Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 06/01/2020 (ENSO Neutral Condition)

Lake Okeechobee Net Inflow Outlook:

The Lake Okeechobee Net Inflow Outlook has been computed using 4 methods: Croley's method[1], the SFWMD empirical method[2], a sub-sampling of Neutral years[3] and a sub-sampling of warm years of the Atlantic Multi-decadal Oscillation (AMO) in combination with La Nina ENSO years[4]. 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 (Jun-Nov)	N/A	N/A	2.70	Very Wet	2.81	Very Wet	4.07	Very Wet
Multi Seasonal (Jun-Apr)	N/A	N/A	3.13	Wet	3.06	Wet	4.38	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:

5972 cfs 14-day running average for Lake Okeechobee Net Inflow through 06/01/2020.
According to the classification in Tributary Hydrologic Conditions table, this condition is Wet.

-1.88 for Palmer Drought Index on 05/30/2020.
According to the classification in Tributary Hydrologic Conditions table, this condition is Dry.

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

LORS2008 Classification Tables:

Lake Okeechobee Stage on 06/01/2020

Lake Okeechobee Stage: **11.47 feet**

Lake Okeechobee Management Zone/Band		Bottom Elevation (feet, NGVD)	Current Lake Stage
High Lake Management Band		16.02	
Operational Band	High sub-band	15.52	
	Intermediate sub-band	15.00	
	Low sub-band	13.00	
Base Flow sub-band		12.60	
Beneficial Use sub-band		10.50	← 11.47 ft
Water Shortage Management Band			

Part C and Part D of LORS2008:

With Lake Okeechobee stage below the Base-Flow Sub-Band, Part C **nor** Part D of the 2008 LORS suggest releases to the WCAs or Estuaries required to manage lake stages.

Adaptive Protocol's Release Guidance: Caloosahatchee Estuary

The SFWMD's Lake Okeechobee Adaptive Protocol's Release Guidance suggests release at S-79 up to 300 cfs, S-77 environmental water supply release to supplement as needed.

LORS2008 Implementation on 06/1/2020 (ENSO Neutral Condition):

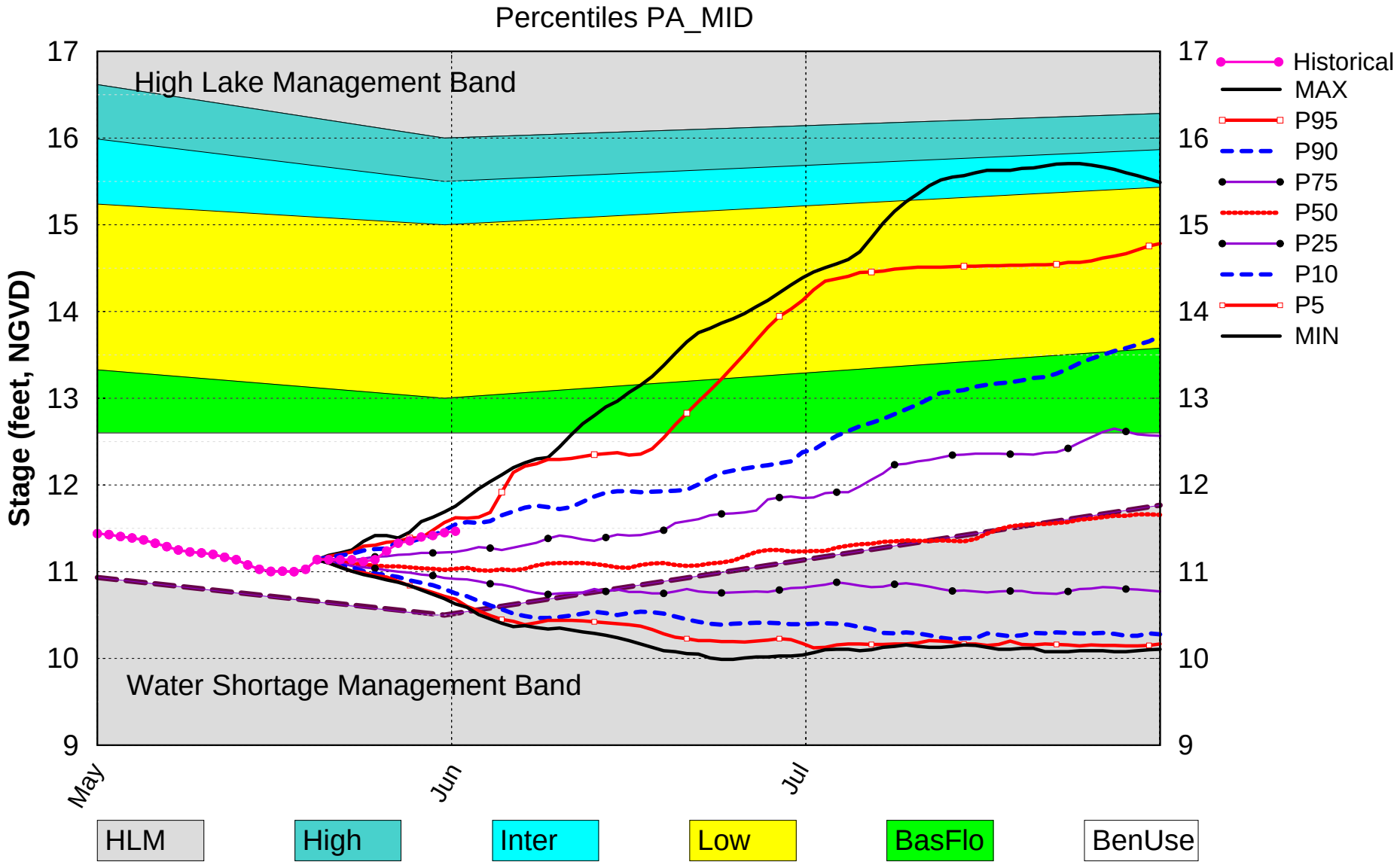
Status for week ending 6/1/2020:

