Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 6/14/2021 (ENSO Condition: ENSO-neutral)

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 ENSO Neutral years[3] and a sub-sampling of warm years of the Atlantic Multi-decadal Oscillation (AMO) in combination with ENSO Neutral 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 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 (Jun-Nov)	N/A	N/A	2.52	Very Wet	2.61	Very Wet	3.80	Very Wet
Multi Seasonal (Jun-Apr)	N/A	N/A	2.95	Wet	2.75	Wet	4.12	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:

-1043 cfs 14-day running average for Lake Okeechobee Net Inflow through 6/13/2021.
According to the classification in Tributary Hydrologic Conditions table, this condition is Dry.

-2.15 for Palmer Drought Index on 6/12/2021.
According to the classification in Tributary Hydrologic Conditions table, this condition is Dry.

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

LORS2008 Classification Tables:

Lake Okeechobee Stage on 6/14/2021:

Lake Okeechobee Stage: **12.51 feet**

Lake Okeechobee Management Zone/Band		Bottom Elevation (feet, NGVD)	Current Lake Stage
High Lake Management Band		16.06	
Operational Band	High sub-band	15.57	
	Intermediate sub-band	15.09	
	Low sub-band	13.12	
Base Flow sub-band		12.60	
Beneficial Use sub-band		10.75	← 12.51 ft
Water Shortage Management Band			

With Lake Okeechobee stage below the Base-Flow Sub-Band; neither Part C nor Part D of the 2008 LORS suggest releases to the WCAs or Estuaries to manage lake stages.

Adaptive Protocol's Release Guidance: Caloosahatchee Estuary

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

LORS2008 Implementation on 6/14/2021 (ENSO Condition- ENSO-neutral):

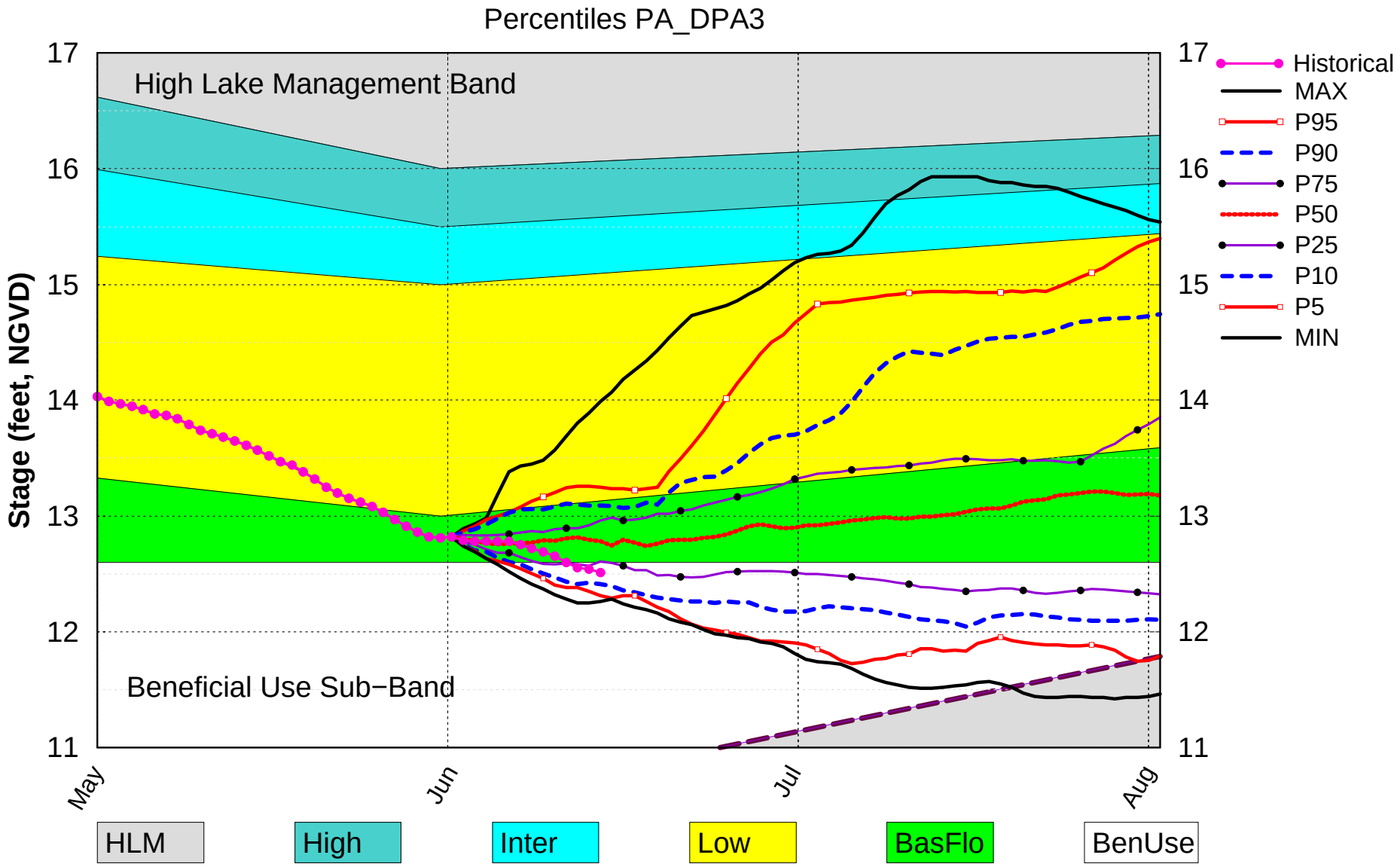
Status for week ending 6/14/2021:

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 Drought Index for LOK Tributary Conditions	-2.15 (Extremely Dry)	H
	CPC Precipitation Outlook	1 month: Above Normal	L
		3 months: Above Normal	L
	LOK Seasonal Net Inflow Outlook	2.61 ft	L
	ENSO Forecast	Normal to Extremely Wet	
	LOK Multi-Seasonal Net Inflow Outlook	2.75 ft	M
	ENSO Forecast	Normal	
WCAs	WCA 1: Site 1-8C	Above Line 1 (15.20 ft)	L
	WCA 2A: Site S-11B HW	Below Line 2 (10.66 ft)	H
	WCA-3A: Site S-333 HW	Below line 2 (7.05 ft)	H
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.

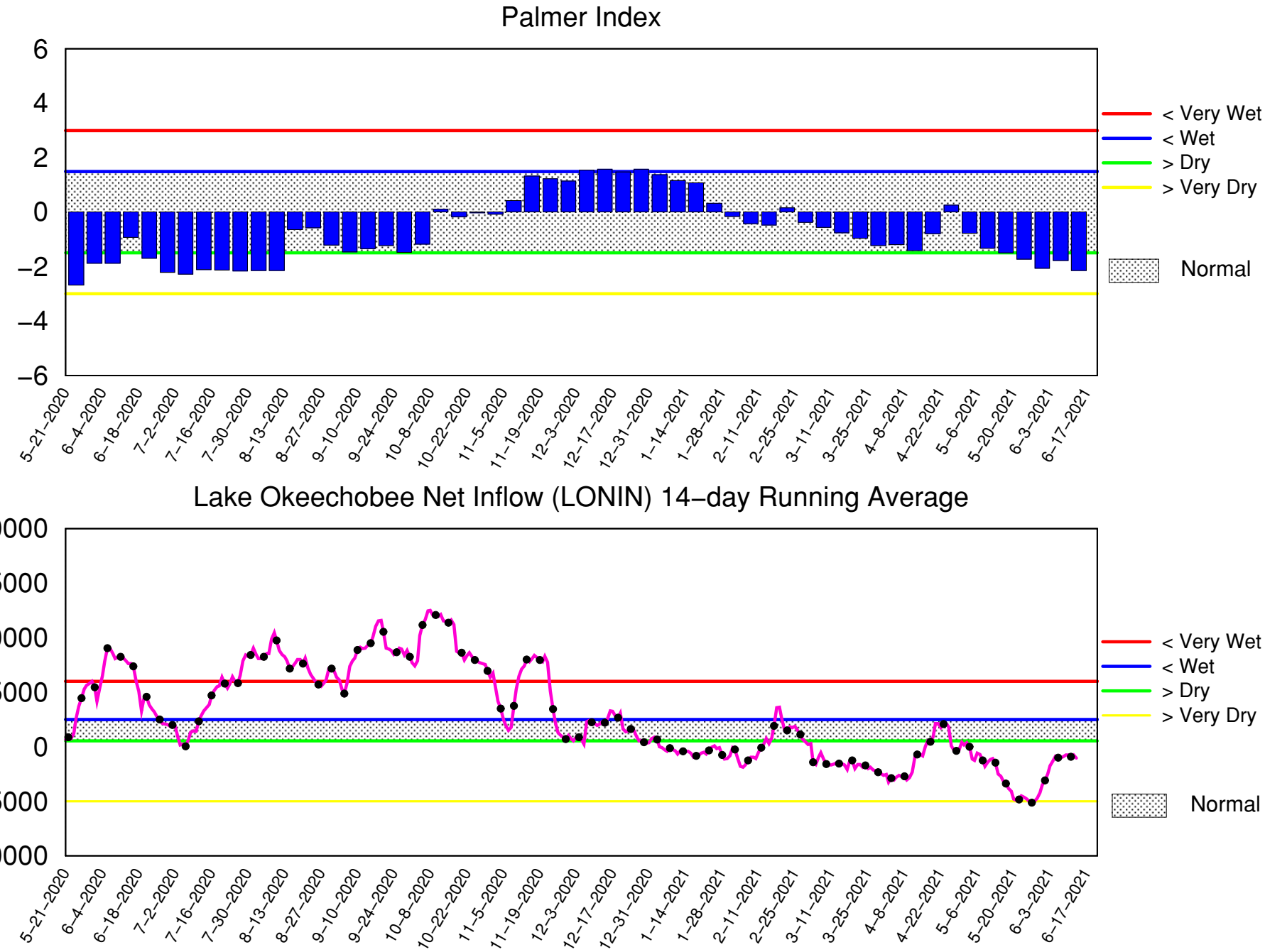
Lake Okeechobee SFWMM Jun 2021 Position Analysis



