

History of Navigation of the Ohio River

FORTY NINE LOCKS AND MOVABLE DAMS WERE
ERECTED BY THE UNITED STATES GOVERNMENT
BETWEEN PITTSBURGH AND CAIRO, A
DISTANCE OF NINE HUNDRED AND EIGHTY MILES,
GIVING A NINE FOOT STAGE TO RIVER NAVIGATION.

THIS MONUMENT HAS BEEN ERECTED BY THE
GRATEFUL PEOPLE OF THE OHIO VALLEY AS
A TOKEN OF DEEP APPRECIATION OF THEIR
GOVERNMENT'S SOUND WATERWAY POLICY AND
IN RECOGNITION OF THE ABILITY AND LOYALTY
OF THE SPLENDID CORPS OF UNITED STATES
ENGINEERS WHO HAVE SO FAITHFULLY
WROUGHT THE SUCCESSFUL ACCOMPLISHMENT
OF THIS GREAT WORK.

THE OHIO VALLEY
IMPROVEMENT ASSOCIATION

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"The views, opinions and findings contained in this report are those of the authors(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation."



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USACE Locks and Dams

- USACE navigation responsibilities are planning and constructing navigation channels, locks and dams, and dredging to maintain channel depths in U.S. harbors and inland waterways. We operate and maintain 25,000 miles of navigable channels and 196 commercial lock and dam sites.

