

# Extended Hydrologic Outlook

June 4, 2024

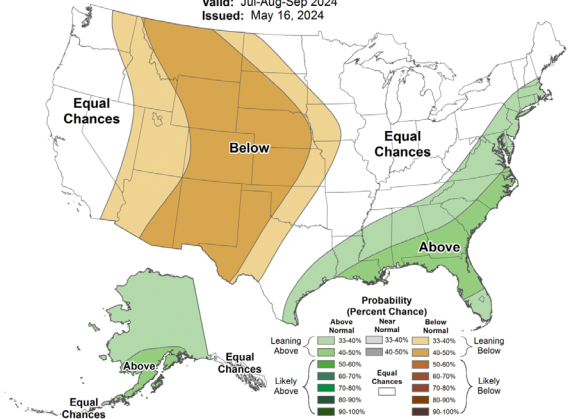
- The Climate Prediction Center (CPC) is forecasting above normal rainfall for June through August.
- El Niño is transitioning towards ENSO-neutral. A transition from El Niño to ENSO-neutral is likely in the next month. La Niña may develop in June-August 2024 (49% chance) or July-September (69% chance).
- Atlantic Multidecadal Oscillation (AMO) is currently in the warm phase:
  - Average annual inflow to Lake Okeechobee is nearly 50% greater during the warm phase compared to the cold phase.





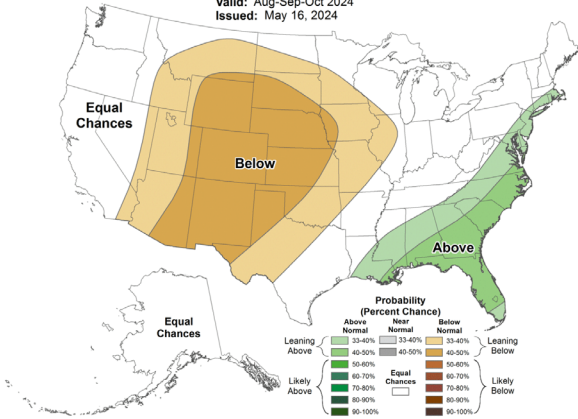
### Seasonal Precipitation Outlook

Valid: Jul-Aug-Sep 2024  
Issued: May 16, 2024



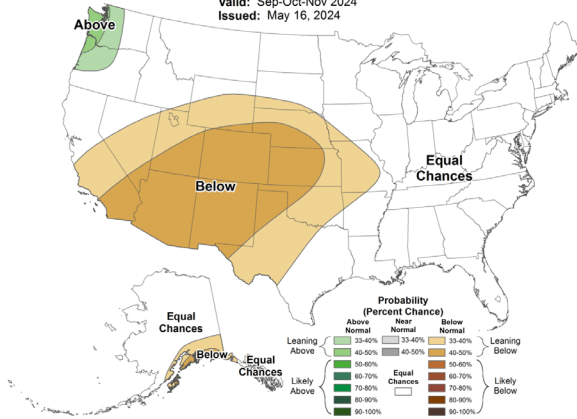
### Seasonal Precipitation Outlook

Valid: Aug-Sep-Oct 2024  
Issued: May 16, 2024



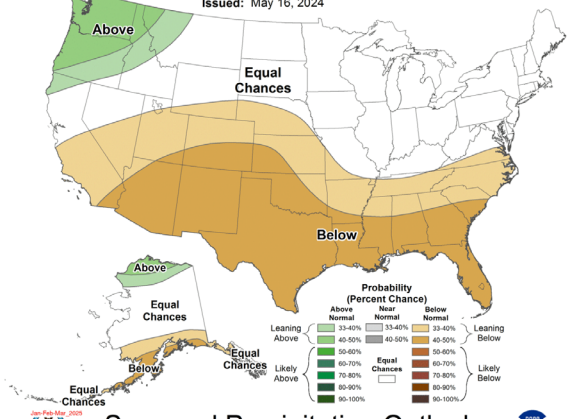
### Seasonal Precipitation Outlook

Valid: Sep-Oct-Nov 2024  
Issued: May 16, 2024



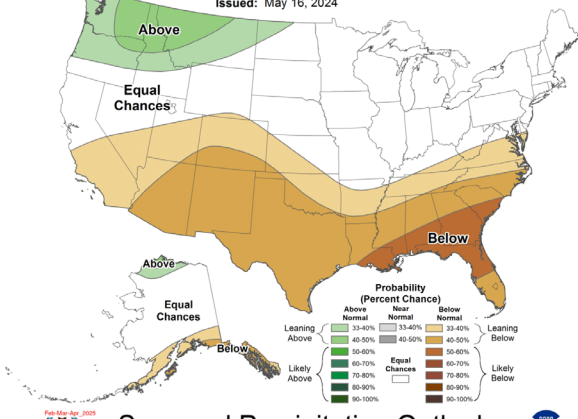
### Seasonal Precipitation Outlook

Valid: Oct-Nov-Dec 2024  
Issued: May 16, 2024



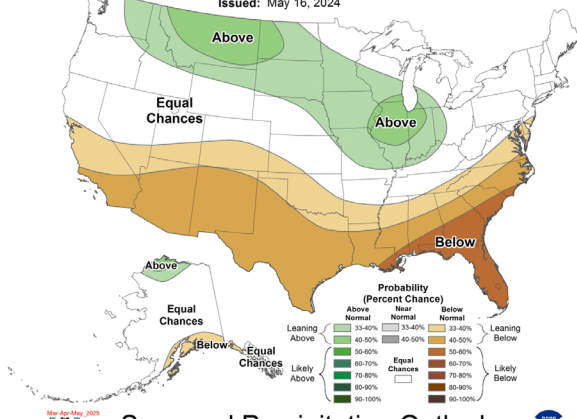
### Seasonal Precipitation Outlook

Valid: Nov-Dec-Jan 2024-25  
Issued: May 16, 2024



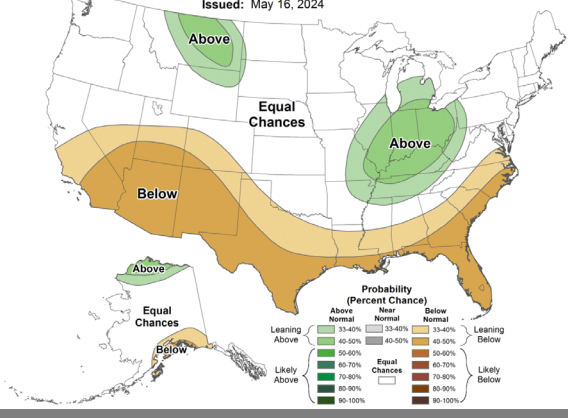
### Seasonal Precipitation Outlook

Valid: Dec-Jan-Feb 2024-25  
Issued: May 16, 2024



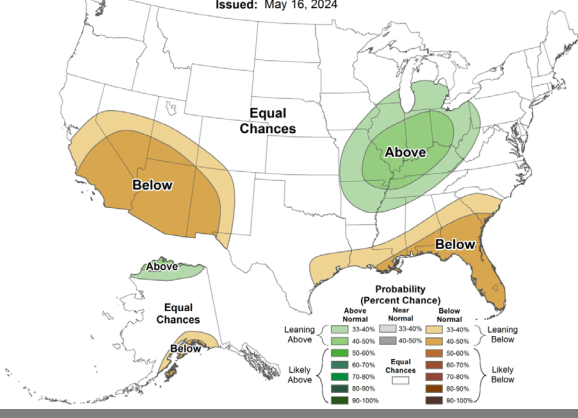
### Seasonal Precipitation Outlook

Valid: Jan-Feb-Mar 2025  
Issued: May 16, 2024



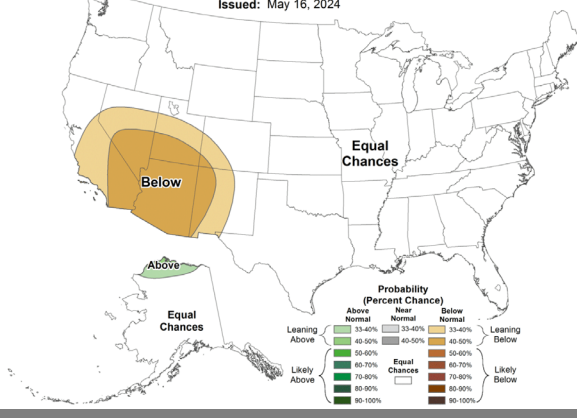
### Seasonal Precipitation Outlook

Valid: Feb-Mar-Apr 2025  
Issued: May 16, 2024



### Seasonal Precipitation Outlook

Valid: Mar-Apr-May 2025  
Issued: May 16, 2024



# Teleconnections to South Florida

Climate anomalies being related to each other at large distances:

## El Niño Southern Oscillation (ENSO)

El Niño increases the chances of a wetter-than-normal dry season and decreased tropical activity, La Niña increases the chances of a drier-than-normal dry season and increased tropical activity (both have most influence in south Florida from November through March)

## Pacific Decadal Oscillation (PDO)

Increases variations in south Florida dry season rainfall, positive leads to more El Niño events, negative leads to more La Niña events

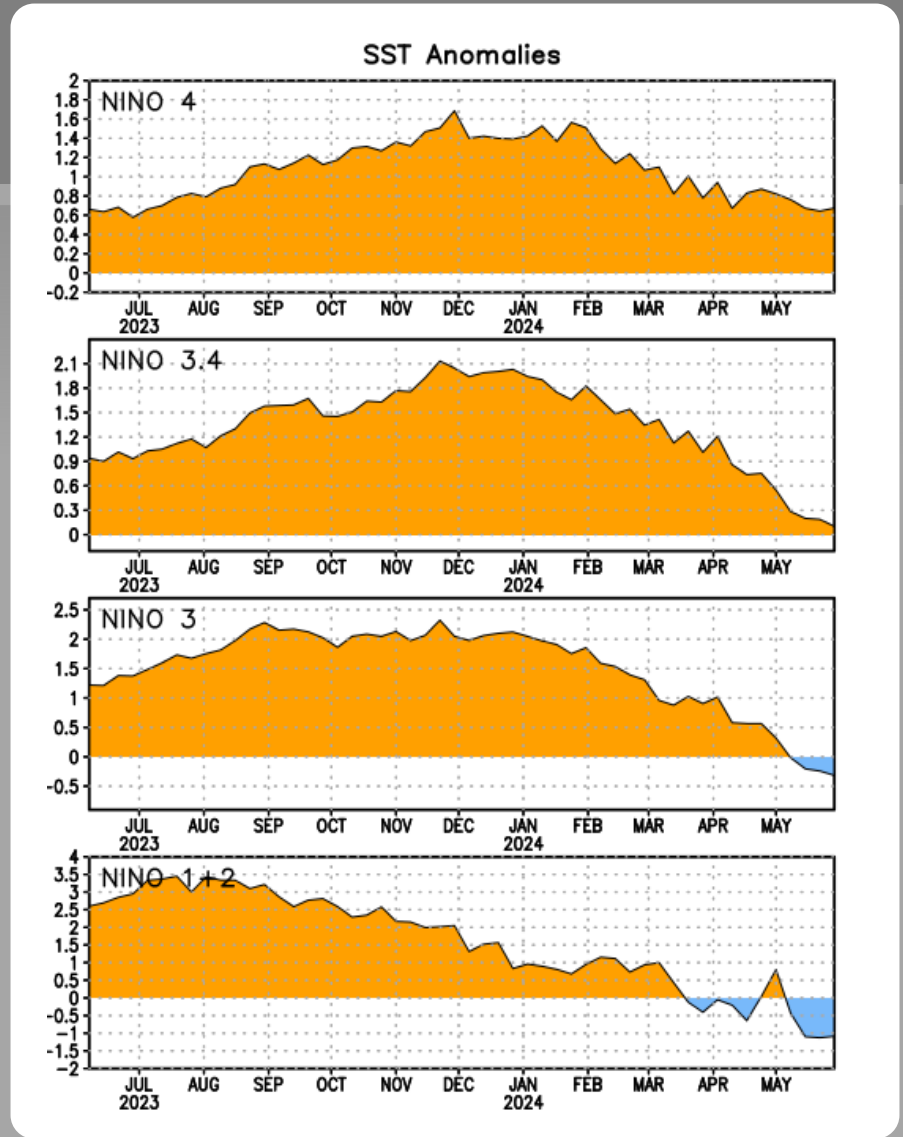
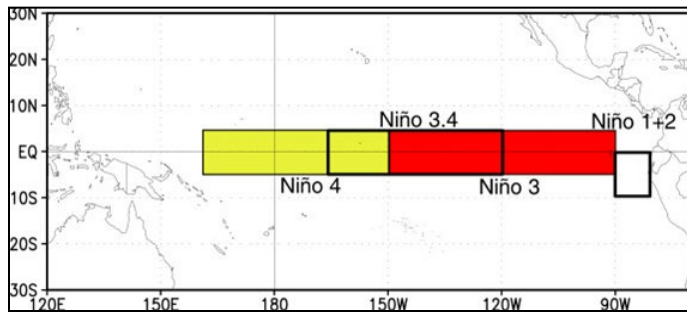
## Atlantic Multidecadal Oscillation (AMO)

Average annual inflow to Lake Okeechobee is nearly 50% greater during the warm phase compared to the cold phase of the AMO, easterly flow toward south Florida affected by phase

# Niño Region SST Departures (°C) Recent Evolution

The latest weekly SST departures are:

Niño 4	0.7°C
Niño 3.4	0.1°C
Niño 3	-0.3°C
Niño 1+2	-1.1°C



This weekly sea surface temperature data is based on OISSTv2.1 (Huang et al., 2021).

# IRI Pacific Niño 3.4 SST Model Outlook

The majority of models indicate ENSO-neutral will persist through July-September 2024. Thereafter, most models indicate a transition to La Niña around August-October 2024.

