

# Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 9/23/2019 (ENSO Neutral Condition)

## Lake Okeechobee Net Inflow Outlook:

The Lake Okeechobee Net Inflow Outlook has been computed using 4 methods: Croley's method<sup>1</sup>, the SFWMD empirical method<sup>2</sup>, a sub-sampling of Neutral years<sup>3</sup> and a sub-sampling of warm years of the Atlantic Multi-decadal Oscillation (AMO) in combination with La Nina ENSO years<sup>4</sup>. 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 <sup>1*</sup>		SFWMD Empirical Method <sup>2</sup>		Sub-sampling of Neutral ENSO Years <sup>3</sup>		Sub-sampling of AMO Warm + Neutral ENSO Years <sup>4</sup>	
	Value (ft)	<a href="#">Condition</a>	Value (ft)	<a href="#">Condition</a>	Value (ft)	<a href="#">Condition</a>	Value (ft)	<a href="#">Condition</a>
Current (Sep-Feb)	N/A	N/A	1.25	Normal	1.59	Wet	3.04	Very Wet
Multi Seasonal (Sep-Apr)	N/A	N/A	1.44	Normal	1.70	Normal	3.37	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:](#)

**-659 cfs** 14-day running average for Lake Okeechobee Net Inflow through 9/22/2019. According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Dry.

**-0.96** for Palmer Index on 9/21/2019.

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 9/23/2019

Lake Okeechobee Stage: **13.75 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		16.61	
Operational Band	High sub-band	16.24	
	Intermediate sub-band	15.82	
	Low sub-band	14.23	
Base Flow sub-band		12.88	← 13.75
Beneficial Use sub-band		12.83	
Water Shortage Management Band			

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

Release Guidance Flow Chart Outcome: Up to maximum practicable releases to the WCAs if desirable or with minimum everglades impacts; otherwise no releases.

**[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: No releases.

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

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

**LORS2008 Implementation on 09/23/2019 (ENSO Neutral Condition):**

**Status for week ending 09/23/2019:**

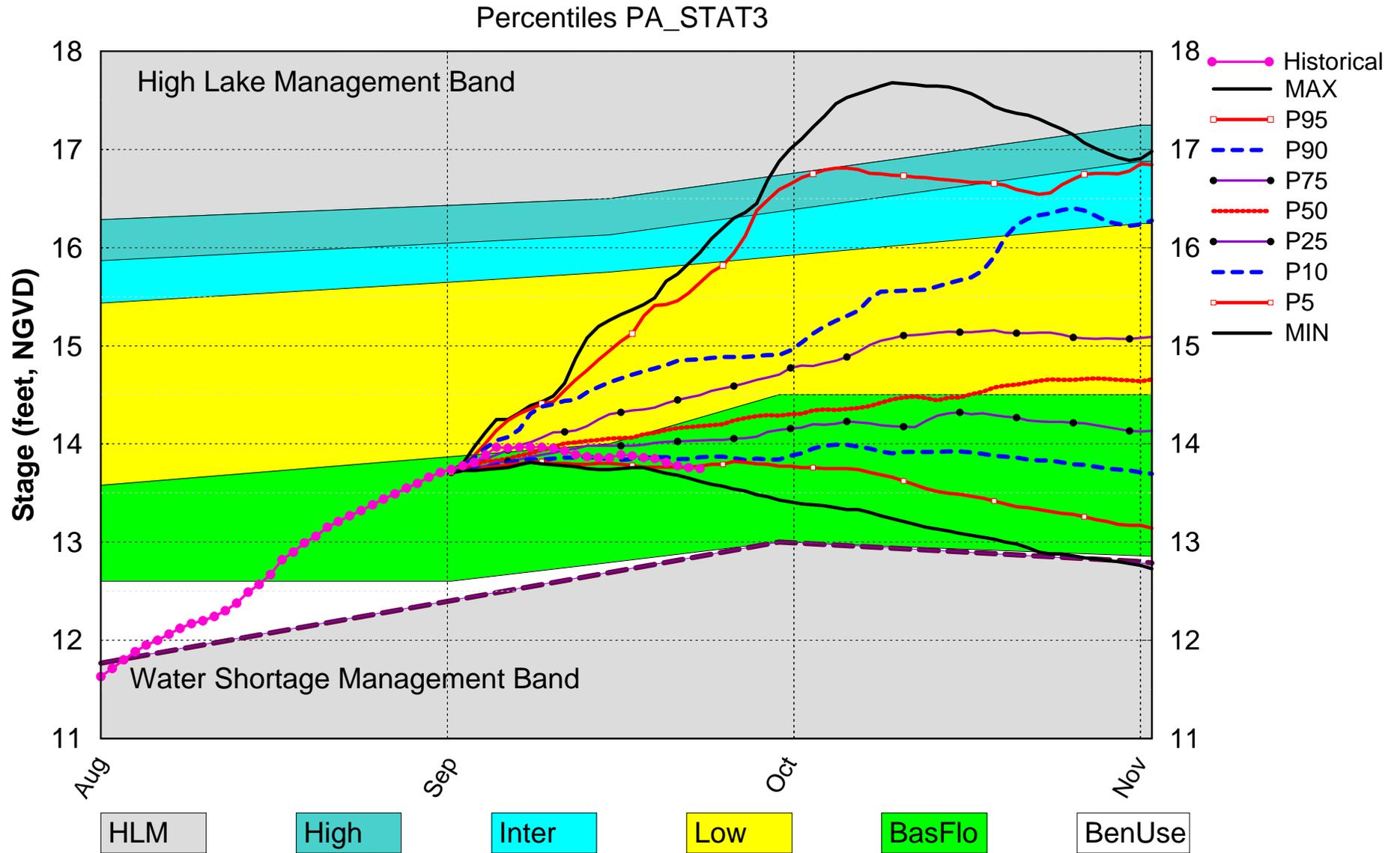
District wide, Raindar rainfall was 0.28 inches for the week. Lake stage on 9/23/2019 was 13.75 ft, NGVD, down 0.14 ft from last week. The updated September 2019 SFWMM Dynamic Position Analysis [percentile graph](#) for Lake Okeechobee show that the current lake stage is in the Base-Flow Sub-Band. The LORS2008 Tributary Hydrologic Conditions (THC) are classified as **Normal**. The PDI indicates normal conditions and the LONIN is 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	-0.96 (Normal to Extremely Wet)	L
	CPC Precipitation Outlook	1 month: Above Normal	L
		3 months: Above Normal	L
	LOK Seasonal Net Inflow Outlook	1.59 ft	L
	ENSO Forecast (positive)	(Normal to Extremely Wet)	
	LOK Multi-Seasonal Net Inflow Outlook	1.70 ft (Normal)	M
ENSO Forecast (positive)			
WCAs	WCA 1: 3 Station Average (Site 1-7, Site 1-8T & Site 1-9)	Above Line 1 (16.44 ft)	L
	WCA 2A: Site 2-17 HW	Above Line 1 (12.44 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64, and 65)	Above Line 1 (10.39 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.

