Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 5/24/2021 (ENSO Condition: Final La Niña Advisory)

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 (May-Oct)	N/A	N/A	2.35	Very Wet	2.34	Very Wet	3.42	Very Wet
Multi Seasonal (May-Apr)	N/A	N/A	2.91	Wet	2.64	Wet	4.05	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:

-4527 cfs 14-day running average for Lake Okeechobee Net Inflow through 5/23/2021.
According to the classification in Tributary Hydrologic Conditions table, this condition is Dry.

-1.73 for Palmer Drought Index on 5/22/2021.
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 5/24/2021:

Lake Okeechobee Stage: **13.12 feet**

Lake Okeechobee Management Zone/Band		Bottom Elevation (feet, NGVD)	Current Lake Stage
High Lake Management Band		16.18	
Operational Band	High sub-band	15.65	
	Intermediate sub-band	15.07	
	Low sub-band	13.08	← 13.12 ft
Base Flow sub-band		12.60	
Beneficial Use sub-band		10.62	
Water Shortage Management Band			

Part C of LORS2008: Discharge to WCAs

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 5/24/2021 (ENSO Condition- Final La Nina Advisory):

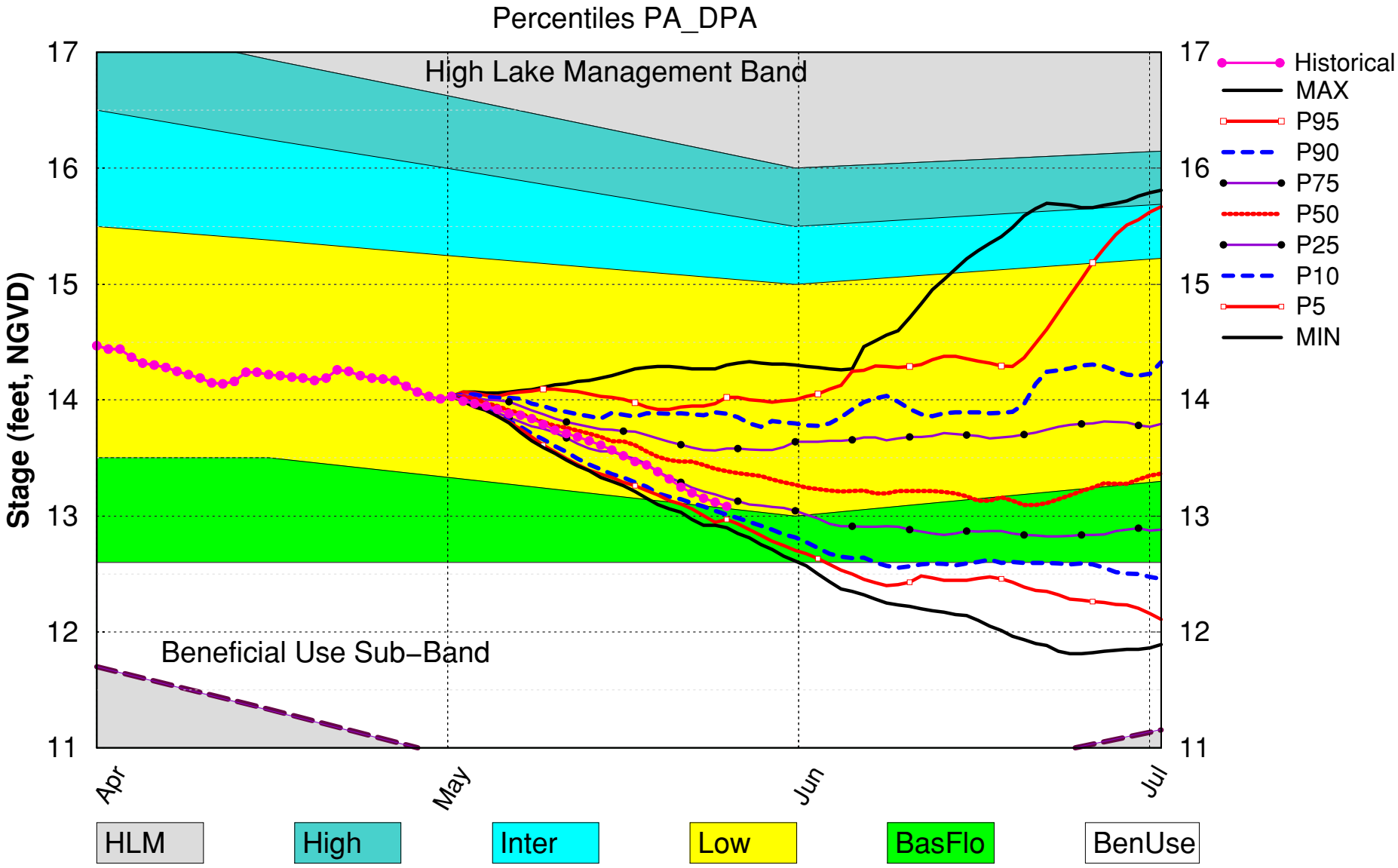
Status for week ending 5/24/2021:

Water Supply Risk Evaluation

Area	Indicator	Value	Color Coded Scoring Scheme
LOK	Projected LOK Stage for the next two months	Base Flow Sub-band	M
	Palmer Drought Index for LOK Tributary Conditions	-1.73 (Dry)	M
	CPC Precipitation Outlook	1 month: Above Normal	L
		3 months: Above Normal	L
	LOK Seasonal Net Inflow Outlook	2.34 ft	L
	ENSO Forecast	Normal to Extremely Wet	
	LOK Multi-Seasonal Net Inflow Outlook	2.64 ft	M
	ENSO Forecast	Normal	
WCAs	WCA 1: Site 1-8C	Above Line 1 (15.46 ft)	L
	WCA 2A: Site S-11B HW	Below Line 2 (10.84 ft)	H
	WCA-3A: 3 Station Average (Site 63, 64 and 65)	Above Line 1 (8.61 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.

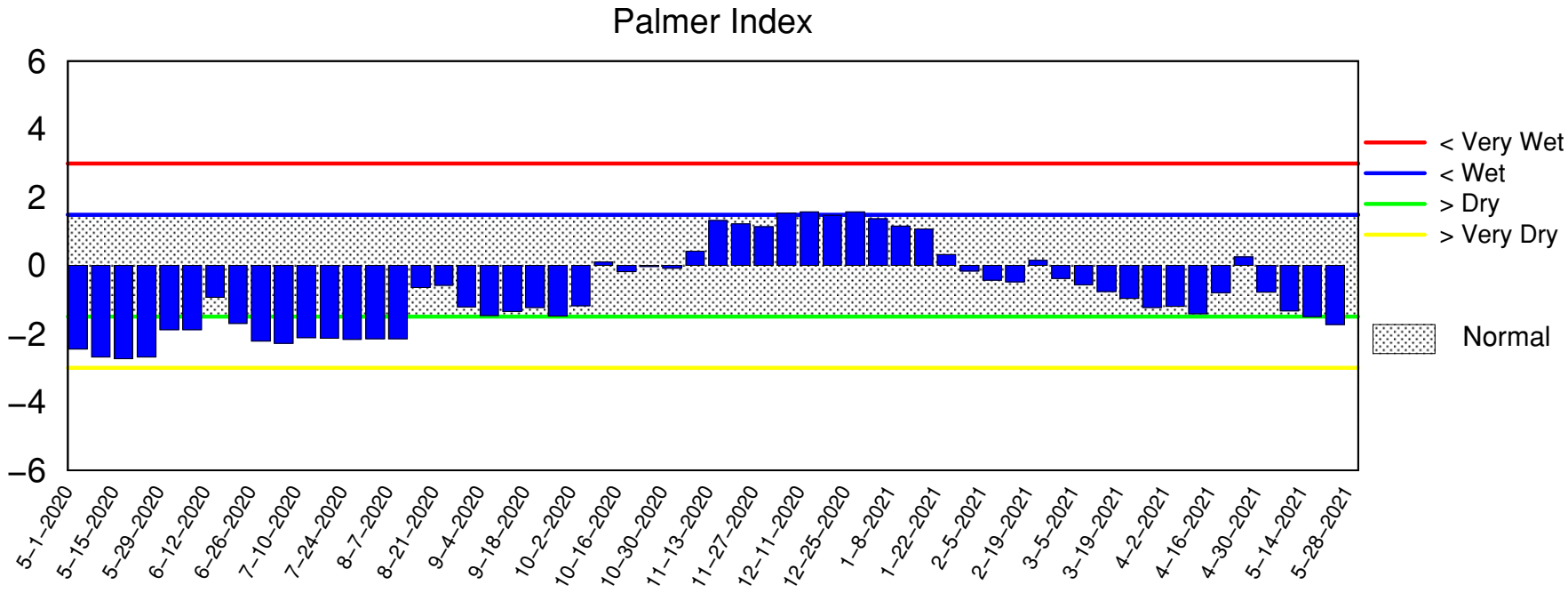
Lake Okeechobee SFWMM May 2021 Position Analysis

