Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 2/15/2021 (ENSO Condition: La Niña)

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 La Nina 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 La Nina ENSO Years[3]		Sub-sampling of AMO Warm + La Nina ENSO Years[4]	
	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition
Current (Feb-July)	N/A	N/A	0.80	Normal	0.43	Dry	0.62	Dry
Multi Seasonal (Feb-Oct)	N/A	N/A	2.88	Wet	2.25	Normal	2.24	Normal

*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:

742 cfs 14-day running average for Lake Okeechobee Net Inflow through 2/14/2021.
According to the classification in Tributary Hydrologic Conditions table, this condition is Normal.

-0.47 for Palmer Drought Index on 2/13/2021.
According to the classification in Tributary Hydrologic Conditions table, this condition is Normal.

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

LORS2008 Classification Tables:

Lake Okeechobee Stage on 2/15/2021:

Lake Okeechobee Stage: **15.43 feet**

Lake Okeechobee Management Zone/Band		Bottom Elevation (feet, NGVD)	Current Lake Stage
High Lake Management Band		17.25	
Operational Band	High sub-band	16.69	
	Intermediate sub-band	15.88	
	Low sub-band	13.51	← 15.43 ft
Base Flow sub-band		12.60	
Beneficial Use sub-band		11.93	
Water Shortage Management 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.

LORS2008 Implementation on 2/15/2021 (ENSO Condition- La Nina):

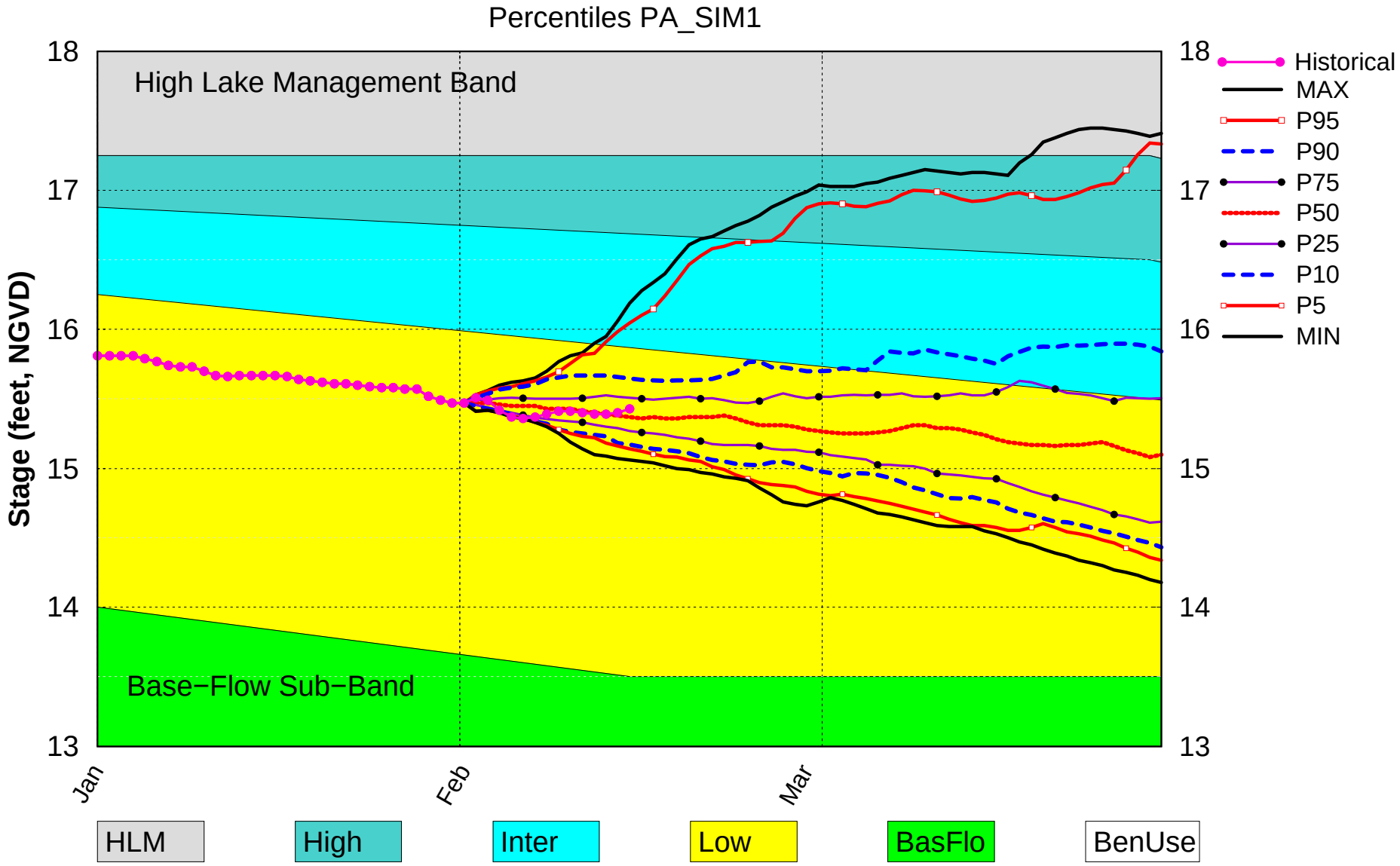
Status for week ending 2/15/2021:

