Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 12/20/2021 (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 (Dec-May)	N/A	N/A	0.74	Dry	-0.46	Dry	-0.45	Dry
Multi Seasonal (Dec-Oct)	N/A	N/A	3.64	Wet	2.26	Normal	2.04	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:

–682 cfs 14-day running average for Lake Okeechobee Net Inflow through 12/20/2021.
According to the classification in Tributary Hydrologic Conditions table, this condition is Dry.

–1.22 for Palmer Drought Index on 12/18/2021.
According to the classification in Tributary Hydrologic Conditions table, this condition is Near Normal.

The wetter of the two conditions above is **Near Normal.**

LORS2008 Classification Tables:

Lake Okeechobee Stage on 12/20/2021:

Lake Okeechobee Stage: **15.80 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	14.19	← 15.73 ft
Base Flow sub-band		12.65	
Beneficial Use sub-band		12.25	
Water Shortage Management Band			

Part C of LORS2008: Discharge to WCAs

Up to Maximum Practicable to WCAs if Desirable or with minimum Everglades impacts; 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 12/20/2021 (ENSO Condition- La Nina Watch):

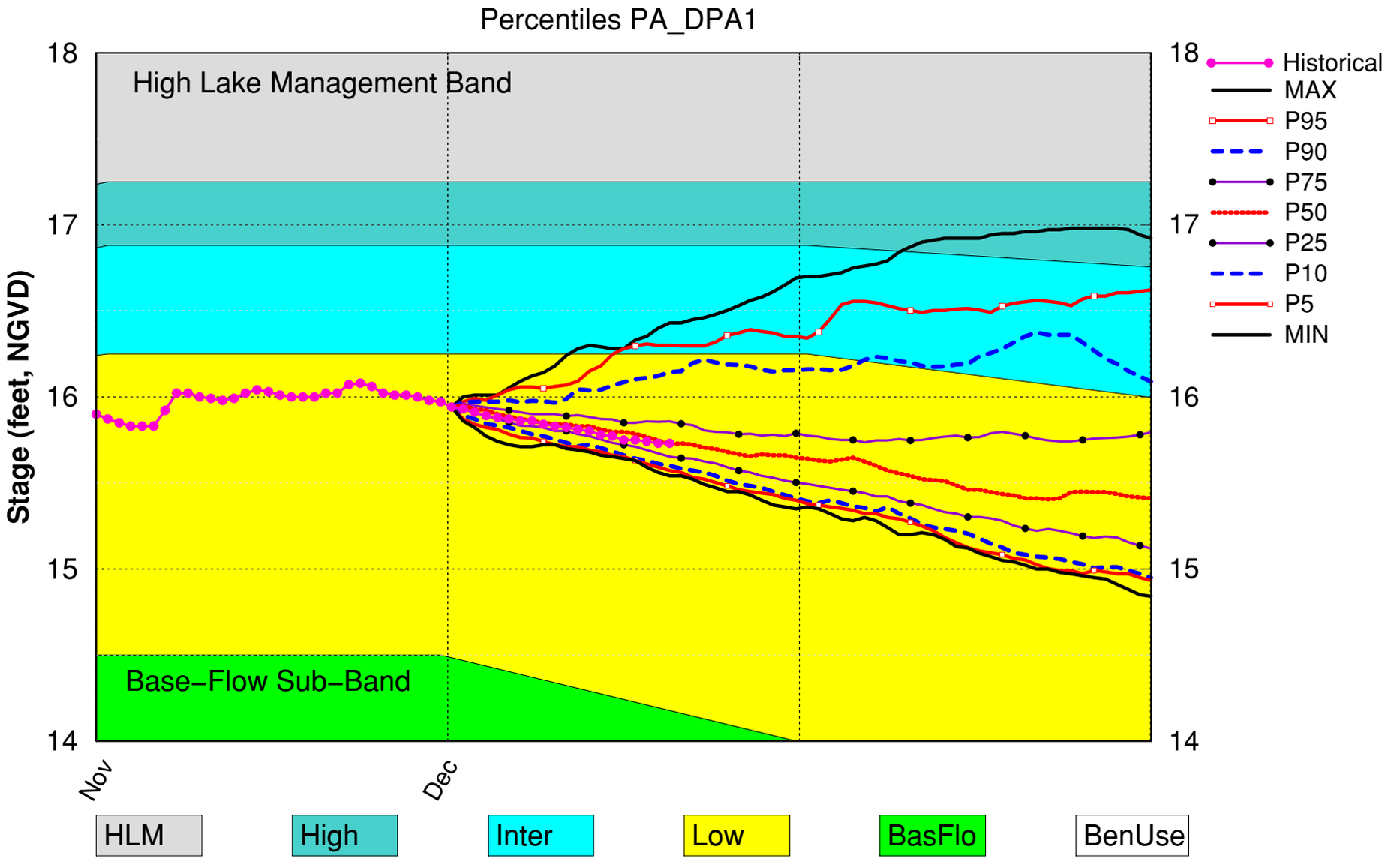
Status for week ending 12/20/2021:

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	–1.22 (Normal to Extremely Wet)	M
	CPC Precipitation Outlook	1 month: Below Normal	M
		3 months: Below Normal	H
	LOK Seasonal Net Inflow Outlook	–0.08 ft	H
	ENSO Forecast	Extremely Dry	
	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 (17.41 ft)	L
	WCA 2A: Site 2-17	Above Line 1 (13.00 ft)	L
	WCA-3A: 3 Station Average (Sites 63, 64, and 65)	Above Line 1 (10.18 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.

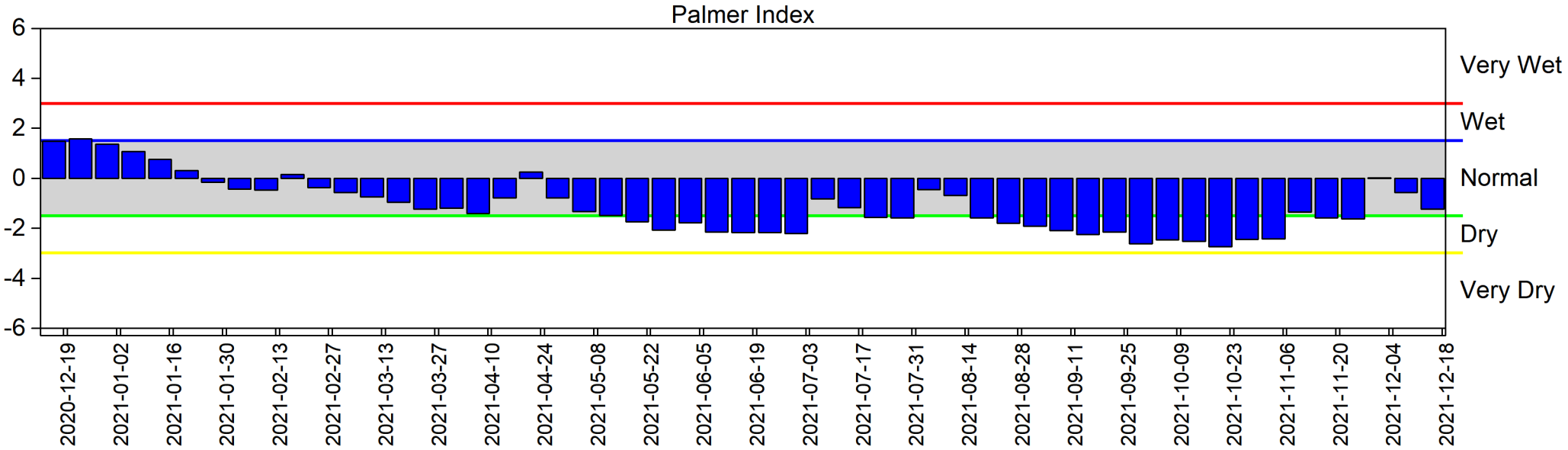
Lake Okeechobee SFWMM Dec 2021 Position Analysis

