

Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 8/12/2019 (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 (Aug-Jan)	N/A	N/A	2.30	Very Wet	2.77	Very Wet	4.05	Very Wet
Multi Seasonal (Aug-Apr)	N/A	N/A	2.66	Wet	3.01	Wet	4.81	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:](#)

8775 cfs 14-day running average for Lake Okeechobee Net Inflow through 8/11/2019. According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Very Wet.

1.04 for Palmer Index on 8/10/2019.

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

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

[LORS2008 Classification Tables:](#)

Lake Okeechobee Stage on 8/12/2019

Lake Okeechobee Stage: **12.30 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		16.33	
Operational Band	High sub-band	15.92	
	Intermediate sub-band	15.50	
	Low sub-band	13.67	
Base Flow sub-band		12.60	
Beneficial Use sub-band		11.97	← 12.30
Water Shortage Management Band			

Part C of LORS2008: Discharge to WCA's

Lake Okeechobee stage is below the Base-Flow Sub-Band therefore, no releases to the WCAs to manage lake stages

Part D of LORS2008: Discharge to Tidewater

Lake Okeechobee stage is below the Base-Flow 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 08/12/2019 (ENSO El Niño Condition):

Status for week ending 08/12/2019:

District wide, Raindar rainfall was 2.15 inches for the week. Lake stage on 8/12/2019 was 12.30 ft, NGVD, up 0.38 ft from last week .The updated August 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 **Very Wet**. The PDI indicates normal conditions and the LONIN is very 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	1.04 (Normal to Extremely Wet)	L
	CPC Precipitation Outlook	1 month: Above Normal	L
		3 months: Normal	L
	LOK Seasonal Net Inflow Outlook	2.77 ft	L
	ENSO Forecast (positive)	(Normal to Extremely Wet)	
	LOK Multi-Seasonal Net Inflow Outlook	3.01 ft (Normal)	M
	ENSO Forecast (positive)		
WCAs	WCA 1: Canal Gauge (Site 1-8C)	Above Line 1 (16.70 ft)	L
	WCA 2A: Site 2-17 HW	Above Line 1 (12.39 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64, and 65)	Above Line 1 (9.97 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.

