

Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 11/16/2020 (ENSO Condition: La Niña)

Lake Okeechobee Net Inflow Outlook:

The Lake Okeechobee Net Inflow Outlook has been computed using 4 methods: Croley's method¹, the SFWMD empirical method², a sub-sampling of La Nina years³ and a sub-sampling of warm years of the Atlantic Multi-decadal Oscillation (AMO) in combination with La Nina ENSO years⁴. 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)	<u>Condition</u>	Value (ft)	<u>Condition</u>	Value (ft)	<u>Condition</u>	Value (ft)	<u>Condition</u>
Current (Nov-Apr)	N/A	N/A	0.98	Normal	0.16	Dry	0.25	Dry
Multi Seasonal (Nov-Oct)	N/A	N/A	3.65	Wet	2.79	Wet	2.70	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:

7758 cfs 14-day running average for Lake Okeechobee Net Inflow through 11/15/2020. According to the classification in Tributary Hydrologic Conditions table, this condition is Very Wet.

1.33 for Palmer Drought Index on 11/14/2020.

According to the classification in Tributary Hydrologic Conditions table, this condition is Normal.

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

LORS2008 Classification Tables:

Lake Okeechobee Stage on 11/16/2020:

Lake Okeechobee Stage: **16.44 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	← 16.44 ft
	Low sub-band	14.50	
Base Flow sub-band		12.80	
Beneficial Use sub-band		12.60	
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.

LORS2008 Implementation on 11/16/2020 (ENSO Condition- La Nina):

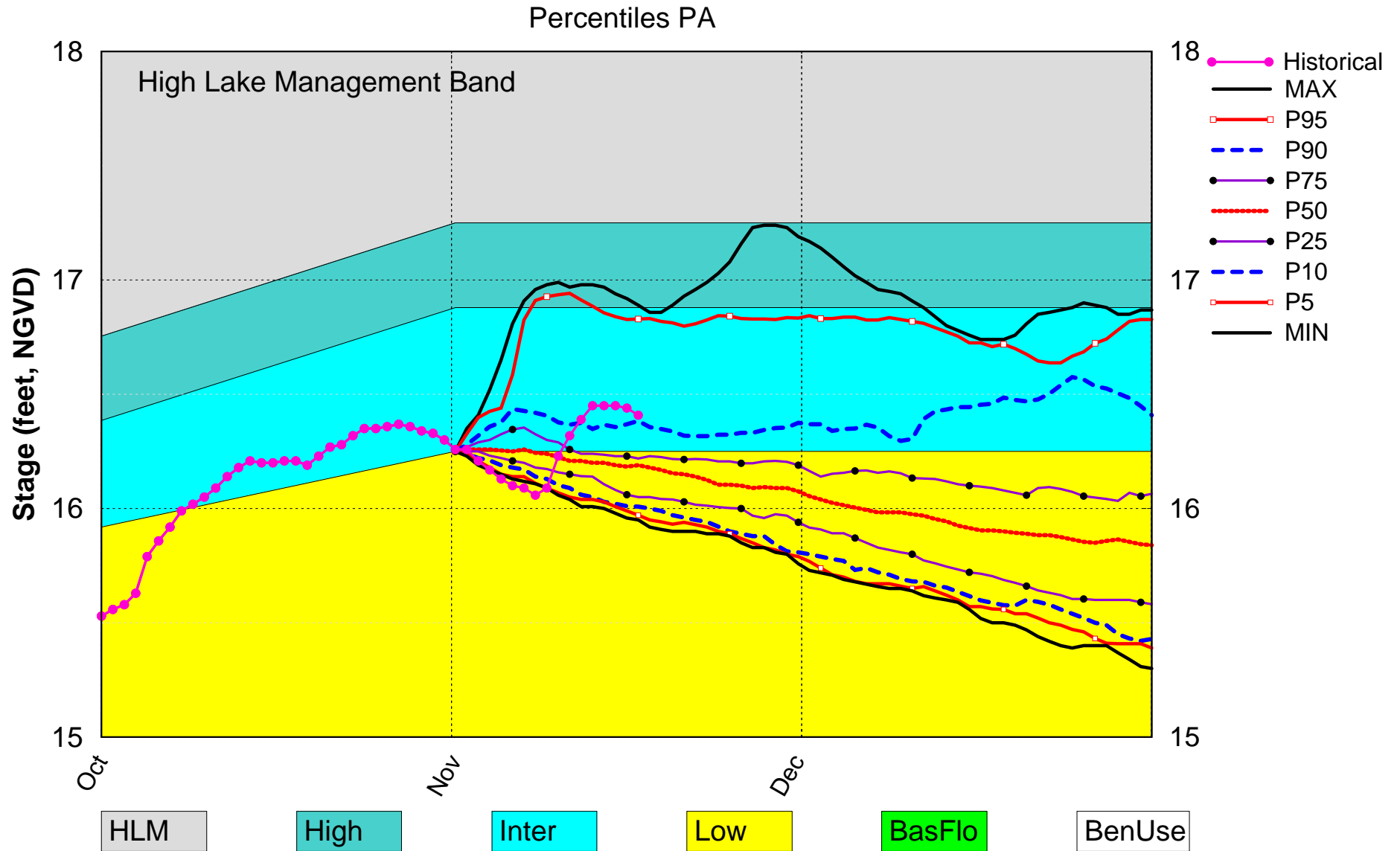
Status for week ending 11/16/2020:

Water Supply Risk Evaluation

Area	Indicator	Value	Color Coded Scoring Scheme
LOK	Projected LOK Stage for the next two months	Intermediate Sub-band	L
	Palmer Drought Index for LOK Tributary Conditions	1.33 (Normal to Extremely Wet)	L
	CPC Precipitation Outlook	1 month: Normal	L
		3 months: Below Normal	M
	LOK Seasonal Net Inflow Outlook	0.16 ft	M
	ENSO Forecast	Dry	
	LOK Multi-Seasonal Net Inflow Outlook	2.79 ft	M
	ENSO Forecast	Normal	
WCAs	WCA 1: 3 Station Average (Site 1-7, 1-8T and 1-9)	Above Line 1 (17.42 ft)	L
	WCA 2A: Site 2-17	Above Line 1 (15.25 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64 and 65)	Above Line 1 (12.79 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.

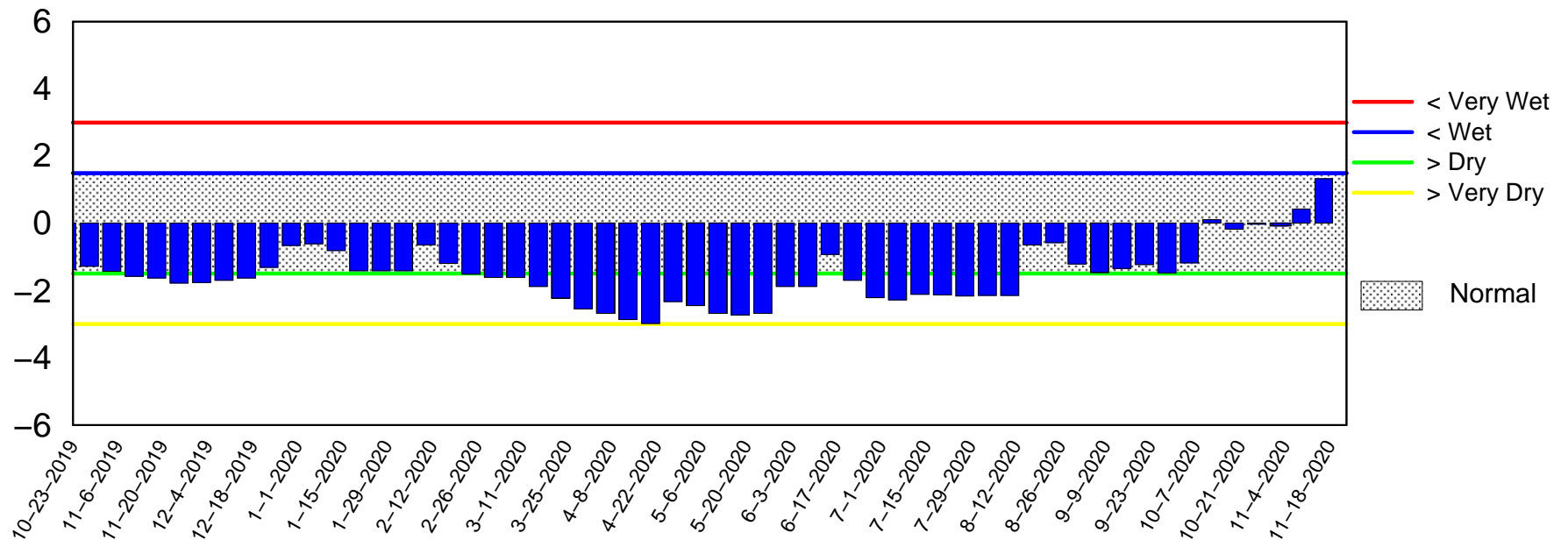
Lake Okeechobee SFWMM Nov 2020 Position Analysis