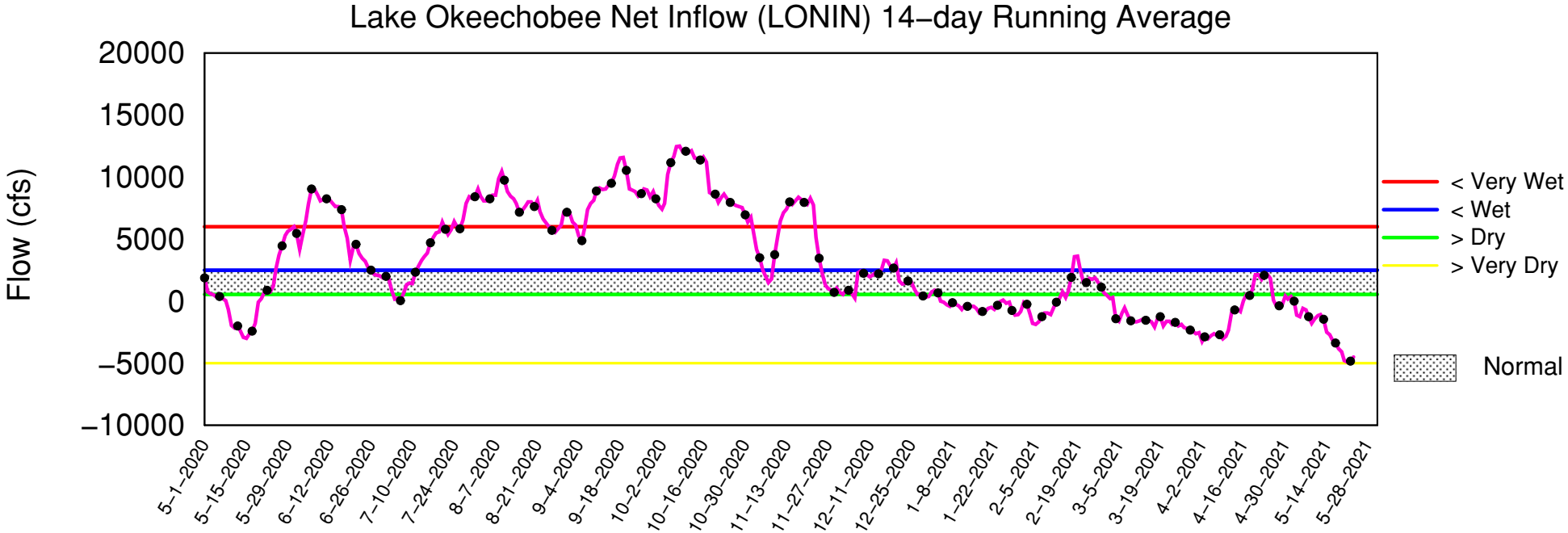


(See assumptions on the Position Analysis Results website)

