

Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 11/11/2019 (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 (Nov-Apr)	N/A	N/A	0.32	Dry	0.59	Dry	1.68	Wet
Multi Seasonal (Nov-Oct)	N/A	N/A	2.98	Wet	3.29	Wet	5.62	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:](#)

-1655 cfs 14-day running average for Lake Okeechobee Net Inflow through 11/10/2019. According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Dry.

-1.57 for Palmer Index on 11/9/2019.

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

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

[LORS2008 Classification Tables:](#)

Lake Okeechobee Stage on 11/11/2019

Lake Okeechobee Stage: **13.33 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		17.25	
Operational Band	High sub-band	16.88	
	Intermediate sub-band	16.25	
	Low sub-band	14.50	
Base Flow sub-band		12.82	← 13.33
Beneficial Use sub-band		12.67	
Water Shortage Management Band			

[Part C of LORS2008: Discharge to WCA's](#)

NO releases to the 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 11/11/2019 (ENSO Neutral Condition):

Status for week ending 11/11/2019:

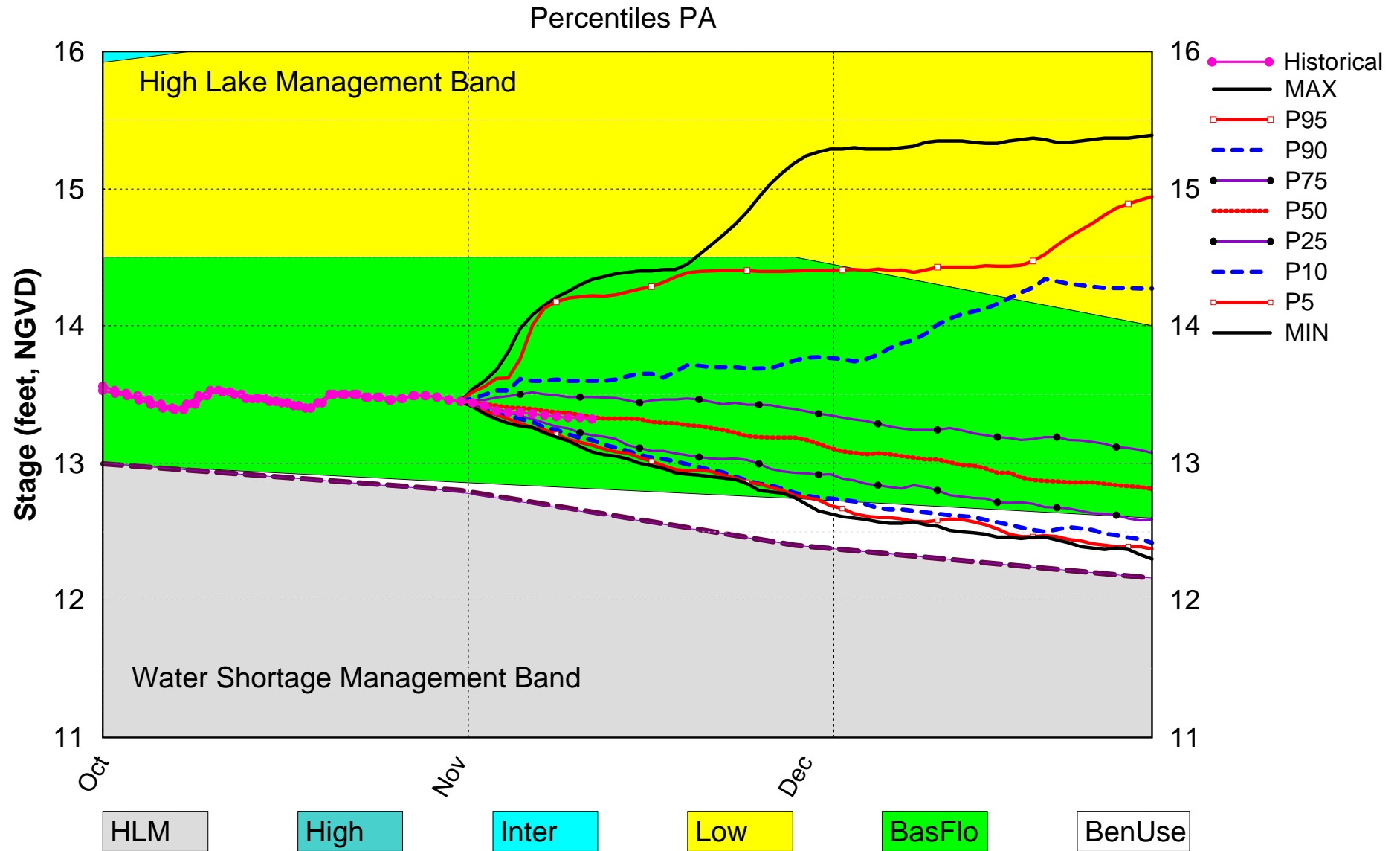
District wide, Raindar rainfall was 0.47 inches for the week. Lake stage on 11/11/2019 was 13.33 ft, NGVD, down 0.05 ft from last week. The updated November 2019 SFWMM Dynamic Position Analysis [percentile graph](#) for Lake Okeechobee show that the current lake stage is in the Base-Flow Sub-Band. The LORS2008 Tributary Hydrologic Conditions (THC) are classified as **Dry**. The PDI indicates Dry conditions and the LONIN is Dry. 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	-1.57 (Dry)	M
	CPC Precipitation Outlook	1 month: Normal	L
		3 months: Normal	L
	LOK Seasonal Net Inflow Outlook	0.59 ft (Dry)	M
	ENSO Forecast (positive)		
	LOK Multi-Seasonal Net Inflow Outlook	3.29 ft (Wet)	L
	ENSO Forecast (positive)		
WCAs	WCA 1: 3 Station Average (Site 1-7, Site 1-8T & Site 1-9)	Above Line 1 (16.70 ft)	L
	WCA 2A: Site 2-17 HW	Above Line 1 (12.75 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64, and 65)	Above Line 1 (9.85 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.