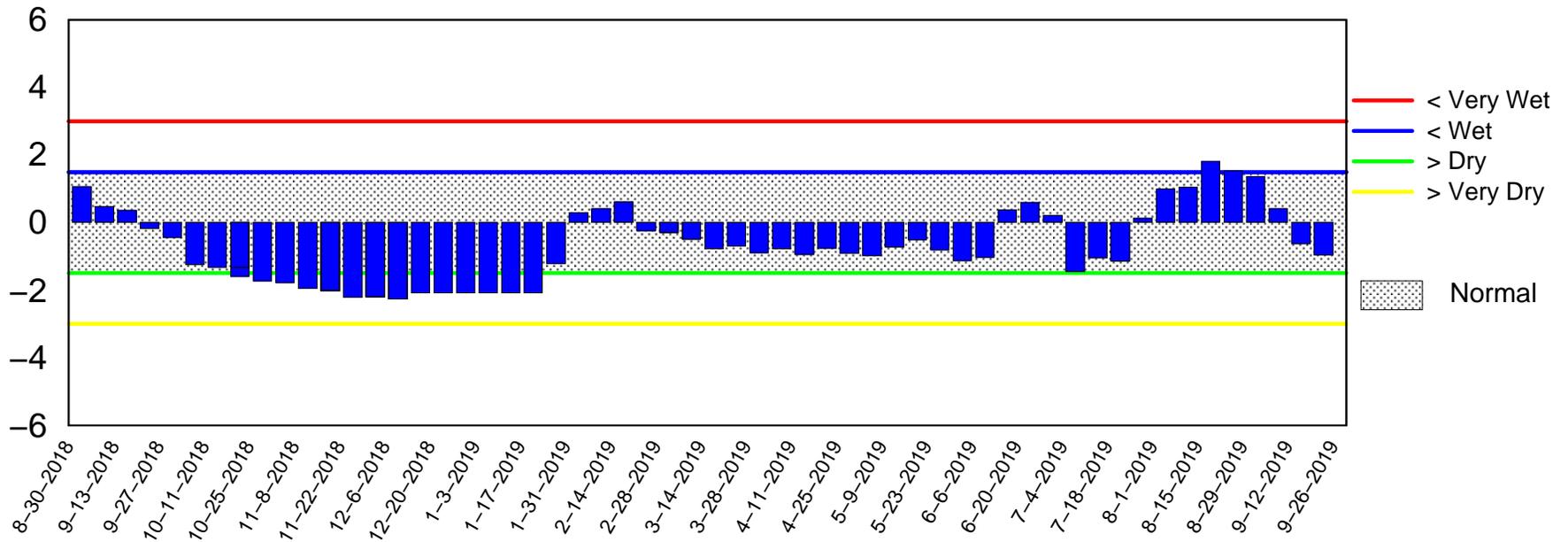
# Lake Okeechobee SFWMM Sep 2019 Position Analysis



