Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 6/18/2018 (ENSO Neutral Condition)

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 Neutral years[3] and a sub-sampling of warm years of the Atlantic Multi-decadal Oscillation (AMO) in combination with La Nina ENSO 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 ENSO Years[3]		Sub-sampling of AMO Warm + ENSO Years[4]	
	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition
Current (Jun-Nov)	N/A	N/A	2.74	Very Wet	3.16	Very Wet	2.37	Very Wet
Multi Seasonal (Jun-Apr)	N/A	N/A	3.22	Wet	3.85	Wet	2.01	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:

3696 cfs 14-day running average for Lake Okeechobee Net Inflow through 6/17/2018.
According to the classification in Tributary Hydrologic Conditions table, this condition is Wet.

1.96 for Palmer Index on 6/16/2018.
According to the classification in Tributary Hydrologic Conditions table, this condition is Wet.

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

LORS2008 Classification Tables:

Lake Okeechobee Stage on 6/18/2018

Lake Okeechobee Stage: **14.10 feet**

USACE Report for Lake Okeechobee

Lake Okeechobee Stage Hydrograph

Lake Okeechobee Management Zone/Band		Bottom Elevation (feet, NGVD)	Current Lake Stage
High Lake Management Band		16.08	
Operational Band	High sub-band	15.60	
	Intermediate sub-band	15.12	
	Low sub-band	13.16	← 14.10
Base Flow sub-band		12.60	
Beneficial Use sub-band		10.83	
Water Shortage Management Band			

Part C of LORS2008: Discharge to WCA's

Release Guidance Flow Chart Outcome: Up to maximum practicable releases to the WCAs if desirable or with minimum everglades impacts; otherwise no releases.

Part D of LORS2008: Discharge to Tidewater

Release Guidance Flow Chart Outcome: S-79 Up to 3000 cfs & S-80 Up to 1170 cfs.

Back to Lake Okeechobee Operations Main Page

Back to U.S. Army Corps of Engineers Homepage

LORS2008 Implementation on 6/18/2018 (ENSO Neutral Condition):

Status for week ending 6/18/2018:

District wide, Raindar rainfall was 1.31 inches for the week. Lake stage on 6/18/2018 was 14.10 ft, NGVD, down 0.08 ft from last week.

The updated June 2018 SFWMM Dynamic Position Analysis percentile graph for Lake Okeechobee show that the current lake stage is in the Low Flow Sub-Band.

The 2008 LORS Tributary Hydrologic Condition (THC) is classified as **Wet**. The PDSI indicates wet conditions and the LONIN is wet. The THC classification is based on the wetter of the two indices .

