

Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 6/10/2019 (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	2.79	Very Wet	2.99	Very Wet	4.03	Very Wet
Multi Seasonal (Jun-Apr)	N/A	N/A	3.21	Wet	3.51	Wet	5.67	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:](#)

1420 cfs 14-day running average for Lake Okeechobee Net Inflow through 6/9/2019.
According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Normal.

-1.03 for Palmer Index on 6/8/2019.

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

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

[LORS2008 Classification Tables:](#)

Lake Okeechobee Stage on 6/10/2019

Lake Okeechobee Stage: **10.94 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		16.04	
Operational Band	High sub-band	15.55	
	Intermediate sub-band	15.06	
	Low sub-band	13.08	
Base Flow sub-band		12.60	
Beneficial Use sub-band			← 10.94
Water Shortage Management Band		10.67	

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 06/10/2019 (ENSO El Niño Condition):

Status for week ending 06/10/2019:

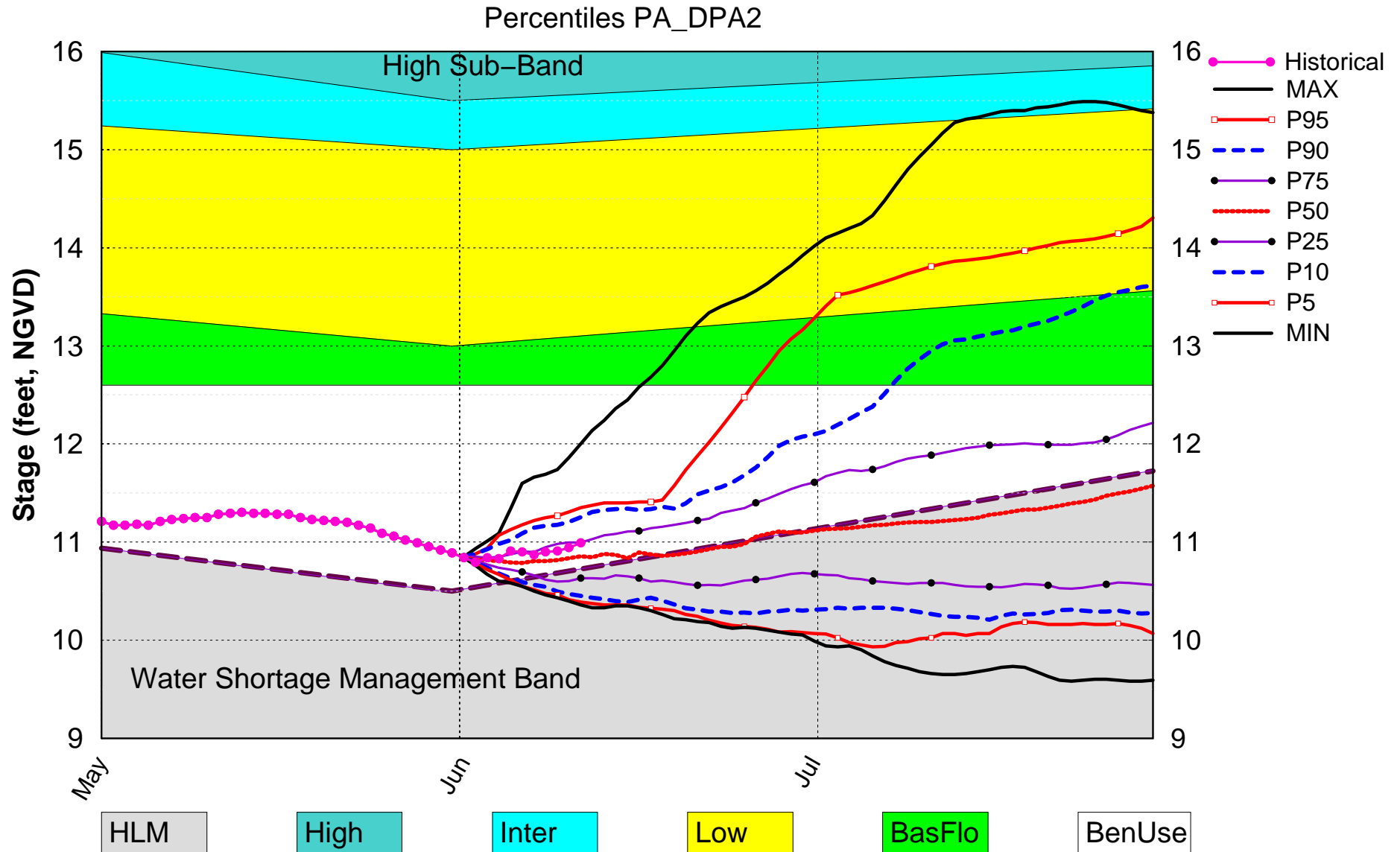
District wide, Raindar rainfall was 2.54 inches for the week. Lake stage on 6/10/2019 was 10.94 ft, NGVD, up 0.10 ft from last week. The updated June 2019 SFWMM Dynamic Position Analysis [percentile graph](#) for Lake Okeechobee show that the current lake stage is in the Beneficial Use Sub-band. The LORS2008 Tributary Hydrologic Conditions (THC) are classified as **Normal**. The PDSI indicates normal conditions and the LONIN is normal. 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	-1.03 (Dry)	M
	CPC Precipitation Outlook	1 month: Normal	L
		3 months: Normal	L
	LOK Seasonal Net Inflow Outlook	2.99 ft	L
	ENSO Forecast (positive)	(Normal to Extremely Wet)	
	LOK Multi-Seasonal Net Inflow Outlook	3.51 ft (Wet)	L
	ENSO Forecast (positive)		
WCAs	WCA 1: Canal Gauge (Site 1-8C)	Above Line 1 (15.93 ft)	L
	WCA 2A: Site 2-17 HW	Above Line 1 (12.02 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64, and 65)	Above Line 1 (9.21 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.

