

DECEMBER 2020

BIG CYPRESS BASIN HYDROLOGIC REPORT

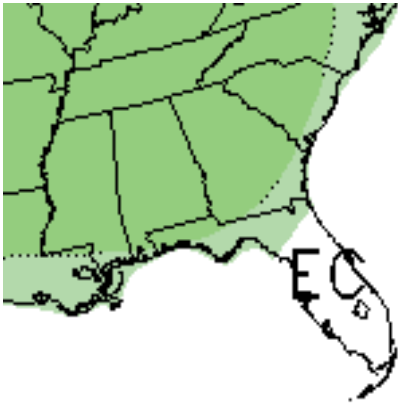


SUMMARY OF HYDROLOGIC CONDITIONS IN THE BIG CYPRESS BASIN

December 2020

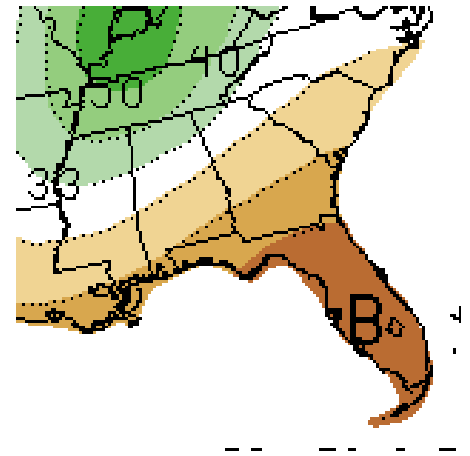
SUMMARY

A typical dry season pattern remained in place over the Basin during December. A series of cold fronts that made their way through the region brought little rainfall except for one stronger front that moved through the first few days of the month. The early month front brought almost all of the month's above average rainfall in a couple days. That beneficial rain event once again topped off surface and groundwater levels throughout the region. As the year ended, water levels throughout the region remain well above normal for this time of year and are in an excellent position to weather the expected drier periods of the winter and spring.



Rainfall totals for 2020 came in at 56.1 inches which is 99% of average. The wetter than average September through December offset the deficit the region had from the spring drought.

Looking forward, the 30 day forecast for January (left) shows equal chances for above, average, or below average rainfall. The 3-month outlook (right) for February, March, and April continues to



show an above average chance for below normal rainfall.

BCB RAINFALL

Rainfall in December was above normal due a strong early December cold front. As measured by twenty-two (22) reporting stations (ref. **Figures 1, 2, Table 1**), the basin-wide monthly average was **3.23 inches (193% of normal)**, which is above the average 1.67 inches typically collected.

Based on collected gauge data, the rainfall distribution across the Basin was fairly uniform across the Basin given most of the rainfall fell from one cold front. **Figure 3a** shows the average rainfall for each of the Basin's watersheds based on gauge adjusted radar. The Golden Gate basin received the highest rainfall with a **3.5 inch** areal average across the watershed and the lowest was the Coastal basin with about **2.4 inches**. The Basin's total areal weighted average rainfall was **2.8 inches**. This average is different than the rain gauge only average as it accounts for every square kilometer of the Basin rather than only 22 rain gauges. The month's highest gauge total was collected at the Immokalee Landfill (Site R-13), which received **3.9 inches**. This month's lowest rainfall was recorded at Fakahatchee Strand HQ (Site R-5), which received **2.4 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. As the month ended, almost all canal levels were at or above the 90th percentile for the end of December (**Figure 4a**).

- **GOLDEN GATE SYSTEM**

The Golden Gate Main canal system was operated in water conservation mode and continued to be maintained near or slightly above the top of dry season operational range based on the rainfall patterns. Canal water levels in most areas of the Golden Gate system were held between the 75th and 90th percentile (ref **Figure 5A & 5B**). Back-pumping operations commenced in the Airport Road canal to maintain dry season levels and reduce water losses out of the system.

- **COCOCHATCHEE SYSTEM**

The entire Cocohatchee system was operated to conserve water, but continued to discharge for flood control at the top of the dry season operational range (ref **Figure 6A, 6B, 6C, & 6D**). The Curry structure allows water levels in eastern Cocohatchee and Corkscrew canal to be held much higher than historical levels promoting groundwater recharge throughout the area and slowing the recession in the upstream natural areas.

- **FAKA UNION SYSTEM**

The entire Faka Union system was operated for water conservation with no water being released south of FU4S. As the month ended, levels restarted their annual recession in response to drier conditions, but remain above normal levels for this time of year (ref **Figure 7A & 7B**).

- **HENDERSON CREEK SYSTEM**

Water control structures in the Henderson Creek system remained fully closed. Canal levels were between the 75th and 90th percentile as the month came to a close (ref **Figure 8A & 8B**).

- **CORKSCREW SWAMP**

Figure 10 shows the historical trends for Corkscrew, Bird Rookery, and Cork 3 structure and the 2020 corresponding levels. All three sites started a slow recession as the rainfall tapered off after the passage of the early December cold front. CRKSWPS, CORK3, and Lake Trafford are all above the 90th percentile for this time of year. As the month ended, operations continued in the Corkscrew Canal to maintain levels to near or above historical maximums to conserve water. Water levels at Lake Trafford are shown in **Figure 10A**, which show lake levels beginning to recede again after the early December cold front but still above the 90th percentile as the month ended.

BIG CYPRESS BASIN & LOWER WEST COAST GROUNDWATER LEVELS

The current reporting (12/31/2020) for the Lower West Coast [LWC] indicates mixed trends for December. Three reported wells decreased since the beginning of the month and three wells increased since the beginning of December. By the end of the year, all but one (C-1004R) reporting wells remain in the normal condition indicator (green color) (ref. **Table 2**). All reported wells in **Table 2** show an average decrease of 0.04 feet. C-1224 recorded the highest increase of 0.83 feet, and L-2194 had largest decrease of 1.17 feet. All wells increased from the early December rainfall but the recession trend that followed varies greatly throughout the Basin. Some wells are well above the 75th percentile (C-462) while others are closer the 25th percentile (C-1004R) for this time of year (ref. **Table 2, Figure 9**).

