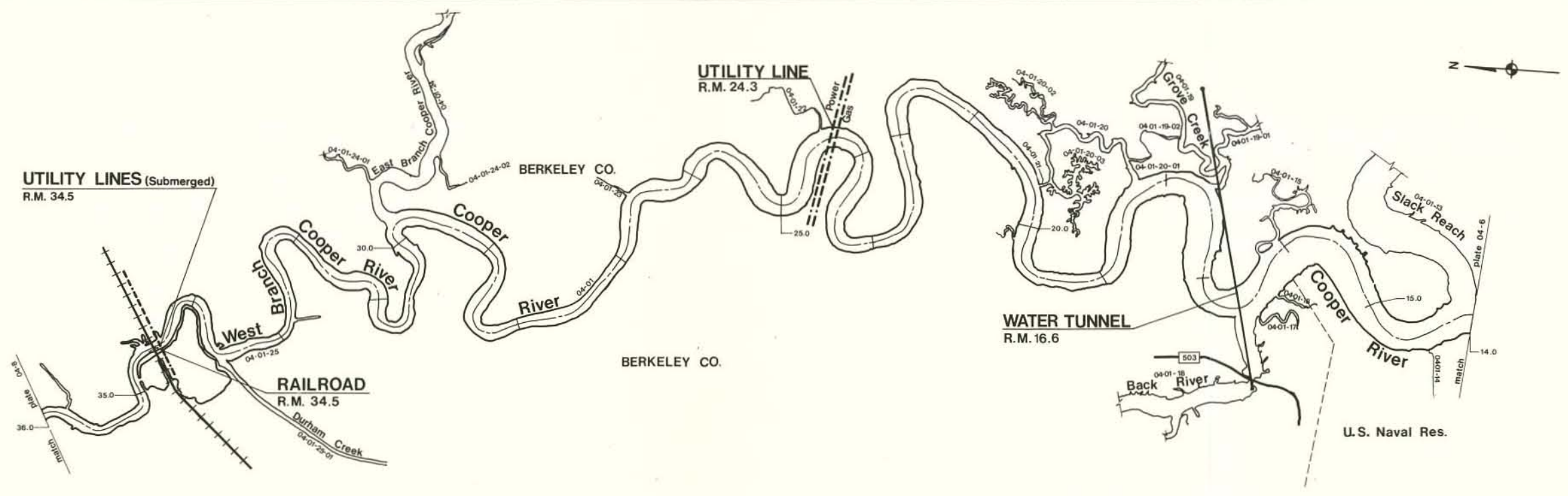
|                               |         |  |
|-------------------------------|---------|--|
| OVERHEAD STRUCTURE            | 75'     | HORIZONTAL CLEARANCE IN MAIN CHANNEL               |
| MEAN WATER SURFACE            | 12'     | VERTICAL CLEARANCE TO STRUCTURE                    |
| STREAM BED                    | 8' (6') | MAXIMUM DEPTH AT MEAN FLOW                         |
| STRUCTURE RIVER MILE LOCATION |         | MAXIMUM DEPTH OF 50 FOOT WIDE CHANNEL AT MEAN FLOW |

**NOTES:**

- ELEVATION AND SLOPE OF MEAN WATER SURFACE ARE BASED ON USGS TOPOGRAPHIC MAPS AND ARE THEREFORE ONLY APPROXIMATIONS. VERTICAL DIMENSIONS FROM STREAM BED TO OVERHEAD STRUCTURES ARE FIELD MEASUREMENTS. RELATIVE LOCATION OF MEAN WATER SURFACE IS APPROXIMATED FROM CONTOUR MAPS, MEASURED CROSS SECTIONS AND VELOCITIES. STREAM FLOW RECORDS, THE MANNING EQUATION, AND FIELD OBSERVATIONS. SEE SUMMARY REPORT FOR COMPLETE EXPLANATION.
- THE UPSTREAM EXTENT OF TIDAL INFLUENCE IS APPROXIMATED BY PROJECTING THE ELEVATION OF MEAN HIGH TIDE HORIZONTALLY FROM THE MOUTH OF A RIVER TO A MILE POINT WHERE IT INTERSECTS THE PLOTTED MEAN WATER SURFACE OF THAT RIVER.

**U.S. ARMY CORPS OF ENGINEERS**  
 CHARLESTON DISTRICT  
 Charleston, South Carolina

**PLAN AND PROFILE**  
**COOPER RIVER**  
 Cooper River Area  
 BERKELEY-CHARLESTON CO., S.C.  
**NAVIGABILITY STUDY**  
 Miles 0.0-14.0 Plate 04-6

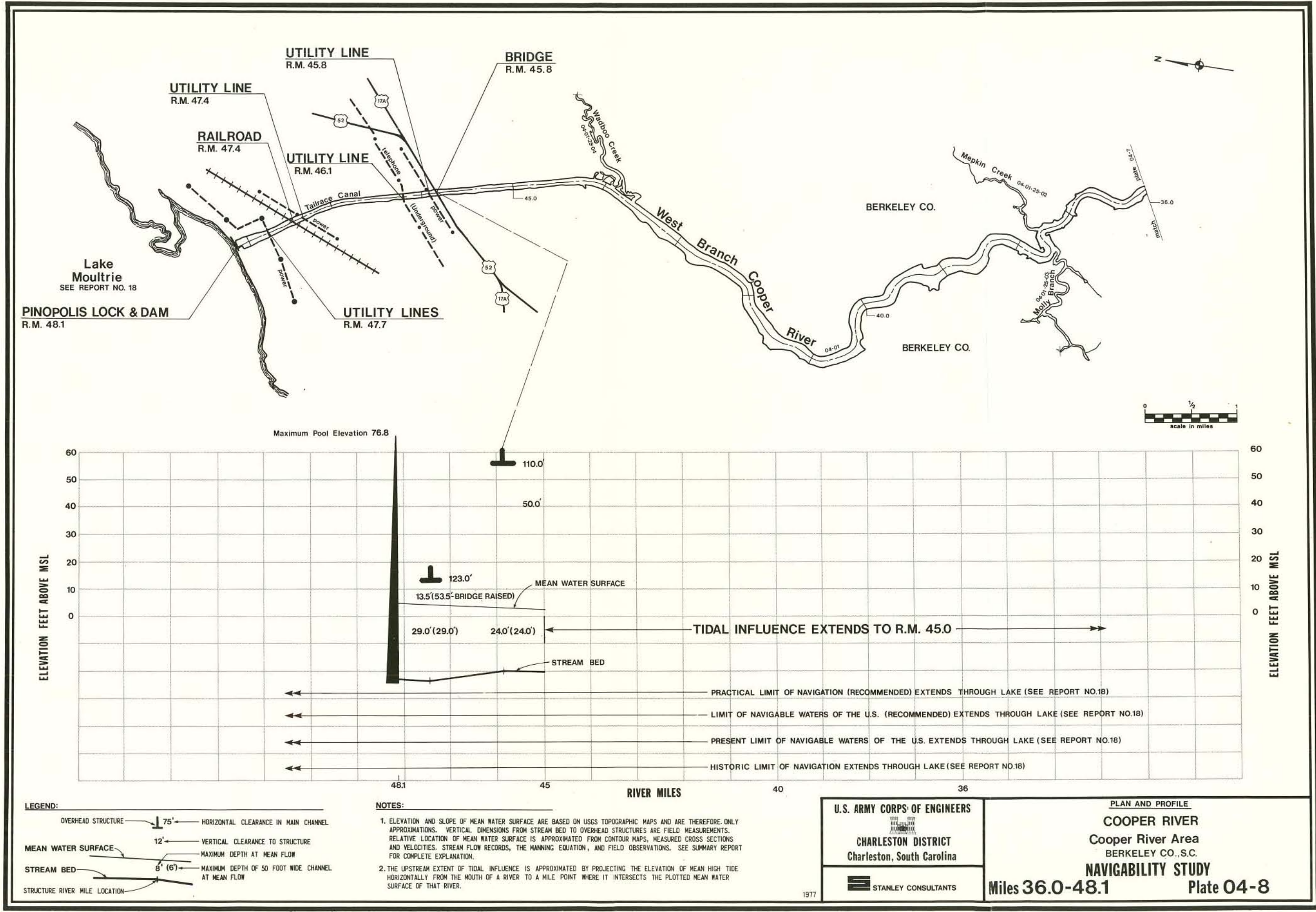


**NOTES:**

- ELEVATION AND SLOPE OF MEAN WATER SURFACE ARE BASED ON USGS TOPOGRAPHIC MAPS AND ARE THEREFORE ONLY APPROXIMATIONS. VERTICAL DIMENSIONS FROM STREAM BED TO OVERHEAD STRUCTURES ARE FIELD MEASUREMENTS. RELATIVE LOCATION OF MEAN WATER SURFACE IS APPROXIMATED FROM CONTOUR MAPS, MEASURED CROSS SECTIONS AND VELOCITIES. STREAM FLOW RECORDS, THE MANNING EQUATION, AND FIELD OBSERVATIONS. SEE SUMMARY REPORT FOR COMPLETE EXPLANATION.
- THE UPSTREAM EXTENT OF TIDAL INFLUENCE IS APPROXIMATED BY PROJECTING THE ELEVATION OF MEAN HIGH TIDE HORIZONTALLY FROM THE MOUTH OF A RIVER TO A MILE POINT WHERE IT INTERSECTS THE PLOTTED MEAN WATER SURFACE OF THAT RIVER.