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	-1.88 (Dry)	M
	CPC Precipitation Outlook	1 month: Above Normal	L
		3 months: Above Normal	L
	LOK Seasonal Net Inflow Outlook	2.81 ft	L
	ENSO Forecast (positive)	Normal to Extremely Wet	
	LOK Multi-Seasonal Net Inflow Outlook	3.06 ft	M
	ENSO Forecast (positive)	Normal	
WCAs	WCA 1: 3 Station Average (Site 1-7, 1-8T and 1-9)	Above Line 1 (16.11 ft)	L
	WCA 2A: Site 2-17	Above Line 1 (12.15 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64 and 65)	Above Line 1 (9.31 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.

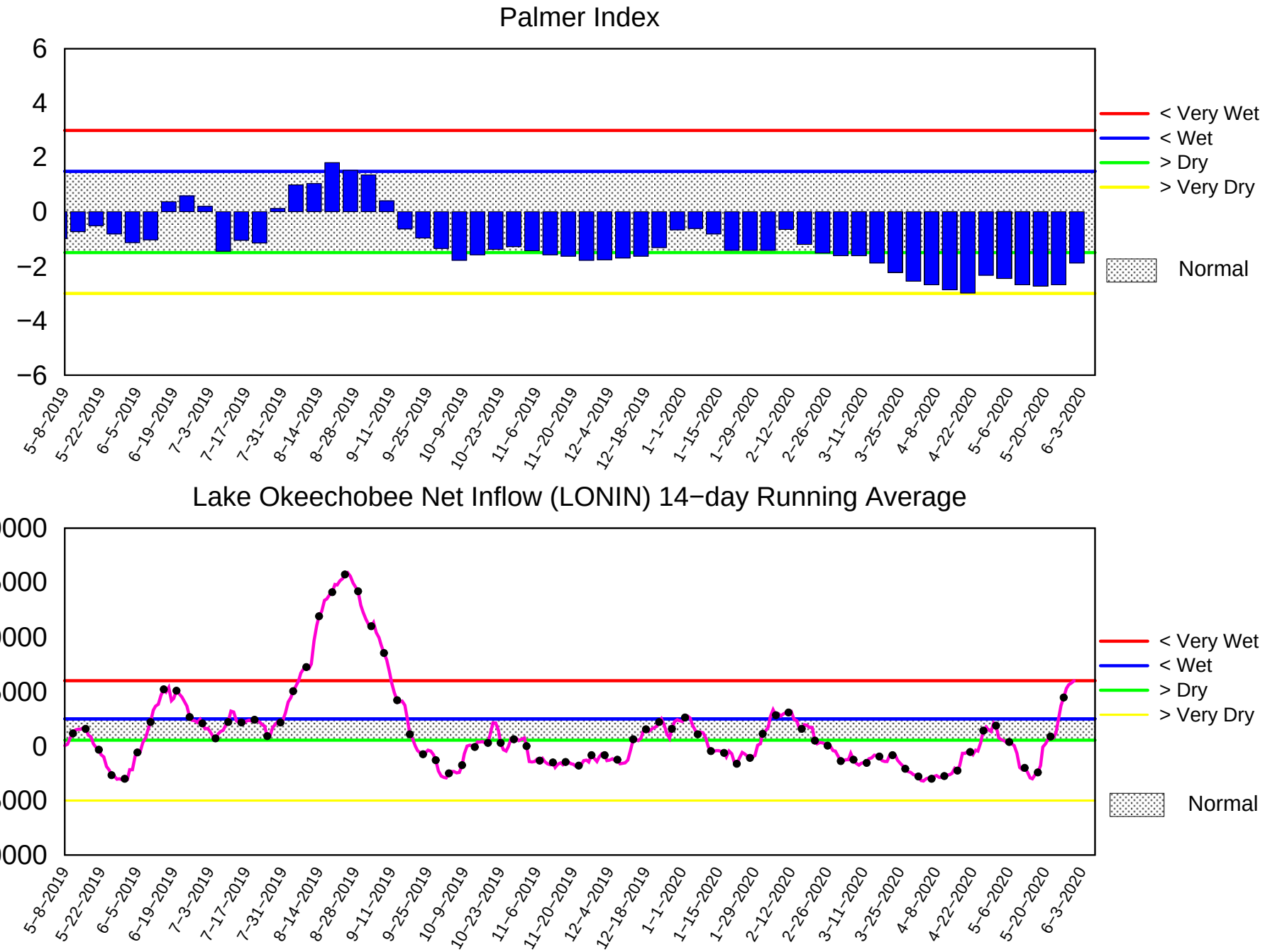
Lake Okeechobee SFWMM May 2020 Mid−Mon Position Analysis