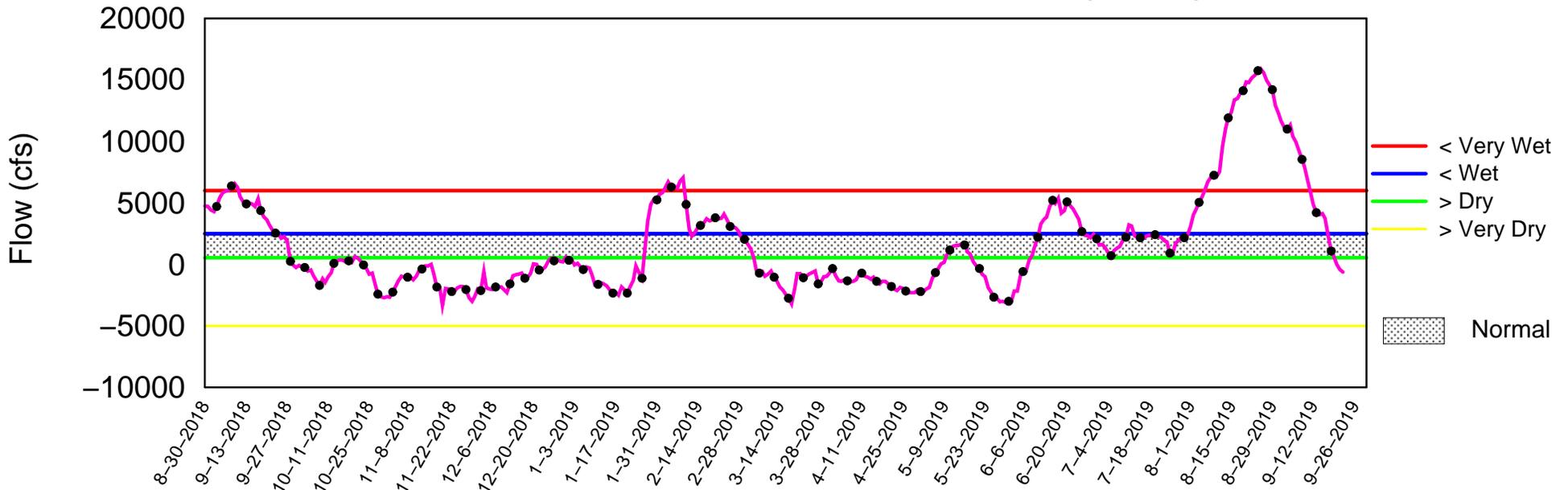
(See assumptions on the Position Analysis Results website)

