Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 11/29/2021 (ENSO Condition: La Nina watch)

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 ENSO Neutral years[3] and a sub-sampling of warm years of the Atlantic Multi-decadal Oscillation (AMO) in combination with ENSO Neutral 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 Years[3]		Sub-sampling of AMO Warm + La Nina Years[4]	
	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition
Current (Oct-Mar)	N/A	N/A	0.64	Dry	-0.18	Dry	-0.19	Dry
Multi Seasonal (Oct-Apr)	N/A	N/A	3.25	Wet	2.47	Normal	2.27	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:

–277 cfs 14-day running average for Lake Okeechobee Net Inflow through 11/29/2021.
According to the classification in Tributary Hydrologic Conditions table, this condition is Dry.

-1.62 for Palmer Drought Index on 11/27/2021.
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 11/29/2021:

Lake Okeechobee Stage: **15.98 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	← 15.98 ft
Base Flow sub-band		12.75	
Beneficial Use sub-band		12.43	
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 11/29/2021 (ENSO Condition- La Nina Watch):

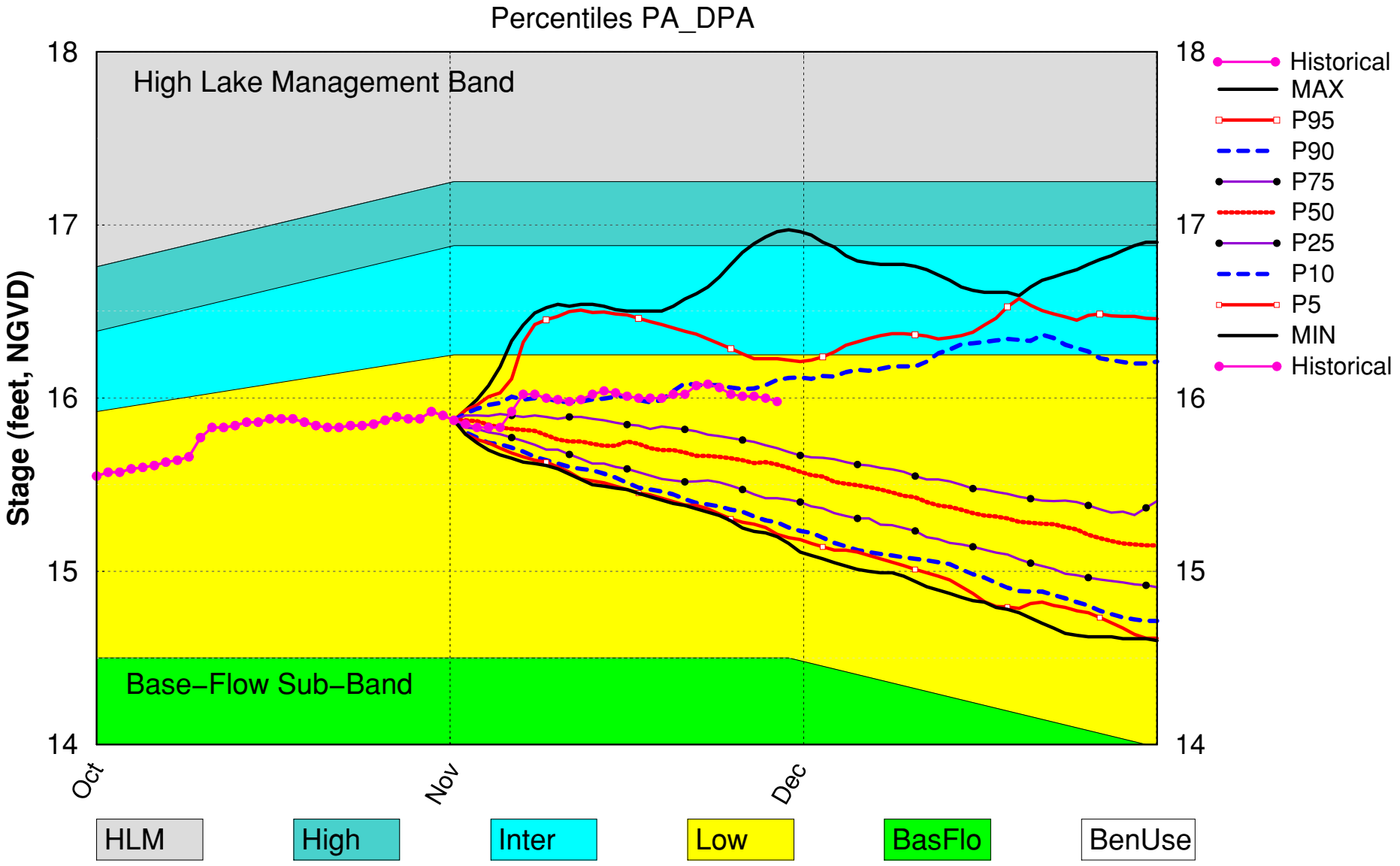
Status for week ending 11/29/2021:

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	-1.62 (Dry)	M
	CPC Precipitation Outlook	1 month: Below Normal	M
		3 months: Below Normal	H
	LOK Seasonal Net Inflow Outlook	-0.18 ft	H
	ENSO Forecast	Extremely Dry	
	LOK Multi-Seasonal Net Inflow Outlook	2.47 ft	M
	ENSO Forecast	Normal	
WCAs	WCA 1: 3 Station Average (Sites 1-7, 1-8T and 1-9)	Above Line 1 (17.43 ft)	L
	WCA 2A: Site 2-17	Above Line 1 (13.33 ft)	L
	WCA-3A: 3 Station Average (Sites 63, 64, and 65)	Above Line 1 (10.46 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.

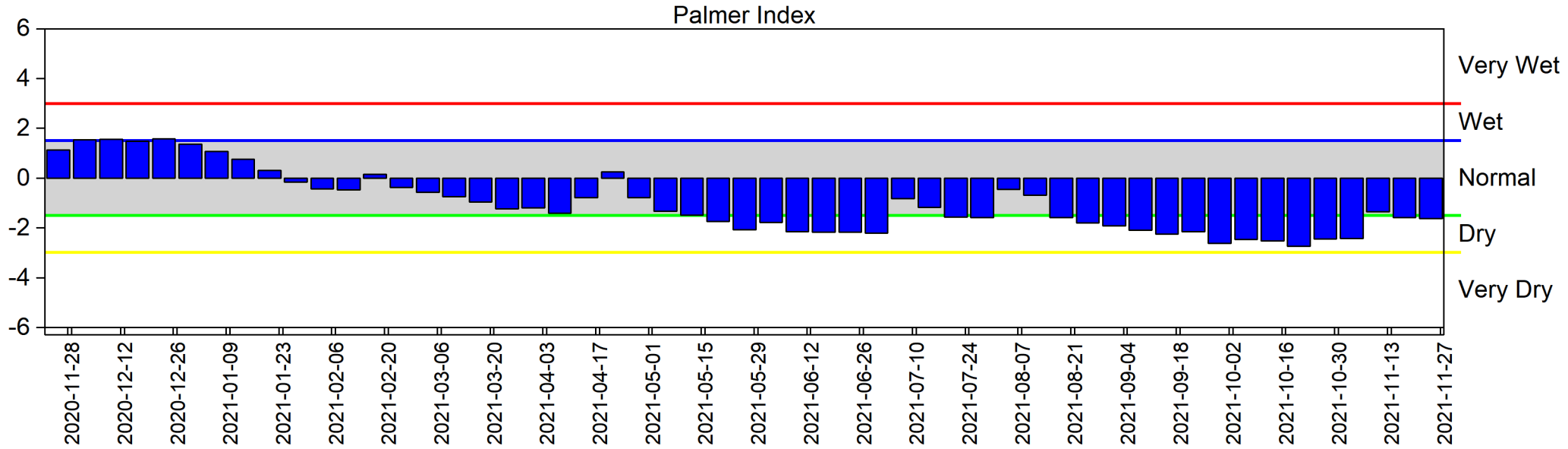
Lake Okeechobee SFWMM Nov 2021 Position Analysis