(See assumptions on the Position Analysis Results website)

Tue Jun 02 08:31:18 EDT 2020

Tributary Basin Condition Indicators as of June 1 2020



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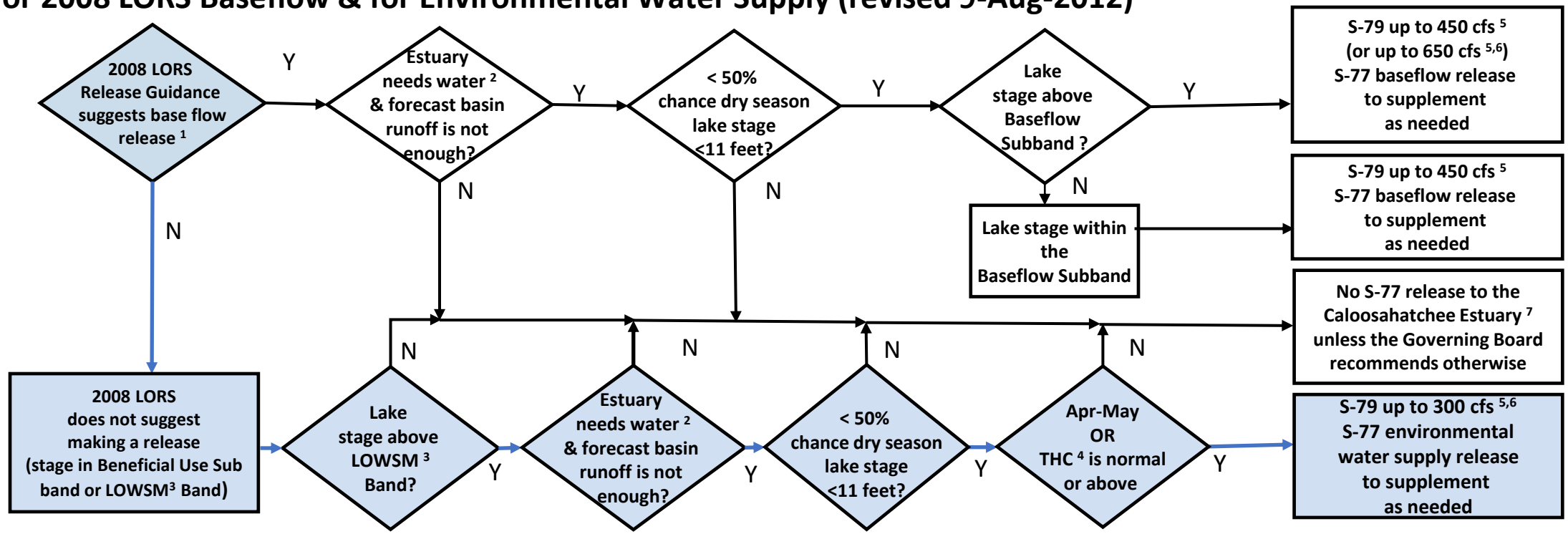
