

January 2026: Conditional Position Analysis (CPA) Implementation – LOSOM

Water Resources & Systems Modeling Bureau, Systems Modeling Unit
SFWMD



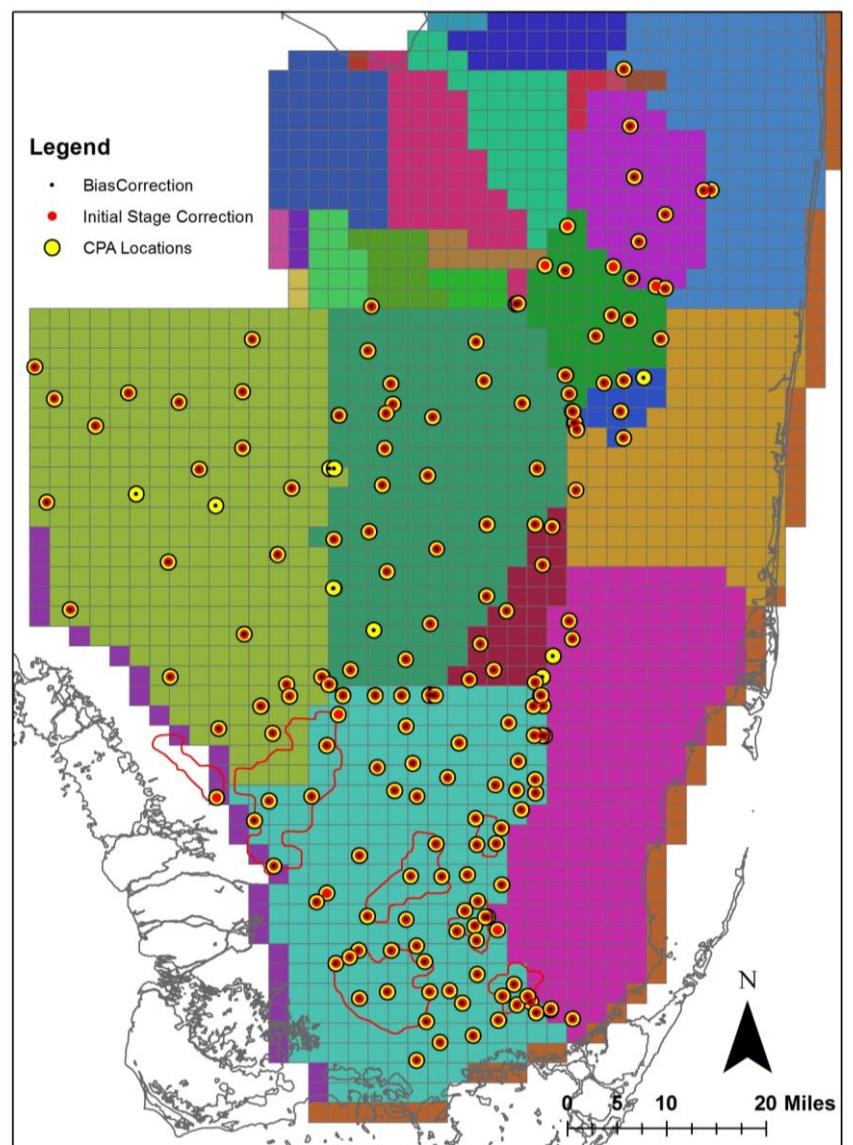


CPA Overview



- CPA is a stochastic framework ([CPA Overview](#)) that transforms stages obtained from Dynamic Position Analysis (DPA) based on forecasted rainfall conditions over the next twelve months (Ali, 2016).
- CPA depends on DPA - DPA stage outputs are used as inputs to CPA ([DPA](#)).
- 3 rainfall outlook scenarios (climatological, CPC, and Preferred Scenario) are used to compare potential stage outlooks.
- CPA is implemented for 200 locations in the Everglades including Lake Okeechobee. Additionally, CPA was implemented for WCA1Avg (avg of Site 7, Site 8T, and Site 9) and WCA3AAvg (avg of Site 63, Site 64, and Site 65) stages (Khare et al., 2024).

Conditional Position Analysis (CPA) Gage Locations





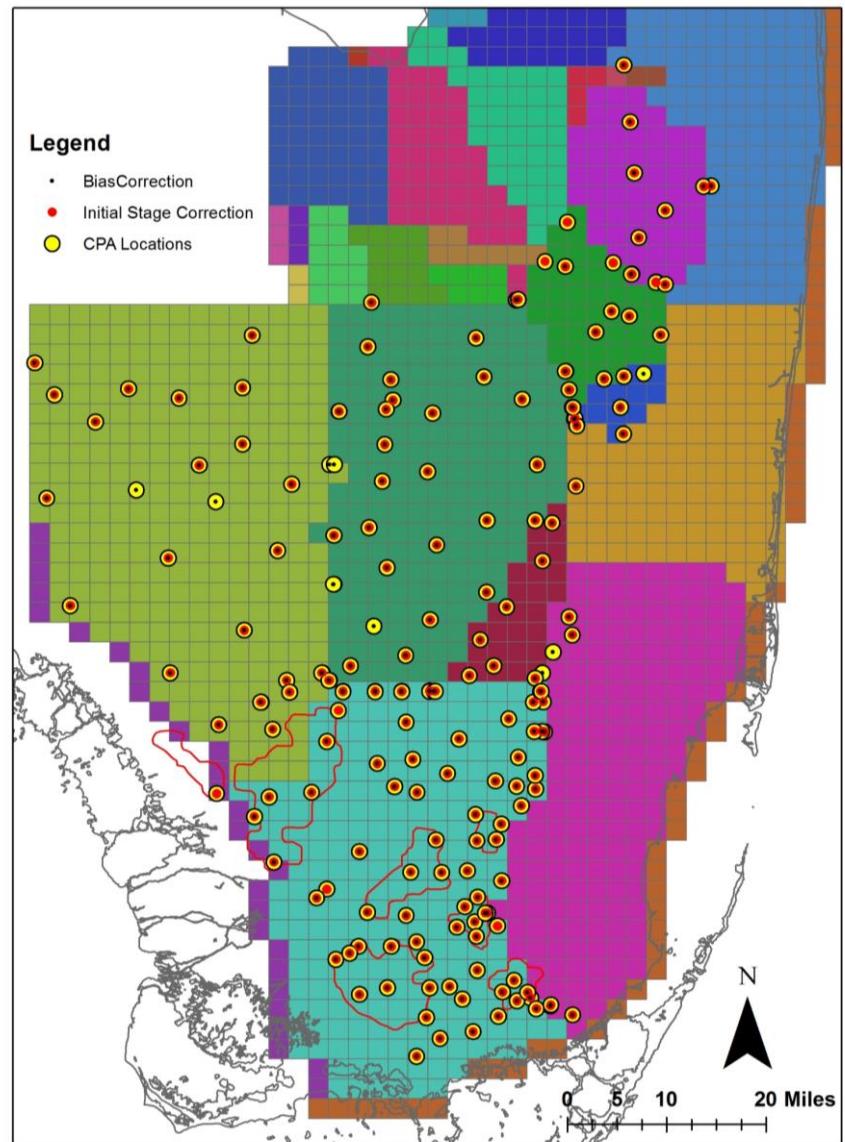
CPA Overview



➤ CPA Outputs

- CPA forecasted stage percentiles from 'Climatological' scenario are first collapsed on DPA stage percentiles. Corresponding adjustments are then applied to stage percentile lines for all other rainfall scenarios.

Conditional Position Analysis (CPA) Gage Locations





CPA: Rainfall Scenarios



➤ Climatological

- Climatological scenario assumes equal chances of below-normal/dry, normal, and above-normal/wet rainfall conditions over next twelve 3 monthly seasons (slide 5).
- This scenario is the connecting link between DPA and all other scenarios simulated under CPA.

