

HYDROLOGIC REPORT THE BIG CYPRESS BASIN

SEPTEMBER 2018



SUMMARY OF HYDROLOGIC CONDITIONS IN THE BIG CYPRESS BASIN

September 2018

SUMMARY

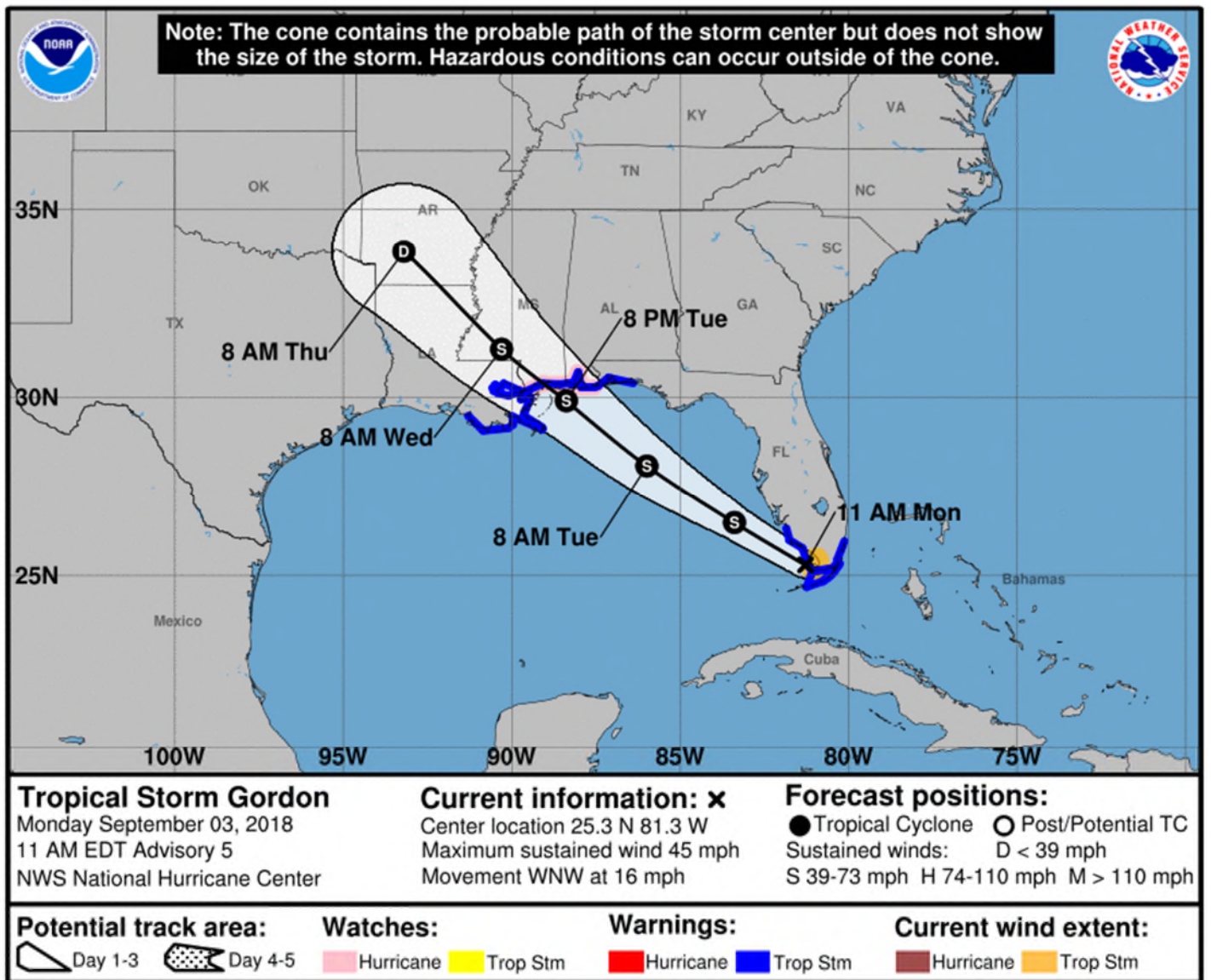
September continued the below average rainfall trend for the Big Cypress Basin [BCB]. Tropical Storm Gordon formed near the Florida Keys and came through the BCB during the Labor Day holiday. Gordon did not have a large impact on the BCB and did not provide enough widespread precipitation to offset this year's rainfall deficit. Although the basin is running behind on rainfall for the year, water levels throughout the basin's canal are staged mostly above historical averages. The end of month canal levels are encouraging as the basin transitions to dry season. In addition, the groundwater levels are at or above historical averages for September.

BCB RAINFALL

For the fourth consecutive month, rainfall across the BCB remained below the Basin's historic average. The September recorded basin-wide average rainfall was 7.67 inches, as observed at twenty-two (22) reporting stations (ref. **Figures 1, 2 & Table 1**). This tally was 1.14 inches below the monthly historic weighted average, which is 8.81 inches in September or 87% of the historic monthly total.

By the end of September, the average accumulated precipitation for 2018 measured 43.82 inches, which is 4.71 inches less than the 48.53 inches normally expected by this time of year (ref. **Table 1**).

The spatial rainfall distribution for monitored locations across the BCB is provided on **Figure 3**. The month's highest total rainfall was recorded at the Golden Gate #3 structure (Site R-1), which received 11.29 inches, and the lowest at the Fakahatchee Strand HQ Site (Site R-5) with only 3.31 inches. The difference between the high and low rainfall sites is significant and the standard deviation of all sites is 2.10 inches or 27% of the average, which suggests rainfall was not uniform across the basin. This variance corresponds with typical wet season sporadic thunderstorm activity and no widespread tropical activity even with the presence of Tropical Storm Gordon in early September.



BCB CANAL SYSTEMS

Records for September generally reflect the continued adjustments to gate operations as runoff entered the canal systems. The BCB water management system maintained wet season flood control operations for the month and began some transitions to dry season operations as conditions warrant.

- **GOLDEN GATE SYSTEM (BCB Central Collier)**

Water levels in the lower reaches of Golden Gate Main (GG1) (ref: **Figure 5a, 5b**) are trending higher through the end of September as the transition to dry season begins. The upstream canal water levels near GG4 have mostly recovered from the temporary drop in water levels resulting

from the ongoing construction of the GG4. A large portion of the temporary weir was raised which accounts for the stage increase. The remaining lowered temporary weir is scheduled to be raised in October for the transition into dry season. More normal water levels are anticipated as the dry season temporary weir is established.

- **COCOHATCHEE SYSTEM (BCB Urban/ North Collier)**

Water levels in the Cocohatchee Canal (ref: **Figure 6a, 6b**) trended upward in both the upper and lower watersheds. The structures are operating in the upper wet season range in anticipation of the transition to dry season. The lower watershed (COCO1) started September close to historic levels and by months end was 1.4 ft above historic levels. The upper watershed started September 0.6 ft lower than historic levels, but as September came to an end stage levels were 0.6 ft higher than historic levels.

- **FAKA UNION SYSTEM (BCB East Collier and South to Port of the Islands)**

The Faka Union canal system generally trended with the historic average in September until FU5 starting transitioning to the dry season protocol. (Ref. **Figures 7a and 7b**).

- **HENDERSON CREEK SYSTEM (BCB Urban /South Collier)**

Water levels in the Henderson Creek Canal (ref: **Figure 8a, 8b**) trended mostly flat during the month of September. The upper watershed (HC2) had a slight upward trend and the lower watershed (HC1) barely trended downwards. The overall water level conditions reached near the historic average by month's end.

BCB / LWC GROUNDWATER LEVELS

As per District report dated 10/01/2018, groundwater levels have remained relatively stable but trended down slightly in the last 30 days. Specifically, in the BCB area, groundwater level indicators also trended very slightly downward for the monitoring wells shown on **Table 2**, with a very slight downward trend in the Lower Tamiami aquifer, and an overall mild decrease in the Sandstone aquifer. At the end of September, all sites remained within the normal level-of-concern (green color) as indicated on **Table 2**. The exhibit provided at the end of this report (ref: **Figure 9**) includes a reference locator map showing the status of these and some other key indicator wells in the BCB / Lower West Coast region.