Unavailable

Unavailable

2008 LORS

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

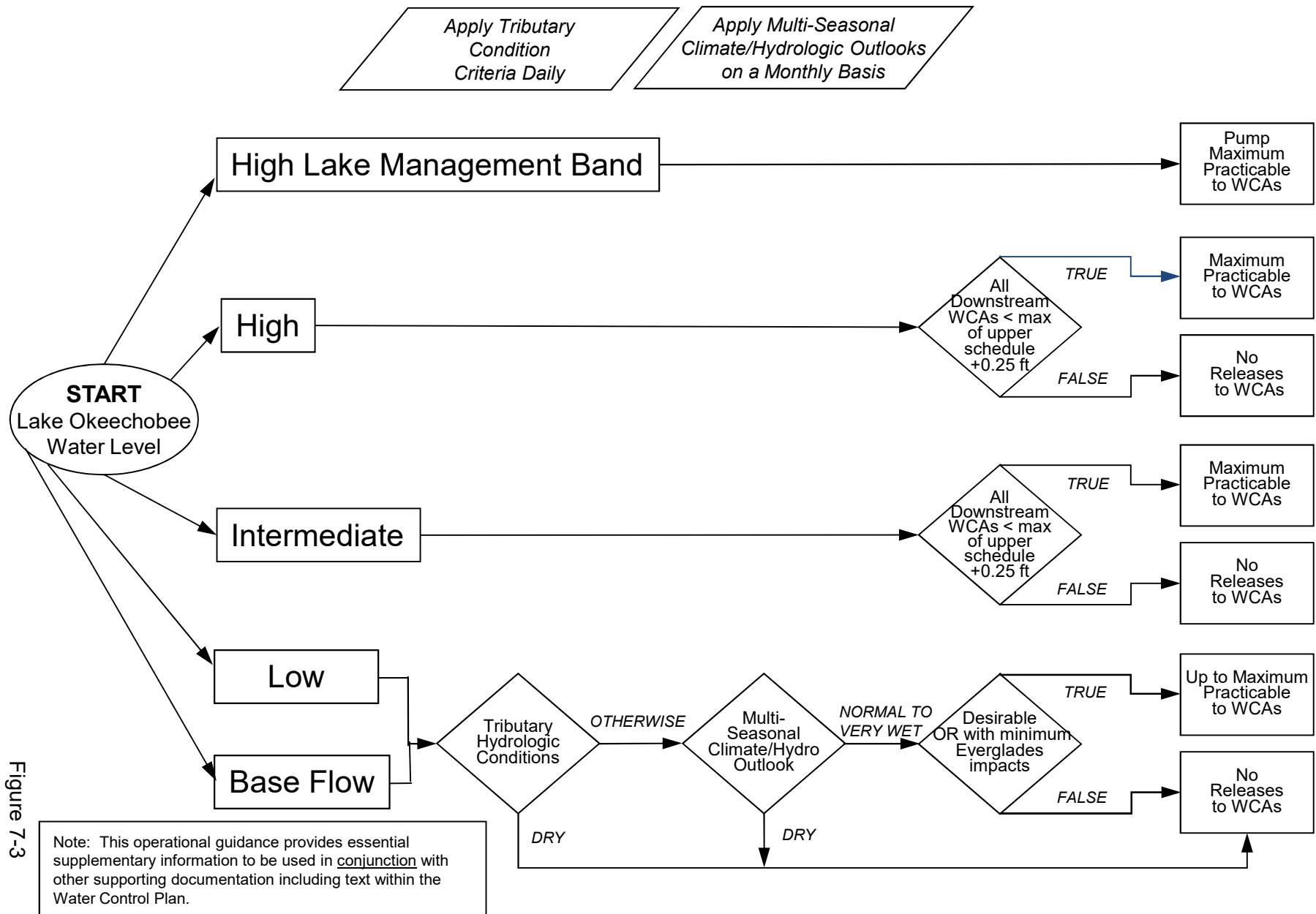


Figure 7-3

