Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 10/09/2023 (ENSO Condition: El Niño)

Lake Okeechobee Net Inflow Outlook:

The Lake Okeechobee Net Inflow Outlook has been computed using methods described in the LORS2008 Water Control Plan: Croley's method, the SFWMD empirical method, a sub-sampling of El Niño years and a sub-sampling of warm years of the Atlantic Multi-decadal Oscillation (AMO) in combination with El Niño ENSO years. 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*		SFWMD Empirical Method		Sub-sampling of El Niño ENSO Years**		Sub-sampling of AMO Warm + El Niño ENSO Years***	
	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition
Current (Oct-Mar)	N/A	N/A	1.65	Wet	2.21	Very Wet	2.77	Very Wet
Multi Seasonal**** (Nov-Oct)	N/A	N/A	3.49	Wet	4.30	Wet	5.79	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 IRI ENSO forecast published.
***Sub-sampling based on combination of ENSO and AMO conditions. For this predominant ENSO categorization is used instead of weights.

**** LORS 2008 Water Control Plan calls for the forcing of a 12-month window to evaluate the multi-seasonal Lake Okeechobee Net Inflow Outlook which has been done this week has we are in a transitional period of seasons with above normal rainfall forecasted.

Tributary Hydrologic Conditions:

9914 cfs 14-day running average for Lake Okeechobee Net Inflow through 10/08/2023.
According to the classification in Tributary Hydrologic Conditions table, this condition is Very Wet.

-2.00 for Palmer Drought Index on 10/07/2023.
According to the classification in Tributary Hydrologic Conditions table, this condition is Dry.

The wetter of the two conditions above is **Very Wet.**

LORS2008 Classification Tables:

Lake Okeechobee Stage on 10/09/2023:

Lake Okeechobee Stage: **16.10 feet**

Lake Okeechobee Management Zone/Band		Bottom Elevation (feet, NGVD)	Current Lake Stage
High Lake Management Band		16.87	
Operational Band	High sub-band	16.50	
	Intermediate sub-band	15.99	← 16.10 ft
	Low sub-band	14.50	
Base Flow sub-band		12.97	
Beneficial Use sub-band		12.95	
Water Shortage Management Band			

Part C of LORS2008: Discharge to WCAs

No Releases to WCAs

Part D of LORS2008: Discharge to Tide*

Up to 4000 cfs at S-77 and up to 1800 cfs at S-80.

*- The 1-month (October) CPC precipitation outlook was used to assess the Up to 30-day Meteorological Forecast as Normal (CPC indicates equal chances of below normal, normal and above normal for south Florida for the month of October).

LORS2008 Implementation on 10/09/2023 (ENSO Condition- El Niño):

Status for week ending 10/09/2023*:

Water Supply Risk Evaluation

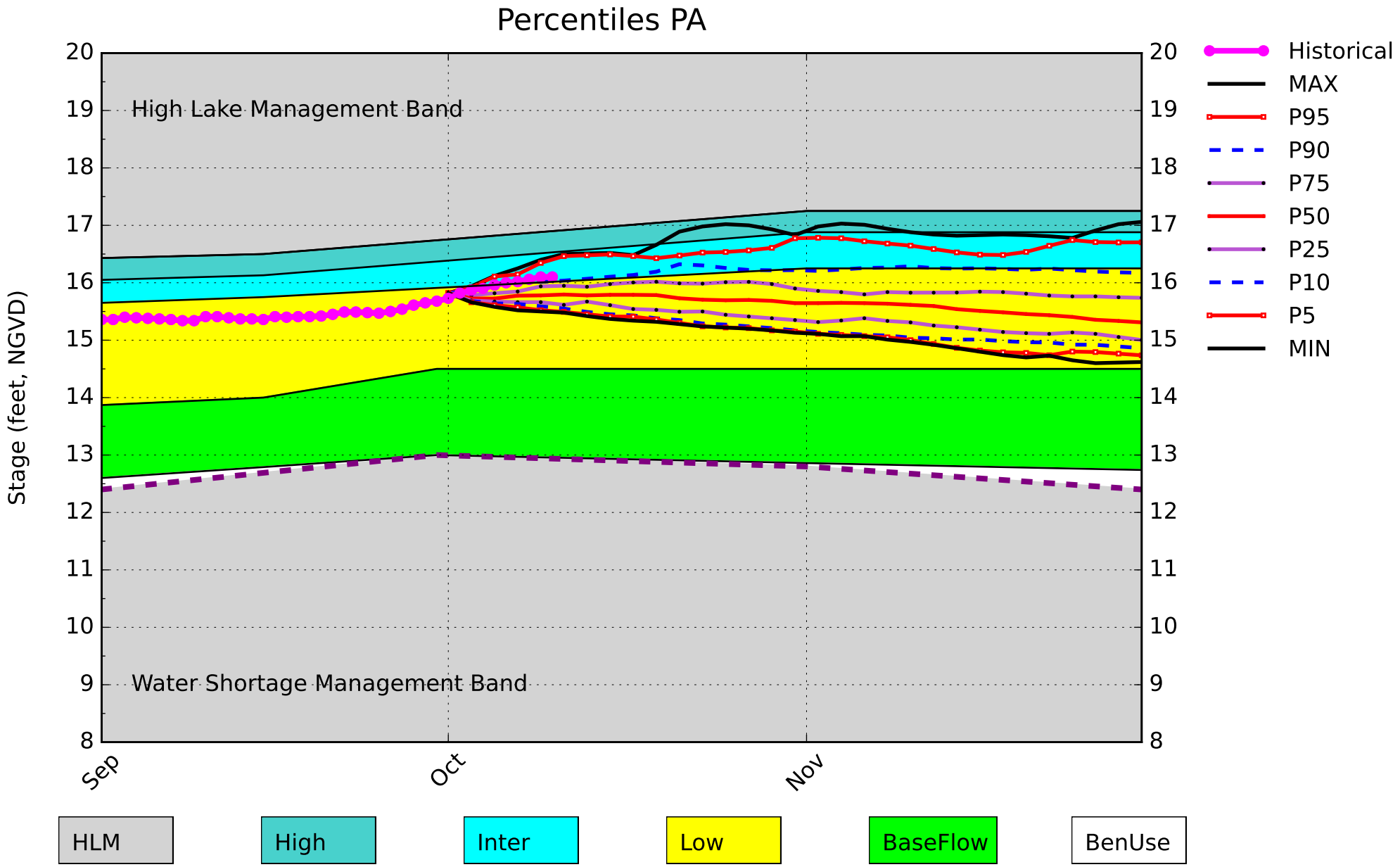
Area	Indicator	Value	Color Coded Scoring Scheme
LOK	Projected LOK Stage for the next two months	Low Sub-band	L
	Palmer Drought Index for LOK Tributary Conditions	-2.00 (Dry)	M
	CPC Precipitation Outlook	1 month: Equal Chances	L
		3 months: Above Normal	L
	LOK Seasonal Net Inflow Outlook	2.21 ft	L
	ENSO Forecast	Normal to Extremely Wet	
	LOK Multi-Seasonal Net Inflow Outlook	2.29 ft	M
	ENSO Forecast	Normal	
WCAs	WCA 1: 3 Station Average (Sites 1-7, 1-8T, and 1-9)	Above Line 1 (17.48 ft)	L
	WCA 2A: Site 2-17	Above Line 1 (13.83 ft)	L
	WCA-3A: 3 Station Average (Sites 63, 64, and 65)	Above Line 1 (11.34 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.

---

*- S-77 flow data for 10/7 & 10/8 is not available from USACE Daily Reports and was assumed to be 0. Water Supply Risk Evaluation LOK Multi-Seasonal Net Inflow Outlook is based on 7-month window. LORS2008 release guidance is using a 12-month window for evaluation.

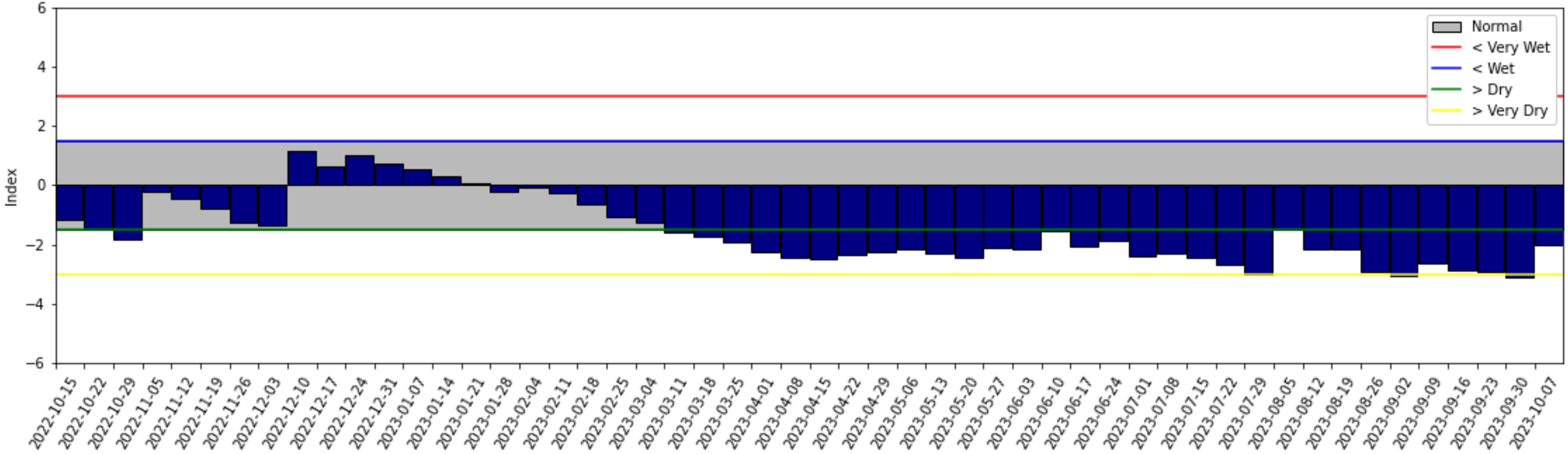
Lake Okeechobee SFWMM October 2023 Position Analysis

