

NOVEMBER 2021

BIG CYPRESS BASIN HYDROLOGIC REPORT



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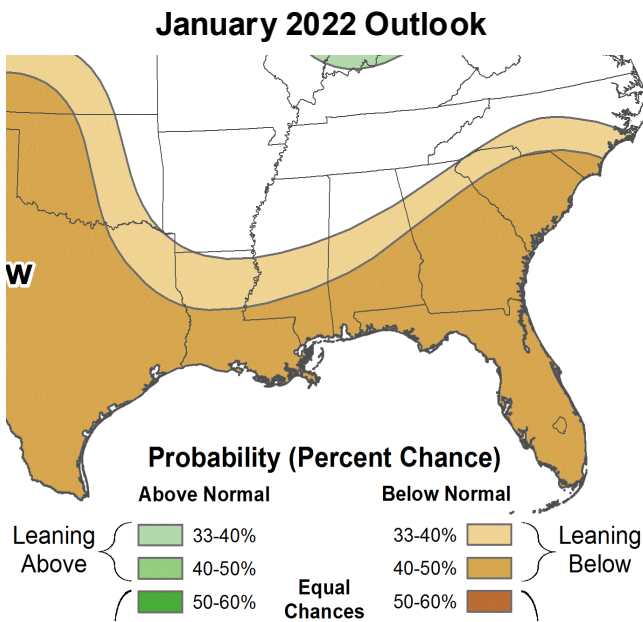
SUMMARY OF HYDROLOGIC CONDITIONS IN THE BIG CYPRESS BASIN

November 2021

SUMMARY

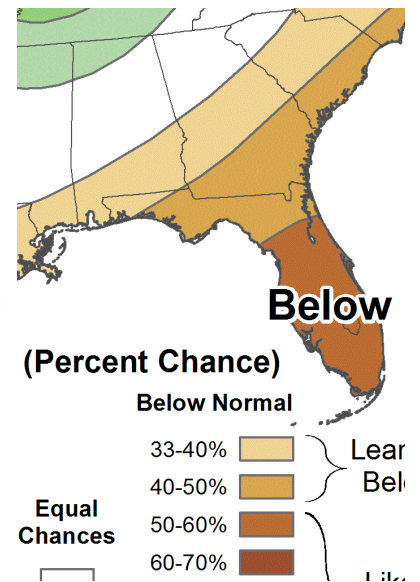
The typical dry season pattern was in place over the Basin for November. The month was mostly dry with the exception of a few cold fronts that passed through the region. Most of the month's above average (210% of normal) rainfall fell from a weather system passing over the Basin towards the beginning of the month. Some very small and isolated locations in mostly natural areas in Fakahatchee and south of Immokalee received about 8" of rainfall from the early month system. The rainfall that fell during November was well timed which gave the Basin the last bit of water needed to top off the system heading into the peak of dry season.

Looking forward to the rest of the dry season, a drier than normal period is expected due to the influence



of La Nina in the Pacific Ocean. The January 2022 rainfall outlook (left) indicates that all of Florida will have below normal rainfall. Looking even further into the dry season through March, NOAA predicts that all of South Florida will have a high chance of below normal rainfall.

January-March 2022 Outlook



BCB RAINFALL

As measured by twenty-three (23) reporting stations (ref.

Figures 1, 2, Table 1), the basin-wide monthly average was **3.78 inches (210% of normal)**, which more than double the average 1.8 inches typically collected. Based on collected gauge and radar data, the rainfall distribution across the Basin was highly variable. Some areas of Okaloocoochee and Fakahatchee basins received 8-9" of rainfall, while portions of the Golden Gate Main basin received only 1-2" of rain. **Figure 3a** shows the average rainfall for each of the Basin's watersheds based on gauge adjusted radar. The Barron River basin received the highest rainfall with about **5.2 inch** areal average across the watershed and the lowest was the Gordon River basin with about **1.5 inches**. The Basin's total areal weighted average rainfall was **3.9 inches**. The month's highest gauge total was collected at Dan House Prairie (Site R-6), which received **8.5 inches**. This month's lowest rainfall was recorded at COCO#3 (Site R-18), which received **1.75 inches**. The rainfall totals and their locality distribution across the BCB/Lower West Coast are shown on **Figure 3, 3a** and **4**.

BCB CANAL SYSTEMS

All of the BCB canals were maintained in water conservation mode as water levels were held, to the extent possible, near the top of the normal dry season operational range. As the month ended, most canal water levels were well above the 75th percentile or even above the 90th percentile for the beginning of December (**Figure 4a**).

- **GOLDEN GATE SYSTEM**

Control structures in the Golden Gate Main canal system were operated in water conservation mode. Water levels were maintained near the top of the normal operational ranges. Canal water levels in the upper and lower reaches of the Golden Gate system were able to be held in the upper percentiles but conversely water levels in the middle of the system were closer to median levels due to lack of excess water and conveyance through the C-1 canal to the Miller watershed (ref **Figure 5A & 5B**).

- **COCOHATCHEE SYSTEM**

All portions of the Cocohatchee system remain in water conservation mode and started the month at the top of dry season ranges, however, as the month ended water levels started to recede without discharges out of COCO3 marking the beginning of the dry season recession (ref **Figure 6A, 6B, 6C, & 6D**).

- **FAKA UNION SYSTEM**

All areas of Faka Union continue on water conservation operations. Levels are being maintained as close as possible to the top of range for all reaches within the Faka Union system. The early month rain event temporarily halted the recession and brought levels to the top of range in the middle of Faka Union by FU4S. However, without continued rainfall the typical recession started again and as the month ended water levels were below dry season operational levels. Fortunately, the early switch to water conservation operations and the surplus of November rainfall allowed Faka Union to remain in the upper percentiles as the region continues to get drier (ref **Figure 7A & 7B**).

- **HENDERSON CREEK SYSTEM**

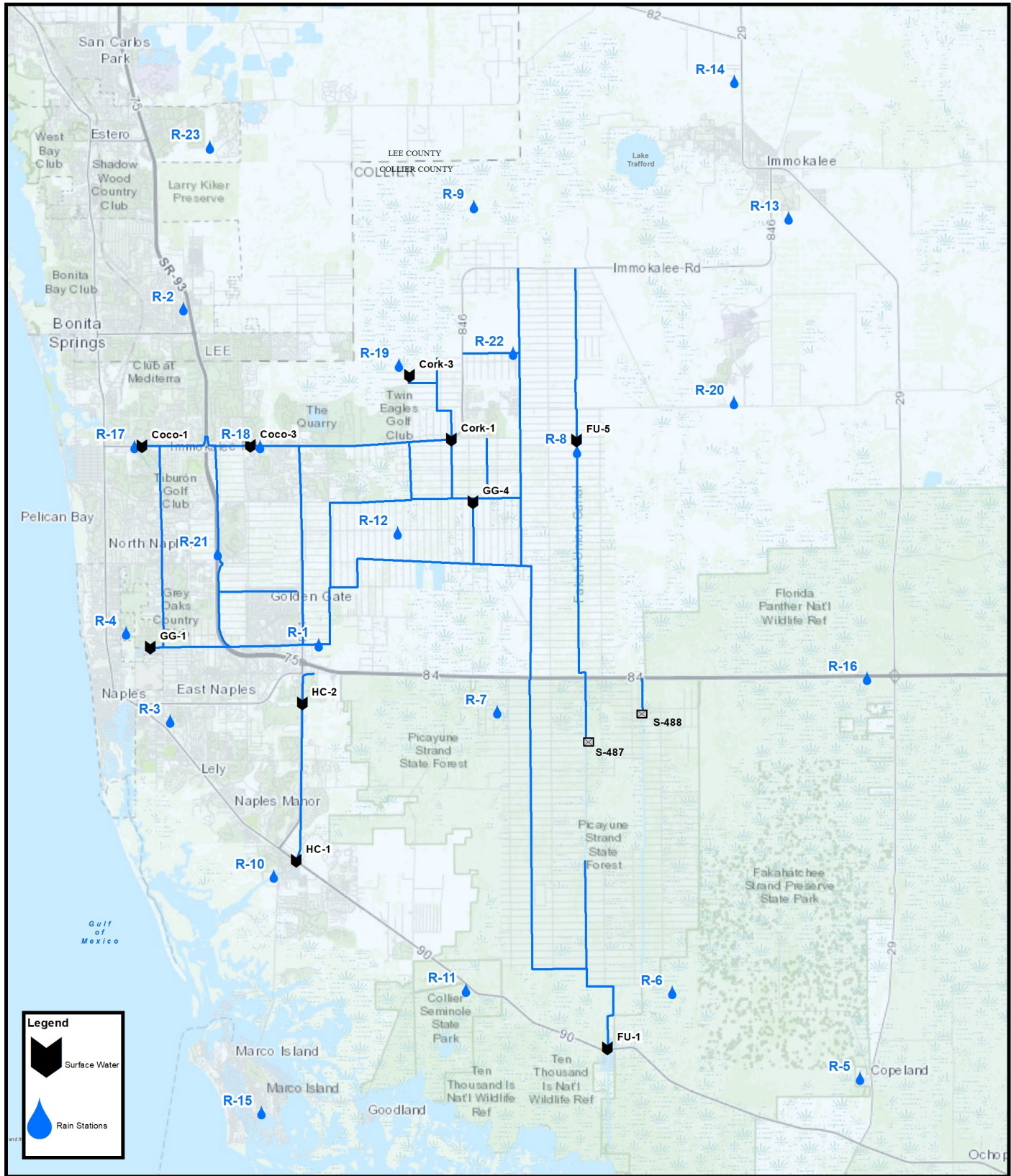
Both control structures in Henderson Creek remained fully closed throughout November. Discharges from HC1 stopped around mid-month as water levels dropped below the fixed crest weir (ref **Figure 8A & 8B**).

- **CORKSCREW SWAMP**

Figure 10 shows the historical trends for Corkscrew, Bird Rookery, and the Cork 3 structure and the 2021 corresponding levels. All three sites experienced a slower than normal recession and water levels are well above normal at all three sites. Operations in the Corkscrew canal maintain water levels as high as possible to lengthen the recession in the natural areas upstream. Lake Trafford levels bounced to the 90th percentile from the early November rain event. The lake is now receding parallel to the 90th percentile shown in **Figure 10A**.

