

Fish Passage at the New Savannah Bluff Lock and Dam

Prepared By the Savannah District Team

US Army Corps of Engineers

8 Nov 2018

NOTE:

Information Contained in this Document is part of the USACE Pre-Decisional Deliberative Process and Subject to Change

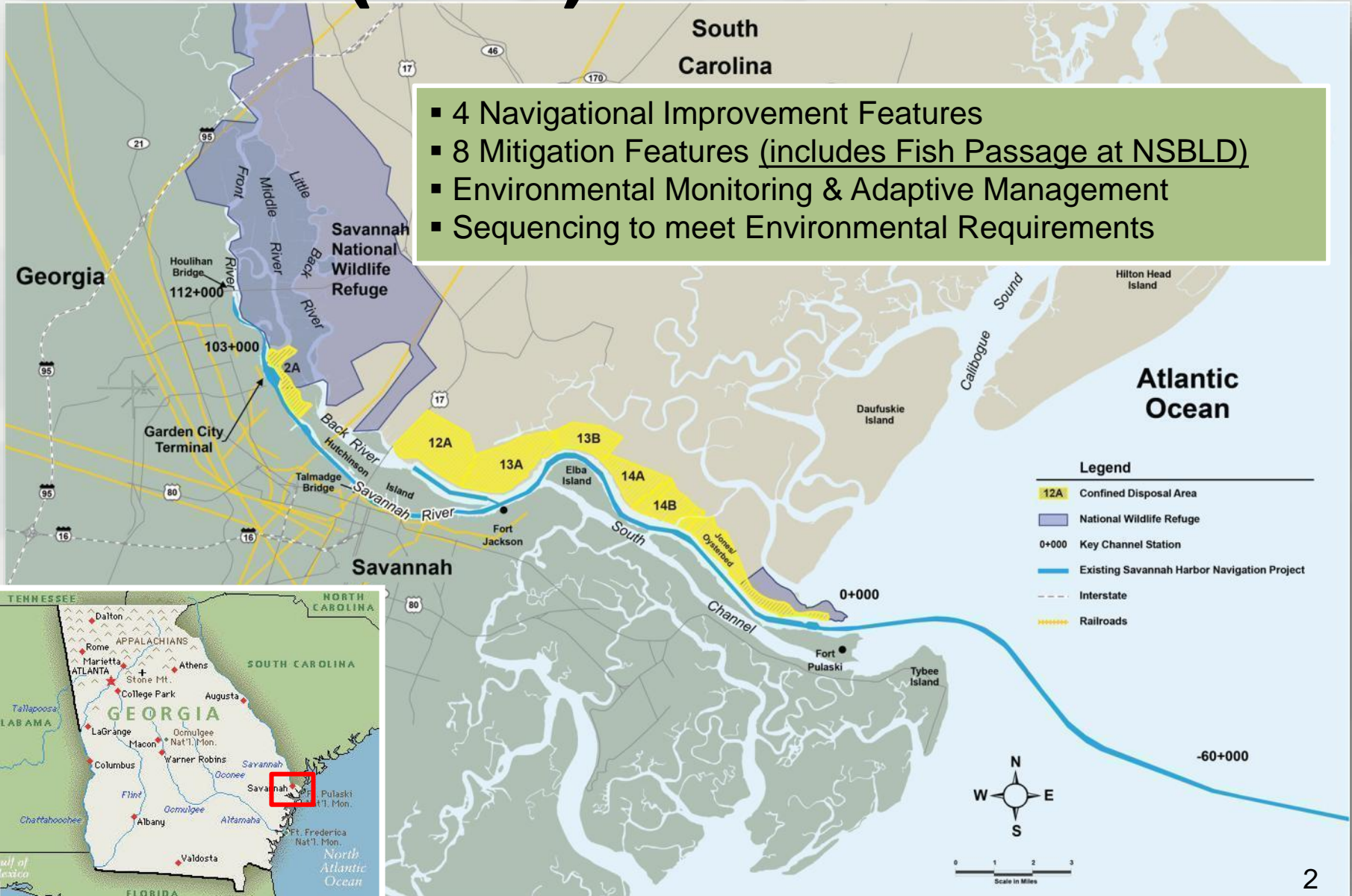
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Savannah Harbor Expansion Project (SHEP) at a Glance

- 4 Navigational Improvement Features
- 8 Mitigation Features (includes Fish Passage at NSBLD)
- Environmental Monitoring & Adaptive Management
- Sequencing to meet Environmental Requirements





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Fish Passage Project Area



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NSBLD - Cracked and Aged



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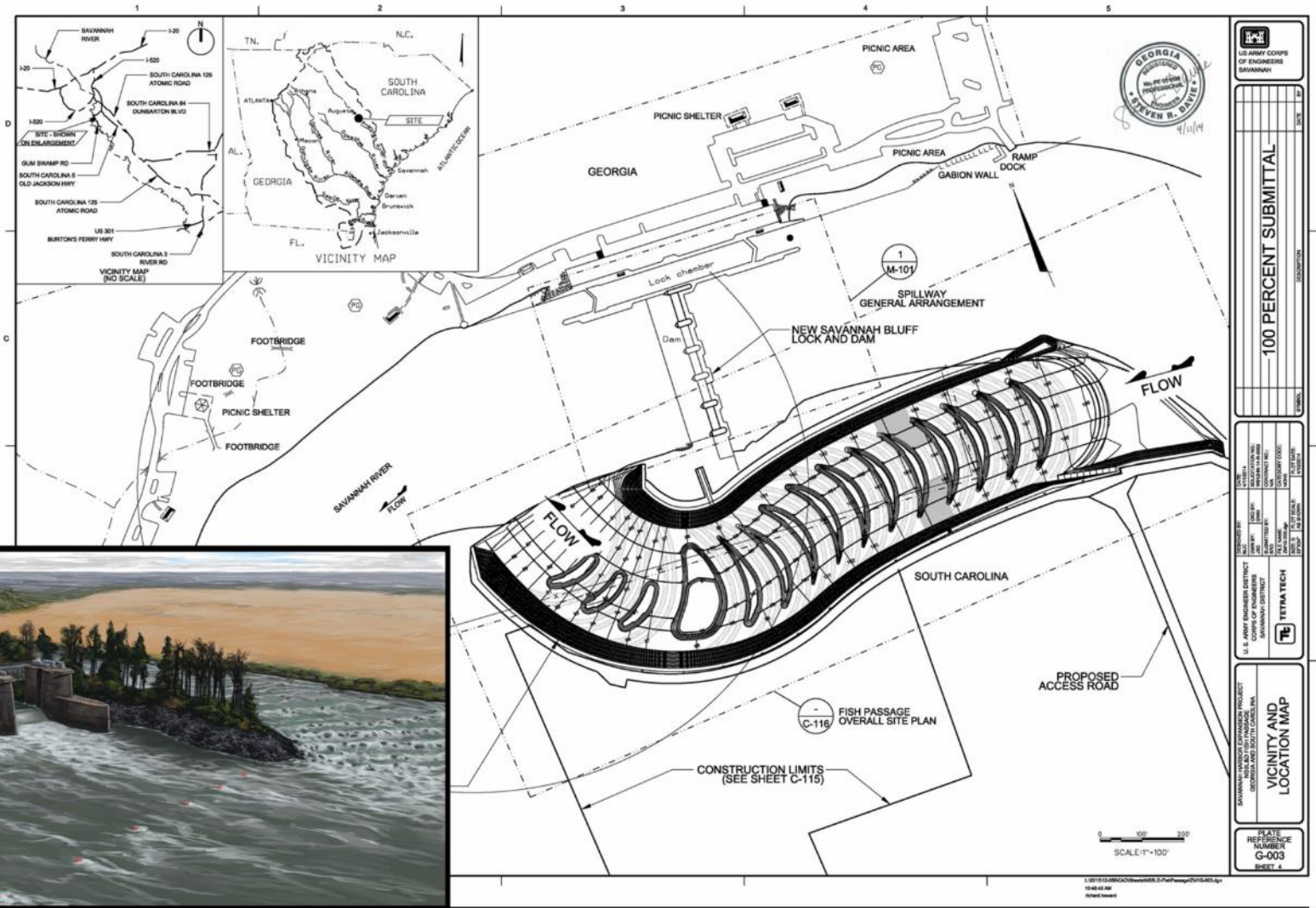
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Original SHEP Plan



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The WIIN Act (Dec 2016)