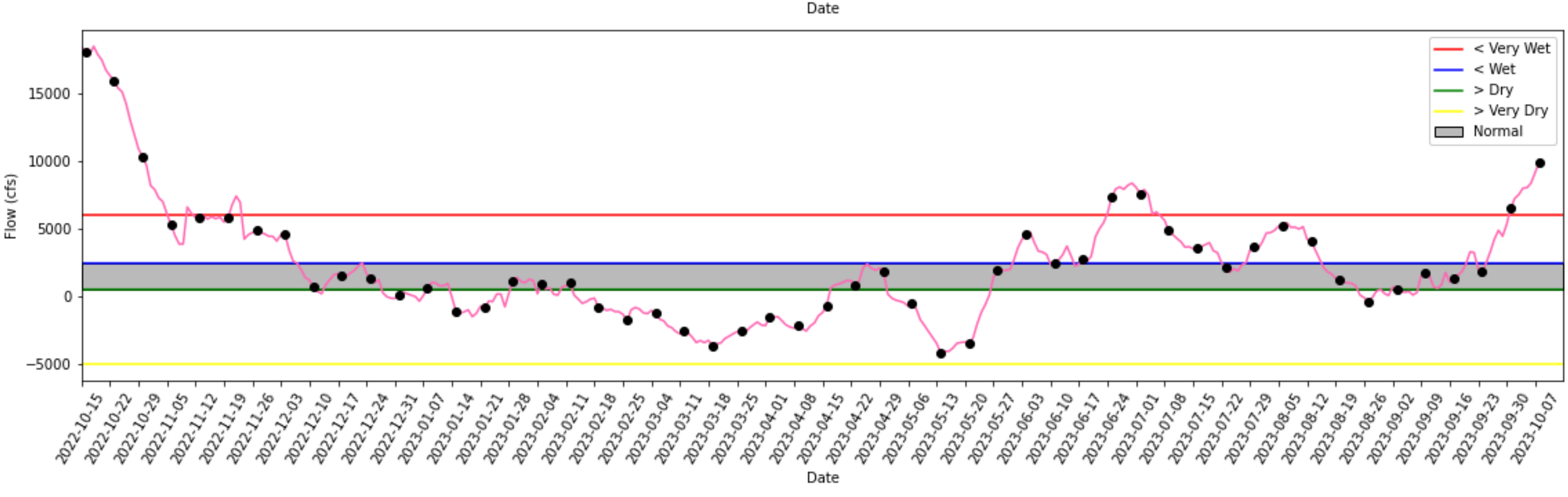


(See assumptions on the Position Analysis Results website)

