

ORDCO-W (7 Nov 79) 1st Ind

SUBJECT: Determination of Navigability of Harpeth River, Tributary of the Cumberland River at Mile 152.9, and its Tributaries

DA, Ohio River Division, Corps of Engineers, P.O. Box 1159, Cincinnati, OH 45201


1 JAN 1980

TO: District Engineer, Nashville

I have reviewed the subject report and have determined, in compliance with 33 CFR 329.14(b), that the Harpeth River and its tributaries are navigable waters of the United States as follows:

- a. Harpeth River: mouth to Mile 114.5, site of the U.S. Highway 41A bridge, the probable head of historic navigation and the current head of recreational navigation.
- b. Jones Creek, tributary of Harpeth River at Mile 10.6: mouth to Mile 14.4, site of the Tennessee Highway 47 bridge, the probable head of historic navigation and the current head of recreational navigation.
- c. Turnbull Creek, tributary of Harpeth River at Mile 35.1: mouth to Mile 13.1, site of the Tennessee Highway 96 bridge, the probable head of historic navigation and the current head of recreational navigation.
- d. South Harpeth River, tributary of Harpeth River at Mile 43.4: mouth to Mile 8.4, site of the Old Harding Pike bridge, the probable head of historic navigation and the current head of recreational navigation.
- e. West Harpeth River, tributary of Harpeth River of Mile 78.7: mouth to Mile 8.6 confluence with Leipers Fork, the probable head of historic navigation. The stream presently supports recreational navigation to Mile 7.0.

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HARRY A. GRIFFITH
Major General, USA
Division Engineer



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7 NOV 1979

IN REPLY REFER TO


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SUBJECT: Determination of Navigability of Harpeth River, Tributary of the Cumberland River at Mile 152.9, and Its Tributaries

Division Engineer, Ohio River
ATTN: ORDCO-W/ORDOC

1. In accordance with 33 CFR 329, subject: Definition of Navigable Waters of the United States, the attached Report of Findings, accompanied by an opinion of the District Counsel, pertaining to the subject stream is submitted for a final determination.
2. A description of the Exhibits accompanying the Report of Findings follows:
 - EXHIBIT 1 - Nashville Engineer District Map showing the location of the Harpeth River in relation to other geographic features.
 - EXHIBIT 2 - Map of the Harpeth River Basin.
 - EXHIBIT 3 - Streamflow Data for the Harpeth River.
 - EXHIBIT 4 - High Water Profiles for the Harpeth River.
 - EXHIBIT 5 - Structure or Obstruction Data Sheets tabulating results of field surveys of the Harpeth River and its tributaries.
 - EXHIBIT 6 - Cheatham Dam and Lake Project Map and Data.
 - EXHIBIT 7 - Three Islands Dam and Lake Project Map and Data.
 - EXHIBIT 8 - Summary of Historic Records pertaining to Harpeth River navigation.
 - EXHIBIT 9 - Bibliography listing data researched and referred to in Report of Findings.
 - EXHIBIT 10 - Tennessee Scenic River Data.
 - EXHIBIT 11 - Harpeth River Canoeing Guides.
 - EXHIBIT 12 - Photographs of Harpeth River and tributaries.

