Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 11/09/2020 (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 (Nov-Apr)	N/A	N/A	0.62	Dry	-0.01	Dry	-0.12	Dry
Multi Seasonal (Nov-Oct)	N/A	N/A	3.29	Wet	2.60	Wet	2.34	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:

1760 cfs 14-day running average for Lake Okeechobee Net Inflow through 11/08/2020.
According to the classification in Tributary Hydrologic Conditions table, this condition is Normal.

0.43 for Palmer Drought Index on 11/07/2020.
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 11/09/2020:

Lake Okeechobee Stage: **16.09 feet**

Lake Okeechobee Management Zone/Band		Bottom Elevation (feet, NGVD)	Current Lake Stage
High Lake Management Band		17.25	
Operational Band	High sub-band	16.88	
	Intermediate sub-band	16.25	
	Low sub-band	14.50	← 16.09 ft
Base Flow sub-band		12.83	
Beneficial Use sub-band		12.69	
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 11/09/2020 (ENSO Condition- La Nina):

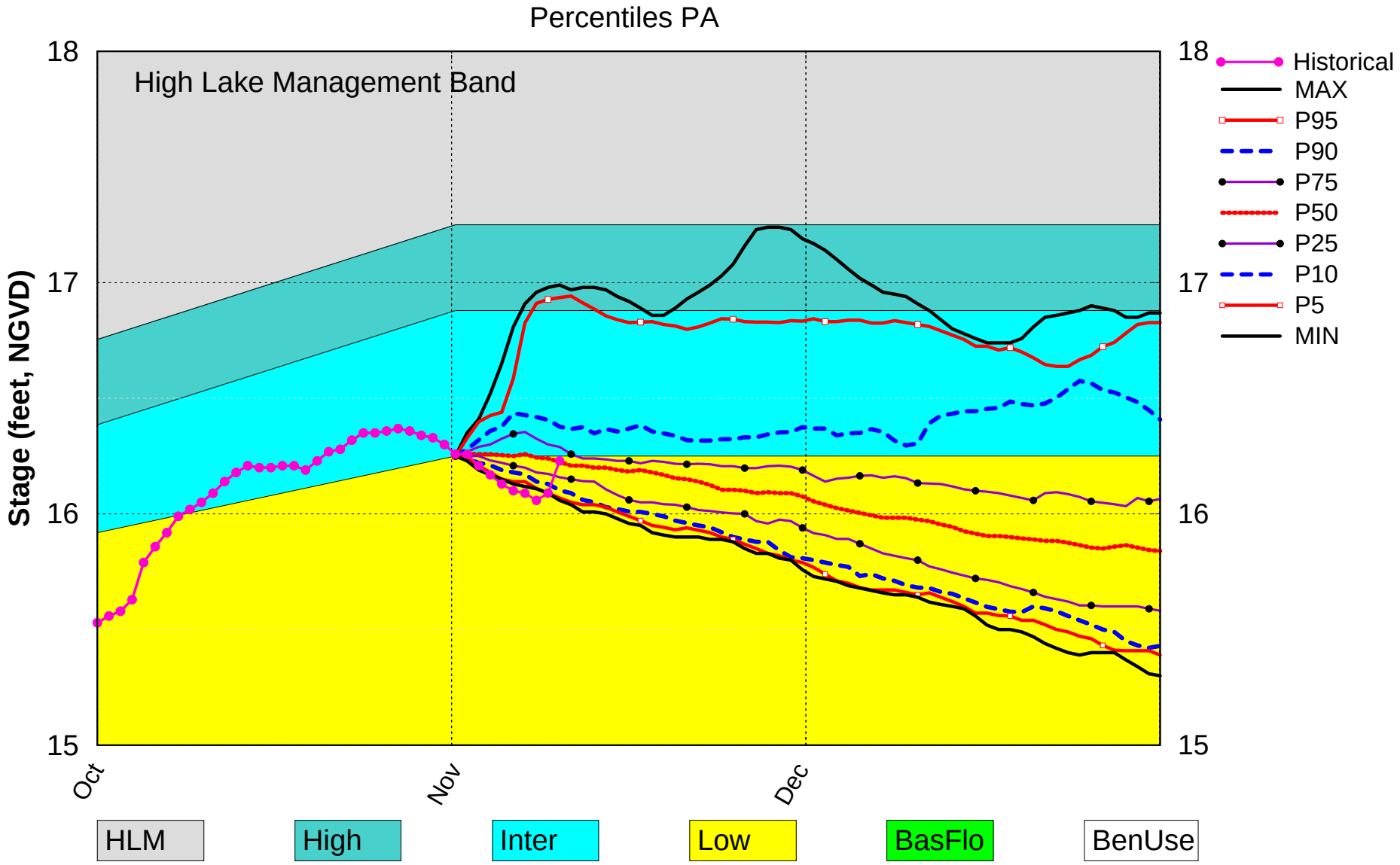
Status for week ending 11/09/2020:

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	0.43 (Normal to Extremely Wet)	L
	CPC Precipitation Outlook	1 month: Normal	L
		3 months: Below Normal	M
	LOK Seasonal Net Inflow Outlook	-0.01 ft	H
	ENSO Forecast	Extremely Dry	
	LOK Multi-Seasonal Net Inflow Outlook	2.60 ft	M
	ENSO Forecast	Normal	
WCAs	WCA 1: 3 Station Average (Site 1-7, 1-8T and 1-9)	Above Line 1 (17.67 ft)	L
	WCA 2A: Site 2-17	Above Line 1 (14.76 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64 and 65)	Above Line 1 (12.29 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.

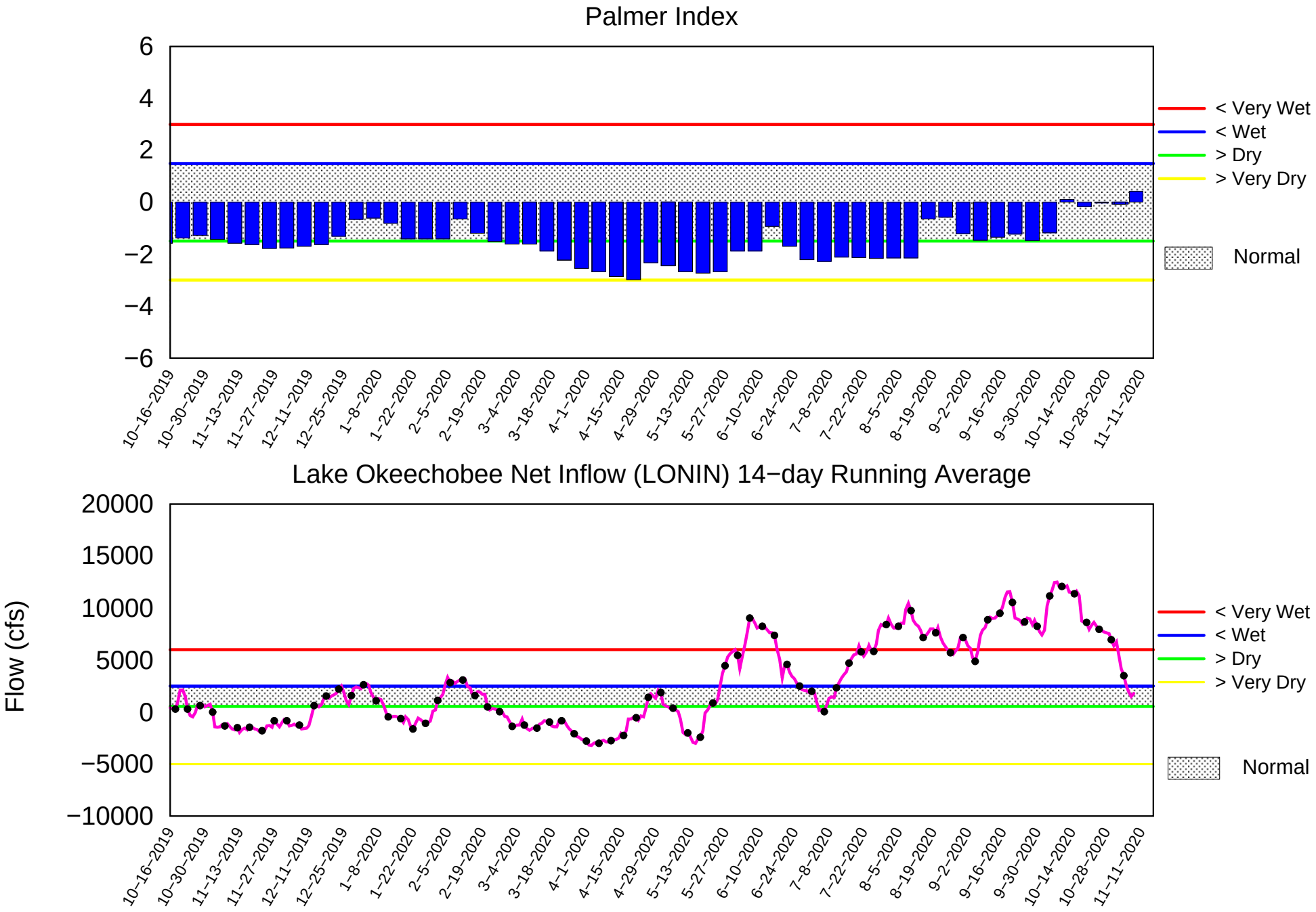
Lake Okeechobee SFWMM Nov 2020 Position Analysis



