

Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 5/31/2021 (ENSO Condition: Final 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	2.16	Very Wet	2.26	Very Wet	3.34	Very Wet
Multi Seasonal (May-Apr)	N/A	N/A	2.72	Wet	2.56	Wet	3.98	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:

-4232 cfs 14-day running average for Lake Okeechobee Net Inflow through 5/30/2021. According to the classification in Tributary Hydrologic Conditions table, this condition is Dry.

-2.06 for Palmer Drought Index on 5/29/2021. 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 5/31/2021:

Lake Okeechobee Stage: **12.81 feet**

Lake Okeechobee Management Zone/Band		Bottom Elevation (feet, NGVD)	Current Lake Stage
High Lake Management Band		16.04	
Operational Band	High sub-band	15.53	
	Intermediate sub-band	15.01	
	Low sub-band	13.01	
Base Flow sub-band		12.60	← 12.81 ft
Beneficial Use sub-band		10.51	
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.

Adaptive Protocol's Release Guidance: Caloosahatchee Estuary

No S-77 release to the Estuary unless the Governing Board recommends otherwise.

LORS2008 Implementation on 5/31/2021 (ENSO Condition- Final La Nina Advisory):

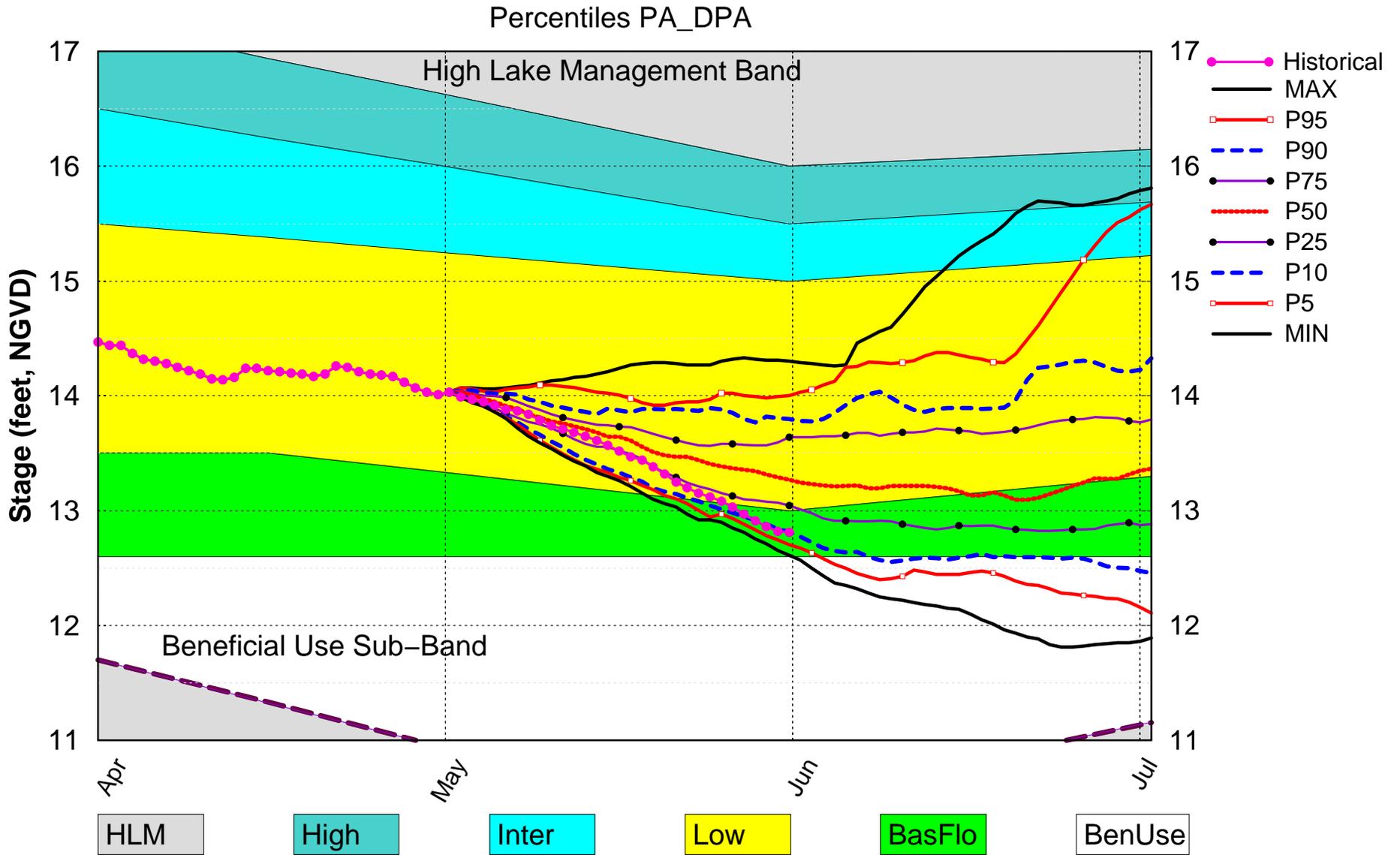
Status for week ending 5/31/2021:

Water Supply Risk Evaluation

Area	Indicator	Value	Color Coded Scoring Scheme
LOK	Projected LOK Stage for the next two months	Base Flow Sub-band	M
	Palmer Drought Index for LOK Tributary Conditions	-2.06 (Extremely Dry)	H
	CPC Precipitation Outlook	1 month: Above Normal	L
		3 months: Above Normal	L
	LOK Seasonal Net Inflow Outlook	2.26 ft	L
	ENSO Forecast	Normal to Extremely Wet	L
	LOK Multi-Seasonal Net Inflow Outlook	2.56 ft	M
		Normal	M
WCAs	WCA 1: Site 1-8C	Above Line 1 (15.31 ft)	L
	WCA 2A: Site S-11B HW	Below Line 2 (10.28 ft)	H
	WCA-3A: 3 Station Average (Site 63, 64 and 65)	Line 1- Line 2 (8.51 ft)	M
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.

