

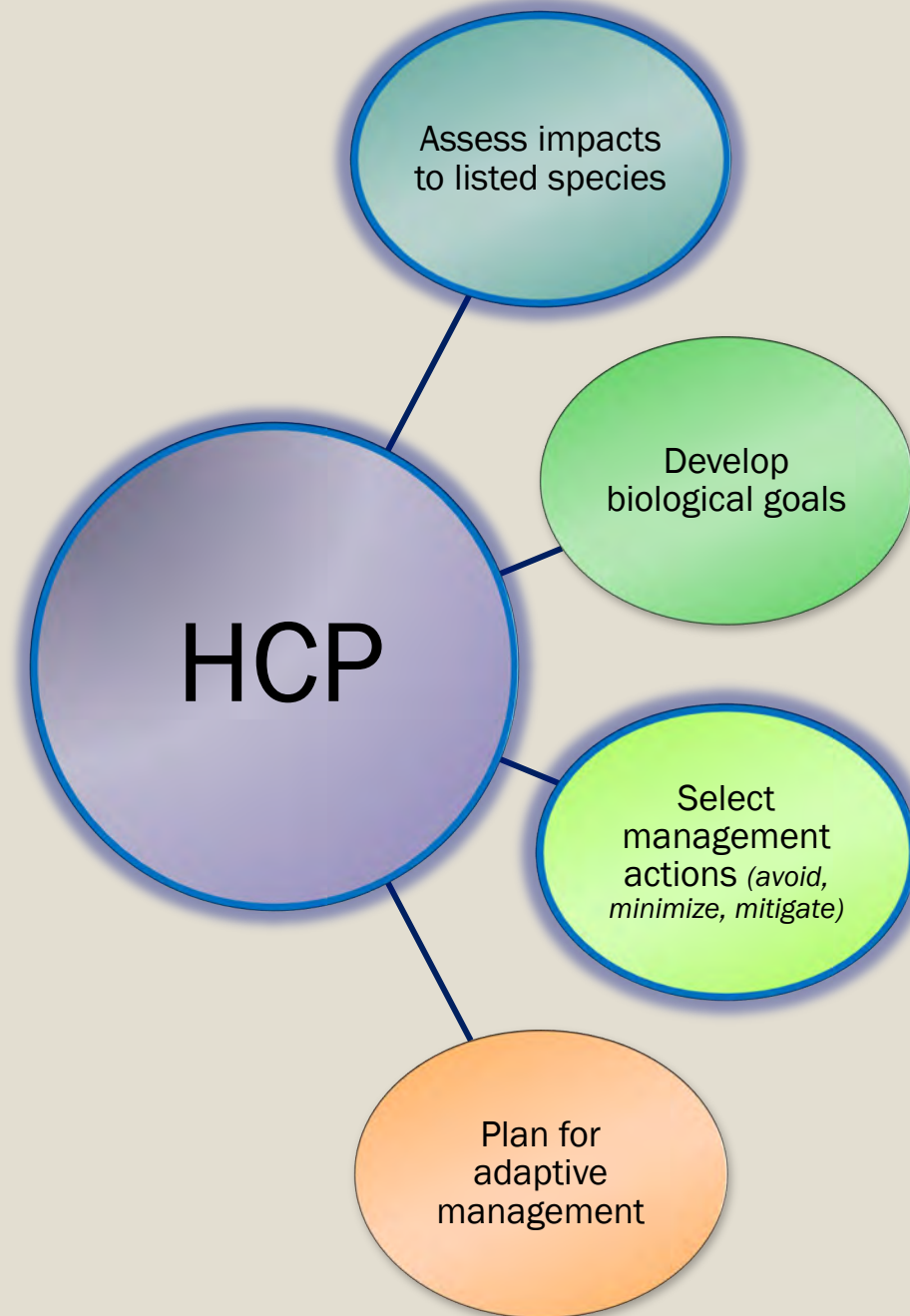


Advisory Board Meeting  
April 3, 2024

# Today's Objectives

- Project updates
- EPD update on permitting and next steps
- Review of HCP modeling approach
- HCP revisions discussion
- M&I water use snapshot

