Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 05/25/2020 (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 (May-Oct)	N/A	N/A	2.53	Very Wet	2.66	Very Wet	3.74	Very Wet
Multi Seasonal (May-Apr)	N/A	N/A	3.09	Wet	3.02	Wet	4.37	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:

1172 cfs 14-day running average for Lake Okeechobee Net Inflow through 05/25/2020.
According to the classification in Tributary Hydrologic Conditions table, this condition is Normal.

-2.67 for Palmer Drought Index on 05/23/2020.
According to the classification in Tributary Hydrologic Conditions table, this condition is Dry.

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

LORS2008 Classification Tables:

Lake Okeechobee Stage on 05/25/2020

Lake Okeechobee Stage: **11.14 feet**

Lake Okeechobee Management Zone/Band		Bottom Elevation (feet, NGVD)	Current Lake Stage
High Lake Management Band		16.16	
Operational Band	High sub-band	15.63	
	Intermediate sub-band	15.06	
	Low sub-band	13.08	
Base Flow sub-band		12.60	
Beneficial Use sub-band		10.60	← 11.14 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 05/25/2020 (ENSO Neutral Condition):

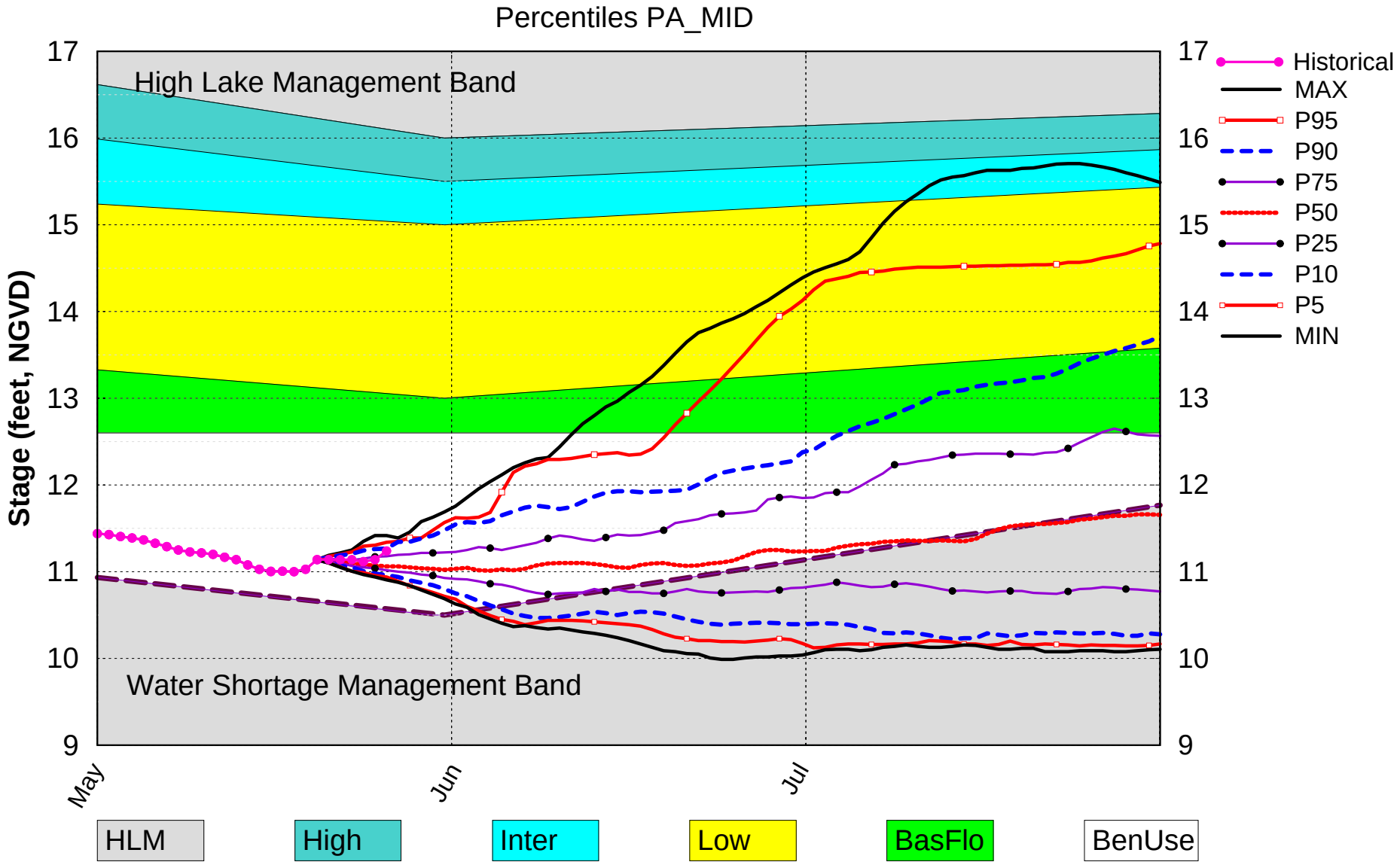
Status for week ending 05/25/2020:

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	-2.67 (Extremely Dry)	H
	CPC Precipitation Outlook	1 month: Above Normal	L
		3 months: Above Normal	L
	LOK Seasonal Net Inflow Outlook	2.66 ft	L
	ENSO Forecast (positive)	Normal to Extremely Wet	
	LOK Multi-Seasonal Net Inflow Outlook	3.02 ft	M
	ENSO Forecast (positive)	Normal	
WCAs	WCA 1: 3 Station Average (Site 1-7, 1-8T and 1-9)	Above Line 1 (16.08 ft)	L
	WCA 2A: Site 2-17	Above Line 1 (11.54 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64 and 65)	Above Line 1 (9.02 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.

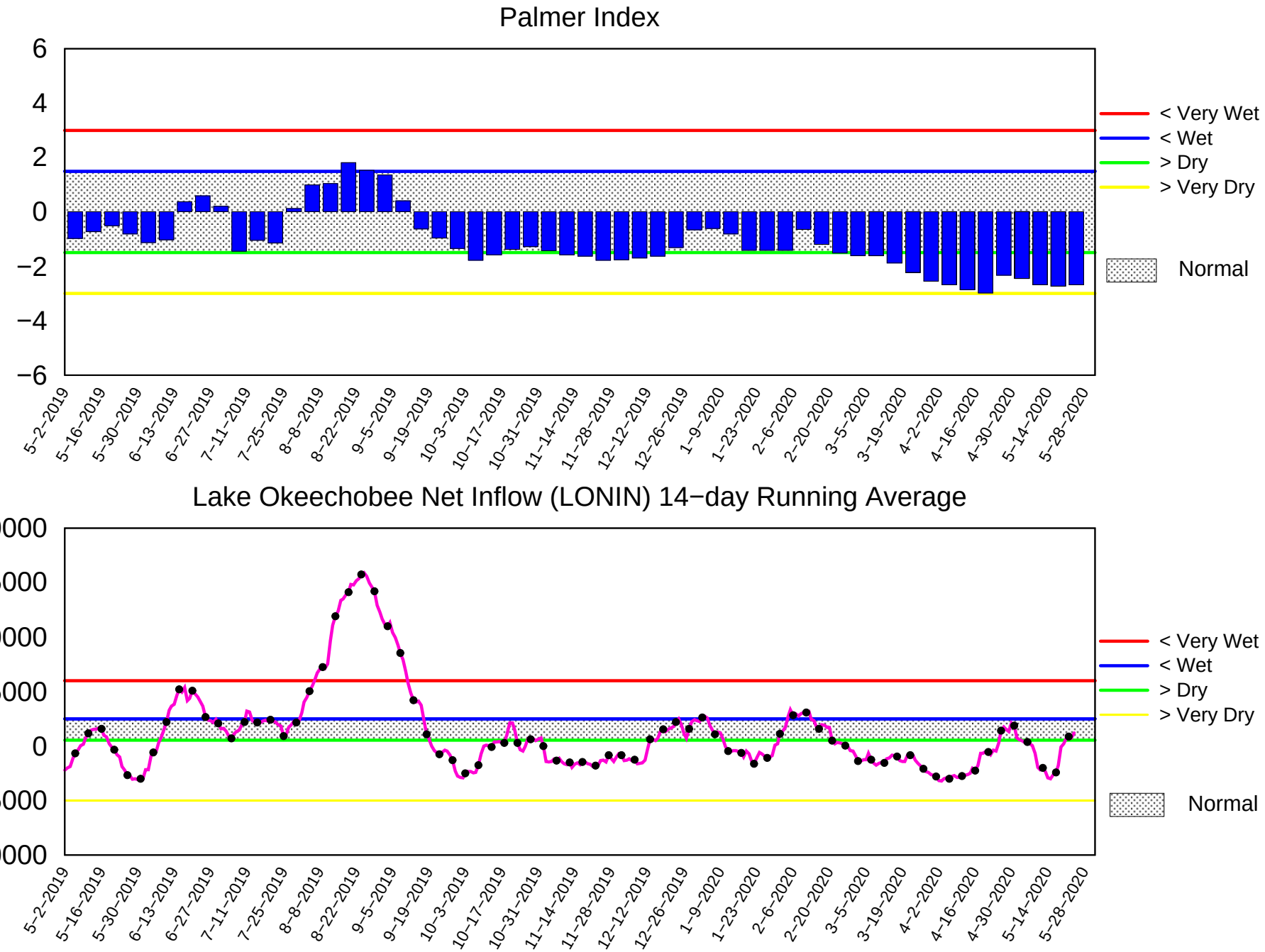
Lake Okeechobee SFWMM May 2020 Mid−Mon Position Analysis



