Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 10/30/2023 (ENSO Condition: El Niño)

Lake Okeechobee Net Inflow Outlook:

The Lake Okeechobee Net Inflow Outlook has been computed using methods described in the LORS2008 Water Control Plan: Croley's method, the SFWMD empirical method, a subsampling of El Niño years and a sub-sampling of warm years of the Atlantic Multi-decadal Oscillation (AMO) in combination with El Niño ENSO years. 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*		SFWMD Empirical Method		Sub-sampling of El Niño ENSO Years**		Sub-sampling of AMO Warm + EI Niño ENSO Years***	
	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition
Current (Oct-Mar)	N/A	N/A	1.61	Wet	2.02	Very Wet	2.25	Very Wet
Multi Seasonal**** (Nov-Oct)	N/A	N/A	3.51	Wet	4.40	Very Wet	5.79	Very 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 IRI ENSO forecast published.
- ***Sub-sampling based on combination of ENSO and AMO conditions. For this predominant ENSO categorization is used instead of weights.

**** LORS 2008 Water Control Plan calls for the forcing of a 12-month window to evaluate the multi-seasonal Lake Okeechobee Net Inflow Outlook which has been done this week has we are in a transitional period of seasons with above normal rainfall forecasted.

Tributary Hydrologic Conditions:

- **-571 cfs** 14-day running average for Lake Okeechobee Net Inflow through 10/30/2023. According to the classification in <u>Tributary Hydrologic Conditions</u> table, this condition is Dry.
- **-2.39** for Palmer Drought Index on 10/28/2023. According to the classification in <u>Tributary Hydrologic Conditions</u> table, this condition is Dry.

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

LORS2008 Classification Tables:

Lake Okeechobee Stage on 10/30/2023:

Lake Okeechobee Stage: 16.21 feet

Lake Okeechobee Management Zone/Band		Bottom Elevation (feet, NGVD)	Current Lake Stage
High Lake Manage	ement Band	17.20	
	High sub-band	16.83	
Operational Band	Intermediate sub-band	16.22	
	Low sub-band	14.50	← 16.21 ft
Base Flow sub-band		12.88	
Beneficial Use sub	o-band	12.81	
Water Shortage M	lanagement Band		

Part C of LORS2008: Discharge to WCAs

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.

LORS2008 Implementation on 10/30/2023 (ENSO Condition- El Niño):

Status for week ending 10/30/2023*:

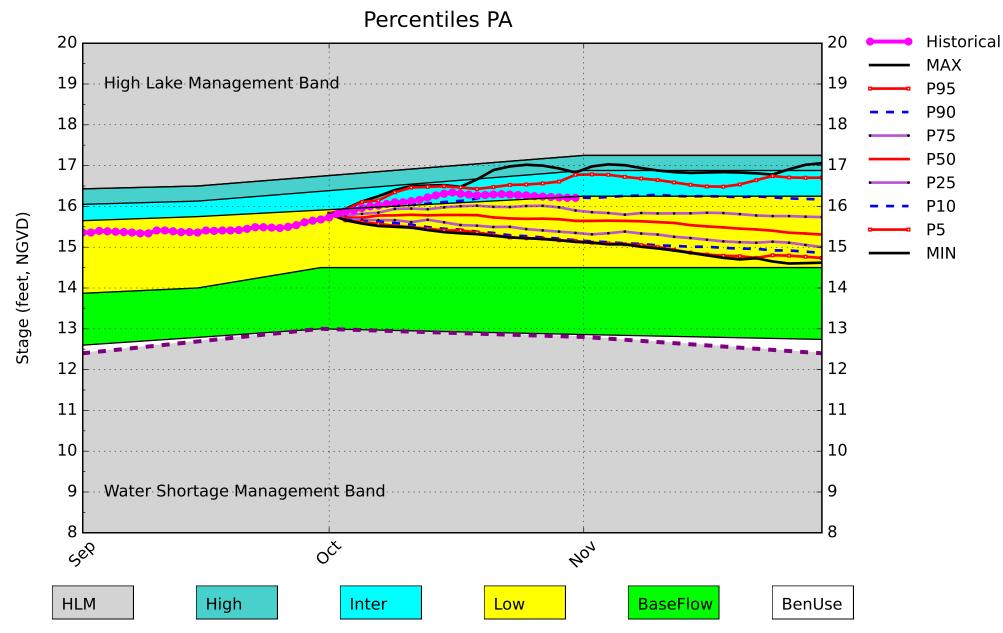
Water Supply Risk Evaluation

Area	Indicator	Value	Color Coded Scoring Scheme
	Projected LOK Stage for the next two months	Low Sub-band	L
	Palmer Drought Index for LOK Tributary Conditions	-2.39 (Extremely Dry)	Н
	CPC Precipitation Outlook	1 month: Above Normal	L
LOK	CFC Frecipitation Outlook	3 months: Above Normal	L
	LOK Seasonal Net Inflow Outlook	2.02 ft	
	ENSO Forecast	Normal to Extremely Wet	_
	LOK Multi-Seasonal Net Inflow Outlook	2.11 ft	M
	ENSO Forecast	Normal	IVI
	WCA 1: 3 Station Average (Sites 1-7, 1-8T, and 1-9)	Above Line 1 (17.14 ft)	L
WCAs	WCA 2A: Site 2-17	Above Line 1 (13.31 ft)	L
	WCA-3A: 3 Station Average (Sites 63, 64, and 65)	Above Line 1 (11.00 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

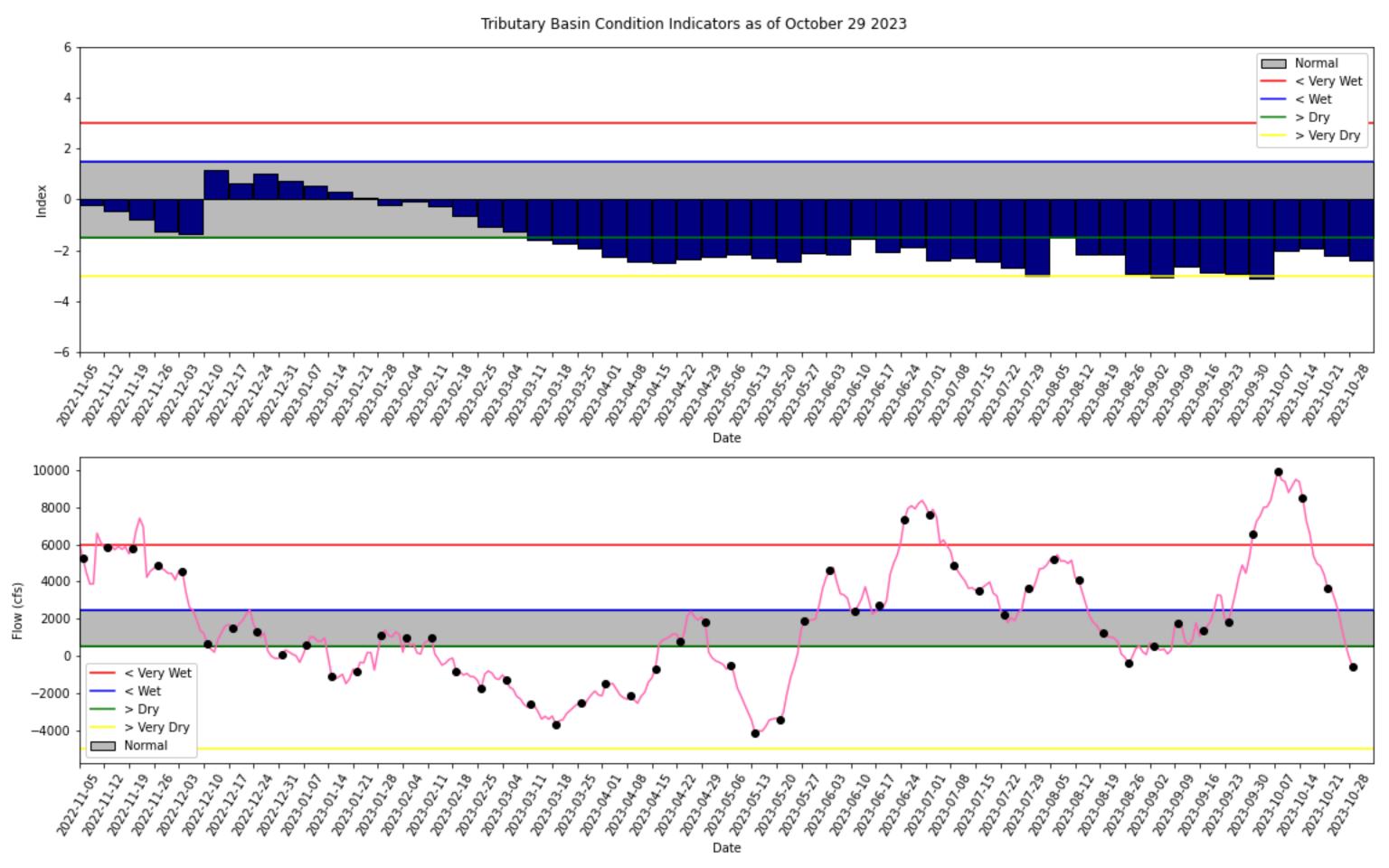
Note: The water supply risk classification based on the Palmer index, as well as the LOK seasonal and multi-seasonal net inflow outlooks use slightly different classification intervals than those used by the 2008-LORS.

