

APRIL 2023

# BIG CYPRESS BASIN HYDROLOGIC REPORT



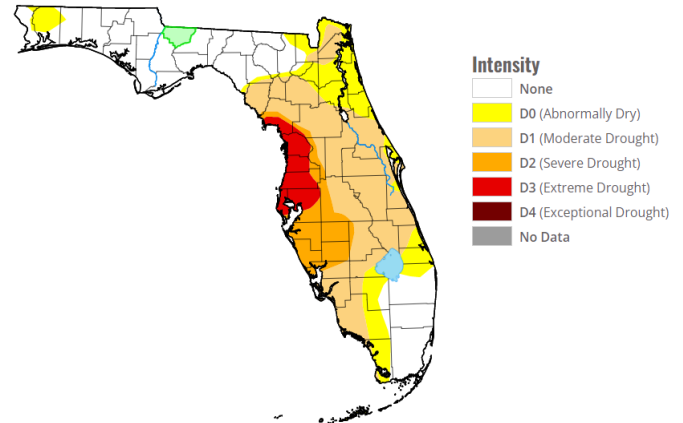
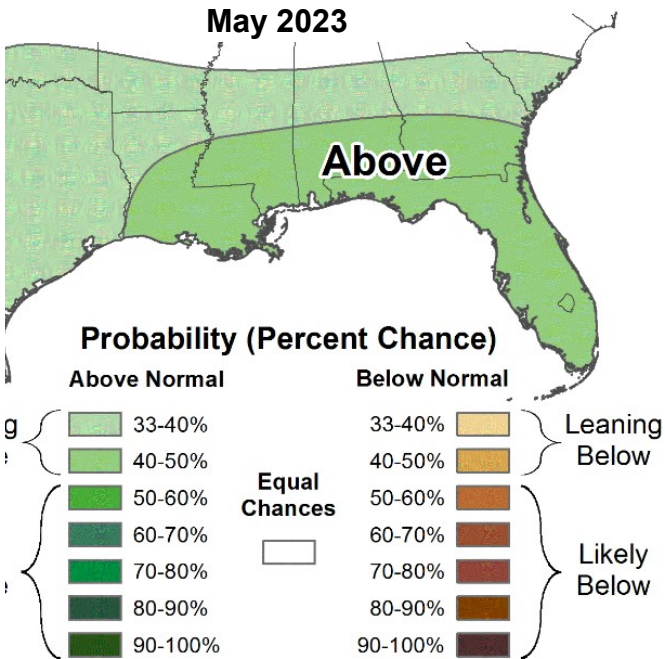


# SUMMARY OF HYDROLOGIC CONDITIONS IN THE BIG CYPRESS BASIN

April 2023

## SUMMARY

April's rainfall in the Basin was significant, totaling 3.8 inches or 160% of the normal amount for that month. However, this precipitation was not enough to overcome the drier climatological conditions which were partially contributed by a rare three year long La Nina event. Based on the National Weather Service's (NWS) Climate Prediction Center, conditions in the equatorial Pacific Ocean began a shift to average sea-surface temperatures signaling the end of a La Nina pattern. NWS is also forecasting a 90% chance of an El Nino event towards the end of 2023 which typically result in a less active hurricane season and a wetter-than-normal winter.



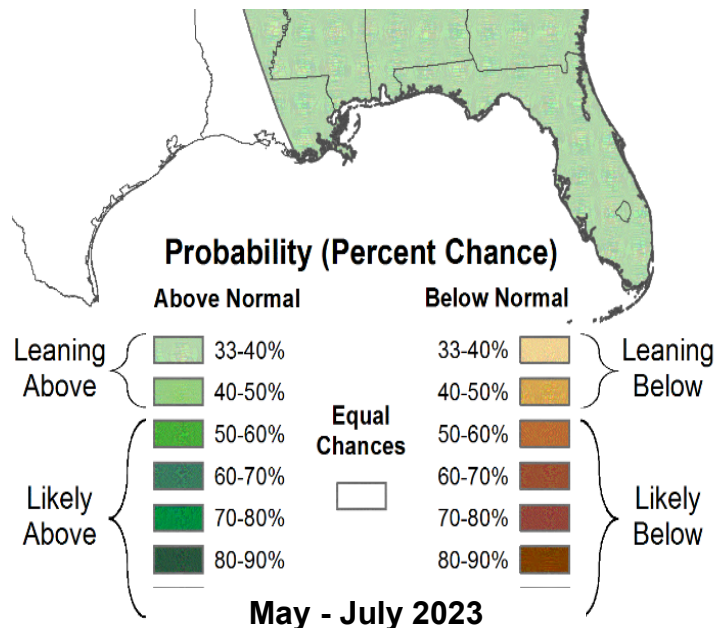
While groundwater levels declined in the Lower West Coast's surface and groundwater stations, the surficial aquifer system wells remained at or above the 25th percentile range, with one well above the 75th percentile (C-462). The US drought monitor for Florida indicated that

the Basin's drought status had changed from severe-to-extreme drought to moderate drought conditions (top-right).

Based on the National Weather Service's 30-day forecast, there is a 40-50% chance of precipitation exceeding normal levels (above). The temperature outlook for the next 30 days indicates a 50-60% likelihood of above-average temperatures. Additionally, the 3-month projection for the Basin predicts above-normal precipitation and temperature (right).

## BCB RAINFALL

April's weather pattern was mostly hot and dry, with the exception of an above average rainfall provided much needed relief to the Basin. As measured by twenty-four (24) reporting stations (ref. **Figures 1, 2, Table 1**), the basin-wide monthly average was **3.8 inches (158% of normal)**, which is well above the average 2.4 inches typically collected.



Based on collected gauge data, the rainfall distribution across the Basin was fairly uniform except for IFAS which received 6.51 inches from a strong localized thunderstorm. **Figure 3a** shows the average rainfall for each of the Basin's watersheds based on gauge adjusted radar. Lake Trafford basin received the highest rainfall with a **4.93 inch** areal average across the watershed and the lowest was the Cocohatchee basin with about **2.84 inches**. The Basin's total areal weighted average rainfall was **3.94 inches**. The month's highest gauge totals were collected at IFAS (Site R-14) which received **6.51 inches**. This month's lowest rainfall was recorded at Rookery Bay HQ (Site R-10), which received **1.86 inches**. 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 canals were maintained in water conservation mode during the month to hold as much water as possible to promote groundwater recharge. As the month ended and in the beginning of May, all but three small segments of the BCB canals were above the 25th percentile (**Figure 4a**).

- **GOLDEN GATE SYSTEM**

Control structures in the Golden Gate Main canal system were operated in water conservation mode and have been kept fully closed since the beginning of the year to promote/enhance groundwater recharge. Currently, the canal water levels for the Golden Gate system are at or above the 25th percentile with two segments that are above the 75th percentile (GG2 to GG3 and GG5 to GG6)(ref **Figure 5A & 5B**).

- **COCOHATCHEE SYSTEM**

The entire Cocohatchee system was operated to conserve water with no discharges to tide during the month. Levels in the Cocohatchee system are all above the 25th percentile and the coastal structure COCO1 is above the 75th percentile for the end of April and early May (ref **Figure 6A, 6B, 6C, & 6D**).

- **FAKA UNION SYSTEM**

The entire Faka Union system was operated in water conservation mode and all of the structures ,except for FU1 due to tidal influence, had zero discharges through the structures. As the month ended, levels increased temporarily before they continued their annual recession in response to the dry conditions and are above the 25th percentile for this time of year except for FU4S (ref **Figure 7A & 7B**).

- **HENDERSON CREEK SYSTEM**

Water control structures in the Henderson Creek system remained fully closed. Canal levels are all above average for the end of April and early May (ref **Figure 8A & 8B**).

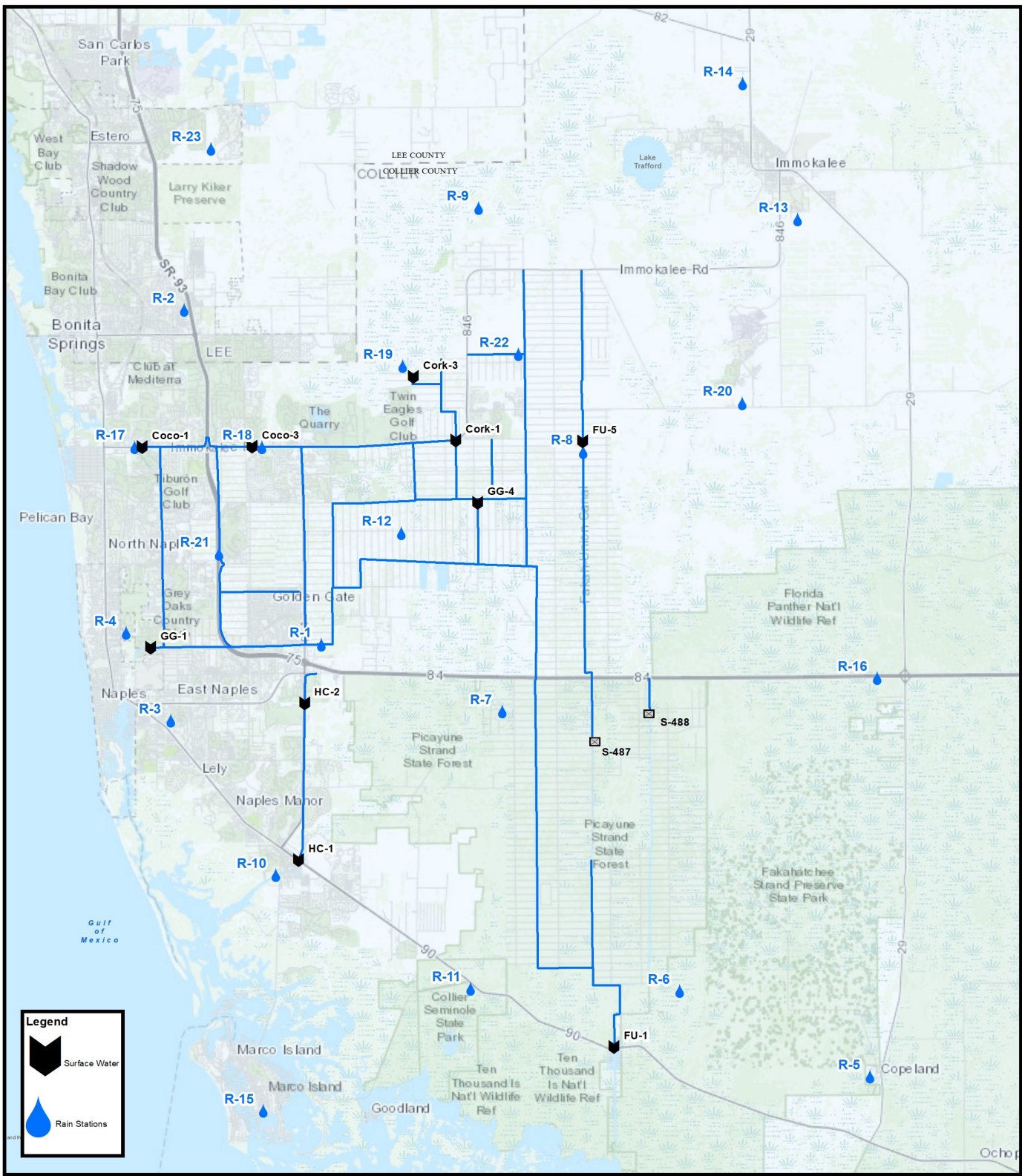
- **CORKSCREW SWAMP**

**Figure 10** shows the historical trends for Corkscrew, Bird Rookery, and the CORK 3 structure and the 2023 corresponding levels. April saw a slight increase in water levels at all three sites as the result of above-average rainfall for the month. However, due to the absence of any significant rainfall water levels returned to their normal recession rates. Bird Rookery and CORK3 are the only sites where water levels are above the 50th percentile for the end of April. **Figure 11** displays the water levels at Lake Trafford, indicating that the lake's water levels have increased and are slightly below the 50th percentile.