Water Supply Risk Evaluation

Area	Indicator	Value	Color Coded Scoring Scheme
LOK	Projected LOK Stage for the next two months	Low Sub-band	M
	Palmer Drought Index for LOK Tributary Conditions	-0.47 (Normal to Extremely Wet)	L
	CPC Precipitation Outlook	1 month: Below Normal	M
		3 months: Below Normal	H
	LOK Seasonal Net Inflow Outlook	0.43 ft	M
	ENSO Forecast	Dry	
	LOK Multi-Seasonal Net Inflow Outlook	2.25 ft	M
	ENSO Forecast	Normal	
WCAs	WCA 1: 3 Station Average (Site 1-7, 1-8T and 1-9)	Above Line 1 (16.86 ft)	L
	WCA 2A: Site 2-17	Above Line 1 (12.52 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64 and 65)	Above Line 1 (10.37 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.

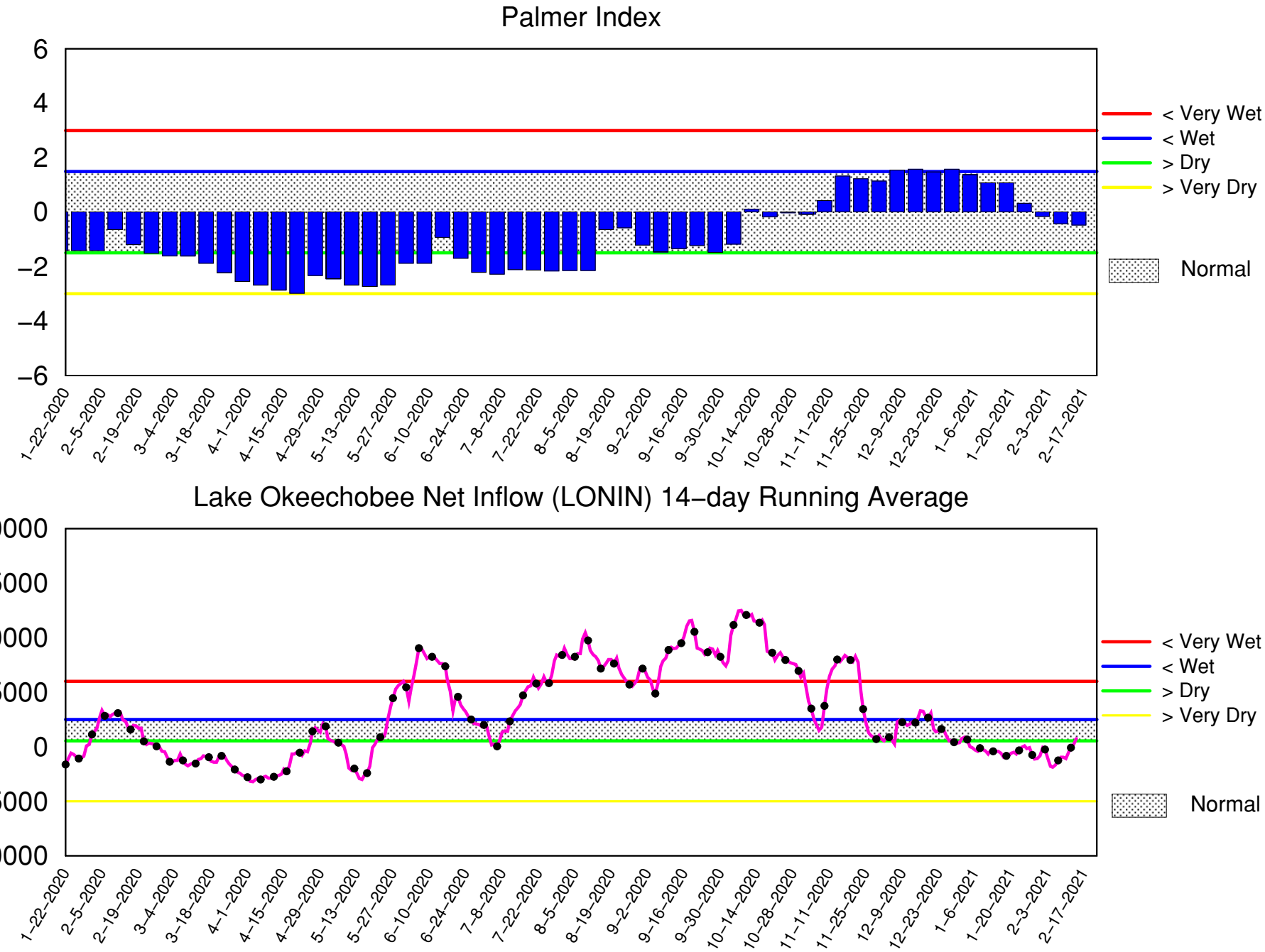
Lake Okeechobee SFWMM Feb 2021 Position Analysis