# HCP Activities at Today's Meeting



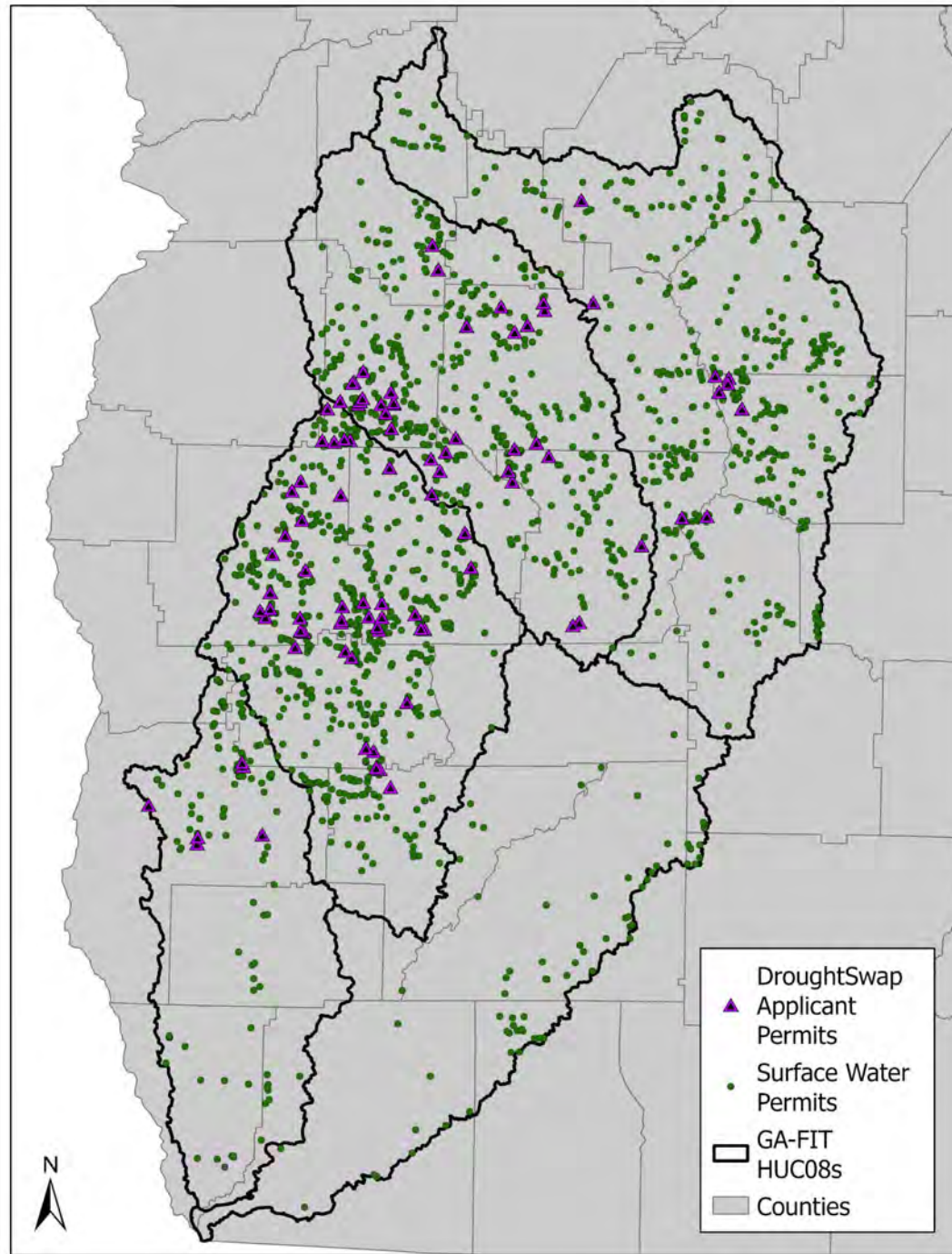
# Project Updates

## Project Team

April 3, 2024

# Project Updates

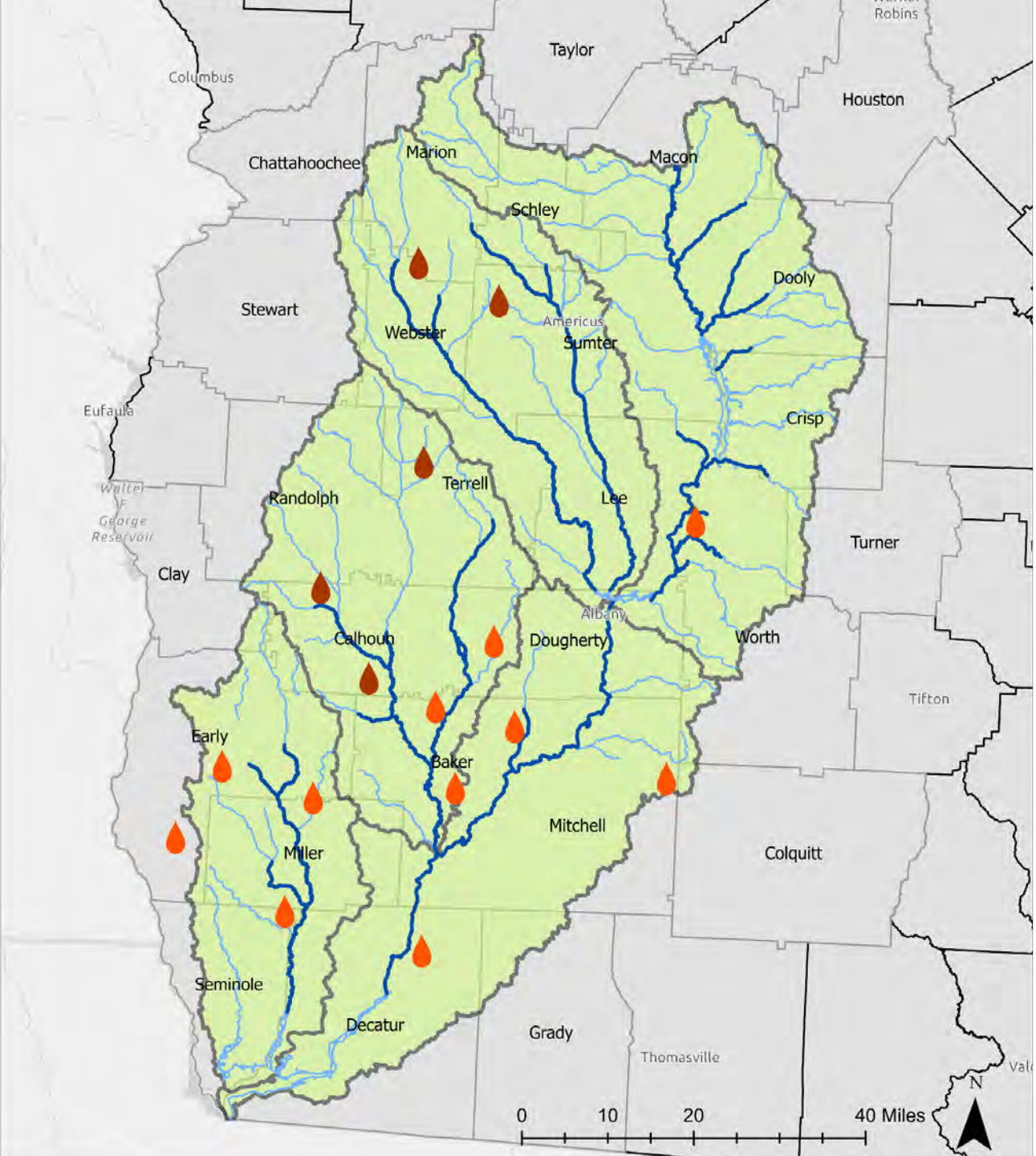
- Drought SWAP Application Review Process
- Monitoring Wells & Test Holes
- State Environmental Review (SERP)
- Field Work: Mussel Surveys and Habitat Mapping
- HCP Development
- Modeling for the HCP
- USFWS Coordination Meetings
- Revised HCP Map
- GA-FIT Voluntary Irrigation Suspension Project Reports
- UGA Claiborne Aquifer Research
- Better Back Roads Erosion Projects







First Test Hole for  
DroughtSWAP  
Wells



# Monitoring Wells



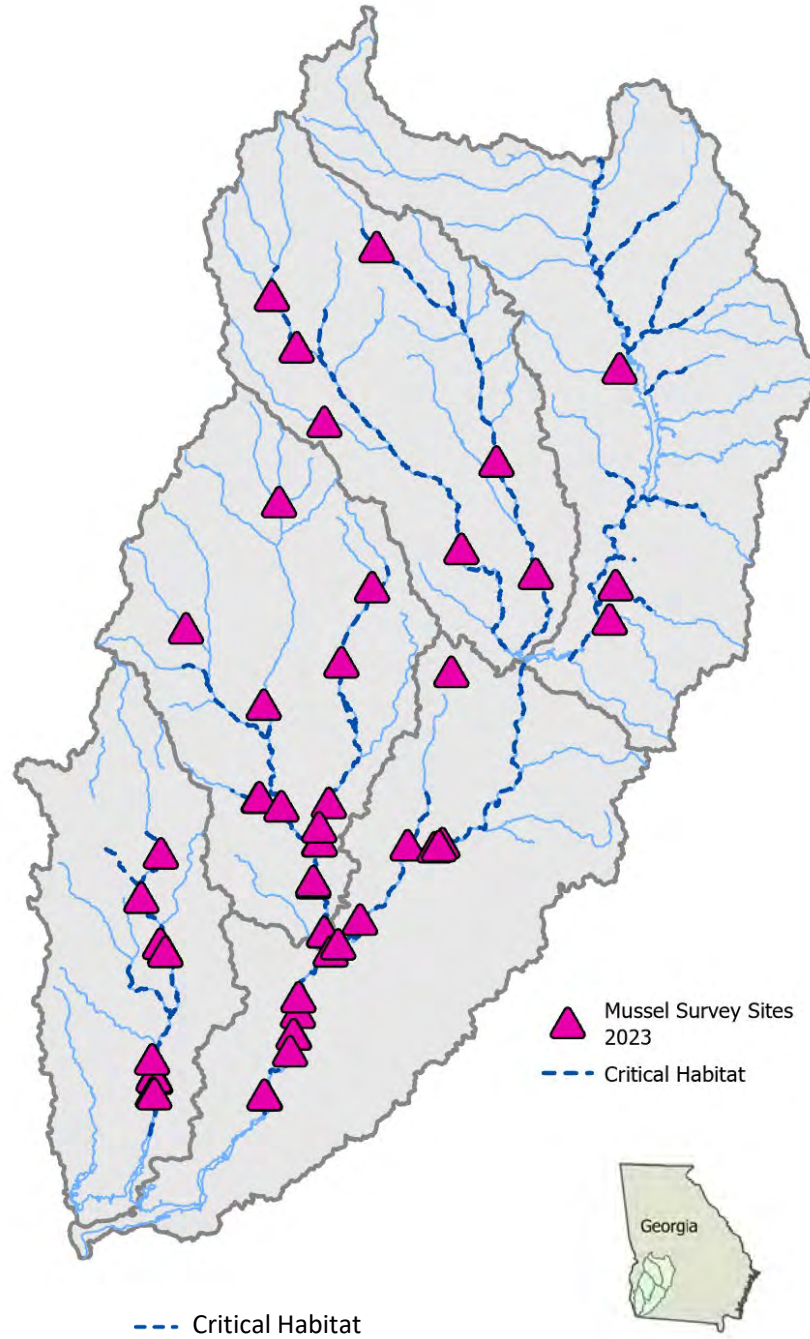
-  Claiborne Monitoring Well
-  Cretaceous Monitoring Well
-  Project Area Lower Flint River Basin
-  Critical Habitat





