Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 7/5/2021 (ENSO Condition: ENSO-neutral)

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 ENSO Neutral years³ and a sub-sampling of warm years of the Atlantic Multi-decadal Oscillation (AMO) in combination with ENSO Neutral 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 ENSO Neutral Years ³		Sub-sampling of AMO Warm + ENSO Neutral Years ⁴	
	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition
Current (Jul-Dec)	N/A	N/A	2.48	Very Wet	2.53	Very Wet	3.77	Very Wet
Multi Seasonal (Jul-Apr)	N/A	N/A	2.93	Wet	2.65	Wet	3.95	Wet

^{*}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:

4672 cfs 14-day running average for Lake Okeechobee Net Inflow through 7/4/2021. According to the classification in <u>Tributary Hydrologic Conditions</u> table, this condition is Wet.

-2.21 for Palmer Drought Index on 7/3/2021.

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

The wetter of the two conditions above is Wet.

LORS2008 Classification Tables:

Lake Okeechobee Stage on 7/5/2021:

Lake Okeechobee Stage: 12.87 feet

Lake Okeechobee Management Zone/Band		Bottom Elevation (feet, NGVD)	Current Lake Stage
High Lake Manage	ement Band	16.16	
	High sub-band	15.70	
Operational Band	Intermediate sub-band	15.24	
	Low sub-band	13.32	
Base Flow sub-band		12.60	← 12.87 ft
Beneficial Use sub-band		11.18	
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.

Adaptive Protocol's Release Guidance: Caloosahatchee Estuary

No S-77 release to the Estuary unless the Governing Board recommends otherwise.

LORS2008 Implementation on 7/5/2021 (ENSO Condition- ENSO-neutral):

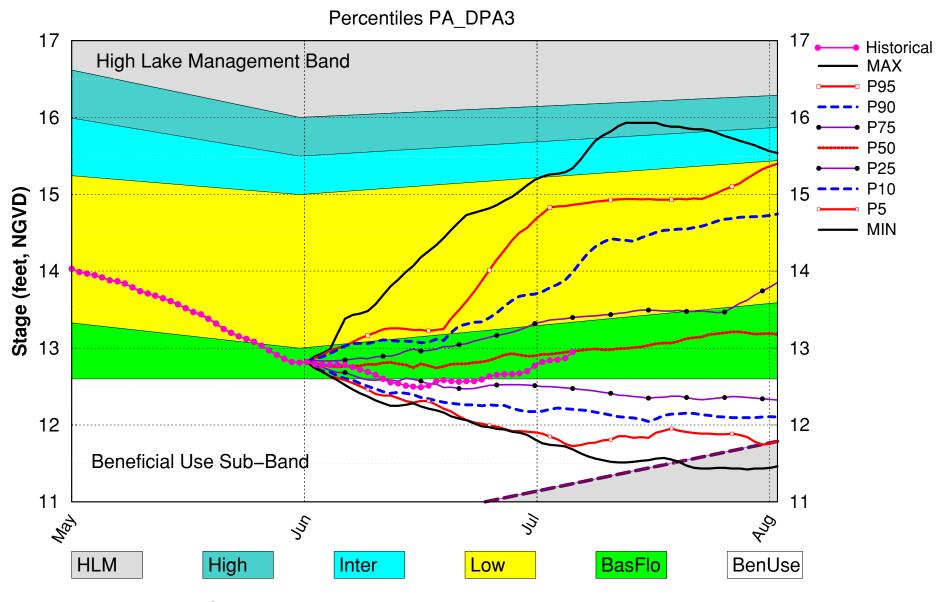
Status for week ending 7/5/2021:

Water Supply Risk Evaluation

Area	Indicator	Value	Color Coded Scoring Scheme
	Projected LOK Stage for the next two months	Base Flow Sub-band	M
	Palmer Drought Index for LOK Tributary Conditions	-2.21 (Extremely Dry)	Н
	CDC Procinitation Outlook	1 month: Normal	L
LOK	CPC Precipitation Outlook	3 months: Normal	L
	LOK Seasonal Net Inflow Outlook	2.53 ft	_
	ENSO Forecast	Normal to Extremely Wet	_
	LOK Multi-Seasonal Net Inflow Outlook	2.65 ft	
	ENSO Forecast	Normal	M
	WCA 1: Site 1-8C	Above Line 1 (16.01 ft)	L
WCAs	WCA 2A: Site 2-17	Above Line 1 (12.21 ft)	П
WCAS	WCA-3A: 3 Station Average (Site 63, 64 and 65)	Line 1- Line 2 (8.73 ft)	M
	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