(See assumptions on the Position Analysis Results website)

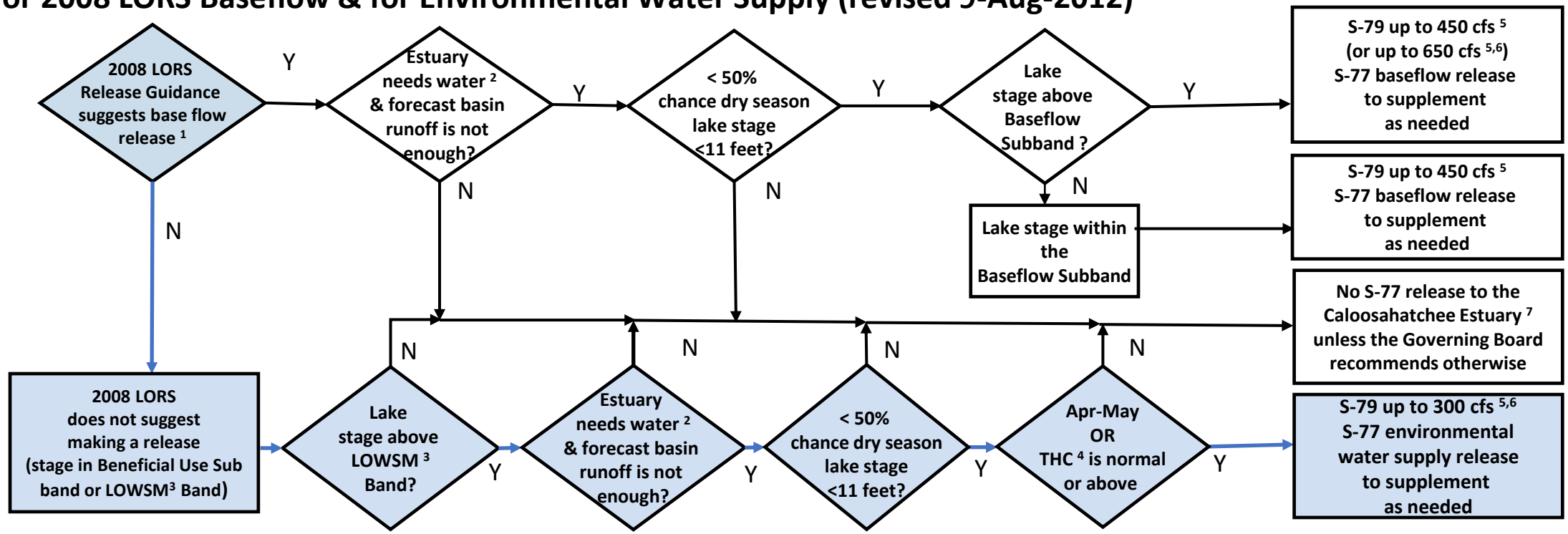
Tue May 26 07:18:44 EDT 2020

Tributary Basin Condition Indicators as of May 25 2020



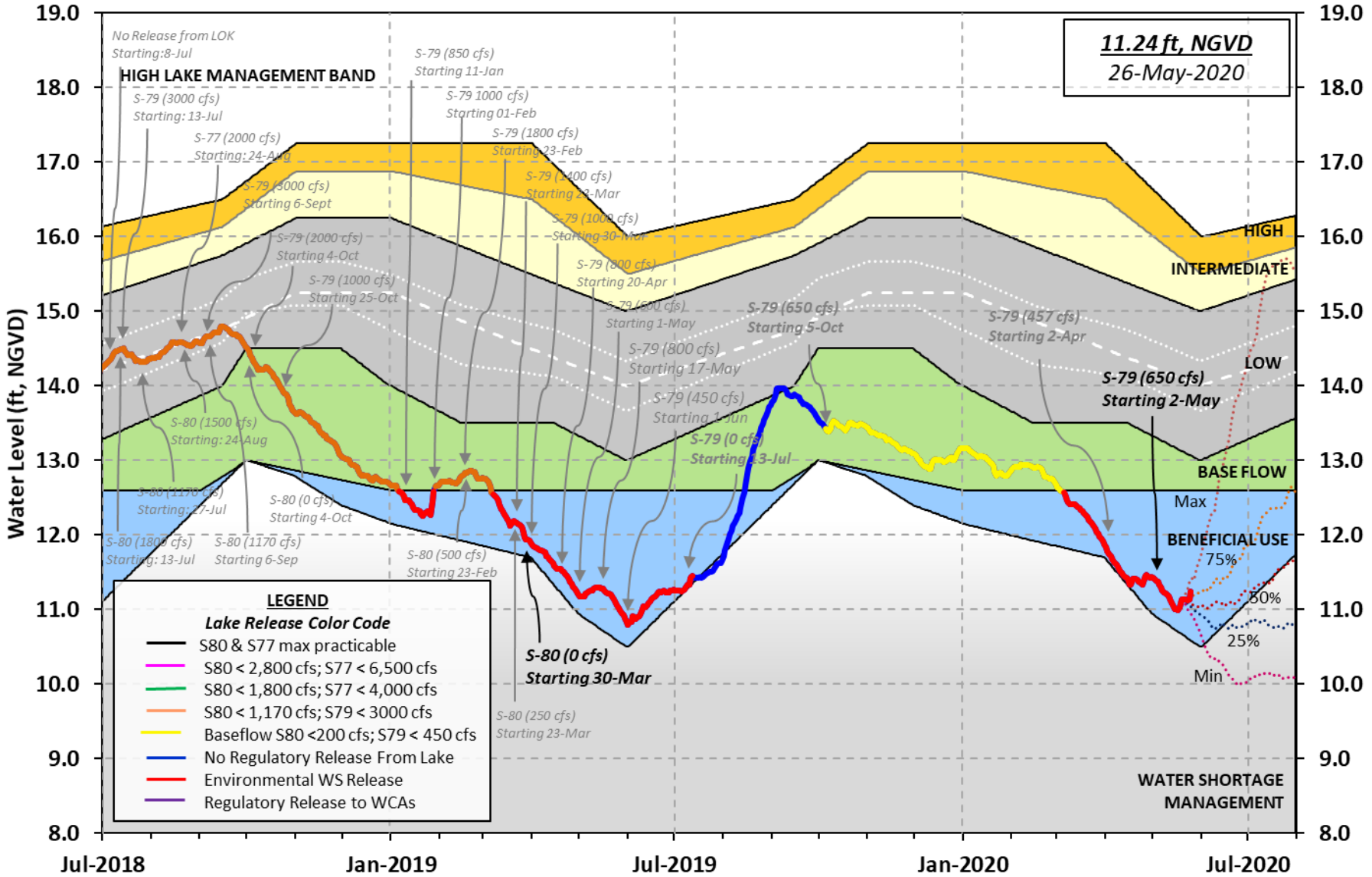
Mon May 25 21:42:36 EDT 2020

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 24 MAY 2020

Okeechobee Lake Regulation	Elevation (ft-NGVD)	Last Year (ft-NGVD)	2YRS Ago (ft-NGVD)
*Okeechobee Lake Elevation	11.14	11.09	13.71 (Official Elv)

Bottom of High Lake Mngmt= 16.16 Top of Water Short Mngmt= 10.60
Currently in Operational Management Band

Simulated Average LORS2008 [1965-2000] 11.97
Difference from Average LORS2008 -0.83

24MAY (1965-2007) Period of Record Average 13.15
Difference from POR Average -2.01

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ÷ 5.08'
++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ÷ 3.28'
Bridge Clearance = 52.27'

---

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