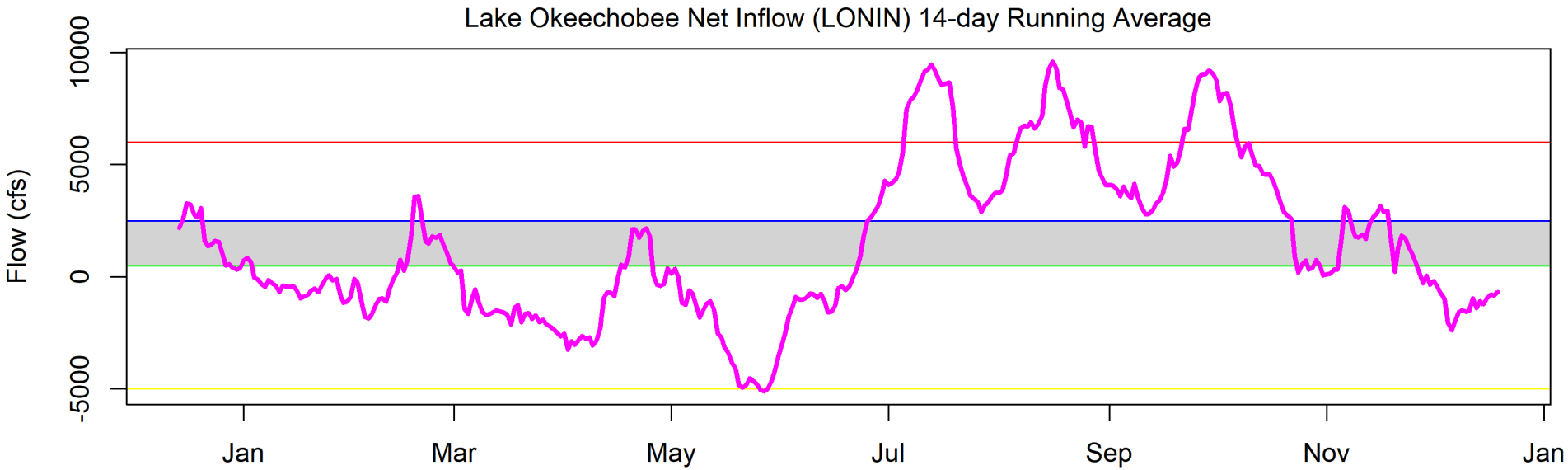


(See assumptions on the Position Analysis Results website)