BIG CYPRESS BASIN

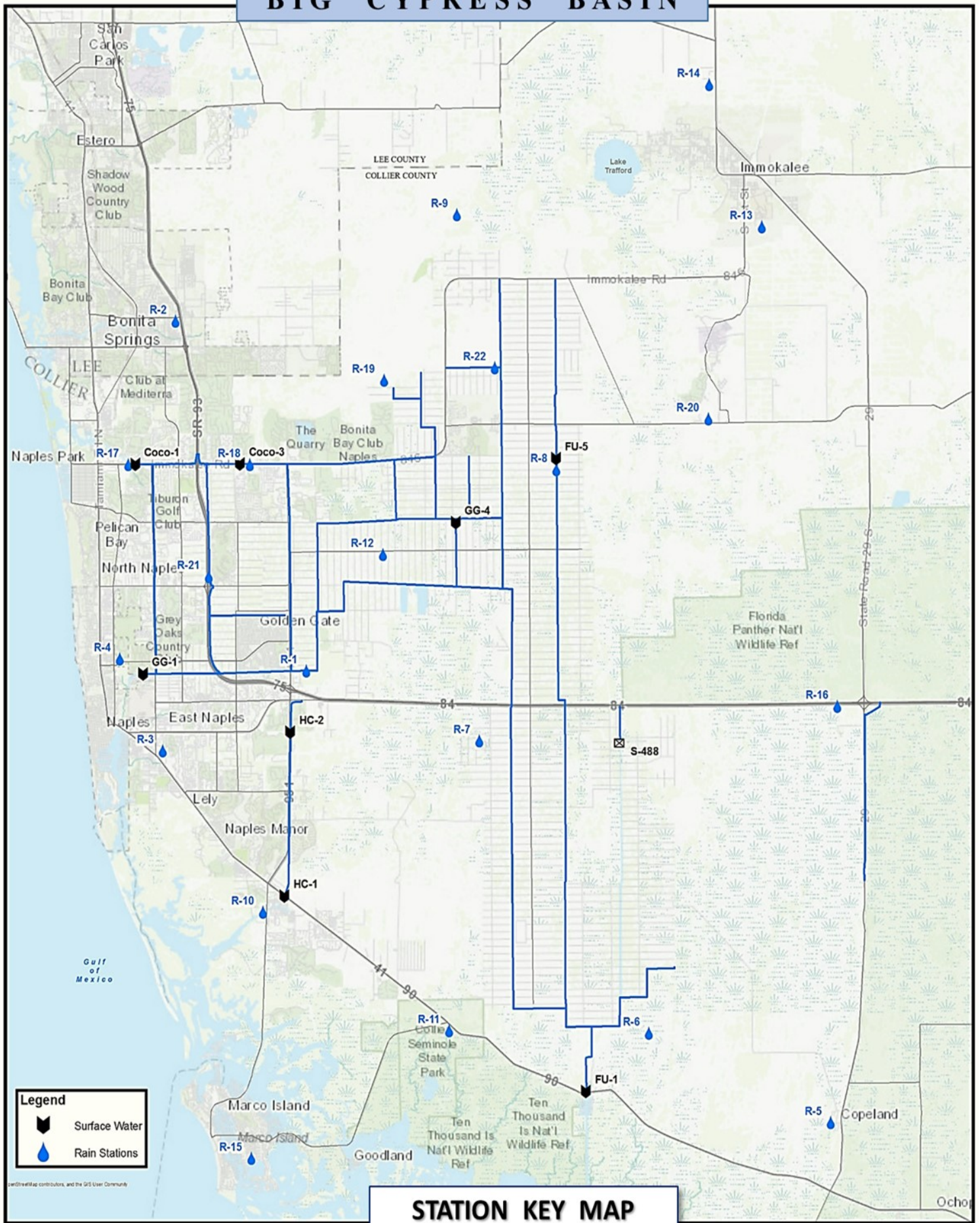


FIGURE 1

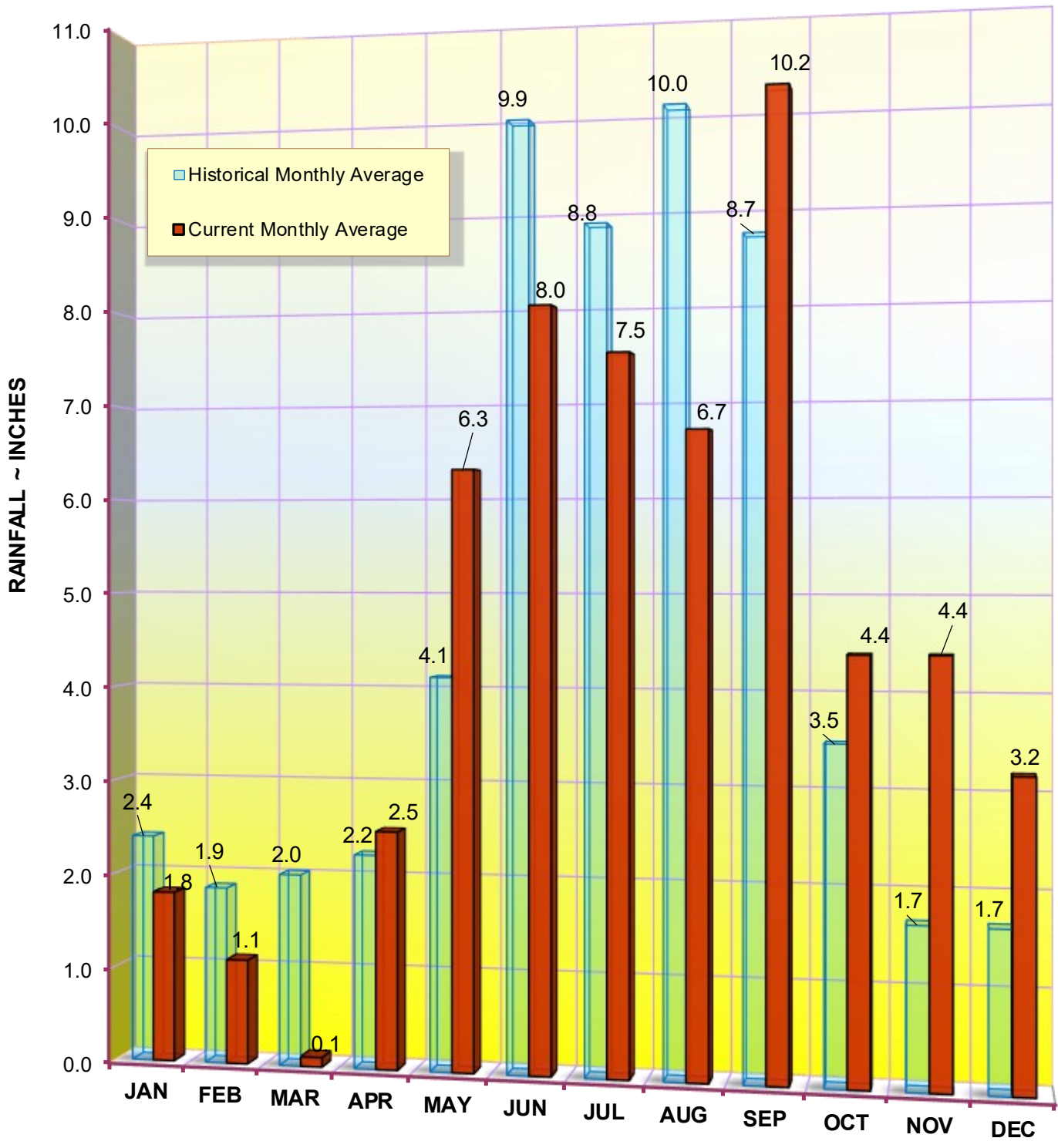
TABLE 1
RAINFALL REPORT - DECEMBER 2020
DISTRICT/BASIN RAINFALL STATIONS

(ALL NUMBERS ARE IN INCHES)

STATION INDEX NO.	STATION NAME	DECEMBER 2020	LONG TERM AVERAGE FOR THIS MONTH	MONTHLY DIFFERENCE	CALENDAR YEAR 2020 CUMULATIVE TOTAL	AVERAGE CALENDAR YEAR TO DATE	YEAR TO DATE DIFFERENCE
R-1	GOLDEN GATE #3	3.26	1.92	1.34	60.43	66.20	-5.77
R-2	BONITA SPRINGS WATER PLANT	2.97	1.46	1.51	57.16	52.04	5.12
R-3	COLLIER COUNTY COURTHOUSE	3.80	1.66	2.14	64.15	53.18	10.97
R-4	FREEDOM PARK	3.63	2.00	1.63	55.04	61.37	-6.33
R-5	FAKAHATCHEE STRAND HQ	2.37	1.54	0.83	53.61	59.97	-6.36
R-6	DAN HOUSE PRAIRIE	2.91	1.43	1.48	64.60	51.95	12.65
R-7	SGGE WEATHER STATION	3.10	1.40	1.70	58.38	60.94	-2.56
R-8	FAKA UNION #5	3.70	1.95	1.75	48.98	66.99	-18.01
R-9	CORKSCREW SWAMP NORTH END	3.33	1.61	1.72	57.58	50.90	6.68
R-10	ROOKERY BAY HQ	2.57	1.78	0.79	52.17	56.07	-3.90
R-11	COLLIER SEMINOLE STATE PARK	2.95	1.69	1.26	63.06	57.13	5.93
R-12	G.G. FIRE STATION	3.60	1.63	1.97	54.00	59.34	-5.34
R-13	IMMOKALEE LANDFILL	3.85	1.51	2.34	60.49	52.42	8.07
R-14	IFAS	2.88	1.56	1.32	52.40	50.35	2.05
R-15	MARCO R.O. PLANT	2.93	1.66	1.27	60.85	53.55	7.30
R-16	FAKAHATCHEE STRAND NORTH END	3.02	1.97	1.05	54.83	60.86	-6.03
R-17	COCO#1	3.63	1.66	1.97	50.14	49.89	0.25
R-18	COCO#3	3.28	1.79	1.49	54.27	57.31	-3.04
R-19	BIRD ROOKERY	3.47		New Site	56.07	No Historical Data	
R-20	AVE MARIA	3.01	1.60	1.41	48.97	54.71	-5.74
R-21	I75W2	3.43		New Site	53.66	No Historical Data	
R-22	GG#7	3.46		New Site	52.97	No Historical Data	

AVERAGES	3.23	1.67	1.56	56.08	56.59	-0.51
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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 DECEMBER 2020**

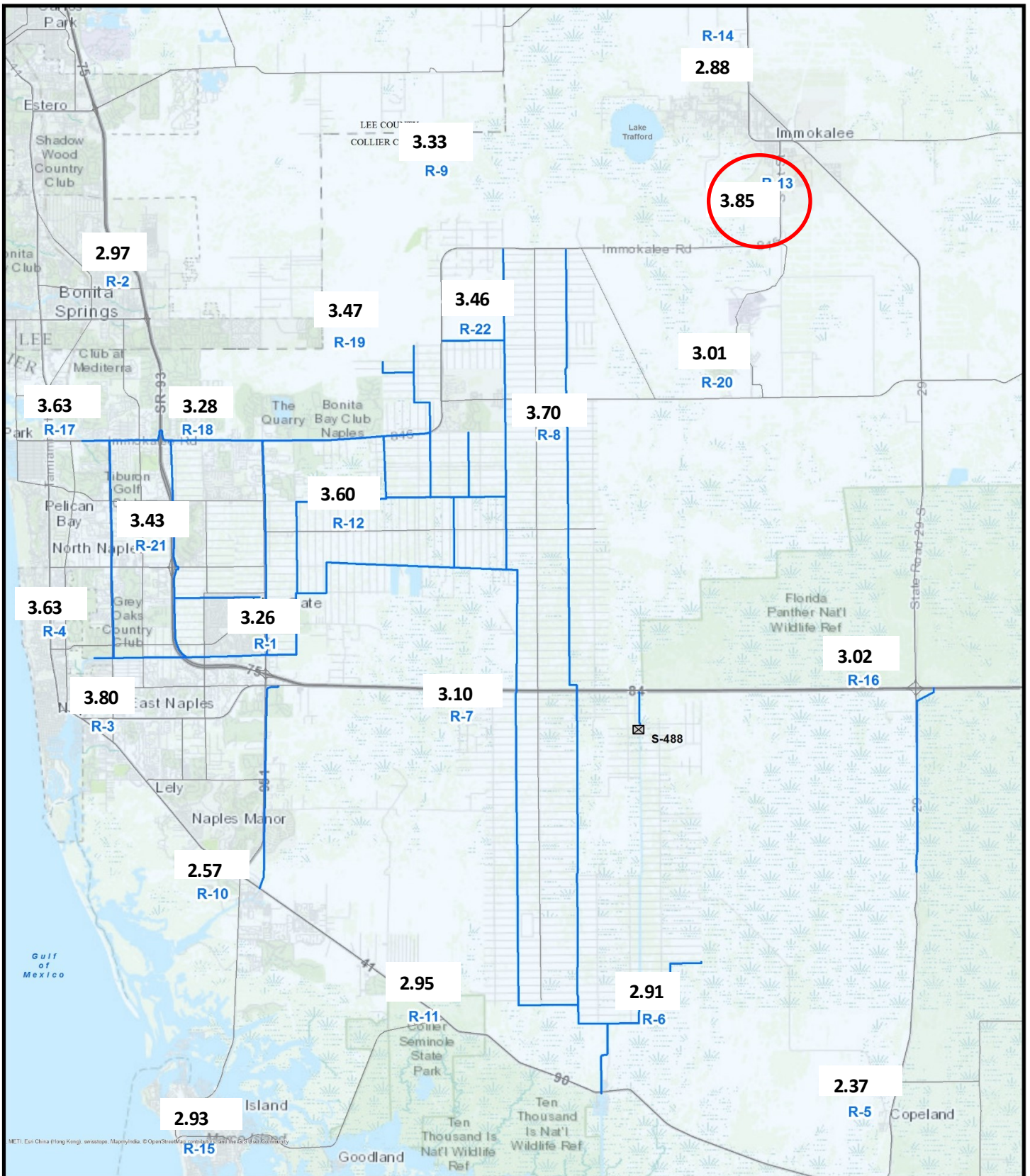
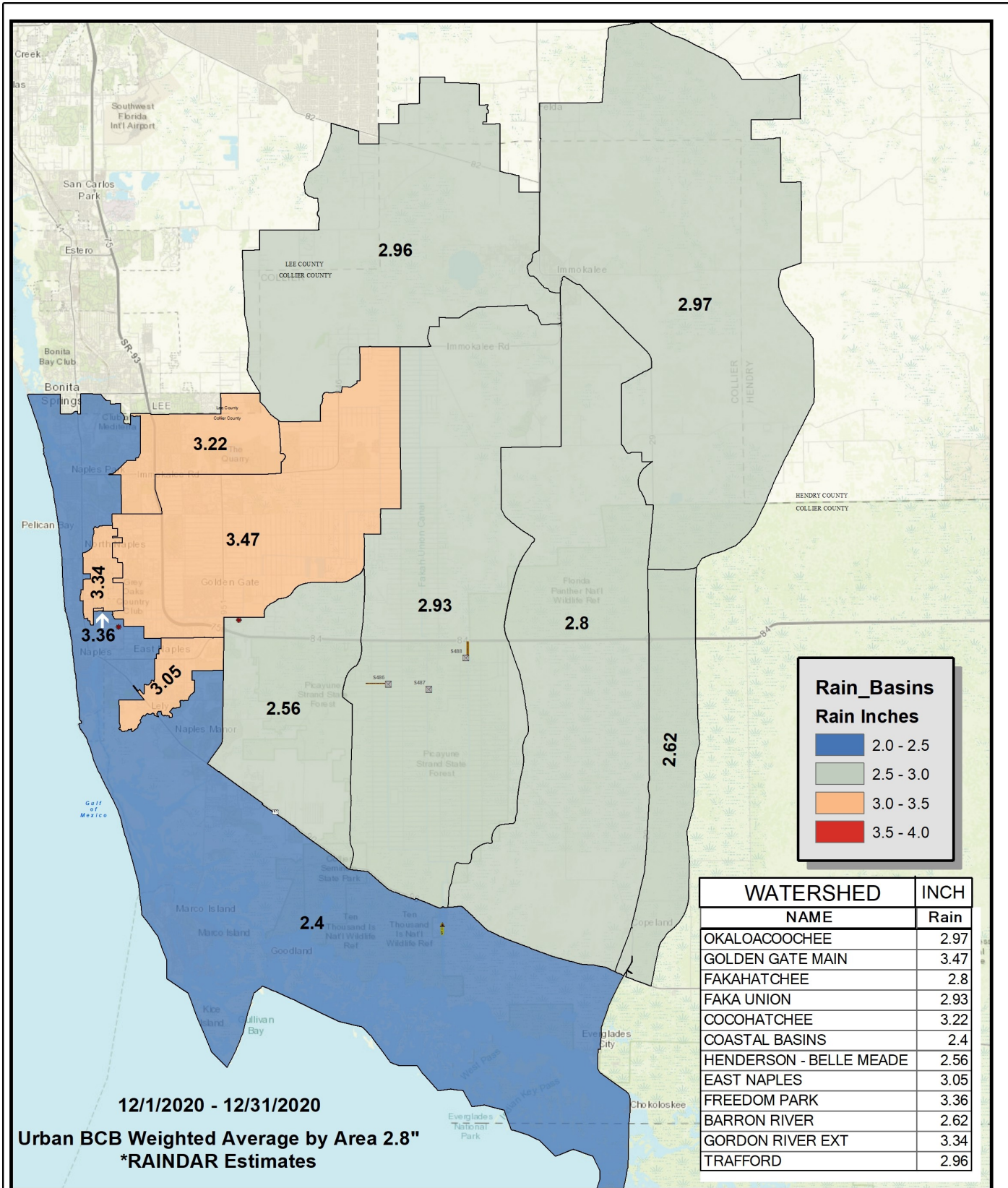
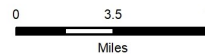


