

Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 6/17/2019 (ENSO Neutral Condition)

Lake Okeechobee Net Inflow Outlook:

The Lake Okeechobee Net Inflow Outlook has been computed using 4 methods: Croley's method¹, the SFWMD empirical method², a sub-sampling of Neutral years³ and a sub-sampling of warm years of the Atlantic Multi-decadal Oscillation (AMO) in combination with La Nina ENSO years⁴. The results for Croley's method and the SFWMD empirical method are based on the [CPC Outlook](#).

Table of the Lake Okeechobee Net Inflow Outlooks in feet of equivalent depth. All methods are updated on a weekly basis with observed net inflow for the current month.

Season	Croley's Method ^{1*}		SFWMD Empirical Method ²		Sub-sampling of Neutral ENSO Years ³		Sub-sampling of AMO Warm + Neutral ENSO Years ⁴	
	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition
Current (Jun-Nov)	N/A	N/A	2.90	Very Wet	3.09	Very Wet	4.07	Very Wet
Multi Seasonal (Jun-Apr)	N/A	N/A	3.33	Wet	3.68	Wet	5.71	Very Wet

*Croley's Method Not Produced for This Report

See [Seasonal](#) and [Multi-Seasonal](#) tables for the classification of Lake Okeechobee Outlooks.

The recommended methods and values for estimating the Lake Okeechobee Net Inflow Outlook are shaded and should be used in the LORS2008 Release Guidance Flow Charts.

**Sub-sampling is a weighted average of ENSO conditions based on the ENSO forecast used.

[Tributary Hydrologic Conditions Graph:](#)

4927 cfs 14-day running average for Lake Okeechobee Net Inflow through 6/16/2019. According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Wet.

0.38 for Palmer Index on 6/15/2019.

According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Normal.

The wetter of the two conditions above is **Wet**.

[LORS2008 Classification Tables:](#)

Lake Okeechobee Stage on 6/17/2019

Lake Okeechobee Stage: **11.18 feet**

[USACE Report for Lake Okeechobee](#)

[Lake Okeechobee Stage Hydrograph](#)

Lake Okeechobee Management Zone/Band		Bottom Elevation (feet, NGVD)	Current Lake Stage
High Lake Management Band		16.07	
Operational Band	High sub-band	15.59	
	Intermediate sub-band	15.11	
	Low sub-band	13.15	
Base Flow sub-band		12.60	
Beneficial Use sub-band			← 11.18
Water Shortage Management Band		10.81	

Part C of LORS2008: Discharge to WCA's

Lake Okeechobee stage is within the Beneficial Use Sub-band therefore, no releases to the WCAs to manage lake stages

Part D of LORS2008: Discharge to Tidewater

Lake Okeechobee stage is within the Beneficial Use Sub-band therefore, no releases to the St. Lucie or Caloosahatchee Estuaries to manage lake stages.

Adaptive Protocol's Release Guidance: Caloosahatchee Estuary

Release Guidance Flow Chart Outcome: No releases.

[Back to Lake Okeechobee Operations Main Page](#)

[Back to U.S. Army Corps of Engineers LORSS Homepage](#)

LORS2008 Implementation on 06/17/2019 (ENSO El Niño Condition):

Status for week ending 06/17/2019:

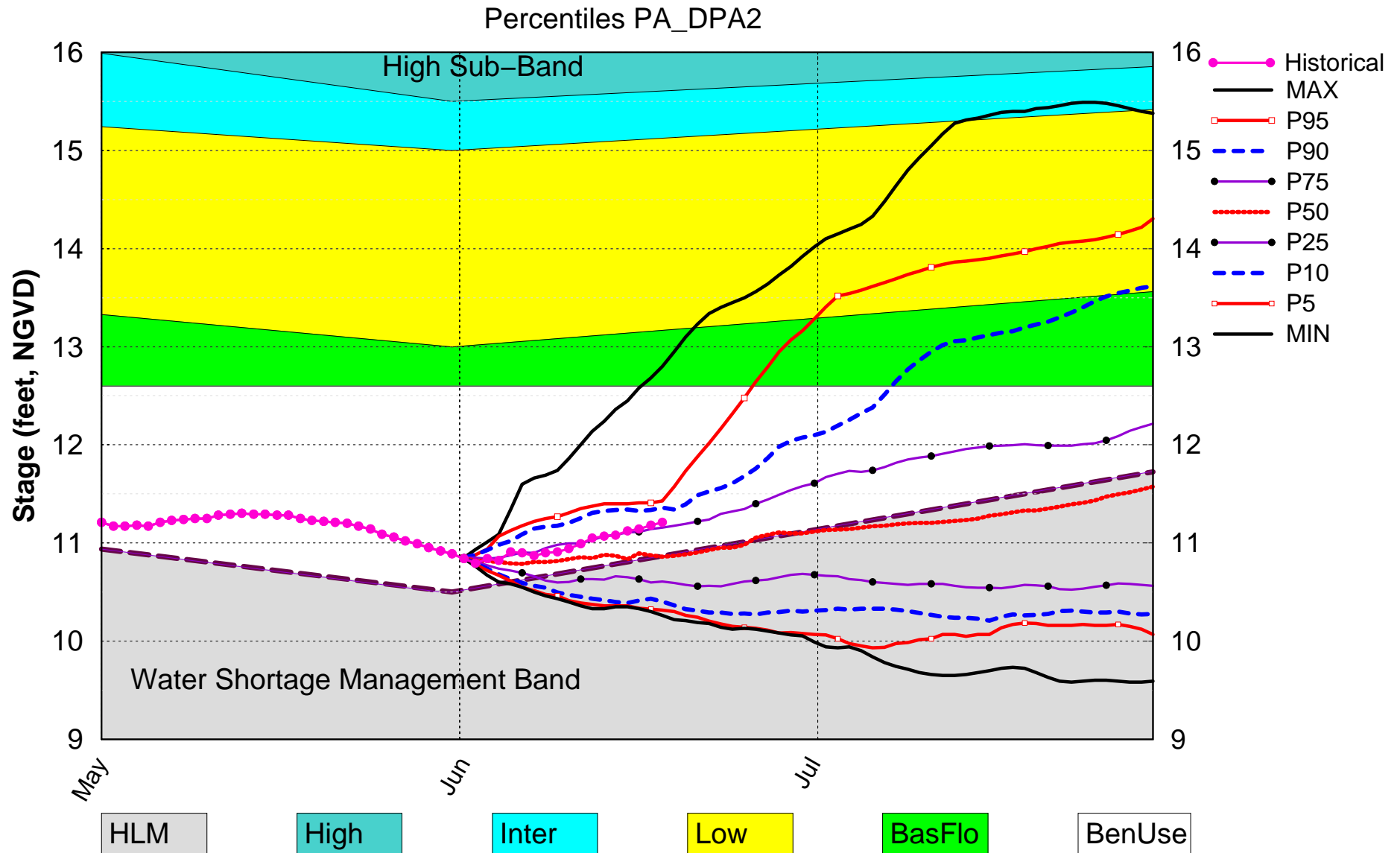
District wide, Raindar rainfall was 2.84 inches for the week. Lake stage on 6/17/2019 was 11.18 ft, NGVD, up 0.24 ft from last week. The updated June 2019 SFWMM Dynamic Position Analysis [percentile graph](#) for Lake Okeechobee show that the current lake stage is in the Beneficial Use Sub-band. The LORS2008 Tributary Hydrologic Conditions (THC) are classified as **Wet**. The PDI indicates normal conditions and the LONIN is wet. The THC classification is based on the wetter of the two [indices](#).