**U.S. ARMY CORPS OF ENGINEERS**  
 CHARLESTON DISTRICT  
 Charleston, South Carolina

**PLAN AND PROFILE**  
**COOPER RIVER**  
 Cooper River Area  
 BERKELEY CO., S.C.  
**NAVIGABILITY STUDY**  
 Miles 14.0-36.0 Plate 04-7



**LEGEND:**

OVERHEAD STRUCTURE — 75' — HORIZONTAL CLEARANCE IN MAIN CHANNEL

MEAN WATER SURFACE — 12' — VERTICAL CLEARANCE TO STRUCTURE

STREAM BED — 8' (6') — MAXIMUM DEPTH AT MEAN FLOW

STRUCTURE RIVER MILE LOCATION — 8' (6') — MAXIMUM DEPTH OF 50 FOOT WIDE CHANNEL AT MEAN FLOW

**NOTES:**

1. ELEVATION AND SLOPE OF MEAN WATER SURFACE ARE BASED ON USGS TOPOGRAPHIC MAPS AND ARE THEREFORE ONLY APPROXIMATIONS. VERTICAL DIMENSIONS FROM STREAM BED TO OVERHEAD STRUCTURES ARE FIELD MEASUREMENTS. RELATIVE LOCATION OF MEAN WATER SURFACE IS APPROXIMATED FROM CONTOUR MAPS, MEASURED CROSS SECTIONS AND VELOCITIES, STREAM FLOW RECORDS, THE MANNING EQUATION, AND FIELD OBSERVATIONS. SEE SUMMARY REPORT FOR COMPLETE EXPLANATION.

2. THE UPSTREAM EXTENT OF TIDAL INFLUENCE IS APPROXIMATED BY PROJECTING THE ELEVATION OF MEAN HIGH TIDE HORIZONTALLY FROM THE MOUTH OF A RIVER TO A MILE POINT WHERE IT INTERSECTS THE PLOTTED MEAN WATER SURFACE OF THAT RIVER.

**U.S. ARMY CORPS OF ENGINEERS**

CHARLESTON DISTRICT  
Charleston, South Carolina

STANLEY CONSULTANTS

**PLAN AND PROFILE**

**COOPER RIVER**  
Cooper River Area  
BERKELEY CO., S.C.

**NAVIGABILITY STUDY**  
Miles 36.0-48.1 Plate 04-8

APPENDIX A  
STREAM CATALOG

This appendix presents a coded listing of all non-tidal streams located in the Cooper River report area having a mean annual flow greater than or equal to five cfs. In tidal areas essentially all streams are coded; however, some very small, short streams and drainage tile systems were not coded. No five cfs streams are tributary to Lake Moultrie (18-01).

Streams which are all or partially subject to tidal influence are noted in the listing. These are classified "navigable waters of the U. S." to the tidal limit. Non-tidal reaches of streams classified "navigable waters of the U. S." are covered in Section 6 of this report. All other streams not tidally influenced are classified "waters of the U. S."

The points where flow is approximately equal to five cfs (headwaters) are defined by approximate longitude and latitude, and river miles from the nearest named tributary, major highway, railroad, or other similar reference point. Some streams listed in the tabulation may not have headwater locations identified. This occurs when the name of a stream changes at a confluence where the flow immediately downstream is greater than five cfs. Thus, the headwater locations for streams with more than one name are associated with the appropriate upstream name found on USGS quadrangle maps. Some streams in this appendix listing are also coded in other reports for this study. Cross-references to specific reports are noted.

The coding system shown in the tabulation uses a procedure developed by the Charleston District, Corps of Engineers. Streams are summarized from the mouth of the major river upstream to the report boundary.

USGS data was used to identify the location where the mean annual stream flow is five cfs. Flow records from gaging stations throughout the Charleston District were evaluated and an isoflow map developed

to indicate variations in runoff (cfs per square mile). These runoff values were then applied to the appropriate stream drainage areas (as determined from USGS quadrangle maps) so that a flow of five cfs was approximated.

APPENDIX A  
STREAM CATALOG

| REPORT NUMBER | STREAM CODE |         |           |          |              | STREAM NAME                           | HEADWATER LOCATION ( Mean Flow = 5 cfs ) |                       |                        |              |      |      |
|---------------|-------------|---------|-----------|----------|--------------|---------------------------------------|--|-----------------------|------------------------|--------------|------|------|
|               | MAJOR RIVER | PRIMARY | SECONDARY | TERTIARY | FOURTH ORDER |                                       | FIFTH ORDER                              | LATITUDE<br>( ° ' " ) | LONGITUDE<br>( ° ' " ) | STREAM MILES |      | FROM |
|               |             |         |           |          |              |                                       |  |                       |                        | UP           | DOWN |      |
| 04            | 01          |         |           |          |              | Cooper River *<br>(Charleston Harbor) |  |                       |                        |              |      |      |
|               |             | 01      |           |          |              | Town Creek * #                        |  |                       |                        |              |      |      |
|               |             |         | 01        |          |              | New Market Creek *                    |  |                       |                        |              |      |      |
|               |             | 02      |           |          |              | Wando River *                         |  |                       |                        |              |      |      |
|               |             |         | 01        |          |              | Molasses Creek *                      |  |                       |                        |              |      |      |
|               |             |         | 02        |          |              | Hobcaw Creek *                        |  |                       |                        |              |      |      |
|               |             |         | 03        |          |              | Burmuda Creek *                       |  |                       |                        |              |      |      |
|               |             |         | 04        |          |              | Rathall Creek *                       |  |                       |                        |              |      |      |
|               |             |         | 05        |          |              | Ralston Creek *                       |  |                       |                        |              |      |      |
|               |             |         | 06        |          |              | Beresford Creek * #                   |  |                       |                        |              |      |      |
|               |             |         |           | 01       |              | Unnamed Tributary *                   |  |                       |                        |              |      |      |
|               |             |         |           | 02       |              | Hopewell Creek *                      |  |                       |                        |              |      |      |
|               |             |         |           |          | 01           | Sanders Creek                         |  |                       |                        |              |      |      |
|               |             |         |           | 03       |              | Martin Creek *                        |  |                       |                        |              |      |      |
|               |             |         |           | 04       |              | Unnamed Tributary *                   |  |                       |                        |              |      |      |
|               |             | 07      |           |          |              | Fosters Creek *                       |  |                       |                        |              |      |      |

\* All or part tidally influenced.

# Dual code in Report 04.



APPENDIX A  
STREAM CATALOG

| STREAM CODE   |             |         |           |          |              |             | STREAM NAME         | HEADWATER LOCATION ( Mean Flow = 5 cfs ) |                        |              |      |      |
|---------------|-------------|---------|-----------|----------|--------------|-------------|---------------------|--|------------------------|--------------|------|------|
| REPORT NUMBER | MAJOR RIVER | PRIMARY | SECONDARY | TERTIARY | FOURTH ORDER | FIFTH ORDER |                     | LATITUDE<br>( ° ' " )                    | LONGITUDE<br>( ° ' " ) | STREAM MILES |      | FROM |
|               |             |         |           |          |              |             |                     |  |                        | UP           | DOWN |      |
| 04            | 01          | 02      | 07        | 01       | 01           |             | Unnamed Tributary * |  |                        |              |      |      |
|               |             |         |           | 02       |              |             | Unnamed Tributary * |  |                        |              |      |      |
|               |             |         |           | 03       |              |             | Unnamed Tributary * |  |                        |              |      |      |
|               |             |         |           | 08       |              |             | Horlbeck Creek *    |  |                        |              |      |      |
|               |             |         |           | 01       |              |             | Boone Hall Creek *  |  |                        |              |      |      |
|               |             |         |           | 02       |              |             | Unnamed Tributary * |  |                        |              |      |      |
|               |             |         |           | 03       |              |             | Unnamed Tributary * |  |                        |              |      |      |
|               |             |         |           | 09       |              |             | Johnfield Creek *   |  |                        |              |      |      |
|               |             |         |           | 10       |              |             | Nelliefield Creek * |  |                        |              |      |      |
|               |             |         |           | 11       |              |             | Mill Creek *        |  |                        |              |      |      |
|               |             |         |           | 12       |              |             | Unnamed Tributary * |  |                        |              |      |      |
|               |             |         |           | 13       |              |             | Fogarty Creek *     |  |                        |              |      |      |
|               |             |         |           | 14       |              |             | Guerin Creek *      |  |                        |              |      |      |
|               |             |         |           | 01       |              |             | Old Horse Creek *   |  |                        |              |      |      |
|               |             |         |           | 02       |              |             | Lachicotte Creek *  |  |                        |              |      |      |
|               |             |         |           | 03       |              |             | Unnamed Tributary * |  |                        |              |      |      |

\* All or part tidally influenced.