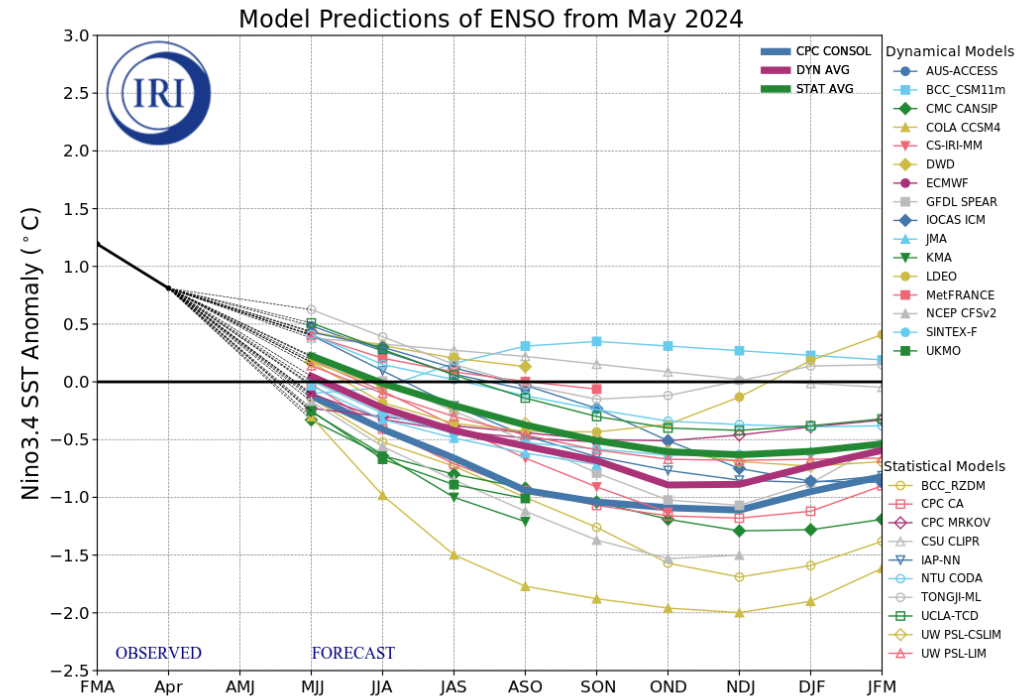
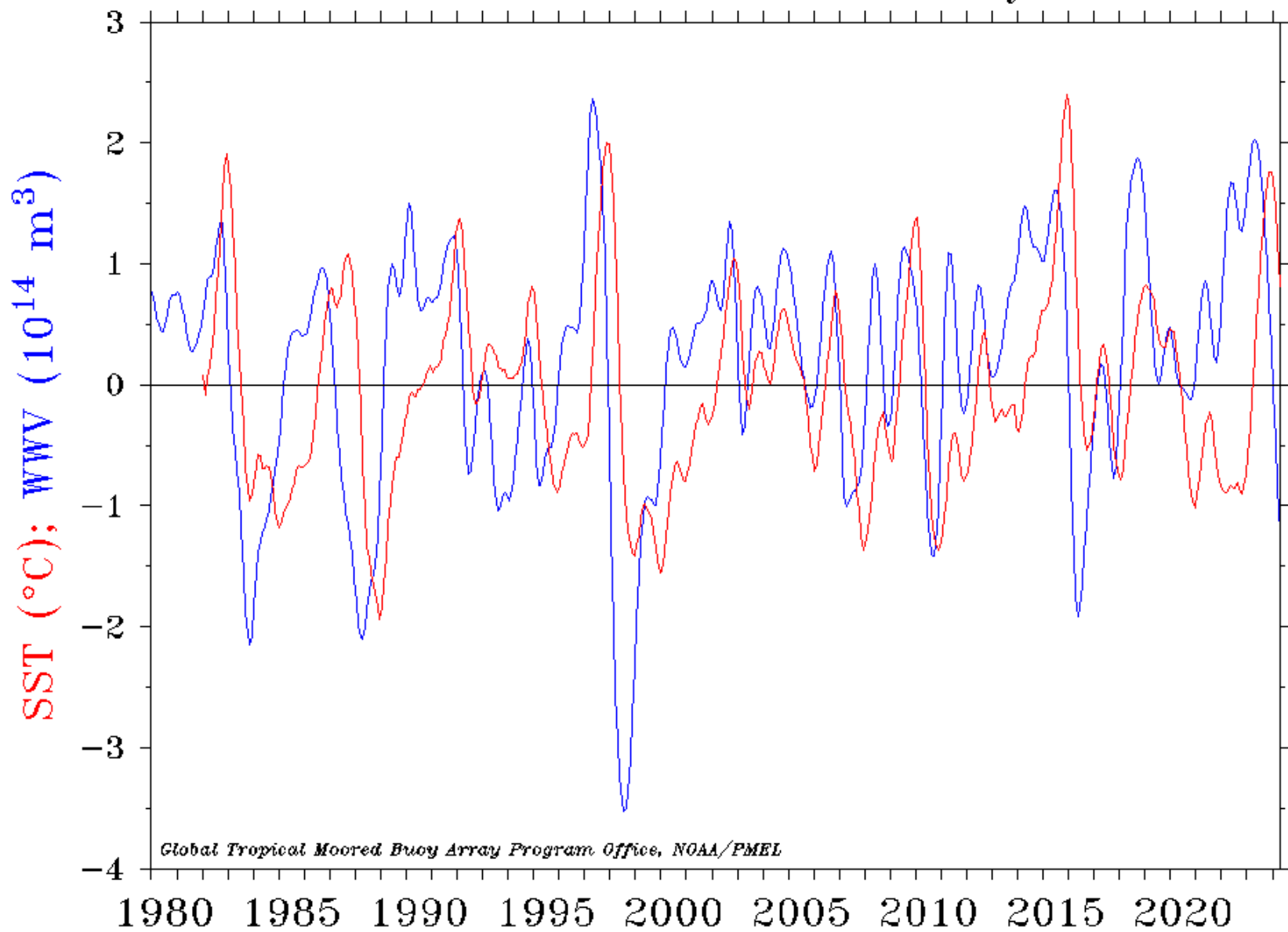
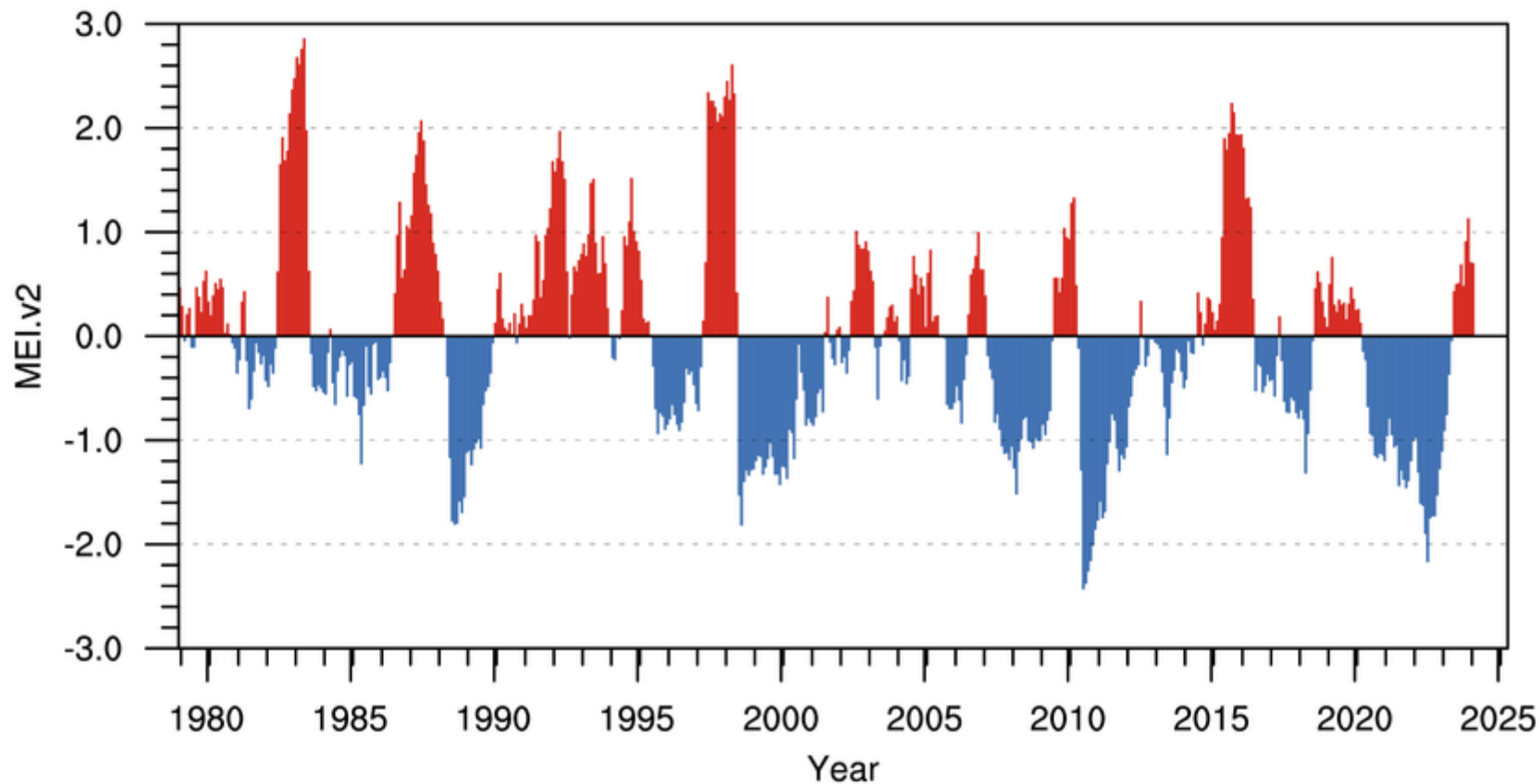


Figure provided by the International Research Institute (IRI) for Climate and Society (updated 20 May 2024).

