



HYDROLOGIC REPORT  
BIG CYPRESS BASIN —  
SOUTH FLORIDA WATER  
MANAGEMENT DISTRICT

DECEMBER 2018

# SUMMARY OF HYDROLOGIC CONDITIONS IN THE BIG CYPRESS BASIN

December 2018

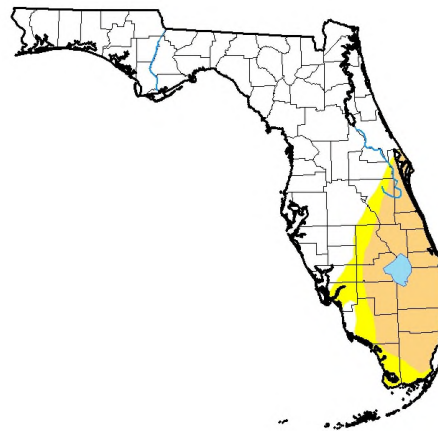
## SUMMARY

December rainfall was just about average for the Basin. The rainfall that did occur was focused around approaching cold fronts. The majority of rain fell from one frontal system just before the Christmas holiday, which was forecasted to be a much larger event. Canal operations were maintained to hold water levels as high as possible within dry season operational ranges. Eight of the ten structures reported are above the 75th percentile and the remaining two are hovering near the 50th percentile.

Given the on-going rainfall deficit since June, portions of the Basin are now in drought conditions. However, meteorologists are anticipating the potential for above average rainfall in the 3-month outlook and indicate the drought will diminish.

U.S. Drought Monitor  
Florida

January 1, 2019  
(Released Thursday, Jan. 3, 2019)  
Valid 7 a.m. EST



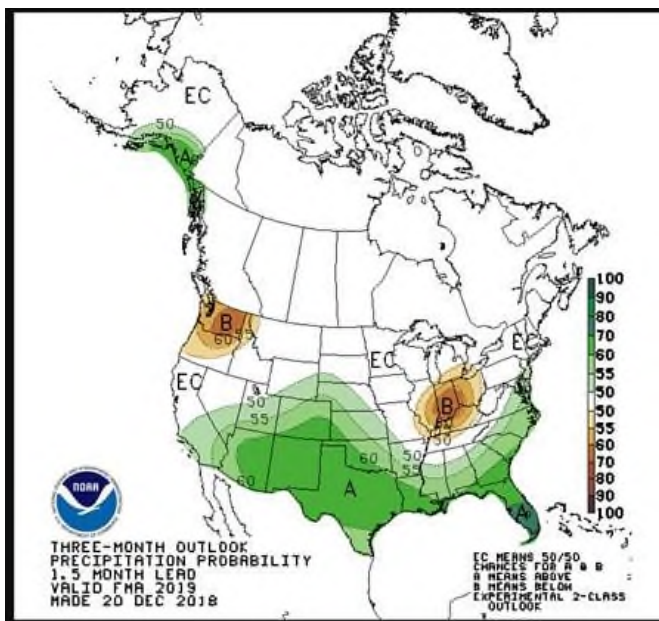
### Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

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NOAA/NWS/NCEP/CPC



As indicated in November, it remains quite evident that the new Curry Canal structure is a success. Water levels in that area are exceeding historical maximums.

As expected for a fairly routine dry season month, the groundwater levels for the basin have all decreased since November.

## BCB RAINFALL

December was a very typical dry season month in terms of rainfall and was almost right at the historical average. As measured by twenty-two (22) reporting stations (ref. **Figures 1, 2, Table 1**), the basin-wide monthly average was **1.43 inches**, which is 93% of the normal 1.53 inches typically collected.

By the end of December, the average accumulated precipitation for 2018 measured 49.34 inches, which is 5.91 inches less than the 55.25 inches normally expected for the calendar year. (ref: **Table 1**).

Based on collected gage data, rainfall distribution across all BCB localities was very consistent in December. The month's highest total collected at Golden Gate #7 (Site R-22), which received **1.82 inches**, and the lowest at Collier Seminole State Park (Site R-11) with **1.08 inches**. These rainfall totals and their locality distribution across the BCB/ Lower West Coast are shown on **Figure 3**.

It is interesting to note that while the year end rainfall average totals for the basin were only 5.91 inches

below normal, several locations had a much more significant rainfall deficit. Notably, Fakahatchee Strand HQ (Site R-5) only recorded 38.34 inches of the normal 60.75 inches for a deficit of 22.41 inches, or 63% of normal (ref: **Table 1**).

### **BCB CANAL SYSTEMS**

All of the canals were maintained in dry season operations due to the below average rainfall for the year. Flow from Corkscrew Swamp continued its downward trend and the corresponding structures were closed to keep levels as high as possible.

- **GOLDEN GATE SYSTEM**

The Golden Gate Main canal levels ended the year above the 75th percentile averages (ref **Figure 5A & 5B**). As December ended, flow over GG1 continued to decrease and back-pump operations continued in Airport Canal and CR951 Canal to maintain the high end of dry season levels.

- **COCOHATCHEE SYSTEM**

The addition of the new Curry Canal structure is holding water levels at record high levels (ref **Figure 6A & 6B**). Both Coco#1 and Coco#3 water levels continue to hold above the 75th percentile or near historical maximums. Water levels in adjacent CR951 canal and upstream in Corkscrew canal are at record highs (ref **Figure 6C & 6D**). This is attributed to the new Curry structure holding higher water levels in the Cocohatchee and Corkscrew Canals.

- **FAKA UNION SYSTEM**

This system is operating at the 50th percentile and the water level downward trend is expected to continue (ref **Figure 7A & 7B**). The downward trend is expected to continue until the dry season comes to an end in May unless there is an usually wet winter ahead.

- **HENDERSON CREEK SYSTEM**

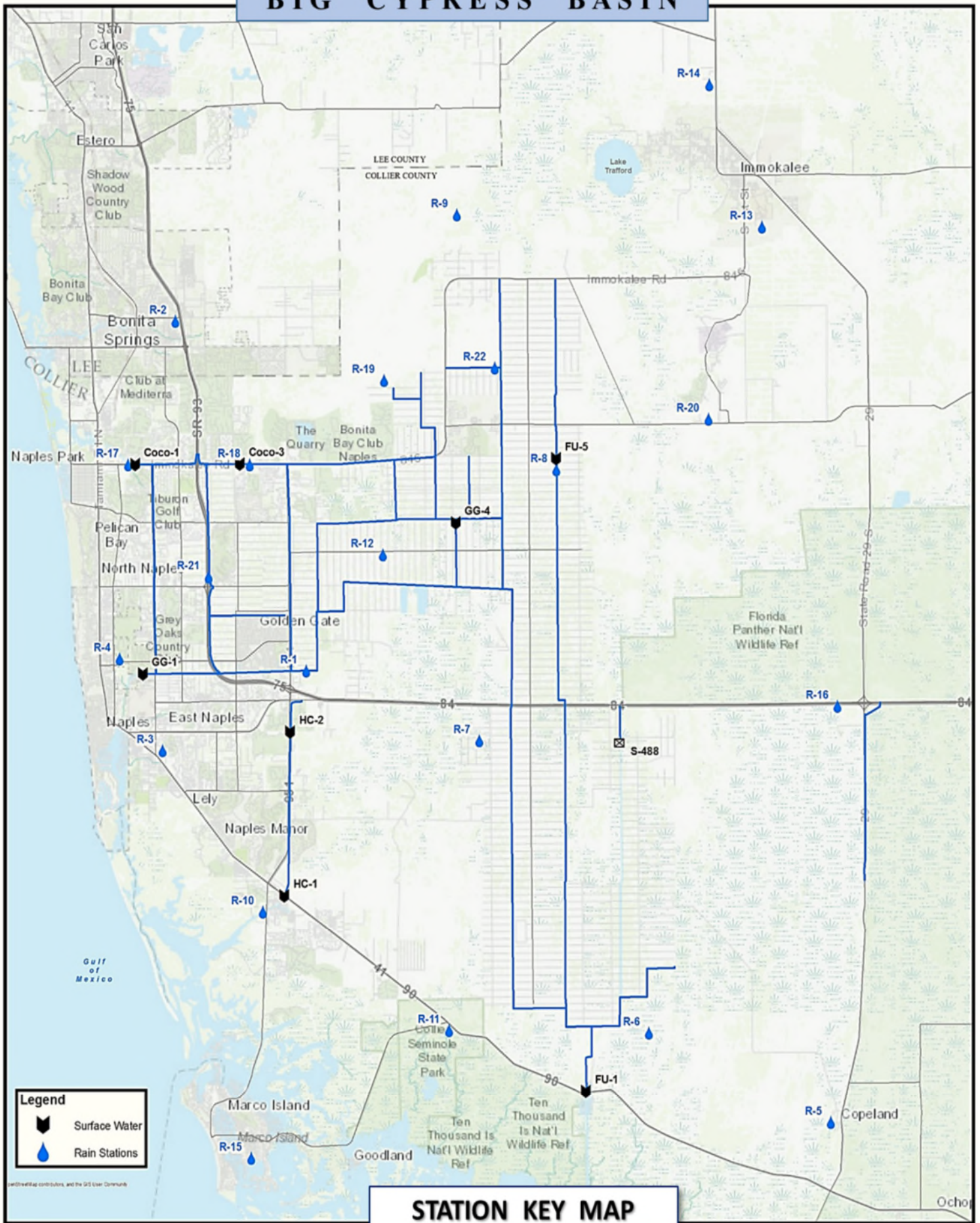
Henderson Creek continues to run in dry season operations. Water levels in the upper watershed are trending just below the 50th percentile for November (ref **Figure 8A**). On the other hand the lower watershed is starting its downward trend closer to the 90th percentile (ref **Figure 8B**). Water levels are expected to continue to decrease as dry season continues and water use increases.