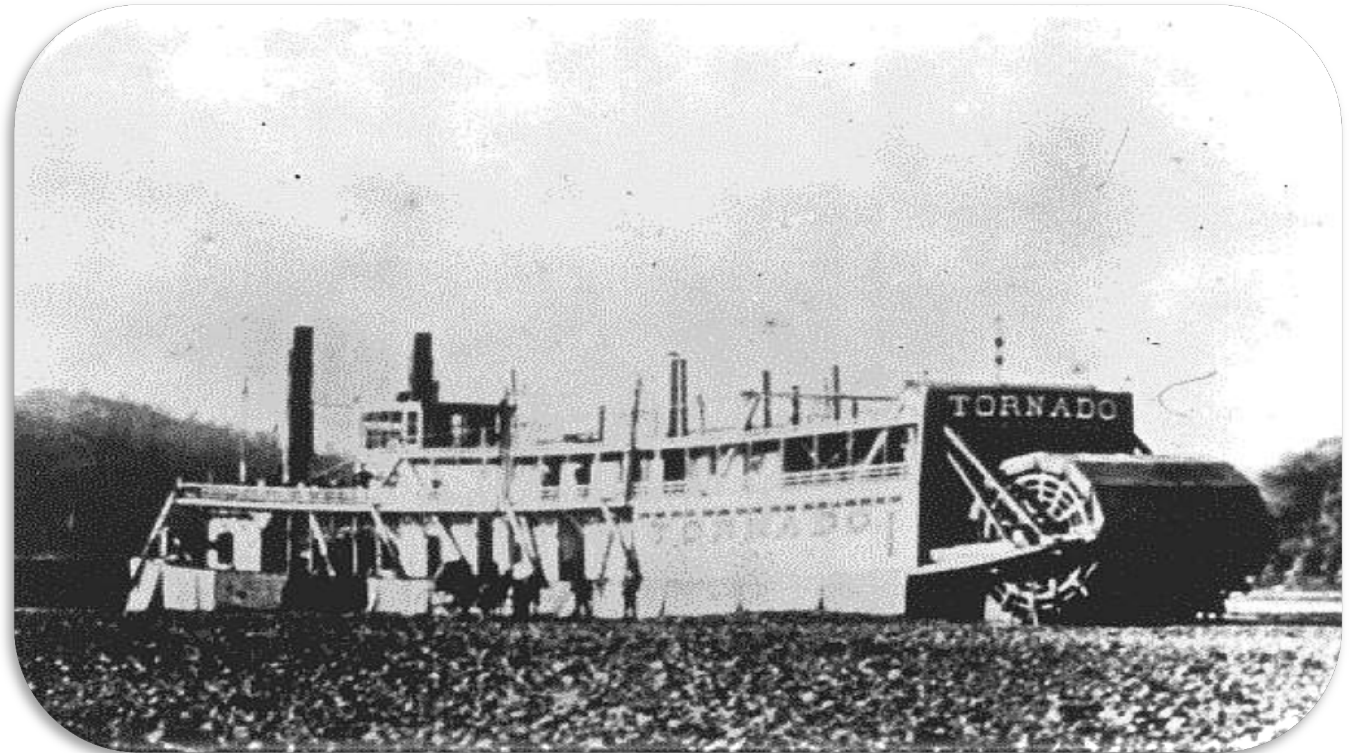


Nearly 200 Years of Work on the Ohio River

- Open Channel 1824 – 1874
- Canalization 1879 – 1929
- Flood Control 1938 – 1988
- Modernization 1955 – 2018

Early Navigation

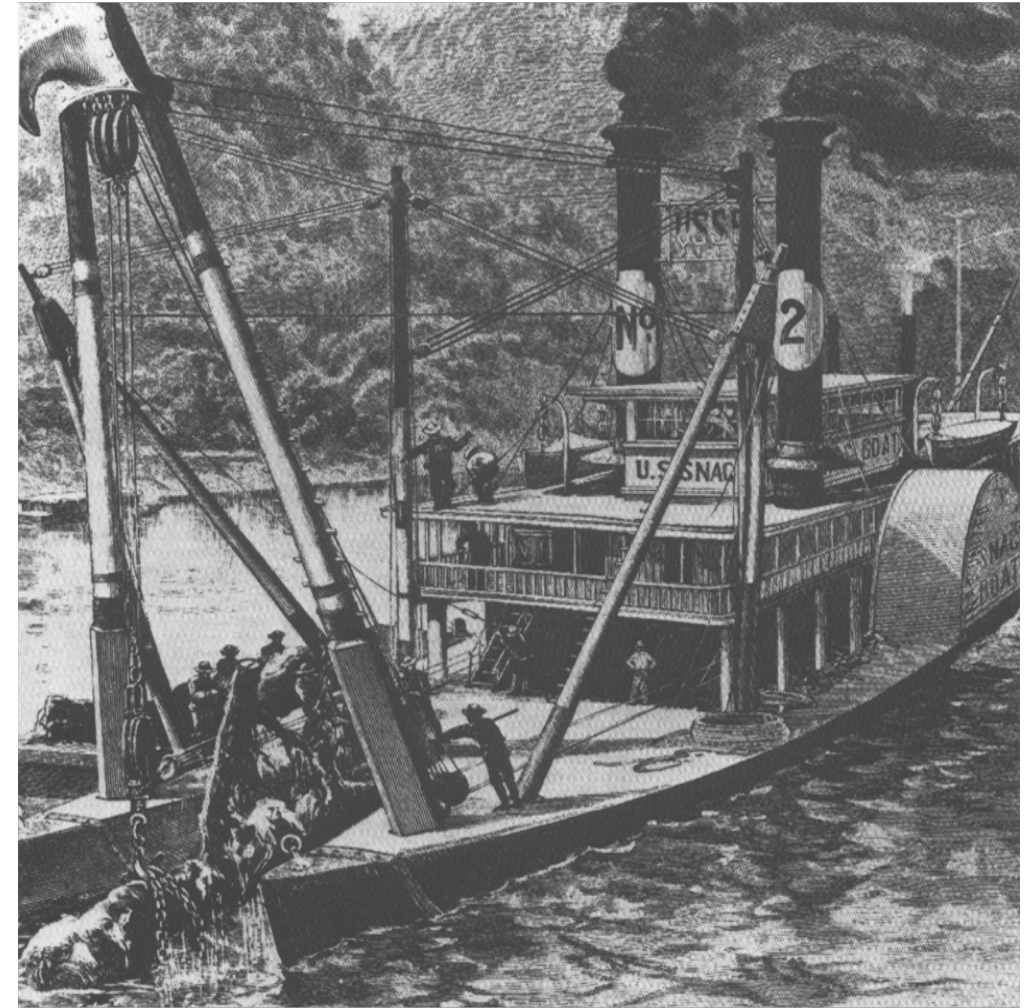
- Difficult and hazardous
 - Snags, rocks, sand bars
- Depth over worst shoals was one to two feet
 - Steamboats needed three feet
- Extended low water seasons in 1818-1820
 - Merchandise not shipped
 - People unable to travel