10/10/23 08:16:21

Tributary Basin Condition Indicators as of October 08 2023





2008 LORS

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

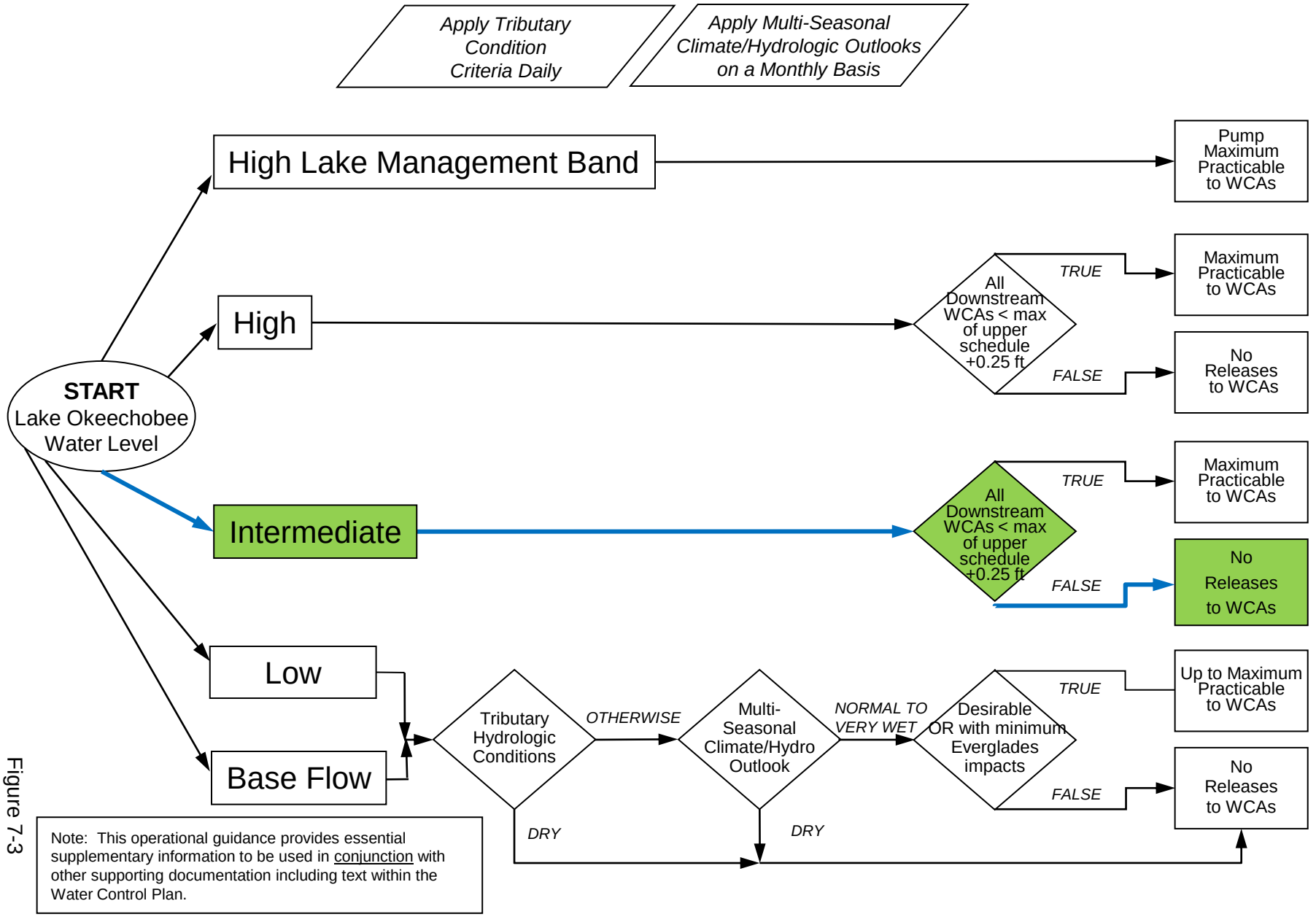


Figure 7-3

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)