APPENDIX A  
STREAM CATALOG

| STREAM CODE   |             |         |           |          |                     |                     | STREAM NAME         | HEADWATER LOCATION ( Mean Flow = 5 cfs ) |                        |              |      |      |
|---------------|-------------|---------|-----------|----------|---------------------|---------------------|---------------------|--|------------------------|--------------|------|------|
| REPORT NUMBER | MAJOR RIVER | PRIMARY | SECONDARY | TERTIARY | FOURTH ORDER        | FIFTH ORDER         |                     | LATITUDE<br>( ° ' " )                    | LONGITUDE<br>( ° ' " ) | STREAM MILES |      | FROM |
|               |             |         |           |          |                     |                     |                     |  |                        | UP           | DOWN |      |
| 04            | 01          | 02      | 14        | 04       |                     |                     | Unnamed Tributary * |  |                        |              |      |      |
|               |             |         | 15        |          | Wagner Creek *      |                     |                     |  |                        |              |      |      |
|               |             |         | 16        |          | Toomer Creek *      |                     |                     |  |                        |              |      |      |
|               |             |         | 17        |          | Deep Creek *        |                     |                     |  |                        |              |      |      |
|               |             |         | 18        |          | Darrell Creek *     |                     |                     |  |                        |              |      |      |
|               |             |         | 19        |          | Alston Creek *      |                     |                     |  |                        |              |      |      |
|               |             |         | 20        |          | Unnamed Tributary * |                     |                     |  |                        |              |      |      |
|               |             |         | 21        |          | Unnamed Tributary * |                     |                     |  |                        |              |      |      |
|               |             |         | 22        |          | Unnamed Tributary * |                     |                     |  |                        |              |      |      |
|               |             |         | 23        |          | Unnamed Tributary * |                     |                     |  |                        |              |      |      |
|               |             |         | 24        |          | Unnamed Tributary * |                     |                     |  |                        |              |      |      |
|               |             |         | 25        |          | Unnamed Tributary * |                     |                     |  |                        |              |      |      |
|               |             |         | 26        |          | Unnamed Tributary * |                     |                     |  |                        |              |      |      |
|               |             |         | 27        |          | Unnamed Tributary * |                     |                     |  |                        |              |      |      |
|               |             |         |           |          | 03                  | Town Creek * #      |                     |  |                        |              |      |      |
|               |             |         |           |          | 04                  | Unnamed Tributary * |                     |  |                        |              |      |      |

04-A5

\* All or part tidally influenced.

# Dual code in Report 04.

APPENDIX A  
STREAM CATALOG

| REPORT NUMBER | STREAM CODE |         |           |          |              | STREAM NAME | HEADWATER LOCATION ( Mean Flow = 5 cfs ) |                        |                         |              |      |      |
|---------------|-------------|---------|-----------|----------|--------------|-------------|--|------------------------|-------------------------|--------------|------|------|
|               | MAJOR RIVER | PRIMARY | SECONDARY | TERTIARY | FOURTH ORDER |             | FIFTH ORDER                              | LATITUDE<br>( ° ' '' ) | LONGITUDE<br>( ° ' '' ) | STREAM MILES |      | FROM |
|               |             |         |           |          |              |             |  |                        |                         | UP           | DOWN |      |
| 04            | 01          | 05      |           |          |              |             |  |                        |                         |              |      |      |
|               |             | 06      |           |          |              |             |  |                        |                         |              |      |      |
|               |             | 01      |           |          |              |             |  |                        |                         |              |      |      |
|               |             | 02      |           |          |              |             |  |                        |                         |              |      |      |
|               |             | 07      |           |          |              |             |  |                        |                         |              |      |      |
|               |             | 08      |           |          |              |             |  |                        |                         |              |      |      |
|               |             | 09      |           |          |              |             |  |                        |                         |              |      |      |
|               |             | 01      |           |          |              |             |  |                        |                         |              |      |      |
|               |             | 02      |           |          |              |             |  |                        |                         |              |      |      |
|               |             | 03      |           |          |              |             |  |                        |                         |              |      |      |
|               |             | 04      |           |          |              |             |  |                        |                         |              |      |      |
|               |             | 05      |           |          |              |             |  |                        |                         |              |      |      |
|               |             | 06      |           |          |              |             |  |                        |                         |              |      |      |
|               |             | 07      |           |          |              |             |  |                        |                         |              |      |      |
|               |             | 08      |           |          |              |             |  |                        |                         |              |      |      |
| 09            |             |         |           |          |              |             |  |                        |                         |              |      |      |

04-A6

\* All or part tidally influenced.

# Dual code in Report 04.

APPENDIX A  
STREAM CATALOG

| STREAM CODE   |             |         |           |          |              |                     | STREAM NAME        | HEADWATER LOCATION ( Mean Flow = 5 cfs ) |                         |              |      |      |  |
|---------------|-------------|---------|-----------|----------|--------------|---------------------|--------------------|--|-------------------------|--------------|------|------|--|
| REPORT NUMBER | MAJOR RIVER | PRIMARY | SECONDARY | TERTIARY | FOURTH ORDER | FIFTH ORDER         |                    | LATITUDE<br>( ° ' '' )                   | LONGITUDE<br>( ° ' '' ) | STREAM MILES |      | FROM |  |
|               |             |         |           |          |              |                     |                    |  |                         | UP           | DOWN |      |  |
| 04            | 01          | 09      | 10        |          |              |                     | Huckhole Swamp *   |  |                         |              |      |      |  |
|               |             |         | 11        |          |              |                     | Blue House Swamp * |  |                         |              |      |      |  |
|               |             |         |           | 01       |              |                     | Unnamed Tributary* |  |                         |              |      |      |  |
|               |             |         |           | 02       |              |                     | McChune Branch*    |  |                         |              |      |      |  |
|               |             |         |           | 10       |              |                     |                    |  | Clouter Creek * #       |              |      |      |  |
|               |             |         |           | 11       |              |                     |                    |  | Yellow Horse Creek * #  |              |      |      |  |
|               |             |         |           | 01       |              |                     |                    |  | Back Slack Reach *      |              |      |      |  |
|               |             |         |           | 02       |              |                     |                    |  | Slack Reach * #         |              |      |      |  |
|               |             |         |           |          | 01           |                     |                    |  | Flag Creek *            |              |      |      |  |
|               |             |         |           |          |              |                     | 01                 |  | Unnamed Tributary * #   |              |      |      |  |
|               |             |         |           |          |              |                     | 02                 |  | Unnamed Tributary *     |              |      |      |  |
|               |             |         |           |          |              |                     | 03                 |  | Unnamed Tributary *     |              |      |      |  |
|               |             |         |           |          |              |                     | 04                 |  | Unnamed Tributary *     |              |      |      |  |
|               |             |         |           |          |              |                     | 05                 |  | Unnamed Tributary *     |              |      |      |  |
|               |             |         |           | 06       |              | Unnamed Tributary * |                    |  |                         |              |      |      |  |
|               |             |         |           | 07       |              | Unnamed Tributary * |                    |  |                         |              |      |      |  |
|               |             |         |           | 08       |              | Pepper Gully *      |                    |  |                         |              |      |      |  |

\* All or part tidally influenced.

# Dual code in Report 04.

APPENDIX A  
STREAM CATALOG

| STREAM CODE   |             |         |           |          |              |             | STREAM NAME                           | HEADWATER LOCATION ( Mean Flow = 5 cfs ) |                        |              |      |      |  |
|---------------|-------------|---------|-----------|----------|--------------|-------------|---------------------------------------|--|------------------------|--------------|------|------|--|
| REPORT NUMBER | MAJOR RIVER | PRIMARY | SECONDARY | TERTIARY | FOURTH ORDER | FIFTH ORDER |                                       | LATITUDE<br>( ° ' " )                    | LONGITUDE<br>( ° ' " ) | STREAM MILES |      | FROM |  |
|               |             |         |           |          |              |             |                                       |  |                        | UP           | DOWN |      |  |
| 04            | 01          | 12      |           |          |              |             | Unnamed Tributary *                   |  |                        |              |      |      |  |
|               |             | 13      |           |          |              |             | Slack Reach * #                       |  |                        |              |      |      |  |
|               |             | 14      |           |          |              |             | Unnamed Tributary *<br>(Georgie Pond) |  |                        |              |      |      |  |
|               |             | 15      |           |          |              |             | Unnamed Tributary *                   |  |                        |              |      |      |  |
|               |             | 16      |           |          |              |             | Unnamed Tributary *                   |  |                        |              |      |      |  |
|               |             | 17      |           |          |              |             | Unnamed Tributary *                   |  |                        |              |      |      |  |
|               |             | 18      |           |          |              |             | Back River * #                        |  |                        |              |      |      |  |
|               |             |         |           | 01       |              |             |                                       | Foster Creek *                           |                        |              |      |      |  |
|               |             |         |           |          |              | 01          |                                       | Unnamed Tributary *                      |                        |              |      |      |  |
|               |             |         |           |          |              | 02          |                                       | Unnamed Tributary *                      |                        |              |      |      |  |
|               |             |         |           |          |              | 03          |                                       | Unnamed Tributary *                      |                        |              |      |      |  |
|               |             |         |           |          |              | 04          |                                       | Unnamed Tributary *                      |                        |              |      |      |  |
|               |             |         |           |          |              | 05          |                                       | Unnamed Tributary *                      |                        |              |      |      |  |
|               |             |         |           | 02       |              |             |                                       | Unnamed Tributary *                      |                        |              |      |      |  |
|               |             |         |           | 03       |              |             |                                       | Prioleau Creek *                         |                        |              |      |      |  |
|               |             |         |           |          |              | 01          |                                       | Unnamed Tributary *<br>(Crane Pond)      |                        |              |      |      |  |

04-A8

\* All or part tidally influenced.