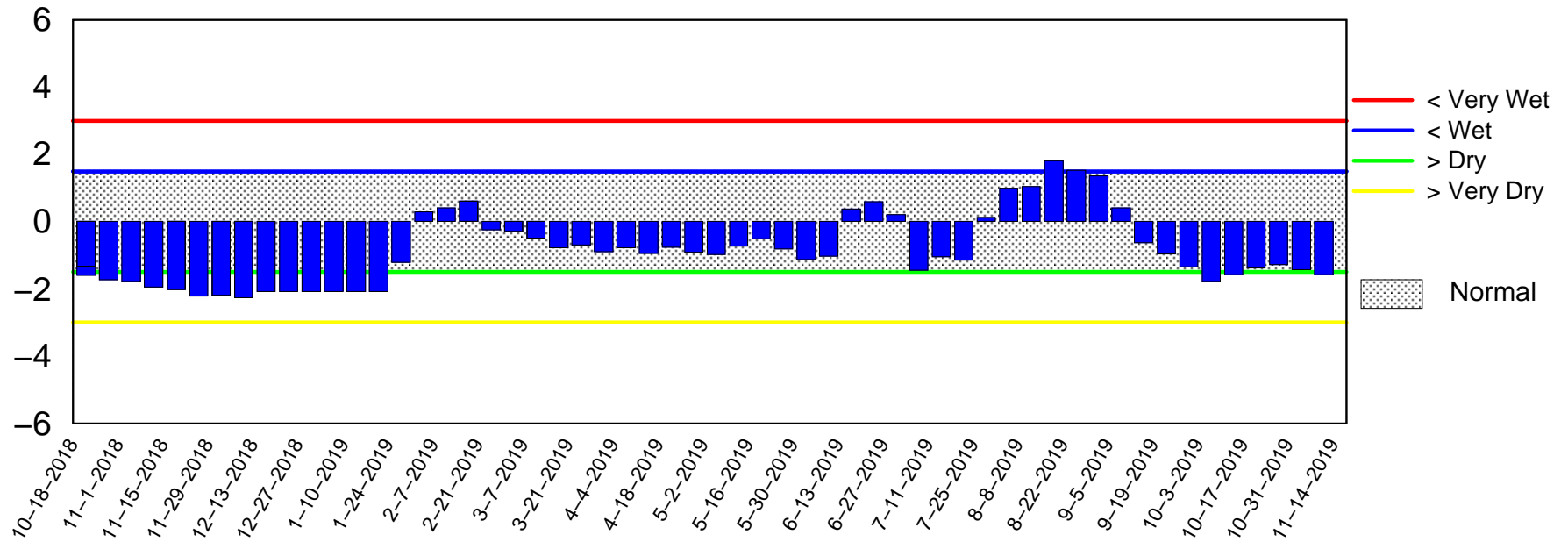
Lake Okeechobee SFWMM Nov 2019 Position Analysis



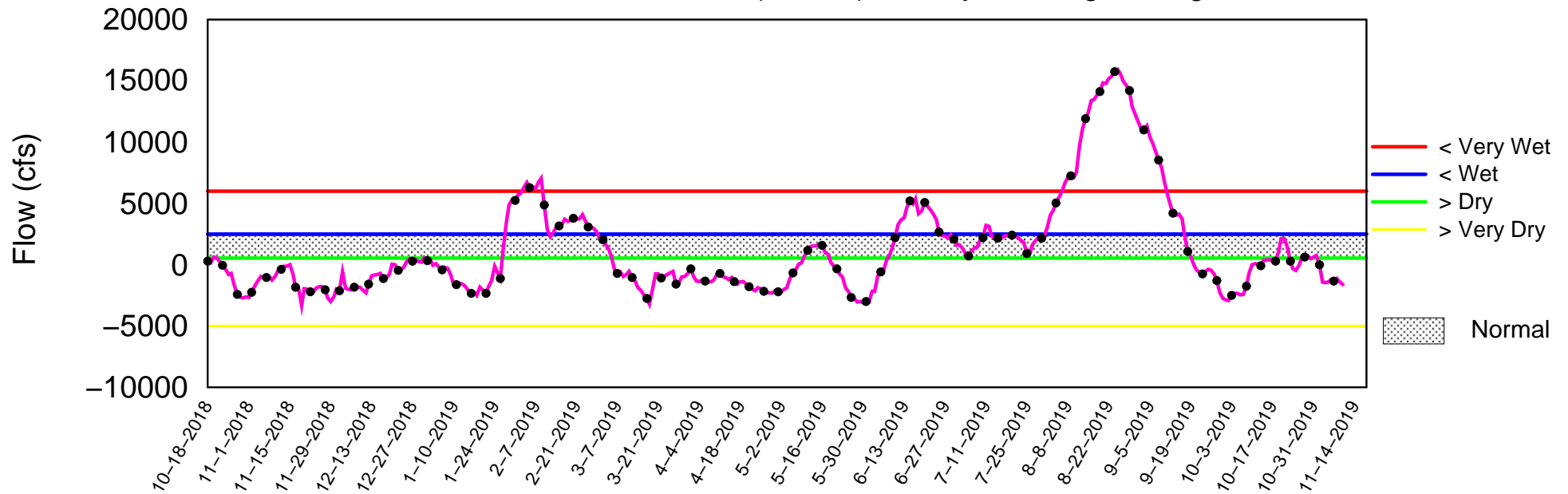
(See assumptions on the Position Analysis Results website)