Mon Dec 20 2021

Tributary Basin Condition Indicators as of December 20, 2021





2008 LORS

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

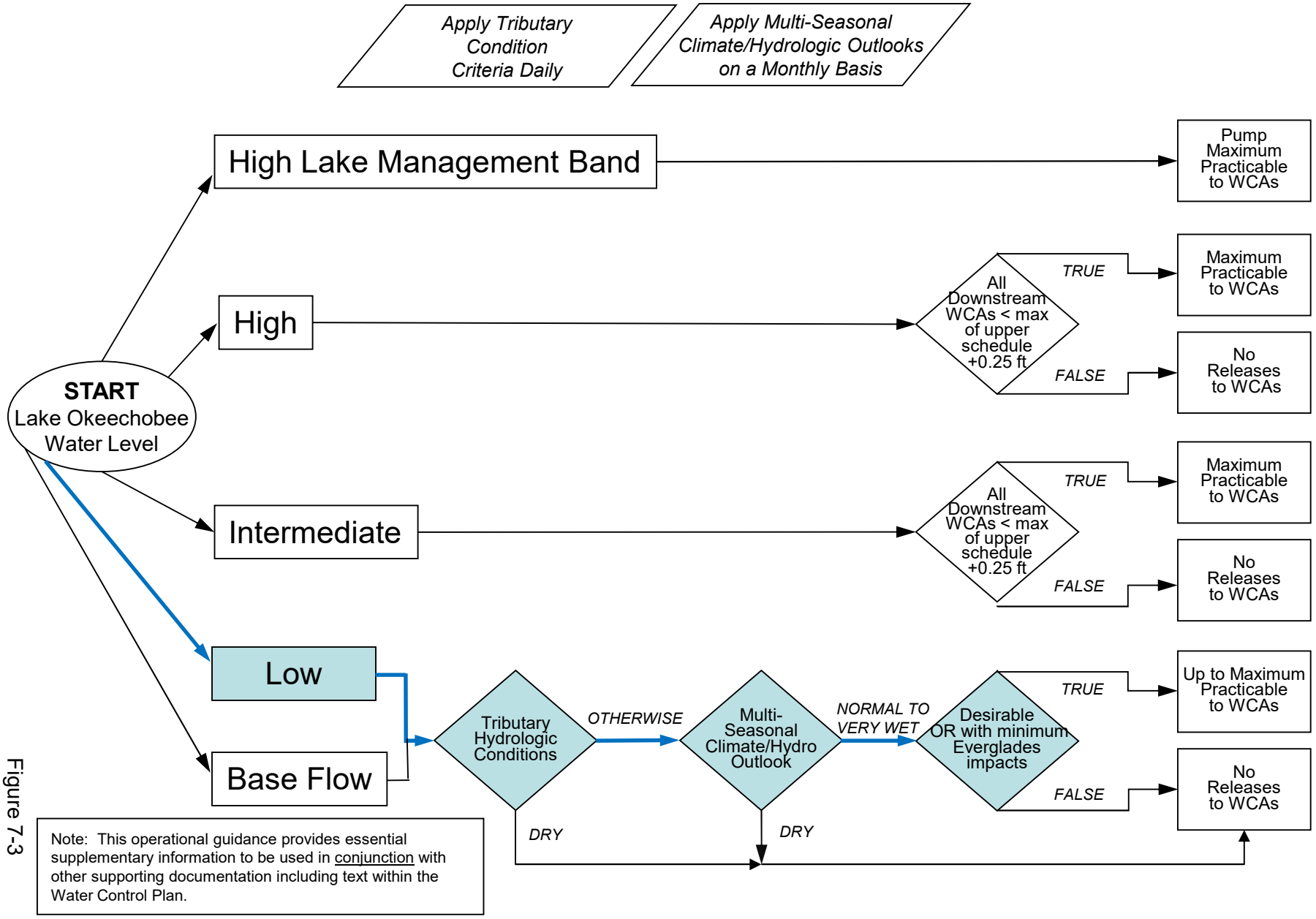