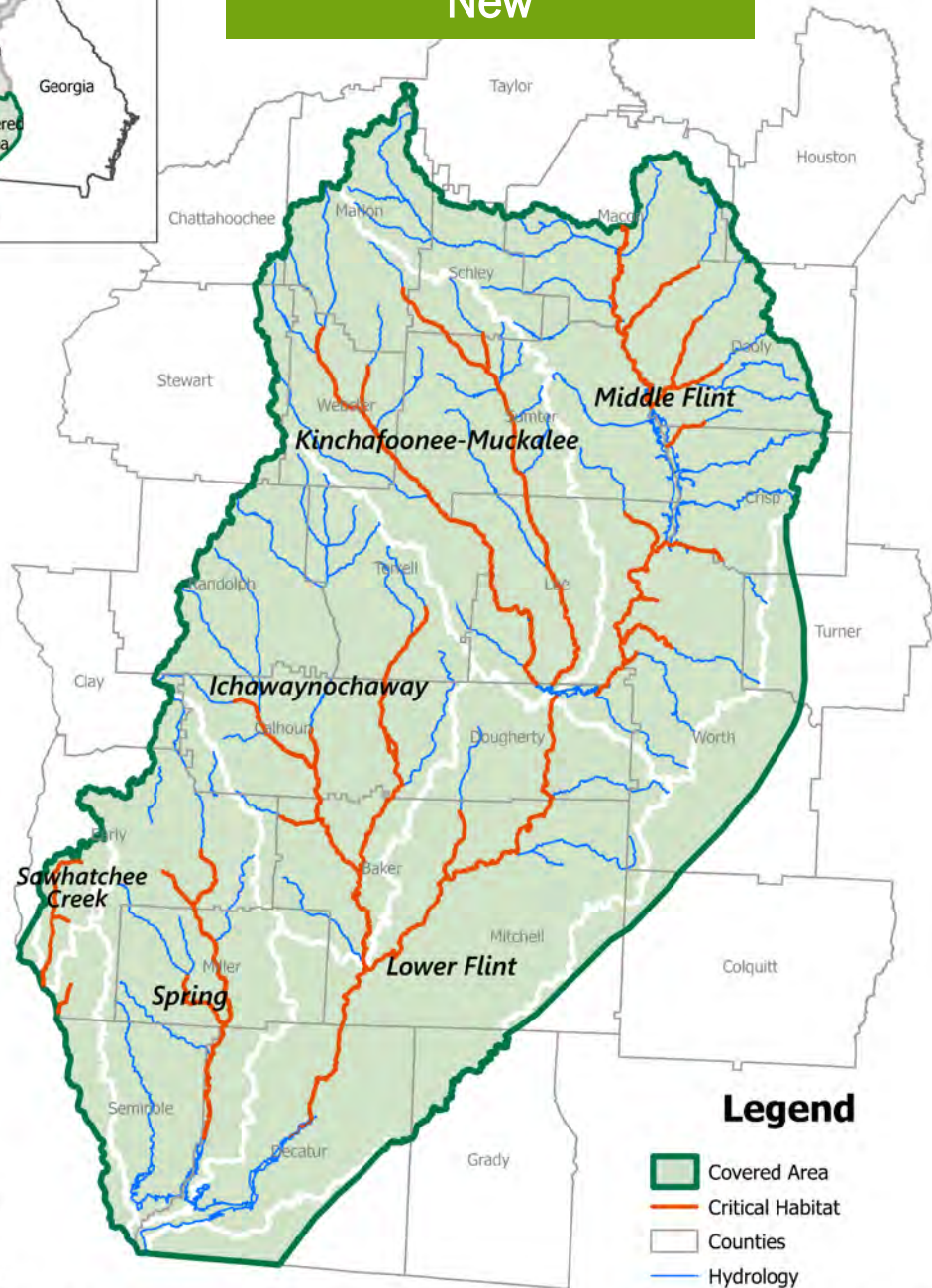


# Mussel Survey Sites



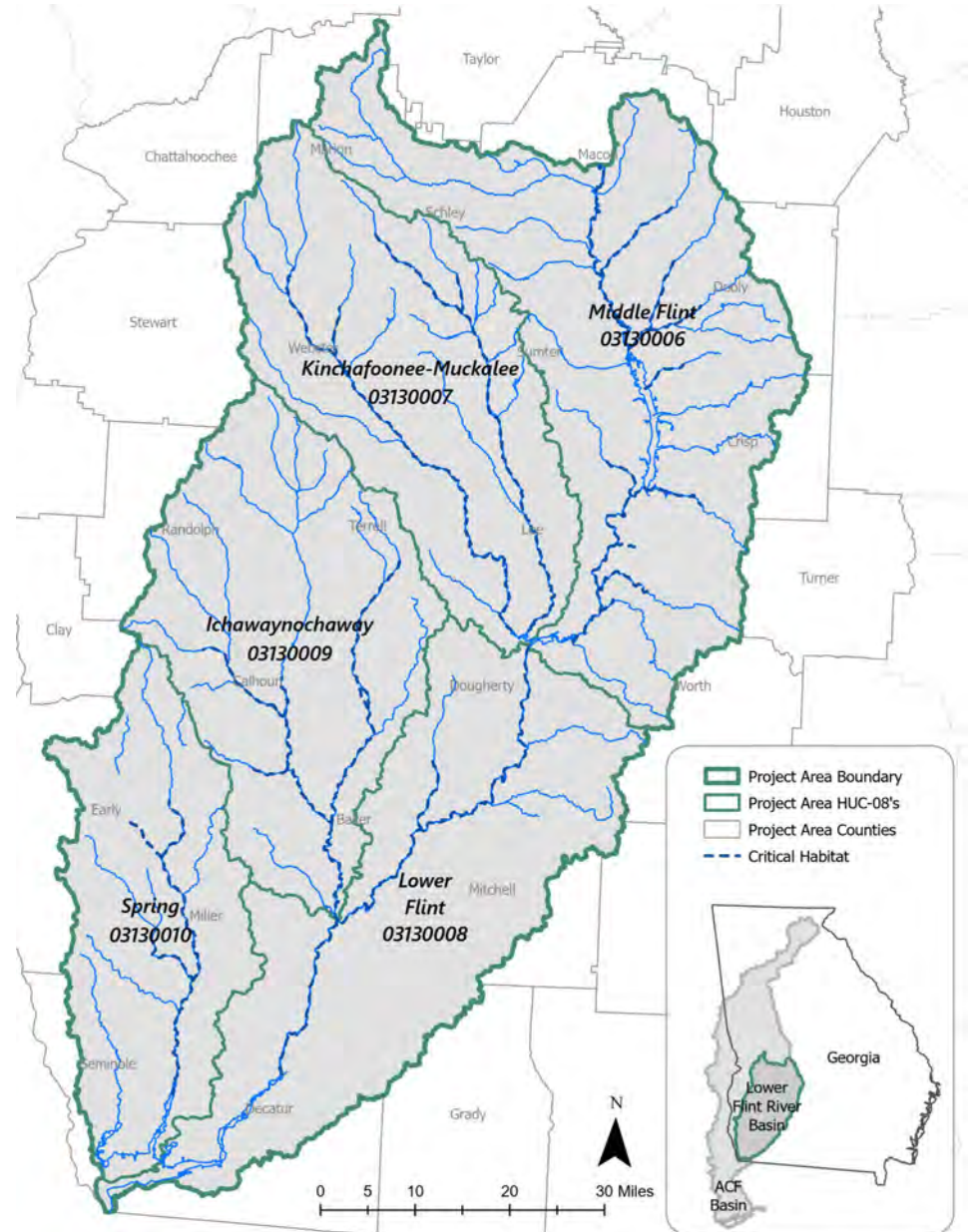


**New**

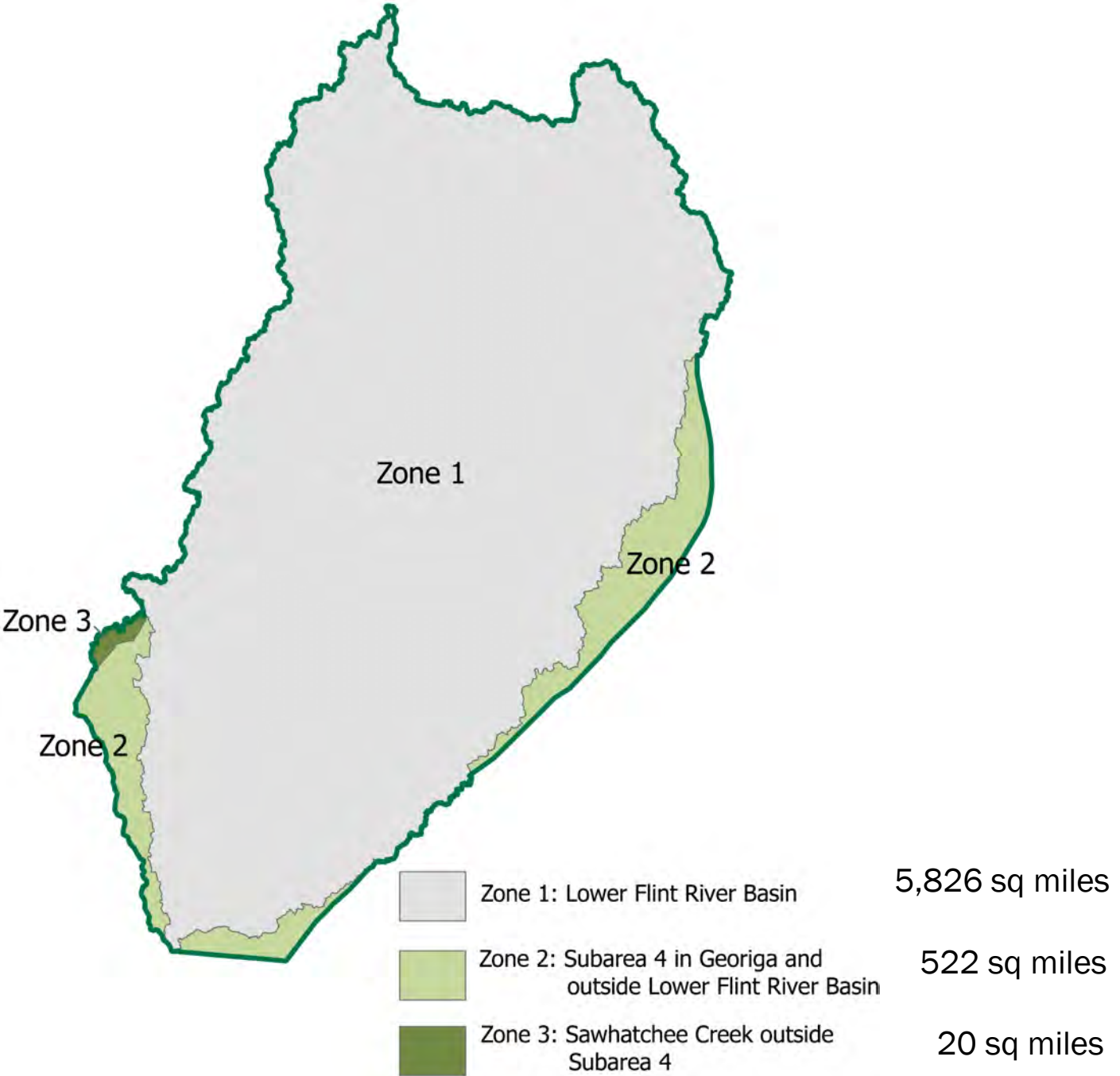


HCP  
Covered  
Area

**Old**



HCP  
Covered  
Area





## Incentives Auction Project Summary

Severe droughts in the Lower Flint River Basin (LFRB) cause periodic water scarcity that threaten aquatic ecosystems and agricultural water security. With better drought response tools, we can attain benefits for endangered species and water users when water is most scarce – and most needed. This report summarizes the efforts, accomplishments, and findings of a recent project that sought to improve drought management tools in the LFRB.

This report is focused on the implementation and outcomes of the first project completed through the Georgia Flow Incentive Trust (GA-FIT). Funded by the Robert W. Woodruff Foundation, this project designed and tested novel incentive approaches for voluntary irrigation suspension in the LFRB. It was implemented from 2020 to 2023, and it established GA-FIT, which has since become a much larger program encompassing several initiatives to improve drought management in the LFRB, support farmers who rely on the LFRB for water, and protect the habitat of rare aquatic species.