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

The current reporting (01/02/2019) for the Lower West Coast [LWC] notes that groundwater levels have been decreasing which is typical for this time of year. By the first week of 2019, most of the wells in the BCB area maintain levels normal level-of-concern (green color). Only one well, C-1004R, maintains a level low enough to warrant a yellow concern indicator (ref. **Table 2**).

All reported wells in Table 2 show an average decrease of 0.77 feet. L-2194 recorded the highest decrease of 1.71 feet, and C-1224 recorded the smallest decrease of 0.18 feet (ref. **Table 2, Figure 9**).

BIG CYPRESS BASIN



STATION KEY MAP

FIGURE 1

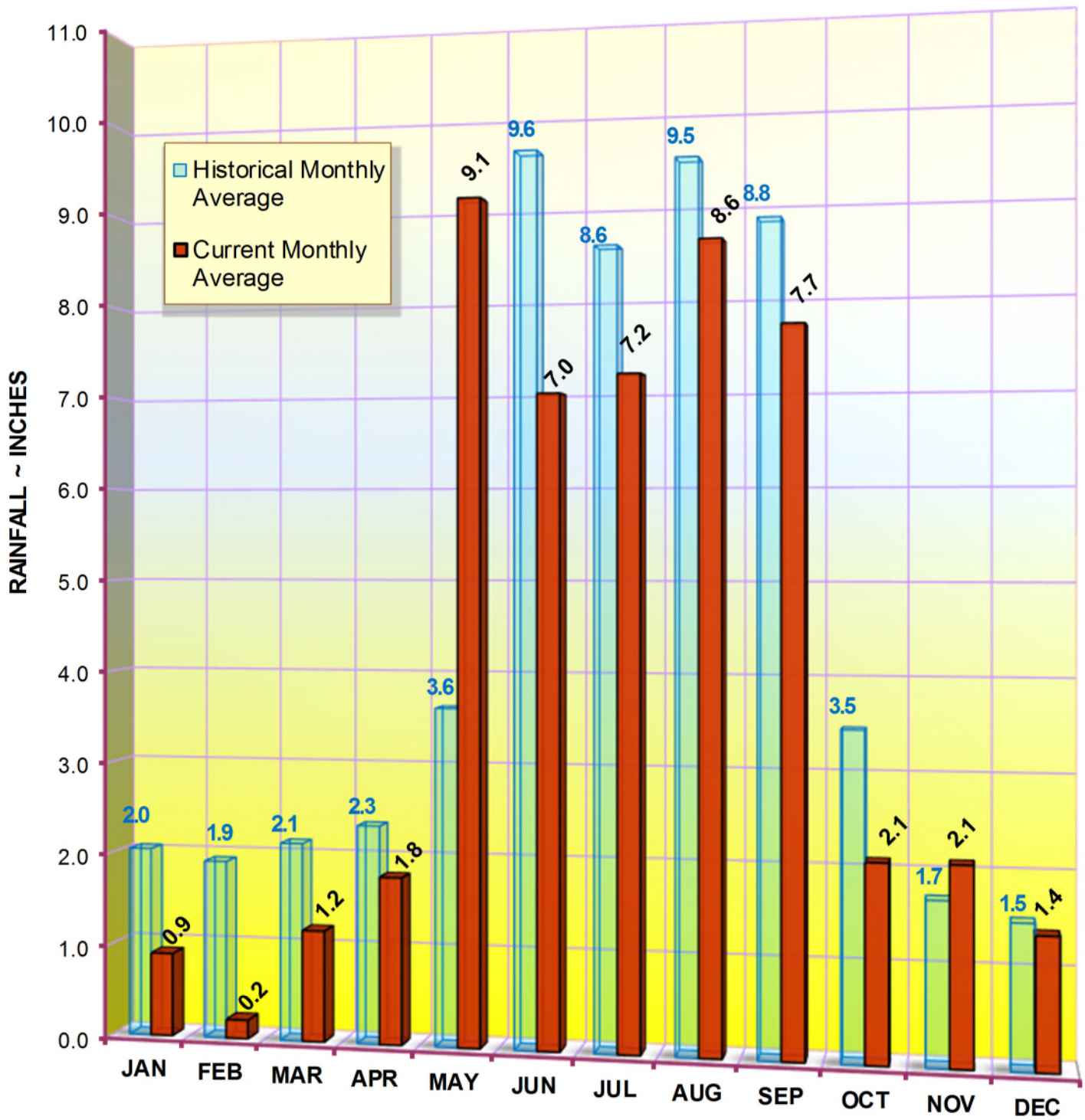
**RAINFALL REPORT - DECEMBER 2018**  
**DISTRICT/BASIN RAINFALL STATIONS**

(ALL NUMBERS ARE IN INCHES)