## **BIG CYPRESS BASIN & LOWER WEST COAST GROUNDWATER LEVELS**

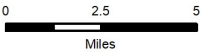
The current reporting (05/02/2023) for the Lower West Coast [LWC] indicate 60 percent of the LWC stations, show decreasing trends for April. All of the wells are at or above the 25th percentile and C-462 is above the 75th percentile for the end of April. Well L-2194 recovered from high concern condition indicator (red color) in March to low level concern indicator (yellow color) as the month closed (ref. **Table 2**). All reported wells in **Table 2** show an average decrease of 0.93 feet. C-462 recorded the highest increase of 0.72 feet and L-738 had the largest decrease of 1.63 (ref. **Table 2, Figure 9**).





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**BIG CYPRESS BASIN**  
 SFWMD  
 2660 Horseshoe Dr. N.  
 Naples, Florida 34104  
 239-263-7615

# FIGURE 1

## Hydrologic Station Map

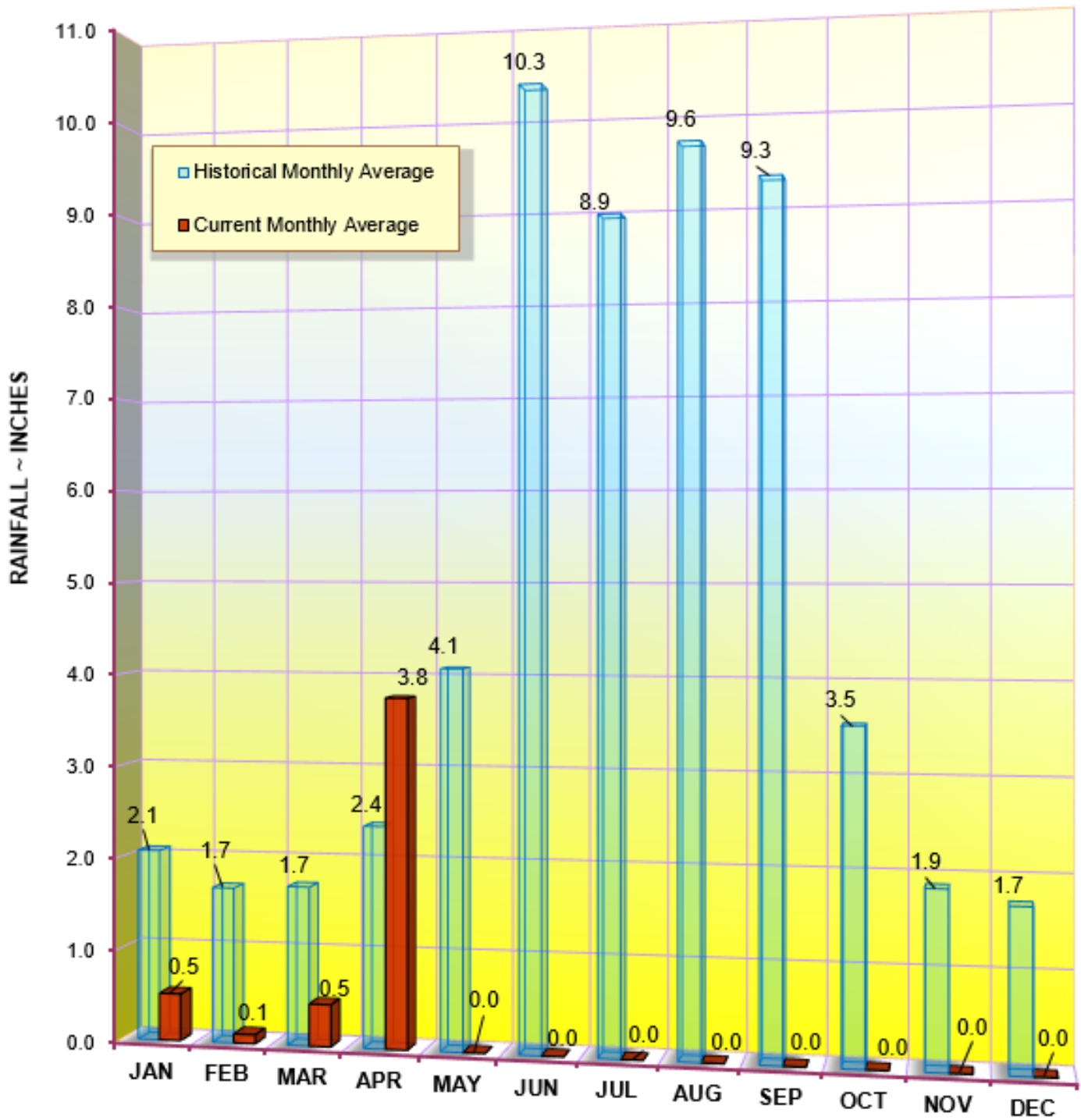
Collier County, Florida



**TABLE 1**  
**RAINFALL REPORT - APRIL 2023**  
**DISTRICT/BASIN RAINFALL STATIONS**  
 (ALL NUMBERS ARE IN INCHES)

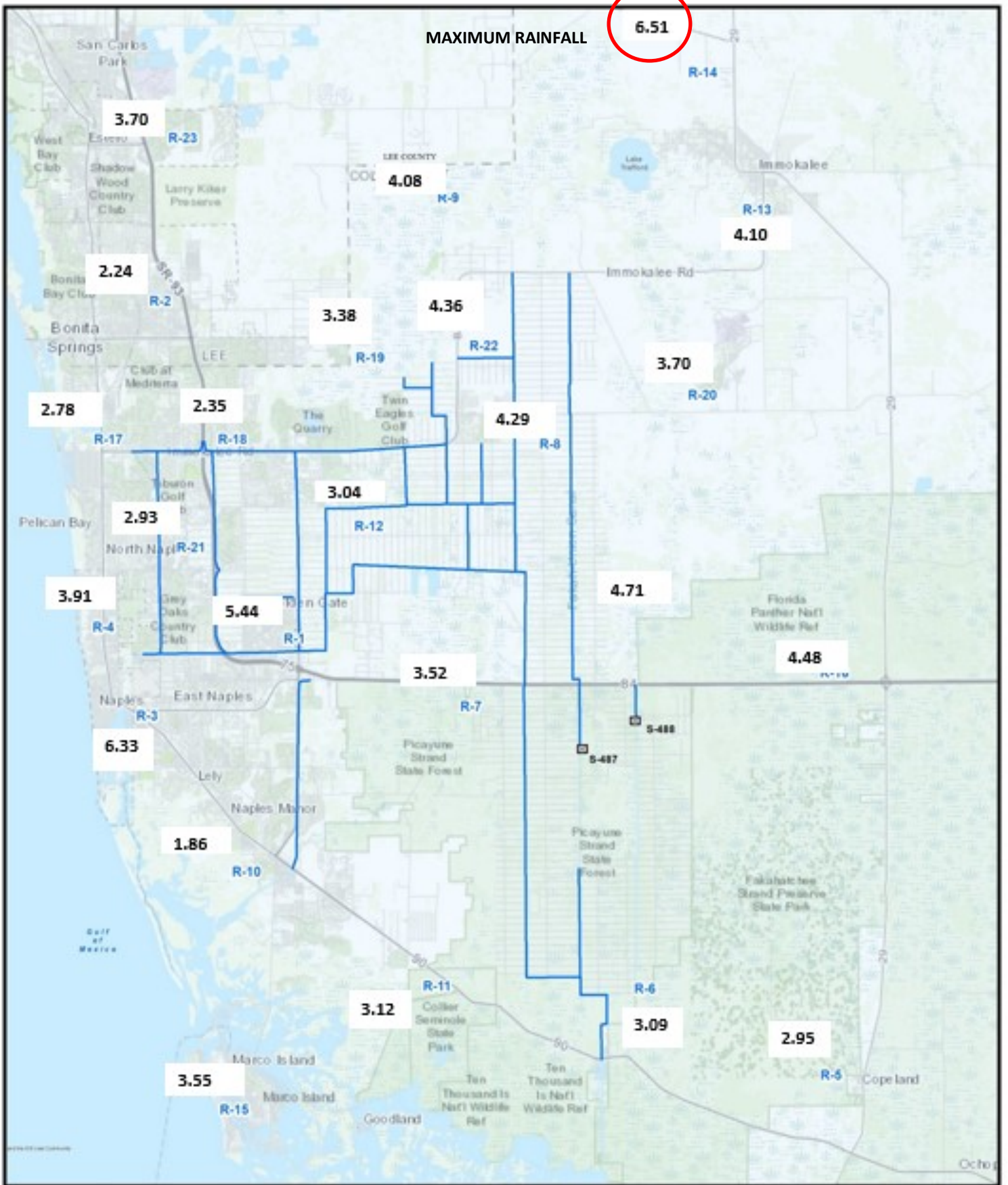
STATION INDEX NO.	STATION NAME	APRIL 2023	LONG TERM MONTHLY AVERAGE	MONTHLY DIFFERENCE	CALENDAR YEAR 2023 CUMULATIVE TOTAL	AVERAGE CALENDAR YEAR TO DATE	YEAR TO DATE DIFFERENCE
R-1	GG#3	5.44	2.58	2.86	6.46	7.44	-0.98
R-2	BONITA SPRINGS WATER PLANT	2.24	1.98	0.26	3.06	8.17	-5.11
R-3	COLLIER COUNTY COURTHOUSE	6.33	2.34	3.99	7.71	8.08	-0.37
R-4	FREEDOM PARK	3.91	2.06	1.85	5.14	7.16	-2.02
R-5	FAKAHATCHEE STRAND HQ	2.95	2.29	0.66	3.56	8.22	-4.66
R-6	DAN HOUSE PRAIRIE	3.09	2.32	0.77	3.87	6.93	-3.06
R-7	SGGE WEATHER STATION	3.52	2.92	0.60	4.33	7.69	-3.36
R-8	FAKA UNION #5	4.29	2.95	1.34	5.71	8.91	-3.20
R-9	CORKSCREW SWAMP NORTH END	4.08	2.10	1.98	5.07	7.32	-2.25
R-10	ROOKERY BAY HQ	1.86	2.32	-0.46	2.46	7.59	-5.13
R-11	COLLIER SEMINOLE STATE PARK	3.12	2.43	0.69	4.20	7.93	-3.73
R-12	G.G. FIRE STATION	3.04	2.47	0.57	4.18	8.46	-4.28
R-13	IMMOKALEE LANDFILL	4.10	2.37	1.73	5.40	8.83	-3.43
R-14	IFAS	6.51	2.30	4.21	7.64	8.98	-1.34
R-15	MARCO R.O. PLANT	3.55	2.32	1.23	5.86	8.63	-2.77
R-16	FAKAHATCHEE STRAND NORTH END	4.48	3.04	1.44	5.15	10.01	-4.86
R-17	COCO#1	2.78	2.01	0.77	4.16	7.71	-3.55
R-18	COCO#3	2.35	2.44	-0.09	3.13	7.47	-4.34
R-19	BIRD ROOKERY	3.38	2.08	1.30	4.43	5.65	-1.22
R-20	AVE MARIA	3.70	2.55	1.15	4.22	8.85	-4.63
R-21	I75W2	2.93	2.29	0.64	4.25	5.96	-1.71
R-22	GG#7	4.36	2.35	2.01	5.44	6.48	-1.04
R-23	FPWX	3.70	2.41	1.29	4.87	8.12	-3.25
R-24	DSOTO10	4.71	New Site	New Site	New Site	No Historical Data	
AVERAGES		3.77	2.39	1.38	4.80	7.85	-3.06