(See assumptions on the Position Analysis Results website)

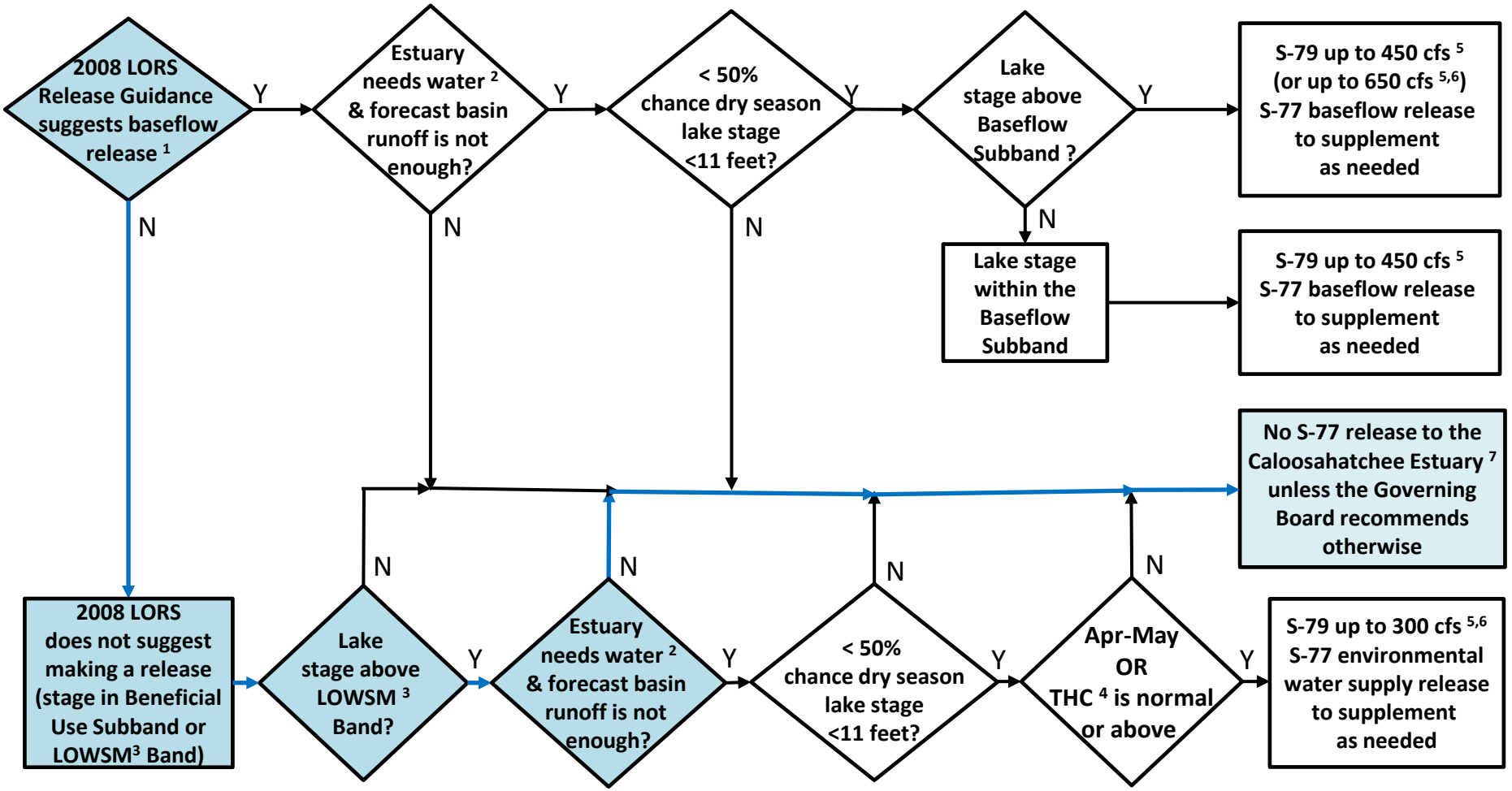
Tue Jun 15 07:15:22 EDT 2021

Tributary Basin Condition Indicators as of June 14 2021



Mon Jun 14 012:15:12 EDT 2021

