Upper Oconee Basin Water Authority

Joint Engineering & Operations Committee
Oconee County Administrative Building
April 29, 2026 3:30 p.m.

Minutes

Members Present
Nathan Hester (Chair), Jackson County
Bill King, Barrow County
Pat Graham, Barrow County
Adam Layfield, Oconee County
Joey Leslie (Chair), Jackson County
Bill Nash, Barrow County
Hollis Terry, Athens-Clarke County

Others Present
Amber Bailey, NEGRC
Chip Ferguson, Atkinson Ferguson, LLC
Kyle Holder, Jacobs
Diane Jackson, Jacobs
Tom Kelley, Jacobs
Eva Kennedy, NEGRC
Rebecca Lindsay, UOBWA Owner's Representative0
Jackie Sherry
Brian Skeens, Jacobs
Al Sosebee, Jacobs

Call to Order
Chairman Nathan Hester called the meeting to order.

Cove Sediment Assessment
The Cove Sediment Assessment conducted by Nutter & Associates was discussed. Jacobs will explore options for dredging and issue an RFQ. This will be discussed further at a later date.
Action: No action was necessary.

Drought Model
Diana Jackson of Jacobs discussed the drought model.
Action: No action was necessary.

Other Business

Nathan Hester discussed the presentation by Ardurra at the Treatment Plant Expansion Committee meeting.

Action: Nathan Hester motioned to move forward with the plan that Jacobs had already designed and keep the conventional rapid mix system. The motion passed unanimously.

Nathan Hester asked Al Sosbee to give the group an update on the backwash issue that occurred recently.

Action: No action was necessary.

Adjourn

Nathan Hester motioned to adjourn and was seconded by Adam Layfield. The meeting adjourned at 4:27 p.m.

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Amber Bailey
Executive Assistant

Date of Approval

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MEMORANDUM

PREPARED FOR: Pat Graham, Chairman
Upper Oconee Basin Water Authority

PREPARED BY: Frazer Mayson, Project Scientist
Erin M. Harris, CPESC, CPSS, CESSWI, PWS
Cody Hale, Ph.D., PH

DATE: April 16, 2026

SUBJECT: Cove Sediment Assessment Results for the Bear Creek Reservoir Sediment Study (March 2026)

Nutter & Associates, Inc. (NAI) was retained in February 2026 to evaluate potential sediment impacts within an open-water cove of Bear Creek Reservoir in Jackson and Barrow Counties, including conditions potentially related to upstream land disturbing activities in the Bear Creek watershed. As part of this effort, NAI conducted a sediment assessment to characterize the distribution and thickness of recently deposited sediments through field investigations and sediment coring in the open-water cove. A bathymetric assessment to map reservoir bottom elevations and delineate depositional features within the cove to support this effort was also performed. Fieldwork for the assessment was completed on March 18–19, 2026.

This lake bottom sediment and bathymetric assessment was conducted as a screening-level environmental and operational evaluation and does not constitute a formal bathymetric or land survey performed under the responsible charge of a Georgia Professional Land Surveyor (PLS). Accordingly, the mapped bathymetry, elevations, and any derived areas or volume estimates are not intended for establishing legal boundaries, regulatory-grade vertical control, engineering design, permitting, contractor payment, or precise volumetric calculations. The information presented is intended solely to support operational decision-making and to provide reasonable estimates of the scope and scale of potential sediment removal activities within the open-water cove. The assessment, including depth accuracy verification, was designed to align with applicable state minimum technical standards for contours, horizontal and vertical control, and volumetric estimation; however, it is not intended to demonstrate formal compliance with, or serve as official certification under those standards.

METHODOLOGY

The assessment area encompassed the small cove formed at the confluence of Bear Creek and the reservoir near the Providence Road crossing in Jackson County. Bathymetric data were collected across approximately 3.4 acres using a watercraft-mounted echosounder. Areas shallower than approximately 1.5 ft could not be reliably measured with the echosounder and were supplemented with spot depth measurements and visual estimates. The area immediately upstream of the Providence Road crossing was generally shallow and was not assessed for bathymetry. Sediment thickness was evaluated by advancing a probing rod vertically into the substrate until refusal was encountered, indicating a potential base of unconsolidated material. Measurements were recorded at each location to estimate sediment depths across the study area. Intact sediment cores were also collected at select locations using a flag sampler to characterize upper profile sediment composition and stratigraphy.