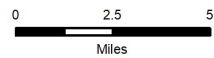
BIG CYPRESS BASIN & LOWER WEST COAST GROUNDWATER LEVELS

The current reporting (12/07/2021) for the Lower West Coast [LWC] indicate decreasing groundwater levels for November. All reporting wells but one (C-462) decreased during November given lack of daily rainfall. Only one reporting well is in the yellow caution indicator level (C-1004R). Levels in that well dropped 2.8 ft since the beginning of November. All other wells remain in the normal condition indicator (green color) (ref. **Table 2**) but are decreasing as is typical for November. All reported wells in **Table 2** show an average decrease of 1.1 feet. C-462 recorded the highest increase of 3.1 feet, and C-948R the largest decrease of 3.2 ft (ref. **Table 2, Figure 9**).



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FIGURE 1

Hydrologic Station Map

Collier County, Florida



TABLE 1
RAINFALL REPORT - NOVEMBER 2021
DISTRICT/BASIN RAINFALL STATIONS

(ALL NUMBERS ARE IN INCHES)

STATION INDEX NO.	STATION NAME	NOVEMBER 2021	LONG TERM AVERAGE FOR THIS MONTH	MONTHLY DIFFERENCE	CALENDAR YEAR 2021 CUMULATIVE TOTAL	AVERAGE CALENDAR YEAR TO DATE	YEAR TO DATE DIFFERENCE
R-1	GOLDEN GATE #3	3.11	1.43	1.68	57.42	62.86	-5.44
R-2	BONITA SPRINGS WATER PLANT	2.34	1.79	0.55	47.37	50.66	-3.29
R-3	COLLIER COUNTY COURTHOUSE	2.81	2.06	0.75	58.71	51.75	6.96
R-4	FREEDOM PARK	1.90	1.74	0.16	55.51	58.04	-2.53
R-5	FAKAHATCHEE STRAND HQ	4.56	1.84	2.72	48.87	58.28	-9.41
R-6	DAN HOUSE PRAIRIE	8.50	2.05	6.45	55.46	50.99	4.47
R-7	SGGE WEATHER STATION	3.01	1.48	1.53	54.61	59.30	-4.69
R-8	FAKA UNION #5	3.25	1.70	1.55	60.32	61.09	-0.77
R-9	CORKSCREW SWAMP NORTH END	3.76	1.24	2.52	52.50	49.53	2.97
R-10	ROOKERY BAY HQ	2.77	1.53	1.24	58.65	54.02	4.63
R-11	COLLIER SEMINOLE STATE PARK	7.98	2.11	5.87	63.58	55.57	8.01
R-12	G.G. FIRE STATION	2.10	1.93	0.17	55.17	57.51	-2.34
R-13	IMMOKALEE LANDFILL	6.37	2.13	4.24	55.41	51.07	4.34
R-14	IFAS	6.80	1.89	4.91	45.00	46.92	-1.92
R-15	MARCO R.O. PLANT	3.18	2.13	1.05	50.34	52.05	-1.71
R-16	FAKAHATCHEE STRAND NORTH END	4.66	2.15	2.51	52.76	58.75	-5.99
R-17	COCO#1	2.17	1.69	0.48	45.11	48.19	-3.08
R-18	COCO#3	1.75	1.22	0.53	49.93	55.25	-5.32
R-19	BIRD ROOKERY	2.26		New Site	53.47	No Historical Data	
R-20	AVE MARIA	4.21	2.10	2.11	47.71	52.90	-5.19
R-21	I75W2	1.83		New Site	53.55	No Historical Data	
R-22	GG#7	3.89		New Site	59.21	No Historical Data	
R-23	FLINT PEN STRAND	6.49	1.99		INC/REC		
AVERAGES		3.78	1.80	1.98	53.67	54.46	-0.79

BCB ANNUAL RAINFALL
MONTHLY AVERAGE & HISTORICAL AVERAGE TRENDS
(FROM BCB RAINFALL GAUGE DATA)

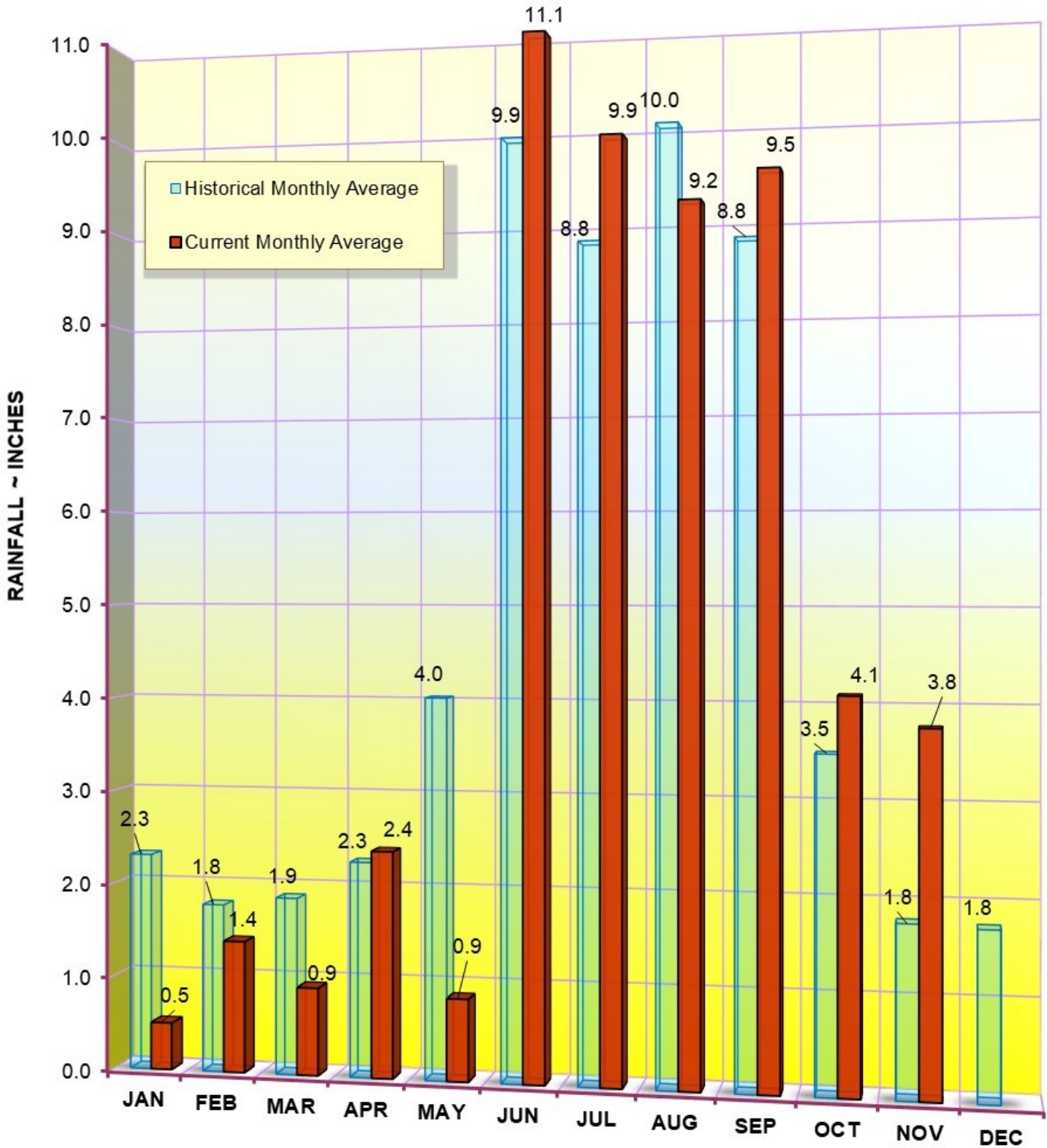
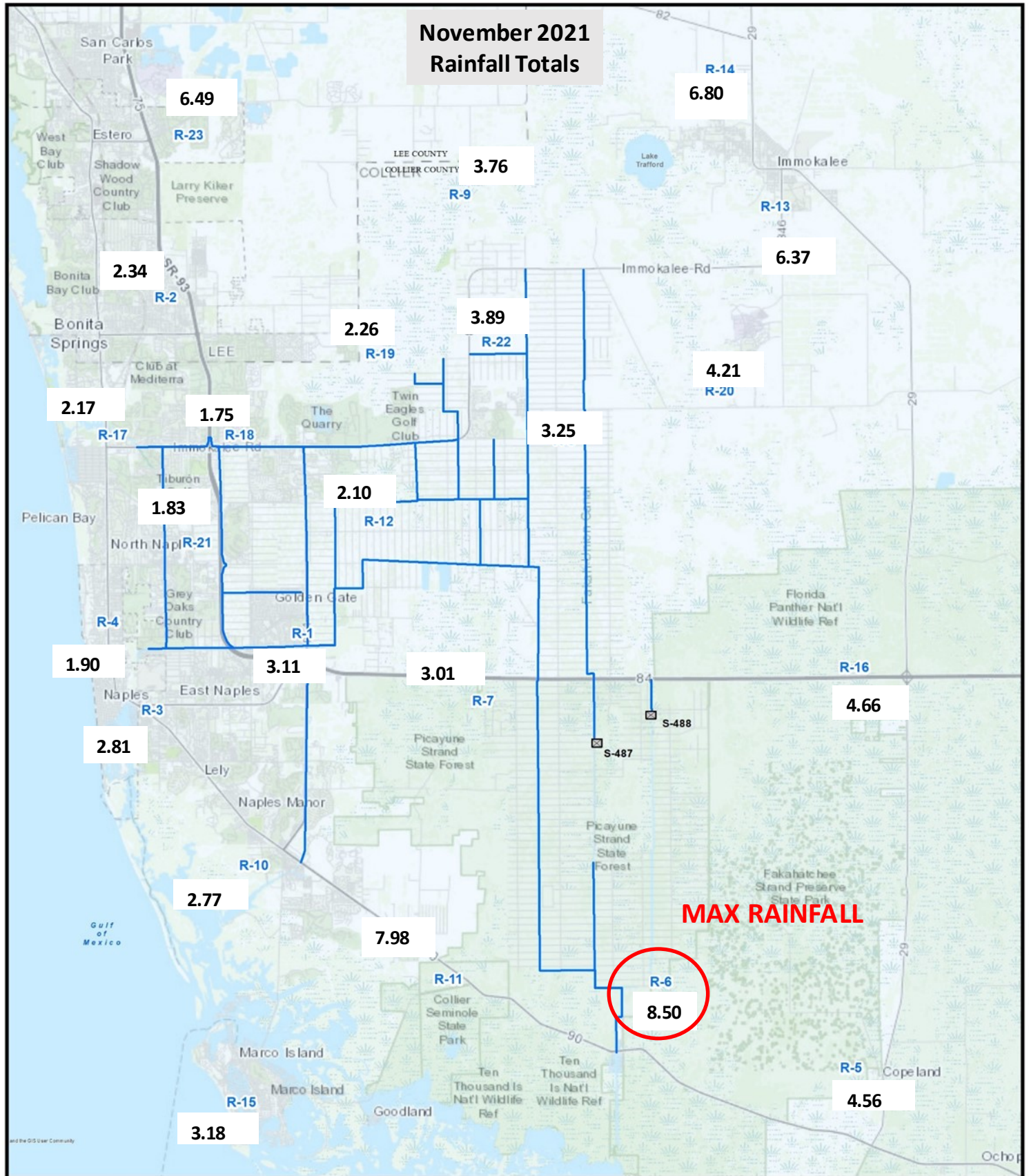