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.

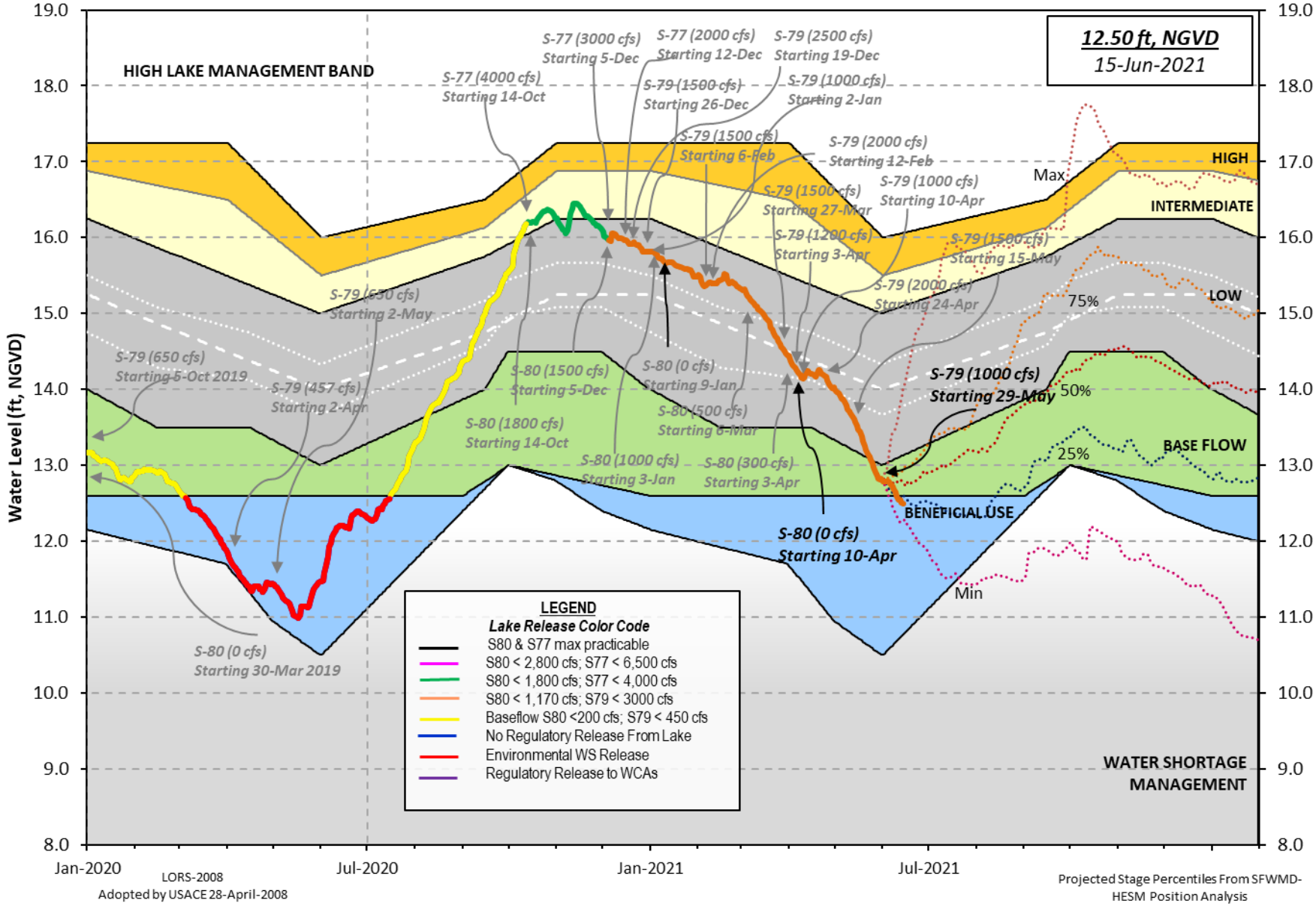
[4]Tributary Hydrologic Condition (THC) is based on classification of Lake Okeechobee Net Inflow and Palmer Index.