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- De-authorized the Lock and Dam
- Constructs an in channel fish passage
- Preserves upstream pool for purposes and function of navigation, water supply, recreation, and directs analysis of two options:

EITHER

Repair of the lock wall and modify the structure

OR

Remove entire lock and dam after constructing a water damming structure (or weir)



Addressing Concerns In Alternatives Development



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- Goal
 - Engineering Feasible, Environmentally Acceptable, and Cost Effective Fish Passage
- Public Scope
 - May 2017 - Feedback from In-Person Workshop in Augusta
- Model Analysis
 - Impacts from Low Water
 - Impacts from Flooding
- Water Intakes Analysis



Evaluation Criteria



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1. Pass Fish
2. Cost
3. Navigation
4. Water Supply
5. Recreation



Evaluation Criteria Cont'd



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- Criteria: Pass Fish, Cost, Navigation, Water Supply, Recreation, Real Estate Required
- Evaluation Scale:
 - +1 for positive
 - 0 for neutral
 - -1 for negative
- Constraints:
 - Flooding - no alternatives carried forward with a negative or “high” result
 - Time – Fish Passage construction start NLT January 2021



Example Evaluation Matrix: A Deliberative Process



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Alternatives	Ability to Pass Fish	Navigation in pool	Water Supply	Recreation	Additional Flowage Easements Required	Average Annual Cost Compared to Original SHEP Plan	Total Score	Average Annualized Cost	Initial Investment Cost	Avg Annualized Cost O&M and Major Rehab
Example 1	-1	+1	+1	+1	+1	0				
Example 2	+1	+1	-1	0	+1	+1				
Example 3	+1	+1	+1	0	0	+1				
Example 4	+1	+1	0	+1	+1	+1				
Example 5	-1	+1	+1	+1	+1	-1				

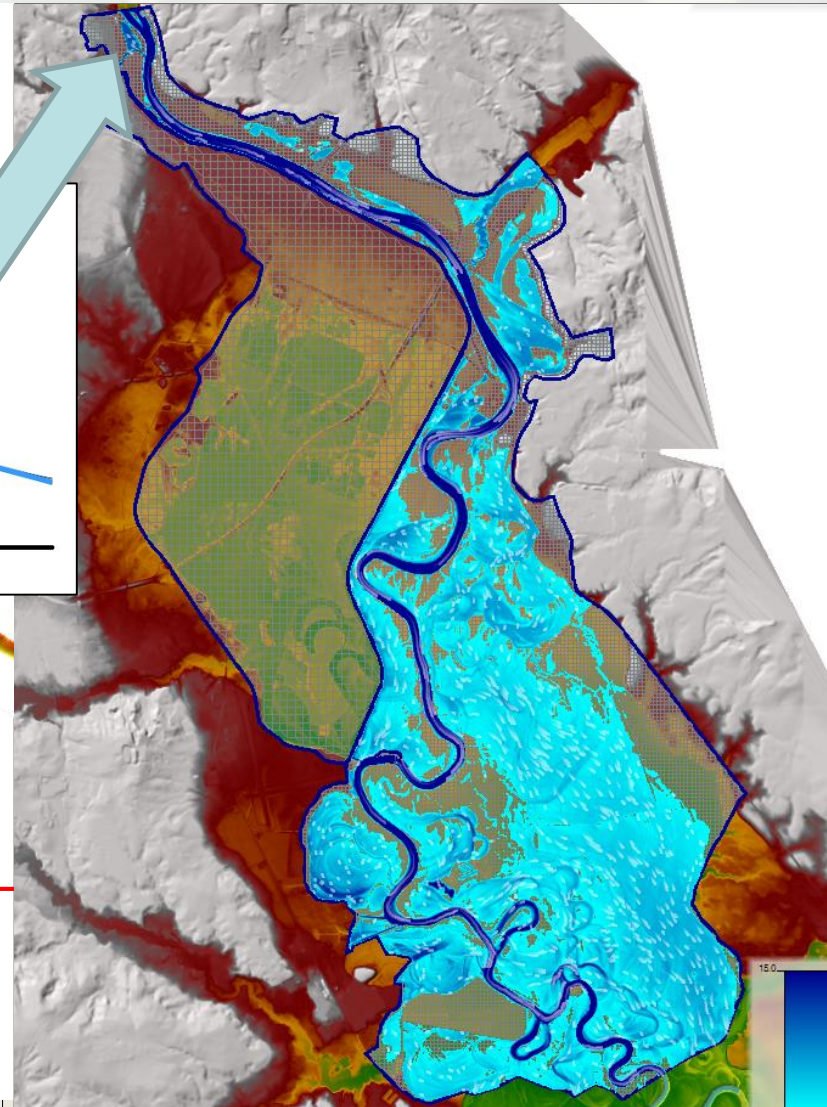
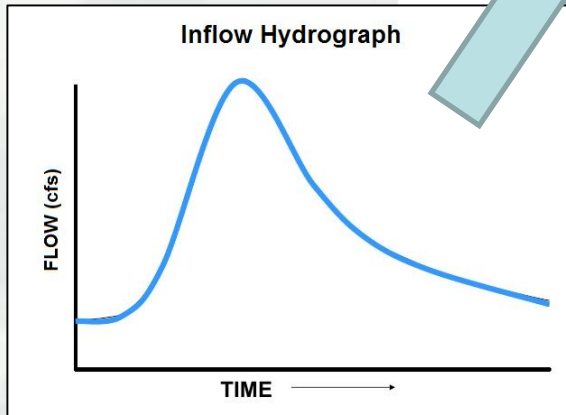
Note: Values for illustration only



Hydraulic Model Development



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- 1) FEMA Model
- 2) Georeferenced HEC-RAS Model
- 3) Study Area
- 4) LiDAR Topography
- 5) Channel Bathymetry
- 6) Training Wall Survey
- 7) 2D HEC-RAS Model
- 8) Sample Inundation (10-yr Flood)

