

# DEMOPOLIS LOCK UPPER MITER SILL FAILURE

Inland Waterways Users Board Meeting No.  
102

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# OUTLINE



- Overview of Demopolis Lock
- Failure, Response, and Impacts to Navigation
- Repair Efforts
- Questions





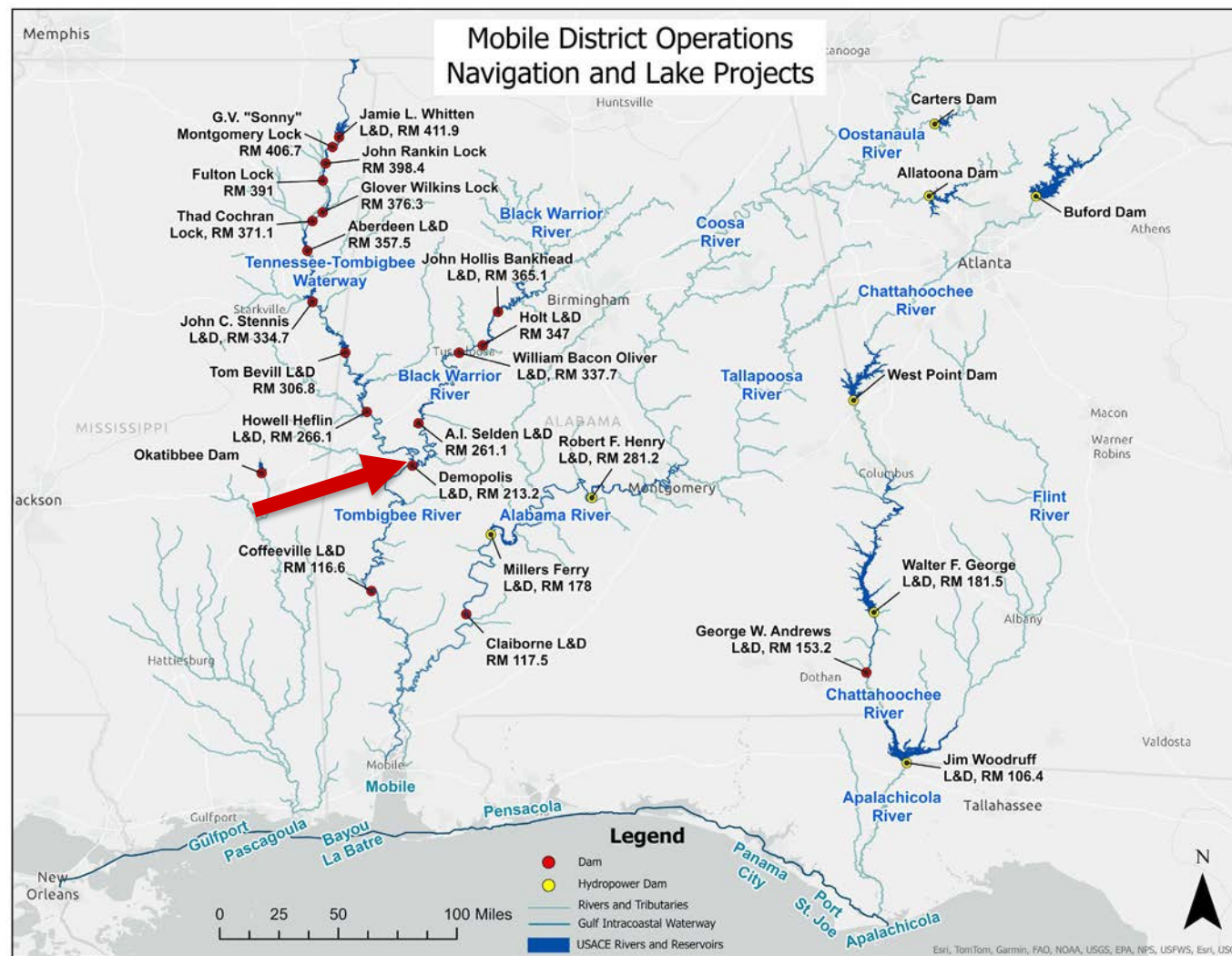
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- Open to Navigation in 1954
- Chamber: single 110' x 600', 40' lift
  - Vertically framed upper miter gate
  - Mass concrete – no steel reinforcement
- Fixed Crest Spillway: 1450' long
- Busiest & Oldest Lock on the System
- Navigation 3-Year Averages
  - Tonnage: 10,542,054
  - Commercial Lockages: 1,855
  - Recreational Lockages: 446



# DEMOPOLIS LOCK

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# FAILURE & EMERGENCY RESPONSE