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

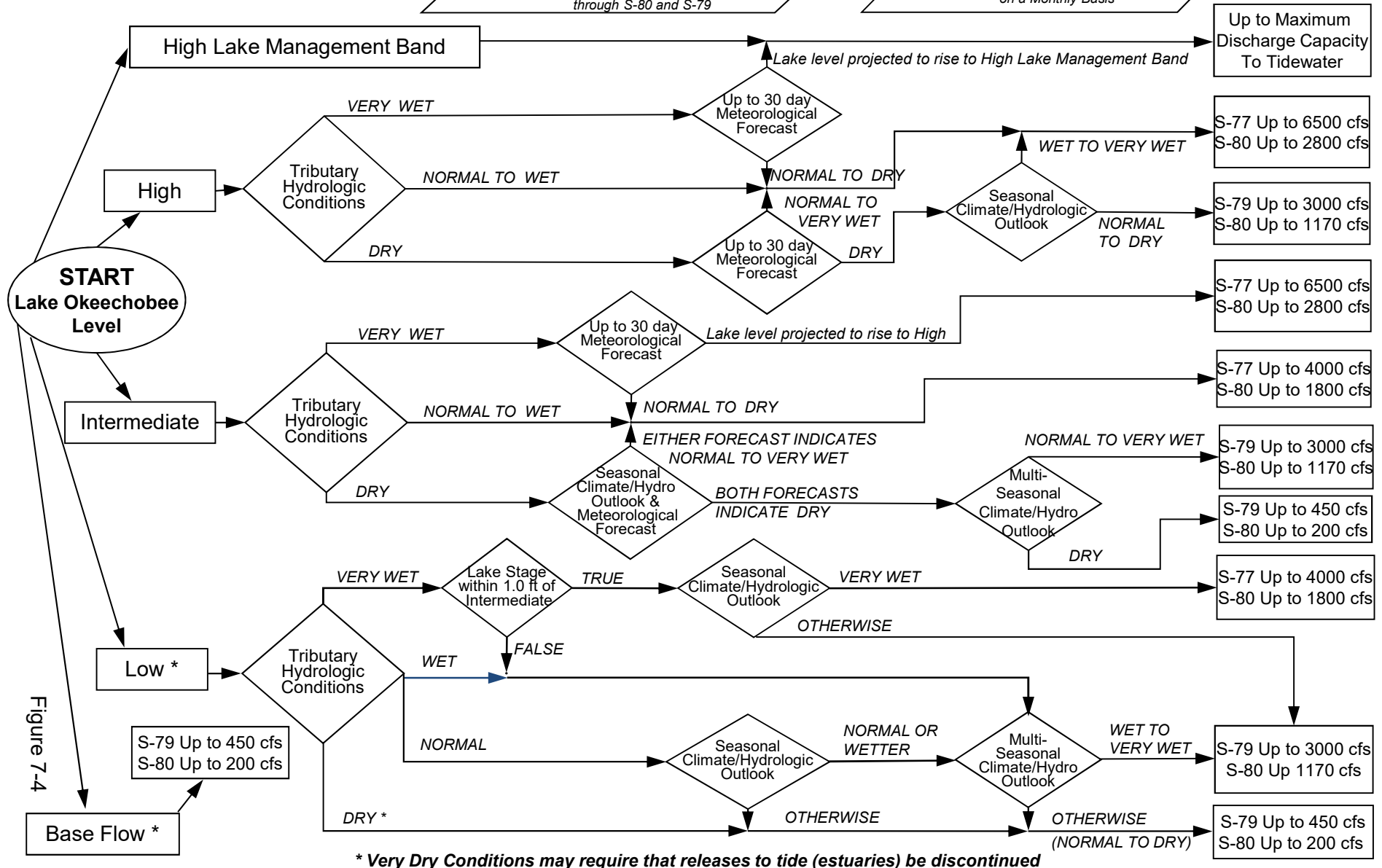
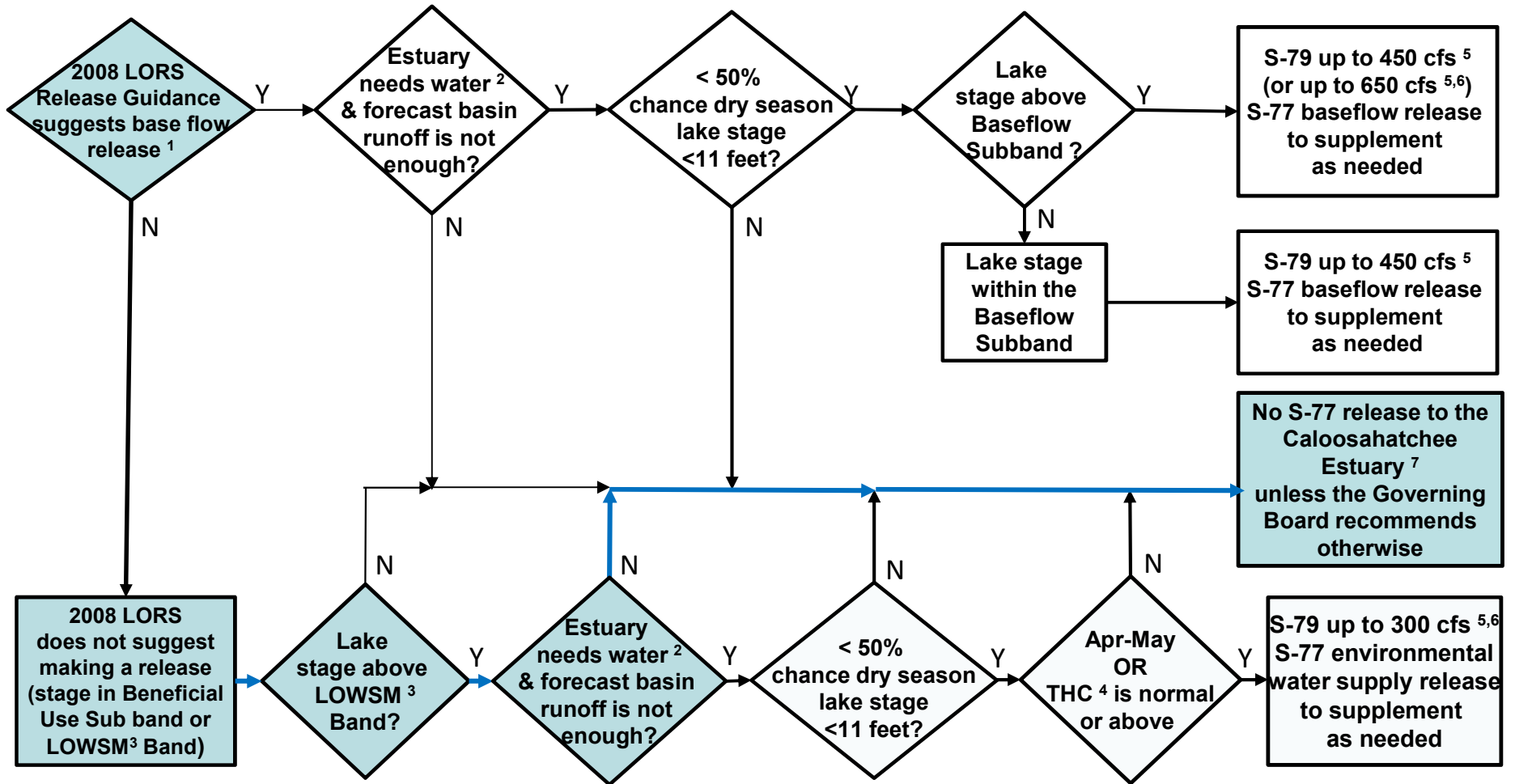