L001	L005	L006	LZ40	S4	S352	S308	S133
11.09	11.30	11.14	11.10	11.30	11.17	10.98	11.07

*Combination Okeechobee Avg-Daily Lake Average = 11.14 (*See Note)

Okeechobee Inflows (cfs):

S65E	379	S65EX1	119	Fisheating Cr	-NR-
S154	0	S191	0	S135 Pumps	0
S84	32	S133 Pumps	0	S2 Pumps	0
S84X	0	S127 Pumps	0	S3 Pumps	0
S71	127	S129 Pumps	0	S4 Pumps	0
S72	0	S131 Pumps	0	C5	0

Total Inflows: 657

Okeechobee Outflows (cfs):

S135 Culverts	0	S354	0	S77	177
S127 Culverts	0	S351	0	S308	-156
S129 Culverts	0	S352	18		
S131 Culverts	60	L8 Canal Pt	5		

Total Outflows: 105

****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	0.00	S308	0.05

Average Pan Evap x 0.75 Pan Coefficient = 0.02" = 0.00'

Lake Average Precipitation using NEXRAD: = 1.18" = 0.10'

Evaporation - Precipitation: = -1.16" = -0.10'
Evaporation - Precipitation using Lake Area of 730 square miles
is equal to 22794 cfs into the lake.
Lake Okeechobee (Change in Storage) Flow is 3529 cfs or 7000 AC-FT