The emergent delta was surveyed on foot using a network RTK GNSS rover to capture positional data, including water surface elevation and delineation of delta extent. All echosounder depth measurements were recorded relative to the water surface elevation at the time of survey. Although aquatic vegetation was minimal during data collection, bottom organic debris and variable depositional conditions within the delta reduced measurement precision in shallow areas (<2 ft). Depths in these areas should be interpreted as approximate and are subject to ongoing change due to storm events and continued sediment transport and deposition.

Bathymetric data were processed using industry-standard hydrographic and GIS software. Raw echosounder data underwent both automated and manual screening processes, including median filtering, to eliminate outliers and erroneous readings. All GNSS data were referenced to NAD83 (horizontal) and NAVD88 (vertical). Corrected depth data were used to generate 5-foot resolution Digital Elevation Models (DEM) and bathymetric contours, with interpolation applied in shallow, non-navigable areas using field measurements and spatial analysis methods. The resulting data were subsequently validated by comparison with spot-check depths measured using a stadia rod or weighted sounding line. The cove shoreline (zero-depth contour) was delineated using recent aerial imagery and LiDAR due to limited site access.

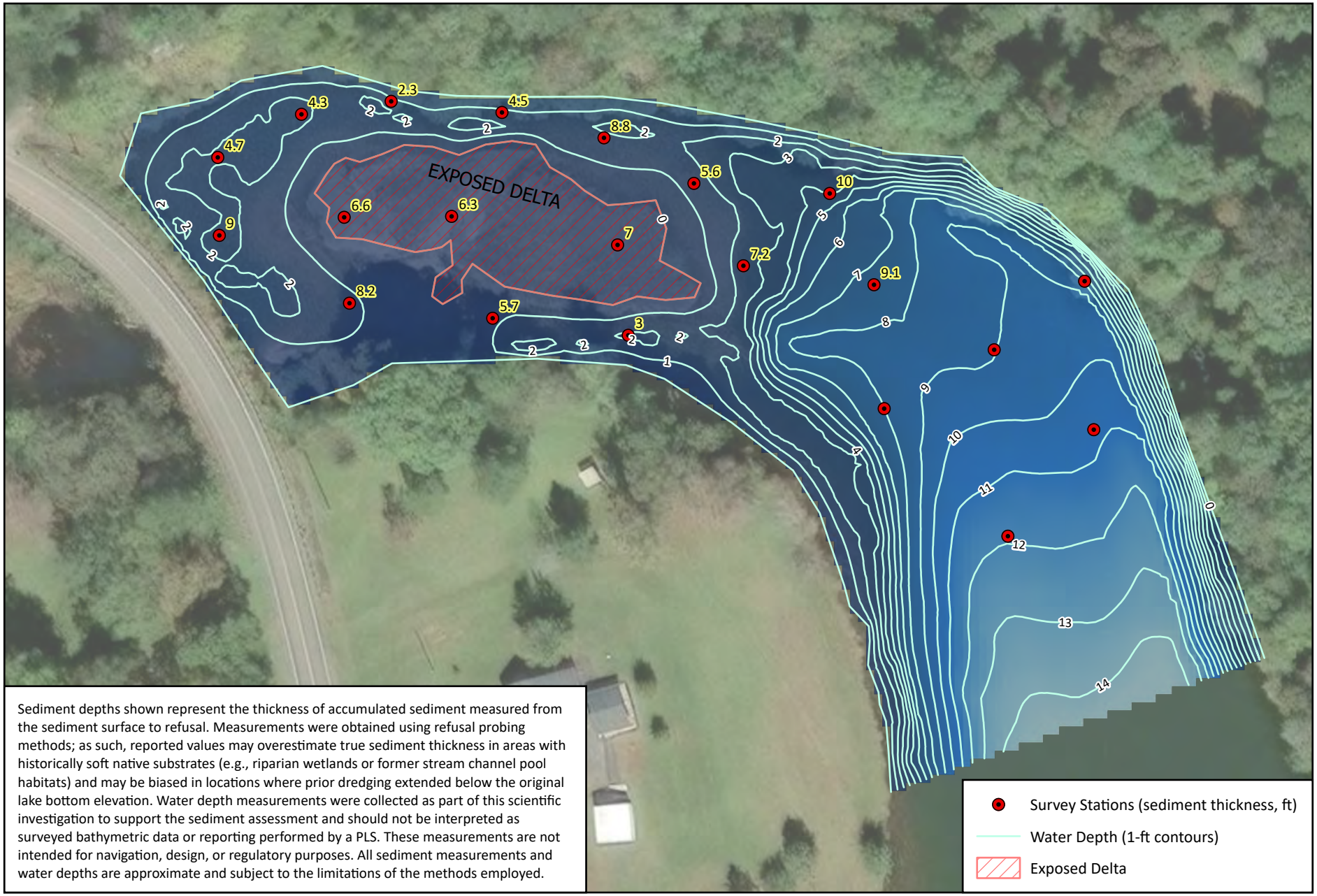
RESULTS

Results of the sediment probe measurements and bathymetric assessment are presented in Figure 1, with supporting deliverables including georeferenced DEMs and contour datasets provided separately. The water surface elevation at the time of survey (March 18, 2026) was approximately 695.1 ft NAVD88. Comparison of sonar-derived depths to manual spot checks across 14 stations indicates minimal overall bias (+0.1 ft) and a mean absolute error of 0.5 ft. Approximately 93% of measurements were within ±1.0 ft, with larger discrepancies primarily observed in shallow or variable-bottom areas, which is consistent with expected limitations for screening-level hydrographic assessments.

