

NOVEMBER 2023

BIG CYPRESS BASIN HYDROLOGIC REPORT



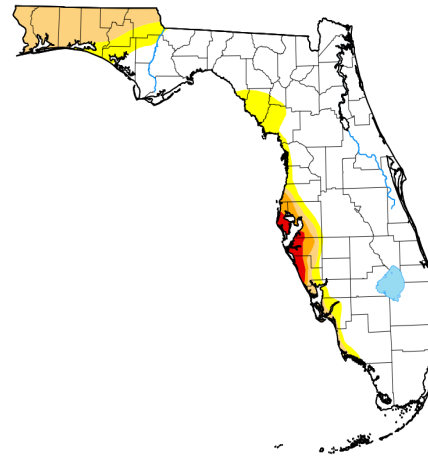
SUMMARY OF HYDROLOGIC CONDITIONS IN THE BIG CYPRESS BASIN

November 2023

SUMMARY

The first half of November continued the trend of drier than normal conditions. Water levels in the Basin were declining roughly two months earlier than normal and trending with the driest year on record. However, on November 13th, the Basin experienced a significant rainfall event, with amounts ranging from 4.5 to 5 inches (equivalent to a 5-year 12 hour storm event) and local maxima reaching 7.5 inches. This 12 hour November rainfall event marked the second-highest daily rainfall during November in the recorded history of the Basin, and the monthly total was 242% above normal. Despite the near record-breaking amount of rainfall for November, the Basin is still 14 inches below the typical annual average for rainfall. The much-needed rainfall, however, led to a notable increase in water levels bringing the system to much above normal.

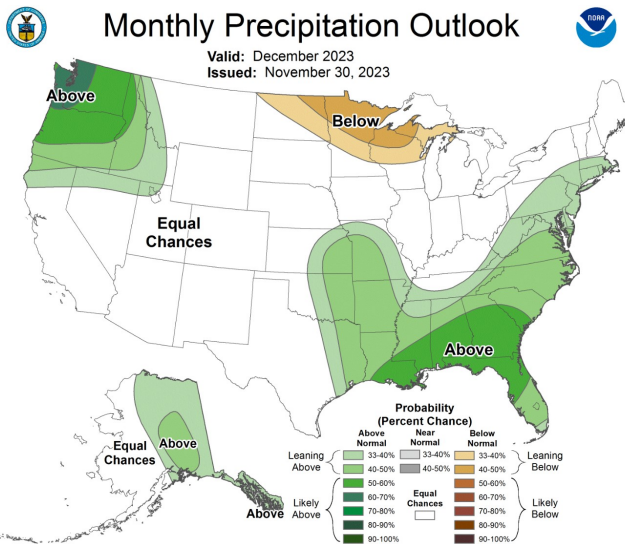
Florida



Map released: Thurs. December 7, 2023
Data valid: December 5, 2023 at 7 a.m. EST

Intensity

- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)
- No Data



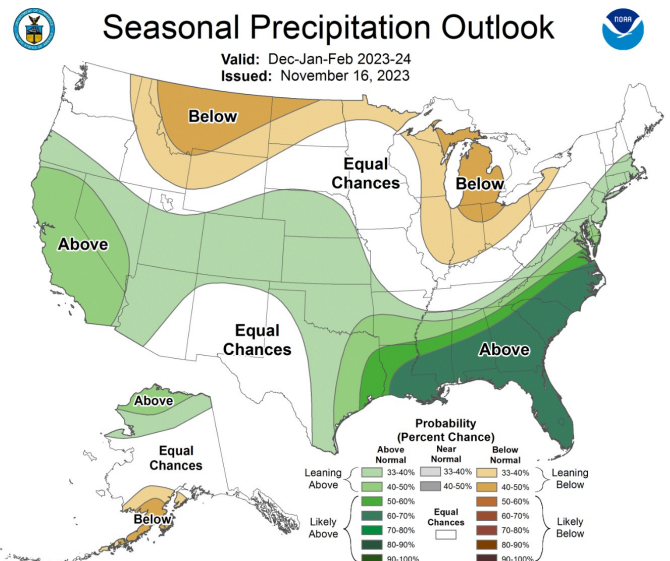
November 30th marked the end to the 2023 Hurricane season, during which we experienced a total of 20 named storms. Among them, 7 developed into hurricanes, with 3 intensifying into major hurricanes. This year ranks 4th for the most named storms since 1950, exceeding the annual average of 14. Fortunately, only one storm, Idalia, came close to posing a threat to the Basin.

November saw an improvement in drought conditions for the

Basin from the previous month. Currently, drought conditions persist along the coastal areas (top) in comparison to last month which showed almost the entire Basin experiencing D0 conditions.

Groundwater levels saw mostly an increase the last half of November and are currently above the historic minimums except for C-948R which is currently below the historic minimum.

Based on the National Weather Service's 30-day forecast, there is 40-50% chance of above normal precipitation and 40-50% chance of above normal temperatures (left). The 3-month projection for the Basin predicts an 80-90% chance of above normal



precipitation (right) and an equal chance of normal temperatures. Long term dry season outlooks indicate above average rainfall chances for Florida from November through April 2024.

BCB RAINFALL

As measured by twenty-four (24) reporting stations (ref. **Figures 1, 2, Table 1**), the basin-wide monthly average was **4.6 inches (242% of normal)**, which is well above the average **1.9 inches** typically collected.

Based on collected gauge and radar data, the rainfall distribution across the Basin was not very uniform and ranged from almost 3 inches to almost 6.5 inches. **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 a **6.65 inch** areal average across the watershed and the lowest was the Freedom Park basin with about **3.95 inches**. The Basin's total areal weighted average rainfall was **5.04 inches**. The month's highest gauge total was collected at the DSOTO10 rain gauge (Site R-24), which received **6.40 inches**. This month's lowest rainfall was recorded at Coco#1 (Site R-17), which received **2.77 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 canals were maintained in water conservation mode during the month to hold as much water as possible to promote groundwater recharge. There were no discharges through coastal structures until mid-November. Water levels increased throughout most of the system as a result of much-needed rainfall. The majority of the system is currently above the 50th percentile (**Figure 4a**).

- **GOLDEN GATE SYSTEM**

Control structures in the Golden Gate Main canal system were maintained in dry season operations for the month to conserve as much water as possible to promote groundwater recharge. There were no discharges into tidal waters until the much needed mid-November rainfall brought a significant amount of rainfall to the Basin. The system was transitioned to flood control operations during the rainfall event and then quickly transitioned back to dry-season operations. Water levels in the lower and middle reaches (coastal GG1 to GG5) part of the system are above the 90th percentile. The upper reaches (GG5 to GG7) are all above the 75th percentile (**ref Figure 5A & 5B**).

- **COCOHATCHEE SYSTEM**

All of the control structures in the Cocohatchee and Corkscrew canal systems were maintained in dry season operations for the month to conserve as much water as possible and promote groundwater recharge. There were no discharges into tidal waters until the much needed mid-November rainfall brought a significant amount of rainfall to the Basin. The system was transitioned to flood control operations during the rainfall event and then quickly transitioned back to dry-season operations. Water levels in the Cocohatchee system are above the 90th percentile. Water levels in the Corkscrew system increased for the month of November and are currently above the 90th percentile (**ref Figure 6A, 6B, & 6C**).

- **FAKA UNION SYSTEM**

The entire Faka Union system was operated in water conservation mode. The month of November saw canal levels increase and currently FU1 and FU5's water level are above the 90th percentile, FU4S is above the 50th percentile (**ref Figure 7A & 7B**).

- **HENDERSON CREEK SYSTEM**

Water control structures in the Henderson Creek system remained fully closed for November to conserve water and promote groundwater levels. There were no discharges into tidal waters for November. Canal levels experienced an increase in HC1 and HC2 through most of November and are currently above the 50th percentile (ref **Figure 8A & 8B**).

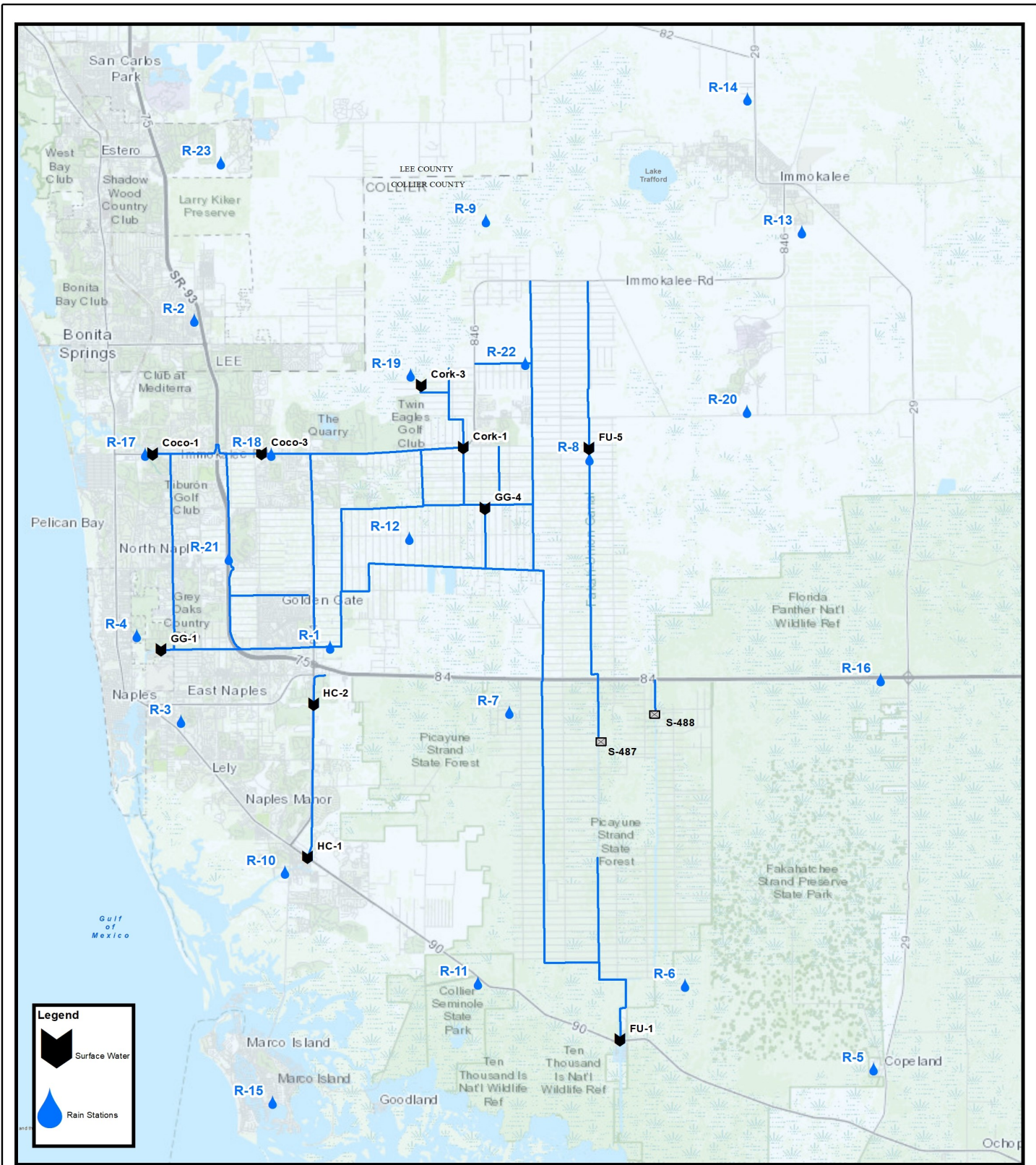
- **CORKSCREW SWAMP**

Figure 10 shows the historical trends for Corkscrew, Bird Rookery, and the Cork 3 structure and the 2023 corresponding levels. Corkscrew, Bird Rookery and Cork3 water levels increased for November due to the much needed mid-November rainfall. Corkscrew is currently above the 75th percentile, Bird Rookery is above the 50th percentile and Cork 3 is above the 75th percentile. Lake Trafford water levels increased throughout the month and is currently above the 50th percentile heading into December (**Figure 11**).