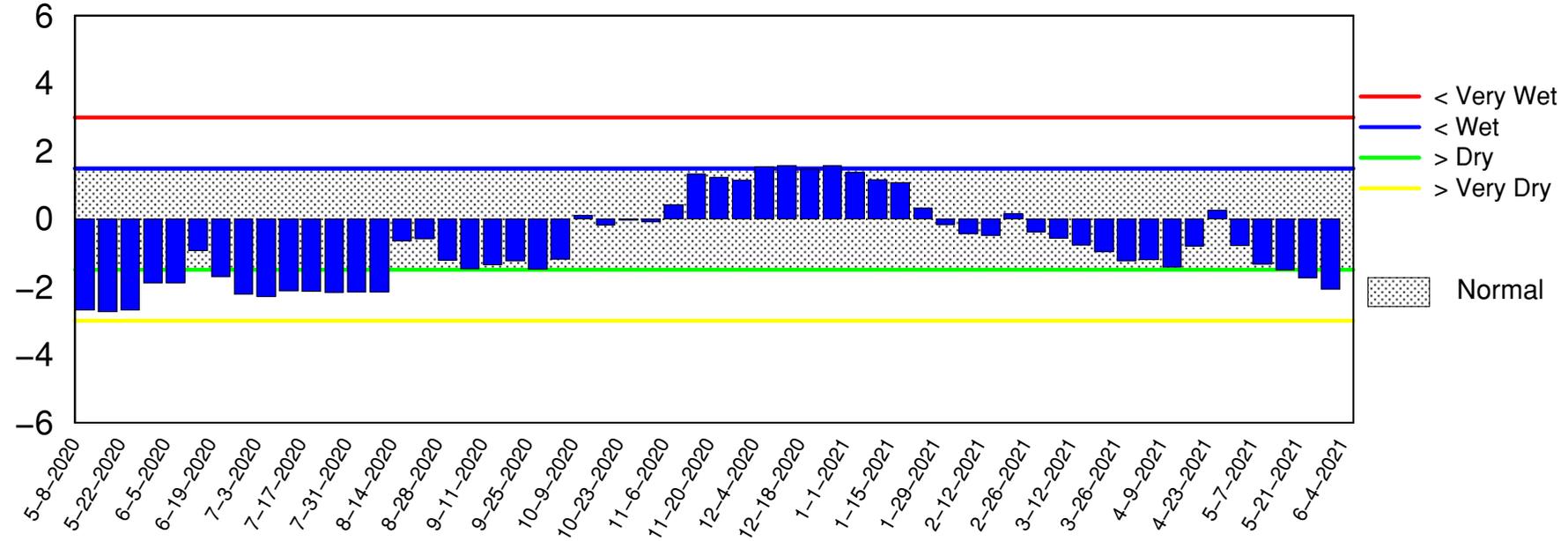
Lake Okeechobee SFWMM May 2021 Position Analysis



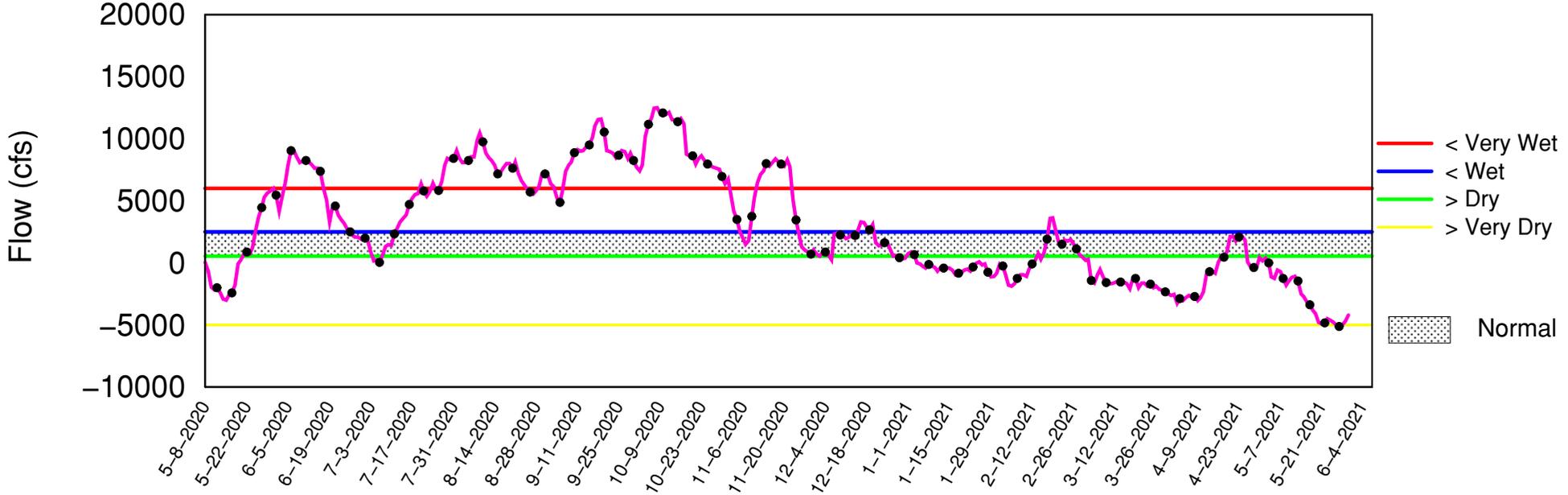
(See assumptions on the Position Analysis Results website)