^{*-} S80 data for 10/30 is not available from USACE Daily Reports and was assumed to be 0. Water Supply Risk Evaluation LOK Multi-Seasonal Net Inflow Outlook is based on 7-month window. LORS2008 release guidance is using a 12-month window for evaluation.

Lake Okeechobee SFWMM October 2023 Position Analysis

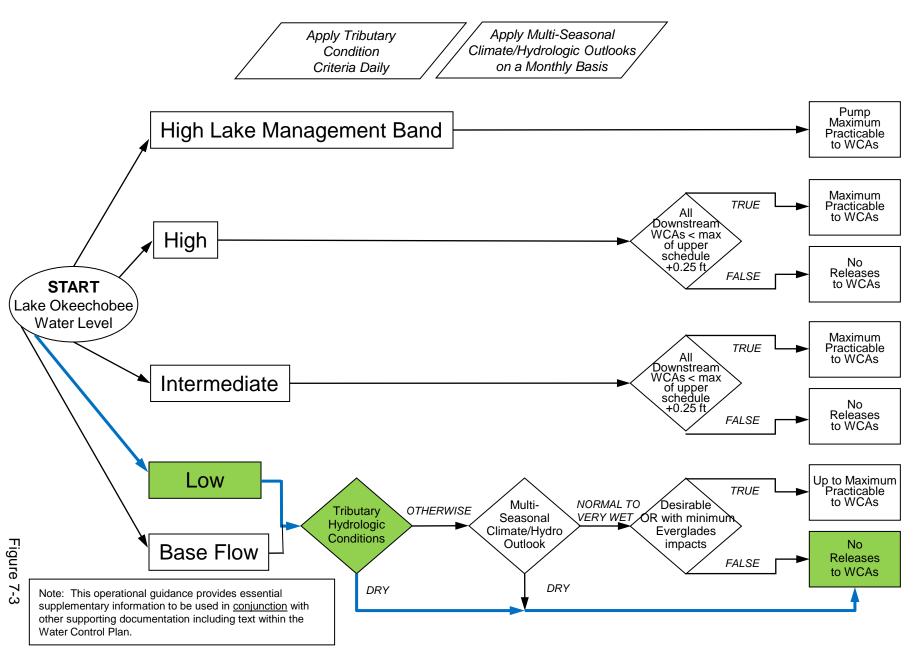


(See assumptions on the Position Analysis Results website)