FIGURE 2
BCB GAUGE RAINFALL
MONTHLY AVERAGES THROUGH NOVEMBER 2021



**FIGURE 3
BCB RAINFALL DISTRIBUTION
NOVEMBER 2021**

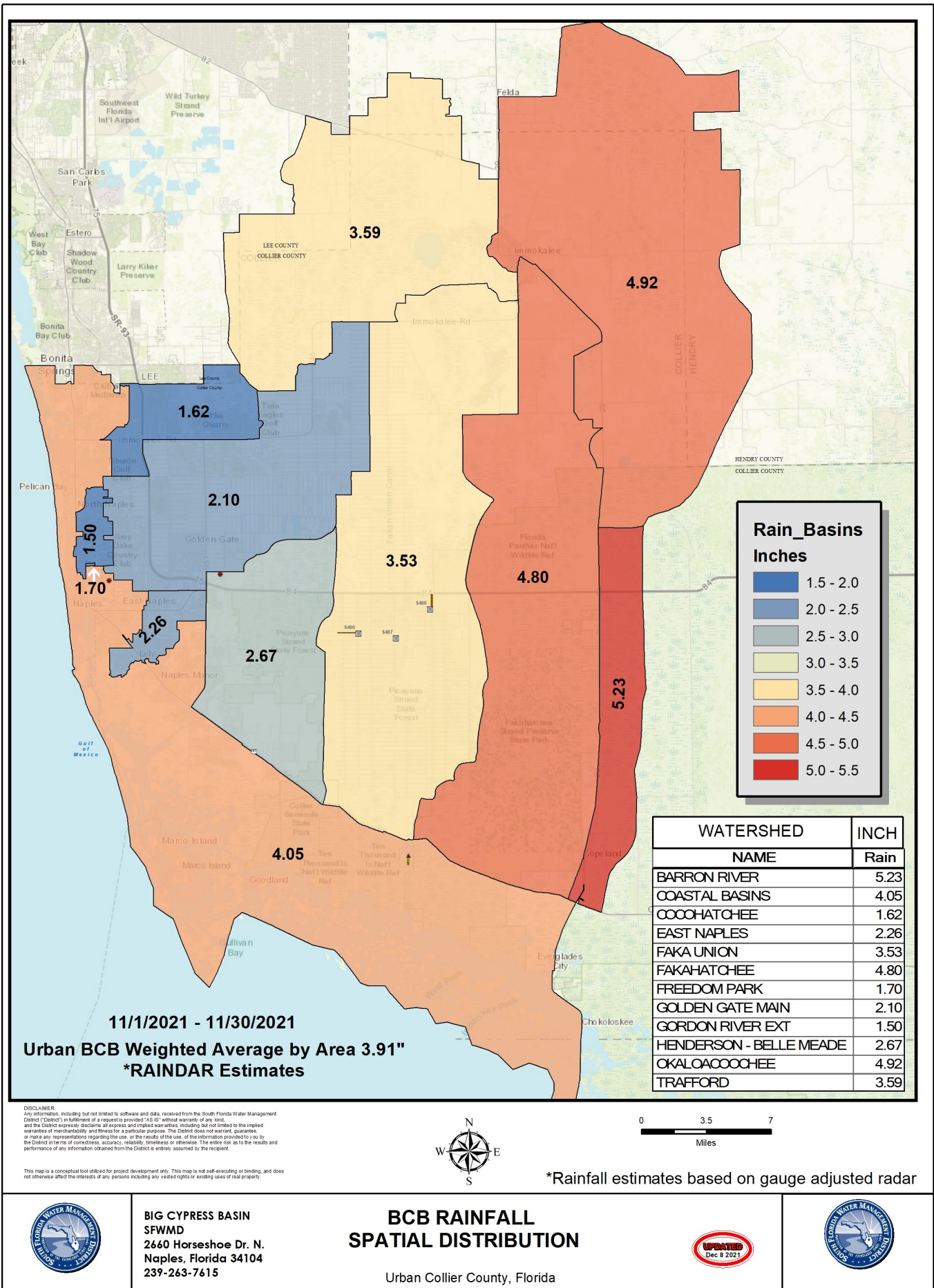
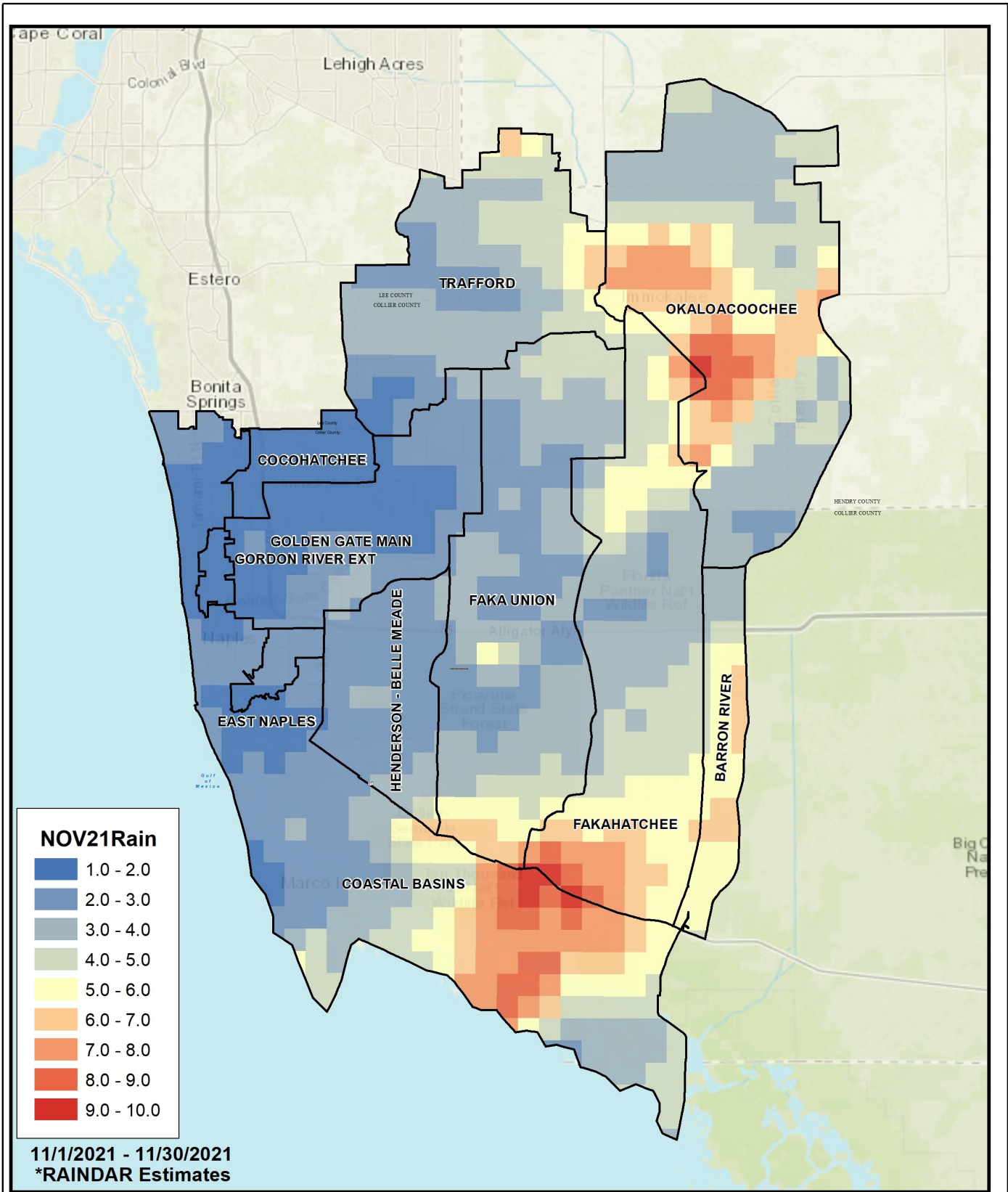


FIGURE 3a



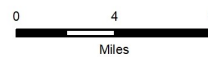
NOV21Rain

- 1.0 - 2.0
- 2.0 - 3.0
- 3.0 - 4.0
- 4.0 - 5.0
- 5.0 - 6.0
- 6.0 - 7.0
- 7.0 - 8.0
- 8.0 - 9.0
- 9.0 - 10.0

11/1/2021 - 11/30/2021
***RAINDAR Estimates**

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*Rainfall estimates based on gauge adjusted radar