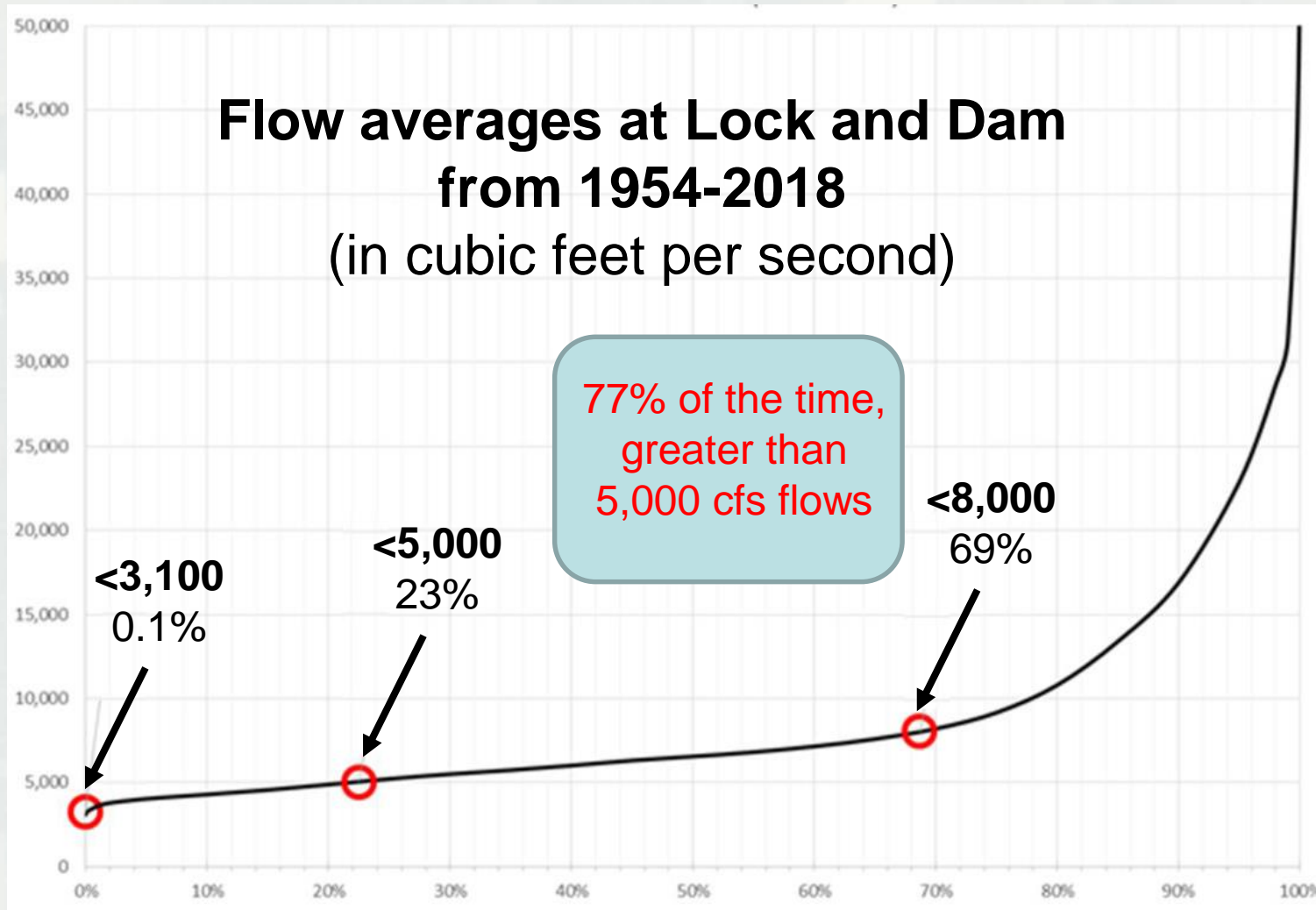


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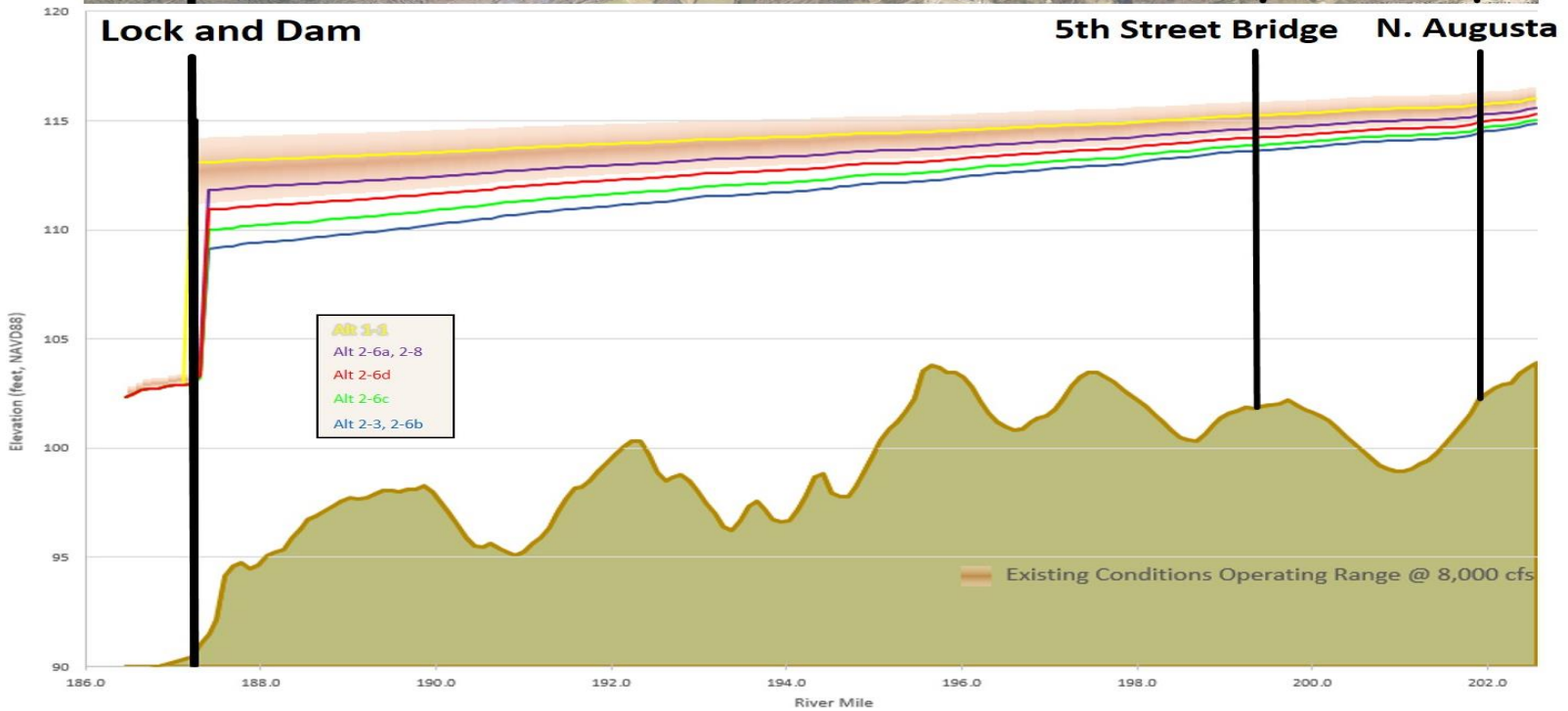
Based on Flow Volumes



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Depth Attenuation





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Final WIIN Alternatives And Concept Designs Under Analysis



Retain Dam with GA Side Fish Passage

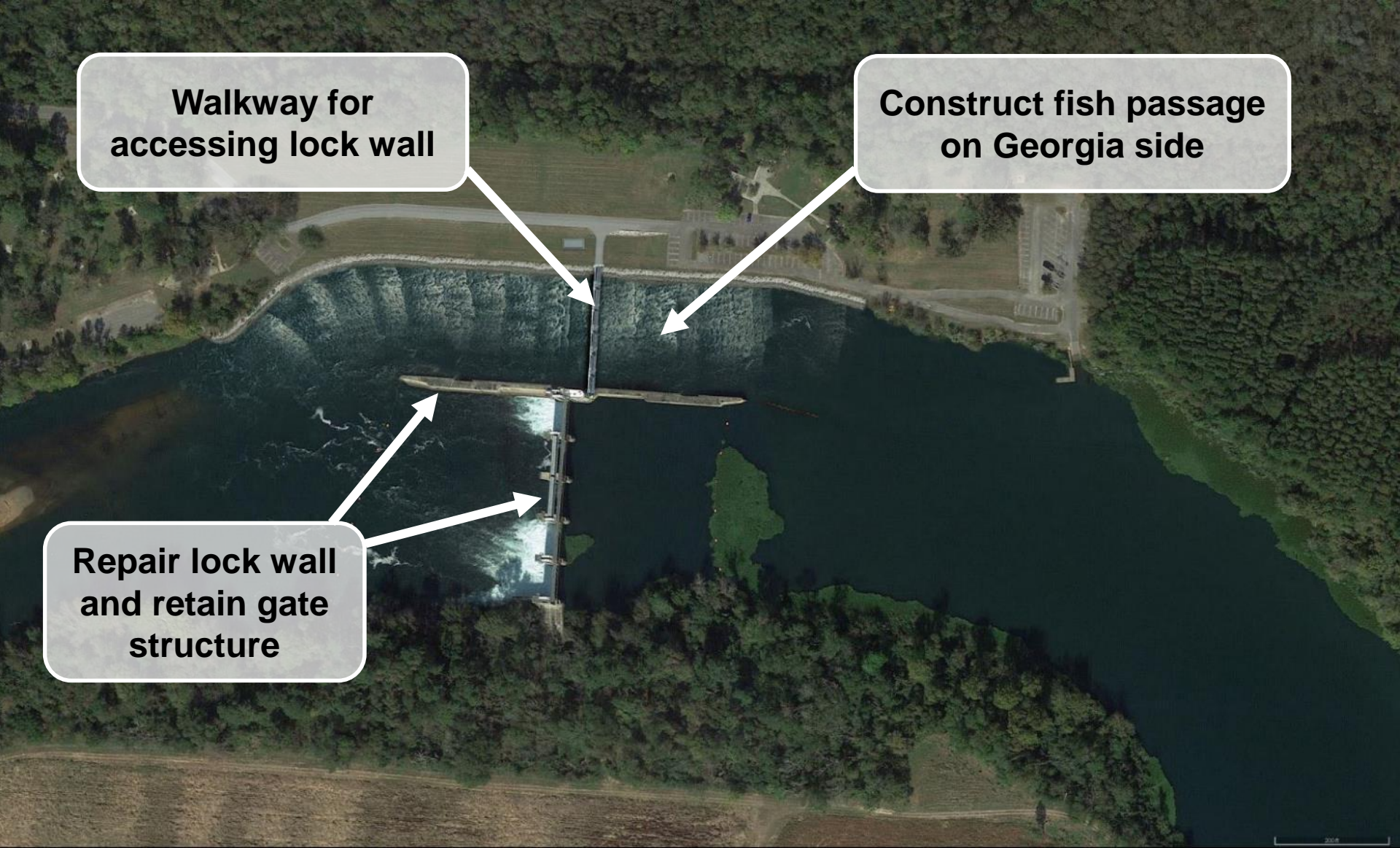


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Walkway for
accessing lock wall