Sediment assessment results indicate that refusal probing across 16 stations within and adjacent to the delta yielded a mean sediment thickness of approximately 6.4 ft, with a range of 2.3 to 10 ft. It should be noted that refusal probing may overestimate sediment thickness relative to the original lake bottom in areas where softer native substrates were historically present (e.g., riparian wetlands or former stream channel pool habitats). In addition, measured thicknesses may be biased in portions of the lake that were previously over-dredged below the original lake bottom elevation. Based on probing data, the volume of total accumulated sediment within the cove delta is estimated to be on the order of 10,000 to 15,000 cubic yards.

Sediment cores (representative of the top 2–3 ft of sediment) collected at select locations consisted predominantly of coarse, poorly sorted sands with minimal organic content, while finer silts and soft sediments were more prevalent in deeper portions of the reservoir. There was no indication of recent accelerated sediment deposition; observed accumulation appears to reflect typical in-channel and watershed sediment inputs rather than being attributable to any specific development activity.

Upstream of the Providence Road crossing, probing and coring indicate that the historic stream channel has been infilled with approximately 4 to 8 ft of coarse sand, effectively functioning as a sediment trap since reservoir impoundment. Evidence of localized dredging or debris clearing is present near the culvert at the road crossing but does not extend substantially upstream. The volume of sediment in this upstream reach is estimated to be on the order of 10,000 cubic yards.



Sediment depths shown represent the thickness of accumulated sediment measured from the sediment surface to refusal. Measurements were obtained using refusal probing methods; as such, reported values may overestimate true sediment thickness in areas with historically soft native substrates (e.g., riparian wetlands or former stream channel pool habitats) and may be biased in locations where prior dredging extended below the original lake bottom elevation. Water depth measurements were collected as part of this scientific investigation to support the sediment assessment and should not be interpreted as surveyed bathymetric data or reporting performed by a PLS. These measurements are not intended for navigation, design, or regulatory purposes. All sediment measurements and water depths are approximate and subject to the limitations of the methods employed.

Data Sources: ESRI World Imagery, NAI Field Assessment (March 18-19, 2026)

Figure 1. Sediment assessment results for the Bear Creek Reservoir Cove at the Providence Road crossing (sediment thickness measurements are highlighted in yellow).