Figure 12 and Figure 13 shows the locations for Southern Corkscrew (SOCREW) sites 1 through 6 and the historical trends for SOCREW1 and SOCREW2. SOCREW sites 3, 4, 5 and 6 only have a period of record for a little over a year. All SOCREW sites are surface and shallow groundwater wells and their corresponding locations are depicted on **Figures 12 and 13**. SOCREW1 and SOCREW 2 both saw an increase in groundwater levels mid-November but the last half of the month water levels started their typical dry-season regression with the absence of any additional rainfall. SOCREW1 is currently slightly below the 50th percentile and SOCREW2 is above the 50th percentile. In comparison to this time last year water levels for SOCREW3, SOCREW 4 and SOCREW5 are down 0.2 feet and SOCREW6 is down 1.9 feet.

BIG CYPRESS BASIN & LOWER WEST COAST GROUNDWATER LEVELS

The current reporting (12/02/2023) for the Lower West Coast [LWC] indicate an increase in groundwater wells from the previous reporting in November. All of the groundwater levels increased throughout November with the exception of C-948R which showed a decrease in water level. The mid-November rainfall brought much needed relief to the Basin and most of the groundwater elevations are currently above the 25th percentile with the exception of C-462 which is above the 90th percentile and C-948R which is below the historic minimum. All reported wells in **Table 2** show an average increase of 0.69 feet. C-1224 recorded the largest increase of 1.31 feet, and C-462 the smallest increase of 0.23 feet (ref. **Table 2, Figure 9**).

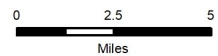


Legend

- Surface Water
- Rain Stations

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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



hydrolog_mai_m_2016.mxd

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

STATION INDEX NO.	STATION NAME	NOVEMBER 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	4.30	1.57	2.73	44.64	64.30	-19.66
R-2	BONITA SPRINGS WATER PLANT	4.35	1.79	2.56	40.89	50.76	-9.87
R-3	COLLIER COUNTY COURTHOUSE	4.62	2.08	2.54	36.99	51.97	-14.98
R-4	TRILBY PARK	3.75	2.00	1.75	30.32	57.76	-27.44
R-5	FAKAHATCHEE STRAND HQ	5.29	1.87	3.42	39.02	58.08	-19.06
R-6	DAN HOUSE PRAIRIE	4.42	2.30	2.12	44.72	51.54	-6.82
R-7	SGGE WEATHER STATION	5.12	1.53	3.59	49.36	60.21	-10.85
R-8	FAKA UNION #5	5.78	1.83	3.95	44.92	62.13	-17.21
R-9	CORKSCREW SWAMP NORTH END	4.41	1.34	3.07	45.61	50.19	-4.58
R-10	ROOKERY BAY HQ	4.48	1.60	2.88	32.47	54.64	-22.17
R-11	COLLIER SEMINOLE STATE PARK	4.16	2.26	1.90	40.52	55.81	-15.29
R-12	G.G. FIRE STATION	4.51	1.91	2.60	41.90	57.64	-15.74
R-13	IMMOKALEE LANDFILL	5.07	2.21	2.86	38.77	51.43	-12.66
R-14	IFAS	4.91	1.98	2.93	50.16	48.96	1.20
R-15	MARCO R.O. PLANT	4.66	2.14	2.52	31.88	51.89	-20.01
R-16	FAKAHATCHEE STRAND NORTH END	4.75	2.19	2.56	53.13	58.61	-5.48
R-17	COCO#1	2.77	1.68	1.09	31.62	48.15	-16.53
R-18	COCO#3	4.02	1.22	2.80	37.86	55.01	-17.15
R-19	BIRD ROOKERY	4.57	1.84	2.73	45.03	61.82	-16.79
R-20	AVE MARIA	5.08	2.12	2.96	35.41	52.67	-17.26
R-21	I75W2	3.81	1.75	2.06	38.09	60.43	-22.34
R-22	GG#7	5.43	2.04	3.39	40.85	58.22	-17.37
R-23	FPWX	3.83	2.18	1.65	38.34	53.41	-15.07
R-24	DSOTO10	6.40	New Site	New Site	New Site	No Historical Data	

AVERAGES	4.60	1.89	2.72	40.54	55.46	-14.92
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BCB ANNUAL RAINFALL
MONTHLY AVERAGE & HISTORICAL AVERAGE TRENDS
(FROM BCB RAINFALL GAUGE DATA)