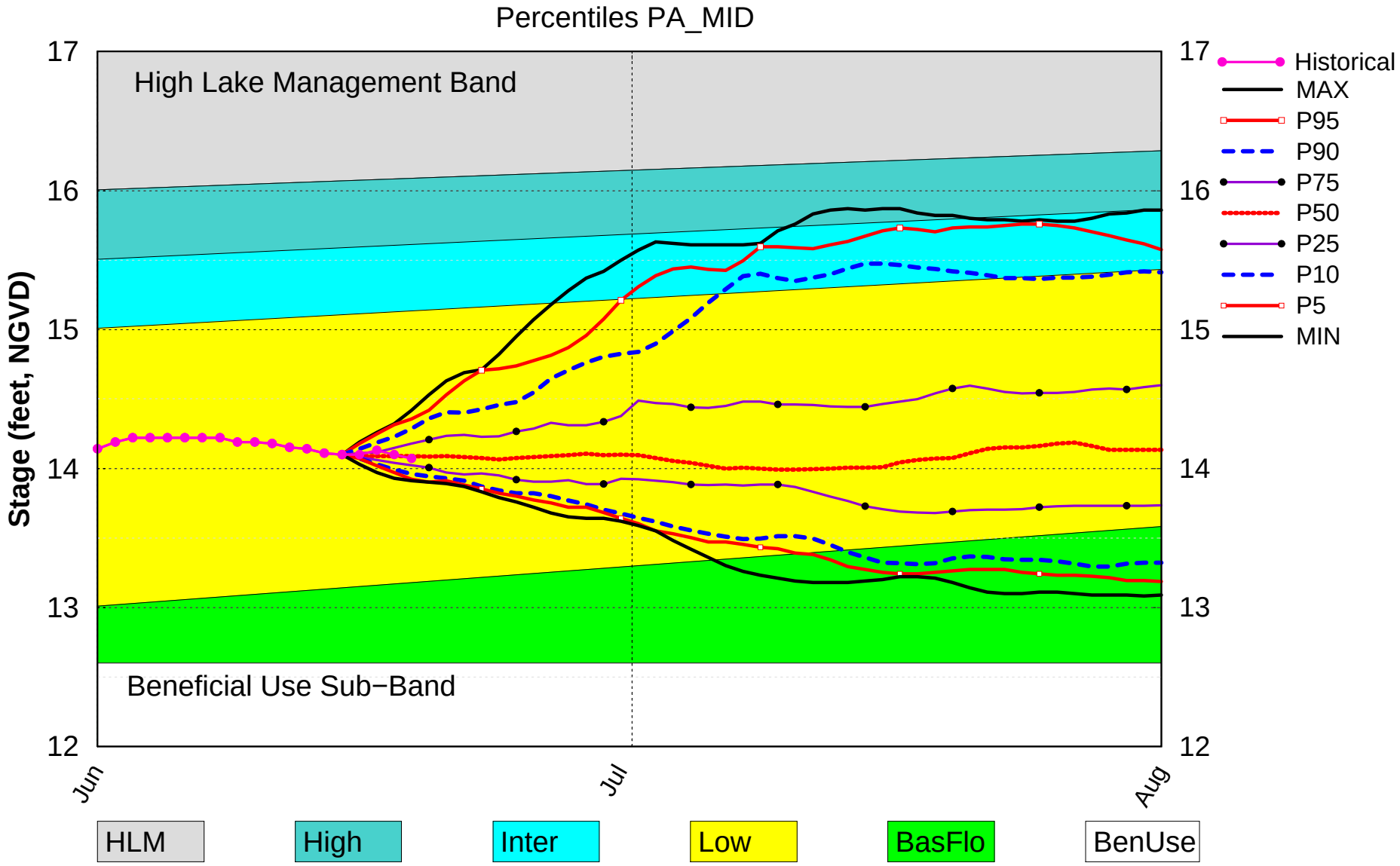
Water Supply Risk Evaluation

Area	Indicator	Value	Color Coded Scoring Scheme
LOK	Projected LOK Stage for the next two months	Low Flow Sub Band	L
	Palmer Index for LOK Tributary Conditions	1.96 (Normal to Extremely Wet)	L
	CPC Precipitation Outlook	1 month: Normal	L
		3 months: Above Normal	L
	LOK Seasonal Net Inflow Outlook	3.16 ft (Normal to Extremely Wet)	L
	ENSO Years		
	LOK Multi-Seasonal Net Inflow Outlook	3.85 ft (Wet)	L
	ENSO Conditions		
WCAs	WCA 1: Station Average (Site 1-7, Site 1-8T, Site 1-9)	Above Line 1 (16.52 ft)	L
	WCA 2A: Site 2-17	Above Line 1 (13.39 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64 and 65)	Above Line 1 (10.87 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.

Back to Lake Okeechobee Operations Main Page
Back to U.S. Army Corps of Engineers Lake Okeechobee Homepage

