Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 07/11/2022 (ENSO Condition: La Niña)

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 La Nina years³ and a subsampling 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 <u>CPC Outlook</u>.

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 La Nina ENSO Years ³		Sub-sampling of AMO Warm + La Nina ENSO Years ⁴	
	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition
Current (Jun-Nov)	N/A	N/A	2.38	Very Wet	2.23	Very Wet	1.92	Wet
Multi Seasonal (Jun-Apr)	N/A	N/A	2.82	Wet	2.34	Normal	1.59	Normal

^{*}Croley's Method Not Produced for This Report

See <u>Seasonal</u> and <u>Multi-Seasonal</u> 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:

506 cfs* 14-day running average for Lake Okeechobee Net Inflow through 07/11/2022. According to the classification in <u>Tributary Hydrologic Conditions</u> table, this condition is Near Normal.

-2.94 for Palmer Drought Index on 07/09/2022.

According to the classification in <u>Tributary Hydrologic Conditions</u> table, this condition is Dry.

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

*- S-308 preferred flow data is not available since July 8 and assumed to be zero in flow calculations

LORS2008 Classification Tables:

Lake Okeechobee Stage on 07/11/2022:

Lake Okeechobee Stage: 12.97 feet

	ee Management Band	Bottom Elevation (feet, NGVD)	Current Lake Stage
High Lake Manage	ement Band	16.19	
	High sub-band	15.74	
Operational Band	Intermediate sub-band	15.29	
	Low sub-band	13.38	
Base Flow sub-ba	nd	12.60	← 12.97 ft
Beneficial Use sub	o-band	11.33	
Water Shortage M	lanagement Band		

Part C of LORS2008: Discharge to WCAs

Up to Maximum Practicable to the WCAs if desirable or with minimum Everglades impact; otherwise no releases to WCAs.

Part D of LORS2008: Discharge to Tide

Up to 450 cfs at S-79 and up to 200 cfs at S-80.

<u>Lake Okeechobee Releases to the Caloosahatchee Estuary</u> for 2008 LORS Baseflow & for Environmental Water Supply

Guidance for Lake Okeechobee Releases to the Caloosahatchee Estuary indicates no S77 release to the Caloosahatchee Estuary unless the Governing Board recommends otherwise.

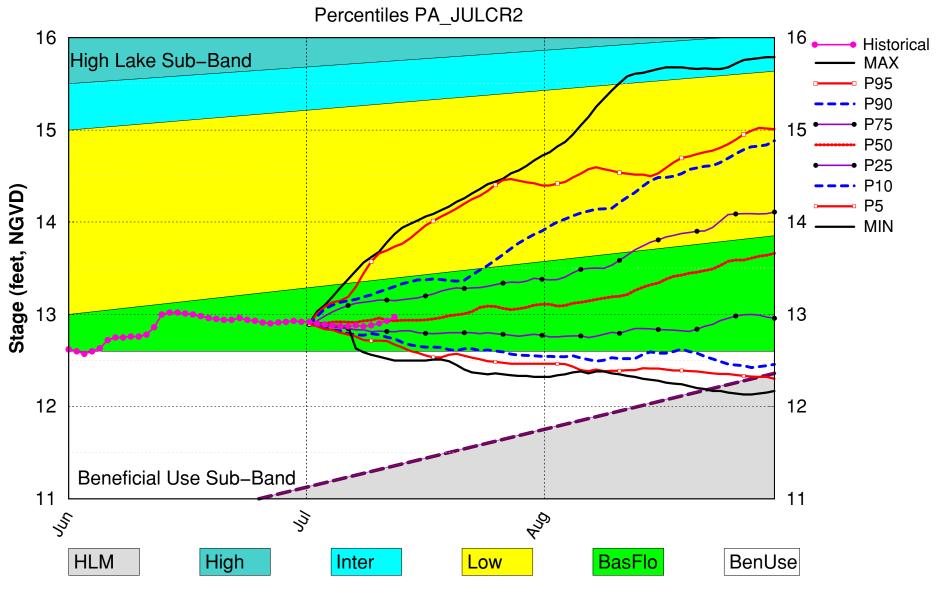
LORS2008 Implementation on 07/11/2022 (ENSO Condition- La Nina Watch): Status for week ending 07/11/2022:

Water Supply Risk Evaluation

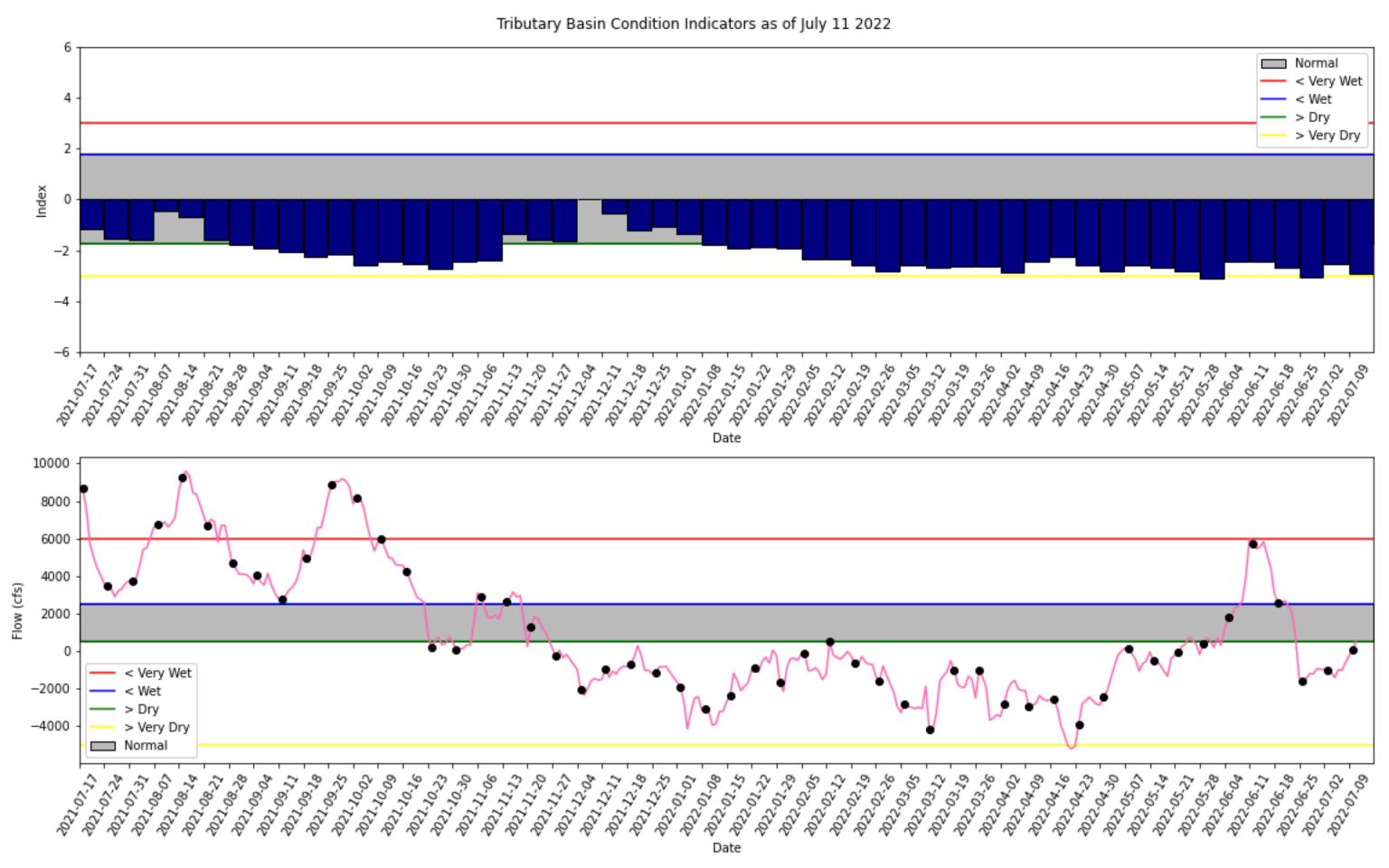
Area	Indicator	Value	Color Coded Scoring Scheme
	Projected LOK Stage for the next two months	Base Flow	M
	Palmer Drought Index for LOK Tributary Conditions	-2.94 (Extremely Dry)	Н
	CPC Precipitation Outlook	1 month: Above Normal	L
LOK	CFC Frecipitation Oddook	3 months: Normal	L
	LOK Seasonal Net Inflow Outlook	2.23 ft	
	ENSO Forecast	Normal to extremely wet	1
	LOK Multi-Seasonal Net Inflow Outlook	2.34 ft	N.4
	ENSO Forecast	Normal	M
	WCA 1: Station Average (Sites 1-7, 1-8T, and 1-9)	Above Line 1 (16.44 ft)	L
WCAs	WCA 2A: Site 2-17	Above Line 1 (12.20 ft)	L
	WCA-3A: 3 Station Average (Sites 63, 64, and 65)	Above Line 1 (10.07 ft)	L
	Service Area 1	Year-Round Irrigation Rule in effect	L
LEC	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 July 2022 Position Analysis

