Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 3/29/2021 (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 (Mar-Aug)	N/A	N/A	0.87	Normal	0.75	Normal	0.81	Normal
Multi Seasonal (Mar-Oct)	N/A	N/A	2.38	Normal	2.09	Normal	2.06	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:

-2218 cfs 14-day running average for Lake Okeechobee Net Inflow through 3/28/2021.
According to the classification in Tributary Hydrologic Conditions table, this condition is Dry.

-1.22 for Palmer Drought Index on 3/27/2021.
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 3/29/2021:

Lake Okeechobee Stage: **14.53 feet**

Lake Okeechobee Management Zone/Band		Bottom Elevation (feet, NGVD)	Current Lake Stage
High Lake Management Band		17.25	
Operational Band	High sub-band	16.52	
	Intermediate sub-band	15.53	
	Low sub-band	13.50	← 14.53 ft
Base Flow sub-band		12.60	
Beneficial Use sub-band		11.72	
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 3/29/2021 (ENSO Condition- La Nina):

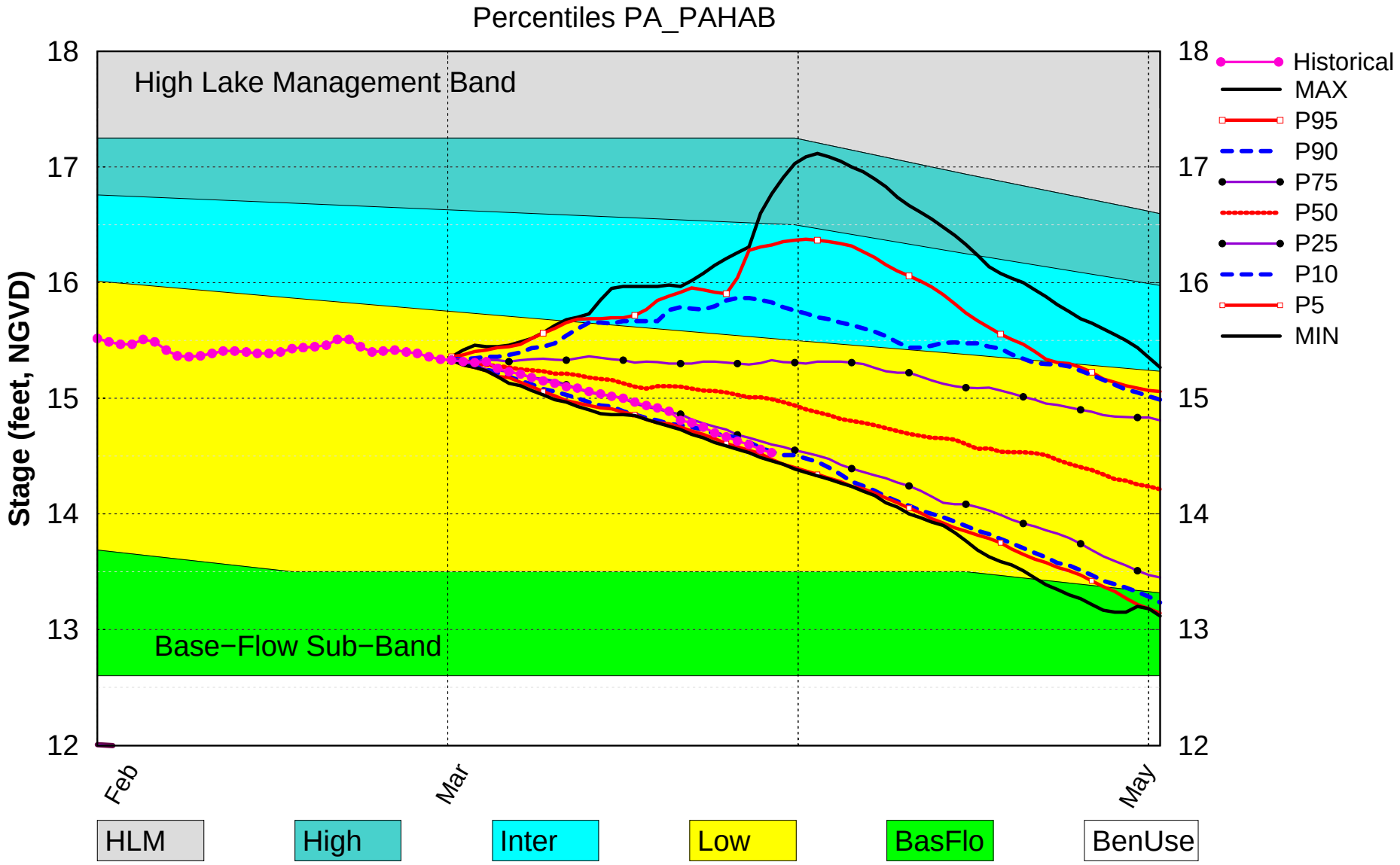
Status for week ending 3/29/2021:

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	-1.22 (Dry)	M
	CPC Precipitation Outlook	1 month: Below Normal	M
		3 months: Normal	L
	LOK Seasonal Net Inflow Outlook	0.75 ft	M
	ENSO Forecast	Dry	
	LOK Multi-Seasonal Net Inflow Outlook	2.09 ft	M
	ENSO Forecast	Normal	
WCAs	WCA 1: 3 Station Average (Site 1-7, 1-8T and 1-9)	Above Line 1 (16.38 ft)	L
	WCA 2A: Site 2-17	Above Line 1 (11.63 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64 and 65)	Above Line 1 (9.54 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.