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

BIG CYPRESS BASIN

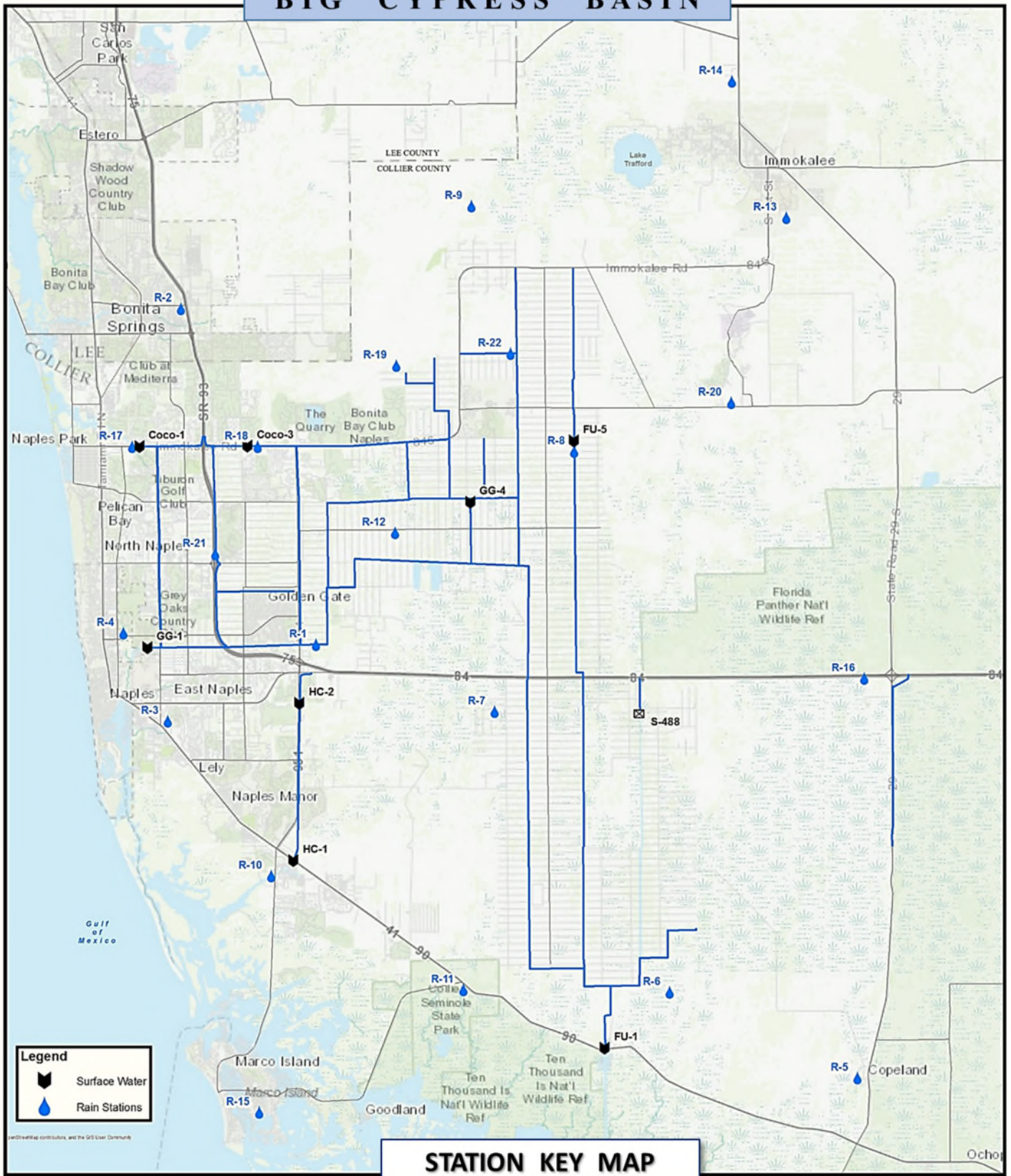


Figure 1

RAINFALL REPORT - SEPTEMBER 2018

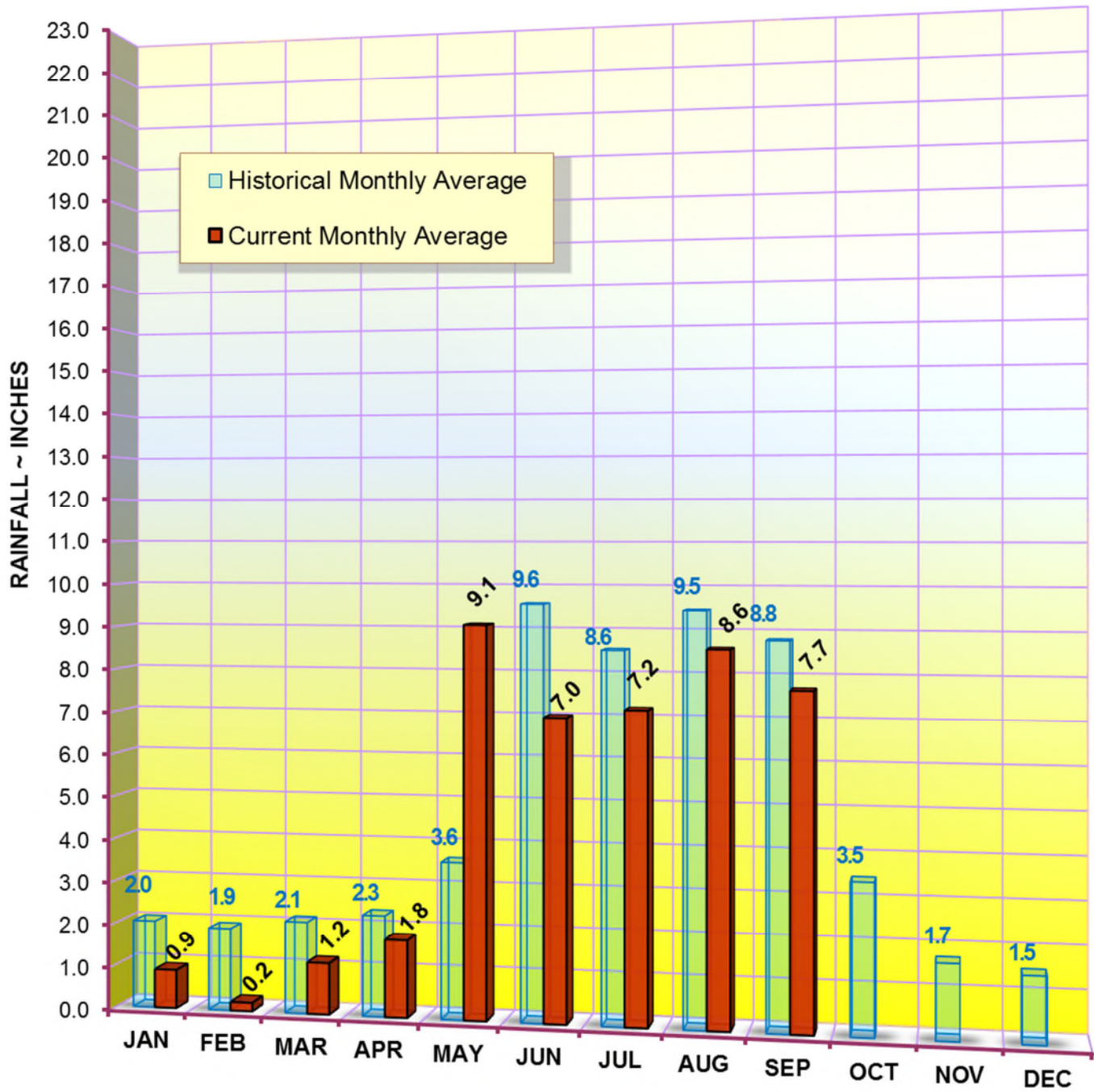
DISTRICT/BASIN RAINFALL STATIONS

(ALL NUMBERS ARE IN INCHES)