Tributary Basin Condition Indicators as of May 31 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

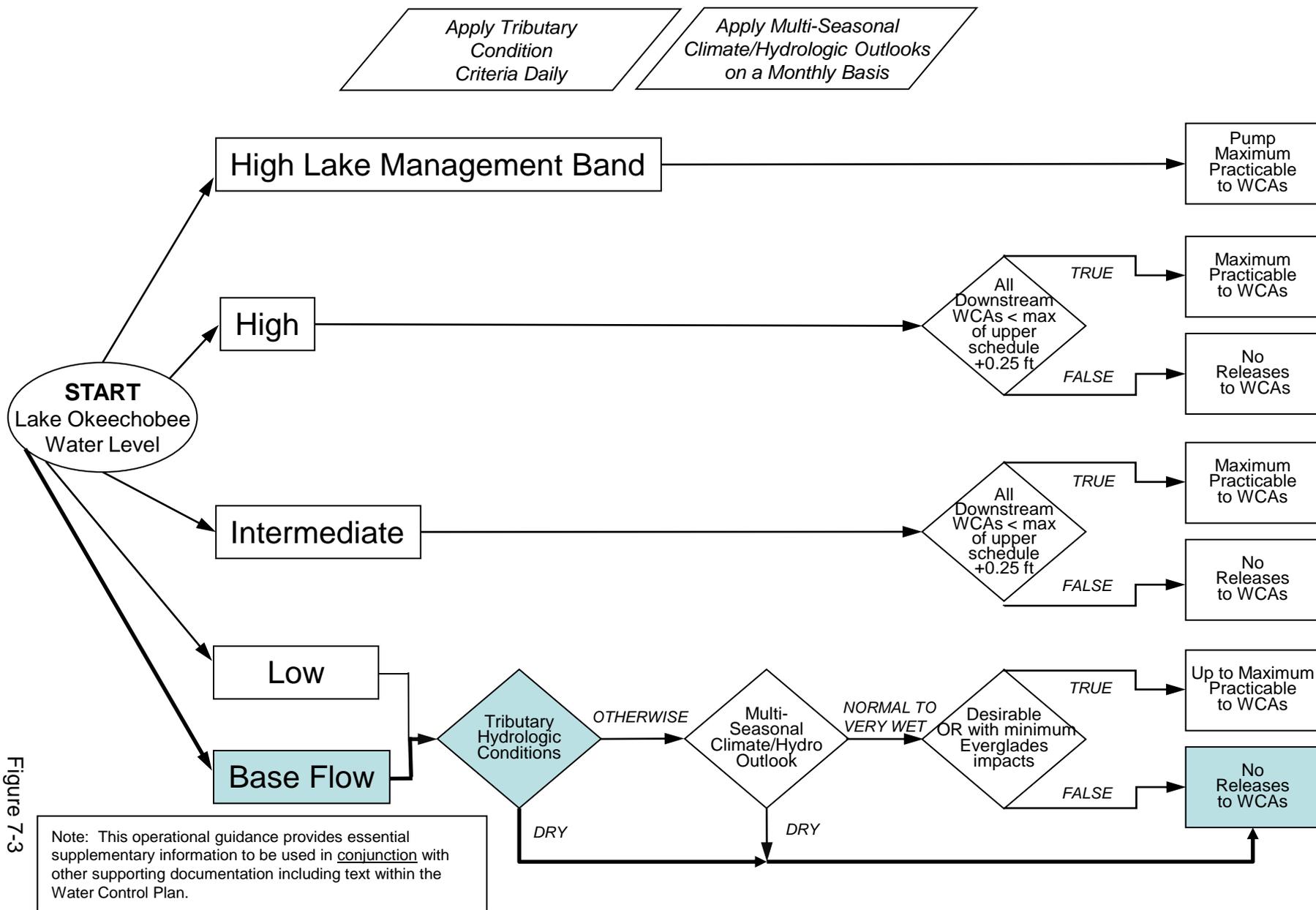