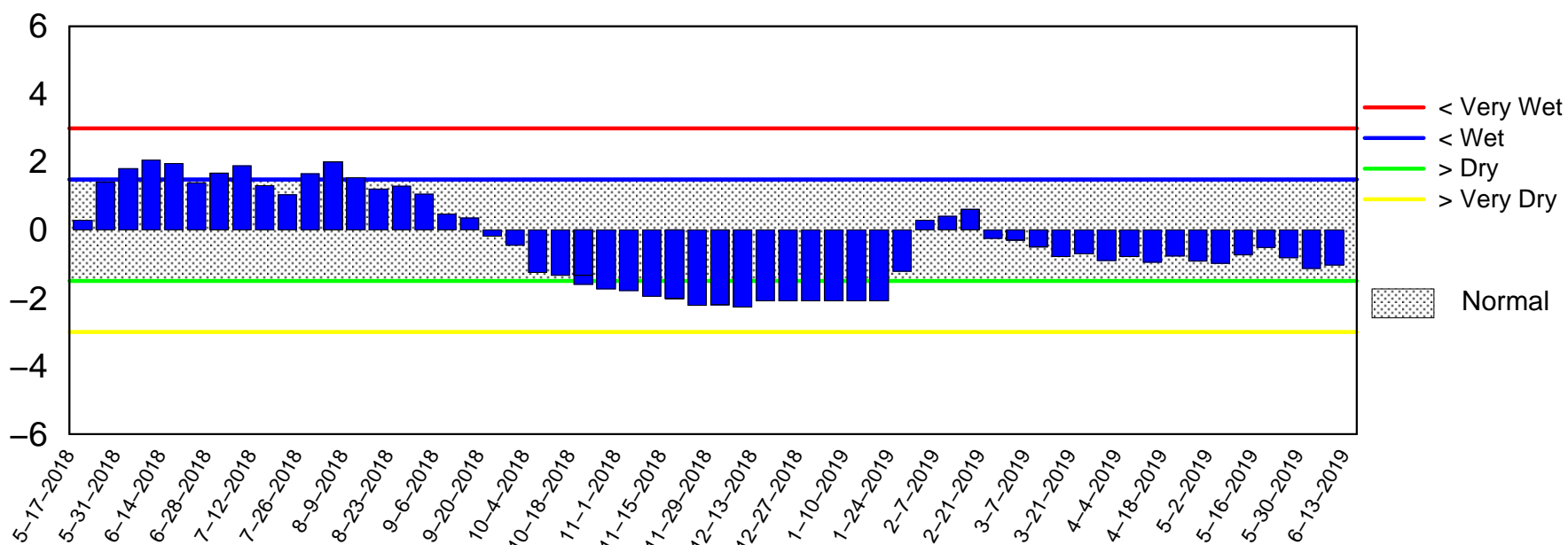
Lake Okeechobee SFWMM Jun 2019 Position Analysis



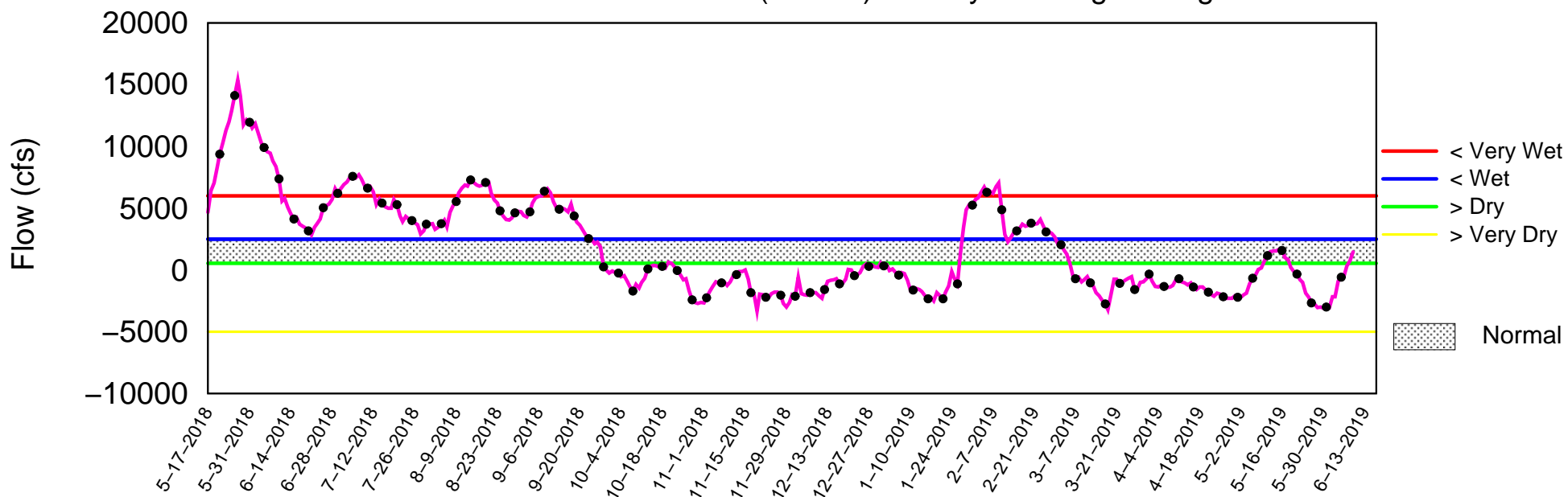
(See assumptions on the Position Analysis Results website)