	Headwater Elevation (ft-msl)	Tailwater Elevation (ft-msl)	Disch (cfs) (I) see note at bottom	Gate Positions #1 (ft)	#2 (ft)	#3 (ft)	#4 (ft)	#5 (ft)	#6 (ft)	#7 (ft)	#8 (ft)
North East Shore											
S133 Pumps:	12.11	11.09	0	0	0	0	0	0	(cfs)		
S193:	------										
S191:	15.30	11.09	0	0.0	0.0	0.0					
S135 Pumps:	12.80	11.02	0	0	0	0	0		(cfs)		
S135 Culverts:			0	0.0	0.0						
North West Shore											
S65E:	21.01	11.41	379	0.5	0.0	0.0	0.0	0.0	0.0		
S65EX1:	21.01	11.41	119								
S127 Pumps:	11.96	11.20	0	0	0	0	0	0	(cfs)		
S127 Culvert:			0	0.0							
S129 Pumps:	12.59	12.27	0	0	0	0			(cfs)		
S129 Culvert:			0	0.0							
S131 Pumps:	13.03	12.14	0	0	0				(cfs)		
S131 Culvert:			60								
Fisheating Creek											
nr Palmdale	------		-NR-								
nr Lakeport	------										
C5:	------	-NR-	0	-NR-	-NR-	-NR-					
South Shore											
S4 Pumps:	11.47	11.18	0	0	0	0			(cfs)		
S169:	11.25	11.28	-55	5.0	5.0	5.0					
S310:	11.13		-76								
S3 Pumps:	9.80	11.27	0	0	0	0			(cfs)		
S354:	11.27	9.80	0	0.0	0.0						
S2 Pumps:	10.02	-NR-	0	0	0	0	0		(cfs)		
S351:	-NR-	10.02	0	0.0	0.0	0.0					
S352:	11.24	9.45	18	0.0	0.0						
C10A:	-NR-	11.29		8.0	8.0	8.0	0.0	0.0			
L8 Canal PT		11.25	5								
S351 and S352 Temporary Pumps/S354 Spillway											
S351:	10.02	-NR-	0	-NR--NR--NR--NR--NR--NR--NR-							
S352:	9.45	11.24	18	-NR--NR--NR--NR-							
S354:	9.80	11.27	0	-NR--NR--NR--NR-							
Caloosahatchee River (S77, S78, S79)											
S47B:	12.18	11.35		0.0	0.0						
S47D:	11.37	11.37	32	6.4							

```
  S77:
    Spillway and Sector Preferred Flow:
               11.52     11.24     177  0.0  3.0  0.0  0.0
    Flow Due to Lockages+:           0

  S78:
    Spillway and Sector Flow:
               11.28      2.85     600    2.0  0.0  0.0  0.0
    Flow Due to Lockages+:           17

  S79:
    Spillway and Sector Flow:
                3.12      0.53     894    0.5  1.0  1.0  1.0  0.0  0.0  0.0  0.0
    Flow Due to Lockages+:            7
    Percent of flow from S77         20%