(See assumptions on the Position Analysis Results website)

Tue Nov 10 06:59:29 EST 2020

Tributary Basin Condition Indicators as of November 9 2020



Tue Nov 10 06:59:21 EST 2020

2008 LORS

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

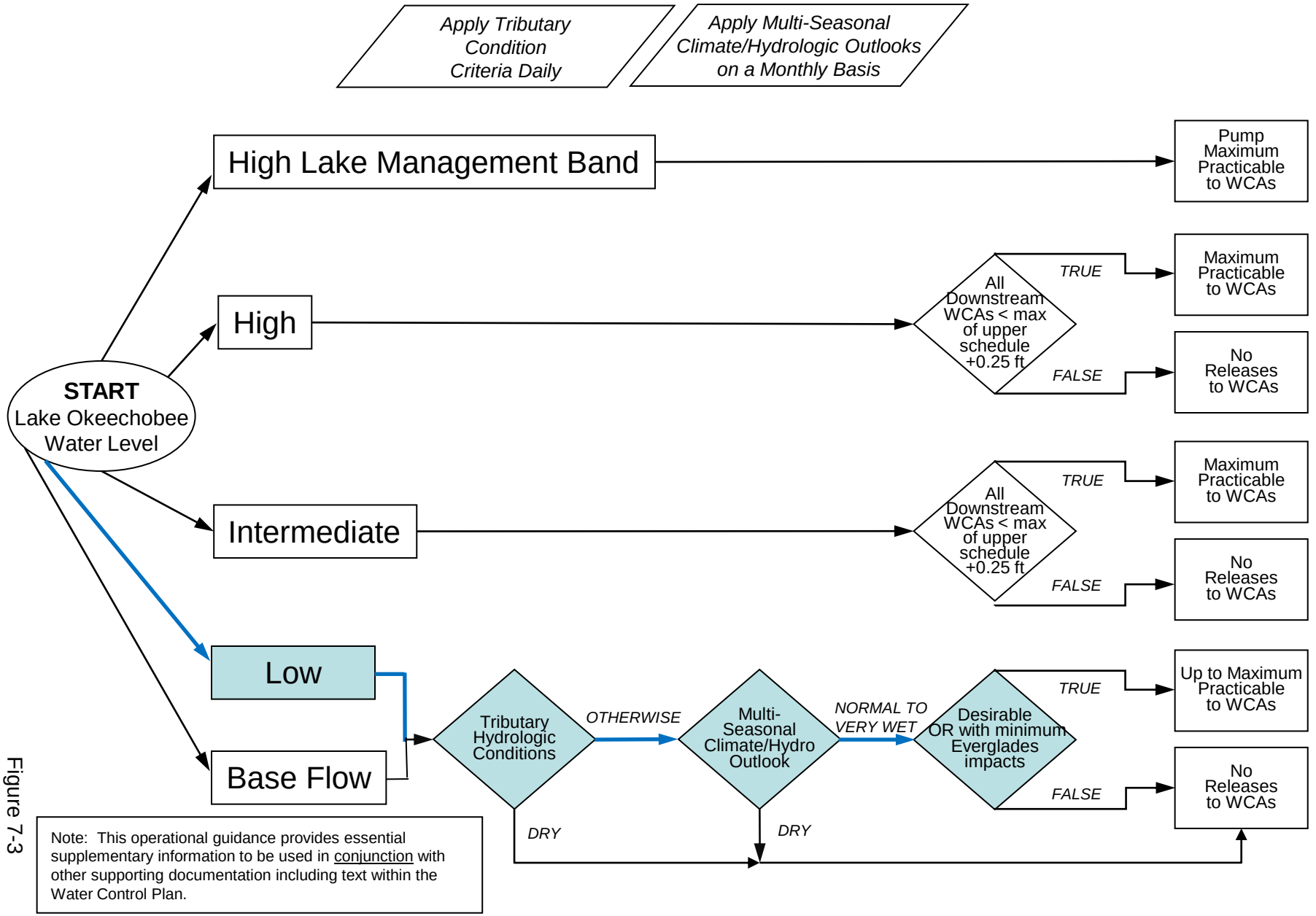


Figure 7-3

2008 LORS

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

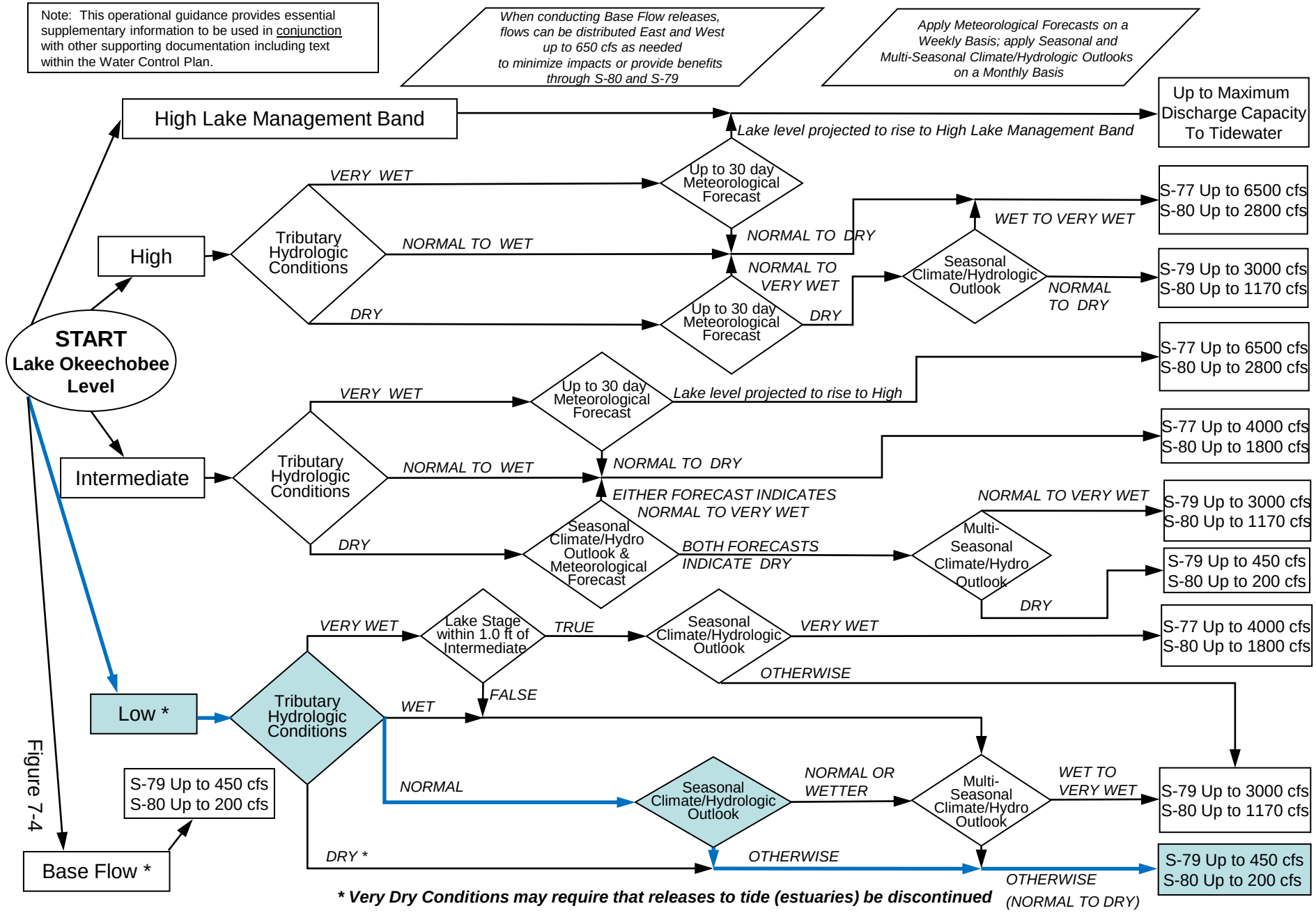
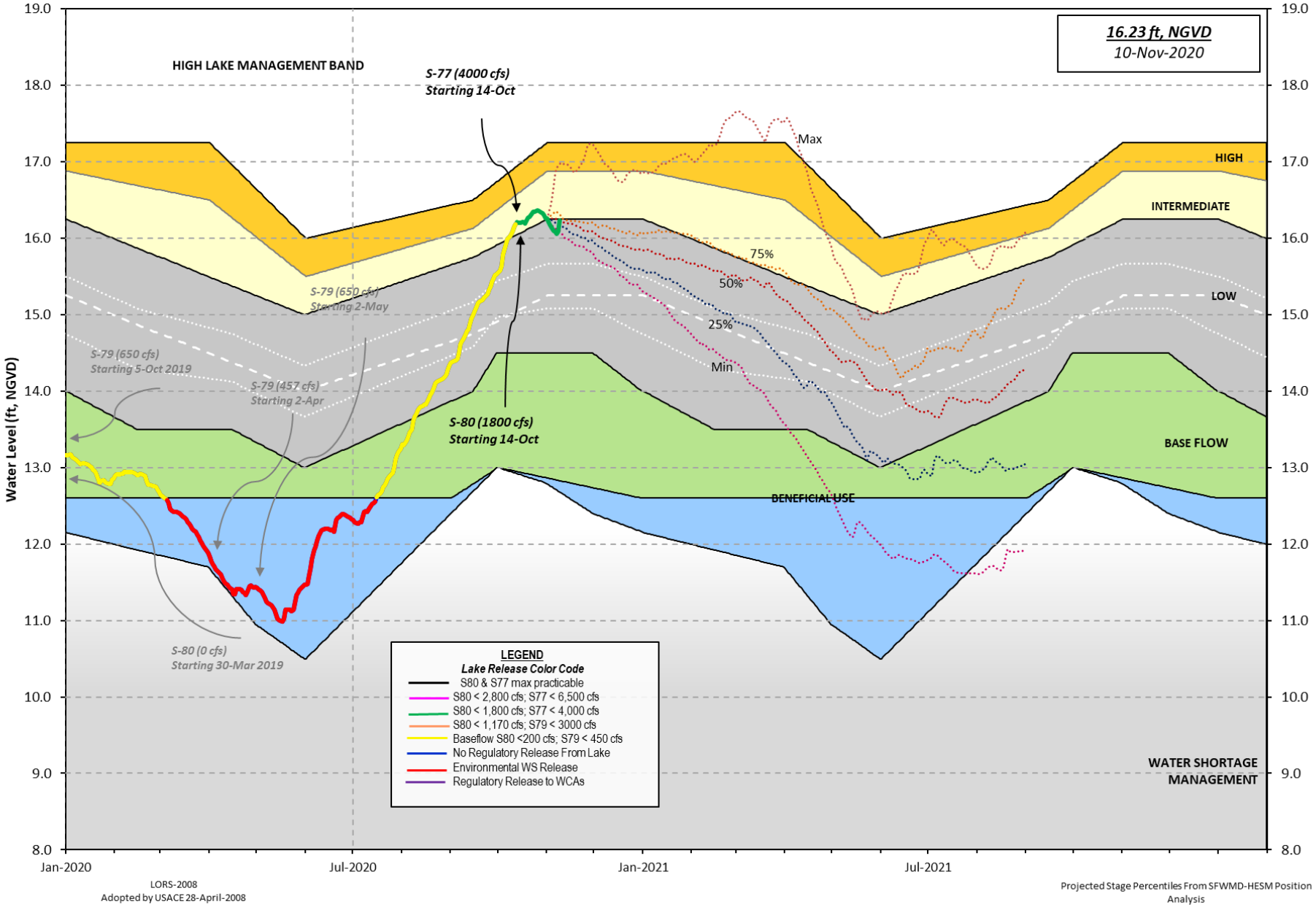


