

Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 5/17/2021 (ENSO Condition: La Niña Advisory)

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 (May-Oct)	N/A	N/A	2.30	Very Wet	2.47	Very Wet	3.54	Very Wet
Multi Seasonal (May-Apr)	N/A	N/A	2.98	Wet	2.77	Wet	4.18	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:

-3165 cfs 14-day running average for Lake Okeechobee Net Inflow through 5/16/2021. According to the classification in Tributary Hydrologic Conditions table, this condition is Dry.

-1.49 for Palmer Drought Index on 5/15/2021.

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 5/17/2021:

Lake Okeechobee Stage: **13.47 feet**

Lake Okeechobee Management Zone/Band		Bottom Elevation (feet, NGVD)	Current Lake Stage
High Lake Management Band		16.33	
Operational Band	High sub-band	15.76	
	Intermediate sub-band	15.12	
	Low sub-band	13.16	← 13.47 ft
Base Flow sub-band		12.60	
Beneficial Use sub-band		10.72	
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 3000 cfs at S-79 and up to 1170 cfs at S-80.

LORS2008 Implementation on 5/17/2021 (ENSO Condition- La Nina Advisory):

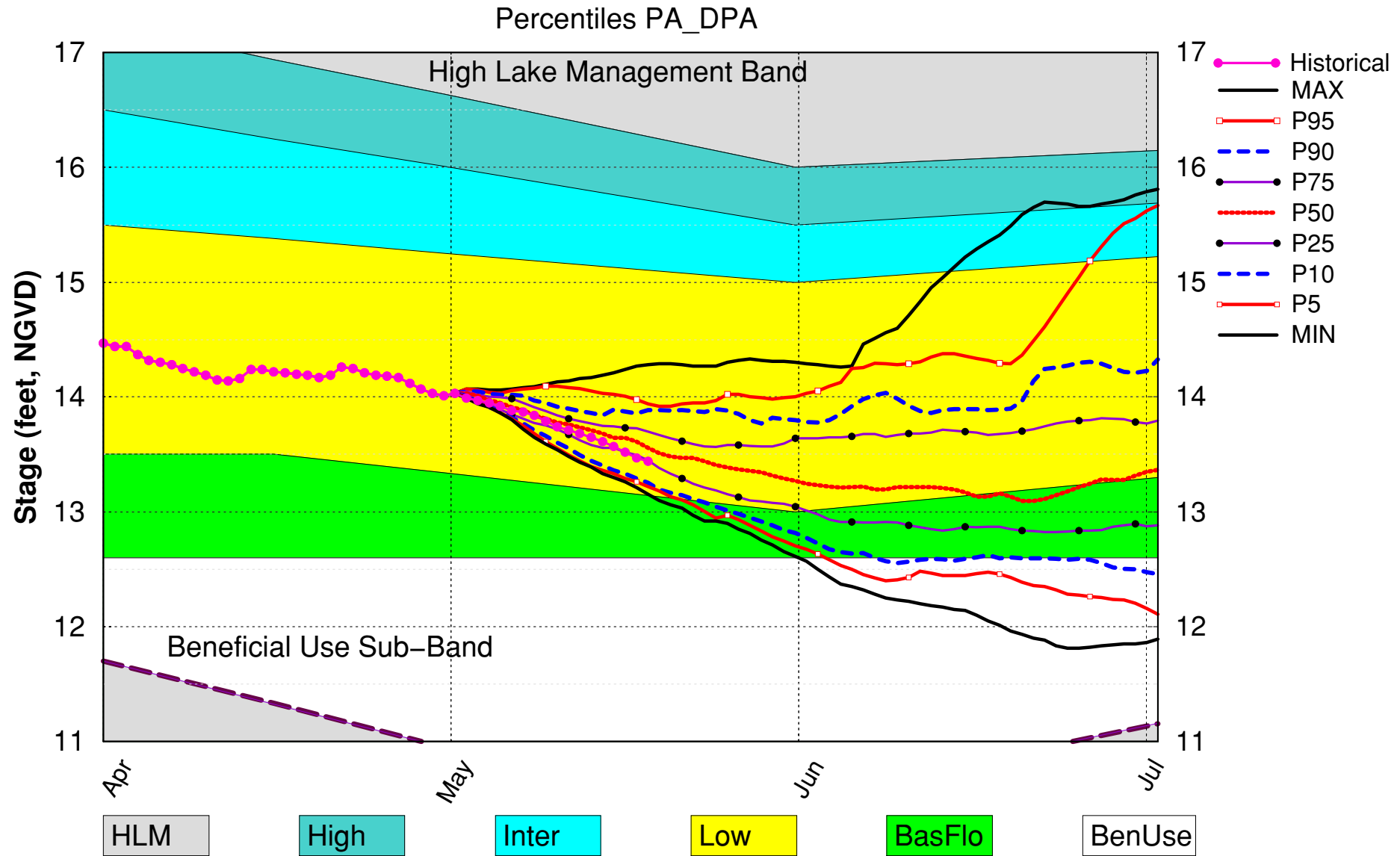
Status for week ending 5/17/2021:

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	-1.49 (Dry)	M
	CPC Precipitation Outlook	1 month: Above Normal	L
		3 months: Above Normal	L
	LOK Seasonal Net Inflow Outlook	2.47 ft	L
	ENSO Forecast	Normal to Extremely Wet	L
	LOK Multi-Seasonal Net Inflow Outlook	2.77 ft	M
	ENSO Forecast	Normal	M
WCAs	WCA 1: Site 1-8C	Above Line 1 (15.73 ft)	L
	WCA 2A: Site2-17	Above Line 1 (11.61 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64 and 65)	Above Line 1 (8.80 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.

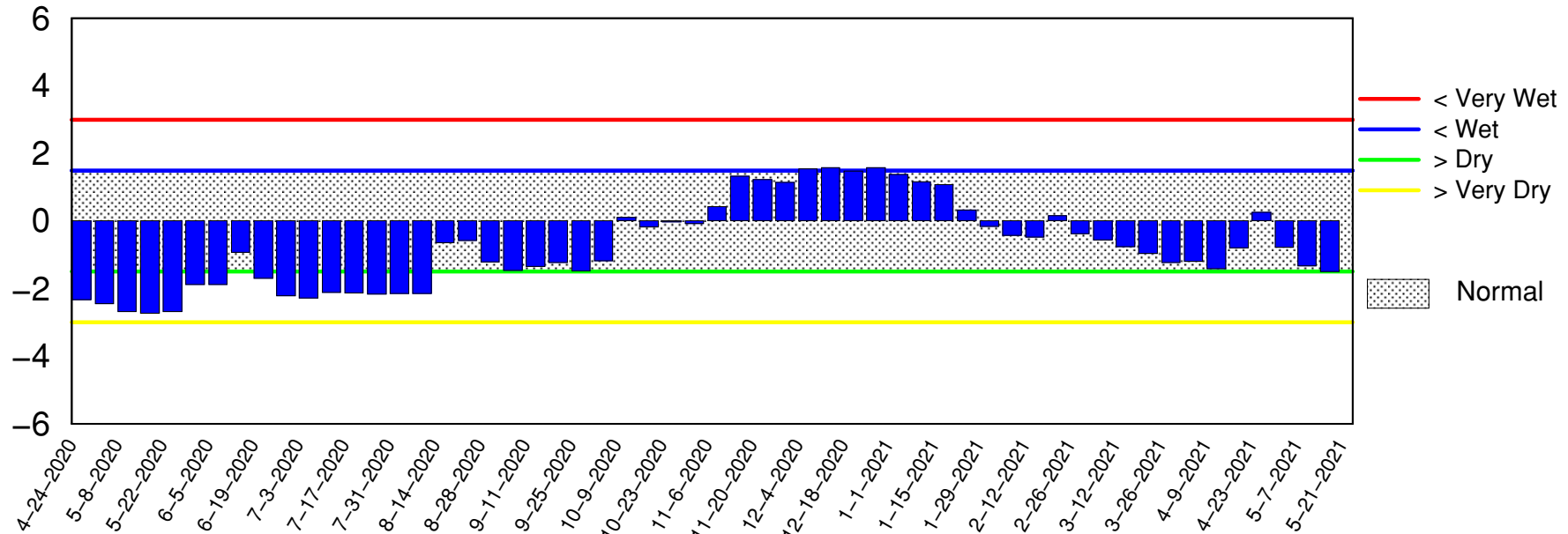
Lake Okeechobee SFWMM May 2021 Position Analysis