    Chloride             (ppm)       0


St. Lucie Canal (S308, S80)
  S308:
    Spillway and Sector Preferred Flow:
               11.22     11.23    -156  3.0  3.0  3.0  3.0
    Flow Due to Lockages+:           0

  S153:        19.00     10.84       0    0.0  0.0
  S80:
    Spillway and Sector Flow:
               11.10      1.57       0    0.0  0.0  0.0  0.0  0.0  0.0  0.0
    Flow Due to Lockages+:           12
    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
```

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:	22.18	22.18	24.94	91	4
S78:	5.32	5.32	7.25	82	9
S79:	7.31	8.53	9.01	67	12
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:	49.45	49.45	50.93	255	1
S80:	12.88	12.88	14.49	94	3
Okeechobee Average	35.82	5.51	5.84		

(Sites S78, S79 and S80 not included)

Oke Nexrad Basin Avg	1.18	1.22	3.45

Okeechobee Lake Elevations			24 MAY 2020	11.14	Difference from 24MAY20
24MAY20	-1 Day	=	23 MAY 2020	11.12	-0.02
24MAY20	-2 Days	=	22 MAY 2020	11.14	0.00
24MAY20	-3 Days	=	21 MAY 2020	11.14	0.00
24MAY20	-4 Days	=	20 MAY 2020	11.14	0.00
24MAY20	-5 Days	=	19 MAY 2020	11.14	0.00
24MAY20	-6 Days	=	18 MAY 2020	11.03	-0.11
24MAY20	-7 Days	=	17 MAY 2020	11.00	-0.14
24MAY20	-30 Days	=	24 APR 2020	11.33	0.19
24MAY20	-1 Year	=	24 MAY 2019	11.09	-0.05
24MAY20	-2 Year	=	24 MAY 2018	13.71	2.57

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
24MAY20	Today	=	24 MAY 2020	1238	MON	3729
24MAY20	-1 Day	=	23 MAY 2020	778	SUN	-3061
24MAY20	-2 Days	=	22 MAY 2020	898	SAT	102
24MAY20	-3 Days	=	21 MAY 2020	679	FRI	53
24MAY20	-4 Days	=	20 MAY 2020	260	THU	16
24MAY20	-5 Days	=	19 MAY 2020	-51	WED	20001
24MAY20	-6 Days	=	18 MAY 2020	-1775	TUE	7479
24MAY20	-7 Days	=	17 MAY 2020	-2381	MON	784
24MAY20	-8 Days	=	16 MAY 2020	-2578	SUN	2846
24MAY20	-9 Days	=	15 MAY 2020	-2950	SAT	-1645
24MAY20	-10 Days	=	14 MAY 2020	-2866	FRI	-4709
24MAY20	-11 Days	=	13 MAY 2020	-2345	THU	-5786
24MAY20	-12 Days	=	12 MAY 2020	-1972	WED	-718
24MAY20	-13 Days	=	11 MAY 2020	-2152	TUE	-1756