Figure 7-4

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 08 NOV 2020

Okeechobee Lake Regulation	Elevation (ft-NGVD)	Last Year (ft-NGVD)	2YRS Ago (ft-NGVD)
*Okeechobee Lake Elevation	16.09	13.34	13.59 (Official Elv)

Bottom of High Lake Mngmt= 17.25 Top of Water Short Mngmt= 12.69
Currently in Operational Management Band

Simulated Average LORS2008 [1965-2000] 13.94
Difference from Average LORS2008 2.15

08NOV (1965-2007) Period of Record Average 15.01
Difference from POR Average 1.08

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ÷ 10.03'
++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ÷ 8.23'
Bridge Clearance = 48.71'

---

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

L001	L005	L006	LZ40	S4	S352	S308	S133
15.79	16.38	16.21	16.07	16.54	16.01	15.76	15.65

*Combination Okeechobee Avg-Daily Lake Average = 16.09 (*See Note)

Okeechobee Inflows (cfs):

S65E	972	S65EX1	0	Fisheating Cr	241
S154	81	S191	793	S135 Pumps	294
S84	1105	S133 Pumps	243	S2 Pumps	0
S84X	325	S127 Pumps	47	S3 Pumps	0
S71	313	S129 Pumps	33	S4 Pumps	0
S72	74	S131 Pumps	21	C5	0

Total Inflows: 4542

Okeechobee Outflows (cfs):

S135 Culverts	0	S354	0	S77	4169
S127 Culverts	0	S351	0	S308	582
S129 Culverts	0	S352	0		
S131 Culverts	0	L8 Canal Pt	-109		

Total Outflows: 4642

****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	0.00

Average Pan Evap x 0.75 Pan Coefficient = 0.00" = 0.00'