➤ CPC

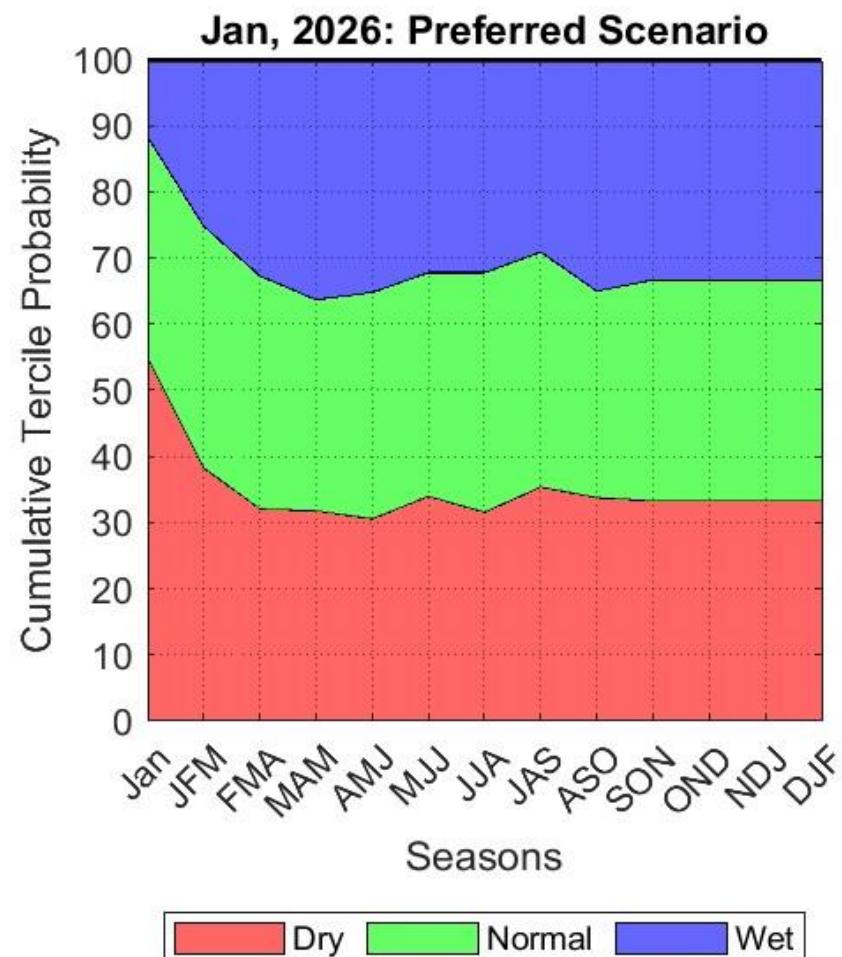
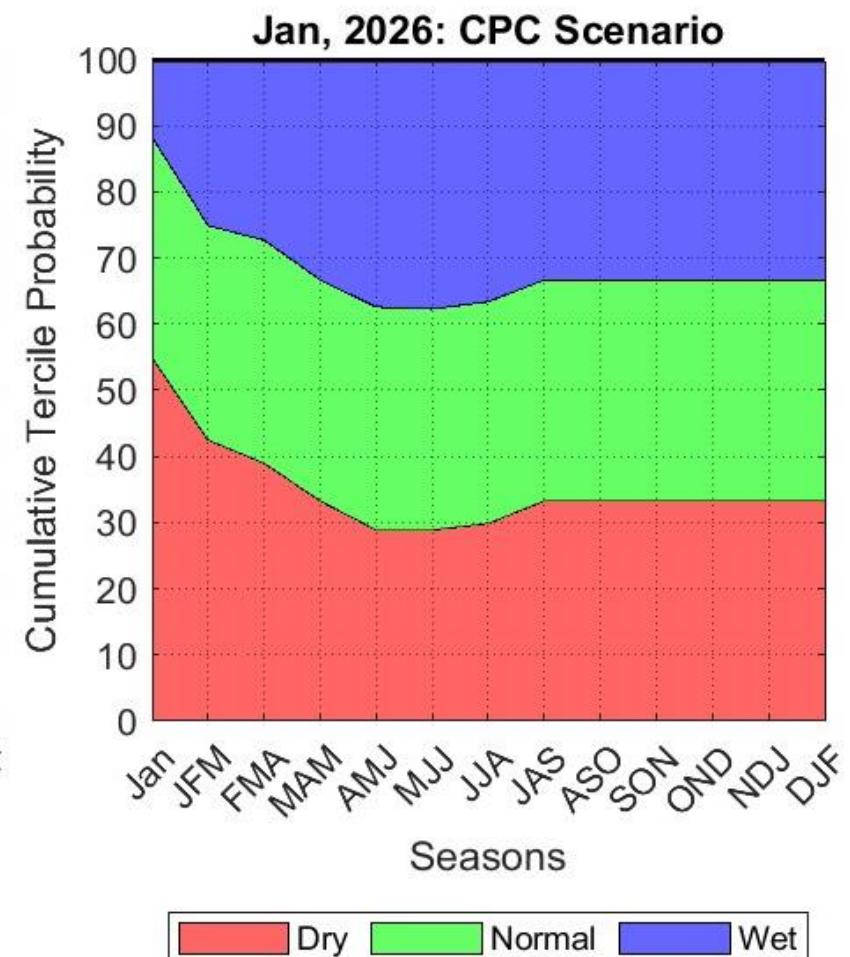
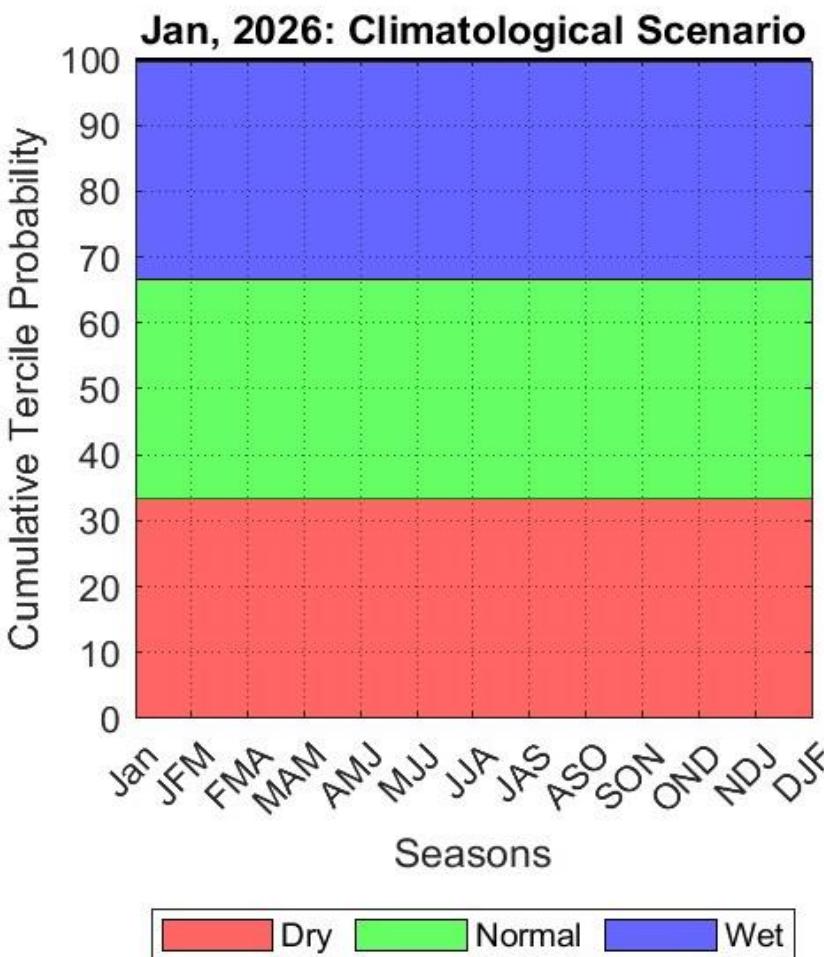
- This is based on official rainfall forecasts published by NOAA's Climate Prediction Center (CPC) every month ([Climate Prediction Center - Forecasts & Outlook Maps, Graphs and tables \(noaa.gov\)](https://www.noaa.gov/cpc/forecasts-and-outlooks)).
- It is also used by JEM's EverForecast tool for stage prediction.

➤ Preferred Scenario (PrefSce)

- Seasonal rainfall probabilities are calculated based on historical data and projected Niño-3.4 Index ([Climate Prediction Center - El Nino Southern Oscillation \(noaa.gov\)](https://www.noaa.gov/cpc/el-nino-southern-oscillation)) published by CPC.
- This scenario developed by System Modeling Unit ([PrefSce Overview](#)) represents a best professional judgement rainfall outlook.

