Feb 15, 2026: Conditional Position Analysis (CPA) Implementation – LOSOM

Water Resources & Systems Modeling Bureau, Systems Modeling Unit

SFWMD

sfwmd.gov

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**

Legend
- · BiasCorrection
- ● Initial Stage Correction
- ⊙ CPA Locations
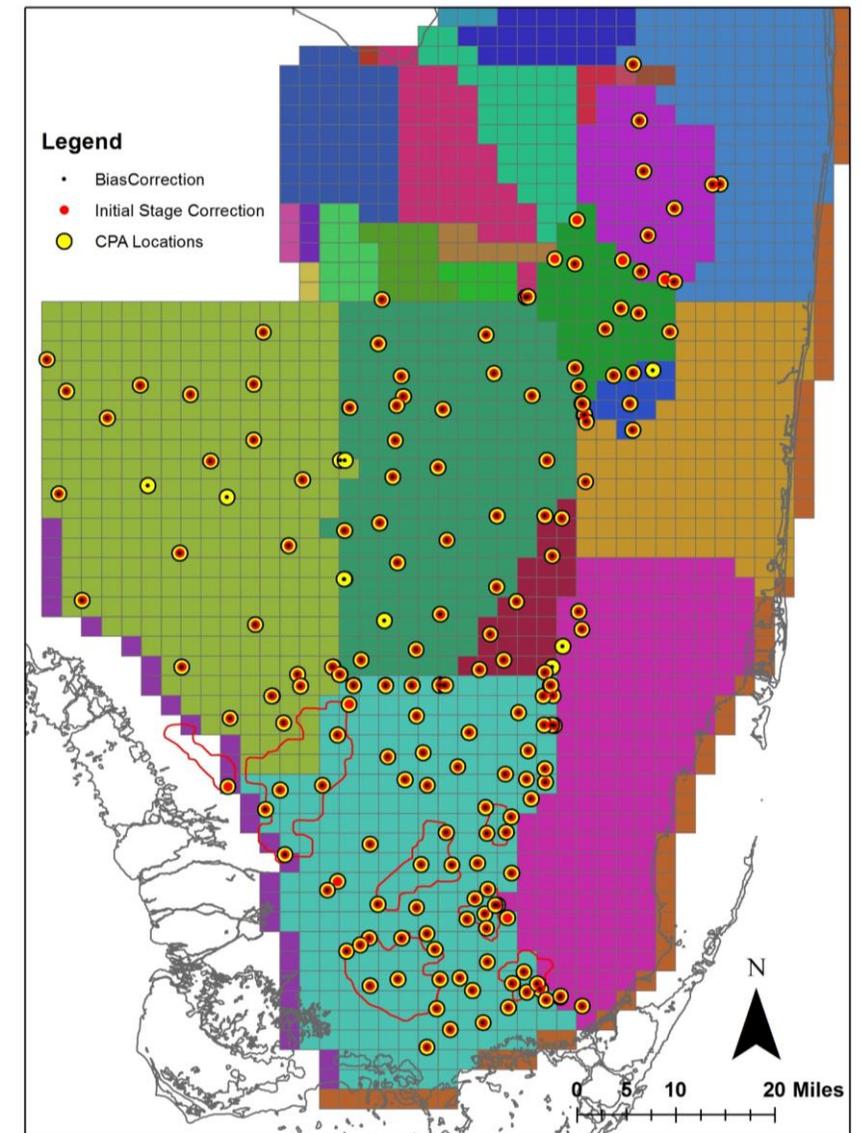
CPA Overview

➤ 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

Legend
- · BiasCorrection
- ● Initial Stage Correction
- ○ CPA Locations
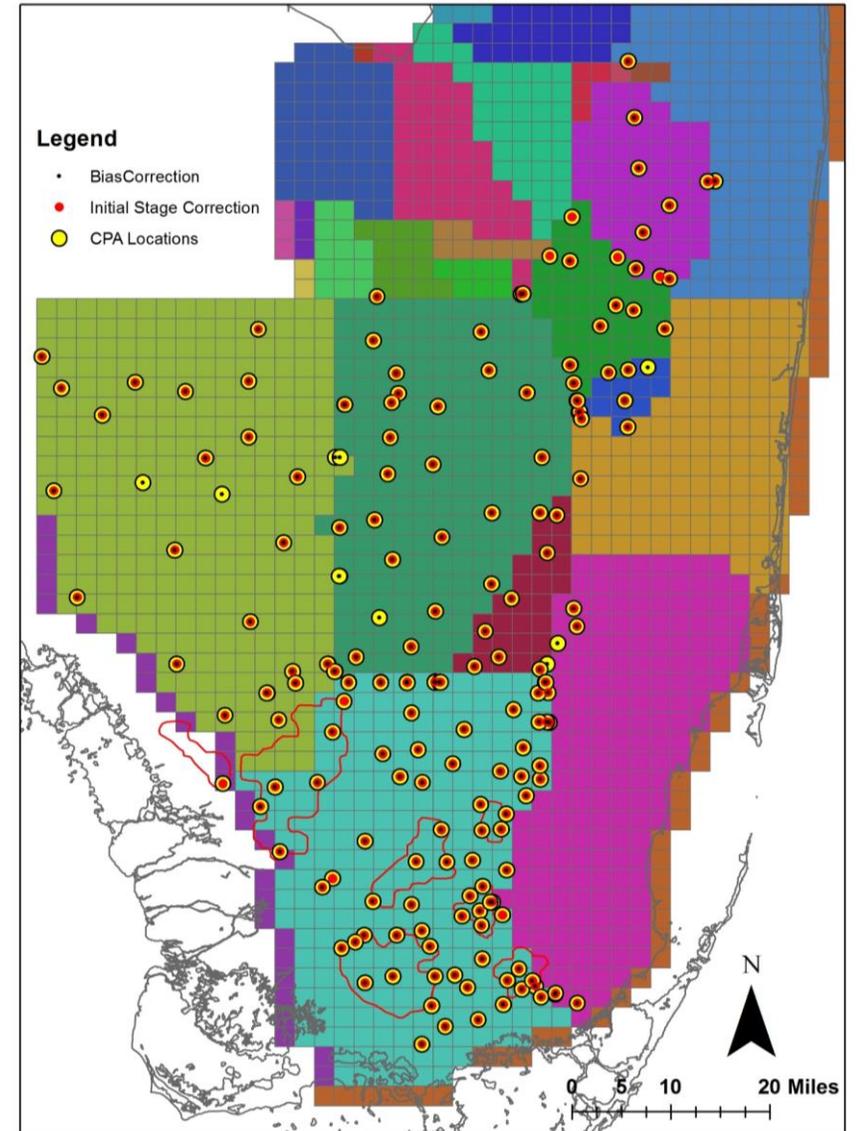
CPA: Rainfall Scenarios for Feb 15, 2026

➢ 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)).
- The February 15, 2026 CPC rainfall scenario reflects the latest rainfall outlook released by CPC on the second Thursday of February 2026.
- 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) published by CPC.

- This scenario developed by System Modeling Unit (PrefSce Overview) represents a best professional judgement rainfall outlook.

- February 15, 2026 PrefSce rainfall scenario includes latest release of rainfall outlook from NOAA and IRI on the 3rd Thursday of February 2026).

- The monthly probability for the remaining days of February is derived from QPF estimates produced by WMD, WPC, ECMWF HRES, and 100 ECMWF ensembles, along with historical rainfall data from NEXRAD for 1991–2020.