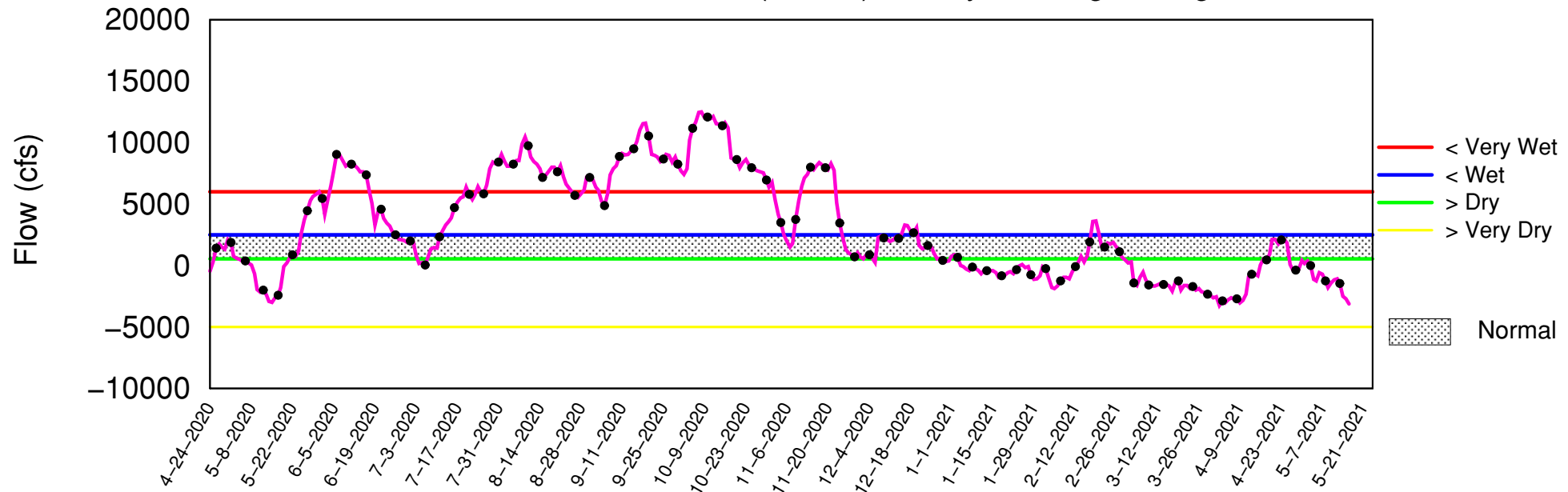
(See assumptions on the Position Analysis Results website)