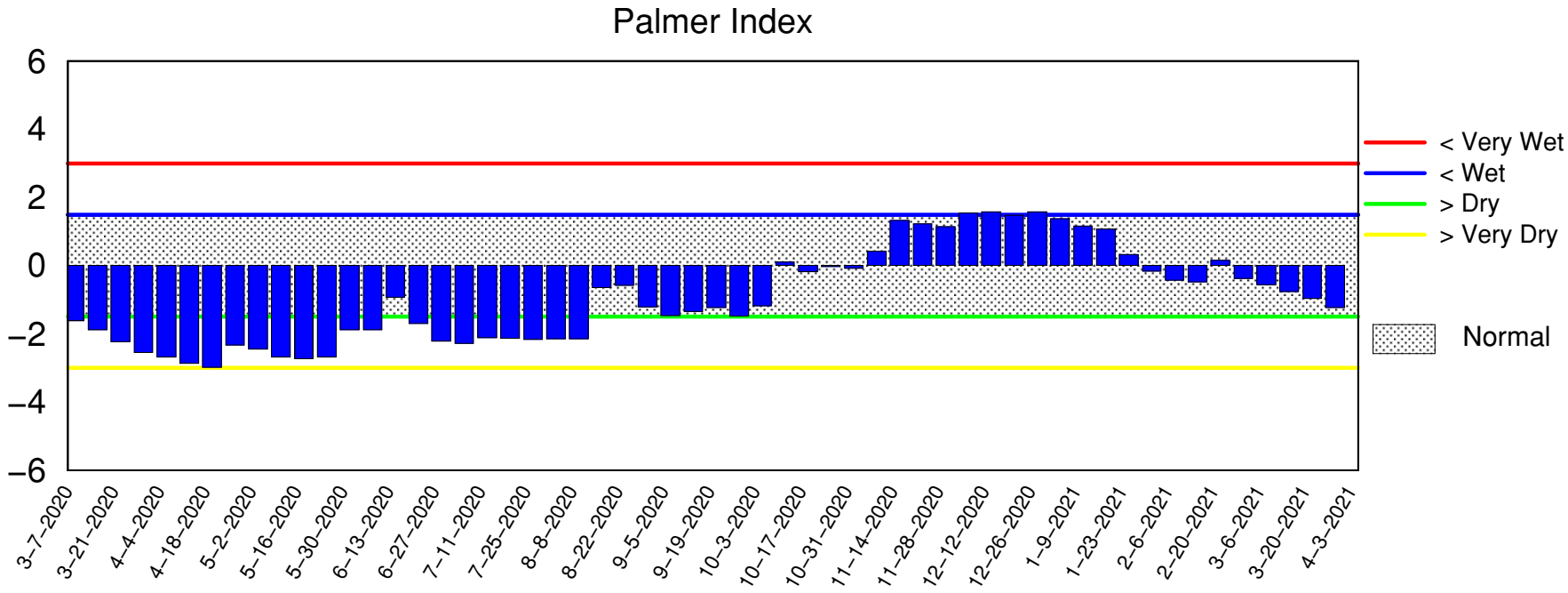
Lake Okeechobee SFWMM Mar 2021 Position Analysis