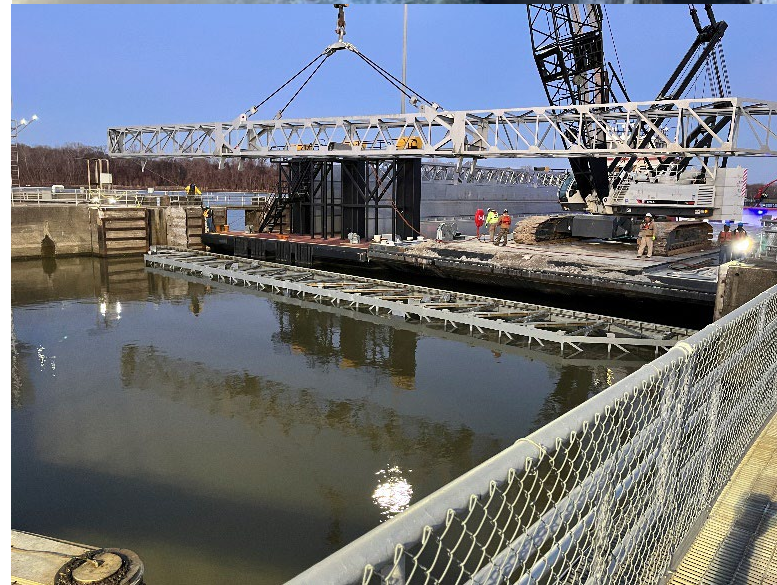
- January 16, 2024
  - Concrete sill under upper miter gate failed
  - Lower gate open and chamber at lower pool
- January 19
  - Lower miter gates closed under flow (assistance from Parker Towing)
- January 20
  - Placed stoplogs (assistance from TVA)