Tributary Basin Condition Indicators as of November 11 2019

Palmer Index



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



Tue Nov 12 07:56:10 EST 2019

2008 LORS

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

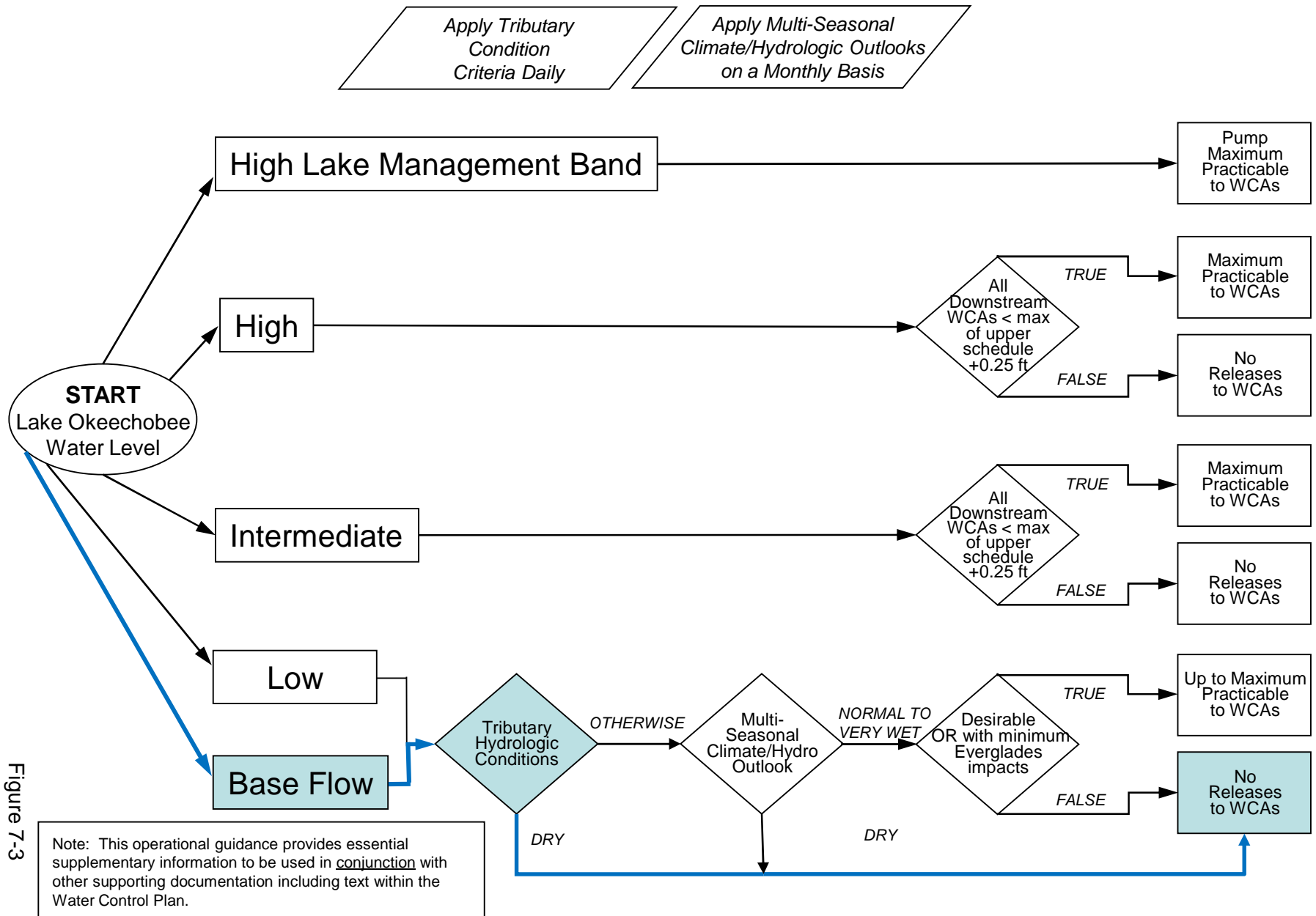
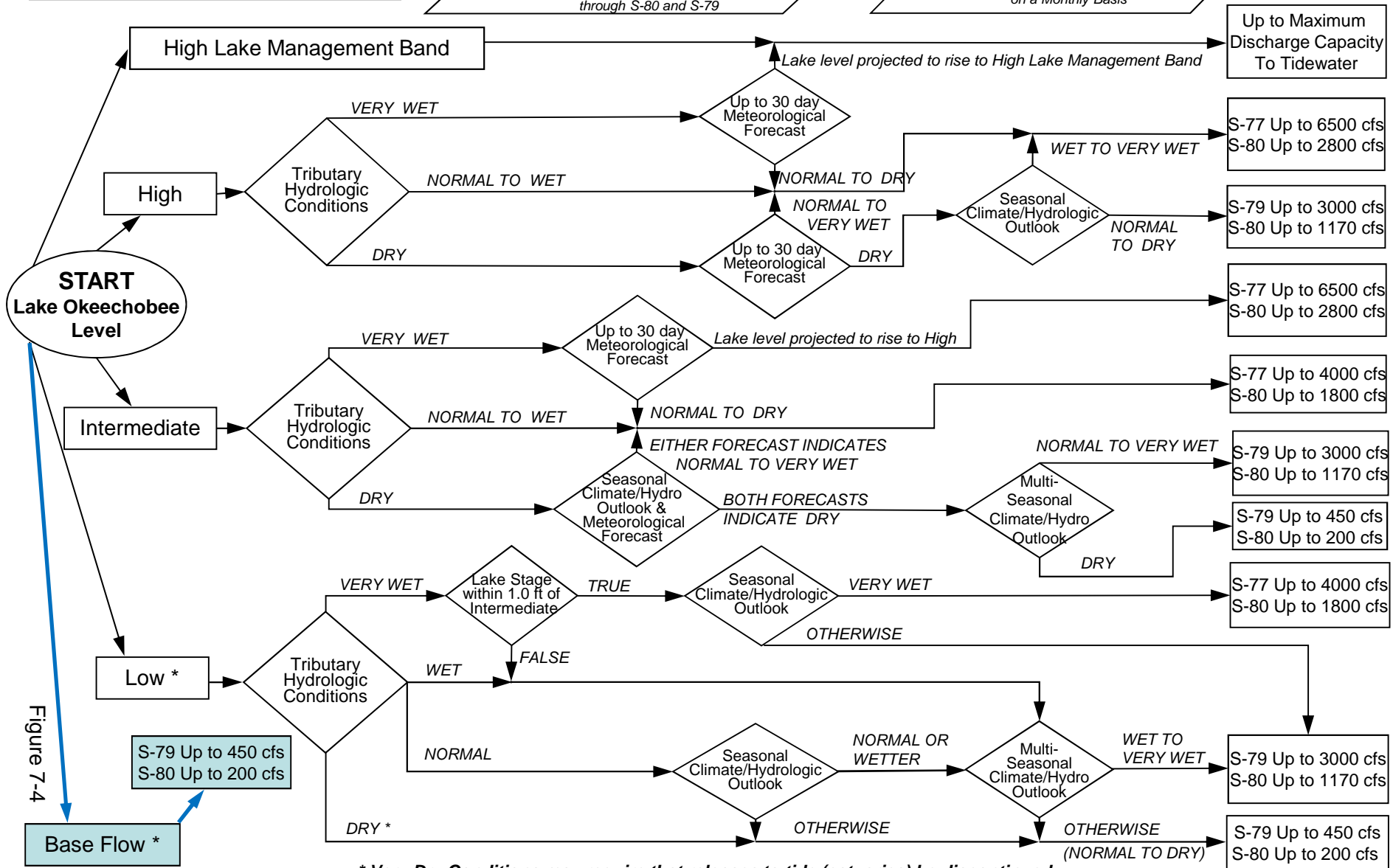