# Warm Water Volume (5°N–5°S, 120°E–80°W) and NINO 3.4 SST Anomaly

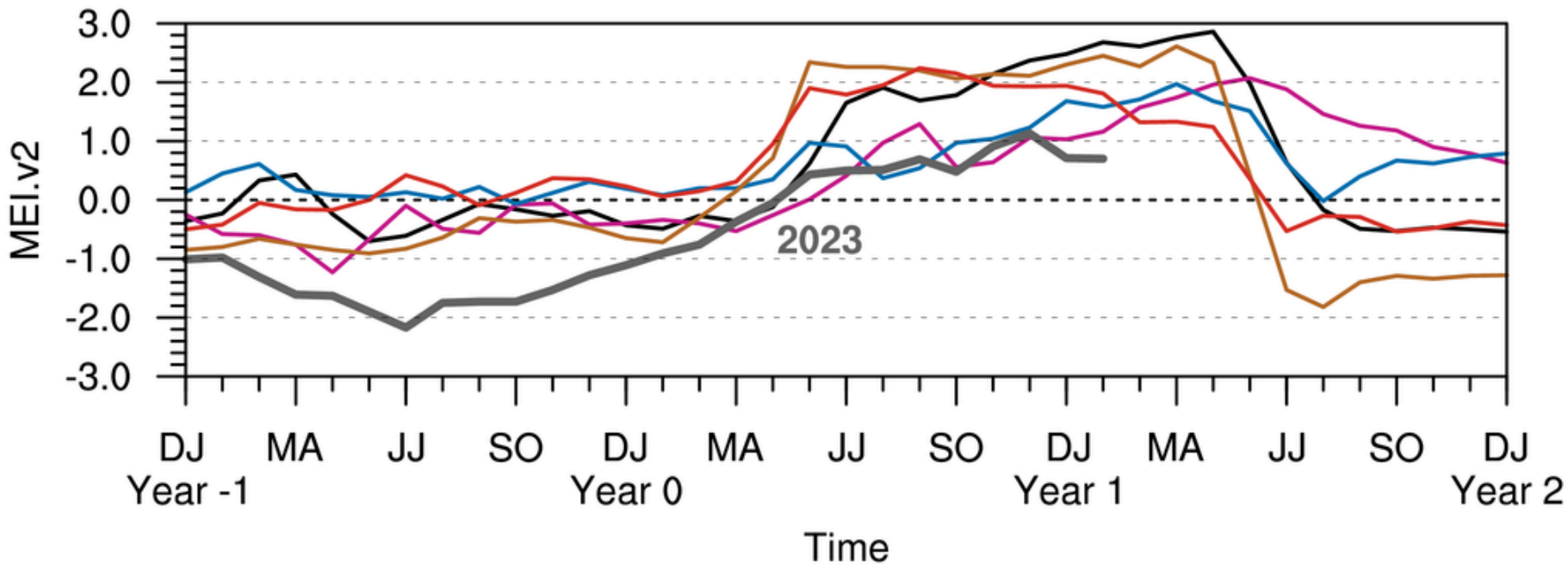


### Multivariate ENSO Index Version 2 using JRA3Q





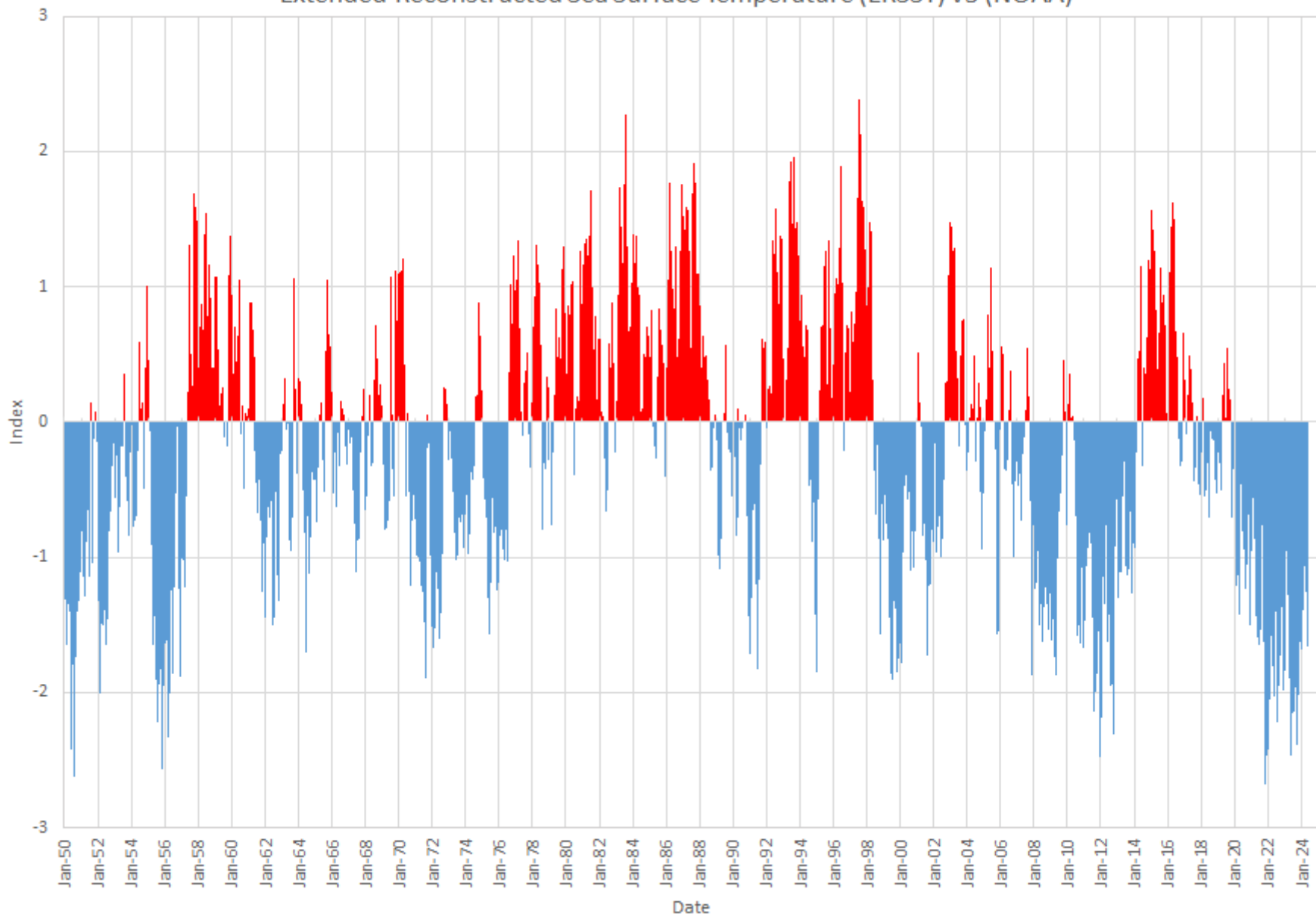
# MEI.v2 Evolution of Current ENSO Event in Historical Context



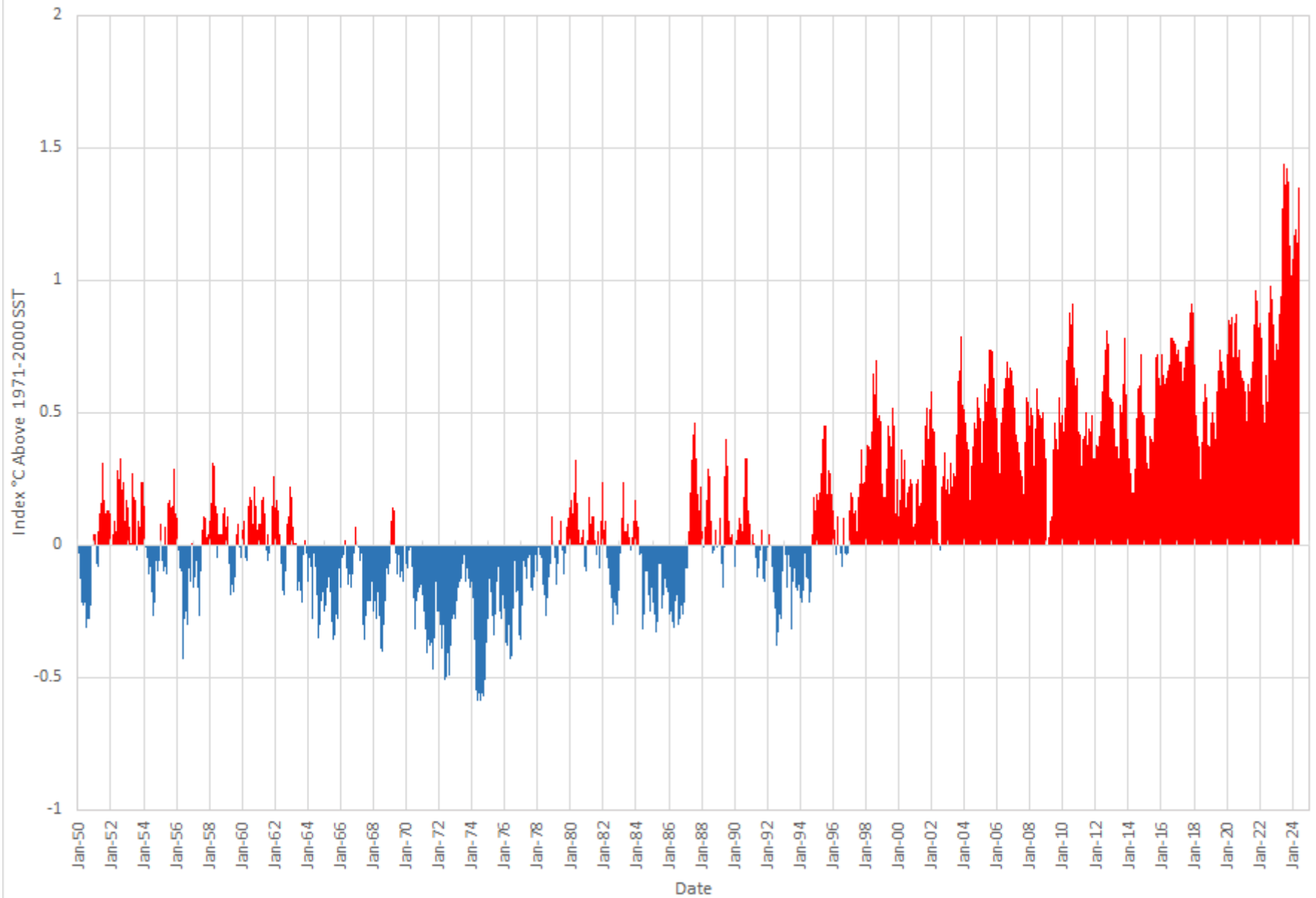
— 1983      — 1987      — 1992      — 1998      — 2016