February 15, 2026 CPA: Rainfall Scenarios

Feb 15, 2026: Climatological Scenario

Feb 15, 2026: CPC Scenario

Feb 15, 2026: PrefSce Scenario
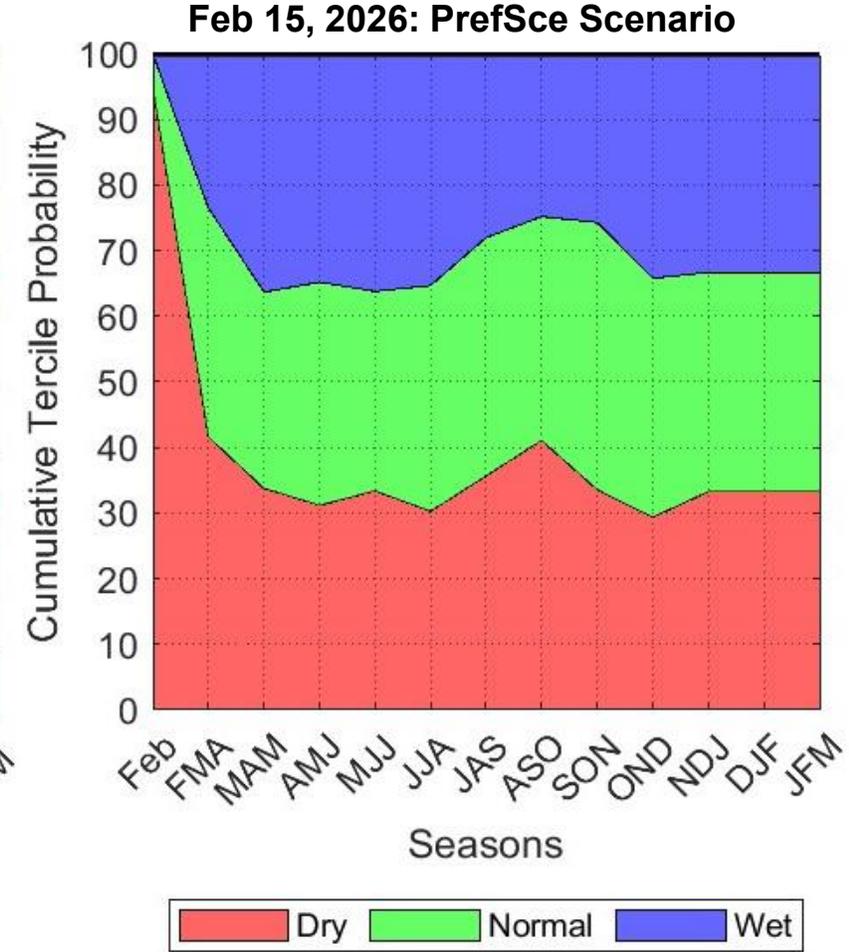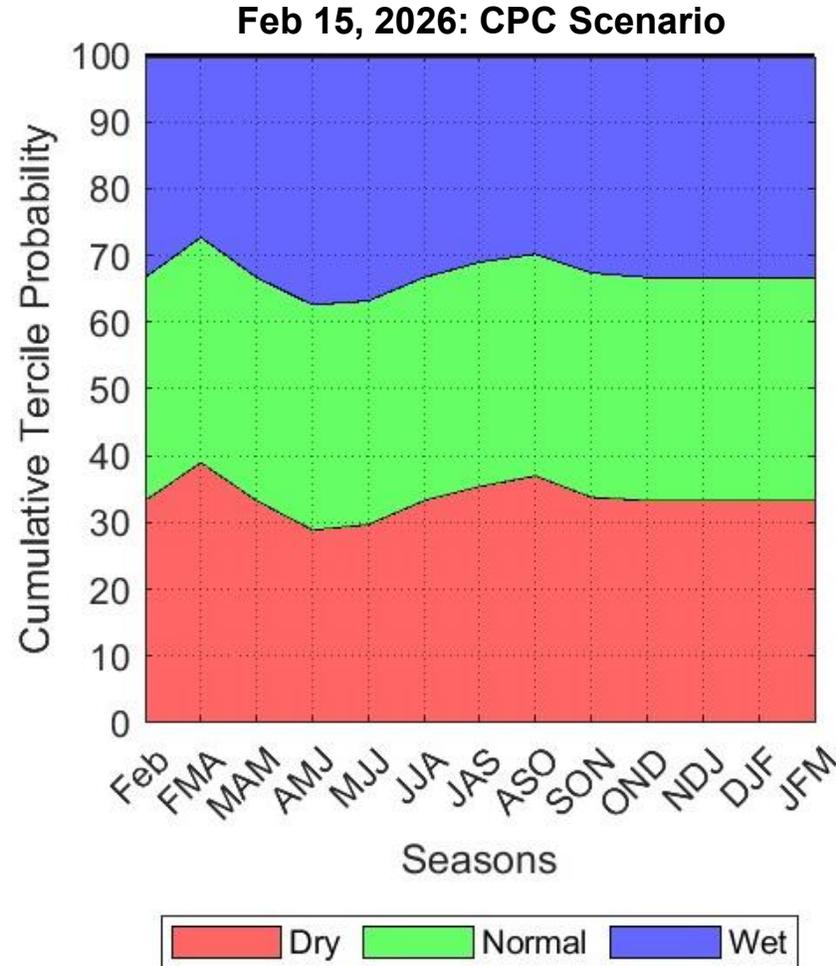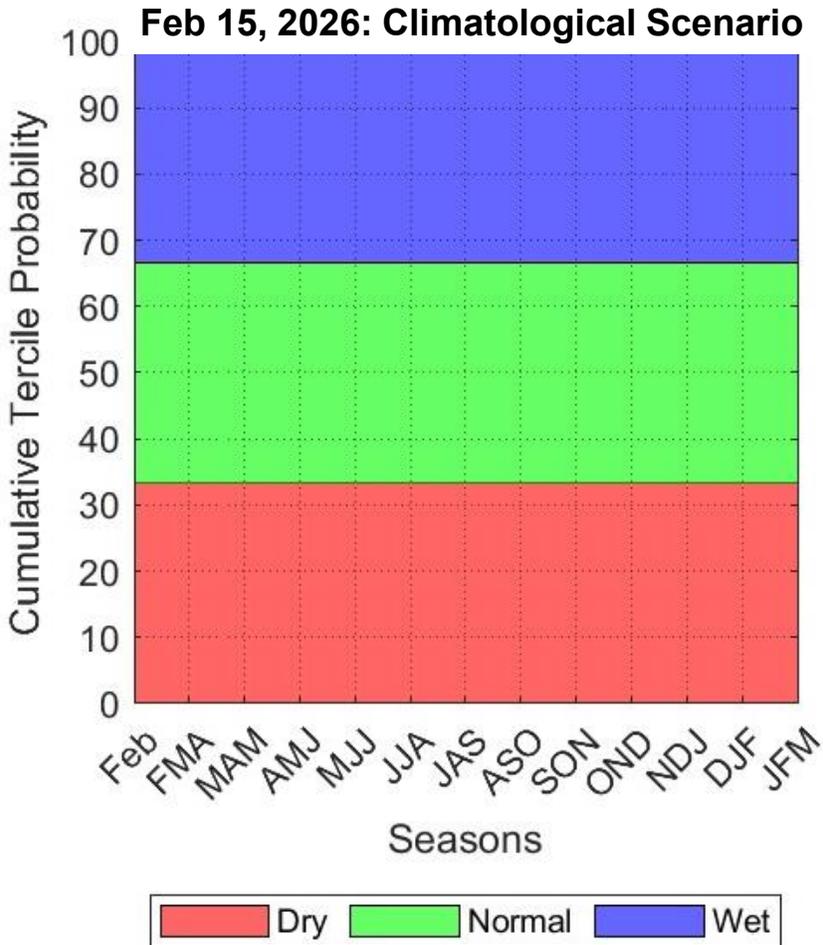
CPA: Key to Reading Results
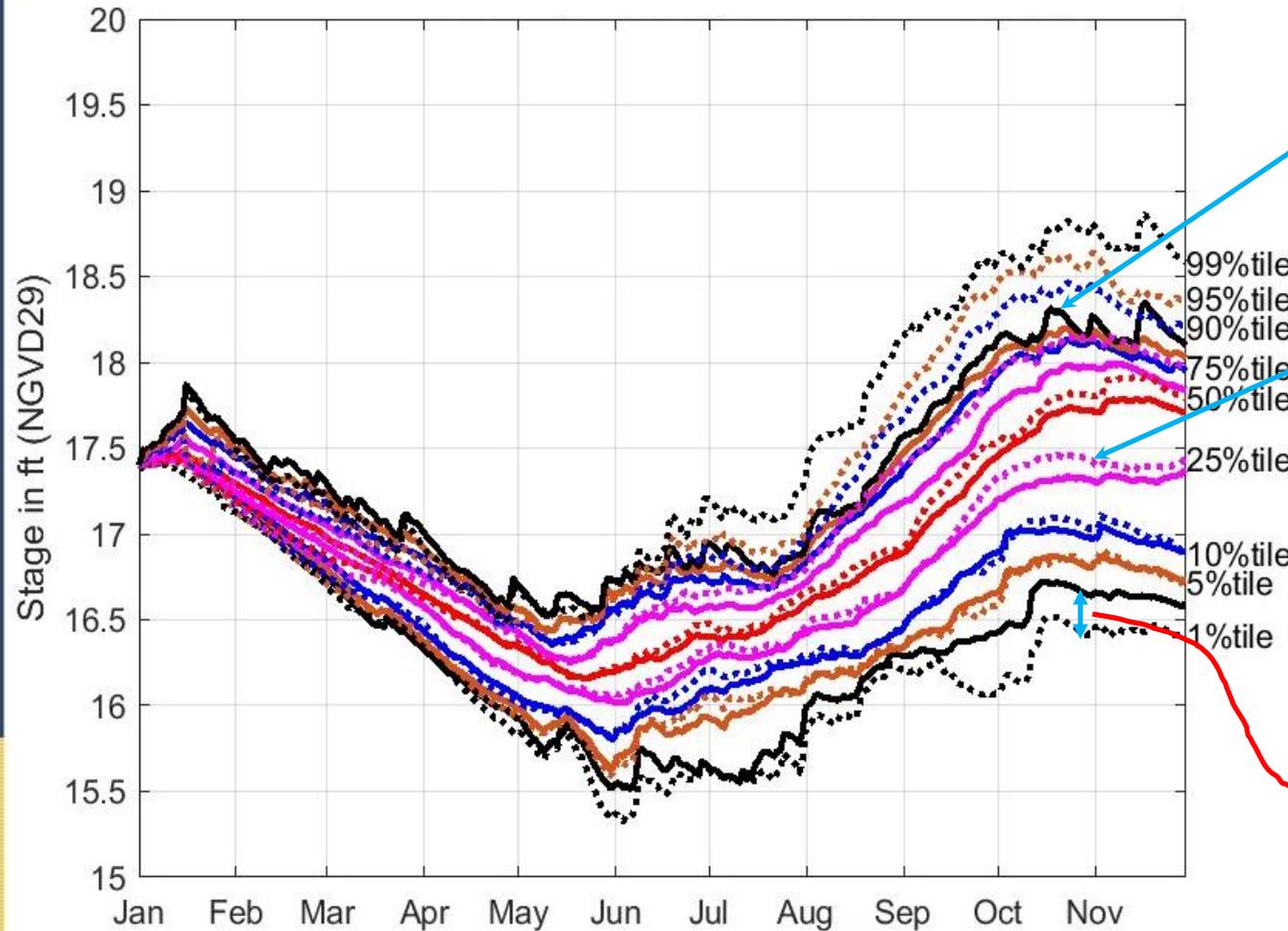
Solid lines → Climatological Scenario/DPA