0 50 100 200 Feet

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MEMORANDUM

TO:	Pat Graham, Chairman Upper Oconee Basin Water Authority
PREPARED BY:	Erin M. Harris, CPESC, CPSS, CESSWI, PWS Cody Hale, Ph.D., PH
DATE:	April 10, 2026
SUBJECT:	Summary of the Bear Creek Reservoir Sediment Study and Recommendations for a Routine Dredging Program

Nutter & Associates, Inc. (NAI) completed a sediment study of an open-water cove within the Bear Creek Reservoir and an upstream channel assessment along portions of Bear Creek between the Heather Estates subdivision and the reservoir on March 18 and 19, 2026. The purpose of the sediment study and channel assessment was to evaluate potential sediment impacts associated with land disturbing activities within the Heather Estates subdivision, located approximately 1.6 linear miles upstream of the open-water cove of the reservoir. Preliminary findings were presented to the Upper Oconee Basin Water Authority (UOBWA) on March 25, 2026, and a copy of that presentation was also provided. Following that meeting, UOBWA requested that NAI provide recommendations for sediment management options.

It is our understanding that UOBWA plans to remove the sediments currently accumulated within the open-water cove of the reservoir. However, continued sediment delivery to the reservoir is expected, as the watershed and channel assessment of Bear Creek indicate ongoing erosion and sediment transport processes upstream. Therefore, implementation of long-term sediment management strategies will be necessary to address future sediment yields and minimize the reformation of depositional features within the reservoir.

Based on the findings of the upstream channel assessment and sediment study, continued sediment delivery to the Bear Creek Reservoir is anticipated due to ongoing bank erosion and limited opportunities for upstream bank stabilization and/or channel restoration. As a result, implementation of a long-term sediment management strategy focused on routine removal of accumulated sediments within the reservoir is recommended. For UOBWA's consideration,

recommendations are provided for initial sediment removal activities (upstream and downstream of Providence Road), followed by recommendations for a routine dredging program.

Initial Sediment Removal (Upstream and Downstream of Providence Road)

- Sediments currently accumulated upstream and downstream of the Providence Road crossing should be removed to restore reservoir storage capacity and remove sediment deposits contributing to the formation of the existing sediment delta.
- Hydraulic dredging is anticipated to be the most feasible dredging method due to the need to maintain reservoir water levels and the limited access available within the project area.
- Mechanical dredging may be feasible in localized areas but will require reservoir drawdown and additional access and disposal logistics.
- A temporary turbidity curtain is recommended downstream of the dredging operations to minimize turbidity impacts in the main body of the reservoir.

Long-term Sediment Management and Maintenance Dredging

- Routine maintenance dredging upstream of Providence Road is anticipated due to continued sediment supply from the Bear Creek watershed.
- A number of factors must be considered to determine the most practicable and economical means for long-term sediment management in the cove section upstream of Providence Road. Additional information and study are needed.
- Maintaining adequate sediment storage capacity upstream of Providence Road, in combination with maintaining full pool conditions in the reservoir, will force sediment deposition to occur in the smaller cove area upstream of the road. This will allow routine dredging operations to be performed in a focused, consistent area, which will be easier to manage and more economical than allowing the sediment to move downstream of the road and disperse into the widening cove and main body of the reservoir.
- Installation of a permanent turbidity curtain immediately downstream of the culverts at Providence Road is also recommended.
- The turbidity curtain will promote sediment settling, limit future sediment migration into the open-water cove, and allow future dredging activities to be conducted in a focused area with a long-reach excavator positioned on the roadway, if necessary.

- Turbidity curtain management during significant reservoir drawdown periods should be considered when developing the design and maintenance plans for the curtain.