STATION INDEX NO.	STATION NAME	SEPTEMBER 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	11.29		New Site	53.71	No Historical Data	
R-2	BONITA SPRINGS WATER PLANT	6.23	8.11	-1.88	37.86	45.53	-7.67
R-3	COLLIER COUNTY COURTHOUSE	10.75	8.55	2.20	50.05	45.71	4.34
R-4	FREEDOM PARK	11.25		New Site	51.37	No Historical Data	
R-5	FAKAHATCHEE STRAND HQ	3.31	9.28	-5.97	32.63	54.18	-21.55
R-6	DAN HOUSE PRAIRIE	7.47	8.92	-1.45	48.41	45.60	2.81
R-7	SGGE WEATHER STATION	6.86	11.49	-4.63	45.58	55.77	-10.19
R-8	FAKA UNION #5	6.27		New Site	45.87	No Historical Data	
R-9	CORKSCREW SWAMP NORTH END	8.02	7.60	0.42	46.07	45.46	0.61
R-10	ROOKERY BAY HQ	10.04	9.70	0.34	50.05	49.21	0.84
R-11	COLLIER SEMINOLE STATE PARK	6.61	9.53	-2.92	40.33	50.00	-9.67
R-12	G.G. FIRE STATION	9.12	9.30	-0.18	45.31	52.67	-7.36
R-13	IMMOKALEE LANDFILL	6.01	8.01	-2.00	36.03	45.92	-9.89
R-14	IFAS	6.18	7.00	-0.82	43.14	43.97	-0.83
R-15	MARCO R.O. PLANT	9.23	8.63	0.60	31.30	46.43	-15.13
R-16	FAKAHATCHEE STRAND NORTH END	4.30	8.69	-4.39	41.17	53.66	-12.49
R-17	COCO#1	7.36	7.94	-0.58	40.74	42.65	-1.91
R-18	COCO#3	6.44	9.87	-3.43	39.79	51.59	-11.80
R-19	BIRD ROOKERY	10.04		New Site	55.59	No Historical Data	
R-20	AVE MARIA	7.67	8.34	-0.67	40.19	48.08	-7.89
R-21	I75W2	8.27		New Site	47.57	No Historical Data	
R-22	GG#7	6.02		New Site	41.26	No Historical Data	
	AVERAGES	7.67	8.81	-1.14	43.82	48.53	-4.71