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%

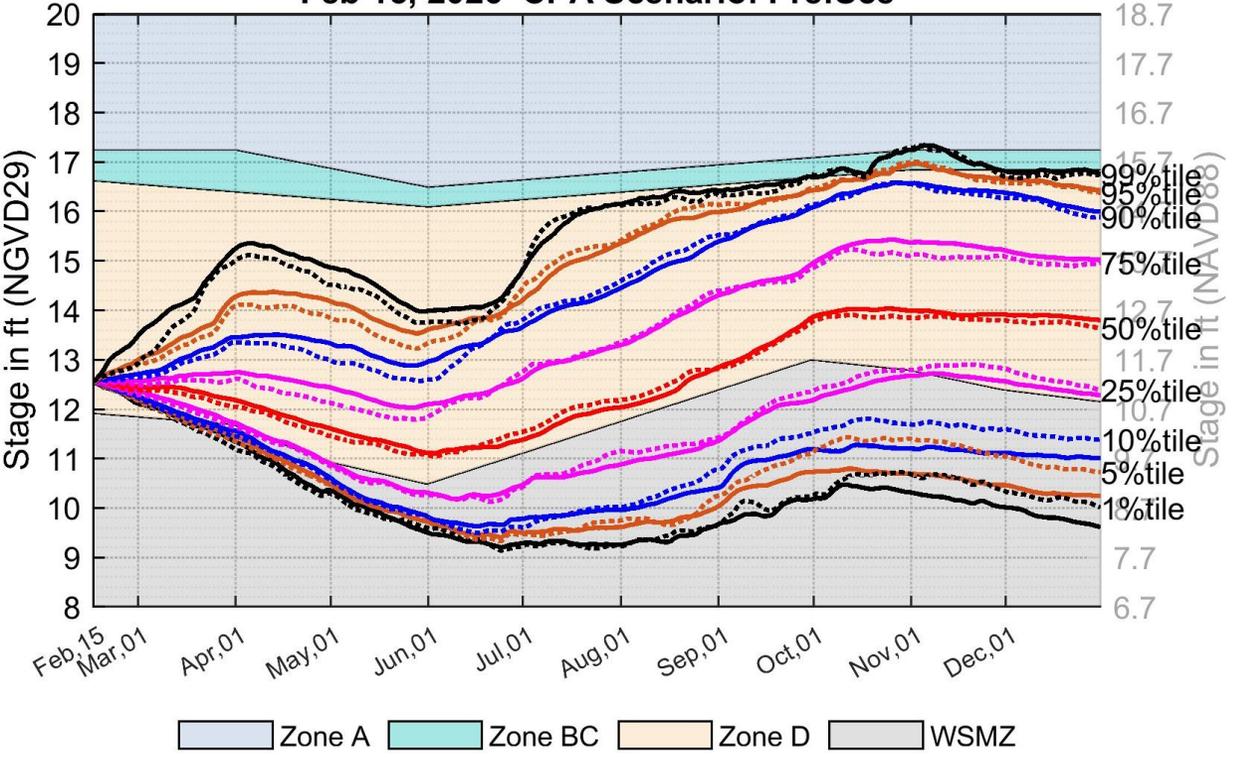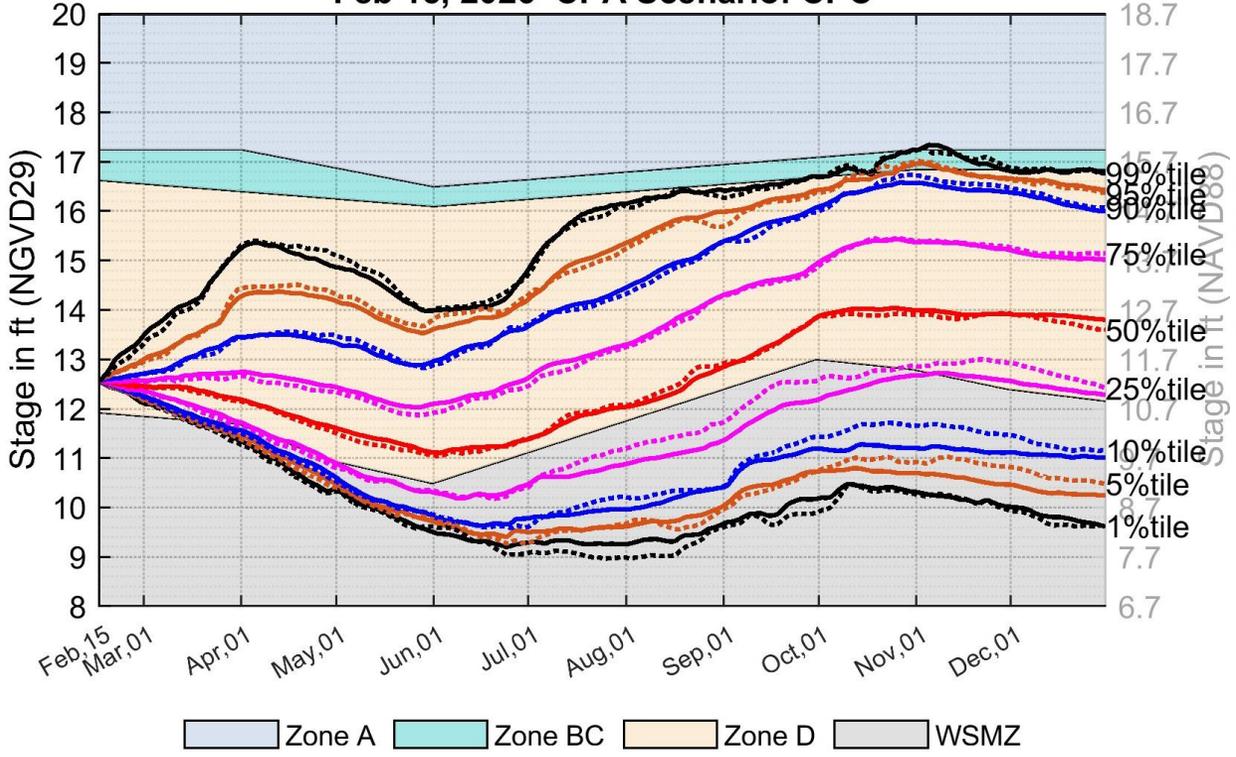**Need to focus on how DPA percentile lines shift under Alternate Rainfall Scenario**