S65E

				Average Flow over previous 14 days		Avg-Daily Flow
24MAY20	Today=		24 MAY 2020	269	MON	438
24MAY20	-1 Day	=	23 MAY 2020	272	SUN	373
24MAY20	-2 Days	=	22 MAY 2020	268	SAT	262
24MAY20	-3 Days	=	21 MAY 2020	272	FRI	305
24MAY20	-4 Days	=	20 MAY 2020	284	THU	228
24MAY20	-5 Days	=	19 MAY 2020	300	WED	332
24MAY20	-6 Days	=	18 MAY 2020	325	TUE	107
24MAY20	-7 Days	=	17 MAY 2020	373	MON	210
24MAY20	-8 Days	=	16 MAY 2020	404	SUN	154
24MAY20	-9 Days	=	15 MAY 2020	431	SAT	243
24MAY20	-10 Days	=	14 MAY 2020	452	FRI	68
24MAY20	-11 Days	=	13 MAY 2020	484	THU	364
24MAY20	-12 Days	=	12 MAY 2020	495	WED	294
24MAY20	-13 Days	=	11 MAY 2020	510	TUE	390

S65EX1

				Average Flow over previous 14 days		Avg-Daily Flow
24MAY20	Today=		24 MAY 2020	130	MON	119
24MAY20	-1 Day	=	23 MAY 2020	149	SUN	44
24MAY20	-2 Days	=	22 MAY 2020	166	SAT	44

24MAY20	-3 Days =	21 MAY 2020	183	FRI	91
24MAY20	-4 Days =	20 MAY 2020	191	THU	45
24MAY20	-5 Days =	19 MAY 2020	199	WED	44
24MAY20	-6 Days =	18 MAY 2020	196	TUE	45
24MAY20	-7 Days =	17 MAY 2020	192	MON	46
24MAY20	-8 Days =	16 MAY 2020	195	SUN	172
24MAY20	-9 Days =	15 MAY 2020	199	SAT	139
24MAY20	-10 Days =	14 MAY 2020	205	FRI	227
24MAY20	-11 Days =	13 MAY 2020	204	THU	207
24MAY20	-12 Days =	12 MAY 2020	205	WED	263
24MAY20	-13 Days =	11 MAY 2020	205	TUE	329

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)
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
17 MAY 2020	1252	1540	1204	1986
16 MAY 2020	1218	1303	1258	1195
15 MAY 2020	1676	1924	1289	1003
14 MAY 2020	2143	2455	1308	1277
13 MAY 2020	2416	2736	1447	1231
12 MAY 2020	2241	2736	1578	1275
11 MAY 2020	1496	1660	1135	940

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)
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
17 MAY 2020	203	2018	941	946	-31
16 MAY 2020	143	2407	857	1120	64
15 MAY 2020	92	774	634	497	59
14 MAY 2020	237	3950	984	1523	48
13 MAY 2020	429	4008	1122	2158	23
12 MAY 2020	338	3276	1155	2195	72
11 MAY 2020	197	2455	1269	1758	69

DATE	S-308 Discharge (ALL DAY) (AC-FT)	Below S-308 Discharge (ALL-DAY) (AC-FT)	S-80 Discharge (ALL-DAY) (AC-FT)
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
17 MAY 2020	-1416	-4	17
16 MAY 2020	-1587	-41	15
15 MAY 2020	131	325	36
14 MAY 2020	-285	249	22
13 MAY 2020	-418	84	20
12 MAY 2020	-453	132	29
11 MAY 2020	-1301	-37	21