Figure 7-3

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*

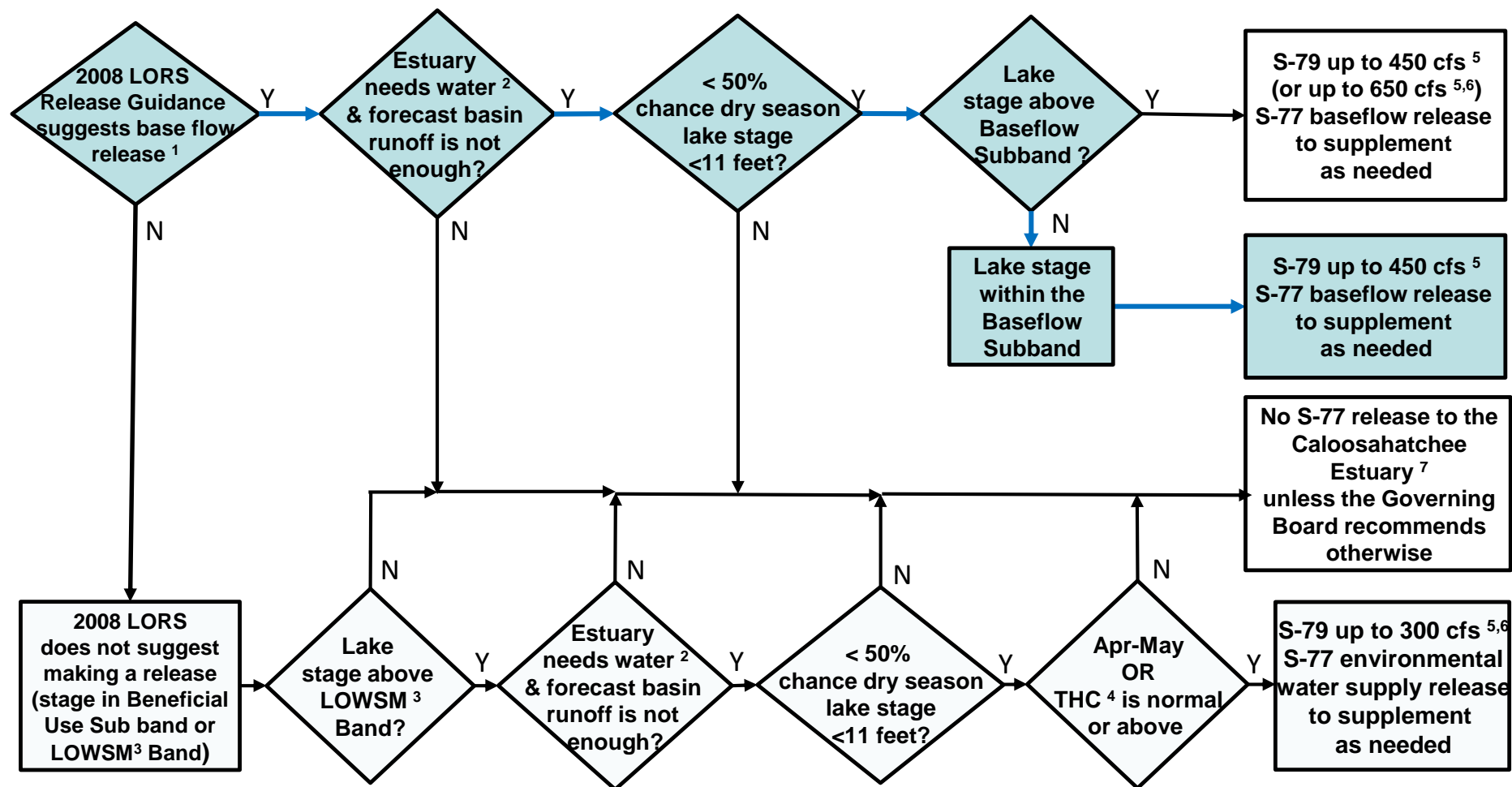
Apply Meteorological Forecasts on a Weekly Basis; apply Seasonal and Multi-Seasonal Climate/Hydrologic Outlooks on a Monthly Basis