Tue May 25 07:37:35 2021

Tributary Basin Condition Indicators as of May 24 2021





Mon May 24 12:57:23 EDT 2021

2008 LORS

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

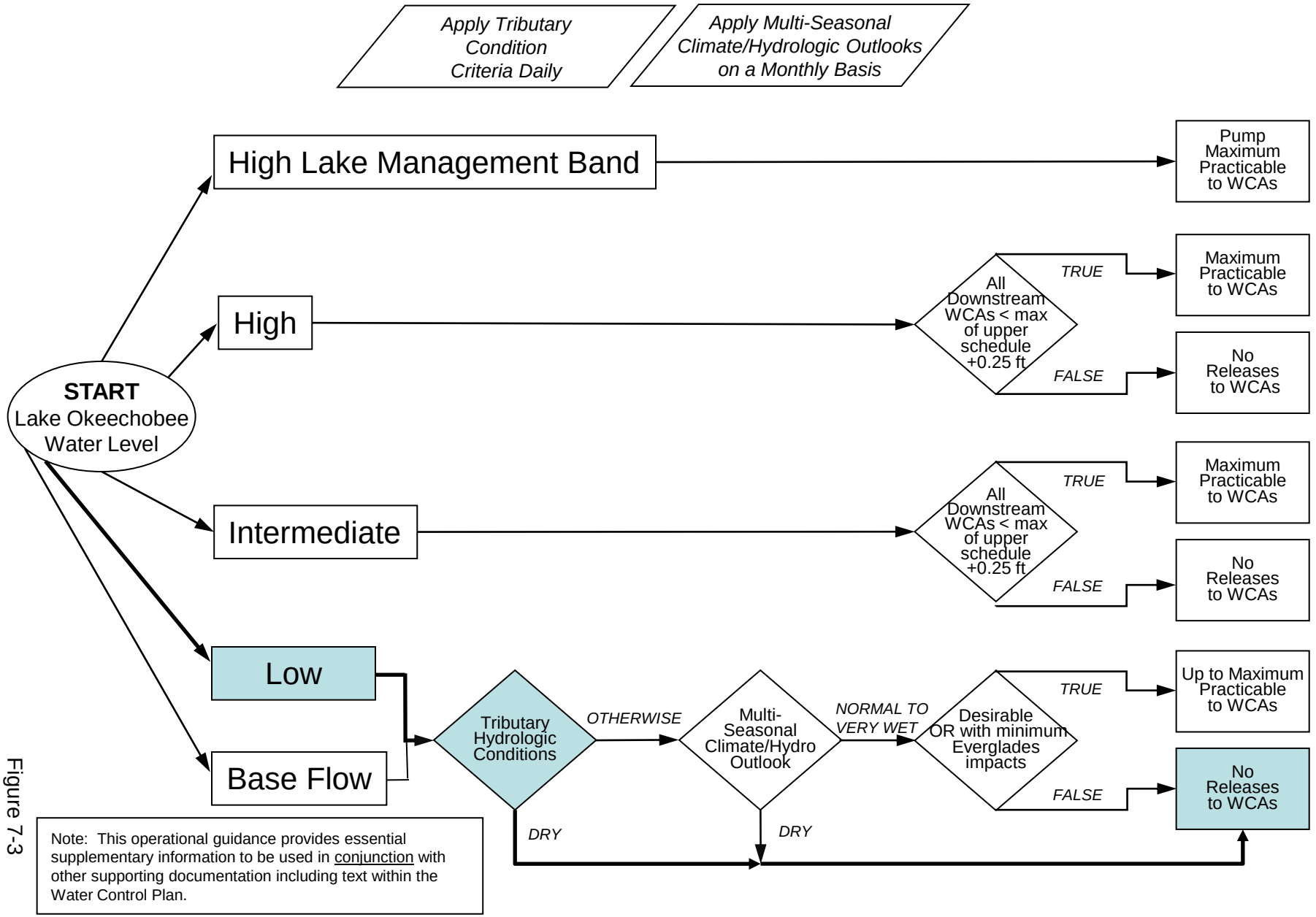
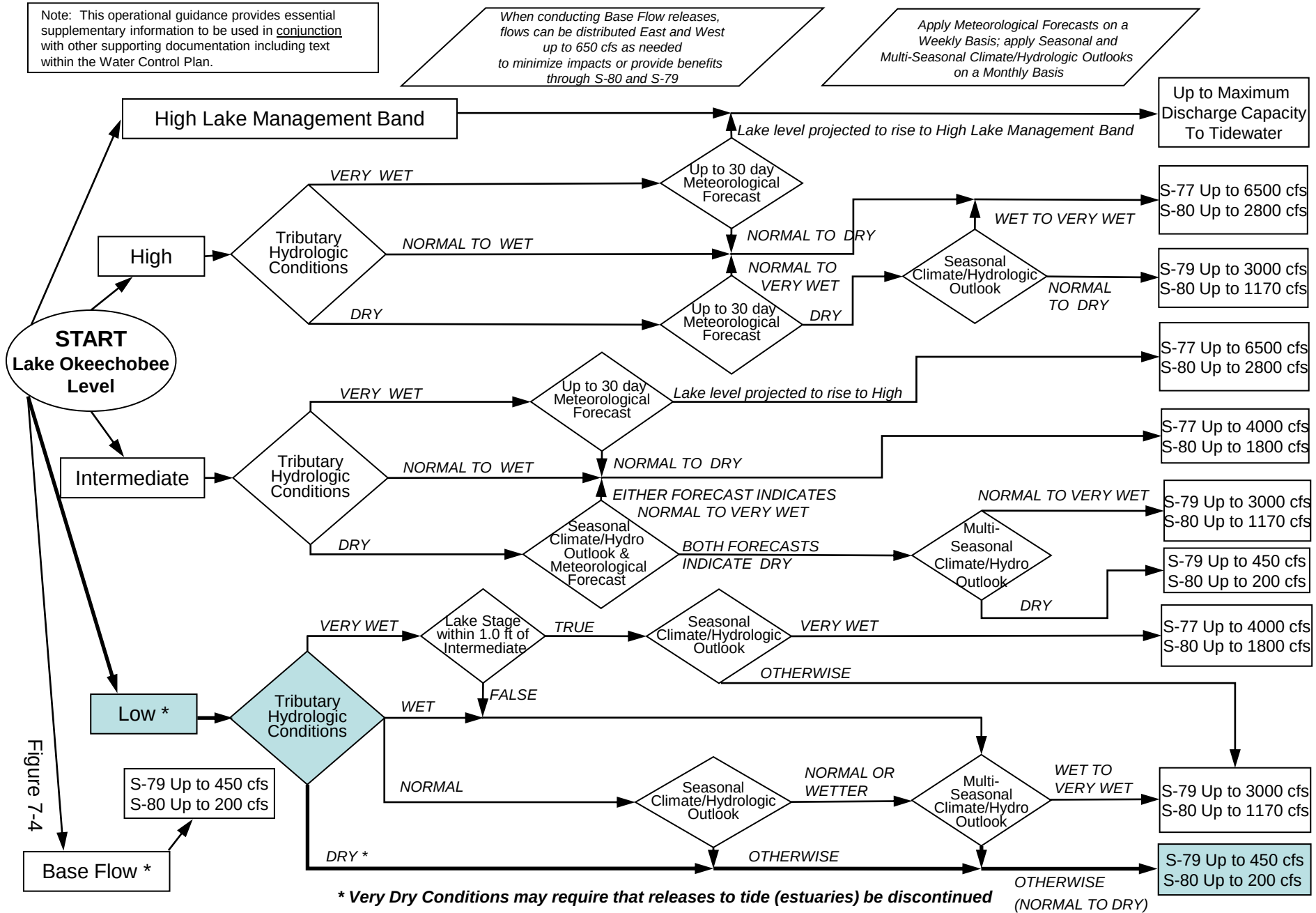