Figure 7-3

2008 LORS

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

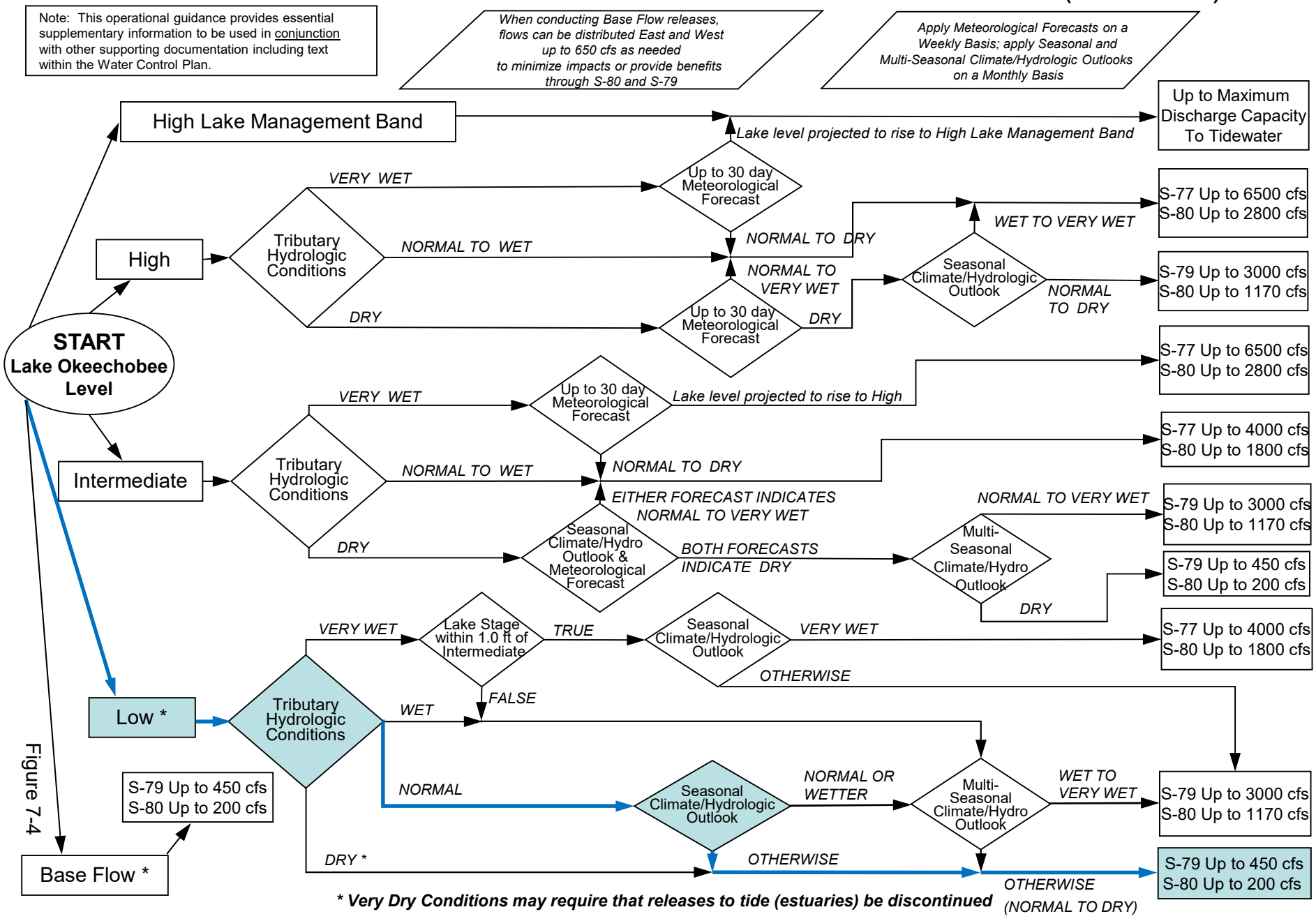
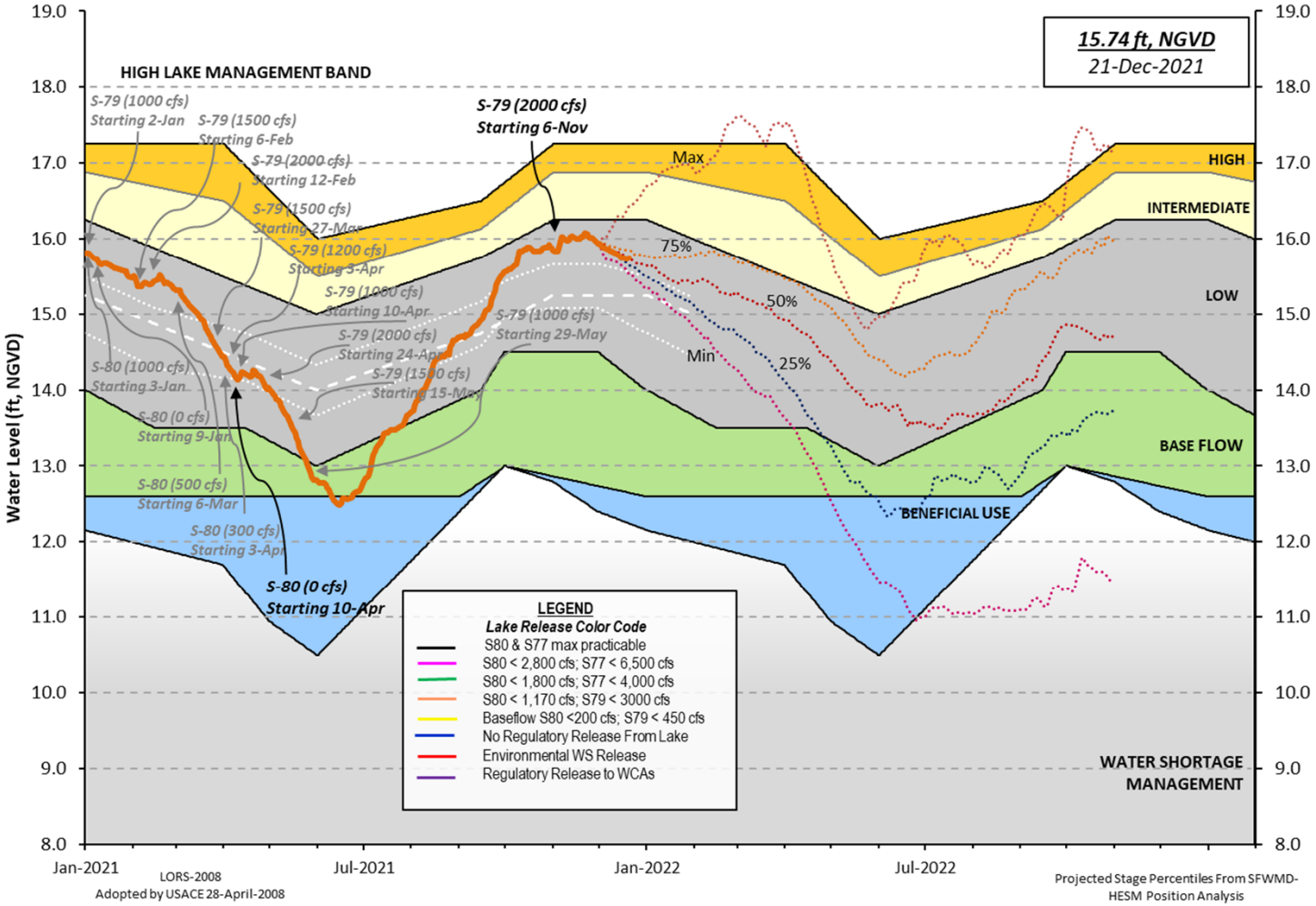