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 6806 cfs or 13500 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:	13.31	15.84	243	0	0	144	9	99				(cfs)
S193:												
S191:	18.41	15.86	793	1.5	1.0	1.0						
S135 Pumps:	13.25	15.42	294	147	77	77	0					(cfs)
S135 Culverts:			0	0.0	0.0							
North West Shore												
S65E:	21.10	16.06	972	0.5	0.5	0.5	0.5	0.5	0.5			
S65EX1:	21.10	16.06	0									
S127 Pumps:	13.34	16.05	47	0	0	45	9	0				(cfs)
S127 Culvert:			0	0.0								
S129 Pumps:	12.83	16.55	33	0	39	0						(cfs)
S129 Culvert:			0	0.0								
S131 Pumps:	12.90	17.00	21	0	18							(cfs)
S131 Culvert:			0									
Fisheating Creek												
nr Palmdale		31.96	241									
nr Lakeport												
C5:		-NR-	0	-NR-	-NR-	-NR-						
South Shore												
S4 Pumps:	12.78	16.86	0	0	0	0						(cfs)
S169:	15.22	12.82	127	1.0	1.0	1.0						
S310:	16.81		16									
S3 Pumps:	9.97	16.56	0	0	0	0						(cfs)
S354:	16.56	9.97	0	0.0	0.0							
S2 Pumps:	10.40	-NR-	0	0	0	0	0					(cfs)
S351:	-NR-	10.40	0	0.0	0.0	0.0						
S352:	15.86	9.68	0	0.0	0.0							
C10A:	-NR-	15.80		8.0	8.0	8.0	0.0	0.0				
L8 Canal PT		15.86	-109									