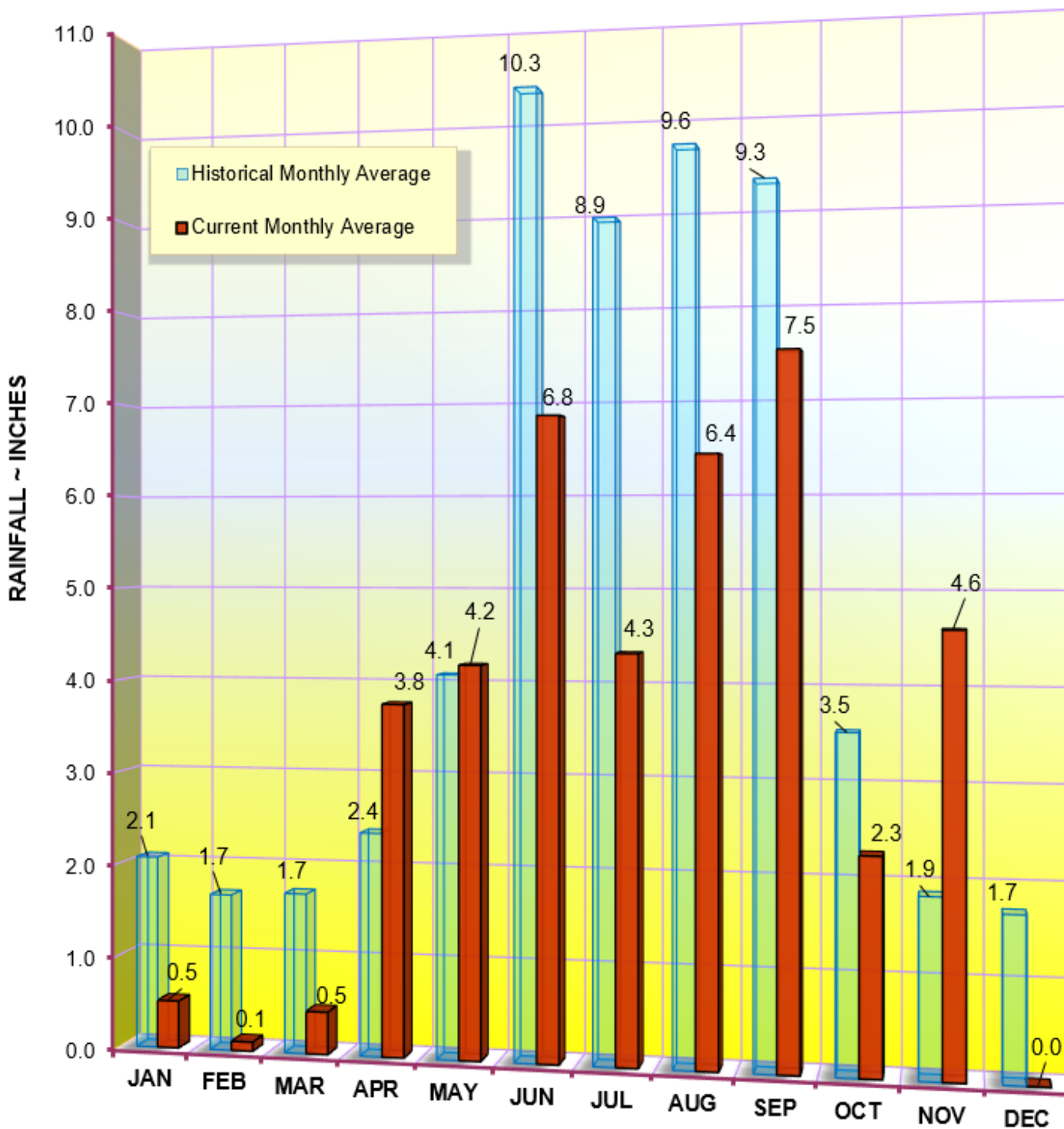


FIGURE 2
BCB GAUGE RAINFALL
MONTHLY AVERAGES THROUGH NOVEMBER 2023

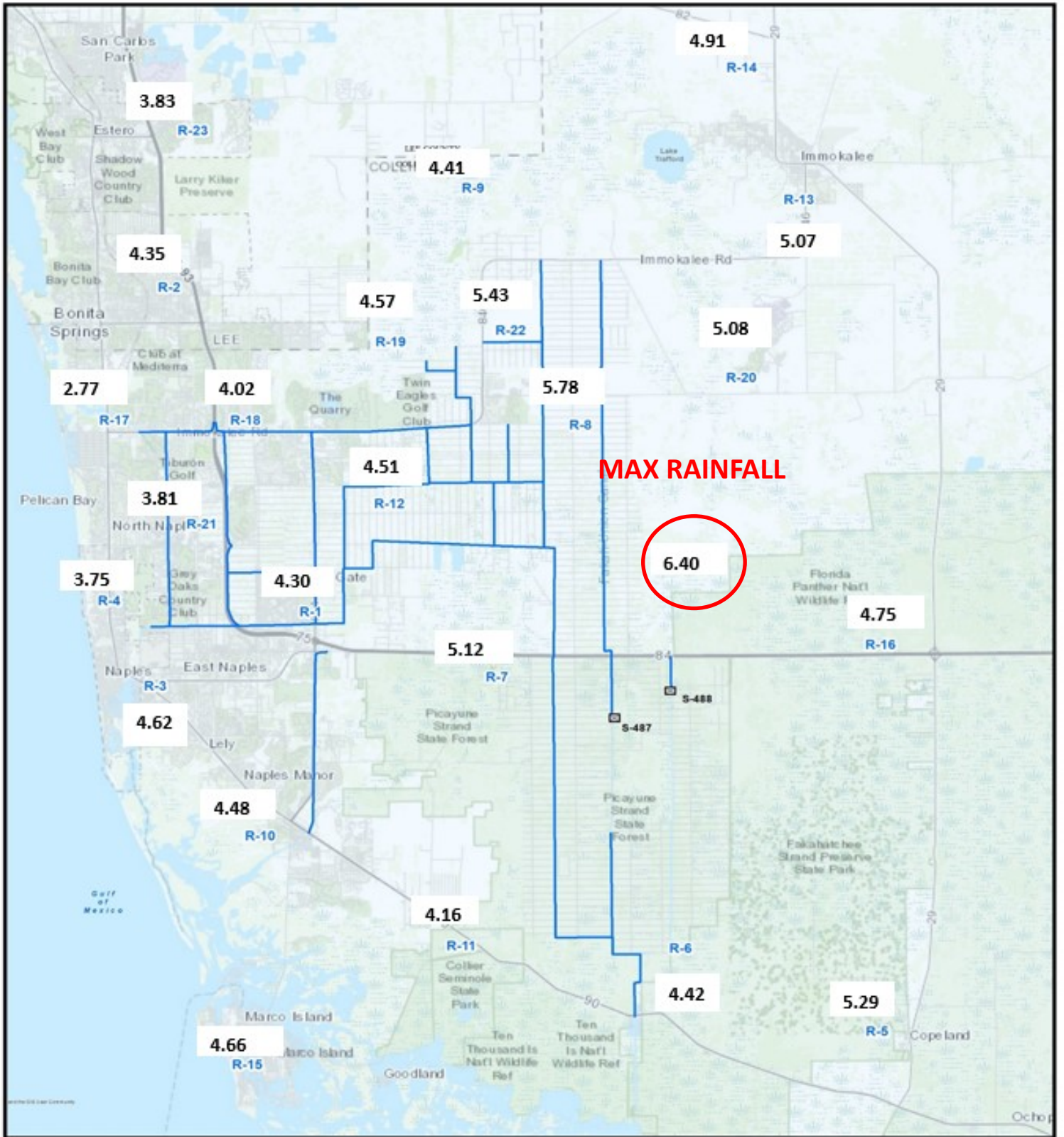


FIGURE 3
BCB RAINFALL DISTRIBUTION
NOVEMBER 2023

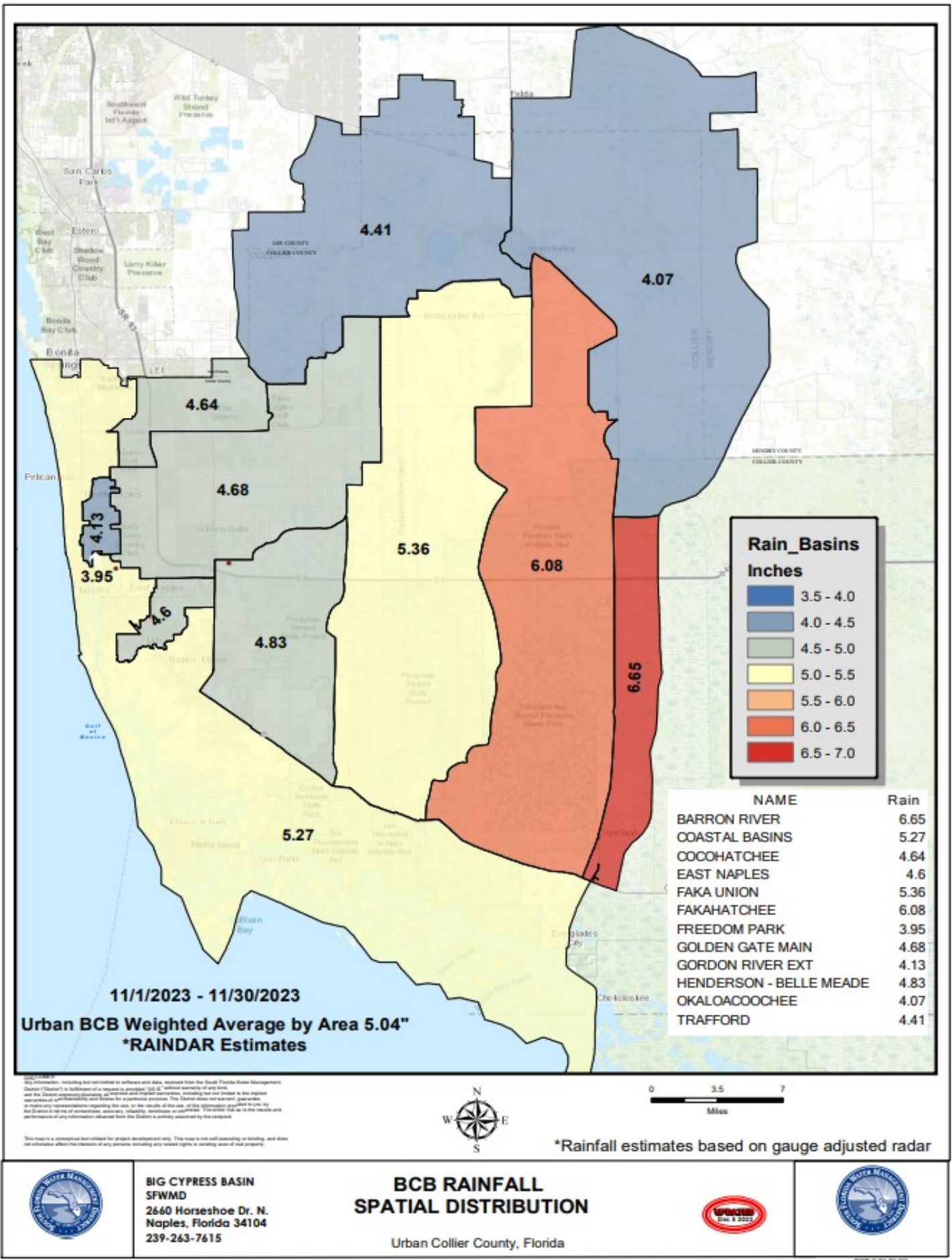


FIGURE 3a

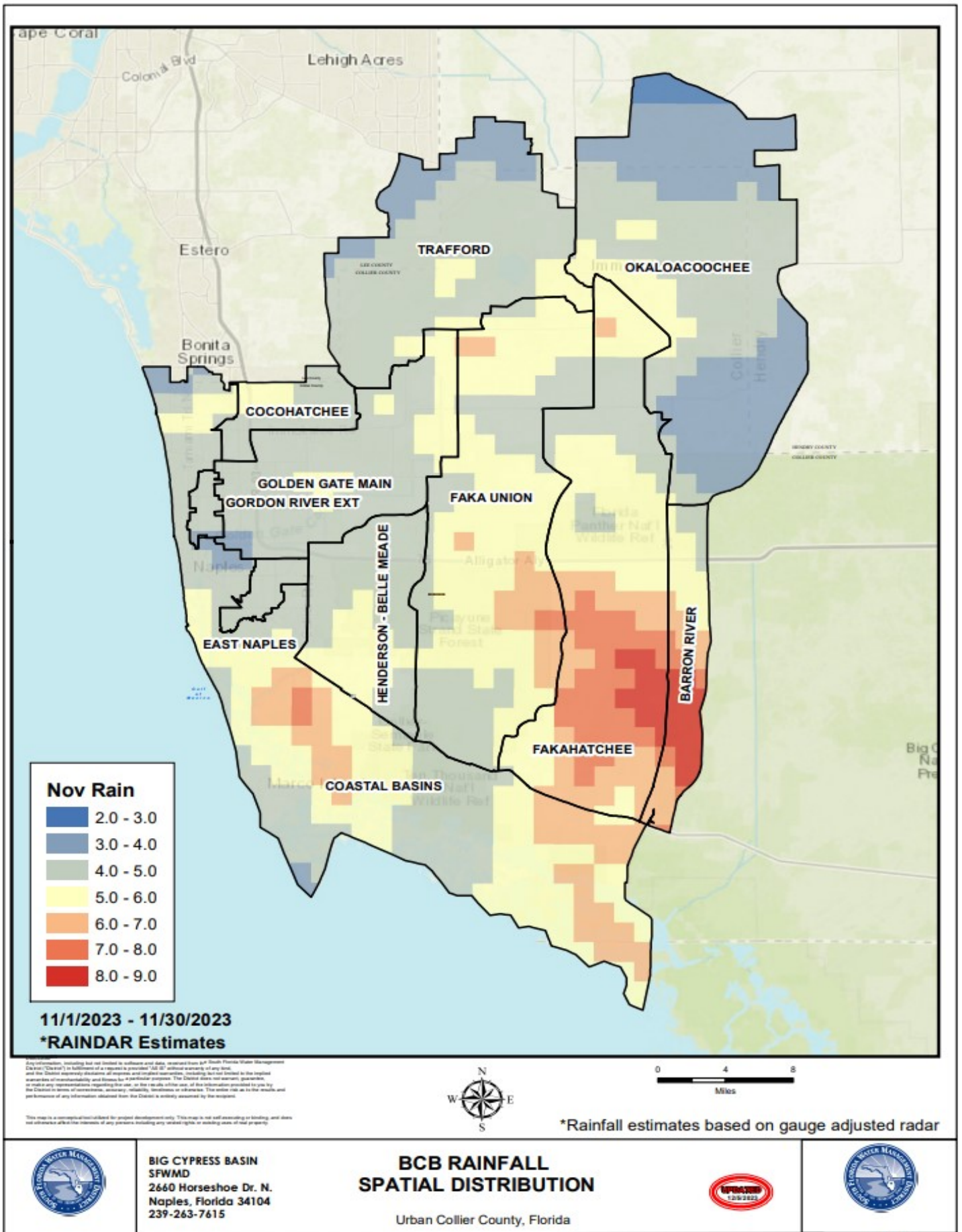
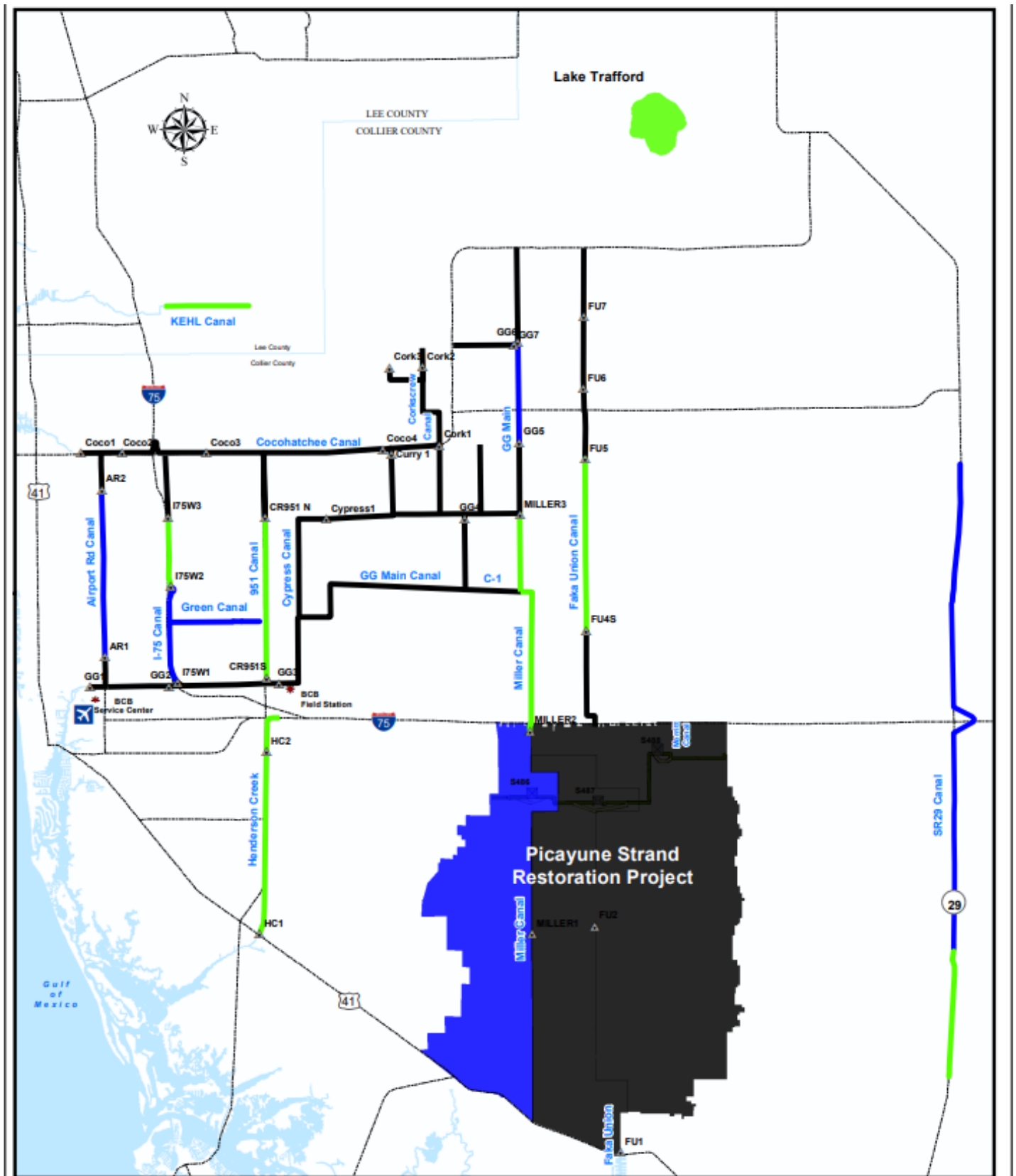


FIGURE 4



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* Based on period of record for each canal reach