(See assumptions on the Position Analysis Results website)

Tue Feb 16 07:50:54 EST 2021

Tributary Basin Condition Indicators as of February 15 2021



Mon Feb 15 12:50:46 EST 2021

2008 LORS

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

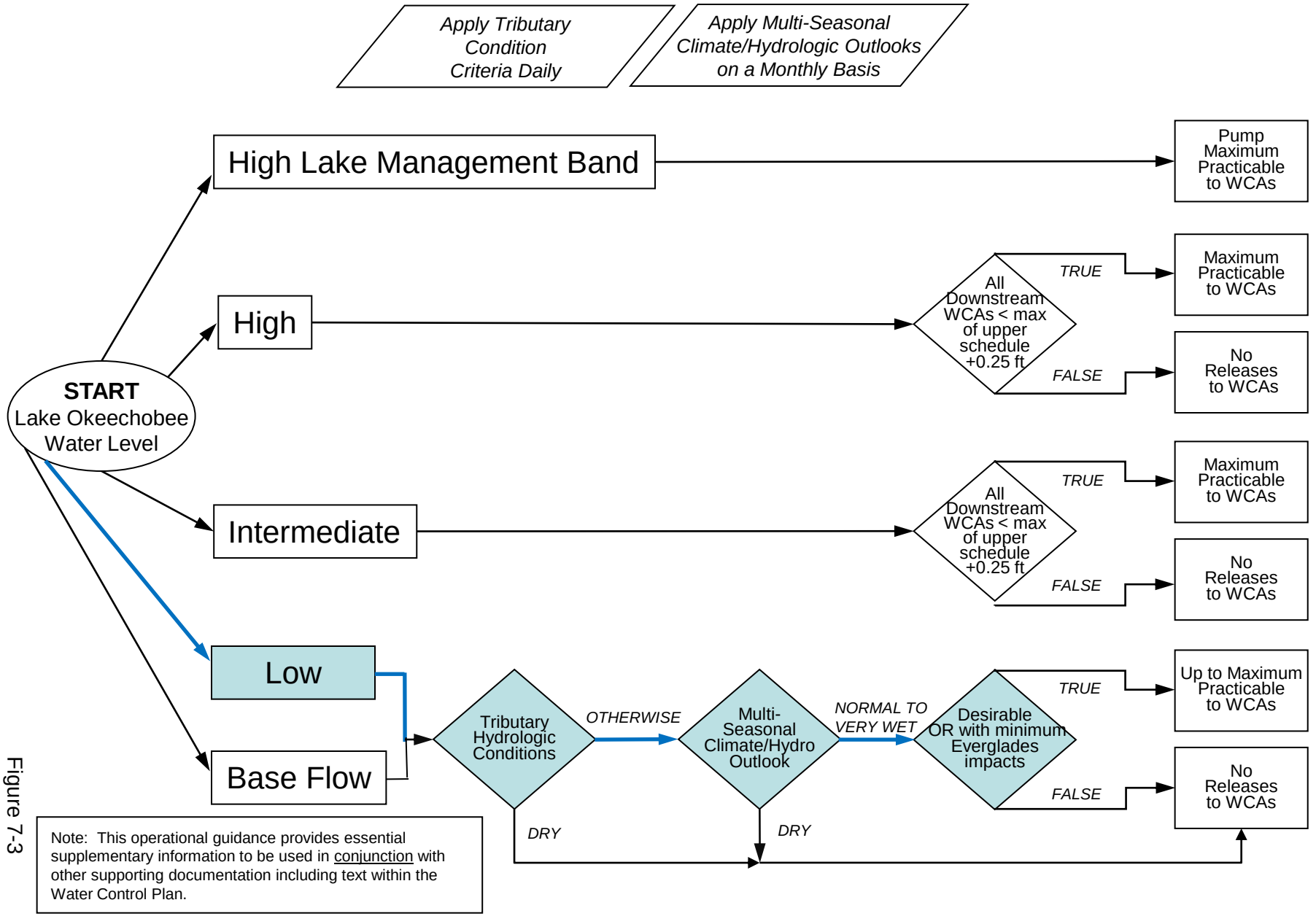


Figure 7-3

2008 LORS

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

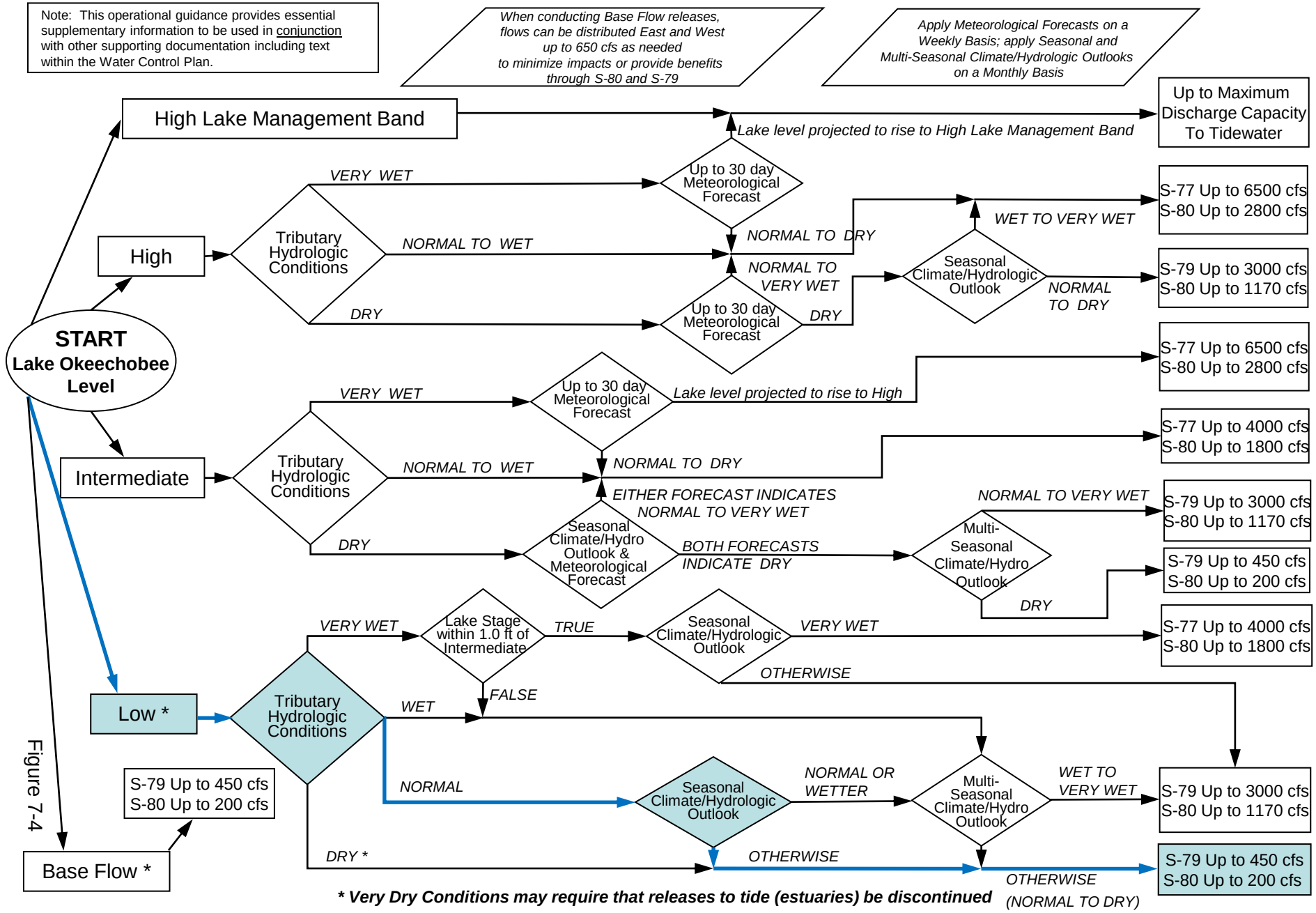
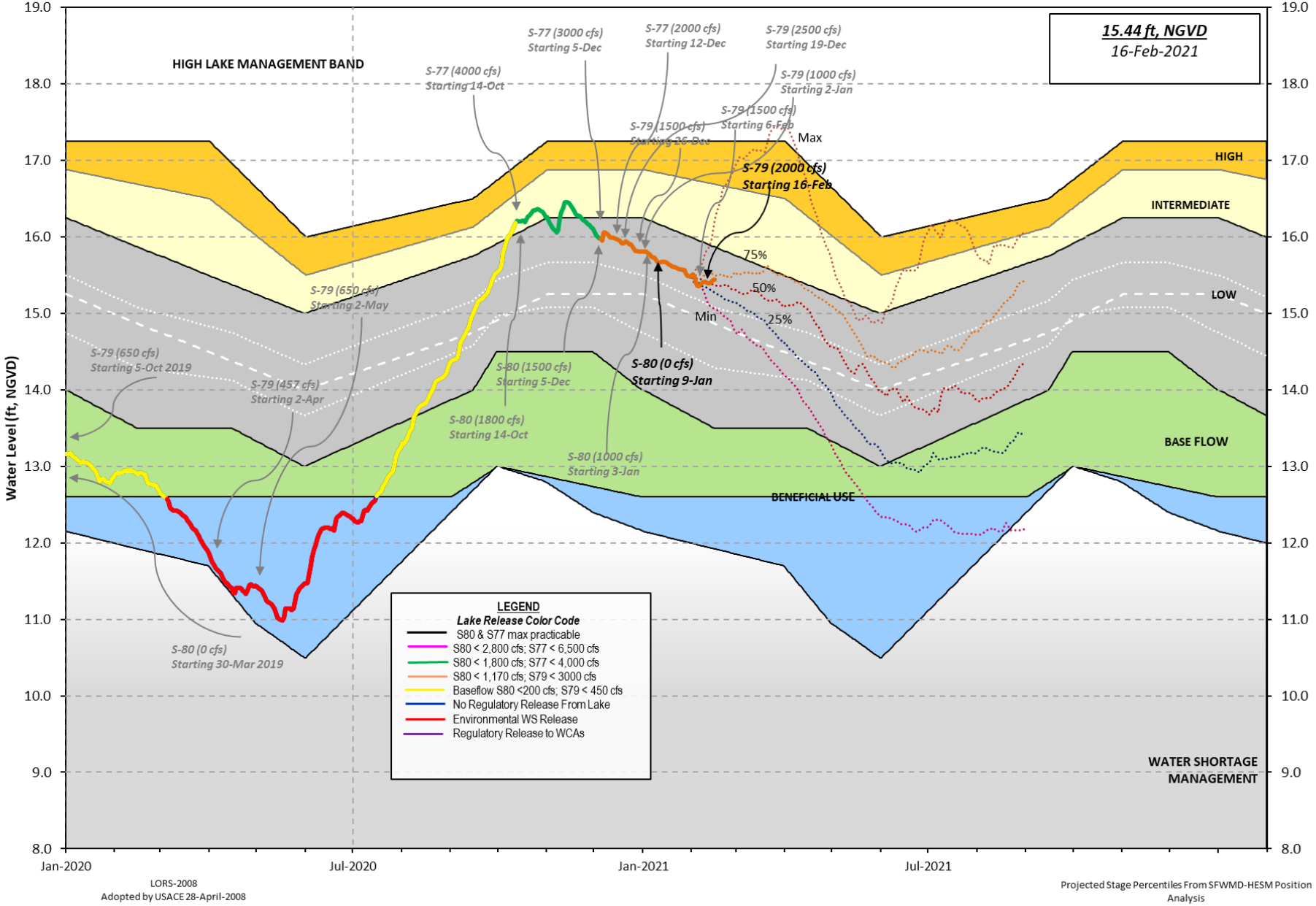