Figure 7-3

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

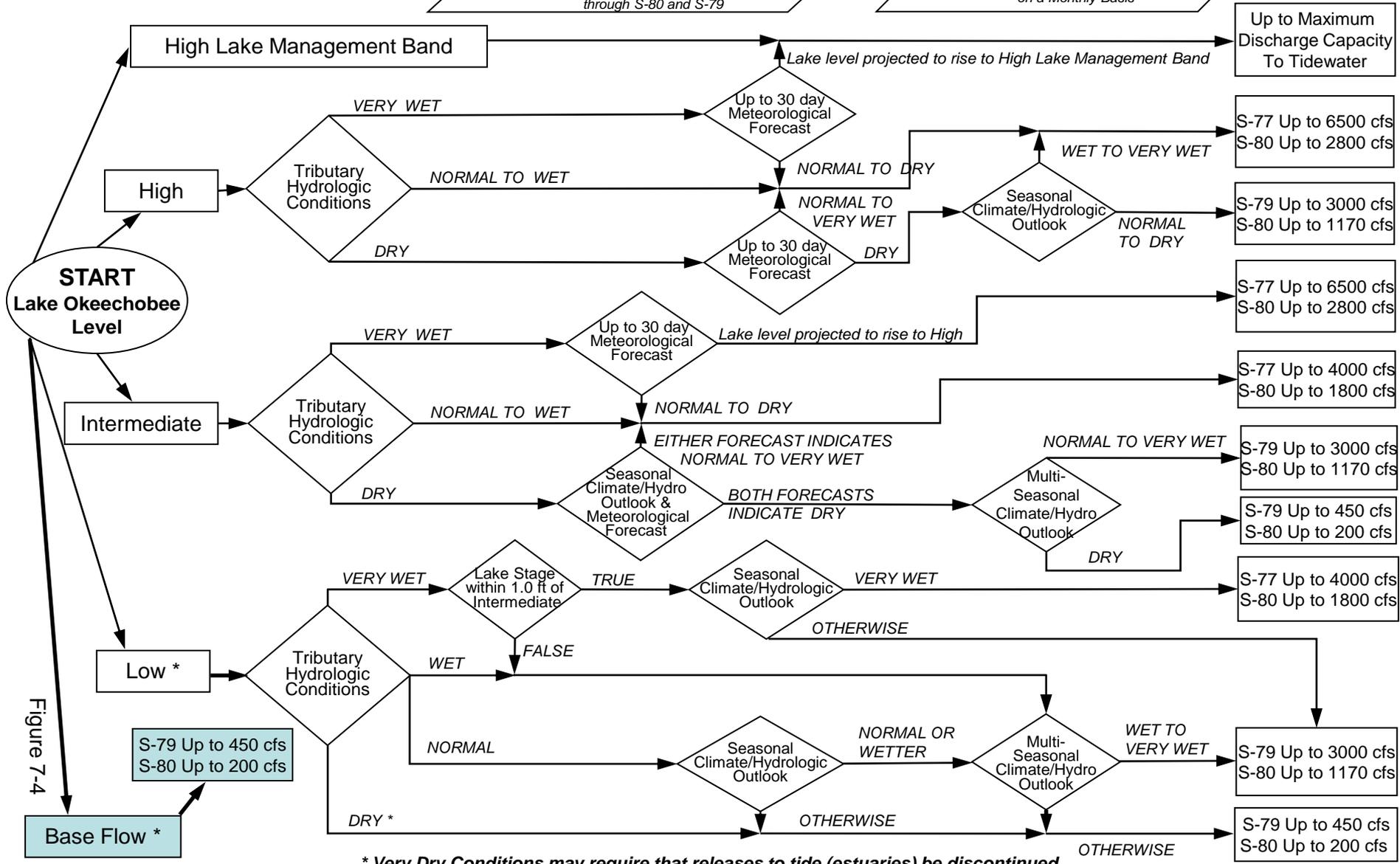
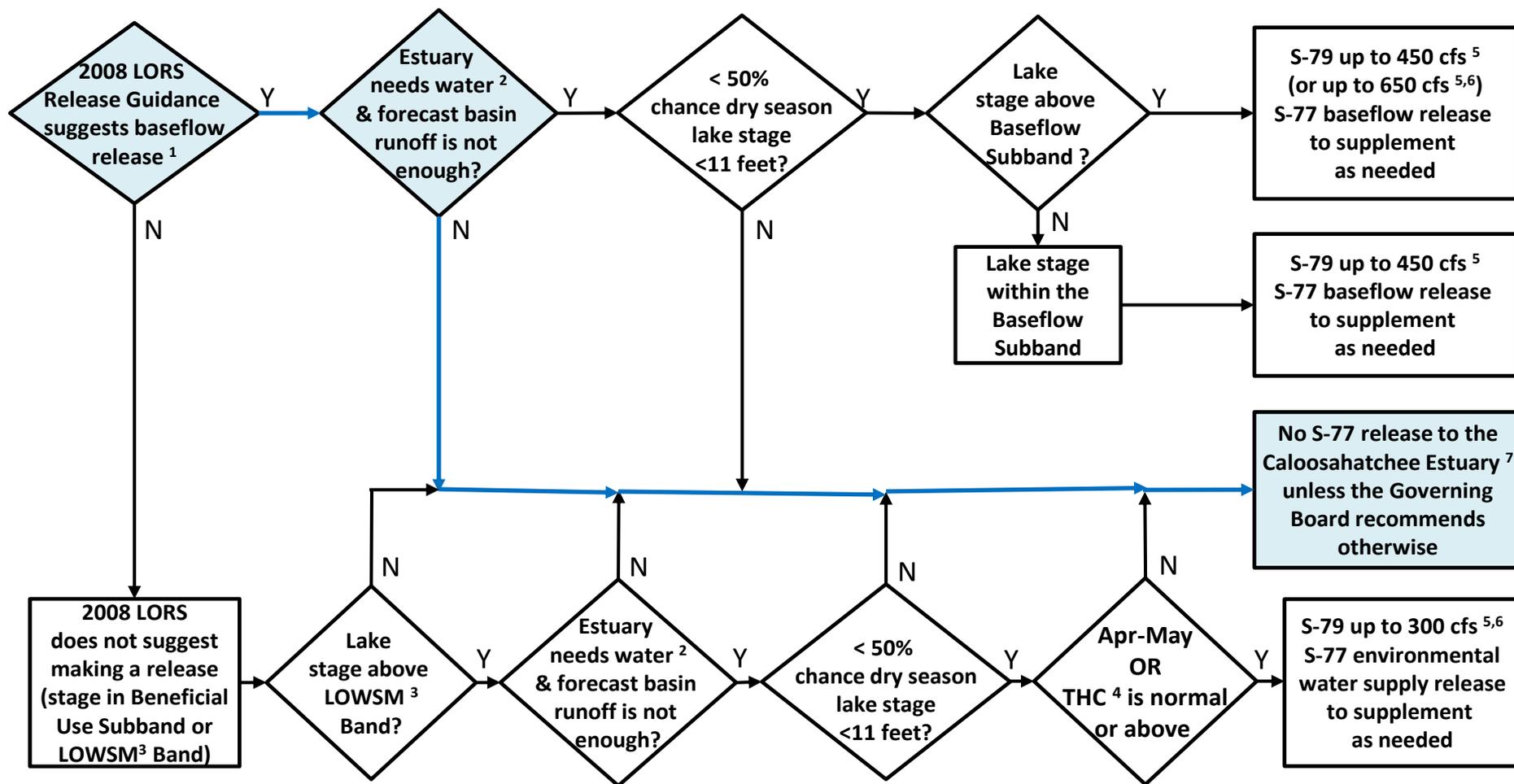