Figure 7-4

**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.

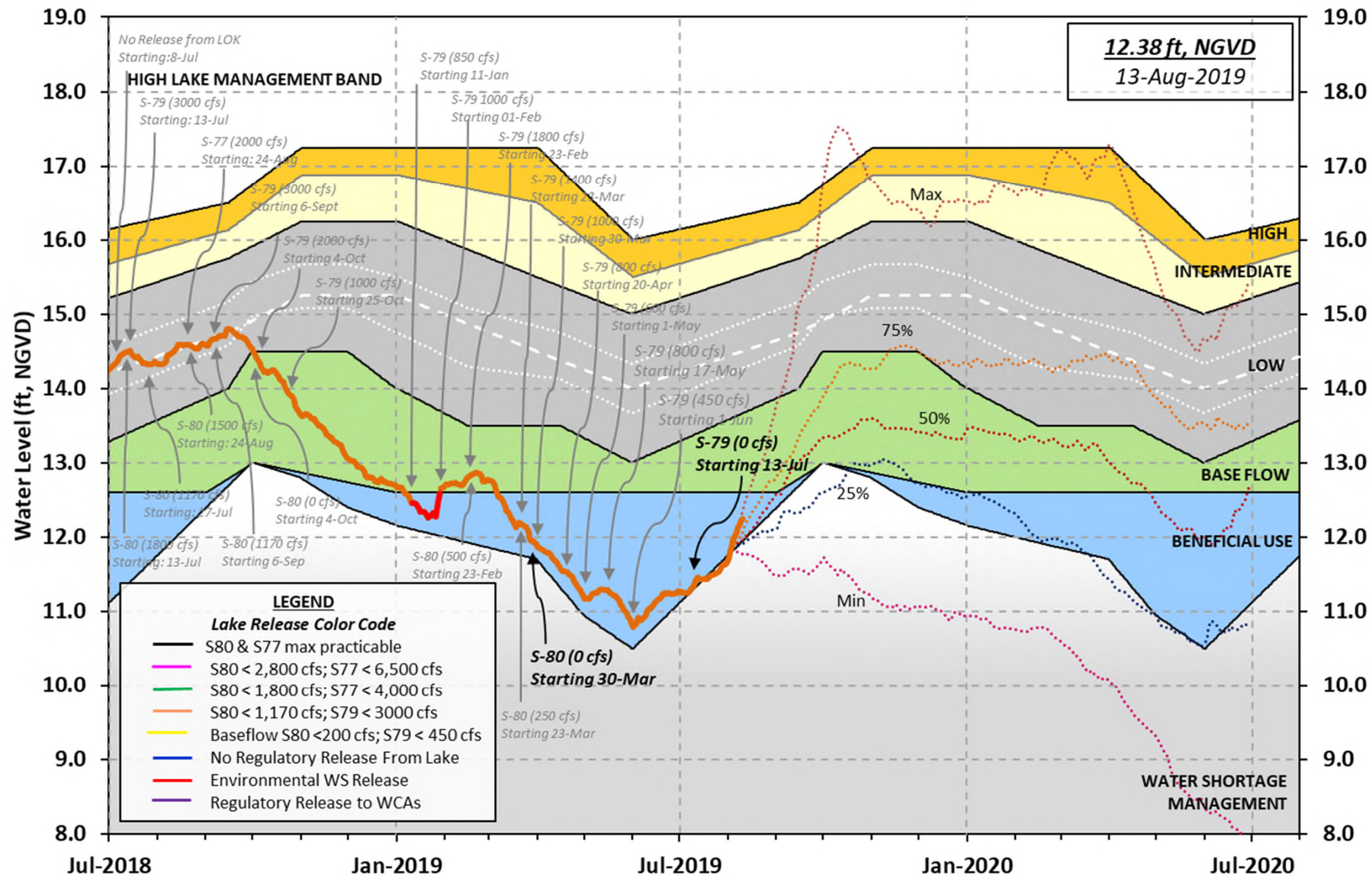
⁴Tributary Hydrologic Condition (THC) is based on classification of Lake Okeechobee Net Inflow and Palmer Index.