Tributary Basin Condition Indicators as of May 17 2021

Palmer Index



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



2008 LORS

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

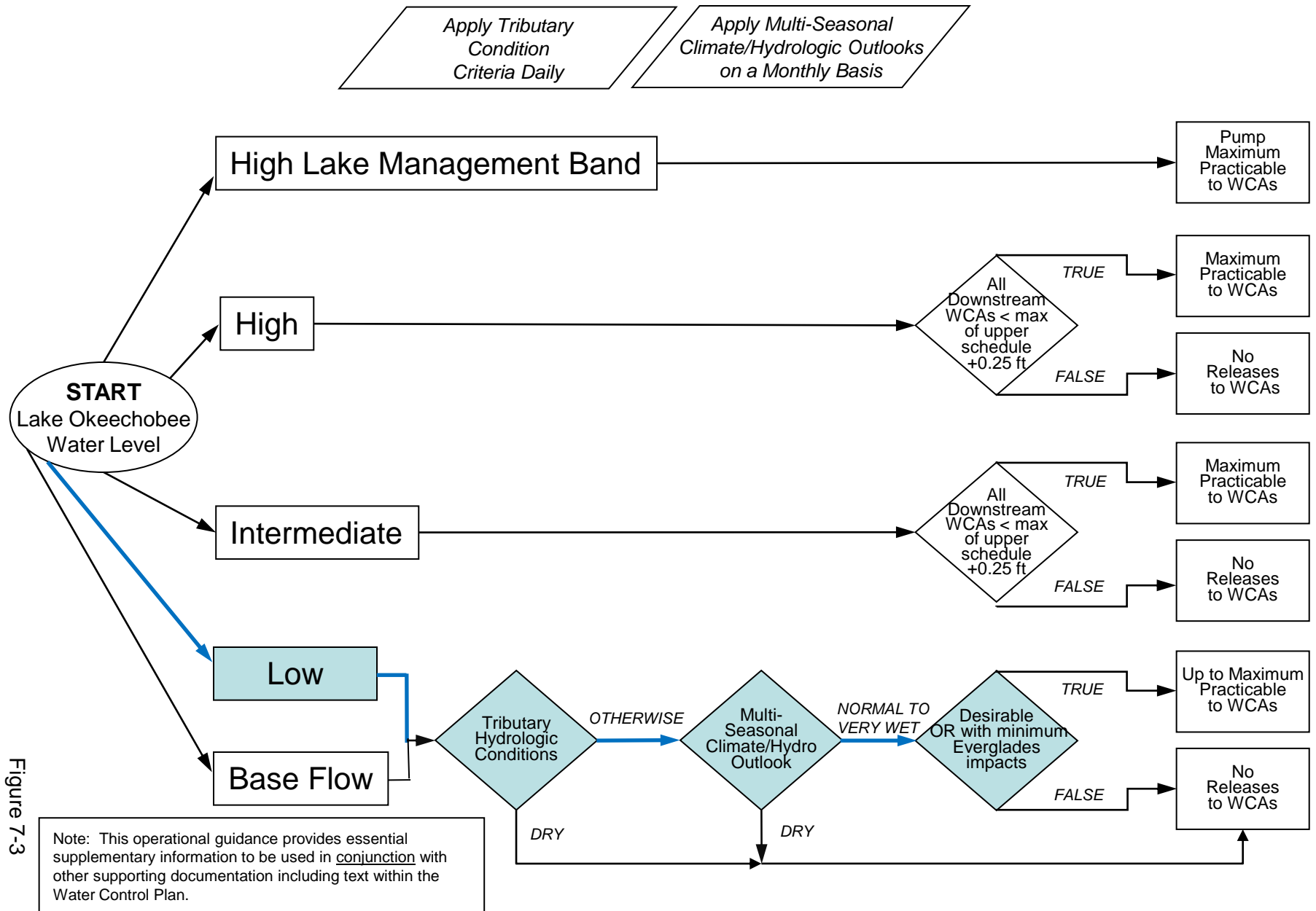
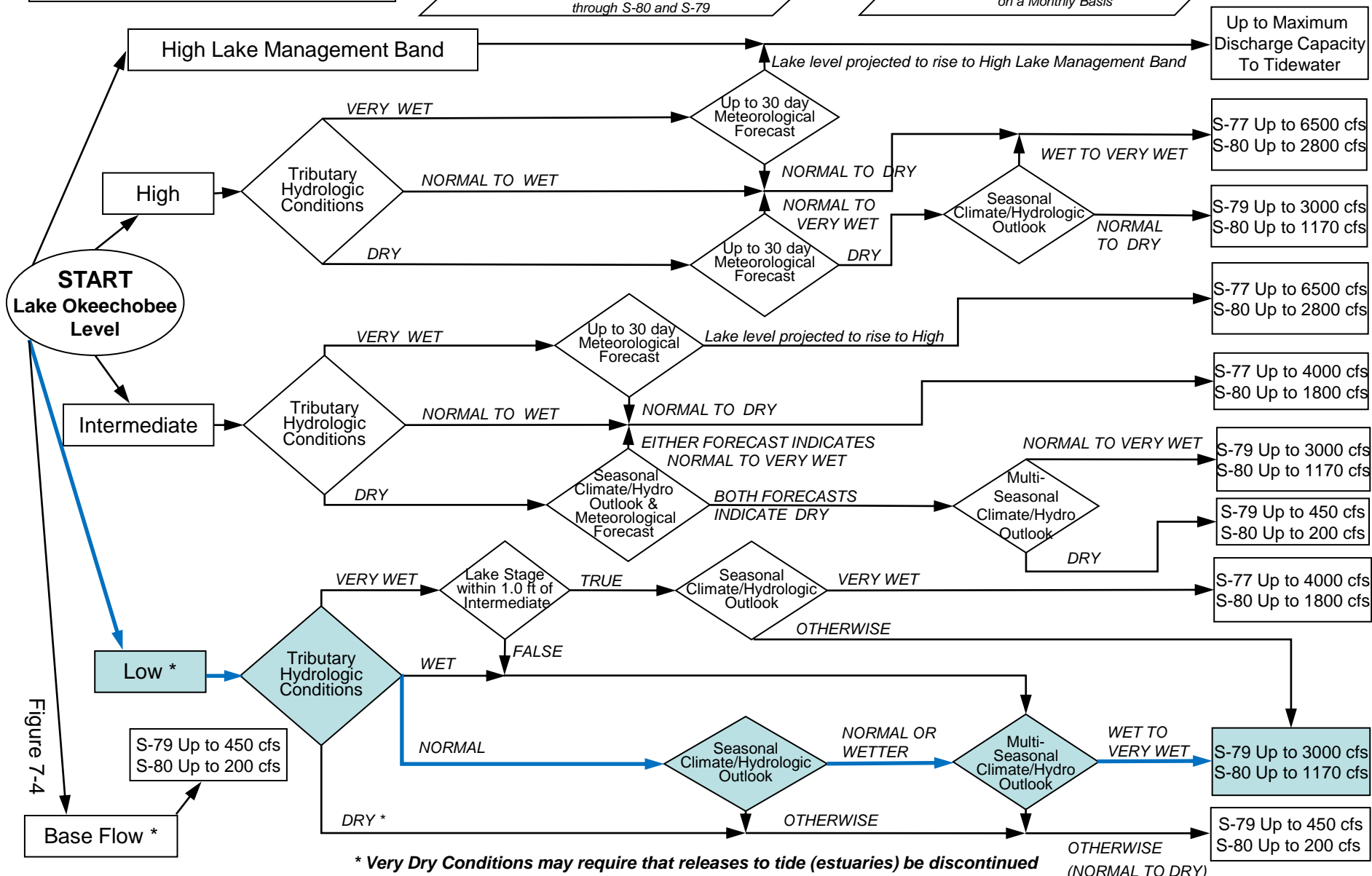