LOSOM

February 15, 2026 CPA: 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).

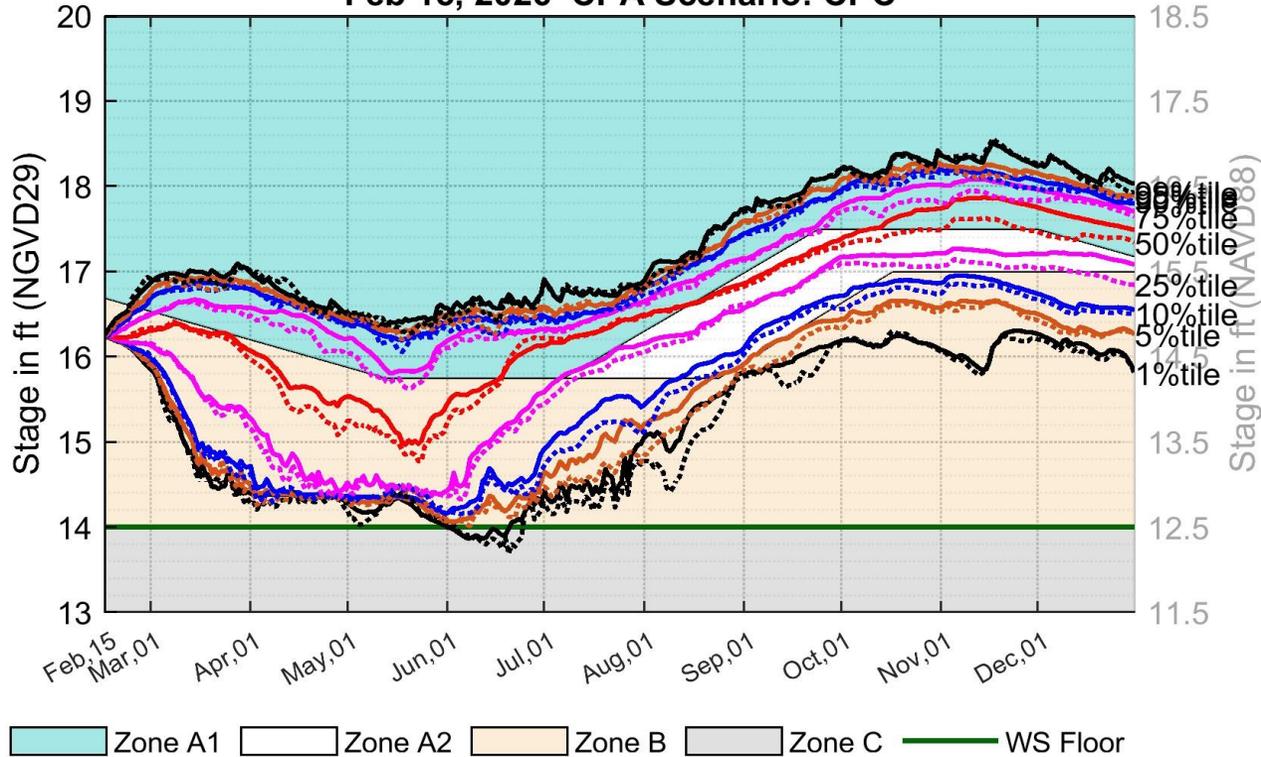South Florida Water Management District

February 15, 2026 CPA: WCA1 3-Gage Avg.