# Dual code in Report 04.

APPENDIX A  
STREAM CATALOG

| REPORT NUMBER | STREAM CODE |         |           |          |              | STREAM NAME                              | HEADWATER LOCATION ( Mean Flow = 5 cfs ) |                       |                        |              |      |                            |
|---------------|-------------|---------|-----------|----------|--------------|--|--|-----------------------|------------------------|--------------|------|----------------------------|
|               | MAJOR RIVER | PRIMARY | SECONDARY | TERTIARY | FOURTH ORDER |  | FIFTH ORDER                              | LATITUDE<br>( ° ' " ) | LONGITUDE<br>( ° ' " ) | STREAM MILES |      | FROM                       |
|               |             |         |           |          |              |  |  |                       |                        | UP           | DOWN |                            |
| 04            | 01          | 18      | 03        | 02       |              | Unnamed Tributary *<br>(Long Field Pond) |  |                       |                        |              |      |                            |
|               |             |         | 04        |          |              | Chicken Creek *                          |  |                       |                        |              |      |                            |
|               |             |         |           | 01       |              | Durham Canal * #                         |  |                       |                        |              |      |                            |
|               |             |         | 05        |          |              | Canterhill Swamp                         | 33 05 30                                 | 80 02 25              | 1.9                    |              |      | U.S. 52 Highway<br>Bridge  |
|               |             |         | 06        |          |              | Laurel Swamp                             | 33 05 00                                 | 80 04 20              |                        | 0.7          |      | U.S. 17A Highway<br>Bridge |
|               |             | 19      |           |          |              | Grove Creek *                            |  |                       |                        |              |      |                            |
|               |             |         | 01        |          |              | Unnamed Tributary * #                    |  |                       |                        |              |      |                            |
|               |             |         | 02        |          |              | Unnamed Tributary *                      |  |                       |                        |              |      |                            |
|               |             |         | 03        |          |              | Little Johnson Creek *                   |  |                       |                        |              |      |                            |
|               |             | 20      |           |          |              | Unnamed Tributary * #                    |  |                       |                        |              |      |                            |
|               |             |         | 01        |          |              | Unnamed Tributary *                      |  |                       |                        |              |      |                            |
|               |             |         | 02        |          |              | Cowbell Branch *                         |  |                       |                        |              |      |                            |
|               |             |         |           | 01       |              | Unnamed Tributary *                      |  |                       |                        |              |      |                            |
|               |             |         | 03        |          |              | Unnamed Tributary *                      |  |                       |                        |              |      |                            |
|               |             | 21      |           |          |              | Unnamed Tributary *                      |  |                       |                        |              |      |                            |

\* All or part tidally influenced.

# Dual code in Report 04.

APPENDIX A  
STREAM CATALOG

| REPORT NUMBER | STREAM CODE |         |           |          |              | STREAM NAME            | HEADWATER LOCATION ( Mean Flow = 5 cfs ) |                        |                         |              |      |      |
|---------------|-------------|---------|-----------|----------|--------------|------------------------|--|------------------------|-------------------------|--------------|------|------|
|               | MAJOR RIVER | PRIMARY | SECONDARY | TERTIARY | FOURTH ORDER |                        | FIFTH ORDER                              | LATITUDE<br>( ° ' '' ) | LONGITUDE<br>( ° ' '' ) | STREAM MILES |      | FROM |
|               |             |         |           |          |              |                        |  |                        |                         | UP           | DOWN |      |
| 04            | 01          | 22      |           |          |              | Freshing Lead *        |  |                        |                         |              |      |      |
|               |             |         | 01        |          |              | Bonnie Reserve *       |  |                        |                         |              |      |      |
|               |             | 23      |           |          |              | Unnamed Tributary * #  |  |                        |                         |              |      |      |
|               |             | 24      |           |          |              | East Branch Cooper R * |  |                        |                         |              |      |      |
|               |             |         | 01        |          |              | Coming Tee Creek *     |  |                        |                         |              |      |      |
|               |             |         |           | 01       |              | Unnamed Tributary *    |  |                        |                         |              |      |      |
|               |             |         |           | 02       |              | Unnamed Tributary *    |  |                        |                         |              |      |      |
|               |             |         |           | 03       |              | Big Dam Lead *         |  |                        |                         |              |      |      |
|               |             |         |           | 02       |              | Unnamed Tributary * #  |  |                        |                         |              |      |      |
|               |             |         |           | 03       |              | French Quarter Creek * |  |                        |                         |              |      |      |
|               |             |         |           | 01       |              | Chipper Swamp *        |  |                        |                         |              |      |      |
|               |             |         |           | 02       |              | Leheigh Reserve *      |  |                        |                         |              |      |      |
|               |             |         |           | 04       |              | Mayrant Lead *         |  |                        |                         |              |      |      |
|               |             |         |           | 05       |              | Quarterman Branch *    |  |                        |                         |              |      |      |
|               |             |         |           | 06       |              | Quinby Creek *         |  |                        |                         |              |      |      |
|               |             |         |           |          | 01           | Unnamed Tributary *    |  |                        |                         |              |      |      |

\* All or part tidally influenced.

# Dual code in Report 04.

APPENDIX A  
STREAM CATALOG

| STREAM CODE   |             |         |           |          |              |             | STREAM NAME           | HEADWATER LOCATION ( Mean Flow = 5 cfs ) |                         |              |      |      |
|---------------|-------------|---------|-----------|----------|--------------|-------------|-----------------------|--|-------------------------|--------------|------|------|
| REPORT NUMBER | MAJOR RIVER | PRIMARY | SECONDARY | TERTIARY | FOURTH ORDER | FIFTH ORDER |                       | LATITUDE<br>( ° ' '' )                   | LONGITUDE<br>( ° ' '' ) | STREAM MILES |      | FROM |
|               |             |         |           |          |              |             |                       |  |                         | UP           | DOWN |      |
| 04            | 01          | 24      | 06        | 02       |              |             | Hester Canal *        |  |                         |              |      |      |
|               |             |         |           |          | 01           |             | Unnamed Tributary *   |  |                         |              |      |      |
|               |             |         |           | 03       |              |             | York Bottom *         |  |                         |              |      |      |
|               |             |         |           | 04       |              |             | Washaw Creek *        |  |                         |              |      |      |
|               |             |         |           | 05       |              |             | Menzer Run *          |  |                         |              |      |      |
|               |             |         |           | 06       |              |             | Deep Branch *         |  |                         |              |      |      |
|               |             |         |           | 07       |              |             | Pinckney Reserve Br * |  |                         |              |      |      |
|               |             |         |           | 08       |              |             | Bennett Branch *      |  |                         |              |      |      |
|               |             |         |           | 09       |              |             | Harleston Dam Creek * |  |                         |              |      |      |
|               |             |         |           |          | 01           |             | Cropnel Dam Creek *   |  |                         |              |      |      |
|               |             |         |           | 10       |              |             | Northampton Creek *   |  |                         |              |      |      |
|               |             |         | 07        |          |              |             | Huger Creek *         |  |                         |              |      |      |
|               |             |         |           | 01       |              |             | Unnamed Tributary *   |  |                         |              |      |      |
|               |             |         |           | 02       |              |             | Gough Creek *         |  |                         |              |      |      |
|               |             |         |           |          | 01           |             | Alligator Creek *     |  |                         |              |      |      |
|               |             |         |           | 03       |              |             | Negrofield Branch *   |  |                         |              |      |      |
|               |             |         |           | 04       |              |             | Turkey Creek *        |  |                         |              |      |      |

\* All or part tidally influenced.



APPENDIX A  
STREAM CATALOG

| STREAM CODE   |             |                |           |          |              |             | STREAM NAME        | HEADWATER LOCATION ( Mean Flow = 5 cfs ) |                         |              |      |      |
|---------------|-------------|----------------|-----------|----------|--------------|-------------|--------------------|--|-------------------------|--------------|------|------|
| REPORT NUMBER | MAJOR RIVER | PRIMARY        | SECONDARY | TERTIARY | FOURTH ORDER | FIFTH ORDER |                    | LATITUDE<br>( ° ' '' )                   | LONGITUDE<br>( ° ' '' ) | STREAM MILES |      | FROM |
|               |             |                |           |          |              |             |                    |  |                         | UP           | DOWN |      |
| 04            | 01          | 24             | 07        | 04       | 01           |             | Fox Gully Branch * |  |                         |              |      |      |
|               |             |                |           |          |              |             | 02                 | Muddy Creek *                            |                         |              |      |      |
|               |             |                |           |          |              |             | 03                 | Oakie Branch *                           |                         |              |      |      |
|               |             |                |           |          |              |             | 04                 | Old Man Lead *                           |                         |              |      |      |
|               |             |                |           |          |              |             | 05                 | Unnamed Tributary *                      |                         |              |      |      |
|               |             |                |           |          |              |             | 06                 | Huitt Branch *                           |                         |              |      |      |
|               |             |                |           |          |              |             | 01                 | Unnamed Tributary *                      |                         |              |      |      |
|               |             |                |           |          |              |             | 25                 | West Branch Cooper R *                   |                         |              |      |      |
|               |             |                |           |          |              |             | 01                 | Durham Canal * #                         |                         |              |      |      |
|               |             |                |           |          |              |             | 02                 | Mepkin Creek *                           |                         |              |      |      |
|               |             |                |           |          |              |             | 01                 | Unnamed Tributary *                      |                         |              |      |      |
|               |             |                |           |          |              |             | 03                 | Molly Branch *                           |                         |              |      |      |
|               |             |                |           |          |              |             | 01                 | Unnamed Tributary *                      |                         |              |      |      |
|               |             |                |           |          |              |             | 02                 | Unnamed Tributary *                      |                         |              |      |      |
|               |             |                |           |          |              |             | 03                 | Unnamed Tributary *                      |                         |              |      |      |
|               | 04          | Wadboo Swamp * |           |          |              |             |                    |  |                         |              |      |      |

04-A12

\* All or part tidally influenced.