Figure 7-3

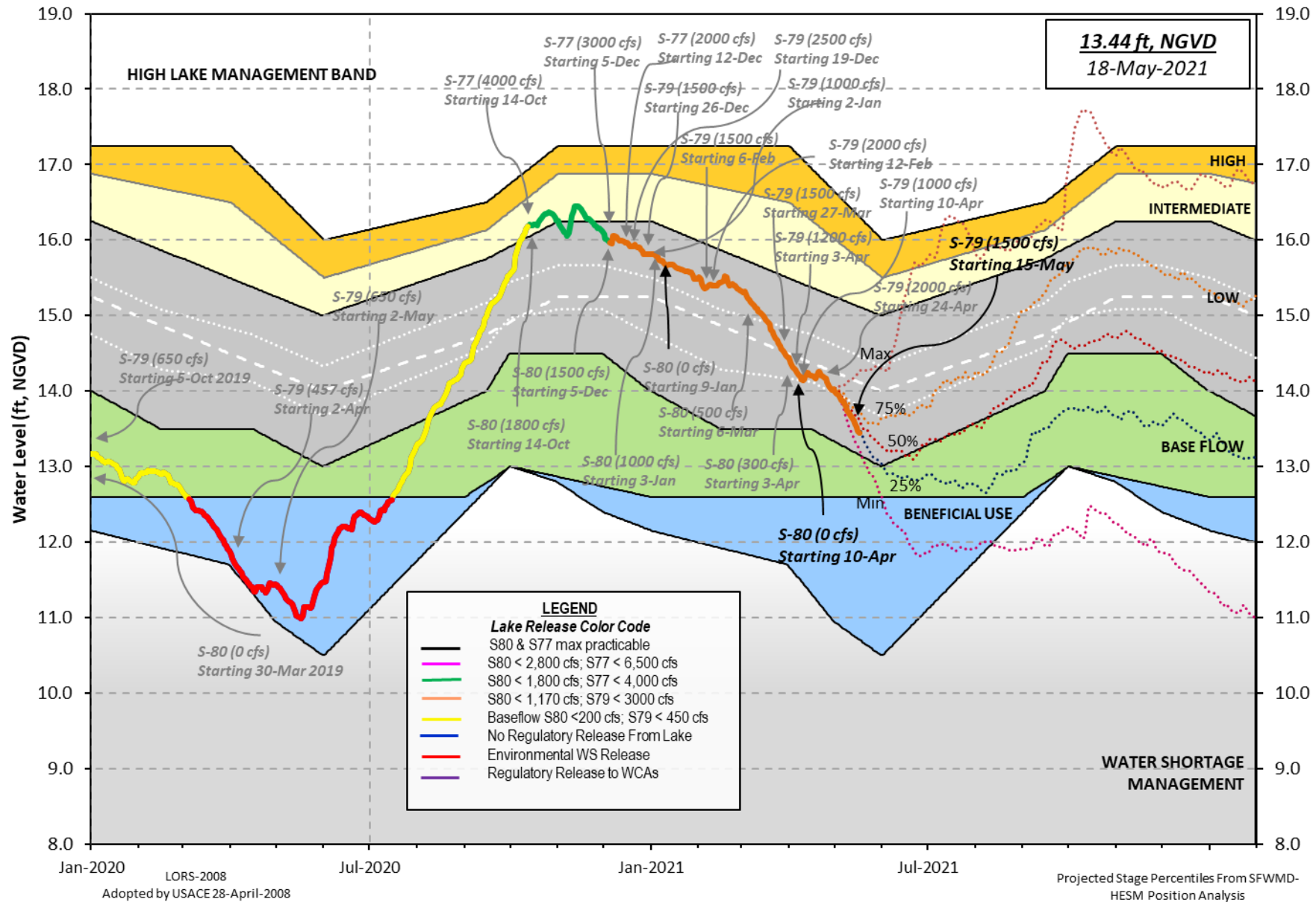
Part D: Establish Allowable Lake Okeechobee Releases to Tide (Estuaries)

*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 16 MAY 2021

Okeechobee Lake Regulation	Elevation (ft-NGVD)	Last Year (ft-NGVD)	2YRS Ago (ft-NGVD)
*Okeechobee Lake Elevation	13.47	11.01	11.28 (Official Elv)
Bottom of High Lake Mngmt= 16.33 Top of Water Short Mngmt= 10.72			
Currently in Operational Management Band			

Simulated Average LORS2008 [1965-2000]	12.10
Difference from Average LORS2008	1.37

16MAY (1965-2007) Period of Record Average	13.29
Difference from POR Average	0.18

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1  7.41'
 ++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2  5.61'
 Bridge Clearance = 50.29'

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

L001	L005	L006	LZ40	S4	S352	S308	S133
13.28	13.62	13.52	13.44	13.74	13.62	13.38	13.20

*Combination Okeechobee Avg-Daily Lake Average = 13.47
 (*See Note)

Okeechobee Inflows (cfs):

S65E	523	S65EX1	0	Fisheating Cr	2
S154	0	S191	0	S135 Pumps	0
S84	0	S133 Pumps	0	S2 Pumps	0
S84X	0	S127 Pumps	0	S3 Pumps	0
S71	0	S129 Pumps	0	S4 Pumps	0
S72	0	S131 Pumps	0	C5	0
Total Inflows:		525			