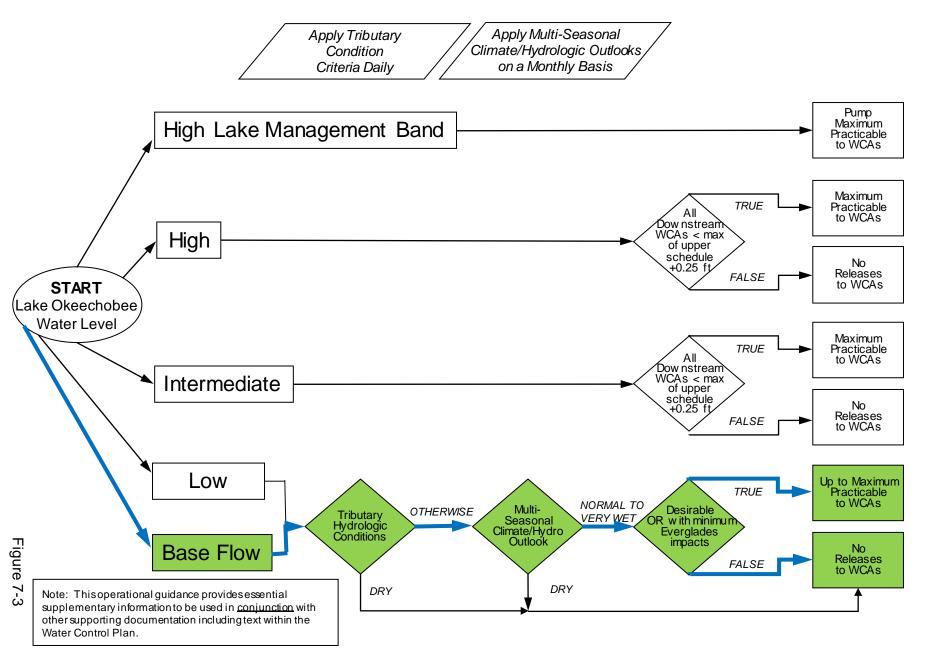


(See assumptions on the Position Analysis Results website)