# Dual code in Report 04.

APPENDIX A  
STREAM CATALOG

| STREAM CODE   |             |         |           |          |              |             | STREAM NAME                                  | HEADWATER LOCATION ( Mean Flow = 5 cfs ) |                        |              |      |                             |
|---------------|-------------|---------|-----------|----------|--------------|-------------|--|--|------------------------|--------------|------|-----------------------------|
| REPORT NUMBER | MAJOR RIVER | PRIMARY | SECONDARY | TERTIARY | FOURTH ORDER | FIFTH ORDER |  | LATITUDE<br>( ° ' " )                    | LONGITUDE<br>( ° ' " ) | STREAM MILES |      | FROM                        |
|               |             |         |           |          |              |             |  |  |                        | UP           | DOWN |                             |
| 04            | 01          | 25      | 04        | 01       |              |             | Bullhead Run                                 | 33 11 35                                 | 79 54 15               |              |      | Confluence-Mary Anne Branch |
|               |             |         |           | 02       |              |             | Broad Ax Branch                              | 33 13 10                                 | 79 57 00               |              | 0.1  | S.C. 360 Highway Bridge     |
|               |             |         |           | 03       |              |             | Cane Gully Branch                            | 33 13 00                                 | 79 52 35               | 3.3          |      | Wadboo Swamp                |
|               |             |         |           | 04       |              |             | Whiskinboo Creek                             | 33 15 10                                 | 79 54 00               | 0.8          |      | Wadboo Swamp                |
|               |             |         |           | 05       |              |             | Gravel Hill Swamp                            | 33 20 25                                 | 79 54 55               |              | 0.1  | Walker Swamp                |
|               |             | 05      |           |          |              |             | Tailrace Canal ##<br>(Pinopolis Dam Release) |  |                        |              |      |                             |
|               | 02          |         |           |          |              |             | Shem Creek *                                 |  |                        |              |      |                             |
|               |             | 01      |           |          |              |             | Unnamed Tributary *                          |  |                        |              |      |                             |
|               | 03          |         |           |          |              |             | Intracoastal Waterway* #                     |  |                        |              |      |                             |
|               | 04          |         |           |          |              |             | Hamlin Creek *<br>(Breach Inlet)             |  |                        |              |      |                             |
|               |             | 01      |           |          |              |             | Conch Creek *<br>(Breach Inlet)              |  |                        |              |      |                             |
|               |             |         | 01        |          |              |             | Sullivan Island<br>Narrows *                 |  |                        |              |      |                             |
|               |             |         | 02        |          |              |             | Intracoastal Waterway* #                     |  |                        |              |      |                             |

04-A13

\* All or part tidally influenced.

# Dual code in Report 04.

## No 5 cfs points above dam.

APPENDIX A  
STREAM CATALOG

| STREAM CODE   |             |         |           |          |              |             | STREAM NAME                         | HEADWATER LOCATION ( Mean Flow = 5 cfs ) |                        |              |      |      |
|---------------|-------------|---------|-----------|----------|--------------|-------------|-------------------------------------|--|------------------------|--------------|------|------|
| REPORT NUMBER | MAJOR RIVER | PRIMARY | SECONDARY | TERTIARY | FOURTH ORDER | FIFTH ORDER |                                     | LATITUDE<br>( ° ' " )                    | LONGITUDE<br>( ° ' " ) | STREAM MILES |      | FROM |
|               |             |         |           |          |              |             |                                     |  |                        | UP           | DOWN |      |
| 04            | 04          | 01      | 03        |          |              |             | Intracoastal Waterway* #            |  |                        |              |      |      |
|               |             |         | 04        |          |              |             | Unnamed Tributary *                 |  |                        |              |      |      |
|               |             | 02      |           |          |              |             | Inlet Creek * #<br>(Breach Inlet)   |  |                        |              |      |      |
|               |             |         | 01        |          |              |             | Unnamed Tributary *                 |  |                        |              |      |      |
|               |             |         | 02        |          |              |             | Unnamed Tributary * #               |  |                        |              |      |      |
|               |             |         | 03        |          |              |             | Unnamed Tributary * #               |  |                        |              |      |      |
|               |             |         | 04        |          |              |             | Intracoastal Waterway* #            |  |                        |              |      |      |
|               |             |         | 05        |          |              |             | Intracoastal Waterway* #            |  |                        |              |      |      |
|               |             |         | 06        |          |              |             | Unnamed Tributary *                 |  |                        |              |      |      |
|               |             |         | 07        |          |              |             | Unnamed Tributary *                 |  |                        |              |      |      |
|               |             |         | 08        |          |              |             | Unnamed Tributary *                 |  |                        |              |      |      |
|               |             |         | 09        |          |              |             | Unnamed Tributary *                 |  |                        |              |      |      |
|               |             |         | 10        |          |              |             | Unnamed Tributary *                 |  |                        |              |      |      |
|               |             |         | 11        |          |              |             | Unnamed Tributary * #               |  |                        |              |      |      |
|               |             |         | 12        |          |              |             | Swinton Creek * #                   |  |                        |              |      |      |
|               |             | 03      |           |          |              |             | Swinton Creek * #<br>(Breach Inlet) |  |                        |              |      |      |

\* All or part tidally influenced.

# Dual code in Report 04.

APPENDIX A  
STREAM CATALOG

| STREAM CODE   |             |         |           |          |              |                                  | STREAM NAME              | HEADWATER LOCATION ( Mean Flow = 5 cfs ) |                        |              |      |      |
|---------------|-------------|---------|-----------|----------|--------------|----------------------------------|--------------------------|--|------------------------|--------------|------|------|
| REPORT NUMBER | MAJOR RIVER | PRIMARY | SECONDARY | TERTIARY | FOURTH ORDER | FIFTH ORDER                      |                          | LATITUDE<br>( ° ' " )                    | LONGITUDE<br>( ° ' " ) | STREAM MILES |      | FROM |
|               |             |         |           |          |              |                                  |                          |  |                        | UP           | DOWN |      |
| 04            | 04          | 03      | 01        |          |              |                                  | Intracoastal Waterway* # |  |                        |              |      |      |
|               |             |         | 02        |          |              |                                  | Intracoastal Waterway* # |  |                        |              |      |      |
|               |             |         | 03        |          |              |                                  | Unnamed Tributary *      |  |                        |              |      |      |
|               |             |         | 04        |          |              |                                  | Unnamed Tributary * #    |  |                        |              |      |      |
|               |             |         | 05        |          |              |                                  | Unnamed Tributary * #    |  |                        |              |      |      |
|               |             |         | 06        |          |              |                                  | Unnamed Tributary *      |  |                        |              |      |      |
|               |             |         | 07        |          |              |                                  | Unnamed Tributary * #    |  |                        |              |      |      |
|               |             |         | 08        |          |              |                                  | Unnamed Tributary *      |  |                        |              |      |      |
|               |             |         | 09        |          |              |                                  | Unnamed Tributary *      |  |                        |              |      |      |
|               |             |         | 10        |          |              |                                  | Gray Bay * #             |  |                        |              |      |      |
|               |             | 04      |           |          |              | Unnamed Tributary *              |                          |  |                        |              |      |      |
|               |             | 05      |           |          |              | Intracoastal Waterway* #         |                          |  |                        |              |      |      |
|               |             | 06      |           |          |              | Intracoastal Waterway* #         |                          |  |                        |              |      |      |
|               |             | 07      |           |          |              | Unnamed Tributary *              |                          |  |                        |              |      |      |
|               |             | 08      |           |          |              | Unnamed Tributary *              |                          |  |                        |              |      |      |
|               |             | 09      |           |          |              | Gray Bay * #                     |                          |  |                        |              |      |      |
|               | 05          |         |           |          |              | Dewees Creek *<br>(Dewees Inlet) |                          |  |                        |              |      |      |

04-A15

\* All or part tidally influenced.