[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



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

Data Ending 2400 hours 13 JUN 2021

Okeechobee Lake Regulation	Elevation (ft-NGVD)	Last Year (ft-NGVD)	2YRS Ago (ft-NGVD)
*Okeechobee Lake Elevation	12.51	12.20	11.04 (Official Elv)

Bottom of High Lake Mngmt= 16.06 Top of Water Short Mngmt= 10.75
Currently in Operational Management Band

Simulated Average LORS2008 [1965-2000] 12.02
Difference from Average LORS2008 0.49

13JUN (1965-2007) Period of Record Average 13.18
Difference from POR Average -0.67

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ◆ 6.45'
++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ◆ 4.65'
Bridge Clearance = 51.12'

---

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

L001	L005	L006	LZ40	S4	S352	S308	S133
-NR-	12.49	12.43	12.49	12.38	12.68	12.62	12.51

*Combination Okeechobee Avg-Daily Lake Average = 12.51
(*See Note)

Okeechobee Inflows (cfs):

S65E	226	S65EX1	0	Fisheating Cr	0
S154	0	S191	0	S135 Pumps	0
S84	0	S133 Pumps	0	S2 Pumps	0
S84X	0	S127 Pumps	0	S3 Pumps	0
S71	0	S129 Pumps	0	S4 Pumps	0
S72	0	S131 Pumps	0	C5	0
Total Inflows:	226				

Okeechobee Outflows (cfs):

S135 Culverts	0	S354	813	S77	763
S127 Culverts	0	S351	907	S308	83
S129 Culverts	0	S352	447		
S131 Culverts	0	L8 Canal Pt	-NR-		
Total Outflows:	3014				

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

Okeechobee Pan Evaporation (inches):

S77	0.31	S308	0.39

Average Pan Evap x 0.75 Pan Coefficient = 0.26" = 0.02'

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

Evaporation - Precipitation: = -NR-" = -NR-'
Evaporation - Precipitation using Lake Area of 730 square miles