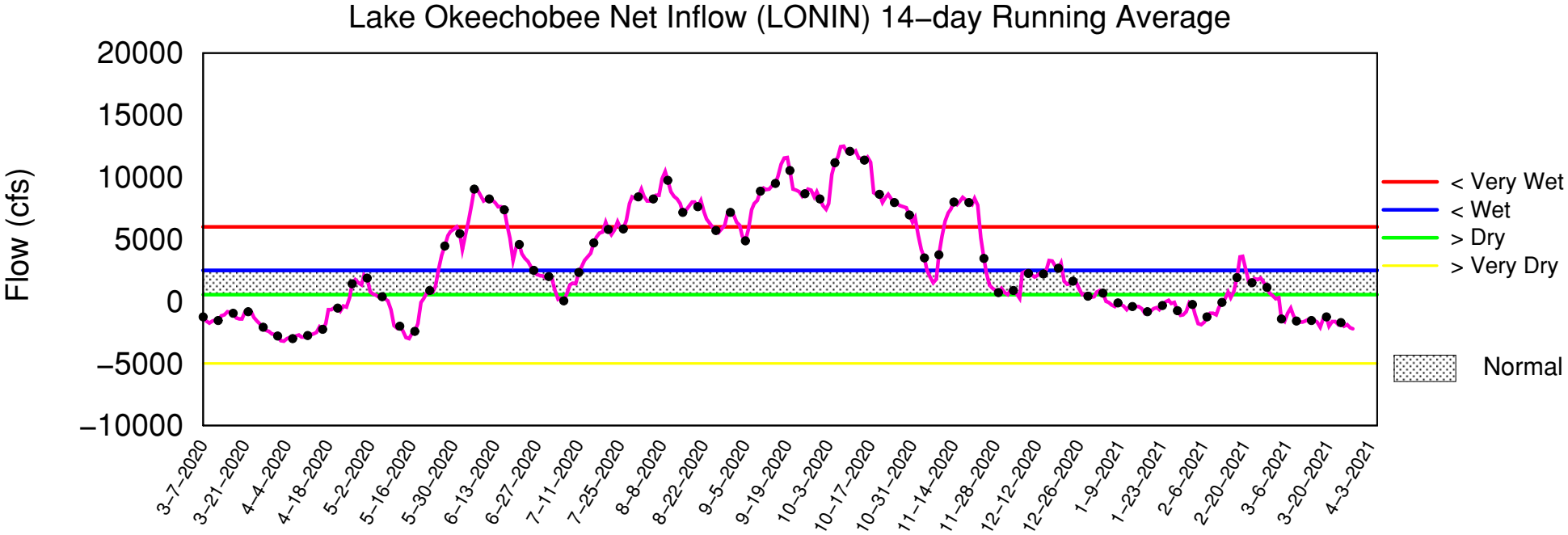


(See assumptions on the Position Analysis Results website)