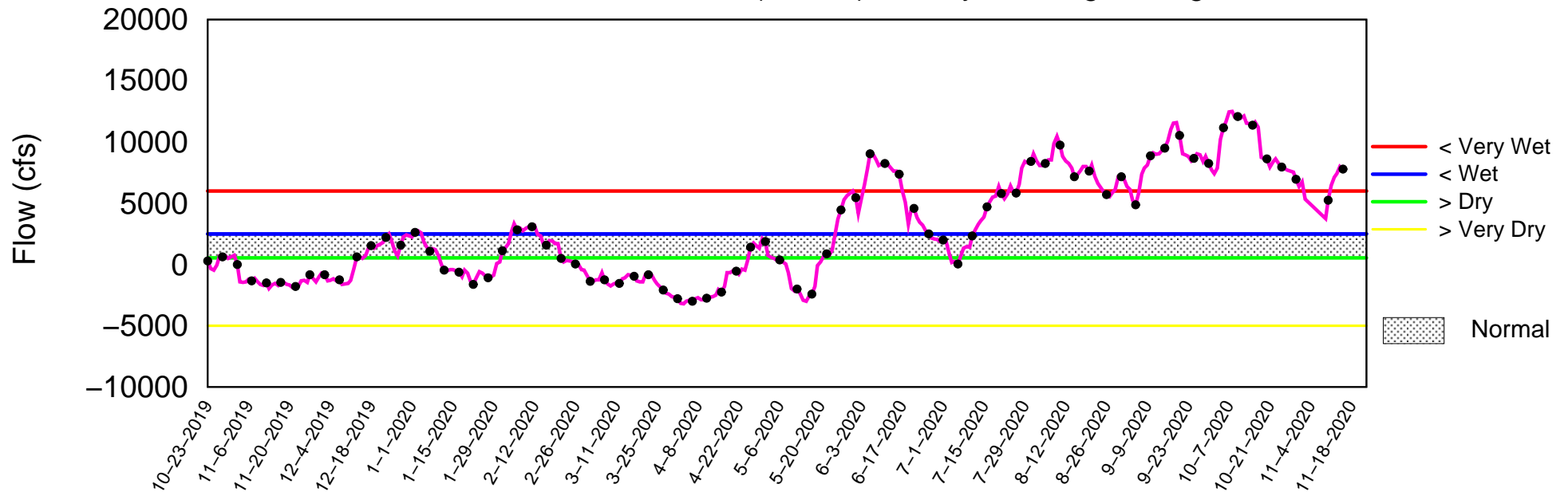
(See assumptions on the Position Analysis Results website)