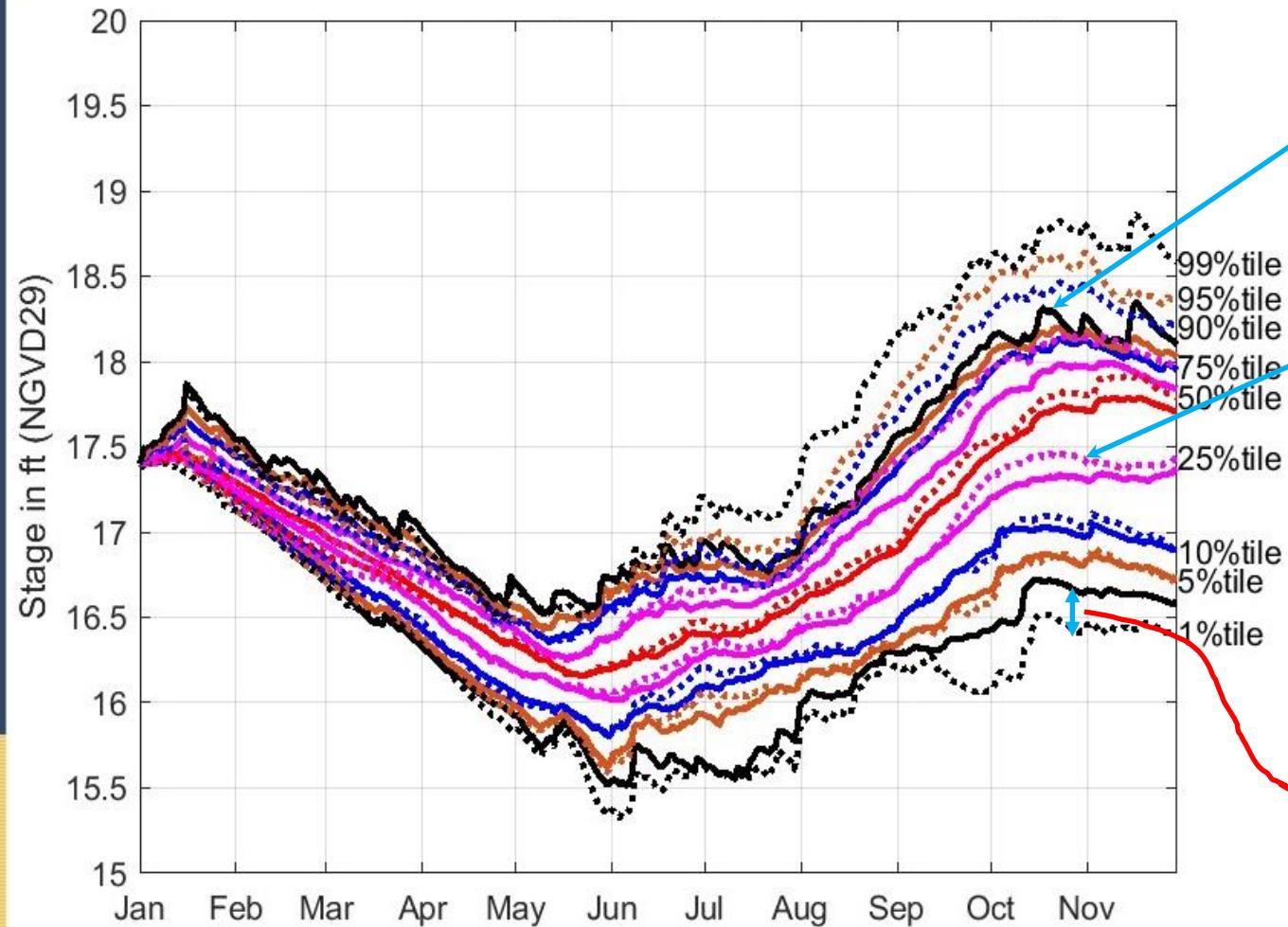


January 2026 CPA: Rainfall Scenarios





CPA: Key to Reading Results



Solid lines → Climatological Scenario/DPA

Dotted lines → Alternative Rainfall Scenario

Black lines → 1% and 99%
Brown lines → 5% and 95%
Blue lines → 10% and 90%
Pink lines → 25% and 75%
Red lines → 50%

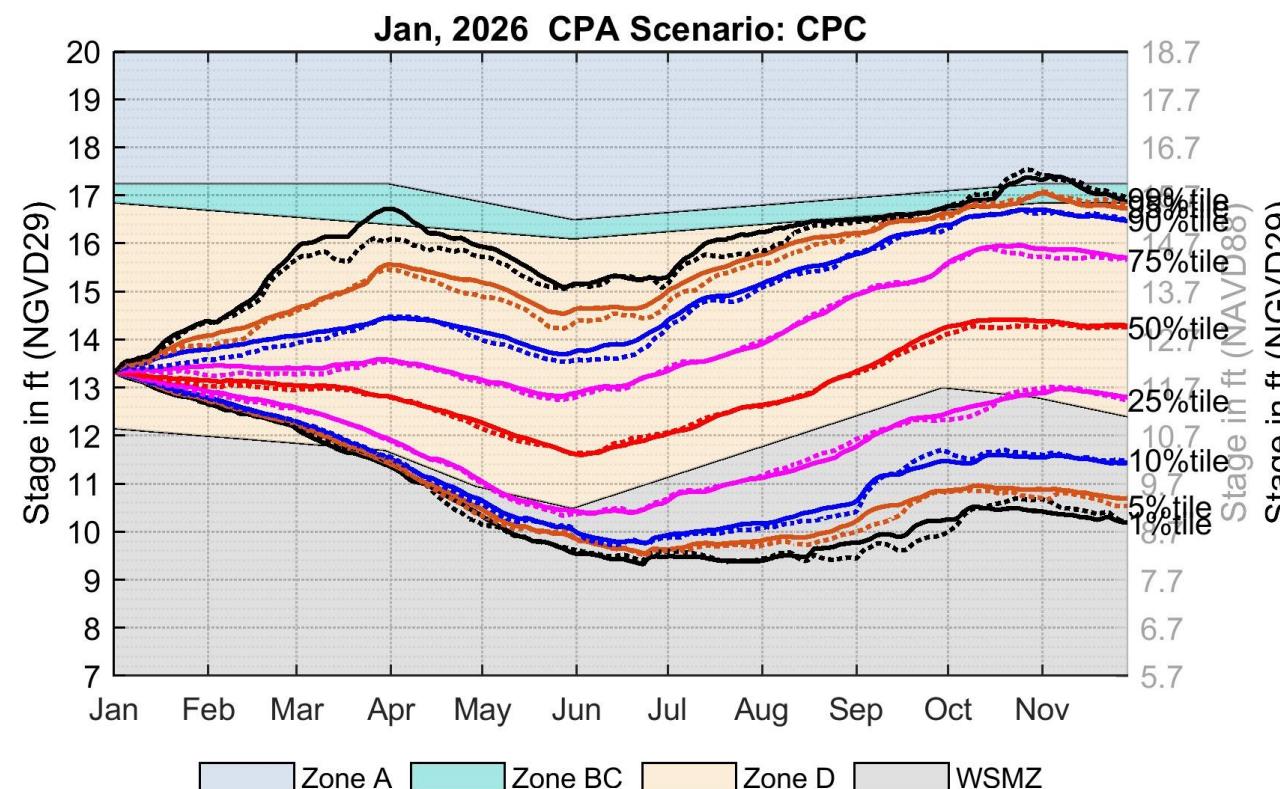
Need to focus on how DPA percentile lines shift under Alternate Rainfall Scenario