CPC

WCA1 3-Gage Avg

Feb 15, 2026 CPA Scenario: CPC
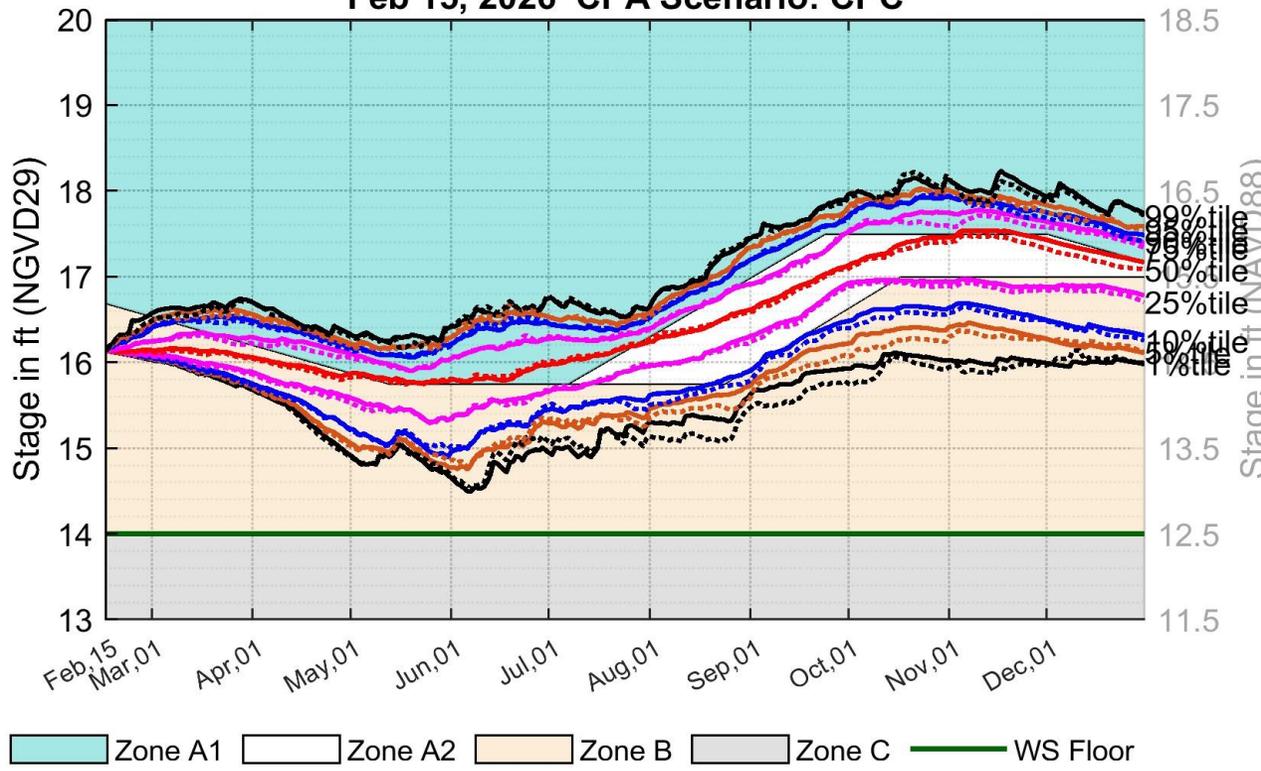
PrefSce

WCA1 3-Gage Avg

Feb 15, 2026 CPA Scenario: PrefSce
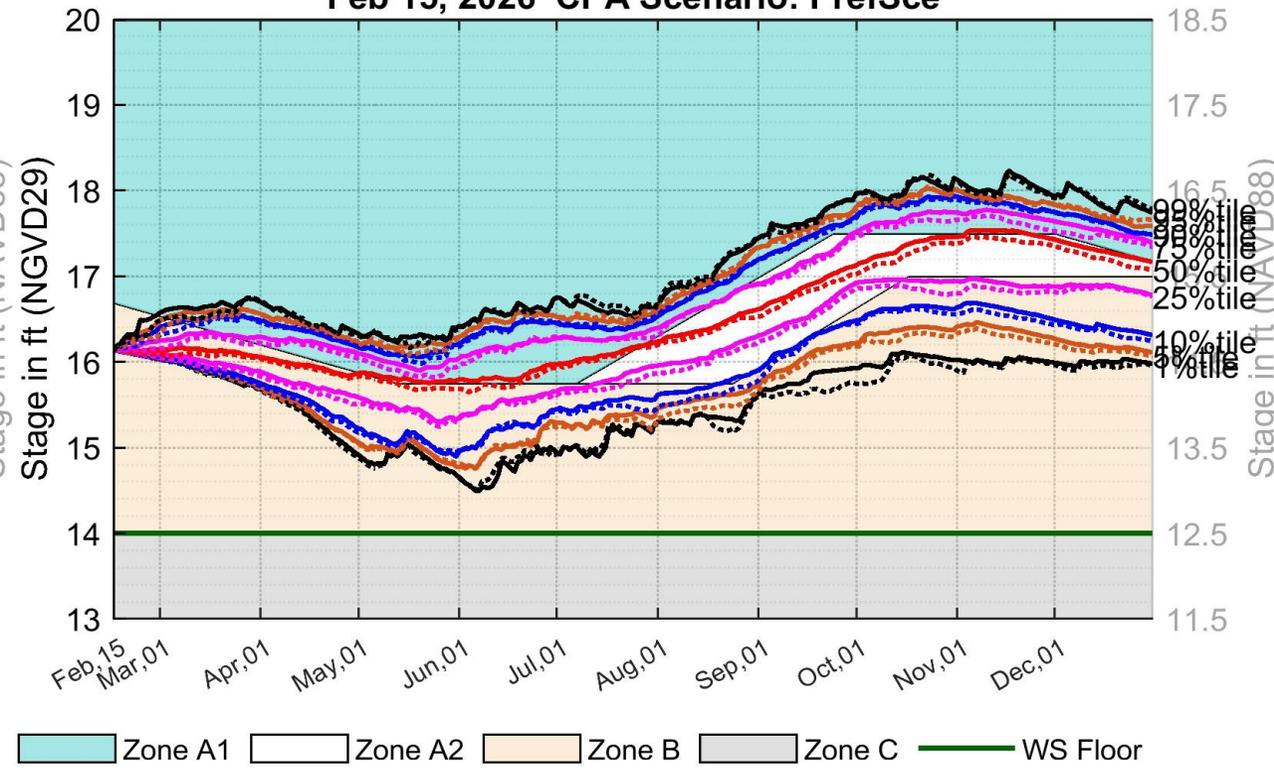
Zone A1 Zone A2 Zone B Zone C WS Floor

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).
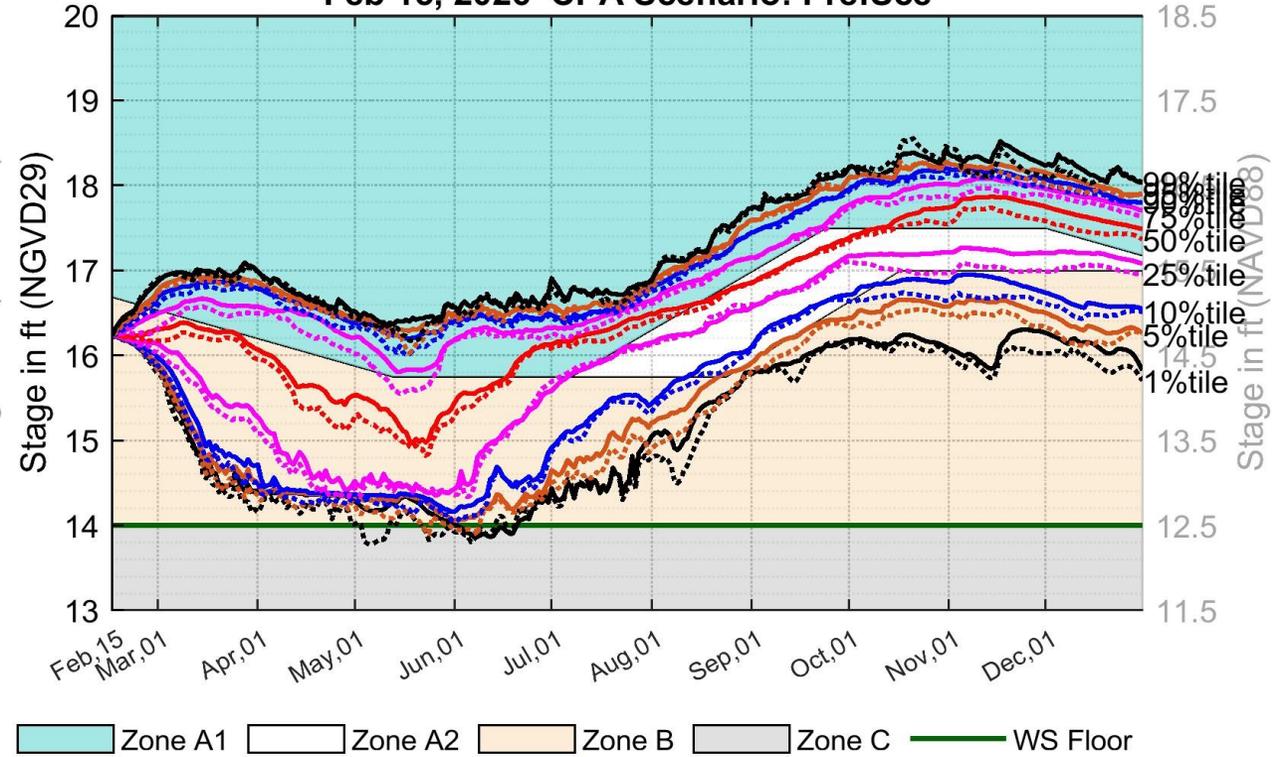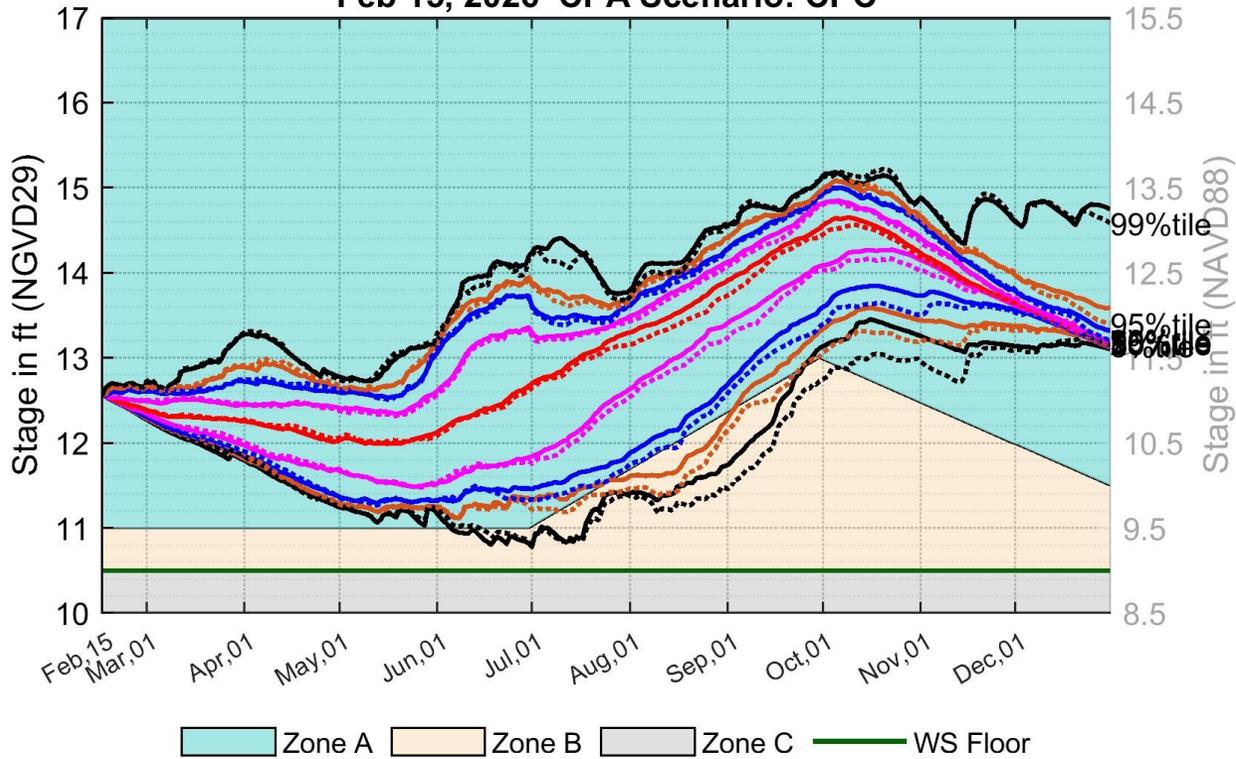
February 15, 2026 CPA: WCA1 Site 8-C