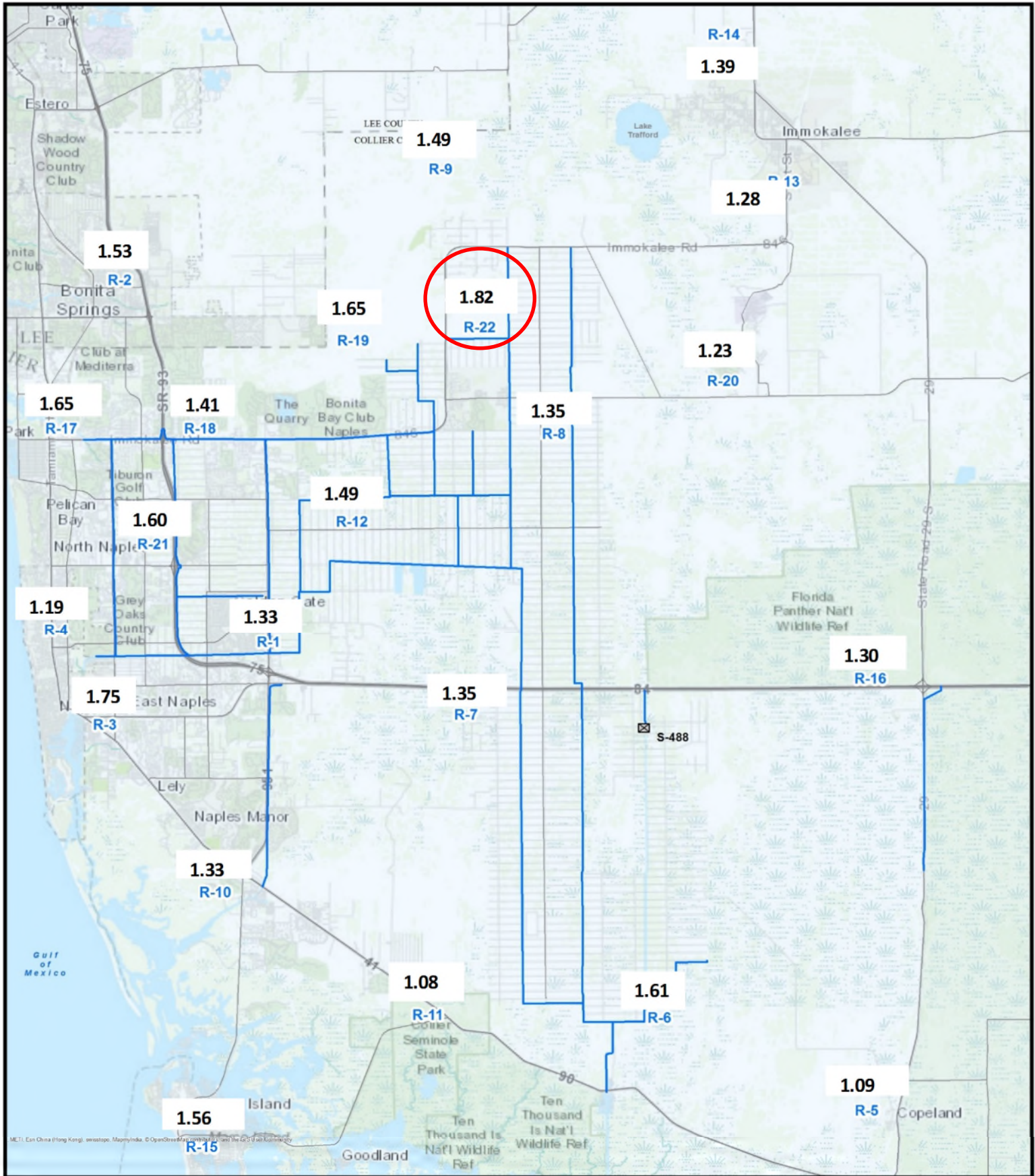
STATION INDEX NO.	STATION NAME	DECEMBER 2018	LONG TERM AVERAGE FOR THIS MONTH	MONTHLY DIFFERENCE	CALENDAR YEAR 2018 CUMULATIVE TOTAL	AVERAGE CALENDAR YEAR TO DATE	YEAR TO DATE DIFFERENCE
R-1	GOLDEN GATE #3	1.33		New Site	60.44	No Historical Data	
R-2	BONITA SPRINGS WATER PLANT	1.53	1.36	0.17	43.06	52.14	-9.08
R-3	COLLIER COUNTY COURTHOUSE	1.75	1.54	0.21	55.39	52.75	2.64
R-4	FREEDOM PARK	1.19		New Site	57.72	No Historical Data	
R-5	FAKAHATCHEE STRAND HQ	1.09	1.51	-0.42	38.34	60.75	-22.41
R-6	DAN HOUSE PRAIRIE	1.61	1.33	0.28	53.98	52.01	1.97
R-7	SGGE WEATHER STATION	1.35	1.24	0.11	50.32	61.45	-11.13
R-8	FAKA UNION #5	1.35		New Site	51.48	No Historical Data	
R-9	CORKSCREW SWAMP NORTH END	1.49	1.48	0.01	50.93	50.97	-0.04
R-10	ROOKERY BAY HQ	1.33	1.54	-0.21	56.24	55.78	0.46
R-11	COLLIER SEMINOLE STATE PARK	1.08	1.60	-0.52	44.22	57.31	-13.09
R-12	G.G. FIRE STATION	1.49	1.57	-0.08	51.28	59.71	-8.43
R-13	IMMOKALEE LANDFILL	1.28	1.48	-0.20	40.22	52.91	-12.69
R-14	IFAS	1.39	1.53	-0.14	47.13	50.35	-3.22
R-15	MARCO R.O. PLANT	1.56	1.57	-0.01	36.03	53.95	-17.92
R-16	FAKAHATCHEE STRAND NORTH END	1.30	1.96	-1.06	46.21	61.35	-15.14
R-17	COCO#1	1.65	1.52	0.13	48.34	49.65	-1.31
R-18	COCO#3	1.41	1.60	-0.19	48.34	57.89	-9.55
R-19	BIRD ROOKERY	1.65		New Site	62.41	No Historical Data	
R-20	AVE MARIA	1.23	1.57	-0.34	43.93	55.07	-11.14
R-21	I75W2	1.60		New Site	55.25	No Historical Data	
R-22	GG#7	1.82		New Site	44.20	No Historical Data	

AVERAGES	1.43	1.53	-0.09	49.34	55.25	-5.91
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**BCB ANNUAL RAINFALL**  
**MONTHLY AVERAGE & HISTORICAL AVERAGE TRENDS**  
**(FROM BCB RAINFALL GAGE DATA)**