Okeechobee Outflows (cfs):

S135 Culverts	0	S354	1042	S77	778
S127 Culverts	0	S351	1086	S308	0
S129 Culverts	0	S352	328		
S131 Culverts	0	L8 Canal Pt	-NR-		
Total Outflows:		3235			

****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	0.23	S308	0.30
Average Pan Evap x 0.75 Pan Coefficient = 0.20" = 0.02'			

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 -10436 cfs or -20700 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:	13.16	13.20	0	0	0	0	0	0	0	(cfs)	
S193:											
S191:	18.24	13.20	0	0.0	0.0	0.0					
S135 Pumps:	12.65	13.23	0	0	0	0	0			(cfs)	
S135 Culverts:			0	0.0	0.0						
North West Shore											
S65E:	20.96	13.04	523	0.0	0.0	0.0	0.6	0.7	0.0		
S65EX1:	20.96	13.04	0								
S127 Pumps:	13.19	13.28	0	0	0	0	0	0	(cfs)		
S127 Culvert:			0	0.0							
S129 Pumps:	12.76	13.54	0	0	0	0			(cfs)		
S129 Culvert:			0	0.0							
S131 Pumps:	13.03	13.52	0	0	0				(cfs)		
S131 Culvert:			0								
Fisheating Creek											
nr Palmdale		28.07	2								
nr Lakeport											
C5:		-NR-	0	-NR-	-NR-	-NR-					
South Shore											
S4 Pumps:	11.31	13.62	0	0	0	0			(cfs)		
S169:		-NR-	-NR-	1.8	-NR-	-NR-					
S310:	13.60		137								
S3 Pumps:	10.78	13.59	0	0	0	0			(cfs)		
S354:	13.59	10.78	1042	1.9	2.1						
S2 Pumps:	10.52	-NR-	0	0	0	0	0		(cfs)		
S351:	-NR-	10.52	1086	1.8	1.5	1.8					
S352:	13.61	10.68	328	0.7	0.6						
C10A:	-NR-	13.32		8.0	8.0	8.0	0.0	0.0			
L8 Canal PT			-NR-								

S351 and S352 Temporary Pumps/S354 Spillway

S351:	10.52	-NR-	1086	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-
S352:	10.68	13.61	328	-NR-	-NR-	-NR-	-NR-		
S354:	10.78	13.59	1042	-NR-	-NR-	-NR-	-NR-		

Caloosahatchee River (S77, S78, S79)

S47B:	13.52	12.14		0.0	0.0		
S47D:	12.15	11.09	0	0.0			
S77:							
Spillway and Sector Preferred Flow:							
	13.49	10.96	771	0.5	0.5	2.5	0.5
Flow Due to Lockages+:			7				

S78:

Spillway and Sector Flow:

10.99	2.99	501	0.5	0.0	0.0	1.0
Flow Due to Lockages+:		26				

S79:

Spillway and Sector Flow:

3.22	0.69	583	0.0	0.0	0.0	1.0	1.0	0.0	0.0	0.0
Flow Due to Lockages+:		16								
Percent of flow from S77		132%								
Chloride (ppm)		0								

St. Lucie Canal (S308, S80)

S308:

Spillway and Sector Preferred Flow:

13.39	13.21	0	0.0	0.0	0.0	0.0
Flow Due to Lockages+:		0				

S153:	19.05	12.88	0	0.0	0.0
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S80:

Spillway and Sector Flow:

13.19	1.24	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Flow Due to Lockages+:		24								
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 Speed (Deg) (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:	2.08	2.09	2.11	61 7
S78:	15.37	15.37	15.59	61 1
S79:	4.93	4.93	5.50	312 6
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:	20.49	20.49	20.61	75 3
S80:	1.38	1.38	1.95	97 2
Okeechobee Average (Sites S78, S79 and S80 not included)	11.28	1.74	1.75	

Oke Nexrad Basin Avg	-NR-	0.00	0.00	

Okeechobee Lake Elevations	16 MAY 2021	13.47	Difference from 16MAY21
16MAY21 -1 Day =	15 MAY 2021	13.52	0.05

16MAY21	-2 Days =	14 MAY 2021	13.57	0.10
16MAY21	-3 Days =	13 MAY 2021	13.61	0.14
16MAY21	-4 Days =	12 MAY 2021	13.65	0.18
16MAY21	-5 Days =	11 MAY 2021	13.68	0.21
16MAY21	-6 Days =	10 MAY 2021	13.71	0.24
16MAY21	-7 Days =	09 MAY 2021	13.74	0.27
16MAY21	-30 Days =	16 APR 2021	14.20	0.73
16MAY21	-1 Year =	16 MAY 2020	11.01	-2.46
16MAY21	-2 Year =	16 MAY 2019	11.28	-2.19

