

Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 10/21/2019 (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 (Oct-Mar)	N/A	N/A	0.75	Dry	1.03	Normal	2.18	Very Wet
Multi Seasonal (Oct-Apr)	N/A	N/A	0.68	Dry	0.99	Dry	2.28	Normal

*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:](#)

2101 cfs 14-day running average for Lake Okeechobee Net Inflow through 10/20/2019. According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Normal.

-1.37 for Palmer Index on 10/19/2019.

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 10/21/2019

Lake Okeechobee Stage: **13.50 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		17.06	
Operational Band	High sub-band	16.69	
	Intermediate sub-band	16.12	
	Low sub-band	14.50	
Base Flow sub-band		12.92	← 13.50
Beneficial Use sub-band		12.87	
Water Shortage Management Band			

Part C of LORS2008: Discharge to WCA's

Release Guidance Flow Chart Outcome: No releases to WCAs.

Part D of LORS2008: Discharge to Tidewater

Release Guidance Flow Chart Outcome: S-79 Up to 450 cfs & S-80 Up to 200 cfs.

Adaptive Protocol's Release Guidance: Caloosahatchee Estuary

Release Guidance Flow Chart Outcome: S-79 Up to 450 cfs & S-77 baseflow release to supplement as needed.

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

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

LORS2008 Implementation on 10/21/2019 (ENSO Neutral Condition):

Status for week ending 10/21/2019:

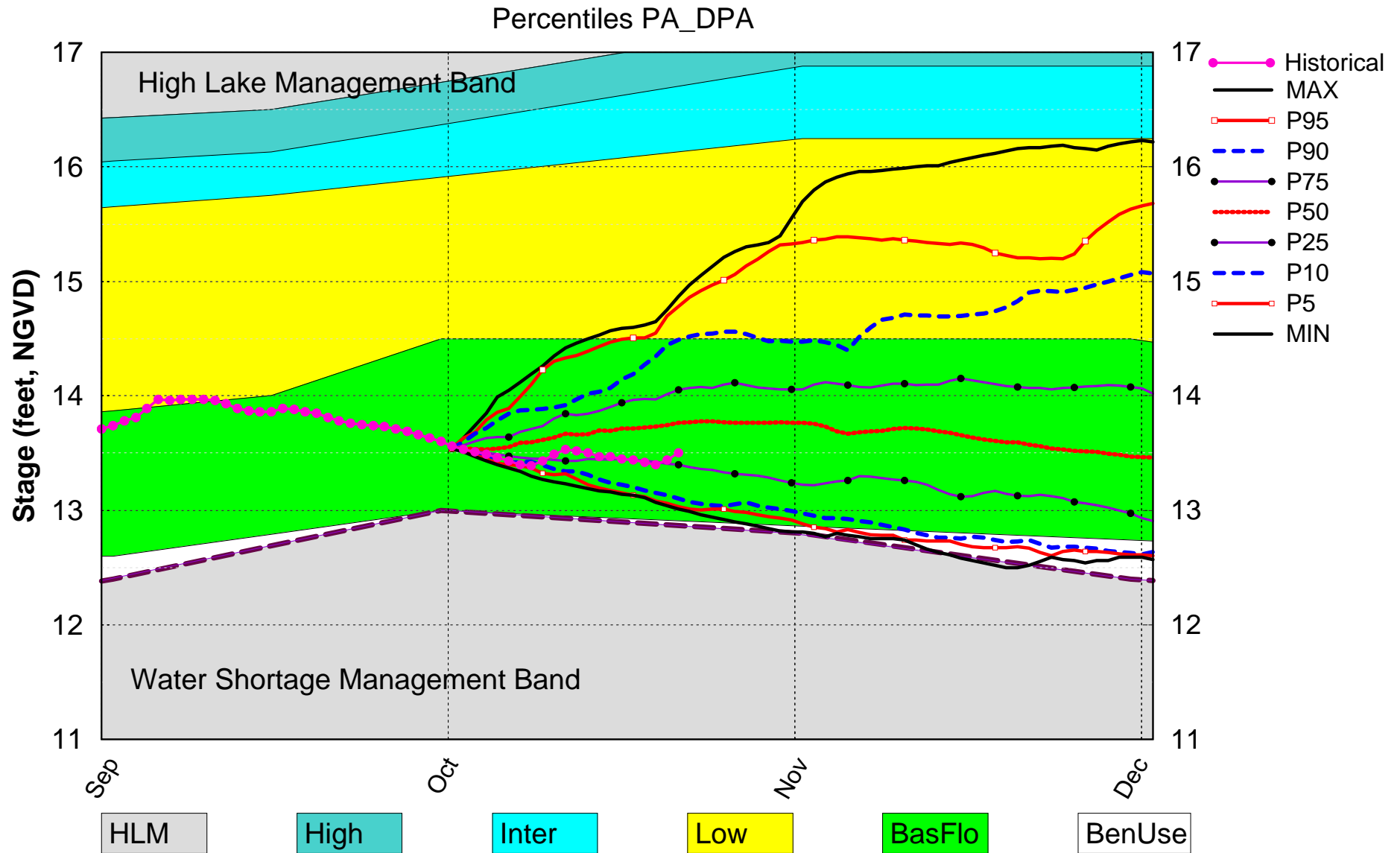
District wide, Raindar rainfall was 1.16 inches for the week. Lake stage on 10/21/2019 was 13.50 ft, NGVD, up 0.03 ft from last week. The updated October 2019 SFWMM Dynamic Position Analysis [percentile graph](#) for Lake Okeechobee show that the current lake stage is in the Base-Flow Sub-Band. The LORS2008 Tributary Hydrologic Conditions (THC) are classified as **Normal**. The PDI indicates Normal conditions and the LONIN is Near 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	Base-Flow Sub-Band	M
	Palmer Index for LOK Tributary Conditions	-1.37 (Dry)	M
	CPC Precipitation Outlook	1 month: Normal	L
		3 months: Normal	L
	LOK Seasonal Net Inflow Outlook	1.03 ft (Dry)	M
	ENSO Forecast (positive)		
	LOK Multi-Seasonal Net Inflow Outlook	0.99 ft (Dry)	H
	ENSO Forecast (positive)		
WCAs	WCA 1: 3 Station Average (Site 1-7, Site 1-8T & Site 1-9)	Above Line 1 (16.56 ft)	L
	WCA 2A: Site 2-17 HW	Above Line 1 (12.96 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64, and 65)	Above Line 1 (10.14 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.