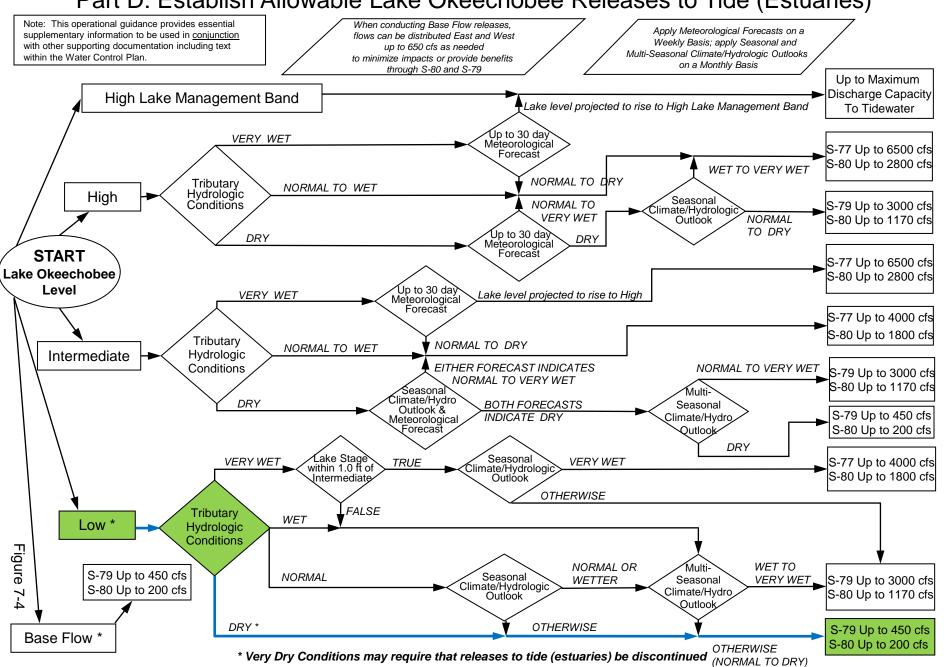
2008 LORS

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

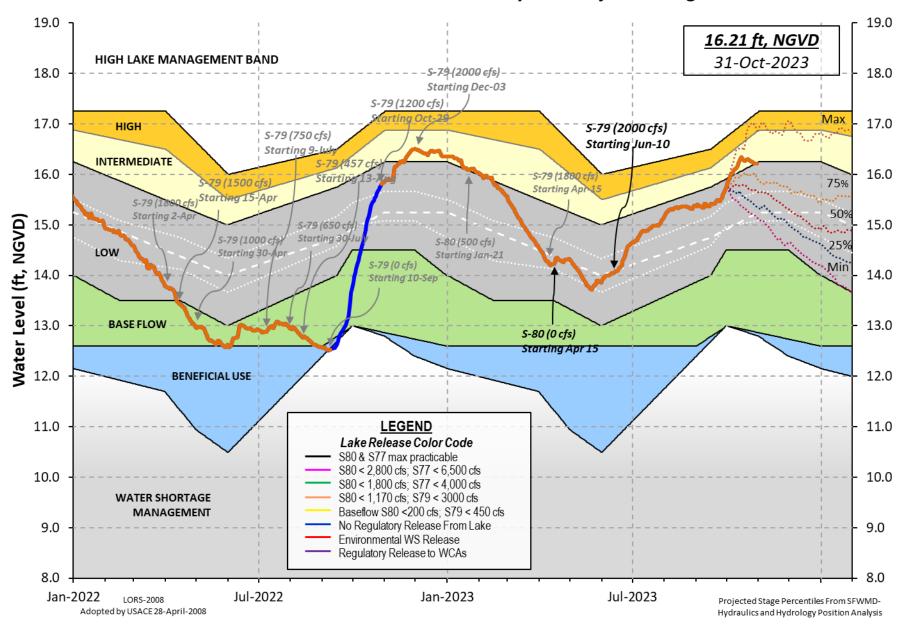


2008 LORS

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



Lake Okeechobee Water Level History and Projected Stages



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> U. S. Army Corps of Engineers, Jacksonville District Lake Okeechobee and Vicinity Report ** Preliminary Data - Subject to Revision **