Tributary Basin Condition Indicators as of November 16 2020

Palmer Index



Lake Okeechobee Net Inflow (LONIN) 14-day Running Average



Mon Nov 16 20:43:01 EST 2020

2008 LORS

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

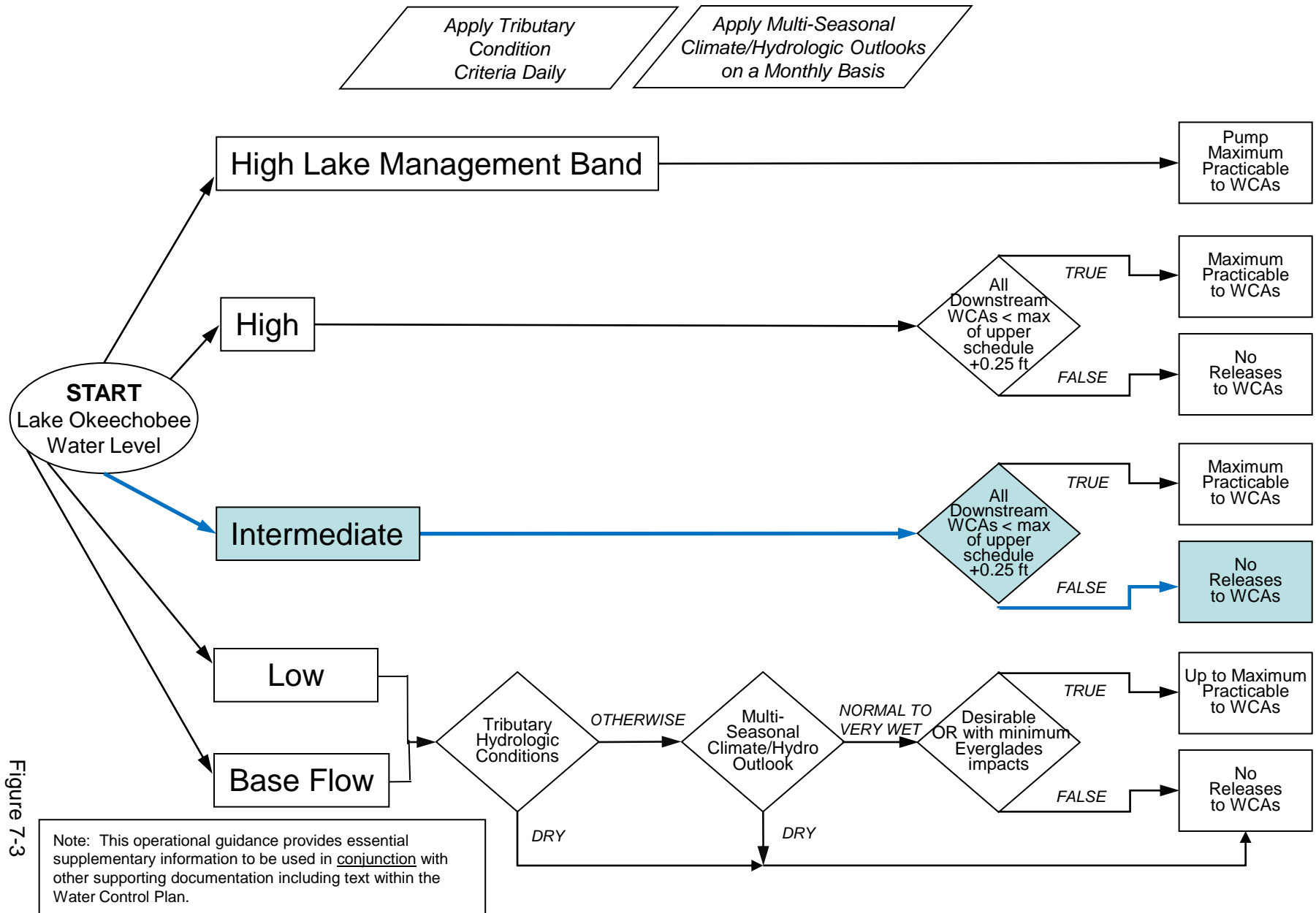


Figure 7-3

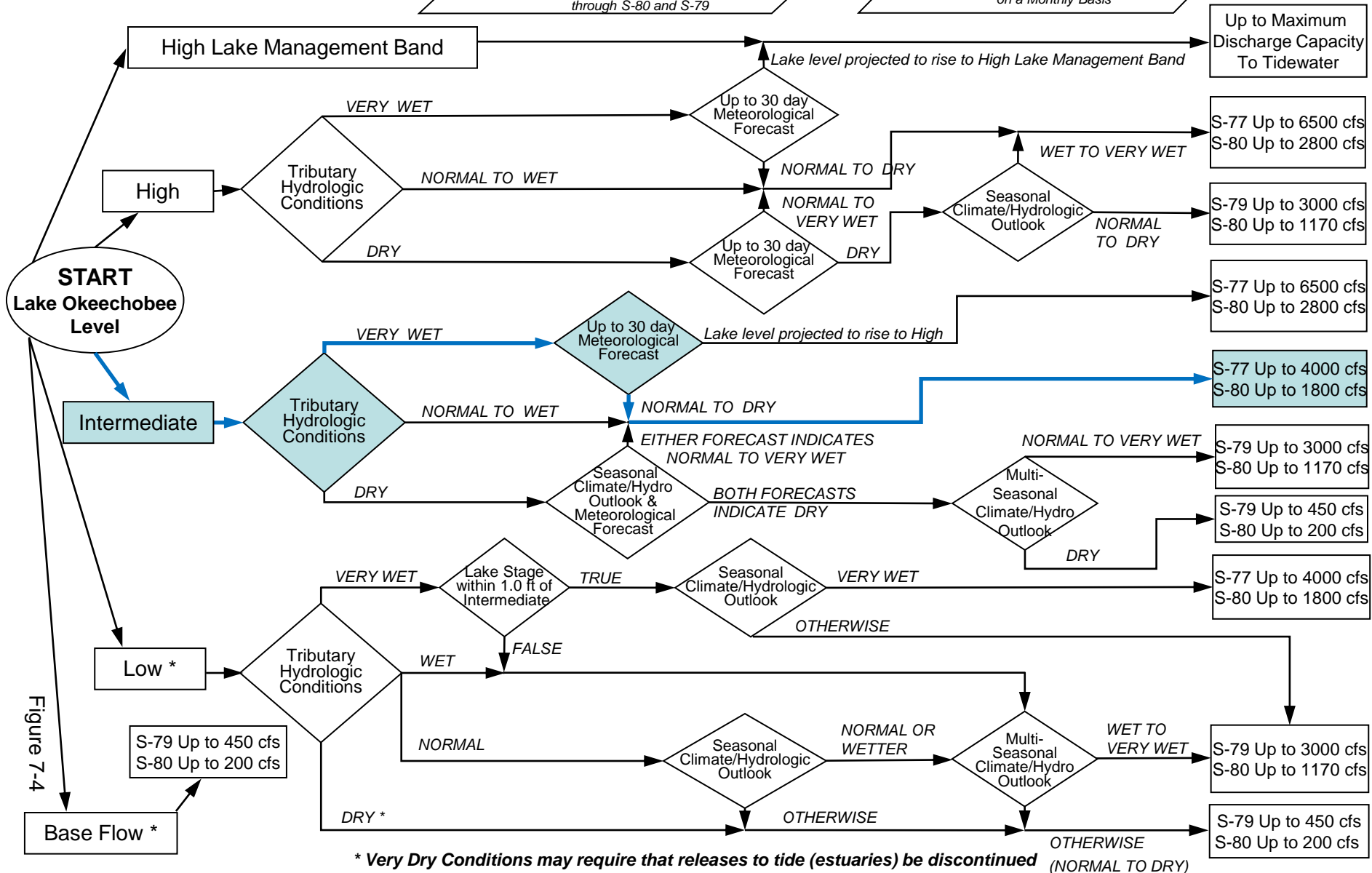
2008 LORS

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

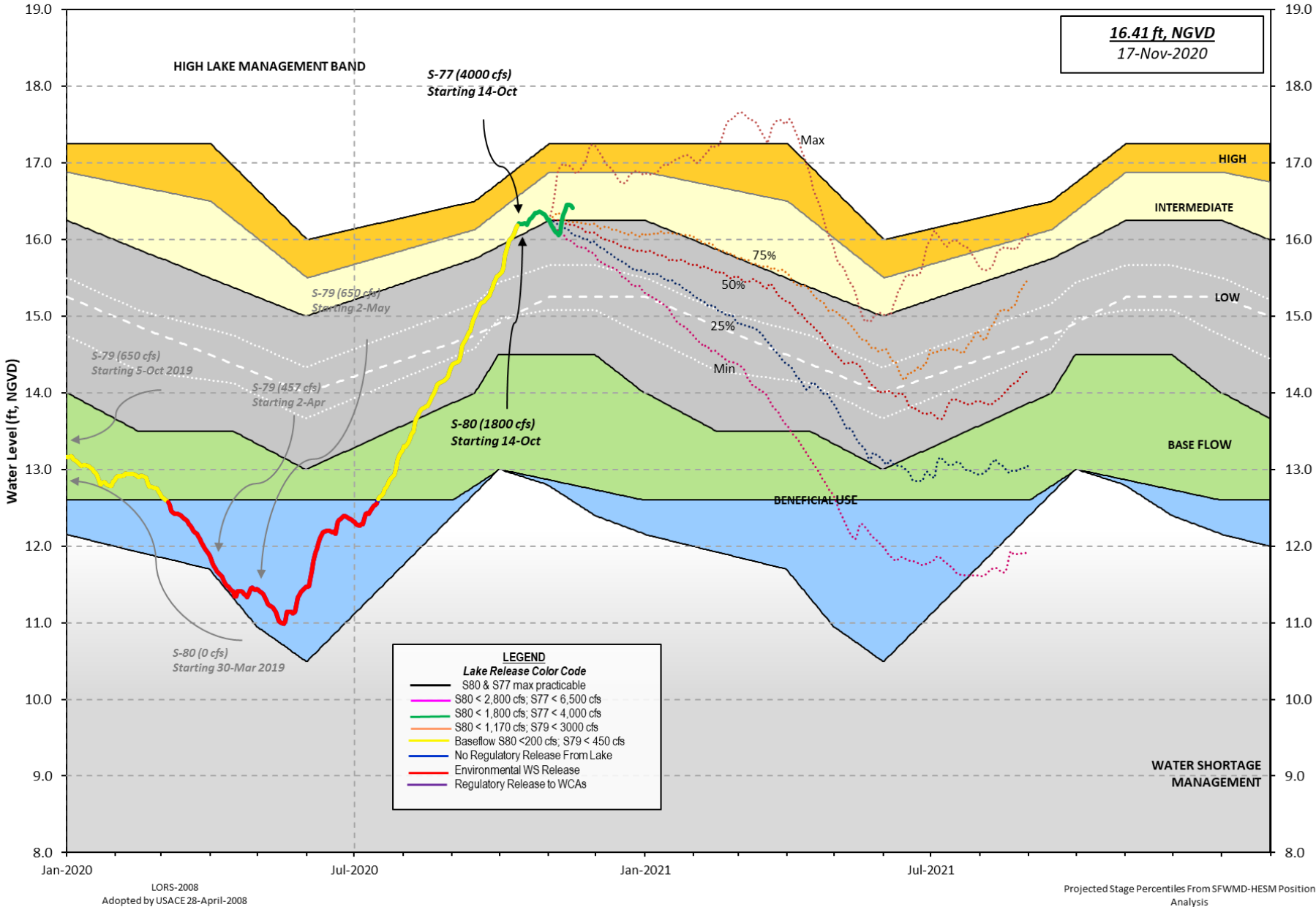
Note: This operational guidance provides essential supplementary information to be used in conjunction with other supporting documentation including text within the Water Control Plan.

When conducting Base Flow releases, flows can be distributed East and West up to 650 cfs as needed to minimize impacts or provide benefits through S-80 and S-79

Apply Meteorological Forecasts on a Weekly Basis; apply Seasonal and Multi-Seasonal Climate/Hydrologic Outlooks on a Monthly Basis



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 15 NOV 2020

Okeechobee Lake Regulation	Elevation (ft-NGVD)	Last Year (ft-NGVD)	2YRS Ago (ft-NGVD)
*Okeechobee Lake Elevation	16.44	13.28	13.46 (Official Elv)
Bottom of High Lake Mngmt= 17.25 Top of Water Short Mngmt= 12.60			
Currently in Operational Management Band			

Simulated Average LORS2008 [1965-2000]	13.88
Difference from Average LORS2008	2.57

15NOV (1965-2007) Period of Record Average	14.95
Difference from POR Average	1.49

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ÷ 10.38'
 ++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ÷ 8.58'
 Bridge Clearance = 49.01'

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

L001	L005	L006	LZ40	S4	S352	S308	S133
16.41	16.49	16.44	16.41	16.44	16.53	16.38	16.37

*Combination Okeechobee Avg-Daily Lake Average = 16.44
 (*See Note)