LOSOM

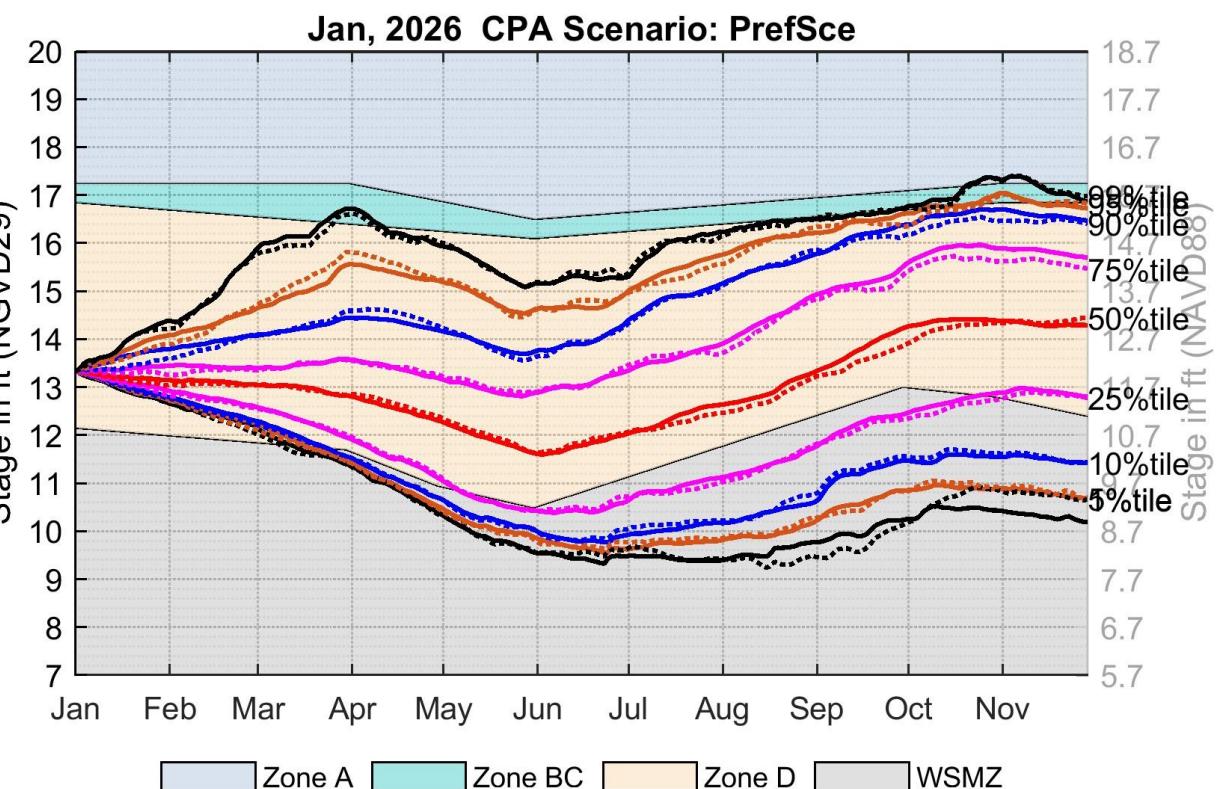
CPC

LOK



PrefSce

LOK



Secondary vertical axis shows stages in NAVD88. These stages are based on Agreed Upon Regulation Schedule Conversion Offsets between NGVD29 and NAVD88 (1.30 ft for Lake Okeechobee).



January 2026 CPA: WCA1 3-Gage Avg.



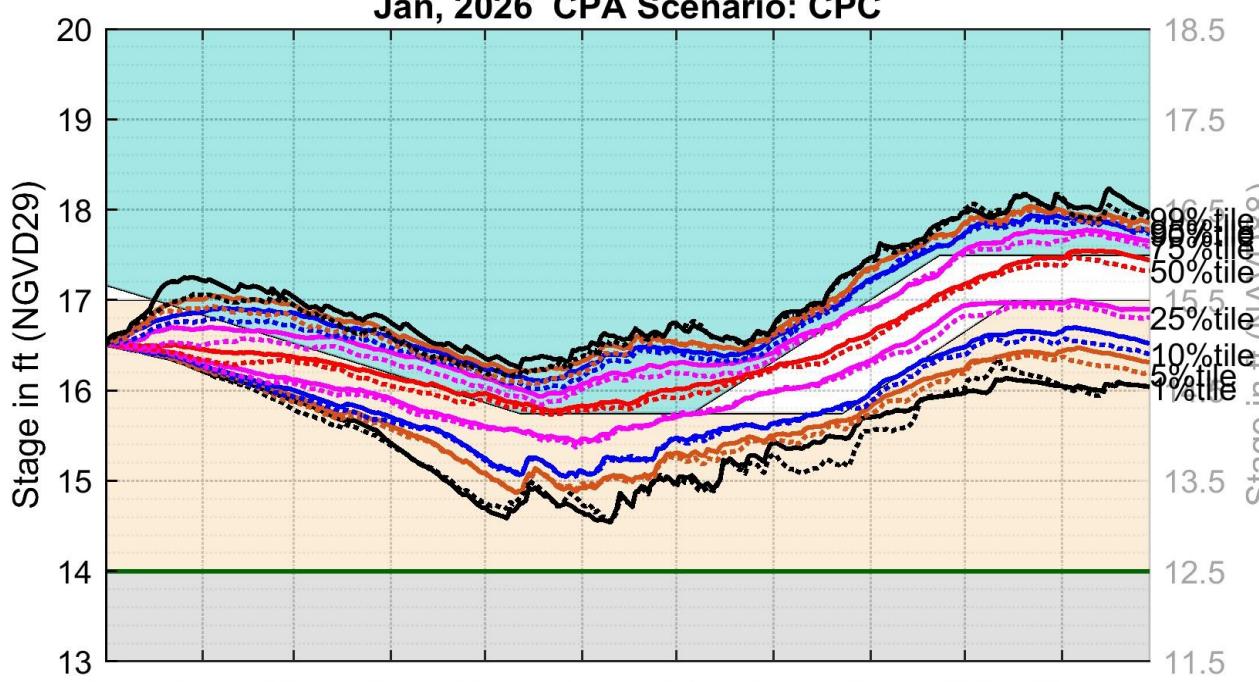
CPC

PrefSce

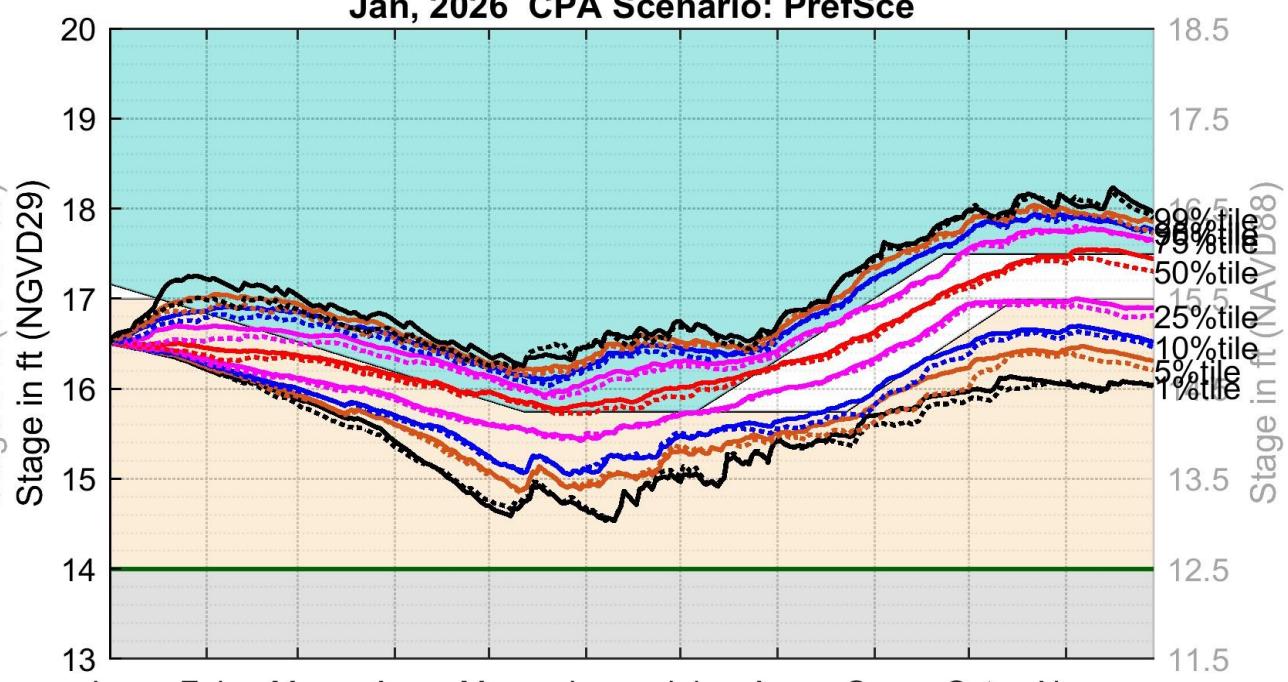
WCA1 3-Gage Avg

WCA1 3-Gage Avg

Jan, 2026 CPA Scenario: CPC



Jan, 2026 CPA Scenario: PrefSce



Zone A1 Zone A2 Zone B Zone C WS Floor

Zone A1 Zone A2 Zone B Zone C WS Floor

Secondary vertical axis shows stages in NAVD88. These stages are based on Agreed Upon Regulation Schedule Conversion Offsets between NGVD29 and NAVD88 (1.5 ft for WCA1).