### PROJECT ACTIVITIES

The central project focus was two years of field trials in which incentive contracts were offered in an auction to farmers in the Ichawaynochaway Creek sub-basin of the LFRB. Project activities included:

- Field Trial Design and Testing
- Auction Portal Development
- Farmer Recruitment
- Auction Implementation
- Incentive Contract Execution
- Auction Data Analysis
- Stakeholder Engagement
- Focus Group with Auction Participants



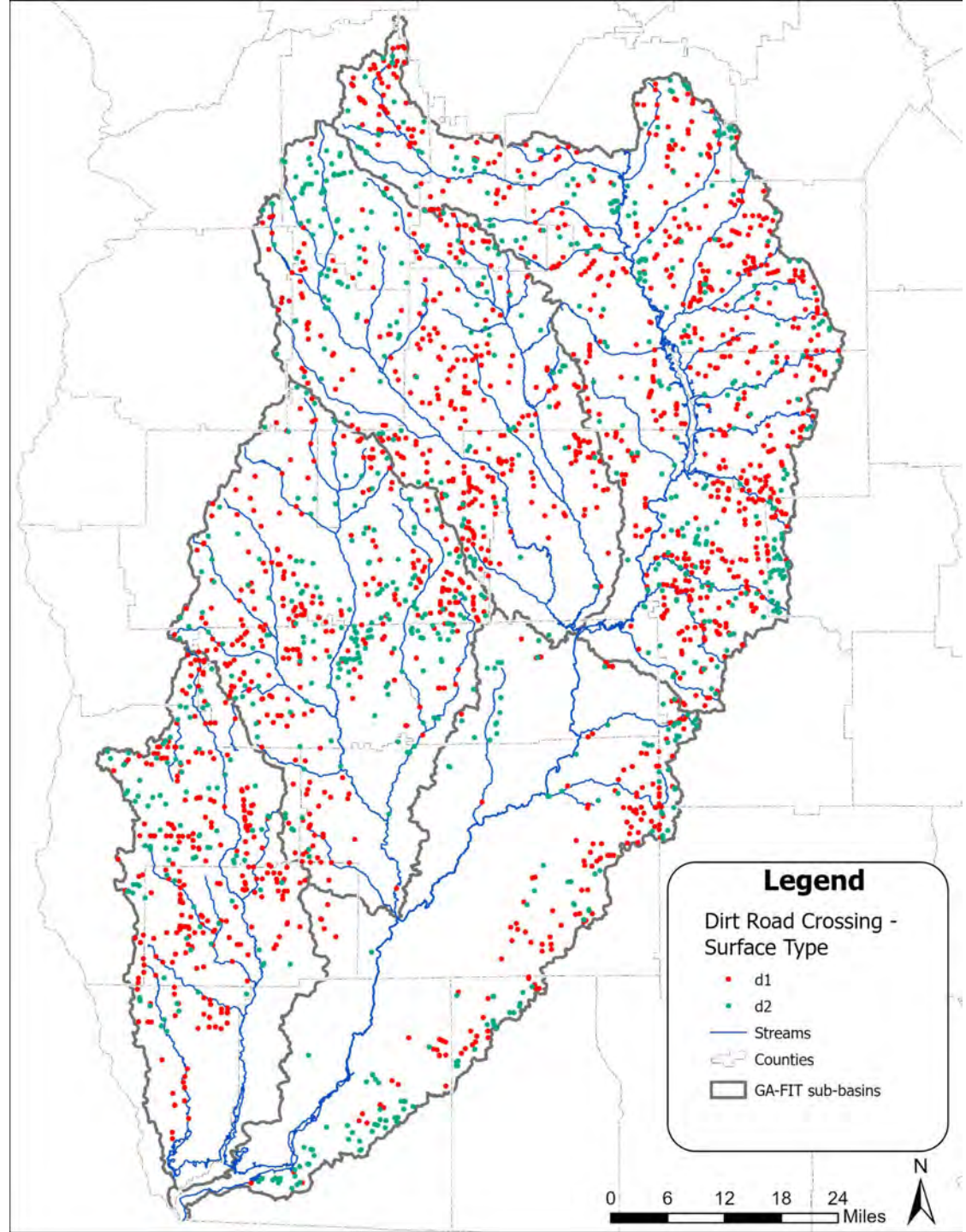
*A surface water withdrawal in the Ichawaynochaway sub-basin*

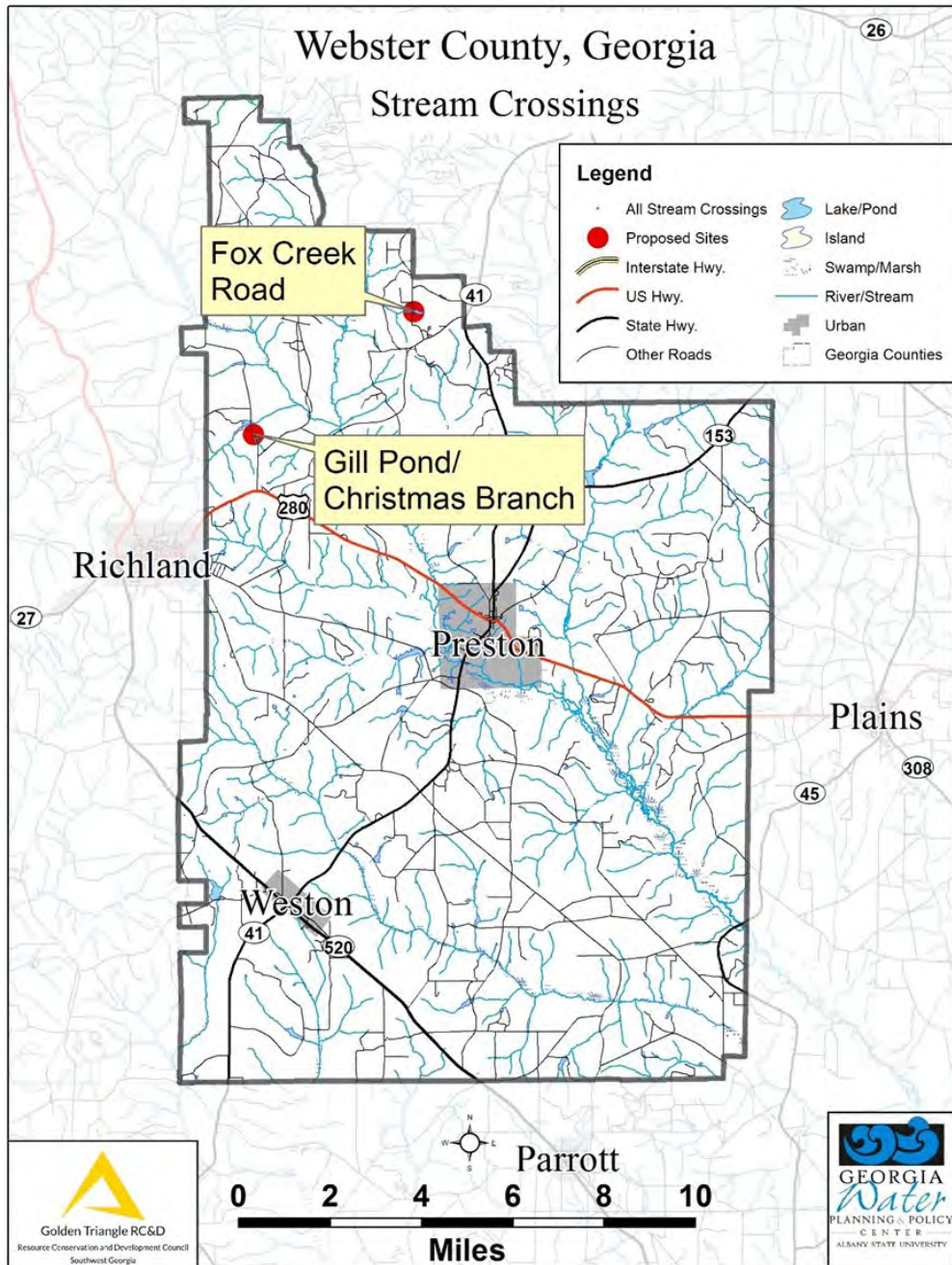
### PROJECT ACCOMPLISHMENTS

- Established the Georgia Flow Incentive Trust and catalyzed its growth, which has since attracted over \$55 million in additional funding to improve LFRB drought resilience
- Implemented successful field trials of new incentive approaches to voluntary irrigation suspension with farmers
- Recruited over 55% of eligible farmers in the project area to participate in an incentive auction
- Generated “willingness to accept” data for voluntary irrigation suspension incentives by contract type, water source, and crop type
- Developed an online incentive auction portal that provided a seamless and positive experience for farmers and can be used as a template for future incentive auctions
- Successfully executed seventeen irrigation suspension contracts on 1,840 acres
- Provided a proof of concept for new voluntary irrigation suspension incentives as a management measure for the LFRB Habitat Conservation Plan for federally protected freshwater mussels
- Communicated progress and outcomes through the GA-FIT website ([ga-fit.org](http://ga-fit.org)), more than 25 presentations to audiences of water resource managers and academic researchers, and two research manuscripts for academic journals
- Supported robust stakeholder engagement through the GA-FIT Advisory Board, which continues to provide leadership in the LFRB

## Dirt Road Crossings

HUC 8		Count
03130006	Middle Flint	915
03130007	Kinch-Muck	463
03130008	Lower Flint	297
03130009	Ichaway	494
03130010	Spring	361







**GEORGIA**  
DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL PROTECTION DIVISION

# Agricultural Water Withdrawal Permitting Update

PAB Update  
April 3, 2024





# LOWER FLINT RIVER BASIN

- From Hartsfield-Jackson International Airport in Atlanta to the most southwestern corner of Georgia.
- Subarea 4 of the ACF basin – south of Dooly County, area of significant hydraulic connection between the Flint River and its tributaries with the Floridan aquifer.
- Small portions of Chattahoochee, Ochlockonee, and Suwannee River Basins are included in Subarea 4.