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



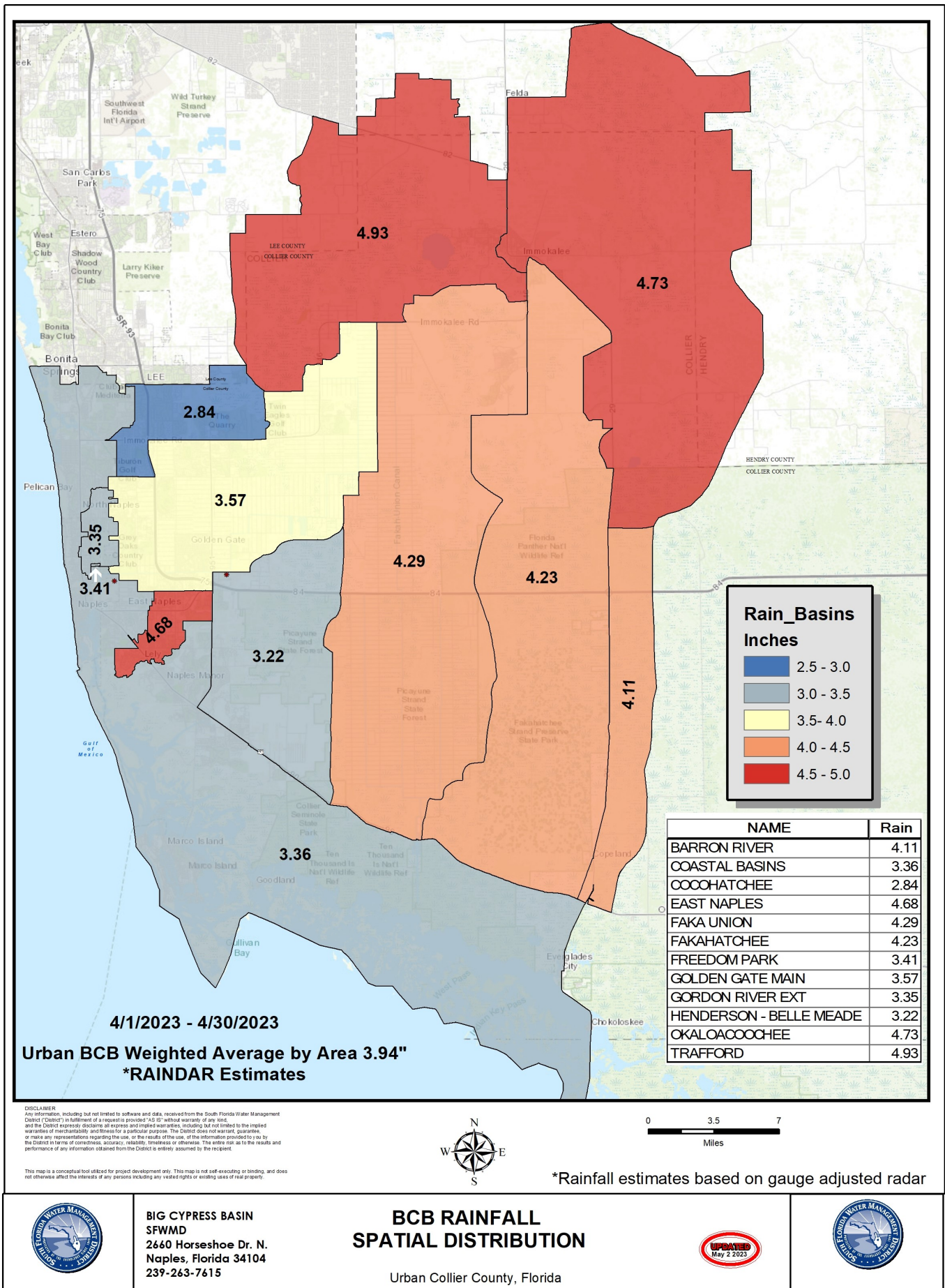
**FIGURE 2**  
**BCB GAUGE RAINFALL**  
**MONTHLY AVERAGES THROUGH APRIL 2023**



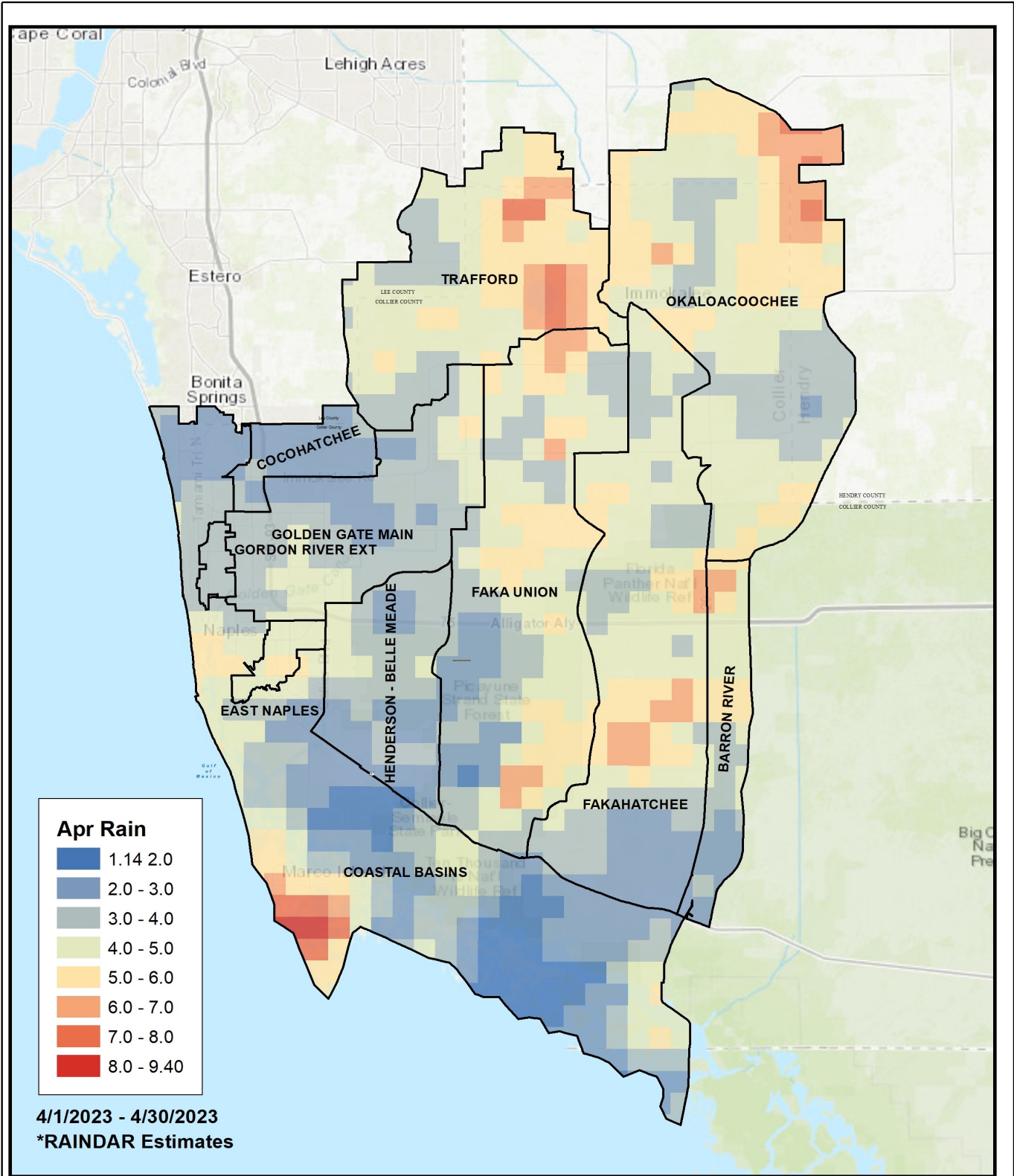


**FIGURE 3  
BCB RAINFALL DISTRIBUTION  
APRIL 2023**



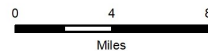
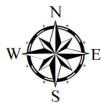