Tributary Basin Condition Indicators as of June 10 2019

Palmer Index



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



Mon Jun 10 23:52:12 EDT 2019

2008 LORS

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

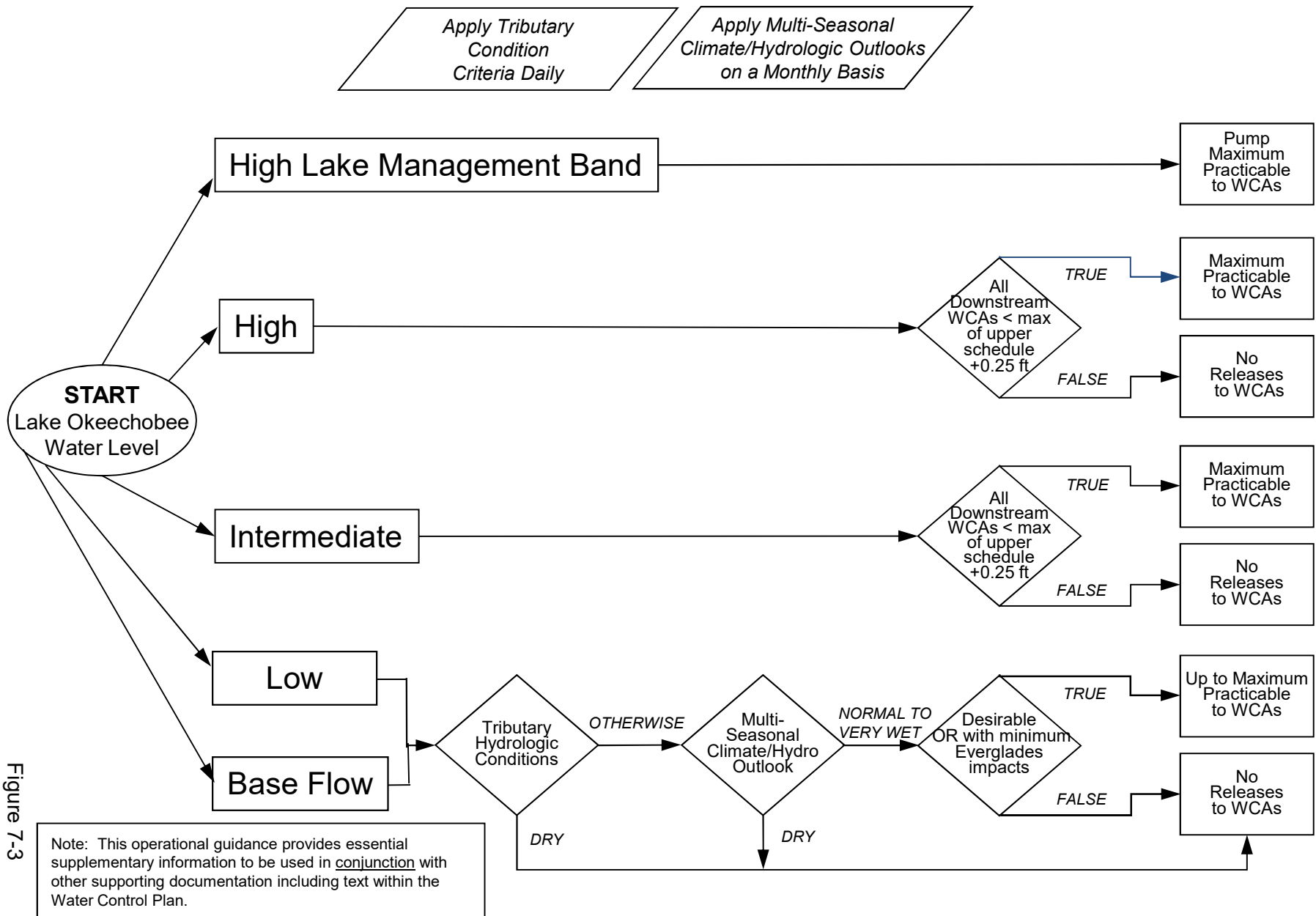
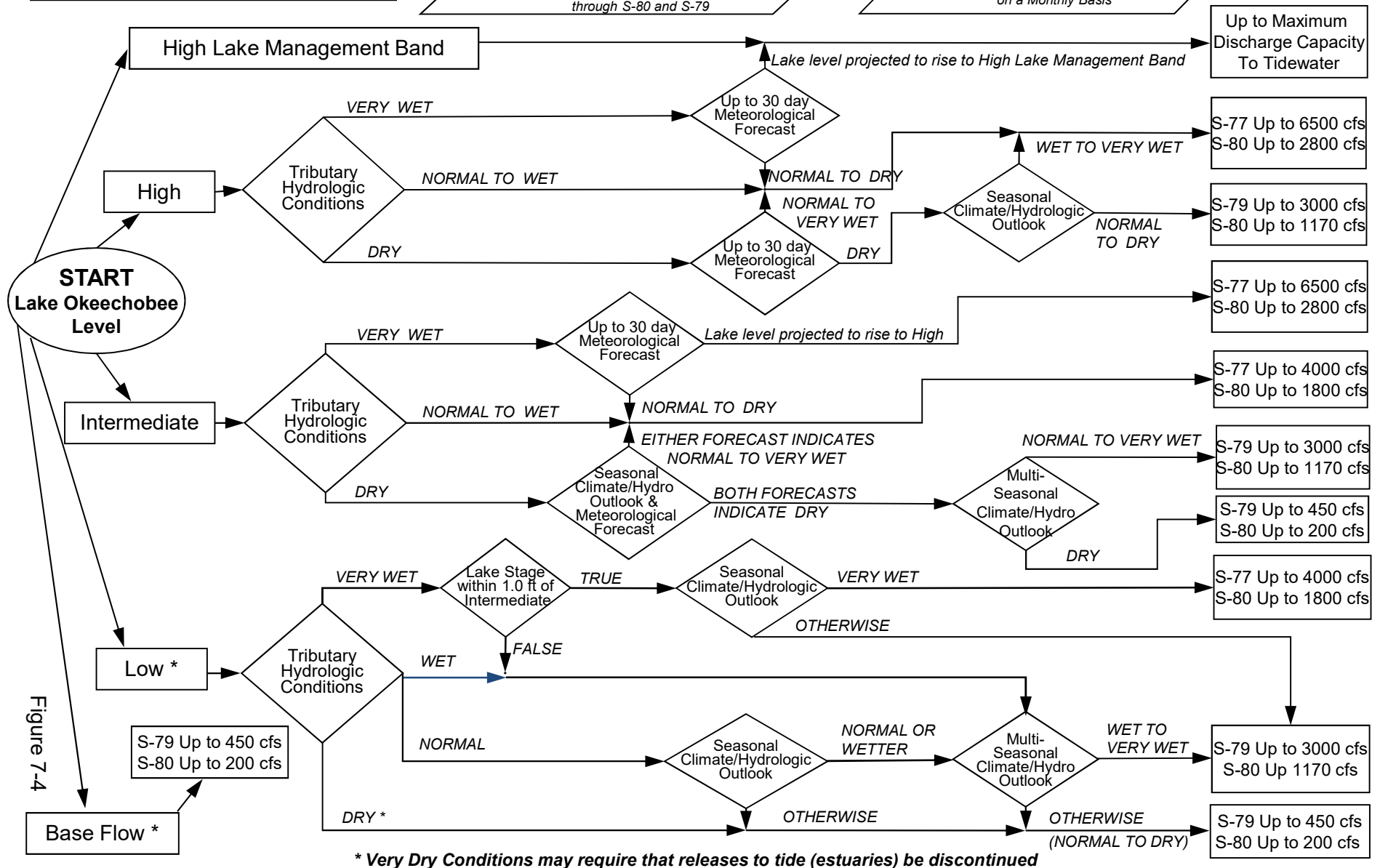