Construct fish passage
on Georgia side

Repair lock wall
and retain gate
structure





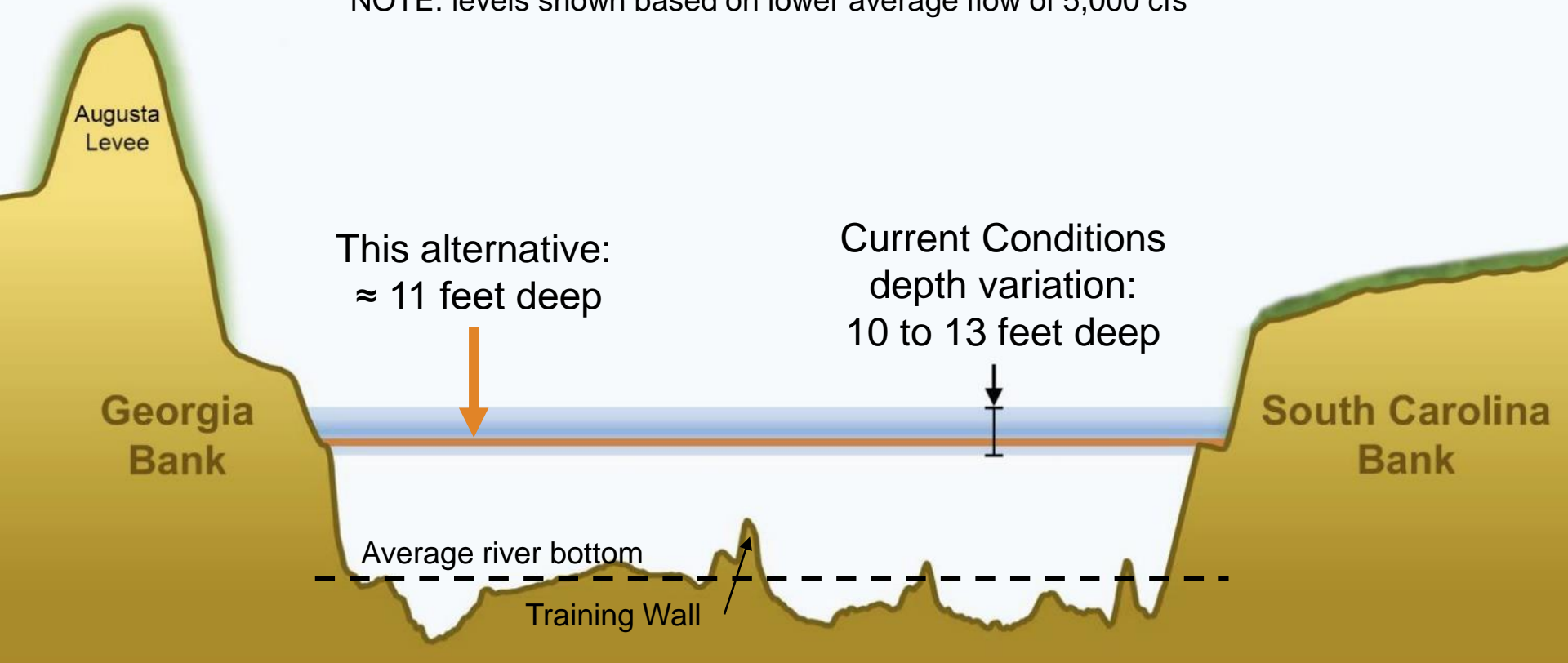
Impacts: 5th Street Bridge



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Retain Dam with GA Side Fish Passage

NOTE: levels shown based on lower average flow of 5,000 cfs





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Shoreline Tool for Alt 1-1



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Map Satellite

1 Fifth St		
ALTERNATIVE	FLOW (cfs)	DEPTH (ft)
Existing	5000	10.3
ALT-1-1	5000	9.5
ALT-2-3	5000	7.6
ALT-2-6A	5000	9.2
ALT-2-6B	5000	7.6
ALT-2-6C	5000	8.0
ALT-2-6D	5000	8.4
ALT-2-8	5000	9.4

ALT-1-1 5kcfs
Pool Profile based on Repair to Lock Wall and GA Side Fish Passage 109.2 NAVD88

US Army Corps of Engineers
ALTERNATIVE PROFILES

- 5000 CFS Existing
- 5000 CFS ALT-1-1
- 5000 CFS ALT-2-3
- 5000 CFS ALT-2-6A
- 5000 CFS ALT-2-6B
- 5000 CFS ALT-2-6C
- 5000 CFS ALT-2-6D (Recommended)
- 5000 CFS ALT-2-8

Pile Training Wall

Show Docks Hide Docks
See All

SELECT DOCK OF INTEREST

Show Disclaimer

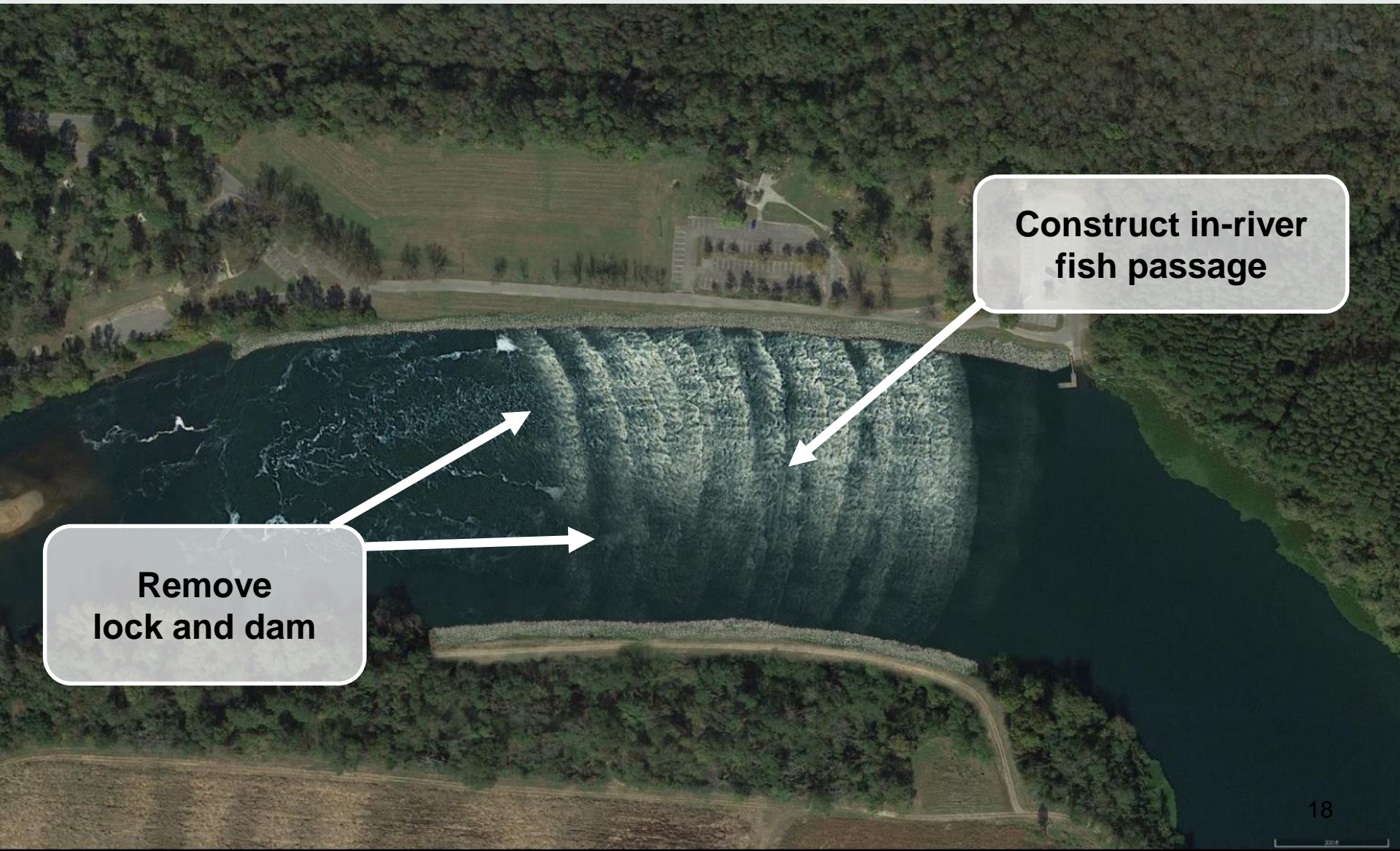
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Fixed Weir