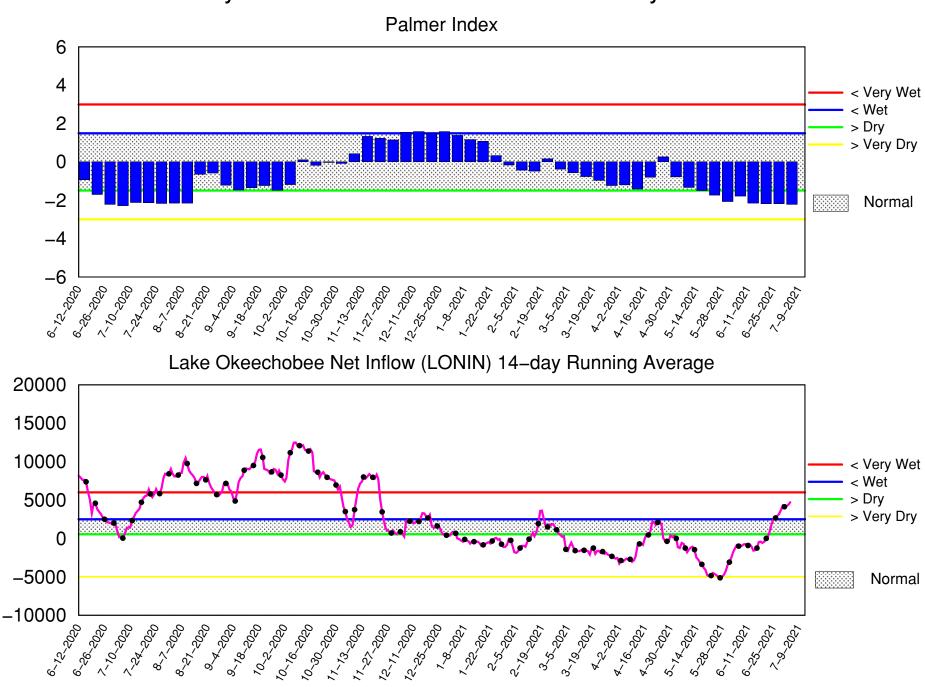
Note: The water supply risk classification based on the Palmer index, as well as the LOK seasonal and multi-seasonal net inflow outlooks use slightly different classification intervals than those used by the 2008-LORS.

Lake Okeechobee SFWMM Jun 2021 Position Analysis



(See assumptions on the Position Analysis Results website)

Tributary Basin Condition Indicators as of July 5 2021

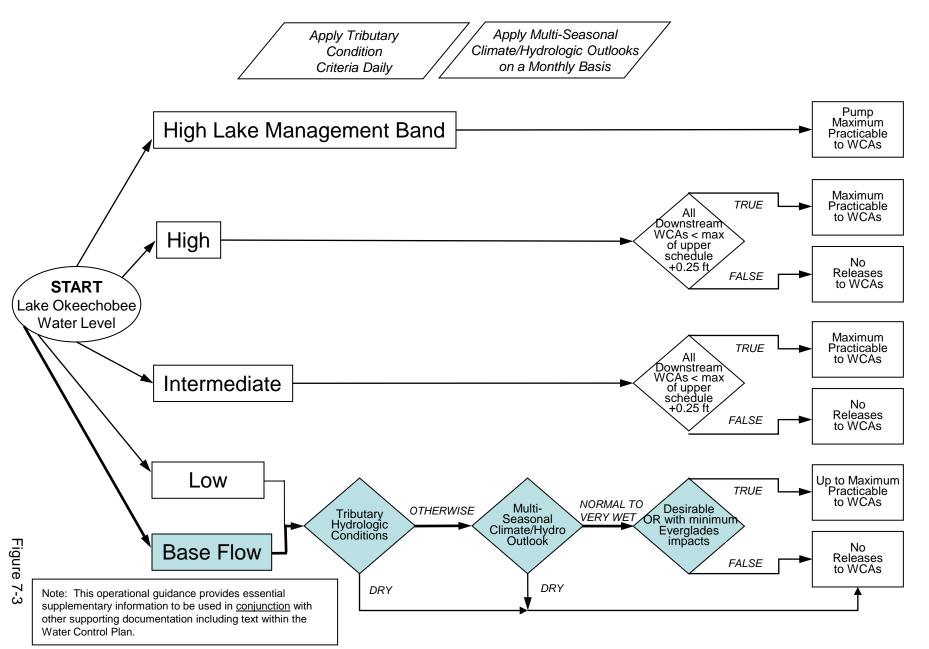


Tue Jul 06 08:05:44 EDT 2021

Flow (cfs)