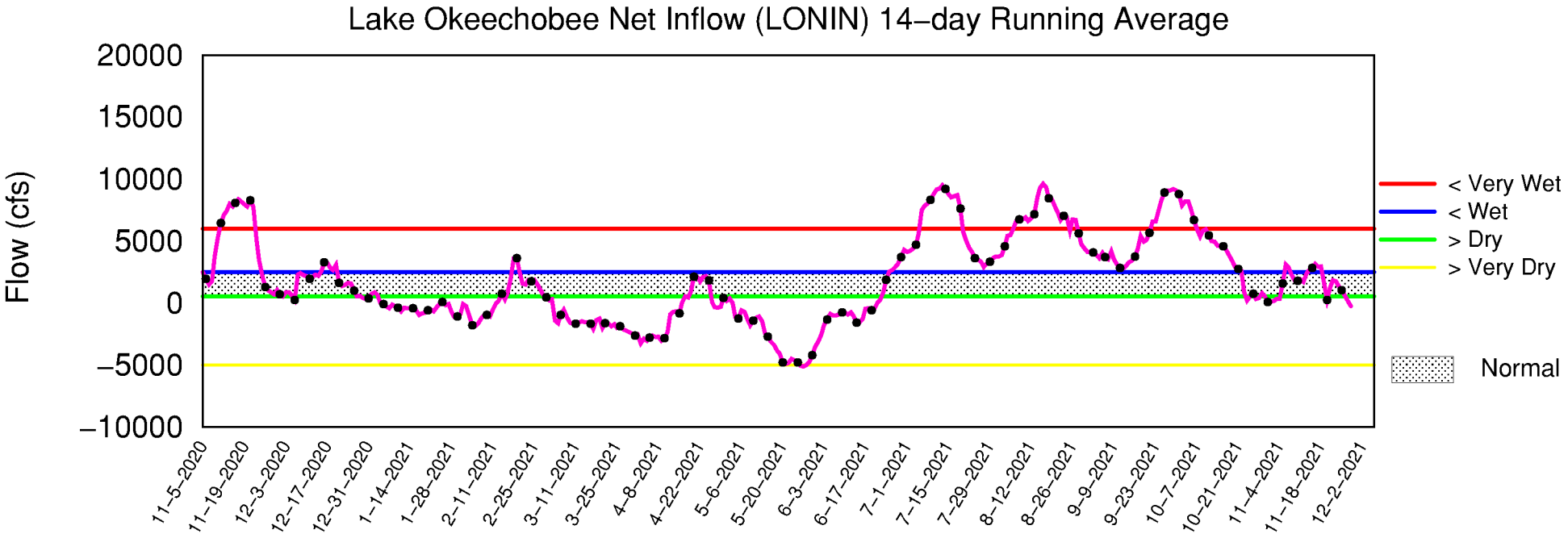


(See assumptions on the Position Analysis Results website)