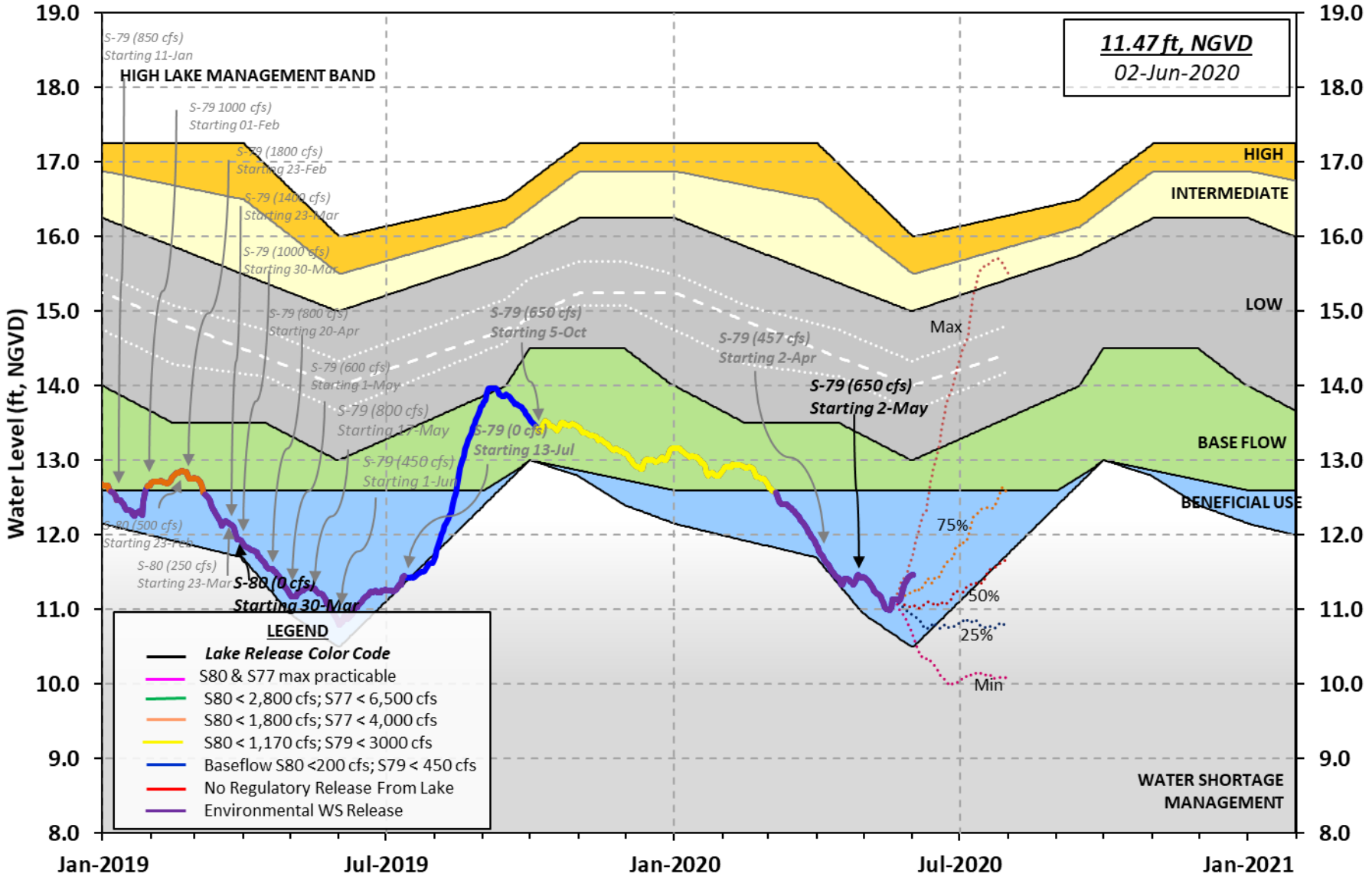
Flowchart to Guide Recommendations for Lake Okeechobee Releases to the Caloosahatchee Estuary for 2008 LORS Baseflow & for Environmental Water Supply (revised 9-Aug-2012)