*** 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.

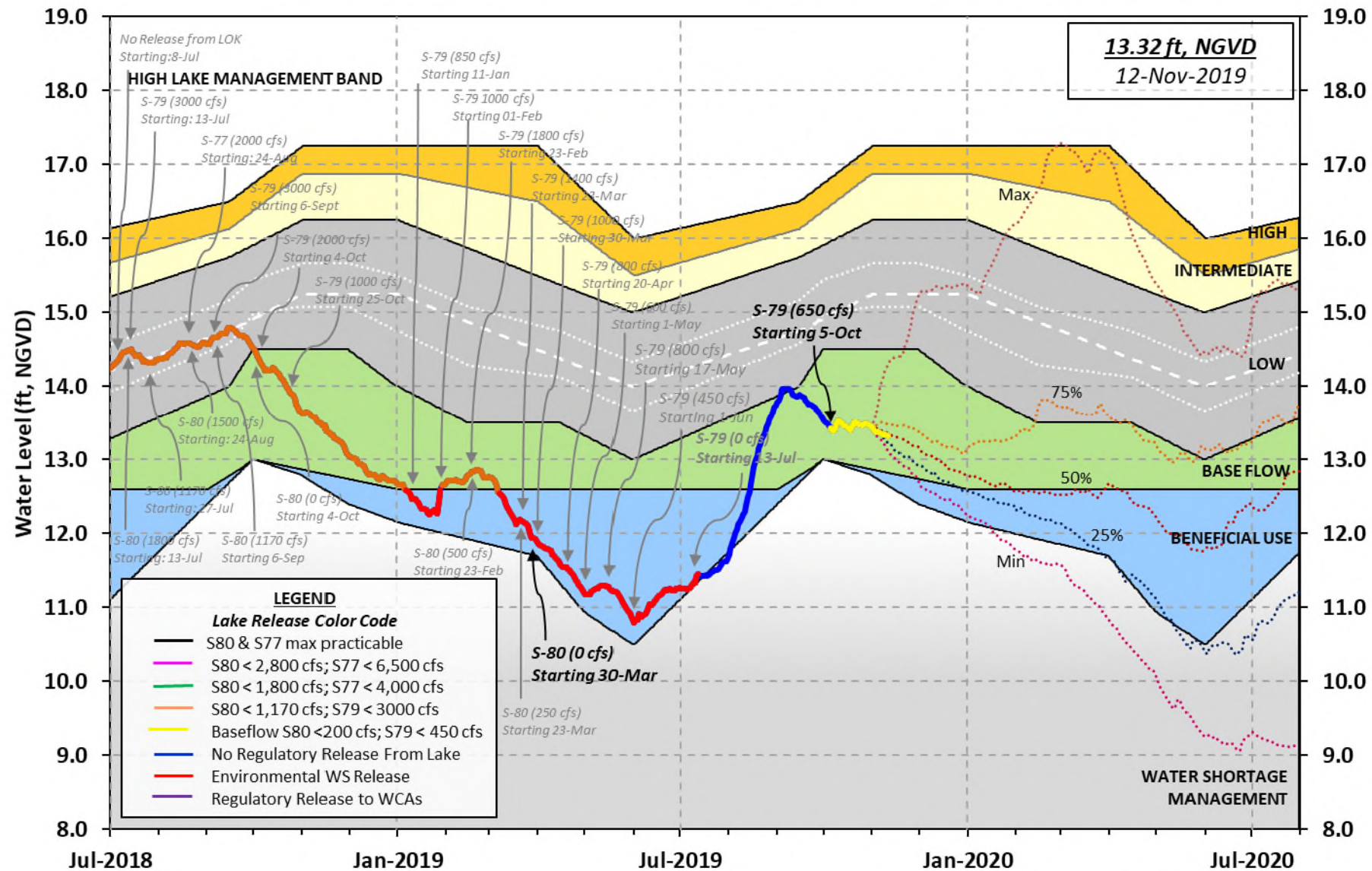
⁴Tributary Hydrologic Condition (THC) is based on classification of Lake Okeechobee Net Inflow and Palmer Index.