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 11 AUG 2019

Okeechobee Lake Regulation	Elevation	Last Year	2YRS Ago
	(ft-NGVD)	(ft-NGVD)	(ft-NGVD)
*Okeechobee Lake Elevation	12.30	14.50	-NR- (Official Elv)
Bottom of High Lake Mngmt= 16.33 Top of Water Short Mngmt= 11.97			
Currently in Operational Management Band			

Simulated Average LORS2008 [1965-2000]	12.86
Difference from Average LORS2008	-0.56

11AUG (1965-2007) Period of Record Average	13.92
Difference from POR Average	-1.62

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ÷ 6.24'

++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ÷ 4.44'

Bridge Clearance = 49.16'

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

L001	L005	L006	LZ40	S4	S352	S308	S133
12.33	-NR-	12.30	12.28	12.23	-NR-	12.32	12.34

*Combination Okeechobee Avg-Daily Lake Average = 12.30
 (*See Note)

Okeechobee Inflows (cfs):

S65E	2884	S65EX1	1041	Fisheating Cr	1228
S154	100	S191	142	S135 Pumps	0
S84	820	S133 Pumps	100	S2 Pumps	0
S84X	0	S127 Pumps	71	S3 Pumps	0
S71	518	S129 Pumps	20	S4 Pumps	0
S72	42	S131 Pumps	20	C5	0
Total Inflows: 6986					

Okeechobee Outflows (cfs):

S135 Culverts	0	S354	0	S77	1
S127 Culverts	0	S351	0	S308	-3
S129 Culverts	0	S352	0		
S131 Culverts	0	L8 Canal Pt	-102		
Total Outflows: -104					

S3 Pumps:	10.08	12.11	0	0	0	0		(cfs)
S354:	12.11	10.08	0	0.0	0.0			
S2 Pumps:	9.59	-NR-	0	-NR-	-NR-	-NR-	-NR-	(cfs)
S351:	-NR-	9.59	0	0.0	0.0	0.0		
S352:		9.46	0	0.0	0.0			
C10A:	-NR-	12.74		8.0	8.0	8.0	0.0	0.0
L8 Canal PT		12.58	-102					

S351 and S352 Temporary Pumps/S354 Spillway

S351:	9.59	-NR-	0	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-
S352:	9.46		0	-NR-	-NR-	-NR-	-NR-		
S354:	10.08	12.11	0	-NR-	-NR-	-NR-	-NR-		