Figure 7-4

* Very Dry Conditions may require that releases to tide (estuaries) be discontinued (NORMAL TO DRY)

Flowchart to Guide Recommendations for Lake Okeechobee Releases to the Caloosahatchee Estuary for 2008 LORS Baseflow & for Environmental Water Supply (revised 9-Aug-2012)



¹The 2008 LORS Release Guidance (Part D) can suggest baseflow releases in the Intermediate, Low, or Baseflow Subbands.

²Estuary “needs” water when the 30-day moving average salinity at I-75 bridge is projected to exceed 5 practical salinity units (psu) within 2 weeks.

³LOWSM = Lake Okeechobee Water Shortage Management.

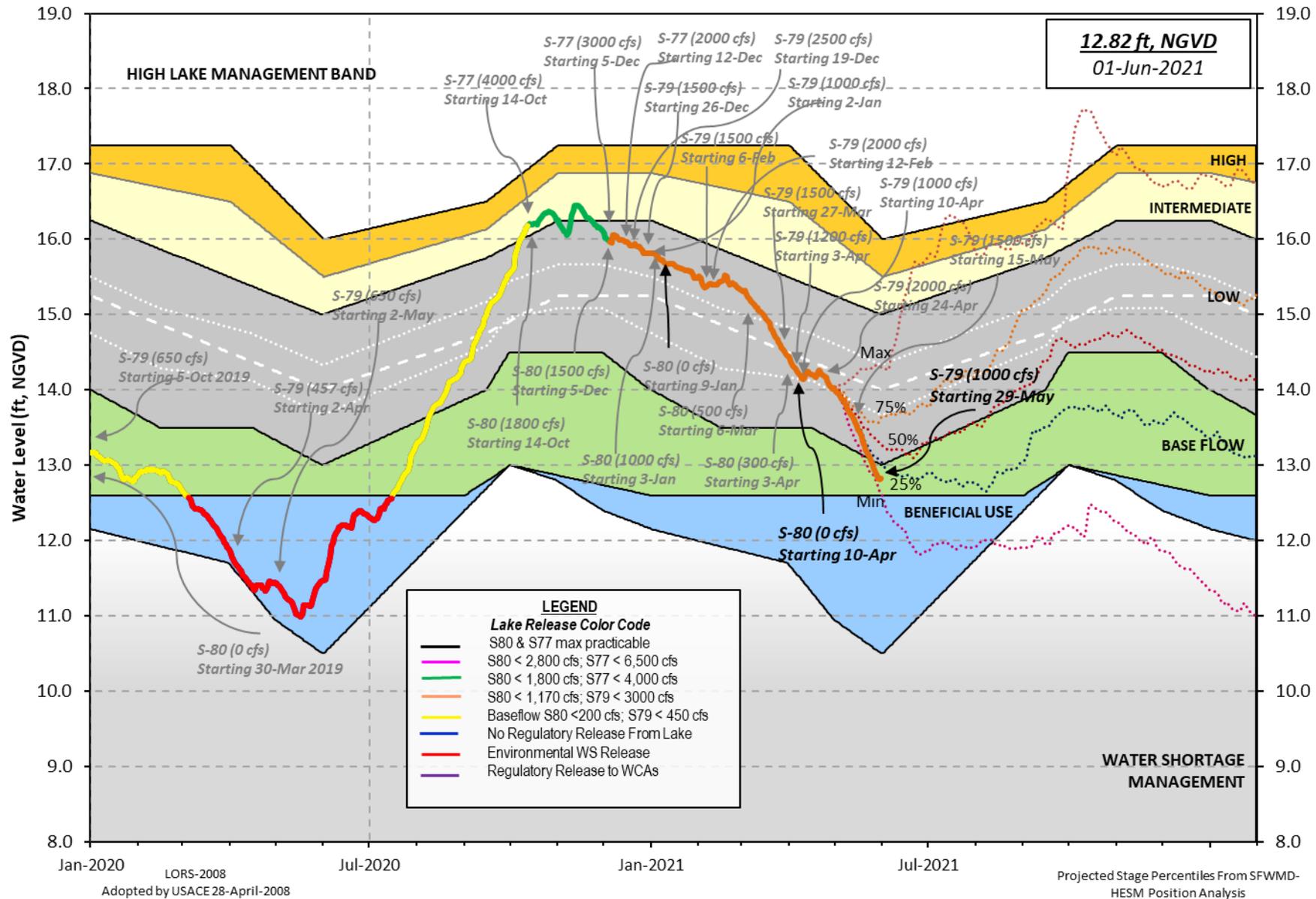
⁴Tributary Hydrologic Condition (THC) is based on classification of Lake Okeechobee Net Inflow and Palmer Index.