# Tributary Basin Condition Indicators as of September 23 2019

## Palmer Index



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



# 2008 LORS

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

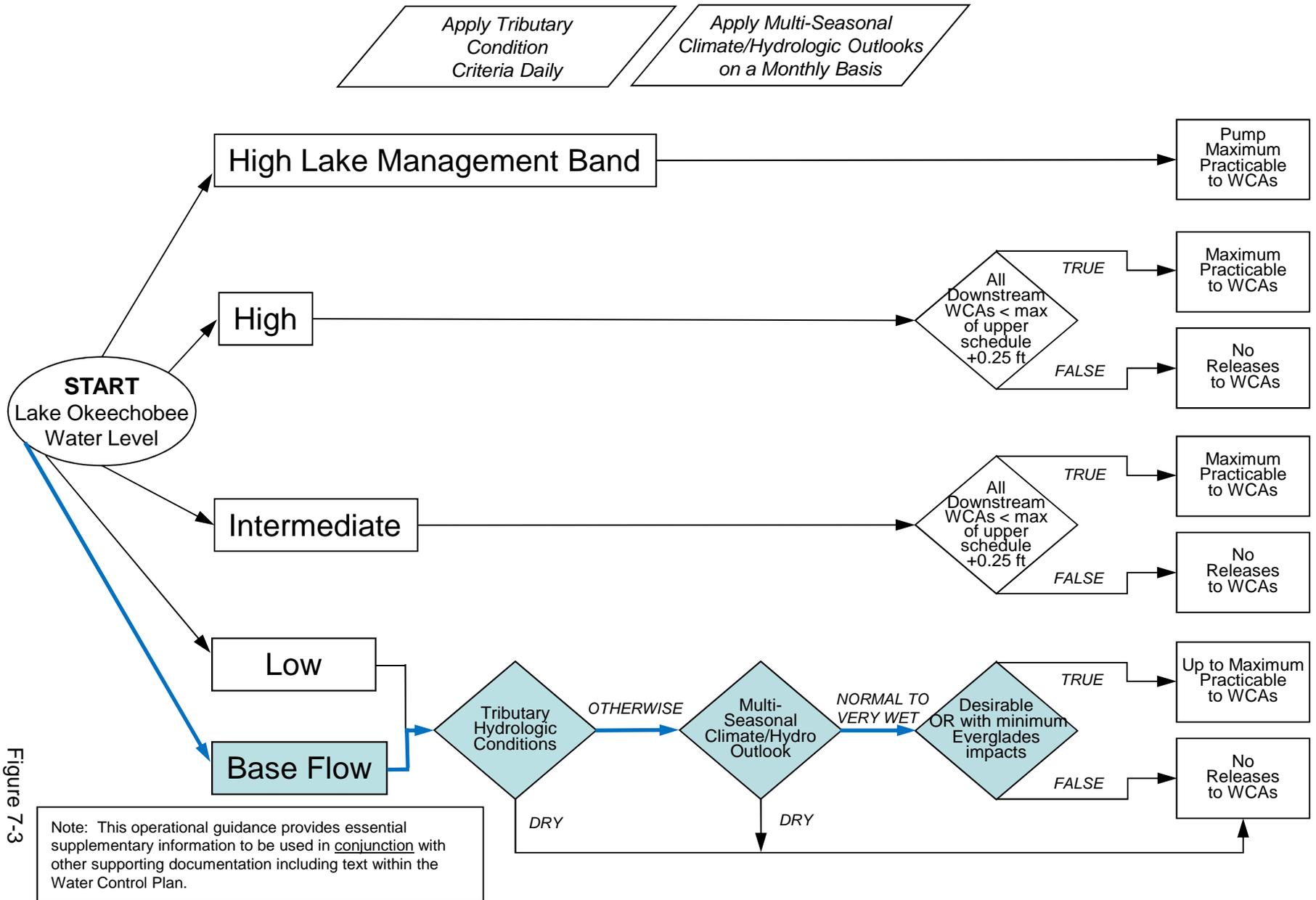
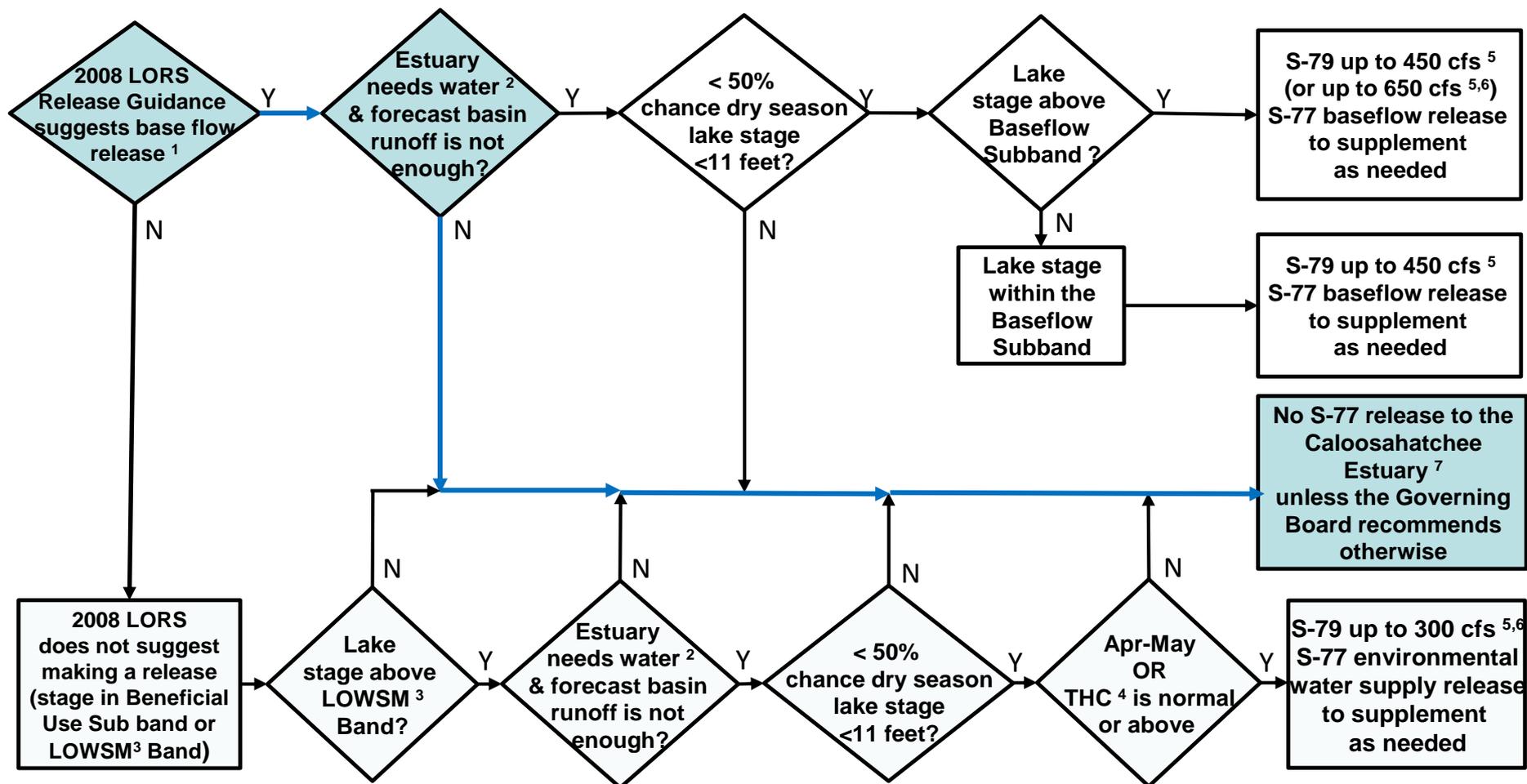


Figure 7-3



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



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

<sup>2</sup>Estuary “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.