is equal to -NR-
Lake Okeechobee (Change in Storage) Flow is -5899 cfs or -11700 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:	12.74	12.51	0	0	0	0	0	0	(cfs)		
S193:											
S191:	18.21	12.53	0	0.0	0.0	0.0					
S135 Pumps:	12.32	12.60	0	0	0	0	0		(cfs)		
S135 Culverts:			0	0.0	0.0						
North West Shore											
S65E:	20.99	12.31	226	0.0	0.0	0.0	0.2	0.0	0.3		
S65EX1:	20.99	12.31	0								
S127 Pumps:	12.30	12.45	0	0	0	0	0	0	(cfs)		
S127 Culvert:			0	0.0							
S129 Pumps:	12.60	12.63	0	0	0	0			(cfs)		
S129 Culvert:			0	0.0							
S131 Pumps:	13.08	12.36	0	0	0				(cfs)		
S131 Culvert:			0								
Fisheating Creek											
nr Palmdale		27.91	0								
nr Lakeport											
C5:		-NR-	0	-NR-	-NR-	-NR-					
South Shore											
S4 Pumps:	12.26	12.36	0	0	0	0			(cfs)		
S169:		-NR-	-NR-	5.0	-NR-	-NR-					
S310:	12.30		81								
S3 Pumps:	10.48	12.38	0	0	0	0			(cfs)		
S354:	12.38	10.48	813	0.8	1.0						
S2 Pumps:	10.44	-NR-	0	0	0	0	0		(cfs)		
S351:	-NR-	10.44	907	1.6	1.6	1.4					
S352:	12.65	10.49	447	0.9	0.8						
C10A:	-NR-	12.51		8.0	8.0	8.0	0.0	0.0			
L8 Canal PT			-NR-								
S351 and S352 Temporary Pumps/S354 Spillway											
S351:	10.44	-NR-	907	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-		
S352:	10.49	12.65	447	-NR-	-NR-	-NR-	-NR-				
S354:	10.48	12.38	813	-NR-	-NR-	-NR-	-NR-				
Caloosahatchee River (S77, S78, S79)											
S47B:	11.81	11.47		1.8	1.8						
S47D:	11.45	11.01	0	0.0							
S77:											
Spillway and Sector Preferred Flow:											
	12.13	10.94	761	0.0	3.0	2.5	0.0				
Flow Due to Lockages+:			2								
S78:											

```
    Spillway and Sector Flow:
              10.86      3.03     609    1.0  0.0  0.0  0.5
    Flow Due to Lockages+:          17

  S79:
    Spillway and Sector Flow:
               3.17      1.29     744    0.0  0.0  1.0  1.0  0.0  1.0  0.0  0.0
    Flow Due to Lockages+:           8
    Percent of flow from S77       102%
    Chloride            (ppm)      0


St. Lucie Canal (S308, S80)
  S308:
    Spillway and Sector Preferred Flow:
              12.82     12.38      83  0.0  0.0  0.0  0.0
    Flow Due to Lockages+:           0

  S153:        18.92     12.09       0    0.0  0.0
  S80:
    Spillway and Sector Flow:
              12.39      0.86       0    0.0  0.0  0.0  0.0  0.0  0.0  0.0
    Flow Due to Lockages+:          10
    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 (Deg°)	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:	0.12	0.21	0.21	193	7
S78:	16.42	16.42	16.42	223	4
S79:	6.67	6.67	6.67	86	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:	24.67	25.25	25.26	248	19
S80:	2.96	2.97	3.47	162	3
Okeechobee Average (Sites S78, S79 and S80 not included)	12.40	1.96	1.96		
Oke Nexrad Basin Avg	-NR-	0.00	0.00		