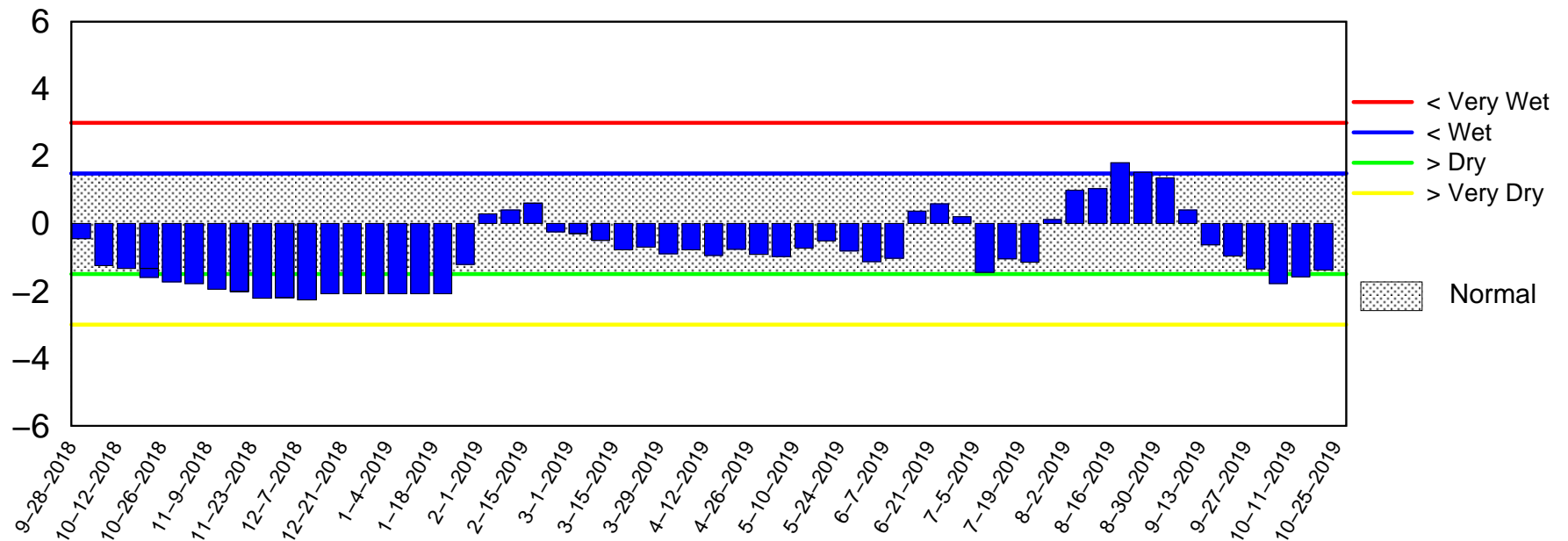
Lake Okeechobee SFWMM Oct 2019 Position Analysis



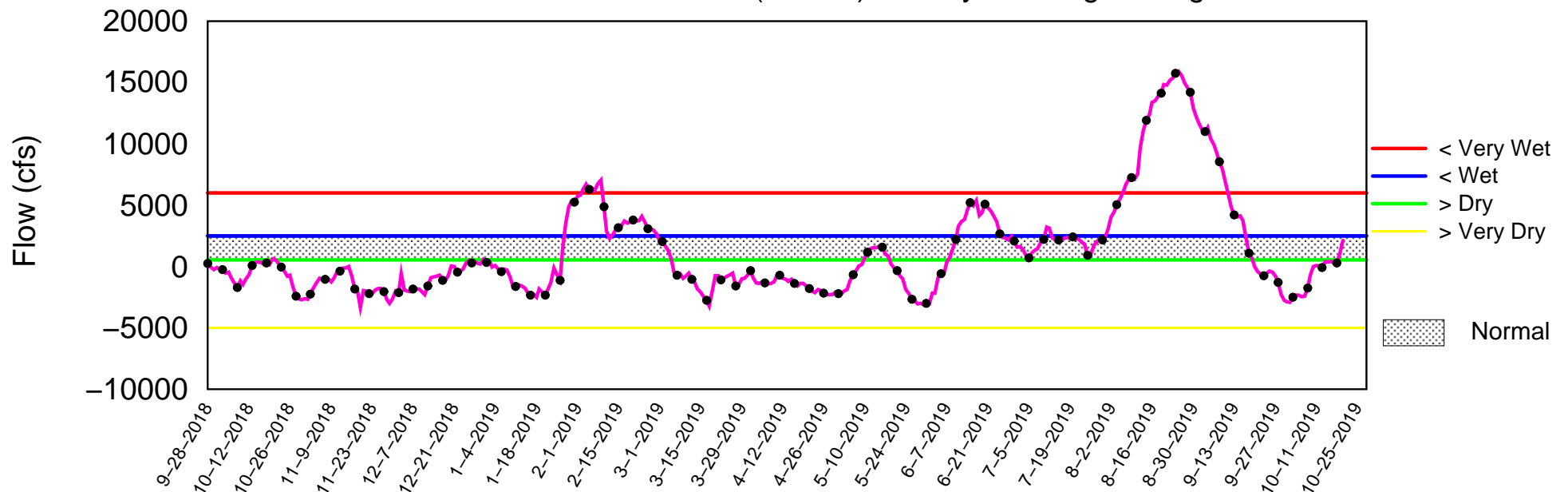
(See assumptions on the Position Analysis Results website)