Steamboat *TORNADO* hard aground

1824 – Beginning of a Federal Role

- President Monroe in his annual message to Congress...“the superintendence of the Ohio and Mississippi Rivers has been assigned to officers of the Corps of Engineers”
- The act provided for the removal of “all snags, sawyers, stumps, logs, and obstructions of every description”



Henry M. Shreve



Henry Miller Shreve (1785-1851)

Inventor and Steamboat Captain

Opened Mississippi, Ohio, and Red rivers

HELIOPOLIS (1826-1939) catamaran hulls, steam power windlass used to pull large concentrations of dead wood. Nicknamed “Uncle Sam’s tooth pullers”.



Canalization

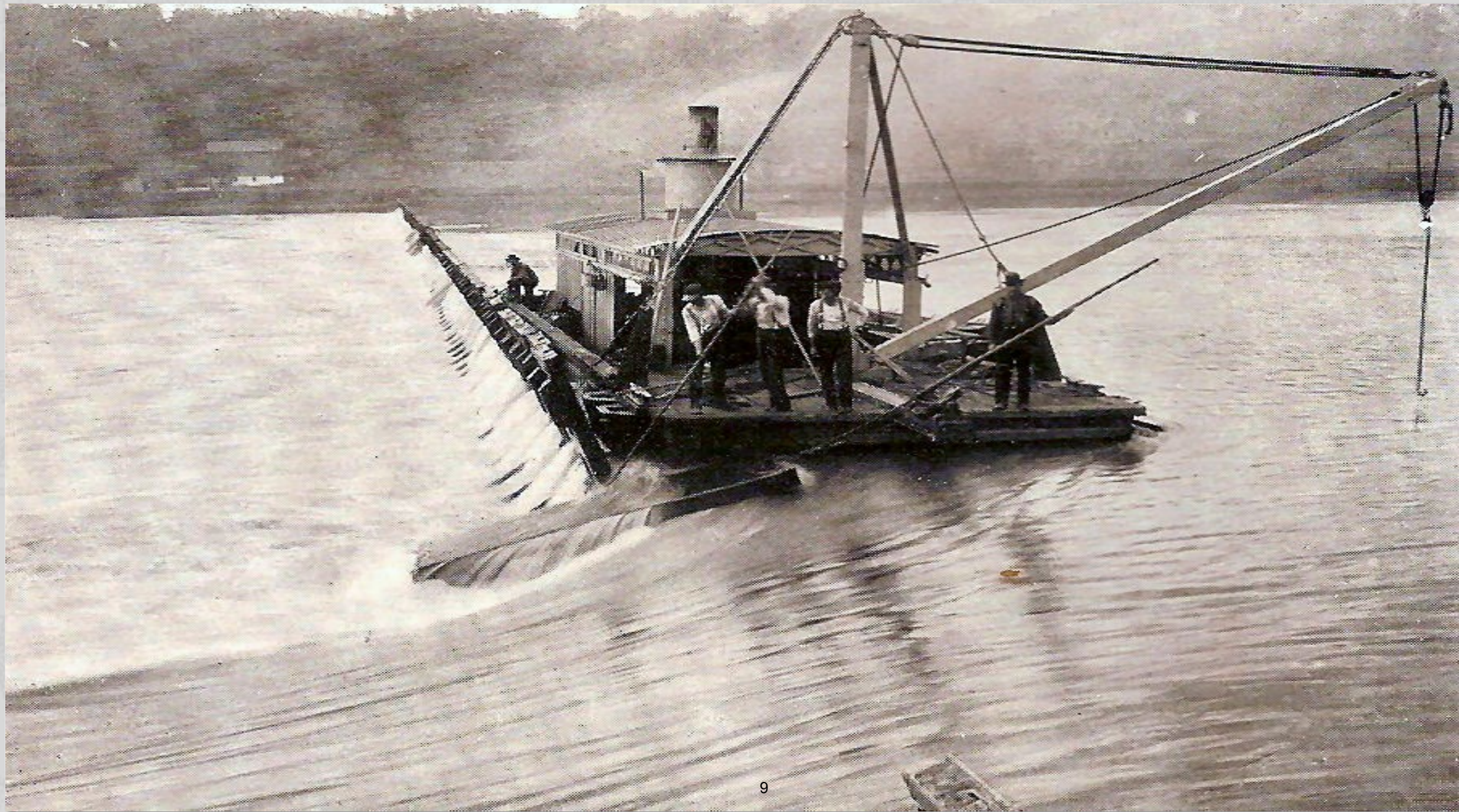
- Major William Merrill studied inland waterways of France and recommended “movable dams” for the Ohio River
 - ❖ Navigable pass provided with wickets which may be raised or lowered
 - Raised during low water conditions with vessels passing through the lock chamber
 - Lowered during high water conditions with vessels pass over wicket dam
 - ❖ Initial plan was for 68 dams, final plan was for 54 dams
- 51 dams completed from 1885 through 1929 providing a minimum navigation depth of 9 feet
- Single 600-foot-long and 110-foot-wide lock chamber