Caloosahatchee River (S77, S78, S79)

S47B:	12.39	12.83		0.0	0.0
S47D:	12.85	11.28	0	0.0	

S77:

Spillway and Sector Preferred Flow:

12.07	11.16	0	0.0	0.0	0.0	0.0
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Flow Due to Lockages+: 1

S78:

Spillway and Sector Flow:

11.08	2.86	1024	1.5	2.5	0.0	0.0
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Flow Due to Lockages+: 7

S79:

Spillway and Sector Flow:

2.90	1.13	4794	3.0	3.0	3.0	3.0	3.0	3.0	3.0
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2.0

Flow Due to Lockages+: 3

Percent of flow from S77 0%

Chloride (ppm) 46

St. Lucie Canal (S308, S80)

S308:

Spillway and Sector Preferred Flow:

12.38	14.34	0	0.0	0.0	0.0	0.0
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Flow Due to Lockages+: -3

S153:	19.06	14.13	0	0.0	0.0
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S80:

Spillway and Sector Flow:

14.40	1.02	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:	30.88	30.89	31.48	198	5
S78:	20.38	20.97	22.79	219	4
S79:	28.40	28.73	31.09	169	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:	22.48	22.48	22.69	216	14
S80:	19.14	19.14	20.40	221	2
Okeechobee Average	26.68	4.11	4.17		
(Sites S78, S79 and S80 not included)					

Oke Nexrad Basin Avg	-NR-	0.00	0.00		

Okeechobee Lake Elevations	11 AUG 2019	12.30	Difference from
11AUG19			
11AUG19 -1 Day =	10 AUG 2019	12.24	-0.06
11AUG19 -2 Days =	09 AUG 2019	12.20	-0.10
11AUG19 -3 Days =	08 AUG 2019	12.17	-0.13
11AUG19 -4 Days =	07 AUG 2019	12.12	-0.18
11AUG19 -5 Days =	06 AUG 2019	12.06	-0.24
11AUG19 -6 Days =	05 AUG 2019	12.00	-0.30
11AUG19 -7 Days =	04 AUG 2019	11.95	-0.35
11AUG19 -30 Days =	12 JUL 2019	11.45	-0.85
11AUG19 -1 Year =	11 AUG 2018	14.50	2.20
11AUG19 -2 Year =	11 AUG 2017	-NR-	-NR-

Long Term Mean 30day Avearge ET for Lake Alfred (Inches) = 4.42

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

11AUG19	Today =	11 AUG 2019	9291	MON	11798
11AUG19	-1 Day =	10 AUG 2019	8449	SUN	7865
11AUG19	-2 Days =	09 AUG 2019	8410	SAT	5748
11AUG19	-3 Days =	08 AUG 2019	8265	FRI	9579
11AUG19	-4 Days =	07 AUG 2019	7715	THU	11697
11AUG19	-5 Days =	06 AUG 2019	7015	WED	11798
11AUG19	-6 Days =	05 AUG 2019	6176	TUE	9075
11AUG19	-7 Days =	04 AUG 2019	5661	MON	12604
11AUG19	-8 Days =	03 AUG 2019	4895	SUN	14117
11AUG19	-9 Days =	02 AUG 2019	4280	SAT	16335
11AUG19	-10 Days =	01 AUG 2019	3118	FRI	14167
11AUG19	-11 Days =	31 JUL 2019	2137	THU	1765
11AUG19	-12 Days =	30 JUL 2019	2113	WED	1765
11AUG19	-13 Days =	29 JUL 2019	2001	TUE	1765