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).

February 15, 2026 CPA: WCA2A Site-17

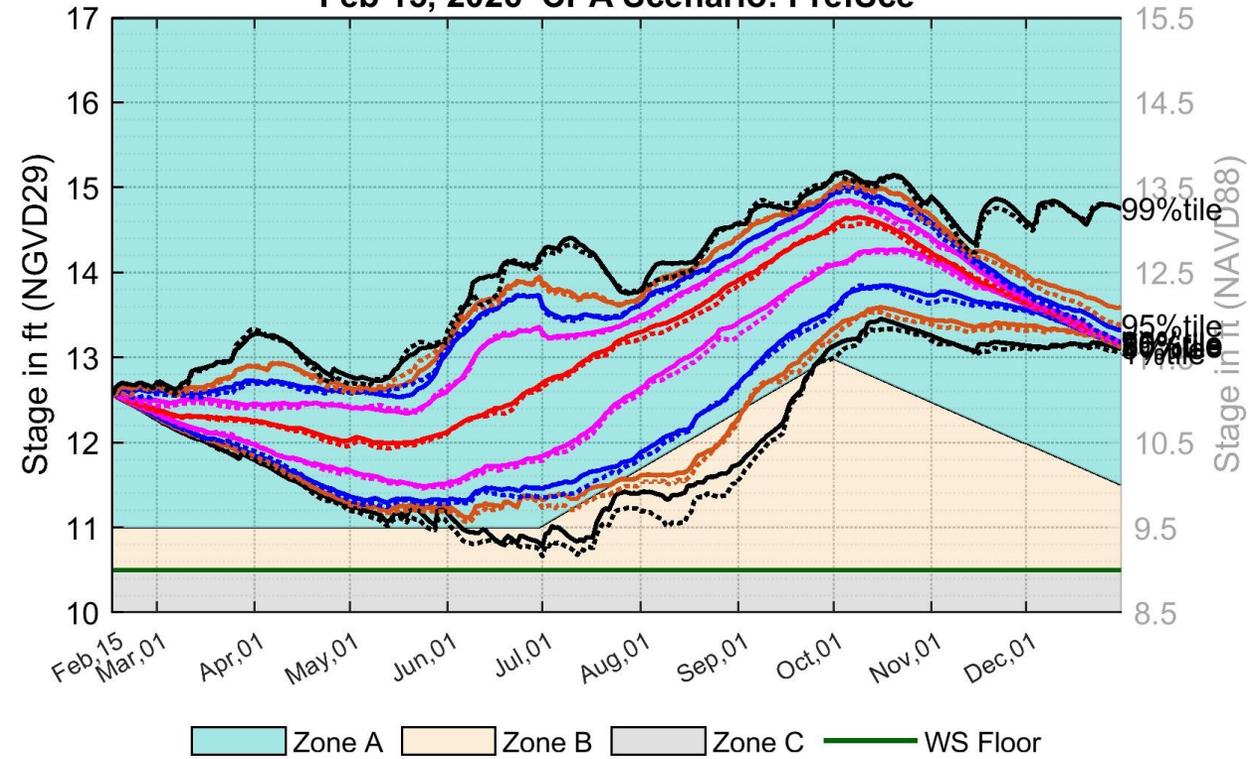Secondary vertical axis shows stages in NAVD88. These stages are based on Agreed Upon Regulation Schedule Conversion Offsets between NGVD29 and NAVD88 (1.5 ft for WCA2A).
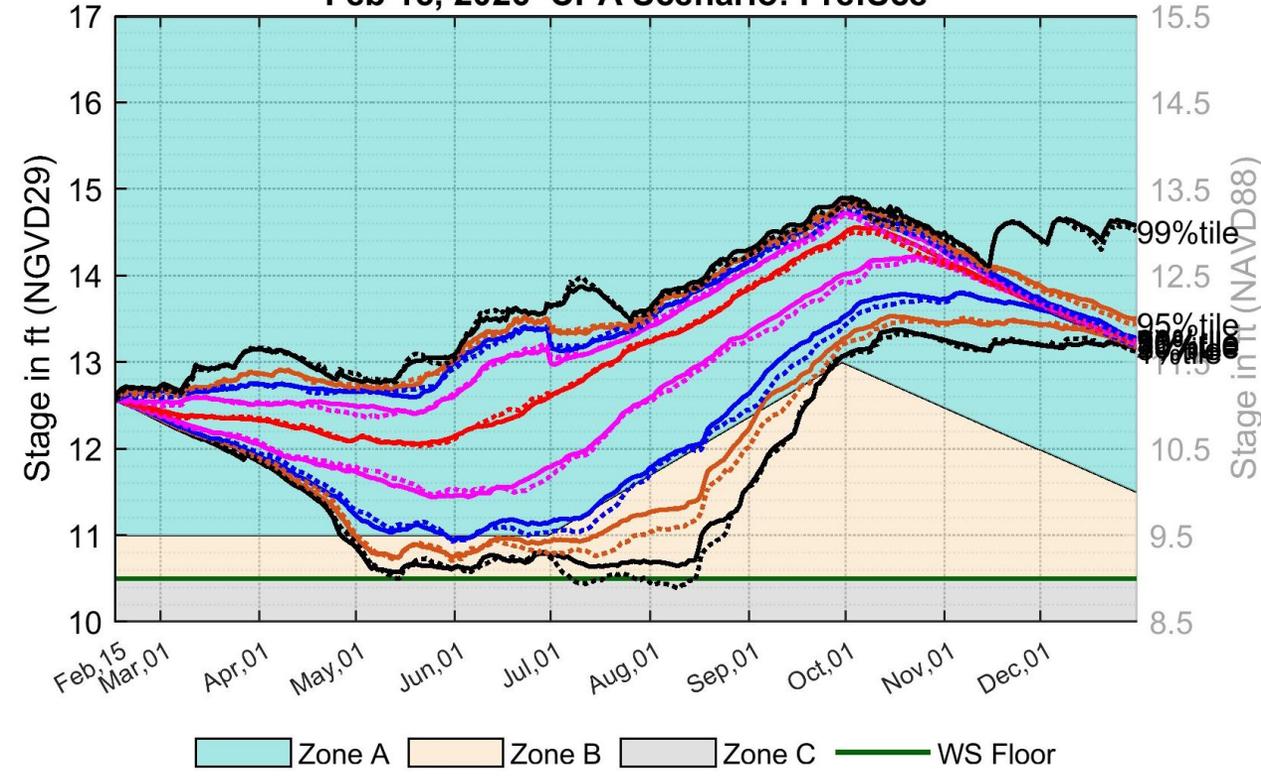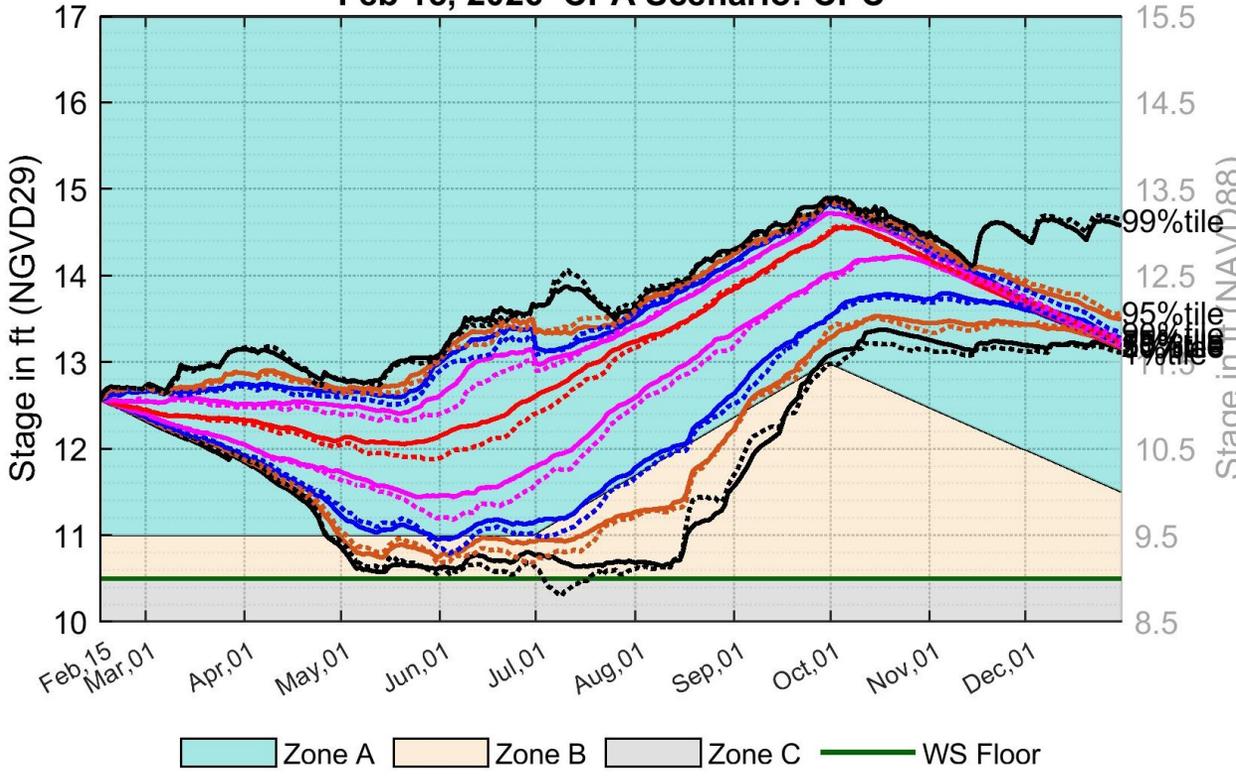
February 15, 2026 CPA: WCA2A S11B_H