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 11 NOV 2019

Okeechobee Lake Regulation	Elevation	Last Year	2YRS Ago
	(ft-NGVD)	(ft-NGVD)	(ft-NGVD)
*Okeechobee Lake Elevation	13.32	13.51	-NR- (Official Elv)
Bottom of High Lake Mngmt=	17.25	Top of Water Short Mngmt=	12.65
Currently in Operational Management Band			

Simulated Average LORS2008 [1965-2000] 13.92
 Difference from Average LORS2008 -0.60

11NOV (1965-2007) Period of Record Average 14.99
 Difference from POR Average -1.67

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ÷ 7.26'

++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ÷ 5.46'

Bridge Clearance = 50.37'

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

L001	L005	L006	LZ40	S4	S352	S308	S133
13.26	13.35	13.35	13.31	13.40	13.43	13.25	13.22

*Combination Okeechobee Avg-Daily Lake Average = 13.32
 (*See Note)

Okeechobee Inflows (cfs):

S65E	621	S65EX1	77	Fisheating Cr	-NR-
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:	698				

Okeechobee Outflows (cfs):

S135 Culverts	0	S354	0	S77	863
S127 Culverts	0	S351	0	S308	65
S129 Culverts	0	S352	0		
S131 Culverts	0	L8 Canal Pt	-65		
Total Outflows:	863				

S3 Pumps:	10.50	13.37	0	0	0	0		(cfs)
S354:	13.37	10.50	0	0.0	0.0			
S2 Pumps:	10.32	-NR-	0	0	0	0	0	(cfs)
S351:	-NR-	10.32	0	0.0	0.0	0.0		
S352:	13.44	10.31	0	0.0	0.0			
C10A:	-NR-	13.50		8.0	8.0	8.0	0.0	0.0
L8 Canal PT		13.30	-65					

S351 and S352 Temporary Pumps/S354 Spillway

S351:	10.32	-NR-	0	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-
S352:	10.31	13.44	0	-NR-	-NR-	-NR-	-NR-		
S354:	10.50	13.37	0	-NR-	-NR-	-NR-	-NR-		

Caloosahatchee River (S77, S78, S79)

S47B:	12.35	11.94		7.5	7.5
S47D:	12.26	10.94	54	0.0	

S77:

Spillway and Sector Preferred Flow:

13.15	10.82	859	0.5	0.5	3.0	0.5
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Flow Due to Lockages+: 4

S78:

Spillway and Sector Flow:

10.84	2.77	729	1.0	0.0	0.0	1.0
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Flow Due to Lockages+: 14

S79:

Spillway and Sector Flow:

2.93	2.50	794	0.0	0.0	1.0	1.0	1.0	0.0	0.0
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0.0

Flow Due to Lockages+: 6

Percent of flow from S77 108%

Chloride (ppm) 0

St. Lucie Canal (S308, S80)

S308:

Spillway and Sector Preferred Flow:

13.26	13.13	65	0.0	0.0	0.0	0.0
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Flow Due to Lockages+: 0

S153:	18.73	12.97	0	0.0	0.0
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S80:

Spillway and Sector Flow:

13.29	2.14	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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Flow Due to Lockages+: 21

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:	4.71	4.91	5.98	324	2	
S78:	1.63	1.84	1.84	351	2	
S79:	2.19	2.44	2.47	48	2	
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:	30.91	31.15	31.62	64	4	
S80:	8.07	8.42	8.56	287	1	
Okeechobee Average	17.81	2.77	2.89			
(Sites S78, S79 and S80 not included)						