FIGURE 3
BCB RAINFALL DISTRIBUTION
DECEMBER 2020



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This map is a conceptual tool utilized for project development only. This map is not self-executing or binding, and does not otherwise affect the interests of any persons including any vested rights or existing uses of real property.



*Rainfall estimates based on gauge adjusted radar



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

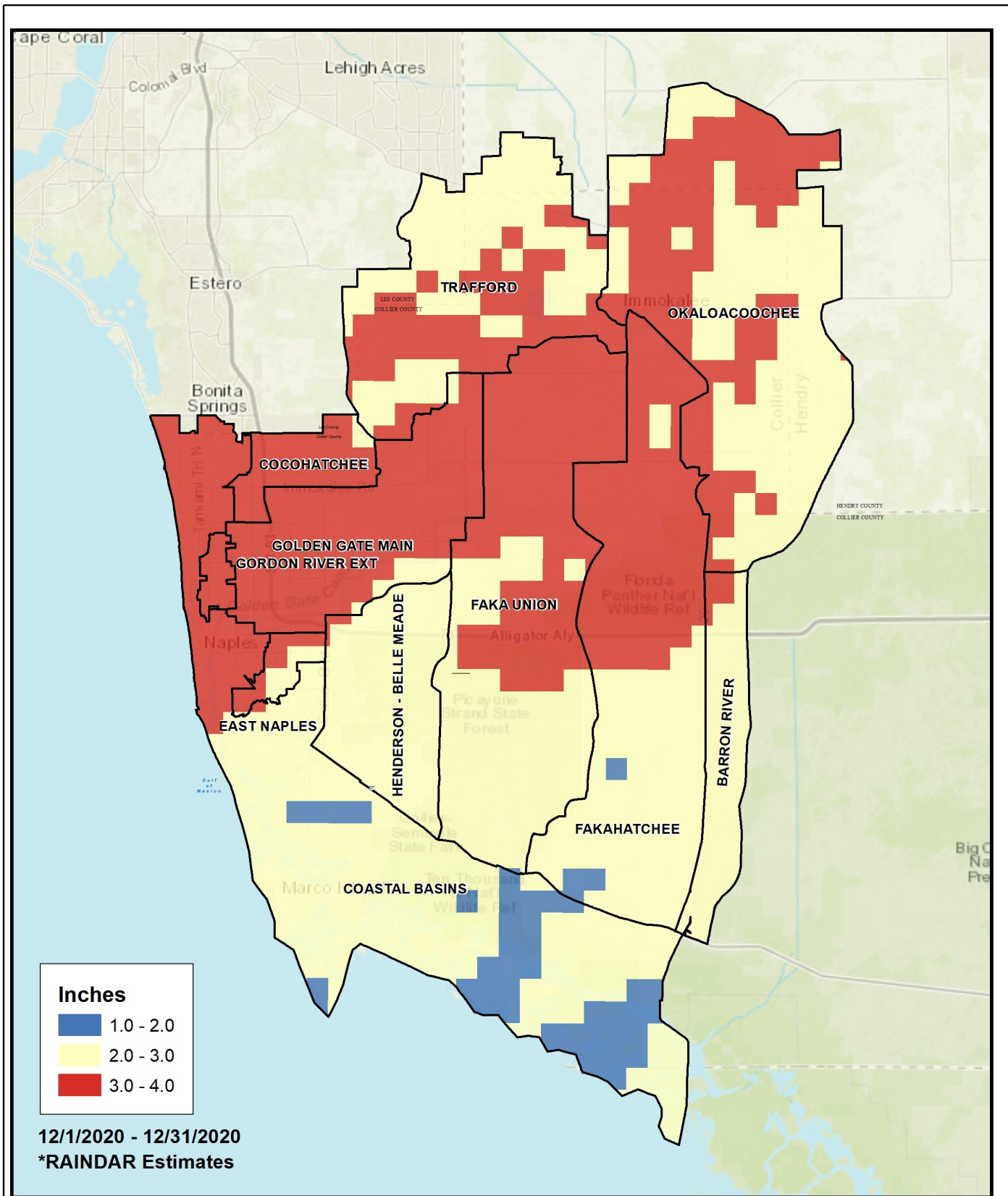
BCB RAINFALL
SPATIAL DISTRIBUTION

Urban Collier County, Florida



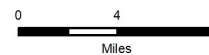
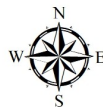
SFWMD_FL_MW_MW_2019

FIGURE 3a



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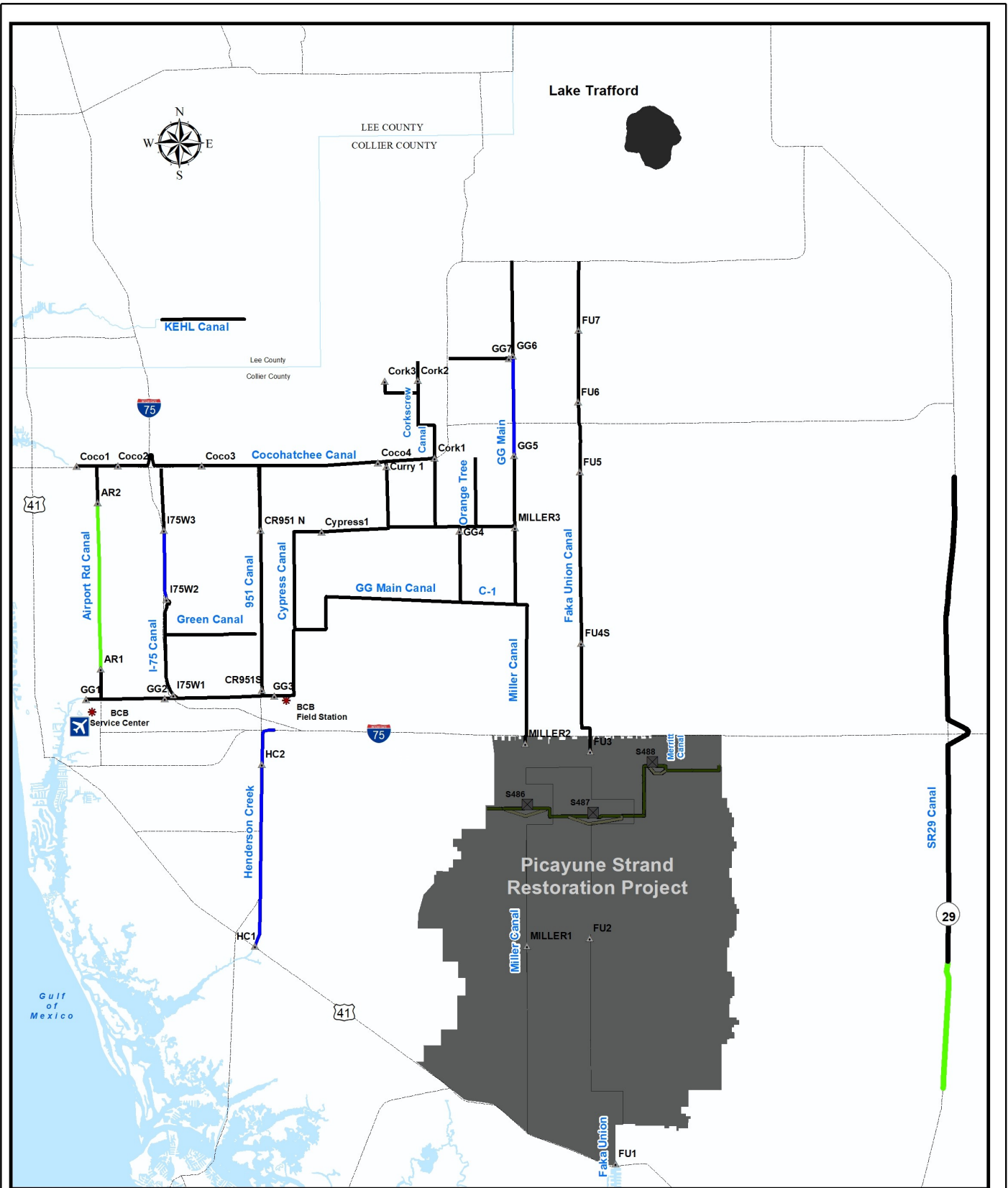
BIG CYPRESS BASIN
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**BCB RAINFALL
SPATIAL DISTRIBUTION**