# Pacific Decadal Oscillation

## Extended Reconstructed Sea Surface Temperature (ERSST) v5 (NOAA)



# ERSST AMO (North Atlantic 0-60N SSTA) Index

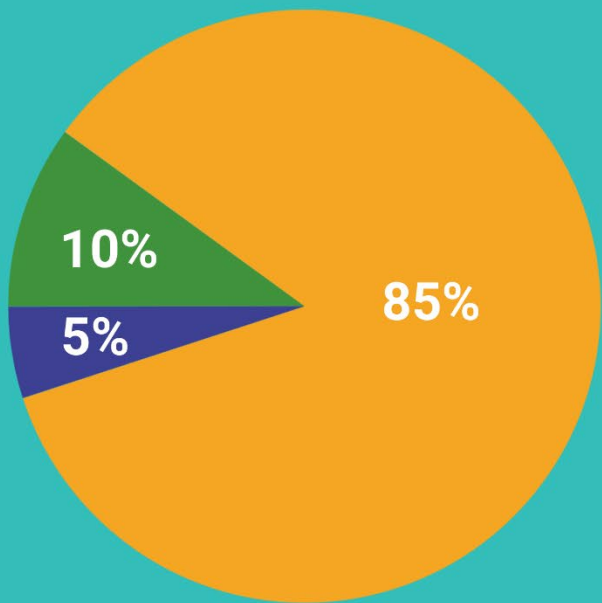


# 2024 Tropical Outlook





# 2024 Atlantic Hurricane Season Outlook



■ Above normal   ■ Near normal   ■ Below normal

Season probability

**Named storms**

17 - 25

**Hurricanes**

8 - 13

**Major hurricanes**

4 - 7

Be prepared: Visit [hurricanes.gov](https://hurricanes.gov) and follow @NWS and @NHC\_Atlantic on X.

May 2024

Source: National Hurricane Center

## ATLANTIC BASIN SEASONAL HURRICANE FORECAST FOR 2024

Forecast Parameter and 1991–2020 Average (in parentheses)	Issue Date 4 April 2024
Named Storms (NS) (14.4)	23
Named Storm Days (NSD) (69.4)	115
Hurricanes (H) (7.2)	11
Hurricane Days (HD) (27.0)	45
Major Hurricanes (MH) (3.2)	5
Major Hurricane Days (MHD) (7.4)	13
Accumulated Cyclone Energy (ACE) (123)	210
ACE West of 60°W (73)	125
Net Tropical Cyclone Activity (NTC) (135%)	220

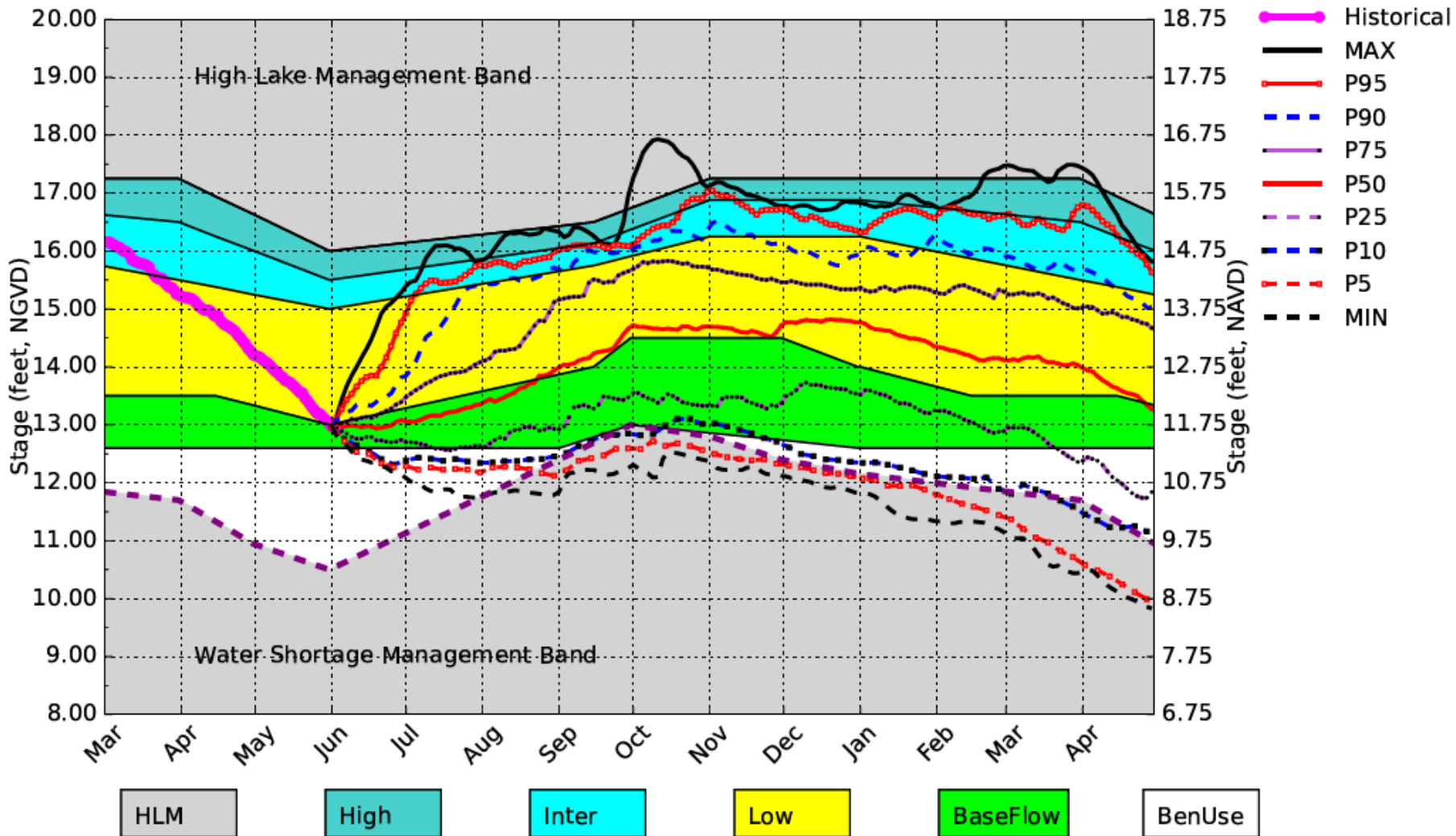
- Extremely active season
- Transition to La Niña expected in July/August leading to hurricane-favorable wind shear conditions
- Sea surface temperatures in the eastern and central Atlantic are at record warm levels
- Forecast is of above-normal confidence for an early April outlook
- Next update: June 11, 2024

# June 2024 DPA Assumptions

- The June 1, 2024 Dynamic Position Analysis (DPA) simulation is based on historical climatic conditions spanning the period 1965-2016. This DPA posting is made with the South Florida Water Management Model (SFWMM) v7.3.3.
- The June 1, 2024 DPA resets the initial stages for Lake Okeechobee (LOK) and the Water Conservation Areas (WCAs) on May 1<sup>st</sup> of each year of the DPA simulation and conditions the simulation to real time data during May to achieve real time stages on June 1<sup>st</sup> for LOK and WCAs.
- The Lake Okeechobee operations follow the Lake Okeechobee Regulation Schedule (LORS2008). Modeling assumptions are consistent with modeling performed for LORS2008 Supplemental Environmental Impact Statement (SEIS).
- LOK Temporary Forward Pump operations will be in place, whenever necessary, to improve water supply deliveries from LOK under low LOK stages.
- STA surface area values are modified to reflect current flowways under operation. STA depths are maintained to a minimum of 6 inches using Lake Okeechobee releases.
- **Full LORS 2008 releases are modeled as specified in the regulation schedule.**