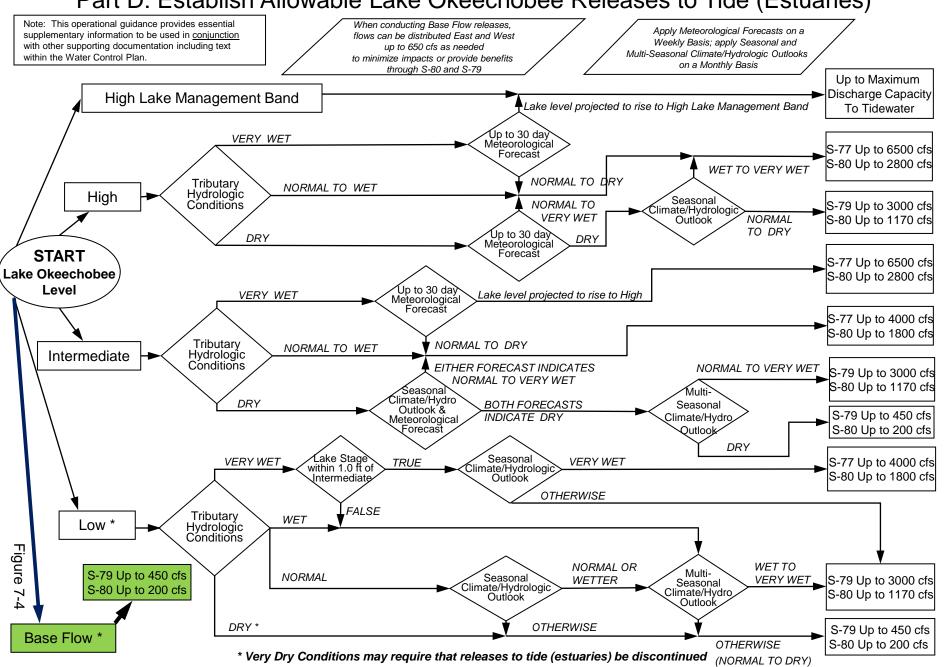
2008 LORS

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

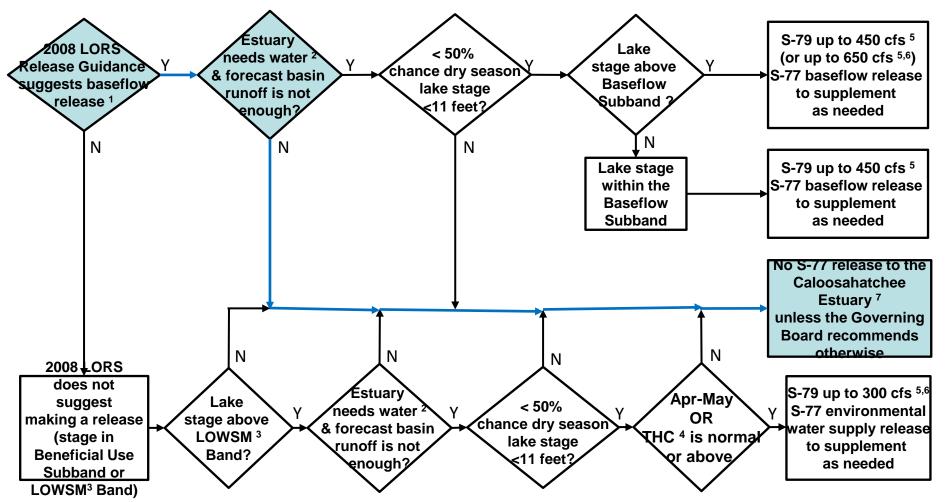


2008 LORS

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



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.

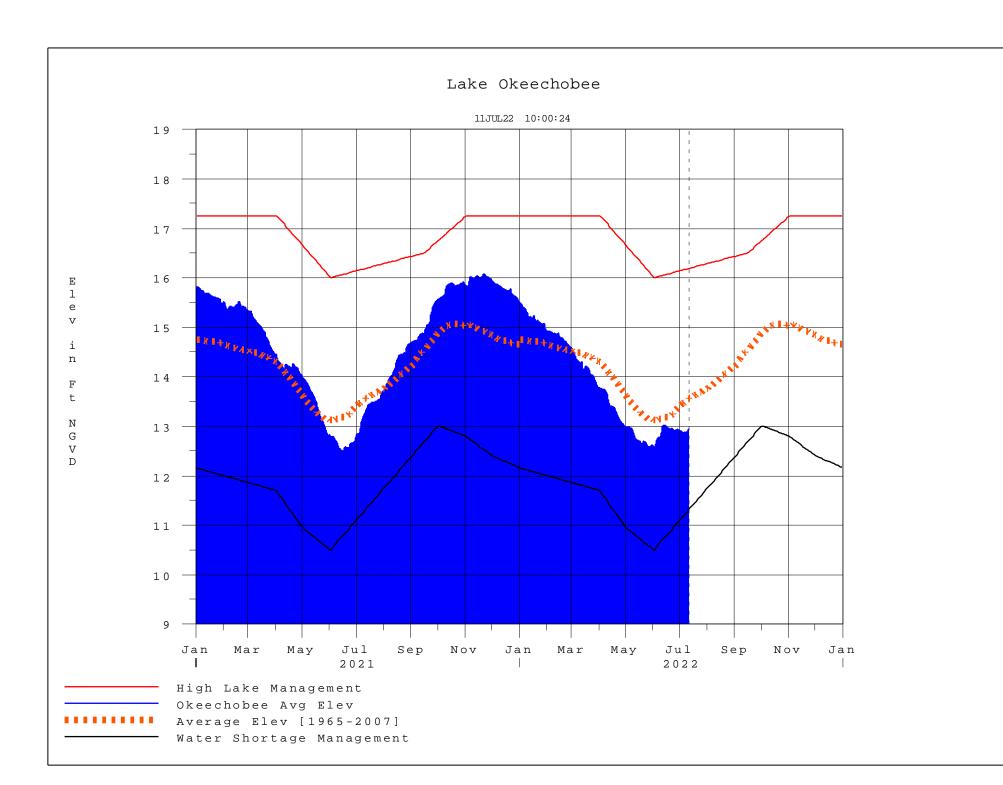
³LOWSM = Lake Okeechobee Water Shortage Management.