Figure 7-3

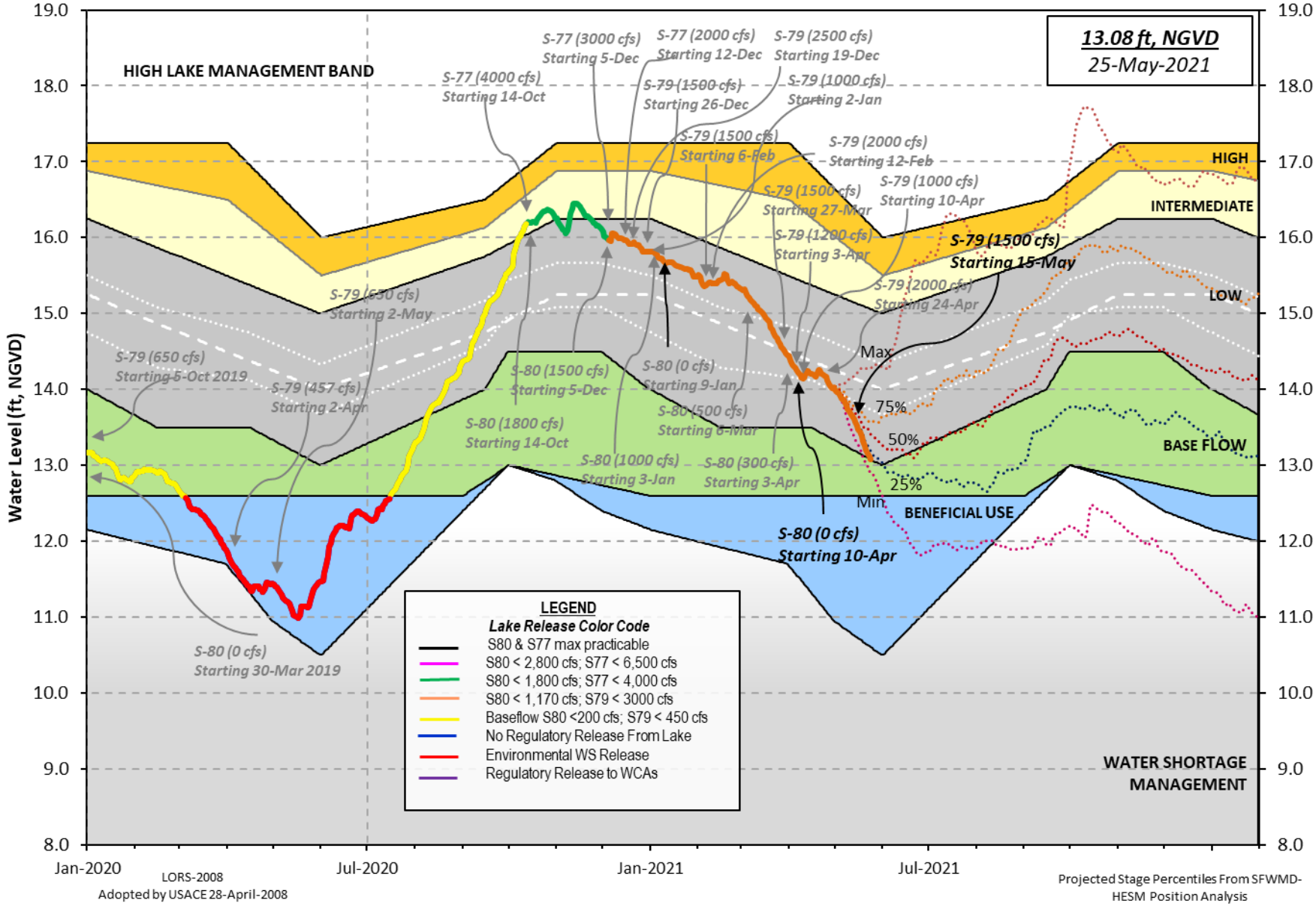
Note: This operational guidance provides essential supplementary information to be used in conjunction with other supporting documentation including text within the Water Control Plan.

2008 LORS

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



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 23 MAY 2021

Okeechobee Lake Regulation	Elevation (ft-NGVD)	Last Year (ft-NGVD)	2YRS Ago (ft-NGVD)	
*Okeechobee Lake Elevation	13.12	11.12	11.14	(Official Elv)

Bottom of High Lake Mngmt= 16.18 Top of Water Short Mngmt= 10.62
Currently in Operational Management Band

Simulated Average LORS2008 [1965-2000] 11.99
Difference from Average LORS2008 1.13

23MAY (1965-2007) Period of Record Average 13.18
Difference from POR Average -0.06

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ◆ 7.06'
++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ◆ 5.26'
Bridge Clearance = 50.59'