Tue Mar 30 07:54:40 EDT 2021

Tributary Basin Condition Indicators as of March 29 2021





Mon Mar 29 12:54:16 EDT 2021

2008 LORS

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

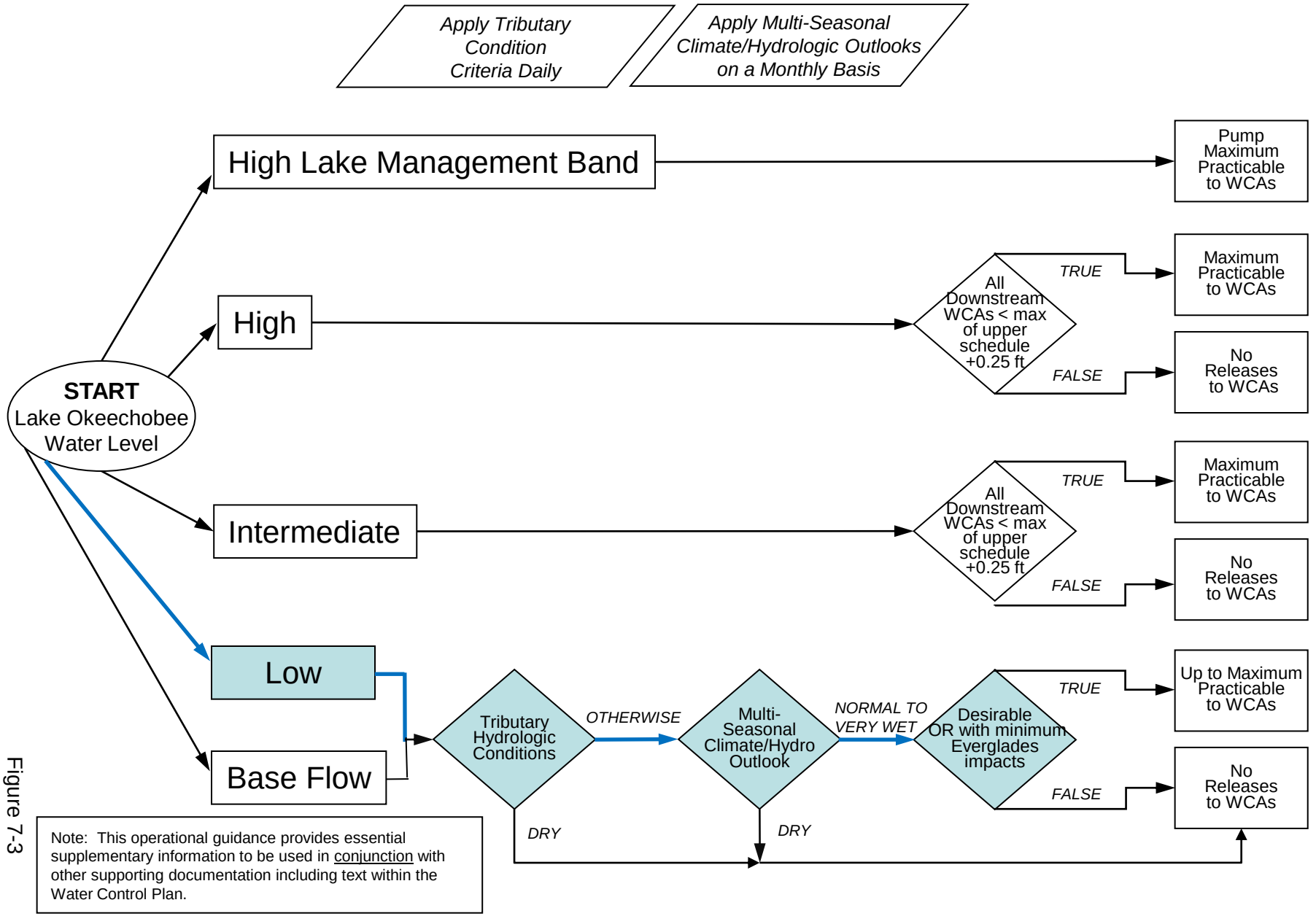
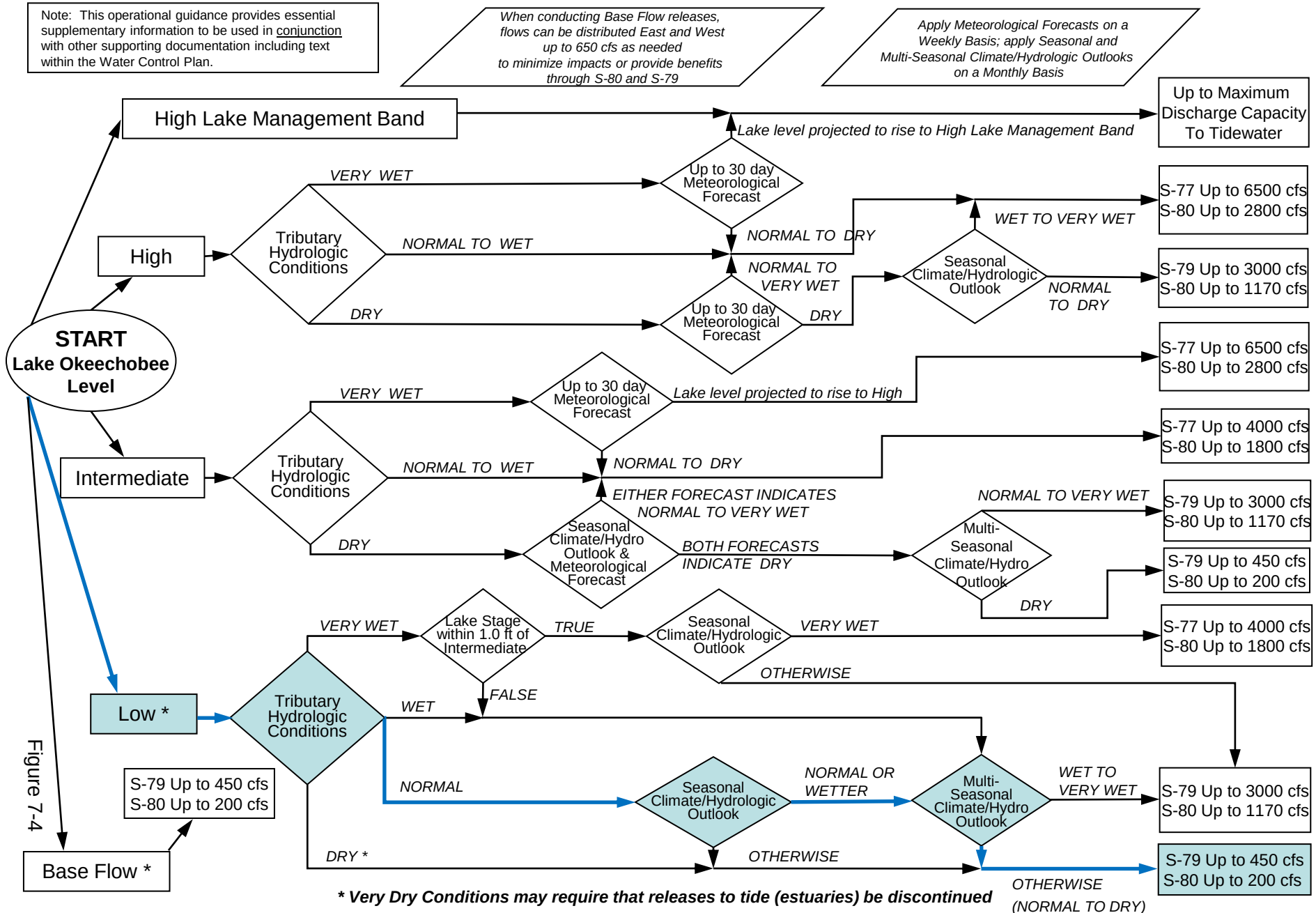