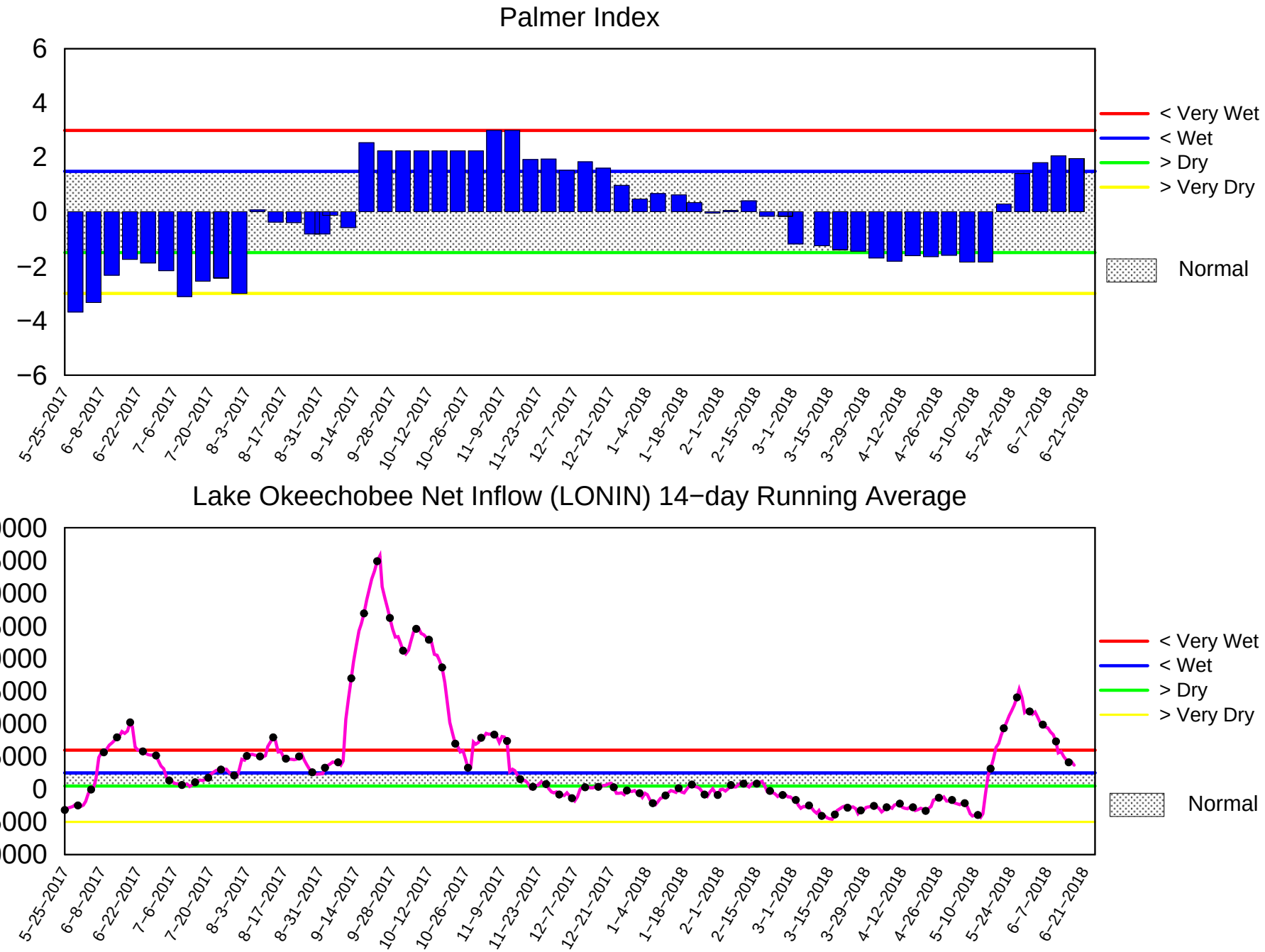
Lake Okeechobee SFWMM June 15 2018 Position Analysis



(See assumptions on the Position Analysis Results website)