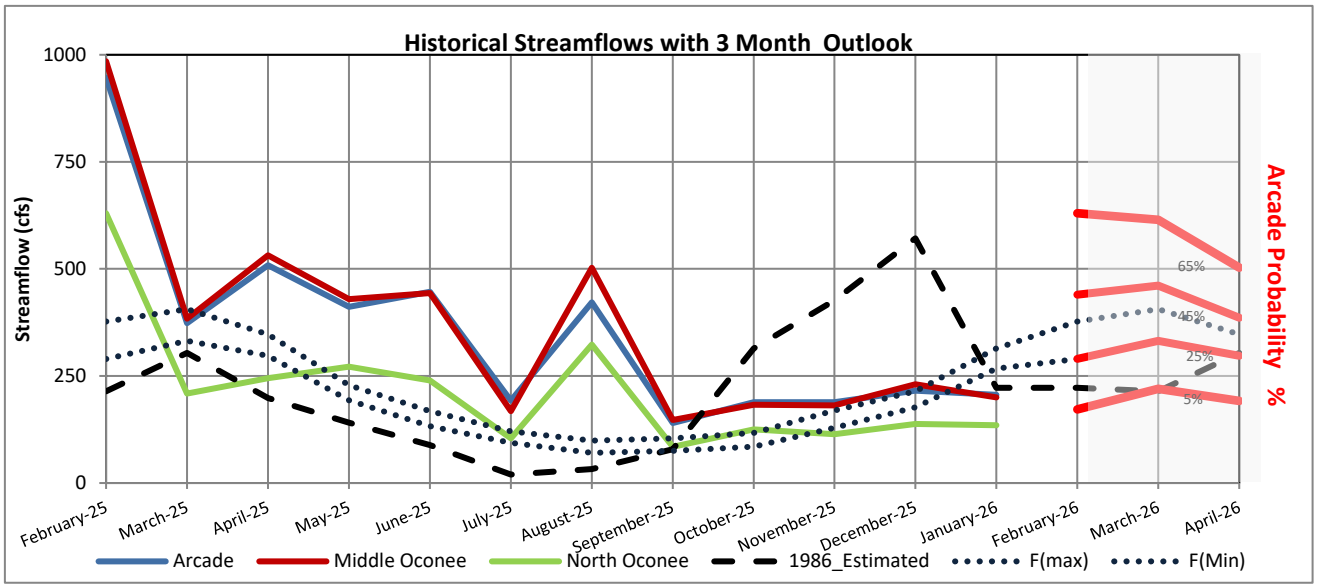
Permitting and Regulatory Considerations

- U.S. Army Corps of Engineers:
    - Section 404 authorization under the Clean Water Act will be required.
    - Proposed activities may qualify for a Nationwide Permit or may require an Individual Permit, depending on the extent of impacts.
- Georgia Environmental Protection Division:
    - A Section 401 Water Quality Certification is anticipated.
    - Applicable turbidity standards and drinking water protections will apply during construction activities.
- Stream Buffer and Local Considerations:
    - Pursuant to O.C.G.A. Rule 391-3-7-.05, activities associated with the construction and maintenance of public water system reservoirs are exempt from the State stream buffer variance requirements, provided that sediment removal activities are:
        - Conducted by the reservoir owner; and
        - Necessary to operate or maintain a public drinking water supply.
    - These activities remain subject to applicable federal permitting requirements, state water quality regulations, and any additional local regulatory requirements.

It should be noted that the above recommendations are based on NAI's analysis of the project area. It is strongly recommended that UOBWA consult with a qualified dredging contractor to determine the most appropriate dredging method (i.e., mechanical, hydraulic, or dry dredging) and the most cost-effective approach. NAI can support successful project implementation by facilitating or managing the dredging contractor on behalf of UOBWA, providing project oversight, coordinating regulatory permitting, and assisting with water quality monitoring and compliance monitoring to ensure that dredging activities are conducted appropriately and meet the intended sediment management objectives for the Bear Creek Reservoir.