[1]The 2008 LORS Release Guidance (Part D) can suggest baseflow releases in the Intermediate, Low, or Baseflow Subbands.
[2]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.
[3]LOWSM = Lake Okeechobee Water Shortage Management.
[4]Tributary Hydrologic Condition (THC) is based on classification of Lake Okeechobee Net Inflow and Palmer Index.
[5]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.
[6]After reviewing conditions in Water Conservation Areas (WCAs), Stormwater Treatment Areas (STAs), ENP, St. Lucie Estuary and Lake Okeechobee.
[7]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



LORS-2008
Adopted by USACE 28-April-2008

Projected Stage Percentiles From
SFWMD-HESM Position Analysis

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

Data Ending 2400 hours 31 MAY 2020

Okeechobee Lake Regulation	Elevation (ft-NGVD)	Last Year (ft-NGVD)	2YRS Ago (ft-NGVD)	
*Okeechobee Lake Elevation	11.47	10.84	14.14	(Official Elv)

Bottom of High Lake Mngmt= 16.02 Top of Water Short Mngmt= 10.50
Currently in Operational Management Band

Simulated Average LORS2008 [1965-2000] 11.96
Difference from Average LORS2008 -0.49

31MAY (1965-2007) Period of Record Average 13.12
Difference from POR Average -1.65

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ÷ 5.41'
++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ÷ 3.61'
Bridge Clearance = 51.97'

---

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

L001	L005	L006	LZ40	S4	S352	S308	S133
11.51	11.49	11.43	11.43	11.43	11.56	11.42	11.49

*Combination Okeechobee Avg-Daily Lake Average = 11.47 (*See Note)

Okeechobee Inflows (cfs):

S65E	893	S65EX1	0	Fisheating Cr	-NR-
S154	0	S191	0	S135 Pumps	0
S84	2031	S133 Pumps	0	S2 Pumps	0
S84X	481	S127 Pumps	0	S3 Pumps	0
S71	360	S129 Pumps	0	S4 Pumps	0
S72	159	S131 Pumps	35	C5	0

Total Inflows: 3959

Okeechobee Outflows (cfs):

S135 Culverts	0	S354	0	S77	0
S127 Culverts	0	S351	0	S308	-288
S129 Culverts	0	S352	0		
S131 Culverts	0	L8 Canal Pt	-5		

Total Outflows: -293

****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):
S77 0.23 S308 0.40
Average Pan Evap x 0.75 Pan Coefficient = 0.24" = 0.02'

Lake Average Precipitation using NEXRAD: = 0.05" = 0.00'

Evaporation - Precipitation: = 0.19" = 0.02'
Evaporation - Precipitation using Lake Area of 730 square miles
is equal to 3656 cfs out of the lake.
Lake Okeechobee (Change in Storage) Flow is 3630 cfs or 7200 AC-FT