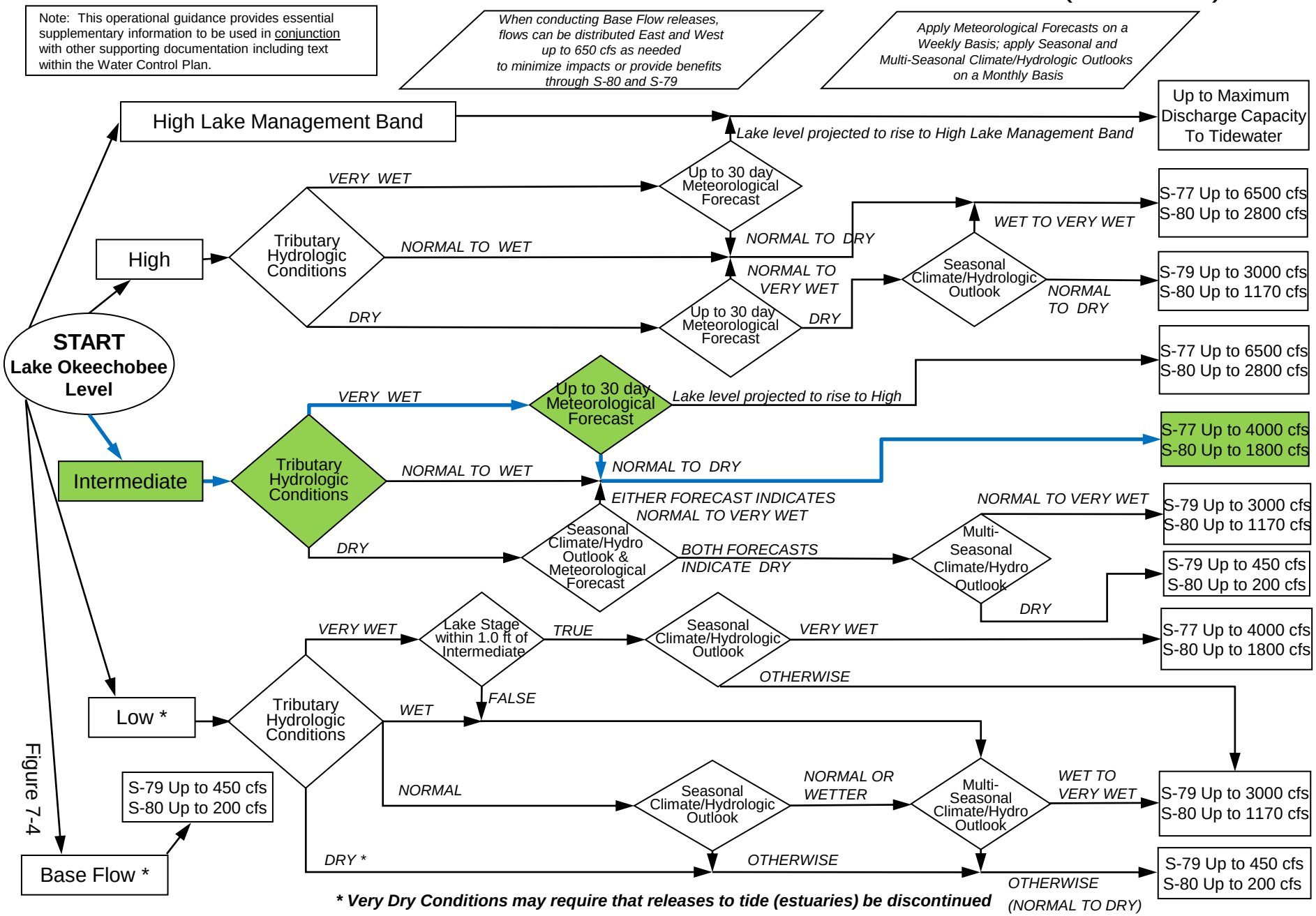
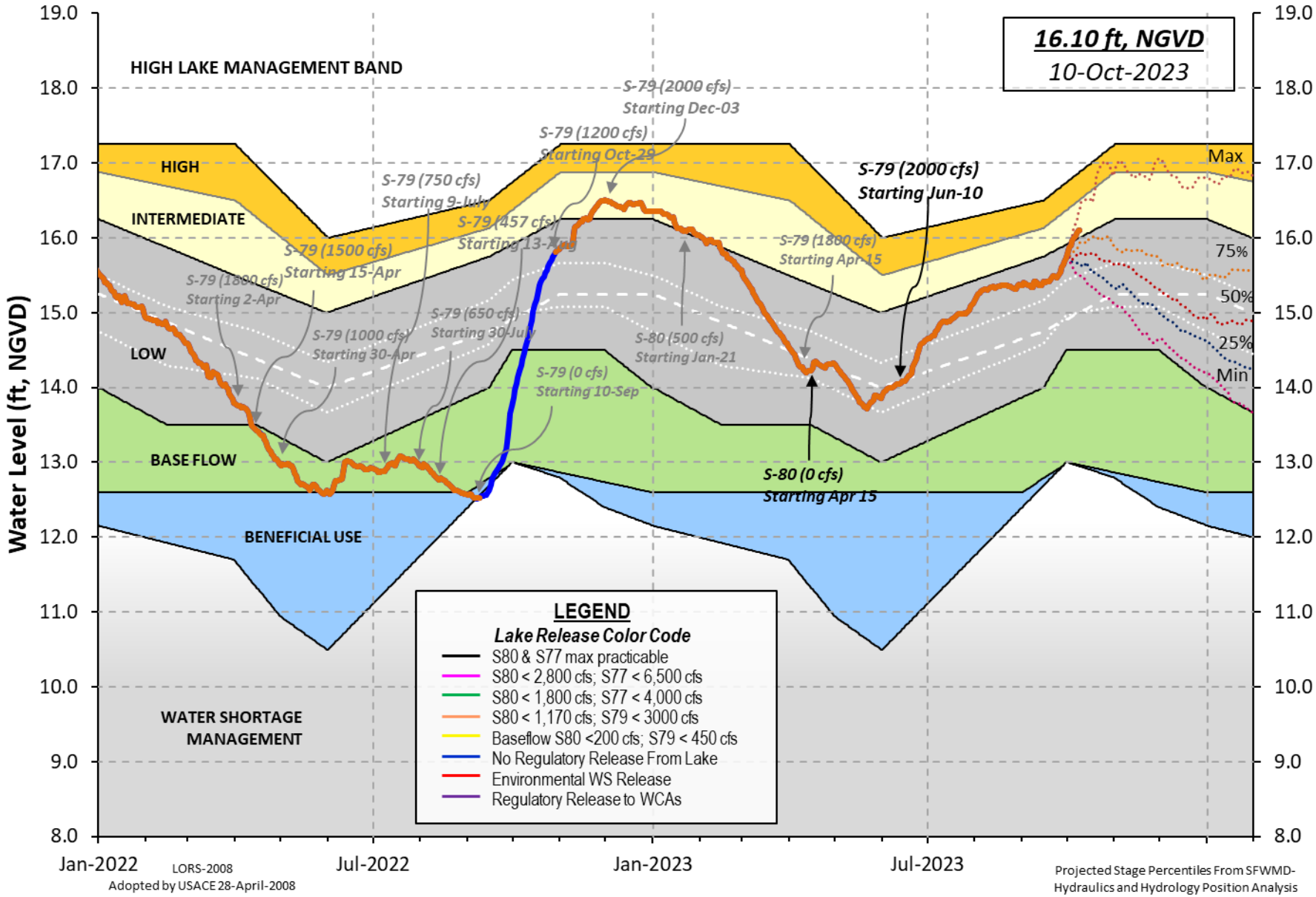


Figure 7-4

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 08 OCT 2023

Okeechobee Lake Regulation	Elevation (ft-NGVD)	Last Year (ft-NGVD)	2YRS Ago (ft-NGVD)
*Okeechobee Lake Elevation	16.10	14.46	15.66 (Official Elv)

Bottom of High Lake Mngmt= 16.87 Top of Water Short Mngmt= 12.95
Currently in Operational Management Band

Simulated Average LORS2008 [1965-2000] 13.89
Difference from Average LORS2008 2.21

08OCT (1965-2007) Period of Record Average 15.00
Difference from POR Average 1.10

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ◆ 10.04'
++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ◆ 8.24'
Bridge Clearance = 49.29'

---

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

L001	L005	L006	LZ40	S4	S352	S308	S133
16.09	16.08	16.13	16.08	16.10	16.23	16.12	15.95

*Combination Okeechobee Avg-Daily Lake Average = 16.10 (*See Note)