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.



Data Ending 2400 hours 11 JUL 2022

Okeechobee Lake Regulation Elevation Last Year 2YRS Ago (ft-NGVD) (ft-NGVD) (ft-NGVD) *Okeechobee Lake Elevation 12.97 13.30 12.47 (Official Elv) Bottom of High Lake Mngmt= 16.19 Top of Water Short Mngmt= 11.33 Currently in Operational Management Band Simulated Average LORS2008 [1965-2000] 12.44 Difference from Average LORS2008 0.53 11JUL (1965-2007) Period of Record Average 13.56 Difference from POR Average -0.59 Today Lake Okeechobee elevation is determined from the 4 Int & 4 Edge stations ++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ♦ 6.91' ++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ❖ 5.11' Bridge Clearance = -NR-' 4 Interior and 4 Edge Okeechobee Lake Average (Avg-Daily values): L001 L005 L006 LZ40 S4 S352 S308 S133 13.05 12.95 12.93 12.94 12.85 13.05 -NR- 13.02 *Combination Okeechobee Avg-Daily Lake Average = 12.97 (*See Note) Okeechobee Inflows (cfs): S65E 193 S65EX1 0 Fisheating Cr 0 S154 0 S191 27 S135 Pumps 0 S84 0 S133 Pumps 0 S2 Pumps 0 S84X 0 S127 Pumps 0 S3 Pumps 0 S4 Pumps S71 174 S129 Pumps 0 0 572 70 S131 Pumps 0 C5 0 Total Inflows: 464 Okeechobee Outflows (cfs): S135 Culverts 220 S354 S77 -NRa S127 Culverts 0 S351 0 S308 -NR-S129 Culverts 0 S352 0 S131 Culverts L8 Canal Pt -NRa Total Outflows: No Report Due To Missing S77 or S308 Discharge Data ****S77 structure flow is being used to compute Total Outflow. ****S308 below flow meter is being used to compute Total Outflow. Okeechobee Pan Evaporation (inches): -NR-S308 -NR-Average Pan Evap x 0.75 Pan Coefficient = -NR-" = -NR-" Lake Average Precipitation using NEXRAD: = -NR-" = = -NR-" = -NR-' Evaporation - Precipitation: Evaporation - Precipitation using Lake Area of 730 square miles

Lake Okeechobee (Change in Storage) Flow is 7865 cfs or 15600 AC-FT ----- Gate Positions -----Headwater Tailwater Elevation Elevation Disch #1 #2 #3 #4 #5 #6 #7 #8 (ft-msl) (ft-msl) (cfs) (ft) (ft) (ft) (ft) (ft) (ft) (ft) (I) see note at bottom North East Shore 0 0 S133 Pumps: 13.29 12.86 0 0 0 (cfs) S193: 19.65 12.87 27 0.0 0.0 S191: 0.5 S135 Pumps: 13.42 12.88 0 0 0 0 0 (cfs) S135 Culverts: 220 3.5 3.5 North West Shore S65E: 193 20.91 13.10 0.1 0.2 0.1 0.0 0.1 0.0 S65EX1: 20.91 13.10 0 S127 Pumps: 13.02 12.94 0 0 0 0 (cfs) S127 Culvert: 0 0.0 S129 Pumps: 12.99 0 12.95 0 0 0 (cfs) S129 Culvert: 0.0 0 0 0 S131 Pumps: 12.81 12.83 0 (cfs) S131 Culvert: 0 Fisheating Creek nr Palmdale 25.58 nr Lakeport -NR-C5: 0 -NR- -NR- -NR-South Shore S4 Pumps: 12.97 -NR--NR- -NR- -NR-(cfs) S169: 12.94 12.98 -NR--NR- -NR- -NR-12.67 S310: -203 0 S3 Pumps: 10.51 12.96 0 0 0 (cfs) 12.96 10.51 0 0.0 0.0 S354: S2 Pumps: 10.21 13.32 0 0 0 0 0 (cfs) 10.21 0 0.0 0.0 0.0 13.32 S351: S352: 13.08 10.30 0 0.0 0.0 -NR-12.88 C10A: 8.0 8.0 8.0 0.0 0.0 L8 Canal PT 12.95 -NR-