**FIGURE 3a**



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\*Rainfall estimates based on gauge adjusted radar



**BIG CYPRESS BASIN**  
**SFWMD**  
**2660 Horseshoe Dr. N.**  
**Naples, Florida 34104**  
**239-263-7615**

**BCB RAINFALL**  
**SPATIAL DISTRIBUTION**

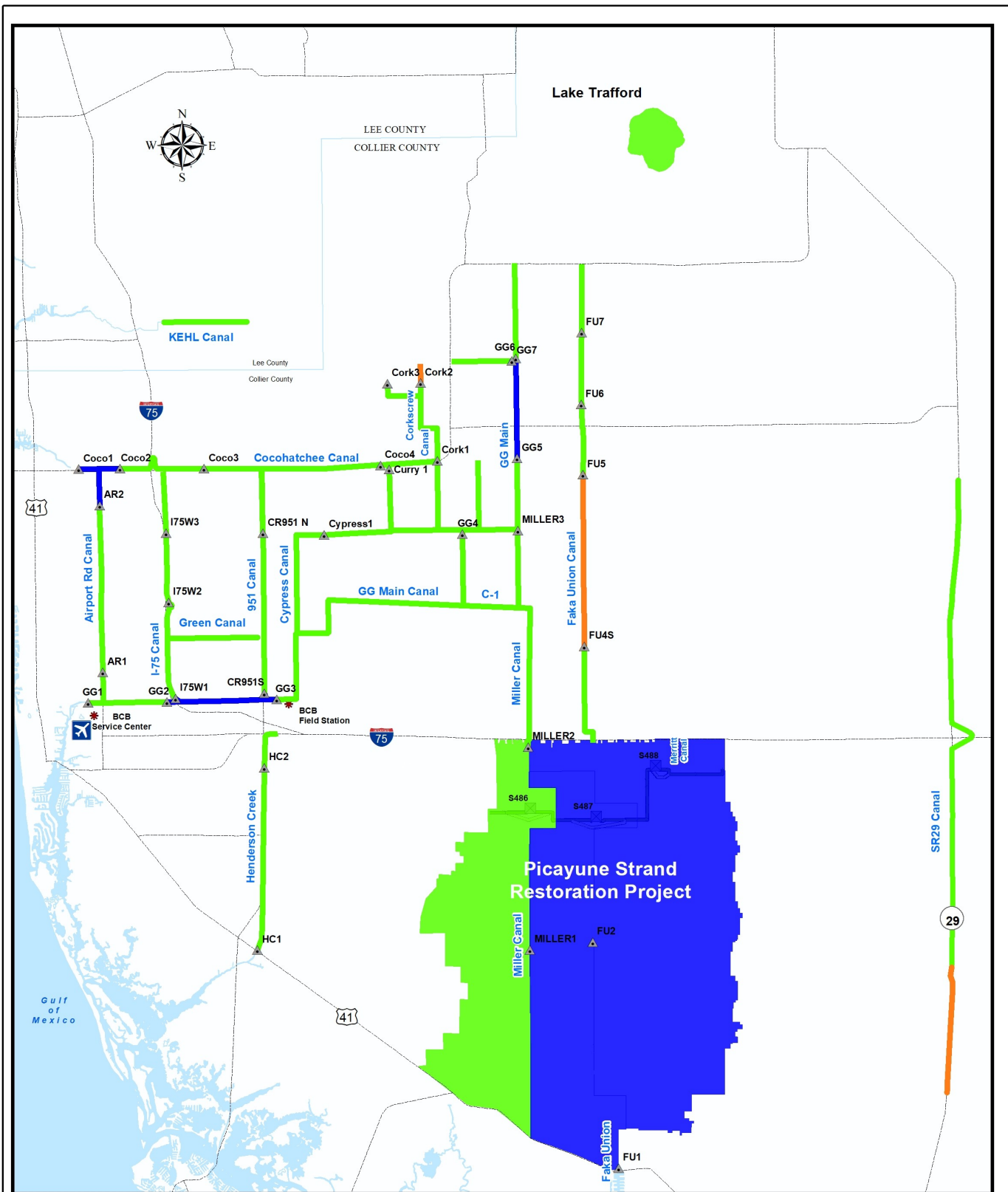
Urban Collier County, Florida



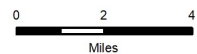
SFWMD\_PL\_Maps\_Maps\_2019

**FIGURE 4**





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\* Based on period of record for each canal reach

	<p><b>BIG CYPRESS BASIN</b>  <b>SFWMD</b>          2660 Horseshoe Dr. N.          Naples, Florida 34104          239-263-7615</p>	<p align="center"><b>BCB Conditions Index</b>  <b>5/5/23</b>          Urban Collier County, Florida</p>	
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**FIGURE 4A**