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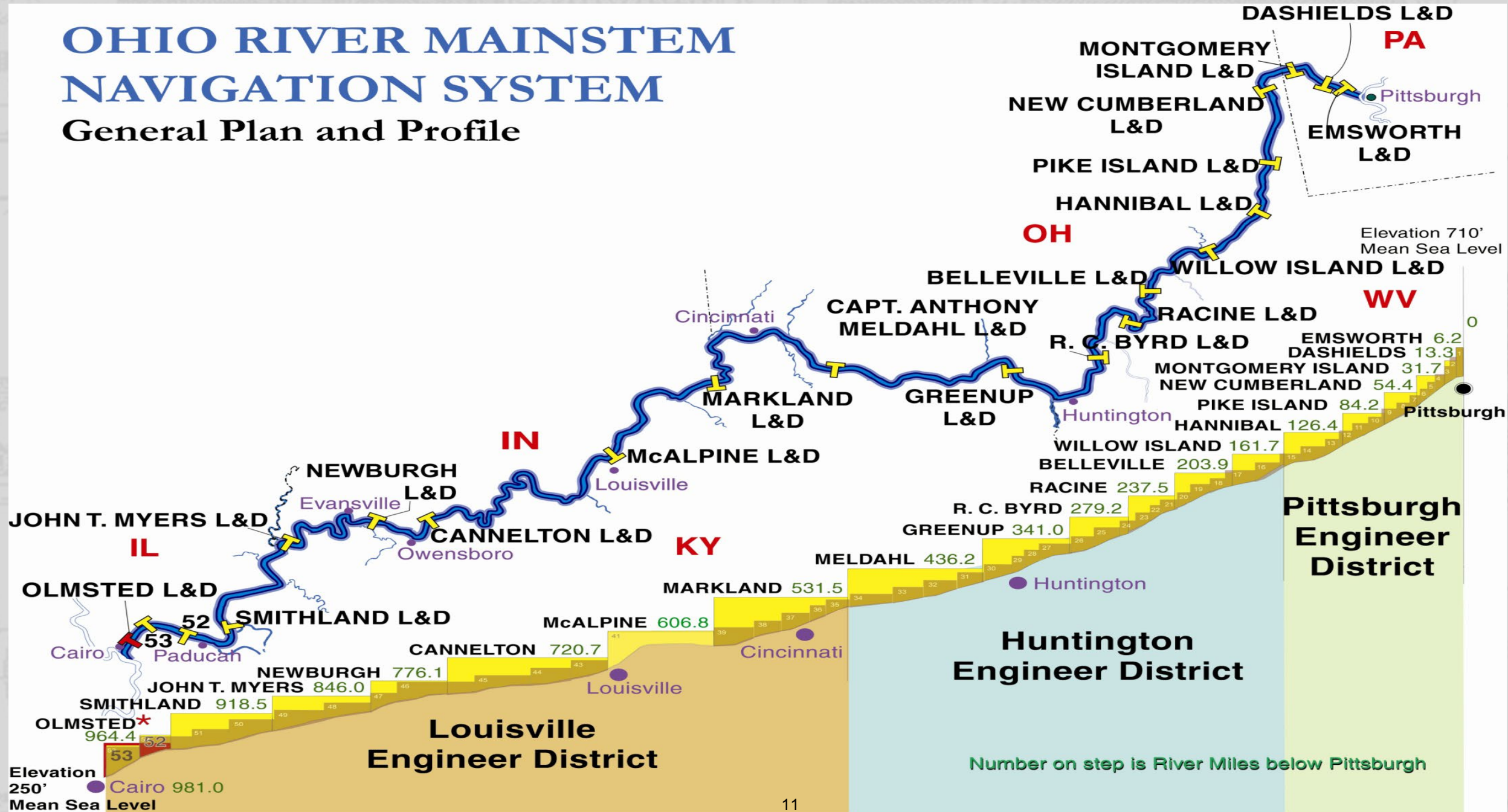