Tue Jun 19 10:08:28 2018

Tributary Basin Condition Indicators as of June 18 2018



Mon Jun 18 16:57:45 EDT 2018

2008 LORS

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

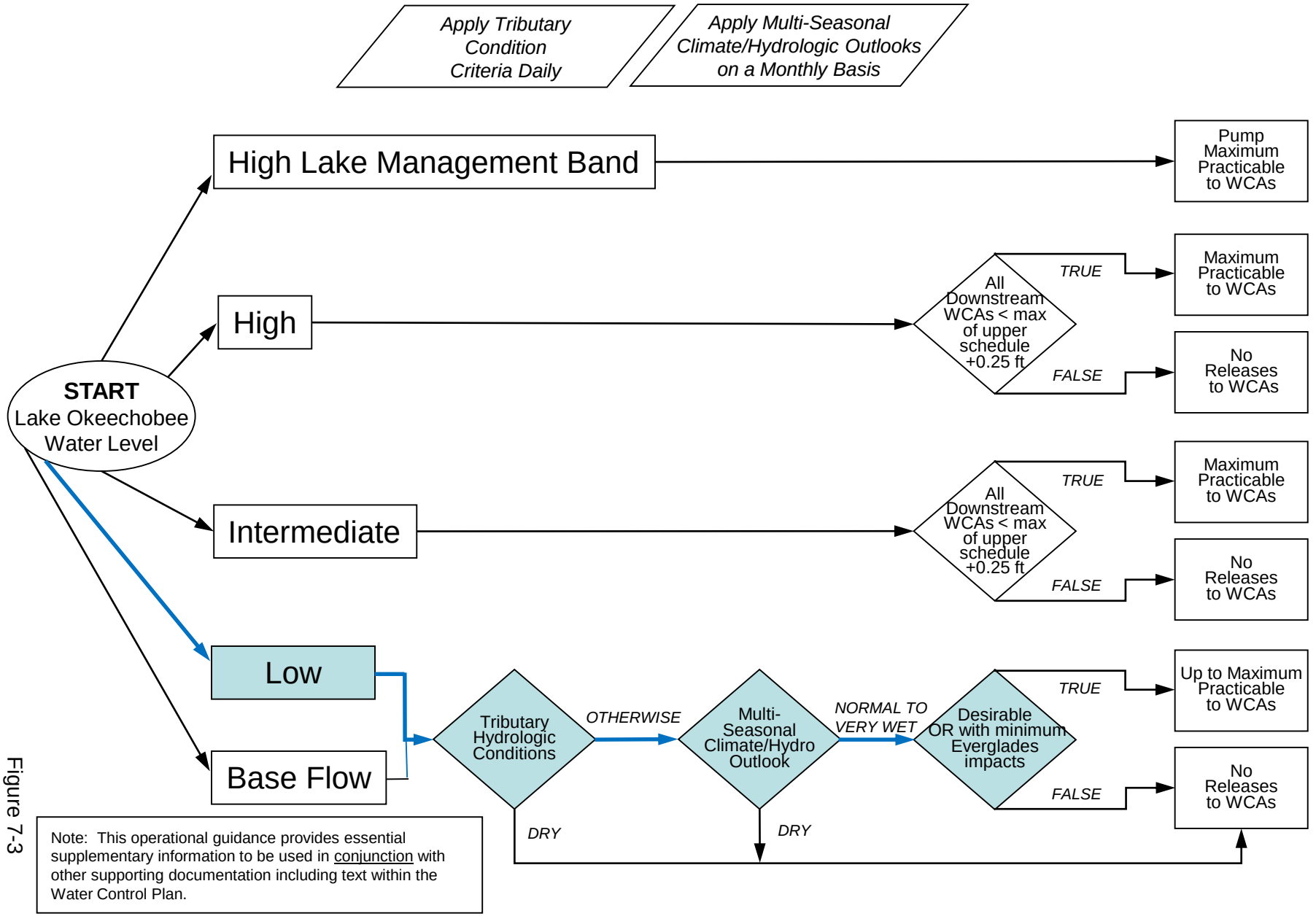


Figure 7-3

2008 LORS