**Figure 5 Golden Gate Canal Historic Average Daily Headwater Percentiles**

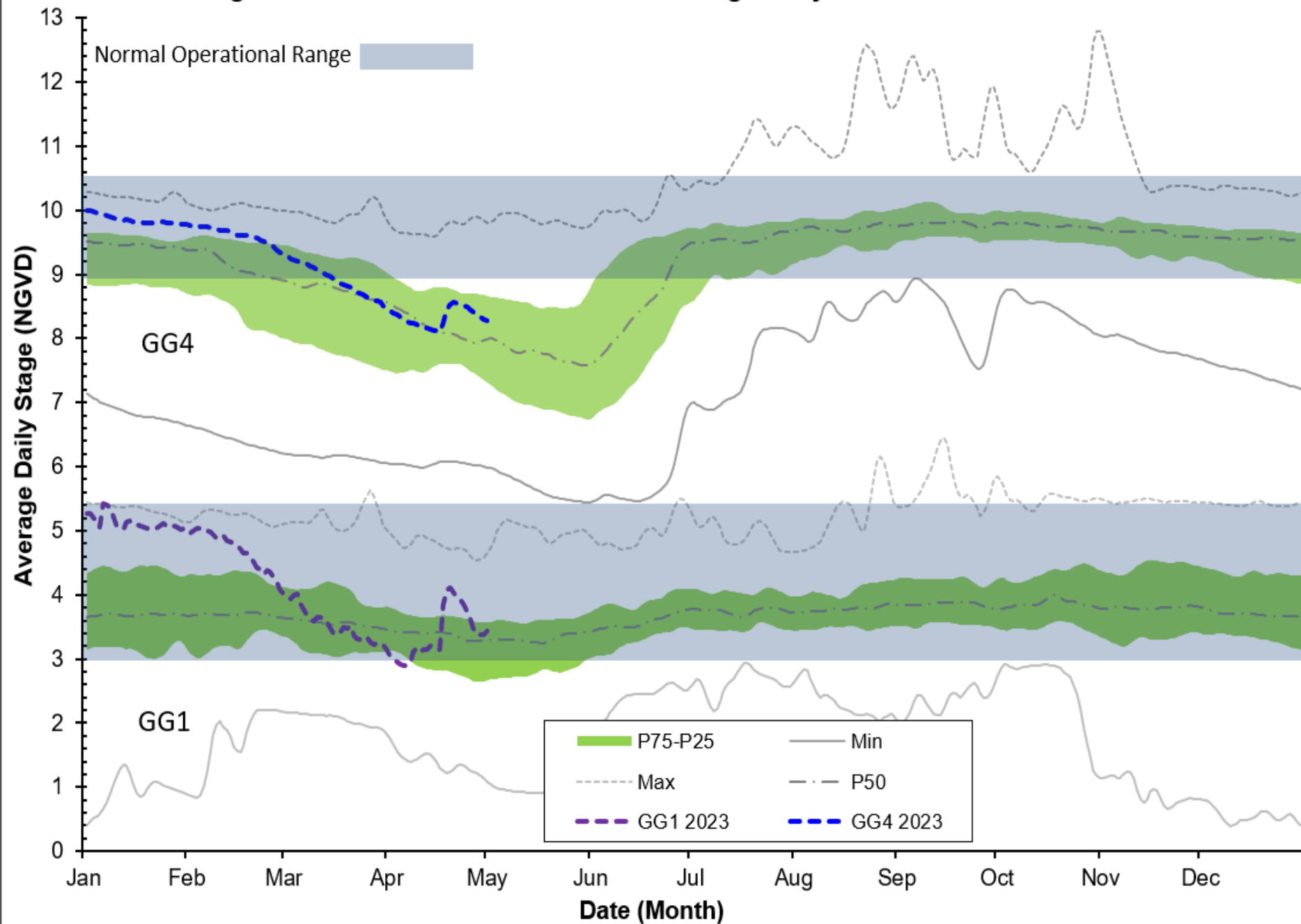
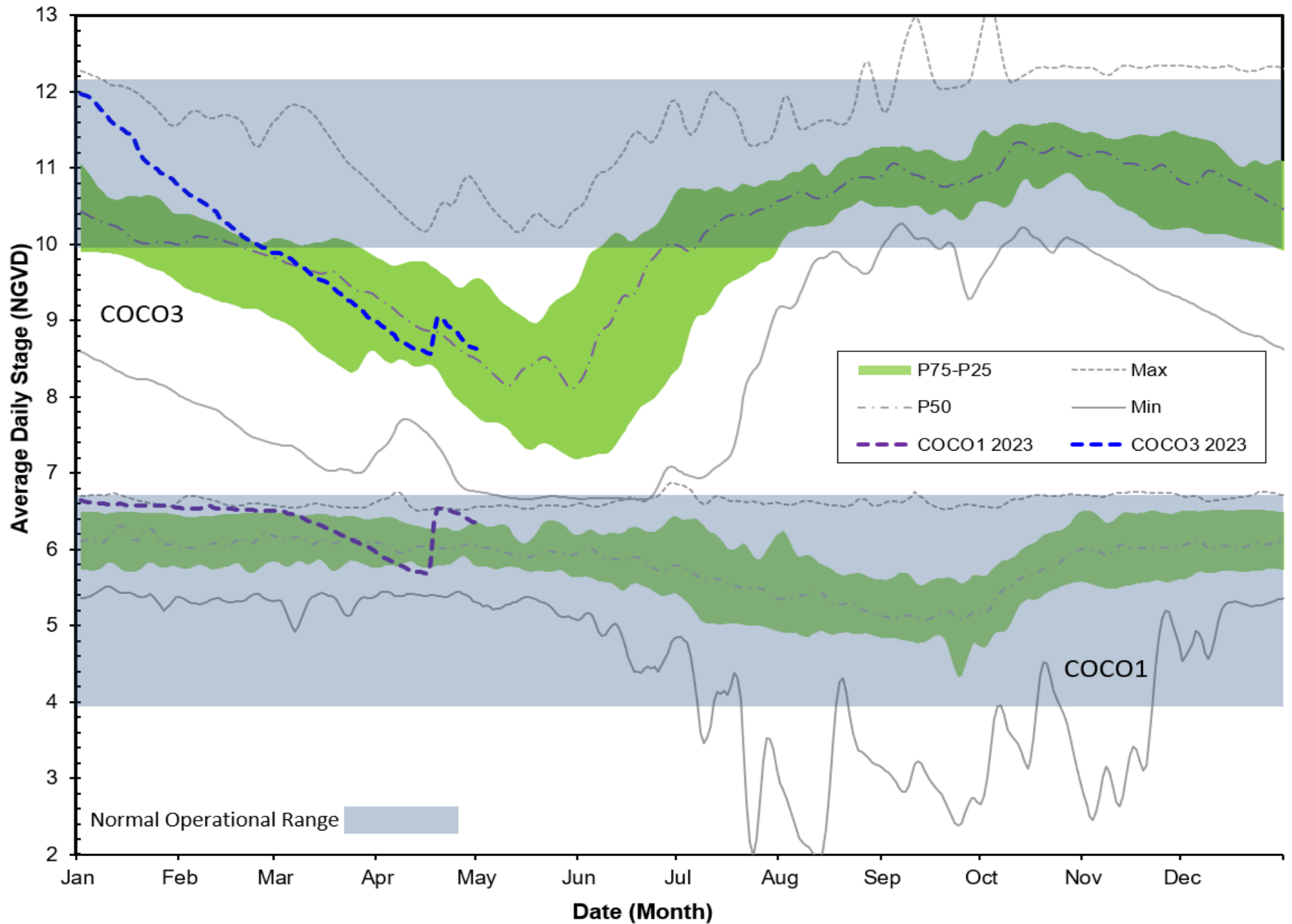
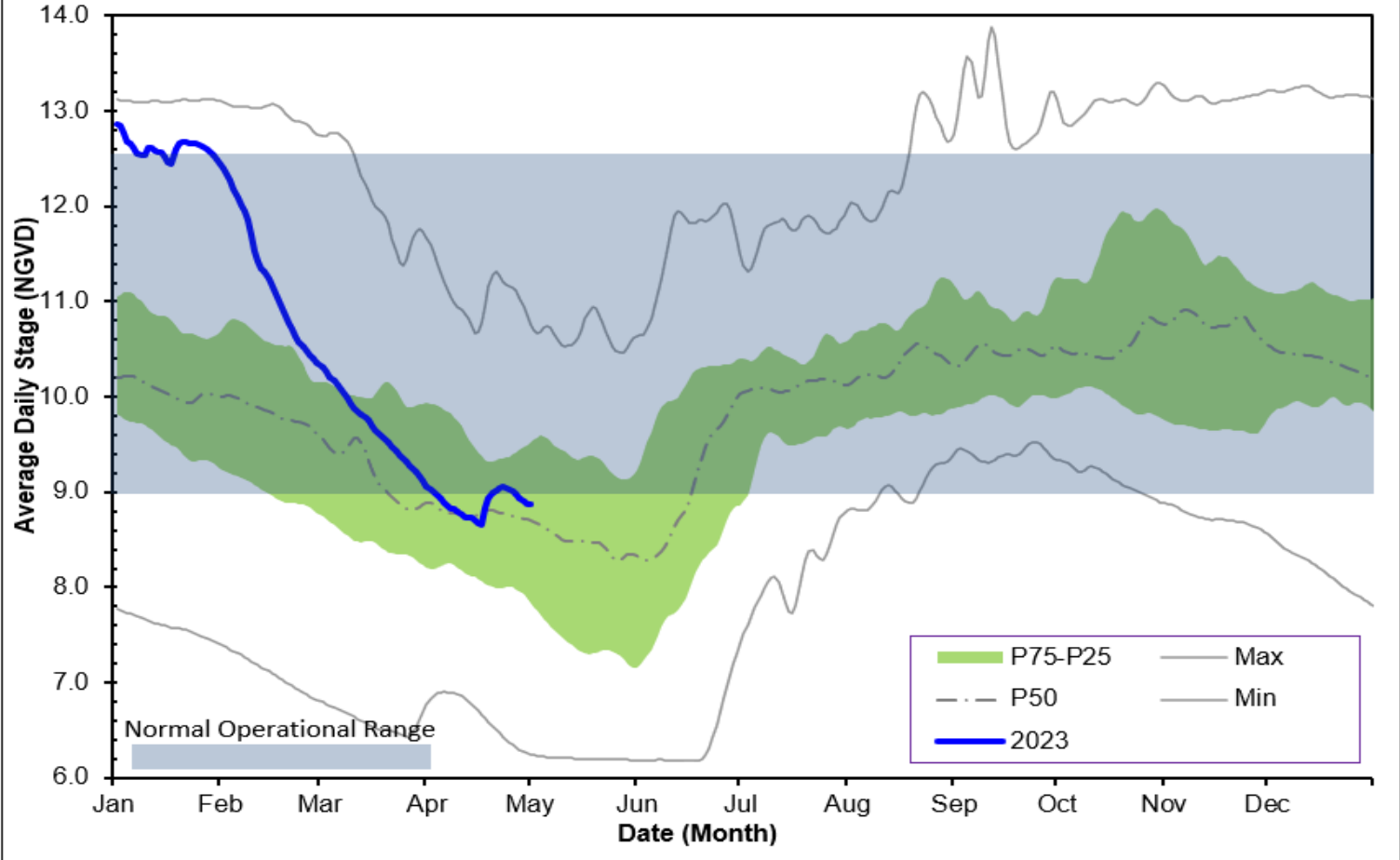




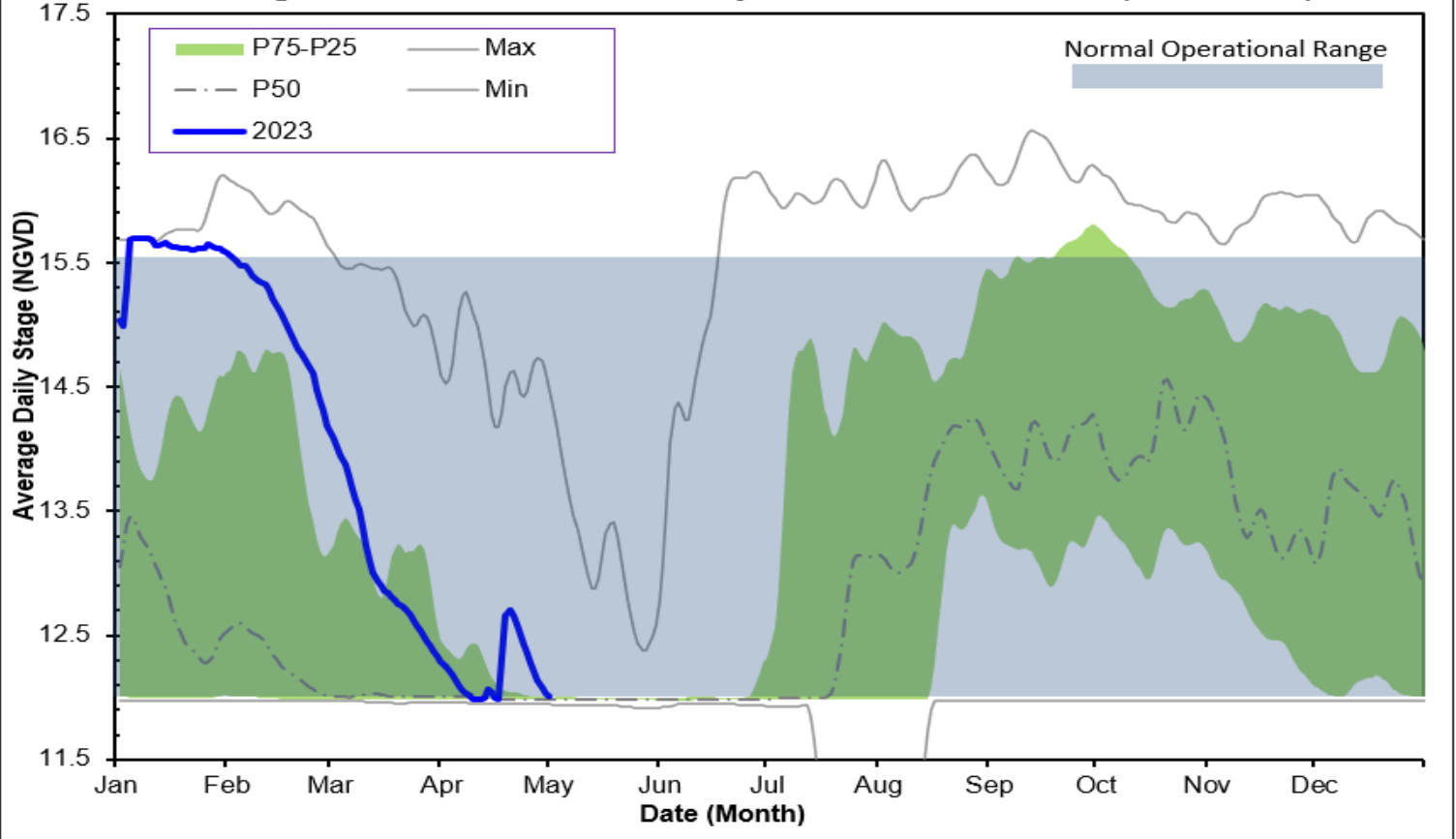
Figure 6A Cocohatchee Canal Historic Average Daily Headwater Percentiles