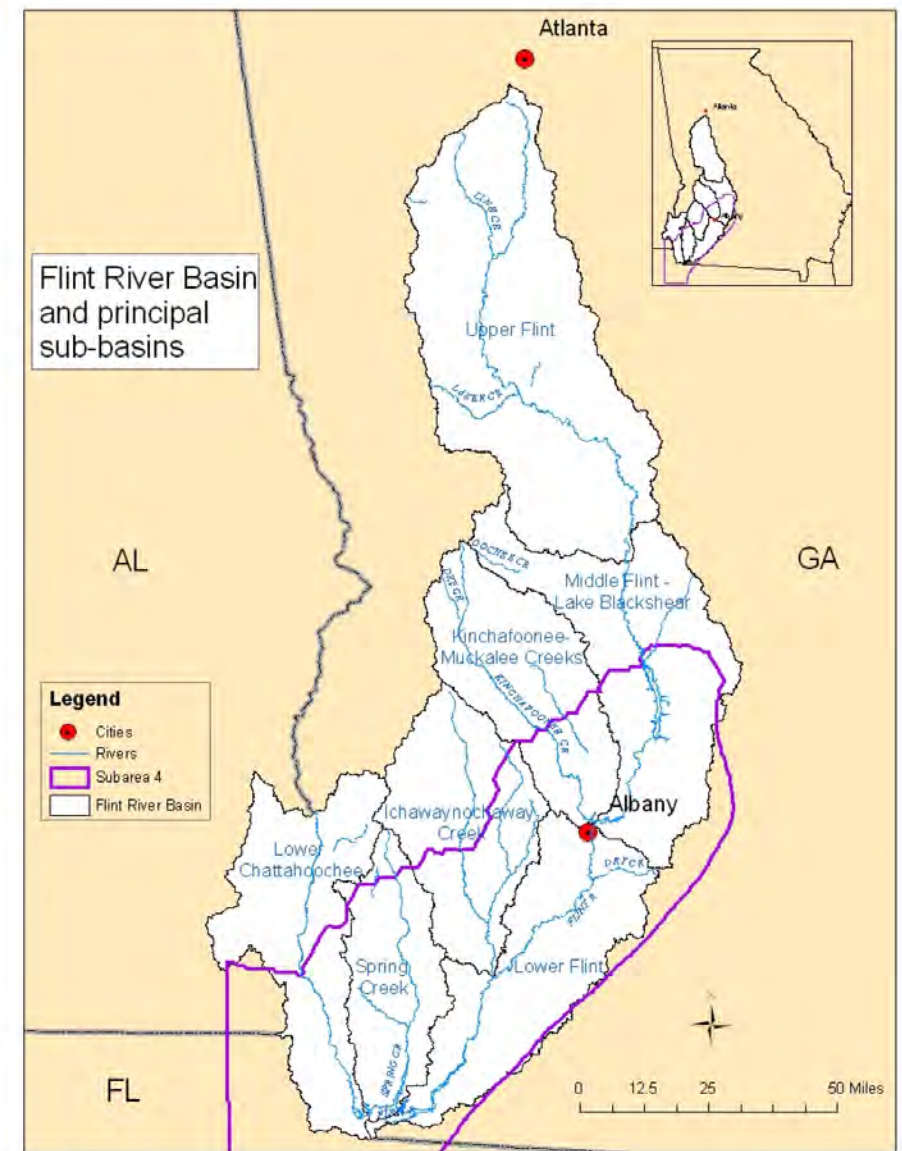


Figure 0.1: The Flint River Basin and sub-basins





# LOWER FLINT RIVER BASIN

- Agricultural water withdrawal permitting – 1988
- Water withdrawal permitting moratorium – 1999
- Flint River Drought Protection Act – 2000
- Flint River Basin Regional Water Development and Conservation Plan – 2006
- Original Regional Water Plans for Upper & Lower Flint – 2011
- Water withdrawal permitting suspension – 2012
- Florida v. Georgia – 2013
- First update of the RWP for Upper & Lower Flint – 2017
- Florida v. Georgia – 2021
- Agricultural Water Source Conversion for Streamflow Resilience (ASU and EPD ARPA grant) – 2022
- Second update of the RWP for Upper & Lower Flint – 2023



Figure 0.2. Classification of HUC-12 watersheds in the lower Flint River Basin.



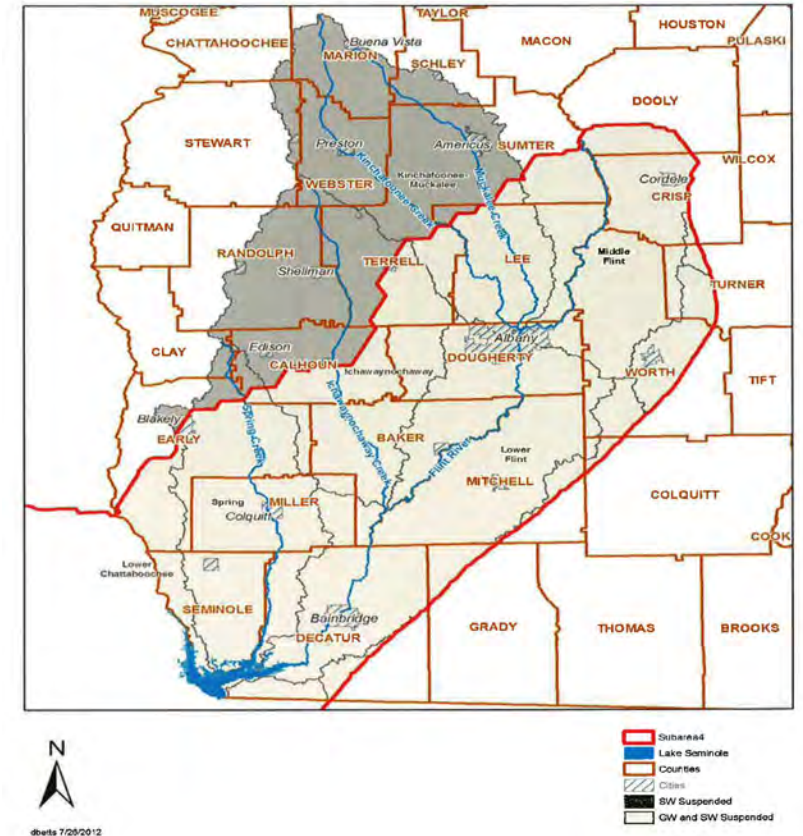
# HABITAT CONSERVATION PLAN

- EPD is working with ASU-GWPPC on the development of an Incidental Take Permit and associated Habitat Conservation Plan to address threatened and endangered mussels in the Lower Flint River Basin.
- Because water withdrawals directly from the Flint River, its tributaries, and the Floridan Aquifer can affect flows throughout the Lower Flint River Basin, EPD's water withdrawal permitting and compliance program is a key element of the Habitat Conservation Plan.
- USFWS will need assurance that the State's actions to reduce take are completed. A strong agricultural water withdrawal permitting and compliance program is critical for that assurance.
- The inclusion of EPD's water withdrawal permitting and compliance program in the HCP offers the opportunity to set expectations and allows EPD to evaluate new and expanded permits, as well as compliance tools.



# 2012 SUSPENSION

- The 2012 suspension was intended to protect existing users and the water resource. EPD was to evaluate the suspension annually, with future modifications possible depending on the condition of the water resource.
- The Habitat Conservation Plan provides a comprehensive way of modifying the suspension and developing an informed and defensible water management approach, particularly for drought.
- The development of a Habitat Conservation Plan includes technical activities that will provide important information about capacity; where capacity exists, new and expanded permits could be considered.
- Farmers in the area have experienced five different permitting regimes in the last 40 years. The process of developing the Habitat Conservation Plan will be engage stakeholders and be important for making a practical water management program that can provide farmers with regulatory certainty and protect the water resource.





## MODIFYING THE 2012 SUSPENSION

- Modifying the existing permitting suspension depends on:
  - Additional capacity being identified
  - Protecting existing users and the water resource.
- Certain portions of the Lower Flint River Basin may have the capacity to support additional groundwater withdrawals. These areas would need to be identified through careful data analysis and modeling, which is happening concurrently with HCP development.
- **One central objective is to limit the overall burden onto the Floridan Aquifer to levels equivalent to what was experienced in the 2011 and 2012 critical drought.**



## PREVIOUS MODIFICATIONS TO THE 2012 SUSPENSION

- 2023 frost protection permits.
- 2024 modification to remove surface waters in the Ochlockonee and Suwannee basin.



## MODIFYING THE 2012 SUSPENSION

- EPD recommends maintaining the suspension on surface water withdrawals.
- EPD is exploring modifying the suspension to allow new or modified permits for Floridan wells in the suspension area.
- EPD would include specific conditions in the permits to ensure protection of flows in the Flint River and its tributaries, particularly during times of drought, including:
  - 25-year terms
  - Irrigation efficiency requirements
  - Water conservation plans.
  - Telemetry
  - Restriction on aesthetic and recreational uses
  - Drought conditions



# DROUGHT CONDITIONS

- EPD will make a drought restriction determination daily. This determination will be posted to the EPD website and shared through text and email.
- Permittees must check daily whether a drought restriction is in place.
  - If a drought restriction is not in place, the permittee may withdraw water from the Floridan aquifer.
  - If a drought restriction is in place, the permittee may not withdraw water from the Floridan aquifer. Permittees must complete any irrigation application initiated before drought restrictions are put in place within 24 hours of a drought restriction being put in place.



# DROUGHT RESTRICTION DETERMINATION

- EPD will use data from 15 USGS monitoring wells located in the suspension area.
- EPD determined that the 10<sup>th</sup> percentile water level in each month reflects drought conditions at that monitoring site.
- EPD developed a composite trigger: if any five of the 15 wells fall below their monthly 10<sup>th</sup> percentile water level, the entire suspension area is placed under drought restrictions.
- EPD checked the composite trigger level against historic data:
  - A six-month precipitation deficit of 7-8 inches correlates well to the composite trigger.
  - The composite trigger clearly identifies significant droughts (2000, 2002, 2007, 2011, 2012) and does not capture any non-drought years.





## COMPLIANCE MANAGEMENT STRATEGY

- EPD is updating its compliance tools to be consistent with the HCP, set clear expectations for water users, and identify feasible pathways to compliance.
- Compliance options include:
  - New drought-conditioned permits.
  - Modified permits to include volumetric limits instead of acreage.
  - EPD could also consider shifting acres between permits held by the same person.
  - In some situations, consent orders that significantly curtail or eliminate water withdrawals may be necessary for protecting existing users and the water resource.
- **Compliance options would be used to at a minimum, maintain the permitted acreage at the time of the 2012 suspension, and where possible provide a flow benefit.**



## NEXT STEPS

- EPD will lead a series of meetings in the affected area throughout 2024 to further develop these permit conditions and compliance tools.
  - April 18 – Bainbridge
  - May 23 – Albany
  - June 13 – Dawson
- EPD invites all of you to participate and share information with interested stakeholders.