Lower Miter Gate Closure



Breach Through Failed Sill



Placing Stoplogs

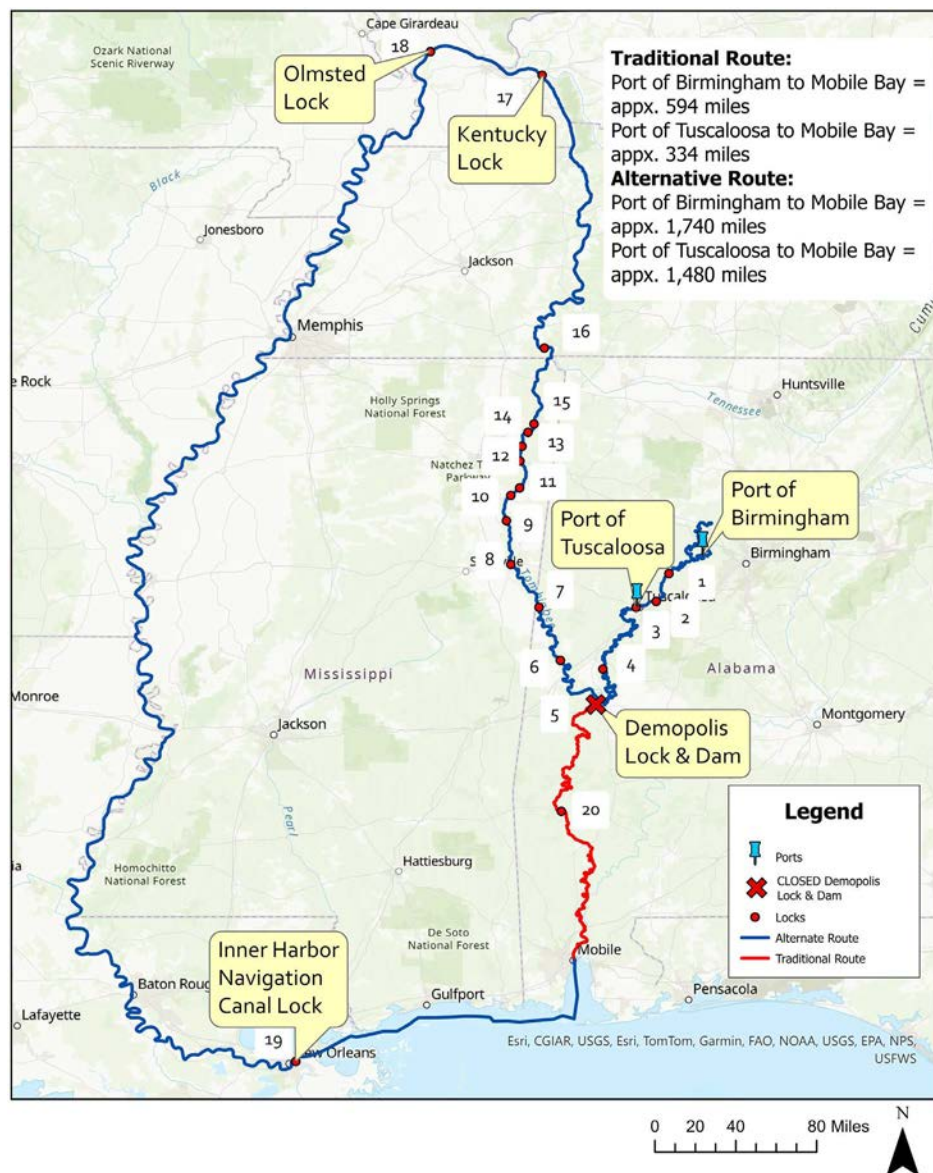


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# NAVIGATION IMPACT & SYSTEM INVESTIGATIONS



- Aging Infrastructure
  - Demopolis (70), Selden (67), Coffeerville (64 years old)
  - Major Rehab Report budget requests in FY26
- Dam Safety Inspections
  - 5-year Intervals (FY19 last)
  - No issues noted in sill
- Operation Condition Assessments
  - 5-year Intervals (FY23 last)
  - Sill rated B
- No auxiliary chambers at any project
  - One failure can lead to entire system shutdown
- Similar Projects
  - Selden – no reinforcement in sill, different intake structure
  - Jim Woodruff – reinforcement in sill, similar intake structure



Key	Lock Name
1	John Hollis Bankhead
2	Holt
3	William Bacon Oliver Lock & Dam
4	Armisted I. Seldon
5	Demopolis Lock & Dam
6	Howell Heflin Lock & Dam
7	Tom Bevill Lock & Dam
8	John C. Stennis Lock & Dam
9	Aberdeen Lock & Dam
10	Thad Cochran Lock
11	Glover Wilkins Lock
12	Fulton Lock
13	John Rankin Lock
14	G.V. "Sonny" Montgomery Lock
15	Jamie Whitten Lock & Dam
16	Pickwick Landing Lock
17	Kentucky Lock
18	Olmsted Locks & Dam
19	Inner Harbor Nav Canal
20	Coffeerville Lock





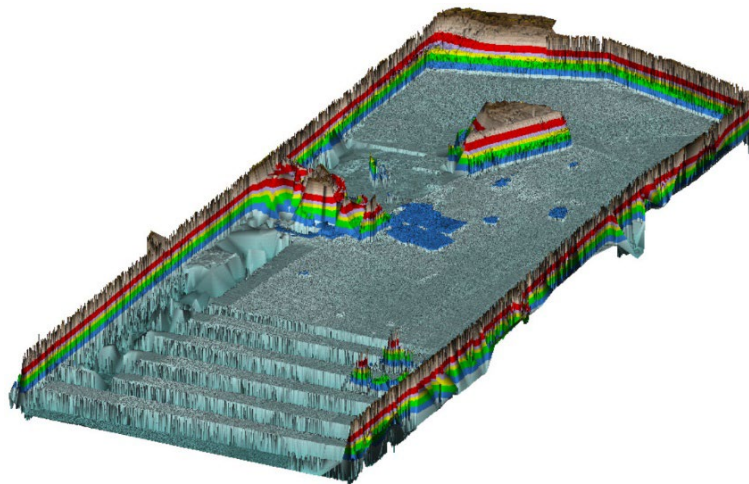
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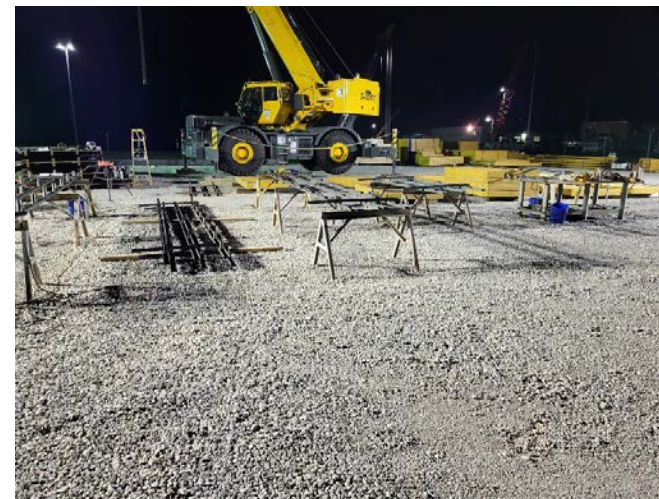