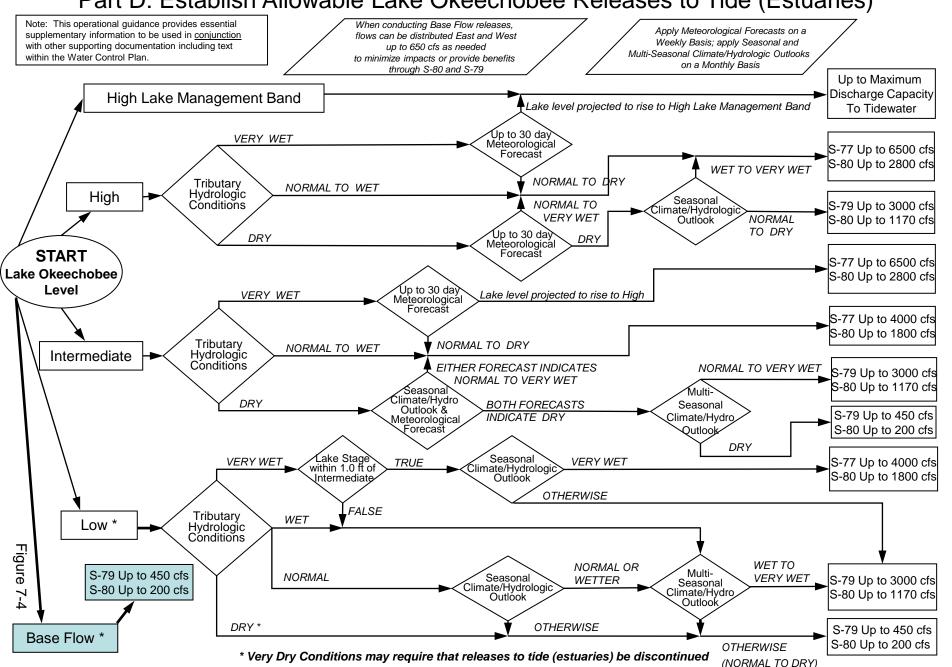
2008 LORS

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

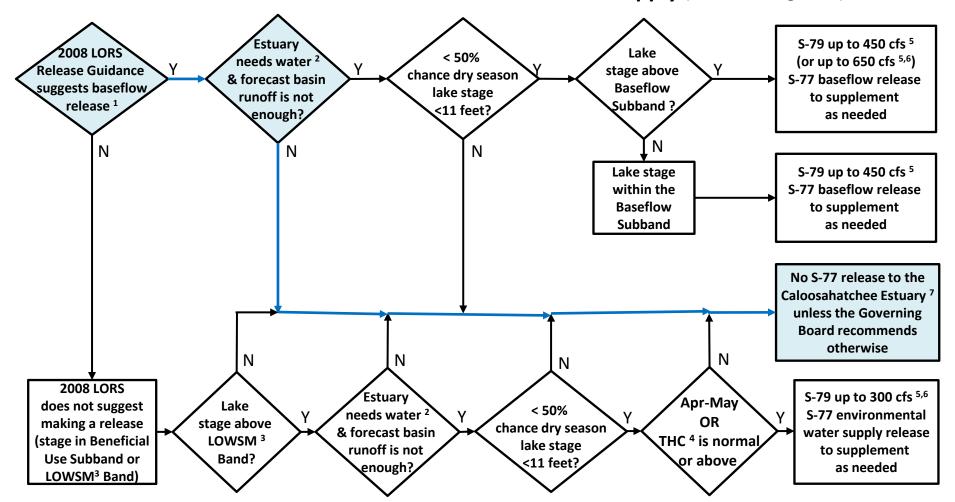


2008 LORS

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.