Data Ending 2400 hours 29 OCT 2023

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

*Okeechobee Lake Elevation 16.21 15.81 15.92 (Official Elv)

Bottom of High Lake Mngmt= 17.20 Top of Water Short Mngmt= 12.81

Currently in Operational Management Band

Simulated Average LORS2008 [1965-2000] 13.98 Difference from Average LORS2008 2.23

290CT (1965-2007) Period of Record Average 15.03 1.18 Difference from POR Average

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ♦ 10.15' ++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ❖ 8.35' Bridge Clearance = 49.52'

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

L001 L005 L006 LZ40 **S4** S352 S308 S133 16.22 16.24 16.23 16.19 16.21 16.29 16.22 16.11

*Combination Okeechobee Avg-Daily Lake Average = 16.21

(*See Note)

Okeechobee Inflows (cfs):

S65E	1773	S65EX1	0	Fisheating Cr	178
S154	18	S191	0	S135 Pumps	0
S84	34	S133 Pumps	0	S2 Pumps	0
S84X	16	S127 Pumps	0	S3 Pumps	0
S71	116	S129 Pumps	0	S4 Pumps	0
S72	284	S131 Pumps	0	C5	0
		•			

Total Inflows: 2418

Okeechobee Outflows (cfs):

		<i>,</i> •			
S135 Culverts	0	S354	77	S77	1590
S127 Culverts	0	S351	457	S308	6
S129 Culverts	0	S352	2		
S131 Culverts	0	L8 Canal Pt	106		

Total Outflows: 2238

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

Okeechobee Pan Evaporation (inches):

S77 0.26 S308 0.21

Average Pan Evap x 0.75 Pan Coefficient = 0.18" = 0.01'