Water Supply Risk Evaluation

Area	Indicator	Value	Color Coded Scoring Scheme
LOK	Projected LOK Stage for the next two months	Beneficial Use Sub-Band	M
	Palmer Index for LOK Tributary Conditions	0.38 (Normal to Extremely Wet)	L
	CPC Precipitation Outlook	1 month: Normal	L
		3 months: Normal	L
	LOK Seasonal Net Inflow Outlook	3.09 ft	L
	ENSO Forecast (positive)	(Normal to Extremely Wet)	
	LOK Multi-Seasonal Net Inflow Outlook	3.68 ft (Wet)	L
	ENSO Forecast (positive)		
WCAs	WCA 1: Canal Gauge (Site 1-8C)	Above Line 1 (16.14 ft)	L
	WCA 2A: Site 2-17 HW	Above Line 1 (11.97 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64, and 65)	Above Line 1 (9.42 ft)	L
LEC	Service Area 1	Year-Round Irrigation Rule in effect	L
	Service Area 2	Year-Round Irrigation Rule in effect	L
	Service Area 3	Year-Round Irrigation Rule in effect	L

Note: The water supply risk classification based on the Palmer index, as well as the LOK seasonal and multi-seasonal net inflow outlooks use slightly different classification intervals than those used by the 2008-LORS.

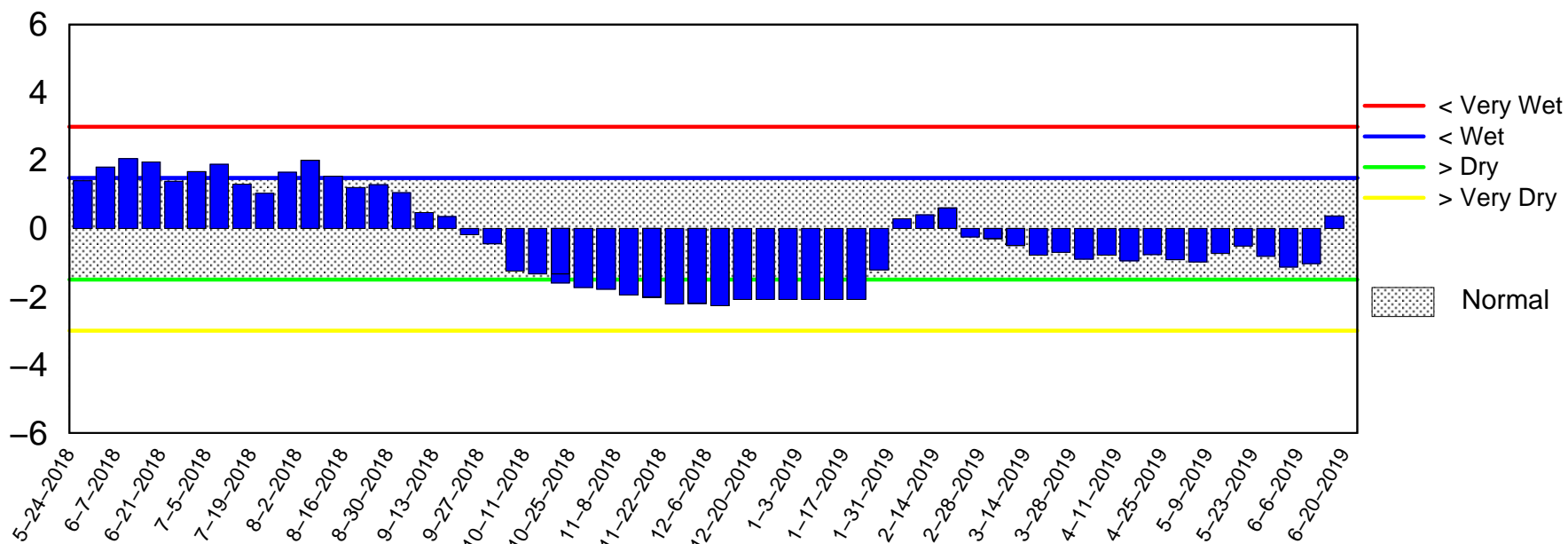
Lake Okeechobee SFWMM Jun 2019 Position Analysis



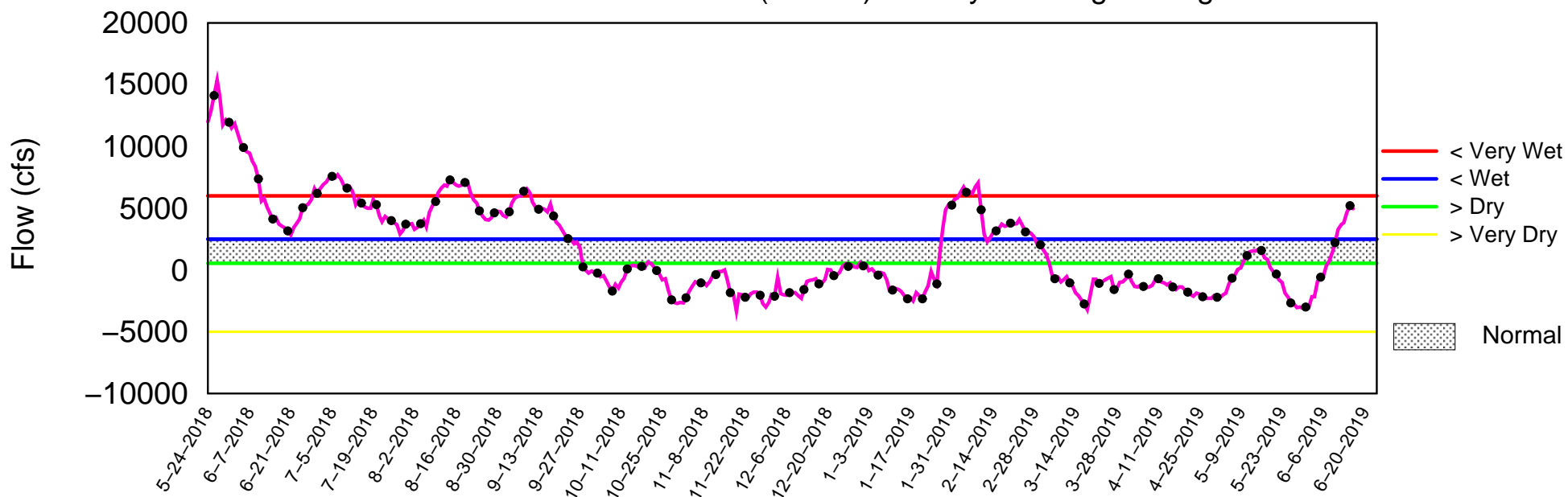
(See assumptions on the Position Analysis Results website)