Urban Collier County, Florida

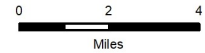


FIGURE 4



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* Based on period of record for each canal reach

	<p>BIG CYPRESS BASIN SFWMD 2660 Horseshoe Dr. N. Naples, Florida 34104 239-263-7615</p>	<p>BCB Conditions Index 1/5/21 Urban Collier County, Florida</p>		
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FIGURE 4A

Figure 5A - GG1 Historic Average Daily Headwater Percentiles (2004-2018)

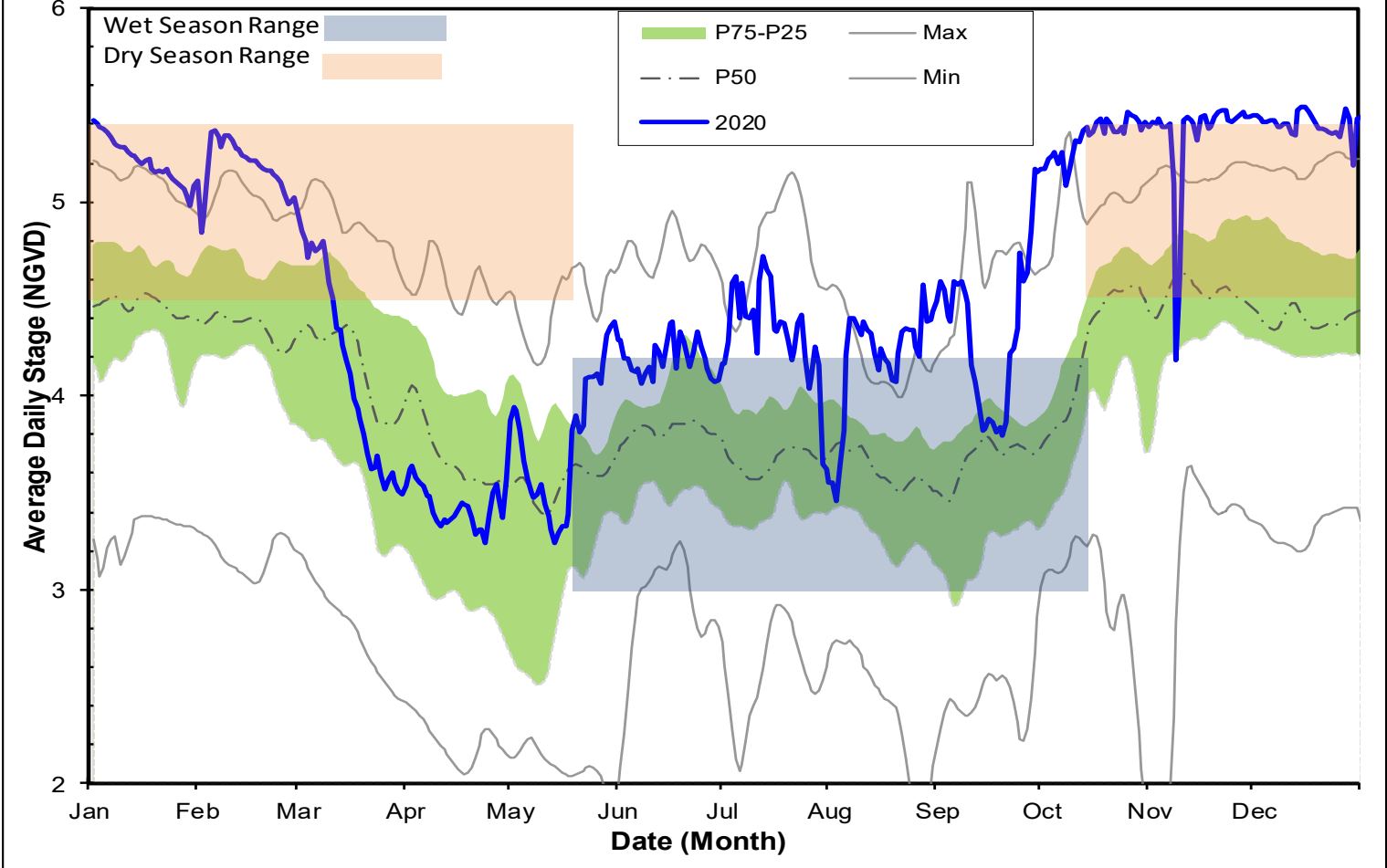


Figure 5B - GG4 Historic Average Daily Headwater Percentiles (1994-2017)

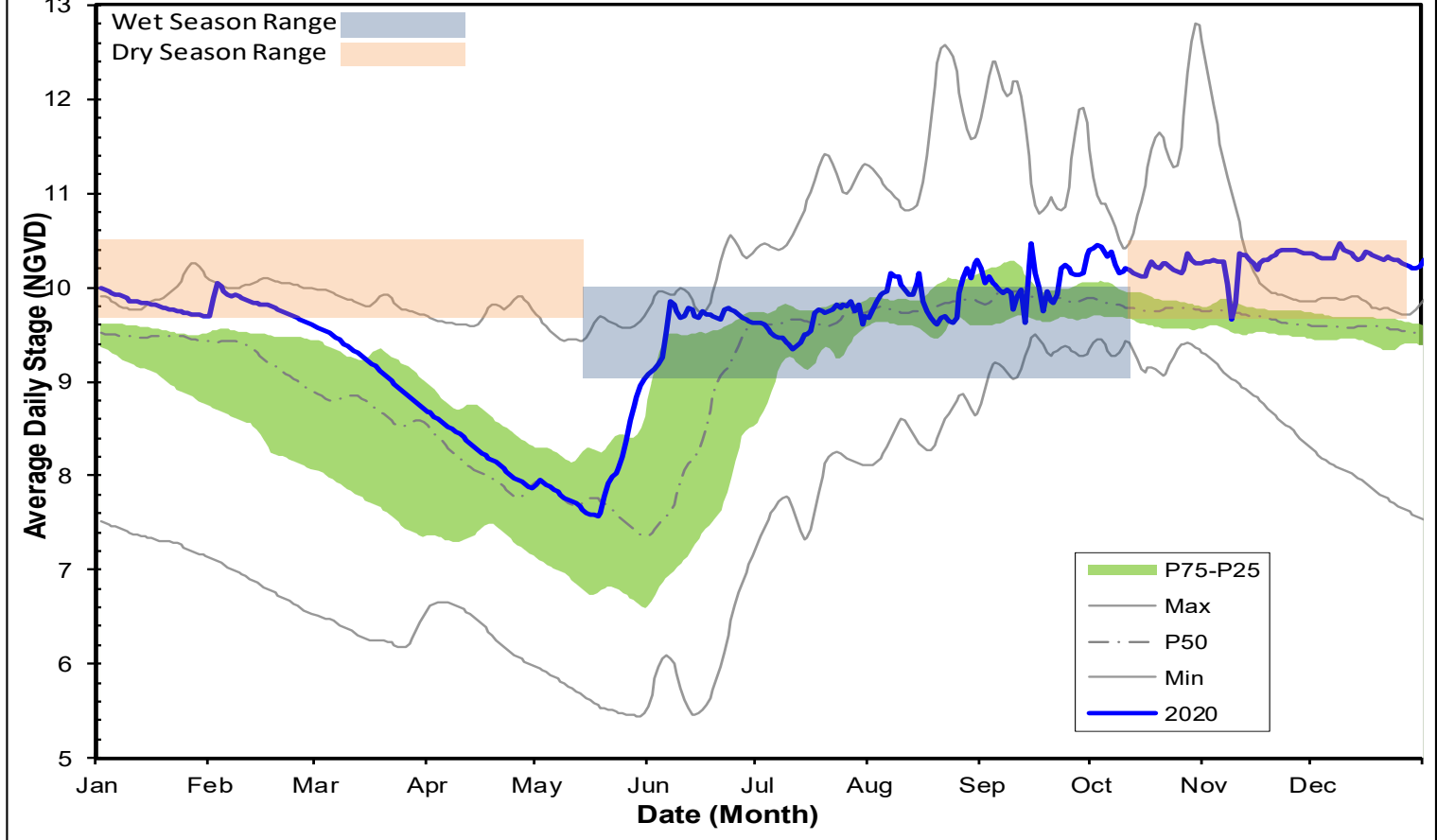


Figure 6A - COCO1 Historic Daily Headwater Percentiles (1994-2018)