Table 1

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



**Figure 2
BCB GAGE RAINFALL – MONTHLY AVERAGES THROUGH SEPTEMBER 2018**

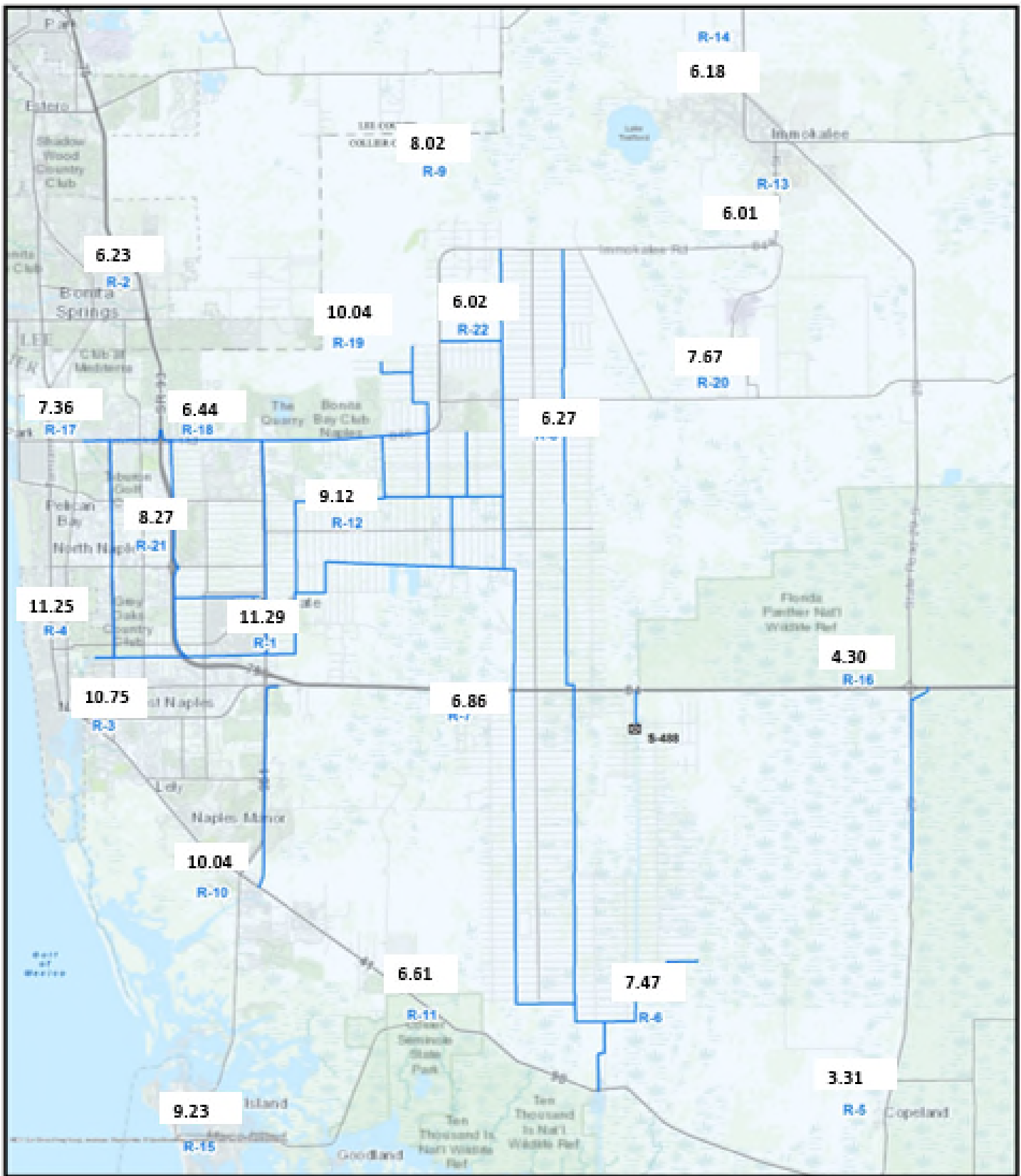


Figure 3
BCB RAINFALL DISTRIBUTION - SEPTEMBER 2018

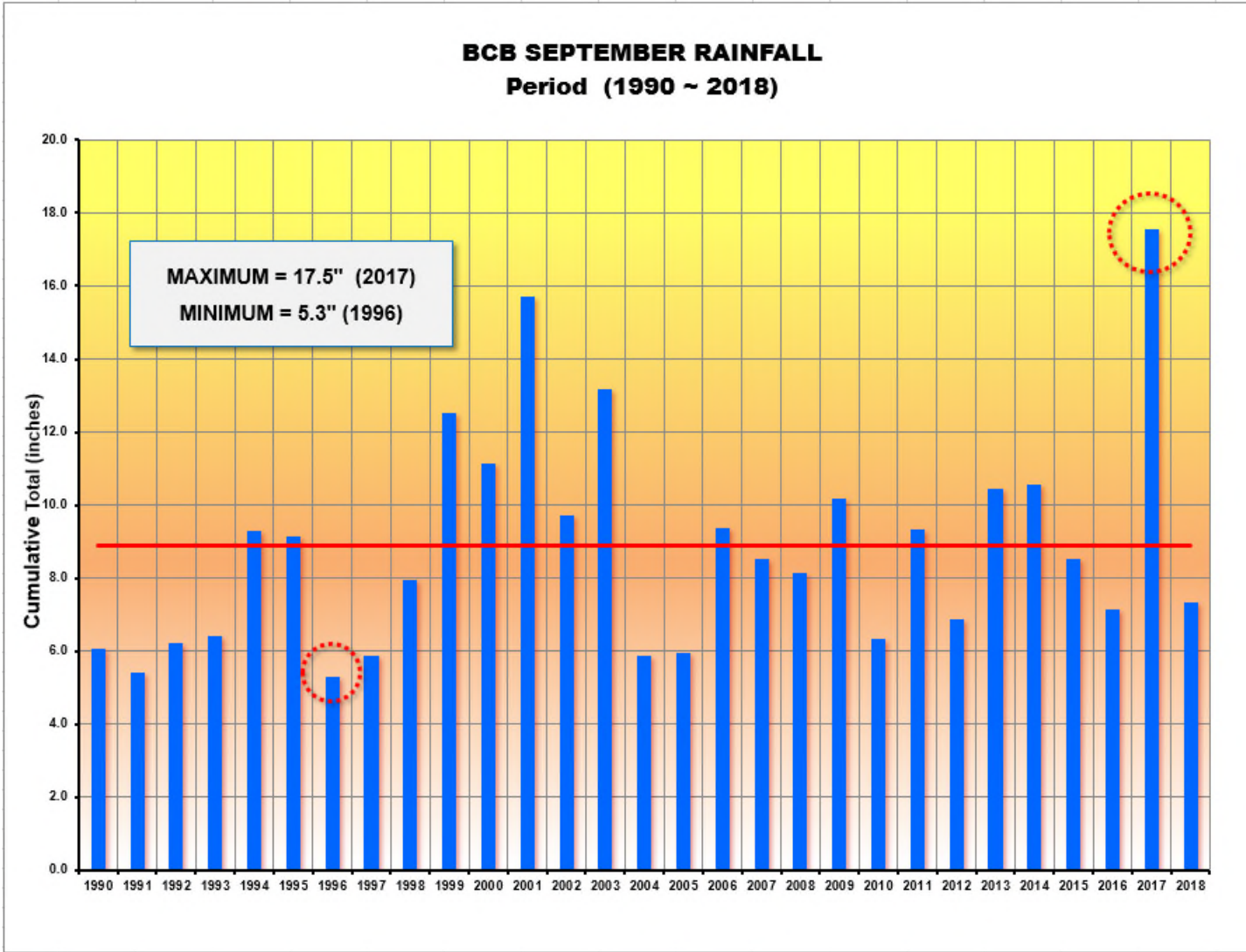


Figure 4

BCB MONTHLY AVERAGE RAINFALL – HISTORICAL TRENDS

(Period of Record: 1990 ~ 2018)