Tributary Basin Condition Indicators as of June 17 2019

Palmer Index



Lake Okeechobee Net Inflow (LONIN) 14-day Running Average



Mon Jun 17 14:58:59 EDT 2019

2008 LORS

Part C: Establish Allowable Lake Okeechobee Releases to the Water Conservation Areas

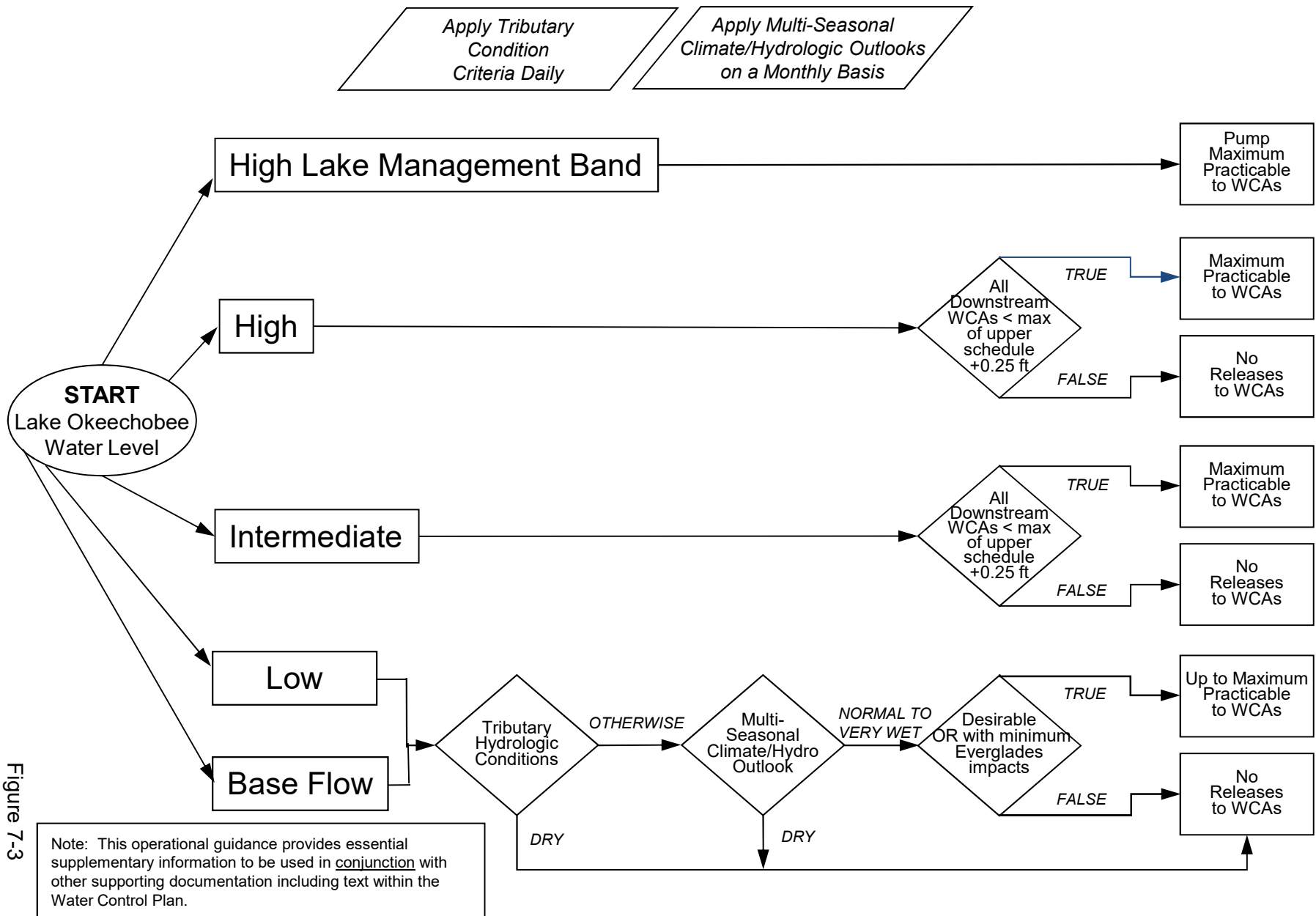


Figure 7-3

2008 LORS

Part D: Establish Allowable Lake Okeechobee Releases to Tide (Estuaries)

Note: This operational guidance provides essential supplementary information to be used in conjunction with other supporting documentation including text within the Water Control Plan.