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

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

Evaporation - Precipitation using Lake Area of 730 square miles

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is equal to -NR-

Lake Okeechobee (Change in Storage) Flow is -2269 cfs or -4500 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
 S133 Pumps: 13.44
                       16.13
                                   0
                                        0
                                              0
                                                 0
                                                       0
                                                            0 (cfs)
 S193:
 S191:
              18.80
                       16.11
                                   0
                                       0.0 0.0 0.0
 S135 Pumps: 13.29
                       16.07
                                   0
                                        0
                                            0
                                                               (cfs)
 S135 Culverts:
                                   0
                                       0.0 0.0
North West Shore
 S65E:
              20.95
                       15.92
                                1773
                                       1.1 1.2 0.8 0.5 0.6 0.9
 S65EX1:
              20.95
                       15.92
                                   0
 S127 Pumps: 13.41
                       16.12
                                   0
                                        0
                                              0
                                                   0
                                                       0
                                                            0 (cfs)
                                   0
 S127 Culvert:
                                       0.0
 S129 Pumps: 12.93
                       16.24
                                   0
                                         0
                                                   0
                                              0
                                                               (cfs)
 S129 Culvert:
                                       0.0
                                   0
 S131 Pumps: 12.87
                        -NR-
                                   0
                                         0
                                              0
                                                               (cfs)
 S131 Culvert:
                                   0
 Fisheating Creek
   nr Palmdale
                       31.51
                                 178
   nr Lakeport
              16.23
                       16.18
  S282
                                         0.0 0.0 0.1
South Shore
 S4 Pumps:
              11.61
                      -NR-
                                 0
                                         0
                                              0
                                                   0
                                                               (cfs)
 S169:
              15.41
                       -NR-
                                -NR-
                                      -NR- -NR- -NR-
 S310:
              16.19
                                 13
 S3 Pumps:
              10.15
                       16.25
                                  0
                                         0
                                            0
                                                   0
                                                               (cfs)
              16.25
                       10.15