⁵Can release less than the “up to” limit if lower release is sufficient to reach or sustain desired estuary salinity; cfs = cubic feet per second.

⁶After reviewing conditions in Water Conservation Areas (WCAs), Stormwater Treatment Areas (STAs), ENP, St. Lucie Estuary and Lake Okeechobee.

⁷Should this condition be reached, the Governing Board will be briefed at their next regularly scheduled meeting as part of the State of the Water Resources agenda item

Lake Okeechobee Water Level History and Projected Stages



is equal to -NR-
 Lake Okeechobee (Change in Storage) Flow is -1916 cfs or -3800 AC-FT

	Headwater	Tailwater	Disch (cfs)	----- Gate Positions -----							
	Elevation (ft-msl)	Elevation (ft-msl)		#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:	12.86	12.58	0	0	0	0	0	0	0	0	(cfs)
S193:											
S191:	17.94	12.66	0	0.0	0.0	0.0					
S135 Pumps:	11.92	12.61	0	0	0	0	0				(cfs)
S135 Culverts:			0	0.0	0.0						
North West Shore											
S65E:	21.00	13.35	284	0.0	0.0	0.3	0.4	0.0	0.0		
S65EX1:	21.00	13.35	0								
S127 Pumps:	12.68	12.90	0	0	0	0	0	0			(cfs)
S127 Culvert:			0	0.0							
S129 Pumps:	12.38	12.76	0	0	0	0					(cfs)
S129 Culvert:			0	0.0							
S131 Pumps:	13.06	12.82	0	0	0						(cfs)
S131 Culvert:			0								
Fisheating Creek											
nr Palmdale		27.67	0								
nr Lakeport											
C5:		-NR-	0	-NR-	-NR-	-NR-					
South Shore											
S4 Pumps:	12.69	12.77	0	-NR-	-NR-	-NR-					(cfs)
S169:		-NR-	-NR-	5.0	-NR-	-NR-					
S310:	12.69		148								
S3 Pumps:	9.64	12.85	129	0	0	66					(cfs)
S354:	12.85	9.64	931	3.3	3.3						
S2 Pumps:	9.58	-NR-	0	0	0	0	0				(cfs)
S351:	-NR-	9.58	872	1.8	1.8	1.8					
S352:	12.87	10.16	321	1.4	1.4						
C10A:	-NR-	12.64		8.0	8.0	8.0	0.0	0.0			
L8 Canal PT			-NR-								

S351 and S352 Temporary Pumps/S354 Spillway

S351:	9.58	-NR-	872	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-
S352:	10.16	12.87	321	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-
S354:	9.64	12.85	931	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-

Caloosahatchee River (S77, S78, S79)

S47B:	12.62	12.51		0.0	0.0				
S47D:	12.54	10.96	0	0.0					
S77:									
Spillway and Sector Preferred Flow:	12.55	10.88	794	0.0	2.5	2.5	0.0		
Flow Due to Lockages+:			3						

S78:

Spillway and Sector Flow:
 10.89 3.03 402 1.0 0.0 0.0 0.5
 Flow Due to Lockages+: 16

S79:

Spillway and Sector Flow:
 3.11 1.20 753 1.0 1.0 1.5 0.0 0.0 0.0 0.0 0.0
 Flow Due to Lockages+: 10
 Percent of flow from S77 105%
 Chloride (ppm) 0

St. Lucie Canal (S308, S80)

S308:

Spillway and Sector Preferred Flow:
 12.73 12.76 0 0.0 0.0 0.0 0.0
 Flow Due to Lockages+: 1

S153: 18.78 12.36 0 0.0 0.0

S80:

Spillway and Sector Flow:
 12.55 0.15 0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
 Flow Due to Lockages+: 11
 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 (Deg)	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	292	0
S78:	16.00	16.00	16.00	20	1
S79:	4.96	4.96	4.96	2	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:	20.99	20.99	20.99	81	5
S80:	1.49	1.49	1.49	344	2
Okeechobee Average (Sites S78, S79 and S80 not included)	10.49	1.61	1.61		

Oke Nexrad Basin Avg	-NR-	0.00	0.00		

Okeechobee Lake Elevations 30 MAY 2021 12.81 Difference from 30MAY21
 30MAY21 -1 Day = 29 MAY 2021 12.82 0.01