Okeechobee Inflows (cfs):

S65E	4142	S65EX1	0	Fisheating Cr	1516
S154	77	S191	195	S135 Pumps	0
S84	504	S133 Pumps	0	S2 Pumps	0
S84X	189	S127 Pumps	0	S3 Pumps	0
S71	260	S129 Pumps	50	S4 Pumps	0
S72	304	S131 Pumps	0	C5	0

Total Inflows: 7236

Okeechobee Outflows (cfs):

S135 Culverts	0	S354	0	S77	-NR-
S127 Culverts	0	S351	0	S308	5
S129 Culverts	0	S352	0		
S131 Culverts	0	L8 Canal Pt	105		

Total Outflows: No Report Due To Missing S77 or S308 Discharge Data

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

Okeechobee Pan Evaporation (inches):

S77	0.25	S308	0.12

Average Pan Evap x 0.75 Pan Coefficient = 0.14" = 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 9075 cfs or 18000 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:	13.44	15.97	0	0	0	0	0	0	(cfs)		
S193:											
S191:	19.00	15.97	195	0.5	0.5	0.5					
S135 Pumps:	13.57	15.94	0	0	0	0	0	(cfs)			
S135 Culverts:			0	0.0	0.0						
North West Shore											
S65E:	21.04	15.85	4142	2.2	2.2	1.6	1.6	1.8	2.3		
S65EX1:	21.04	15.85	0								
S127 Pumps:	13.51	15.90	0	0	0	0	0	0	(cfs)		
S127 Culvert:			0	0.0							
S129 Pumps:	12.84	16.04	50	0	54	0	(cfs)				
S129 Culvert:			0	0.0							
S131 Pumps:	13.00	-NR-	0	0	0	(cfs)					
S131 Culvert:			0								
Fisheating Creek											
nr Palmdale		33.35	1516								
nr Lakeport											
S282	16.09	16.12		0.0	0.0	0.1					
South Shore											
S4 Pumps:	11.92	-NR-	0	-NR-	-NR-	-NR-	(cfs)				
S169:	14.64	-NR-	-NR-	-NR-	-NR-	-NR-					
S310:	16.28		-0								
S3 Pumps:	10.40	16.25	0	0	0	0	(cfs)				
S354:	16.25	10.40	0	0.0	0.0						
S2 Pumps:	10.03	16.30	0	0	0	0	0	(cfs)			
S351:	16.30	10.03	0	0.0	0.0	0.0					
S352:	16.27	10.64	0	0.0	0.0						
S271:	16.32	15.38		0.0	-NR-	0.0	0.0				
L8 Canal PT		15.04	105								
S351 and S352 Temporary Pumps/S354 Spillway											
S351:	10.03	16.30	0	-NR--NR--NR--NR--NR--NR-NR-							
S352:	10.64	16.27	0	-NR--NR--NR--NR-							
S354:	10.40	16.25	0	-NR--NR--NR--NR-							
Caloosahatchee River (S77, S78, S79)											
S47B:	8.33	12.14		0.5	0.5						
S47D:	12.19	11.16	0	0.0							
S77:											
Spillway and Sector Preferred Flow:											
	******	11.00	-NR-	0.0	0.0	0.0	0.0				
Flow Due to Lockages+:			-NR-								
S78:											

```
    Spillway and Sector Flow:
              11.06      2.73     892    1.0  0.0  2.5  0.0
    Flow Due to Lockages+:          11

  S79:
    Spillway and Sector Flow:
               2.82      1.78    2771    0.0  0.0  2.0  3.0  4.0  3.0  2.0  0.0
    Flow Due to Lockages+:           7
    Percent of flow from S77      -NR-%
    Chloride            (ppm)      0


St. Lucie Canal (S308, S80)
  S308:
    Spillway and Sector Preferred Flow:
              16.12     14.21       0  0.0  0.0  0.0  0.0
    Flow Due to Lockages+:           5

  S153:        18.59     13.98     123    0.0  0.5
  S80:
    Spillway and Sector Flow:
              14.25      1.99       0    0.0  0.0  0.0  0.0  0.0  0.0  0.0
    Flow Due to Lockages+:          21
    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	0.32	7	5
S78:	0.29	0.29	0.29	349	2
S79:	1.13	1.13	1.24	63	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:	0.00	0.00	0.00	325	5
S80:	4.15	4.57	4.65	4	3
Okeechobee Average (Sites S78, S79 and S80 not included)	0.00	0.00	0.02		
Oke Nexrad Basin Avg	-NR-	0.00	0.00		