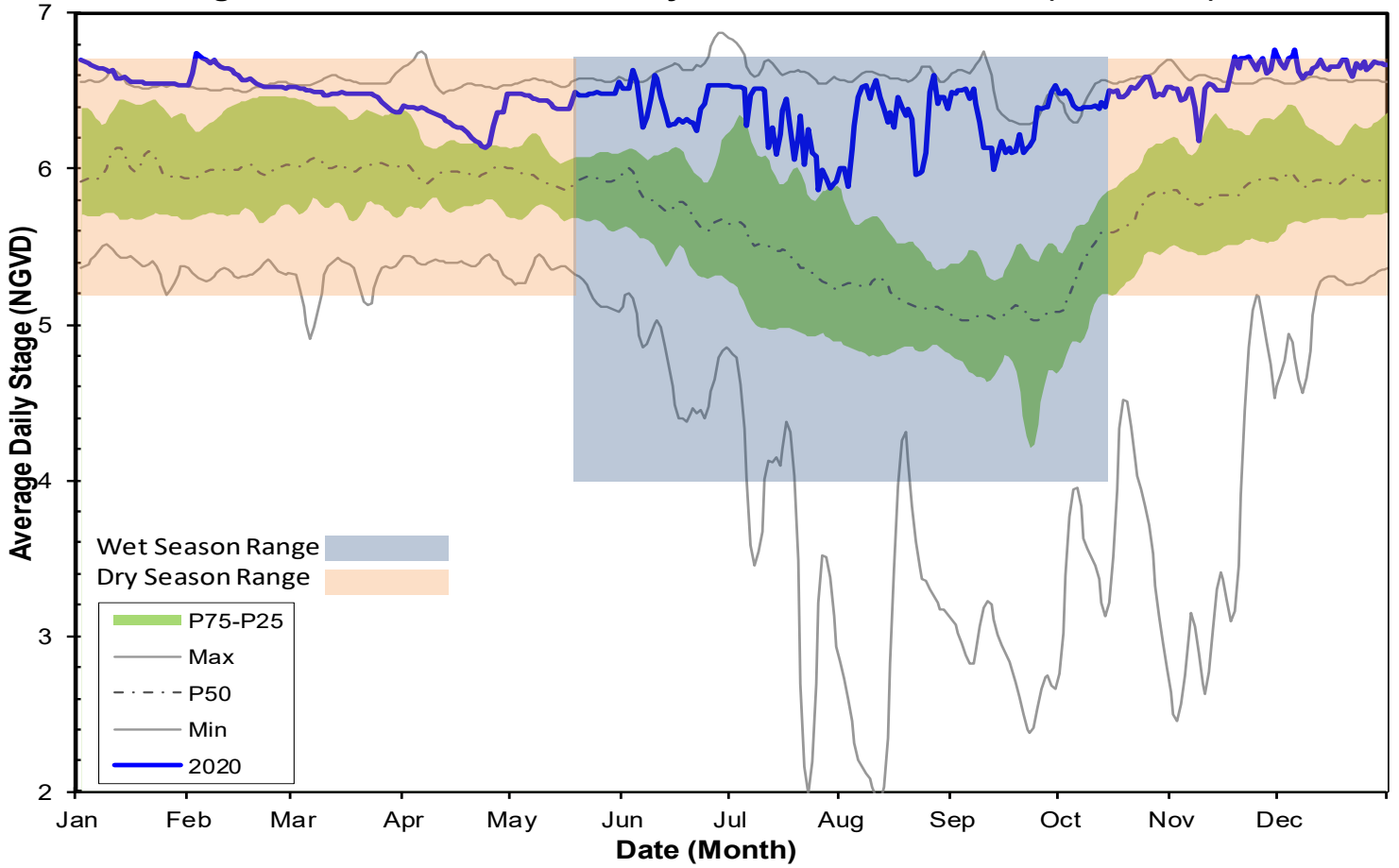


Figure 6B - COCO3 Historic Average Headwater Percentiles (2000-2018)

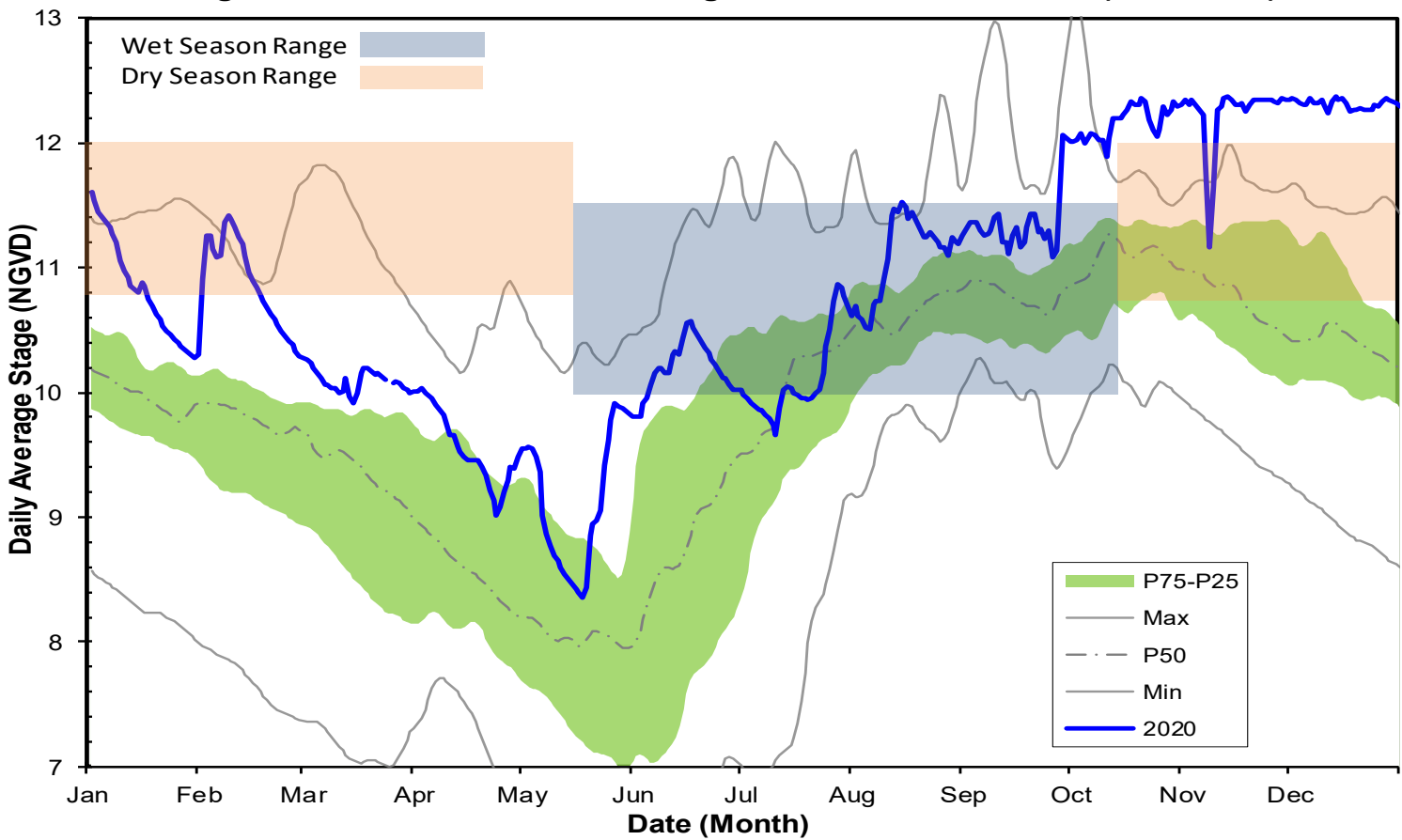


Figure 6C - CORK1 Historic Average Daily Headwater Percentiles (1989-2018)

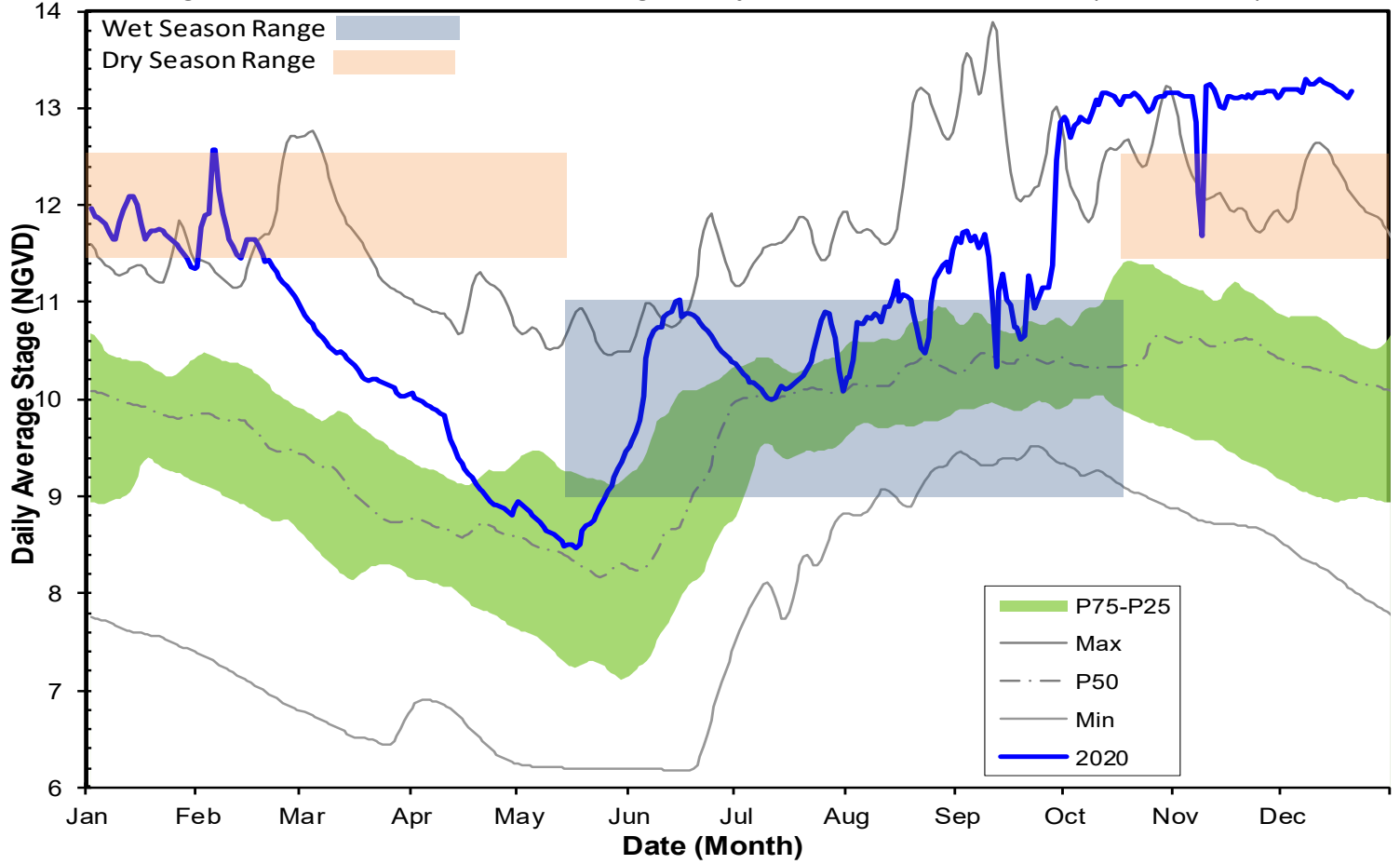


Figure 6D - CORK3 Average Daily Headwater Percentiles (2004-2020)