Georgia Recorder photo by Jill Nolin



## CONTACT

**Anna (Ania) Truszczynski**

[anna.truszczynski@dnr.ga.gov](mailto:anna.truszczynski@dnr.ga.gov)

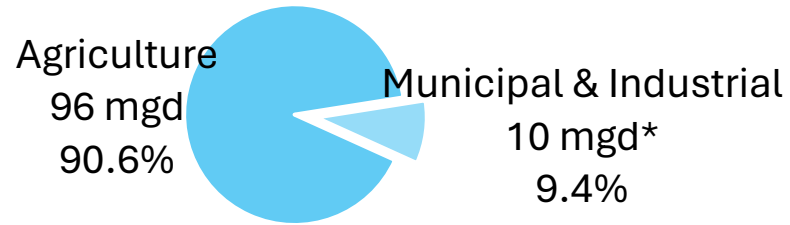
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# Water Use Data

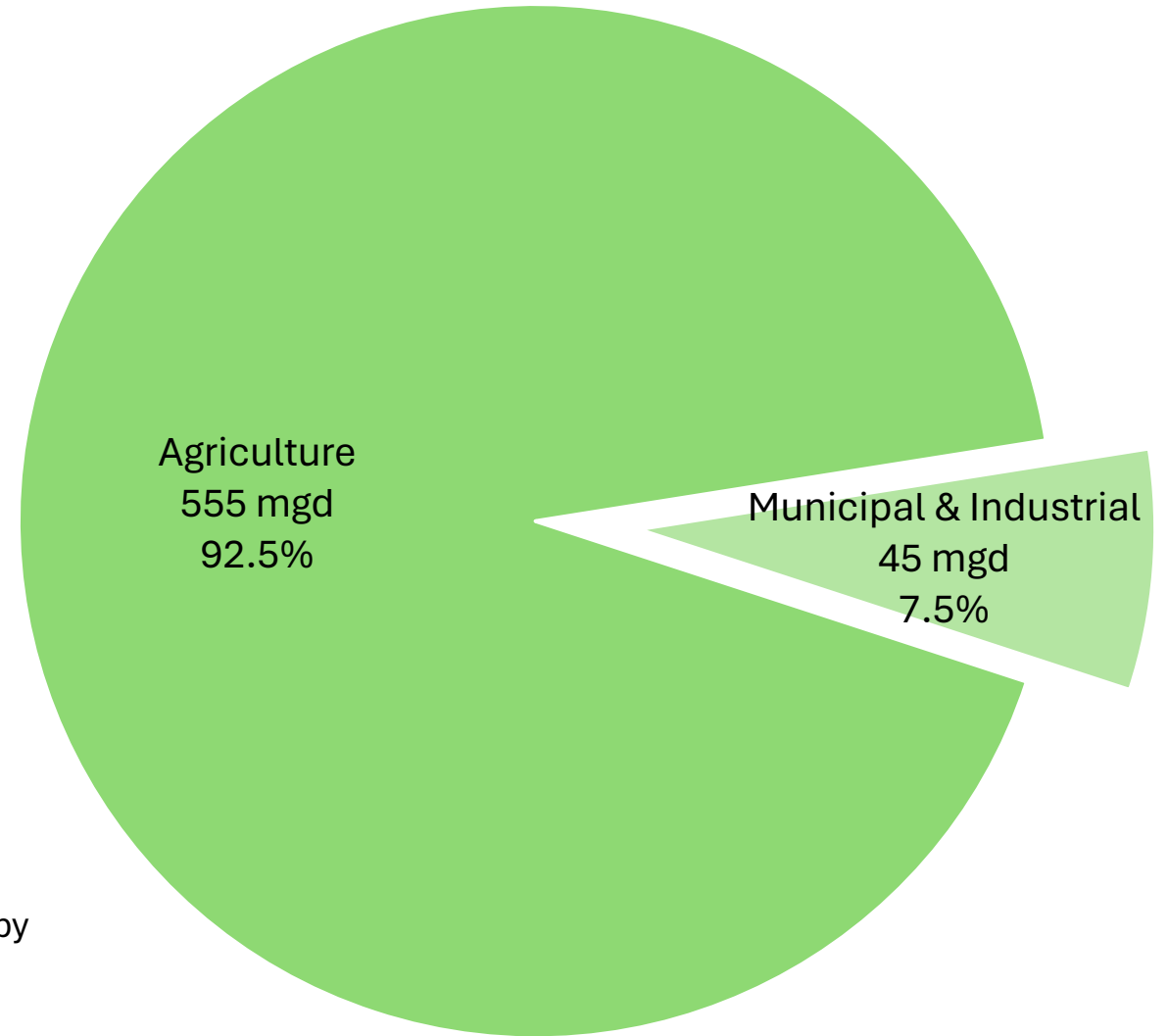
Kristin Rowles

April 3, 2024

### Surface Water Withdrawals in LFRB



### Groundwater Withdrawals in LFRB



\*The Municipal and Industrial category for surface water withdrawals includes just one withdrawal, which is made by an industrial facility and for which 99% of the water is returned as treated wastewater.

The nonconsumptive withdrawals for the hydroelectric facility operated by Crisp County Power Commission are not included in this chart.

# HCP Modeling Approach

Project Team

April 3, 2024

# HCP Modeling Purpose

- HCP must analyze the likely impact the covered activity on the covered species
- Impact is based on quantified estimate of “take”
- HCP minimizes and mitigates take to maximum extent practical
- Anticipated take is identified in the Incidental Take Permit (ITP)