Mon Nov 29 2021

Tributary Basin Condition Indicators as of November 29 2021





Mon Nov 29 12:50:57 EST 2021

2008 LORS

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

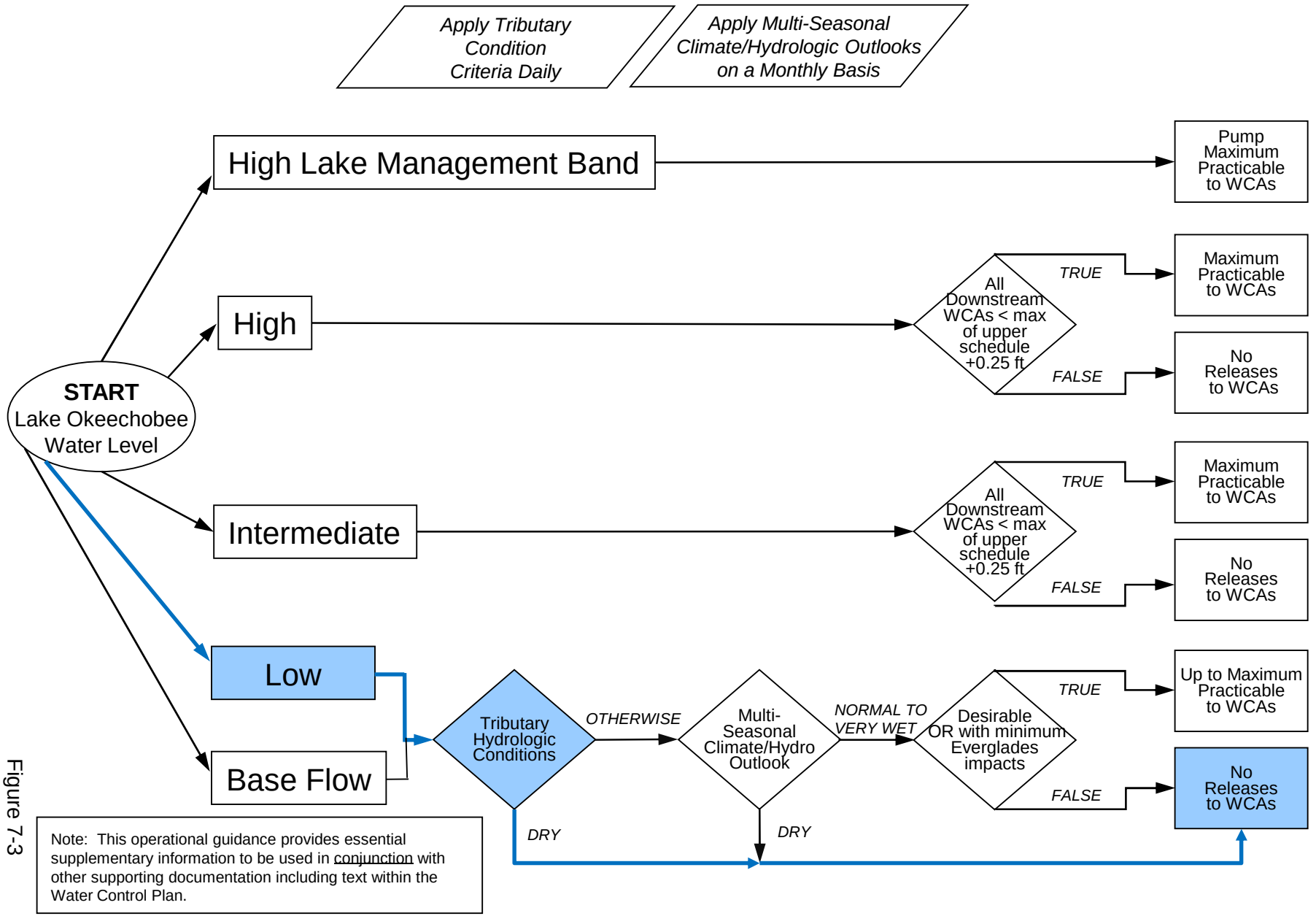
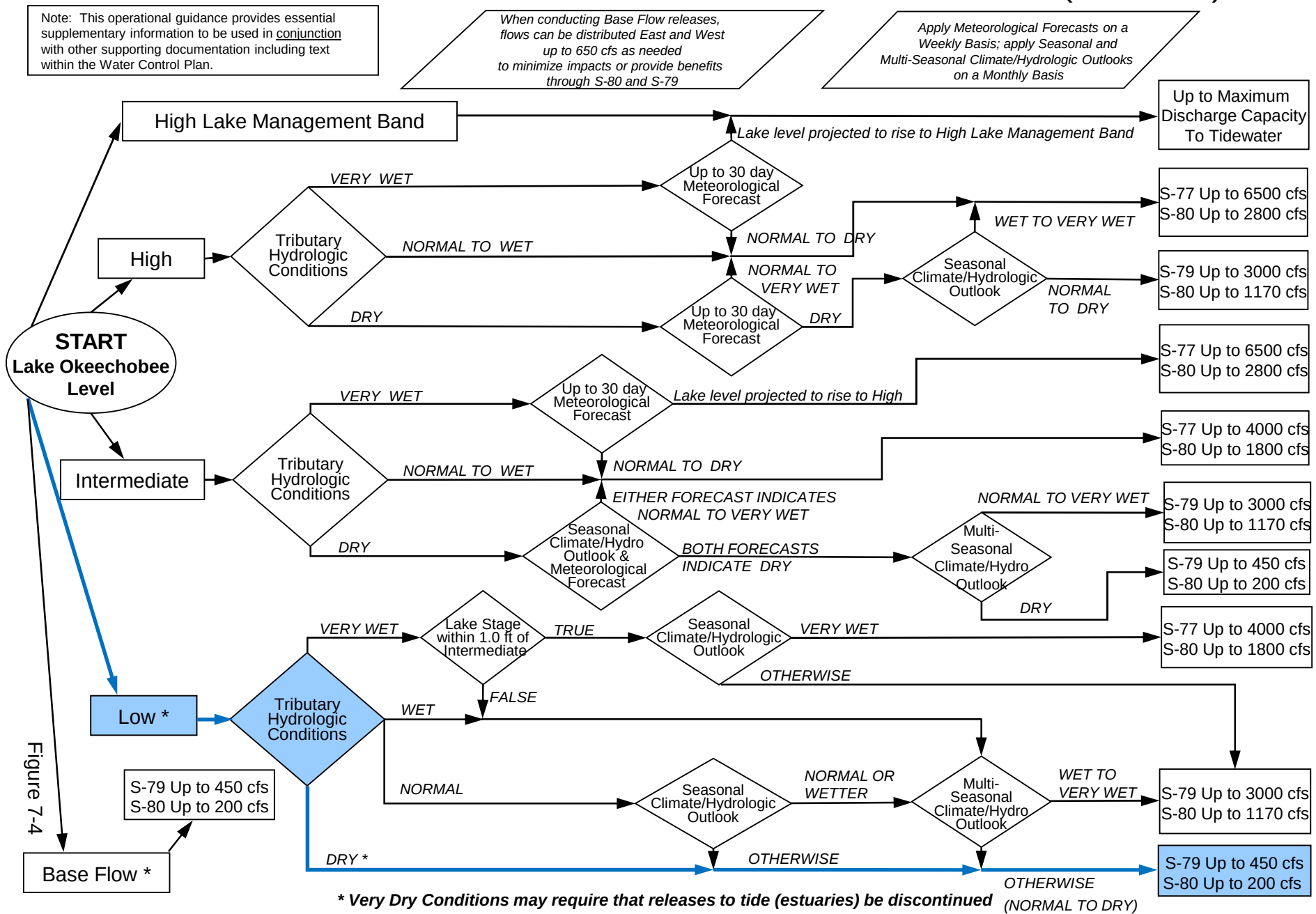