```
Okeechobee Lake Elevations  08 OCT 2023          16.10 Difference from 08OCT23
   08OCT23  -1 Day  =       07 OCT 2023          16.06            -0.04
```

08OCT23 -2 Days =	06 OCT 2023	16.02	-0.08
08OCT23 -3 Days =	05 OCT 2023	16.00	-0.10
08OCT23 -4 Days =	04 OCT 2023	15.96	-0.14
08OCT23 -5 Days =	03 OCT 2023	15.90	-0.20
08OCT23 -6 Days =	02 OCT 2023	15.87	-0.23
08OCT23 -7 Days =	01 OCT 2023	15.82	-0.28
08OCT23 -30 Days =	08 SEP 2023	15.34	-0.76
08OCT23 -1 Year =	08 OCT 2022	14.46	-1.64
08OCT23 -2 Year =	08 OCT 2021	15.66	-0.44

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
08OCT23 Today =	08 OCT 2023	10055	MON	-NR-
08OCT23 -1 Day =	07 OCT 2023	9136	SUN	-NR-
08OCT23 -2 Days =	06 OCT 2023	8372	SAT	4894
08OCT23 -3 Days =	05 OCT 2023	8023	FRI	9231
08OCT23 -4 Days =	04 OCT 2023	7988	THU	13035
08OCT23 -5 Days =	03 OCT 2023	7522	WED	6507
08OCT23 -6 Days =	02 OCT 2023	7239	TUE	10840
08OCT23 -7 Days =	01 OCT 2023	6542	MON	19511
08OCT23 -8 Days =	30 SEP 2023	5319	SUN	10872
08OCT23 -9 Days =	29 SEP 2023	4450	SAT	6543
08OCT23 -10 Days =	28 SEP 2023	4884	FRI	8672
08OCT23 -11 Days =	27 SEP 2023	4241	THU	15175
08OCT23 -12 Days =	26 SEP 2023	3316	WED	8720
08OCT23 -13 Days =	25 SEP 2023	2900	TUE	6665

S65E

	Average Flow over previous 14 days			Avg-Daily Flow
08OCT23 Today=	08 OCT 2023	2762	MON	4343
08OCT23 -1 Day =	07 OCT 2023	2538	SUN	3918
08OCT23 -2 Days =	06 OCT 2023	2338	SAT	3655
08OCT23 -3 Days =	05 OCT 2023	2153	FRI	3526
08OCT23 -4 Days =	04 OCT 2023	1984	THU	3344
08OCT23 -5 Days =	03 OCT 2023	1792	WED	3275
08OCT23 -6 Days =	02 OCT 2023	1602	TUE	3037
08OCT23 -7 Days =	01 OCT 2023	1437	MON	3020
08OCT23 -8 Days =	30 SEP 2023	1271	SUN	2338
08OCT23 -9 Days =	29 SEP 2023	1150	SAT	2050
08OCT23 -10 Days =	28 SEP 2023	1044	FRI	2166
08OCT23 -11 Days =	27 SEP 2023	924	THU	1514
08OCT23 -12 Days =	26 SEP 2023	853	WED	1257
08OCT23 -13 Days =	25 SEP 2023	803	TUE	1232

S65EX1

	Average Flow over previous 14 days			Avg-Daily Flow
08OCT23 Today=	08 OCT 2023	0	MON	0
08OCT23 -1 Day =	07 OCT 2023	0	SUN	0
08OCT23 -2 Days =	06 OCT 2023	0	SAT	0
08OCT23 -3 Days =	05 OCT 2023	0	FRI	0
08OCT23 -4 Days =	04 OCT 2023	0	THU	0