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Construct in-river fish passage

Remove lock and dam



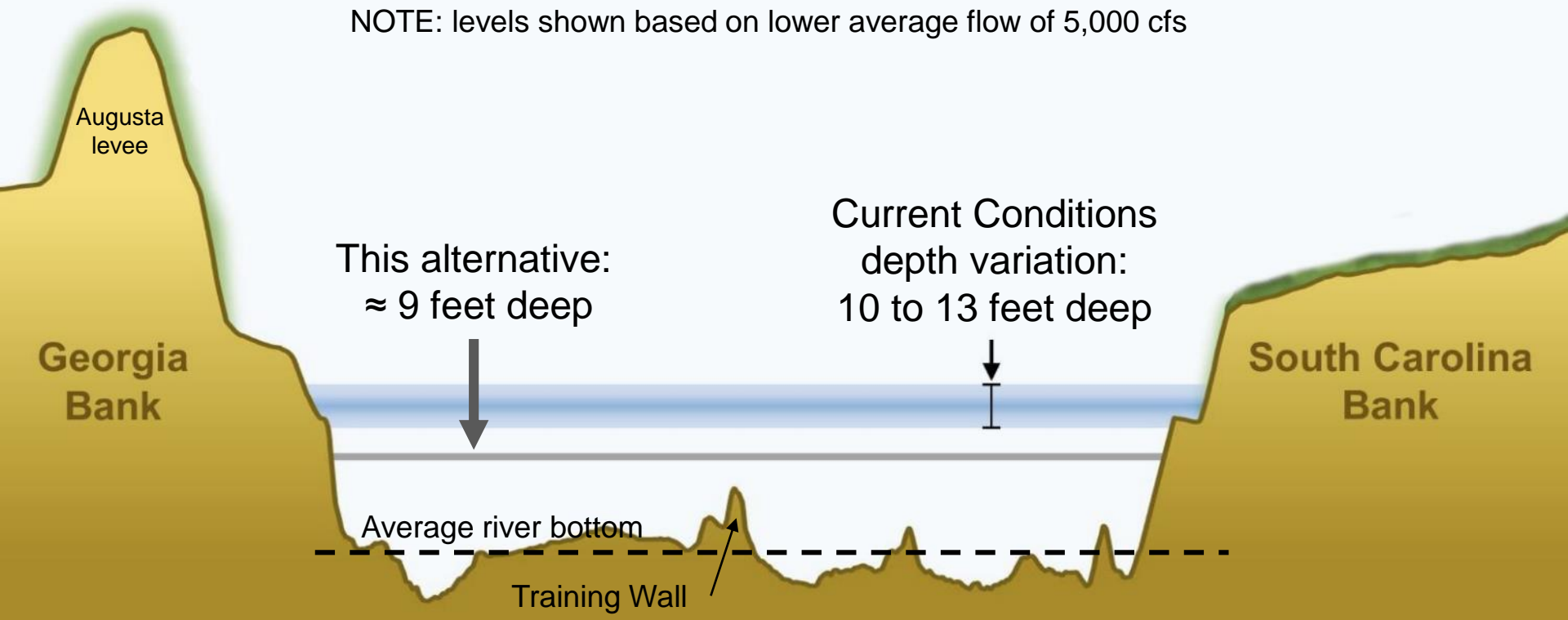
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Fixed Weir

NOTE: levels shown based on lower average flow of 5,000 cfs





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Shoreline Tool for Alt 2-3



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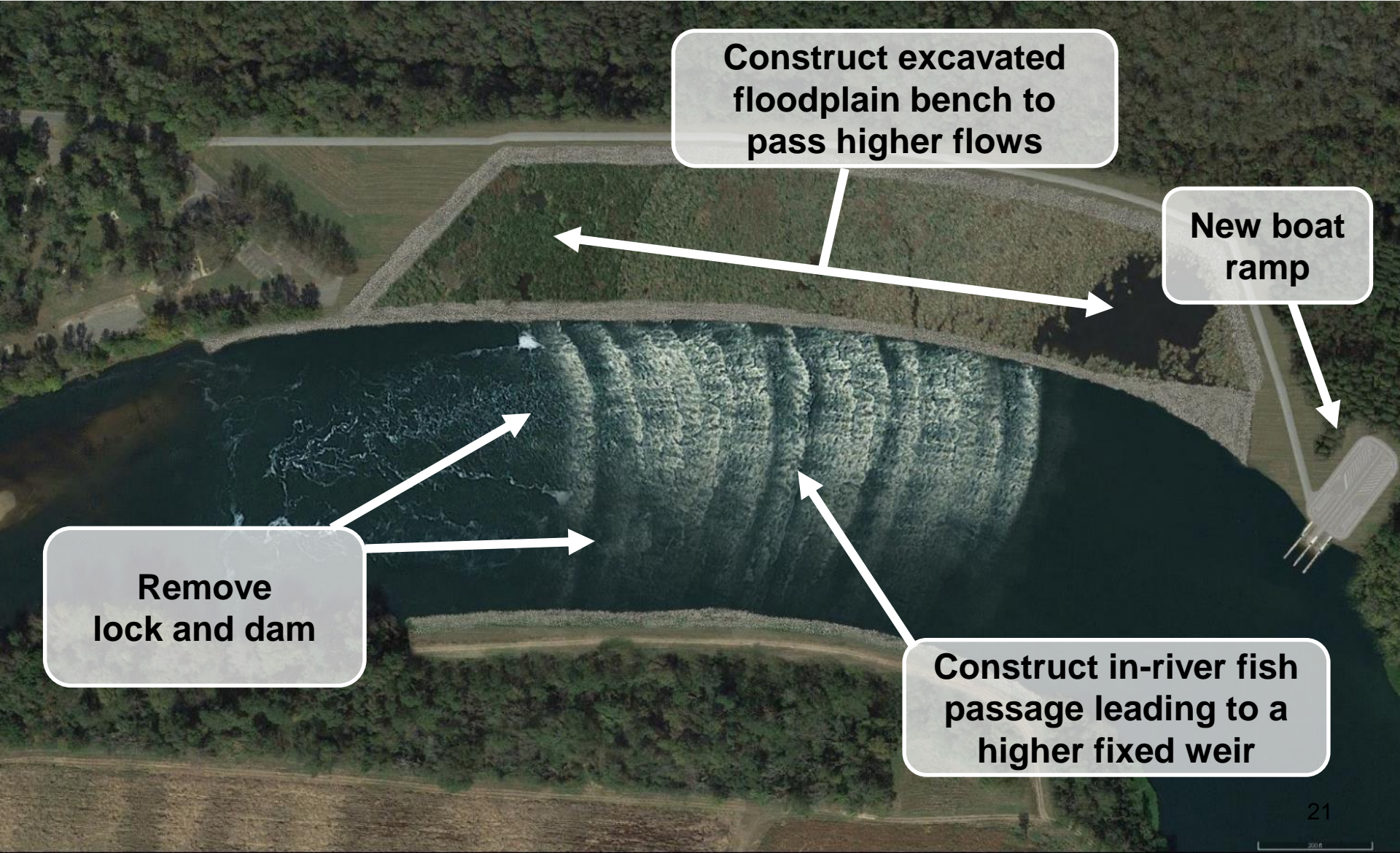


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Fixed Weir with Wet Floodplain



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Construct excavated floodplain bench to pass higher flows