**Figure 6B - CORK1 Historic Daily Headwater Percentiles (1989 - 2022)**



**Figure 6C - CORK3 Historic Daily Headwater Percentiles (2004 - 2022)**





**Figure 7A Faka Union Canal Historic Average Daily Headwater Percentiles**

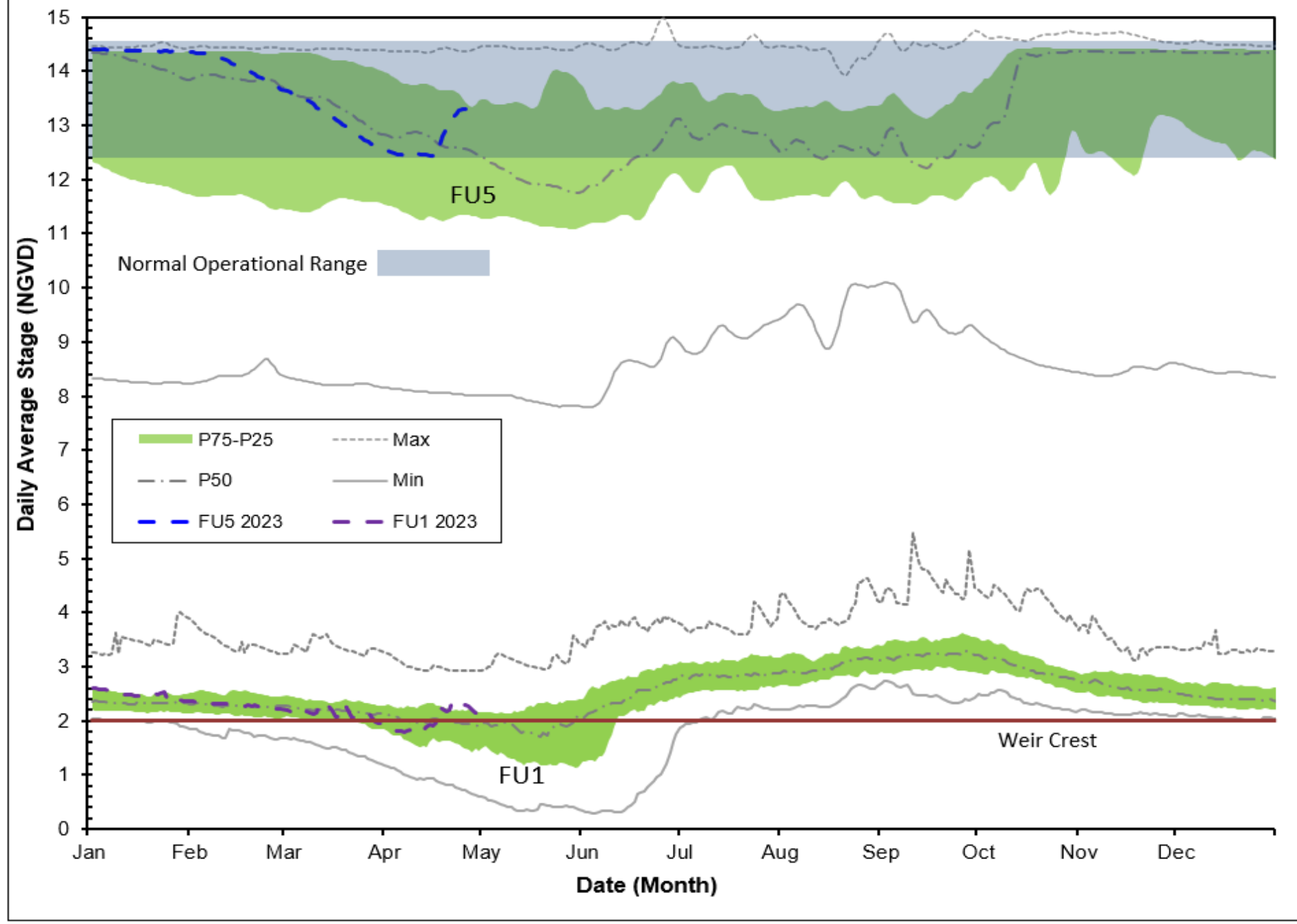


Figure 7B FU4S Historic Average Daily Water Percentiles

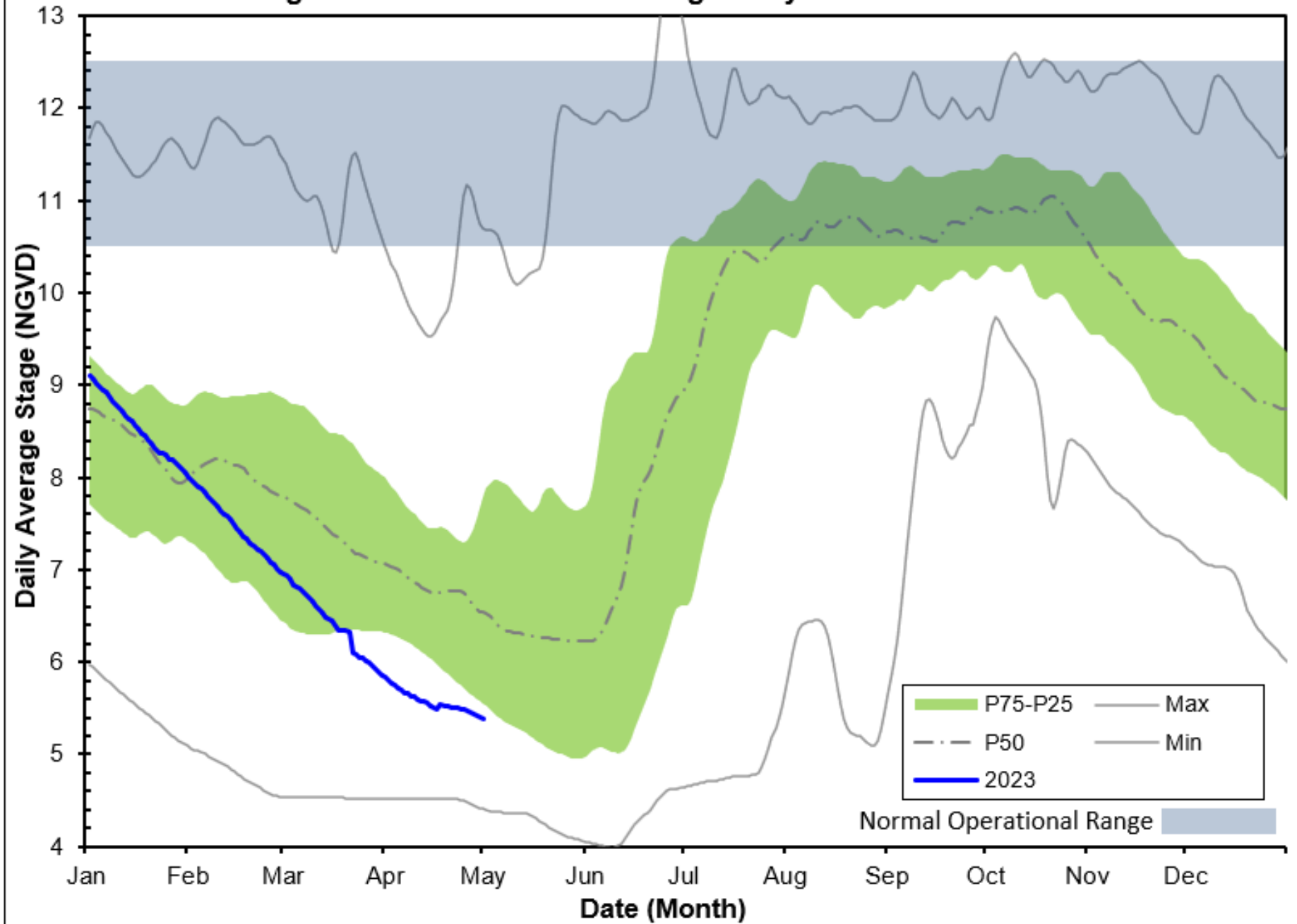


Figure 8A HC1 Historic Average Daily Headwater Percentiles

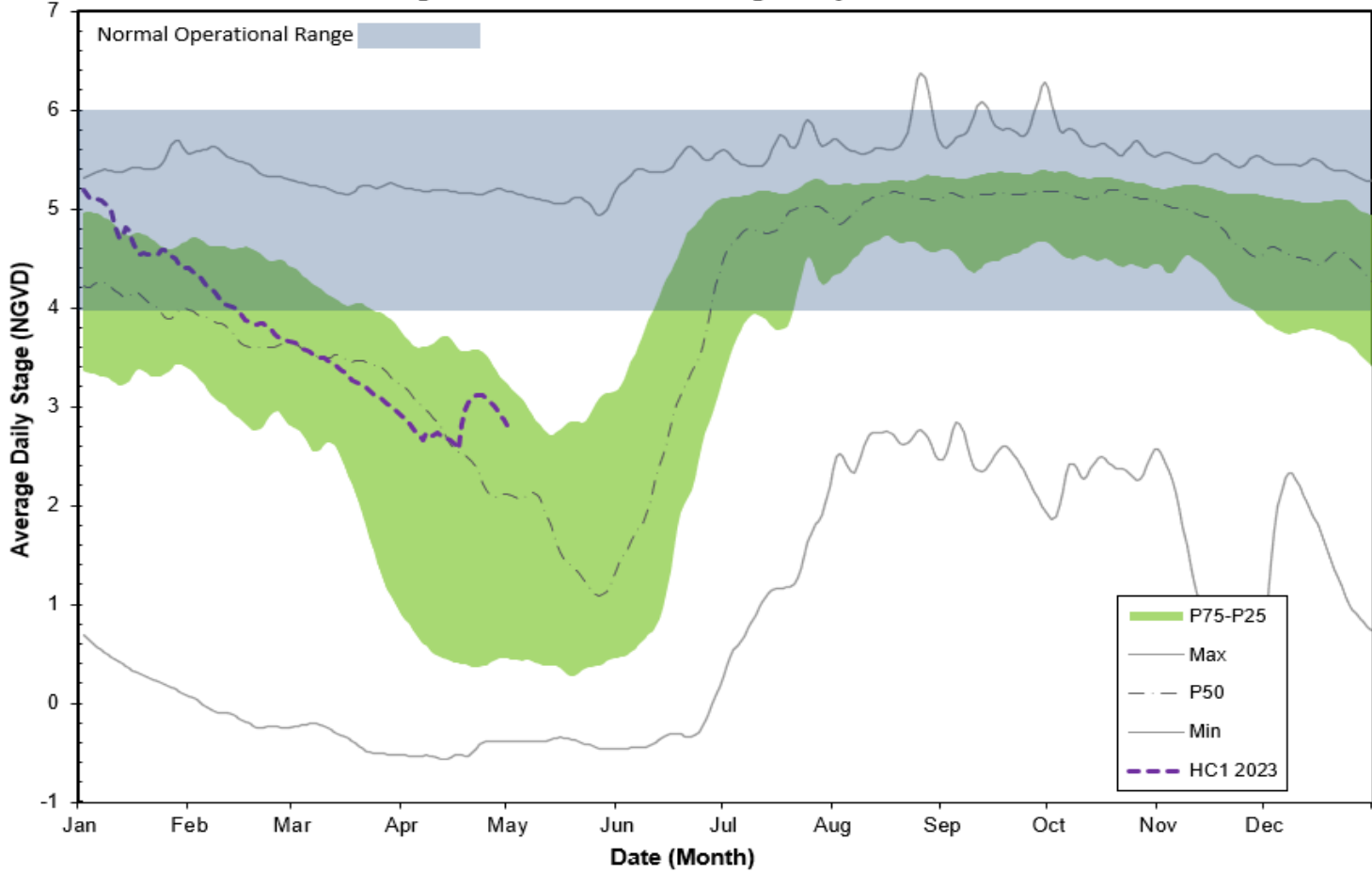
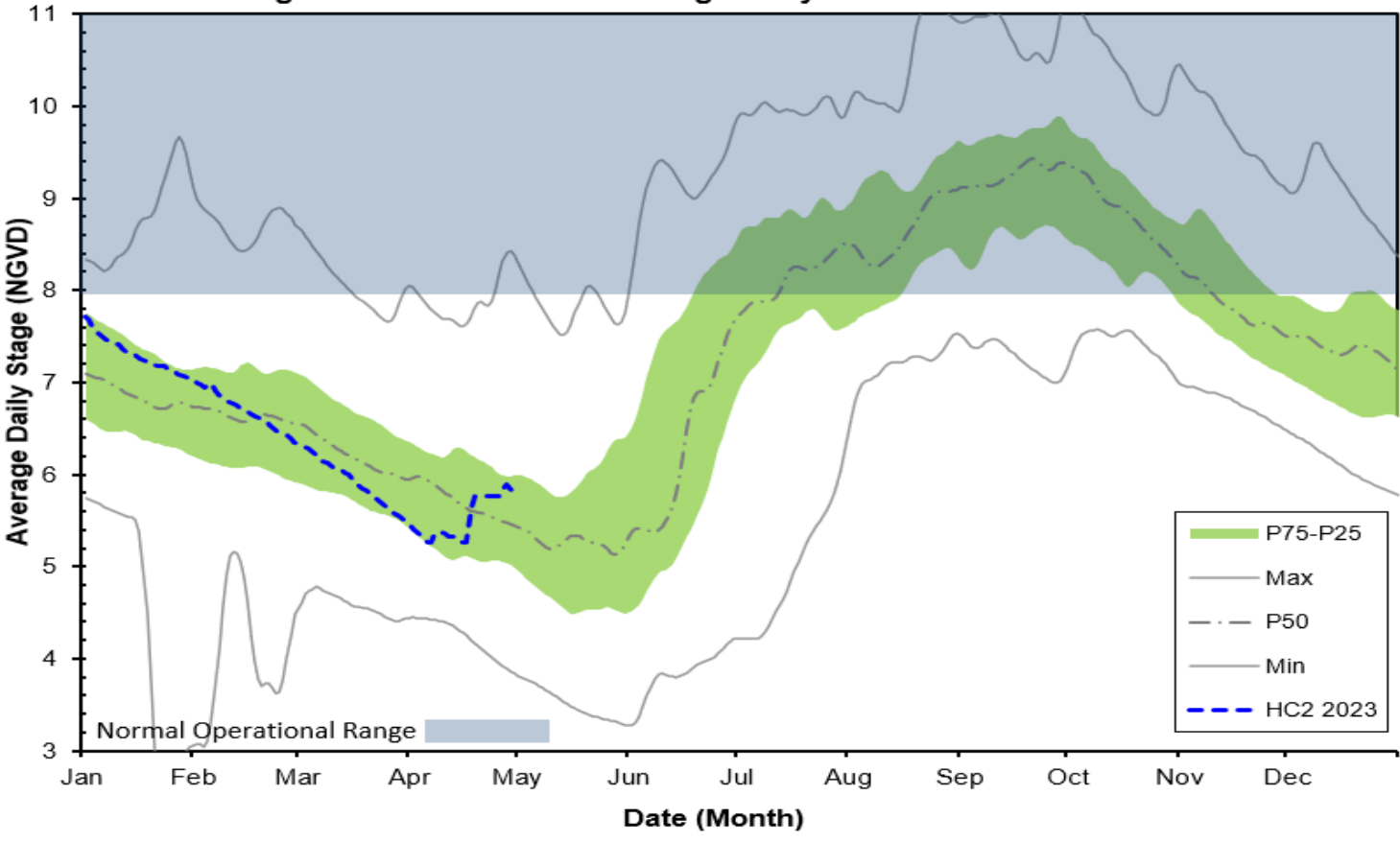


Figure 8B HC2 Historic Average Daily Headwater Percentiles





**WATER CONDITIONS SUMMARY - April 2023**  
**SELECTED STATIONS for BCB AREA / SW FLORIDA**

Last Reading Date :		April 3, 2023					
Previous Period Reading Date:		May 1, 2023					
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	0.72	29.32	30.04	↑	GREEN