When conducting Base Flow releases, flows can be distributed East and West up to 650 cfs as needed to minimize impacts or provide benefits through S-80 and S-79

Apply Meteorological Forecasts on a Weekly Basis; apply Seasonal and Multi-Seasonal Climate/Hydrologic Outlooks on a Monthly Basis

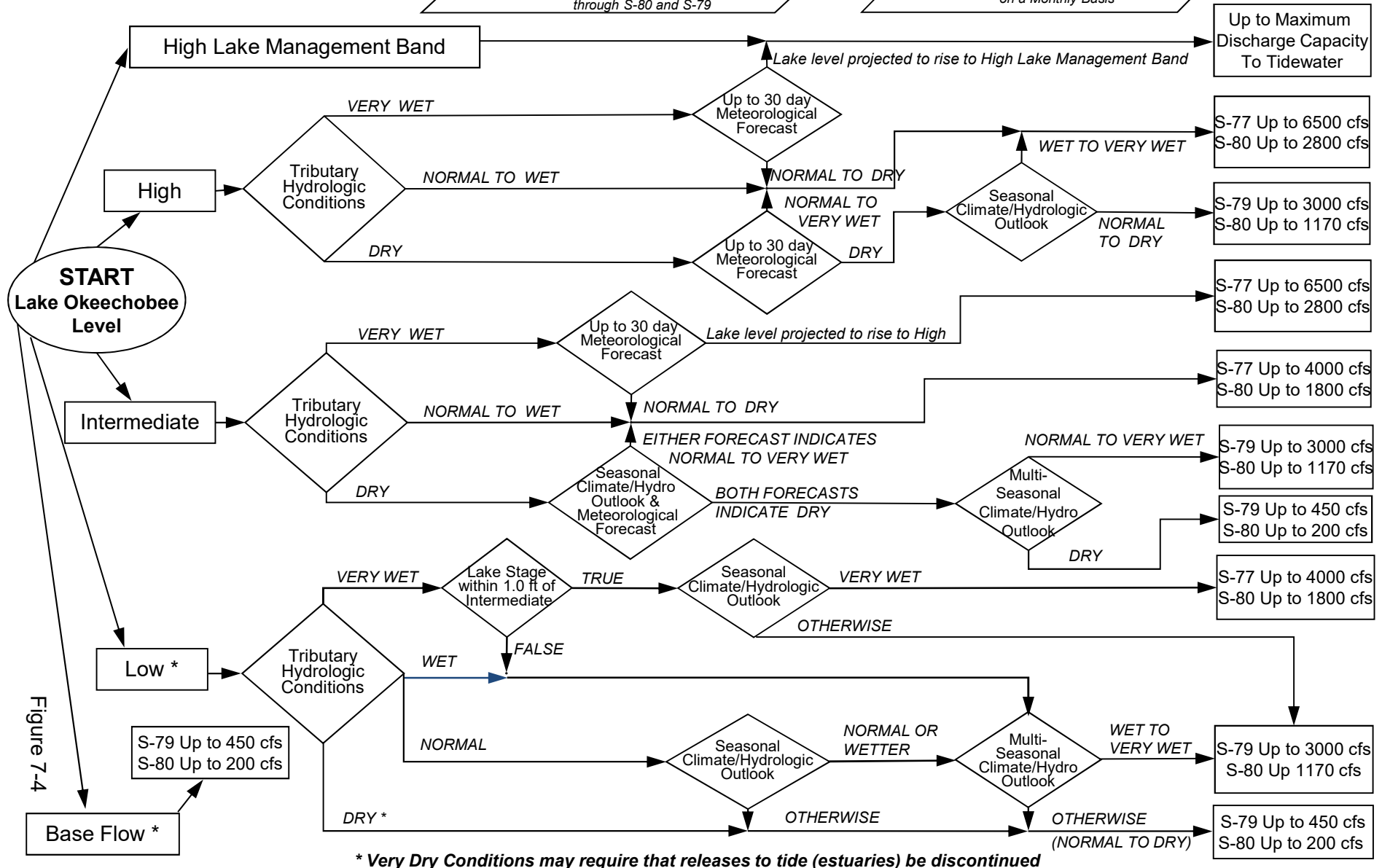
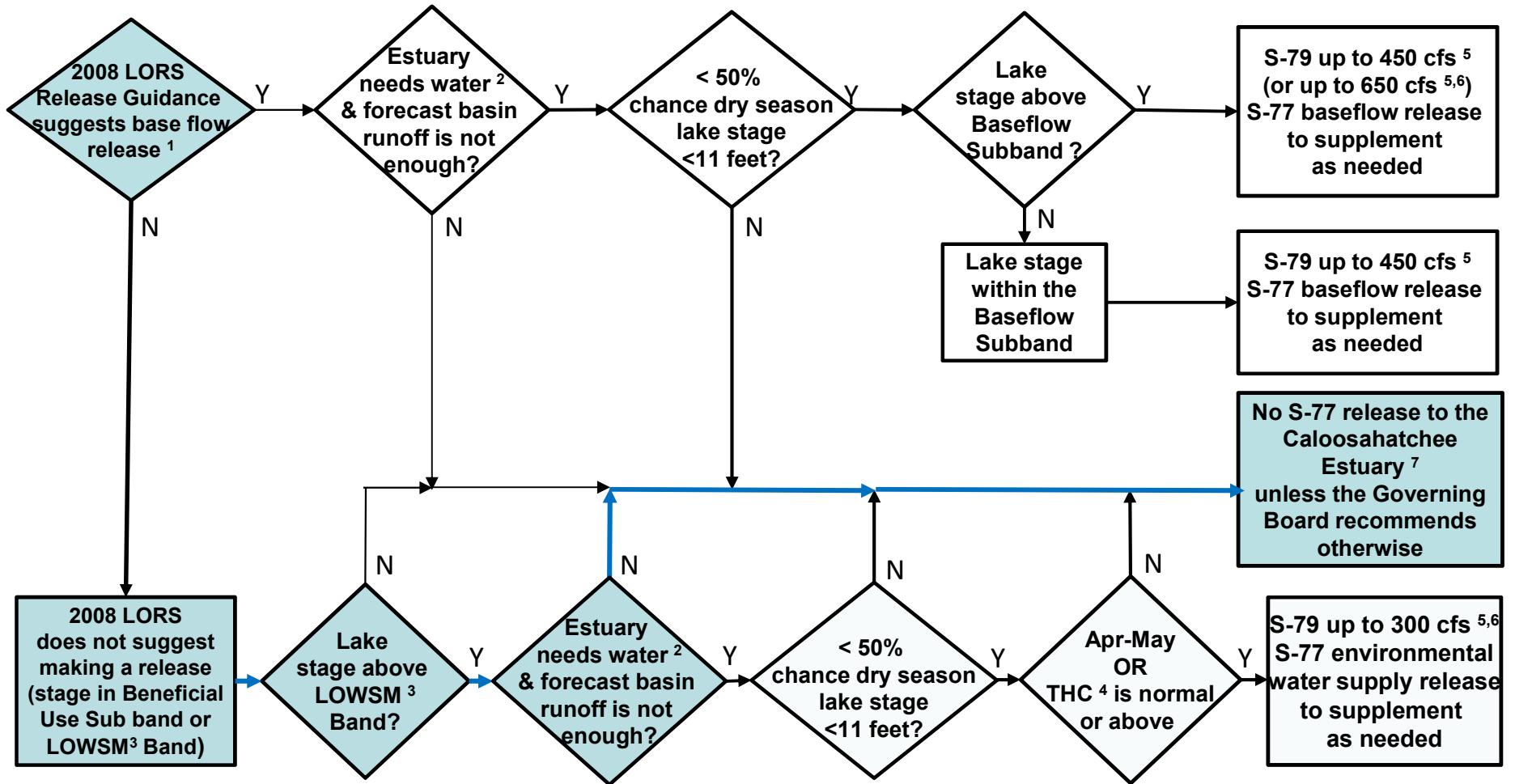


Figure 7-4

**Flowchart to Guide Recommendations for
Lake Okeechobee Releases to the Caloosahatchee Estuary
for 2008 LORS Baseflow & for Environmental Water Supply (revised 9-Aug-2012)**



¹The 2008 LORS Release Guidance (Part D) can suggest baseflow releases in the Intermediate, Low, or Baseflow Subbands.