---

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

L001	L005	L006	LZ40	S4	S352	S308	S133
-NR-	13.21	13.12	13.08	13.21	13.21	13.07	13.00

*Combination Okeechobee Avg-Daily Lake Average = 13.12 (*See Note)

Okeechobee Inflows (cfs):

S65E	253	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:	253				

Okeechobee Outflows (cfs):

S135 Culverts	0	S354	1147	S77	863
S127 Culverts	0	S351	1347	S308	158
S129 Culverts	0	S352	840		
S131 Culverts	0	L8 Canal Pt	-NR-		
Total Outflows:	4355				

****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	0.28	S308	0.34

Average Pan Evap x 0.75 Pan Coefficient = 0.23" = 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 -6353 cfs or -12600 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:	13.03	13.03	0	0	0	0	0	0				(cfs)
S193:												
S191:	18.11	13.03	0	0.0	0.0	0.0						
S135 Pumps:	12.23	12.92	0	0	0	0	0					(cfs)
S135 Culverts:			0	0.0	0.0							
North West Shore												
S65E:	21.02	12.86	253	0.0	0.0	0.1	0.4	0.0	0.1			
S65EX1:	21.02	12.86	0									
S127 Pumps:	12.90	13.05	0	0	0	0	0	0				(cfs)
S127 Culvert:			0	0.0								
S129 Pumps:	12.55	13.24	0	0	0	0						(cfs)
S129 Culvert:			0	0.0								
S131 Pumps:	13.07	13.42	0	0	0							(cfs)
S131 Culvert:			0									
Fisheating Creek												
nr Palmdale		27.75	0									
nr Lakeport												
C5:		-NR-	0	-NR-	-NR-	-NR-						
South Shore												
S4 Pumps:	10.99	13.17	0	0	0	0						(cfs)
S169:		-NR-	-NR-	1.8	-NR-	-NR-						
S310:	13.11		167									
S3 Pumps:	10.31	13.09	0	0	0	0						(cfs)
S354:	13.09	10.31	1147	2.5	2.5							
S2 Pumps:	10.53	-NR-	0	0	0	0	0					(cfs)
S351:	-NR-	10.53	1347	2.2	2.2	2.2						
S352:	13.15	10.92	840	1.8	1.8							
C10A:	-NR-	12.94		8.0	8.0	8.0	0.0	0.0				
L8 Canal PT			-NR-									

S351 and S352 Temporary Pumps/S354 Spillway

S351:	10.53	-NR-	1347	-NR--NR--NR--NR--NR--NR-
S352:	10.92	13.15	840	-NR--NR--NR--NR-
S354:	10.31	13.09	1147	-NR--NR--NR--NR-

Caloosahatchee River (S77, S78, S79)								
S47B:	13.21	11.98		0.5	0.4			
S47D:	11.99	10.99	0	0.0				
S77:								
Spillway and Sector Preferred Flow:								
	13.15	10.86	860	0.0	0.0	2.5	0.0	
Flow Due to Lockages+:			3					
S78:								

```
    Spillway and Sector Flow:
              10.94      3.03     474    1.0  0.0  0.0  0.5
    Flow Due to Lockages+:          13

  S79:
    Spillway and Sector Flow:
               3.22      0.95     551    0.0  0.0  0.0  1.0  1.0  0.0  0.0  0.0
    Flow Due to Lockages+:          13
    Percent of flow from S77       156%
    Chloride            (ppm)      0


St. Lucie Canal (S308, S80)
  S308:
    Spillway and Sector Preferred Flow:
              13.09     12.91     158  0.0  0.0  3.0  0.0
    Flow Due to Lockages+:           0

  S153:        18.73     12.59       0    0.0  0.0
  S80:
    Spillway and Sector Flow:
              12.80      1.18       0    0.0  0.0  0.0  0.0  0.0  0.0  0.0
    Flow Due to Lockages+:          20
    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:	0.00	0.00	0.00	90	5
S78:	0.00	0.00	0.00	95	7
S79:	0.00	0.00	0.00	29	8
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:	0.00	0.00	0.01	105	3
S80:	0.00	0.00	0.08	91	1
Okeechobee Average (Sites S78, S79 and S80 not included)	0.00	0.00	0.00		
Oke Nexrad Basin Avg	-NR-	0.00	0.00		