08OCT23 -5 Days =	03 OCT 2023	0	WED	0
08OCT23 -6 Days =	02 OCT 2023	0	TUE	0
08OCT23 -7 Days =	01 OCT 2023	0	MON	0
08OCT23 -8 Days =	30 SEP 2023	0	SUN	0
08OCT23 -9 Days =	29 SEP 2023	0	SAT	0
08OCT23 -10 Days =	28 SEP 2023	0	FRI	0
08OCT23 -11 Days =	27 SEP 2023	0	THU	0
08OCT23 -12 Days =	26 SEP 2023	0	WED	0
08OCT23 -13 Days =	25 SEP 2023	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)
08 OCT 2023	-NR-	275	1842	5641
07 OCT 2023	-NR-	285	1281	3910
06 OCT 2023	626	855	3371	7643
05 OCT 2023	1147	1236	3624	10141
04 OCT 2023	8	412	4908	13327
03 OCT 2023	1	397	4552	13952
02 OCT 2023	6	824	8180	20083
01 OCT 2023	8	528	6586	18093
30 SEP 2023	67	839	4328	12187
29 SEP 2023	85	416	3488	8046
28 SEP 2023	9	422	3671	8326
27 SEP 2023	2	761	4500	10153
26 SEP 2023	98	1049	3107	6512
25 SEP 2023	239	904	2665	5854

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)
08 OCT 2023	-0	0	0	0	208
07 OCT 2023	-4	0	0	0	199
06 OCT 2023	4	0	0	0	200
05 OCT 2023	4	0	0	0	211
04 OCT 2023	9	0	0	0	219
03 OCT 2023	-NR-	0	0	0	228
02 OCT 2023	8	0	0	0	228
01 OCT 2023	0	0	0	0	210
30 SEP 2023	-7	0	0	0	214
29 SEP 2023	-137	0	0	0	203
28 SEP 2023	-119	0	0	0	228
27 SEP 2023	-166	0	0	0	214
26 SEP 2023	-151	0	0	0	184
25 SEP 2023	-86	85	0	0	184

DATE	S-308 Discharge (ALL DAY) (AC-FT)	Below S-308 Discharge (ALL-DAY) (AC-FT)	S-80 Discharge (ALL-DAY) (AC-FT)
08 OCT 2023	9	-NR-	42
07 OCT 2023	5	-NR-	28
06 OCT 2023	4	-NR-	28
05 OCT 2023	7	-NR-	40
04 OCT 2023	4	-NR-	27
03 OCT 2023	3	-NR-	17
02 OCT 2023	3	-NR-	24
01 OCT 2023	3	-NR-	23
30 SEP 2023	2	-NR-	24
29 SEP 2023	6	-NR-	20
28 SEP 2023	2	-NR-	377
27 SEP 2023	1	-NR-	19
26 SEP 2023	5	-NR-	18
25 SEP 2023	4	-NR-	29

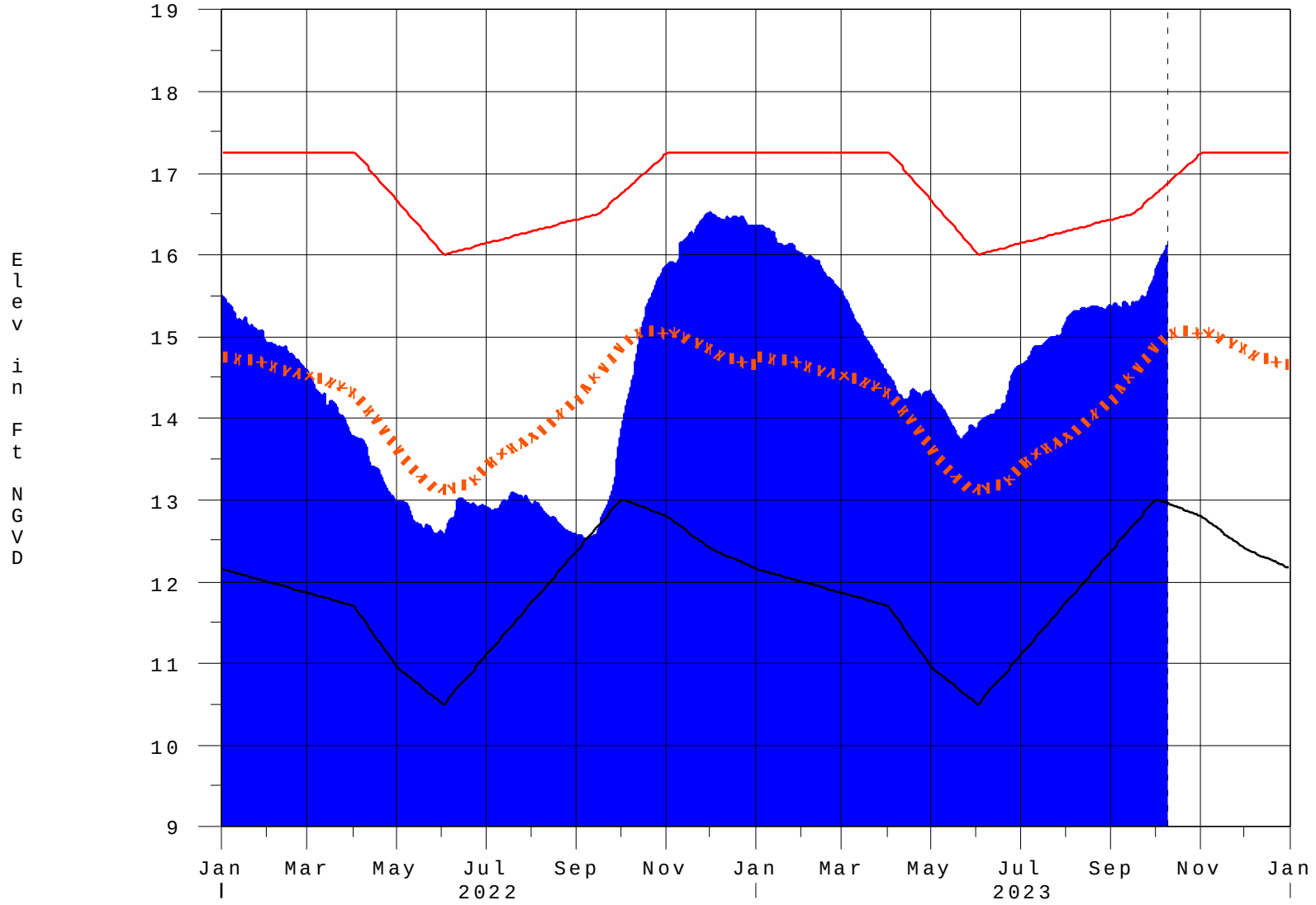
*** NOTE: Discharge (ALL DAY) is computed using Spillway, Sector Gate and Lockages Discharges from 0015 hrs to 2400 hrs.

(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 09OCT2023 @ 13:15  ** Preliminary Data - Subject to Revision **
```

Lake Okeechobee

09OCT23 13:17:21



High Lake Management
Okeechobee Avg Elev
Average Elev [1965-2007]
Water Shortage Management

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**