	S351	and S352	Tempor	ary Pumps/S354 Spillway
S351:	10.21	13.32	0	-NRNRNRNRNR -
S352:	10.30	13.08	0	-NRNRNRNR -
S354:	10.51	12.96	0	-NRNRNRNR -

Caloosahatchee River (S77, S78, S79)

S47B: 12.68 12.08 0.8 0.8 S47D: 12.07 11.05 0.0

S77:

Spillway and Sector Preferred Flow:

10.94 0 0.0 0.0 0.0 0.0 12.80

Flow Due to Lockages+: -NR- Spillway and Sector Flow:

10.97 3.01 323 0.5 0.0 0.0 0.5

Flow Due to Lockages+: -NR-

S79:

Spillway and Sector Flow:

3.15 0.81 1253 0.0 0.0 0.0 0.0 0.0 0.0 2.0 3.0

Flow Due to Lockages+: -NRPercent of flow from S77 0%
Chloride (ppm) 0

St. Lucie Canal (S308, S80)

S308:

Spillway and Sector Preferred Flow:

-NR- -NR- -NR- 0.0 0.0 0.0 0.0

Flow Due to Lockages+: -NR-

S153: 18.93 13.78 76 0.5 0.0

S80:

Spillway and Sector Flow:

14.02 0.82 0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Flow Due to Lockages+: 18 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

				W:	ind
Daily Precipitation Totals	1 - Day	3 - Day	7 - Day	Directio	on Speed
	(inches)	(inches)	(inches)	(Deg�)) (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:	0.70	1.83	2.43	295	3
S78:	0.01	0.02	0.06	294	1
S79:	16.35	16.37	16.64	2	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:	0.00	0.00	1.65	-NR -	-NR-
S80:	0.06	0.77	0.79	144	0
Okeechobee Average	0.35	0.14	0.31		
(Sites S78, S79 and	S80 not in	cluded)			
Oke Nexrad Basin Avg	-NR -	0.00	0.00		

Okeechobee Lake Elevations 11 JUL 2022 12.97 Difference from 11JUL22 11JUL22 -1 Day = 10 JUL 2022 12.93 -0.04