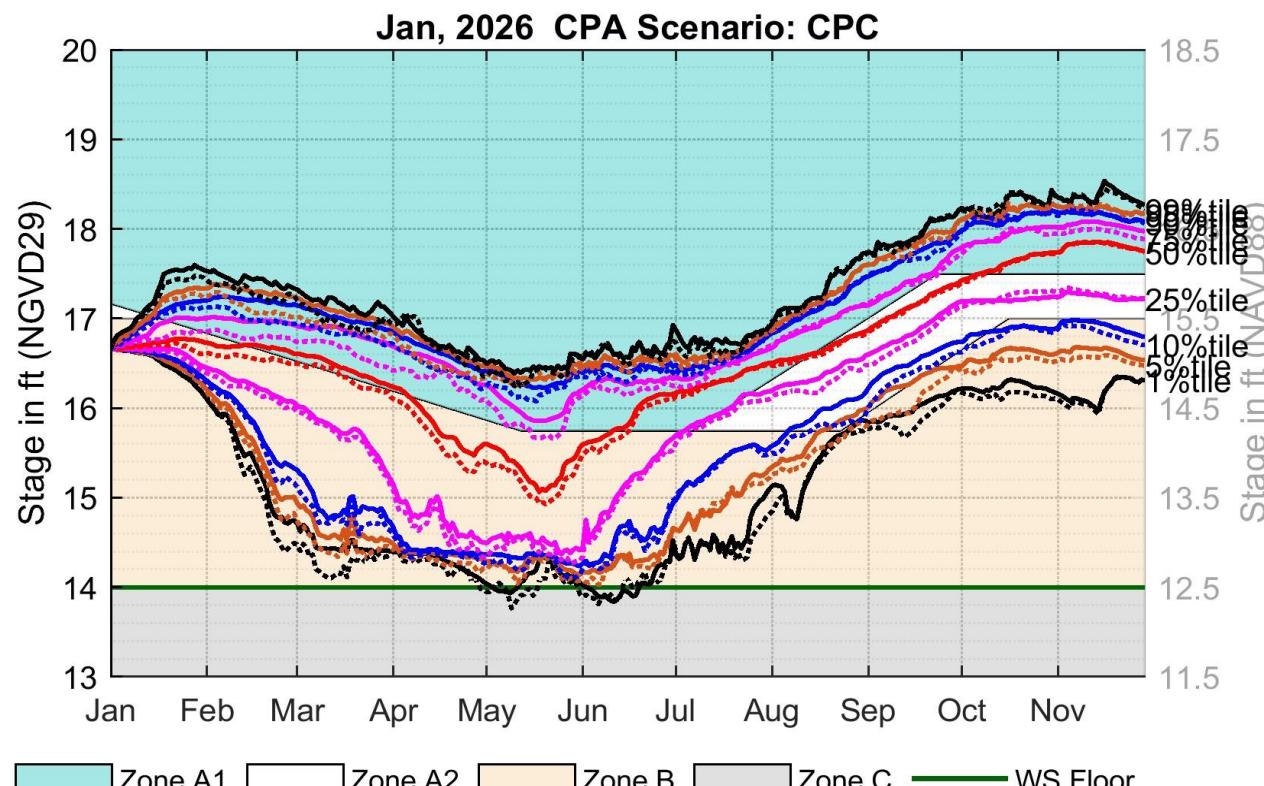


January 2026 CPA: WCA1 Site 8-C



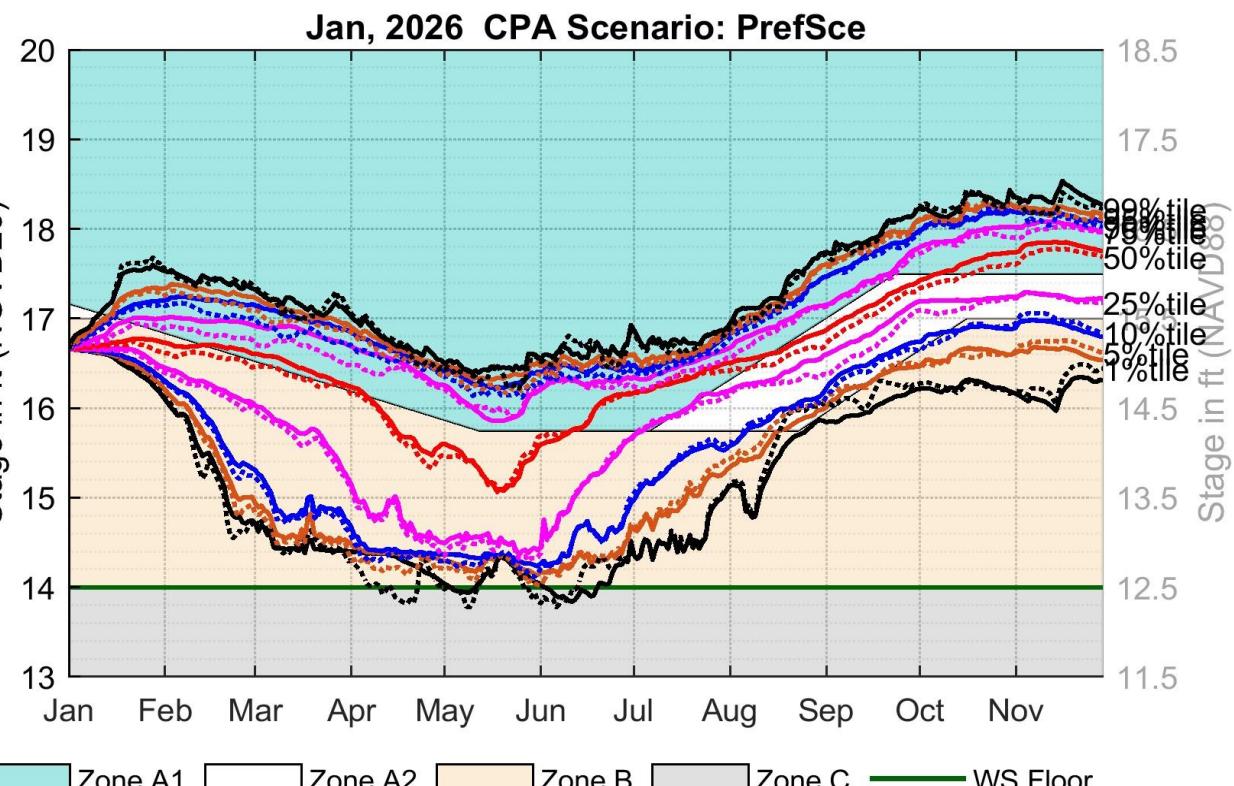
CPC

WCA1 Site 8-C



PrefSce

WCA1 Site 8-C



Secondary vertical axis shows stages in NAVD88. These stages are based on Agreed Upon Regulation Schedule Conversion Offsets between NGVD29 and NAVD88 (1.5 ft for WCA1).