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

**BCB Conditions Index
 12/4/23**

Urban Collier County, Florida



FIGURE 4A

Figure 5 Golden Gate Canal Historic Average Daily Headwater Percentiles

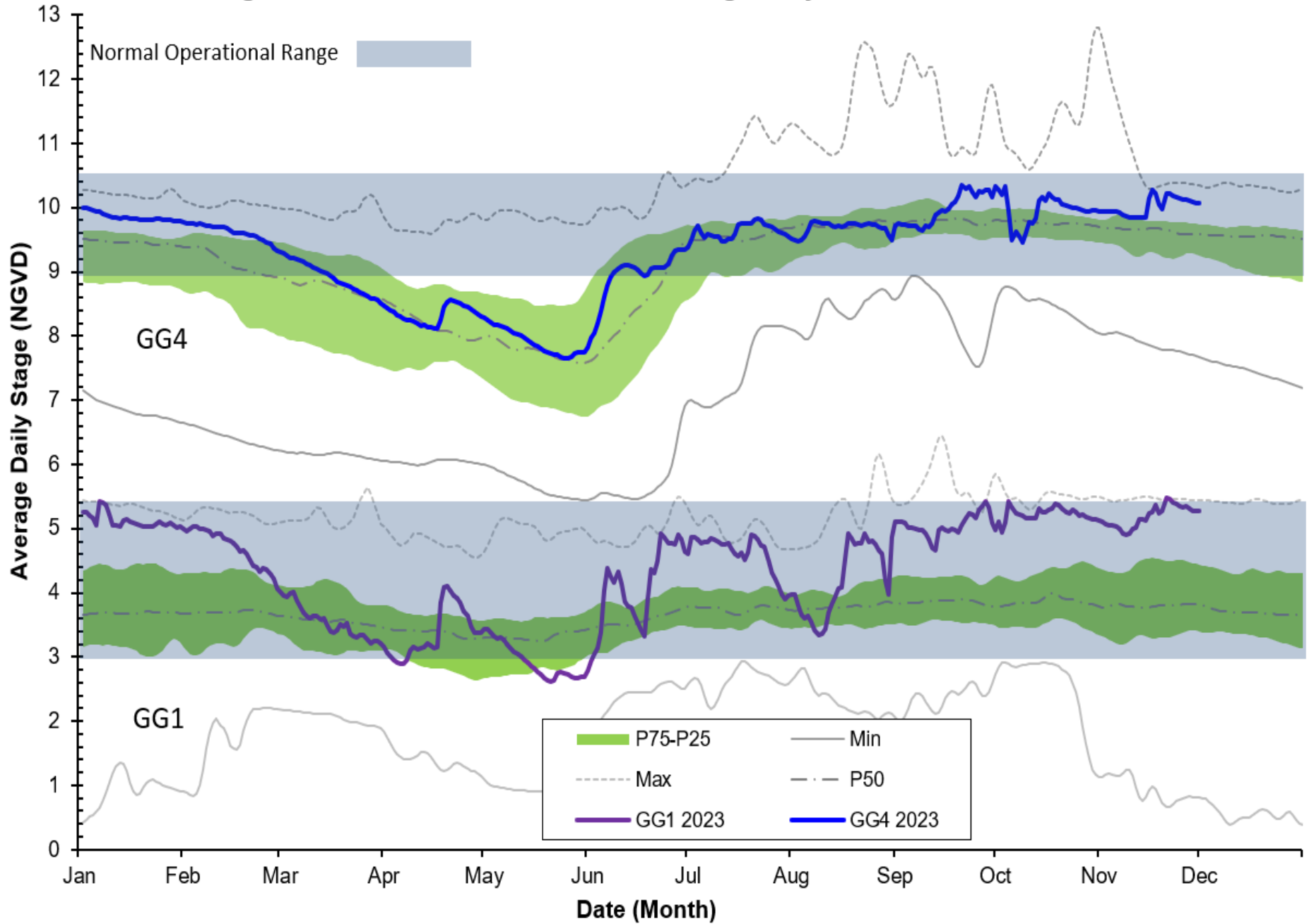


Figure 6A Cocohatchee Canal Historic Average Daily Headwater Percentiles

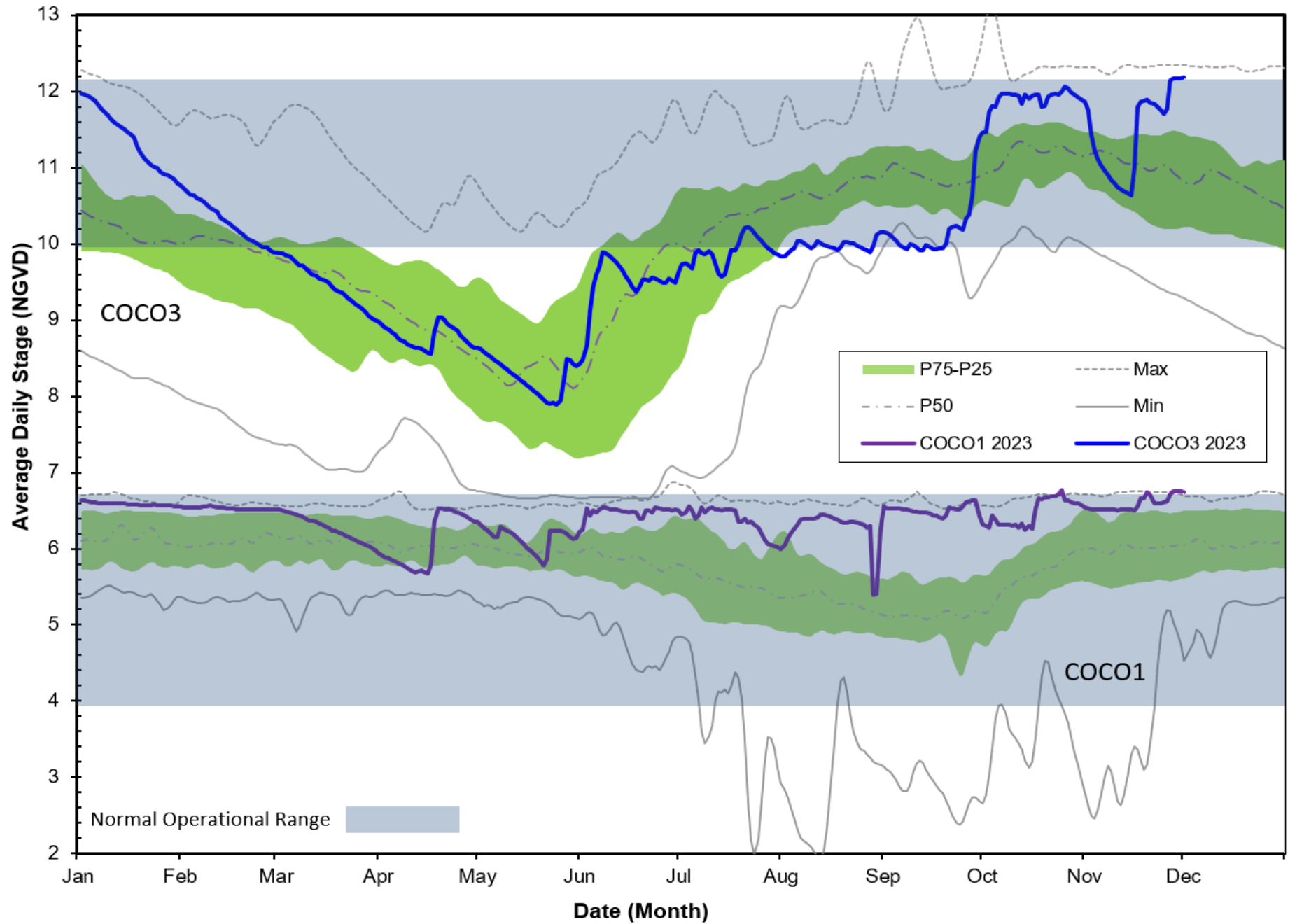


Figure 6B - CORK1 Historic Daily Headwater Percentiles (1989 - 2022)

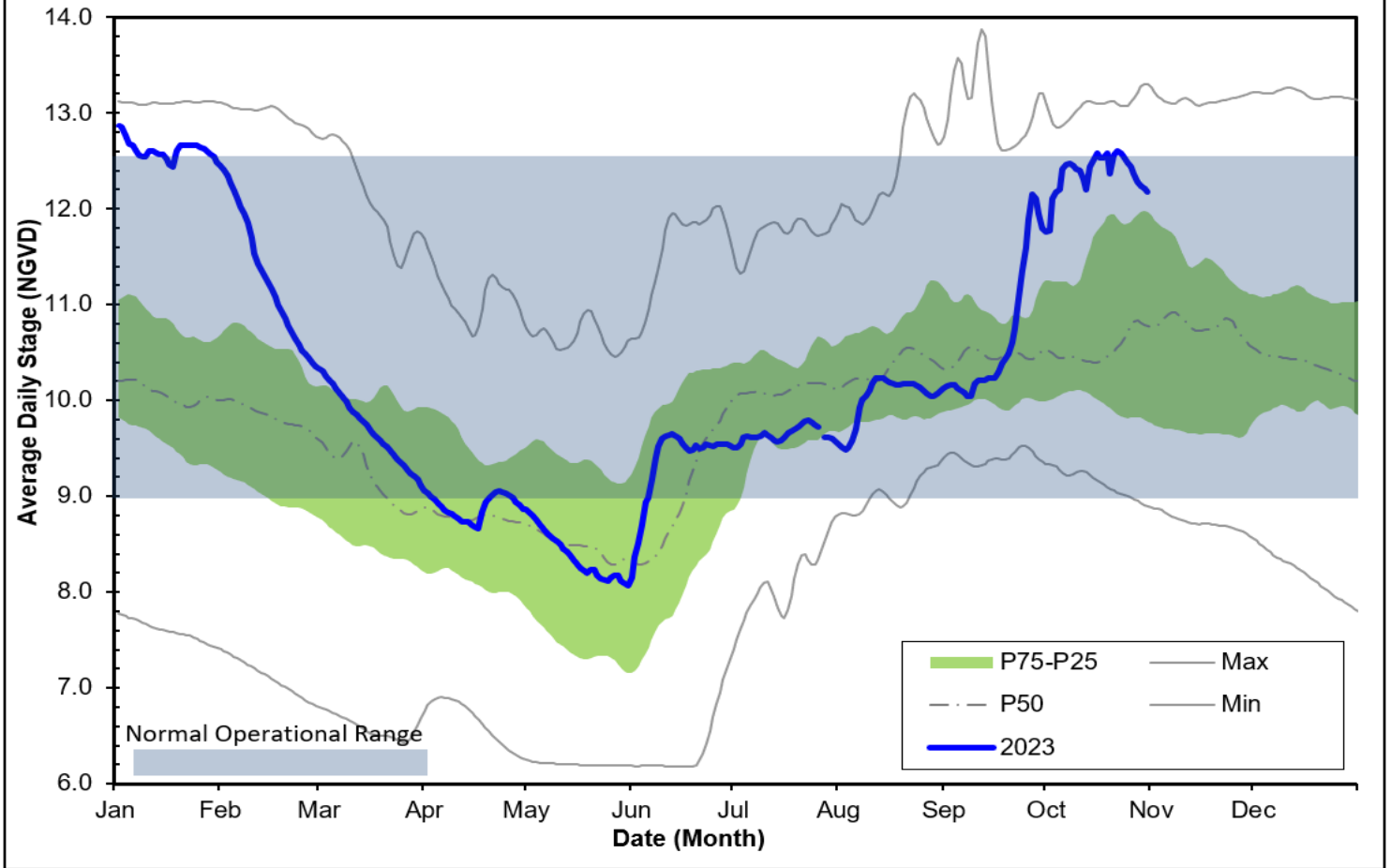


Figure 6C - CORK3 Historic Daily Headwater Percentiles (2004 - 2022)