Figure 7-3

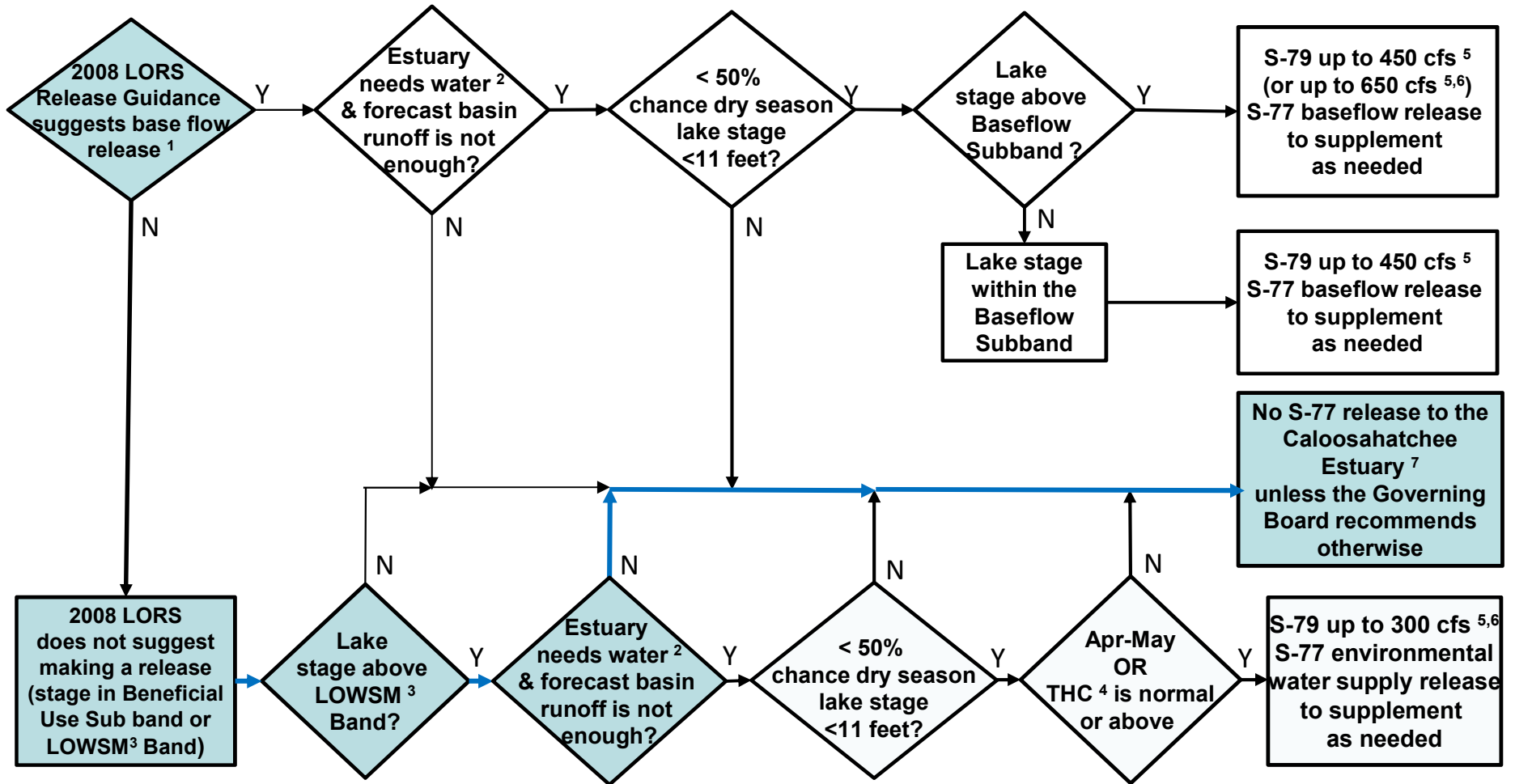
Part D: Establish Allowable Lake Okeechobee Releases to Tide (Estuaries)

*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