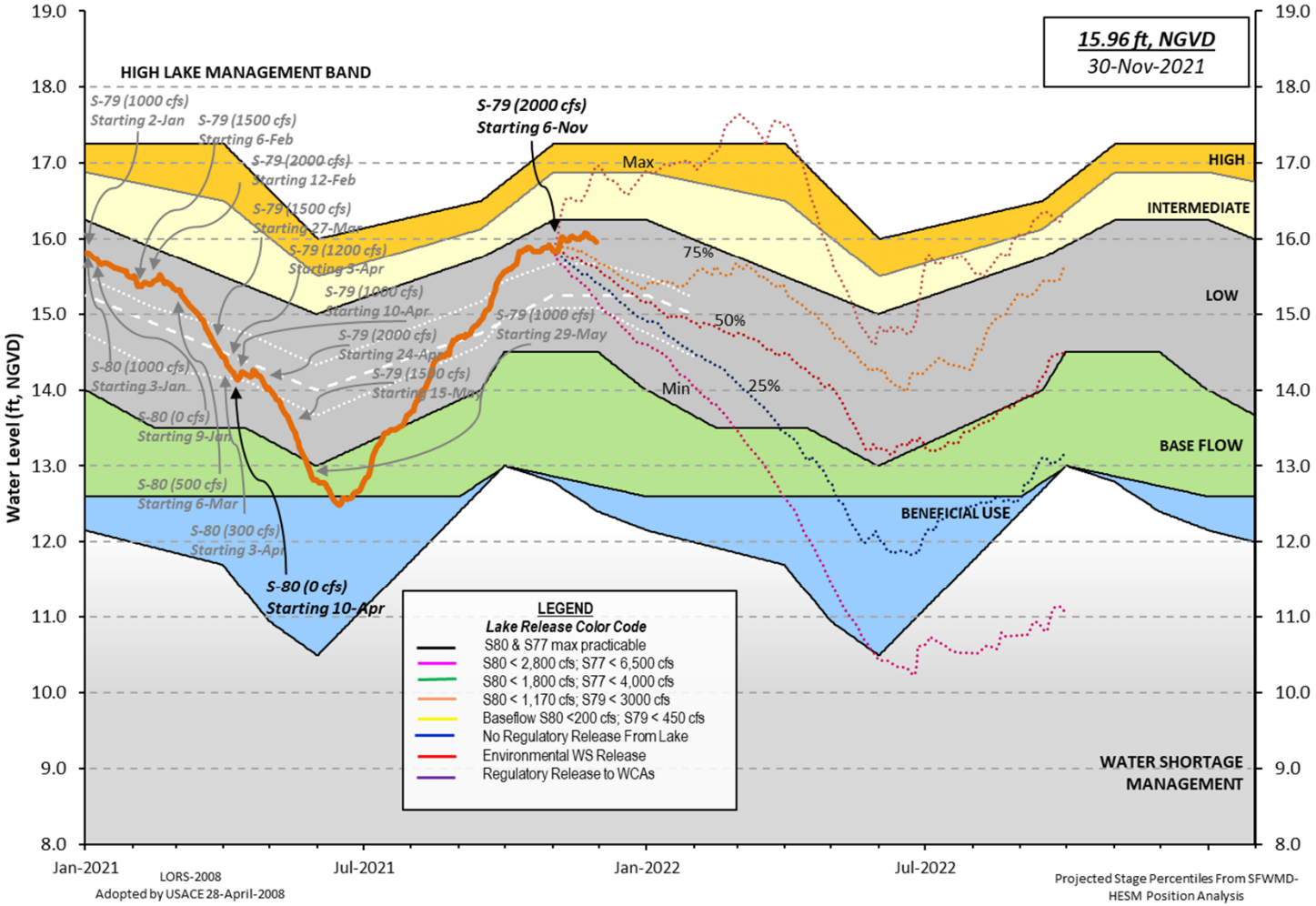
Figure 7-3

2008 LORS

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



Lake Okeechobee Water Level History and Projected Stages



U. S. Army Corps of Engineers, Jacksonville District
Lake Okeechobee and Vicinity Report
** Preliminary Data - Subject to Revision **

Data Ending 2400 hours 28 NOV 2021

Okeechobee Lake Regulation	Elevation (ft-NGVD)	Last Year (ft-NGVD)	2YRS Ago (ft-NGVD)	
*Okeechobee Lake Elevation	15.98	16.15	13.12	(Official Elv)

Bottom of High Lake Mngmt= 17.25 Top of Water Short Mngmt= 12.43
Currently in Operational Management Band

Simulated Average LORS2008 [1965-2000] 13.80
Difference from Average LORS2008 2.18

28NOV (1965-2007) Period of Record Average 14.86
Difference from POR Average 1.12

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ÷ 9.92'
++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ÷ 8.12'
Bridge Clearance = 49.38'

---

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

L001	L005	L006	LZ40	S4	S352	S308	S133
15.92	15.98	-NR-	-NR-	16.01	16.10	15.95	15.86

*Combination Okeechobee Avg-Daily Lake Average = 15.98 (*See Note)

Okeechobee Inflows (cfs):

S65E	526	S65EX1	0	Fisheating Cr	77
S154	14	S191	0	S135 Pumps	0
S84	180	S133 Pumps	0	S2 Pumps	0
S84X	0	S127 Pumps	0	S3 Pumps	0
S71	124	S129 Pumps	0	S4 Pumps	0
S72	0	S131 Pumps	0	C5	0