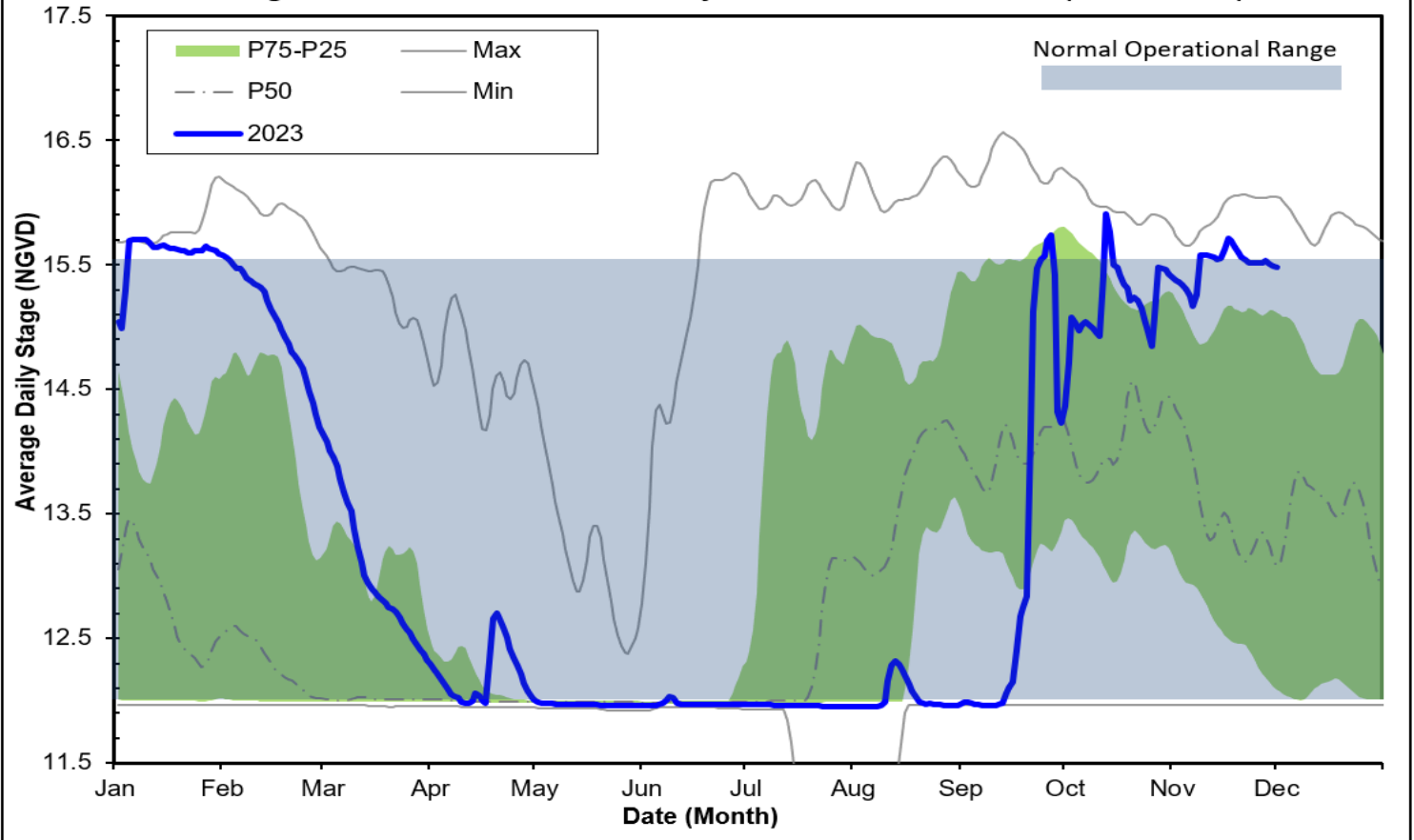


Figure 7A Faka Union Canal Historic Average Daily Headwater Percentiles

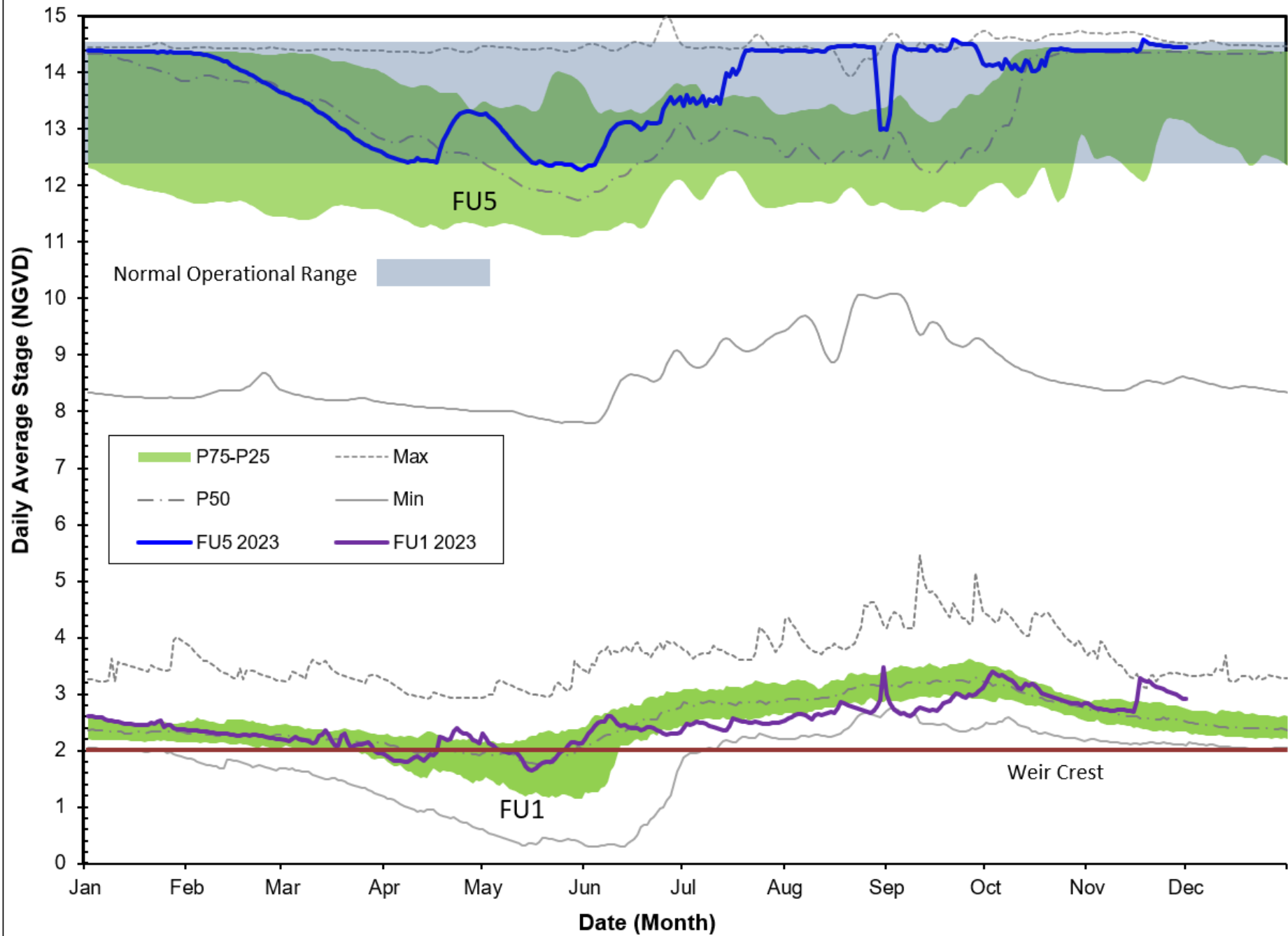


Figure 7B FU4S Historic Average Daily Water Percentiles

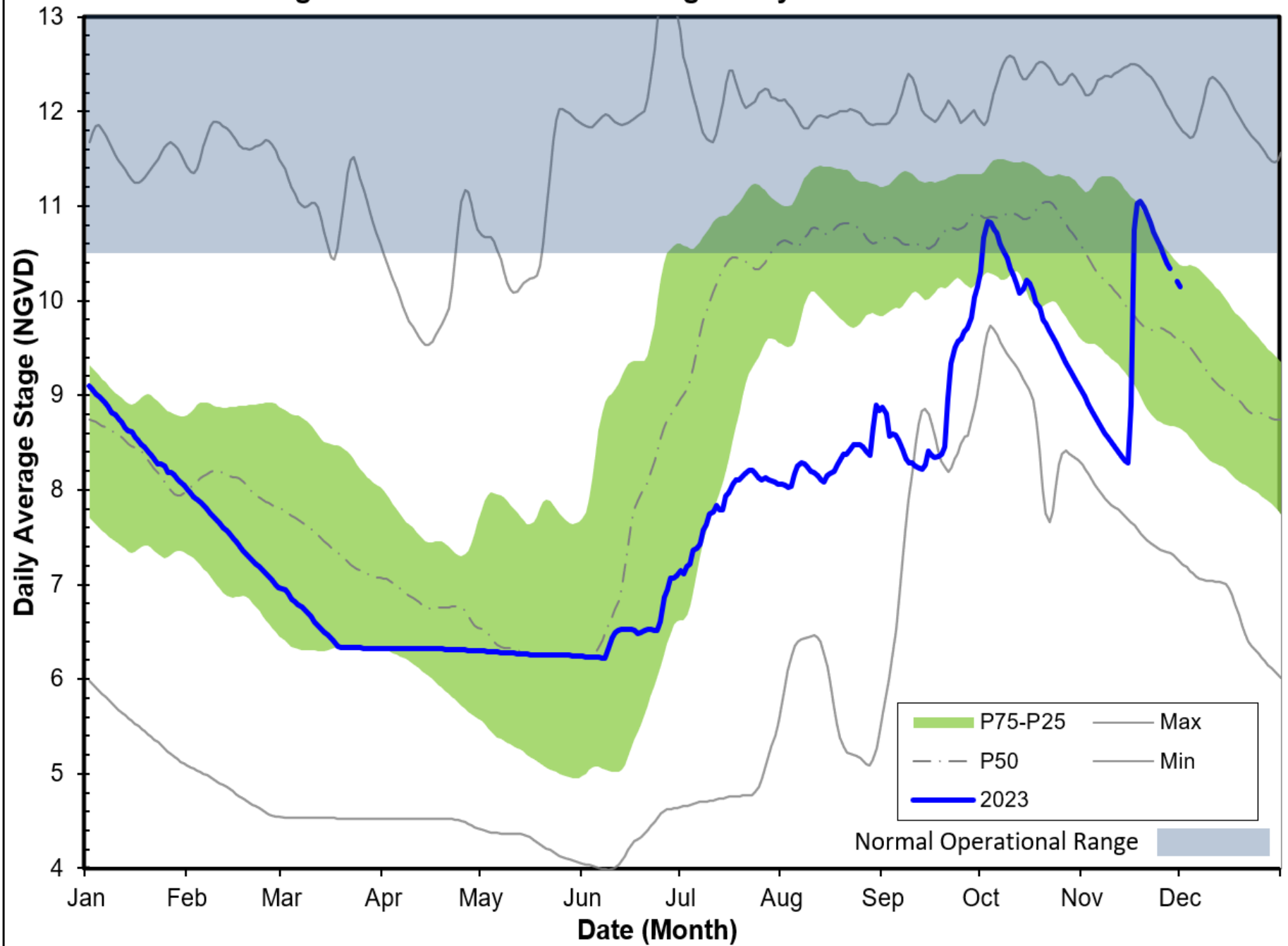


Figure 8A HC1 Historic Average Daily Headwater Percentiles

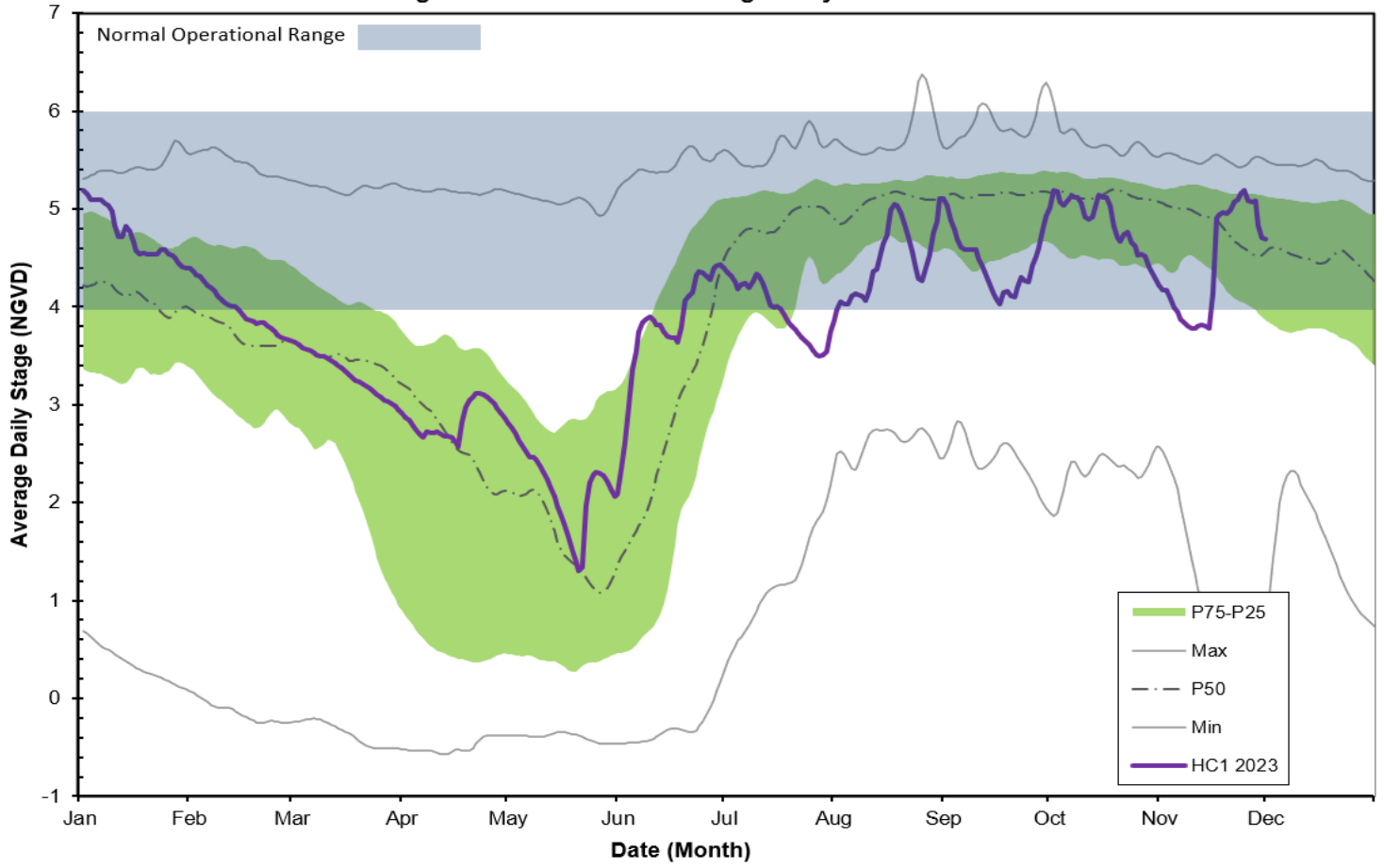
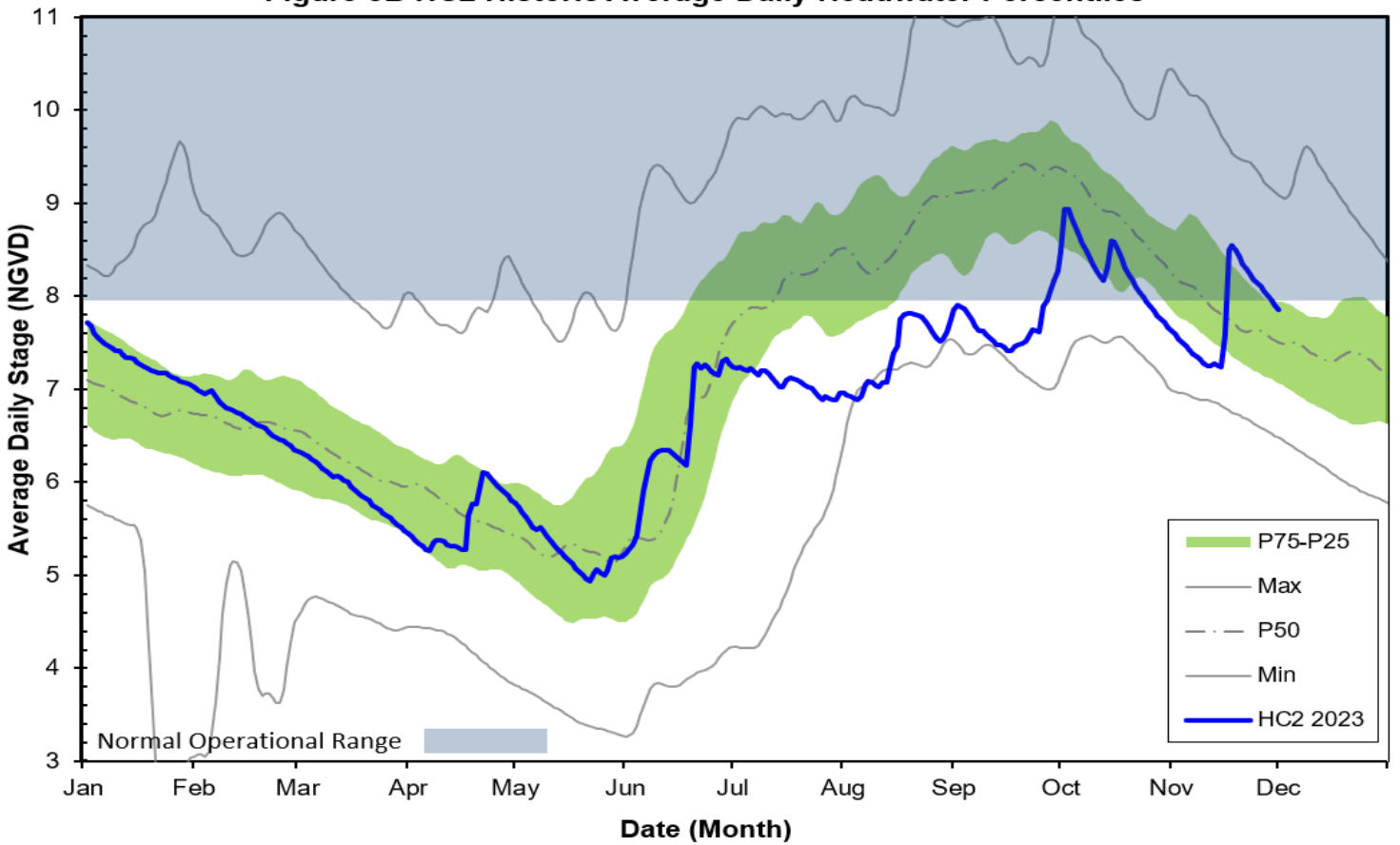


Figure 8B HC2 Historic Average Daily Headwater Percentiles



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

Last Reading Date :		November 30, 2023					
Previous Period Reading Date:		November 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	0.23	34.16	34.39	↑	GREEN
C-1004R	Naples	Lower Tamiami Aquifer	0.56	1.32	1.88	↑	YELLOW