**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.

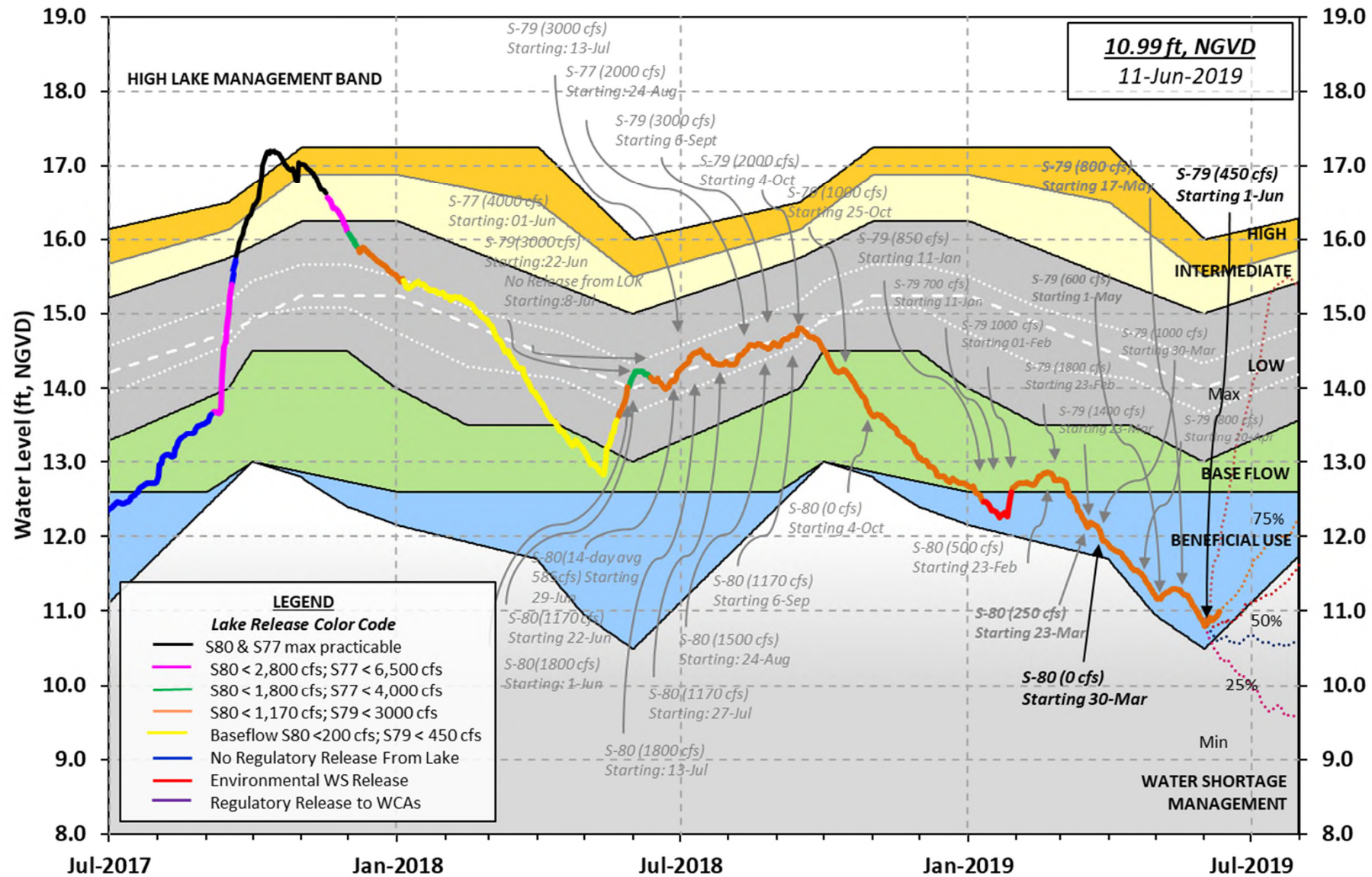
⁴Tributary Hydrologic Condition (THC) is based on classification of Lake Okeechobee Net Inflow and Palmer Index.