	Headwater Elevation (ft-msl)	Tailwater Elevation (ft-msl)	Disch (cfs)	Gate Positions #1 (ft)	#2 (ft)	#3 (ft)	#4 (ft)	#5 (ft)	#6 (ft)	#7 (ft)	#8 (ft)	
			(I) see note at bottom									
North East Shore												
S133 Pumps:	12.82	11.69	0	0	0	0	0	0				(cfs)
S193:	------											
S191:	17.99	11.68	0	0.0	0.0	0.0						
S135 Pumps:	13.63	11.53	0	0	0	0	0					(cfs)
S135 Culverts:			0	0.0	0.0							
North West Shore												
S65E:	21.12	11.52	893	0.5	0.5	0.5	0.5	-0.0	0.0			
S65EX1:	21.12	11.52	0									
S127 Pumps:	12.52	11.66	0	0	0	0	0	0				(cfs)
S127 Culvert:			0	0.0								
S129 Pumps:	13.11	12.80	0	0	0	0						(cfs)
S129 Culvert:			0	0.0								
S131 Pumps:	12.89	11.73	35	0	-NR-							(cfs)
S131 Culvert:			0									
Fisheating Creek												
nr Palmdale	------		-NR-									
nr Lakeport	------											
C5:	------	-NR-	0	-NR-	-NR-	-NR-						
South Shore												
S4 Pumps:	11.37	11.37	0	0	0	0						(cfs)
S169:	11.37	11.36	25	5.0	5.0	5.0						
S310:	11.21		-10									
S3 Pumps:	9.82	11.29	0	0	0	0						(cfs)
S354:	11.29	9.82	0	0.0	0.0							
S2 Pumps:	10.06	-NR-	0	0	0	0	0					(cfs)
S351:	-NR-	10.06	0	0.0	0.0	0.0						
S352:	11.52	10.03	0	0.0	0.0							
C10A:	-NR-	11.59		8.0	8.0	8.0	0.0	0.0				
L8 Canal PT		11.37	-5									
S351 and S352 Temporary Pumps/S354 Spillway												
S351:	10.06	-NR-	0	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-			
S352:	10.03	11.52	0	-NR-	-NR-	-NR-	-NR-					
S354:	9.82	11.29	0	-NR-	-NR-	-NR-	-NR-					
Caloosahatchee River (S77, S78, S79)												
S47B:	12.31	11.12		0.0	0.0							
S47D:	11.06	11.06	61	4.6								

```
  S77:
    Spillway and Sector Preferred Flow:
               11.50     10.97       0  0.0  0.0  0.0  0.0
    Flow Due to Lockages+:           0

  S78:
    Spillway and Sector Flow:
               10.94      2.91    1171    1.0  2.5  0.0  0.0
    Flow Due to Lockages+:          11

  S79:
    Spillway and Sector Flow:
                3.05      1.66    2131    1.0  2.0  2.0  2.0  0.0  0.0  0.0  0.0
    Flow Due to Lockages+:        -NR-
    Percent of flow from S77         0%
    Chloride            (ppm)     -N


St. Lucie Canal (S308, S80)
  S308:
    Spillway and Sector Preferred Flow:
               11.47     11.53    -288  3.0  3.0  3.0  3.0
    Flow Due to Lockages+:           0

  S153:        18.61     11.34      76    0.6  0.5
  S80:
    Spillway and Sector Flow:
               11.58      0.59       0    0.0  0.0  0.0  0.0  0.0  0.0  0.0
    Flow Due to Lockages+:          25
    Percent of flow from S308   NA  %

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

  Speedy Point Top Salinity    (mg/ml) 5977
  Speedy Point Bottom Salinity (mg/ml) 6282

 + 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
```

Daily Precipitation Totals	1-Day (inches)	3-Day (inches)	7-Day (inches)	----- Wind ---- Direction (Degø)	Speed (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:	27.15	29.17	32.12	192	4
S78:	11.08	13.06	16.84	186	1
S79:	10.52	10.58	13.45	140	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:	50.39	50.39	51.33	155	9
S80:	19.18	19.18	25.48	108	1
Okeechobee Average	38.77	6.12	6.42		

(Sites S78, S79 and S80 not included)

Oke Nexrad Basin Avg	0.05	0.28	2.41

Okeechobee Lake Elevations				Difference from 31MAY20
31MAY20	-1 Day =	30 MAY 2020	11.45	-0.02
31MAY20	-2 Days =	29 MAY 2020	11.42	-0.05
31MAY20	-3 Days =	28 MAY 2020	11.40	-0.07
31MAY20	-4 Days =	27 MAY 2020	11.36	-0.11
31MAY20	-5 Days =	26 MAY 2020	11.33	-0.14
31MAY20	-6 Days =	25 MAY 2020	11.24	-0.23
31MAY20	-7 Days =	24 MAY 2020	11.14	-0.33
31MAY20	-30 Days =	01 MAY 2020	11.43	-0.04
31MAY20	-1 Year =	31 MAY 2019	10.84	-0.63
31MAY20	-2 Year =	31 MAY 2018	14.14	2.67

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

Lake Okeechobee Net Inflow (LONIN)

			Average Flow over the previous 14 days		Avg-Daily Flow
31MAY20	Today =	31 MAY 2020	6254	MON	3630
31MAY20	-1 Day =	30 MAY 2020	6051	SUN	5452
31MAY20	-2 Days =	29 MAY 2020	5864	SAT	3630
31MAY20	-3 Days =	28 MAY 2020	5488	FRI	7058
31MAY20	-4 Days =	27 MAY 2020	4647	THU	5294
31MAY20	-5 Days =	26 MAY 2020	3856	WED	16184
31MAY20	-6 Days =	25 MAY 2020	2648	TUE	17988
31MAY20	-7 Days =	24 MAY 2020	1238	MON	3729
31MAY20	-8 Days =	23 MAY 2020	778	SUN	-3061
31MAY20	-9 Days =	22 MAY 2020	898	SAT	102
31MAY20	-10 Days =	21 MAY 2020	679	FRI	53
31MAY20	-11 Days =	20 MAY 2020	260	THU	16
31MAY20	-12 Days =	19 MAY 2020	-51	WED	20001
31MAY20	-13 Days =	18 MAY 2020	-1775	TUE	7479