Figure 7-4

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 14 FEB 2021

Okeechobee Lake Regulation	Elevation (ft-NGVD)	Last Year (ft-NGVD)	2YRS Ago (ft-NGVD)	
*Okeechobee Lake Elevation	15.43	12.92	12.77	(Official Elv)

Bottom of High Lake Mngmt= 17.25 Top of Water Short Mngmt= 11.93
Currently in Operational Management Band

Simulated Average LORS2008 [1965-2000] 13.40
Difference from Average LORS2008 2.03

14FEB (1965-2007) Period of Record Average 14.57
Difference from POR Average 0.86

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ◆ 9.37'
++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ◆ 7.57'
Bridge Clearance = 49.06'

---

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

L001	L005	L006	LZ40	S4	S352	S308	S133
15.45	15.45	15.41	15.41	15.35	15.52	15.45	15.41

*Combination Okeechobee Avg-Daily Lake Average = 15.43
(*See Note)

Okeechobee Inflows (cfs):

S65E	1028	S65EX1	0	Fisheating Cr	20
S154	0	S191	0	S135 Pumps	0
S84	244	S133 Pumps	0	S2 Pumps	0
S84X	83	S127 Pumps	0	S3 Pumps	0
S71	94	S129 Pumps	0	S4 Pumps	0
S72	0	S131 Pumps	0	C5	0

Total Inflows: 1469

Okeechobee Outflows (cfs):

S135 Culverts	0	S354	0	S77	640
S127 Culverts	0	S351	344	S308	3
S129 Culverts	0	S352	0		
S131 Culverts	0	L8 Canal Pt	-NR-		