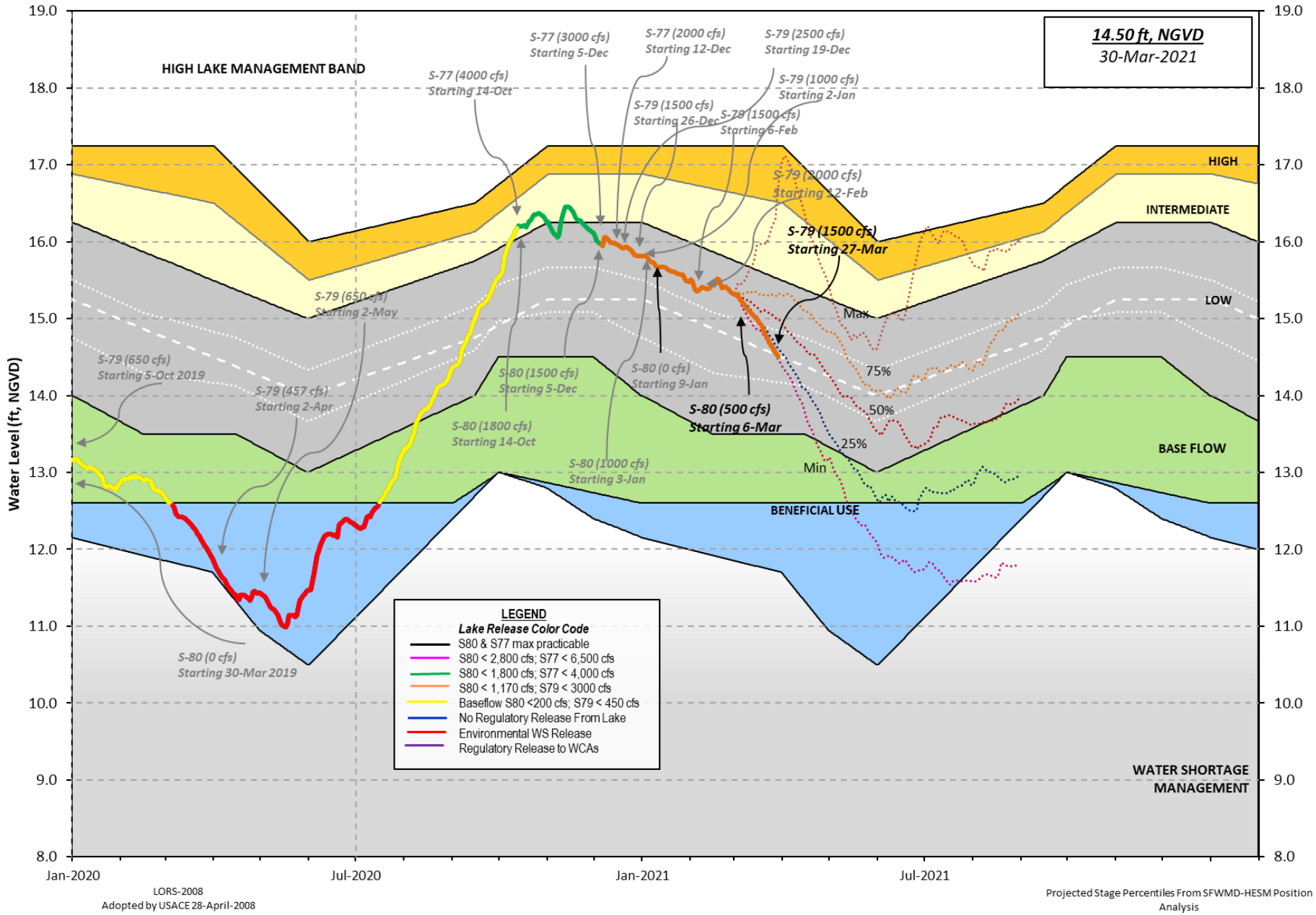
Figure 7-3

2008 LORS

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



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 28 MAR 2021

Okeechobee Lake Regulation	Elevation (ft-NGVD)	Last Year (ft-NGVD)	2YRS Ago (ft-NGVD)
*Okeechobee Lake Elevation	14.53	11.98	11.94 (Official Elv)

Bottom of High Lake Mngmt= 17.25 Top of Water Short Mngmt= 11.72
Currently in Operational Management Band

Simulated Average LORS2008 [1965-2000] 13.07
Difference from Average LORS2008 1.46

28MAR (1965-2007) Period of Record Average 14.33
Difference from POR Average 0.20

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ◆ 8.47'
++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ◆ 6.67'
Bridge Clearance = 49.12'

---

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

L001	L005	L006	LZ40	S4	S352	S308	S133
14.54	14.58	14.52	14.51	14.47	14.60	14.54	14.52

*Combination Okeechobee Avg-Daily Lake Average = 14.53
(*See Note)

Okeechobee Inflows (cfs):

S65E	704	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: 704

Okeechobee Outflows (cfs):