C-1224	Marco Lakes	Lower Tamiami Aquifer	1.31	2.42	3.73	↑	GREEN
C-948R	Golden Gate	Mid Hawthorn Aquifer	-0.77	30.62	29.85	↓	
C-951R	Golden Gate	Lower Tamiami Aquifer	1.07	3.66	4.73	↑	
L-2194	Bonita Springs	Sandstone Aquifer	0.77	3.54	4.31	↑	GREEN
L-2195	Bonita Springs	Surficial Aquifer System	0.33	10.29	10.62	↑	GREEN
L-738	Bonita Springs	Lower Tamiami Aquifer	0.53	-1.16	-0.63	↑	GREEN

TABLE 2
BCB WATER CONDITIONS SUMMARY
NOVEMBER 2023

BIG CYPRESS BASIN

NOVEMBER 2023

GROUNDWATER LEVEL DAILY TRENDS COMPARED TO HISTORICAL AVERAGE

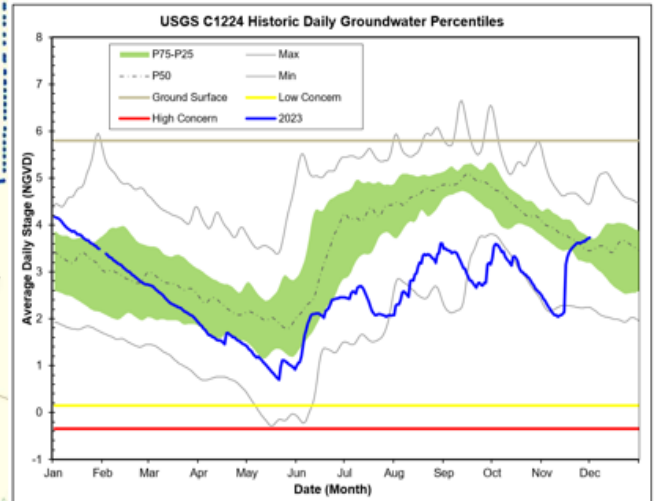
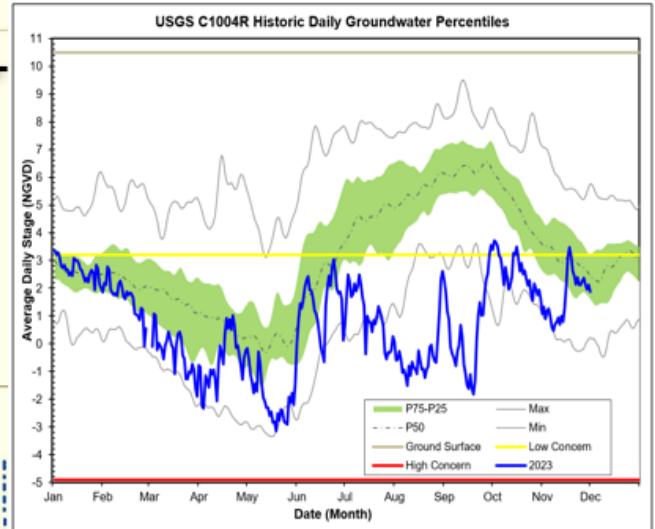
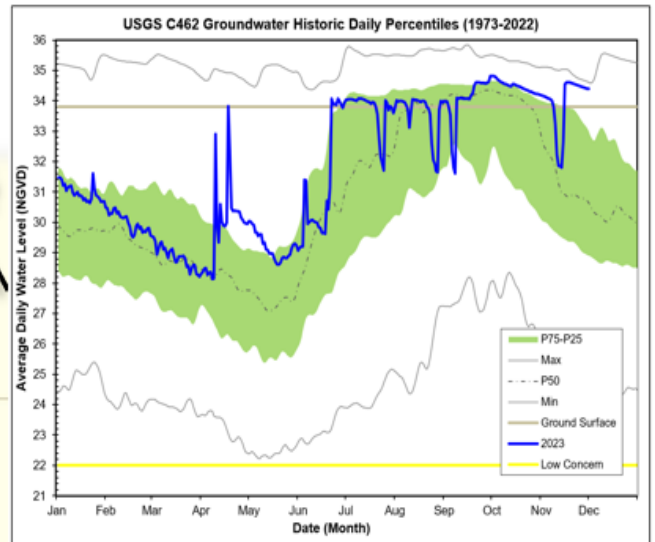
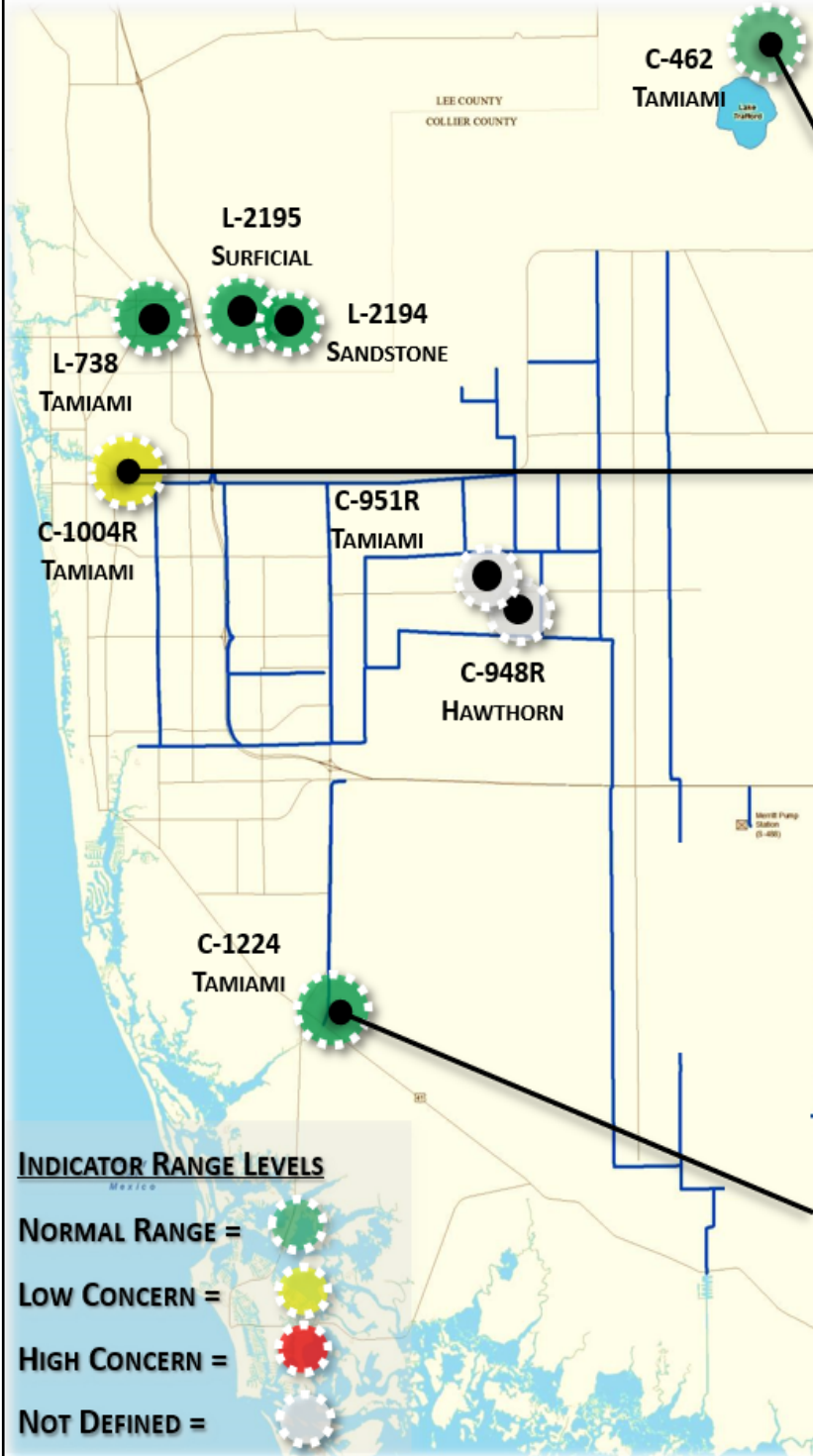