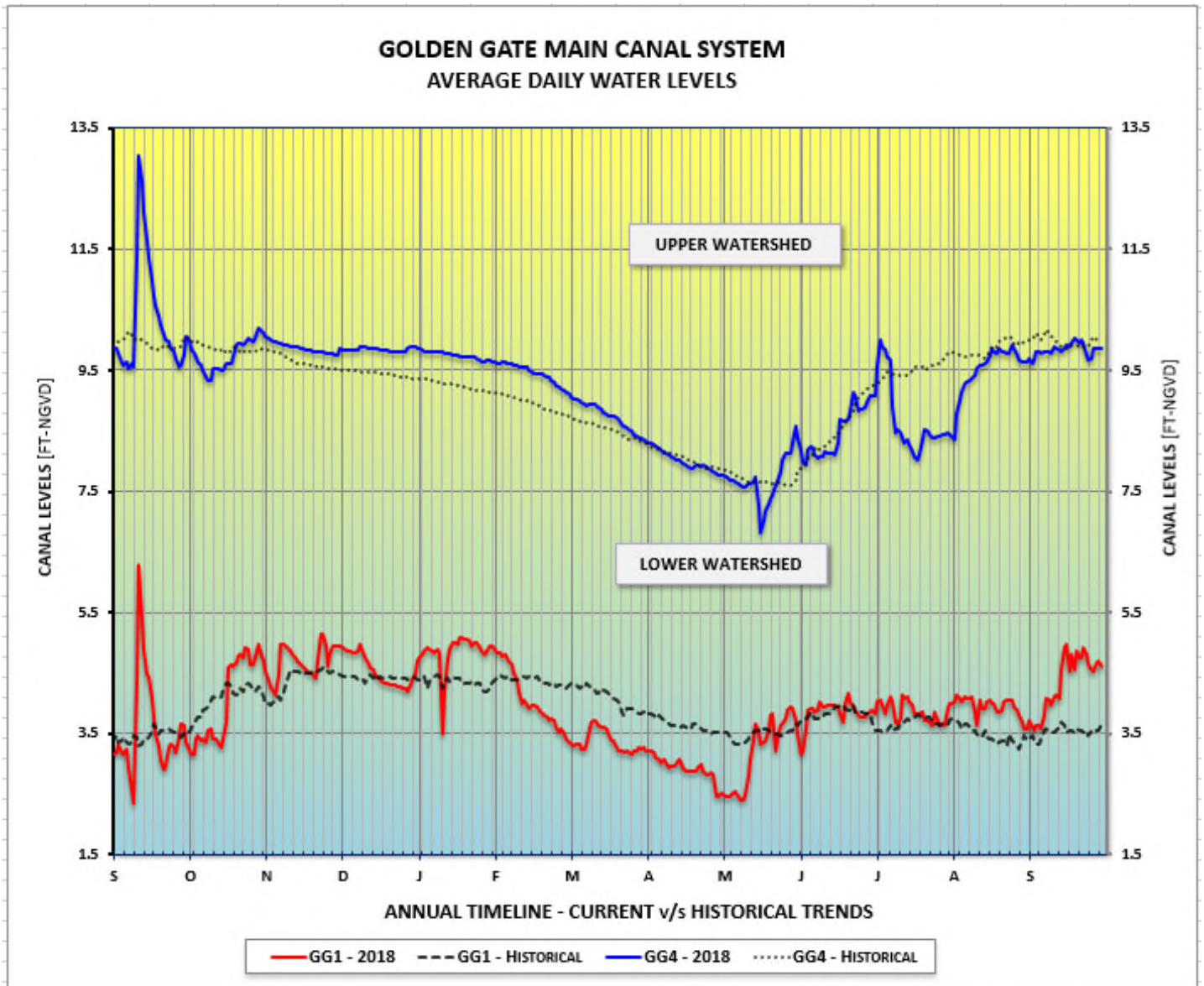


Figure 5a

GOLDEN GATE MAIN CANAL SYSTEM DIFFERENCE IN CANAL LEVELS

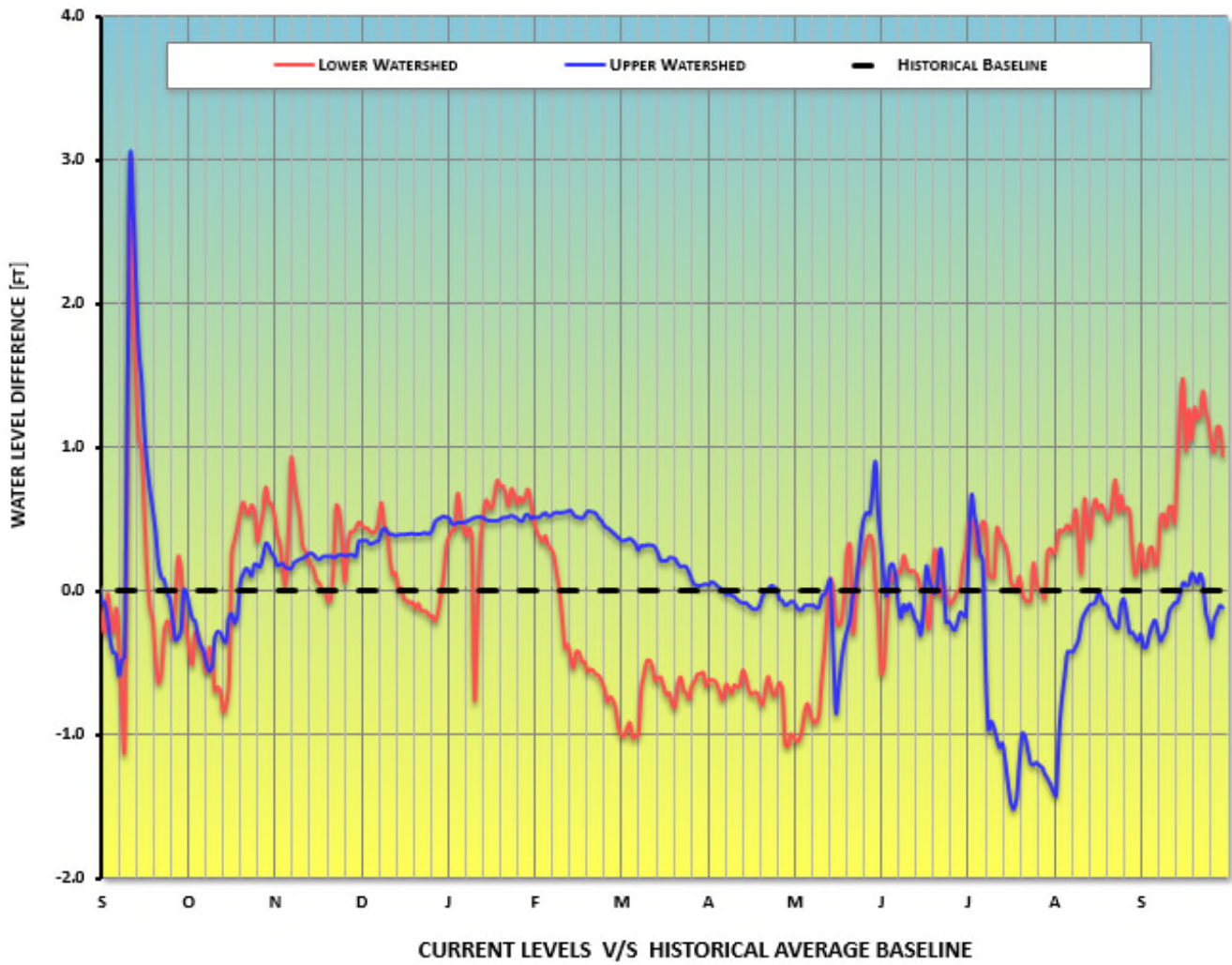


Figure 5b

COCOHATCHEE CANAL SYSTEM AVERAGE DAILY WATER LEVELS

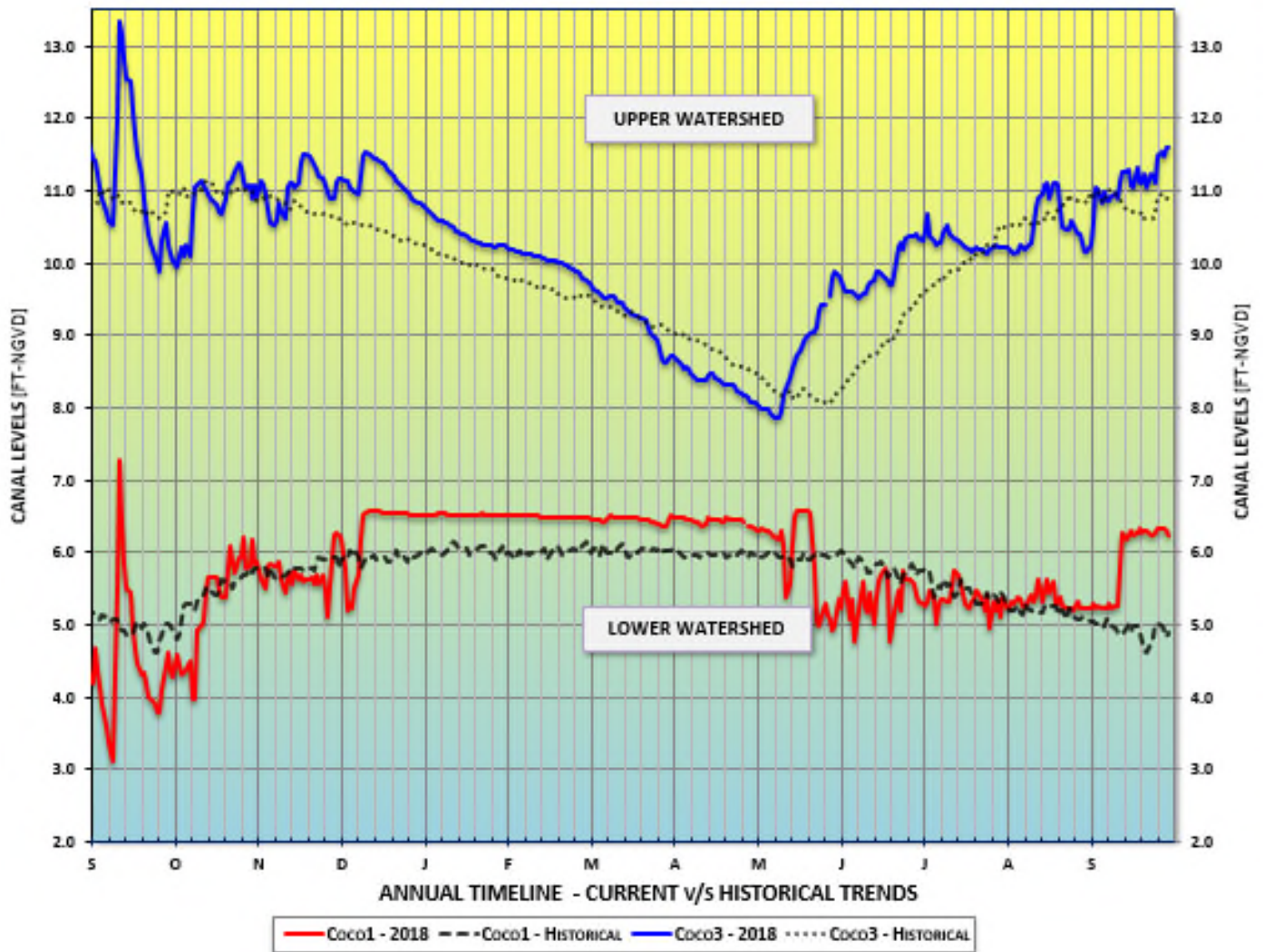


Figure 6a

COCOHATCHEE CANAL SYSTEM
DIFFERENCE IN CANAL LEVELS

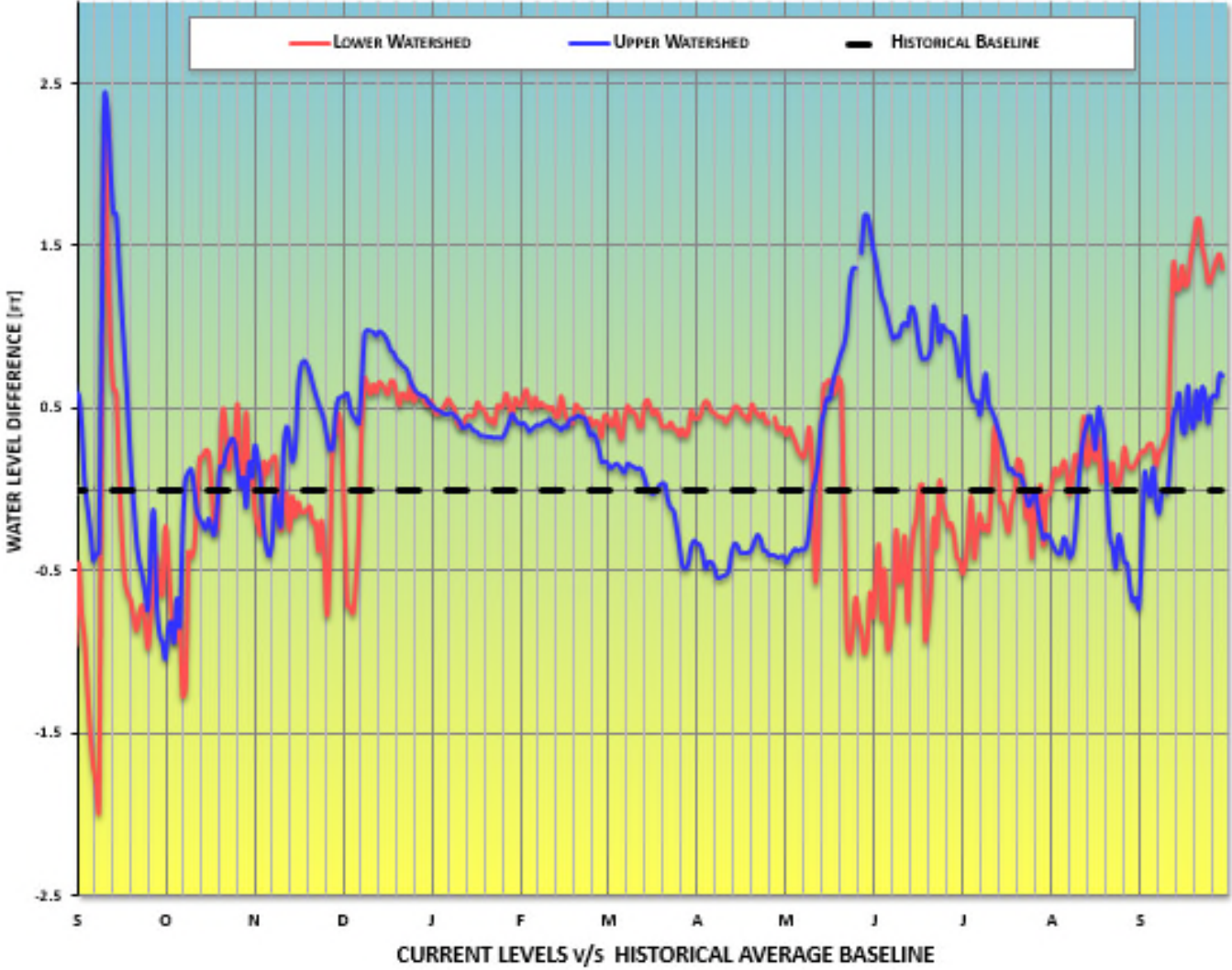


Figure 6b