1 Encl (dupe)
Report of Findings


ROBERT K. TENER
Colonel, Corps of Engineers
District Engineer

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REPORT OF FINDINGS

1. Name of Waterbody: Harpeth River, Tennessee.
2. Tributary to: Cumberland River at Mile 152.9, left bank
3. Physical Characteristics:
 - a. Type: River (for general characteristics, see Exhibits 1, and 12.
 - b. Tributaries: The major tributaries are:
 - (1) Jones Creek Mile 10.6: 107 sq mi drainage area
 - (2) Turnbull Creek, Mile 35.1: 115 sq mi drainage area
 - (3) South Harpeth River, Mile 43.4: 80.9 sq mi drainage area
 - (4) West Harpeth River, Mile 78.7: 117 sq mi drainage area
 - c. Length: The approximate total lengths are:
 - (1) Harpeth River: 125 miles
 - (2) Jones Creek: 28 miles
 - (3) Turnbull Creek: 26.5 miles
 - (4) South Harpeth River: 21 miles
 - (5) West Harpeth River: 12 miles
 - d. Streamflow Data:
 - (1) Gaging station at Harpeth River Mile 32.4 where the drainage area is 681 square miles and the period of record is 1924 to 1977:
 - (a) Maximum flow: 60,000 cfs (7 Jan 46)
 - (b) Minimum flow: 12 cfs (18 September 39)
 - (c) Average flow: 935 cfs (49 years)

(2) Gaging station at Harpeth River Mile 62.1 where the drainage area is 408 square miles and the period of record is 1920-1977:

- (a) Maximum flow: 40,000 cfs (13 Feb 48)
- (b) Minimum flow: 0 cfs (5-10 Oct 22)
- (c) Average flow: 556 cfs (54 years)

e. Drainage Areas: Harpeth River: 866 square miles (drainage areas of major tributaries listed in 3.b. above)

f. Fall per Mile: (see Exhibit 4)

(1) Harpeth River: 2.7 ft/mile average from Mile 10.5 to Mile 88.1 and 3.2 ft/mile average from Mile 88.1 to Mile 125.

(2) Jones Creek: (from USGS quadrants)
Mile 21.5 (el. 600) to Mile 0.7 (el. 400), 9.6 ft/mile average

(3) Turnbull Creek: (from USGS quadrants)
Mile 21 (el. 640) to Mile 1.0 (el. 510), 6.5 ft/mile average

(4) South Harpeth River: (from USGS quadrants)
Mile 18.3 (el. 700) to Mile 2 (el. 500), 12.3 ft/mile average

(5) West Harpeth River: (from USGS quadrants)
Mile 11 (el. 640) to Mile 0.5 (el. 580), 5.7 ft/mile average

g. Range between maximum high water and low water: (see Exhibit 3 and 4)

(1) At Harpeth River Mile 10.5

Maximum high water 416.0 feet (Jan 1927)

low water 382.0 feet

range 34.0 feet

(2) At Harpeth River Mile 80

Maximum high water 618.0 feet (Feb 1948)

low water 586.0

range 32.0 feet

h. Obstructions to navigation: See Structure or Obstruction Data Sheets, Exhibit 5.

i. General Description: The 866 square mile drainage basin of the Harpeth River lies within central Tennessee. The river flows about 125 miles in a general northwesterly direction through Rutherford, Williamson, Davidson, and Cheatham Counties to its confluence with the Cumberland River at Mile 152.9. Elevations range from about 730 feet at the headwaters to approximately 400 feet at the mouth of the stream. Lands adjacent to the upper and middle courses of the stream are gently rolling and fertile; forested hills border the lower stream course. Except at Franklin, an urban-industrial center, the Harpeth River basin is used chiefly for agriculture. The lower 10.5 miles of the Harpeth are impounded by Cheatham Dam and Lake, a Corps of Engineers project located at Cumberland River Mile 148.7. The State of Tennessee has designated part of the Harpeth River as a State Scenic River. Because of the proximity of the basin to the Nashville urban area, the Harpeth River and its major tributaries carry a heavy recreational traffic, supported by commercial canoe liveries.

4. Projects:

a. Nonfederal projects:

(1) Remains of privately constructed and operated mill dams that

once operated on the Harpeth and its tributaries are visible (see photographs, Exhibit 12).

(2) The State of Tennessee in 1813 approved and partially completed a project to improve Harpeth River navigation to Mile 88.1.