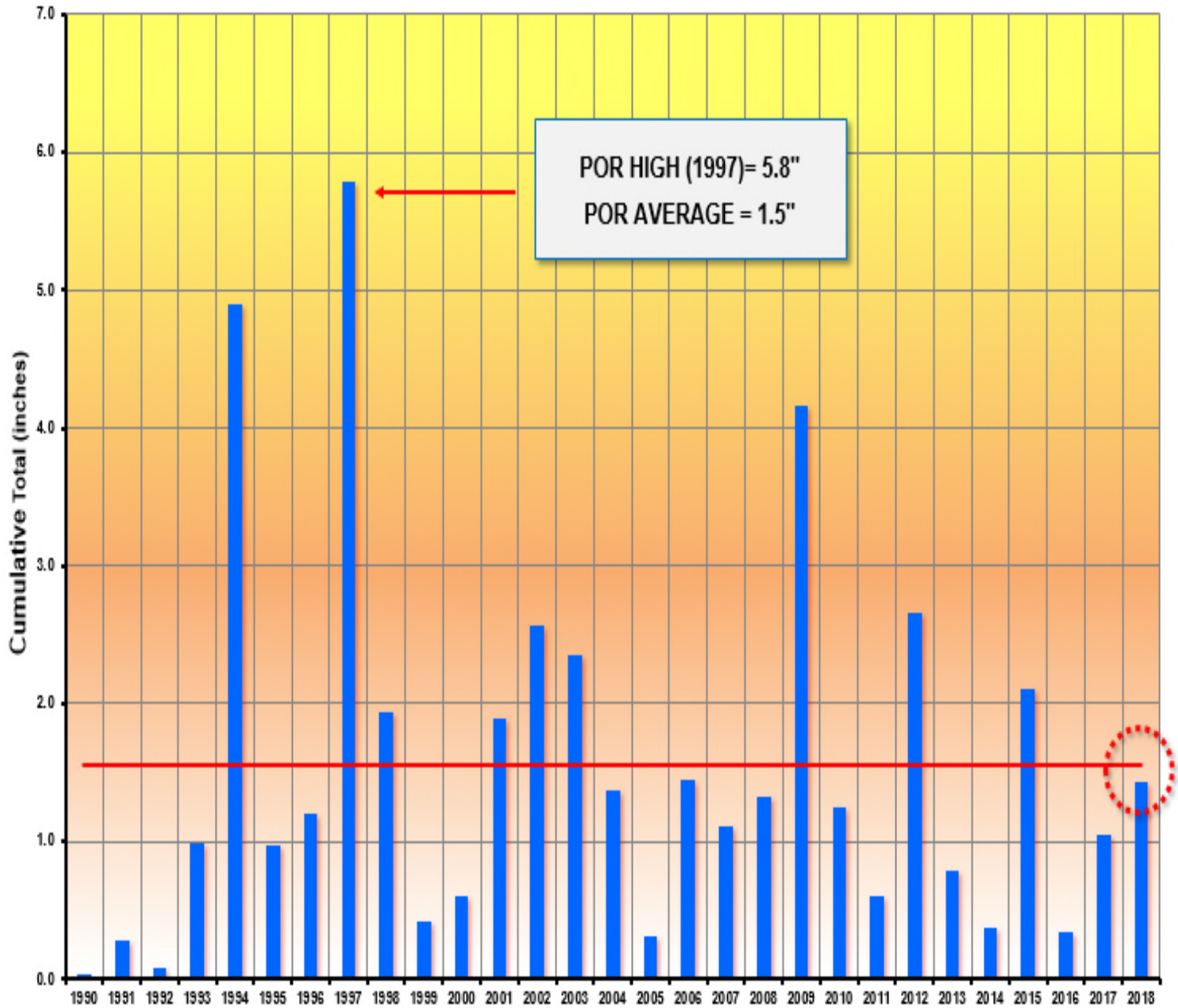


**FIGURE 2**  
**BCB GAGE RAINFALL**  
**MONTHLY AVERAGES THROUGH DECEMBER 2018**



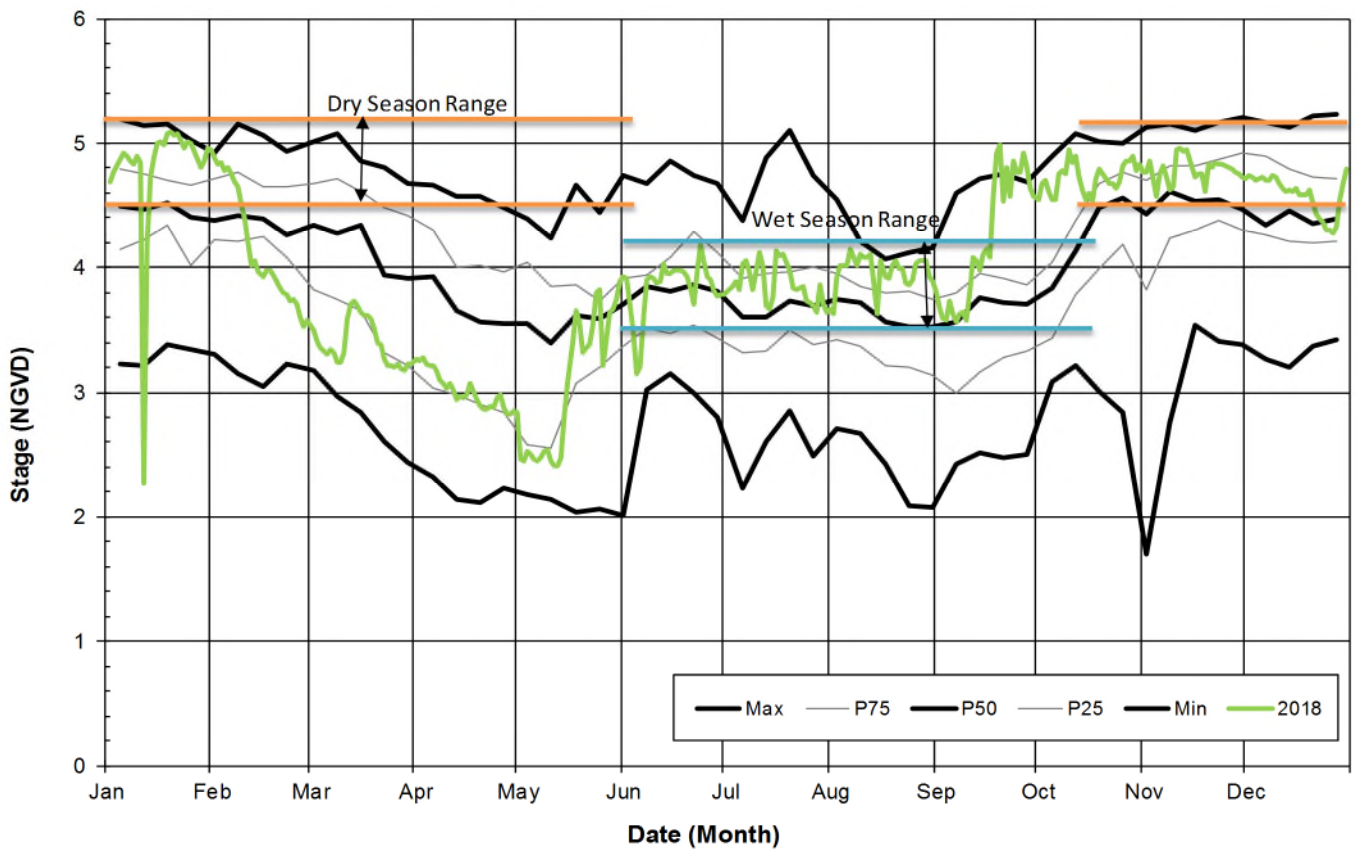
**FIGURE 3**  
**BCB RAINFALL DISTRIBUTION**  
**DECEMBER 2018**

**BCB DECEMBER RAINFALL**  
**Period (1990 ~ 2018)**



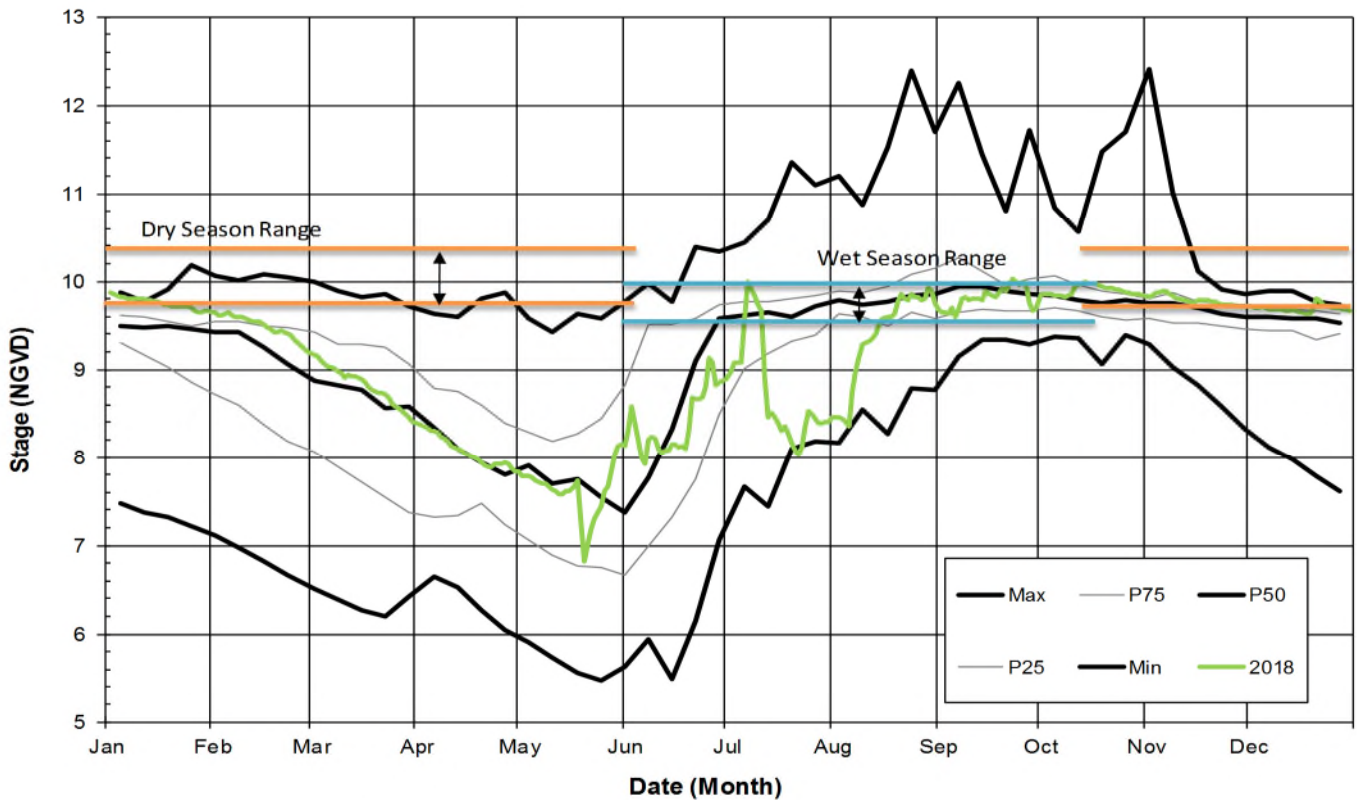
**FIGURE 4**  
**BCB MONTHLY AVERAGE RAINFALL**  
**HISTORICAL TRENDS**  
**(PERIOD OF RECORD: 1990—2018)**





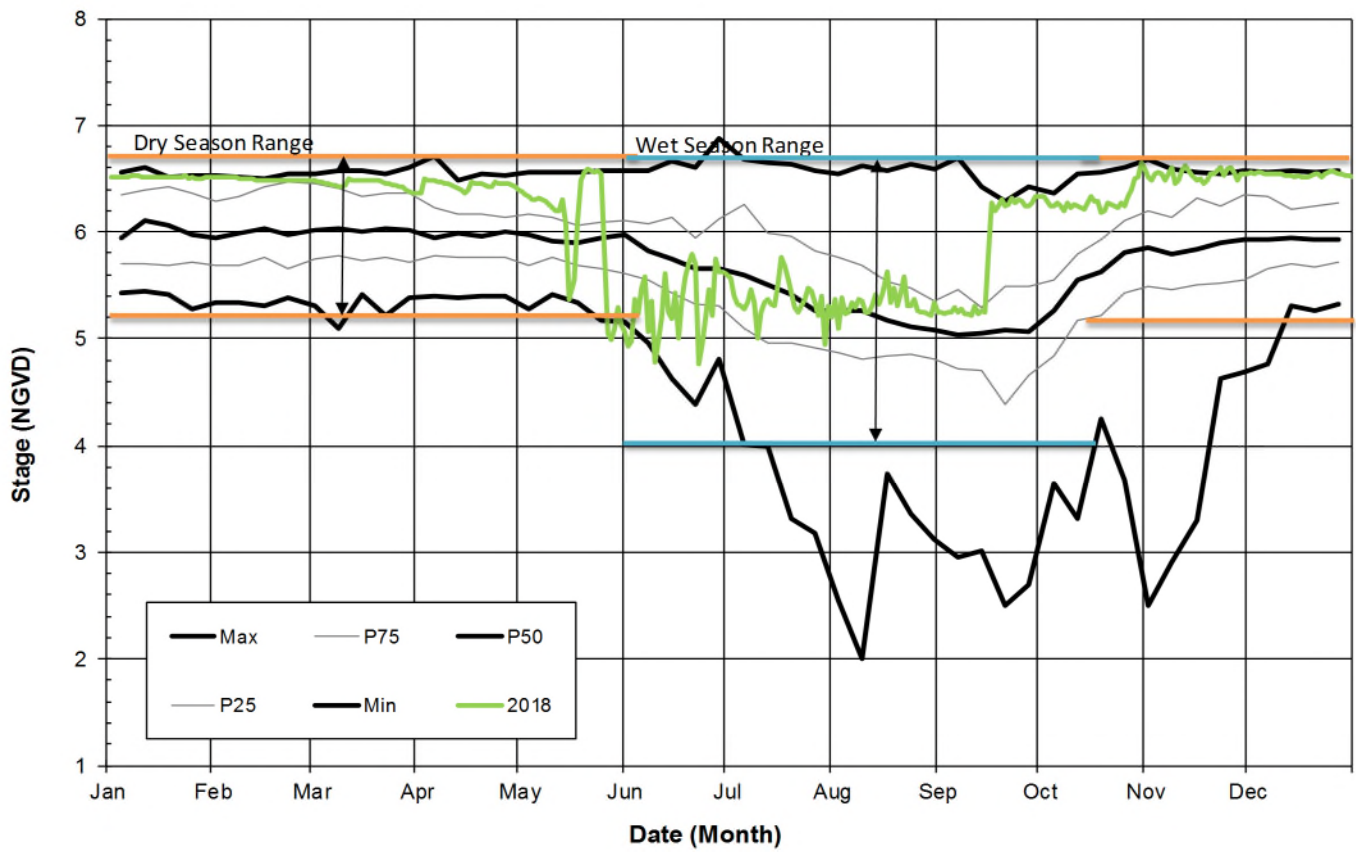
Dry Conditions Range of 5.2 - 4.5 feet NGVD  
 Wet Condition Range of 4.2 - 3.5 feet NGVD