*** 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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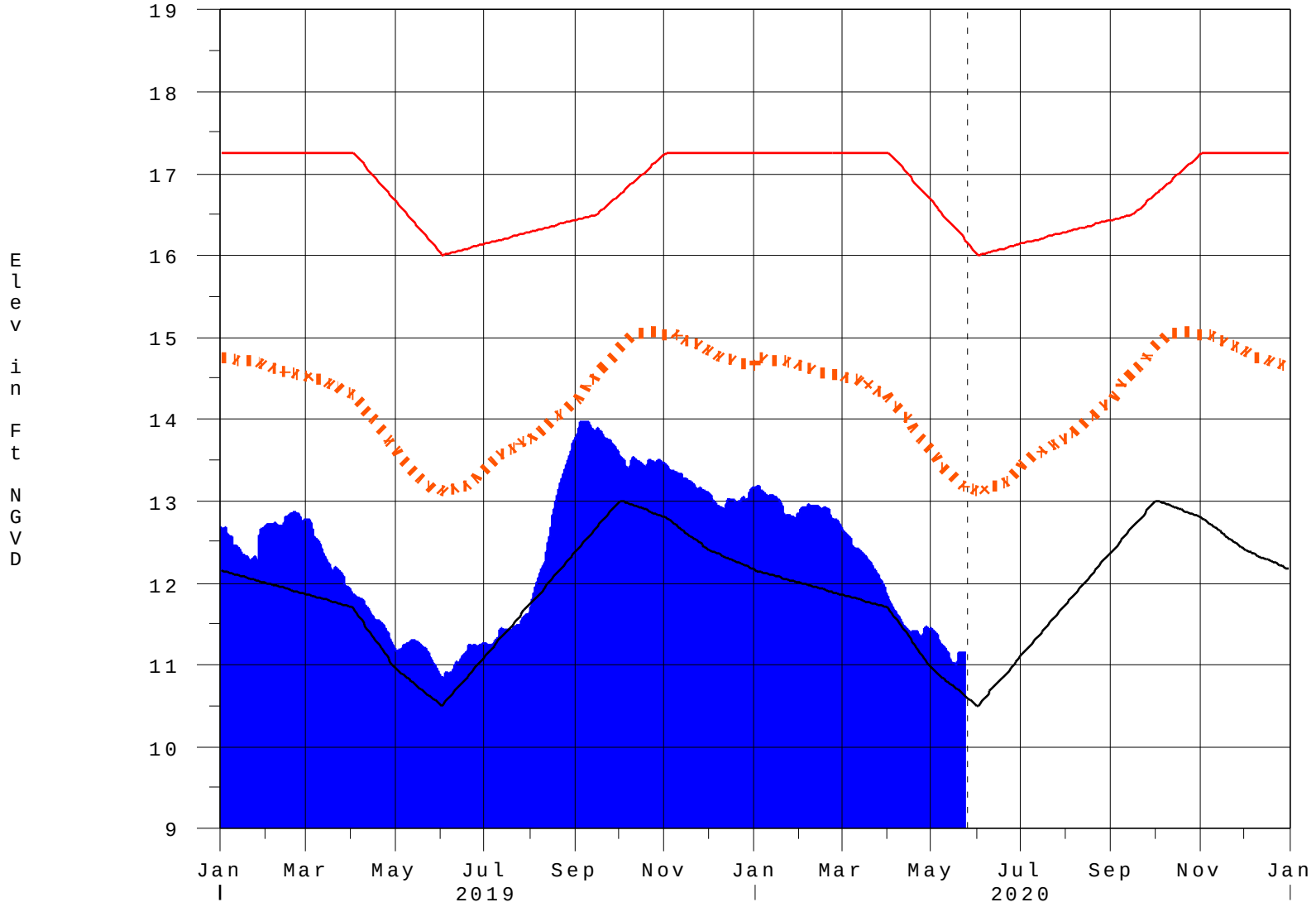
Report Generated 25MAY2020 @ 23:39 ** Preliminary Data - Subject to Revision **

Lake Okeechobee

25MAY20 21:30:21



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