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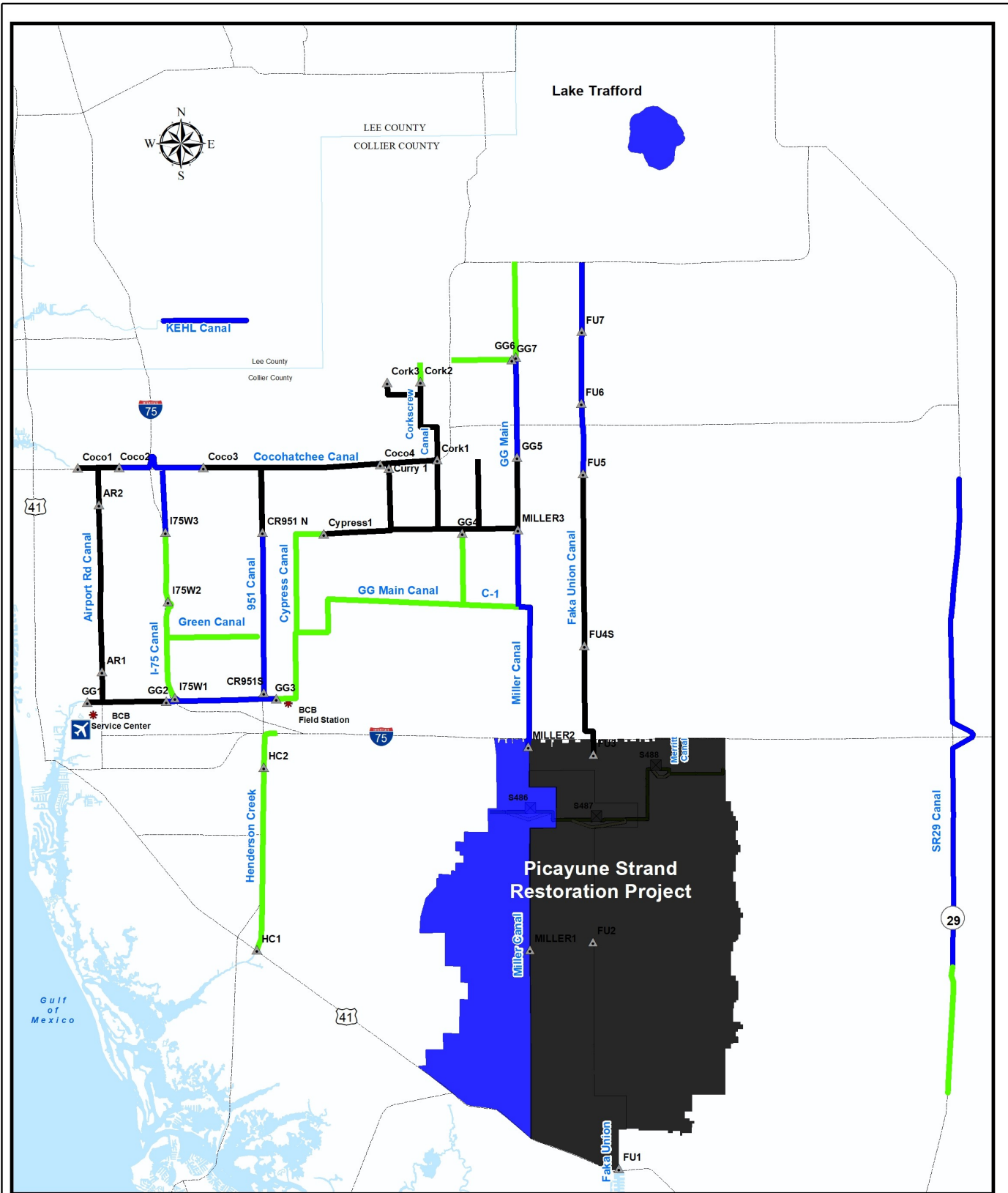
BCB RAINFALL
SPATIAL DISTRIBUTION

Urban Collier County, Florida



SFWMD_P1_Maps_2019

FIGURE 4

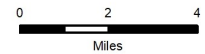


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* Based on period of record for each canal reach



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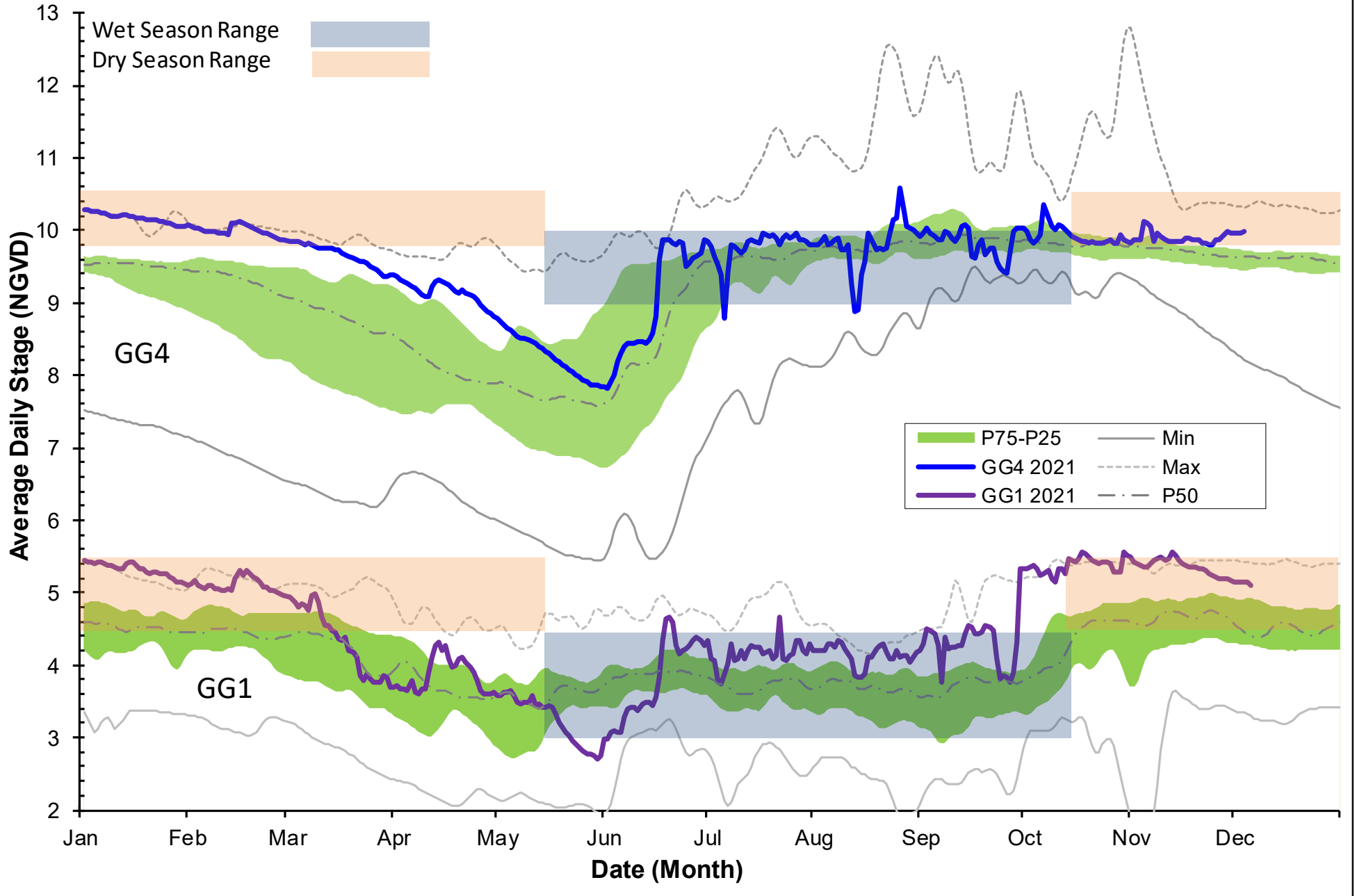
BCB Conditions Index
 Urban Collier County, Florida



SFWMD_Nap_Nr_2019

FIGURE 4A

Golden Gate Canal Historic Average Daily Headwater Percentiles



Cocohatchee Canal Historic Average Daily Headwater Percentiles

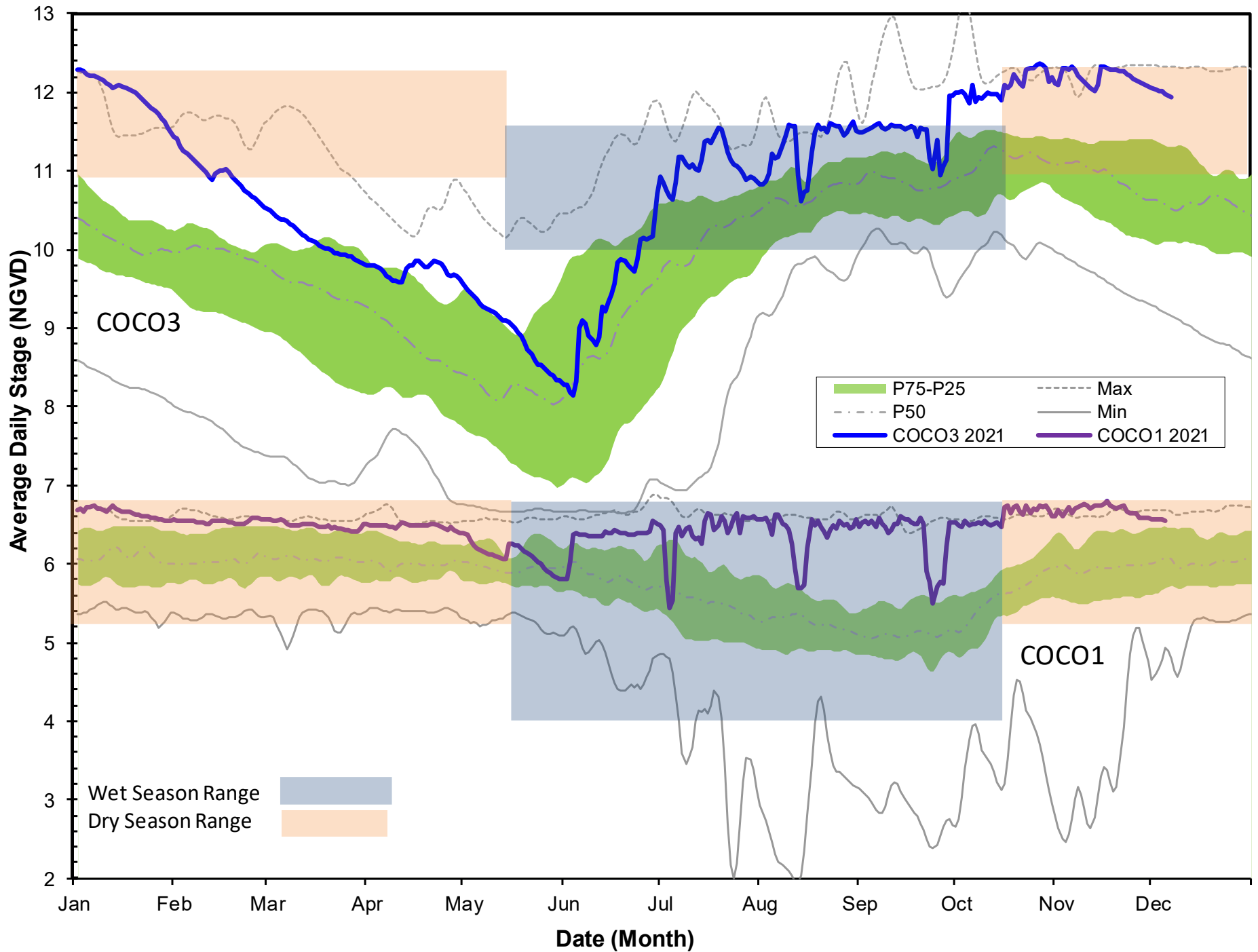


Figure 6C - CORK1 Historic Average Daily Headwater Percentiles (1989-2020)