<sup>3</sup>LOWSM = Lake Okeechobee Water Shortage Management.

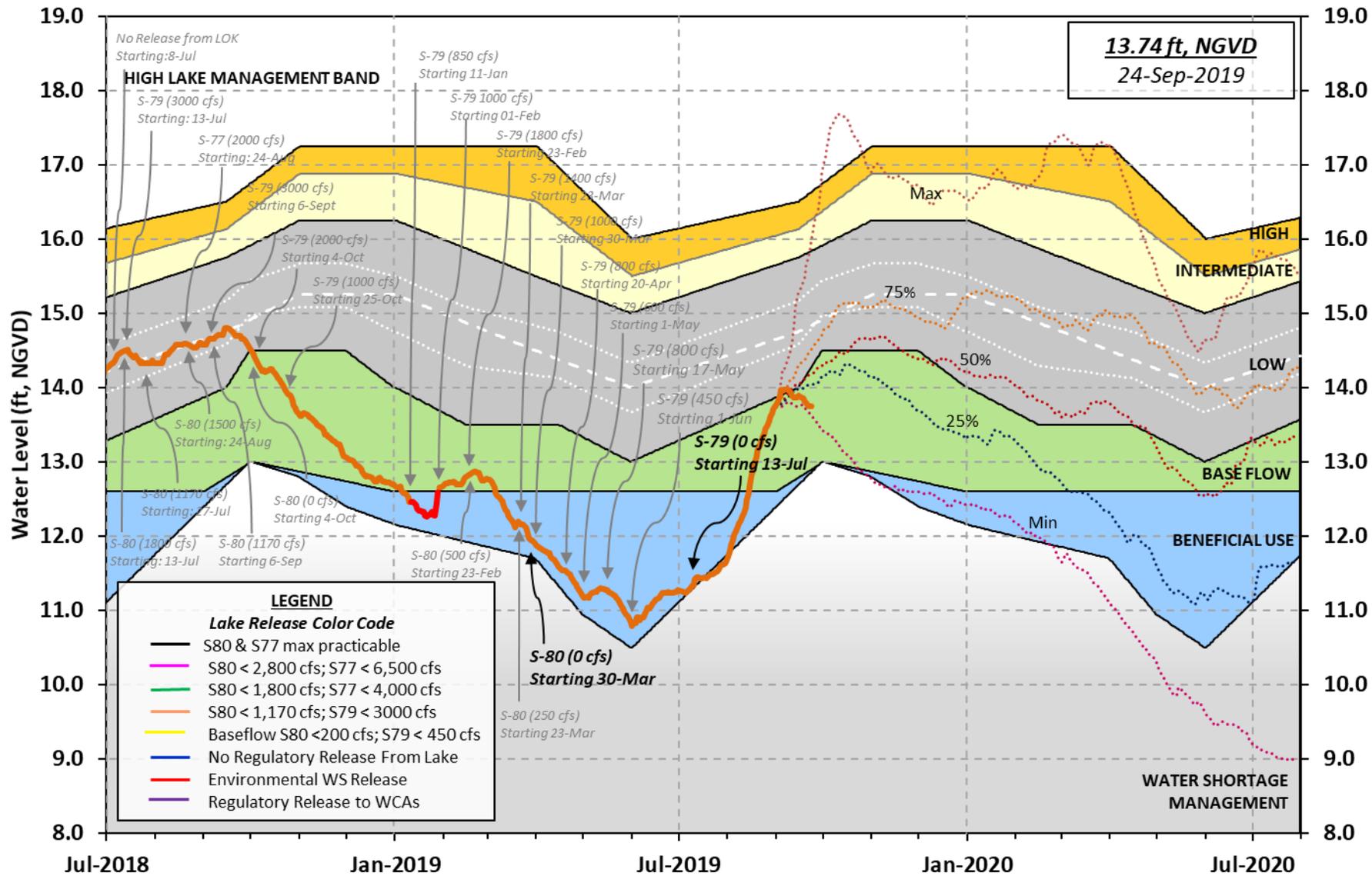
<sup>4</sup>Tributary Hydrologic Condition (THC) is based on classification of Lake Okeechobee Net Inflow and Palmer Index.