11JUL22 -2	Days =	09 JUL 2022	12.90	-0.07
	•	08 JUL 2022	12.88	-0.09
		07 JUL 2022	12.87	-0.10
	•	06 JUL 2022		-0.09
			12.88	
		05 JUL 2022	12.87	-0.10
		04 JUL 2022	12.87	-0.10
11JUL22 -30		11 JUN 2022	13.00	0.03
11JUL22 -1	.Year =	11 JUL 2021	13.30	0.33
11JUL22 -2	!Year =	11 JUL 2020	12.47	-0.50
Long Term Mean	ı 30day Avearge	ET for Lake	Alfred (Inches) =	-NR-
			Net Inflow (LONIN)	
	Average F	low over the	previous 14 days	Avg-Daily Flow
11JUL22	Today =	11 JUL 2022	-1066 TUE	-NR -
11JUL22 -1	. Day =	10 JUL 2022	-1066 MON	-NR -
11JUL22 -2	Days =	09 JUL 2022	-1066 SUN	-NR -
	•	08 JUL 2022	-1170 SAT	-NR -
	•	07 JUL 2022	-1456 FRI	-1784
11JUL22 -5		06 JUL 2022	-1429 THU	1959
11JUL22 -6		05 JUL 2022	-1425 1110 -2061 WED	0
	•			
	•	04 JUL 2022		-NR -
	•	03 JUL 2022		-1916
	•	02 JUL 2022		- 1916
11JUL22 -10		01 JUL 2022		-3861
11JUL22 -11	. Days =	30 JUN 2022	-1438 FRI	59
11JUL22 -12	Days =	29 JUN 2022	-1825 THU	-NR -
11JUL22 -13		28 JUN 2022	-1845 WED	-NR -
	. , .		,	
		S65E		
	Avera		previous 14 days	Avg-Daily Flow
11JUL22		11 JUL 2022	373 TUE	233
	•	10 JUL 2022	384 MON	285
	•	09 JUL 2022	392 SUN	335
		08 JUL 2022		
	-		398 SAT	370
	•	07 JUL 2022	400 FRI	382
	•	06 JUL 2022	382 THU	355
11JUL22 - 6		05 JUL 2022	386 WED	270
11JUL22 -7	-	04 JUL 2022	415 TUE	307
11JUL22 -8	B Days =	03 JUL 2022	408 MON	327
11JUL22 - 9	Days =	02 JUL 2022	399 SUN	266
11JUL22 -10	Days =	01 JUL 2022	404 SAT	364
11JUL22 -11	. Davs =	30 JUN 2022	401 FRI	344
117111 22 -12	Davs =	29 JUN 2022	405 THU	601
117111 22 -12	Days = Days =	29 JUN 2022 28 JUN 2022	385 WED	789
1130FZZ -13	, Days =	ZO JUN ZUZZ	707 MLD	705
-				
-		S65EX1		
	۸۷۸۵۵		previous 14 days	Avg-Daily Flow
117111 22		•	· ·	1 -
11JUL22	•	11 JUL 2022	0 TUE	0
	-	10 JUL 2022	0 MON	0
11JUL22 -2	-	09 JUL 2022	0 SUN	0
11JUL22 -3	Days =	08 JUL 2022	0 SAT	0
11JUL22 -4	Days =	07 JUL 2022	0 FRI	0
11JUL22 -5	Days =	06 JUL 2022	0 THU	0
		05 JUL 2022	0 WED	j 0
		04 JUL 2022	0 TUE	i 0
		03 JUL 2022	Ø MON	l ö
11JUL22 -9		02 JUL 2022	0 SUN) 0
11 JULZZ - 9	Days -	04 JUL 2022		•
11JUL22 -10	Days =	01 JUL 2022	0 SAT	0
11JUL22 -11	. Days =	30 JUN 2022	0 FRI	0
11JUL22 -12	Days =	29 JUN 2022	0 THU	0
11JUL22 -13	B Days =	28 JUN 2022	0 WED	0