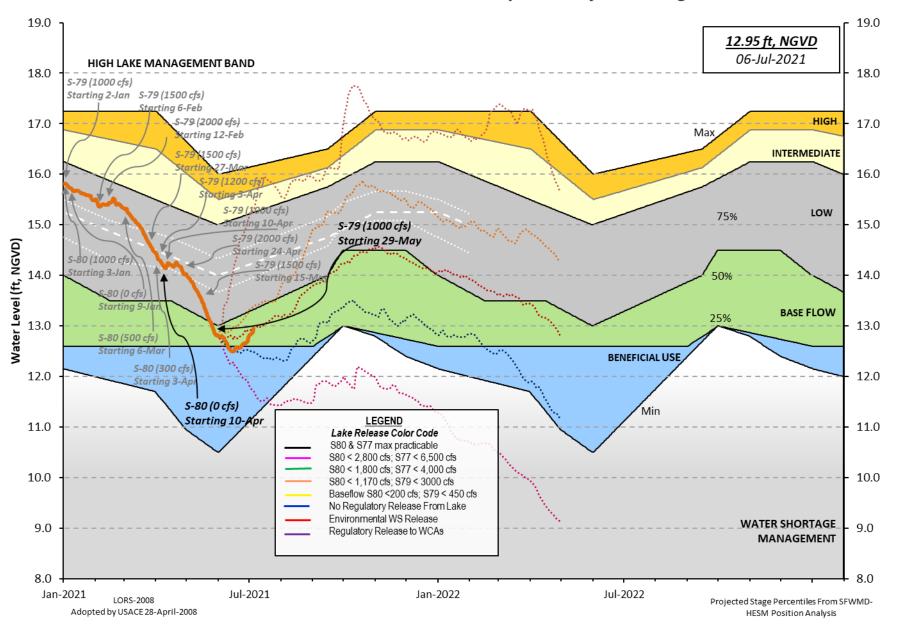
⁴Tributary Hydrologic Condition (THC) is based on classification of Lake Okeechobee Net Inflow and Palmer Index.

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.

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 04 JUL 2021

Okeechobee Lake Regulation Elevation Last Year 2YRS Ago (ft-NGVD) (ft-NGVD) (ft-NGVD)

*Okeechobee Lake Elevation 12.87 12.25 11.24 (Official Elv)

Bottom of High Lake Mngmt= 16.16 Top of Water Short Mngmt= 11.18

Currently in Operational Management Band

Simulated Average LORS2008 [1965-2000] 12.34 Difference from Average LORS2008 0.53

04JUL (1965-2007) Period of Record Average 13.47 Difference from POR Average -0.60

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ♦ 6.81' ++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 � 5.01' Bridge Clearance = 50.42'

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

LZ40 S308 L001 L005 S352 L006 **S4** S133 -NR-12.91 12.80 12.84 12.86 13.00 12.92 12.81

*Combination Okeechobee Avg-Daily Lake Average = 12.87 (*See Note)

Okeechobee Inflows (cfs): S65E 1006 S65EX1 Fisheating Cr 14 S154 49 S191 54 S135 Pumps 69 1459 S133 Pumps 0 S2 Pumps a S84 S84X 416 S127 Pumps 0 S3 Pumps 0 S71 194 S129 Pumps 0 S4 Pumps 0 S72 52 S131 Pumps 12 **C5** 0 Total Inflows: 3325 Okeechobee Outflows (cfs): S135 Culverts S354 S77 92 a a 0 S127 Culverts S351 0 S308 -530 S129 Culverts 0 S352 0 S131 Culverts 0 L8 Canal Pt -NR-

****S77 structure flow is being used to compute Total Outflow. ****S308 structure flow is being used to compute Total Outflow.