New boat ramp

Remove lock and dam

Construct in-river fish passage leading to a higher fixed weir



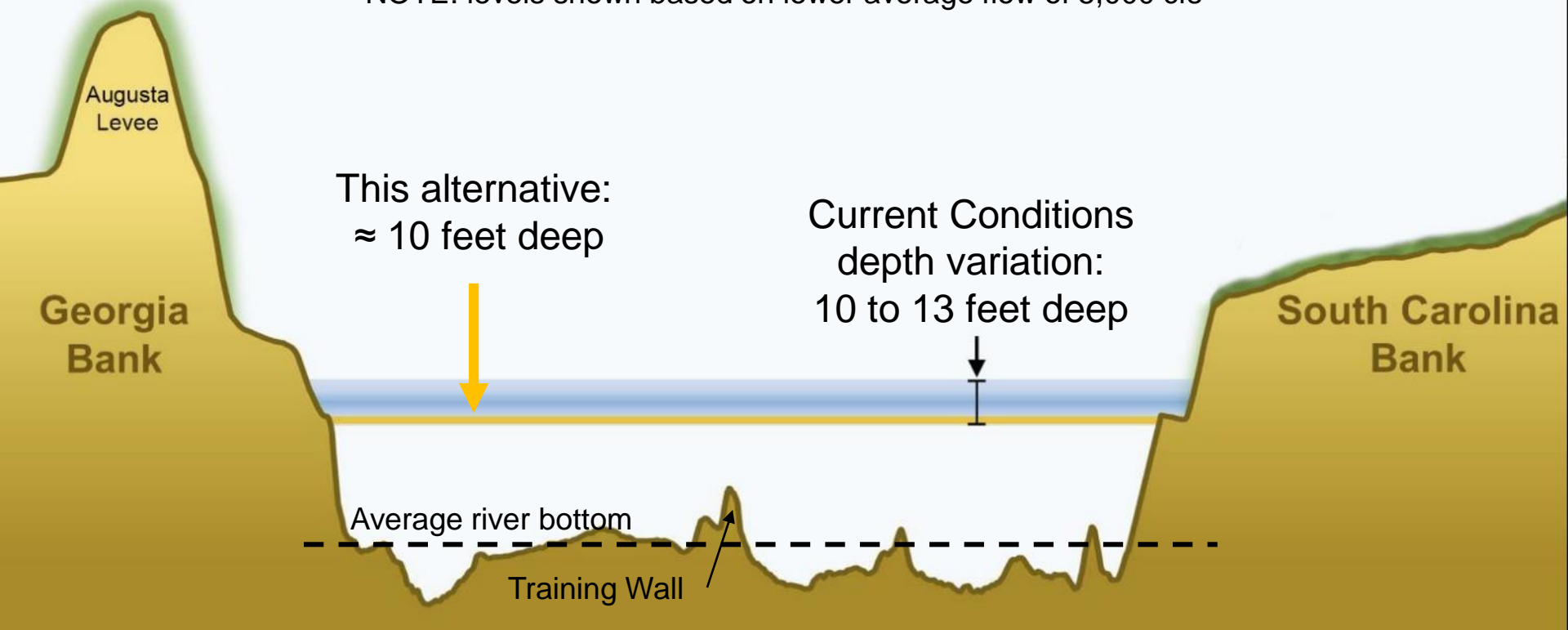
Impacts: 5th Street Bridge



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Fixed Weir with Floodplain

NOTE: levels shown based on lower average flow of 5,000 cfs