Total Outflows: 987

****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	0.00	S308	0.24

Average Pan Evap x 0.75 Pan Coefficient = 0.09" = 0.01'

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 6504 cfs or 12900 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:	13.75	15.43	0	0	0	0	0	0	(cfs)		
S193:	------										
S191:	18.91	15.47	0	0.0	0.0	0.0					
S135 Pumps:	13.76	15.37	0	0	0	0	0	(cfs)			
S135 Culverts:			0	0.1	0.0						
North West Shore											
S65E:	21.01	15.19	1028	0.5	0.4	0.5	0.6	0.5	0.4		
S65EX1:	21.01	15.19	0								
S127 Pumps:	13.55	15.40	0	0	0	0	0	0	(cfs)		
S127 Culvert:			0	0.0							
S129 Pumps:	13.05	15.41	0	0	0	0	(cfs)				
S129 Culvert:			0	0.0							
S131 Pumps:	13.02	15.40	0	0	0	(cfs)					
S131 Culvert:			0								
Fisheating Creek											
nr Palmdale		28.98	20								
nr Lakeport	------										
C5:	------	-NR-	0	-NR-	-NR-	-NR-					
South Shore											
S4 Pumps:	12.03	15.36	0	0	0	0	(cfs)				
S169:	15.26	12.06	0	0.0	0.0	0.0					
S310:	15.32		-1								
S3 Pumps:	9.95	15.36	0	0	0	0	(cfs)				
S354:	15.36	9.95	0	0.0	0.0						
S2 Pumps:	10.05	-NR-	0	-NR-	-NR-	-NR-	-NR-	(cfs)			
S351:	-NR-	10.05	344	0.3	0.6	0.4					
S352:	15.53	10.26	0	0.0	0.0						
C10A:	-NR-	15.36		8.0	8.0	8.0	0.0	0.0			
L8 Canal PT		------	-NR-								
S351 and S352 Temporary Pumps/S354 Spillway											
S351:	10.05	-NR-	344	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-		
S352:	10.26	15.53	0	-NR-	-NR-	-NR-	-NR-				
S354:	9.95	15.36	0	-NR-	-NR-	-NR-	-NR-				
Caloosahatchee River (S77, S78, S79)											
S47B:	14.40	12.63		1.0	1.5						
S47D:	12.73	10.98	70	0.0							
S77:											
Spillway and Sector Preferred Flow:											
	15.23	10.88	631	0.0	3.5	0.0	0.0				
Flow Due to Lockages+:			9								
S78:											

```
    Spillway and Sector Flow:
              10.88      2.90    1157    2.0  0.0  0.0  2.0
    Flow Due to Lockages+:          20

  S79:
    Spillway and Sector Flow:
               3.08      0.97    1655    0.0  0.0  1.0  1.0  1.0  1.0  1.0  2.0
    Flow Due to Lockages+:           9
    Percent of flow from S77        38%
    Chloride            (ppm)      0


St. Lucie Canal (S308, S80)
  S308:
    Spillway and Sector Preferred Flow:
              15.43     14.44       0  0.0  0.0  0.0  0.0
    Flow Due to Lockages+:           3

  S153:        18.80     14.05      61    0.0  0.0
  S80:
    Spillway and Sector Flow:
              14.33      1.22       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
```

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:	0.04	0.06	0.08	199	2
S78:	0.04	0.51	0.51	201	1
S79:	0.01	1.41	1.91	53	4
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:	0.29	0.67	0.67	153	6
S80:	0.00	0.00	0.12	142	2
Okeechobee Average (Sites S78, S79 and S80 not included)	0.16	0.06	0.06		
Oke Nexrad Basin Avg	-NR-	0.00	0.00		

```
Okeechobee Lake Elevations  14 FEB 2021          15.43 Difference from 14FEB21
   14FEB21  -1 Day  =       13 FEB 2021          15.40            -0.03
```

14FEB21	-2 Days =	12 FEB 2021	15.39	-0.04
14FEB21	-3 Days =	11 FEB 2021	15.39	-0.04
14FEB21	-4 Days =	10 FEB 2021	15.40	-0.03
14FEB21	-5 Days =	09 FEB 2021	15.41	-0.02
14FEB21	-6 Days =	08 FEB 2021	15.41	-0.02
14FEB21	-7 Days =	07 FEB 2021	15.39	-0.04
14FEB21	-30 Days =	15 JAN 2021	15.67	0.24
14FEB21	-1 Year =	14 FEB 2020	12.92	-2.51
14FEB21	-2 Year =	14 FEB 2019	12.77	-2.66