FIGURE 9

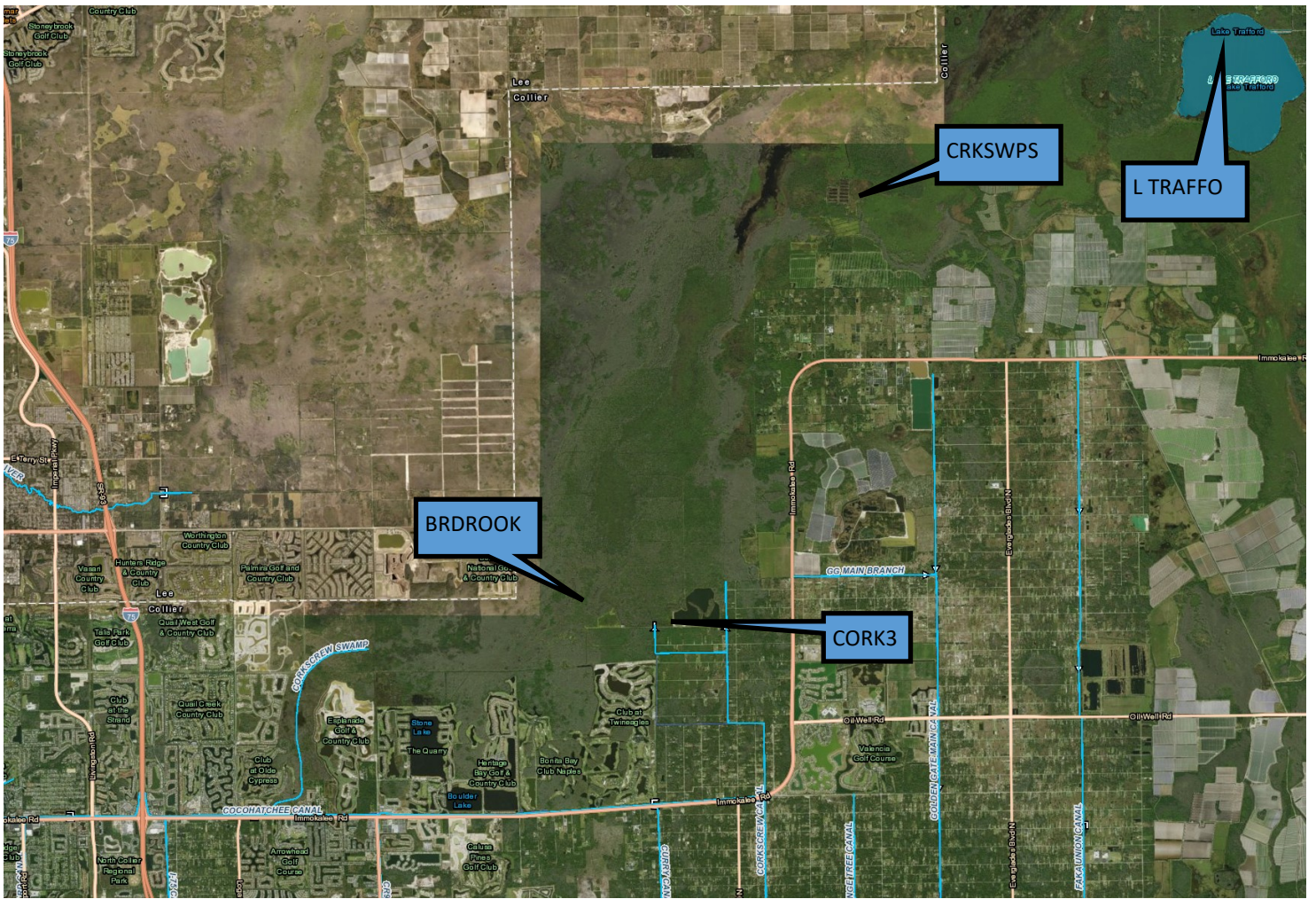


Figure 10-Corkscrew Historic Average Daily Headwater Percentiles(1984-2022)

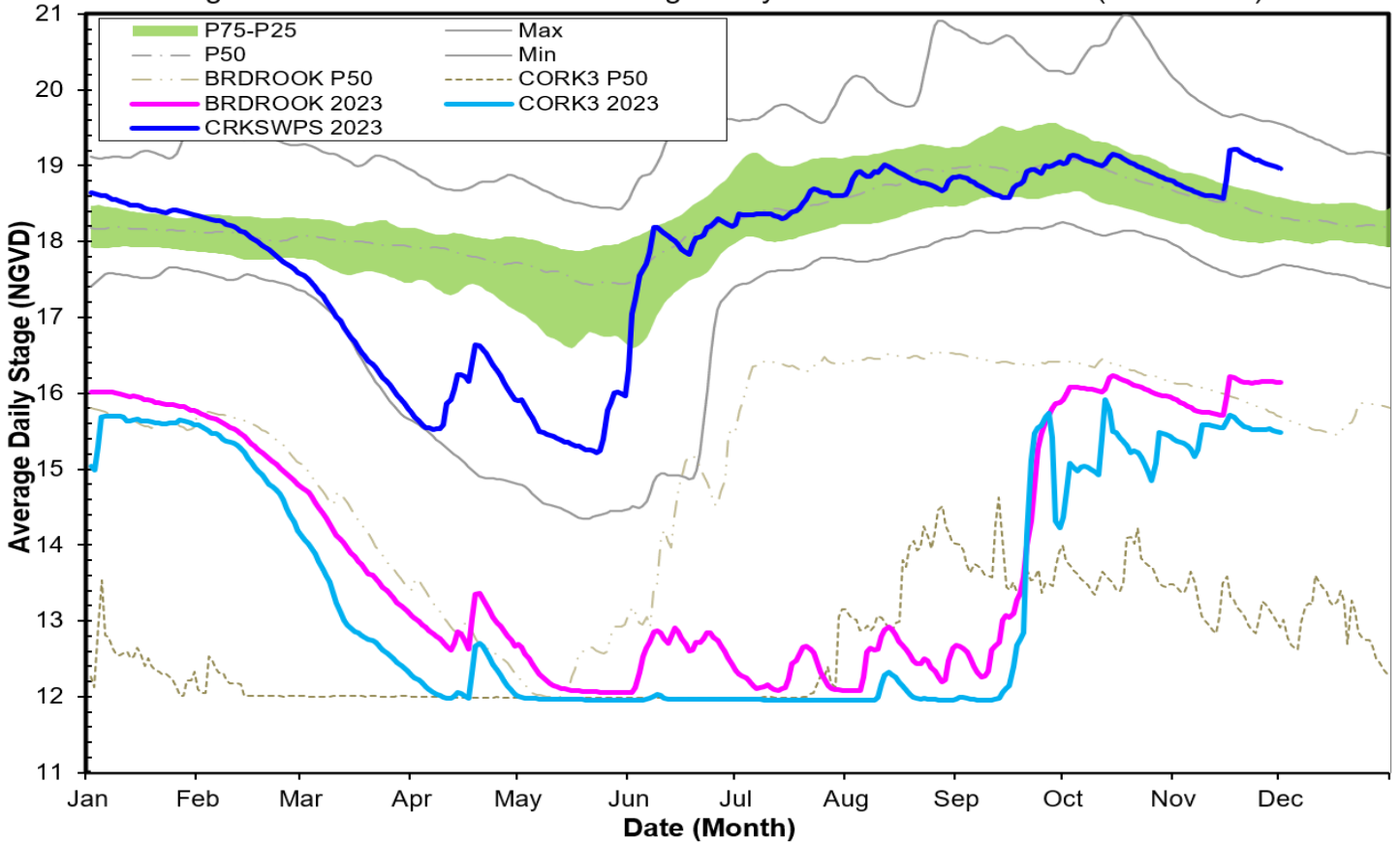
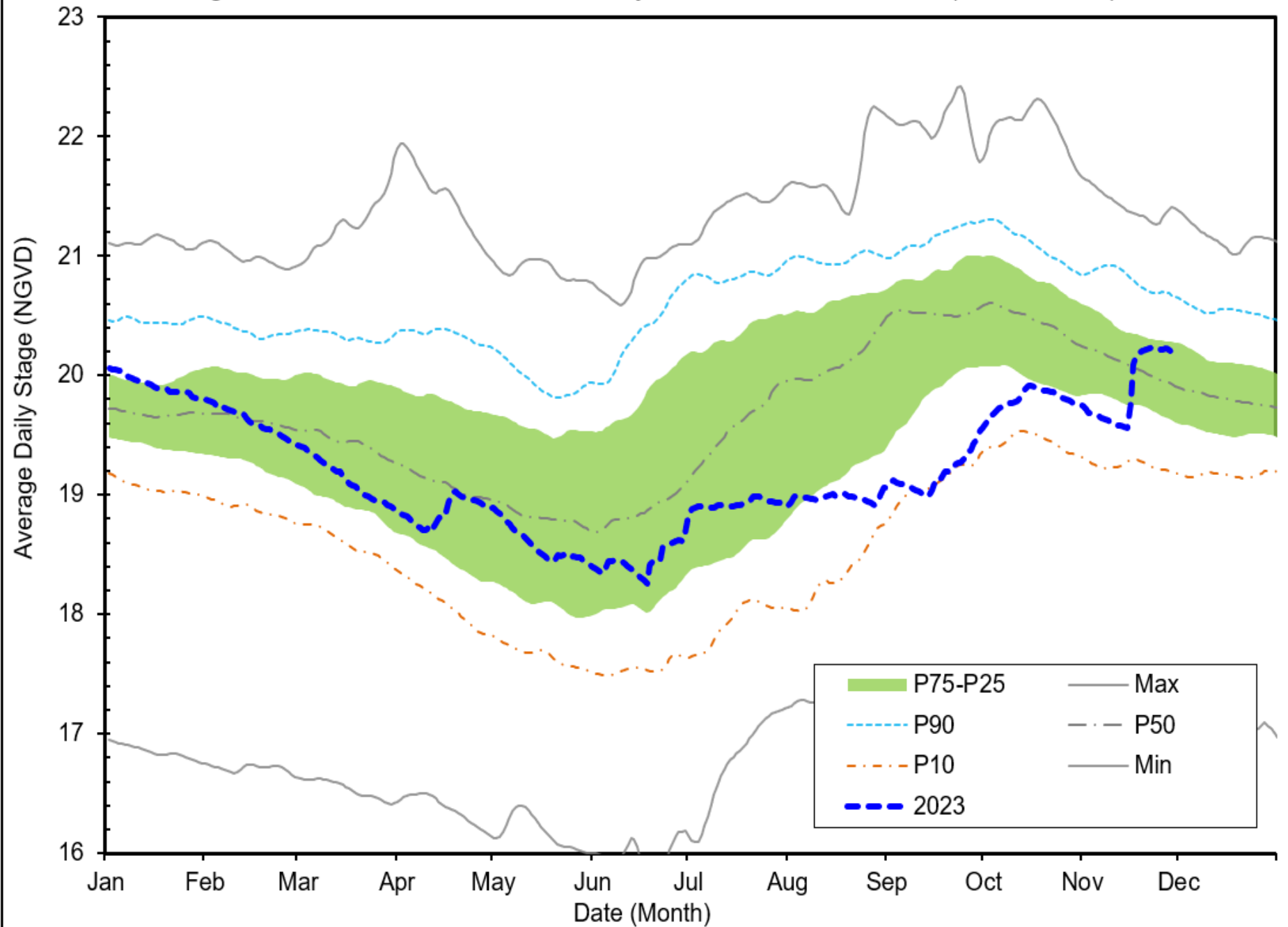