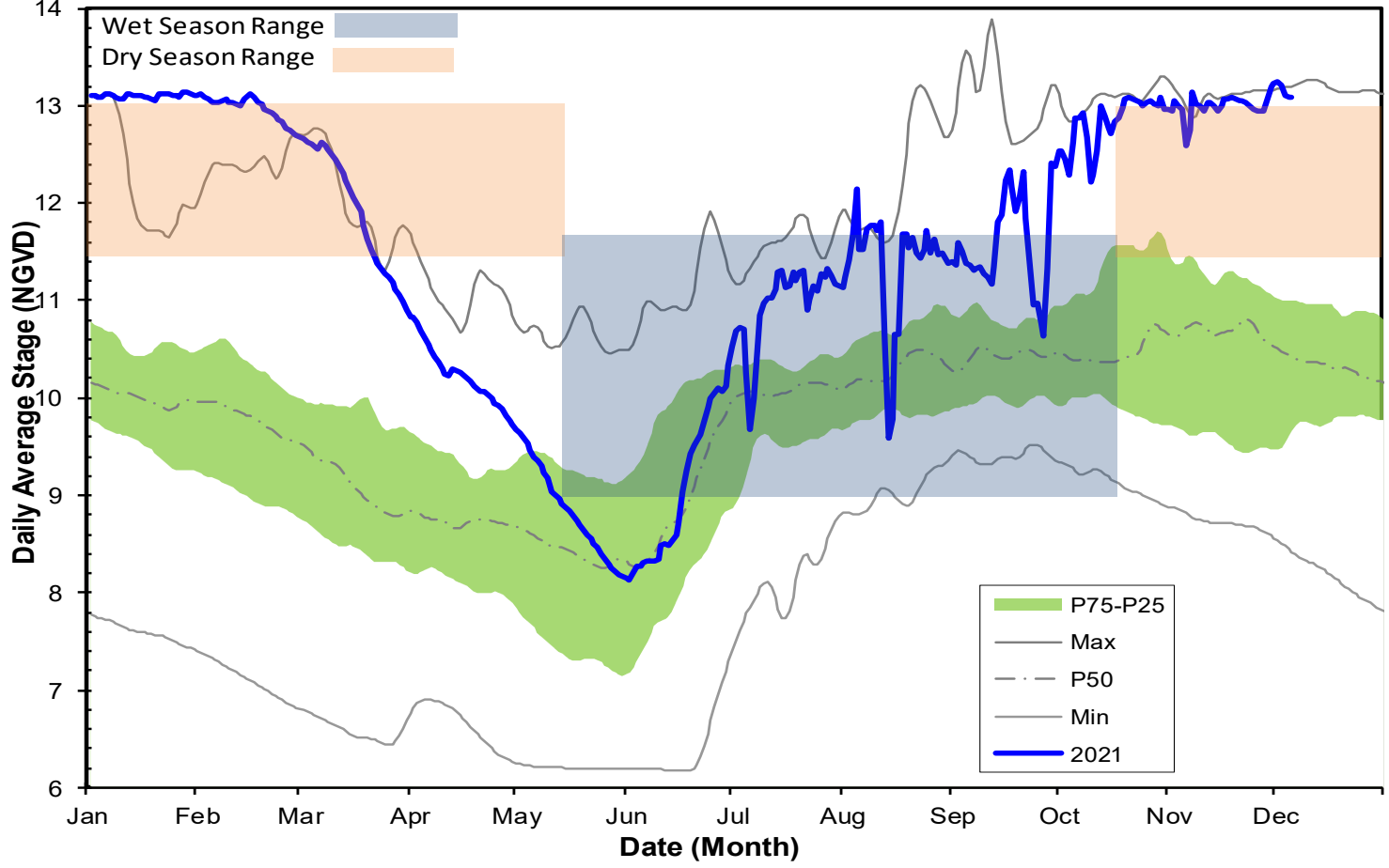
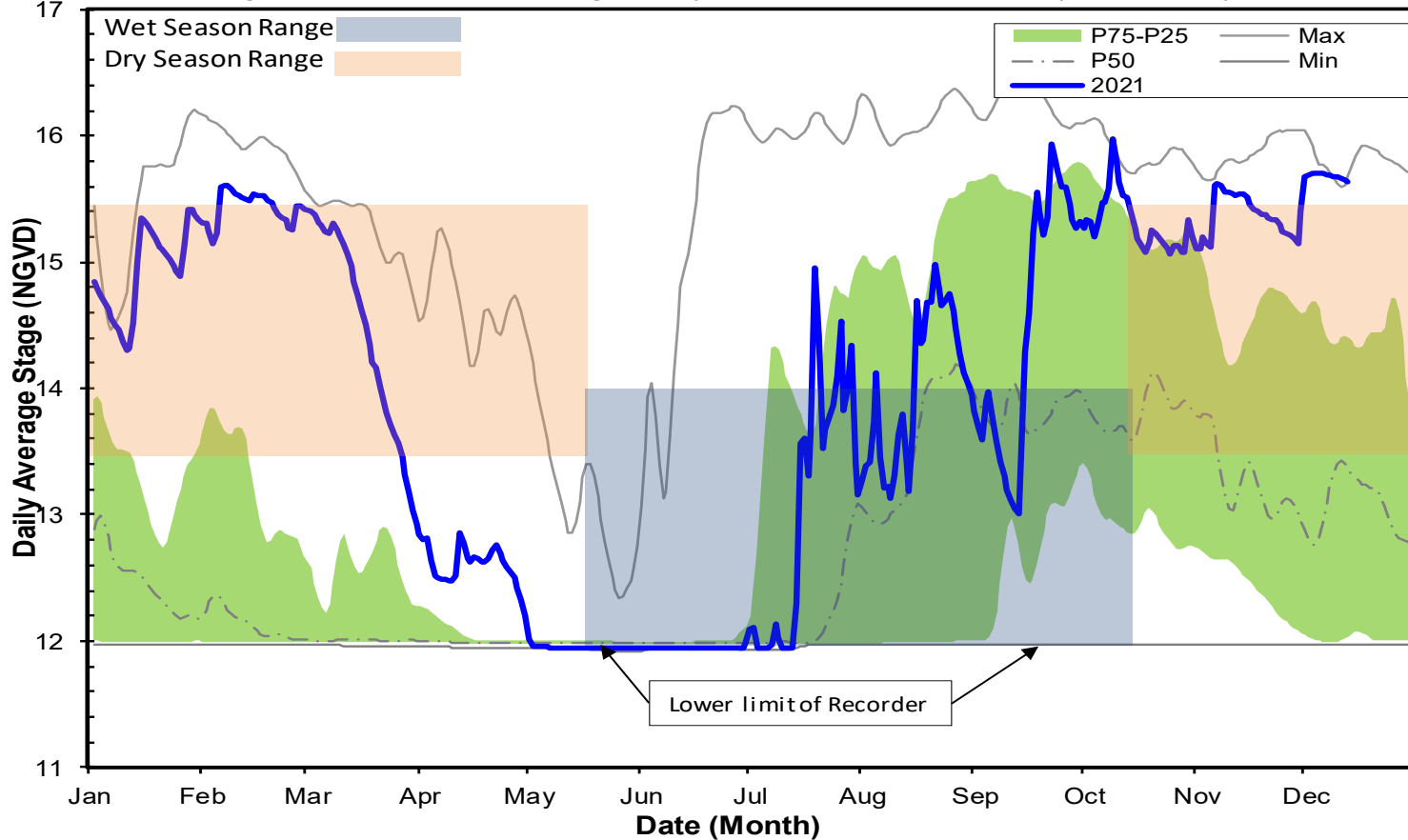
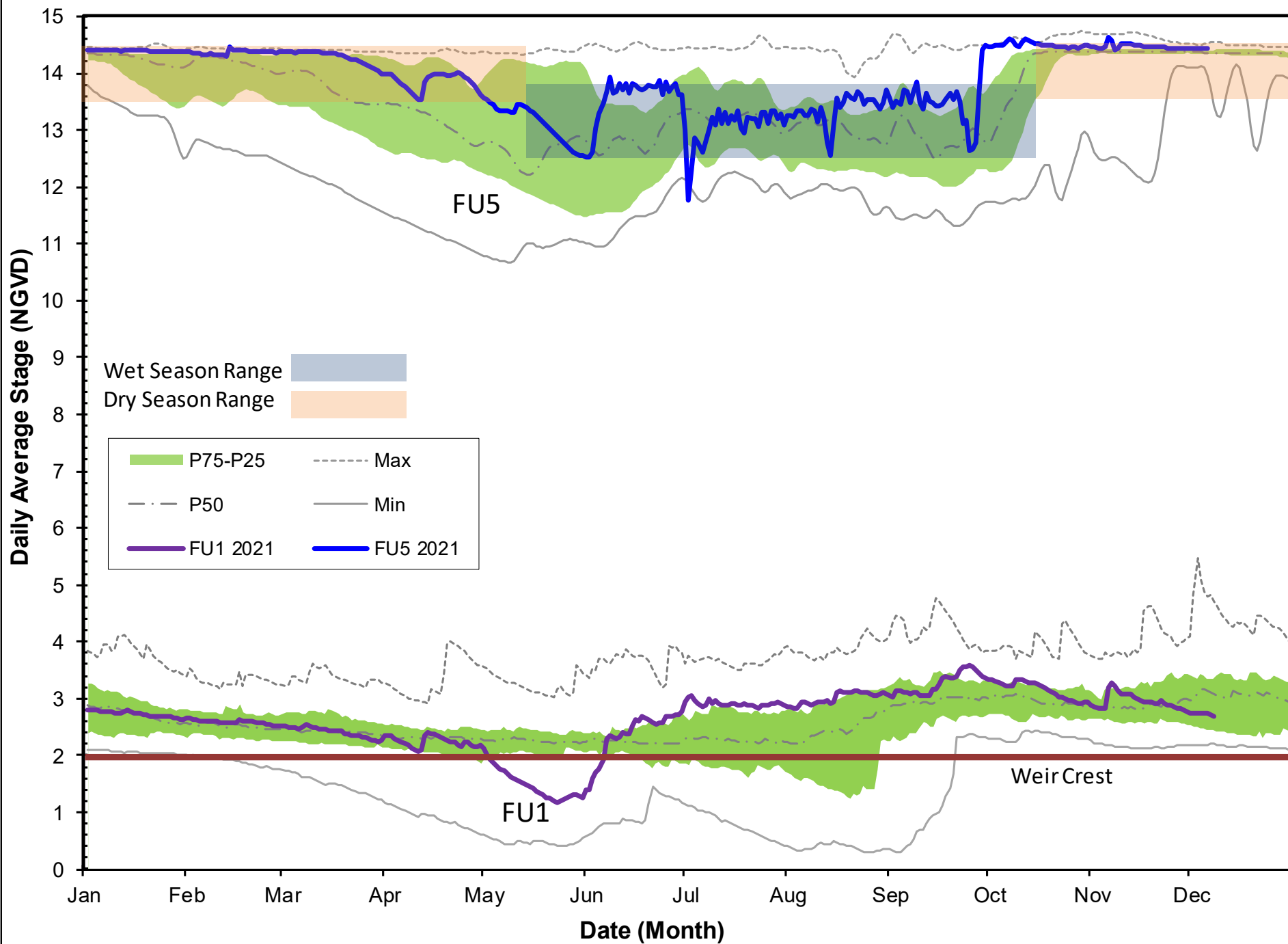