S65E

			Average Flow over previous 14 days		Avg-Daily Flow
31MAY20	Today=	31 MAY 2020	568	MON	1030
31MAY20	-1 Day =	30 MAY 2020	510	SUN	1019
31MAY20	-2 Days =	29 MAY 2020	448	SAT	860
31MAY20	-3 Days =	28 MAY 2020	404	FRI	647
31MAY20	-4 Days =	27 MAY 2020	362	THU	719
31MAY20	-5 Days =	26 MAY 2020	337	WED	876
31MAY20	-6 Days =	25 MAY 2020	296	TUE	740
31MAY20	-7 Days =	24 MAY 2020	270	MON	445
31MAY20	-8 Days =	23 MAY 2020	273	SUN	366
31MAY20	-9 Days =	22 MAY 2020	270	SAT	273
31MAY20	-10 Days =	21 MAY 2020	273	FRI	295
31MAY20	-11 Days =	20 MAY 2020	286	THU	237
31MAY20	-12 Days =	19 MAY 2020	300	WED	341
31MAY20	-13 Days =	18 MAY 2020	325	TUE	107

S65EX1

			Average Flow over previous 14 days		Avg-Daily Flow
31MAY20	Today=	31 MAY 2020	131	MON	0
31MAY20	-1 Day =	30 MAY 2020	134	SUN	109
31MAY20	-2 Days =	29 MAY 2020	138	SAT	212

31MAY20	-3 Days =	28 MAY 2020	133	FRI	397
31MAY20	-4 Days =	27 MAY 2020	121	THU	224
31MAY20	-5 Days =	26 MAY 2020	120	WED	215
31MAY20	-6 Days =	25 MAY 2020	123	TUE	240
31MAY20	-7 Days =	24 MAY 2020	130	MON	119
31MAY20	-8 Days =	23 MAY 2020	149	SUN	44
31MAY20	-9 Days =	22 MAY 2020	166	SAT	44
31MAY20	-10 Days =	21 MAY 2020	183	FRI	91
31MAY20	-11 Days =	20 MAY 2020	191	THU	45
31MAY20	-12 Days =	19 MAY 2020	199	WED	44
31MAY20	-13 Days =	18 MAY 2020	196	TUE	45

Lake Okeechobee Outlets Last 14 Days

DATE	S-77 Discharge (ALL DAY) (AC-FT)	Below S-77 Discharge (ALL-DAY) (AC-FT)	S-78 Discharge (ALL DAY) (AC-FT)	S-79 Discharge (ALL DAY) (AC-FT)
31 MAY 2020	1	114	2373	-NR-
30 MAY 2020	1	39	2381	3305
29 MAY 2020	0	53	2457	4895
28 MAY 2020	1	154	2293	3741
27 MAY 2020	-0	108	3548	5265
26 MAY 2020	-95	-42	2777	4734
25 MAY 2020	265	316	1992	2454
24 MAY 2020	344	568	1223	1794
23 MAY 2020	153	272	1878	2330
22 MAY 2020	-46	3	907	2026
21 MAY 2020	78	-37	600	939
20 MAY 2020	54	8	500	653
19 MAY 2020	376	455	623	1238
18 MAY 2020	1243	1429	912	2608

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)
31 MAY 2020	-19	0	0	0	-11
30 MAY 2020	-55	0	0	0	13
29 MAY 2020	-177	0	0	0	-44
28 MAY 2020	-183	0	0	0	-90
27 MAY 2020	-277	0	0	0	-62
26 MAY 2020	-207	0	0	0	-70
25 MAY 2020	-217	0	0	0	-94
24 MAY 2020	-151	0	35	0	10
23 MAY 2020	-75	0	792	0	-0
22 MAY 2020	-128	0	203	0	-2
21 MAY 2020	-92	0	0	0	9
20 MAY 2020	-200	0	0	0	-12
19 MAY 2020	-241	0	14	0	-42
18 MAY 2020	161	1457	584	728	-40

DATE	S-308 Discharge (ALL DAY) (AC-FT)	Below S-308 Discharge (ALL-DAY) (AC-FT)	S-80 Discharge (ALL-DAY) (AC-FT)
31 MAY 2020	-2931	-571	49
30 MAY 2020	-3101	-461	57
29 MAY 2020	-3530	-753	35
28 MAY 2020	-2111	-549	18
27 MAY 2020	-3366	-845	24
26 MAY 2020	-2710	-NR-	21