Figure 11 Lake Trafford Historic Daily Headwater Percentiles (1941 - 2022)



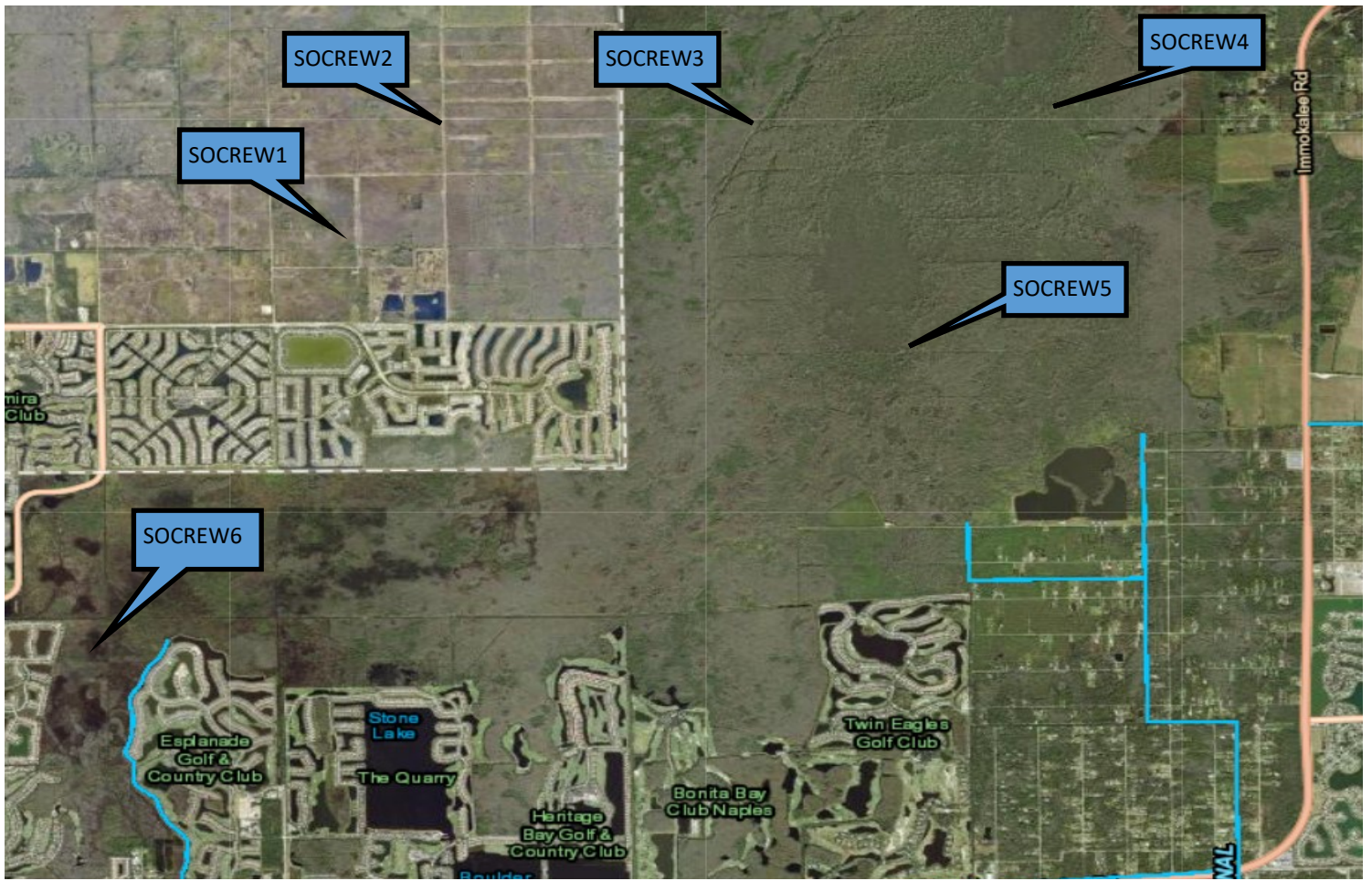
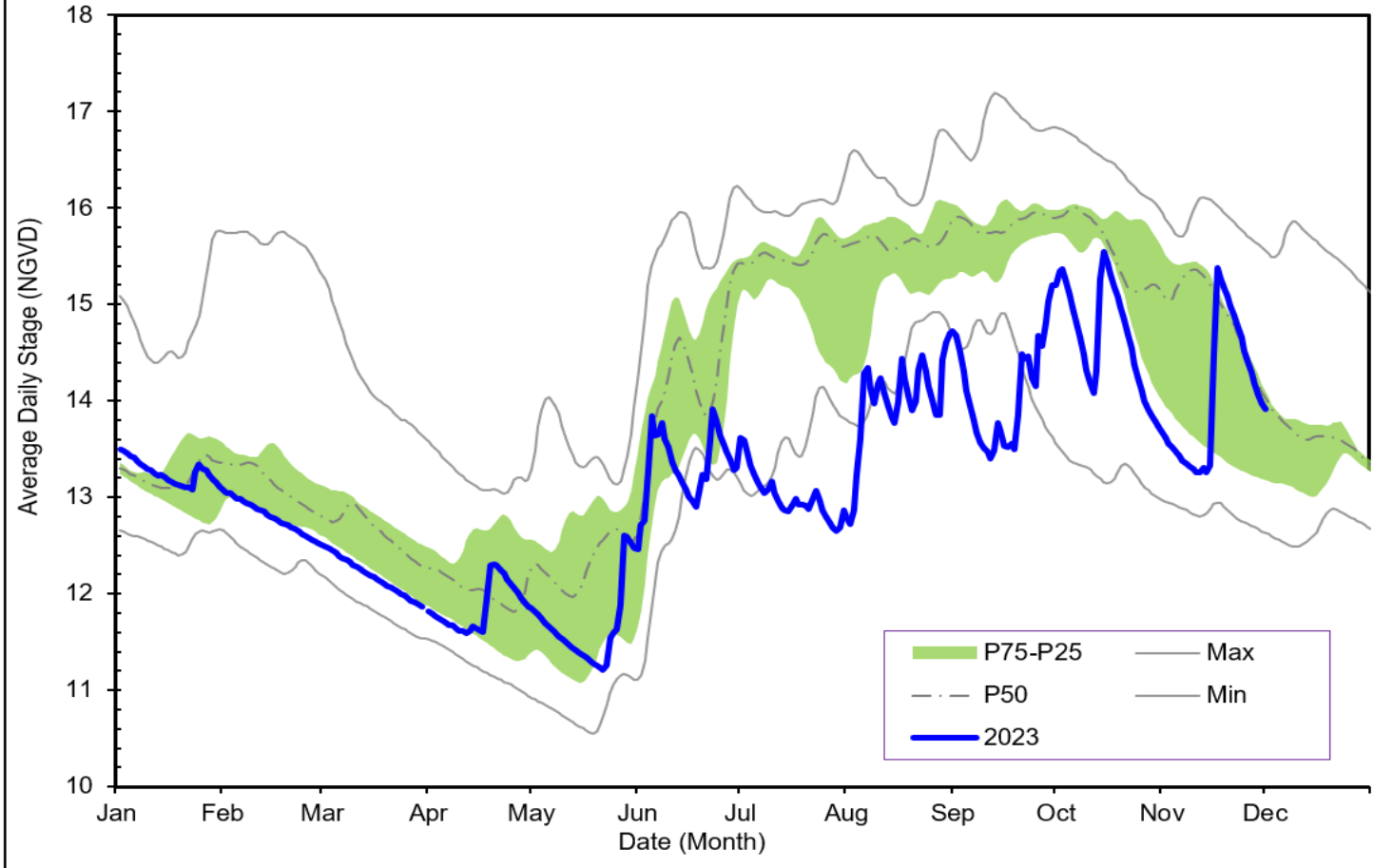


Figure 12 SOCREW1 Historic Average Daily Headwater Percentiles (2016 - 2022)



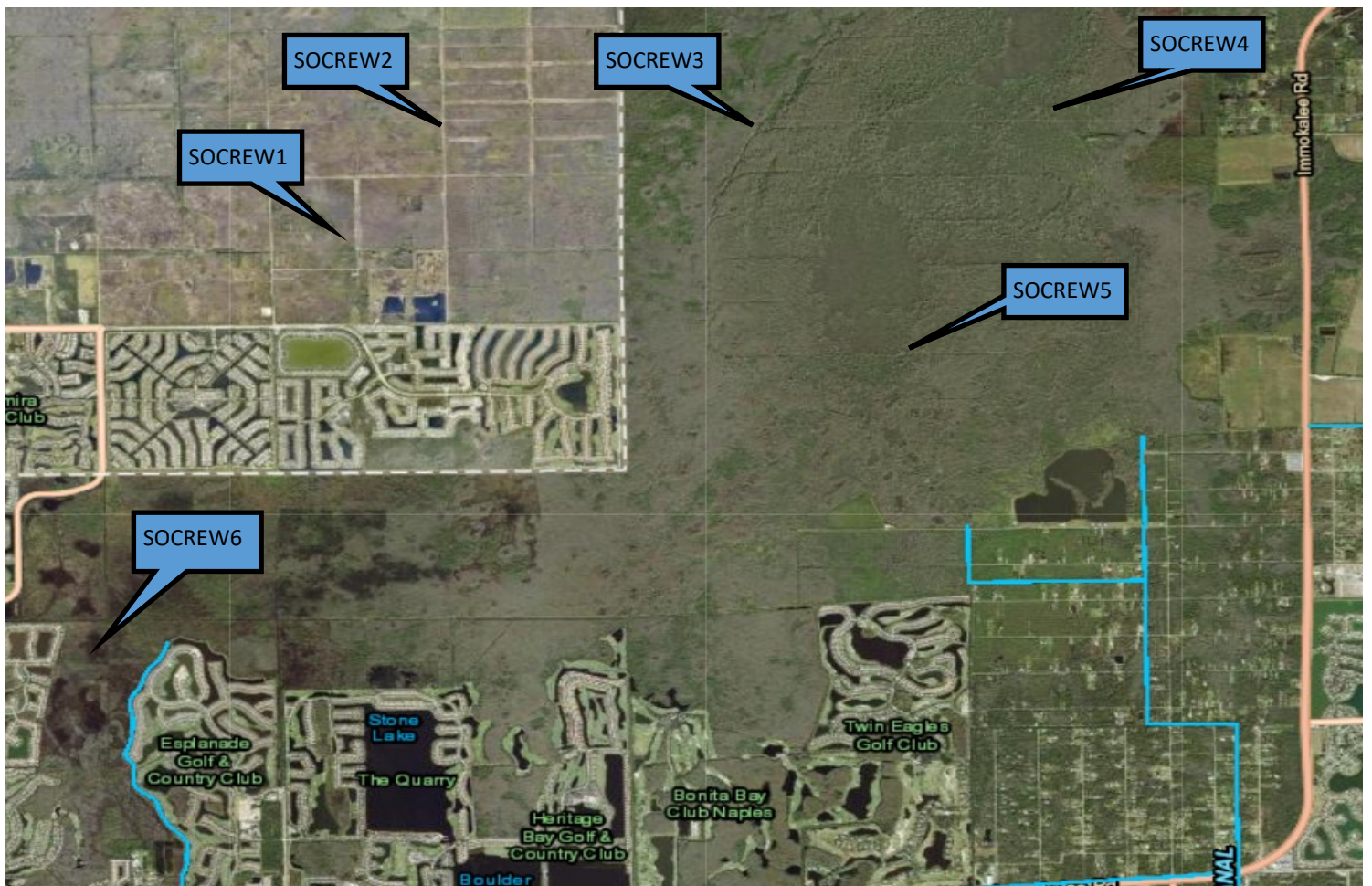


Figure 13 SOCREW2 Historic Average Daily Headwater Percentiles (2016 - 2022)