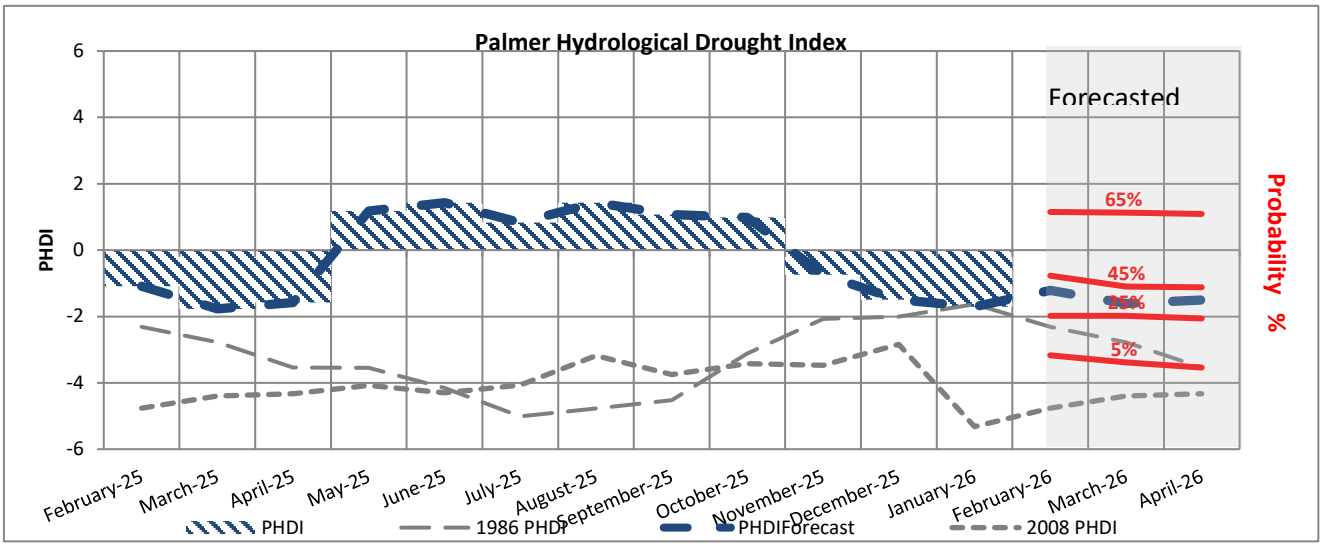
3-Month Average Streamflow Probabilities

Gage	Current 3-Month Moving Average	3-Month Outlook		3-Month Outlook Design Year 1986 Adjusted Arcade
		Minimum	Maximum	
Middle Oconee @ Arcade	30%	25%	35%	18%
Middle Oconee @ Athens	20%	15%	25%	
North Oconee @ College	20%	15%	25%	



PHDI

3-Month Moving Average Outlook - Current		3-Month Moving Average Outlook - Design Year 1986	
-1.44	35%	-2.88	10%



CPC Forecast 3-Month Outlook

Probability for Below Normal Rainfall	Probability for Above Normal Rainfall
53.50%	**46.50%**

Observations

1. Anticipated 3-Month Average Demand (updated March 2025 proj.) = 24.48 MGD

2. Anticipated 3-Month Average Design Demand = 49.21 MGD

3. Unadjusted 3-Month Streamflow Probabilities for the Middle Oconee @ Arcade:

Minimum	Average	Maximum
25%	30%	35%

For Comparison the 3-Month Streamflow probability for the Middle Oconee @ Arcade in 1986 was 18%

4. The forecasted PHDI 3-month moving average equals -1.44 Which is a Probability of 35%

therefore, does not suggest an adjustment to the 3-month minimum/maximum streamflow probabilities listed above.

5. The CPC 3-month below normal rainfall probability forecast indicates 53.50%

Thus, the CPC 3-month forecast does not suggest an adjustment to the 3-month minimum/maximum streamflow probabilities listed above.