S135 Culverts	0	S354	594	S77	1640
S127 Culverts	0	S351	1049	S308	566
S129 Culverts	0	S352	815		
S131 Culverts	0	L8 Canal Pt	-NR-		

Total Outflows: 4663

****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	0.23	S308	0.24

Average Pan Evap x 0.75 Pan Coefficient = 0.18" = 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 -6353 cfs or -12600 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:	13.66	14.47	0	0	0	0	0	0	(cfs)		
S193:											
S191:	18.22	14.49	0	0.0	-NR-	0.0					
S135 Pumps:	13.08	14.43	0	0	0	0	0		(cfs)		
S135 Culverts:			0	0.0	0.0						
North West Shore											
S65E:	21.13	14.44	704	0.6	0.1	0.5	0.5	0.4	0.0		
S65EX1:	21.13	14.44	0								
S127 Pumps:	13.35	14.44	0	0	0	0	0	0	(cfs)		
S127 Culvert:			0	0.0							
S129 Pumps:	12.94	14.50	0	0	0	0			(cfs)		
S129 Culvert:			0	0.0							
S131 Pumps:	13.06	14.48	0	0	0				(cfs)		
S131 Culvert:			0								
Fisheating Creek											
nr Palmdale		27.92	0								
nr Lakeport											
C5:		-NR-	0	-NR-	-NR-	-NR-					
South Shore											
S4 Pumps:	11.38	14.46	0	0	0	0			(cfs)		
S169:	14.48	11.42	0	0.0	0.0	0.0					
S310:	14.43		57								
S3 Pumps:	11.46	14.55	0	-NR-	-NR-	-NR-			(cfs)		
S354:	14.55	11.46	594	1.0	1.0						
S2 Pumps:	11.02	-NR-	0	0	0	0	0		(cfs)		
S351:	-NR-	11.02	1049	1.2	1.6	1.4					
S352:	14.63	11.15	815	1.2	1.4						
C10A:	-NR-	14.41		8.0	8.0	8.0	0.0	0.0			
L8 Canal PT			-NR-								
S351 and S352 Temporary Pumps/S354 Spillway											
S351:	11.02	-NR-	1049	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-		
S352:	11.15	14.63	815	-NR-	-NR-	-NR-	-NR-				
S354:	11.46	14.55	594	-NR-	-NR-	-NR-	-NR-				
Caloosahatchee River (S77, S78, S79)											
S47B:	14.13	12.44		1.0	1.0						
S47D:	12.50	10.95	0	0.0							
S77:											
Spillway and Sector Preferred Flow:											
	14.19	10.87	1632	2.5	2.5	2.5	0.0				
Flow Due to Lockages+:			8								
S78:											

```
    Spillway and Sector Flow:
              10.88      2.77    1254    2.0  0.0  0.0  2.0
    Flow Due to Lockages+:          14

  S79:
    Spillway and Sector Flow:
               2.91      0.85    1467    0.0  1.0  1.0  1.0  1.0  1.0  1.0  0.5
    Flow Due to Lockages+:           9
    Percent of flow from S77       111%
    Chloride            (ppm)      0


St. Lucie Canal (S308, S80)
  S308:
    Spillway and Sector Preferred Flow:
              14.57     14.38     565  0.0  3.5  4.0  0.0
    Flow Due to Lockages+:           1

  S153:        18.83     14.05       0    0.0  0.0
  S80:
    Spillway and Sector Flow:
              14.23      1.42     406    0.0  0.0  0.5  0.0  0.5  0.0  0.0
    Flow Due to Lockages+:          26
    Percent of flow from S308      139%

  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:	0.23	0.23	0.23	194	1
S78:	10.51	10.51	10.51	170	0
S79:	0.00	0.00	0.00	291	1
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:	15.47	15.47	15.47	302	11
S80:	2.91	2.91	2.91	34	1
Okeechobee Average (Sites S78, S79 and S80 not included)	7.85	1.21	1.21		
Oke Nexrad Basin Avg	-NR-	0.00	0.00		