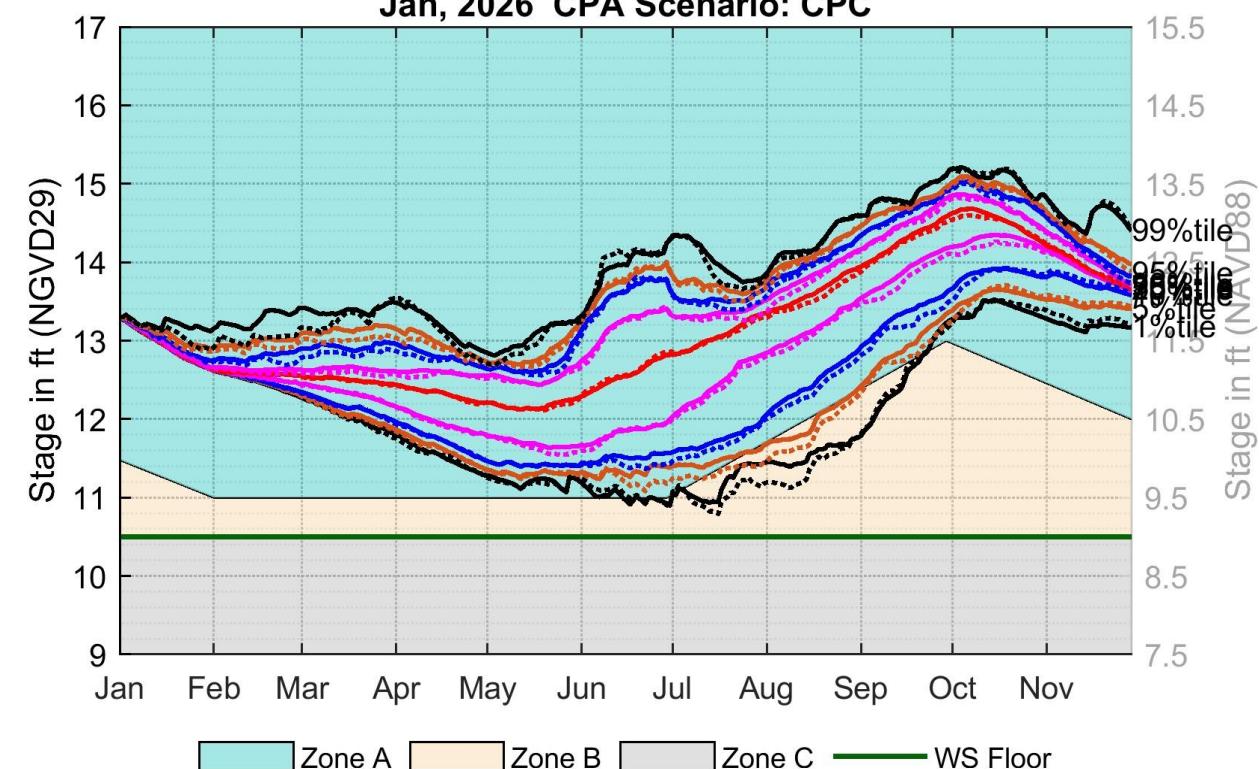
January 2026 CPA: WCA2A Site-17



CPC

WCA2A Site-17

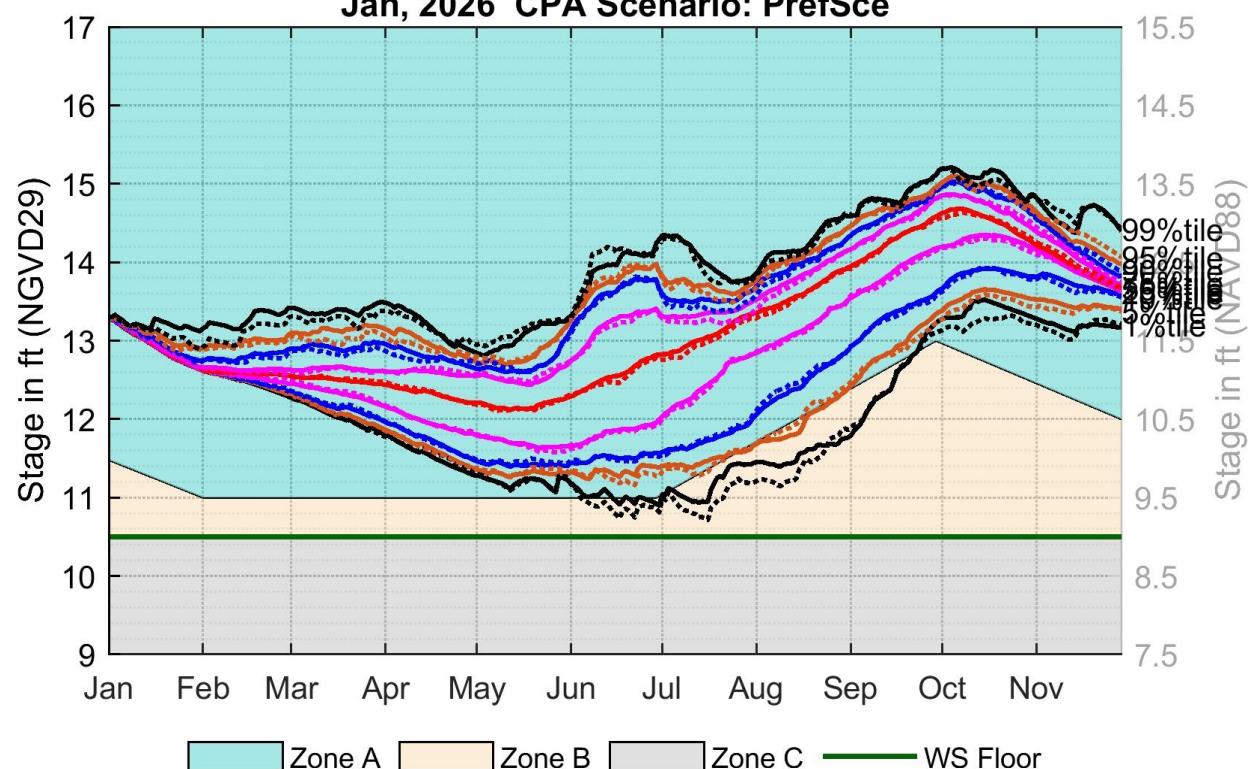
Jan, 2026 CPA Scenario: CPC



PrefSce

WCA2A Site-17

Jan, 2026 CPA Scenario: PrefSce



Secondary vertical axis shows stages in NAVD88. These stages are based on Agreed Upon Regulation Schedule Conversion Offsets between NGVD29 and NAVD88 (1.5 ft for WCA2A).