CPC

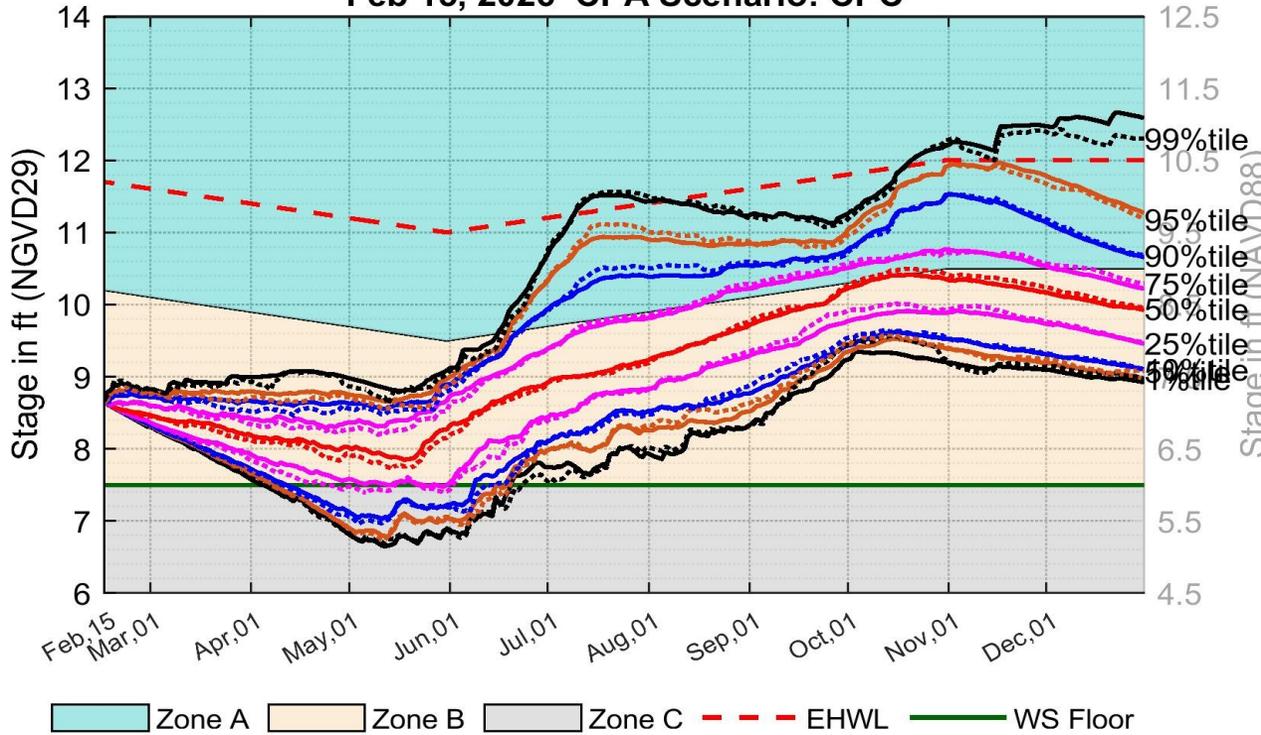WCA2A S11B_H

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).

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

February 15, 2026 CPA: WCA3A 3 Gage Avg.