**FIGURE 5A**  
**Weekly HW Percentiles for GG1 Based on Daily Stage Data from 2004 to 2018**



Dry Conditions Range of 10.5 - 9.75 feet NGVD  
 Wet Condition Range of 10.0 - 9.5 feet NGVD

**2018 DATA CYPRESS1 FIGURE 5B**  
**Weekly HW Percentiles for GG4 Based on Daily Stage Data from 1994 to 2017**

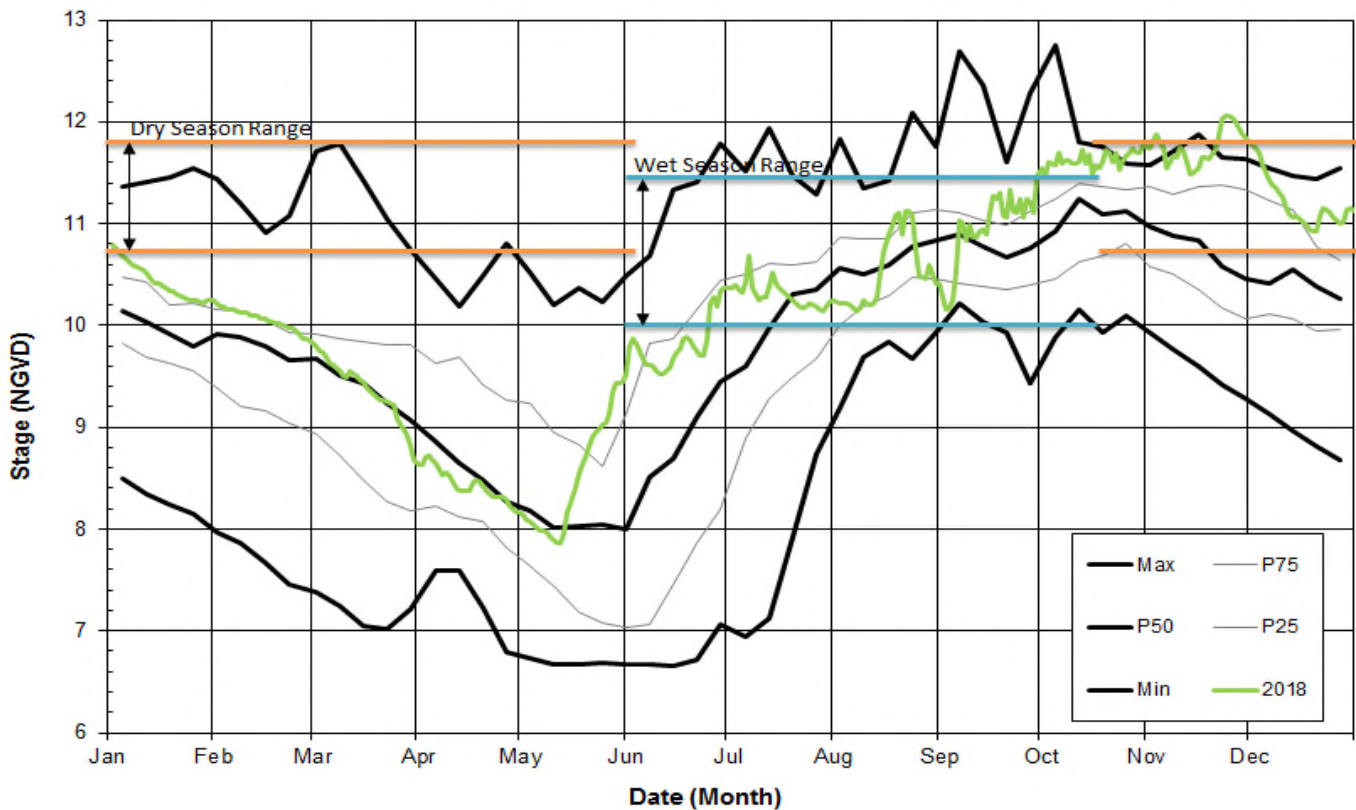


Dry Conditions Range of 6.7 - 5.2 feet NGVD

Wet Condition Range of 6.7 - 4.0 feet NGVD