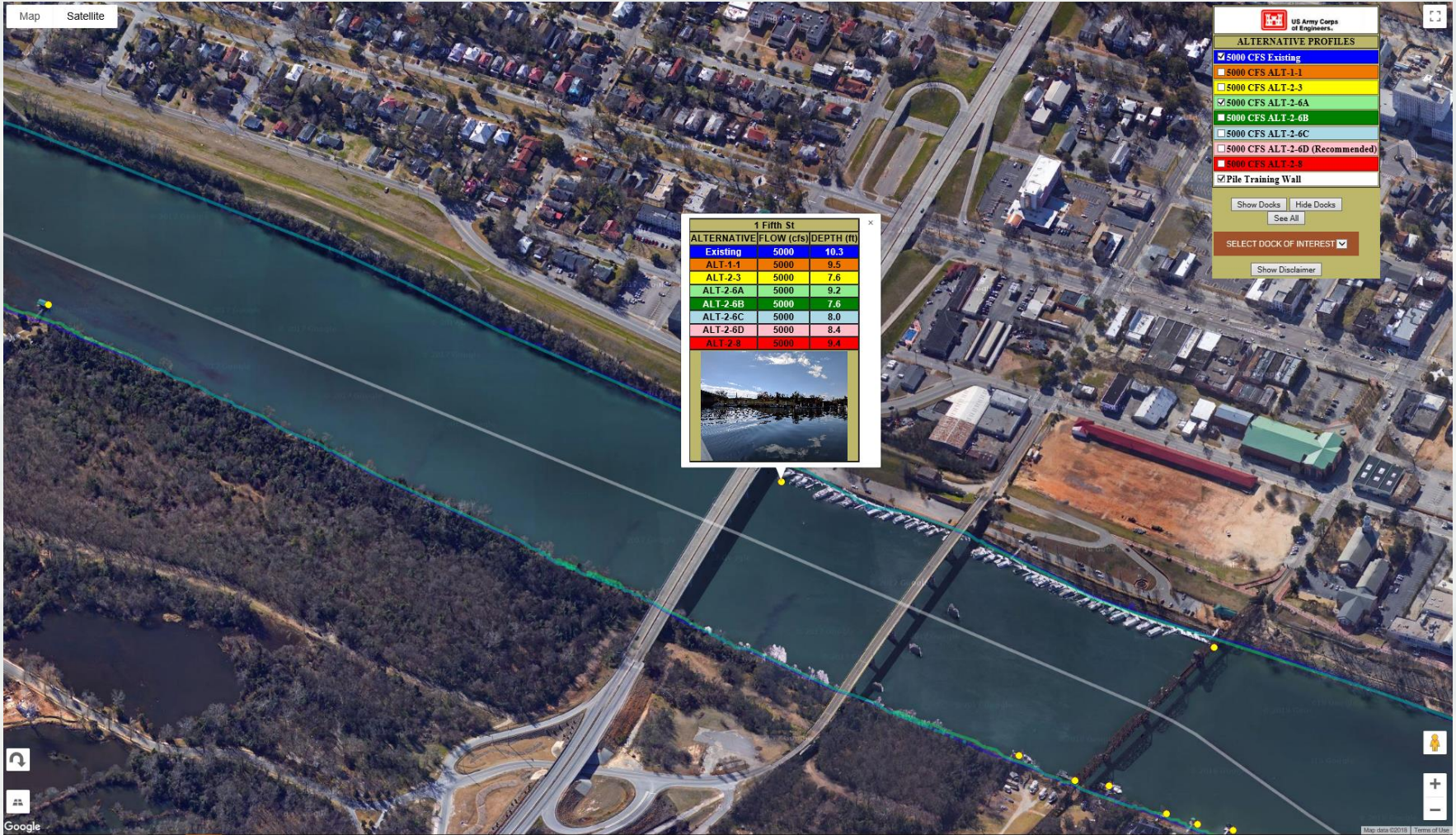




Shoreline Tool for Alt 2-6a



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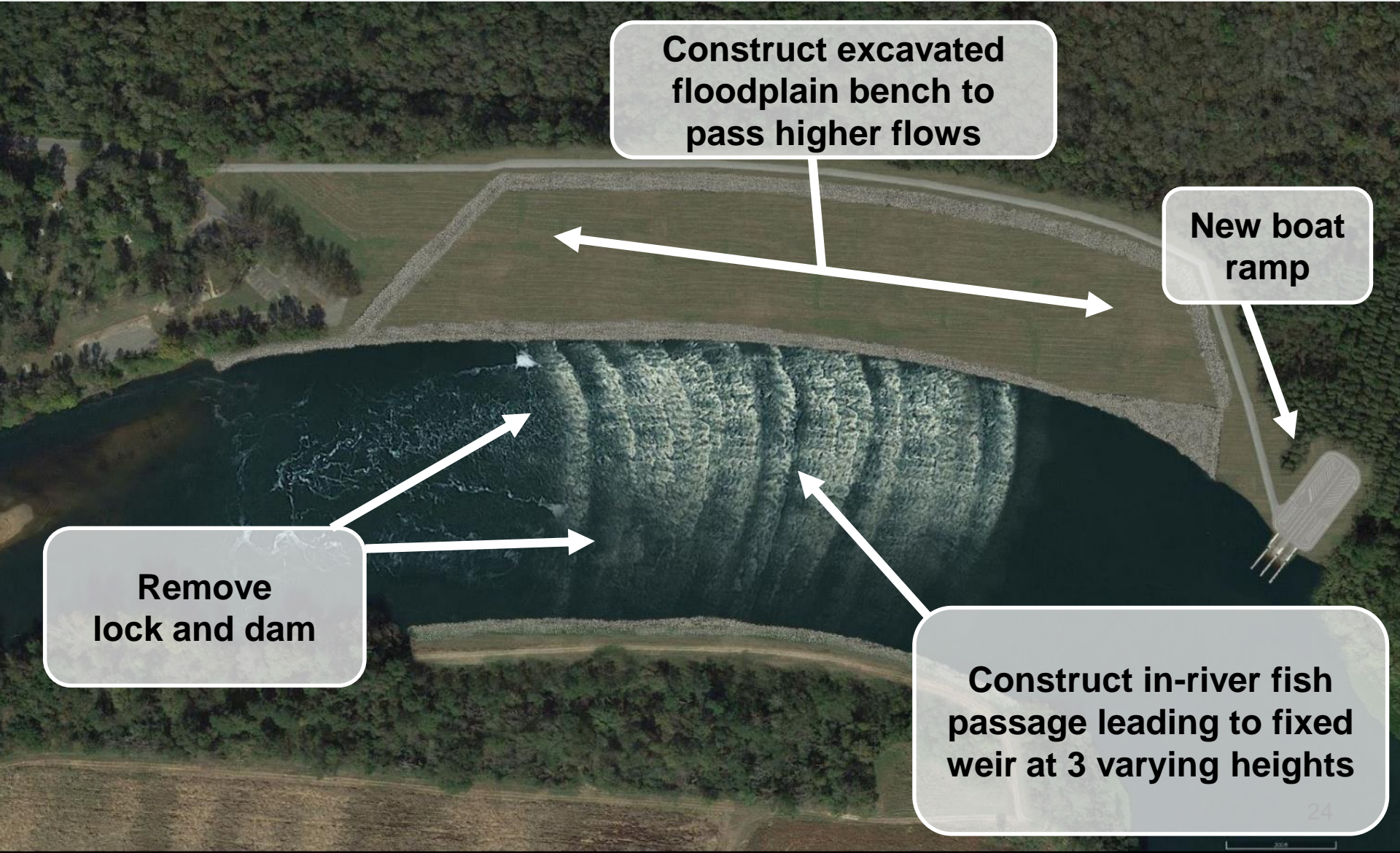


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Fixed Weir with Dry Floodplain



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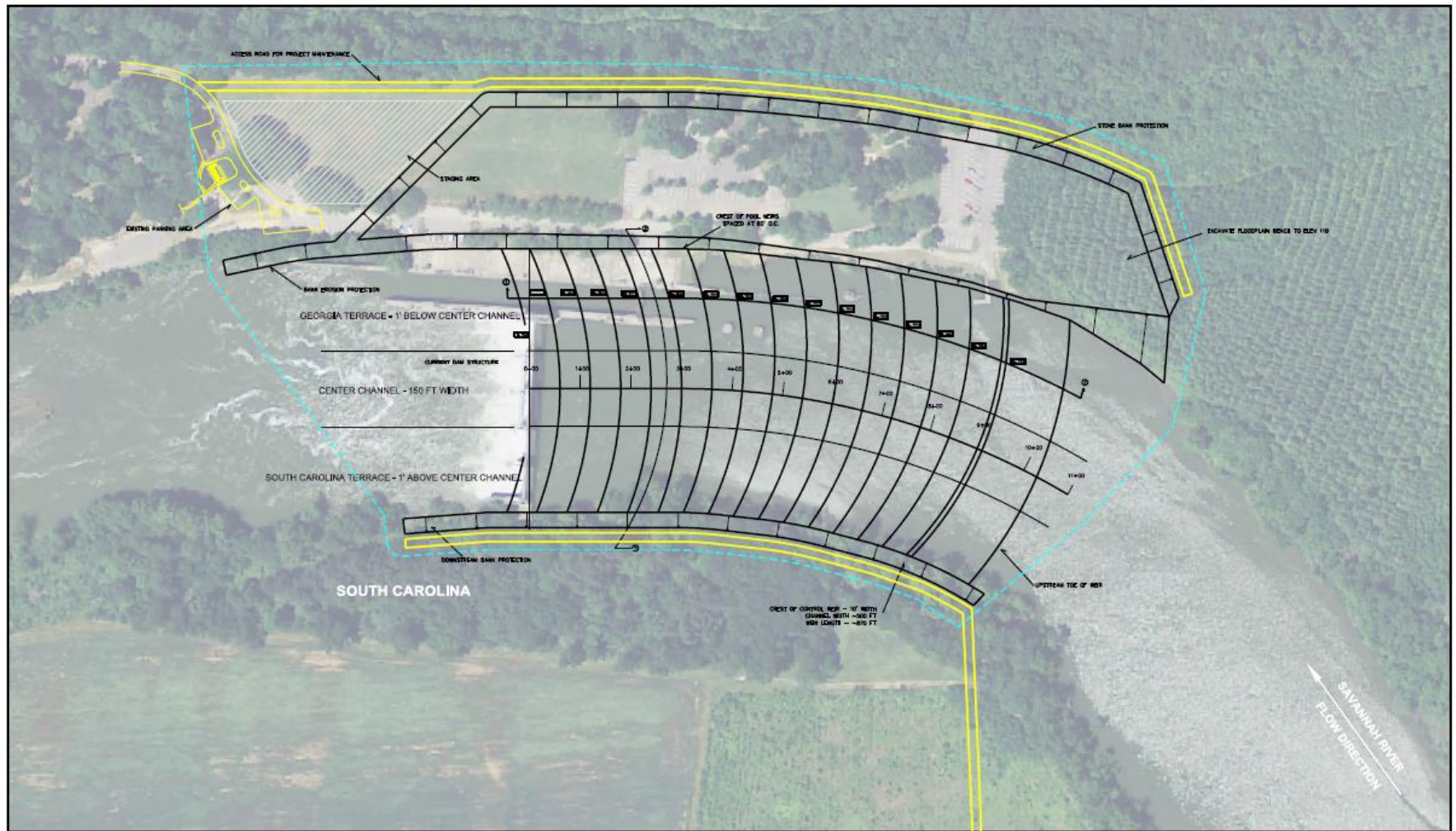