Okeechobee Inflows (cfs):

S65E	2140	S65EX1	0	Fisheating Cr	306
S154	153	S191	397	S135 Pumps	194
S84	348	S133 Pumps	145	S2 Pumps	0
S84X	112	S127 Pumps	65	S3 Pumps	0
S71	416	S129 Pumps	59	S4 Pumps	0
S72	138	S131 Pumps	23	C5	0
Total Inflows:	4496				

Okeechobee Outflows (cfs):

S135 Culverts	0	S354	0	S77	4129
S127 Culverts	0	S351	0	S308	1637
S129 Culverts	0	S352	0		
S131 Culverts	0	L8 Canal Pt	-56		
Total Outflows:	5710				

****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	-NR-	S308	0.16
Average Pan Evap x 0.75 Pan Coefficient = -NR- = -NR-'			

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 -2269 cfs or -4500 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:	13.45	16.34	145	54	0	42	53	0			(cfs)
S193:											
S191:	19.03	16.36	397	0.5	0.5	0.5					
S135 Pumps:	13.47	16.30	194	49	49	49	49				(cfs)
S135 Culverts:			0	0.0	0.0						
North West Shore											
S65E:	20.85	16.15	2140	1.0	1.0	1.5	1.0	1.0	1.0		
S65EX1:	20.85	16.15	0								
S127 Pumps:	13.41	16.36	65	18	0	0	52	0			(cfs)
S127 Culvert:			0	0.0							
S129 Pumps:	12.91	16.43	59	54	6	0					(cfs)
S129 Culvert:			0	0.0							
S131 Pumps:	12.84	16.45	23	0	24						(cfs)
S131 Culvert:			0								
Fisheating Creek											
nr Palmdale		32.08	306								
nr Lakeport											
C5:		-NR-	0	-NR-	-NR-	-NR-					
South Shore											
S4 Pumps:	11.53	16.40	0	0	0	0					(cfs)
S169:	14.70	11.62	132	1.0	1.0	0.5					
S310:	16.36		9								
S3 Pumps:	10.01	16.44	0	0	0	0					(cfs)
S354:	16.44	10.01	0	0.0	0.0						
S2 Pumps:	10.13	-NR-	0	0	0	0	0				(cfs)
S351:	-NR-	10.13	0	0.0	0.0	0.0					
S352:	16.54	9.33	0	0.0	0.0						
C10A:	-NR-	16.41		8.0	8.0	8.0	0.0	0.0			
L8 Canal PT		16.44	-56								

S351 and S352 Temporary Pumps/S354 Spillway

S351:	10.13	-NR-	0	-NR--NR--NR--NR--NR--NR-
S352:	9.33	16.54	0	-NR--NR--NR--NR-
S354:	10.01	16.44	0	-NR--NR--NR--NR-

Caloosahatchee River (S77, S78, S79)

S47B:	14.22	12.05		0.5	1.0
S47D:	11.96	11.04	0	0.0	

S77:

Spillway and Sector Preferred Flow:

16.15 11.01 4116 3.5 3.5 3.5 3.5
Flow Due to Lockages+: 13

S78:

Spillway and Sector Flow:

10.78 2.94 4565 3.5 3.5 3.5 3.5
Flow Due to Lockages+: 14

S79:

Spillway and Sector Flow:

2.98 2.22 7432 3.0 3.0 5.0 5.0 5.0 5.0 3.0 3.0
Flow Due to Lockages+: 5
Percent of flow from S77 55%
Chloride (ppm) 0

St. Lucie Canal (S308, S80)

S308:

Spillway and Sector Preferred Flow:

16.41 14.49 1632 0.0 3.5 3.5 0.0
Flow Due to Lockages+: 5

S153: 18.74 14.27 710 1.0 1.5

S80:

Spillway and Sector Flow:

13.73 2.46 2412 0.0 0.0 2.5 2.5 2.5 0.0 0.0
Flow Due to Lockages+: 25
Percent of flow from S308 68%

Steele Point Top Salinity (mg/ml) 8682

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

Speedy Point Top Salinity (mg/ml) 374

Speedy Point Bottom Salinity (mg/ml) 424

+ 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

	1-Day	3-Day	7-Day	----- Wind -----	
Daily Precipitation Totals	(inches)	(inches)	(inches)	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:	0.00	0.11	2.55	154	3
S78:	0.00	0.03	0.70	334	2
S79:	3.57	3.57	7.13	269	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:	9.48	9.48	10.76	144	3
S80:	0.42	0.55	4.01	196	1
Okeechobee Average	4.74	0.74	1.02		

(Sites S78, S79 and S80 not included)