**Weekly Hw Percentiles for COCO1 Based on Daily Stage Data from 1994 to 2018**

**FIGURE 6A**

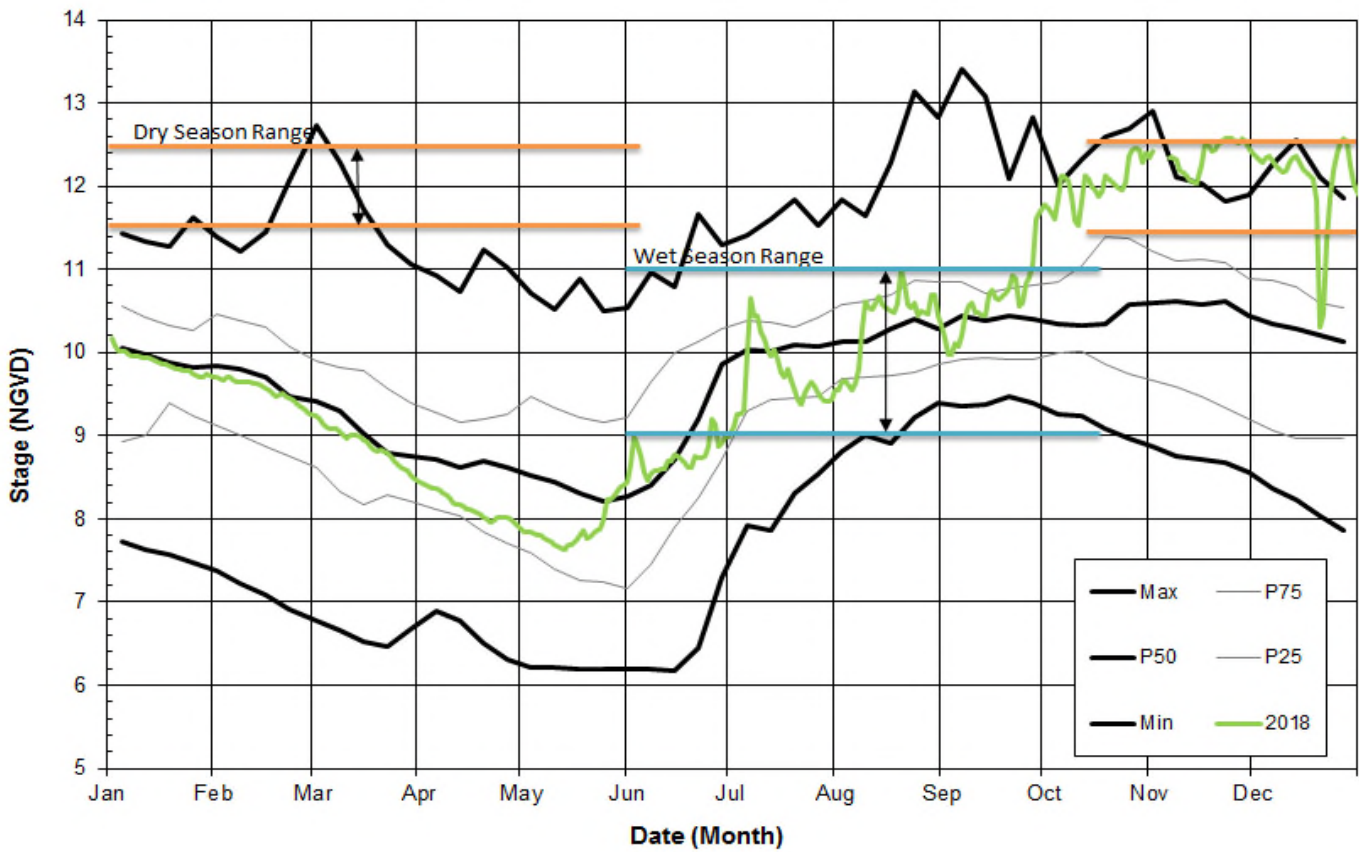


Dry Conditions Range of 11.0 to 9.5 feet NGVD

Wet Condition Range of 10.0 to 8.0 feet NGVD

**Weekly Hw Percentiles for COCO3 Based on Daily Stage Data from 2000 to 2018**

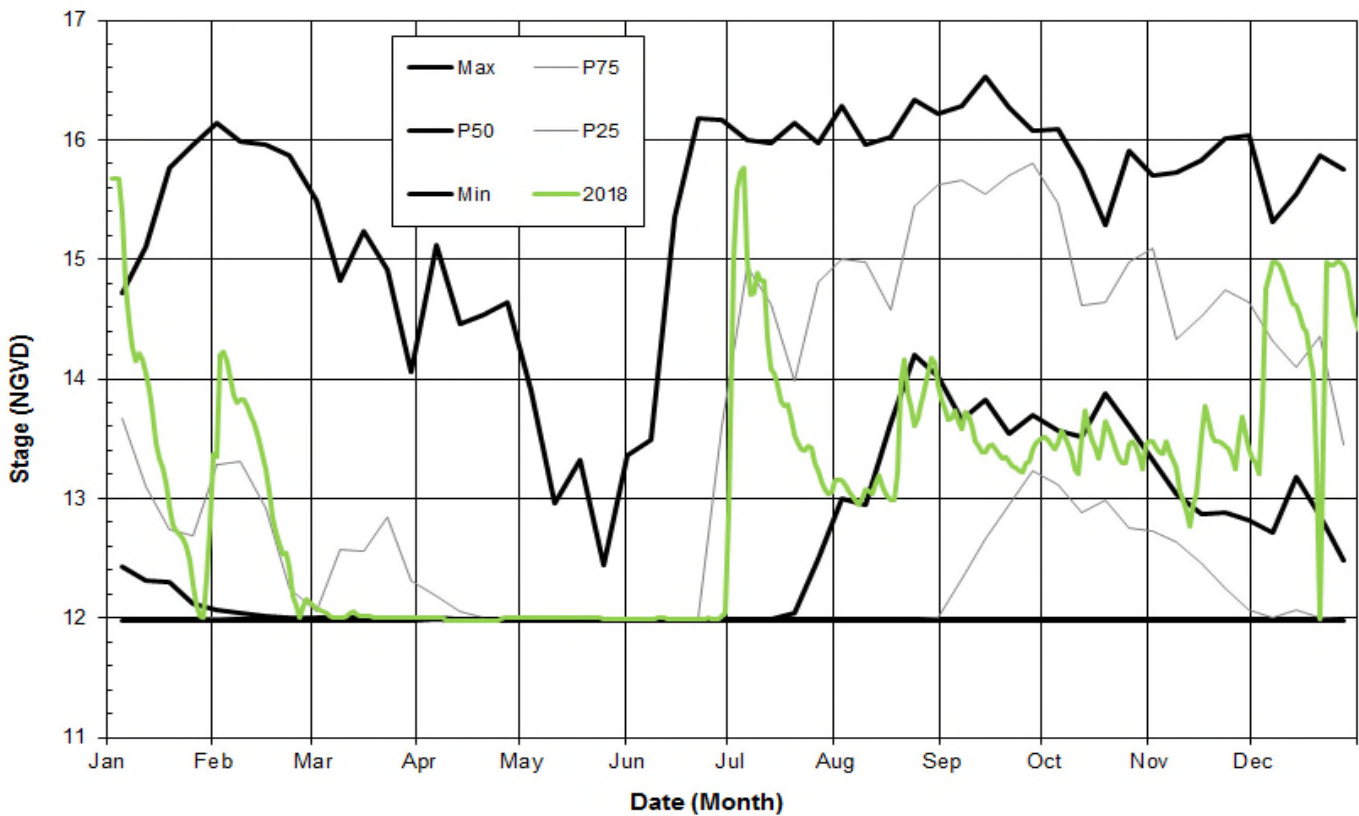
**FIGURE 6B**



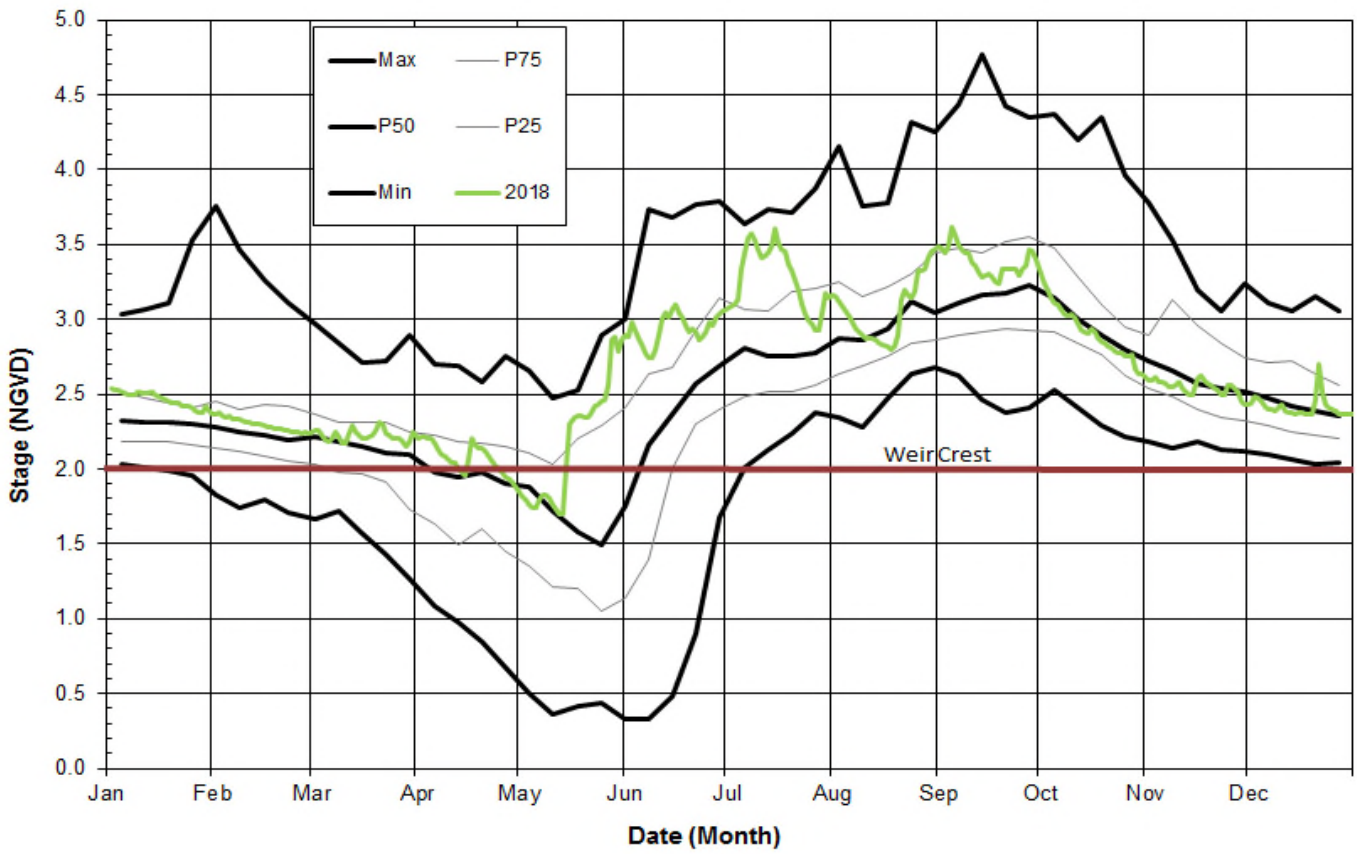
Dry Conditions Range of 12.5 - 11.5 feet NGVD