                                 77
                                       0.0 0.2
 S354:
                       16.26
                                                   0
 S2 Pumps:
              10.06
                                  0
                                        0
                                            0
                                                               (cfs)
              16.26
                       10.06
                                 457
                                       0.3 0.3 0.4
 S351:
 S352:
              16.30
                       10.12
                                   2
                                       0.1 0.0
              16.46
                       15.05
                                       0.0 -NR- -NR-
                                                        0.0
 S271:
 L8 Canal PT
                       14.74
                                 106
                  S351 and S352 Temporary Pumps/S354 Spillway
                       16.26
                                 457 -NR--NR--NR--NR--NR-
 S351:
              10.06
 S352:
              10.12
                       16.30
                                2 -NR--NR--NR--NR-
              10.15
                       16.25
                                 77 -NR--NR--NR-
 S354:
Caloosahatchee River (S77, S78, S79)
 S47B:
              13.38
                       12.17
                                       1.0 1.0
  S47D:
              12.15
                       10.98
                                       0.0
 S77:
   Spillway and Sector Preferred Flow:
              16.09
                    10.85
                                1581 0.0 2.5 2.5 0.0
   Flow Due to Lockages+:
                                   8
```

S78:

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Spillway and Sector Flow:

10.85 2.90 1210 1.5 0.0 2.5 0.0

Flow Due to Lockages+: 10

S79:

Spillway and Sector Flow:

3.04 1.53 2137 0.0 1.0 2.0 2.0 2.0 2.0 0.5 0.0

Flow Due to Lockages+: 7
Percent of flow from S77 74%
Chloride (ppm) 0

St. Lucie Canal (S308, S80)

S308:

Spillway and Sector Preferred Flow:

16.25 13.98 0 0.0 0.0 0.0 0.0

Flow Due to Lockages+: 6

S153: 18.66 13.75 53 0.0 0.0

S80:

Spillway and Sector Flow:

14.05 2.62 0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Flow Due to Lockages+: -NR-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

				Wi	nd
Daily Precipitation Totals	1-Day	3-Day	7-Day	Directio	n Speed
	(inches)	(inches)	(inches)	(Deg�)	(mph)
S133 Pump Station:		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:	0.00	0.00	0.00	61	2
S78:	0.00	0.00	0.00	332	1
S79:	0.00	0.00	0.00	344	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		
•	-NR-	0.00	0.00		
S308:	0.00	0.00	0.00	73	4
S80:	0.00	0.02	0.03	101	8
Okeechobee Average	0.00	0.00	0.00		
(Sites S78, S79 and					
Oke Nexrad Basin Avg	-NR-	0.00	0.00		

Okeechobee Lake Elevations 29 OCT 2023 16.21 Difference from 290CT23 290CT23 -1 Day = 28 OCT 2023 16.22 0.01

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290CT23	-2 Days	=	27 OCT	2023	16.23	0.02
290CT23	-3 Days	=	26 OCT	2023	16.24	0.03
290CT23	-4 Days	=	25 OCT	2023	16.25	0.04
290CT23	-5 Days	=	24 OCT	2023	16.27	0.06
290CT23	-6 Days	=	23 OCT	2023	16.28	0.07
290CT23	-7 Days	=	22 OCT	2023	16.29	0.08
290CT23	-30 Days	=	29 SEP	2023	15.68	-0.53
290CT23	-1 Year	=	29 OCT	2022	15.81	-0.40
290CT23	-2 Year	=	29 OCT	2021	15.92	-0.29

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

		Lake Okeechobee	Net Inflow (LONIN)	
	Averag	e Flow over the	previous 14 days	Avg-Daily Flow
290CT23	Today =	29 OCT 2023	-566 MON	-152
290CT23	-1 Day =	28 OCT 2023	-45 SUN	-123
290CT23	-2 Days =	27 OCT 2023	632 SAT	-84