Nearly 200 Years of Work

- Open Channel 1824 – 1874
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OHIO RIVER MAINSTEM NAVIGATION SYSTEM

General Plan and Profile



Ohio River Lock and Dam Fundamentals

- Dams impound pools for year-round navigation with authorized 9-foot depth
- Flow through dams is regulated to maintain constant pool upstream of dam
- Some dams are movable providing open river navigation
- Locks raise and lower vessels between pools
- Locks operate on gravity flow



- 78-6334/6
- CHURCHES**
1. First Church, Presbyterian.
 2. Second " "
 3. College St. Church, Protestant.
 4. Walnut St. " "
 5. Chestnut St. " "
 6. Broadway Tabernacle, "
 7. Broadway Church, Methodist.
 8. Walnut St. " "
 9. Chestnut St. " "
 10. St. Paul's Church, Episcopal.
 11. St. John's " "
 12. Church of Christ, Episcopal.
 13. Calvary Church, "
 14. Walnut St. Church, Baptist.
 15. Broadway Church, "
 16. Preston St. " "
 17. First Alliance " "
 18. York St. African Church, Baptist.
 19. Cathedral of the Assumption.
 20. St. Peter's Church, Roman Catholic.
 21. St. John's Church, "
 22. St. Michael's Church, German.
 23. Church of the Innocent, Eng., German.
 24. St. Martin's Church, German.
 25. St. Louis German Church, German.
 26. Chapel of the Unions, German.
 27. Church of the Messiah, German.
 28. Madison St. Church, "
 29. St. Peter's Church, "
 30. St. Michael's Church, Roman Catholic.
 31. St. Andrew's, Episcopal.

BIRDS EYE VIEW OF
LOUISVILLE
 KENTUCKY, 1876.

- PUBLIC BUILDINGS, ETC.**
32. Court House.
 33. City Hall.
 34. City Hospital.
 35. Custom House and Post Office.
 36. Substantial Exchange Building.
 37. Public Library of Kentucky.
 38. Medical College—University of Louisville.
 39. Male High School.
 40. Female " "
 41. Third Ward School.
 42. Fourth " "
 43. Park " "
 44. Seventh " "
 45. Eighth " "
 46. Ninth " "
 47. Tenth " "
 48. Masses Widower and Orphan's Home.
 49. House of Refuge.
 50. Franklin Depot.
 51. Fremont Street Depot.
 52. Short Line Depot.
 53. Weaver Gauge Depot.

6374
 1796
 R
 King 73

Division of Maps
 FEB 28 1941
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McAlpine L&D in Louisville, KY



Green River



Green River

- 1842: Initially canalized, with L&D's #1 - 4 on the Green River, and one L&D on Barren River, a tributary. These were the very first locks and dams in the nation to be constructed by the US Army Corps of Engineers (previous locks were by private companies or states.)
- 1901: L&D's #5 and 6 were opened on the Green River, which allowed river traffic to Mammoth Cave.
- 1941: Mammoth Cave National Park was established
- 1950's and 1960's: All locks removed from service except L&D #1 and #2, which were replaced and are still in service.

Kentucky River



Kentucky River

- 1836-1842: L&D #1- 5 Constructed by private entity
- 1880: USACE took over management
- 1891-1917: L&D #6 – 14 constructed by USACE
- L&D's #5 -14 are owned by the Kentucky River Authority, but the locks were removed from service in 1990
- L&D's #1 - 4 are owned by USACE, though working toward transferring to Kentucky, but managed by the Kentucky River Authority.