Wet Condition Range of 11.0 - 9.0 feet NGVD **Weekly Hw Percentiles for CORK1 Based on Daily Stage Data from 1989 to 2018**

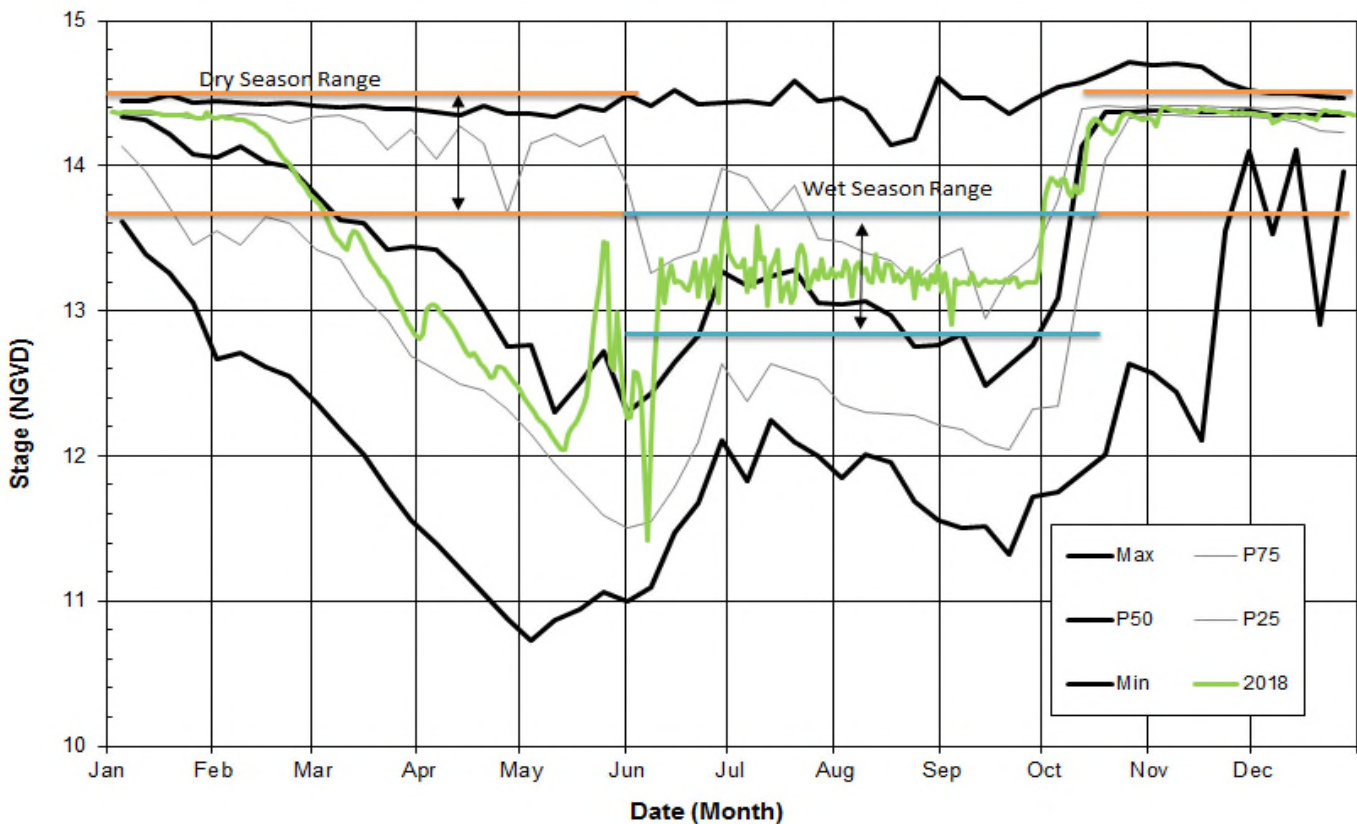
**FIGURE 6C**



**FIGURE 6D**  
**Weekly Hw Percentiles for CORK3 Based on Daily Stage Data from 2004 to 2018**

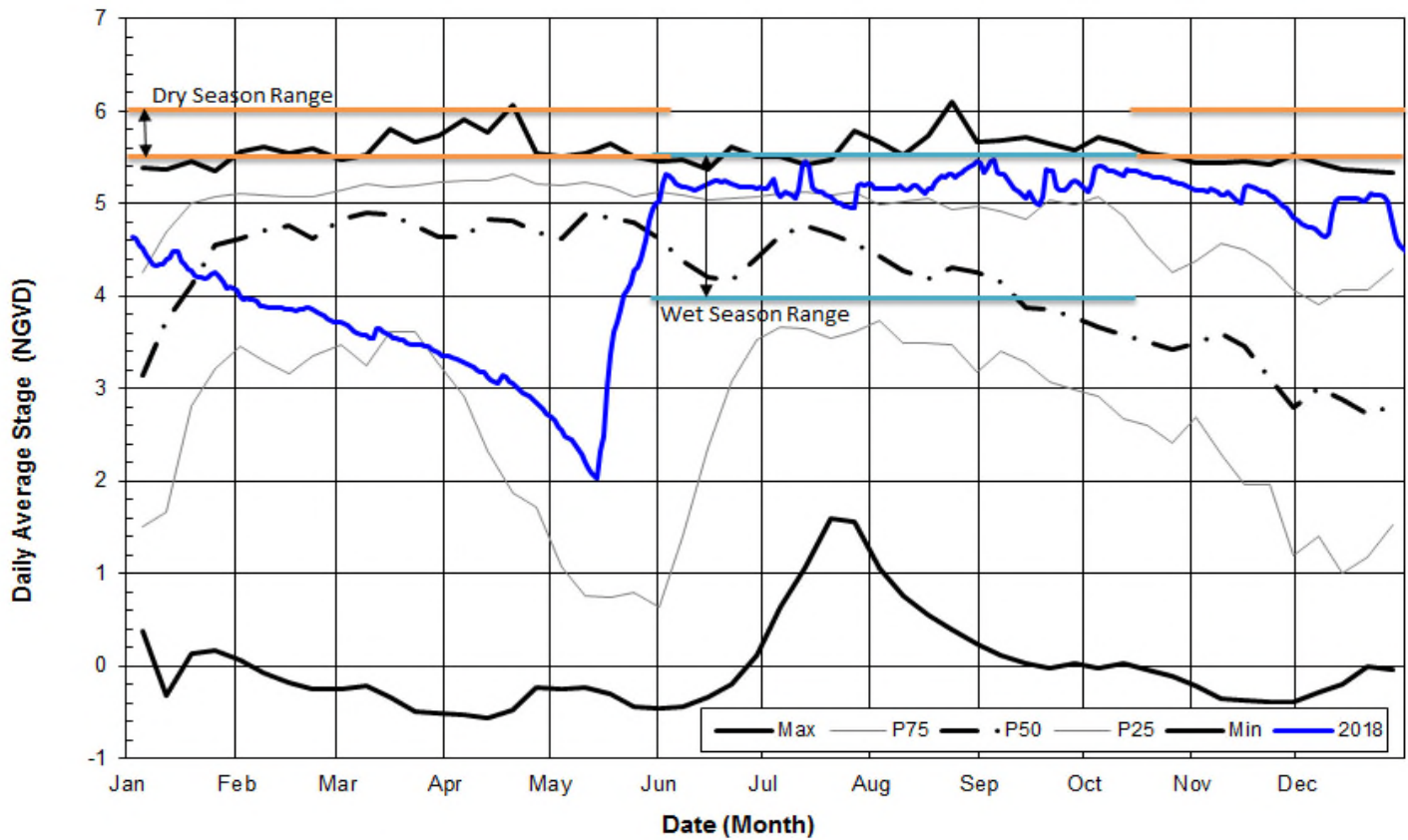


**FIGURE 7A**  
**Weekly Hw Percentiles for FU1 Based on Daily Stage Data from 1984 to 2018**



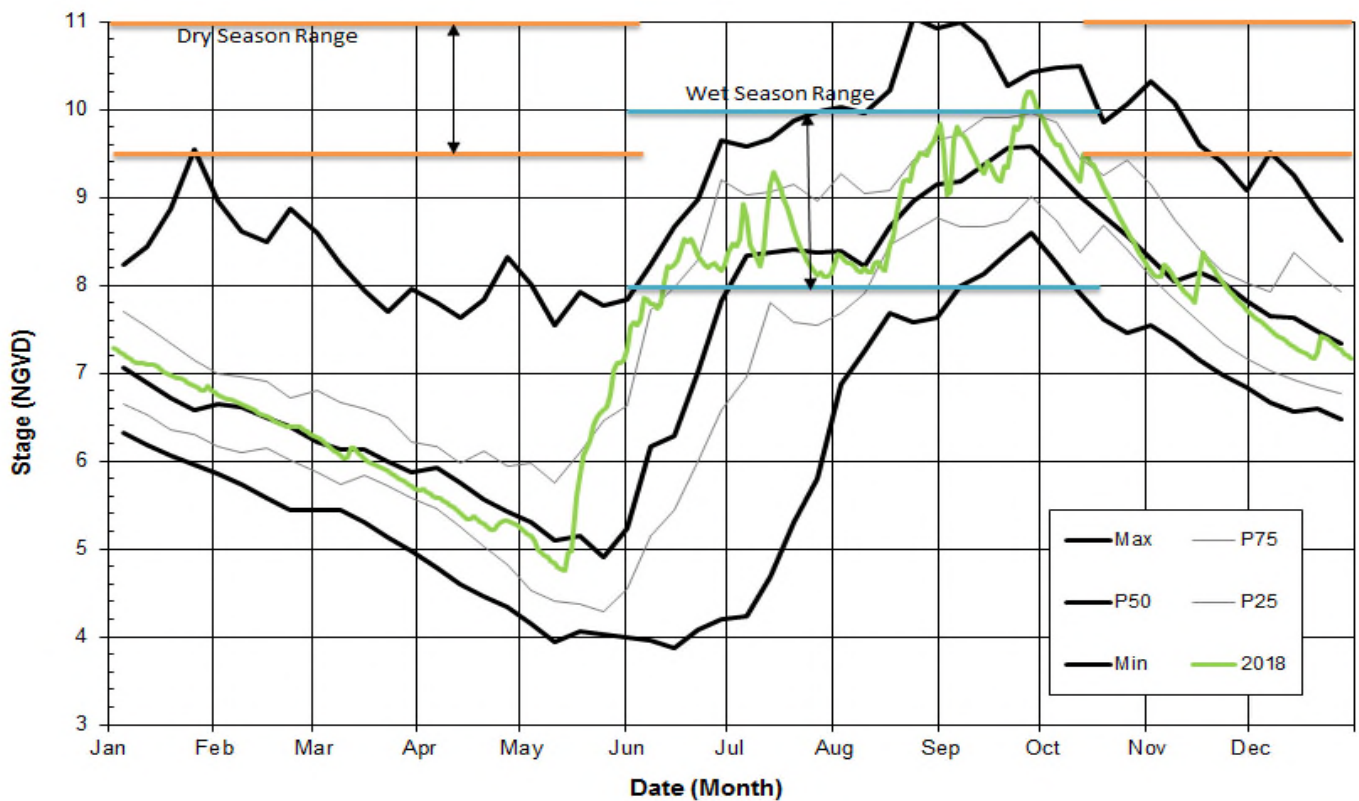
Dry Conditions Range of 14.5 - 13.5 feet NGVD  
 Wet Condition Range of 13.5 - 12.5 feet NGVD

**FIGURE 7B**  
**Weekly HW Percentiles for FU5 Based on Daily Stage Data from 2003 to 2018**



Dry Conditions Range of 6.0 to 5.5 feet NGVD  
 Wet Condition Range of 5.5 to 4.0 feet NGVD

**FIGURE 8A**  
 Cyclic Analysis of Daily HW for HC1 1994 to 2018 POR



Dry Conditions Range of 11.0 - 9.5 feet NGVD  
 Wet Condition Range of 10.0 - 8.0 feet NGVD