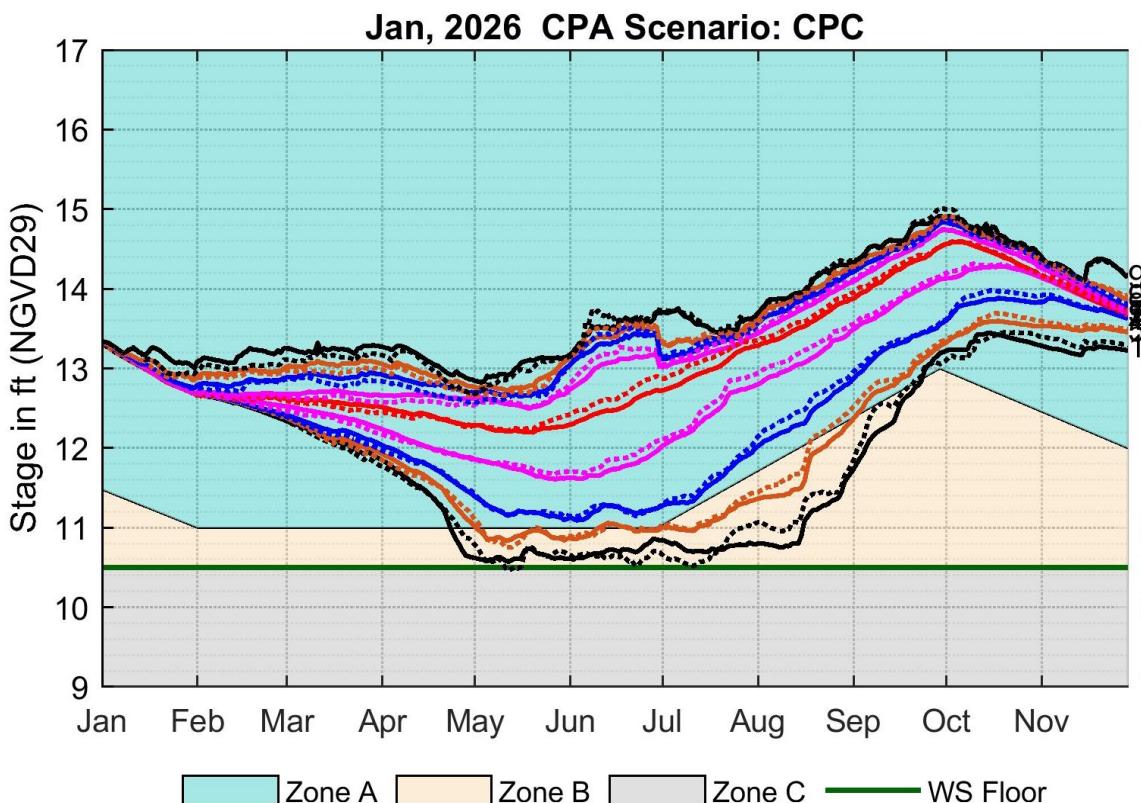


January 2026 CPA: WCA2A S11B_H



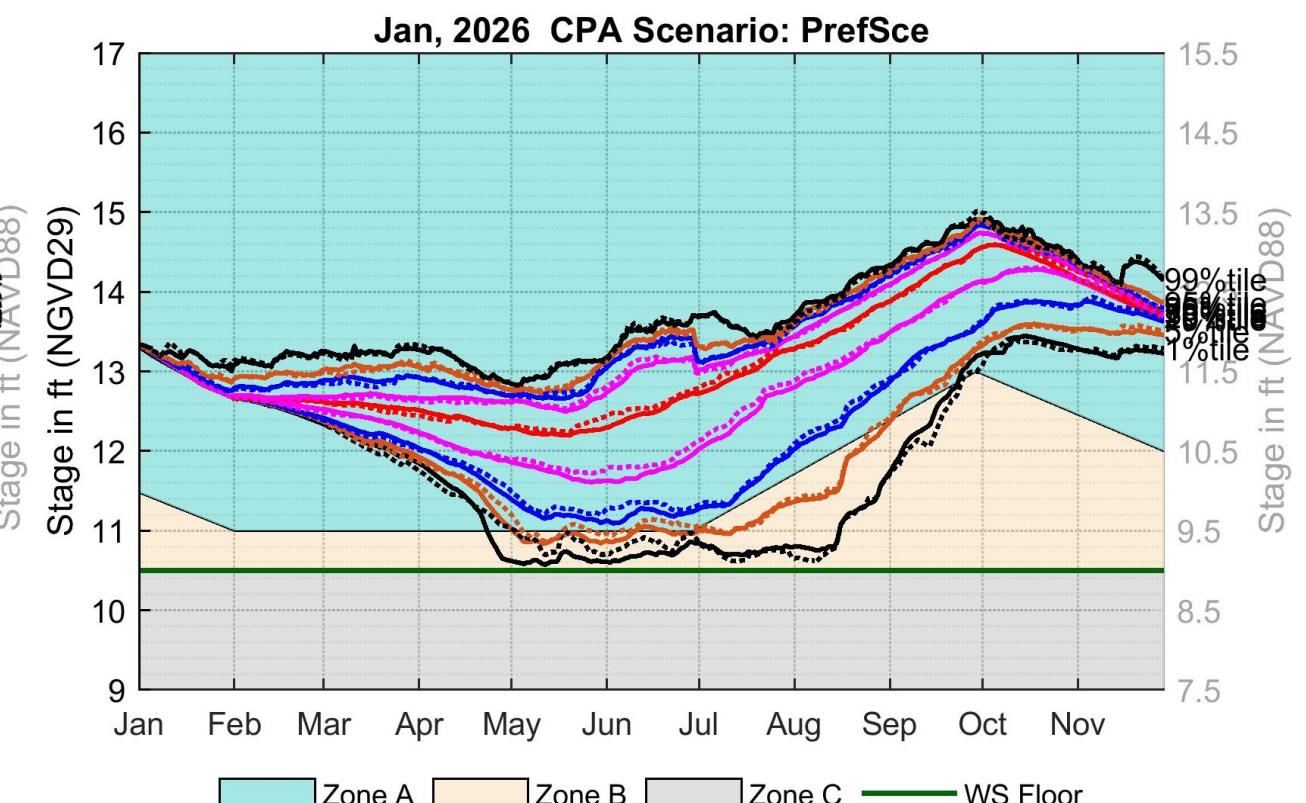
CPC

WCA2A S11B_H



PrefSce

WCA2A S11B_H



Secondary vertical axis shows stages in NAVD88. These stages are based on Agreed Upon Regulation Schedule Conversion Offsets between NGVD29 and NAVD88 (1.5 ft for WCA2A).

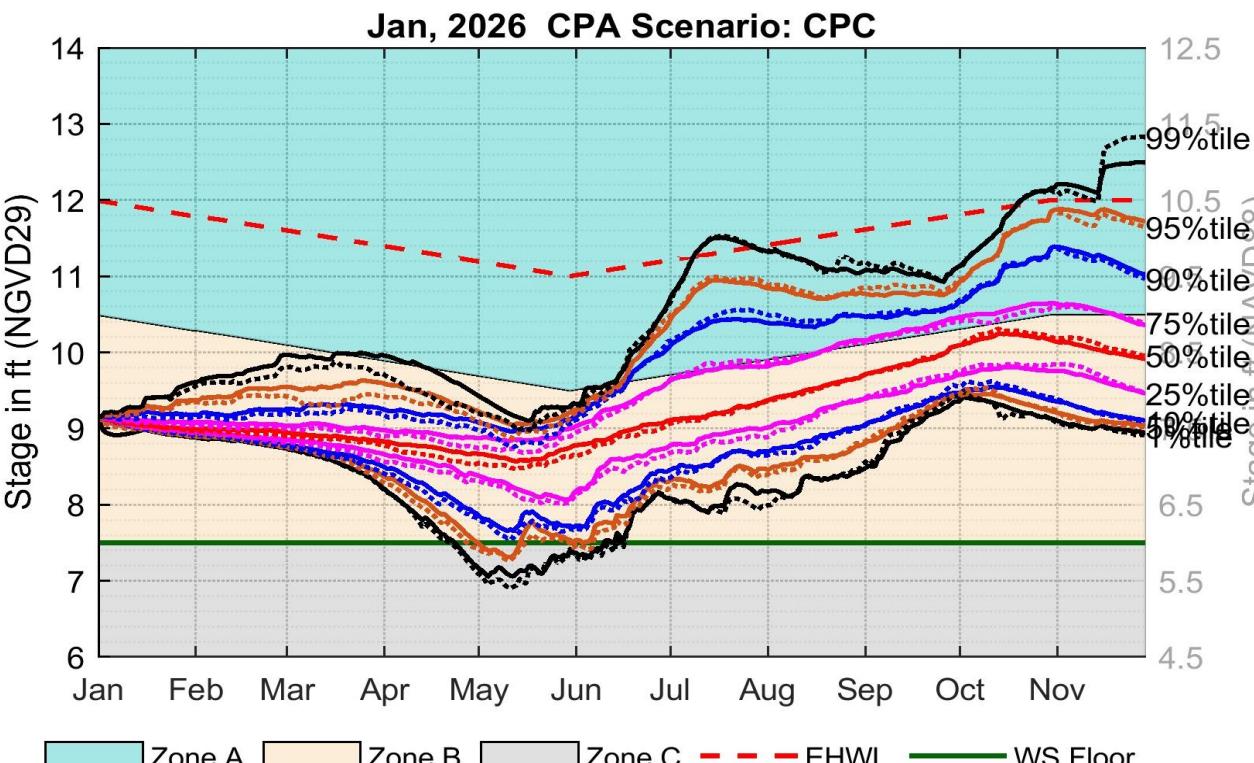


January 2026 CPA: WCA3A 3 Gage Avg.