Tributary Basin Condition Indicators as of October 21 2019

Palmer Index



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



Tue Oct 22 08:58:33 EDT 2019

2008 LORS

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

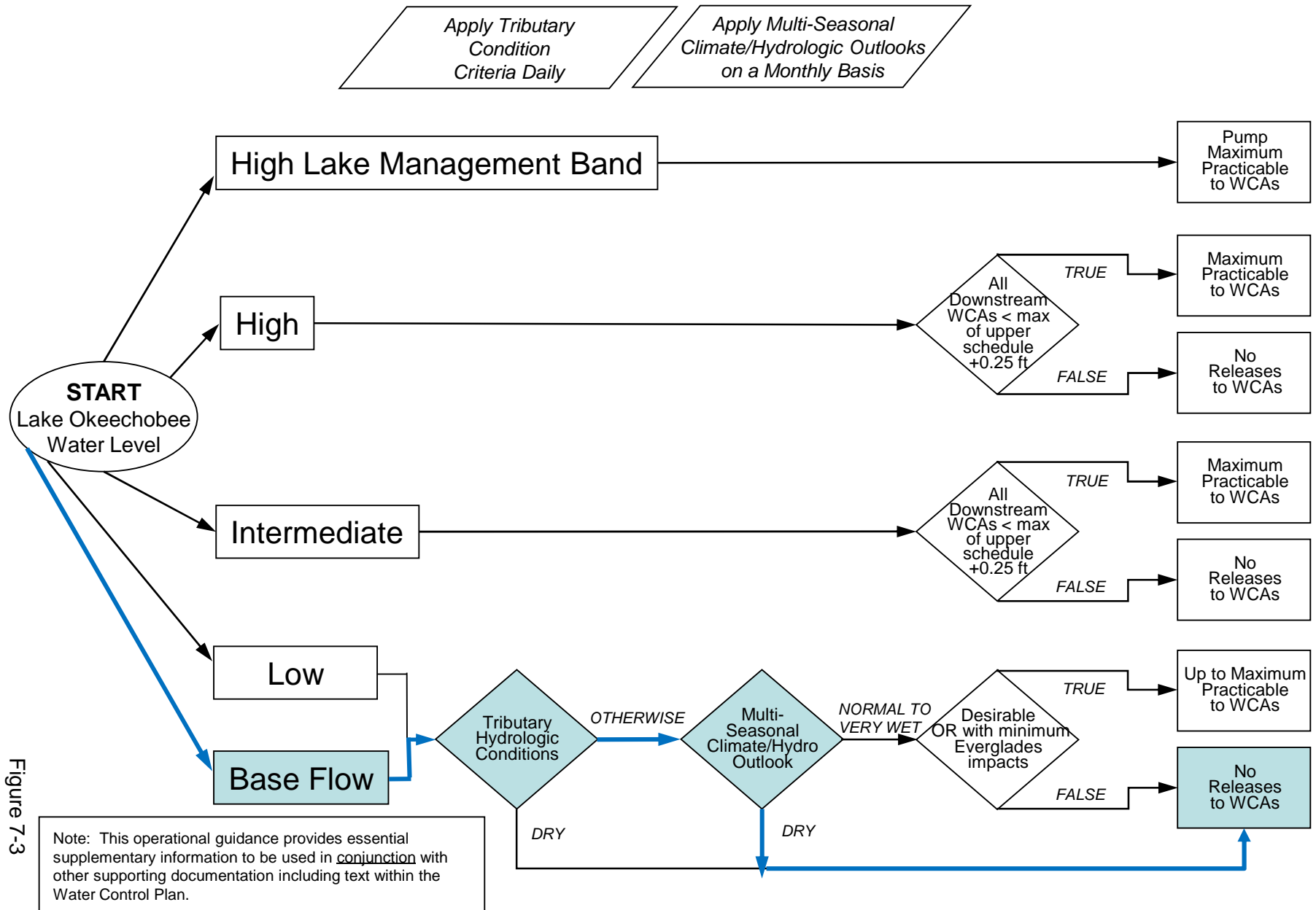
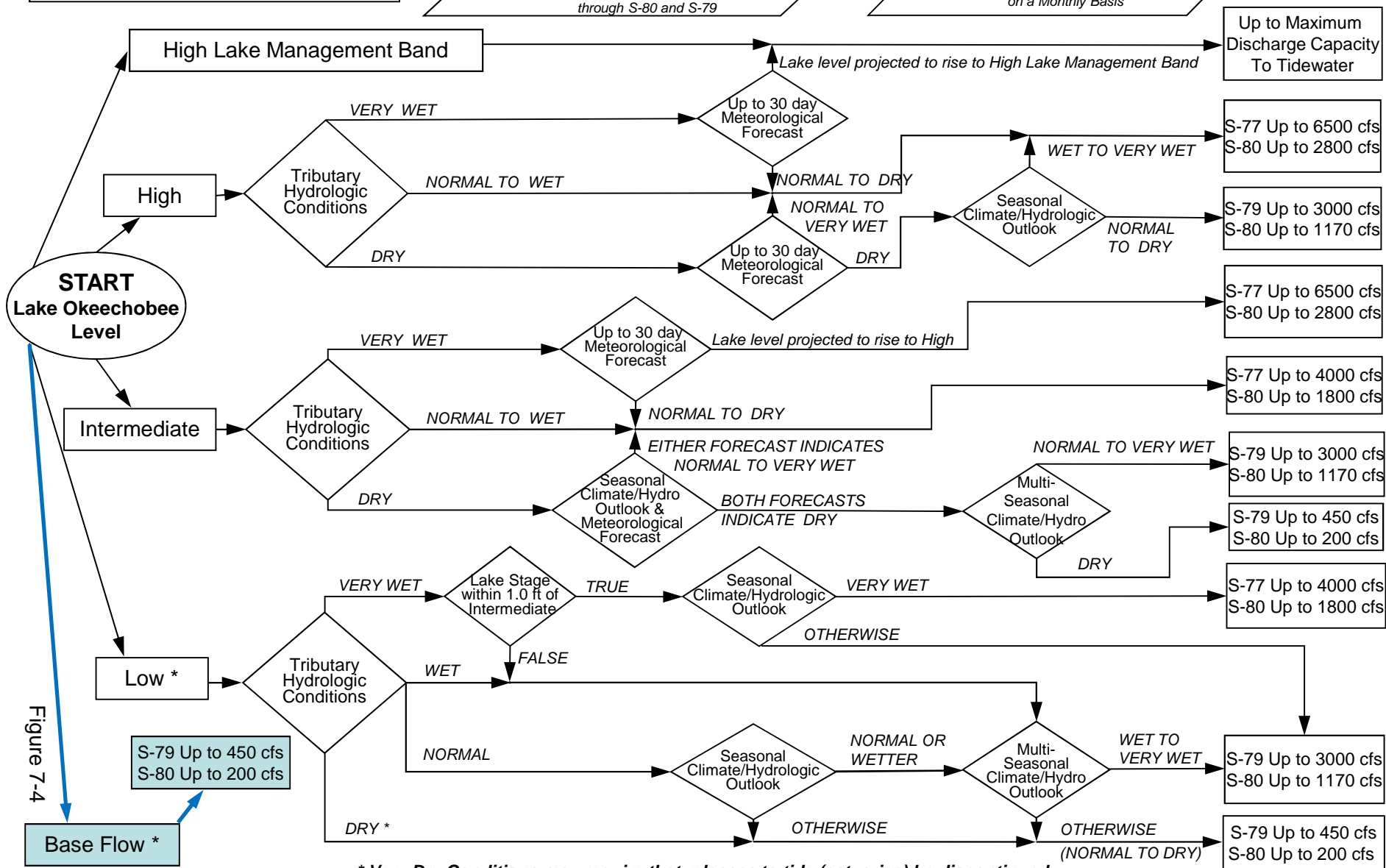