# Lake Okeechobee SFWMM June 2024 Position Analysis

Percentiles PA

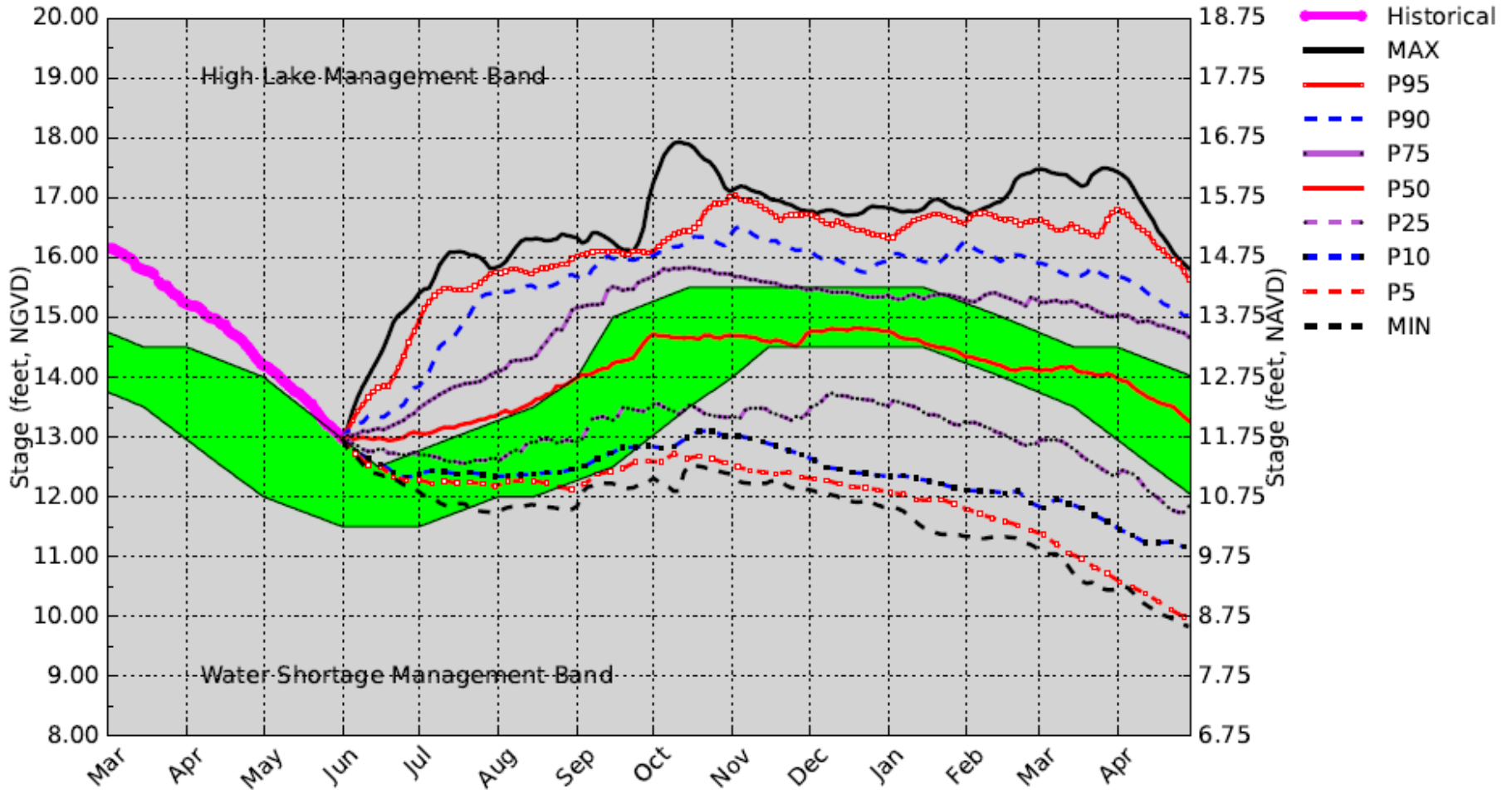


(See assumptions on the Position Analysis Results website)



# Lake Okeechobee SFWMM June 2024 Position Analysis

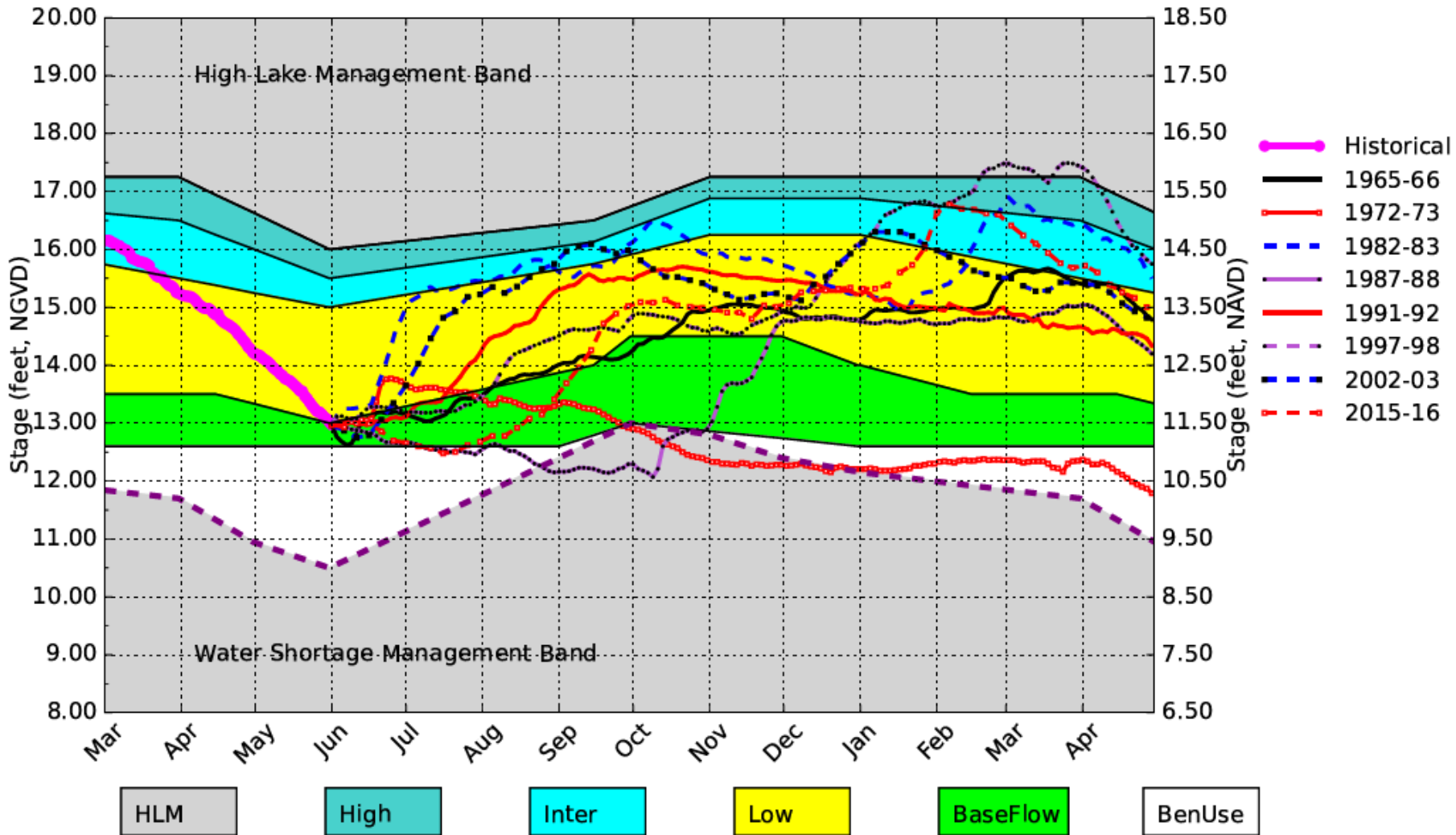
Percentiles PA



(See assumptions on the Position Analysis Results website)