Total Inflows: 921

Okeechobee Outflows (cfs):

S135 Culverts	-NR-	S354	99	S77	965
S127 Culverts	0	S351	0	S308	3
S129 Culverts	0	S352	0		
S131 Culverts	0	L8 Canal Pt	-NR-		

Total Outflows: 1067

****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	0.16	S308	0.00

Average Pan Evap x 0.75 Pan Coefficient = 0.06" = 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 -4336 cfs or -8600 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:	13.64	15.84	0	0	0	0	0	0	0 (cfs)		
S193:											
S191:	18.98	15.82	0	0.0	0.0	0.0					
S135 Pumps:	13.63	15.79	0	0	0	0	0		(cfs)		
S135 Culverts:			-NR-	-NR-	-NR-						
North West Shore											
S65E:	20.84	15.59	526	0.1	0.4	0.0	0.3	0.5	0.4		
S65EX1:	20.84	15.59	0								
S127 Pumps:	13.52	15.83	0	0	0	0	0	0	(cfs)		
S127 Culvert:			0	0.0							
S129 Pumps:	13.06	15.93	0	0	0	0			(cfs)		
S129 Culvert:			0	0.0							
S131 Pumps:	12.98	15.94	0	0	0				(cfs)		
S131 Culvert:			0								
Fisheating Creek											
nr Palmdale		30.23	77								
nr Lakeport											
C5:		-NR-	0	-NR-	-NR-	-NR-					
South Shore											
S4 Pumps:	11.83	16.02	0	0	0	0			(cfs)		
S169:		-NR-	-NR-	-NR-	-NR-	-NR-					
S310:	15.94		1								
S3 Pumps:	10.27	16.09	0	0	0	0			(cfs)		
S354:	16.09	10.27	99	0.1	0.2						
S2 Pumps:	10.23	-NR-	0	-NR-	-NR-	-NR-	-NR-		(cfs)		
S351:	-NR-	10.23	0	0.0	0.0	0.0					
S352:	16.06	10.59	0	0.1	0.0						
C10A:	-NR-	16.05		8.0	8.0	8.0	0.0	0.0			
L8 Canal PT			-NR-								

S351 and S352 Temporary Pumps/S354 Spillway

S351:	10.23	-NR-	0	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-		
S352:	10.59	16.06	0	-NR-	-NR-	-NR-	-NR-				
S354:	10.27	16.09	99	-NR-	-NR-	-NR-	-NR-				

Caloosahatchee River (S77, S78, S79)											
S47B:	13.36	12.96		2.5	3.0						
S47D:	12.89	10.85	133	0.5							
S77:											
Spillway and Sector Preferred Flow:											
	15.74	10.75	956	0.5	0.5	2.5	0.0				
Flow Due to Lockages+:			9								
S78:											

```
    Spillway and Sector Flow:
              10.78      2.98    1198    0.0  0.0  2.5  1.0
    Flow Due to Lockages+:          11

  S79:
    Spillway and Sector Flow:
               3.16      2.19    1835    0.0  0.0  2.5  2.5  2.5  0.0  0.0  0.0
    Flow Due to Lockages+:           8
    Percent of flow from S77        52%
    Chloride            (ppm)      0


St. Lucie Canal (S308, S80)
  S308:
    Spillway and Sector Preferred Flow:
              16.04     14.12       0  0.0  0.0  0.0  0.0
    Flow Due to Lockages+:           3

  S153:        18.86     13.89       2    0.0  0.0
  S80:
    Spillway and Sector Flow:
              14.12      0.80     225    0.0  0.0  0.5  0.0  0.5  0.0  0.0
    Flow Due to Lockages+:          23
    Percent of flow from S308        0%

  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 (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	0.01	0.02	62	3
S78:	0.00	0.00	0.00	68	2
S79:	3.39	3.39	3.43	300	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:	1.16	1.16	1.17	351	6
S80:	10.25	10.25	10.25	2	1
Okeechobee Average (Sites S78, S79 and S80 not included)	0.58	0.09	0.09		
Oke Nexrad Basin Avg	-NR-	0.00	0.00		