DATE 11 JUL 2022 10 JUL 2022 09 JUL 2022 08 JUL 2022 06 JUL 2022 05 JUL 2022 04 JUL 2022 04 JUL 2022 04 JUL 2022 05 JUL 2022 01 JUL 2022 20 JUL 2022 20 JUL 2022 20 JUL 2022 21 JUL 2022 22 JUL 2022 30 JUN 2022 28 JUN 2022	3 - NR - 2 -	Below S-77 Discharge (ALL-DAY) (AC-FT) 88 151 187 21 64 -6 -196 -262 39 19 14 1 -435 16	S-78 Discharge (ALL DAY) (AC-FT) -NR- 571 311 308 398 607 354 21 227 608 603 605 600 605	S-79 Discharge (ALL DAY) (AC-FT) -NR- 2663 2566 2531 2636 2946 1864 2098 3026 3014 3451 4015 4279 4108	
DATE	S-310 Discharge (ALL DAY) (AC-FT)	S-351 Discharge (ALL DAY) (AC-FT)	S-352 Discharge (ALL DAY) (AC-FT)	S-354 Discharge (ALL DAY) (AC-FT)	L8 Canal Pt Discharge (ALL DAY) (AC-FT)
11 JUL 2022 10 JUL 2022		0 0	0 0	0 0	-NR- -NR-
09 JUL 2022		0	0	0	-NR-
08 JUL 2022		ø	ø	ø	-NR-
07 JUL 2022		0	0	0	-NR-
06 JUL 2022		0	0	0	- NR -
05 JUL 2022	2 50	0	0	0	- NR -
04 JUL 2022	2 6	0	0	0	-NR-
03 JUL 2022		0	0	0	- NR -
02 JUL 2022		0	0	0	- NR -
01 JUL 2022		0	0	0	- NR -
30 JUN 2022		0	0	0	-NR-
29 JUN 2022		0	0	0	-NR-
28 JUN 2022	2 - 25	0	0	0	-NR-
	S-308	Below S-308	3 S-80		
	Discharge	Discharge		<u> </u>	
	(ALL DAY)	(ALL-DAY)	(ALL-DAY)		
DATE	(AC-FT)	(AC-FT)	(AC-FT)		
11 JUL 2022	2 -NR-	-NR -	36		
10 JUL 2022	2 -NR-	-NR -	41		
09 JUL 2022		-NR -	41		
08 JUL 2022		-NR-	16		
07 JUL 2022		-NR-	43		
06 JUL 2022 05 JUL 2022		-NR-	35		
04 JUL 2022		- NR - - NR -	39 36		
03 JUL 2022		-NR -	43		
02 JUL 2022		-NR-	31		
01 JUL 2022		-NR-	35		
30 JUN 2022		-NR -	46		
29 JUN 2022		-NR -	12		
28 JUN 2022	2 -811	-NR -	31		

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

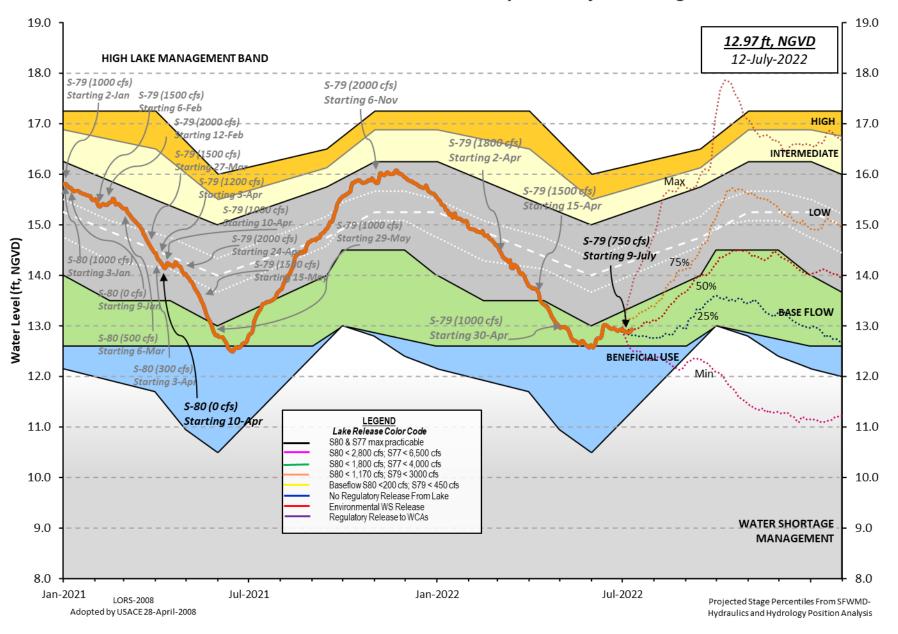
⁽I) - Flows preceded by "I" signify an instantaneous flow computed from the single value reported for the day

- * 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 12JUL2022 @ 07:30 ** Preliminary Data - Subject to Revision **

Lake Okeechobee Water Level History and Projected Stages



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	Palmer Index	2-wk Mean L.O. Net
Classification*	Class Limits	Inflow Class Limits
Very Wet	3.0 or greater	Greater >= 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	Equivalent Depth**	Lake Okeechobee
[million acre-feet]	[feet]	Net Inflow
[[1001]	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

<u>Classification of Lake Okeechobee Net Inflow Multi-Seasonal Outlook</u>*

Lake Net Inflow Prediction	Equivalent Depth**	Lake Okeechobee	
[million acre-feet]	[feet]	Net Inflow	
[[noot]	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