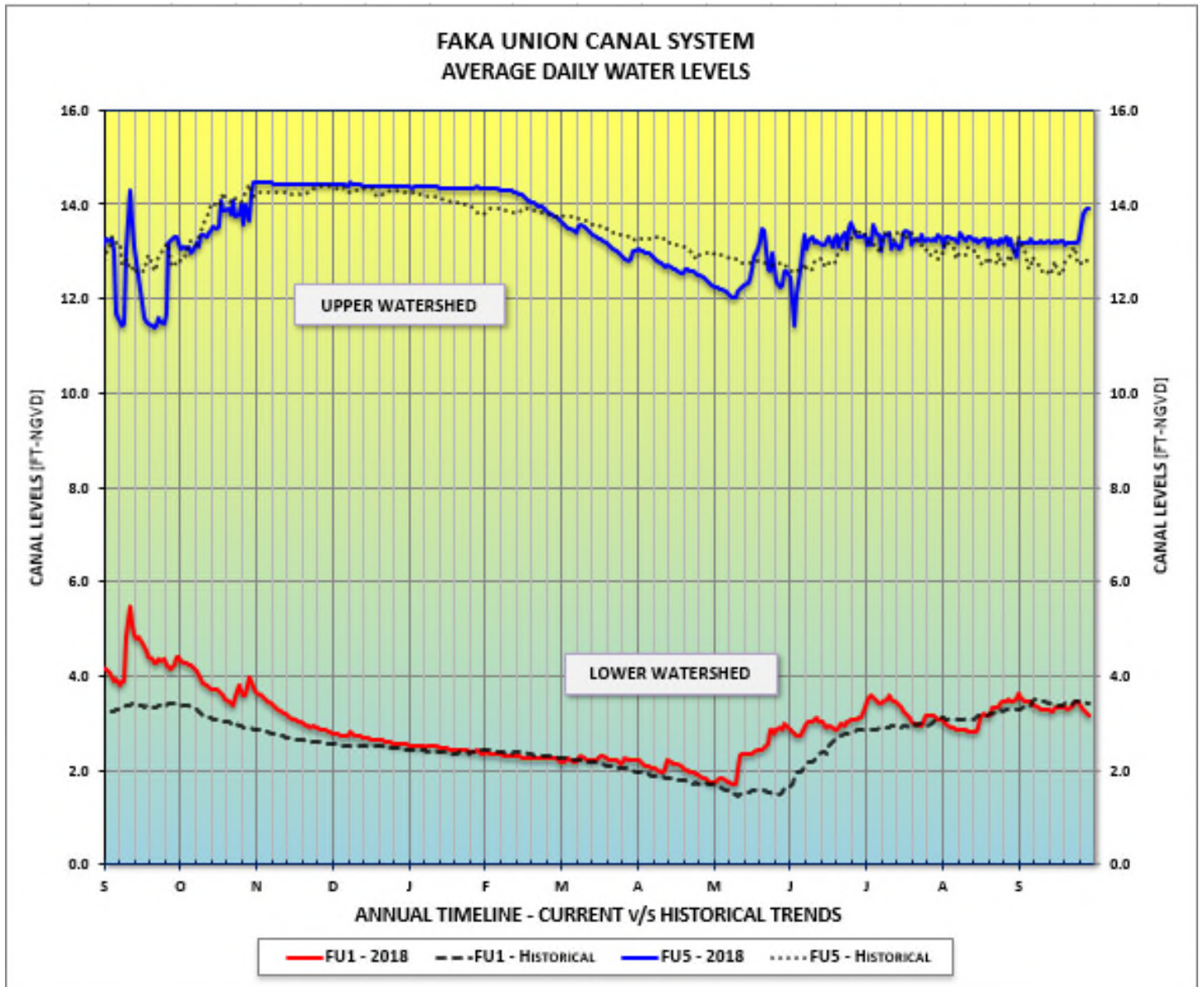


Figure 7a

FAKA UNION CANAL SYSTEM DIFFERENCE IN CANAL LEVELS

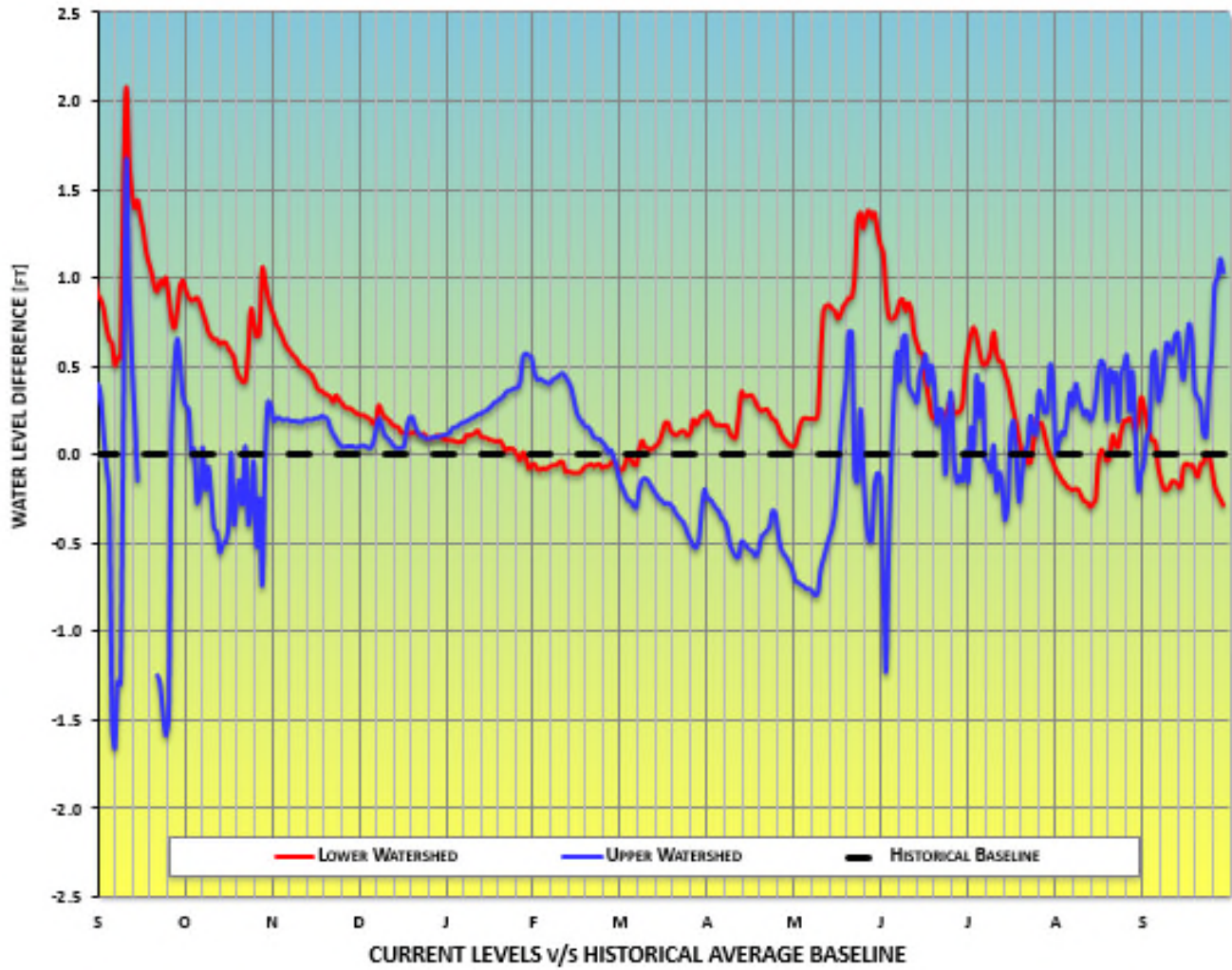


Figure 7b

HENDERSON CREEK CANAL AVERAGE DAILY WATER LEVELS

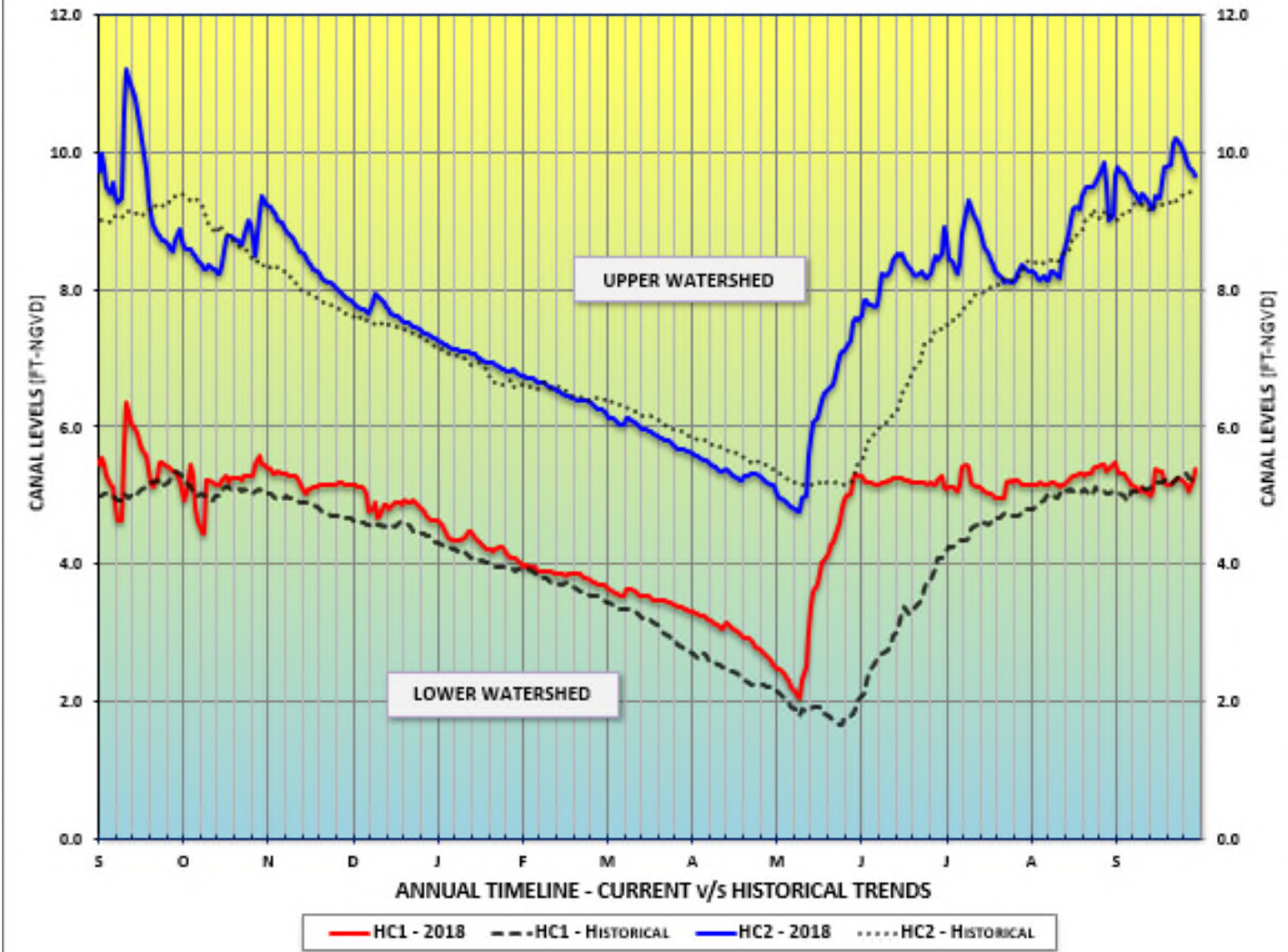


Figure 8a

HENDERSON CREEK SYSTEM DIFFERENCE IN CANAL LEVELS

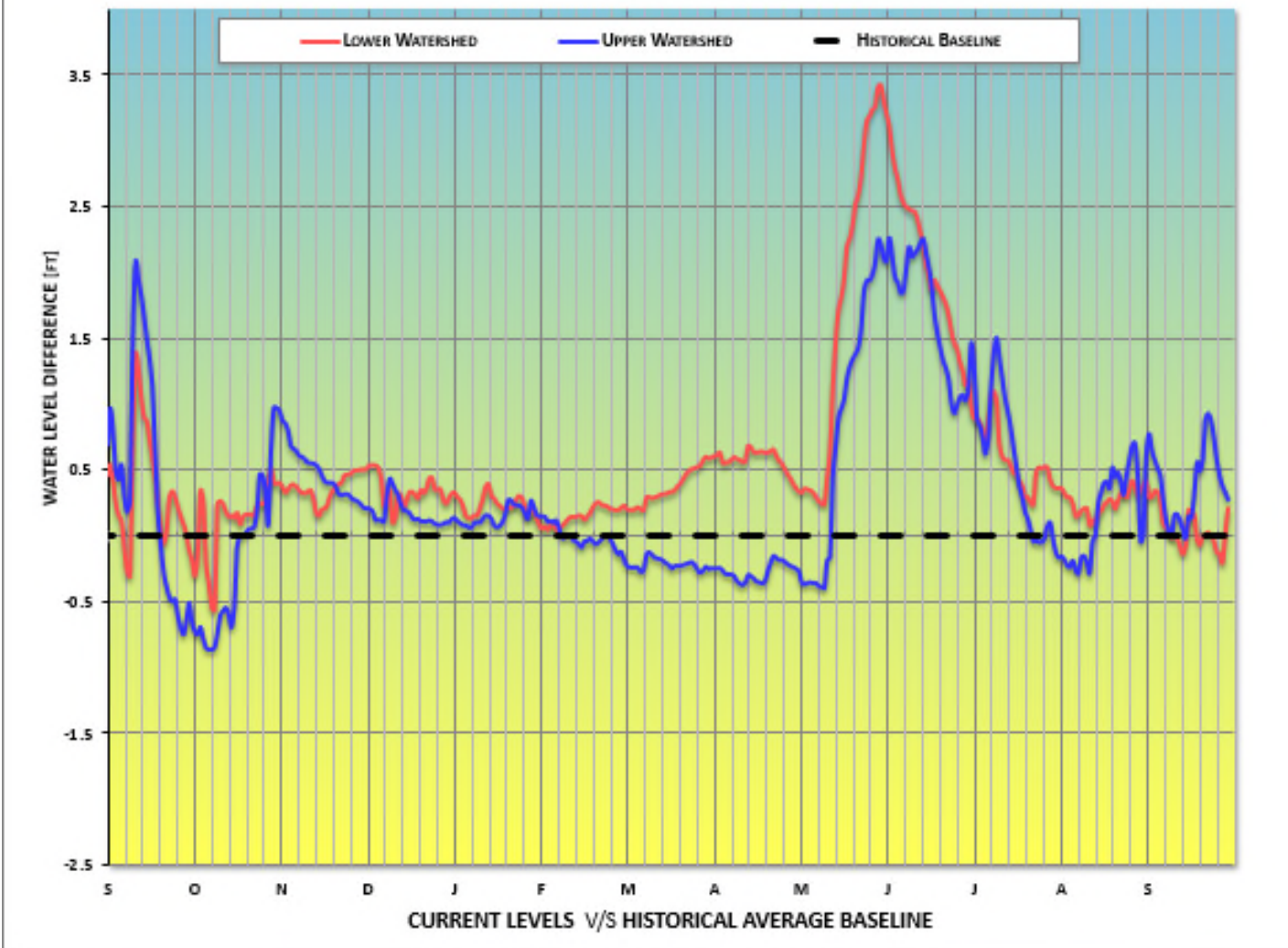


Figure 8b