Construct excavated floodplain bench to pass higher flows

New boat ramp

Remove lock and dam

Construct in-river fish passage leading to fixed weir at 3 varying heights



CONCEPTUAL FISH PASSAGE SYSTEM

DATE	ISSUED	BY

NEW SAVANNAH BLUFF LOCK AND DAM
 FISH PASSAGE SYSTEM
 ALTERNATIVE 2-6



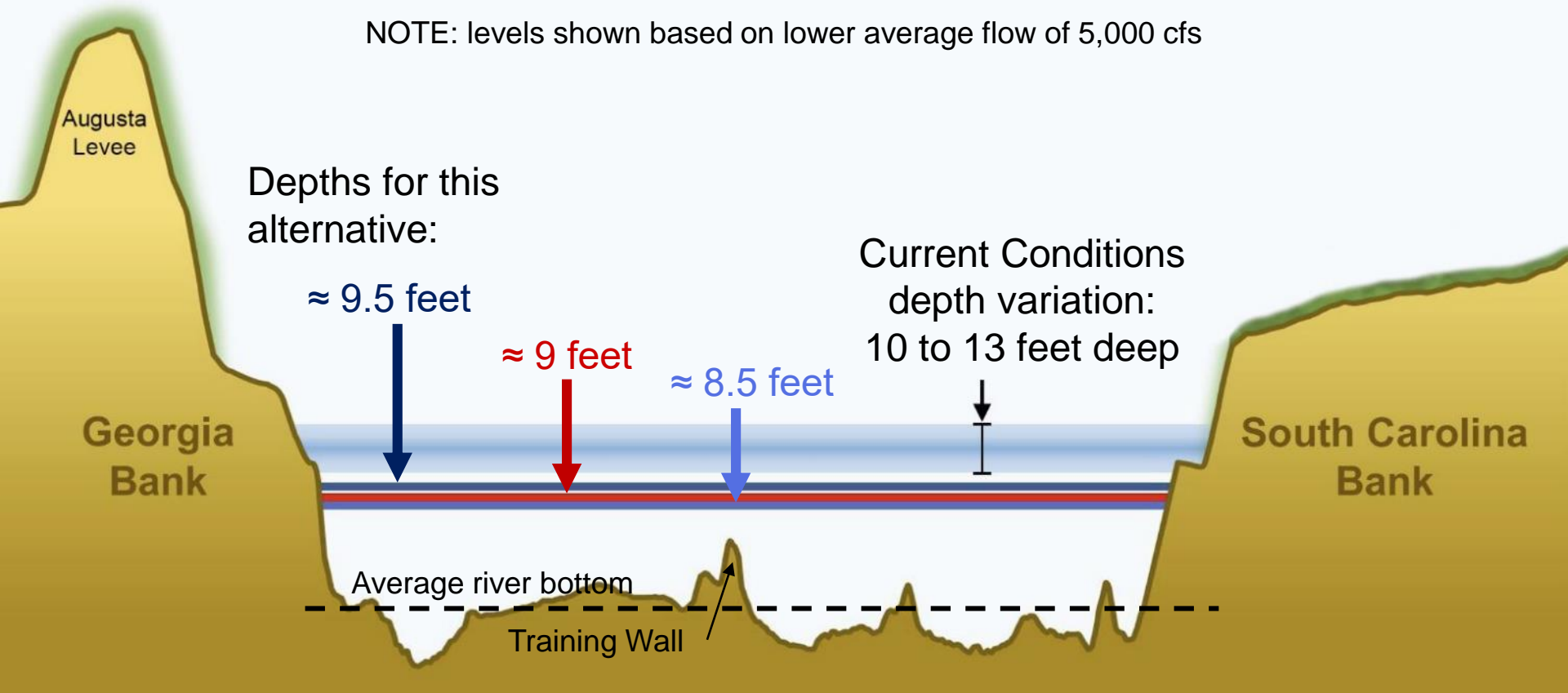
Impacts: 5th Street Bridge



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Fixed Weir with Dry Floodplain: Varying Heights

NOTE: levels shown based on lower average flow of 5,000 cfs





Shoreline Tool for Alt 2-6 b,c,d



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Gated Bypass Channel



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Construct by-pass channel with two 50-foot gate structures to maintain pool

New boat ramp

Remove lock and dam

Construct in-river fish passage to crest weir



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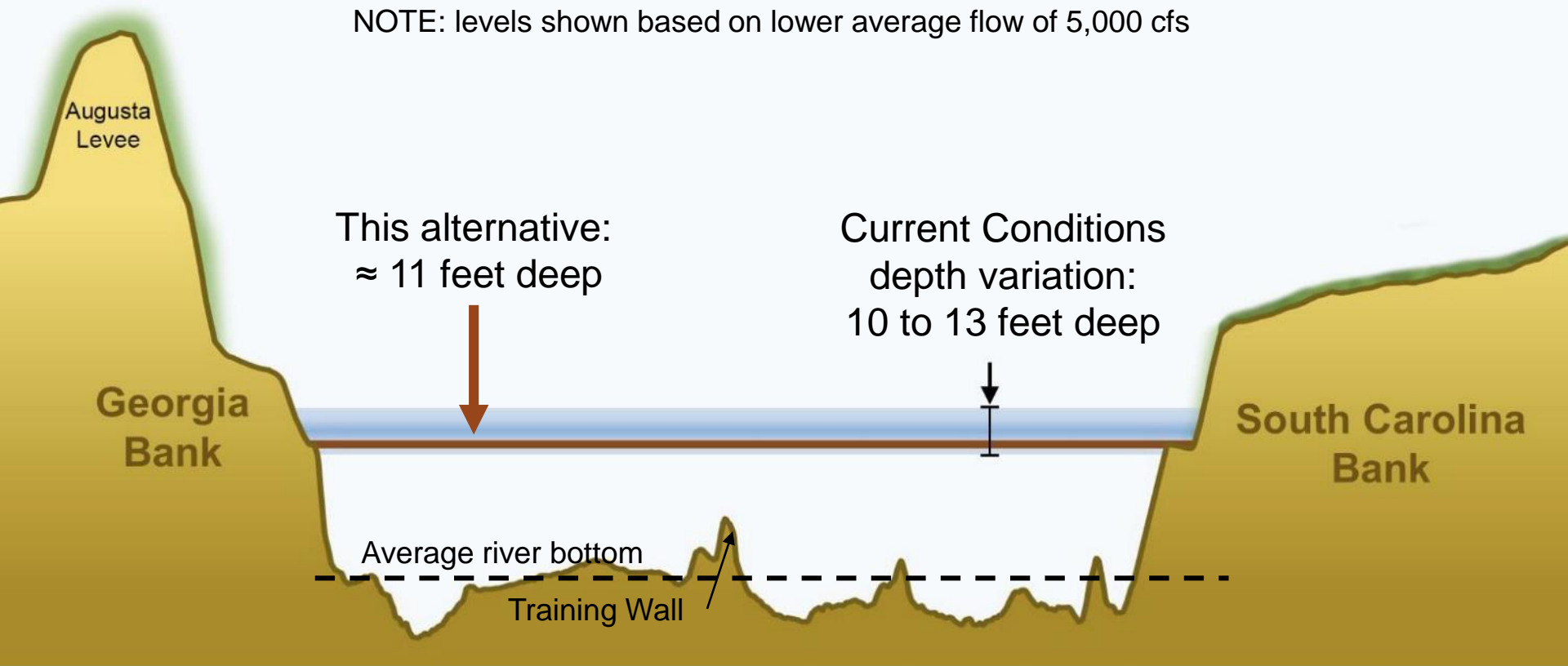
Impacts: 5th Street Bridge



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Gated Bypass Channel

NOTE: levels shown based on lower average flow of 5,000 cfs





Shoreline Tool for Alt 2-8



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Post Authorization Analysis Schedule



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Apr - June 2017 June 2017 – May 2018 June 2018 June - Nov 2018 Nov 2018 Nov 2018 – Jan 2019



Feb 2019 Mar - June 2019 June 2019 Oct 2019 – Sept 2020 Oct 2020 – April 2021

- Public
- USACE Analysis
- SAD Decision



Public Information



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The SHEP Fish Passage Web page went live in May and provides information and updates for the public

The screenshot shows the US Army Corps of Engineers website for the SHEP Fish Passage project. The header includes the US Army Corps of Engineers logo and the text 'SAVANNAH DISTRICT'. Below the header is a navigation menu with links for 'ABOUT', 'BUSINESS WITH US', 'MISSIONS', 'LOCATIONS', 'CAREERS', 'MEDIA', 'LIBRARY', and 'CONTACT'. The main content area features a large image of the SHEP Fish Passage at the New Savannah Bluff Lock and Dam, with the text 'SHEP Fish Passage at New Savannah Bluff Lock and Dam'. Below the image are two columns of text: 'Overview' and 'Important Links'. The 'Overview' section contains three paragraphs of text describing the project's history and current status. The 'Important Links' section contains three links: 'Getting to a Solution', 'Historic Overview', and 'Stay Informed, Get Involved'.

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SHEP Fish Passage at New Savannah Bluff Lock and Dam

Overview

The New Savannah Bluff Lock and Dam, operated and maintained by U.S. Army Corps of Engineers, opened in the late 1930s to aid in river navigation between Augusta and the deep water ocean port in Savannah. Commercial vessel navigation ceased in 1979. Since the cessation of commercial navigation, the lock and dam also ceased to deliver on its Congressionally-authorized purpose. As a result, funding for the project dwindled. The facility was moved into caretaker status in 1985 when federal funding was further curtailed. Today, the project incidentally provides a pool of water upstream of the lock and dam. This pool is used as water supply for municipal and industrial uses in Augusta, Georgia, and North Augusta, South Carolina. The pool also enables recreation and waterfront development. The project funding received on an annual basis allows for minimal maintenance of the lock and dam by the Corps' Savannah District. As a result, the lock and dam continues to deteriorate significantly.

The Savannah Harbor Expansion Project (SHEP), which lies 180 miles downstream of the New Savannah Bluff Lock and Dam, is currently under construction. In compliance with the Endangered Species Act, the Corps is required to reduce or mitigate impacts to sturgeon, a species of fish found in the harbor and listed as endangered under the Endangered Species Act. No mitigation solution could be implemented within the project's footprint. Therefore, the Corps was required to examine other opportunities to reduce impacts.

Removal of the New Savannah Bluff Lock and Dam would benefit sturgeon by providing access to historic spawning areas. This would satisfy the requirement to mitigate for SHEP's impacts on sturgeon. Click here for additional history on finding a fish passage solution.

Important Links

Getting to a Solution

Historic Overview

Stay Informed, Get Involved

<https://go.usa.gov/xQRwS>



Questions



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