CPC

WCA3AAvg

Feb 15, 2026 CPA Scenario: CPC

PrefSce

WCA3AAvg

Feb 15, 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 WCA3A).
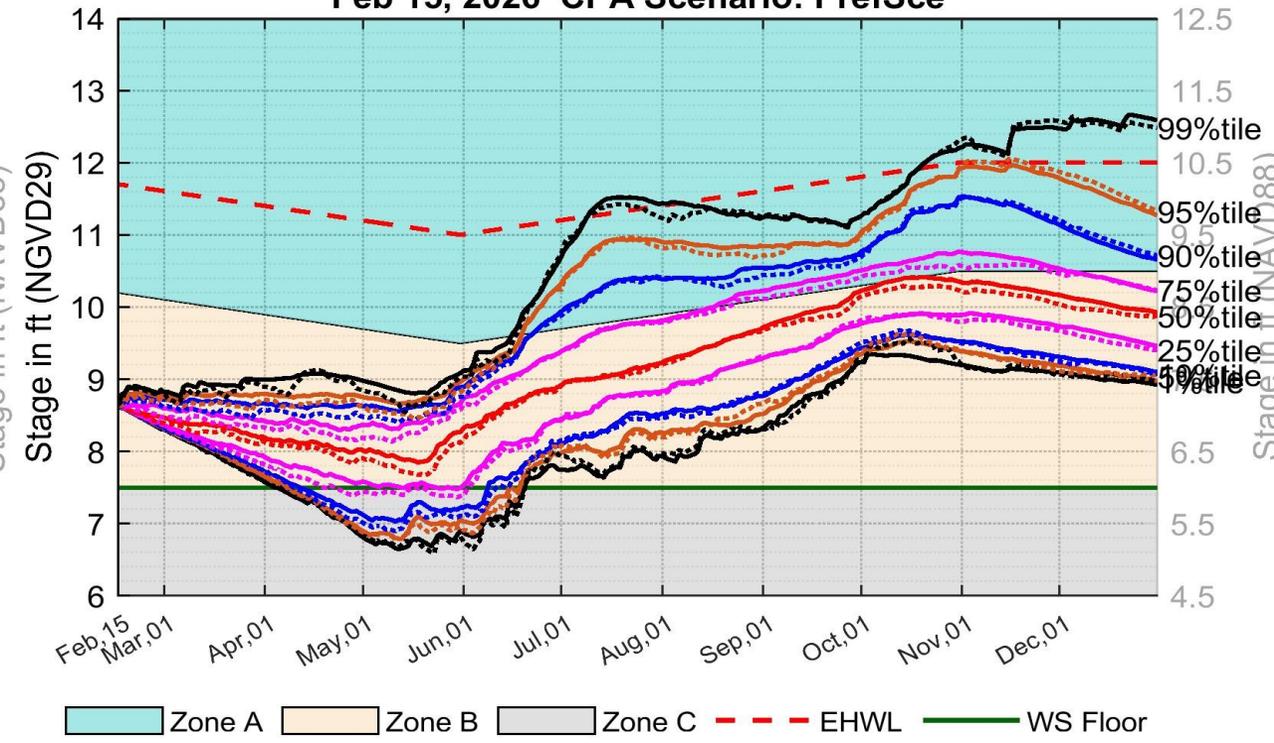
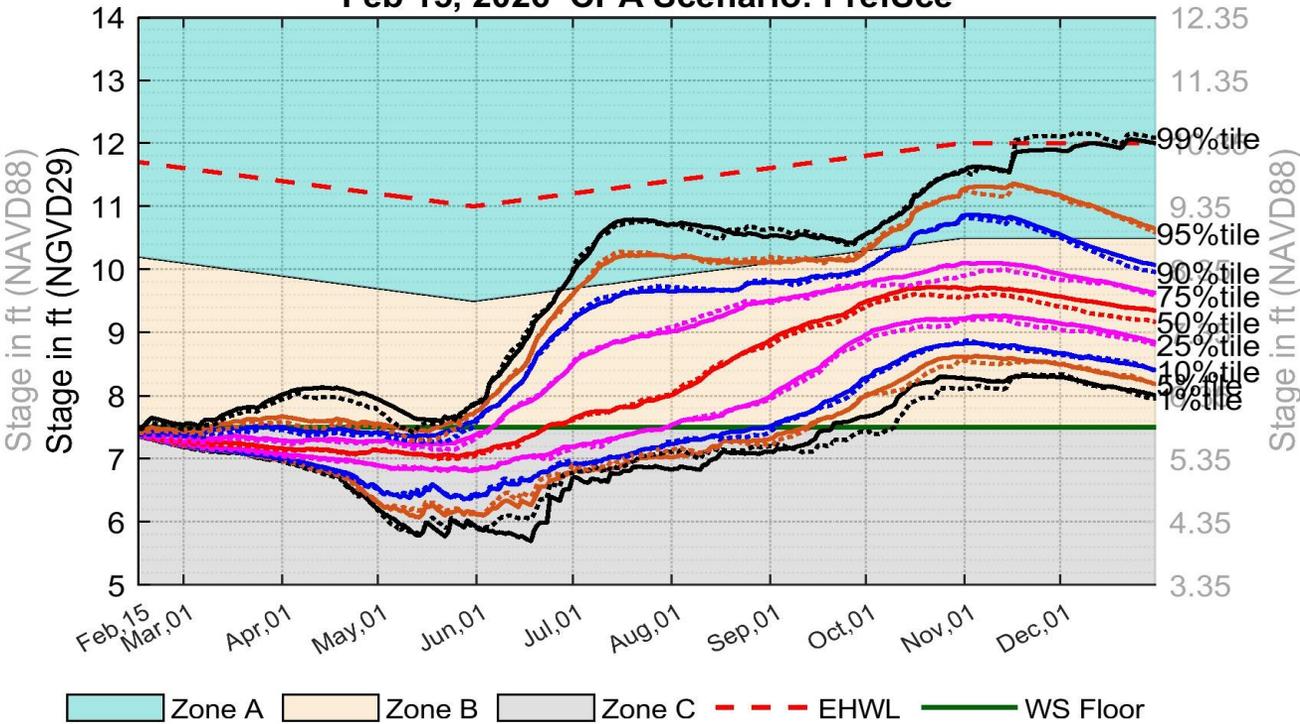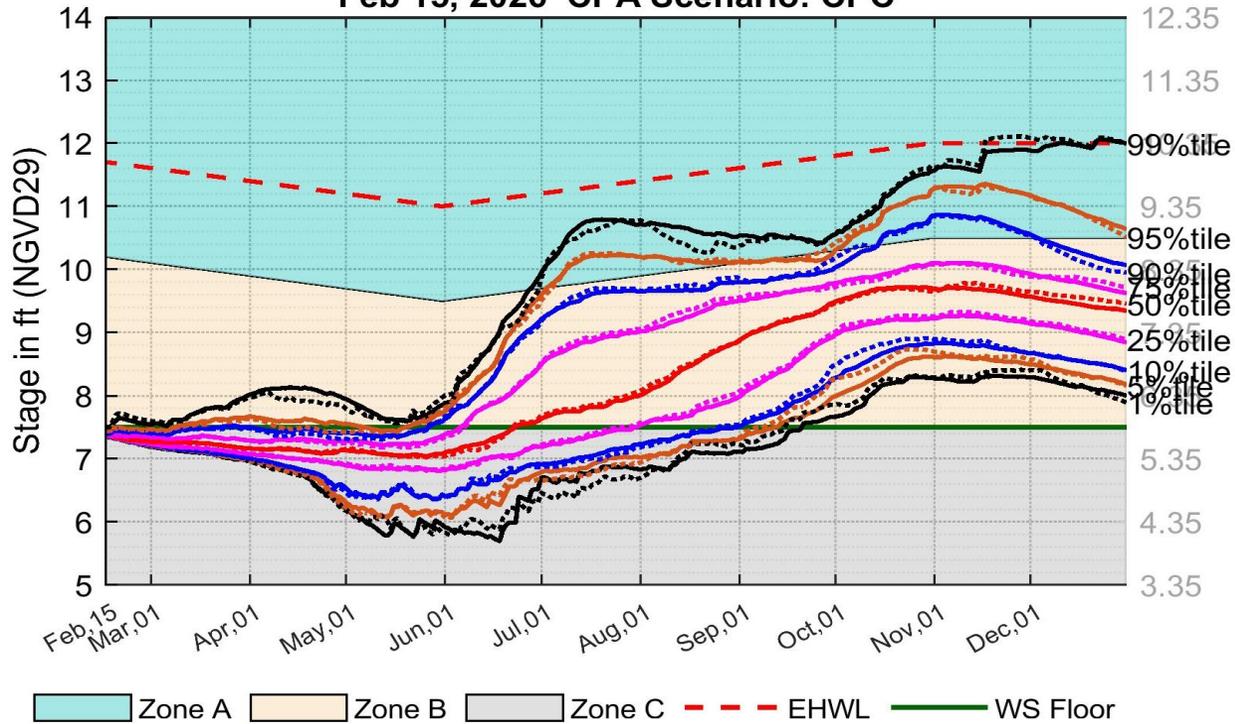# February 15, 2026 CPA: WCA3A Site 69W

CPC

WCA3A Site 69W

PrefSce

WCA3A Site 69W

Mid-February to mid-March stage values are adjusted in DPA to better align with the observed conditions in Site 69W, and the adjusted values are subsequently applied as inputs to the CPA for this site.

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).