Figure 7-3

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*

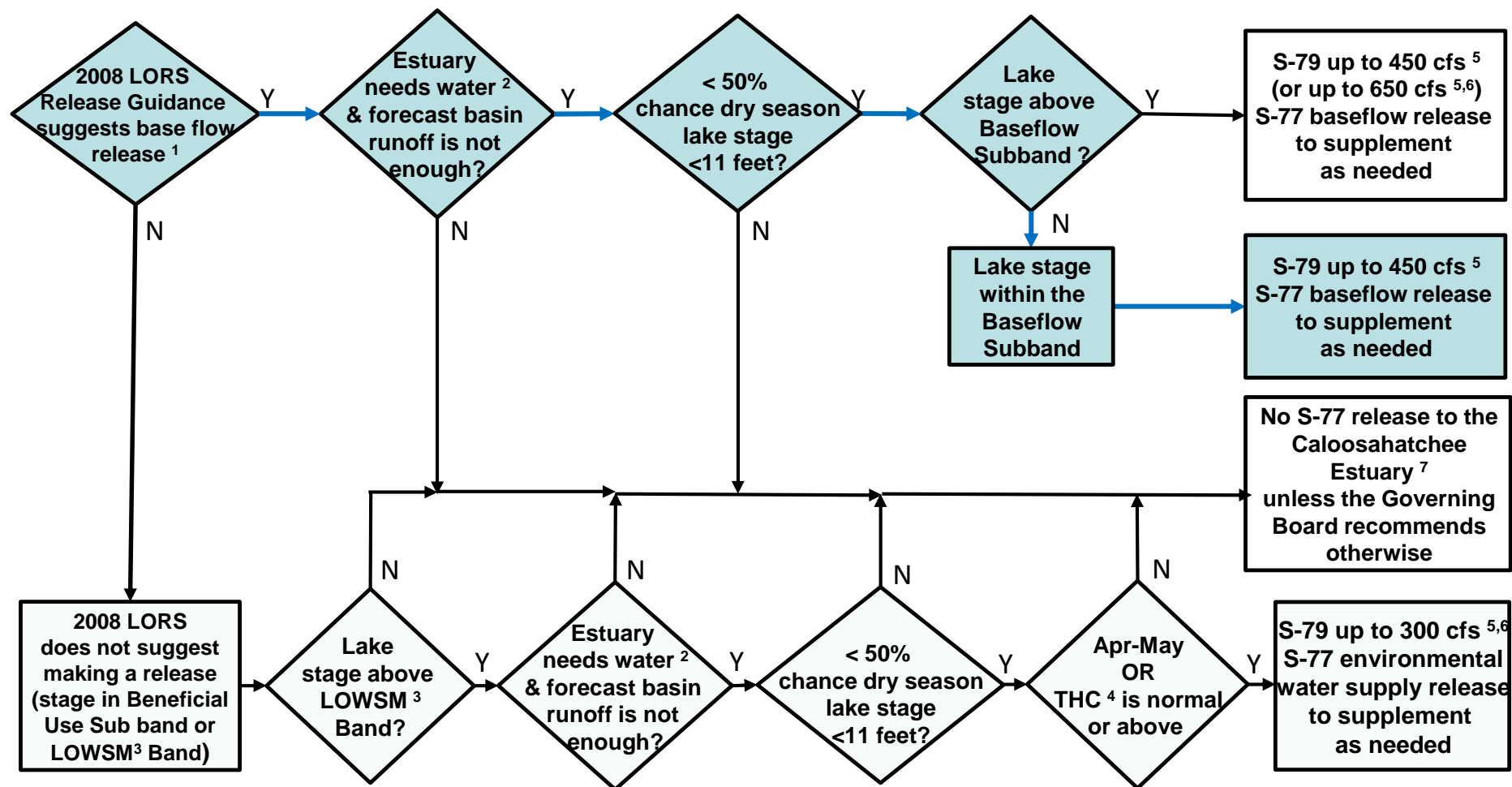
Apply Meteorological Forecasts on a Weekly Basis; apply Seasonal and Multi-Seasonal Climate/Hydrologic Outlooks on a Monthly Basis