²Estuary “needs” water when the 30-day moving average salinity at I-75 bridge is projected to exceed 5 practical salinity units (psu) within 2 weeks.

³LOWSM = Lake Okeechobee Water Shortage Management.

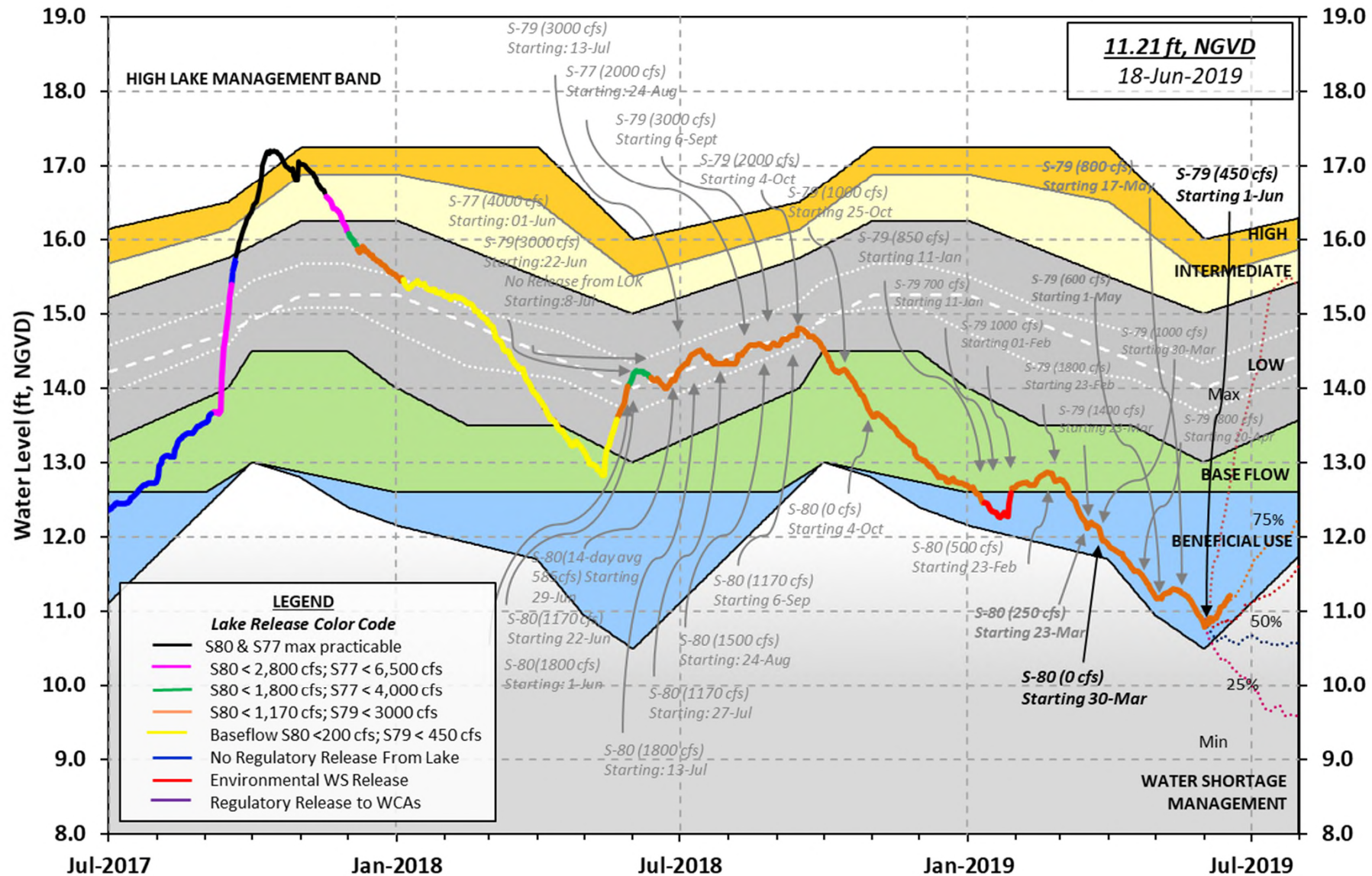
⁴Tributary Hydrologic Condition (THC) is based on classification of Lake Okeechobee Net Inflow and Palmer Index.

⁵Can release less than the “up to” limit if lower release is sufficient to reach or sustain desired estuary salinity; cfs = cubic feet per second.

⁶After reviewing conditions in Water Conservation Areas (WCAs), Stormwater Treatment Areas (STAs), ENP, St. Lucie Estuary and Lake Okeechobee.

⁷Should this condition be reached, the Governing Board will be briefed at their next regularly scheduled meeting as part of the State of the Water Resources agenda item.

Lake Okeechobee Water Level History and Projected Stages



U. S. Army Corps of Engineers, Jacksonville District
 Lake Okeechobee and Vicinity Report
 ** Preliminary Data - Subject to Revision **

Data Ending 2400 hours 16 JUN 2019

Okeechobee Lake Regulation	Elevation	Last Year	2YRS Ago
	(ft-NGVD)	(ft-NGVD)	(ft-NGVD)
*Okeechobee Lake Elevation	11.18	14.13	-NR- (Official Elv)
Bottom of High Lake Mngmt= 16.07 Top of Water Short Mngmt= 10.81			
Currently in Operational Management Band			

Simulated Average LORS2008 [1965-2000]	12.02
Difference from Average LORS2008	-0.84

16JUN (1965-2007) Period of Record Average	13.18
Difference from POR Average	-2.00

Today Lake Okeechobee elevation is determined from the 4 Int & 4 Edge stations

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ÷ 5.12'

++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ÷ 3.32'

Bridge Clearance = 50.30'