Okeechobee Pan Evaporation (inches):

-438

Total Outflows:

0.15 S308 0.28

Average Pan Evap x 0.75 Pan Coefficient = 0.16" = 0.01'

Lake Average Precipitation using NEXRAD: = -NR-" =

= -NR-" = -NR-' Evaporation - Precipitation:

Evaporation - Precipitation using Lake Area of 730 square miles

	Headwater	Tailwater				- Ga1	te Pos	sitio	าร		
	Elevation	Elevation	Disch	#1	#2	#3	#4	#5	#6	#7	#8
		(ft-msl)									
	(10 11131)		(crs)				(10)	(10)	(10)	(10)	(10)
North East Sh	nono	(-	.) 366 1	ioce ac	DOCC	OIII					
		12 60	0	^	_		0	_	/ a.c.	- \	
S133 Pumps	: 13.61	12.60	0	0	0	0	0	0	(cf	5)	
S193:											
S191:	19.47	12.63	54	0.0		0.0					
S135 Pumps:	: 13.33	12.64	69	0	0	0	-NR-		(cf	5)	
S135 Culver	rts:		0	0.0	0.0						
North West Sh	nore										
S65E:	20.99	12.01	1006	0.4	0.5	0.7	0.3	0.3	-0.0		
S65EX1:	20.99	12.01	0								
S127 Pumps		12.76	0	0	0	0	0	а	(cfs	-)	
S127 Culver		12.70	0	0.0	U	U	U	U	(01.	• /	
3127 Cuivei			Ð	0.0							
C420 D	42.06	42.02	•	•	•				, ,	,	
S129 Pumps		13.03	0	0	0	0			(cf	5)	
S129 Culve	rt:		0	0.0							
S131 Pumps:	: 12.80	12.84	12	13	0				(cf	5)	
S131 Culver	rt:		0								
Fisheating	Creek										
nr Palmda		28.75	14								
nr Lakepo	_										
C5:	51 C	-NR-	0	_NR	NR	NF	2_				
CJ.		-1417	Ð	-1411	1411	141	ν-				
Couth Chana											
South Shore	11 70	12 10	0	^	_				/ a.c.	- \	
S4 Pumps:	11.70	13.10	0	0	0	0			(cf	5)	
S169:		-NR-	-NR -	5.0	-NR-	-NK-					
S310:	12.92		-80								
S3 Pumps:	9.50	12.77	0	0	0	0			(cf	5)	
S354:	12.77	9.50	0	0.0	0.0						
S2 Pumps:	9.12	-NR-	0	0	0	0	0		(cf	5)	
S351:	-NR-	9.12	0	0.0	0.0	0.0			,	•	
S352:	13.06	9.33	0	0.0	0.0						
C10A:	-NR-	12.88	•	8.0	8.0		.0 (0.6	0.0		
L8 Canal P		12.00	-NR-	0.0	0.0				0.0		
LO Callai P	I		- 1417 -								
							•••				
	535	1 and S352	Tempora	ary Pum	ips/53	54 Sp	OIIIW	эу			
co	.		_								
S351:	9.12	-NR-	0					-NR -			
S352:	9.33	13.06	0	-NRN	IR – – NR	NR	-				
S354:	9.50	12.77	0	-NRN	IR – – NR	NR	-				
Caloosahatch	ee River (S77, S78, S	579)								
S47B:	12.66	12.79	,	0.0	0.0						
S47D:	12.79	11.11	0	0.0							
S77:	12.75		Ü	5.0							
	and Costs	n Dnoform	l Elaur								
Sbilimah		r Preferred		0 0 0							
-1 -	12.76	11.07	_	0.0 0	.0 0	.0 (0.0				
Flow Due	to Lockage	es+:	2								

S78:

Spillway and Sector Flow:

692 1.0 0.0 0.0 1.5 11.03 2.79

Flow Due to Lockages+: 10

S79:

Spillway and Sector Flow:

2.89 0.93 1577 0.0 1.0 1.0 1.0 0.0 1.0 1.0 0.0

Flow Due to Lockages+: 10 Percent of flow from S77 6% Chloride (ppm)

St. Lucie Canal (S308, S80)

S308:

Spillway and Sector Preferred Flow:

13.08 -529 0.0 0.0 3.0 0.0

Flow Due to Lockages+: -1

S153: 18.88 12.71 0 0.0 0.0

S80:

Spillway and Sector Flow:

13.01 0.44 0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Flow Due to Lockages+: 15 Percent of flow from S308 NA %

(mg/ml) **** Steele Point Top Salinity 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

				Wi	nd
aily Precipitation Totals	1-Day	3-Day	7-Day	Directio	n 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:	0.38	0.39	0.44	342	3
S78:	0.00	0.00	0.58	328	0
S79:	0.00	0.37	1.46	222	3
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	0.06	2.58	280	2
S80:	0.02	0.02	1.84	175	1
Okeechobee Average	0.19	0.03	0.23		
(Sites S78, S79 and	S80 not inc	:luded)			
Oke Nexrad Basin Avg	-NR-	0.00	0.00		