*** Very Dry Conditions may require that releases to tide (estuaries) be discontinued**

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.

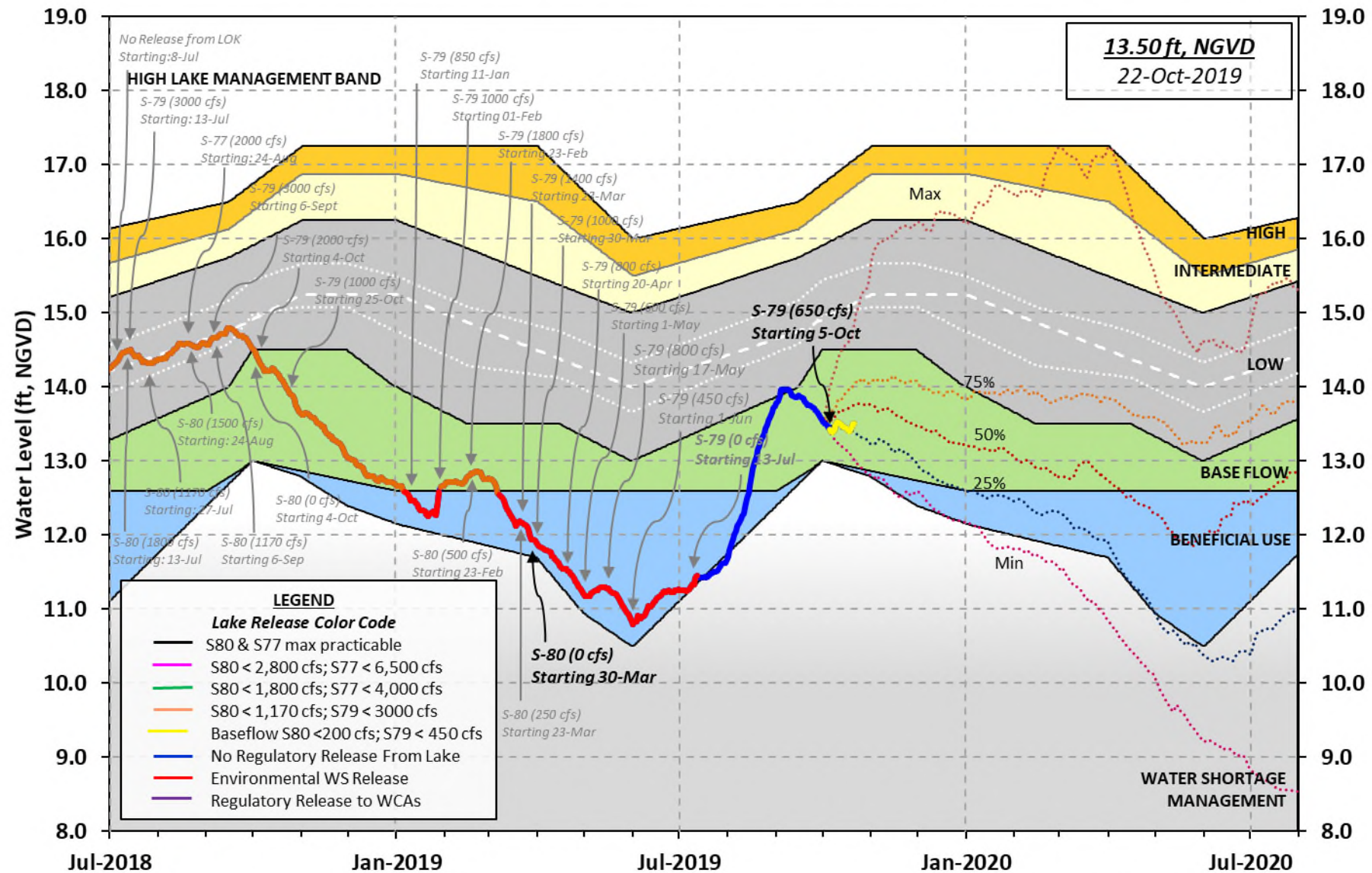
⁴Tributary Hydrologic Condition (THC) is based on classification of Lake Okeechobee Net Inflow and Palmer Index.