25 MAY 2020	-2046	-691	-NR-
24 MAY 2020	-1867	-309	23
23 MAY 2020	-2147	-198	43
22 MAY 2020	-1952	-51	-NR-
21 MAY 2020	-1116	12	-NR-
20 MAY 2020	-2045	-195	45
19 MAY 2020	-1360	-281	27
18 MAY 2020	-1623	16	41

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

(I) - Flows preceeded 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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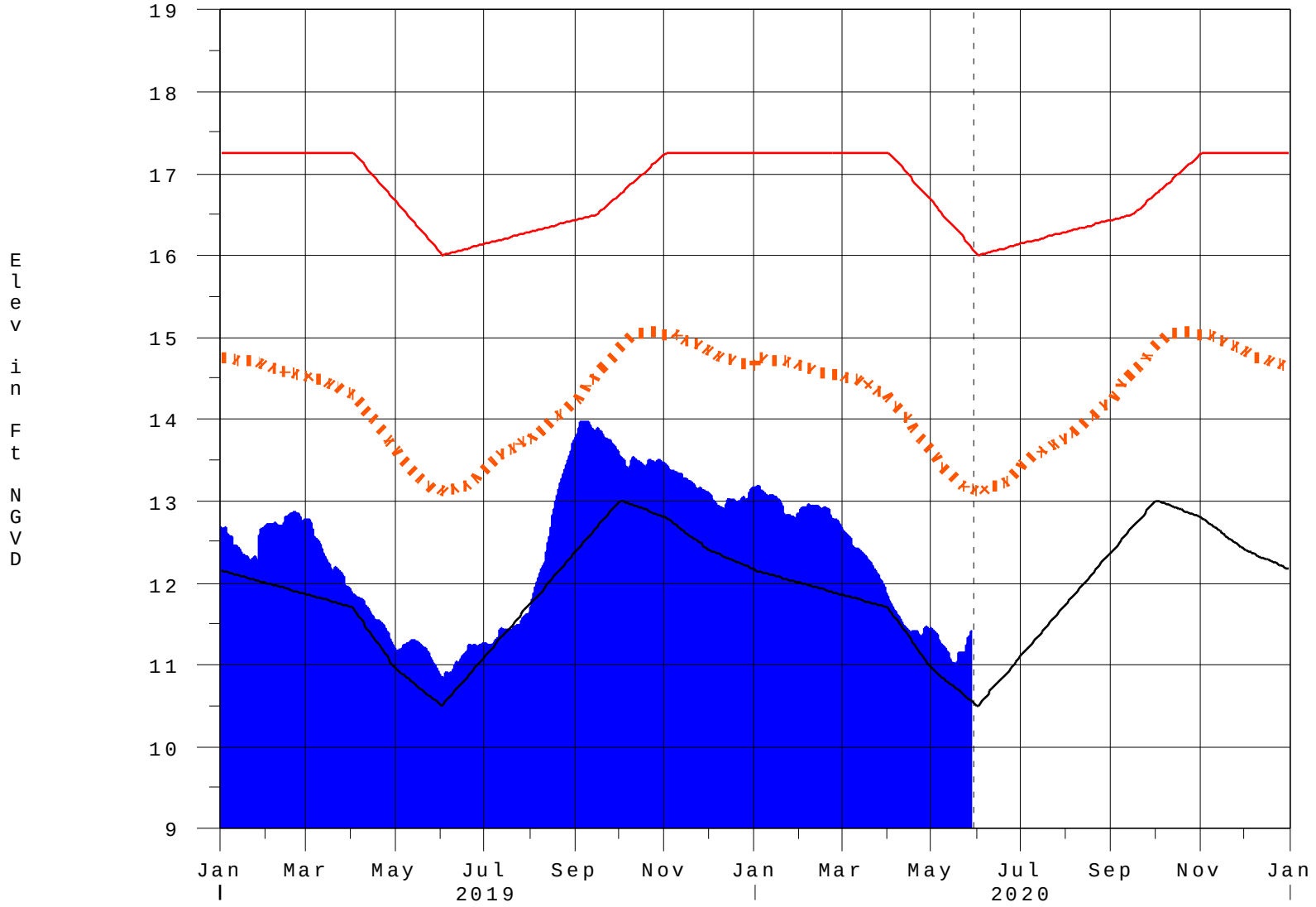
Report Generated 01JUN2020 @ 23:39 ** Preliminary Data - Subject to Revision **

Lake Okeechobee

29MAY20 12:30:22



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 >= 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