S351 and S352 Temporary Pumps/S354 Spillway

S351:	10.40	-NR-	0	-NR--NR--NR--NR--NR--NR-	
S352:	9.68	15.86	0	-NR--NR--NR--NR-	
S354:	9.97	16.56	0	-NR--NR--NR--NR-	

Caloosahatchee River (S77, S78, S79)					
S47B:	13.05	12.16		1.5	2.0
S47D:	12.16	11.28	21	0.0	

```
  S77:
    Spillway and Sector Preferred Flow:
              16.32     11.25    4167  3.5  3.7  3.5  3.5
    Flow Due to Lockages+:           2

  S78:
    Spillway and Sector Flow:
              11.06      2.59    5017    4.0  4.0  4.0  4.0
    Flow Due to Lockages+:           3

  S79:
    Spillway and Sector Flow:
               2.57      0.32    6917    3.0  3.0  3.0  3.0  3.0  3.0  3.0  3.0
    Flow Due to Lockages+:           2
    Percent of flow from S77        60%
    Chloride            (ppm)      0


St. Lucie Canal (S308, S80)
  S308:
    Spillway and Sector Preferred Flow:
              15.64     14.79     582  0.0  0.0  0.0  0.0
    Flow Due to Lockages+:           0

  S153:        18.91     14.56     158    1.0  0.5
  S80:
    Spillway and Sector Flow:
              14.18      3.31    1747    0.0  0.0  1.3  1.3  1.3  0.0  0.0
    Flow Due to Lockages+:           3
    Percent of flow from S308       33%

  Steele Point Top Salinity    (mg/ml) ****
  Steele Point Bottom Salinity (mg/ml) ****

  Speedy Point Top Salinity    (mg/ml)  634
  Speedy Point Bottom Salinity (mg/ml)  665

 + 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 (Degø)	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:	0.29	0.33	0.69	57	18
S78:	0.84	1.07	1.07	47	17
S79:	0.43	0.62	0.62	328	18
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:	2.53	2.68	2.89	77	8
S80:	2.80	3.24	4.25	92	13
Okeechobee Average	1.41	0.23	0.28		

(Sites S78, S79 and S80 not included)

Oke Nexrad Basin Avg	-NR-	0.19	0.29

Okeechobee Lake Elevations			08 NOV 2020	16.09	Difference from 08NOV20
08NOV20	-1 Day =		07 NOV 2020	16.06	-0.03
08NOV20	-2 Days =		06 NOV 2020	16.09	0.00
08NOV20	-3 Days =		05 NOV 2020	16.10	0.01
08NOV20	-4 Days =		04 NOV 2020	16.13	0.04
08NOV20	-5 Days =		03 NOV 2020	16.17	0.08
08NOV20	-6 Days =		02 NOV 2020	16.21	0.12
08NOV20	-7 Days =		01 NOV 2020	16.26	0.17
08NOV20	-30 Days =		09 OCT 2020	16.05	-0.04
08NOV20	-1 Year =		08 NOV 2019	13.34	-2.75
08NOV20	-2 Year =		08 NOV 2018	13.59	-2.50

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
08NOV20	Today =	08 NOV 2020	1760	MON	11555
08NOV20	-1 Day =	07 NOV 2020	1496	SUN	-967
08NOV20	-2 Days =	06 NOV 2020	1937	SAT	3431
08NOV20	-3 Days =	05 NOV 2020	2475	FRI	-534
08NOV20	-4 Days =	04 NOV 2020	3477	THU	-2716
08NOV20	-5 Days =	03 NOV 2020	4127	WED	-2927
08NOV20	-6 Days =	02 NOV 2020	5321	TUE	-5265
08NOV20	-7 Days =	01 NOV 2020	6719	MON	6325
08NOV20	-8 Days =	31 OCT 2020	6359	SUN	-2336
08NOV20	-9 Days =	30 OCT 2020	6944	SAT	218
08NOV20	-10 Days =	29 OCT 2020	7534	FRI	4559
08NOV20	-11 Days =	28 OCT 2020	7603	THU	1574
08NOV20	-12 Days =	27 OCT 2020	7518	WED	3729
08NOV20	-13 Days =	26 OCT 2020	7805	TUE	7988

S65E

			Average Flow over previous 14 days		Avg-Daily Flow
08NOV20	Today=	08 NOV 2020	1024	MON	1068