290CT23	-3 Days =	26 OCT 2023	1448 FRI	184
290CT23	-4 Days =	25 OCT 2023	1546 THU	-1926
290CT23	-5 Days =	24 OCT 2023	1835 WED	-585
290CT23	-6 Days =	23 OCT 2023	2494 TUE	- 245
290CT23	-7 Days =	22 OCT 2023	2533 MON	-1213
290CT23	-8 Days =	21 OCT 2023	3403 SUN	2989
290CT23	-9 Days =	20 OCT 2023	3922 SAT	2981
290CT23	-10 Days =	19 OCT 2023	4081 FRI	3259
290CT23	-11 Days =	18 OCT 2023	4579 THU	-3319
290CT23	-12 Days =	17 OCT 2023	5942 WED	-3485
290CT23	-13 Days =	16 OCT 2023	6774 TUE	-6206

	S65E		
	Average Flow over	previous 14 days	Avg-Daily Flow
290CT23 Today=	29 OCT 2023	2700 MON	1932
290CT23 -1 Day =	28 OCT 2023	2869 SUN	1998
290CT23 -2 Days =	27 OCT 2023	3063 SAT	2018
290CT23 -3 Days =	26 OCT 2023	3275 FRI	2037
290CT23 -4 Days =	25 OCT 2023	3484 THU	1972
290CT23 -5 Days =	24 OCT 2023	3696 WED	2393
290CT23 -6 Days =	23 OCT 2023	3880 TUE	2504
290CT23 -7 Days =	22 OCT 2023	4036 MON	2485
290CT23 -8 Days =	21 OCT 2023	4170 SUN	2912
290CT23 -9 Days =	20 OCT 2023	4241 SAT	3009
290CT23 -10 Days =	19 OCT 2023	4288 FRI	3199
290CT23 -11 Days =	18 OCT 2023	4311 THU	3523
290CT23 -12 Days =	17 OCT 2023	4299 WED	3684
290CT23 -13 Days =	16 OCT 2023	4269 TUE	4132

	S65EX1		
	Average Flow over pro	evious 14 days	Avg-Daily Flow
290CT23 Today=	29 OCT 2023	0 MON	0
290CT23 -1 Day =	28 OCT 2023	0 SUN	0
290CT23 -2 Days =	27 OCT 2023	0 SAT	0
290CT23 -3 Days =	26 OCT 2023	0 FRI	0
290CT23 -4 Days =	25 OCT 2023	0 THU	0
290CT23 -5 Days =	24 OCT 2023	0 WED	0
290CT23 -6 Days =	23 OCT 2023	0 TUE	0
290CT23 -7 Days =	22 OCT 2023	0 MON	0
290CT23 -8 Days =	21 OCT 2023	0 SUN	0
290CT23 -9 Days =	20 OCT 2023	0 SAT	0
290CT23 -10 Days =	19 OCT 2023	0 FRI	0
290CT23 -11 Days =	18 OCT 2023	0 THU	0
290CT23 -12 Days =	17 OCT 2023	0 WED	0
290CT23 -13 Days =	16 OCT 2023	0 TUE	0

oke

Lake Okeechobee Outlets Last 14 Days

DATE 29 OCT 202: 28 OCT 202: 27 OCT 202: 26 OCT 202: 25 OCT 202: 24 OCT 202: 23 OCT 202: 21 OCT 202: 20 OCT 202: 19 OCT 202: 18 OCT 202: 17 OCT 202: 16 OCT 202:	3 2496 3 1842 3 2826 3 3340 3 4425 3 3763 3 1870 9 94 3 1169 3 1857 3 2195 3 1965	Below S-77 Discharge (ALL-DAY) (AC-FT) 3136 2560 1893 2951 3515 2176 3297 2094 1427 1412 1963 2416 2087 1191	S-78 Discharge (ALL DAY) (AC-FT) 2443 1973 2041 2057 2618 4054 3539 2482 1618 1209 1493 2275 2263 2015	S-79 Discharge (ALL DAY) (AC-FT) 4267 3476 3075 3121 4070 5041 5111 4246 2905 2583 3060 3640 4516 4391	
DATE 29 OCT 202: 28 OCT 202: 27 OCT 202: 26 OCT 202: 25 OCT 202: 24 OCT 202: 23 OCT 202: 21 OCT 202: 20 OCT 202: 21 OCT 202: 19 OCT 202: 18 OCT 202: 17 OCT 202: 16 OCT 202:	3 16 3 21 3 -NR- 3 -NR- 3 -NR- 3 -NR- 3 0 3 0 3 0	S-351 Discharge (ALL DAY) (AC-FT) 906 1112 864 566 428 263 213 0 0 0	S-352 Discharge (ALL DAY) (AC-FT) 4 427 1498 1348 970 901 503 0 0 0	S-354 Discharge (ALL DAY) (AC-FT) 153 154 77 0 81 0 0 0	L8 Canal Pt Discharge (ALL DAY) (AC-FT) 211 209 206 206 185 193 210 213 201 201 201 204 216 183 182
DATE 29 OCT 202: 28 OCT 202: 27 OCT 202: 26 OCT 202: 24 OCT 202: 23 OCT 202: 22 OCT 202: 21 OCT 202: 20 OCT 202: 19 OCT 202: 18 OCT 202: 17 OCT 202: 16 OCT 202:	5 5 5 5 5 5 5 5 5 5 5 5 5 6 5 6 6 5 6	Below S-308 Discharge (ALL-DAY) (AC-FT) -NRNRNRNRNRNRNRNR			

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

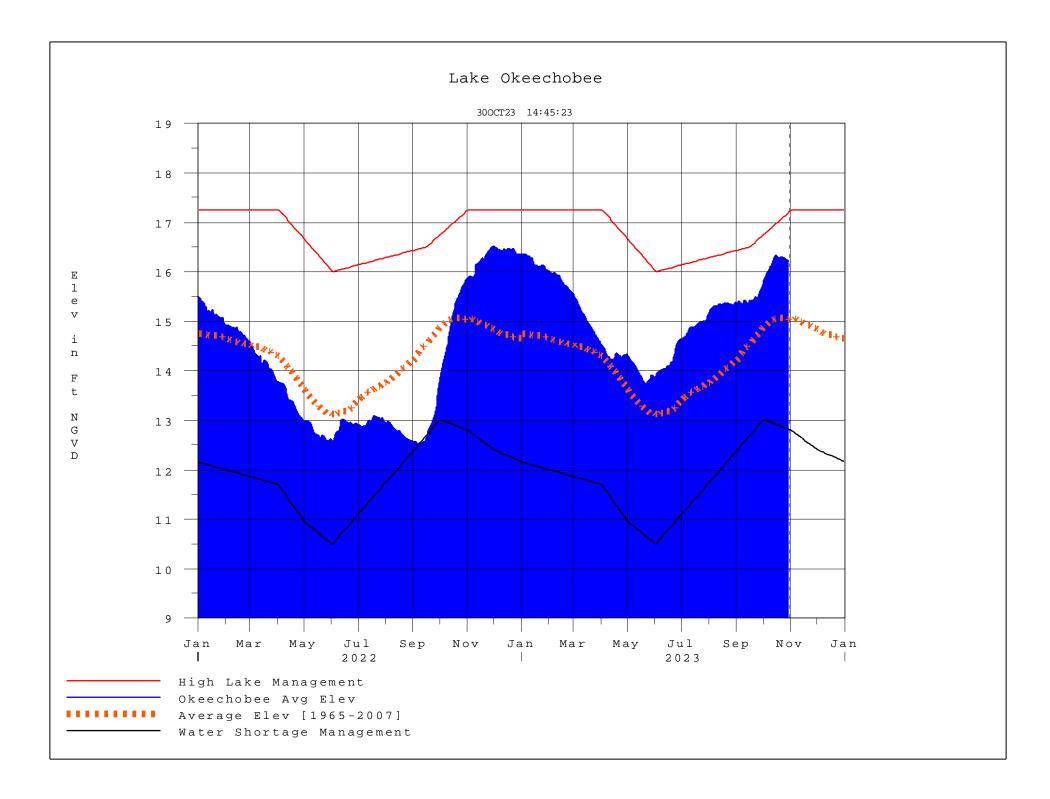
⁽I) - Flows preceded by "I" signify an instantaneous flow computed from the single value reported for the day

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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

Report Generated 300CT2023 @ 14:38 ** 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
[on dor'd root]	[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
[orr doro root]	[ioot]	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