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
14FEB21	Today =	14 FEB 2021	-207	MON	-NR-
14FEB21	-1 Day =	13 FEB 2021	36	SUN	-NR-
14FEB21	-2 Days =	12 FEB 2021	-238	SAT	-NR-
14FEB21	-3 Days =	11 FEB 2021	-615	FRI	-NR-
14FEB21	-4 Days =	10 FEB 2021	-1292	THU	-NR-
14FEB21	-5 Days =	09 FEB 2021	-1064	WED	-NR-
14FEB21	-6 Days =	08 FEB 2021	-1000	TUE	5316
14FEB21	-7 Days =	07 FEB 2021	-1277	MON	4708
14FEB21	-8 Days =	06 FEB 2021	-1663	SUN	2508
14FEB21	-9 Days =	05 FEB 2021	-1856	SAT	-1271
14FEB21	-10 Days =	04 FEB 2021	-1768	FRI	-8432
14FEB21	-11 Days =	03 FEB 2021	-1016	THU	-11806
14FEB21	-12 Days =	02 FEB 2021	-204	WED	-2773
14FEB21	-13 Days =	01 FEB 2021	-54	TUE	10097

S65E

			Average Flow over previous 14 days		Avg-Daily Flow
14FEB21	Today=	14 FEB 2021	1026	MON	1164
14FEB21	-1 Day =	13 FEB 2021	1009	SUN	1050
14FEB21	-2 Days =	12 FEB 2021	1000	SAT	945
14FEB21	-3 Days =	11 FEB 2021	1002	FRI	1004
14FEB21	-4 Days =	10 FEB 2021	1003	THU	1052
14FEB21	-5 Days =	09 FEB 2021	1002	WED	1042
14FEB21	-6 Days =	08 FEB 2021	1004	TUE	1069
14FEB21	-7 Days =	07 FEB 2021	998	MON	1084
14FEB21	-8 Days =	06 FEB 2021	926	SUN	1031
14FEB21	-9 Days =	05 FEB 2021	852	SAT	1132
14FEB21	-10 Days =	04 FEB 2021	777	FRI	992
14FEB21	-11 Days =	03 FEB 2021	755	THU	1046
14FEB21	-12 Days =	02 FEB 2021	742	WED	1014
14FEB21	-13 Days =	01 FEB 2021	740	TUE	735

S65EX1

			Average Flow over previous 14 days		Avg-Daily Flow
14FEB21	Today=	14 FEB 2021	36	MON	0
14FEB21	-1 Day =	13 FEB 2021	36	SUN	0
14FEB21	-2 Days =	12 FEB 2021	36	SAT	51
14FEB21	-3 Days =	11 FEB 2021	33	FRI	94
14FEB21	-4 Days =	10 FEB 2021	26	THU	0
14FEB21	-5 Days =	09 FEB 2021	26	WED	0
14FEB21	-6 Days =	08 FEB 2021	26	TUE	0
14FEB21	-7 Days =	07 FEB 2021	26	MON	0
14FEB21	-8 Days =	06 FEB 2021	89	SUN	0
14FEB21	-9 Days =	05 FEB 2021	158	SAT	0
14FEB21	-10 Days =	04 FEB 2021	220	FRI	0
14FEB21	-11 Days =	03 FEB 2021	232	THU	0
14FEB21	-12 Days =	02 FEB 2021	232	WED	0
14FEB21	-13 Days =	01 FEB 2021	232	TUE	365

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)
14 FEB 2021	1264	1575	2354	3300
13 FEB 2021	2221	2563	2019	3189
12 FEB 2021	2070	2144	1992	2715
11 FEB 2021	2630	2710	2283	3145
10 FEB 2021	3307	3520	2521	3230
09 FEB 2021	551	2279	2589	3438
08 FEB 2021	1742	1927	2395	3704
07 FEB 2021	415	1099	1534	2603
06 FEB 2021	330	1049	743	1558
05 FEB 2021	-NR-	1673	919	2100
04 FEB 2021	2586	2817	2065	1375
03 FEB 2021	1567	1838	1573	1255
02 FEB 2021	446	919	1199	1815
01 FEB 2021	437	817	1200	1949

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)
14 FEB 2021	-2	682	0	0	-NR-
13 FEB 2021	29	495	0	241	-NR-
12 FEB 2021	13	526	0	297	-NR-
11 FEB 2021	26	0	0	407	-NR-
10 FEB 2021	-7	0	0	0	-NR-
09 FEB 2021	22	0	0	0	-NR-
08 FEB 2021	180	0	0	0	284
07 FEB 2021	299	0	0	0	337
06 FEB 2021	439	0	0	0	356
05 FEB 2021	391	0	161	0	325
04 FEB 2021	521	516	331	757	232
03 FEB 2021	512	2062	923	1603	320
02 FEB 2021	477	1288	290	609	472
01 FEB 2021	341	1003	215	351	474