08NOV20	-1 Day =	07 NOV 2020	1006	SUN	875
08NOV20	-2 Days =	06 NOV 2020	1002	SAT	871
08NOV20	-3 Days =	05 NOV 2020	1001	FRI	860
08NOV20	-4 Days =	04 NOV 2020	1024	THU	985
08NOV20	-5 Days =	03 NOV 2020	1050	WED	1033
08NOV20	-6 Days =	02 NOV 2020	1087	TUE	1289
08NOV20	-7 Days =	01 NOV 2020	1108	MON	998
08NOV20	-8 Days =	31 OCT 2020	1174	SUN	1366
08NOV20	-9 Days =	30 OCT 2020	1218	SAT	1444
08NOV20	-10 Days =	29 OCT 2020	1288	FRI	1581
08NOV20	-11 Days =	28 OCT 2020	1381	THU	915
08NOV20	-12 Days =	27 OCT 2020	1538	WED	524
08NOV20	-13 Days =	26 OCT 2020	1749	TUE	521

S65EX1

			Average Flow over previous 14 days		Avg-Daily Flow
08NOV20	Today=	08 NOV 2020	166	MON	0
08NOV20	-1 Day =	07 NOV 2020	228	SUN	0
08NOV20	-2 Days =	06 NOV 2020	291	SAT	0

08NOV20	-3 Days =	05 NOV 2020	354	FRI	|	0
08NOV20	-4 Days =	04 NOV 2020	417	THU	|	0
08NOV20	-5 Days =	03 NOV 2020	480	WED	|	0
08NOV20	-6 Days =	02 NOV 2020	545	TUE	|	0
08NOV20	-7 Days =	01 NOV 2020	608	MON	|	0
08NOV20	-8 Days =	31 OCT 2020	673	SUN	|	0
08NOV20	-9 Days =	30 OCT 2020	737	SAT	|	0
08NOV20	-10 Days =	29 OCT 2020	800	FRI	|	0
08NOV20	-11 Days =	28 OCT 2020	862	THU	|	556
08NOV20	-12 Days =	27 OCT 2020	886	WED	|	889
08NOV20	-13 Days =	26 OCT 2020	885	TUE	|	882

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 NOV 2020	8258	10097	9964	13784
07 NOV 2020	8246	9816	9575	13706
06 NOV 2020	7966	9449	9225	13384
05 NOV 2020	8148	6878	9076	11636
04 NOV 2020	8170	4775	9374	12499
03 NOV 2020	7854	7824	9759	11913
02 NOV 2020	7722	9142	9131	12836
01 NOV 2020	7886	9177	8063	11982
31 OCT 2020	8254	9383	8067	10143
30 OCT 2020	8095	9295	8721	11495
29 OCT 2020	8137	9350	8834	11201
28 OCT 2020	8106	9619	9295	11416
27 OCT 2020	7983	9885	9932	12972
26 OCT 2020	7845	10022	9870	13217

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 NOV 2020	31	0	0	0	-216
07 NOV 2020	16	0	0	0	-68
06 NOV 2020	15	0	0	0	-12
05 NOV 2020	14	972	351	470	-18
04 NOV 2020	17	1210	782	675	-31
03 NOV 2020	2	1000	1432	535	-106
02 NOV 2020	-4	402	1333	807	-214
01 NOV 2020	9	17	825	362	5
31 OCT 2020	10	742	1278	1091	-1
30 OCT 2020	3	685	1179	894	-148
29 OCT 2020	20	367	1410	637	-303
28 OCT 2020	16	0	376	1034	-232
27 OCT 2020	11	0	0	1076	-430
26 OCT 2020	9	0	0	0	-628

DATE	S-308 Discharge (ALL DAY) (AC-FT)	Below S-308 Discharge (ALL-DAY) (AC-FT)	S-80 Discharge (ALL-DAY) (AC-FT)
08 NOV 2020	1119	1091	3451
07 NOV 2020	3353	3237	3259
06 NOV 2020	3346	3216	2838
05 NOV 2020	2548	2747	2395
04 NOV 2020	1748	1971	2106
03 NOV 2020	1381	1468	1875

02 NOV 2020	1792	1734	2370
01 NOV 2020	3444	3426	3614
31 OCT 2020	2037	2060	2959
30 OCT 2020	3089	3315	2922
29 OCT 2020	3013	2977	4033
28 OCT 2020	2627	2552	4041
27 OCT 2020	2838	2801	4382
26 OCT 2020	3606	3602	4904

*** 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

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* 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

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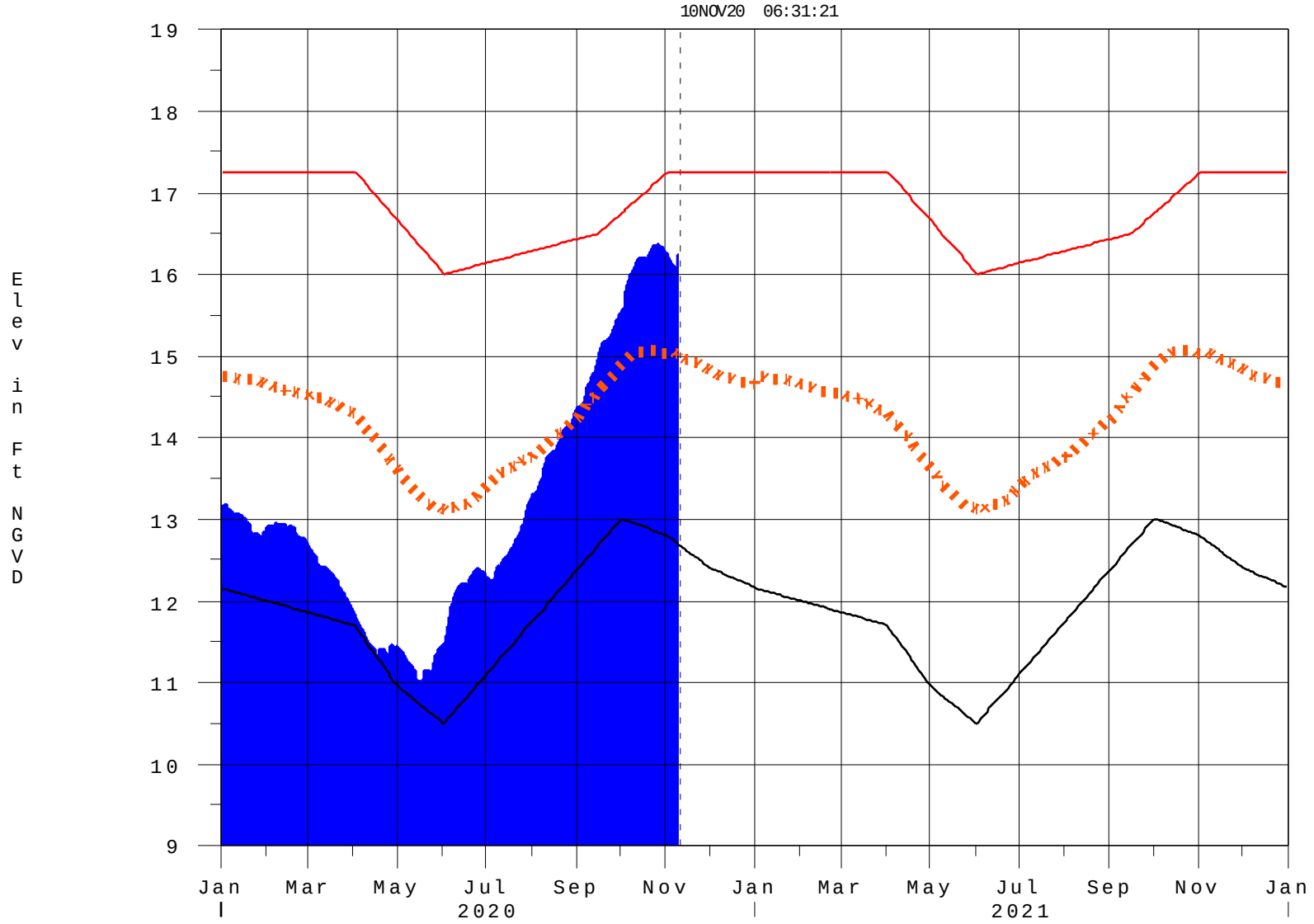
Report Generated 09NOV2020 @ 08:30 ** Preliminary Data - Subject to Revision **

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