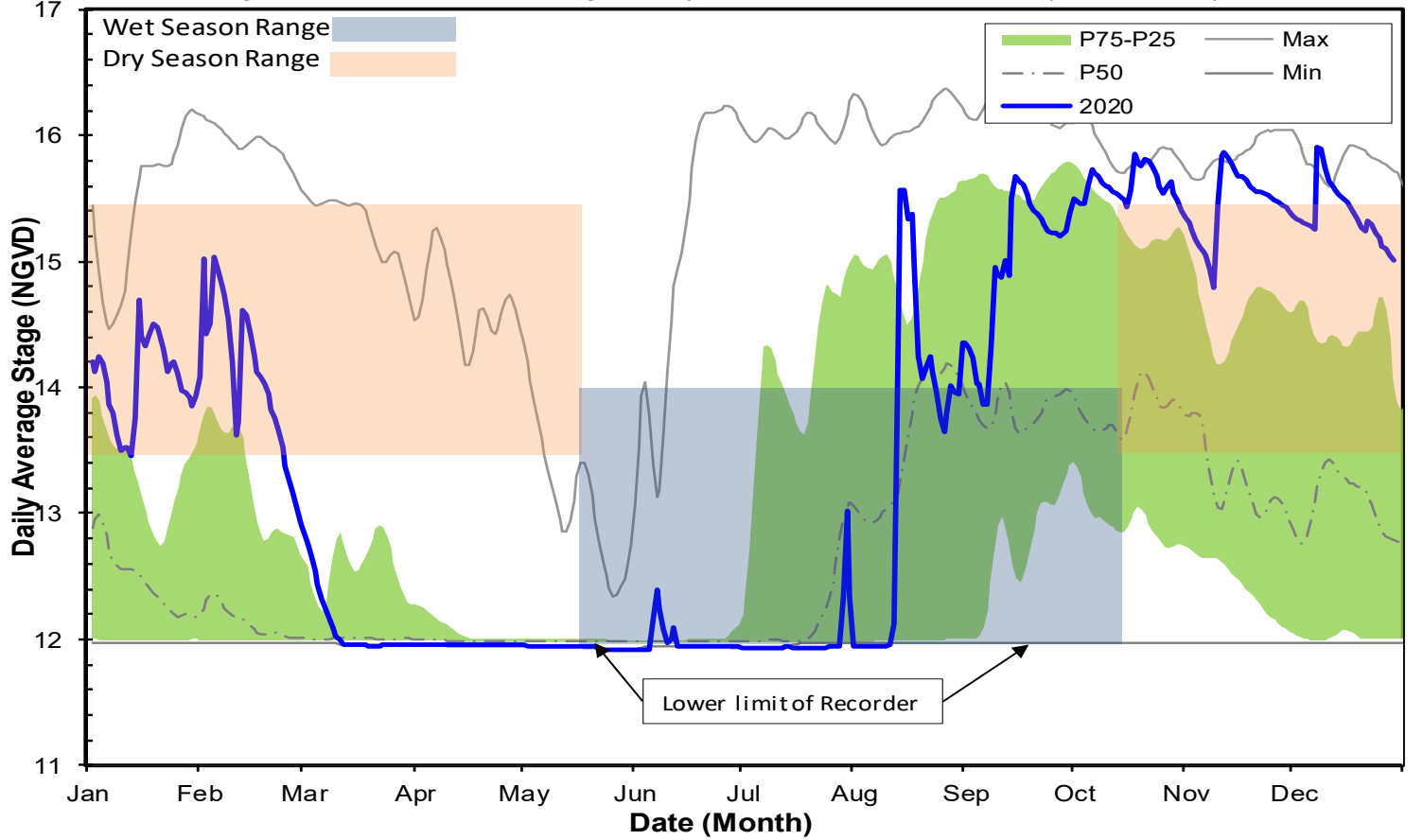


Figure 7A - FU1 Historic Average Daily Headwater Percentiles (1984-2018)

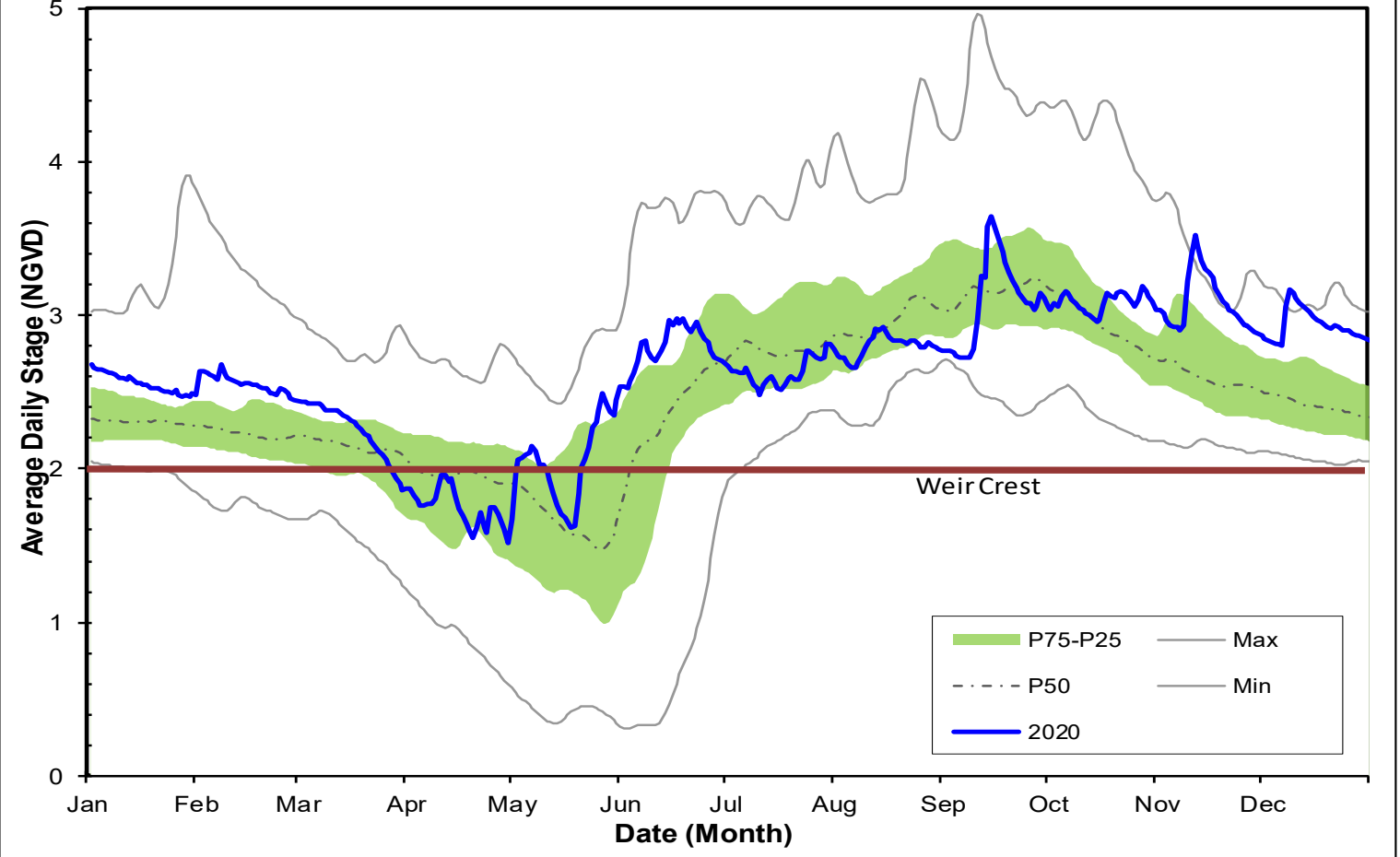


Figure 7B-FU5 Historic Average Daily Headwater Percentiles (2003-2018)

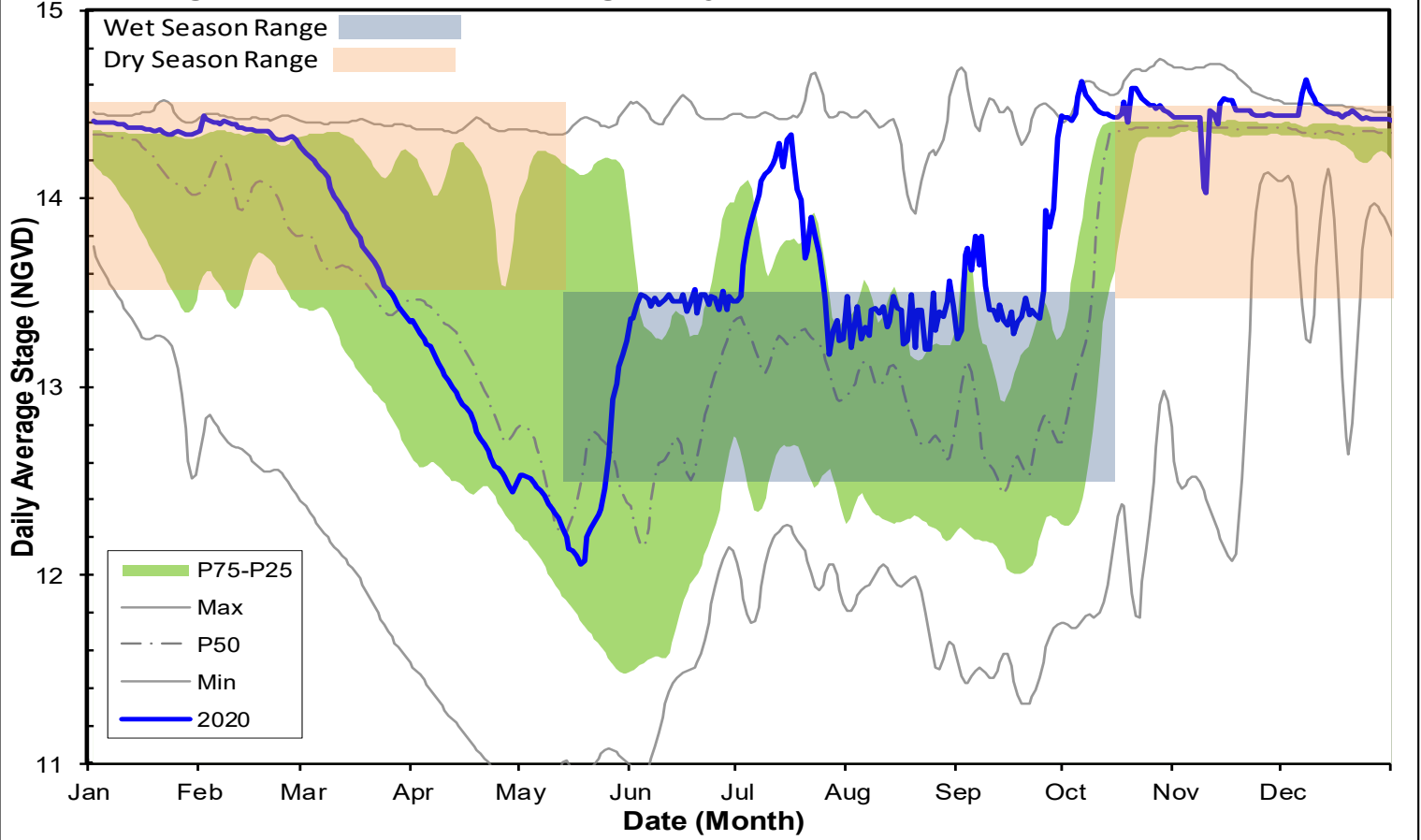


Figure 8A - HC1 Historic Average Daily Headwater Percentiles (1982-2020)