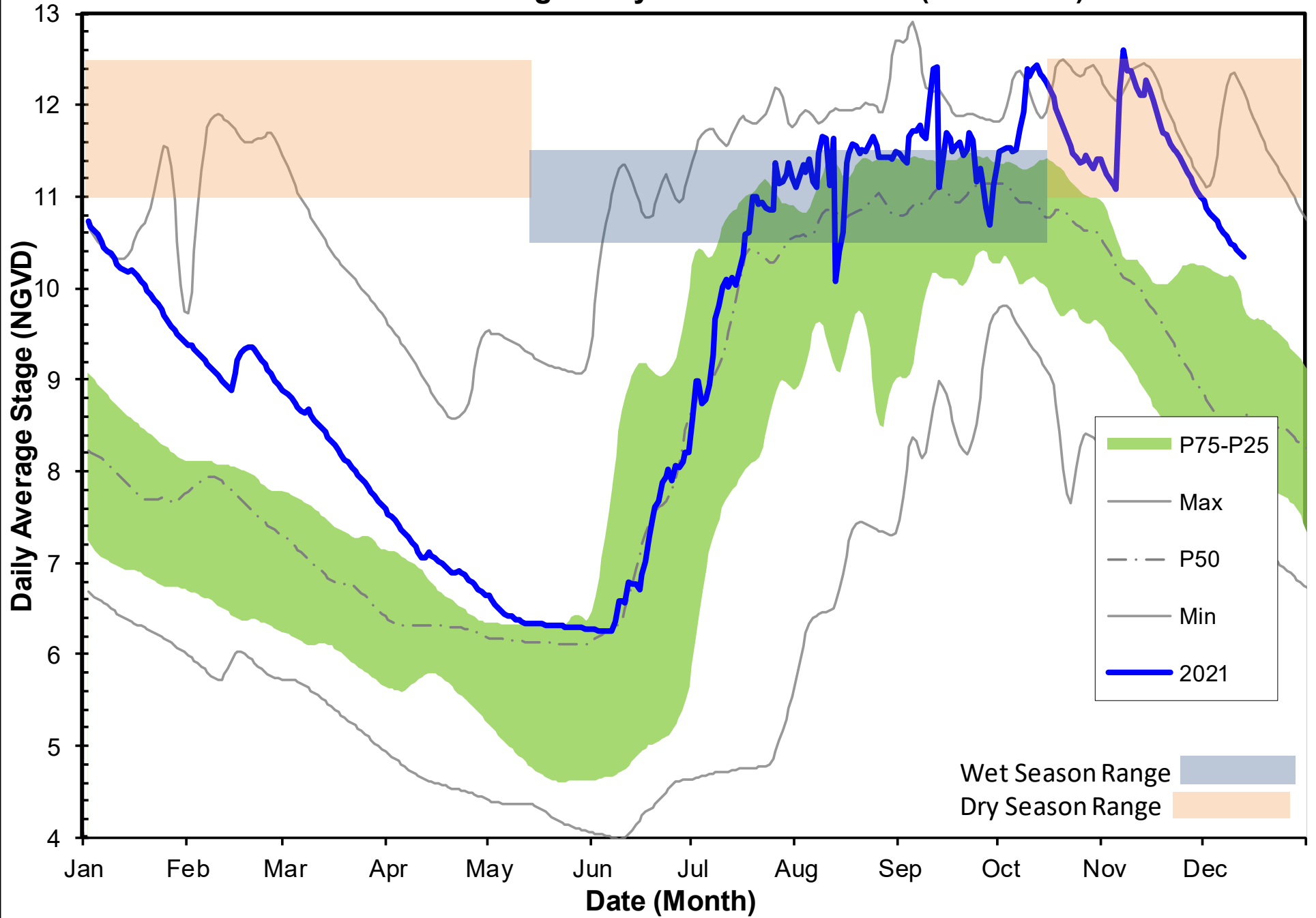
Figure 6D - CORK3 Average Daily Headwater Percentiles (2004-2020)



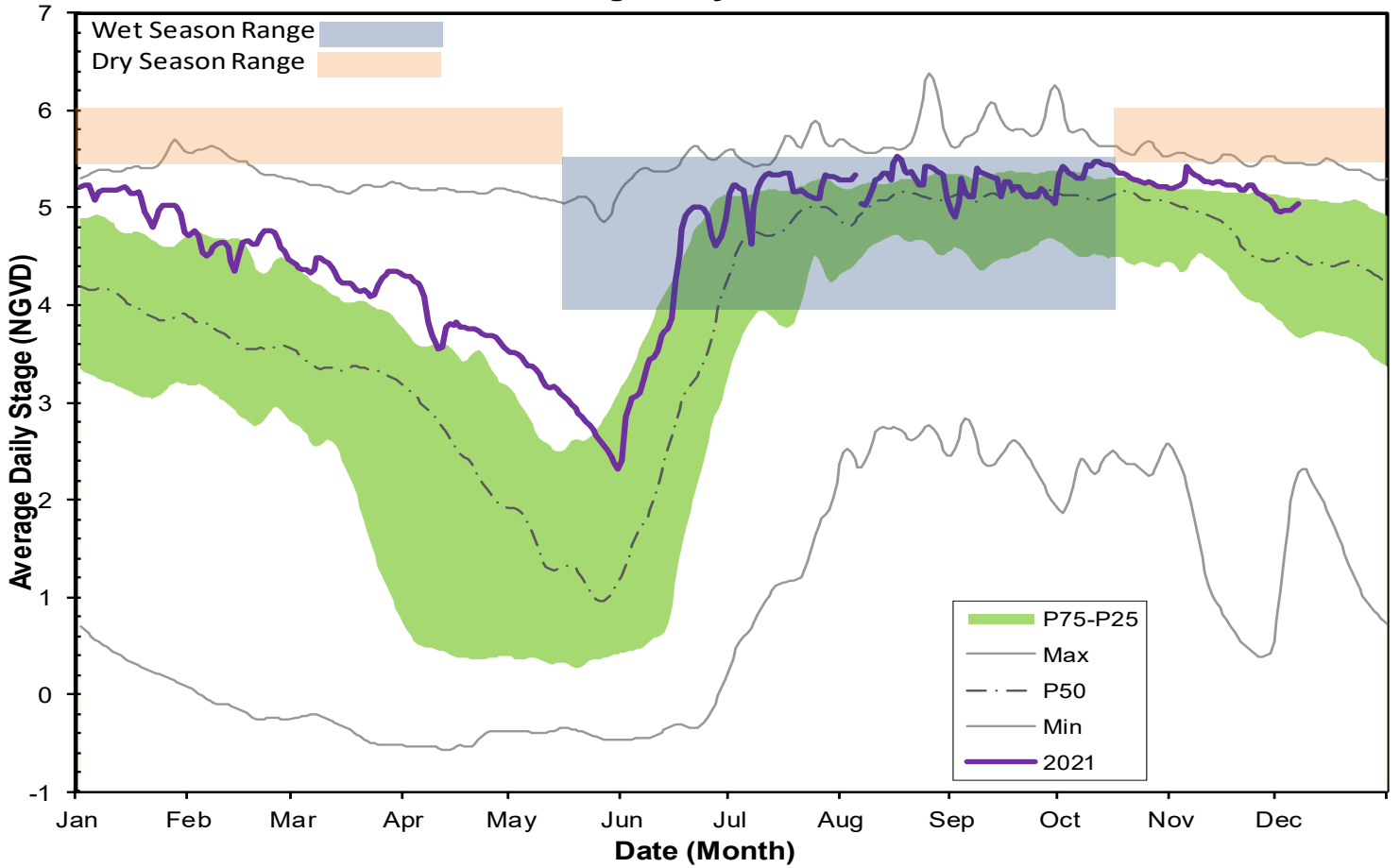
Faka Union Canal Historic Average Daily Headwater Percentiles