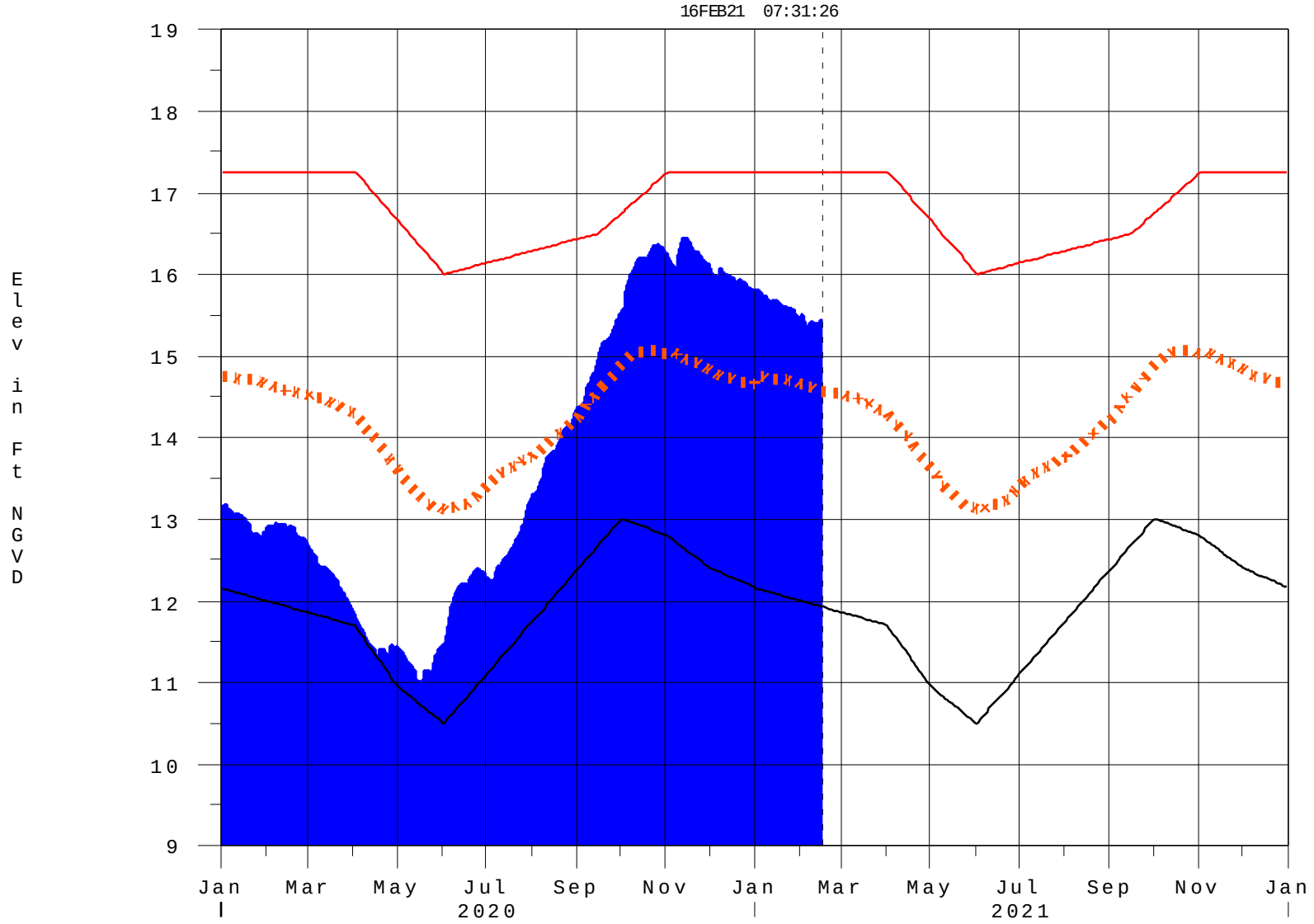
DATE	S-308 Discharge (ALL DAY) (AC-FT)	Below S-308 Discharge (ALL-DAY) (AC-FT)	S-80 Discharge (ALL-DAY) (AC-FT)
14 FEB 2021	6	-204	-NR-
13 FEB 2021	6	-235	-NR-
12 FEB 2021	4	-89	-NR-
11 FEB 2021	-NR-	559	-NR-
10 FEB 2021	6	-178	-NR-
09 FEB 2021	4	-128	-NR-
08 FEB 2021	5	47	-NR-
07 FEB 2021	5	-333	-NR-
06 FEB 2021	7	-245	-NR-
05 FEB 2021	137	-141	-NR-
04 FEB 2021	340	257	-NR-
03 FEB 2021	221	242	-NR-
02 FEB 2021	3	322	26
01 FEB 2021	331	312	26

*** 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 15FEB2021 @ 22:43  ** Preliminary Data - Subject to Revision **
```

Lake Okeechobee



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