4 Interior and 4 Edge Okeechobee Lake Average (Avg-Daily values):

L001	L005	L006	LZ40	S4	S352	S308	S133
11.16	11.52	11.16	11.10	11.14	-NR-	11.05	11.17

*Combination Okeechobee Avg-Daily Lake Average = 11.18
 (*See Note)

Okeechobee Inflows (cfs):

S65E	240	S65EX1	226	Fisheating Cr	30
S154	0	S191	0	S135 Pumps	0
S84	884	S133 Pumps	0	S2 Pumps	0
S84X	0	S127 Pumps	0	S3 Pumps	0
S71	422	S129 Pumps	18	S4 Pumps	0
S72	0	S131 Pumps	29	C5	0
Total Inflows: 1848					

Okeechobee Outflows (cfs):

S135 Culverts	0	S354	0	S77	1
S127 Culverts	0	S351	0	S308	-5
S129 Culverts	0	S352	0		
S131 Culverts	0	L8 Canal Pt	-17		
Total Outflows: -21					

S3 Pumps:	9.44	11.12	0	0	0	0		(cfs)
S354:	11.12	9.44	0	0.0	0.0			
S2 Pumps:	10.20	-NR-	0	0	0	0	0	(cfs)
S351:	-NR-	10.20	0	0.0	0.0	0.0		
S352:		9.47	0	0.0	0.0			
C10A:	-NR-	11.17		8.0	8.0	8.0	0.0	0.0
L8 Canal PT		11.02	-17					

S351 and S352 Temporary Pumps/S354 Spillway

S351:	10.20	-NR-	0	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-
S352:	9.47		0	-NR-	-NR-	-NR-	-NR-		
S354:	9.44	11.12	0	-NR-	-NR-	-NR-	-NR-		

Caloosahatchee River (S77, S78, S79)

S47B:	12.00	10.91		0.0	0.0
S47D:	10.92	10.92	10	5.6	

S77:

Spillway and Sector Preferred Flow:

11.10	10.82	1	0.0	0.0	0.0	0.0
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Flow Due to Lockages+: 0

S78:

Spillway and Sector Flow:

10.76	3.00	1016	0.5	3.0	0.0	0.0
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Flow Due to Lockages+: 8

S79:

Spillway and Sector Flow:

3.08	0.83	4151	0.0	0.0	3.0	3.0	3.0	3.0	3.0
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0.0

Flow Due to Lockages+: 3

Percent of flow from S77 0%

Chloride (ppm) 62

St. Lucie Canal (S308, S80)

S308:

Spillway and Sector Preferred Flow:

10.99	13.20	0	0.0	0.0	0.0	0.0
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Flow Due to Lockages+: -5

S153:	18.95	13.09	0	0.0	0.0
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S80:

Spillway and Sector Flow:

13.26	1.63	461	0.0	2.5	0.0	0.0	2.5	0.0	0.0
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Flow Due to Lockages+: 11

Percent of flow from S308 0%

Steele Point Top Salinity (mg/ml) ****

Steele Point Bottom Salinity (mg/ml) ****

Speedy Point Top Salinity (mg/ml) ****

Speedy Point Bottom Salinity (mg/ml) ****

+ Flow Due to lockages is computed utilizing average daily headwater and tailwater along with total number of lockages for the day to calculate a volume which is then converted to an average discharge in cfs.
 ++ Preferred flow is determined from either the spillway discharge or the below flow meter daily

				----- Wind -----	
Daily Precipitation Totals	1-Day	3-Day	7-Day	Direction	
Speed	(inches)	(inches)	(inches)	(Degø)	
(mph)					
S133 Pump Station:	-NR-	0.00	0.00		
S193:	-NR-	0.00	0.00	-NR-	-NR-
Okeechobee Field Station:	-NR-	0.00	0.00		
S135 Pump Station:	-NR-	0.00	0.00		
S127 Pump Station:	-NR-	0.00	0.00		
S129 Pump Station:	-NR-	0.00	0.00		
S131 Pump Station:	-NR-	0.00	0.00		
S77:	11.34	11.35	12.38	109	6
S78:	6.67	7.21	8.75	109	4
S79:	9.97	11.07	13.02	72	5
S4 Pump Station:	-NR-	0.00	0.00		
Clewiston Field Station:	-NR-	0.00	0.00		
S3 Pump Station:	-NR-	0.00	0.00		
S2 Pump Station:	-NR-	0.00	0.00		
S308:	11.74	14.22	15.01	81	3
S80:	10.52	10.85	12.09	116	2
Okeechobee Average	11.54	1.97	2.11		
(Sites S78, S79 and S80 not included)					

Oke Nexrad Basin Avg	-NR-	0.00	0.00		

Okeechobee Lake Elevations	16 JUN 2019	11.18	Difference from
16JUN19			
16JUN19 -1 Day =	15 JUN 2019	11.14	-0.04
16JUN19 -2 Days =	14 JUN 2019	11.12	-0.06
16JUN19 -3 Days =	13 JUN 2019	11.08	-0.10
16JUN19 -4 Days =	12 JUN 2019	11.07	-0.11
16JUN19 -5 Days =	11 JUN 2019	11.05	-0.13
16JUN19 -6 Days =	10 JUN 2019	10.99	-0.19
16JUN19 -7 Days =	09 JUN 2019	10.94	-0.24
16JUN19 -30 Days =	17 MAY 2019	11.25	0.07
16JUN19 -1 Year =	16 JUN 2018	14.13	2.95
16JUN19 -2 Year =	16 JUN 2017	-NR-	-NR-

Long Term Mean 30day Avearge ET for Lake Alfred (Inches) = 4.97

Lake Okeechobee Net Inflow (LONIN)
 Average Flow over the previous 14 days | Avg-Daily Flow

16JUN19	Today =	16 JUN 2019	4964	MON	7059
16JUN19	-1 Day =	15 JUN 2019	5244	SUN	3529
16JUN19	-2 Days =	14 JUN 2019	4676	SAT	7160
16JUN19	-3 Days =	13 JUN 2019	3870	FRI	1815
16JUN19	-4 Days =	12 JUN 2019	3674	THU	3630
16JUN19	-5 Days =	11 JUN 2019	3308	WED	10739
16JUN19	-6 Days =	10 JUN 2019	2236	TUE	8319
16JUN19	-7 Days =	09 JUN 2019	1454	MON	5220
16JUN19	-8 Days =	08 JUN 2019	748	SUN	2462
16JUN19	-9 Days =	07 JUN 2019	352	SAT	5706
16JUN19	-10 Days =	06 JUN 2019	-534	FRI	-2866
16JUN19	-11 Days =	05 JUN 2019	-557	THU	698
16JUN19	-12 Days =	04 JUN 2019	-921	WED	16565
16JUN19	-13 Days =	03 JUN 2019	-2162	TUE	-535