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S65E					
Average Flow over previous 14 days					Avg-Daily Flow
11AUG19	Today=	11 AUG 2019	1767	MON	3188
11AUG19	-1 Day =	10 AUG 2019	1594	SUN	3083
11AUG19	-2 Days =	09 AUG 2019	1430	SAT	2620
11AUG19	-3 Days =	08 AUG 2019	1296	FRI	2505
11AUG19	-4 Days =	07 AUG 2019	1172	THU	2250
11AUG19	-5 Days =	06 AUG 2019	1065	WED	1948
11AUG19	-6 Days =	05 AUG 2019	981	TUE	1575
11AUG19	-7 Days =	04 AUG 2019	922	MON	1572
11AUG19	-8 Days =	03 AUG 2019	858	SUN	1369
11AUG19	-9 Days =	02 AUG 2019	814	SAT	1268
11AUG19	-10 Days =	01 AUG 2019	778	FRI	1028
11AUG19	-11 Days =	31 JUL 2019	759	THU	755
11AUG19	-12 Days =	30 JUL 2019	761	WED	746
11AUG19	-13 Days =	29 JUL 2019	777	TUE	837

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S65EX1					
Average Flow over previous 14 days					Avg-Daily Flow
11AUG19	Today=	11 AUG 2019	680	MON	1041
11AUG19	-1 Day =	10 AUG 2019	638	SUN	923
11AUG19	-2 Days =	09 AUG 2019	606	SAT	929
11AUG19	-3 Days =	08 AUG 2019	581	FRI	829
11AUG19	-4 Days =	07 AUG 2019	569	THU	595
11AUG19	-5 Days =	06 AUG 2019	575	WED	636
11AUG19	-6 Days =	05 AUG 2019	578	TUE	694
11AUG19	-7 Days =	04 AUG 2019	576	MON	576
11AUG19	-8 Days =	03 AUG 2019	577	SUN	523
11AUG19	-9 Days =	02 AUG 2019	588	SAT	462
11AUG19	-10 Days =	01 AUG 2019	603	FRI	653
11AUG19	-11 Days =	31 JUL 2019	604	THU	661
11AUG19	-12 Days =	30 JUL 2019	592	WED	489
11AUG19	-13 Days =	29 JUL 2019	587	TUE	518

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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 AUG 2019		2	267	2060	9527
10 AUG 2019		2	165	1906	9632
09 AUG 2019		1	281	2443	9598
08 AUG 2019		1	257	2622	10356
07 AUG 2019		1	355	2735	10263
06 AUG 2019		0	165	2652	8228
05 AUG 2019		1	194	2355	8227
04 AUG 2019		1	63	2366	7444
03 AUG 2019		1	115	2829	8184
02 AUG 2019		1	191	3171	10141
01 AUG 2019		1	72	2079	4524
31 JUL 2019		0	27	2019	5342
30 JUL 2019		0	43	1439	4478
29 JUL 2019		1	3	1031	3590

		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 AUG 2019		-276	0	0	0	-201
10 AUG 2019		-228	0	0	0	-195
09 AUG 2019		-329	0	0	0	-231
08 AUG 2019		-404	0	0	0	-286
07 AUG 2019		-494	0	0	0	-322
06 AUG 2019		-519	0	0	0	-283
05 AUG 2019		-459	0	0	0	-291
04 AUG 2019		-514	0	0	0	-367
03 AUG 2019		-614	0	0	0	-446
02 AUG 2019		-629	0	0	0	-434
01 AUG 2019		-497	0	0	0	-67
31 JUL 2019		-268	0	0	0	-4
30 JUL 2019		-143	0	0	0	-27
29 JUL 2019		-223	0	0	0	-66

		S-308	Below S-308	S-80
		Discharge	Discharge	Discharge
		(ALL DAY)	(ALL-DAY)	(ALL-DAY)
DATE		(AC-FT)	(AC-FT)	(AC-FT)
11 AUG 2019		-7	-118	16
10 AUG 2019		-806	-784	23
09 AUG 2019		-6	-315	27
08 AUG 2019		-1484	-766	12
07 AUG 2019		-4	-82	15
06 AUG 2019		-2589	-1395	33
05 AUG 2019		-2858	-1497	14
04 AUG 2019		-2948	-1699	18
03 AUG 2019		-1546	-892	18
02 AUG 2019		-708	-608	15
01 AUG 2019		-909	-543	33
31 JUL 2019		-8	39	36
30 JUL 2019		-2284	-1175	18
29 JUL 2019		-5	-21	740

*** 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 12AUG2019 @ 23:39 ** Preliminary Data - Subject to Revision
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Unavailable

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