30MAY21	-2 Days =	28 MAY 2021	12.86	0.05
30MAY21	-3 Days =	27 MAY 2021	12.91	0.10
30MAY21	-4 Days =	26 MAY 2021	12.97	0.16
30MAY21	-5 Days =	25 MAY 2021	13.03	0.22
30MAY21	-6 Days =	24 MAY 2021	13.08	0.27
30MAY21	-7 Days =	23 MAY 2021	13.12	0.31
30MAY21	-30 Days =	30 APR 2021	14.03	1.22
30MAY21	-1 Year =	30 MAY 2020	11.45	-1.36
30MAY21	-2 Year =	30 MAY 2019	10.89	-1.92

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
30MAY21	Today =	30 MAY 2021	-4232 MON	1106
30MAY21	-1 Day =	29 MAY 2021	-4825 SUN	-2192
30MAY21	-2 Days =	28 MAY 2021	-5223 SAT	-3236
30MAY21	-3 Days =	27 MAY 2021	-5440 FRI	-4925
30MAY21	-4 Days =	26 MAY 2021	-5369 THU	-5667
30MAY21	-5 Days =	25 MAY 2021	-5108 WED	-3921
30MAY21	-6 Days =	24 MAY 2021	-4955 TUE	-3225
30MAY21	-7 Days =	23 MAY 2021	-4837 MON	-1890
30MAY21	-8 Days =	22 MAY 2021	-5143 SUN	-4996
30MAY21	-9 Days =	21 MAY 2021	-5252 SAT	-4478
30MAY21	-10 Days =	20 MAY 2021	-5137 FRI	-8862
30MAY21	-11 Days =	19 MAY 2021	-4406 THU	-6986
30MAY21	-12 Days =	18 MAY 2021	-4158 WED	-7322
30MAY21	-13 Days =	17 MAY 2021	-3707 TUE	-2651

S65E

		Average Flow over previous 14 days		Avg-Daily Flow
30MAY21	Today=	30 MAY 2021	355 MON	329
30MAY21	-1 Day =	29 MAY 2021	374 SUN	326
30MAY21	-2 Days =	28 MAY 2021	386 SAT	286
30MAY21	-3 Days =	27 MAY 2021	400 FRI	252
30MAY21	-4 Days =	26 MAY 2021	420 THU	280
30MAY21	-5 Days =	25 MAY 2021	446 WED	272
30MAY21	-6 Days =	24 MAY 2021	472 TUE	276
30MAY21	-7 Days =	23 MAY 2021	503 MON	280
30MAY21	-8 Days =	22 MAY 2021	531 SUN	342
30MAY21	-9 Days =	21 MAY 2021	557 SAT	414
30MAY21	-10 Days =	20 MAY 2021	581 FRI	384
30MAY21	-11 Days =	19 MAY 2021	585 THU	441
30MAY21	-12 Days =	18 MAY 2021	553 WED	558
30MAY21	-13 Days =	17 MAY 2021	537 TUE	527

S65EX1

		Average Flow over previous 14 days		Avg-Daily Flow
30MAY21	Today=	30 MAY 2021	0 MON	0
30MAY21	-1 Day =	29 MAY 2021	0 SUN	0
30MAY21	-2 Days =	28 MAY 2021	0 SAT	0
30MAY21	-3 Days =	27 MAY 2021	12 FRI	0
30MAY21	-4 Days =	26 MAY 2021	12 THU	0
30MAY21	-5 Days =	25 MAY 2021	12 WED	0
30MAY21	-6 Days =	24 MAY 2021	12 TUE	0
30MAY21	-7 Days =	23 MAY 2021	12 MON	0
30MAY21	-8 Days =	22 MAY 2021	12 SUN	0
30MAY21	-9 Days =	21 MAY 2021	12 SAT	0
30MAY21	-10 Days =	20 MAY 2021	12 FRI	0
30MAY21	-11 Days =	19 MAY 2021	38 THU	0
30MAY21	-12 Days =	18 MAY 2021	103 WED	0
30MAY21	-13 Days =	17 MAY 2021	149 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)
30 MAY 2021	1591	1596	835	1544
29 MAY 2021	2222	2447	1110	1827
28 MAY 2021	3269	3533	2277	3458
27 MAY 2021	3787	4199	2509	4262
26 MAY 2021	4479	4769	3235	4721
25 MAY 2021	4236	4481	2800	3920
24 MAY 2021	2910	2904	2058	2276
23 MAY 2021	1705	1426	966	1124
22 MAY 2021	4088	3416	1673	1599
21 MAY 2021	4093	4282	3016	3422
20 MAY 2021	4570	4798	2999	4627
19 MAY 2021	5359	5608	3998	4928
18 MAY 2021	4381	4493	2961	3631
17 MAY 2021	2047	1727	1705	2534

	S-310	S-351	S-352	S-354	L8 Canal Pt
	Discharge	Discharge	Discharge	Discharge	Discharge
	(ALL DAY)				
DATE	(AC-FT)	(AC-FT)	(AC-FT)	(AC-FT)	(AC-FT)
30 MAY 2021	293	1729	637	1846	-NR-
29 MAY 2021	283	3903	1818	2447	-NR-
28 MAY 2021	569	4105	1999	2664	-NR-
27 MAY 2021	714	3995	2156	2947	-NR-
26 MAY 2021	580	3301	1980	2537	-NR-
25 MAY 2021	468	3805	1768	2649	-NR-
24 MAY 2021	393	2869	1705	2556	-NR-
23 MAY 2021	331	2672	1665	2274	-NR-
22 MAY 2021	287	2742	1592	2261	-NR-
21 MAY 2021	330	2771	1512	2920	-NR-
20 MAY 2021	420	2482	1226	3002	-NR-
19 MAY 2021	453	2497	932	2140	-NR-
18 MAY 2021	496	2631	909	2049	-NR-
17 MAY 2021	384	2351	631	1790	-NR-