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



LORS-2008
Adopted by USACE 28-April-2008

Projected Stage Percentiles From
SFWMD-HESM Position Analysis

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

Data Ending 2400 hours 09 JUN 2019

Okeechobee Lake Regulation	Elevation	Last Year	2YRS Ago
	(ft-NGVD)	(ft-NGVD)	(ft-NGVD)
*Okeechobee Lake Elevation	10.94	14.19	-NR- (Official Elv)
Bottom of High Lake Mngmt= 16.04 Top of Water Short Mngmt= 10.67			
Currently in Operational Management Band			

Simulated Average LORS2008 [1965-2000] 11.99
 Difference from Average LORS2008 -1.05

09JUN (1965-2007) Period of Record Average 13.15
 Difference from POR Average -2.21

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ÷
 4.88'

++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ÷
 3.08'

Bridge Clearance = 51.39'

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

L001	L005	L006	LZ40	S4	S352	S308	S133
11.03	10.98	10.86	10.96	10.79	-NR-	10.90	11.07

*Combination Okeechobee Avg-Daily Lake Average = 10.94
 (*See Note)

Okeechobee Inflows (cfs):

S65E	0	S65EX1	115	Fisheating Cr	1
S154	0	S191	0	S135 Pumps	0
S84	0	S133 Pumps	0	S2 Pumps	0
S84X	0	S127 Pumps	0	S3 Pumps	0
S71	0	S129 Pumps	0	S4 Pumps	0
S72	0	S131 Pumps	0	C5	0
Total Inflows:	116				

Okeechobee Outflows (cfs):

S135 Culverts	0	S354	0	S77	-129
S127 Culverts	0	S351	124	S308	-3
S129 Culverts	0	S352	105		
S131 Culverts	0	L8 Canal Pt	-11		
Total Outflows:	86				

S3 Pumps:	10.31	10.94	0	0	0	0		(cfs)
S354:	10.94	10.31	0	0.0	0.0			
S2 Pumps:	10.31	-NR-	0	0	0	0	0	(cfs)
S351:	-NR-	10.31	124	0.0	0.0	0.0		
S352:		10.32	105	0.0	0.0			
C10A:	-NR-	11.10		8.0	8.0	8.0	0.0	0.0
L8 Canal PT		10.95	-11					

S351 and S352 Temporary Pumps/S354 Spillway

S351:	10.31	-NR-	124	-NR--NR--NR--NR--NR--NR-
S352:	10.32		105	-NR--NR--NR--NR-
S354:	10.31	10.94	0	-NR--NR--NR--NR-

Caloosahatchee River (S77, S78, S79)

S47B:	11.00	10.90		0.0	0.0
S47D:	10.97	10.98	10	5.6	

S77:

Spillway and Sector Preferred Flow:

10.78	10.79	-129	0.0	0.0	0.0	0.0
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Flow Due to Lockages+: 0

S78:

Spillway and Sector Flow:

10.82	2.96	0	0.0	0.0	0.0	0.0
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Flow Due to Lockages+: 8

S79:

Spillway and Sector Flow:

3.07	1.91	408	0.0	0.0	0.0	0.0	0.0	0.0	1.0
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0.0

Flow Due to Lockages+: 3

Percent of flow from S77 -32%

Chloride (ppm) 63

St. Lucie Canal (S308, S80)

S308:

Spillway and Sector Preferred Flow:

10.90	12.11	0	0.0	0.0	0.0	0.0
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Flow Due to Lockages+: -3

S153:	18.73	12.08	0	0.1	0.0
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S80:

Spillway and Sector Flow:

12.29	-0.45	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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Flow Due to Lockages+: 8