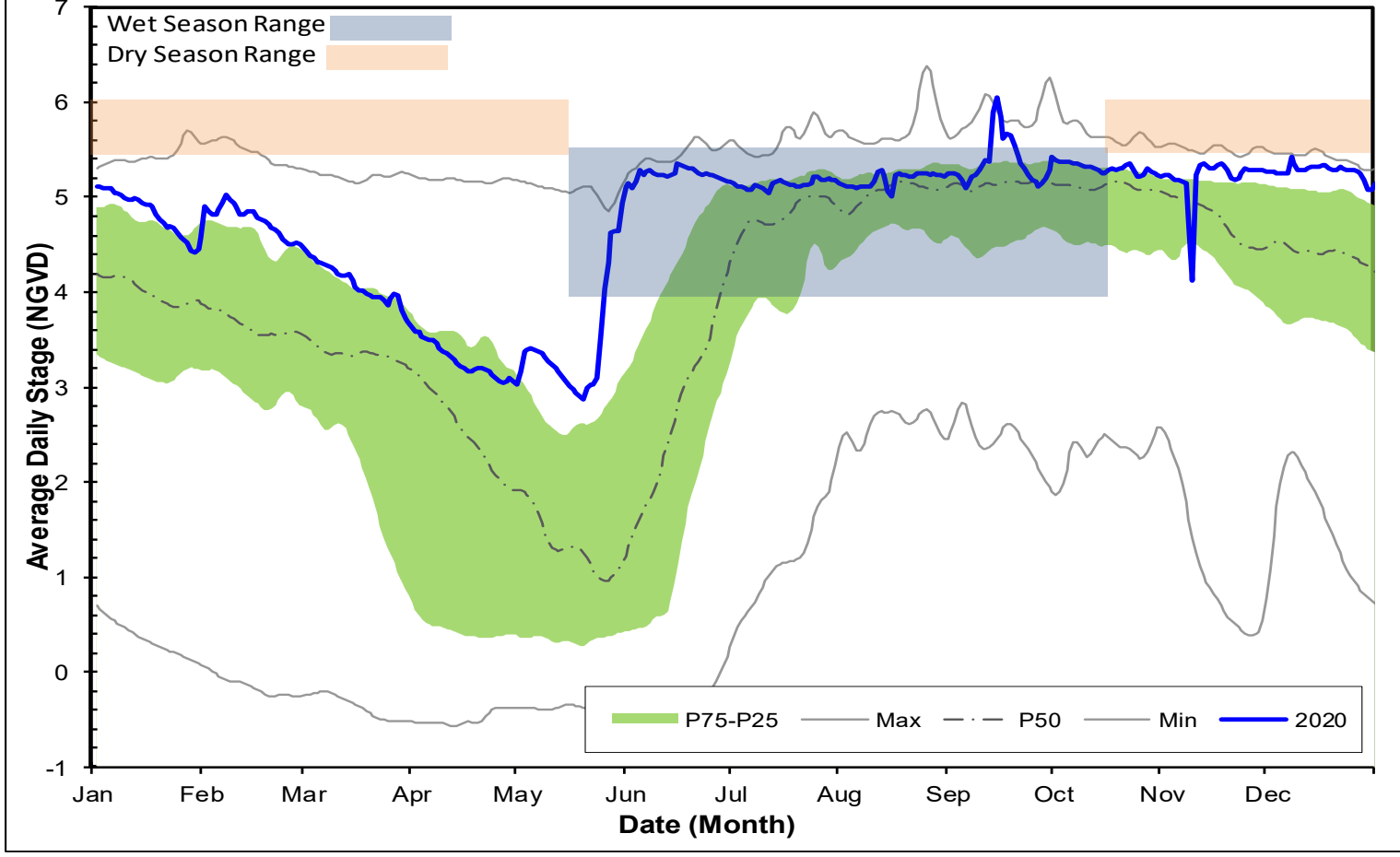
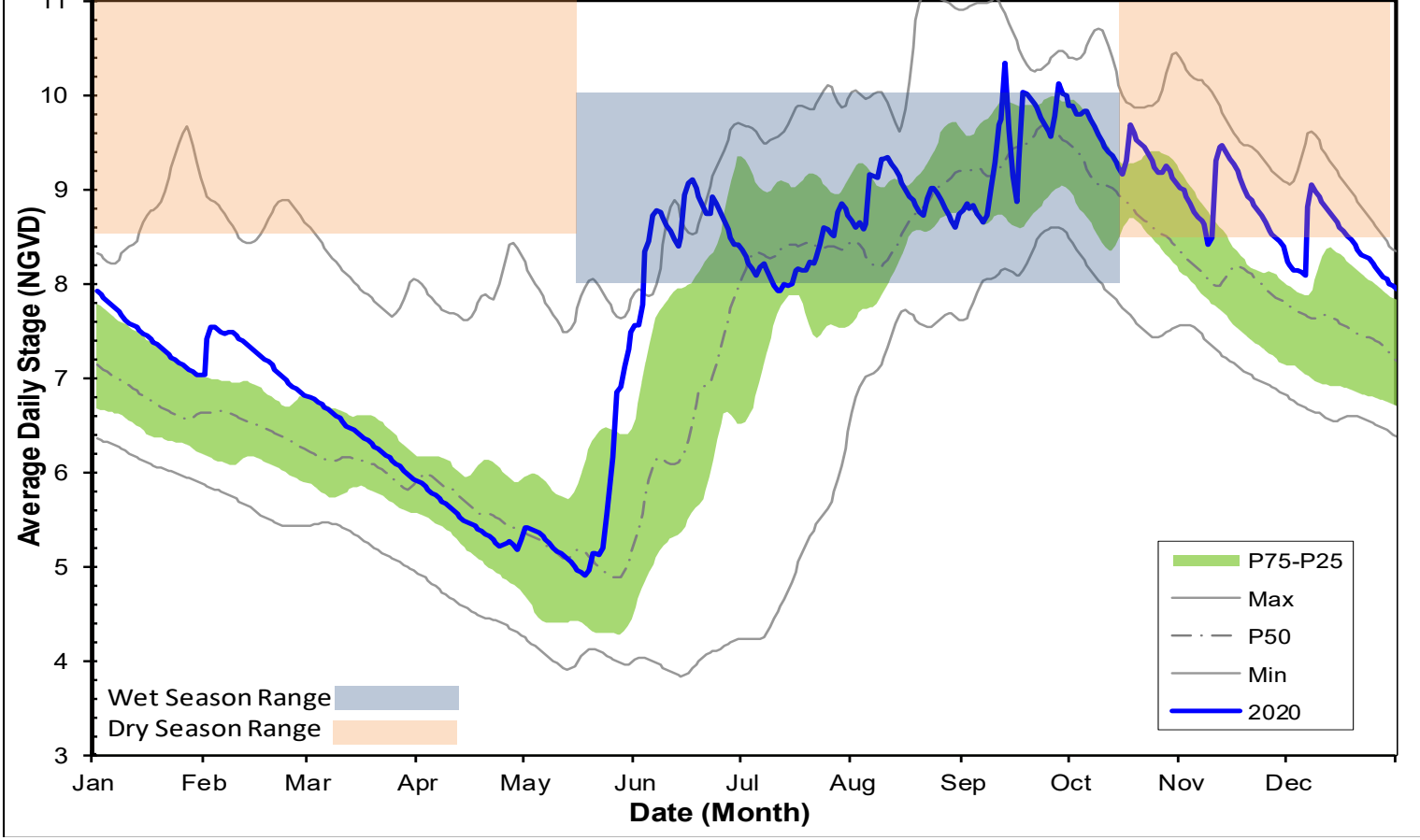


Figure 8B - HC2 Historic Average Daily Headwater Percentiles (2005-2018)



WATER CONDITIONS SUMMARY - December 2020
SELECTED STATIONS for BCB AREA / SW FLORIDA

Last Reading Date :		December 31, 2020					
Previous Period Reading Date:		November 30, 2020					
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	-0.04	34.27	34.23	↓	GREEN
C-1004R	Naples	Lower Tamiami Aquifer	0.40	2.34	2.74	↑	YELLOW
C-1224	Marco Lakes	Lower Tamiami Aquifer	0.83	2.98	3.81	↑	GREEN
L-2194	Bonita Springs	Sandstone Aquifer	-1.17	7.67	6.50	↓	GREEN
L-2195	Bonita Springs	Surficial Aquifer System	-0.60	12.51	11.91	↓	GREEN
L-738	Bonita Springs	Lower Tamiami Aquifer	0.16	1.64	1.80	↑	GREEN