```
Okeechobee Lake Elevations  28 NOV 2021          15.98 Difference from 28NOV21
   28NOV21  -1 Day  =       27 NOV 2021          16.00             0.02
```

28NOV21	-2 Days =	26 NOV 2021	16.01	0.03
28NOV21	-3 Days =	25 NOV 2021	16.01	0.03
28NOV21	-4 Days =	24 NOV 2021	16.02	0.04
28NOV21	-5 Days =	23 NOV 2021	16.06	0.08
28NOV21	-6 Days =	22 NOV 2021	16.08	0.10
28NOV21	-7 Days =	21 NOV 2021	16.07	0.09
28NOV21	-30 Days =	29 OCT 2021	15.92	-0.06
28NOV21	-1 Year =	28 NOV 2020	16.15	0.17
28NOV21	-2 Year =	28 NOV 2019	13.12	-2.86

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
28NOV21	Today =	28 NOV 2021	301	MON	-3281
28NOV21	-1 Day =	27 NOV 2021	401	SUN	-1207
28NOV21	-2 Days =	26 NOV 2021	876	SAT	1324
28NOV21	-3 Days =	25 NOV 2021	1261	FRI	-1313
28NOV21	-4 Days =	24 NOV 2021	1509	THU	-7708
28NOV21	-5 Days =	23 NOV 2021	1905	WED	-3434
28NOV21	-6 Days =	22 NOV 2021	2316	TUE	3429
28NOV21	-7 Days =	21 NOV 2021	2223	MON	12478
28NOV21	-8 Days =	20 NOV 2021	1291	SUN	587
28NOV21	-9 Days =	19 NOV 2021	1361	SAT	5435
28NOV21	-10 Days =	18 NOV 2021	2769	FRI	1288
28NOV21	-11 Days =	17 NOV 2021	2681	THU	1518
28NOV21	-12 Days =	16 NOV 2021	2601	WED	-1488
28NOV21	-13 Days =	15 NOV 2021	2389	TUE	-3408

S65E

		Average Flow over previous 14 days			Avg-Daily Flow
28NOV21	Today=	28 NOV 2021	997	MON	599
28NOV21	-1 Day =	27 NOV 2021	1070	SUN	621
28NOV21	-2 Days =	26 NOV 2021	1142	SAT	628
28NOV21	-3 Days =	25 NOV 2021	1213	FRI	650
28NOV21	-4 Days =	24 NOV 2021	1282	THU	678
28NOV21	-5 Days =	23 NOV 2021	1348	WED	704
28NOV21	-6 Days =	22 NOV 2021	1412	TUE	757
28NOV21	-7 Days =	21 NOV 2021	1473	MON	826
28NOV21	-8 Days =	20 NOV 2021	1533	SUN	1139
28NOV21	-9 Days =	19 NOV 2021	1577	SAT	1273
28NOV21	-10 Days =	18 NOV 2021	1612	FRI	1392
28NOV21	-11 Days =	17 NOV 2021	1609	THU	1493
28NOV21	-12 Days =	16 NOV 2021	1614	WED	1569
28NOV21	-13 Days =	15 NOV 2021	1611	TUE	1627

S65EX1

		Average Flow over previous 14 days			Avg-Daily Flow
28NOV21	Today=	28 NOV 2021	0	MON	0
28NOV21	-1 Day =	27 NOV 2021	0	SUN	0
28NOV21	-2 Days =	26 NOV 2021	0	SAT	0
28NOV21	-3 Days =	25 NOV 2021	0	FRI	0