Figure 7-4

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 19 DEC 2021

Okeechobee Lake Regulation	Elevation (ft-NGVD)	Last Year (ft-NGVD)	2YRS Ago (ft-NGVD)
*Okeechobee Lake Elevation	15.73	15.91	12.98 (Official Elv)

Bottom of High Lake Mngmt= 17.25 Top of Water Short Mngmt= 12.25
Currently in Operational Management Band

Simulated Average LORS2008 [1965-2000] 13.60
Difference from Average LORS2008 2.13

19DEC (1965-2007) Period of Record Average 14.70
Difference from POR Average 1.03

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ÷ 9.67'
++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ÷ 7.87'
Bridge Clearance = 49.18'

---

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

L001	L005	L006	LZ40	S4	S352	S308	S133
15.75	15.74	15.72	15.72	15.67	15.85	15.74	15.70

*Combination Okeechobee Avg-Daily Lake Average = 15.73 (*See Note)

Okeechobee Inflows (cfs):

S65E	407	S65EX1	0	Fisheating Cr	21
S154	0	S191	0	S135 Pumps	0
S84	102	S133 Pumps	0	S2 Pumps	0
S84X	30	S127 Pumps	0	S3 Pumps	0
S71	0	S129 Pumps	0	S4 Pumps	0
S72	0	S131 Pumps	0	C5	0

Total Inflows: 561

Okeechobee Outflows (cfs):

S135 Culverts	-NR-	S354	80	S77	1167
S127 Culverts	0	S351	0	S308	7
S129 Culverts	0	S352	0		
S131 Culverts	0	L8 Canal Pt	-NR-		