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 21 OCT 2019

Okeechobee Lake Regulation	Elevation	Last Year	2YRS Ago
	(ft-NGVD)	(ft-NGVD)	(ft-NGVD)
*Okeechobee Lake Elevation	13.50	14.03	-NR- (Official Elv)
Bottom of High Lake Mngmt= 17.07 Top of Water Short Mngmt= 12.87			
Currently in Operational Management Band			

Simulated Average LORS2008 [1965-2000]	14.01
Difference from Average LORS2008	-0.51

21OCT (1965-2007) Period of Record Average	15.06
Difference from POR Average	-1.56

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ÷ 7.44'

++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ÷ 5.64'

Bridge Clearance = 49.53'

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

L001	L005	L006	LZ40	S4	S352	S308	S133
13.49	13.52	13.49	13.48	13.48	13.62	13.45	13.46

*Combination Okeechobee Avg-Daily Lake Average = 13.50
(*See Note)

Okeechobee Inflows (cfs):

S65E	207	S65EX1	206	Fisheating Cr	25
S154	0	S191	0	S135 Pumps	0
S84	39	S133 Pumps	0	S2 Pumps	0
S84X	0	S127 Pumps	0	S3 Pumps	0
S71	127	S129 Pumps	0	S4 Pumps	0
S72	3	S131 Pumps	0	C5	0
Total Inflows:	608				

Okeechobee Outflows (cfs):

S135 Culverts	0	S354	0	S77	1
S127 Culverts	-13	S351	0	S308	-1
S129 Culverts	0	S352	0		
S131 Culverts	0	L8 Canal Pt	46		
Total Outflows:	33				

S310: 13.42 -10

S3 Pumps:	9.22	13.54	0	0	0	0		(cfs)
S354:	13.54	9.22	0	0.0	0.0			
S2 Pumps:	10.02	-NR-	0	0	0	0	0	(cfs)
S351:	-NR-	10.02	0	0.0	0.0	0.0		
S352:	13.65	10.13	0	0.0	0.0			
C10A:	-NR-	13.69		8.0	8.0	8.0	0.0	0.0
L8 Canal PT		13.49	46					

S351 and S352 Temporary Pumps/S354 Spillway

S351:	10.02	-NR-	0	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-
S352:	10.13	13.65	0	-NR-	-NR-	-NR-	-NR-		
S354:	9.22	13.54	0	-NR-	-NR-	-NR-	-NR-		

Caloosahatchee River (S77, S78, S79)

S47B:	13.15	11.40		1.0	1.5
S47D:	11.28	11.28	-6	6.0	

S77:

Spillway and Sector Preferred Flow:

13.31	11.15	0	0.0	0.0	0.0	0.0
-------	-------	---	-----	-----	-----	-----

Flow Due to Lockages+: 1

S78:

Spillway and Sector Flow:

11.17	3.11	1208	1.0	0.0	0.0	2.0
-------	------	------	-----	-----	-----	-----

Flow Due to Lockages+: 7

S79:

Spillway and Sector Flow:

3.26	2.21	1490	0.0	1.0	1.0	1.0	1.0	1.0	0.0
------	------	------	-----	-----	-----	-----	-----	-----	-----

0.0

Flow Due to Lockages+: 2

Percent of flow from S77 0%

Chloride (ppm) 0

St. Lucie Canal (S308, S80)

S308:

Spillway and Sector Preferred Flow:

13.46	13.97	0	0.0	0.0	0.0	0.0
-------	-------	---	-----	-----	-----	-----

Flow Due to Lockages+: -1

S153:	18.87	13.88	0	0.0	0.0
-------	-------	-------	---	-----	-----

S80:

Spillway and Sector Flow:

14.11	0.45	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-------	------	---	-----	-----	-----	-----	-----	-----	-----

Flow Due to Lockages+: -NR-

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:	0.00	0.56	0.89	251	2
S78:	0.00	0.40	0.84	5	1
S79:	0.00	1.29	1.80	144	1
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:	0.00	1.51	1.52	115	3
S80:	0.00	1.66	1.66	195	1
Okeechobee Average	0.00	0.16	0.19		
(Sites S78, S79 and S80 not included)					