04JUL21 -2 Days = 02 JUL	2021 12.84	-0.03
04JUL21 -3 Days = 01 JUL	2021 12.82	-0.05
04JUL21 -4 Days = 30 JUN	2021 12.77	-0.10
04JUL21 -5 Days = 29 JUN		-0.17
04JUL21 -6 Days = 28 JUN		-0.20
04JUL21 -7 Days = 27 JUN		-0.21
04JUL21 -30 Days = 04 JUN		-0.09
04JUL21 -1 Year = 04 JUL		-0.62
04JUL21 -1 Year = 04 JUL		
04JULZI -2 Year = 04 JUL	2019 11.24	-1.63
Long Term Mean 30day Avearge ET for	Lake Alfred (Inches) -	
Long Term Mean Jouay Avearge Er Tor	Lake Allieu (Inches) -	- IVIX -
Lake Okeec	hobee Net Inflow (LONIN)	
	r the previous 14 days	Avg-Daily Flow
04JUL21 Today = 04 JUL		3922
04JUL21 -1 Day = 03 JUL	•	-NR-
•	•	
04JUL21 -2 Days = 02 JUL	•	-NR-
04JUL21 -3 Days = 01 JUL	•	9730
04JUL21 -4 Days = 30 JUN	•	13869
04JUL21 -5 Days = 29 JUN	•	6613
04JUL21 -6 Days = 28 JUN	•	3196
04JUL21 -7 Days = 27 JUN	•	680
04JUL21 -8 Days = 26 JUN		1916
04JUL21 -9 Days = 25 JUN	2021 2528 SAT	3991
04JUL21 -10 Days = 24 JUN	2021 1843 FRI	8179
04JUL21 -11 Days = 23 JUN	•	5003
04JUL21 -12 Days = 22 JUN	•	1565
04JUL21 -13 Days = 21 JUN		2735
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		_, _,
	 5E	
	over previous 14 days	Avg-Daily Flow
04JUL21 Today= 04 JUL		1148
04JUL21 -1 Day = 03 JUL	•	1008
04JUL21 -2 Days = 02 JUL	•	1101
04JUL21 -3 Days = 01 JUL	•	959
04JUL21 -4 Days = 30 JUN		923
04JUL21 -5 Days = 29 JUN	•	884
•	•	
04JUL21 -6 Days = 28 JUN		1078
04JUL21 -7 Days = 27 JUN		762
04JUL21 -8 Days = 26 JUN		655
04JUL21 -9 Days = 25 JUN		520
04JUL21 -10 Days = 24 JUN		484
04JUL21 -11 Days = 23 JUN		552
04JUL21 -12 Days = 22 JUN		453
04JUL21 -13 Days = 21 JUN	2021 300 TUE	505
	5EX1	
<u> </u>	over previous 14 days	Avg-Daily Flow
04JUL21 Today= 04 JUL		0
04JUL21 -1 Day = 03 JUL		0
04JUL21 -2 Days = 02 JUL	2021 0 SAT	0
04JUL21 -3 Days = 01 JUL	2021 0 FRI	0
04JUL21 -4 Days = 30 JUN		0
04JUL21 -5 Days = 29 JUN		0
04JUL21 -6 Days = 28 JUN		0
04JUL21 -7 Days = 27 JUN		0
04JUL21 -8 Days = 26 JUN		0
04JUL21 -9 Days = 25 JUN		0
04JUL21 -9 Days = 23 JUN 1		0
		0
04JUL21 -11 Days = 23 JUN 1		
04JUL21 -12 Days = 22 JUN 1		0
04JUL21 -13 Days = 21 JUN	2021 5 TUE	0