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S65E					
Average Flow over previous 14 days					Avg-Daily Flow
16JUN19	Today=	16 JUN 2019	186	MON	277
16JUN19	-1 Day =	15 JUN 2019	170	SUN	250
16JUN19	-2 Days =	14 JUN 2019	152	SAT	143
16JUN19	-3 Days =	13 JUN 2019	155	FRI	204
16JUN19	-4 Days =	12 JUN 2019	160	THU	241
16JUN19	-5 Days =	11 JUN 2019	163	WED	253
16JUN19	-6 Days =	10 JUN 2019	153	TUE	56
16JUN19	-7 Days =	09 JUN 2019	158	MON	0
16JUN19	-8 Days =	08 JUN 2019	166	SUN	158
16JUN19	-9 Days =	07 JUN 2019	183	SAT	368
16JUN19	-10 Days =	06 JUN 2019	185	FRI	106
16JUN19	-11 Days =	05 JUN 2019	209	THU	293
16JUN19	-12 Days =	04 JUN 2019	227	WED	134
16JUN19	-13 Days =	03 JUN 2019	257	TUE	128

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S65EX1					
Average Flow over previous 14 days					Avg-Daily Flow
16JUN19	Today=	16 JUN 2019	112	MON	226
16JUN19	-1 Day =	15 JUN 2019	108	SUN	199
16JUN19	-2 Days =	14 JUN 2019	113	SAT	229
16JUN19	-3 Days =	13 JUN 2019	114	FRI	85
16JUN19	-4 Days =	12 JUN 2019	110	THU	0
16JUN19	-5 Days =	11 JUN 2019	110	WED	66
16JUN19	-6 Days =	10 JUN 2019	124	TUE	296
16JUN19	-7 Days =	09 JUN 2019	126	MON	114
16JUN19	-8 Days =	08 JUN 2019	125	SUN	123
16JUN19	-9 Days =	07 JUN 2019	132	SAT	0
16JUN19	-10 Days =	06 JUN 2019	147	FRI	0
16JUN19	-11 Days =	05 JUN 2019	162	THU	0
16JUN19	-12 Days =	04 JUN 2019	178	WED	121
16JUN19	-13 Days =	03 JUN 2019	192	TUE	106

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Lake Okeechobee Outlets Last 14 Days

		S-77	Below S-77	S-78	S-79
		Discharge	Discharge	Discharge	Discharge
		(ALL DAY)	(ALL-DAY)	(ALL DAY)	(ALL DAY)
DATE		(AC-FT)	(AC-FT)	(AC-FT)	(AC-FT)
16 JUN 2019		2	51	2031	8054
15 JUN 2019		-3	98	2097	6155
14 JUN 2019		2	122	1867	6491
13 JUN 2019		-0	156	1773	3676
12 JUN 2019		-6	20	1607	4231
11 JUN 2019		-7	-355	939	2136
10 JUN 2019		-5	-47	14	2339
09 JUN 2019		-222	-243	16	811
08 JUN 2019		-272	378	22	1457
07 JUN 2019		-151	704	19	1453
06 JUN 2019		303	1040	22	1844
05 JUN 2019		60	765	128	2080
04 JUN 2019		439	891	304	430
03 JUN 2019		950	1479	680	749

		S-310	S-351	S-352	S-354	L8 Canal Pt
		Discharge	Discharge	Discharge	Discharge	Discharge
		(ALL DAY)	(ALL DAY)	(ALL DAY)	(ALL DAY)	(ALL DAY)
DATE		(AC-FT)	(AC-FT)	(AC-FT)	(AC-FT)	(AC-FT)
16 JUN 2019		-116	0	0	0	-33
15 JUN 2019		-437	0	0	0	-23
14 JUN 2019		-499	0	0	0	-109
13 JUN 2019		-319	0	0	0	-21
12 JUN 2019		-459	0	0	0	-96
11 JUN 2019		-400	0	0	0	-31
10 JUN 2019		-304	0	0	0	-109
09 JUN 2019		-47	246	208	0	-22
08 JUN 2019		-8	944	640	0	-13
07 JUN 2019		-50	982	723	0	-7
06 JUN 2019		-13	2444	1113	95	-15
05 JUN 2019		-103	2246	1824	295	13
04 JUN 2019		-92	1721	1535	145	-4
03 JUN 2019		184	2199	1535	537	7

		S-308	Below S-308	S-80
		Discharge	Discharge	Discharge
		(ALL DAY)	(ALL-DAY)	(ALL-DAY)
DATE		(AC-FT)	(AC-FT)	(AC-FT)
16 JUN 2019		-11	70	969
15 JUN 2019		-8	62	11
14 JUN 2019		-8	220	11
13 JUN 2019		-11	48	26
12 JUN 2019		-2	49	18
11 JUN 2019		-5	64	32
10 JUN 2019		-6	-116	28
09 JUN 2019		-5	-62	17
08 JUN 2019		-1	-87	10
07 JUN 2019		-1	-244	25
06 JUN 2019		-1	-130	18
05 JUN 2019		-0	-13	35
04 JUN 2019		-0	104	21
03 JUN 2019		-935	66	18

*** NOTE: Discharge (ALL DAY) is computed using Spillway, Sector Gate
and
Lockages Discharges from 0015 hrs to 2400 hrs.

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(I) - Flows preceded by "I" signify an instantaneous
flow computed from the single value reported for the day