(3) Under authority of the Tennessee Scenic River Act of 1968, the State of Tennessee has designated the Harpeth River from Mile 62 to Mile 14.5 a State Scenic River. Development of public access sites and boat launching sites is underway. (see Exhibit 10)

b. Federal Projects: Cheatham Lock, Dam, and Lake, a Corps of Engineers project for navigation and hydroelectric power production at Cumberland River Mile 148.7, impounds the Harpeth River to Mile 10.5: (see Exhibit 6)

(1) Authorization: River and Harbor Act, 24 July 1946, and Public Law 396, 82 Congress, 2 Session, 19 June 1952.

(2) Construction: Began in April 1950. Lock opened to navigation on 12 December 1952. Power units began full operation on 21 November 1959, 17 May 1960, and 9 November 1960.

(3) Project status:

Height of dam	70 feet
Length (exclusive of lock and power plant)	495 feet
Power plant, 3 units, rated capacity	36,000 kW
Navigation Lock dimensions	110x800 feet
Normal lock lift	26 feet
Costs (to 30 June 1973)	\$30,590,926

c. Projects authorized but not constructed: Three Islands Dam and Lake, a Corps of Engineers multi-purpose project with proposed dam at Harpeth River Mile 6.3 (see Exhibit 7):

(1) Authorization: Flood Control Act, 28 June 1938 (PL 761, 75 Cong., 3 Sess.) and River and Harbor Act, 24 July 1946 (PL 525, 79 Cong., 2 Sess.)

(2) Proposed Structure:

Height of dam	138 feet
Crest length	3,800 feet
Spillway design discharge	246,000 cfs
Drainage area controlled	854 sq. miles
Power plant, 2 units, capacity	18,000 kW
Project purposes...flood control, conservation, power generation	
Costs (to 30 June 73)	\$111,855

(3) Project status: Engineering and design 14% completed. Project in inactive status.

d. Projects proposed but not authorized:

(1) Ohio River Division, Ohio River Basin Comprehensive Survey (1967), included in the "Potential Flood Control Plan" for the Cumberland River Basin a major Upstream Watershed Project for the flood protection of the Upper Harpeth River Valley.

(2) Nashville District, Survey Report on Harpeth River, Tennessee (1974), made unfavorable report upon clearing a 4.8 mile section of the Harpeth River in the Franklin, Tennessee, urban area for local flood protection.

e. Previous survey documents and reports:

(1) Secretary of War, "National Armory on Western Waters," 24 April 1823, in American State Papers, Class V: Military Affairs, II, 733-34, 759-60. A report on use of the "Narrows" of the Harpeth (at Mile 23.5) as a site for a National Armory. It reported the Harpeth River navigable for boats drawing three feet of water to Mile 23.5.

(2) Captain John L. Smith, Corps of Engineers, "General Report on an Examination and Survey of Various Sites for the Establishment of an Armory on the Western Waters," 28 May 1830, in American State Papers, Class V: Military Affairs, IV, 483-84, 535-42. A report on the use of the "Narrows" of the Harpeth River (at Mile 23.5) as a site for a National Armory. It reported the Harpeth River navigable for boats drawing three feet of water to Mile 23.5 and stated that the State of Tennessee was prepared to improve the Harpeth River to Mile 23.5 for year-round navigation by boats with a four-foot draft.

(3) Nashville District, "Navigable Status of Harpeth River," 24 March 1932. Copy in National Archives. Reported the Harpeth River navigable in fact to Mile 36.

(4) US Congress, House. Cumberland River, Kentucky and Tennessee, H. Doc. No. 38, 73 Cong., 1 Sess., 1933. Report on flood control and multiple purpose project feasibility.

(5) US Congress, House, Cumberland River and Tributaries, H. Doc. No 761, 79 Cong., 2 Sess., 1946. Report on flood control and multiple purpose project feasibility.

(6) Nashville District, Survey Report on Harpeth River, Tennessee (1974). Unfavorable report upon clearing a section of the Harpeth River in the Franklin, Tennessee, urban area for local flood protection.