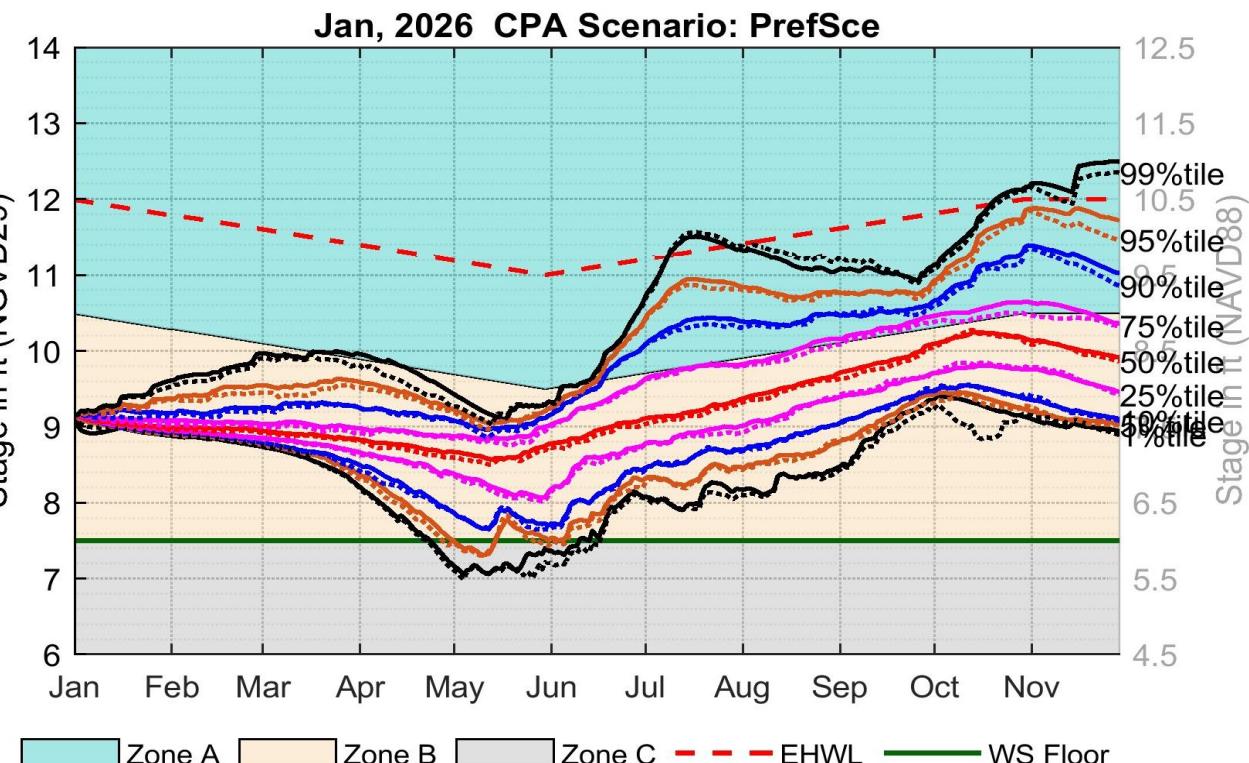
CPC

WCA3AAvg



PrefSce

WCA3AAvg



Secondary vertical axis shows stages in NAVD88. These stages are based on Agreed Upon Regulation Schedule Conversion Offsets between NGVD29 and NAVD88 (1.5 ft for WCA3A).



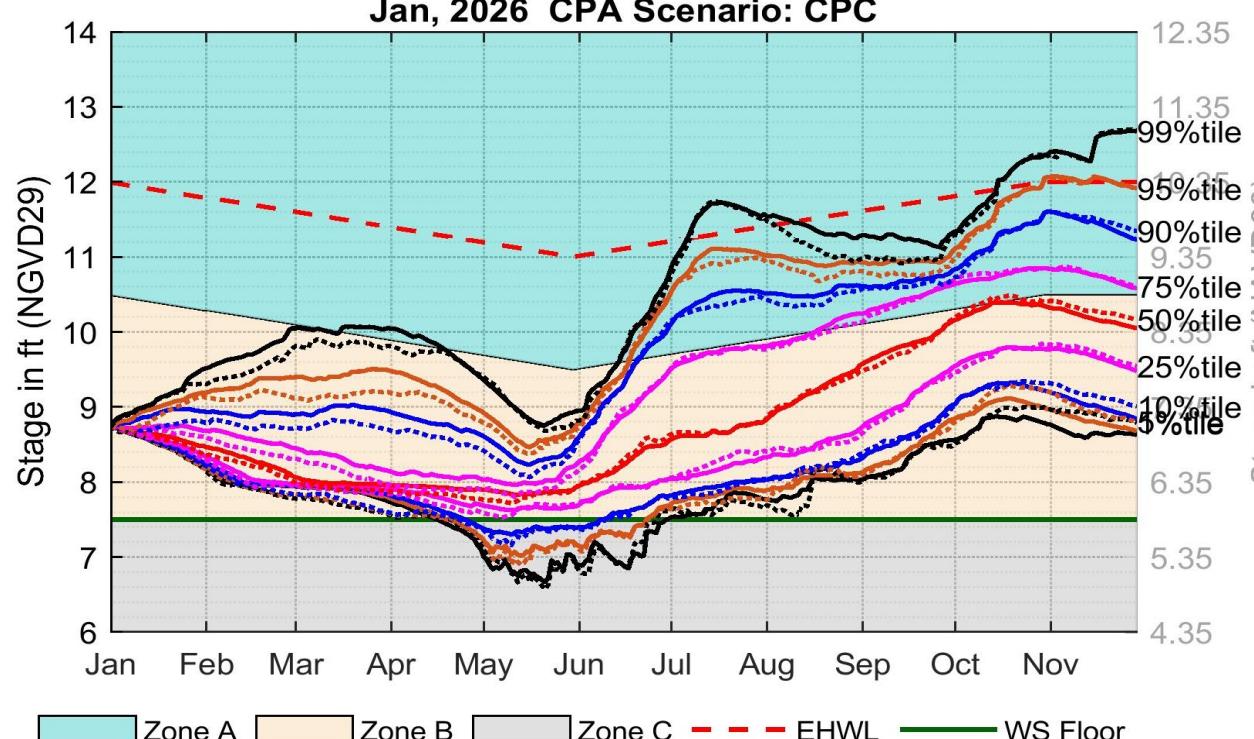
January 2026 CPA: WCA3A Site 69W



CPC

WCA3A Site 69W

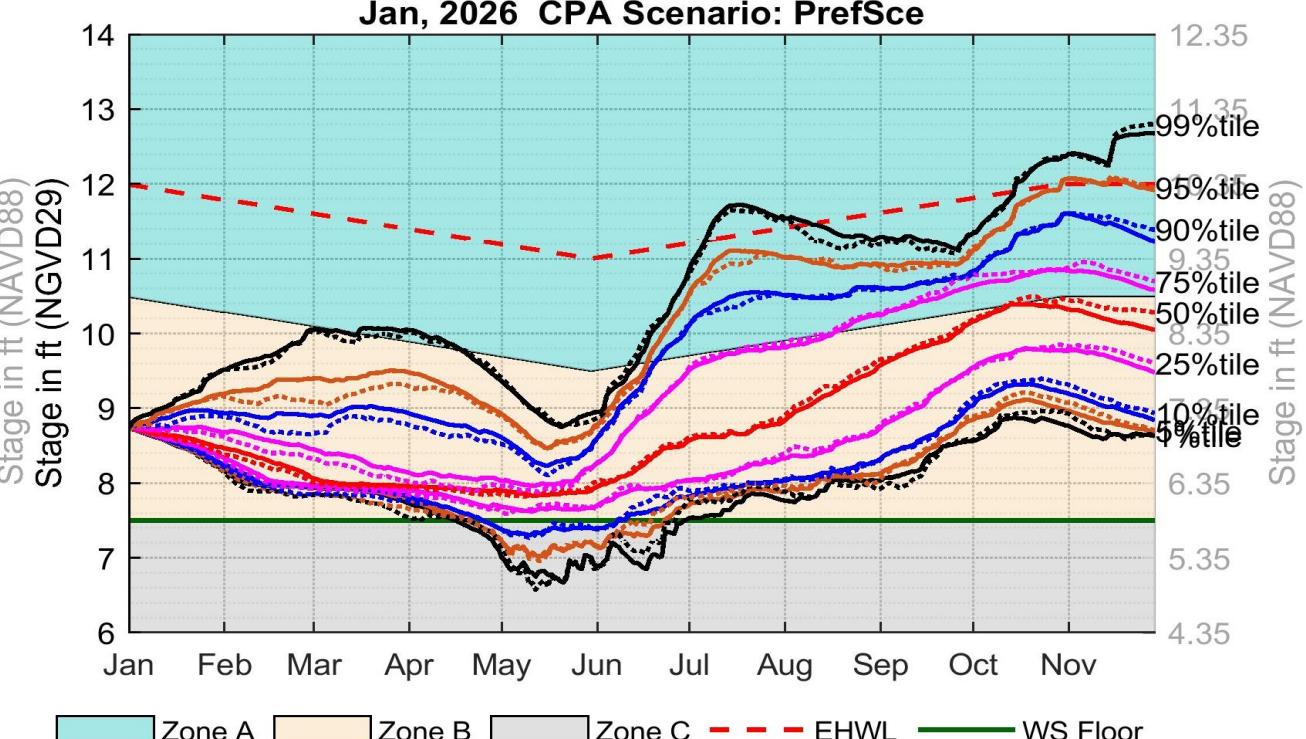
Jan, 2026 CPA Scenario: CPC



PrefSce

WCA3A Site 69W

Jan, 2026 CPA Scenario: PrefSce



Secondary vertical axis shows stages in NAVD88. These stages are based on Agreed Upon Regulation Schedule Conversion Offsets between NGVD29 and NAVD88 (1.65 ft for WCA3A Site 69W).