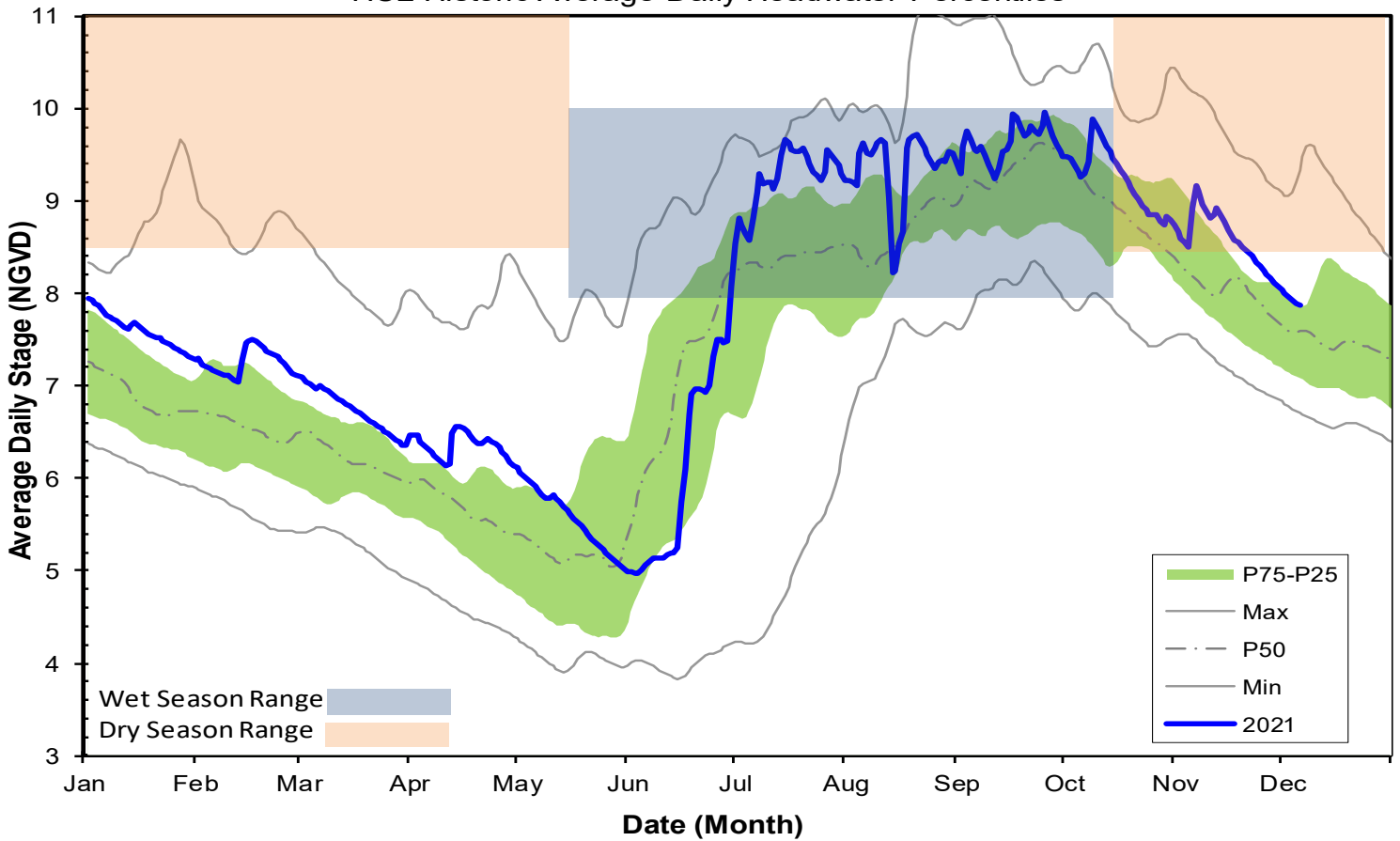
FU4S Historic Average Daily Water Percentiles (2005-2020)



HC1 Historic Average Daily Headwater Percentiles



HC2 Historic Average Daily Headwater Percentiles



WATER CONDITIONS SUMMARY - November 2021
SELECTED STATIONS for BCB AREA / SW FLORIDA

Last Reading Date :		December 7, 2021					
Previous Period Reading Date:		November 1, 2021					
STATION INDEX NO.	WELL LOCATION	WELL / AQUIFER - TYPE	CHANGE (from previous date)	PREVIOUS LEVEL	CURRENT LEVEL (ft)	DIRECTION OF CHANGE	CONCERN INDICATOR
ALL INDICATOR LEVELS SHOWN IN FT-NGVD							
C-462	Immokalee	Lower Tamiami Aquifer	3.05	31.61	34.66	↑	GREEN
C-1004R	Naples	Lower Tamiami Aquifer	-2.82	4.55	1.73	↓	YELLOW
C-1224	Marco Lakes	Lower Tamiami Aquifer	-0.44	4.09	3.65	↓	GREEN
C-948R	Golden Gate	Mid Hawthorn Aquifer	-3.21	34.62	31.41	↓	
C-951R	Golden Gate	Lower Tamiami Aquifer	-0.77	5.56	4.79	↓	
L-2194	Bonita Springs	Sandstone Aquifer	-1.43	6.61	5.18	↓	GREEN
L-2195	Bonita Springs	Surficial Aquifer System	-0.99	11.77	10.78	↓	GREEN
L-738	Bonita Springs	Lower Tamiami Aquifer	-1.87	2.10	0.23	↓	GREEN

TABLE 2
BCB WATER CONDITIONS SUMMARY
NOVEMBER 2021

BIG CYPRESS BASIN

NOVEMBER 2021

GROUNDWATER LEVEL DAILY TRENDS COMPARED TO HISTORICAL AVERAGE

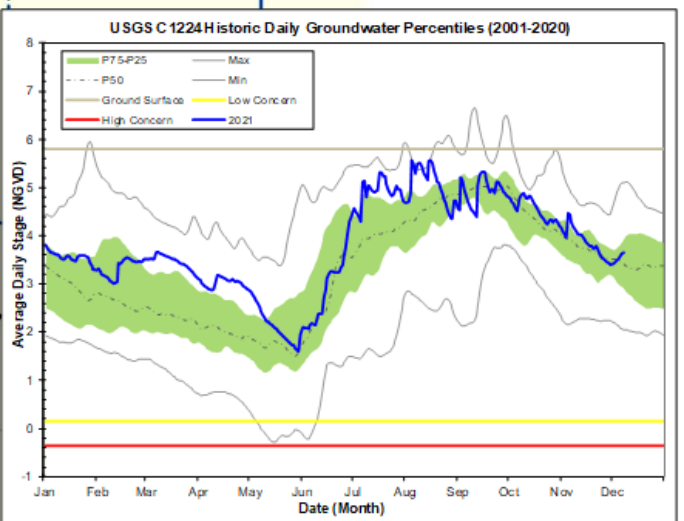
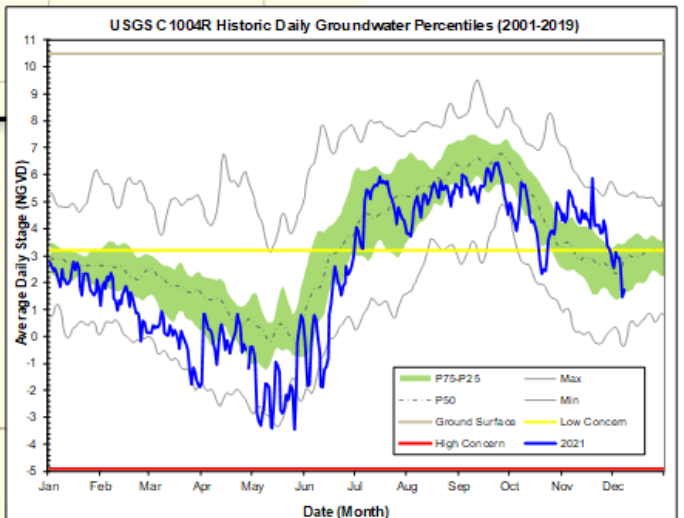
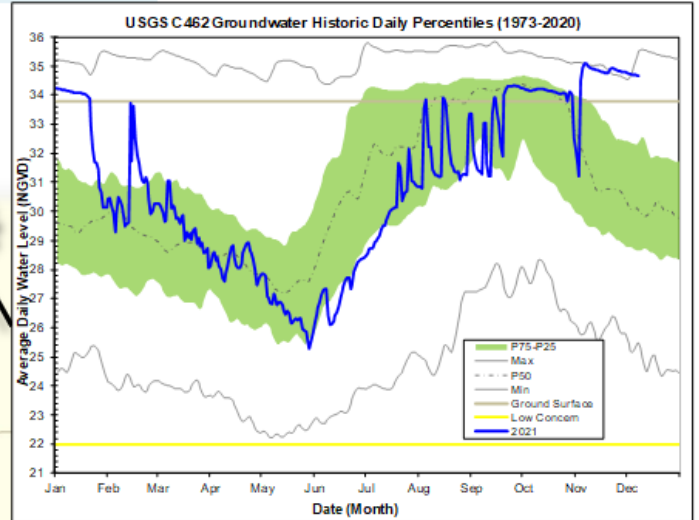
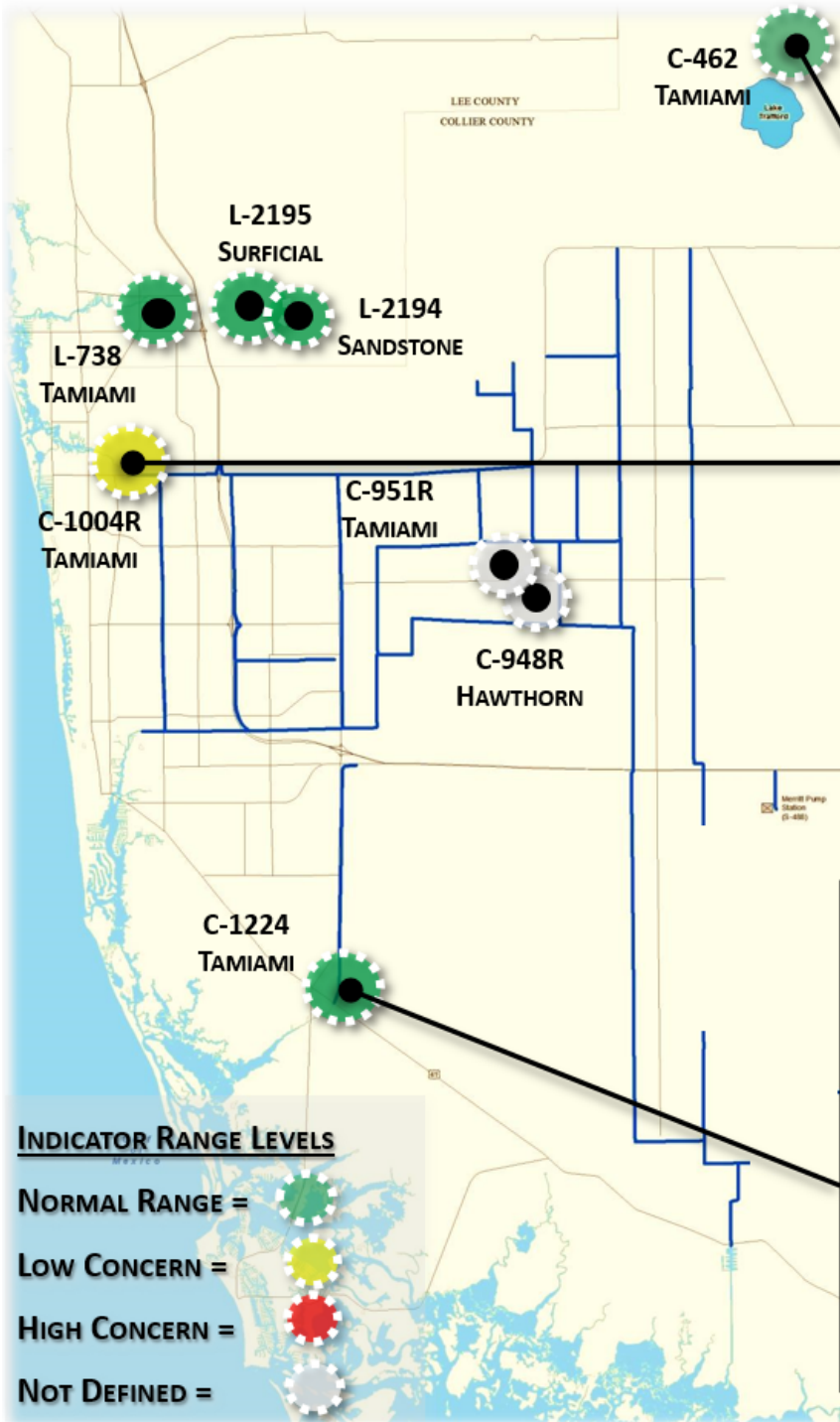