```
Okeechobee Lake Elevations  13 JUN 2021          12.51 Difference from 13JUN21
   13JUN21  -1 Day  =       12 JUN 2021          12.54             0.03
```

13JUN21 -2 Days =	11 JUN 2021	12.55	0.04
13JUN21 -3 Days =	10 JUN 2021	12.60	0.09
13JUN21 -4 Days =	09 JUN 2021	12.65	0.14
13JUN21 -5 Days =	08 JUN 2021	12.69	0.18
13JUN21 -6 Days =	07 JUN 2021	12.72	0.21
13JUN21 -7 Days =	06 JUN 2021	12.75	0.24
13JUN21 -30 Days =	14 MAY 2021	13.57	1.06
13JUN21 -1 Year =	13 JUN 2020	12.20	-0.31
13JUN21 -2 Year =	13 JUN 2019	11.04	-1.47

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
13JUN21 Today =	13 JUN 2021	-952	MON	-2769
13JUN21 -1 Day =	12 JUN 2021	-675	SUN	278
13JUN21 -2 Days =	11 JUN 2021	-851	SAT	-5602
13JUN21 -3 Days =	10 JUN 2021	-682	FRI	-5014
13JUN21 -4 Days =	09 JUN 2021	-676	THU	-3482
13JUN21 -5 Days =	08 JUN 2021	-832	WED	-2538
13JUN21 -6 Days =	07 JUN 2021	-931	TUE	-3137
13JUN21 -7 Days =	06 JUN 2021	-937	MON	-3301
13JUN21 -8 Days =	05 JUN 2021	-836	SUN	1232
13JUN21 -9 Days =	04 JUN 2021	-1281	SAT	1876
13JUN21 -10 Days =	03 JUN 2021	-1735	FRI	1787
13JUN21 -11 Days =	02 JUN 2021	-2496	THU	1358
13JUN21 -12 Days =	01 JUN 2021	-3092	WED	-1072
13JUN21 -13 Days =	31 MAY 2021	-3538	TUE	7061

S65E

	Average Flow over previous 14 days			Avg-Daily Flow
13JUN21 Today=	13 JUN 2021	318	MON	268
13JUN21 -1 Day =	12 JUN 2021	323	SUN	298
13JUN21 -2 Days =	11 JUN 2021	325	SAT	286
13JUN21 -3 Days =	10 JUN 2021	325	FRI	266
13JUN21 -4 Days =	09 JUN 2021	324	THU	223
13JUN21 -5 Days =	08 JUN 2021	328	WED	313
13JUN21 -6 Days =	07 JUN 2021	325	TUE	315
13JUN21 -7 Days =	06 JUN 2021	322	MON	312
13JUN21 -8 Days =	05 JUN 2021	320	SUN	348
13JUN21 -9 Days =	04 JUN 2021	319	SAT	363
13JUN21 -10 Days =	03 JUN 2021	323	FRI	369
13JUN21 -11 Days =	02 JUN 2021	324	THU	367
13JUN21 -12 Days =	01 JUN 2021	329	WED	374
13JUN21 -13 Days =	31 MAY 2021	342	TUE	354

S65EX1

	Average Flow over previous 14 days			Avg-Daily Flow
13JUN21 Today=	13 JUN 2021	5	MON	0
13JUN21 -1 Day =	12 JUN 2021	5	SUN	0
13JUN21 -2 Days =	11 JUN 2021	5	SAT	0
13JUN21 -3 Days =	10 JUN 2021	5	FRI	0
13JUN21 -4 Days =	09 JUN 2021	5	THU	73
13JUN21 -5 Days =	08 JUN 2021	0	WED	0
13JUN21 -6 Days =	07 JUN 2021	0	TUE	0