TABLE 2
BCB WATER CONDITIONS SUMMARY
DECEMBER 2020

BIG CYPRESS BASIN

DECEMBER 2020

GROUNDWATER LEVEL DAILY TRENDS COMPARED TO HISTORICAL AVERAGE

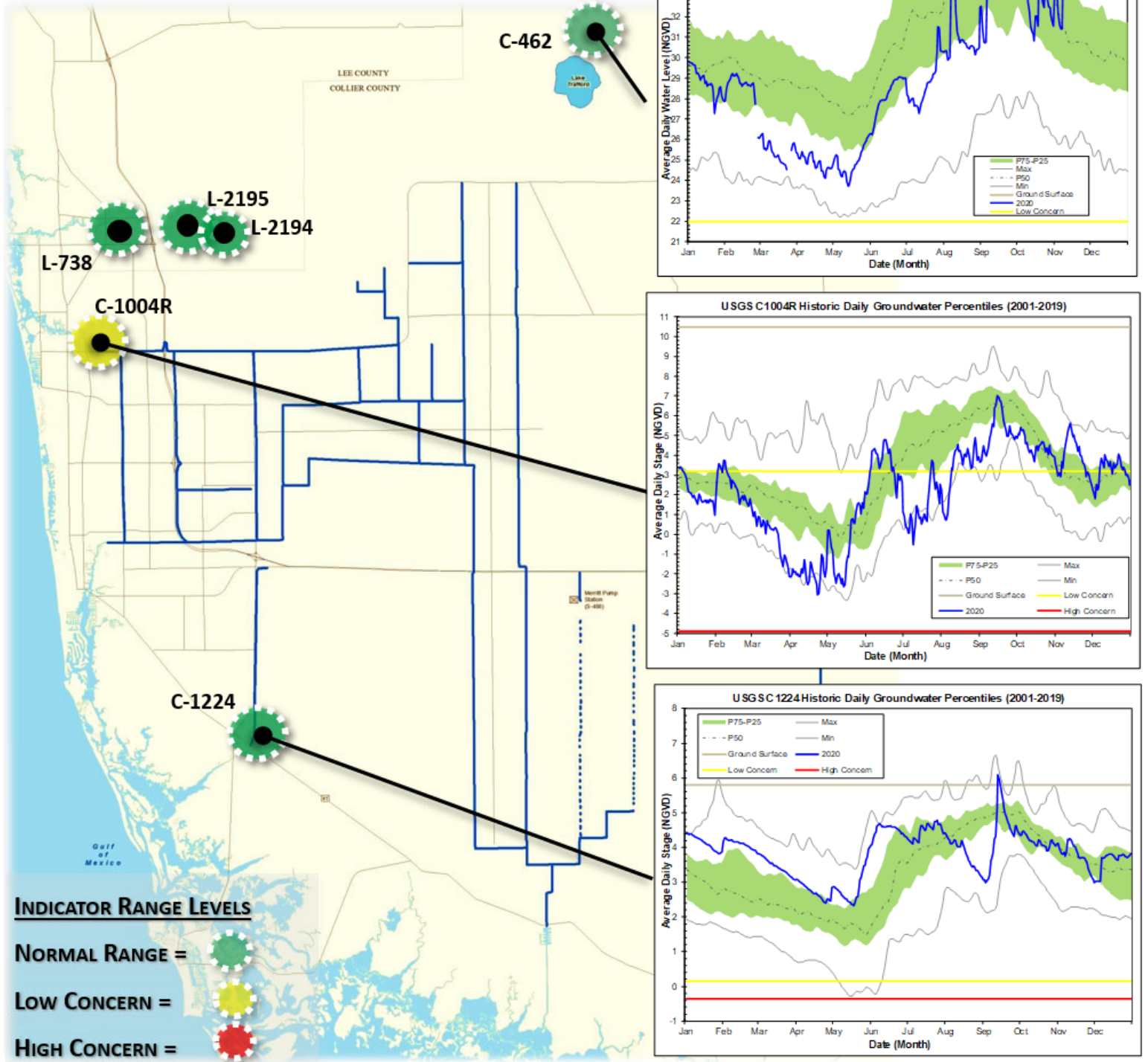


FIGURE 9

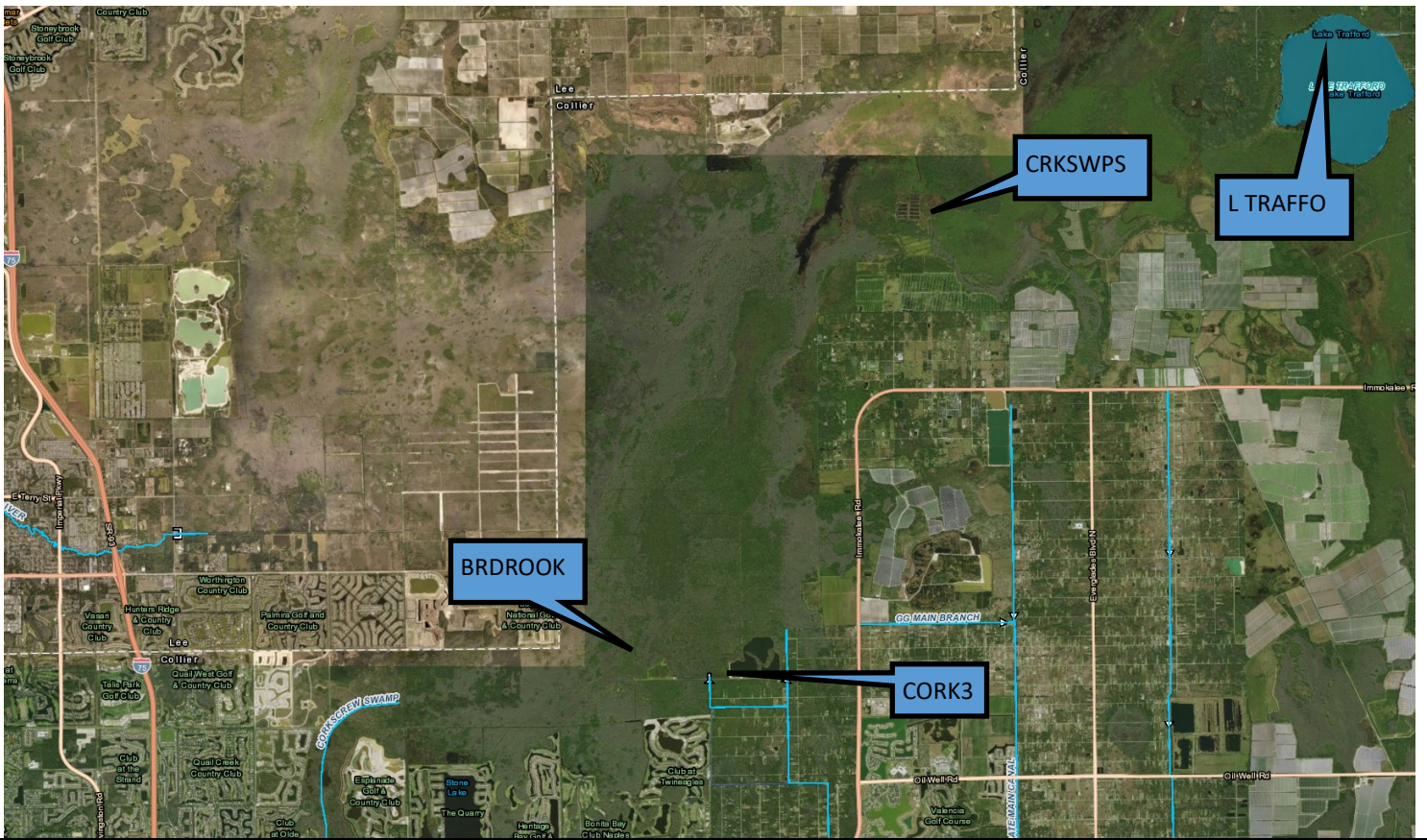


Figure 10-Corkscrew Historic Average Daily Headwater Percentiles(1984-2019)

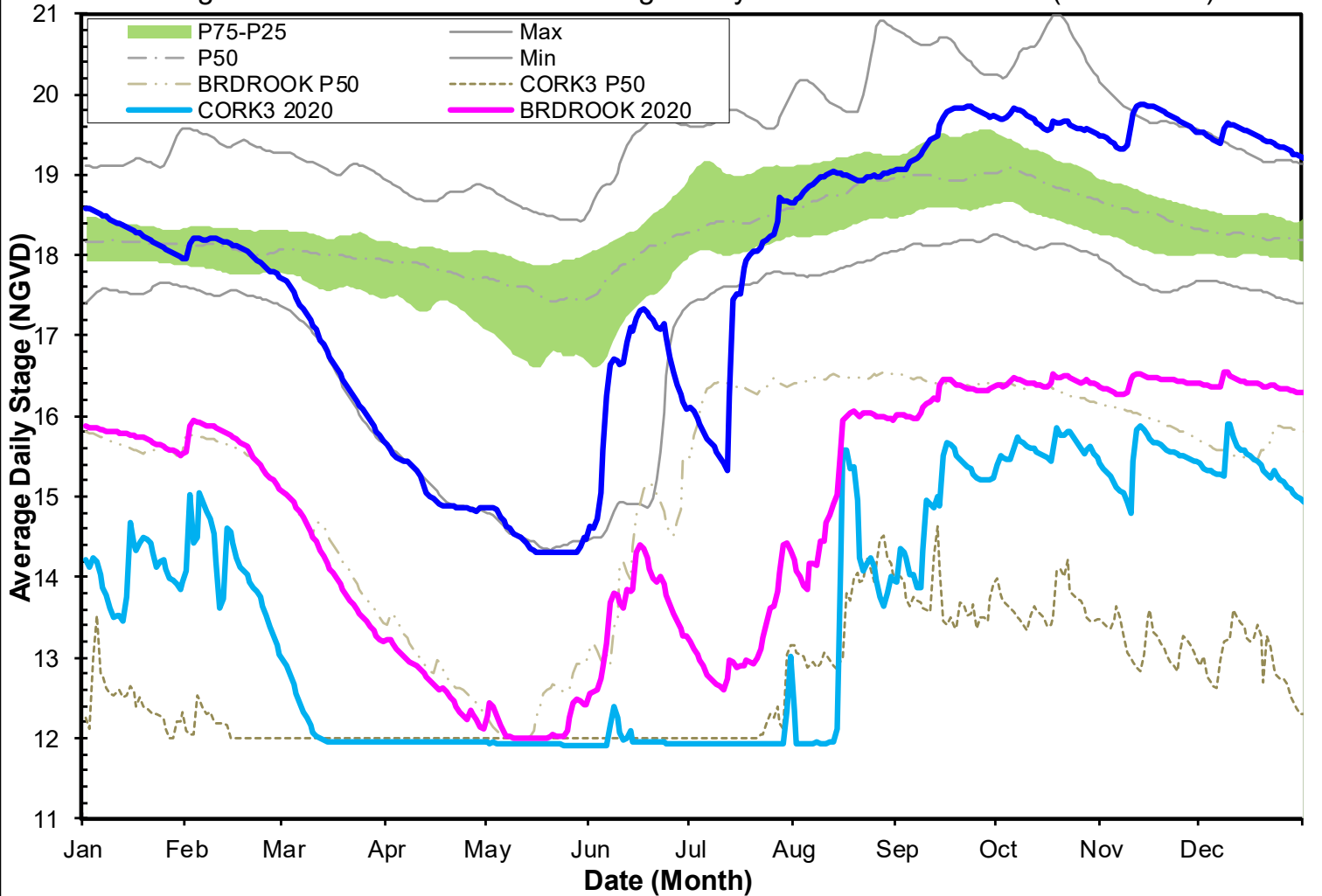


Fig 10A Lake Trafford Historic Daily Water Level Percentiles (1941-2019)