Total Outflows: 1254

****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	0.21	S308	0.12

Average Pan Evap x 0.75 Pan Coefficient = 0.12" = 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 0 cfs or 0 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:	13.66	15.66	0	0	0	0	0	0	(cfs)		
S193:											
S191:	19.06	15.65	0	0.0	0.0	0.0					
S135 Pumps:		-NR-	0	0	0	0	0		(cfs)		
S135 Culverts:			-NR-	-NR-	-NR-						
North West Shore											
S65E:	21.00	15.47	407	0.0	0.5	0.0	0.3	0.0	0.4		
S65EX1:	21.00	15.47	0								
S127 Pumps:	13.54	15.62	0	0	0	0	0	0	(cfs)		
S127 Culvert:			0	0.0							
S129 Pumps:	13.09	15.64	0	0	0	0			(cfs)		
S129 Culvert:			0	0.0							
S131 Pumps:	13.04	15.62	0	0	0				(cfs)		
S131 Culvert:			0								
Fisheating Creek											
nr Palmdale		28.91	21								
nr Lakeport											
C5:		-NR-	0	-NR-	-NR-	-NR-					
South Shore											
S4 Pumps:	11.47	15.67	0	0	0	0			(cfs)		
S169:	14.26	14.28	-NR-	-NR-	-NR-	-NR-					
S310:	15.64		3								
S3 Pumps:	10.10	15.71	0	0	0	0			(cfs)		
S354:	15.71	10.10	80	0.0	0.0						
S2 Pumps:	10.27	-NR-	0	0	0	0	0		(cfs)		
S351:	-NR-	10.27	0	0.0	0.0	0.0					
S352:	15.88	10.31	0	0.0	0.0						
C10A:	-NR-	15.78		8.0	8.0	8.0	0.0	0.0			
L8 Canal PT		15.81	-NR-								

S351 and S352 Temporary Pumps/S354 Spillway

S351:	10.27	-NR-	0	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-	
S352:	10.31	15.88	0	-NR-	-NR-	-NR-	-NR-				
S354:	10.10	15.71	80	-NR-	-NR-	-NR-	-NR-				

Caloosahatchee River (S77, S78, S79)											
S47B:	13.33	12.39		2.0	1.9						
S47D:	12.30	11.00	0	0.0							
S77:											
Spillway and Sector Preferred Flow:											
	15.43	10.89	1157	0.0	2.5	2.5	0.0				
Flow Due to Lockages+:			10								
S78:											

```
    Spillway and Sector Flow:
              10.91      2.77    1383    1.0  2.5  0.0  1.0
    Flow Due to Lockages+:          16

  S79:
    Spillway and Sector Flow:
               2.96      1.94    1833    0.0  0.0  2.0  2.4  2.0  2.0  0.0  0.0
    Flow Due to Lockages+:           5
    Percent of flow from S77        63%
    Chloride            (ppm)      0


St. Lucie Canal (S308, S80)
  S308:
    Spillway and Sector Preferred Flow:
              15.76     14.32       0  0.0  0.0  0.0  0.0
    Flow Due to Lockages+:           7

  S153:        19.00     14.14       0    0.0  0.0
  S80:
    Spillway and Sector Flow:
              14.43      0.83     276    0.0  0.0  0.3  0.0  0.3  0.0  0.0
    Flow Due to Lockages+:          24
    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	0.00	0.00	279	2
S78:	0.01	0.01	0.14	247	2
S79:	0.01	0.15	0.28	179	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:	0.00	0.00	0.37	307	10
S80:	0.02	0.15	0.66	276	1
Okeechobee Average (Sites S78, S79 and S80 not included)	0.00	0.00	0.03		
Oke Nexrad Basin Avg	-NR-	0.00	0.00		