28NOV21	-4 Days =	24 NOV 2021	0	THU	0
28NOV21	-5 Days =	23 NOV 2021	0	WED	0
28NOV21	-6 Days =	22 NOV 2021	0	TUE	0
28NOV21	-7 Days =	21 NOV 2021	0	MON	0
28NOV21	-8 Days =	20 NOV 2021	0	SUN	0
28NOV21	-9 Days =	19 NOV 2021	0	SAT	0
28NOV21	-10 Days =	18 NOV 2021	0	FRI	0
28NOV21	-11 Days =	17 NOV 2021	0	THU	0
28NOV21	-12 Days =	16 NOV 2021	0	WED	0
28NOV21	-13 Days =	15 NOV 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 NOV 2021	1914	2215	2398	3654
27 NOV 2021	1889	2113	2198	3876
26 NOV 2021	1885	2014	2081	3345
25 NOV 2021	1902	2062	2075	3554
24 NOV 2021	2713	2871	2807	4114
23 NOV 2021	2250	2227	2657	4064
22 NOV 2021	2275	2364	2283	4493
21 NOV 2021	2272	2729	2568	3669
20 NOV 2021	1147	1682	2031	3498
19 NOV 2021	1756	2086	2540	4803
18 NOV 2021	2618	2991	2562	4597
17 NOV 2021	2989	-NR-	3638	4873
16 NOV 2021	1552	1838	2609	3698
15 NOV 2021	2320	2163	1954	3945

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 NOV 2021	1	0	0	196	-NR-
27 NOV 2021	3	0	0	228	-NR-
26 NOV 2021	-2	0	0	758	-NR-
25 NOV 2021	7	0	0	0	-NR-
24 NOV 2021	9	0	0	0	-NR-
23 NOV 2021	-1	0	0	0	-NR-
22 NOV 2021	10	0	0	0	-NR-
21 NOV 2021	-0	0	0	0	-NR-
20 NOV 2021	66	0	0	0	-NR-
19 NOV 2021	2	0	0	0	-NR-
18 NOV 2021	6	0	0	0	-NR-
17 NOV 2021	5	0	0	0	-NR-
16 NOV 2021	9	0	0	0	-NR-
15 NOV 2021	4	0	0	0	-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 NOV 2021	6	-NR-	490
27 NOV 2021	9	-NR-	49
26 NOV 2021	11	-NR-	238
25 NOV 2021	5	-NR-	148
24 NOV 2021	4	-NR-	572
23 NOV 2021	6	-NR-	886
22 NOV 2021	9	-NR-	940
21 NOV 2021	5	-NR-	913
20 NOV 2021	6	-NR-	21
19 NOV 2021	13	-NR-	43
18 NOV 2021	10	-NR-	61
17 NOV 2021	16	-NR-	57
16 NOV 2021	10	-NR-	43
15 NOV 2021	8	-NR-	39

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

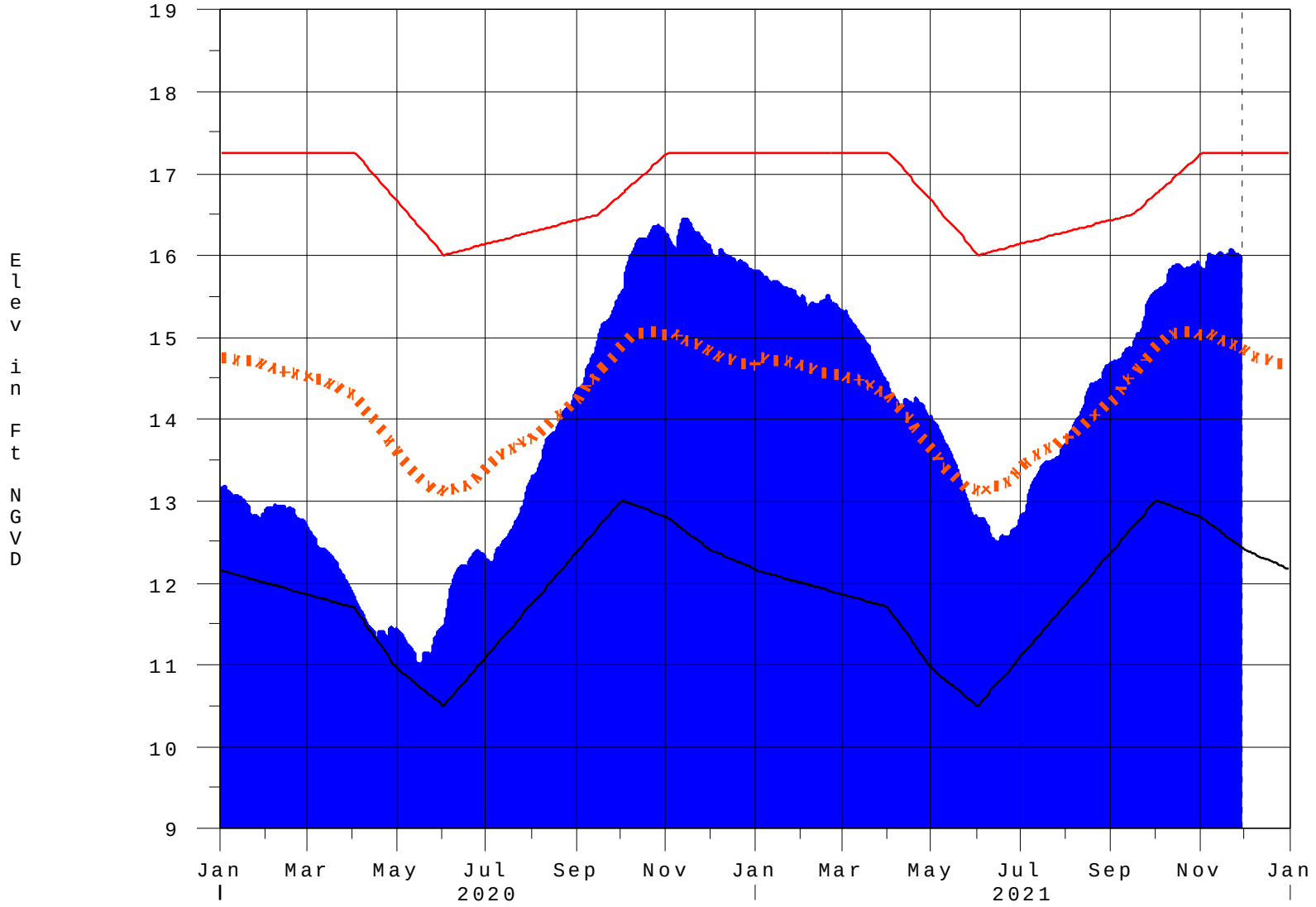
(I) - Flows preceeded by "I" signify an instantaneous
flow computed from the single value reported for the day

* 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 29NOV2021 @ 09:52 ** Preliminary Data - Subject to Revision **

Lake Okeechobee

29NOV21 10:17:25



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