Oke Nexrad Basin Avg	-NR-	0.22	0.79			

Okeechobee Lake Elevations	11 NOV 2019	13.32	Difference from	
11NOV19				
11NOV19 -1 Day =	10 NOV 2019	13.33	0.01	
11NOV19 -2 Days =	09 NOV 2019	13.33	0.01	
11NOV19 -3 Days =	08 NOV 2019	13.34	0.02	
11NOV19 -4 Days =	07 NOV 2019	13.35	0.03	
11NOV19 -5 Days =	06 NOV 2019	13.36	0.04	
11NOV19 -6 Days =	05 NOV 2019	13.37	0.05	
11NOV19 -7 Days =	04 NOV 2019	13.37	0.05	
11NOV19 -30 Days =	12 OCT 2019	13.50	0.18	
11NOV19 -1 Year =	11 NOV 2018	13.51	0.19	
11NOV19 -2 Year =	11 NOV 2017	-NR-	-NR-	

Long Term Mean 30day Avearge ET for Lake Alfred (Inches) = 2.89

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

11NOV19	Today =	11 NOV 2019	-1678	TUE	-1194
11NOV19	-1 Day =	10 NOV 2019	-1740	MON	369
11NOV19	-2 Days =	09 NOV 2019	-1319	SUN	-1546
11NOV19	-3 Days =	08 NOV 2019	-1040	SAT	-1365
11NOV19	-4 Days =	07 NOV 2019	-1214	FRI	-1453
11NOV19	-5 Days =	06 NOV 2019	-1105	THU	-1371
11NOV19	-6 Days =	05 NOV 2019	-1298	WED	760
11NOV19	-7 Days =	04 NOV 2019	-1350	TUE	-751
11NOV19	-8 Days =	03 NOV 2019	-1293	MON	-6983
11NOV19	-9 Days =	02 NOV 2019	94	SUN	-2083
11NOV19	-10 Days =	01 NOV 2019	847	SAT	-1414
11NOV19	-11 Days =	31 OCT 2019	722	FRI	-1289
11NOV19	-12 Days =	30 OCT 2019	608	THU	-3475
11NOV19	-13 Days =	29 OCT 2019	798	WED	-1696

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S65E					
Average Flow over previous 14 days					Avg-Daily Flow
11NOV19	Today=	11 NOV 2019	233	TUE	-NR-
11NOV19	-1 Day =	10 NOV 2019	232	MON	-NR-
11NOV19	-2 Days =	09 NOV 2019	248	SUN	0
11NOV19	-3 Days =	08 NOV 2019	274	SAT	62
11NOV19	-4 Days =	07 NOV 2019	294	FRI	248
11NOV19	-5 Days =	06 NOV 2019	294	THU	228
11NOV19	-6 Days =	05 NOV 2019	303	WED	170
11NOV19	-7 Days =	04 NOV 2019	316	TUE	135
11NOV19	-8 Days =	03 NOV 2019	323	MON	277
11NOV19	-9 Days =	02 NOV 2019	320	SUN	330
11NOV19	-10 Days =	01 NOV 2019	313	SAT	337
11NOV19	-11 Days =	31 OCT 2019	305	FRI	277
11NOV19	-12 Days =	30 OCT 2019	305	THU	344
11NOV19	-13 Days =	29 OCT 2019	297	WED	385

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S65EX1					
Average Flow over previous 14 days					Avg-Daily Flow
11NOV19	Today=	11 NOV 2019	104	TUE	77
11NOV19	-1 Day =	10 NOV 2019	98	MON	55
11NOV19	-2 Days =	09 NOV 2019	102	SUN	0
11NOV19	-3 Days =	08 NOV 2019	110	SAT	17
11NOV19	-4 Days =	07 NOV 2019	115	FRI	170
11NOV19	-5 Days =	06 NOV 2019	106	THU	86
11NOV19	-6 Days =	05 NOV 2019	107	WED	216
11NOV19	-7 Days =	04 NOV 2019	102	TUE	228
11NOV19	-8 Days =	03 NOV 2019	100	MON	111
11NOV19	-9 Days =	02 NOV 2019	107	SUN	111
11NOV19	-10 Days =	01 NOV 2019	114	SAT	95
11NOV19	-11 Days =	31 OCT 2019	115	FRI	51
11NOV19	-12 Days =	30 OCT 2019	121	THU	102
11NOV19	-13 Days =	29 OCT 2019	125	WED	135

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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)
11 NOV 2019			1708	1656	1470	1560
10 NOV 2019			1323	710	1523	2212
09 NOV 2019			983	752	766	1508
08 NOV 2019			971	933	317	438
07 NOV 2019			978	896	317	653
06 NOV 2019			1008	897	494	1215
05 NOV 2019			1284	1150	922	1377
04 NOV 2019			2223	2224	1334	1770
03 NOV 2019			1978	1842	1614	2620
02 NOV 2019			1443	1361	898	1380
01 NOV 2019			1209	1192	619	221
31 OCT 2019			1367	1575	613	169
30 OCT 2019			1247	1506	612	263
29 OCT 2019			767	879	514	473

			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)
11 NOV 2019			98	0	0	0	-129
10 NOV 2019			-47	0	0	0	-176
09 NOV 2019			136	101	0	52	-32
08 NOV 2019			232	289	0	137	108
07 NOV 2019			175	0	0	176	145
06 NOV 2019			189	0	0	173	147
05 NOV 2019			32	0	0	69	142
04 NOV 2019			141	136	0	133	180
03 NOV 2019			14	410	0	133	203
02 NOV 2019			-9	1224	345	535	275
01 NOV 2019			37	0	0	0	90
31 OCT 2019			-29	0	0	0	179
30 OCT 2019			26	0	0	0	72
29 OCT 2019			-13	0	0	0	-60