FIGURE 9

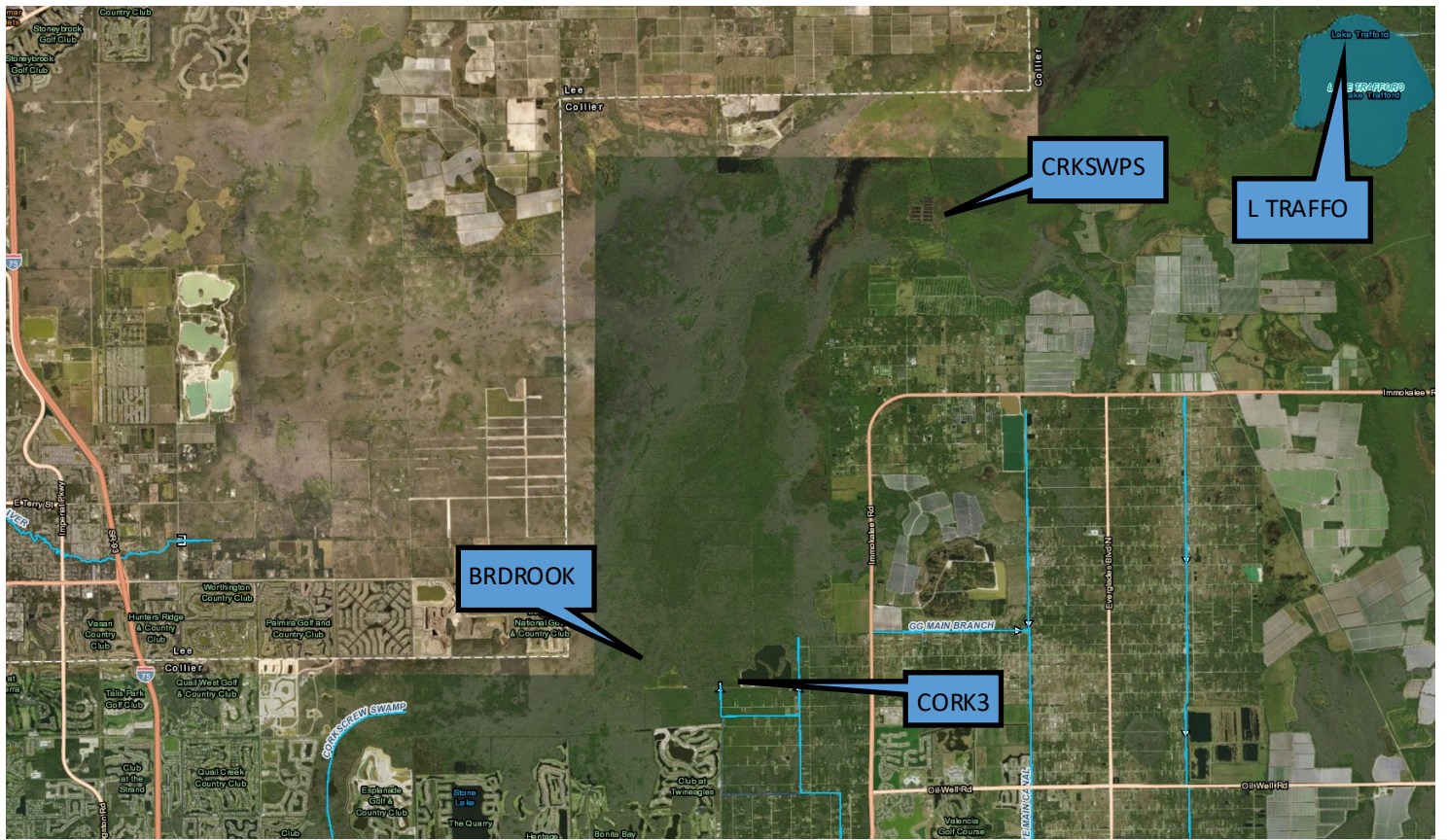
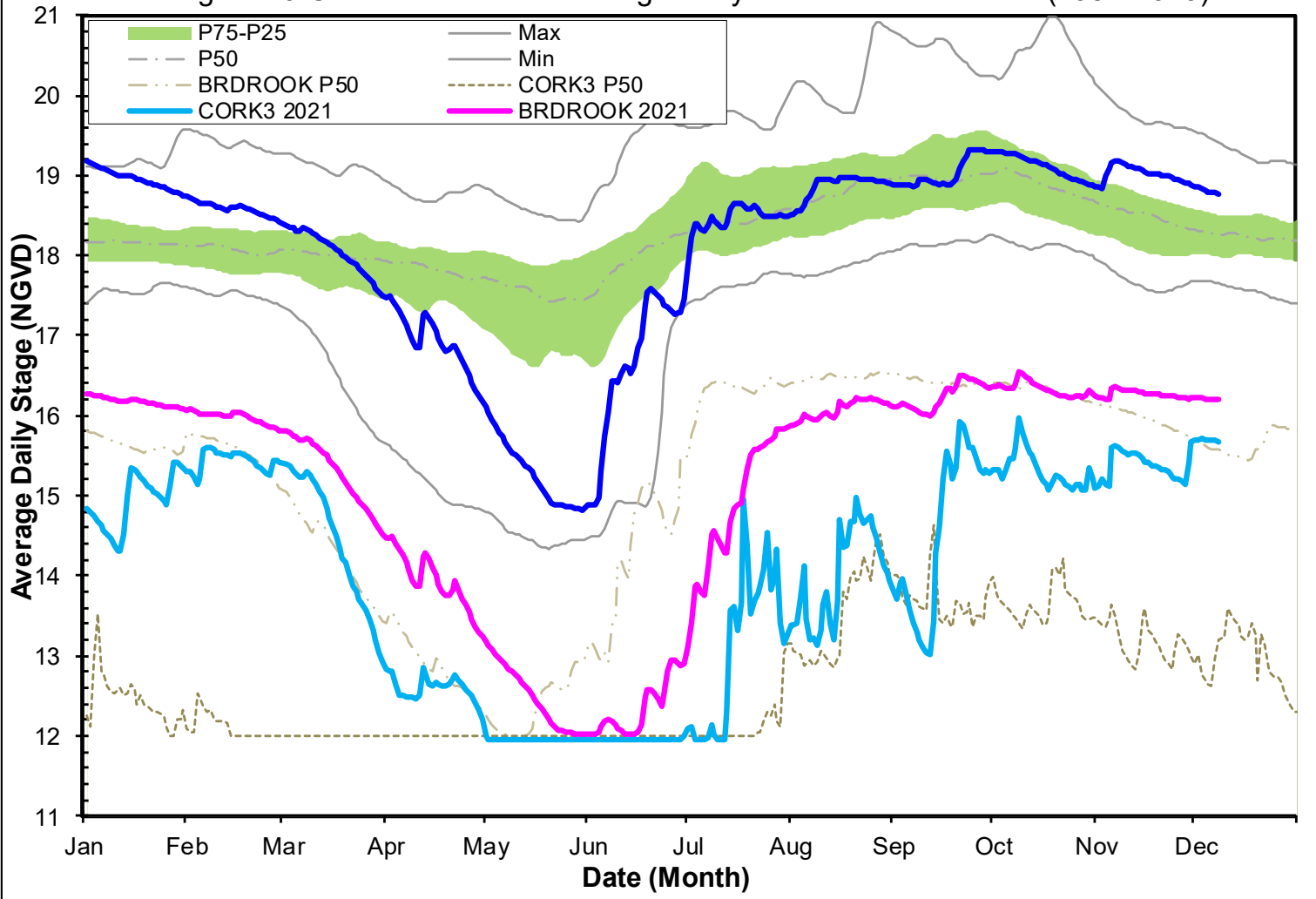


Figure 10-Corkscrew Historic Average Daily Headwater Percentiles(1984-2019)



Lake Trafford Historic Daily Water Level Percentiles (1941-2021)