```
Okeechobee Lake Elevations  28 MAR 2021          14.53 Difference from 28MAR21
   28MAR21  -1 Day  =       27 MAR 2021          14.56             0.03
```

28MAR21	-2 Days =	26 MAR 2021	14.60	0.07
28MAR21	-3 Days =	25 MAR 2021	14.63	0.10
28MAR21	-4 Days =	24 MAR 2021	14.67	0.14
28MAR21	-5 Days =	23 MAR 2021	14.70	0.17
28MAR21	-6 Days =	22 MAR 2021	14.75	0.22
28MAR21	-7 Days =	21 MAR 2021	14.79	0.26
28MAR21	-30 Days =	26 FEB 2021	15.36	0.83
28MAR21	-1 Year =	28 MAR 2020	11.98	-2.55
28MAR21	-2 Year =	28 MAR 2019	11.94	-2.59

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
28MAR21	Today =	28 MAR 2021	-2218	MON	-1330
28MAR21	-1 Day =	27 MAR 2021	-2129	SUN	-3329
28MAR21	-2 Days =	26 MAR 2021	-1913	SAT	-970
28MAR21	-3 Days =	25 MAR 2021	-2029	FRI	-2776
28MAR21	-4 Days =	24 MAR 2021	-1714	THU	-424
28MAR21	-5 Days =	23 MAR 2021	-1889	WED	-4780
28MAR21	-6 Days =	22 MAR 2021	-1632	TUE	-3746
28MAR21	-7 Days =	21 MAR 2021	-1645	MON	1205
28MAR21	-8 Days =	20 MAR 2021	-2031	SUN	-12746
28MAR21	-9 Days =	19 MAR 2021	-1266	SAT	-2012
28MAR21	-10 Days =	18 MAR 2021	-1382	FRI	815
28MAR21	-11 Days =	17 MAR 2021	-2119	THU	-803
28MAR21	-12 Days =	16 MAR 2021	-1692	WED	-757
28MAR21	-13 Days =	15 MAR 2021	-1577	TUE	605

S65E

		Average Flow over previous 14 days			Avg-Daily Flow
28MAR21	Today=	28 MAR 2021	902	MON	808
28MAR21	-1 Day =	27 MAR 2021	917	SUN	758
28MAR21	-2 Days =	26 MAR 2021	937	SAT	768
28MAR21	-3 Days =	25 MAR 2021	956	FRI	720
28MAR21	-4 Days =	24 MAR 2021	980	THU	745
28MAR21	-5 Days =	23 MAR 2021	999	WED	850
28MAR21	-6 Days =	22 MAR 2021	1012	TUE	946
28MAR21	-7 Days =	21 MAR 2021	1020	MON	979
28MAR21	-8 Days =	20 MAR 2021	1026	SUN	990
28MAR21	-9 Days =	19 MAR 2021	1034	SAT	1006
28MAR21	-10 Days =	18 MAR 2021	1038	FRI	998
28MAR21	-11 Days =	17 MAR 2021	1043	THU	994
28MAR21	-12 Days =	16 MAR 2021	1048	WED	1014
28MAR21	-13 Days =	15 MAR 2021	1056	TUE	1046

S65EX1

		Average Flow over previous 14 days			Avg-Daily Flow
28MAR21	Today=	28 MAR 2021	0	MON	0
28MAR21	-1 Day =	27 MAR 2021	0	SUN	0
28MAR21	-2 Days =	26 MAR 2021	0	SAT	0
28MAR21	-3 Days =	25 MAR 2021	0	FRI	0
28MAR21	-4 Days =	24 MAR 2021	0	THU	0
28MAR21	-5 Days =	23 MAR 2021	0	WED	0
28MAR21	-6 Days =	22 MAR 2021	0	TUE	0