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

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

<sup>7</sup>Should 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



**LEGEND**

**Lake Release Color Code**

- S80 & S77 max practicable
- S80 < 2,800 cfs; S77 < 6,500 cfs
- S80 < 1,800 cfs; S77 < 4,000 cfs
- S80 < 1,170 cfs; S79 < 3000 cfs
- Baseflow S80 < 200 cfs; S79 < 450 cfs
- No Regulatory Release From Lake
- Environmental WS Release
- Regulatory Release to WCAs





S3 Pumps:	10.85	13.89	0	0	0	0			(cfs)
S354:	13.89	10.85	424	0.7	1.0				
S2 Pumps:	10.58	-NR-	0	0	0	0	0		(cfs)
S351:	-NR-	10.58	516	0.7	0.2	1.2			
S352:	13.83	10.19	533	0.6	0.9				
C10A:	-NR-	12.06		8.0	8.0	8.0	0.0	0.0	
L8 Canal PT		11.89	-0						

---

S351 and S352 Temporary Pumps/S354 Spillway

S351:	10.58	-NR-	516	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-
S352:	10.19	13.83	533	-NR-	-NR-	-NR-	-NR-		
S354:	10.85	13.89	424	-NR-	-NR-	-NR-	-NR-		

---

Caloosahatchee River (S77, S78, S79)

S47B:	13.14	12.80		2.5	3.0				
S47D:	12.65	11.20	78	1.0					

S77:

Spillway and Sector Preferred Flow:

	13.72	11.06	31	0.0	0.0	0.0	0.0		
--	-------	-------	----	-----	-----	-----	-----	--	--

Flow Due to Lockages+: 2

S78:

Spillway and Sector Flow:

	11.08	3.06	0	0.0	0.0	0.0	0.0		
--	-------	------	---	-----	-----	-----	-----	--	--

Flow Due to Lockages+: 5

S79:

Spillway and Sector Flow:

	3.21	1.16	220	0.0	0.0	0.0	0.0	1.0	0.0	0.0
--	------	------	-----	-----	-----	-----	-----	-----	-----	-----

0.0

Flow Due to Lockages+: 11  
Percent of flow from S77 14%  
Chloride (ppm) 50

St. Lucie Canal (S308, S80)

S308:

Spillway and Sector Preferred Flow:

	13.62	13.80	0	0.0	0.0	0.0	0.0		
--	-------	-------	---	-----	-----	-----	-----	--	--

Flow Due to Lockages+: -1

S153: 18.60 13.68 45 0.0 0.0

S80:

Spillway and Sector Flow:

	13.84	1.44	288	0.0	0.0	0.0	0.0	0.0	0.0	0.0
--	-------	------	-----	-----	-----	-----	-----	-----	-----	-----

Flow Due to Lockages+: 17  
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:	0.42	0.49	0.54	22	6
S78:	24.25	24.27	24.59	1	2
S79:	33.05	33.05	33.06	32	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:	25.20	25.27	25.33	71	5
S80:	1.44	1.65	1.75	108	8
Okeechobee Average	12.81	1.98	1.99		
(Sites S78, S79 and S80 not included)					
-----					
Oke Nexrad Basin Avg	0.00	0.15	0.29		
-----					

---

Okeechobee Lake Elevations	22 SEP 2019	13.75	Difference from
22SEP19			22SEP19
22SEP19 -1 Day =	21 SEP 2019	13.76	0.01
22SEP19 -2 Days =	20 SEP 2019	13.78	0.03
22SEP19 -3 Days =	19 SEP 2019	13.81	0.06
22SEP19 -4 Days =	18 SEP 2019	13.85	0.10
22SEP19 -5 Days =	17 SEP 2019	13.86	0.11
22SEP19 -6 Days =	16 SEP 2019	13.88	0.13
22SEP19 -7 Days =	15 SEP 2019	13.89	0.14
22SEP19 -30 Days =	23 AUG 2019	13.32	-0.43
22SEP19 -1 Year =	22 SEP 2018	14.69	0.94
22SEP19 -2 Year =	22 SEP 2017	-NR-	-NR-

---

Long Term Mean 30day Avearge ET for Lake Alfred (Inches) = 4.03

---

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

22SEP19	Today =	22 SEP 2019	226	MON	-613
22SEP19	-1 Day =	21 SEP 2019	504	SUN	-2926
22SEP19	-2 Days =	20 SEP 2019	968	SAT	-NR-
22SEP19	-3 Days =	19 SEP 2019	1215	FRI	-NR-
22SEP19	-4 Days =	18 SEP 2019	1086	THU	-786
22SEP19	-5 Days =	17 SEP 2019	2362	WED	-2096
22SEP19	-6 Days =	16 SEP 2019	3721	TUE	725
22SEP19	-7 Days =	15 SEP 2019	4123	MON	9956
22SEP19	-8 Days =	14 SEP 2019	4017	SUN	3649
22SEP19	-9 Days =	13 SEP 2019	4210	SAT	1055
22SEP19	-10 Days =	12 SEP 2019	4894	FRI	-261
22SEP19	-11 Days =	11 SEP 2019	5820	THU	-4271
22SEP19	-12 Days =	10 SEP 2019	6881	WED	-2923
22SEP19	-13 Days =	09 SEP 2019	7994	TUE	1202