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
16MAY21	Today =	16 MAY 2021	-3474	MON	-7196
16MAY21	-1 Day =	15 MAY 2021	-2928	SUN	-7770
16MAY21	-2 Days =	14 MAY 2021	-2630	SAT	-6273
16MAY21	-3 Days =	13 MAY 2021	-1469	FRI	-3932
16MAY21	-4 Days =	12 MAY 2021	-1084	THU	-2013
16MAY21	-5 Days =	11 MAY 2021	-1196	WED	-1782
16MAY21	-6 Days =	10 MAY 2021	-1453	TUE	-1564
16MAY21	-7 Days =	09 MAY 2021	-1814	MON	-6175
16MAY21	-8 Days =	08 MAY 2021	-1282	SUN	-6520
16MAY21	-9 Days =	07 MAY 2021	-736	SAT	-2872
16MAY21	-10 Days =	06 MAY 2021	-616	FRI	1378
16MAY21	-11 Days =	05 MAY 2021	-1265	THU	-3513
16MAY21	-12 Days =	04 MAY 2021	-1153	WED	-1019
16MAY21	-13 Days =	03 MAY 2021	-5	TUE	615

S65E

Average Flow over previous 14 days					Avg-Daily Flow
16MAY21	Today=	16 MAY 2021	571	MON	592
16MAY21	-1 Day =	15 MAY 2021	596	SUN	513
16MAY21	-2 Days =	14 MAY 2021	617	SAT	463
16MAY21	-3 Days =	13 MAY 2021	658	FRI	536
16MAY21	-4 Days =	12 MAY 2021	691	THU	639
16MAY21	-5 Days =	11 MAY 2021	718	WED	636
16MAY21	-6 Days =	10 MAY 2021	746	TUE	718
16MAY21	-7 Days =	09 MAY 2021	770	MON	662
16MAY21	-8 Days =	08 MAY 2021	799	SUN	706
16MAY21	-9 Days =	07 MAY 2021	824	SAT	758
16MAY21	-10 Days =	06 MAY 2021	846	FRI	437
16MAY21	-11 Days =	05 MAY 2021	894	THU	0
16MAY21	-12 Days =	04 MAY 2021	976	WED	325
16MAY21	-13 Days =	03 MAY 2021	1026	TUE	1003

S65EX1

Average Flow over previous 14 days					Avg-Daily Flow
16MAY21	Today=	16 MAY 2021	149	MON	0
16MAY21	-1 Day =	15 MAY 2021	149	SUN	0
16MAY21	-2 Days =	14 MAY 2021	149	SAT	170
16MAY21	-3 Days =	13 MAY 2021	137	FRI	0
16MAY21	-4 Days =	12 MAY 2021	137	THU	0
16MAY21	-5 Days =	11 MAY 2021	137	WED	0
16MAY21	-6 Days =	10 MAY 2021	137	TUE	0
16MAY21	-7 Days =	09 MAY 2021	137	MON	0
16MAY21	-8 Days =	08 MAY 2021	137	SUN	0
16MAY21	-9 Days =	07 MAY 2021	137	SAT	0
16MAY21	-10 Days =	06 MAY 2021	137	FRI	357
16MAY21	-11 Days =	05 MAY 2021	111	THU	911
16MAY21	-12 Days =	04 MAY 2021	46	WED	646
16MAY21	-13 Days =	03 MAY 2021	16	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)
16 MAY 2021	1538	1126	1043	1189
15 MAY 2021	1533	2266	1515	2198
14 MAY 2021	1560	3318	2617	4125
13 MAY 2021	3733	3084	2425	3924
12 MAY 2021	2585	2916	2489	3992
11 MAY 2021	3636	4300	3096	3882
10 MAY 2021	4586	5019	3224	6074
09 MAY 2021	5021	5018	3816	3996
08 MAY 2021	4392	4193	3419	4416
07 MAY 2021	3881	4071	2944	4216
06 MAY 2021	3938	4189	2913	4388
05 MAY 2021	4097	4207	2876	4235
04 MAY 2021	3743	3827	2855	4103
03 MAY 2021	3303	3503	2897	4021

	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)
16 MAY 2021	272	2154	651	2066	-NR-
15 MAY 2021	256	1592	466	1938	-NR-
14 MAY 2021	319	612	369	1626	-NR-
13 MAY 2021	374	2030	770	2243	-NR-
12 MAY 2021	288	2393	1020	2165	-NR-
11 MAY 2021	293	2356	861	1833	-NR-
10 MAY 2021	259	1827	870	1701	-NR-
09 MAY 2021	247	1498	730	1423	-NR-
08 MAY 2021	137	1754	671	1240	-NR-
07 MAY 2021	350	974	657	1022	-NR-
06 MAY 2021	280	1086	624	746	-NR-
05 MAY 2021	295	2363	1575	1142	-NR-
04 MAY 2021	367	2313	1580	2226	-NR-
03 MAY 2021	242	2211	1362	2456	-NR-