Oke Nexrad Basin Avg	-NR-	1.10	1.40		

Okeechobee Lake Elevations	21 OCT 2019	13.50	Difference from
21OCT19			
21OCT19 -1 Day =	20 OCT 2019	13.50	0.00
21OCT19 -2 Days =	19 OCT 2019	13.44	-0.06
21OCT19 -3 Days =	18 OCT 2019	13.40	-0.10
21OCT19 -4 Days =	17 OCT 2019	13.42	-0.08
21OCT19 -5 Days =	16 OCT 2019	13.44	-0.06
21OCT19 -6 Days =	15 OCT 2019	13.45	-0.05
21OCT19 -7 Days =	14 OCT 2019	13.47	-0.03
21OCT19 -30 Days =	21 SEP 2019	13.76	0.26
21OCT19 -1 Year =	21 OCT 2018	14.03	0.53
21OCT19 -2 Year =	21 OCT 2017	-NR-	-NR-

Long Term Mean 30day Avearge ET for Lake Alfred (Inches) = 3.54

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

21OCT19	Today =	21 OCT 2019	2086	TUE	46
21OCT19	-1 Day =	20 OCT 2019	2101	MON	12435
21OCT19	-2 Days =	19 OCT 2019	1042	SUN	8469
21OCT19	-3 Days =	18 OCT 2019	255	SAT	-3173
21OCT19	-4 Days =	17 OCT 2019	276	FRI	-2885
21OCT19	-5 Days =	16 OCT 2019	401	THU	-810
21OCT19	-6 Days =	15 OCT 2019	363	WED	-3093
21OCT19	-7 Days =	14 OCT 2019	335	TUE	192
21OCT19	-8 Days =	13 OCT 2019	-101	MON	-5910
21OCT19	-9 Days =	12 OCT 2019	41	SUN	-4066
21OCT19	-10 Days =	11 OCT 2019	71	SAT	-2069
21OCT19	-11 Days =	10 OCT 2019	-35	FRI	8442
21OCT19	-12 Days =	09 OCT 2019	-728	THU	12593
21OCT19	-13 Days =	08 OCT 2019	-1752	WED	9035

—

—

S65E					
Average Flow over previous 14 days					Avg-Daily Flow
21OCT19	Today=	21 OCT 2019	249	TUE	237
21OCT19	-1 Day =	20 OCT 2019	257	MON	236
21OCT19	-2 Days =	19 OCT 2019	268	SUN	235
21OCT19	-3 Days =	18 OCT 2019	268	SAT	235
21OCT19	-4 Days =	17 OCT 2019	281	FRI	267
21OCT19	-5 Days =	16 OCT 2019	286	THU	231
21OCT19	-6 Days =	15 OCT 2019	286	WED	231
21OCT19	-7 Days =	14 OCT 2019	302	TUE	135
21OCT19	-8 Days =	13 OCT 2019	324	MON	339
21OCT19	-9 Days =	12 OCT 2019	320	SUN	101
21OCT19	-10 Days =	11 OCT 2019	337	SAT	132
21OCT19	-11 Days =	10 OCT 2019	351	FRI	273
21OCT19	-12 Days =	09 OCT 2019	392	THU	407
21OCT19	-13 Days =	08 OCT 2019	443	WED	425

—

—

S65EX1					
Average Flow over previous 14 days					Avg-Daily Flow
21OCT19	Today=	21 OCT 2019	179	TUE	206
21OCT19	-1 Day =	20 OCT 2019	172	MON	206
21OCT19	-2 Days =	19 OCT 2019	166	SUN	204
21OCT19	-3 Days =	18 OCT 2019	161	SAT	110
21OCT19	-4 Days =	17 OCT 2019	162	FRI	136
21OCT19	-5 Days =	16 OCT 2019	162	THU	161
21OCT19	-6 Days =	15 OCT 2019	160	WED	128
21OCT19	-7 Days =	14 OCT 2019	164	TUE	252
21OCT19	-8 Days =	13 OCT 2019	154	MON	175
21OCT19	-9 Days =	12 OCT 2019	162	SUN	268
21OCT19	-10 Days =	11 OCT 2019	179	SAT	271
21OCT19	-11 Days =	10 OCT 2019	189	FRI	136
21OCT19	-12 Days =	09 OCT 2019	207	THU	33
21OCT19	-13 Days =	08 OCT 2019	244	WED	217

—

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)
21 OCT 2019			3	1194	2398	2927
20 OCT 2019			3	751	1565	4302
19 OCT 2019			275	582	382	661
18 OCT 2019			1112	880	366	259
17 OCT 2019			1200	1189	360	757
16 OCT 2019			959	933	238	482
15 OCT 2019			319	482	306	782
14 OCT 2019			172	455	306	1682
13 OCT 2019			454	839	640	1578
12 OCT 2019			312	753	1110	1941
11 OCT 2019			6	585	1643	2109
10 OCT 2019			3	401	779	1072
09 OCT 2019			177	880	696	1590
08 OCT 2019			1138	1903	1518	1297