5. Past and Present Interstate Commerce:

a. Past Commerce: Historic records indicate that the Harpeth River has been navigated by towboats to Mile 6, by small craft transporting agricultural commodities to Mile 88.1, and by rafts and floated forest products. Available records are insufficient to establish the historic heads of navigation upon the Harpeth River and its tributaries.

b. Present Commerce: The Harpeth River and its tributaries, because of their proximity to the Nashville urban area, are among the most popular streams used by recreational traffic in Tennessee. Large recreation craft navigate the lower 10.5 miles of Harpeth River on Cheatham Lake and small recreation craft navigate the free-flowing sections of the Harpeth and its tributaries. Several commercial canoe livery firms in the area rent canoes and small craft for recreational navigation on the Harpeth River system. Present traffic is heavy and growing. The normal heads of present recreation traffic are:

- (1) Harpeth River: Mile 114.5
- (2) West Harpeth River: Mile 7.0
- (3) South Harpeth River: Mile 8.4
- (4) Jones Creek: Mile 14.4
- (5) Turnbull Creek: Mile 13.1

6. Potential Use for Interstate Commerce:

a. Past potential: Available records do not indicate the heads of historic navigation on Harpeth River and its tributaries. The streams could have supported an historic interstate commerce carried in small craft and floated and rafted to the present heads of recreation traffic.

b. Present potential:

(1) commercial barge traffic: Harpeth River can now support commercial towboat and barge traffic at all seasons on much of its lower 10.5 miles impounded by Cheatham Lake. The authorized (inactive) Three Islands Dam at Harpeth River Mile 6.3 would, if constructed, impound the Harpeth River and some tributaries to depths capable of supporting commercial barge traffic. The Three Islands project at its maximum pool elevation of 503 feet would impound the Harpeth River system to the following mile points:

- (a) Harpeth River: Mile 48.3
- (b) South Harpeth River: Mile 2
- (c) Turnbull Creek: Mile 6.5
- (d) Jones Creek: Mile 14.4

(2) Commercial recreation traffic: The Harpeth River system now supports commercial recreation traffic to the maximum potential. While it might be possible at certain streamflows to operate recreation craft upstream of the present heads of navigation, such operation would be irregular and infrequent.

(a) Harpeth River: The head of present recreation traffic is at Mile 114.5, site of the Highway 41A bridge. At Mile 114.5 the drainage area of the Harpeth River is approximately 40 square miles, and the ability of the stream to support navigation upstream of Mile 114.5 is questionable.

(b) Jones Creek: The head of present recreation traffic is at Mile 14.4, site of the Tennessee Highway 47 bridge. At Mile 14.4 the drainage area of Jones Creek is 56.3 square miles, and the ability of the stream to support navigation upstream of Mile 14.4 is questionable.

(c) Turnbull Creek: The head of present recreation traffic is at Mile 13.1, site of the Tennessee Highway 96 bridge. At Mile 13.1 the drainage area of Turnbull Creek is approximately 37 square miles, and the ability of the stream to support navigation upstream of Mile 13.1 is questionable.

(d) South Harpeth River: The head of present recreation traffic is at Mile 8.4, site of the Old Harding Pike bridge. At Mile 8.4 the drainage area of South Harpeth River is approximately 47 square miles

(e) West Harpeth River: The head of present recreation traffic is at Mile 7.0, site of the Boyd Mill Pike bridge. At Mile 7 the drainage area of West Harpeth River is approximately 98 square miles. Field survey indicated that the West Harpeth River can support navigation by small craft to Mile 8.6, confluence with Leipers Fork. From Mile 8.6 to Mile 7 there are no convenient boat launch sites, and present recreation traffic therefore launches at Mile 7. At Mile 8.6 the drainage area of the West Harpeth River is 67.6 square miles and the drainage area of Leipers Fork is 28.4 square miles, and the ability of Leipers Fork and the West Harpeth River upstream of Mile 8.6 to support navigation is questionable.