```
Okeechobee Lake Elevations  23 MAY 2021          13.12 Difference from 23MAY21
   23MAY21  -1 Day  =       22 MAY 2021          13.15             0.03
```

23MAY21	-2 Days =	21 MAY 2021	13.20	0.08
23MAY21	-3 Days =	20 MAY 2021	13.25	0.13
23MAY21	-4 Days =	19 MAY 2021	13.32	0.20
23MAY21	-5 Days =	18 MAY 2021	13.38	0.26
23MAY21	-6 Days =	17 MAY 2021	13.44	0.32
23MAY21	-7 Days =	16 MAY 2021	13.47	0.35
23MAY21	-30 Days =	23 APR 2021	14.19	1.07
23MAY21	-1 Year =	23 MAY 2020	11.12	-2.00
23MAY21	-2 Year =	23 MAY 2019	11.14	-1.98

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
23MAY21	Today =	23 MAY 2021	-4837	MON	-1890
23MAY21	-1 Day =	22 MAY 2021	-5143	SUN	-4996
23MAY21	-2 Days =	21 MAY 2021	-5252	SAT	-4478
23MAY21	-3 Days =	20 MAY 2021	-5137	FRI	-8862
23MAY21	-4 Days =	19 MAY 2021	-4406	THU	-6986
23MAY21	-5 Days =	18 MAY 2021	-4158	WED	-7322
23MAY21	-6 Days =	17 MAY 2021	-3707	TUE	-2651
23MAY21	-7 Days =	16 MAY 2021	-3474	MON	-7196
23MAY21	-8 Days =	15 MAY 2021	-2928	SUN	-7770
23MAY21	-9 Days =	14 MAY 2021	-2630	SAT	-6273
23MAY21	-10 Days =	13 MAY 2021	-1469	FRI	-3932
23MAY21	-11 Days =	12 MAY 2021	-1084	THU	-2013
23MAY21	-12 Days =	11 MAY 2021	-1196	WED	-1782
23MAY21	-13 Days =	10 MAY 2021	-1453	TUE	-1564

S65E

		Average Flow over previous 14 days			Avg-Daily Flow
23MAY21	Today=	23 MAY 2021	504	MON	282
23MAY21	-1 Day =	22 MAY 2021	531	SUN	342
23MAY21	-2 Days =	21 MAY 2021	557	SAT	416
23MAY21	-3 Days =	20 MAY 2021	581	FRI	387
23MAY21	-4 Days =	19 MAY 2021	585	THU	445
23MAY21	-5 Days =	18 MAY 2021	553	WED	553
23MAY21	-6 Days =	17 MAY 2021	537	TUE	527
23MAY21	-7 Days =	16 MAY 2021	571	MON	592
23MAY21	-8 Days =	15 MAY 2021	596	SUN	503
23MAY21	-9 Days =	14 MAY 2021	618	SAT	475
23MAY21	-10 Days =	13 MAY 2021	658	FRI	536
23MAY21	-11 Days =	12 MAY 2021	691	THU	642
23MAY21	-12 Days =	11 MAY 2021	718	WED	634
23MAY21	-13 Days =	10 MAY 2021	746	TUE	718

S65EX1

		Average Flow over previous 14 days			Avg-Daily Flow
23MAY21	Today=	23 MAY 2021	12	MON	0
23MAY21	-1 Day =	22 MAY 2021	12	SUN	0
23MAY21	-2 Days =	21 MAY 2021	12	SAT	0
23MAY21	-3 Days =	20 MAY 2021	12	FRI	0
23MAY21	-4 Days =	19 MAY 2021	38	THU	0
23MAY21	-5 Days =	18 MAY 2021	103	WED	0
23MAY21	-6 Days =	17 MAY 2021	149	TUE	0