	S-308	Below S-308	S-80
	Discharge	Discharge	Discharge
	(ALL DAY)	(ALL-DAY)	(ALL-DAY)
DATE	(AC-FT)	(AC-FT)	(AC-FT)
16 MAY 2021	0	118	47
15 MAY 2021	58	228	44
14 MAY 2021	150	267	56
13 MAY 2021	263	352	55
12 MAY 2021	363	252	56
11 MAY 2021	382	306	49
10 MAY 2021	401	367	53
09 MAY 2021	1	289	40
08 MAY 2021	1	70	54
07 MAY 2021	287	97	47
06 MAY 2021	346	236	56
05 MAY 2021	431	-NR-	53
04 MAY 2021	484	445	41
03 MAY 2021	116	-26	40

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

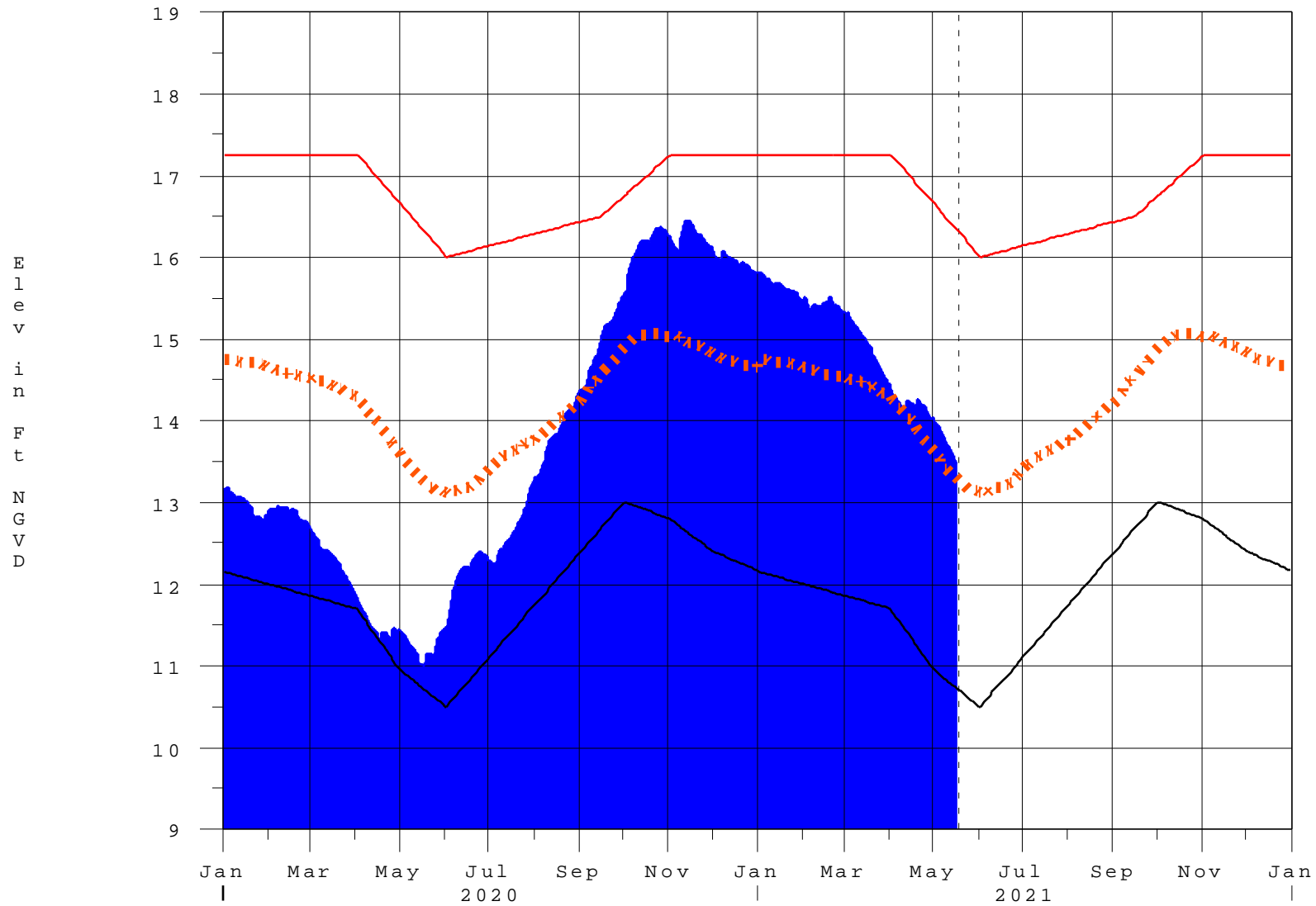
(I) - Flows preceeded by "I" signify an instantaneous flow computed from the single value reported for the day

-
- * 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 Okeechobee 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 17MAY2021 @ 23:39 ** Preliminary Data - Subject to Revision **

Lake Okeechobee

17MAY21 17:17:36



- 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