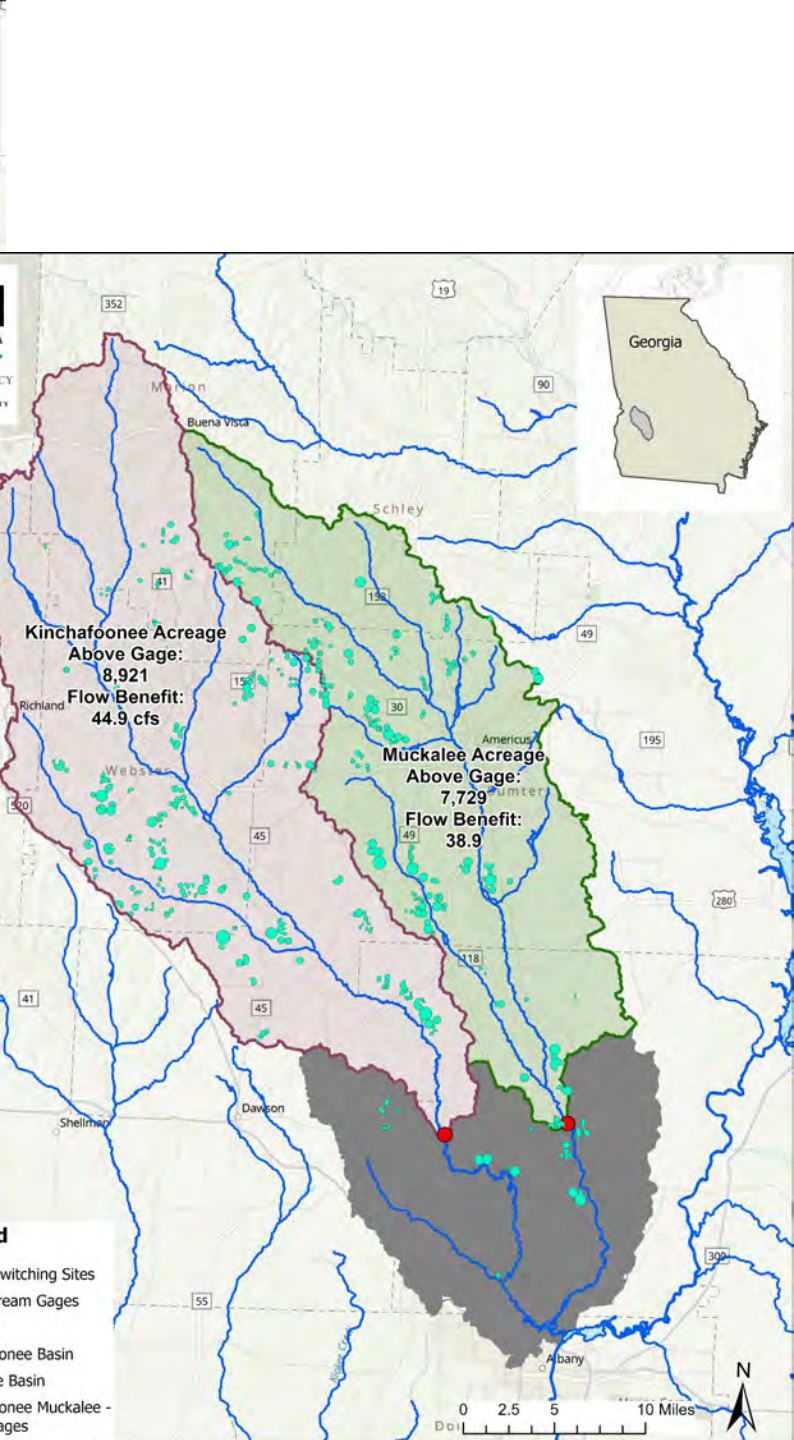
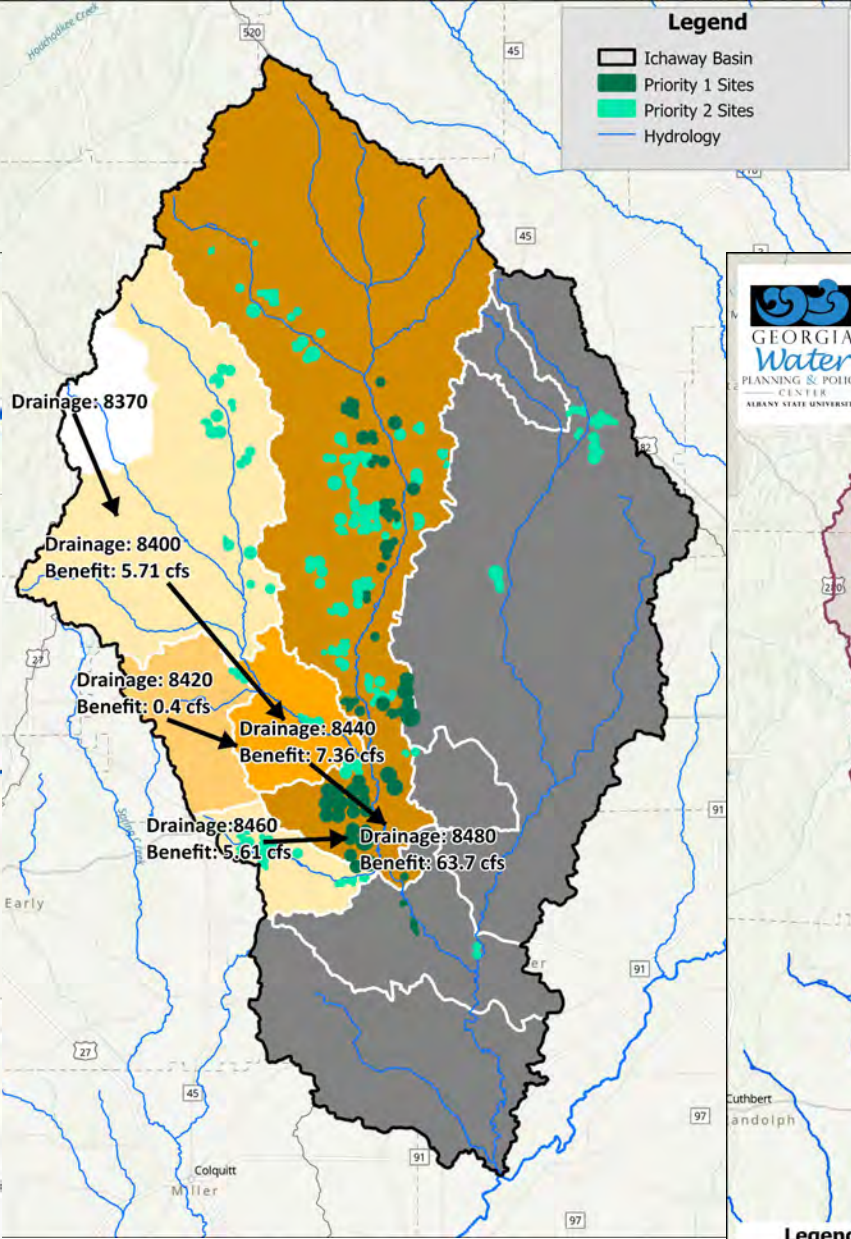
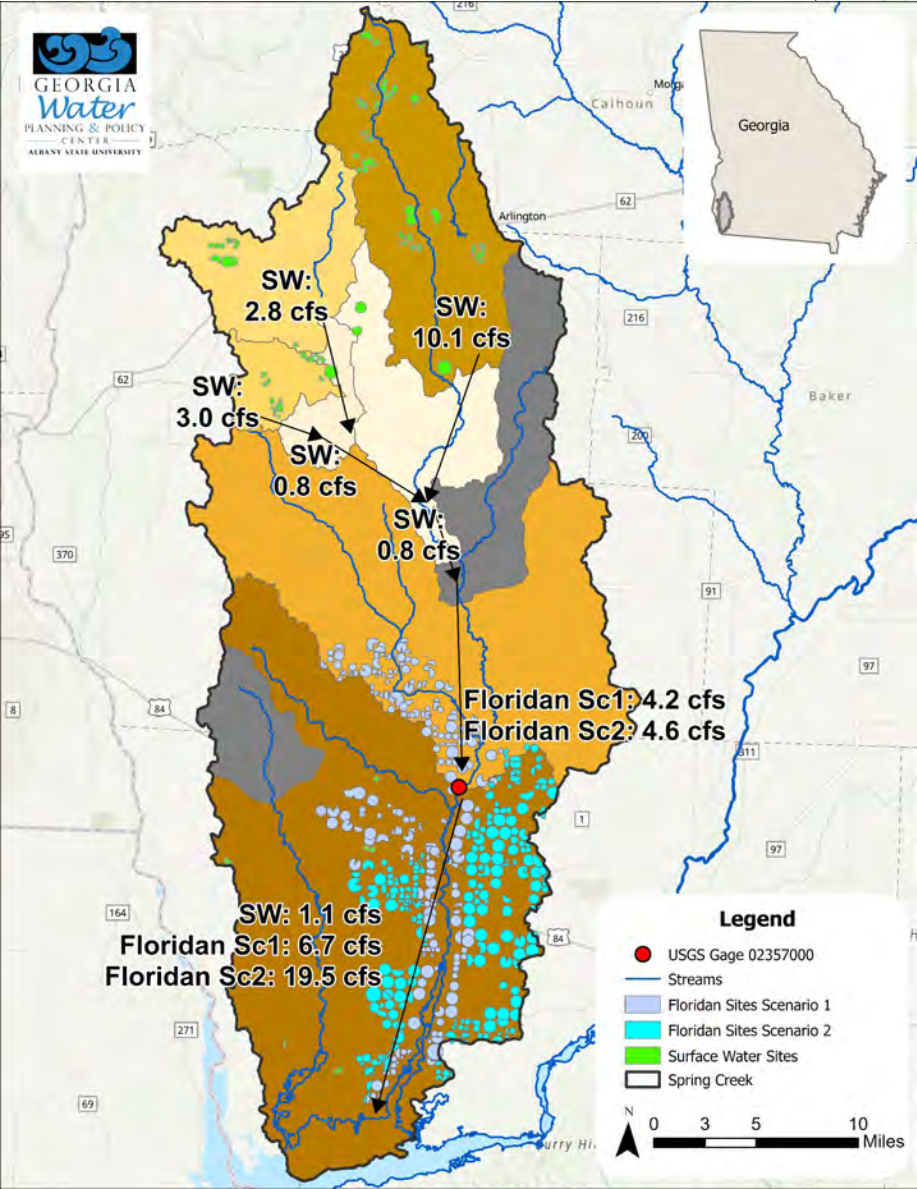
## *TAKE:*

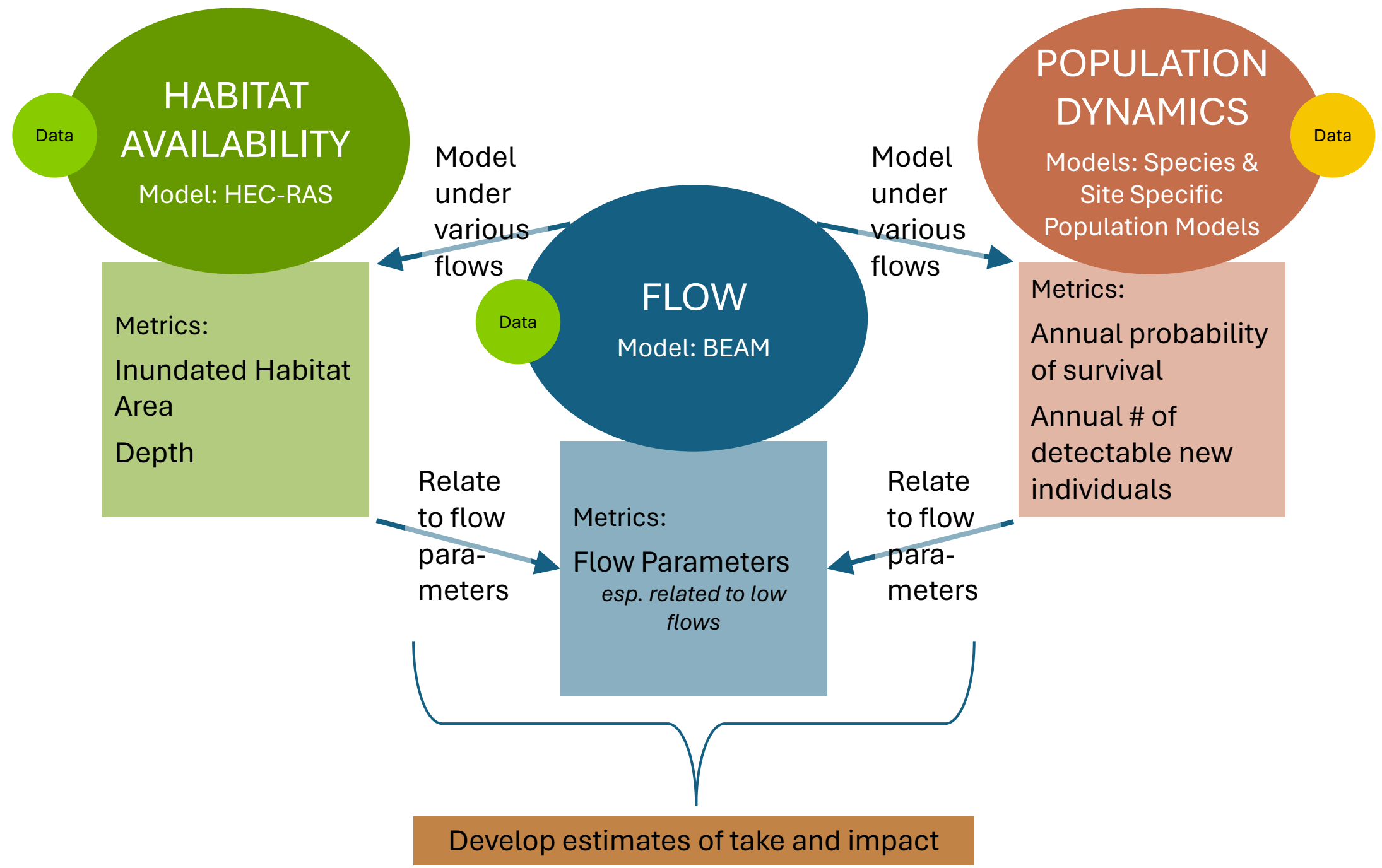
*“to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.”*