# Dual code in Report 04.

APPENDIX A  
STREAM CATALOG

| REPORT NUMBER | STREAM CODE |         |           |          |              | STREAM NAME                      | HEADWATER LOCATION ( Mean Flow = 5 cfs ) |                       |                        |              |      |      |
|---------------|-------------|---------|-----------|----------|--------------|----------------------------------|--|-----------------------|------------------------|--------------|------|------|
|               | MAJOR RIVER | PRIMARY | SECONDARY | TERTIARY | FOURTH ORDER |                                  | FIFTH ORDER                              | LATITUDE<br>( ° ' " ) | LONGITUDE<br>( ° ' " ) | STREAM MILES |      | FROM |
|               |             |         |           |          |              |                                  |  |                       |                        | UP           | DOWN |      |
| 04            | 05          | 01      |           |          |              |                                  |  |                       |                        |              |      |      |
|               |             |         | 01        |          |              | Cedar Creek *                    |  |                       |                        |              |      |      |
|               |             |         |           |          |              | Morgan Creek *                   |  |                       |                        |              |      |      |
|               |             | 02      |           |          |              | Unnamed Tributary *              |  |                       |                        |              |      |      |
|               |             |         | 01        |          |              | Old House Creek *                |  |                       |                        |              |      |      |
|               |             |         | 02        |          |              | Horsebend Creek *                |  |                       |                        |              |      |      |
|               |             |         |           |          |              | Bullyard Sound * #               |  |                       |                        |              |      |      |
|               |             | 03      |           |          |              | Unnamed Tributary *              |  |                       |                        |              |      |      |
|               |             |         | 04        |          |              | Intracoastal Waterway* #         |  |                       |                        |              |      |      |
|               |             |         |           |          |              | Intracoastal Waterway* #         |  |                       |                        |              |      |      |
|               |             | 06      |           |          |              | Copahee Sound *                  |  |                       |                        |              |      |      |
|               |             |         | 07        |          |              | Long Creek *                     |  |                       |                        |              |      |      |
|               |             |         |           |          |              | Unnamed Tributary *              |  |                       |                        |              |      |      |
|               |             |         |           |          |              | Gray Bay * #                     |  |                       |                        |              |      |      |
|               |             |         |           | 01       |              | Seven Reaches *                  |  |                       |                        |              |      |      |
|               |             | 08      |           |          |              | Hamlin Sound *                   |  |                       |                        |              |      |      |
|               | 06          |         |           |          |              | Capers Creek *<br>(Capers Inlet) |  |                       |                        |              |      |      |

\* All or part tidally influenced.

# Dual code in Report 04.

04-A16

APPENDIX A  
STREAM CATALOG

| STREAM CODE   |             |         |           |          |              |             | STREAM NAME              | HEADWATER LOCATION ( Mean Flow = 5 cfs ) |                        |              |      |      |  |
|---------------|-------------|---------|-----------|----------|--------------|-------------|--------------------------|--|------------------------|--------------|------|------|--|
| REPORT NUMBER | MAJOR RIVER | PRIMARY | SECONDARY | TERTIARY | FOURTH ORDER | FIFTH ORDER |                          | LATITUDE<br>( ° ' " )                    | LONGITUDE<br>( ° ' " ) | STREAM MILES |      | FROM |  |
|               |             |         |           |          |              |             |                          |  |                        | UP           | DOWN |      |  |
| 04            | 06          | 01      |           |          |              |             | Unnamed Tributary *      |  |                        |              |      |      |  |
|               |             |         | 02        |          |              |             | Unnamed Tributary *      |  |                        |              |      |      |  |
|               |             | 02      | 01        |          |              |             | Watermelon Creek *       |  |                        |              |      |      |  |
|               |             |         | 02        |          |              |             | Bullyard Sound * #       |  |                        |              |      |      |  |
|               |             | 03      | 01        |          |              |             | Toomer Creek *           |  |                        |              |      |      |  |
|               |             |         | 02        |          |              |             | Intracoastal Waterway* # |  |                        |              |      |      |  |
|               |             | 04      | 01        |          |              |             | Intracoastal Waterway* # |  |                        |              |      |      |  |
|               |             |         | 02        |          |              |             | Whiteside Creek *        |  |                        |              |      |      |  |
|               |             | 04      | 01        |          |              |             | Intracoastal Waterway* # |  |                        |              |      |      |  |
|               |             |         | 02        |          |              |             | Intracoastal Waterway* # |  |                        |              |      |      |  |
|               |             | 03      |           |          |              |             | Unnamed Tributary *      |  |                        |              |      |      |  |
|               |             | 04      |           |          |              |             | Unnamed Tributary *      |  |                        |              |      |      |  |
|               |             | 05      |           |          |              |             | Unnamed Tributary *      |  |                        |              |      |      |  |
|               |             | 06      |           |          |              |             | Unnamed Tributary *      |  |                        |              |      |      |  |
|               |             | 07      |           |          |              |             | Unnamed Tributary *      |  |                        |              |      |      |  |
|               |             | 05      |           |          |              |             | Unnamed Tributary *      |  |                        |              |      |      |  |
|               |             | 06      |           |          |              |             | Santee Pass * #          |  |                        |              |      |      |  |

\* All or part tidally influenced.

# Dual code in Report 04.

04-A17

APPENDIX A  
STREAM CATALOG

| STREAM CODE   |             |         |           |          |              |             | STREAM NAME                    | HEADWATER LOCATION ( Mean Flow = 5 cfs ) |                         |              |      |      |
|---------------|-------------|---------|-----------|----------|--------------|-------------|--------------------------------|--|-------------------------|--------------|------|------|
| REPORT NUMBER | MAJOR RIVER | PRIMARY | SECONDARY | TERTIARY | FOURTH ORDER | FIFTH ORDER |                                | LATITUDE<br>( ° ' '' )                   | LONGITUDE<br>( ° ' '' ) | STREAM MILES |      | FROM |
|               |             |         |           |          |              |             |                                |  |                         | UP           | DOWN |      |
| 04            | 06          | 06      | 01        |          |              |             | Unnamed Tributary *            |  |                         |              |      |      |
|               |             |         | 02        |          |              |             | Unnamed Tributary *            |  |                         |              |      |      |
|               |             |         | 03        |          |              |             | Mark Bay * #                   |  |                         |              |      |      |
|               |             |         | 04        |          |              |             | Unnamed Tributary *            |  |                         |              |      |      |
|               |             | 07      |           | 07       |              |             | Intracoastal Waterway* #       |  |                         |              |      |      |
|               |             |         |           | 08       |              |             | Unnamed Tributary *            |  |                         |              |      |      |
|               |             |         |           | 09       |              |             | Mark Bay * #                   |  |                         |              |      |      |
|               |             |         |           | 10       |              |             | Unnamed Tributary *            |  |                         |              |      |      |
|               |             |         |           | 01       |              |             | Price Creek *<br>(Price Inlet) |  |                         |              |      |      |
|               |             |         |           | 02       |              |             | Unnamed Tributary *            |  |                         |              |      |      |
|               |             |         |           | 02       |              |             | Schooner Creek *               |  |                         |              |      |      |
|               |             |         |           | 03       |              |             | Unnamed Tributary *            |  |                         |              |      |      |
|               |             |         |           | 04       |              |             | Bull Narrows * #               |  |                         |              |      |      |
|               |             |         |           | 05       |              |             | Santee Pass * #                |  |                         |              |      |      |
|               |             |         |           | 06       |              |             | Unnamed Tributary *            |  |                         |              |      |      |
|               |             |         |           | 07       |              |             | Unnamed Tributary *            |  |                         |              |      |      |

04-A18

\* All or part tidally influenced.

# Dual code in Report 04.

APPENDIX A  
STREAM CATALOG

| STREAM CODE   |             |         |           |          |              |             | STREAM NAME              | HEADWATER LOCATION ( Mean Flow = 5 cfs ) |                        |              |      |      |  |
|---------------|-------------|---------|-----------|----------|--------------|-------------|--------------------------|--|------------------------|--------------|------|------|--|
| REPORT NUMBER | MAJOR RIVER | PRIMARY | SECONDARY | TERTIARY | FOURTH ORDER | FIFTH ORDER |                          | LATITUDE<br>( ° ' " )                    | LONGITUDE<br>( ° ' " ) | STREAM MILES |      | FROM |  |
|               |             |         |           |          |              |             |                          |  |                        | UP           | DOWN |      |  |
| 04            | 07          | 08      |           |          |              |             | Unnamed Tributary *      |  |                        |              |      |      |  |
|               |             | 09      |           |          |              |             | Unnamed Tributary *      |  |                        |              |      |      |  |
|               |             | 10      |           |          |              |             | Intracoastal Waterway* # |  |                        |              |      |      |  |
|               |             |         | 01        |          |              |             |                          | Clauson Creek *                          |                        |              |      |      |  |
|               |             | 11      |           |          |              |             |                          | Unnamed Tributary *                      |                        |              |      |      |  |
|               |             | 12      |           |          |              |             |                          | Unnamed Tributary *                      |                        |              |      |      |  |
|               | 08          |         | 13        |          |              |             |                          | Unnamed Tributary *                      |                        |              |      |      |  |
|               |             |         | 01        |          |              |             |                          | Jack Creek *                             |                        |              |      |      |  |
|               |             |         | 02        |          |              |             |                          |  | Unnamed Tributary *    |              |      |      |  |
|               | 09          |         | 03        |          |              |             |                          | Unnamed Tributary *                      |                        |              |      |      |  |
|               |             |         | 01        |          |              |             |                          | Bull Creek *<br>(Bull Harbor)            |                        |              |      |      |  |
|               |             |         | 02        |          |              |             |                          |  | Summerhouse Creek *    |              |      |      |  |
|               |             |         | 03        |          |              |             |                          |  | Unnamed Tributary *    |              |      |      |  |
|               |             |         | 01        |          |              |             |                          |  | Unnamed Tributary *    |              |      |      |  |

\* All or part tidally influenced.