# Lake Okeechobee SFWMM June 2024 Position Analysis

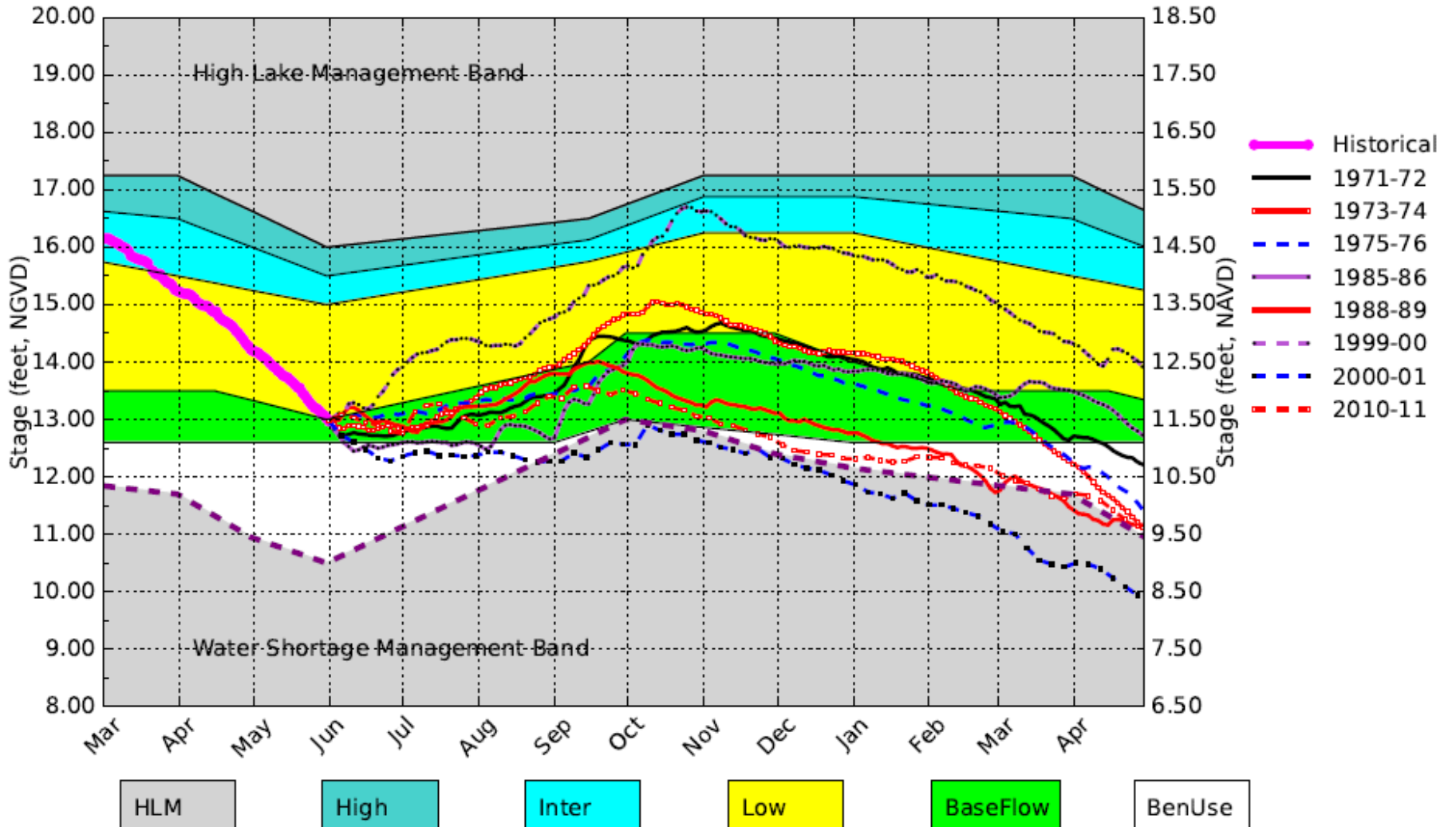
All El Nino Years Plot PA



(See assumptions on the Position Analysis Results website)

# Lake Okeechobee SFWMM June 2024 Position Analysis

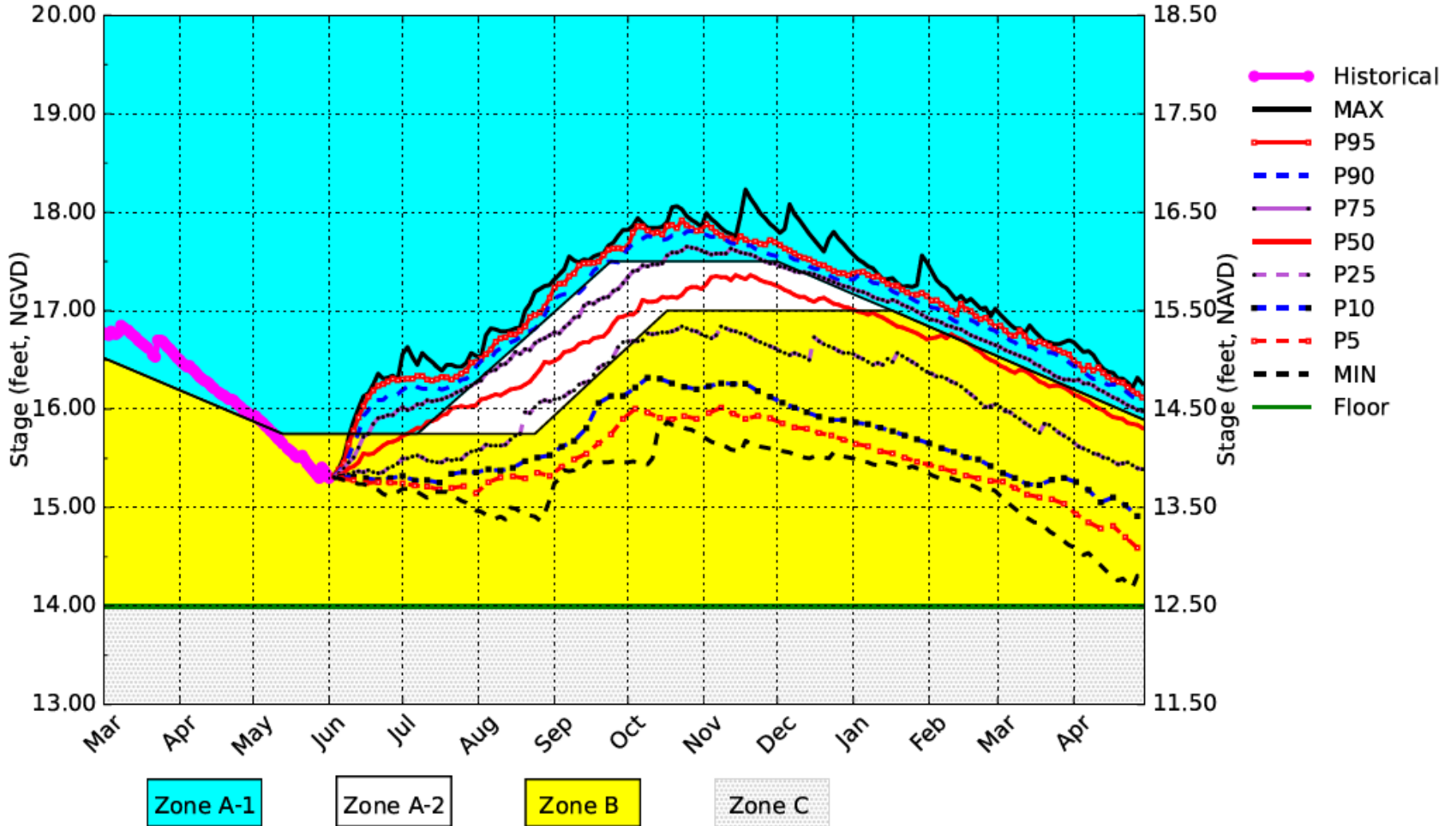
All La Nina Years Plot PA



(See assumptions on the Position Analysis Results website)

# WCA1 SFWMM June 2024 Position Analysis

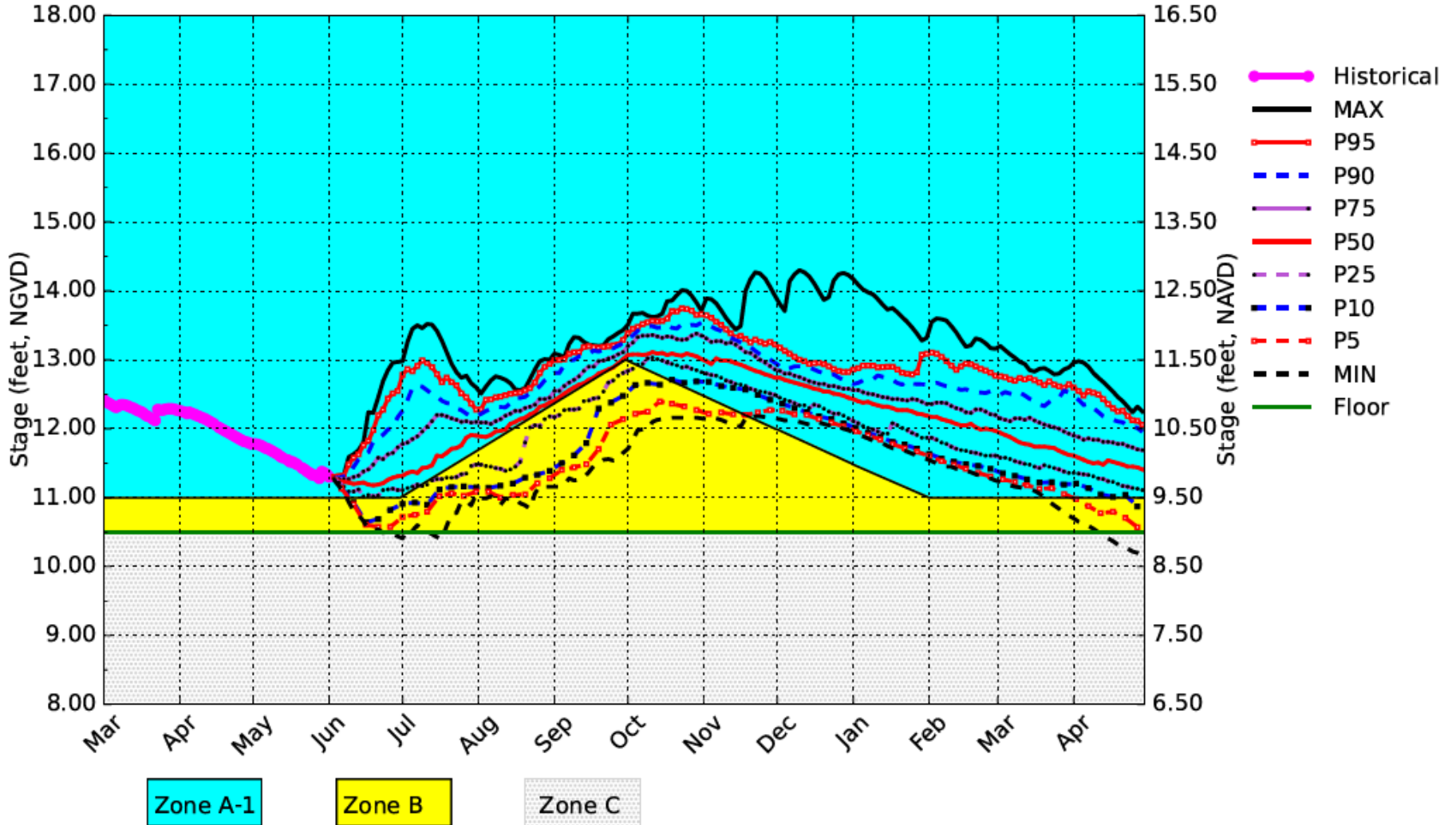
## Percentiles PA



(See assumptions on the Position Analysis Results website)