			S-308	Below S-308	S-80
			Discharge	Discharge	Discharge
			(ALL DAY)	(ALL-DAY)	(ALL-DAY)
DATE			(AC-FT)	(AC-FT)	(AC-FT)
11 NOV 2019			152	229	41
10 NOV 2019			87	-389	41
09 NOV 2019			-0	-38	22
08 NOV 2019			-100	71	60
07 NOV 2019			0	18	34
06 NOV 2019			114	-369	24
05 NOV 2019			-621	-143	58
04 NOV 2019			-1	155	48
03 NOV 2019			-632	-829	31
02 NOV 2019			-2	56	58
01 NOV 2019			-3	23	51
31 OCT 2019			-2	-348	40
30 OCT 2019			-2	-8	55
29 OCT 2019			-1	175	40

*** 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

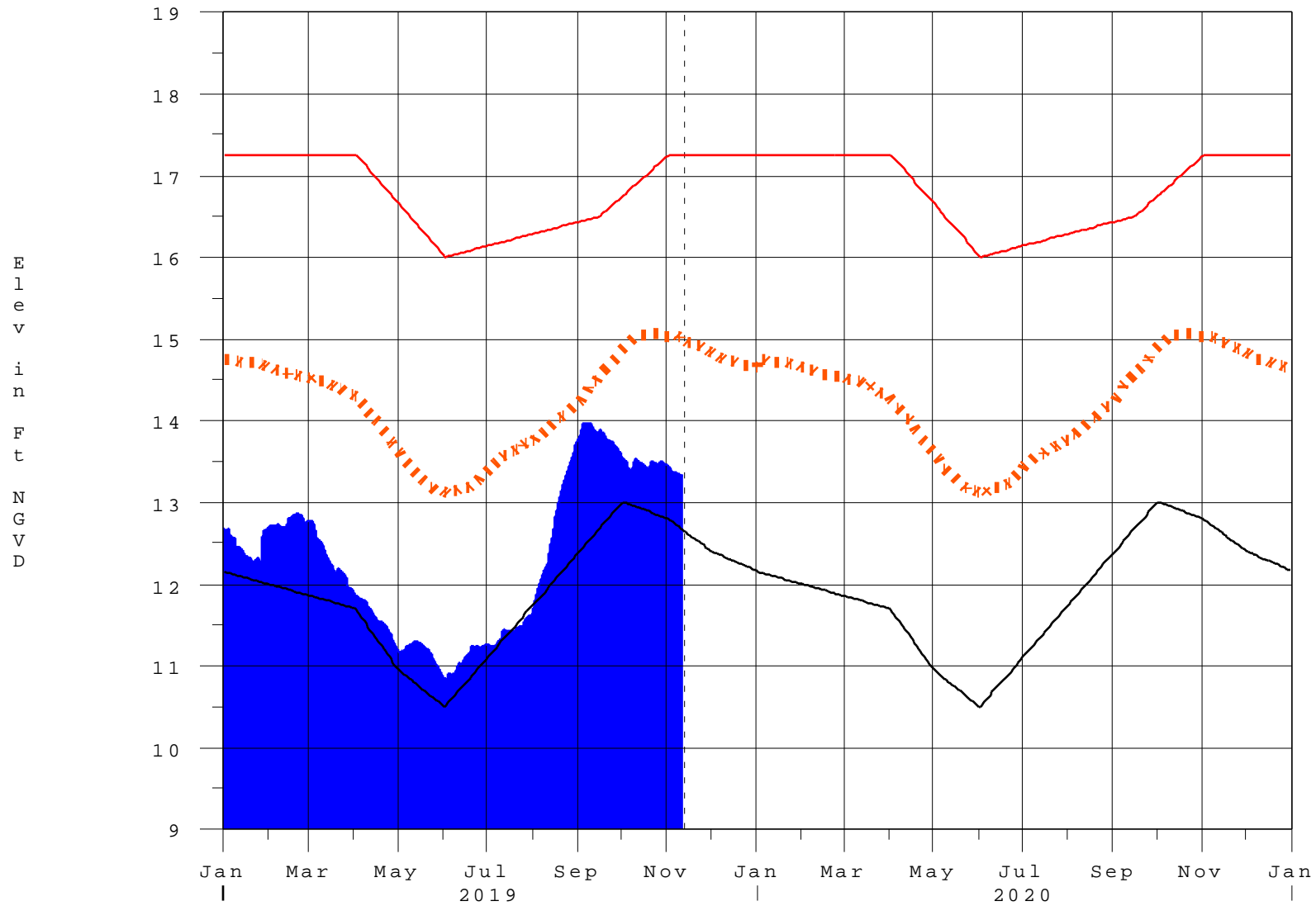
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* On 11 May 1999, Lake Okeechobee Elevation was switched from
Instantaneous 2400 value to an average-daily lake average.
On 14 Mar 2001, due to the isolation of various gages within the
standard
10 stations, the average of the interior 4 station gages 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 12NOV2019 @ 07:39 ** Preliminary Data - Subject to Revision
**

Lake Okeechobee

12NOV19 07:30:29



- 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

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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