Oke Nexrad Basin Avg -NR- 0.00 1.02

Okeechobee Lake Elevations	15 NOV 2020	16.44	Difference from 15NOV20
15NOV20 -1 Day =	14 NOV 2020	16.45	0.01
15NOV20 -2 Days =	13 NOV 2020	16.45	0.01
15NOV20 -3 Days =	12 NOV 2020	16.45	0.01
15NOV20 -4 Days =	11 NOV 2020	16.39	-0.05
15NOV20 -5 Days =	10 NOV 2020	16.32	-0.12
15NOV20 -6 Days =	09 NOV 2020	16.23	-0.21
15NOV20 -7 Days =	08 NOV 2020	16.09	-0.35
15NOV20 -30 Days =	16 OCT 2020	16.21	-0.23
15NOV20 -1 Year =	15 NOV 2019	13.28	-3.16
15NOV20 -2 Year =	15 NOV 2018	13.46	-2.98

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
15NOV20	Today =	15 NOV 2020	7758	MON	3479
15NOV20	-1 Day =	14 NOV 2020	7962	SUN	5608
15NOV20	-2 Days =	13 NOV 2020	7394	SAT	4184
15NOV20	-3 Days =	12 NOV 2020	7111	FRI	14201
15NOV20	-4 Days =	11 NOV 2020	6422	THU	18334
15NOV20	-5 Days =	10 NOV 2020	5225	WED	24441
15NOV20	-6 Days =	09 NOV 2020	3746	TUE	35793
15NOV20	-7 Days =	08 NOV 2020	1760	MON	11555
15NOV20	-8 Days =	07 NOV 2020	1496	SUN	-967
15NOV20	-9 Days =	06 NOV 2020	1937	SAT	3431
15NOV20	-10 Days =	05 NOV 2020	2475	FRI	-534
15NOV20	-11 Days =	04 NOV 2020	3477	THU	-2716
15NOV20	-12 Days =	03 NOV 2020	4127	WED	-2927
15NOV20	-13 Days =	02 NOV 2020	5321	TUE	-5265

S65E					
Average Flow over previous 14 days					Avg-Daily Flow
15NOV20	Today=	15 NOV 2020	1532	MON	2300
15NOV20	-1 Day =	14 NOV 2020	1439	SUN	2132
15NOV20	-2 Days =	13 NOV 2020	1385	SAT	2354
15NOV20	-3 Days =	12 NOV 2020	1320	FRI	2366
15NOV20	-4 Days =	11 NOV 2020	1264	THU	2105
15NOV20	-5 Days =	10 NOV 2020	1178	WED	1675
15NOV20	-6 Days =	09 NOV 2020	1096	TUE	1530
15NOV20	-7 Days =	08 NOV 2020	1024	MON	1077
15NOV20	-8 Days =	07 NOV 2020	1006	SUN	875
15NOV20	-9 Days =	06 NOV 2020	1002	SAT	871
15NOV20	-10 Days =	05 NOV 2020	1001	FRI	860
15NOV20	-11 Days =	04 NOV 2020	1024	THU	994
15NOV20	-12 Days =	03 NOV 2020	1049	WED	1024
15NOV20	-13 Days =	02 NOV 2020	1087	TUE	1289

S65EX1					
Average Flow over previous 14 days					Avg-Daily Flow
15NOV20	Today=	15 NOV 2020	0	MON	0
15NOV20	-1 Day =	14 NOV 2020	0	SUN	0
15NOV20	-2 Days =	13 NOV 2020	0	SAT	0

15NOV20	-3 Days =	12 NOV 2020	0	FRI		0
15NOV20	-4 Days =	11 NOV 2020	0	THU		0
15NOV20	-5 Days =	10 NOV 2020	40	WED		0
15NOV20	-6 Days =	09 NOV 2020	103	TUE		0
15NOV20	-7 Days =	08 NOV 2020	166	MON		0
15NOV20	-8 Days =	07 NOV 2020	228	SUN		0
15NOV20	-9 Days =	06 NOV 2020	291	SAT		0
15NOV20	-10 Days =	05 NOV 2020	354	FRI		0
15NOV20	-11 Days =	04 NOV 2020	417	THU		0
15NOV20	-12 Days =	03 NOV 2020	480	WED		0
15NOV20	-13 Days =	02 NOV 2020	545	TUE		0

Lake Okeechobee Outlets Last 14 Days

	S-77	Below S-77	S-78	S-79	
	Discharge	Discharge	Discharge	Discharge	
	(ALL DAY)	(ALL-DAY)	(ALL DAY)	(ALL DAY)	
DATE	(AC-FT)	(AC-FT)	(AC-FT)	(AC-FT)	
15 NOV 2020	8186	8787	9044	14656	
14 NOV 2020	7984	8948	10053	15949	
13 NOV 2020	5607	6576	8321	14377	
12 NOV 2020	8	949	4009	13340	
11 NOV 2020	4839	6080	8190	17862	
10 NOV 2020	7983	-NR-	12835	26034	
09 NOV 2020	7989	10132	11950	19912	
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	

	S-310	S-351	S-352	S-354	L8 Canal Pt
	Discharge	Discharge	Discharge	Discharge	Discharge
	(ALL DAY)	(ALL DAY)	(ALL DAY)	(ALL DAY)	(ALL DAY)
DATE	(AC-FT)	(AC-FT)	(AC-FT)	(AC-FT)	(AC-FT)
15 NOV 2020	18	0	0	0	-112
14 NOV 2020	6	0	0	0	-373
13 NOV 2020	4	0	0	0	-661
12 NOV 2020	10	0	0	0	-991
11 NOV 2020	7	0	0	0	-1588
10 NOV 2020	18	0	0	0	-1737
09 NOV 2020	19	0	0	0	-1022
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