# Dual code in Report 04.



APPENDIX A  
STREAM CATALOG

| STREAM CODE   |             |         |           |          |              |                     | STREAM NAME         | HEADWATER LOCATION ( Mean Flow = 5 cfs ) |                        |              |      |      |  |
|---------------|-------------|---------|-----------|----------|--------------|---------------------|---------------------|--|------------------------|--------------|------|------|--|
| REPORT NUMBER | MAJOR RIVER | PRIMARY | SECONDARY | TERTIARY | FOURTH ORDER | FIFTH ORDER         |                     | LATITUDE<br>( ° ' " )                    | LONGITUDE<br>( ° ' " ) | STREAM MILES |      | FROM |  |
|               |             |         |           |          |              |                     |                     |  |                        | UP           | DOWN |      |  |
| 04            | 09          | 02      |           |          |              |                     | Unnamed Tributary * |  |                        |              |      |      |  |
|               |             | 03      |           |          |              |                     | Back Creek *        |  |                        |              |      |      |  |
|               |             | 04      |           |          |              |                     |                     | Unnamed Tributary *                      |                        |              |      |      |  |
|               |             | 05      |           |          |              |                     |                     | Unnamed Tributary *                      |                        |              |      |      |  |
|               |             |         | 01        |          |              |                     |                     | Unnamed Tributary *                      |                        |              |      |      |  |
|               |             |         |           | 01       |              |                     |                     | Unnamed Tributary *                      |                        |              |      |      |  |
|               |             |         | 06        |          |              |                     |                     | Bull Narrows * #                         |                        |              |      |      |  |
|               |             |         |           | 01       |              |                     |                     | Unnamed Tributary *                      |                        |              |      |      |  |
|               |             |         |           | 02       |              |                     |                     | Unnamed Tributary *                      |                        |              |      |      |  |
|               |             |         |           | 03       |              |                     |                     | Unnamed Tributary *                      |                        |              |      |      |  |
|               |             |         | 04        |          |              |                     | Unnamed Tributary * |  |                        |              |      |      |  |
|               |             |         | 05        |          |              |                     | Unnamed Tributary * |  |                        |              |      |      |  |
|               |             |         | 06        |          |              |                     | Unnamed Tributary * |  |                        |              |      |      |  |
|               |             |         | 07        |          |              |                     | Unnamed Tributary * |  |                        |              |      |      |  |
|               |             | 10      | 07        |          |              |                     | Sewee Bay * #       |  |                        |              |      |      |  |
|               |             | 01      |           |          |              | Anderson Creek *    |                     |  |                        |              |      |      |  |
|               |             | 01      |           |          |              | Unnamed Tributary * |                     |  |                        |              |      |      |  |
|               |             | 01      |           |          |              | Unnamed Tributary * |                     |  |                        |              |      |      |  |

04-A20

\* All or part tidally influenced.

# Dual code in Report 04.

APPENDIX A  
STREAM CATALOG

| REPORT NUMBER | STREAM CODE |                       |                     |                     |              | STREAM NAME         | HEADWATER LOCATION ( Mean Flow = 5 cfs ) |                       |                        |              |      |      |
|---------------|-------------|-----------------------|---------------------|---------------------|--------------|---------------------|--|-----------------------|------------------------|--------------|------|------|
|               | MAJOR RIVER | PRIMARY               | SECONDARY           | TERTIARY            | FOURTH ORDER |                     | FIFTH ORDER                              | LATITUDE<br>( ° ' " ) | LONGITUDE<br>( ° ' " ) | STREAM MILES |      | FROM |
|               |             |                       |                     |                     |              |                     |  |                       |                        | UP           | DOWN |      |
| 04            | 10          | 02                    |                     |                     |              | Unnamed Tributary * |  |                       |                        |              |      |      |
|               |             |                       | 01                  | Unnamed Tributary * |              |                     |  |                       |                        |              |      |      |
|               |             |                       | 02                  | Unnamed Tributary * |              |                     |  |                       |                        |              |      |      |
|               |             |                       | 03                  | Unnamed Tributary * |              |                     |  |                       |                        |              |      |      |
|               |             |                       | 01                  | Unnamed Tributary * |              |                     |  |                       |                        |              |      |      |
|               |             |                       | 04                  | Hickory Bay *       |              |                     |  |                       |                        |              |      |      |
|               |             |                       | 05                  | Unnamed Tributary * |              |                     |  |                       |                        |              |      |      |
|               |             |                       | 01                  | Sewee Bay * #       |              |                     |  |                       |                        |              |      |      |
|               |             |                       | 11                  | Blind Creek *       |              |                     |  |                       |                        |              |      |      |
|               |             |                       | 12                  | Venning Creek *     |              |                     |  |                       |                        |              |      |      |
| 13            | 01          | Vanderhorst Creek * # |                     |                     |              |                     |  |                       |                        |              |      |      |
|               |             | 02                    | Unnamed Tributary * |                     |              |                     |  |                       |                        |              |      |      |
|               |             | 03                    | Unnamed Tributary * |                     |              |                     |  |                       |                        |              |      |      |
| 14            | 01          | Vanderhorst Creek * # |                     |                     |              |                     |  |                       |                        |              |      |      |
|               |             | 02                    | Unnamed Tributary * |                     |              |                     |  |                       |                        |              |      |      |
|               |             | 02                    | Unnamed Tributary * |                     |              |                     |  |                       |                        |              |      |      |

\* All or part tidally influenced.

# Dual code in Report 04.

04-A21

APPENDIX A  
STREAM CATALOG

| REPORT NUMBER | STREAM CODE |         |           |          |                          | STREAM NAME              | HEADWATER LOCATION ( Mean Flow = 5 cfs ) |                       |                        |              |      |      |
|---------------|-------------|---------|-----------|----------|--------------------------|--------------------------|--|-----------------------|------------------------|--------------|------|------|
|               | MAJOR RIVER | PRIMARY | SECONDARY | TERTIARY | FOURTH ORDER             |                          | FIFTH ORDER                              | LATITUDE<br>( ° ' " ) | LONGITUDE<br>( ° ' " ) | STREAM MILES |      | FROM |
|               |             |         |           |          |                          |                          |  |                       |                        | UP           | DOWN |      |
| 04            | 14          | 01      |           |          |                          | Unnamed Tributary *      |  |                       |                        |              |      |      |
|               |             | 02      |           |          |                          | Unnamed Tributary *      |  |                       |                        |              |      |      |
|               | 15          |         |           |          |                          | Saltpond Creek * #       |  |                       |                        |              |      |      |
|               |             | 01      |           |          |                          | Unnamed Tributary *      |  |                       |                        |              |      |      |
|               | 16          | 02      |           |          |                          | Unnamed Tributary *      |  |                       |                        |              |      |      |
|               |             |         |           |          |                          | Graham Creek * ##        |  |                       |                        |              |      |      |
|               |             | 01      |           |          |                          | Saltpond Creek * #       |  |                       |                        |              |      |      |
|               |             | 02      |           |          |                          | Intracoastal Waterway* # |  |                       |                        |              |      |      |
|               |             | 03      |           |          |                          | Intracoastal Waterway* # |  |                       |                        |              |      |      |
|               |             | 04      |           |          |                          | Intracoastal Waterway* # |  |                       |                        |              |      |      |
|               |             | 05      |           |          |                          | Intracoastal Waterway* # |  |                       |                        |              |      |      |
|               |             | 06      |           |          |                          | Unnamed Tributary *      |  |                       |                        |              |      |      |
|               |             | 07      |           |          |                          | Intracoastal Waterway* # |  |                       |                        |              |      |      |
|               | 08          |         |           |          | Intracoastal Waterway* # |                          |  |                       |                        |              |      |      |
|               | 09          |         |           |          | Intracoastal Waterway* # |                          |  |                       |                        |              |      |      |

04-A22

\* All or part tidally influenced.

# Dual code in Report 04.

## Dual code in Report 05.

APPENDIX B  
SUMMARY OF 10 TO 1,000 ACRE LAKES

This appendix is a compilation of lakes from 10 to 1,000 acres which are contained in the Cooper River report area.

This inventory was compiled from the following sources:

1. Inventory of Lakes in South Carolina Ten Acres or More in Surface Area.
2. USGS Quadrangle Maps.

The USGS quadrangle maps were used to locate and to detect lakes that were not listed in the other sources. Actual surface area and gross storage information is supplied where available. The lakes were coded by major stream basin in accordance with other procedures developed for identifying streams. The map data from Source 1 above generally does not permit detailed location of the small lakes. Thus, lakes are coded by basin only as far as the secondary order.