6. Final Adjusted 3-Month Streamflow Probabilities for the Middle Oconee @ Arcade:

Minimum	Average	Maximum
25%	30%	35%

7. Recommended Reservoir Reserve = (45 Days @ 3-Month Avg Demand + 10% Min Res. Volume)

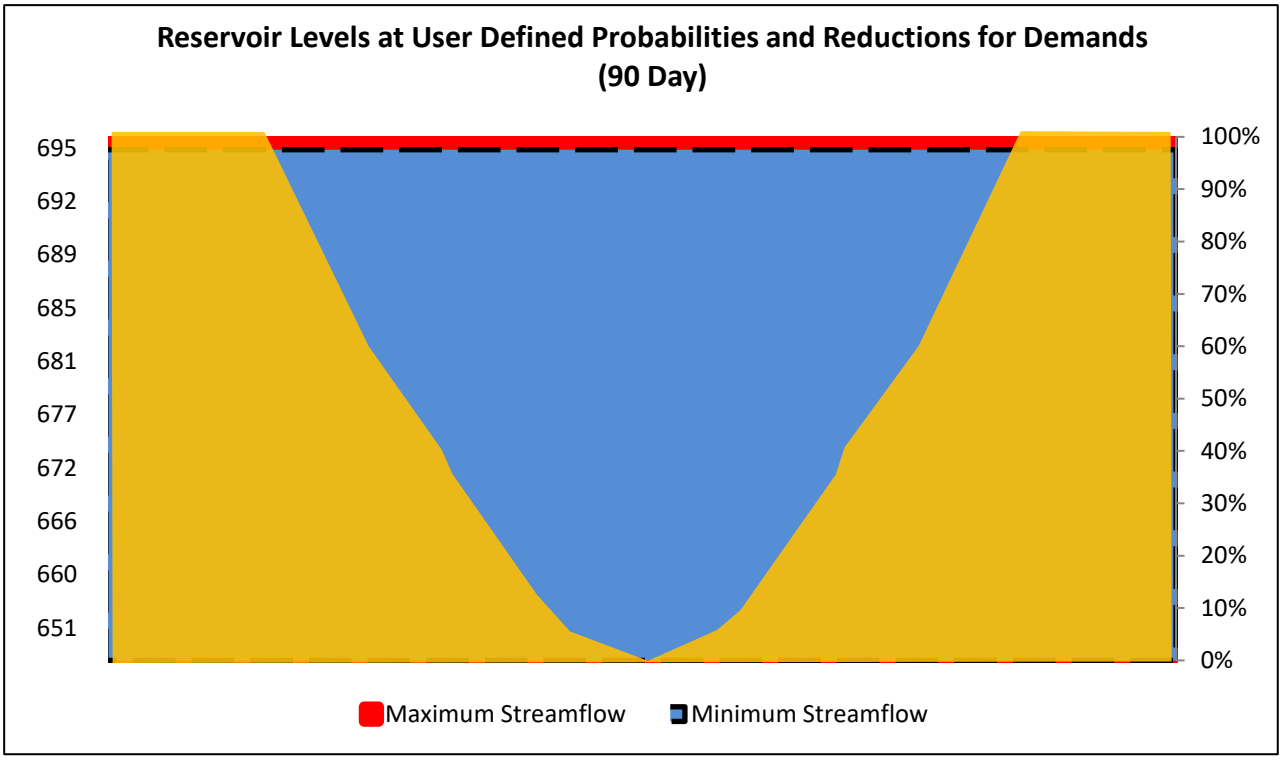
Recommended Reservoir Reserve = 1590 MG OR 33%

8. Using the adjusted maximum and minimum streamflow probabilities along with the current projected water use, the reservoir is predicted to remain 100% full over the next 90 days. Beyond 90 days, continued streamflow probabilities of this level predicts the reservoir to remain 100% full by the End of the Drought protection period (Nov 30).

Demands Outlook	Maximum	Minimum
90 Day		
Min Res. Percent Volume (%) with Reductions	100%	98%
Long Term		
Necessary Reductions to Prevent Depletion	N/A	N/A
Date of Res. Minimum with Reductions	6/1/2026	9/30/2026
Min Res. Volume (MG) with Reductions	4863.23	4369.92
Min Res. Percent Volume (%) with Reductions	100%	90%
Number of Days Till Min Res. Volume	21	142
Necessary Reductions to Reach End Date	N/A	N/A
Available Volume at End Date (MG)	4871.38	4871.38
Available Percent Volume at End Date (%)	100%	100%

9. Drought Stage: The above factors indicate a Non-Drought. Georgia EPD Drought Level “Non Drought” for the Authority's 4 County area.

10. Drought Response Level: None. Utilizing the above information and the Water Supply Model, there does not appear to be the need for potential water use reductions of at this time.


Reservoir Levels at User Defined Probabilities and Reductions for Demands
(90 Day)
695
692
689
685
681
677
672
666
660
651
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Maximum Streamflow
Minimum Streamflow