Percent of flow from S308 NA %

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:	10.27	12.27	12.98	123	2
S78:	4.52	5.08	5.21	91	4
S79:	6.46	6.59	7.18	105	4
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:	8.09	8.21	10.35	79	3
S80:	8.76	9.05	9.30	188	1
Okeechobee Average	9.18	1.58	1.79		
(Sites S78, S79 and S80 not included)					

Oke Nexrad Basin Avg	-NR-	0.00	0.00		

Okeechobee Lake Elevations	09 JUN 2019	10.94	Difference from
09JUN19			
09JUN19 -1 Day =	08 JUN 2019	10.91	-0.03
09JUN19 -2 Days =	07 JUN 2019	10.90	-0.04
09JUN19 -3 Days =	06 JUN 2019	10.87	-0.07
09JUN19 -4 Days =	05 JUN 2019	10.90	-0.04
09JUN19 -5 Days =	04 JUN 2019	10.91	-0.03
09JUN19 -6 Days =	03 JUN 2019	10.82	-0.12
09JUN19 -7 Days =	02 JUN 2019	10.84	-0.10
09JUN19 -30 Days =	10 MAY 2019	11.28	0.34
09JUN19 -1 Year =	09 JUN 2018	14.19	3.25
09JUN19 -2 Year =	09 JUN 2017	-NR-	-NR-

Long Term Mean 30day Avearge ET for Lake Alfred (Inches) = 5.04

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

09JUN19	Today =	09 JUN 2019	1454	MON	5220
09JUN19	-1 Day =	08 JUN 2019	748	SUN	2462
09JUN19	-2 Days =	07 JUN 2019	352	SAT	5706
09JUN19	-3 Days =	06 JUN 2019	-534	FRI	-2866
09JUN19	-4 Days =	05 JUN 2019	-557	THU	698
09JUN19	-5 Days =	04 JUN 2019	-921	WED	16565
09JUN19	-6 Days =	03 JUN 2019	-2162	TUE	-535
09JUN19	-7 Days =	02 JUN 2019	-2157	MON	10972
09JUN19	-8 Days =	01 JUN 2019	-3045	SUN	-4425
09JUN19	-9 Days =	31 MAY 2019	-2951	SAT	-4125
09JUN19	-10 Days =	30 MAY 2019	-3045	FRI	-921
09JUN19	-11 Days =	29 MAY 2019	-2979	THU	-1502
09JUN19	-12 Days =	28 MAY 2019	-3002	WED	-4259
09JUN19	-13 Days =	27 MAY 2019	-2697	TUE	-2638

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S65E					
Average Flow over previous 14 days					Avg-Daily Flow
09JUN19	Today=	09 JUN 2019	156	MON	0
09JUN19	-1 Day =	08 JUN 2019	165	SUN	151
09JUN19	-2 Days =	07 JUN 2019	182	SAT	375
09JUN19	-3 Days =	06 JUN 2019	184	FRI	101
09JUN19	-4 Days =	05 JUN 2019	208	THU	281
09JUN19	-5 Days =	04 JUN 2019	227	WED	128
09JUN19	-6 Days =	03 JUN 2019	257	TUE	128
09JUN19	-7 Days =	02 JUN 2019	287	MON	40
09JUN19	-8 Days =	01 JUN 2019	322	SUN	11
09JUN19	-9 Days =	31 MAY 2019	361	SAT	174
09JUN19	-10 Days =	30 MAY 2019	394	FRI	285
09JUN19	-11 Days =	29 MAY 2019	421	THU	281
09JUN19	-12 Days =	28 MAY 2019	441	WED	112
09JUN19	-13 Days =	27 MAY 2019	473	TUE	119

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S65EX1					
Average Flow over previous 14 days					Avg-Daily Flow
09JUN19	Today=	09 JUN 2019	126	MON	115
09JUN19	-1 Day =	08 JUN 2019	125	SUN	123
09JUN19	-2 Days =	07 JUN 2019	132	SAT	0
09JUN19	-3 Days =	06 JUN 2019	147	FRI	0
09JUN19	-4 Days =	05 JUN 2019	162	THU	0
09JUN19	-5 Days =	04 JUN 2019	178	WED	121
09JUN19	-6 Days =	03 JUN 2019	192	TUE	106
09JUN19	-7 Days =	02 JUN 2019	205	MON	169
09JUN19	-8 Days =	01 JUN 2019	213	SUN	273
09JUN19	-9 Days =	31 MAY 2019	214	SAT	237
09JUN19	-10 Days =	30 MAY 2019	218	FRI	28
09JUN19	-11 Days =	29 MAY 2019	236	THU	0
09JUN19	-12 Days =	28 MAY 2019	259	WED	264
09JUN19	-13 Days =	27 MAY 2019	269	TUE	323

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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)
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
02 JUN 2019			465	998	605	755
01 JUN 2019			894	1366	459	1075
31 MAY 2019			1289	1669	871	468
30 MAY 2019			1435	1761	889	434
29 MAY 2019			1507	1821	903	797
28 MAY 2019			1220	1693	891	1541
27 MAY 2019			1602	1970	1134	1954