C-1004R	Naples	Lower Tamiami Aquifer	0.06	-0.23	-0.17	↑	YELLOW
C-1224	Marco Lakes	Lower Tamiami Aquifer	-1.19	2.60	1.41	↓	GREEN
C-948R	Golden Gate	Mid Hawthorn Aquifer	-1.28	30.63	29.35	↓	
C-951R	Golden Gate	Lower Tamiami Aquifer	-1.57	0.97	-0.60	↓	
L-2194	Bonita Springs	Sandstone Aquifer	-1.52	0.71	-0.81	↓	YELLOW
L-2195	Bonita Springs	Surficial Aquifer System	-1.03	8.84	7.81	↓	YELLOW
L-738	Bonita Springs	Lower Tamiami Aquifer	-1.63	-2.62	-4.25	↓	YELLOW

**TABLE 2**  
**BCB WATER CONDITIONS SUMMARY**  
**APRIL 2023**

**BIG CYPRESS BASIN**

APRIL 2023

**GROUNDWATER LEVEL DAILY TRENDS COMPARED TO HISTORICAL AVERAGE**

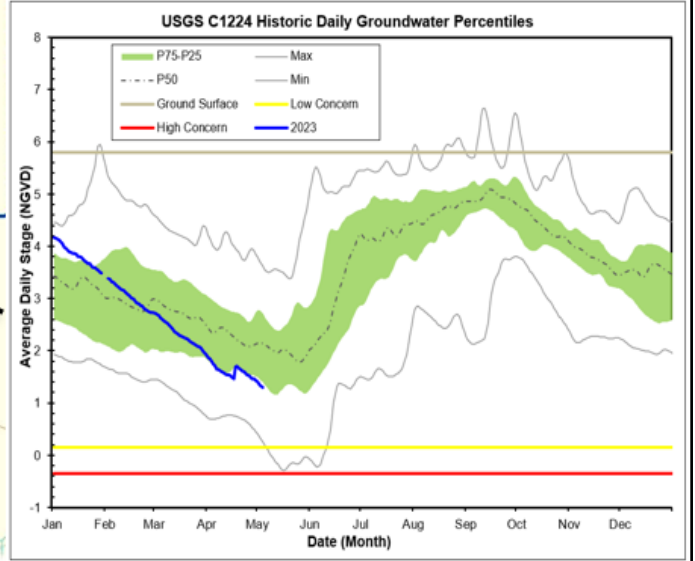
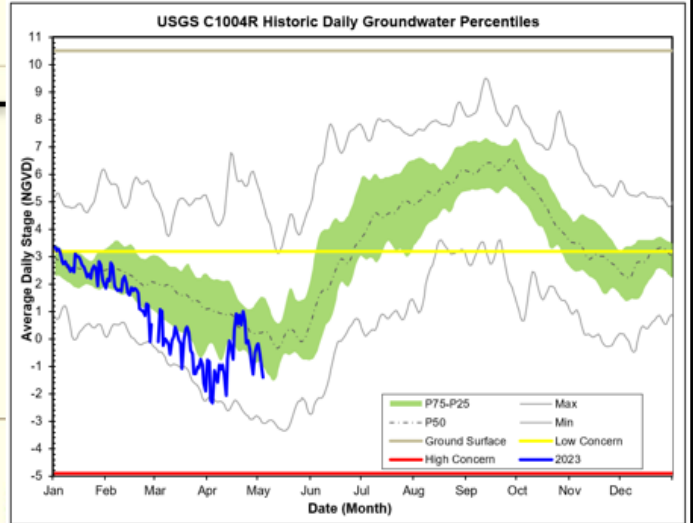
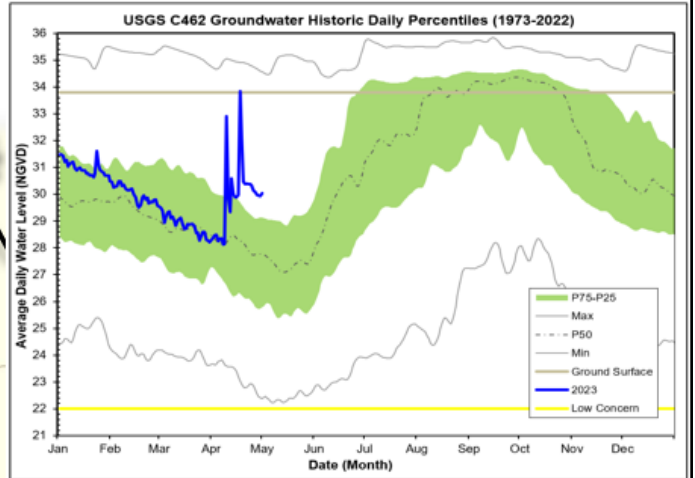
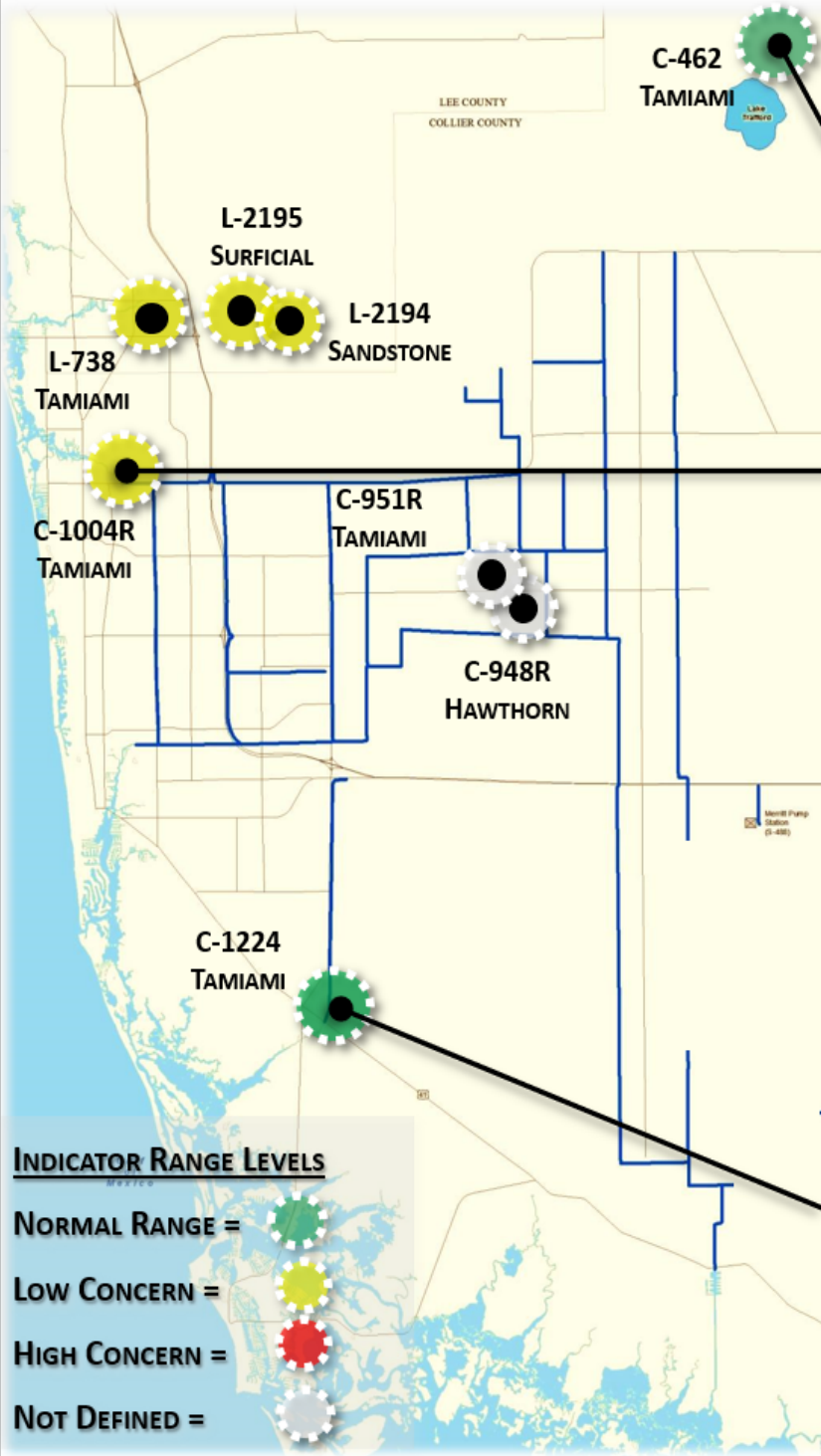