			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)
21 OCT 2019			-20	0	0	0	91
20 OCT 2019			-102	0	0	0	64
19 OCT 2019			10	0	0	0	97
18 OCT 2019			126	0	0	365	232
17 OCT 2019			353	0	0	702	212
16 OCT 2019			113	0	0	980	126
15 OCT 2019			103	0	0	875	86
14 OCT 2019			10	0	0	0	206
13 OCT 2019			-24	0	0	0	120
12 OCT 2019			8	0	0	0	43
11 OCT 2019			-37	0	0	0	96
10 OCT 2019			-110	0	0	0	45
09 OCT 2019			-19	0	0	0	204
08 OCT 2019			20	0	0	0	222

			S-308	Below S-308	S-80
			Discharge	Discharge	Discharge
			(ALL DAY)	(ALL-DAY)	(ALL-DAY)
DATE			(AC-FT)	(AC-FT)	(AC-FT)
21 OCT 2019			-2	-588	-NR-
20 OCT 2019			-0	-198	19
19 OCT 2019			0	1	11
18 OCT 2019			0	193	34
17 OCT 2019			0	60	31
16 OCT 2019			0	-435	3
15 OCT 2019			-1	-80	20
14 OCT 2019			-1	-45	27
13 OCT 2019			-2	135	-NR-
12 OCT 2019			-2	61	20
11 OCT 2019			-1	-47	20
10 OCT 2019			-0	16	23
09 OCT 2019			-0	117	27
08 OCT 2019			0	-106	10

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

—

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

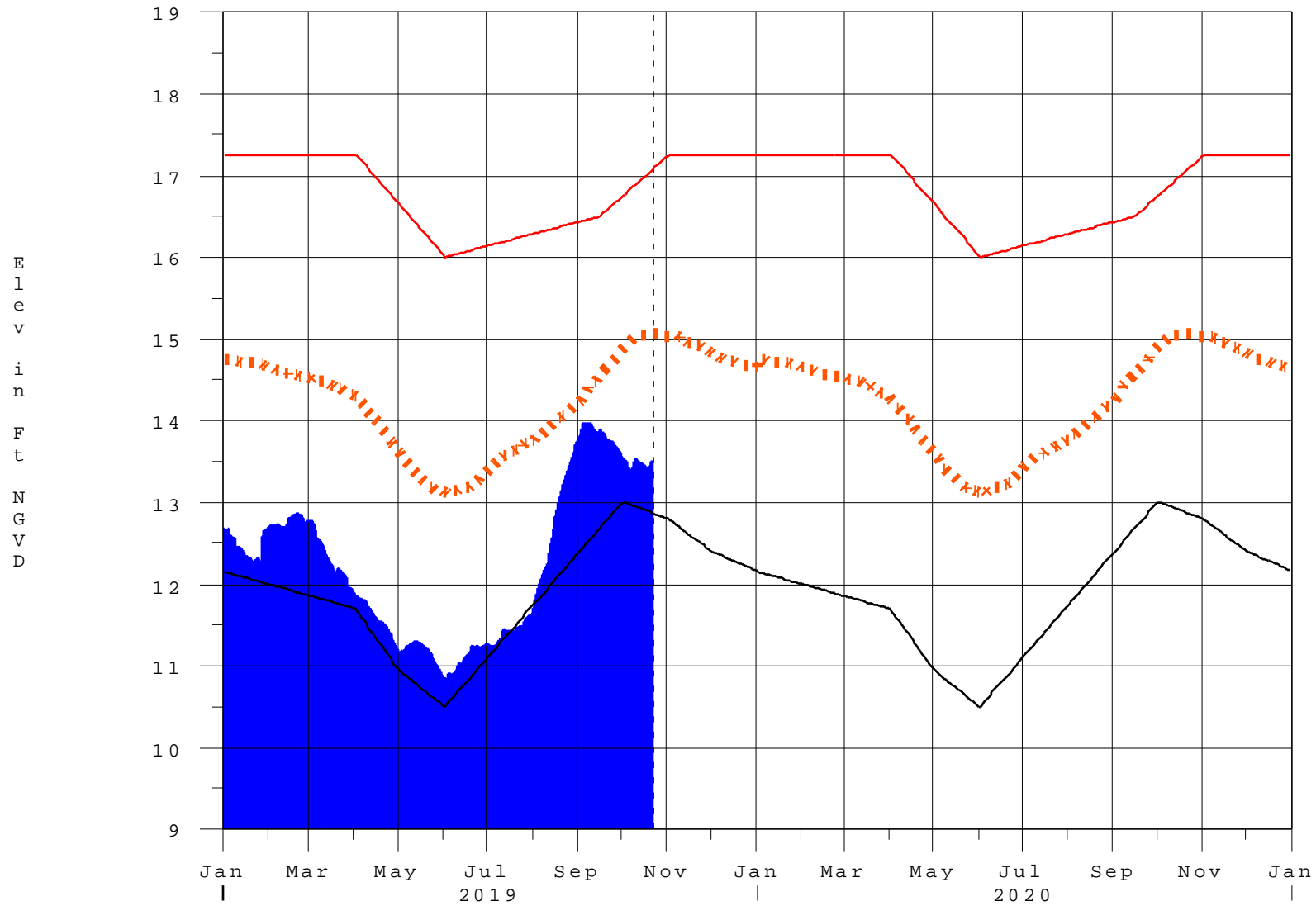
—

* 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

—
Report Generated 22OCT2019 @ 08:45 ** Preliminary Data - Subject to Revision
**

Lake Okeechobee

22OCT19 08:45:29



- High Lake Management
- Okeechobee Avg Elev
- Average Elev [1965-2007]
- Water Shortage Management

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

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

[**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