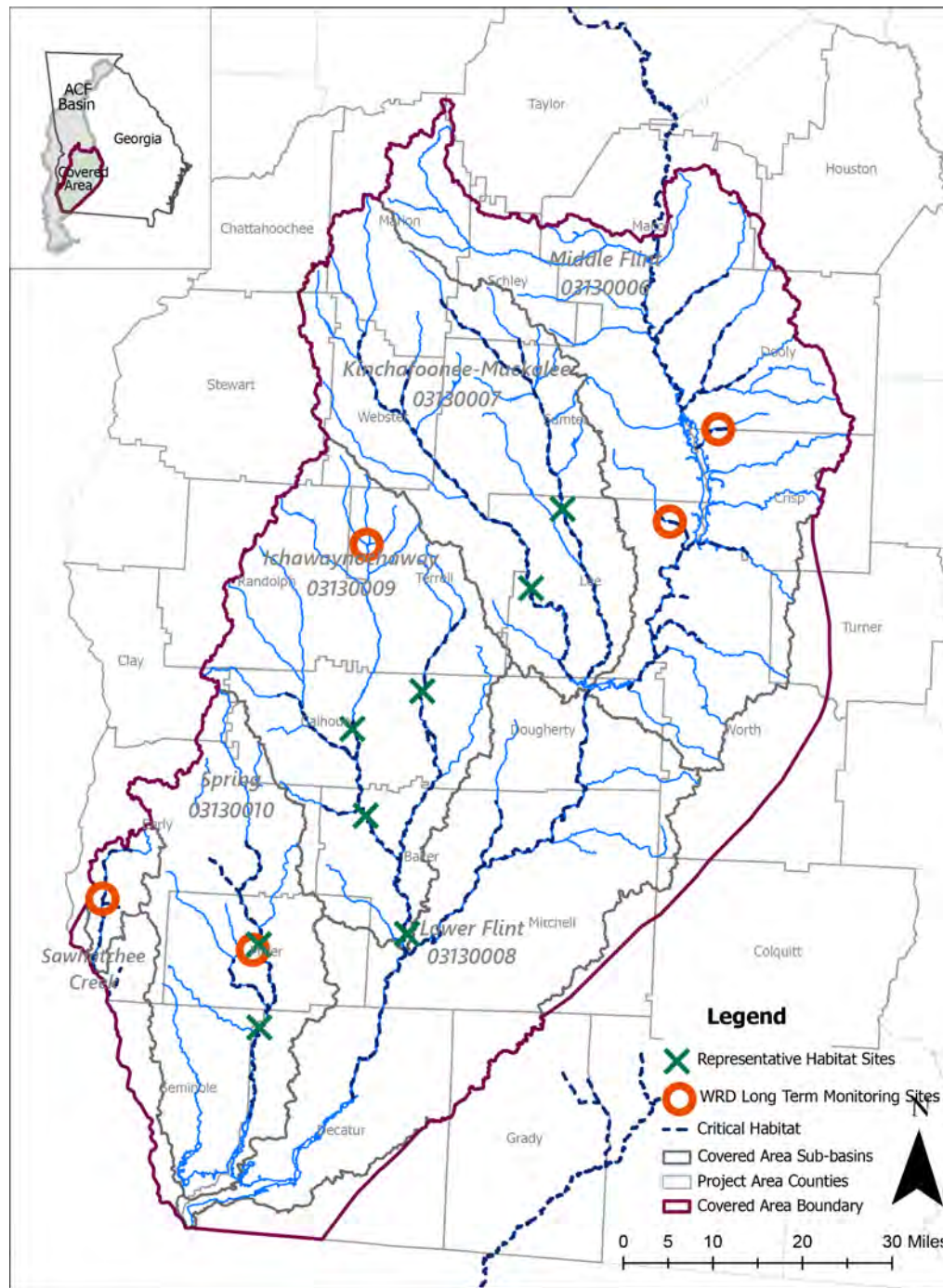
*Take can include “significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering.”*

- H. **INCIDENTAL TAKE AUTHORIZATION:** The following amount of incidental take is authorized by this permit over the 15 year permit term:
1. No more than 797,000 fountain darters in Comal Springs, Landa Lake and the Comal River, and no more than 549,129 fountain darters in the San Marcos Springs, Spring Lake, and San Marcos River.
  2. No more than 11,179 Comal Springs riffle beetles.
  3. No more than 1,543 Comal Springs dryopid beetles.
  4. No more than 18,224 Peck's cave amphipod.
  5. No more than 10 Texas Blind salamanders.
  6. No more than 263,857 San Marcos salamanders.
  7. Incidental take of the Texas cave diving beetle will be provided for individuals of the species killed, harmed, or harassed by springflows with monthly averages above 50.5 cfs (1.43 cms) during HCP Phase I; and by springflows with monthly averages above 51.2 cfs (1.45 cms) during Phase II at San Marcos Springs, if and when this species is listed as threatened or endangered and as long as the HCP is fully implemented. Take limits will be exceeded if these minimum flow rates are not met.
  8. Incidental take of the Texas troglobitic water slater will be provided for individuals of the species killed, harmed, or harassed by springflows with monthly averages above 50.5 cfs (1.43 cms) during HCP Phase I; and by springflows with monthly averages above 51.2 cfs (1.45 cms) during Phase II at San Marcos Springs, if and when this species is listed as threatened or endangered and as long as the HCP is fully implemented. Take limits will be exceeded if these minimum flow rates are not met.
  9. Incidental take of the Comal Springs salamander will be provided for individuals of the species killed, harmed, or harassed by springflows with monthly averages above 27 cfs (0.76 cms) during HCP Phase I and by monthly averages above 45 cfs (1.27 cms) during Phase II at Comal Springs if and when this species is listed as threatened or endangered, as long as the HCP is fully implemented. Take limits will be exceeded if these minimum flow rates are not met.









# Take Estimation Modeling Team

- Georgia Environmental Protection Division
- Georgia Water Planning and Policy Center
- Jones Center at Ichauway
- River Basin Center at UGA
- Georgia Wildlife Resources Division

# Next Steps in HCP Modeling

- Discuss approach with USFWS
- Review by consultant
- Field work: Bathymetric mapping at remaining representative habitat sites (& long-term monitoring sites)
- HEC-RAS model development
- Evaluation of mussel monitoring data for population modeling
- Development of population dynamics models for each long-term monitoring site
- Modeling results -> Section 5: Potential Biological Impacts and Take Assessment
- Update for Advisory Board and USFWS at July 9<sup>th</sup> meeting

# HCP Revisions

Kristin Rowles

April 3, 2024

# Revised HCP Table of Contents

## Executive Summary

### 1. Introduction

### 2. Covered Activities

### 3. Covered Species

### 4. Environmental Setting and Biological Resources

### 5. Potential Biological Impacts and Take Assessment

### 6. Conservation Program

### 7. Changed and Unforeseen Circumstances

### 8. Funding


### 9. Permit/HCP Administration

### 10. References

### Appendices

# Major Revisions

- Reorganization
- Covered area (HCP Area)
- HCP alternatives
- Covered species descriptions
- Streamlining
- Biological goals revisions
- Covered activities description



*Section 10 of the ESA and its regulations require that an HCP describes actions the applicant considered as alternatives to the take that would result from the proposed action and the reasons why they are not using those alternatives*



# Next Steps in HCP Development

- USFWS review
- Additional review by consultant
- Modeling results -> Section 5: Potential Biological Impacts & Take Assessment
- Management Measures -> Section 6: Conservation Plan
- Field surveys and habitat mapping -> Section 3: Covered Species, Section 5: Potential Biological Impacts & Take Assessment
- Field surveys and biological modeling -> Monitoring Plan & Adaptive Management
- Advisory Board review of draft documents – August & November meetings

# Next Steps

Project Team

April 3, 2024

# 2024 Advisory Board Plan

Date	Meeting Format	Topics/Notes
April 3, 10am to 12pm	Videoconference	Project updates and review of 2024 work plan
April 23-25	In-Person at ACF Conference/ACF Stakeholders Drought Exercise	AB members invited to attend the conference (April 24) and pre-conference activities (April 23); Murray Campbell will make a presentation about the at the conference on April 24; AB members are invited to participate in the drought exercise on April 25
July 9	USFWS tour and meeting with Advisory Board	AB members host FWS regional/state staff for tour and meeting in project area
August 19 – 10am to 4pm	In-person AB meeting	Review of draft HCP sections
Date TBD -- Fall	Elected officials tour and meeting with Advisory Board (full day)	AB members host elected officials with interest in the region for tour and meeting in project area
Oct 23, 2pm-4pm	Videoconference	Project updates
December 5 – 10am—4pm	In-person AB meeting	Review of draft HCP sections; project updates; full draft document presentation; field survey results; NEPA

# Apalachicola-Chattahoochee-Flint Waters Conference

## Water Resilience: Sustaining Communities, Protecting Ecosystems

April 23: Field Trips & Dinner

April 24: Conference at Albany State University (8:30 am to 5pm)

Keynotes:

Jennifer Tank, Notre Dame University

Molly Samuel, WABE Atlanta

Sessions on the Apalachicola, Flint, & Chattahoochee Rivers

Evening Reception and Poster Session, Flint RiverQuarium

April 25: ACFS Drought Exercise (8am-4pm)