APPENDIX B  
SUMMARY OF 10 TO 1,000 ACRE LAKES

| REPORT NUMBER | STREAM CODE |         |           |          |             | LAKE NAME OR OWNER                                  | SURFACE AREA<br>(acres) | GROSS STORAGE<br>(acre-ft) | LOCATION BY COUNTY<br>(SOUTH CAROLINA) |
|---------------|-------------|---------|-----------|----------|-------------|---|-------------------------|----------------------------|--|
|               | MAJOR RIVER | PRIMARY | SECONDARY | TERTIARY | FIFTH ORDER |   |                         |                            |  |
| 04            | 01          | 24      | 06        |          |             | Bates   | 50                      | 300                        | Berkeley                               |
| 04            | 01          | 24      | 07        |          |             | Baxley  | 15                      | 60                         | Berkeley                               |
| 04            | 01          | 24      | 07        |          |             | U. S. Forestry Service<br>(Little Hellhole Reserve) | 50                      | 200                        | Berkeley                               |
| 04            | 01          | 25      | 02        |          |             | Mepkin Trappist Monastery                           | 10                      | 50                         | Berkeley                               |
| 04            | 01          | 25      |           |          |             | Drayton Hastia                                      | 60                      | 360                        | Berkeley                               |
| 04            | 01          | 18      | 02        |          |             | S. C. Electric & Gas                                | 20                      | 80                         | Berkeley                               |
| 04            | 01          | 18      | 02        |          |             | S. C. Electric & Gas                                | 20                      | 80                         | Berkeley                               |
| 04            | 01          | 18      |           |          |             | U. S. Army  | 50                      | 200                        | Berkeley                               |
| 04            | 01          | 09      |           |          |             | U. S. Army  | 25                      | 100                        | Berkeley                               |
| 04            | 01          | 09      | 03        |          |             | U. S. Army (New Tenant Pond)                        | 18                      | 72                         | Berkeley                               |
| 04            | 01          | 09      | 02        |          |             | U. S. Army (Brown Pond)                             | 10                      | 40                         | Berkeley                               |
| 04            | 01          | 09      | 01        |          |             | U. S. Army (Logan Pond)                             | 12                      | 48                         | Berkeley                               |
| 04            | 01          | 18      | 03        |          |             | Midway Plantation (Crane Pond)                      | 20                      | 80                         | Berkeley                               |
| 04            | 01          | 18      | 03        |          |             | Midway Plantation                                   | 15                      | 60                         | Berkeley                               |
| 04            | 01          | 18      | 03        |          |             | Midway Plantation (Long Field Pond)                 | 30                      | 120                        | Berkeley                               |

04-B2

APPENDIX B  
SUMMARY OF 10 TO 1,000 ACRE LAKES

| REPORT NUMBER | STREAM CODE |         |           |          |             | LAKE NAME OR OWNER  | SURFACE AREA<br>(acres) | GROSS STORAGE<br>(acre-ft) | LOCATION BY COUNTY<br><br>(SOUTH CAROLINA) |
|---------------|-------------|---------|-----------|----------|-------------|---|-------------------------|----------------------------|--|
|               | MAJOR RIVER | PRIMARY | SECONDARY | TERTIARY | FIFTH ORDER |   |                         |                            |  |
| 04            | 01          | 24      | 05        |          |             | W. H. Thornley  | 10                      | 28                         | Berkeley                                   |
| 04            | 01          | 09      |           |          |             | Goose Creek   | 12                      | 60                         | Berkeley                                   |
| 04            | 01          | 09      |           |          |             | Charleston County Public Works<br>(Goose Creek Reservoir) | 600                     | 4,800                      | Berkeley                                   |
| 04            | 01          | 25      |           |          |             | James Aichle  | 10                      | 50                         | Berkeley                                   |
| 04            | 01          | 24      | 03        |          |             | Tom Hugenin   | 80                      | 320                        | Berkeley                                   |
| 04            | 01          | 24      | 03        |          |             | Tom Hugenin   | 12                      | 48                         | Berkeley                                   |
| 04            | 01          | 24      | 01        |          |             | Westvaco  | 100                     | 400                        | Berkeley                                   |
| 04            | 01          | 24      | 05        |          |             | Westvaco (Upper Reserve)                                  | 150                     | 600                        | Berkeley                                   |
| 04            | 01          | 24      | 05        |          |             | Westvaco (Lower Reserve)                                  | 40                      | 160                        | Berkeley                                   |
| 04            | 01          | 25      | 04        |          |             | Gravel Hill Lake  | 25                      | 500                        | Berkeley                                   |
| 04            | 01          | 11      | 02        |          |             | Cainhoy Plantation  | 15                      | 60                         | Berkeley                                   |
| 04            | 01          | 25      |           |          |             | Mulberry Plantation                                       | 15                      | 60                         | Berkeley                                   |
| 04            | 01          | 18      | 05        |          |             | Ben Scot Whaley   | 100                     | 400                        | Berkeley                                   |
| 04            | 01          | 18      | 05        |          |             | Mt. Holly Plantation                                      | 15                      | 75                         | Berkeley                                   |
| 04            | 01          | 18      | 06        |          |             | Unnamed Lake  | 15                      | 75                         | Berkeley                                   |
| 04            | 01          | 18      |           |          |             | Cypress Gardens   | 40                      | 120                        | Berkeley                                   |

04-B3

APPENDIX B  
SUMMARY OF 10 TO 1,000 ACRE LAKES

| REPORT NUMBER | STREAM CODE |         |           |          |             | LAKE NAME OR OWNER            | SURFACE AREA<br>(acres) | GROSS STORAGE<br>(acre-ft) | LOCATION BY COUNTY<br><br>(SOUTH CAROLINA) |
|---------------|-------------|---------|-----------|----------|-------------|-------------------------------|-------------------------|----------------------------|--|
|               | MAJOR RIVER | PRIMARY | SECONDARY | TERTIARY | FIFTH ORDER |                               |                         |                            |  |
| 04            | 01          | 24      | 07        |          |             | Midway Plantation             | 60                      | 240                        | Berkeley                                   |
| 04            | 01          | 24      | 04        |          |             | Westvaco                      | 10                      | 40                         | Berkeley                                   |
| 04            | 01          | 24      | 04        |          |             | Westvaco                      | 10                      | 40                         | Berkeley                                   |
| 04            | 01          | 24      |           |          |             | Tom Hugenin                   | 15                      | 60                         | Berkeley                                   |
| 04            | 01          | 18      |           |          |             | Back River Reservoir          | 850                     | 8,500                      | Berkeley                                   |
| 04            | 01          | 18      | 06        |          |             | Windwood Development          | 50                      | 240                        | Berkeley                                   |
| 04            | 01          | 18      | 06        |          |             | AMIC                          | 50                      | 500                        | Berkeley                                   |
| 04            | 01          | 24      | 01        |          |             | Unnamed Lake                  | --                      | --                         | Berkeley                                   |
| 04            | 02          |         |           |          |             | Unnamed Lake                  | --                      | --                         | Berkeley                                   |
| 04            | 01          | 09      |           |          |             | W. W. Wild                    | 10                      | 50                         | Charleston                                 |
| 04            | 01          | 09      | 11        |          |             | Unnamed Lake                  | 14                      | 70                         | Charleston                                 |
| 04            | 01          | 09      | 08        |          |             | Unnamed Lake                  | 13                      | 65                         | Charleston                                 |
| 04            | 01          | 02      | 01        |          |             | R. M. McGillavry              | 10                      | 60                         | Charleston                                 |
| 04            | 01          | 02      | 02        |          |             | Lake Wackedaw (Lake Woodlawn) | 22                      | 132                        | Charleston                                 |
| 04            | 02          |         |           |          |             | J. C. Long                    | 10                      | 80                         | Charleston                                 |
| 04            | 01          | 02      | 08        |          |             | John Muller                   | 10                      | 80                         | Charleston                                 |
| 04            | 01          | 02      | 25        |          |             | Aaron Causey                  | 20                      | 120                        | Charleston                                 |

04-84

APPENDIX B  
SUMMARY OF 10 TO 1,000 ACRE LAKES

| REPORT NUMBER | STREAM CODE |         |           |          |             | LAKE NAME OR OWNER                                    | SURFACE AREA<br>(acres) | GROSS STORAGE<br>(acre-ft) | LOCATION BY COUNTY<br>(SOUTH CAROLINA) |
|---------------|-------------|---------|-----------|----------|-------------|---|-------------------------|----------------------------|--|
|               | MAJOR RIVER | PRIMARY | SECONDARY | TERTIARY | FIFTH ORDER |   |                         |                            |  |
| 04            | 01          | 02      | 27        |          |             | Belser Estate (Mayrants Reserve)                      | 125                     | 625                        | Charleston                             |
| 04            | 05          | 02      | 01        |          |             | Reynold Aluminum                                      | 100                     | 500                        | Charleston                             |
| 04            | 06          | 02      |           |          |             | Reynold Aluminum                                      | 125                     | 625                        | Charleston                             |
| 04            | 06          |         |           |          |             | Reynold Aluminum                                      | 125                     | 375                        | Charleston                             |
| 04            | 07          | 03      |           |          |             | S. C. Wildlife Department                             | 90                      | 270                        | Charleston                             |
| 04            | 08          | 02      |           |          |             | S. C. Wildlife Department                             | 500                     | 2,500                      | Charleston                             |
| 04            | 08          |         |           |          |             | S. C. Wildlife Department<br>(Lower Summerhouse Pond) | 20                      | 50                         | Charleston                             |
| 04            | 09          | 01      | 03        |          |             | S. C. Wildlife Department<br>(Upper Summerhouse Pond) | 56                      | 140                        | Charleston                             |
| 04            | 07          | 10      |           |          |             | Louis White   | 10                      | 50                         | Charleston                             |
| 04            | 12          | 03      |           |          |             | Jim White   | 12                      | 72                         | Charleston                             |
| 04            | 08          |         |           |          |             | Moccasin Pond   | --                      | --                         | Charleston                             |

04-85