			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)
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
02 JUN 2019			140	2430	1674	1741	24
01 JUN 2019			425	2753	1506	1465	33
31 MAY 2019			421	2472	2024	1279	55
30 MAY 2019			447	2529	2268	1390	53
29 MAY 2019			433	2361	1577	1255	53
28 MAY 2019			416	1224	1118	1027	25
27 MAY 2019			417	1371	1060	1009	-2

			S-308	Below S-308	S-80
			Discharge	Discharge	Discharge
			(ALL DAY)	(ALL-DAY)	(ALL-DAY)
DATE			(AC-FT)	(AC-FT)	(AC-FT)
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
02 JUN 2019			-726	1611	51
01 JUN 2019			-56	5040	44
31 MAY 2019			402	-2	44
30 MAY 2019			-1129	-74	43
29 MAY 2019			-1760	-8	22
28 MAY 2019			-2100	-62	29
27 MAY 2019			-2227	-16	42

*** 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

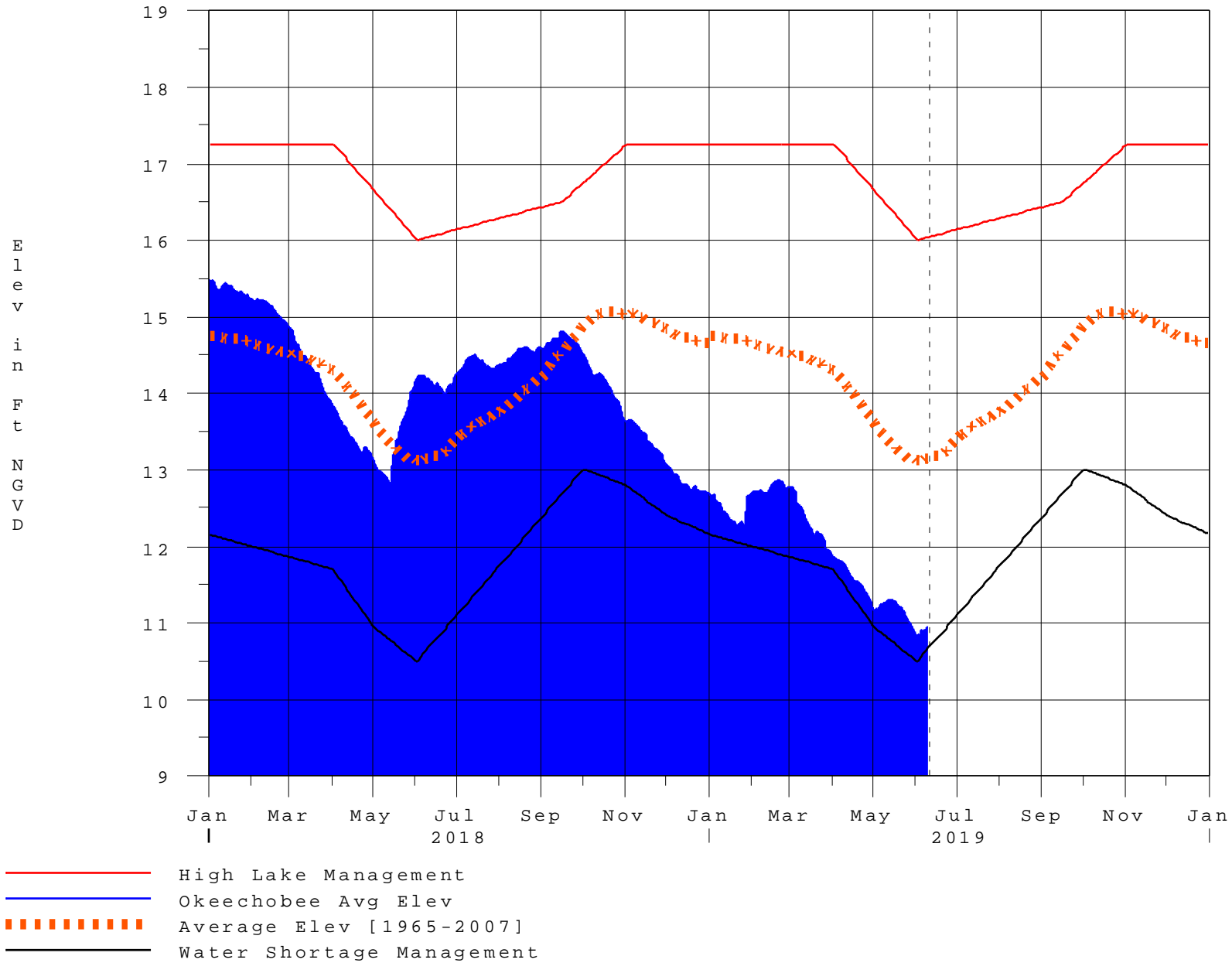
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* On 11 May 1999, Lake Okeechobee Elevation was switched from
Instantaneous 2400 value to an average-daily lake average.
On 14 Mar 2001, due to the isolation of various gages within the
standard
10 stations, the average of the interior 4 station gages 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 10JUN2019 @ 23:39 ** Preliminary Data - Subject to Revision
**

Lake Okeechobee

10JUN19 23:30:23



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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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