13JUN21 -7 Days =	06 JUN 2021	0	MON	0
13JUN21 -8 Days =	05 JUN 2021	0	SUN	0
13JUN21 -9 Days =	04 JUN 2021	0	SAT	0
13JUN21 -10 Days =	03 JUN 2021	0	FRI	0
13JUN21 -11 Days =	02 JUN 2021	0	THU	0
13JUN21 -12 Days =	01 JUN 2021	0	WED	0
13JUN21 -13 Days =	31 MAY 2021	0	TUE	0

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)
13 JUN 2021	1512	1907	1217	1488
12 JUN 2021	1618	2069	1140	1111
11 JUN 2021	1963	2441	888	1392
10 JUN 2021	1966	2326	1566	2222
09 JUN 2021	1798	1915	1574	2542
08 JUN 2021	1283	1279	1127	2082
07 JUN 2021	875	965	1147	1886
06 JUN 2021	795	976	979	1718
05 JUN 2021	1322	1443	960	3170
04 JUN 2021	2036	1942	1101	1356
03 JUN 2021	1885	1736	1410	2374
02 JUN 2021	2070	2598	1531	3230
01 JUN 2021	3020	2964	2011	2893
31 MAY 2021	2423	2360	1329	2543

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)
13 JUN 2021	160	1799	886	1612	-NR-
12 JUN 2021	185	928	422	1080	-NR-
11 JUN 2021	219	2701	1177	2430	-NR-
10 JUN 2021	119	3077	1095	2908	-NR-
09 JUN 2021	127	2888	1153	2303	-NR-
08 JUN 2021	-80	2352	1061	1738	-NR-
07 JUN 2021	-57	2018	913	1592	-NR-
06 JUN 2021	-103	2156	884	1320	-NR-
05 JUN 2021	-105	0	0	1108	-NR-
04 JUN 2021	382	40	0	1645	-NR-
03 JUN 2021	321	0	0	1671	-NR-
02 JUN 2021	339	1362	282	2871	-NR-
01 JUN 2021	307	1935	785	3522	-NR-
31 MAY 2021	239	2692	1086	4004	-NR-

DATE	S-308 Discharge (ALL DAY) (AC-FT)	Below S-308 Discharge (ALL-DAY) (AC-FT)	S-80 Discharge (ALL-DAY) (AC-FT)
13 JUN 2021	155	-128	20
12 JUN 2021	155	-145	37
11 JUN 2021	1	-69	38
10 JUN 2021	-1	95	51
09 JUN 2021	-NR-	-50	30
08 JUN 2021	-4	214	43
07 JUN 2021	-169	-177	28
06 JUN 2021	-227	-432	44
05 JUN 2021	-506	-562	44
04 JUN 2021	-836	-1251	52
03 JUN 2021	-4	-119	60
02 JUN 2021	-2	-1	38
01 JUN 2021	-6	112	37
31 MAY 2021	15	191	44

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

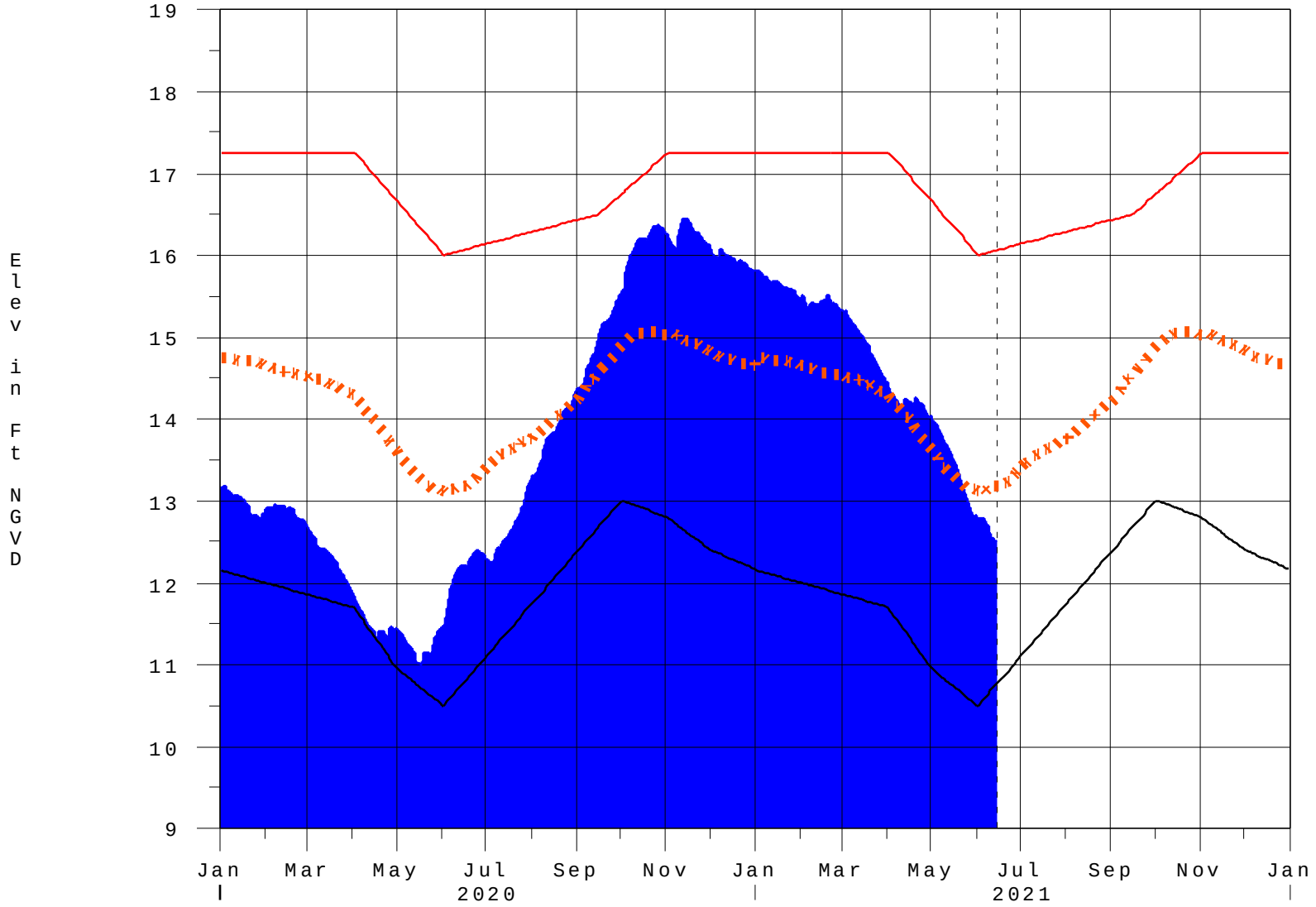
(I) - Flows preceeded by "I" signify an instantaneous
flow computed from the single value reported for the day

```
   * 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 14JUN2021 @ 23:39 ** Preliminary Data - Subject to Revision **

Lake Okeechobee

15JUN21 07:00:49



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