	S-308	Below S-308	S-80
	Discharge	Discharge	Discharge
	(ALL DAY)	(ALL-DAY)	(ALL-DAY)
DATE	(AC-FT)	(AC-FT)	(AC-FT)
15 NOV 2020	3246	3157	4793
14 NOV 2020	3190	3156	6024
13 NOV 2020	2926	2964	6806
12 NOV 2020	1241	1099	4566
11 NOV 2020	4	182	6536
10 NOV 2020	2	497	7551

09 NOV 2020	1	564	4258
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

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

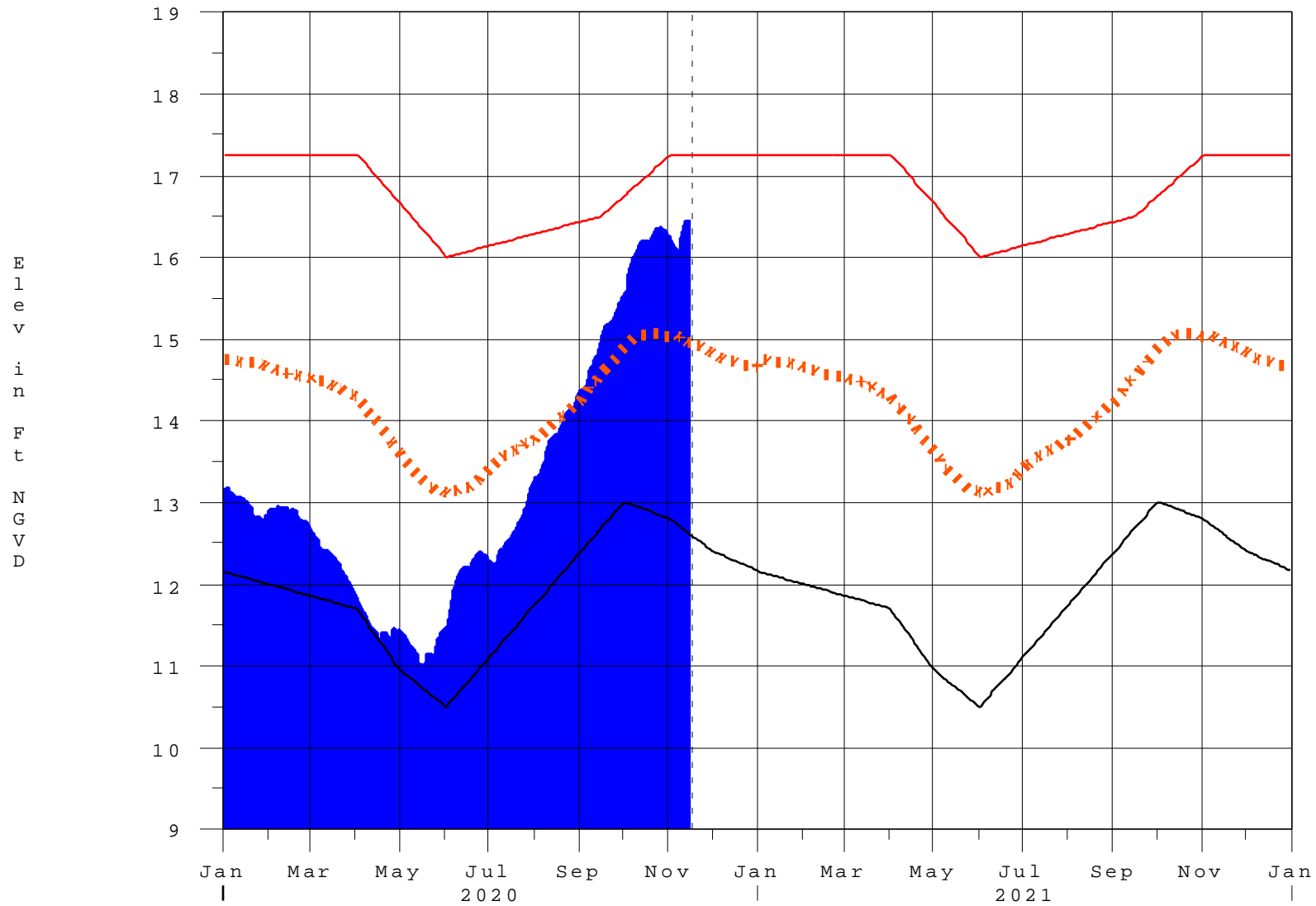
(I) - Flows preceded by "I" signify an instantaneous flow computed from the single value reported for the day

* 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 16NOV2020 @ 09:30 ** Preliminary Data - Subject to Revision **

Lake Okeechobee

16NOV20 20:18:29



- 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 \geq 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