7. Jurisdiction Exercised by Federal Agencies:

a. The Corps of Engineers has exercised jurisdiction over Harpeth River since 1974 as a navigable water of the United States to Mile 88.9. From 1952 to 1974 the head of jurisdiction was at Mile 10, near the head of Cheatham Lake.

b. The U.S. Coast Guard places the Harpeth River to Mile 10 in the advanced approval category for bridge permits.

8. State or Federal Court Decisions Relating to Navigability of the Waterbody: None were located.

9. Remarks:

a. The Harpeth River system, because of its geographic location and physical characteristics, was ideally suited for navigation and water power production, has been used for those purposes, and is susceptible to such uses.

b. Because of their proximity to the Nashville urban area, the Harpeth River and its tributaries now support a large and growing recreational traffic which is interstate in character and which is vital to several area recreational craft rental and livery services. Congress has stated that for some purposes, notably for improvements in rivers, harbors and other waterways, the term "commerce" includes the use of waterways by seasonal passenger craft, yachts, houseboats, fishing boats, and other similar water craft, whether or not operated for hire. Courts as well have recognized the commerce-related nature of bodies of water which are attractive to interstate travelers as a source of recreation.

c. The lower 10.5 miles of Harpeth River are impounded for navigation by the Cheatham Lock and Dam project. The authorized Three Islands project (inactive) would, if constructed, impound the Harpeth River to Mile 48.3 and the lower courses of several tributaries for navigation. The State of Tennessee, is developing the central section of the Harpeth River as a scenic river.

d. The Harpeth River was navigated by towboats, small craft, and floated forest products in an interstate commerce. The State of Tennessee declared the Harpeth River legally navigable to Mile 88 (Franklin, Tennessee) and authorized improvements to navigation on the stream. Available records do not indicate the precise heads of navigation on the Harpeth River system.

e. The head of historic navigation on the Harpeth River cannot be established at present, but field survey indicated that the probable head was at Mile 114.5. The head of present recreation traffic is at Mile 114.5. The Harpeth River is susceptible to navigation to Mile 114.5, at which point the drainage area is approximately 40 square miles.

f. The head of historic navigation on Jones Creek cannot be established at present, but field survey indicated that the probable head was at Mile 14.4. The head of present recreation traffic is at Mile 14.4, at which point the drainage area is 56.3 square miles.

g. The head of historic navigation on Turnbull Creek cannot be established at present, but field survey indicated that the probable head was at Mile 13.1. The head of present recreation traffic is at Mile 13.1, at which point the drainage area is approximately 37 square miles.

h. The head of historic navigation on the South Harpeth River cannot be established at present, but field survey indicated that the probable head was at Mile 8.4. The head of present recreation traffic is at Mile 8.4, at which point the drainage area is approximately 47 square miles.

i. The head of historic navigation on the West Harpeth River cannot be established at present, but field survey indicated that the probable head was at Mile 8.6. The head of present recreation traffic is at Mile 7.0. The West Harpeth River is susceptible to navigation to Mile 8.6, confluence with Leipers Fork. The drainage area of Leipers Fork is 28.4 square miles and of the West Harpeth River upstream of Mile 8.6 is 67.6 square miles.

10. Recommendations: I recommend that the Harpeth River and its tributaries be considered navigable waters of the United States to the mile points listed below:

a. Harpeth River: mouth to Mile 114.5, site of the US Highway 41A bridge.


b. Jones Creek, tributary at Mile 10.6: mouth to Mile 14.4, site of the Tennessee Highway 47 bridge.

c. Turnbull Creek, tributary at Mile 35.1: mouth to Mile 13.1, site of the Tennessee Highway 96 bridge.

d. South Harpeth River, tributary at Mile 43.4: mouth to Mile 8.4, site of the Old Harding Pike bridge.

e. West Harpeth River, tributary at Mile 78.7: mouth to Mile 8.6, confluence with Leipers Fork.

7 NOV 1979


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