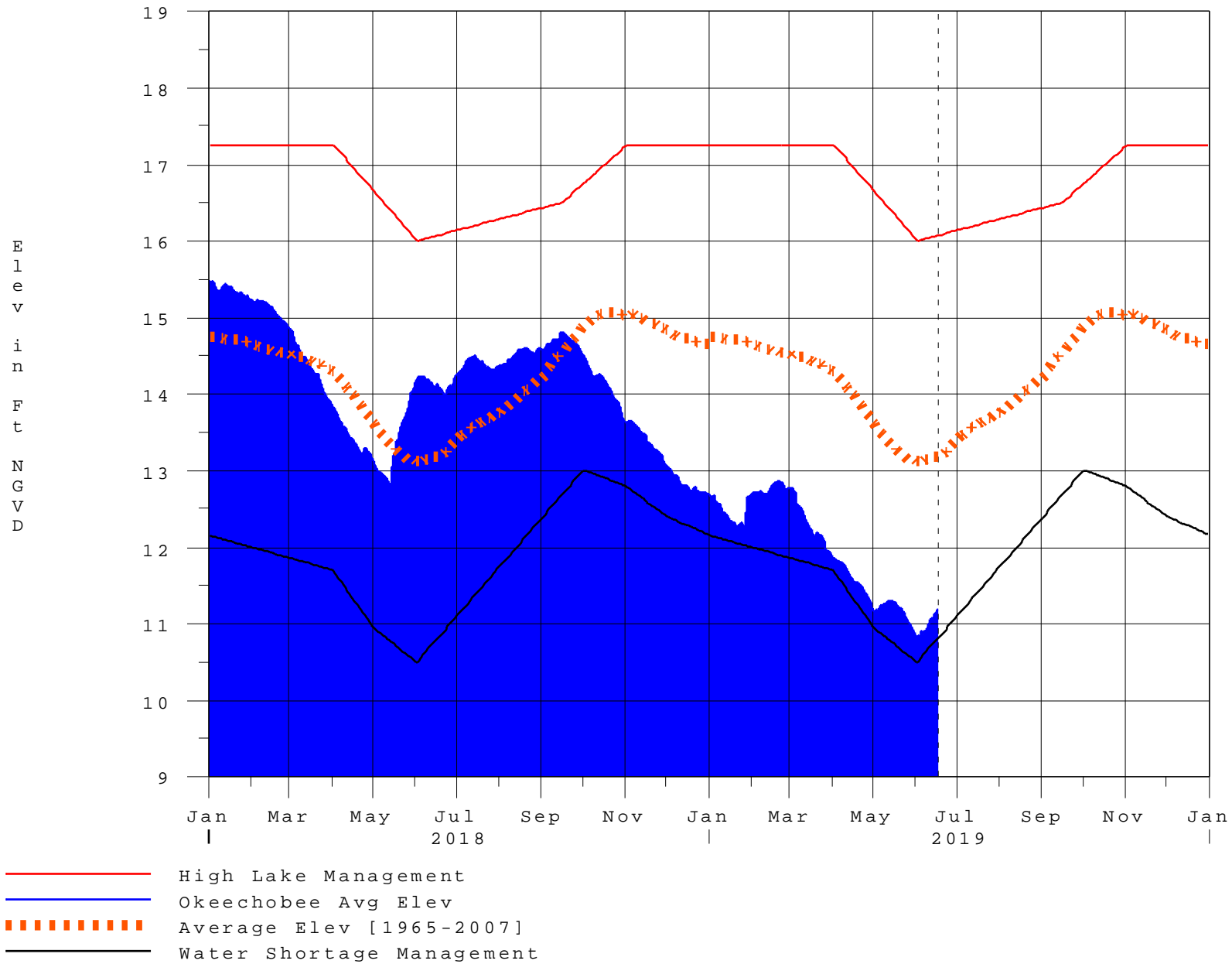
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* On 11 May 1999, Lake Okeechobee Elevation was switched from
Instantaneous 2400 value to an average-daily lake average.
On 14 Mar 2001, due to the isolation of various gages within the
standard
10 stations, the average of the interior 4 station gages was used
as the Lake Okeechobee Elevation.
On 05 November 2010, Lake Okeechobee Elevation was switched to a 9 gage
mix of interior and edge gages to obtain a more reliable representation
of the lake level.
On 09 May 2011, Lake Okeechobee Elevation was switched to a 8 gage
mix of interior and edge gages to obtain a more reliable representation
of the lake level due to isolation of S135 from low lake levels.
Today Lake Okechobee elevation is determined from the 4 Int & 4 Edge
stations
++ For more information see the Jacksonville District Navigation website
at <http://www.saj.usace.army.mil/>
\$ For information regarding Lake Okeechobee Service Area water
restrictions
please refer to www.sfwmd.gov

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Report Generated 17JUN2019 @ 14:39 ** Preliminary Data - Subject to Revision
**

Lake Okeechobee

17JUN19 14:45:25



Classification Tables

Supplemental Tables used in conjunction with the LORS2008 Release

Guidance Flow Charts

- [Class Limits for Tributary Hydrologic Conditions](#)

Table K-2 in the Lake Okeechobee Water Control Plan

- [6-15 Day Precipitation Outlook Categories](#)

Table ?? in the Lake Okeechobee Water Control Plan

- [Classification of Lake Okeechobee Net Inflow for Seasonal Outlook](#)

Table K-3 in the Lake Okeechobee Water Control Plan

- [Classification of Lake Okeechobee Net Inflow for Multi-Seasonal Outlook](#)

Table K-4 in the Lake Okeechobee Water Control Plan

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[Back to U.S. Army Corps of Engineers Lake Okeechobee Operations Homepage](#)

Tributary Hydrologic Classification*	Palmer Index Class Limits	2-wk Mean L.O. Net Inflow Class Limits
Very Wet	3.0 or greater	Greater \geq 6000 cfs
Wet	1.5 to 2.99	2500 - 5999 cfs
Near Normal	-1.49 to 1.49	500 - 2499 cfs
Dry	-2.99 to -1.5	-5000 – 500 cfs
Very Dry	-3.0 or less	Less than -5000 cfs

* use the wettest of the two indicators

Classification of Lake Okeechobee Net Inflow Seasonal Outlook*

Lake Net Inflow Prediction [million acre-feet]	Equivalent Depth** [feet]	Lake Okeechobee Net Inflow Seasonal Outlook
> 0.93	> 2.0	Very Wet
0.71 to 0.93	1.51 to 2.0	Wet
0.35 to 0.70	0.75 to 1.5	Normal
< 0.35	< 0.75	Dry

****Volume-depth conversion based on average lake surface area of 467,000 acres**

Classification of Lake Okeechobee Net Inflow Multi-Seasonal Outlook^{*}

Lake Net Inflow Prediction [million acre-feet]	Equivalent Depth^{**} [feet]	Lake Okeechobee Net Inflow Multi-Seasonal Outlook
> 2.0	> 4.3	Very Wet
1.18 to 2.0	2.51 to 4.3	Wet
0.5 to 1.17	1.1 to 2.5	Normal
< 0.5	< 1.1	Dry

^{}Volume-depth conversion based on average lake surface area of 467,000 acres**

6-15 Day Precipitation Outlook Categories*

6-15 Day Precipitation Outlook Categories	WSE Decision Tree Categories
Above Normal	Wet to Very Wet
Normal	Normal
Below Normal	Dry

*** Corresponds to Table 7-6 in the Lake Okeechobee Water Control Plan**

Under Construction