DATE 04 JUL 2021 03 JUL 2021 02 JUL 2021 01 JUL 2021 30 JUN 2021 29 JUN 2021 27 JUN 2021 26 JUN 2021 25 JUN 2021 24 JUN 2021 23 JUN 2021 22 JUN 2021 21 JUN 2021	721 6 6 206 1661 2519 1389 3 297 919 2063 3080	Below S-77 Discharge (ALL-DAY) (AC-FT) 883 1253 814 539 824 2100 2513 1420 -52 455 1069 2091 3277 1609	S-78 Discharge (ALL DAY) (AC-FT) 1393 1570 2203 2181 1996 2000 2210 1623 317 516 1019 1266 2056 2242	S-79 Discharge (ALL DAY) (AC-FT) 3100 2997 4754 4529 3263 3396 3336 2289 1302 1282 1676 2348 2916 2997	
DATE 04 JUL 2021 03 JUL 2021 02 JUL 2021 01 JUL 2021 30 JUN 2021 29 JUN 2021 27 JUN 2021 26 JUN 2021 25 JUN 2021 24 JUN 2021 23 JUN 2021 22 JUN 2021 21 JUN 2021	-189 -226 -286 -132 -107 -93 -43 -90 -93 -100 199 62	S-351 Discharge (ALL DAY) (AC-FT) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	S-352 Discharge (ALL DAY) (AC-FT) 0 0 0 0 0 0 0 0 0 0	S-354 Discharge (ALL DAY) (AC-FT) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	L8 Canal Pt Discharge (ALL DAY) (AC-FT) -NRNRNRNRNRNRNRNR
	-2612 -251 -4 -4 -2 -5 -1 -1 0 0	Below S-308 Discharge (ALL-DAY) (AC-FT) -1328 -2287 -555 -189 -1 -53 -18 129 82 -2 -NR- 33 -147 -NR-	S S-80 Discharge (ALL-DAY) (AC-FT) 30 56 64 34 48 33 18 18 32 18 32 21 28 21		

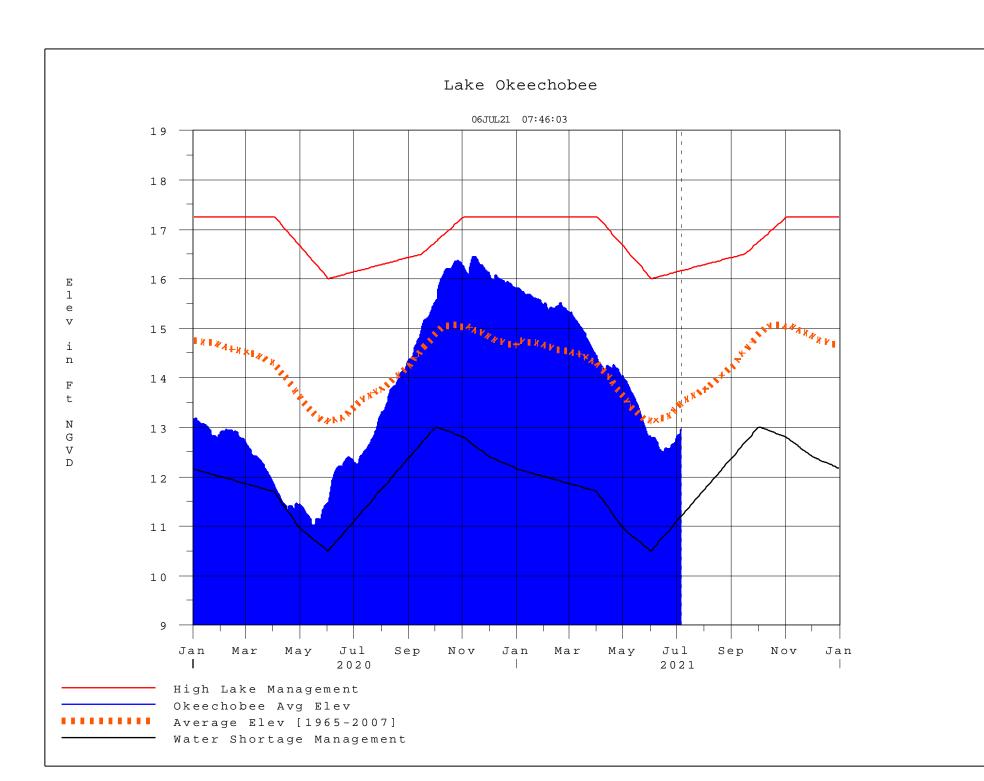
*** NOTE: Discharge (ALL DAY) is computed using Spillway, Sector Gate and Lockages Discharges from 0015 hrs to 2400 hrs.

⁽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 05JUL2021 @ 23:39 ** Preliminary Data - Subject to Revision **



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
	20003	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	Equivalent Depth**	Lake Okeechobee
[million acre-feet]	[feet]	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