WATER CONDITIONS SUMMARY - September 2018

SELECTED STATIONS for BCB AREA / SW FLORIDA

Last Reading Date :		September 30, 2018					
Previous Period Reading Date:		September 1, 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	0.02	34.60	34.62	↑	GREEN
C-1004R	Naples	Lower Tamiami Aquifer	-0.07	6.36	6.29	↓	GREEN
C-1224	Marco Lakes	Lower Tamiami Aquifer	-0.34	5.04	4.70	↓	GREEN
L-2194	Bonita Springs	Sandstone Aquifer	-0.17	9.64	9.47	↓	GREEN
L-2195	Bonita Springs	Surficial Aquifer System	-0.36	12.77	12.41	↓	GREEN
L-738	Bonita Springs	Lower Tamiami Aquifer	0.07	5.25	5.32	↑	GREEN

Table 2

BIG CYPRESS BASIN

SEPTEMBER 2018

GROUNDWATER LEVEL DAILY TRENDS
COMPARED TO HISTORICAL AVERAGE

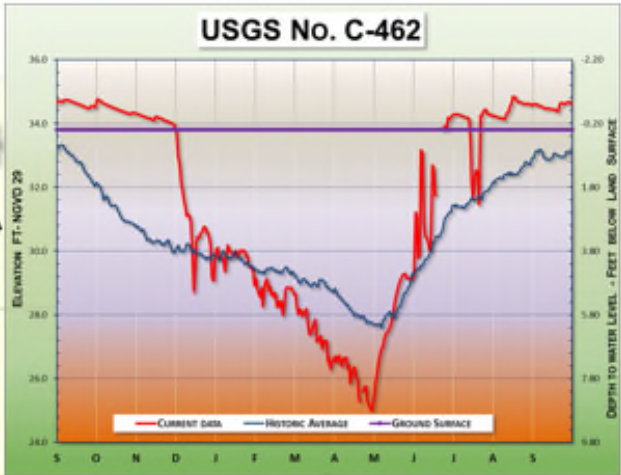
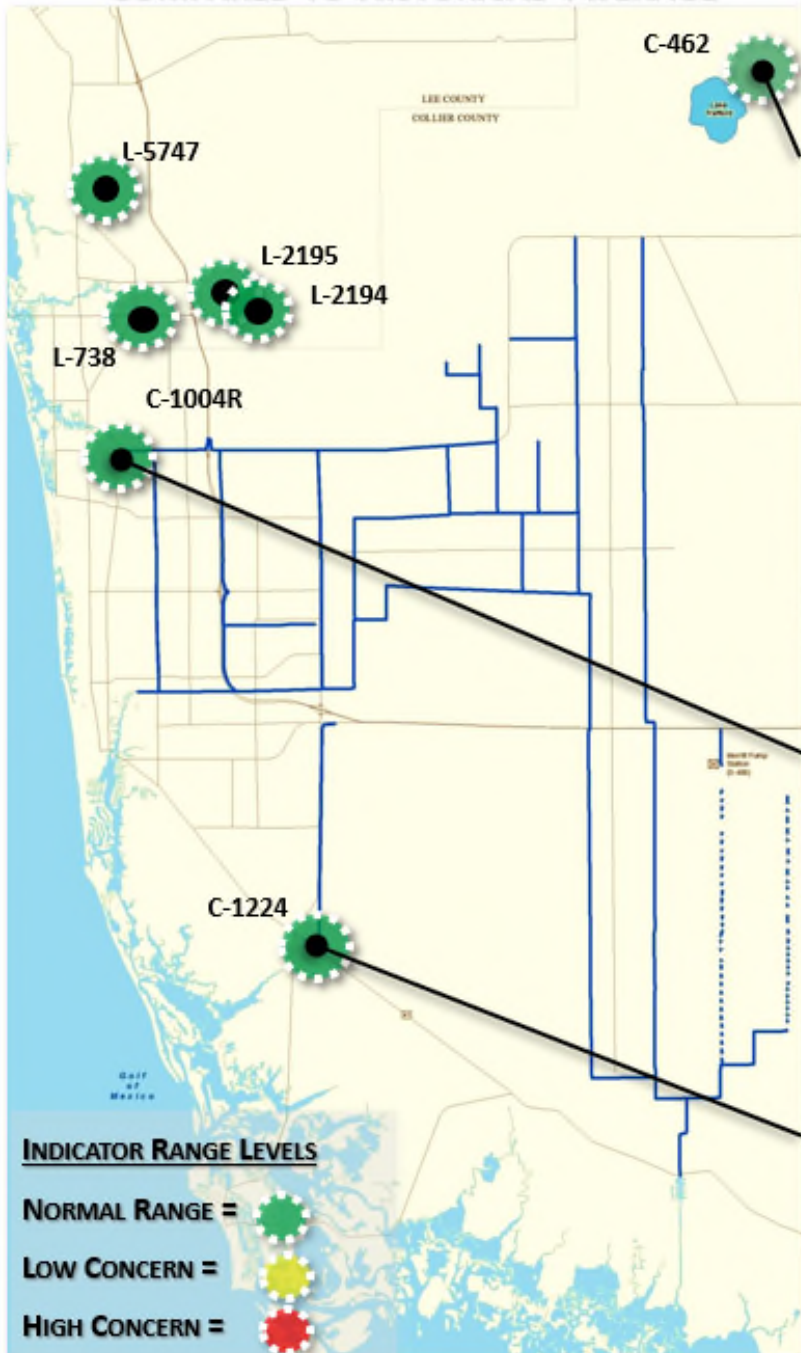


Figure 9