**FIGURE 8B**  
 Weekly HW Percentiles for HC2 Based on Daily Stage Data from 2005 to 2018

**WATER CONDITIONS SUMMARY - December 2018**  
**SELECTED STATIONS for BCB AREA / SW FLORIDA**

Last Reading Date :		January 2, 2019					
Previous Period Reading Date:		December 3, 2018					
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	29.94	29.71	↓	GREEN
C-1004R	Naples	Lower Tamiami Aquifer	-0.59	3.14	2.55	↓	YELLOW
C-1224	Marco Lakes	Lower Tamiami Aquifer	-0.18	3.61	3.43	↓	GREEN
L-2194	Bonita Springs	Sandstone Aquifer	-1.71	3.97	2.26	↓	GREEN
L-2195	Bonita Springs	Surficial Aquifer System	-1.17	11.00	9.83	↓	GREEN
L-738	Bonita Springs	Lower Tamiami Aquifer	-0.76	1.14	0.38	↓	GREEN

**TABLE 2**  
**BCB WATER CONDITIONS SUMMARY**  
**DECEMBER 2018**

BIG CYPRESS BASIN

DECEMBER 2018

GROUNDWATER LEVEL DAILY TRENDS  
COMPARED TO HISTORICAL AVERAGE

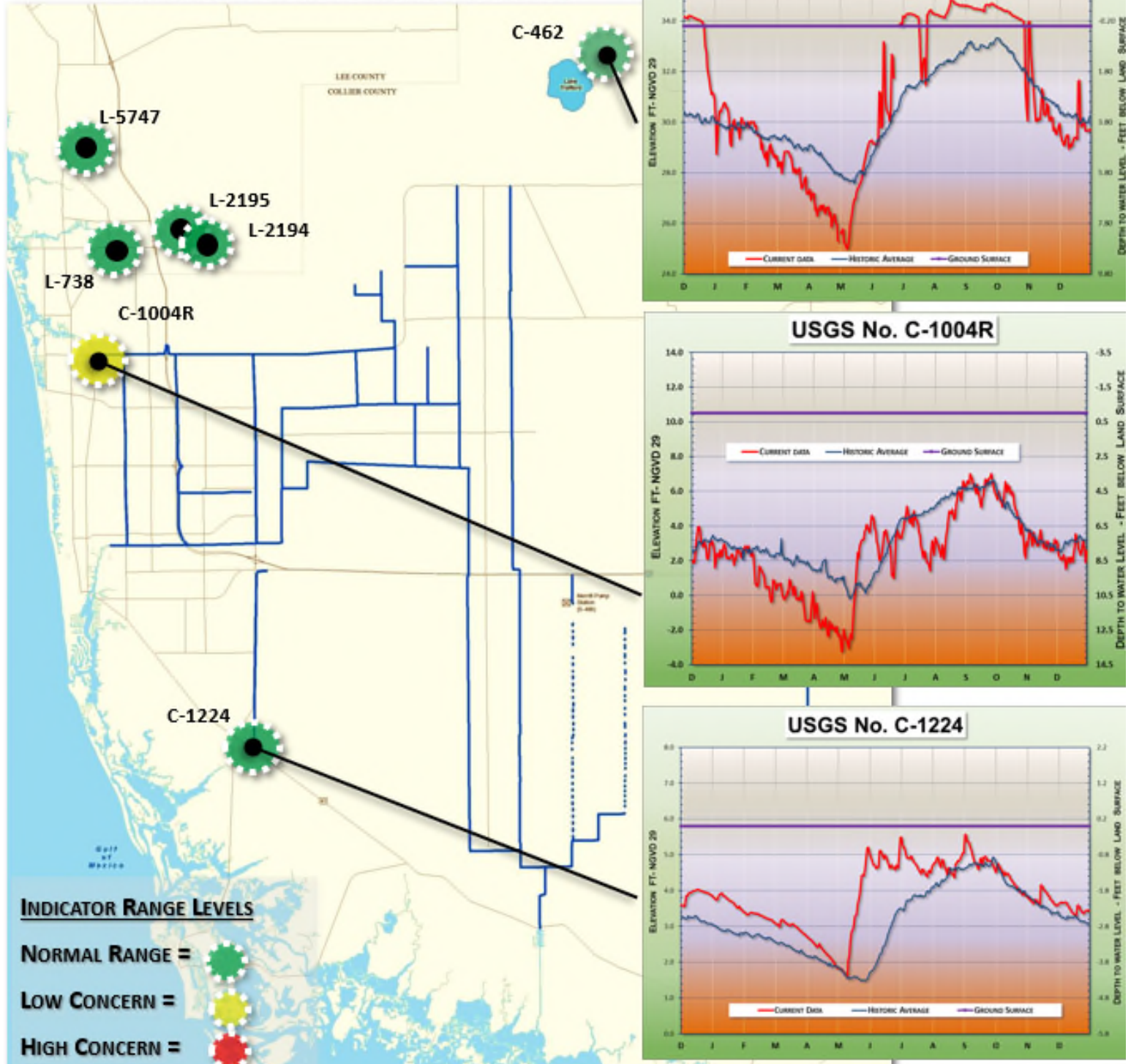


FIGURE 9