—

S65E					
Average Flow over previous 14 days					Avg-Daily Flow
22SEP19	Today=	22 SEP 2019	749	MON	1293
22SEP19	-1 Day =	21 SEP 2019	711	SUN	1529
22SEP19	-2 Days =	20 SEP 2019	710	SAT	1891
22SEP19	-3 Days =	19 SEP 2019	700	FRI	1914
22SEP19	-4 Days =	18 SEP 2019	703	THU	2130
22SEP19	-5 Days =	17 SEP 2019	740	WED	642
22SEP19	-6 Days =	16 SEP 2019	897	TUE	288
22SEP19	-7 Days =	15 SEP 2019	1149	MON	231
22SEP19	-8 Days =	14 SEP 2019	1466	SUN	443
22SEP19	-9 Days =	13 SEP 2019	1763	SAT	0
22SEP19	-10 Days =	12 SEP 2019	2124	FRI	0
22SEP19	-11 Days =	11 SEP 2019	2476	THU	0
22SEP19	-12 Days =	10 SEP 2019	2841	WED	0
22SEP19	-13 Days =	09 SEP 2019	3232	TUE	131

—

S65EX1					
Average Flow over previous 14 days					Avg-Daily Flow
22SEP19	Today=	22 SEP 2019	1990	MON	394
22SEP19	-1 Day =	21 SEP 2019	2270	SUN	75
22SEP19	-2 Days =	20 SEP 2019	2577	SAT	-NR-
22SEP19	-3 Days =	19 SEP 2019	2667	FRI	-NR-
22SEP19	-4 Days =	18 SEP 2019	2746	THU	0
22SEP19	-5 Days =	17 SEP 2019	3011	WED	1290
22SEP19	-6 Days =	16 SEP 2019	3190	TUE	1980
22SEP19	-7 Days =	15 SEP 2019	3257	MON	1985
22SEP19	-8 Days =	14 SEP 2019	3259	SUN	1989
22SEP19	-9 Days =	13 SEP 2019	3258	SAT	2555
22SEP19	-10 Days =	12 SEP 2019	3216	FRI	2889
22SEP19	-11 Days =	11 SEP 2019	3165	THU	3201
22SEP19	-12 Days =	10 SEP 2019	3111	WED	3768
22SEP19	-13 Days =	09 SEP 2019	3017	TUE	3753

—  
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)
22 SEP 2019	59	211	9	467
21 SEP 2019	195	478	7	613
20 SEP 2019	297	600	14	449
19 SEP 2019	431	724	13	586
18 SEP 2019	1	-142	6	1598
17 SEP 2019	6	-119	11	706
16 SEP 2019	4	111	14	509
15 SEP 2019	3	43	165	1320
14 SEP 2019	362	469	433	1162
13 SEP 2019	1335	1278	719	391
12 SEP 2019	1637	1385	1182	3036
11 SEP 2019	1685	1198	192	752
10 SEP 2019	4	-29	304	1797
09 SEP 2019	4	74	302	1723

	S-310	S-351	S-352	S-354	L8 Canal Pt
	Discharge	Discharge	Discharge	Discharge	Discharge
	(ALL DAY)				
DATE	(AC-FT)	(AC-FT)	(AC-FT)	(AC-FT)	(AC-FT)
22 SEP 2019	288	1024	1056	684	-1
21 SEP 2019	313	910	651	678	2
20 SEP 2019	466	-NR-	-NR-	684	4
19 SEP 2019	492	-NR-	-NR-	724	3
18 SEP 2019	559	1116	631	773	5
17 SEP 2019	587	1299	1964	855	1
16 SEP 2019	363	1828	1850	668	-5
15 SEP 2019	75	1713	1627	1176	-7
14 SEP 2019	23	851	1568	1346	4
13 SEP 2019	189	875	1546	1801	7
12 SEP 2019	435	1441	1845	2021	3
11 SEP 2019	441	2393	1842	1981	6
10 SEP 2019	715	2449	1837	2068	6
09 SEP 2019	334	2411	1767	2114	4

	S-308	Below S-308	S-80
	Discharge	Discharge	Discharge
	(ALL DAY)	(ALL-DAY)	(ALL-DAY)
DATE	(AC-FT)	(AC-FT)	(AC-FT)
22 SEP 2019	-1	109	651
21 SEP 2019	-1	101	527
20 SEP 2019	-2	105	24
19 SEP 2019	-1	2	24
18 SEP 2019	-1	16	21
17 SEP 2019	-0	59	21
16 SEP 2019	-1	158	745
15 SEP 2019	-1	-166	72
14 SEP 2019	-0	165	31
13 SEP 2019	-0	78	759
12 SEP 2019	-1	68	284
11 SEP 2019	-1	135	457
10 SEP 2019	-1	113	42
09 SEP 2019	-1	89	45