# REPAIR

- District Crisis Response Team
  - Subject Matter Experts throughout USACE and Industry
- Debris Removal
  - Approximately 1,000 tons total
  - Largest piece - 400 tons
- Mass Concrete
  - **Wet and dry placements**
  - Innovative formwork designs
  - Rebar and reinforcement
  - Steel beam and seal plate



Survey of Damage



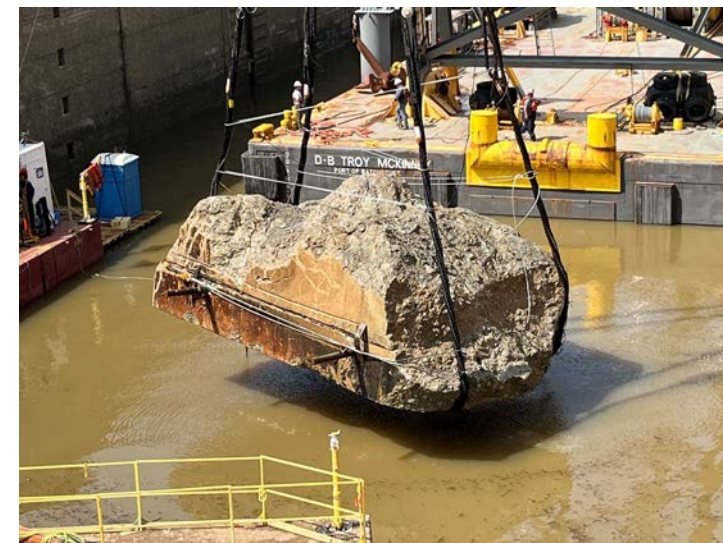
Initial Formwork Assembly



Rendering of Repair



Wet Mix Slump Flow Testing



Debris Removal w/ McKinney Salvage



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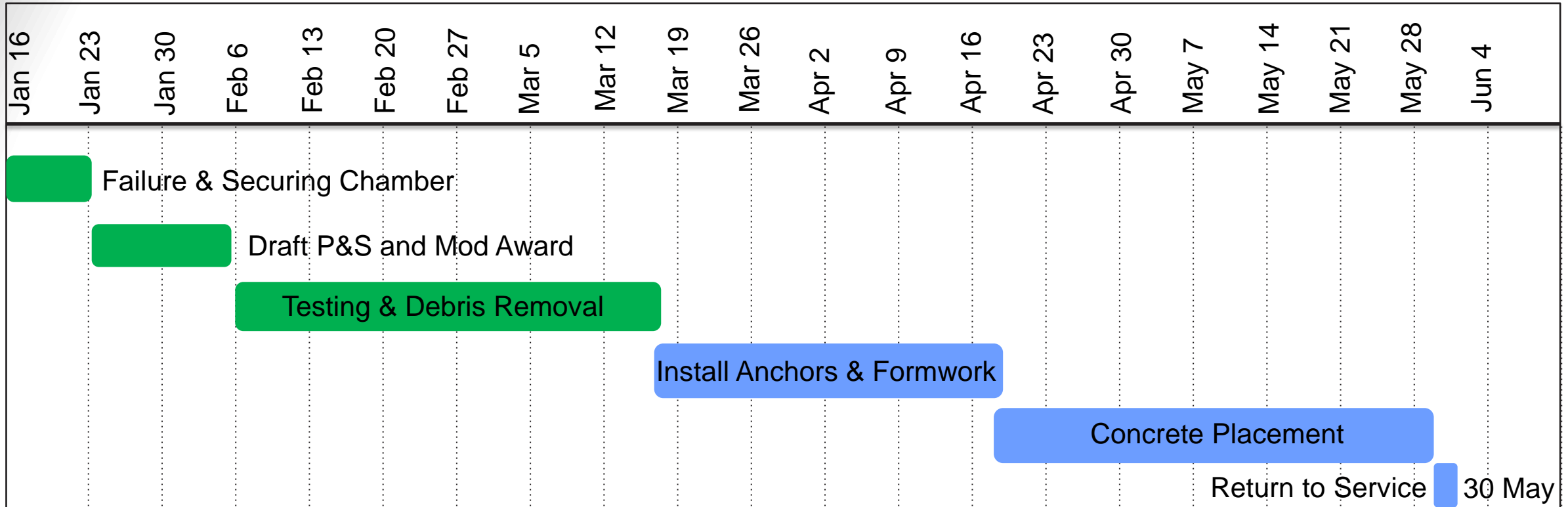
# SCHEDULE & COSTS

COMPLETED

SCHEDULED



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- Expected return to service by 30 May
- All funding is O&M General (not shared with IWTF)
- Total costs (to-date) are just over **\$21,000,000**

\* Costs and schedule subject to change



# THANK YOU



# QUESTIONS?