FIGURE 9

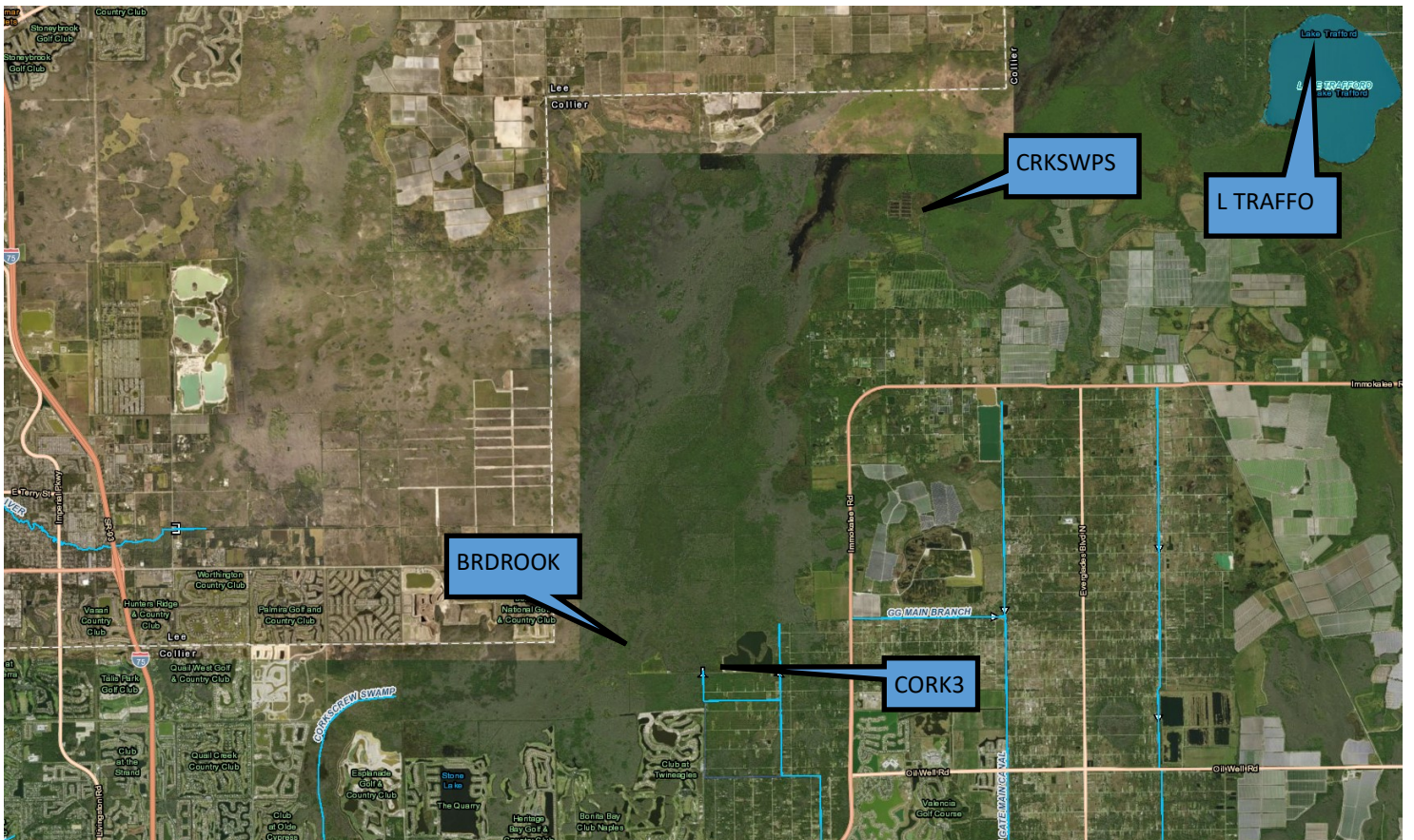


Figure 10-Corkscrew Historic Average Daily Headwater Percentiles(1984-2022)

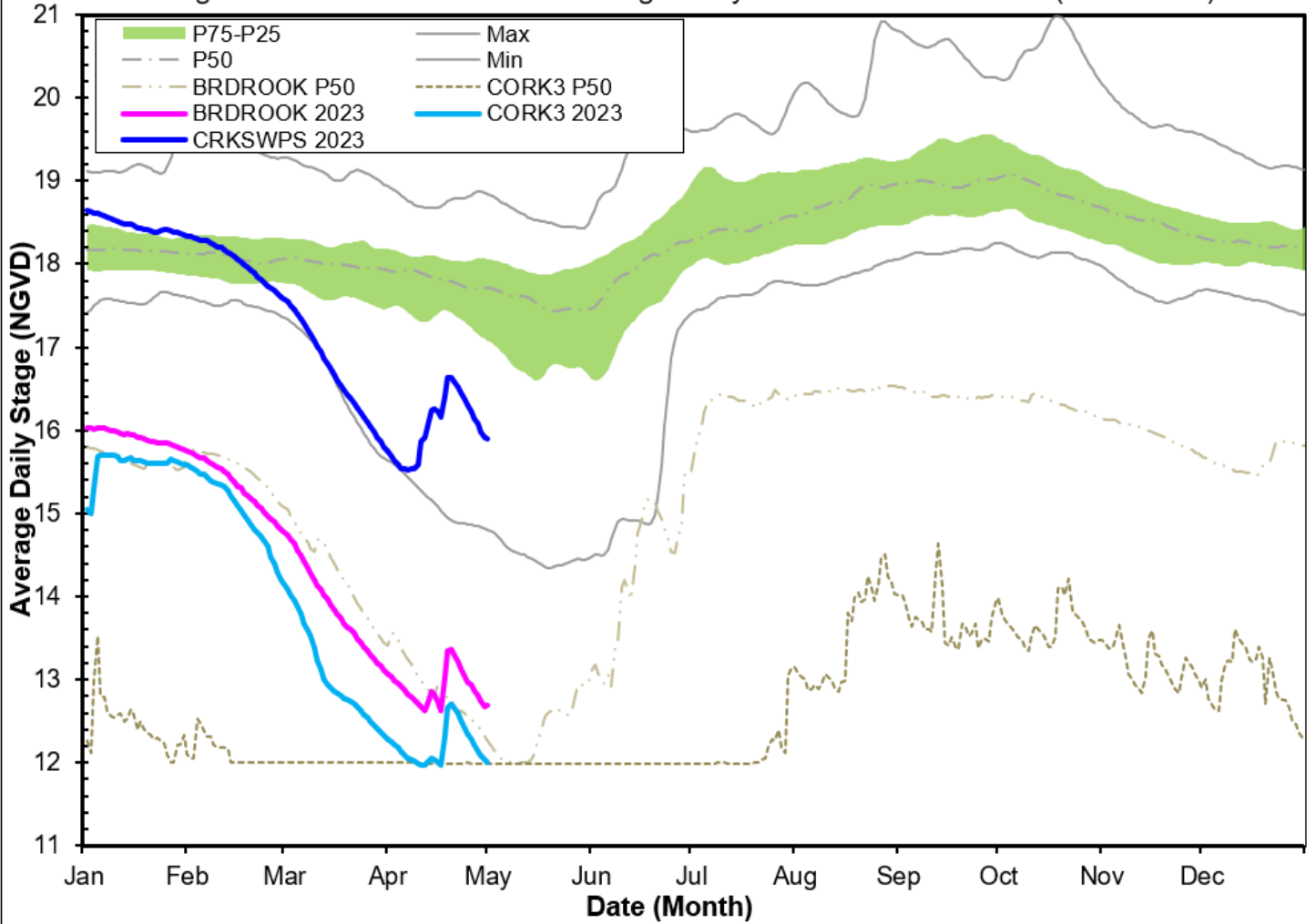




Figure 11 Lake Trafford Historic Daily Headwater Percentiles (1941 - 2022)