28MAR21	-7 Days =	21 MAR 2021	0	MON	0
28MAR21	-8 Days =	20 MAR 2021	0	SUN	0
28MAR21	-9 Days =	19 MAR 2021	0	SAT	0
28MAR21	-10 Days =	18 MAR 2021	0	FRI	0
28MAR21	-11 Days =	17 MAR 2021	0	THU	0
28MAR21	-12 Days =	16 MAR 2021	0	WED	0
28MAR21	-13 Days =	15 MAR 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)
28 MAR 2021	3262	3319	2519	2921
27 MAR 2021	3338	3328	2336	3518
26 MAR 2021	3965	3944	2723	4311
25 MAR 2021	3935	3765	2719	3615
24 MAR 2021	3982	3788	2709	3622
23 MAR 2021	4105	3759	2701	3618
22 MAR 2021	3179	3015	2720	4098
21 MAR 2021	4116	3988	3291	3992
20 MAR 2021	4407	4246	3163	4122
19 MAR 2021	3522	3440	2924	4519
18 MAR 2021	3458	3472	2934	3633
17 MAR 2021	3569	3561	2953	3807
16 MAR 2021	3628	3639	2958	3661
15 MAR 2021	3633	3690	2945	4124

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)
28 MAR 2021	112	2080	1616	1177	-NR-
27 MAR 2021	202	2231	1693	1253	-NR-
26 MAR 2021	321	2157	1686	1200	-NR-
25 MAR 2021	175	2332	1670	1199	-NR-
24 MAR 2021	273	2333	1593	1012	-NR-
23 MAR 2021	126	2137	1498	879	-NR-
22 MAR 2021	92	2167	720	1136	-NR-
21 MAR 2021	215	2688	763	1496	-NR-
20 MAR 2021	222	872	347	2124	-NR-
19 MAR 2021	210	1002	784	1878	-NR-
18 MAR 2021	237	2042	791	1661	-NR-
17 MAR 2021	255	2221	1018	1832	-NR-
16 MAR 2021	287	2152	1094	1886	-NR-
15 MAR 2021	69	2360	993	1112	-NR-

DATE	S-308 Discharge (ALL DAY) (AC-FT)	Below S-308 Discharge (ALL-DAY) (AC-FT)	S-80 Discharge (ALL-DAY) (AC-FT)
28 MAR 2021	1140	1292	857
27 MAR 2021	954	1126	663
26 MAR 2021	988	1248	785
25 MAR 2021	1462	1716	1113
24 MAR 2021	1997	2416	1362
23 MAR 2021	2074	2284	1535
22 MAR 2021	1327	1301	1229
21 MAR 2021	994	954	812
20 MAR 2021	605	635	549
19 MAR 2021	1092	764	785
18 MAR 2021	1626	1699	1143
17 MAR 2021	1935	2242	1368
16 MAR 2021	1902	2149	1654
15 MAR 2021	1228	1269	1231

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

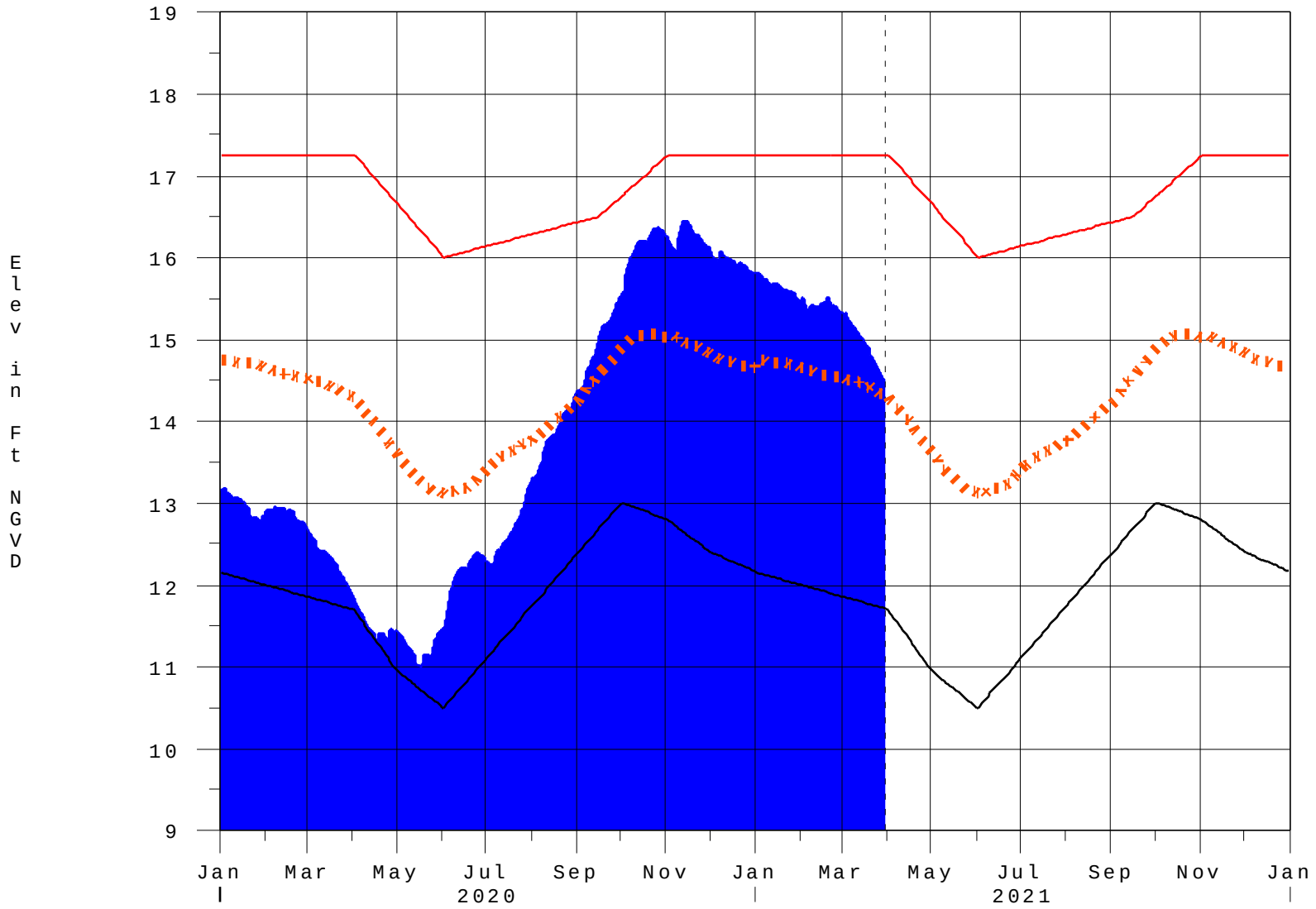
(I) - Flows preceeded by "I" signify an instantaneous
flow computed from the single value reported for the day

```
   * 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 29MAR2021 @ 23:39 ** Preliminary Data - Subject to Revision **

Lake Okeechobee

30MAR21 07:30:58



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