# WCA2A SFWMM June 2024 Position Analysis

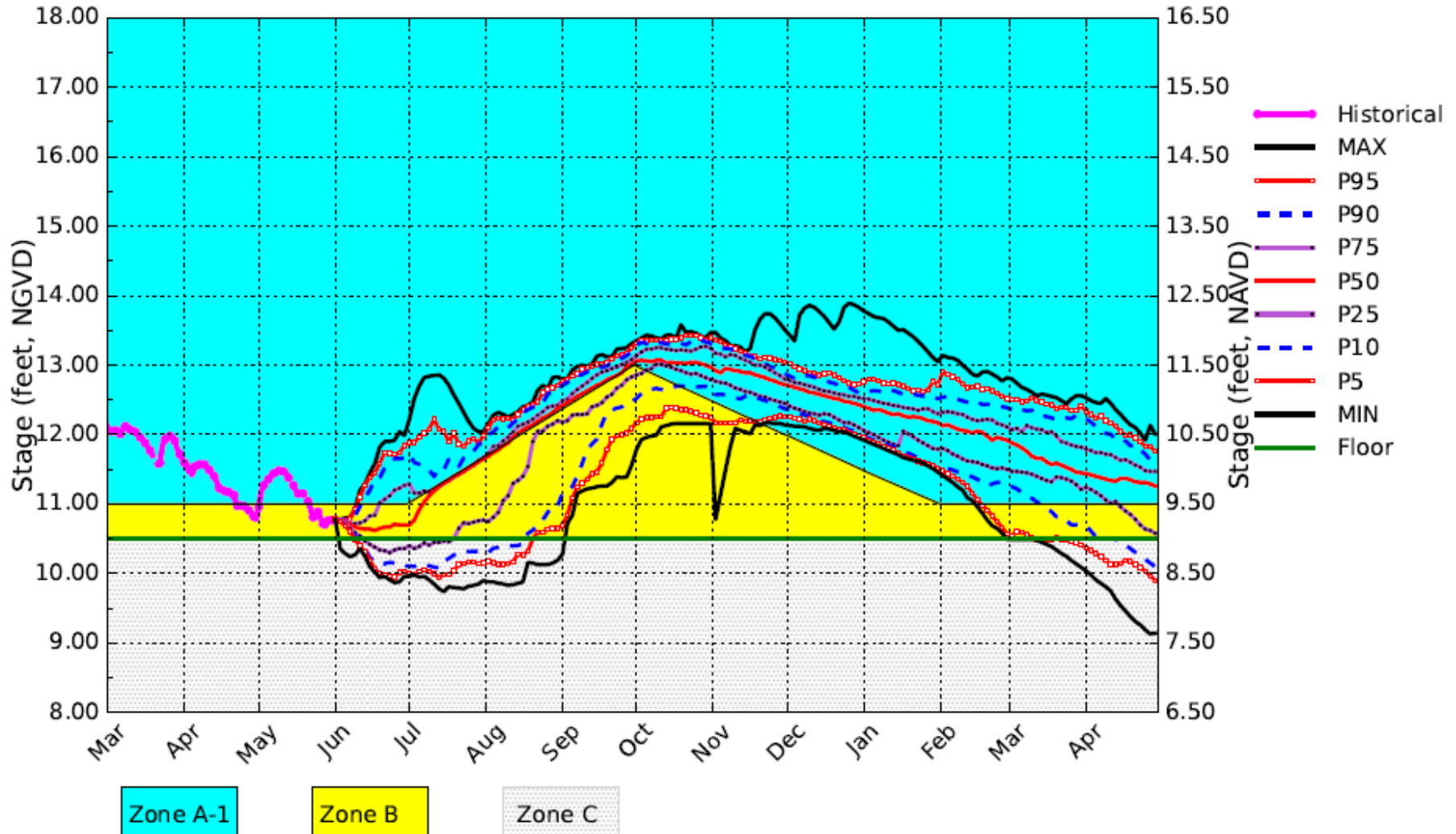
## Percentiles PA



(See assumptions on the Position Analysis Results website)

# L38 Canal SFWMM June 2024 Position Analysis

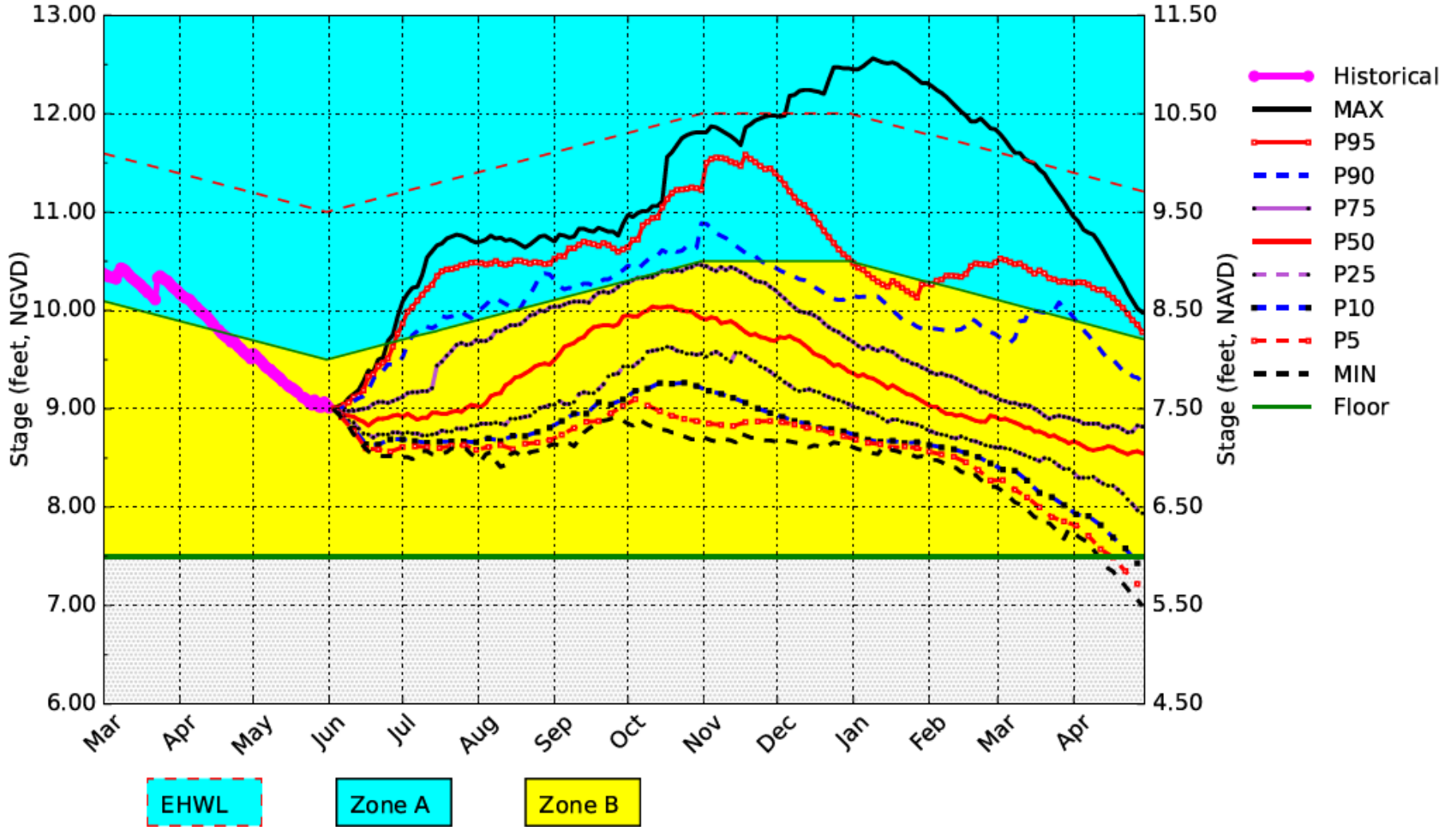
PA



(See assumptions on the Position Analysis Results website)

# WCA3A SFWMM June 2024 Position Analysis

## Percentiles PA



(See assumptions on the Position Analysis Results website)