\*\*\* 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 Okeechobee 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](http://www.sfwmd.gov)

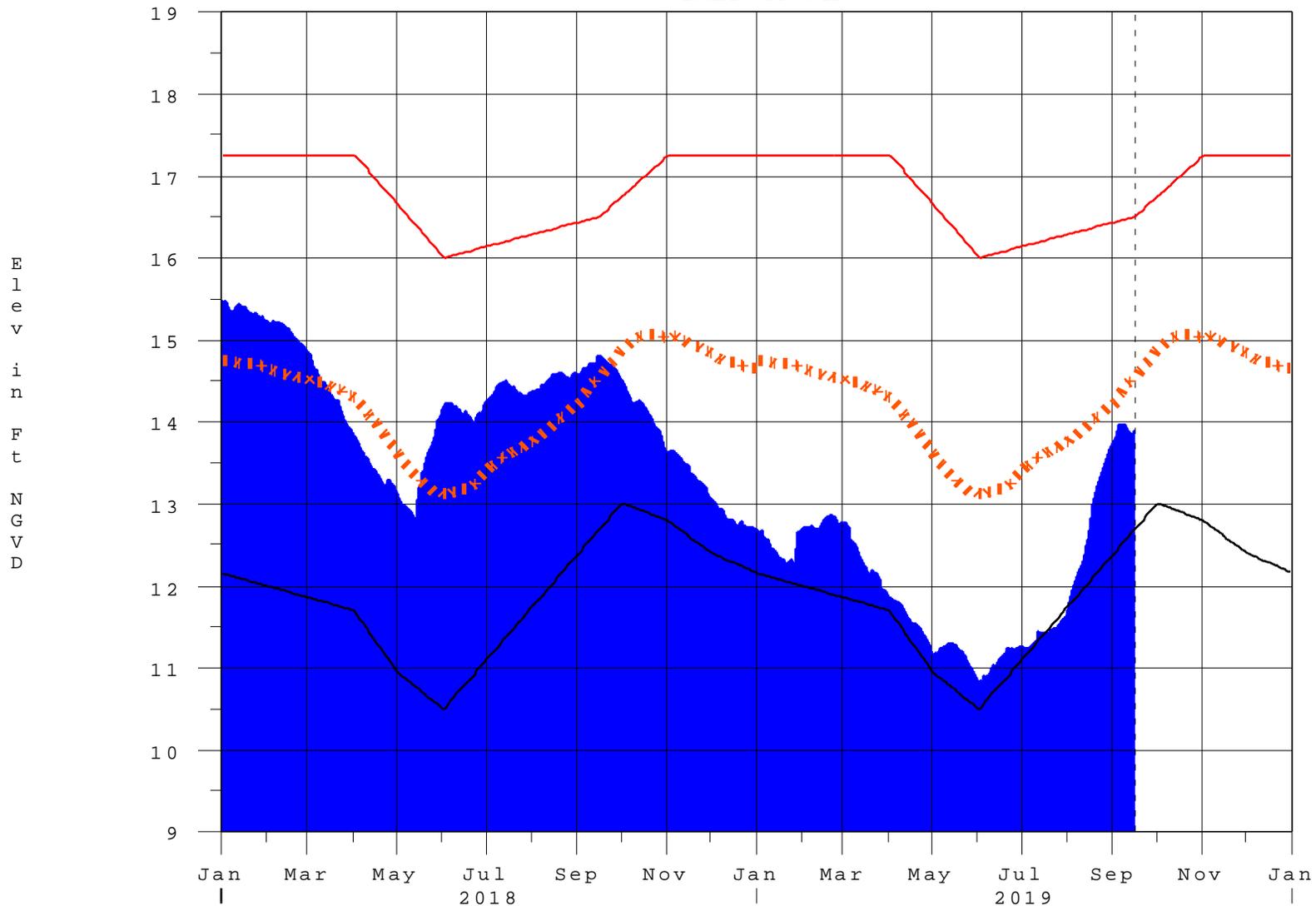
---

-

Report Generated 23SEP2019 @ 23:39 \*\* Preliminary Data - Subject to Revision  
\*\*

# Lake Okeechobee

16SEP19 14:30:22



- 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\***

<b>Lake Net Inflow Prediction</b> <b>[million acre-feet]</b>	<b>Equivalent Depth**</b> <b>[feet]</b>	<b>Lake Okeechobee Net Inflow Seasonal Outlook</b>
> 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\*

<b>Lake Net Inflow Prediction</b> <b>[million acre-feet]</b>	<b>Equivalent Depth**</b> <b>[feet]</b>	<b>Lake Okeechobee</b> <b>Net Inflow</b> <b>Multi-Seasonal Outlook</b>
> 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\***

<b>6-15 Day Precipitation Outlook Categories</b>	<b>WSE Decision Tree Categories</b>
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