	S-308	Below S-308	S-80
	Discharge	Discharge	Discharge
	(ALL DAY)	(ALL-DAY)	(ALL-DAY)
DATE	(AC-FT)	(AC-FT)	(AC-FT)
30 MAY 2021	1	-82	21
29 MAY 2021	170	-117	28
28 MAY 2021	222	90	39
27 MAY 2021	439	399	42
26 MAY 2021	520	697	46
25 MAY 2021	562	883	51
24 MAY 2021	249	230	55
23 MAY 2021	314	457	41
22 MAY 2021	176	396	33
21 MAY 2021	521	865	16
20 MAY 2021	290	788	19
19 MAY 2021	210	631	23
18 MAY 2021	178	483	30
17 MAY 2021	101	305	38

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

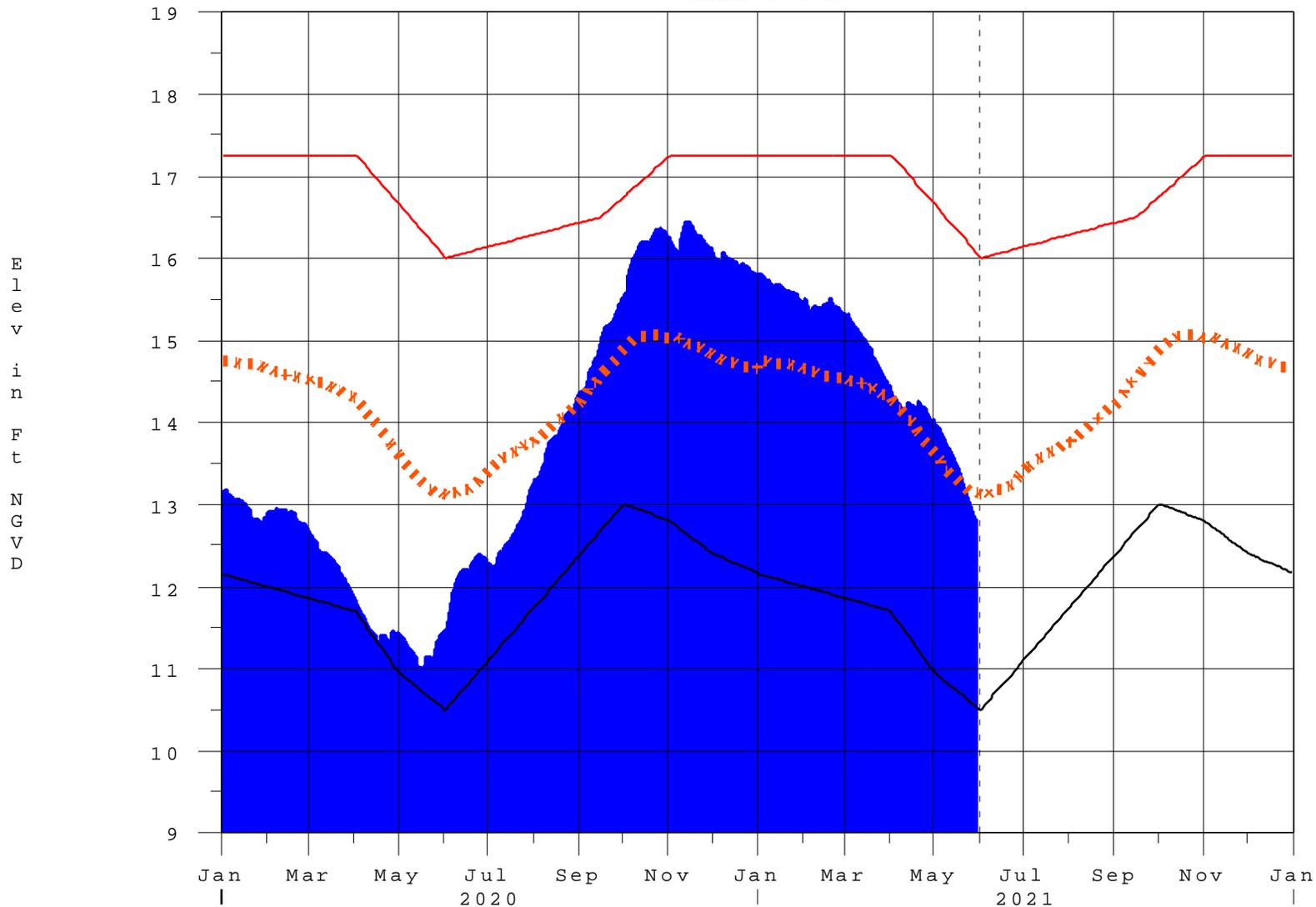
(I) - Flows preceeded by "I" signify an instantaneous flow computed from the single value reported for the day

-
- * 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 31MAY2021 @ 23:39 ** Preliminary Data - Subject to Revision **

Lake Okeechobee

31MAY21 23:45:26



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- 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

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[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