23MAY21	-7 Days =	16 MAY 2021	149	MON	0
23MAY21	-8 Days =	15 MAY 2021	149	SUN	0
23MAY21	-9 Days =	14 MAY 2021	149	SAT	170
23MAY21	-10 Days =	13 MAY 2021	137	FRI	0
23MAY21	-11 Days =	12 MAY 2021	137	THU	0
23MAY21	-12 Days =	11 MAY 2021	137	WED	0
23MAY21	-13 Days =	10 MAY 2021	137	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)
23 MAY 2021	1705	1426	966	1124
22 MAY 2021	4088	3416	1673	1599
21 MAY 2021	4093	4282	3016	3422
20 MAY 2021	4570	4798	2999	4627
19 MAY 2021	5359	5608	3998	4928
18 MAY 2021	4381	4493	2961	3631
17 MAY 2021	2047	1727	1705	2534
16 MAY 2021	1538	1126	1043	1189
15 MAY 2021	1533	2266	1515	2198
14 MAY 2021	1560	3318	2617	4125
13 MAY 2021	3733	3084	2425	3924
12 MAY 2021	2585	2916	2489	3992
11 MAY 2021	3636	4300	3096	3882
10 MAY 2021	4586	5019	3224	6074

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)
23 MAY 2021	331	2672	1665	2274	-NR-
22 MAY 2021	287	2742	1592	2261	-NR-
21 MAY 2021	330	2771	1512	2920	-NR-
20 MAY 2021	420	2482	1226	3002	-NR-
19 MAY 2021	453	2497	932	2140	-NR-
18 MAY 2021	496	2631	909	2049	-NR-
17 MAY 2021	384	2351	631	1790	-NR-
16 MAY 2021	272	2154	651	2066	-NR-
15 MAY 2021	256	1592	466	1938	-NR-
14 MAY 2021	319	612	369	1626	-NR-
13 MAY 2021	374	2030	770	2243	-NR-
12 MAY 2021	288	2393	1020	2165	-NR-
11 MAY 2021	293	2356	861	1833	-NR-
10 MAY 2021	259	1827	870	1701	-NR-

DATE	S-308 Discharge (ALL DAY) (AC-FT)	Below S-308 Discharge (ALL-DAY) (AC-FT)	S-80 Discharge (ALL-DAY) (AC-FT)
23 MAY 2021	314	457	41
22 MAY 2021	176	396	33
21 MAY 2021	521	865	16
20 MAY 2021	290	788	19
19 MAY 2021	210	631	23
18 MAY 2021	178	483	30
17 MAY 2021	101	305	38
16 MAY 2021	0	118	47
15 MAY 2021	58	228	44
14 MAY 2021	150	267	56
13 MAY 2021	263	352	55
12 MAY 2021	363	252	56
11 MAY 2021	382	306	49
10 MAY 2021	401	367	53

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

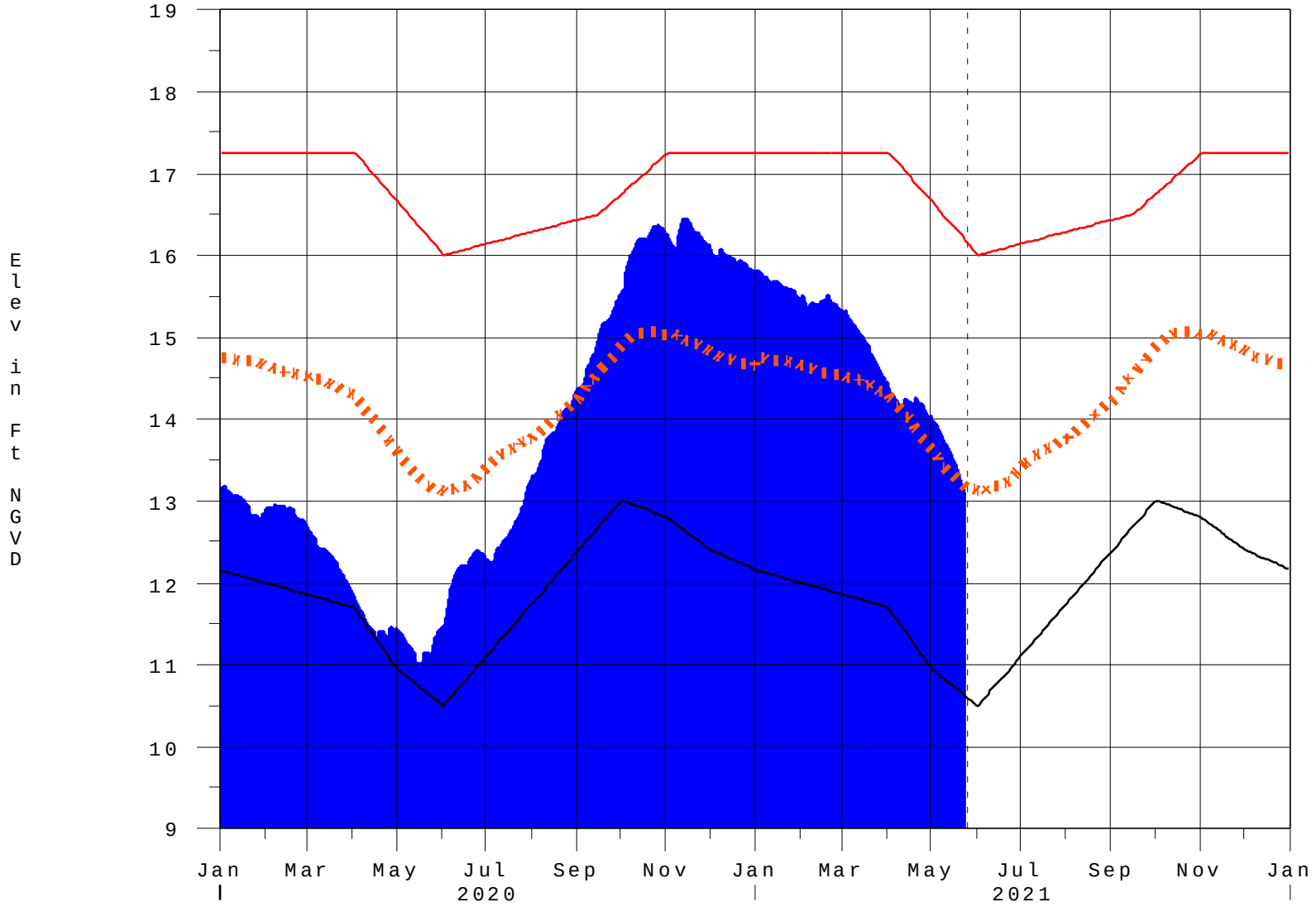
(I) - Flows preceeded by "I" signify an instantaneous
flow computed from the single value reported for the day

```
   * 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 24MAY2021 @ 15:15 ** Preliminary Data - Subject to Revision **

Lake Okeechobee

25MAY21 06:31:11



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