```
Okeechobee Lake Elevations  19 DEC 2021          15.73 Difference from 19DEC21
   19DEC21  -1 Day  =       18 DEC 2021          15.73             0.00
```

19DEC21	-2 Days =	17 DEC 2021	15.74	0.01
19DEC21	-3 Days =	16 DEC 2021	15.75	0.02
19DEC21	-4 Days =	15 DEC 2021	15.75	0.02
19DEC21	-5 Days =	14 DEC 2021	15.77	0.04
19DEC21	-6 Days =	13 DEC 2021	15.78	0.05
19DEC21	-7 Days =	12 DEC 2021	15.80	0.07
19DEC21	-30 Days =	19 NOV 2021	16.02	0.29
19DEC21	-1 Year =	19 DEC 2020	15.91	0.18
19DEC21	-2 Year =	19 DEC 2019	12.98	-2.75

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
19DEC21	Today =	19 DEC 2021	-136	MON	1237
19DEC21	-1 Day =	18 DEC 2021	-271	SUN	-NR-
19DEC21	-2 Days =	17 DEC 2021	-255	SAT	-NR-
19DEC21	-3 Days =	16 DEC 2021	-357	FRI	1627
19DEC21	-4 Days =	15 DEC 2021	-558	THU	-2462
19DEC21	-5 Days =	14 DEC 2021	-369	WED	-68
19DEC21	-6 Days =	13 DEC 2021	-669	TUE	-2180
19DEC21	-7 Days =	12 DEC 2021	-572	MON	45
19DEC21	-8 Days =	11 DEC 2021	-799	SUN	-45
19DEC21	-9 Days =	10 DEC 2021	-879	SAT	172
19DEC21	-10 Days =	09 DEC 2021	-796	FRI	849
19DEC21	-11 Days =	08 DEC 2021	-951	THU	-1962
19DEC21	-12 Days =	07 DEC 2021	-1361	WED	2013
19DEC21	-13 Days =	06 DEC 2021	-1750	TUE	-857

S65E

		Average Flow over previous 14 days			Avg-Daily Flow
19DEC21	Today=	19 DEC 2021	334	MON	466
19DEC21	-1 Day =	18 DEC 2021	301	SUN	447
19DEC21	-2 Days =	17 DEC 2021	269	SAT	444
19DEC21	-3 Days =	16 DEC 2021	237	FRI	518
19DEC21	-4 Days =	15 DEC 2021	200	THU	456
19DEC21	-5 Days =	14 DEC 2021	181	WED	441
19DEC21	-6 Days =	13 DEC 2021	159	TUE	438
19DEC21	-7 Days =	12 DEC 2021	158	MON	428
19DEC21	-8 Days =	11 DEC 2021	172	SUN	429
19DEC21	-9 Days =	10 DEC 2021	188	SAT	463
19DEC21	-10 Days =	09 DEC 2021	202	FRI	144
19DEC21	-11 Days =	08 DEC 2021	244	THU	2
19DEC21	-12 Days =	07 DEC 2021	301	WED	3
19DEC21	-13 Days =	06 DEC 2021	359	TUE	0

S65EX1

		Average Flow over previous 14 days			Avg-Daily Flow
19DEC21	Today=	19 DEC 2021	119	MON	0
19DEC21	-1 Day =	18 DEC 2021	158	SUN	0
19DEC21	-2 Days =	17 DEC 2021	197	SAT	0
19DEC21	-3 Days =	16 DEC 2021	237	FRI	0
19DEC21	-4 Days =	15 DEC 2021	276	THU	0
19DEC21	-5 Days =	14 DEC 2021	316	WED	0
19DEC21	-6 Days =	13 DEC 2021	349	TUE	0
19DEC21	-7 Days =	12 DEC 2021	355	MON	0
19DEC21	-8 Days =	11 DEC 2021	355	SUN	0
19DEC21	-9 Days =	10 DEC 2021	355	SAT	0
19DEC21	-10 Days =	09 DEC 2021	355	FRI	280
19DEC21	-11 Days =	08 DEC 2021	335	THU	467
19DEC21	-12 Days =	07 DEC 2021	302	WED	382
19DEC21	-13 Days =	06 DEC 2021	274	TUE	539

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)
19 DEC 2021	2319	2541	2773	3666
18 DEC 2021	2118	2402	2601	3384
17 DEC 2021	2411	2826	2684	3733
16 DEC 2021	3149	3754	3143	3744
15 DEC 2021	3220	3824	3186	4036
14 DEC 2021	3069	2814	3432	4186
13 DEC 2021	3215	3620	3498	4382
12 DEC 2021	3210	3407	3350	4249
11 DEC 2021	2712	2895	2932	3874
10 DEC 2021	2951	3056	2929	4527
09 DEC 2021	3761	3876	3061	4270
08 DEC 2021	3810	3854	3212	4116
07 DEC 2021	2962	3222	2951	3982
06 DEC 2021	2193	2584	2524	3597

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)
19 DEC 2021	5	0	0	158	-NR-
18 DEC 2021	1	0	229	180	-NR-
17 DEC 2021	4	0	70	0	-NR-
16 DEC 2021	-1	0	89	0	-NR-
15 DEC 2021	0	0	50	200	-NR-
14 DEC 2021	-1	376	211	548	-NR-
13 DEC 2021	3	587	132	348	-NR-
12 DEC 2021	58	470	157	575	-NR-
11 DEC 2021	30	517	148	697	-NR-
10 DEC 2021	-8	1017	233	367	-NR-
09 DEC 2021	-6	1258	156	817	-NR-
08 DEC 2021	-6	341	357	0	-NR-
07 DEC 2021	-0	764	46	271	-NR-
06 DEC 2021	5	211	49	179	-NR-

DATE	S-308 Discharge (ALL DAY) (AC-FT)	Below S-308 Discharge (ALL-DAY) (AC-FT)	S-80 Discharge (ALL-DAY) (AC-FT)
19 DEC 2021	14	-NR-	590
18 DEC 2021	11	-NR-	51
17 DEC 2021	7	-NR-	69
16 DEC 2021	9	-NR-	37
15 DEC 2021	262	-NR-	44
14 DEC 2021	10	-NR-	43
13 DEC 2021	8	-NR-	44
12 DEC 2021	17	-NR-	55
11 DEC 2021	16	-NR-	47
10 DEC 2021	4	-NR-	36
09 DEC 2021	16	-NR-	36
08 DEC 2021	264	-NR-	22
07 DEC 2021	10	-NR-	55
06 DEC 2021	8	-NR-	30

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

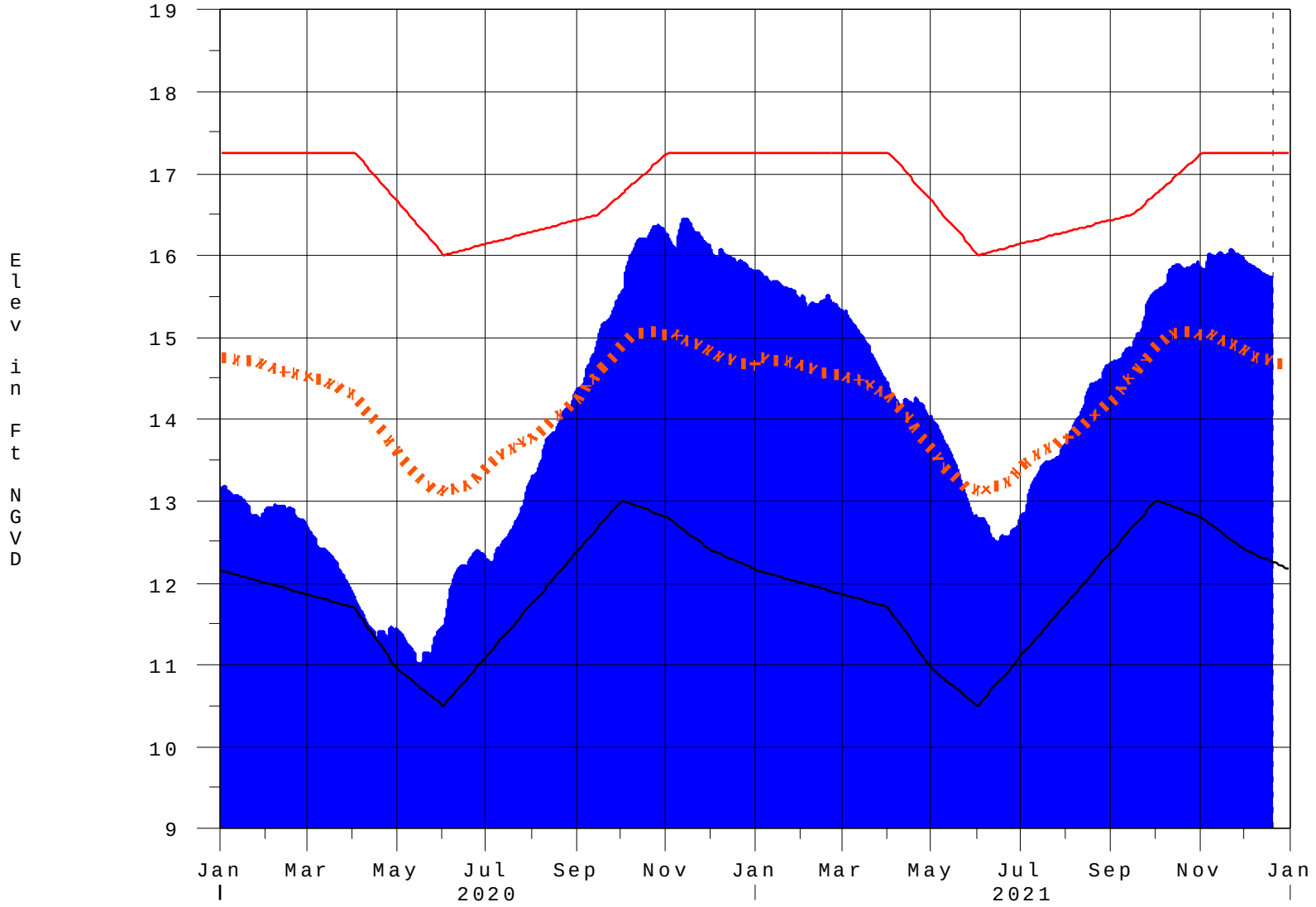
(I) - Flows preceeded by "I" signify an instantaneous
flow computed from the single value reported for the day

* 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 20DEC2021 @ 09:15 ** Preliminary Data - Subject to Revision **

Lake Okeechobee

20DEC21 09:30:28



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**

Under Construction