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

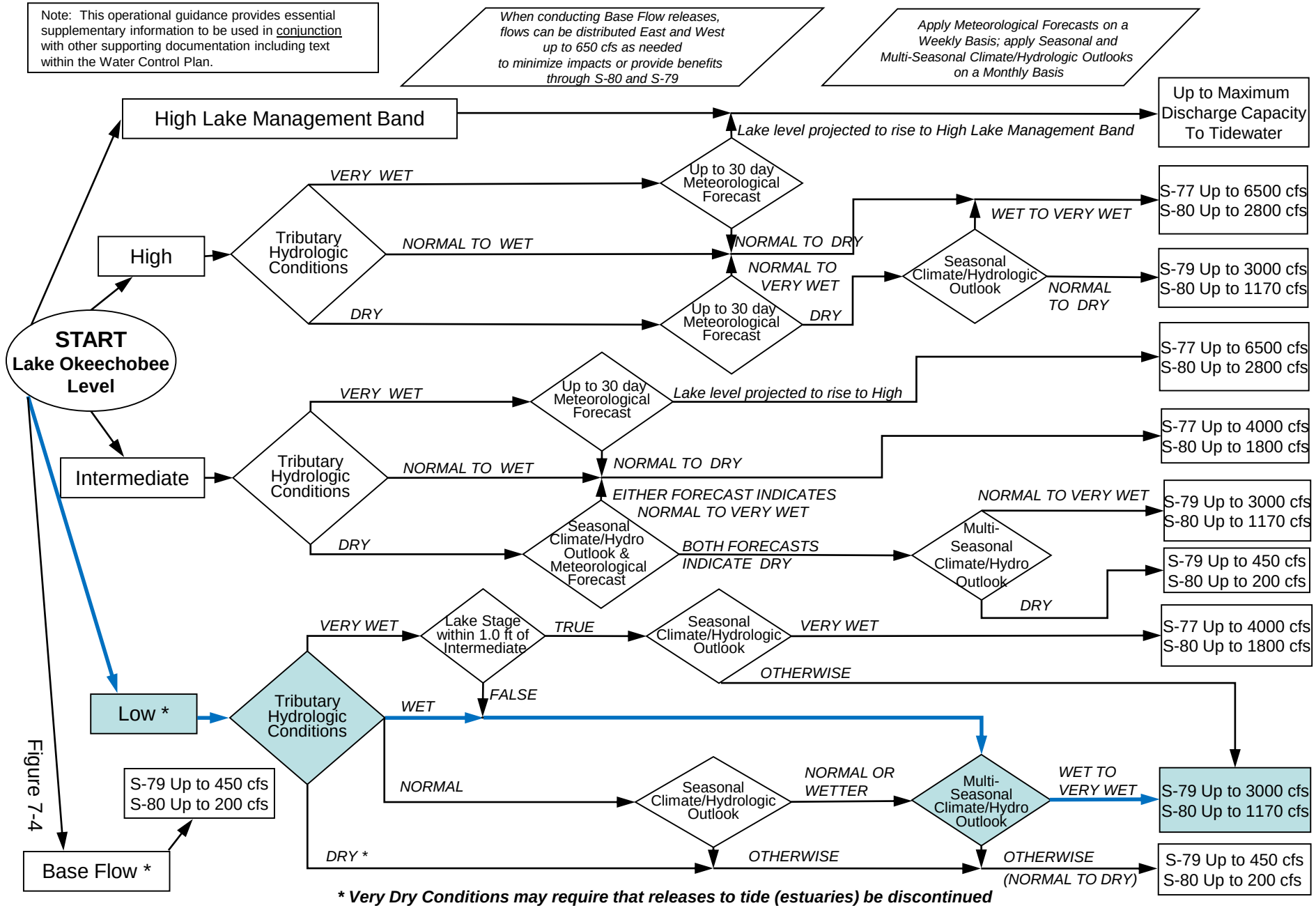
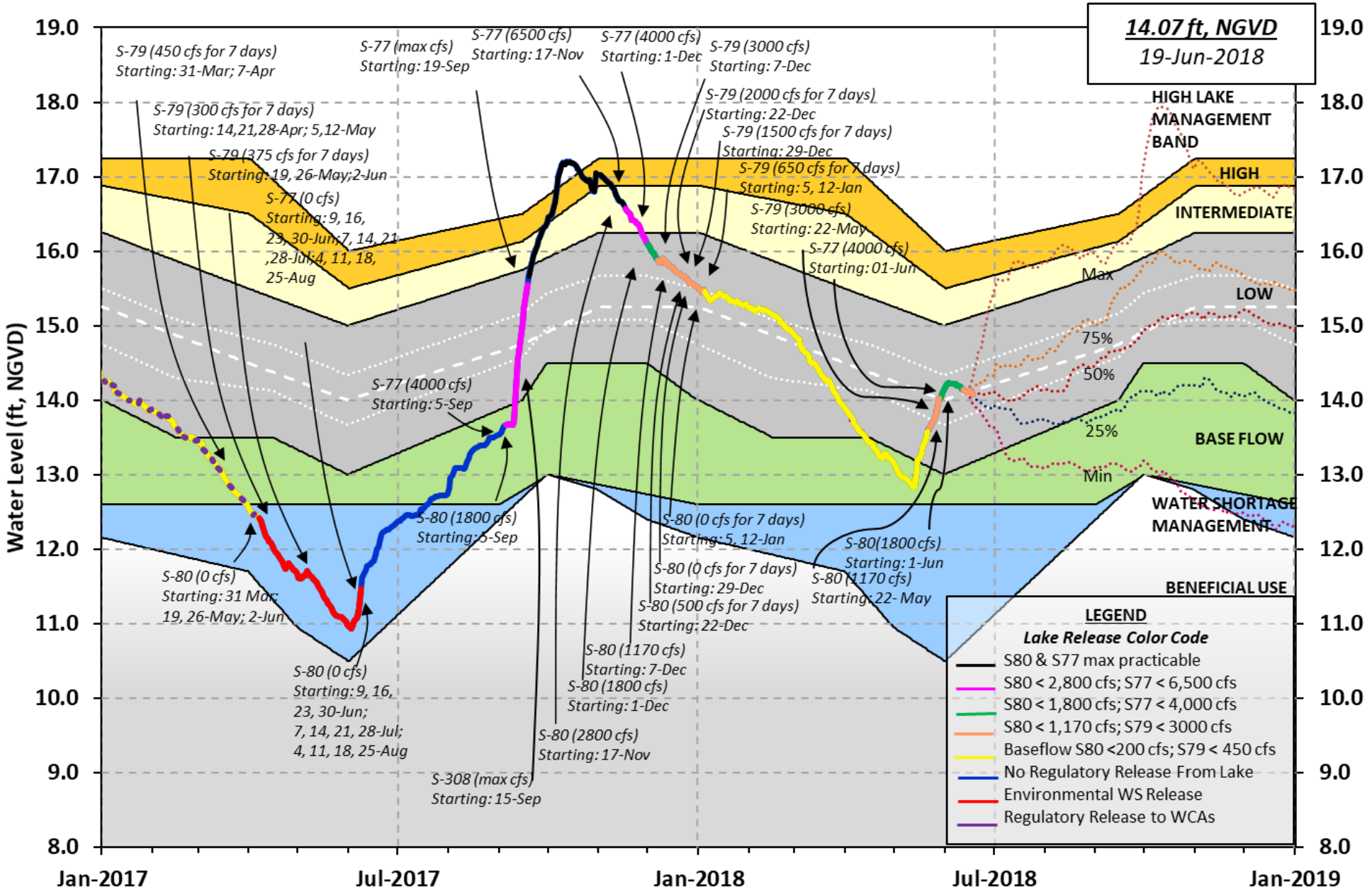


Figure 7-4

Lake Okeechobee Water Level History and Projected Stages



LORS-2008
Adopted by USACE 28-April-2008

Projected Stage Percentiles From
SFWMD-HESM Position Analysis

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

Data Ending 2400 hours 17 JUN 2018

Okeechobee Lake Regulation	Elevation (ft-NGVD)	Last Year (ft-NGVD)	2YRS Ago (ft-NGVD)
*Okeechobee Lake Elevation	14.10	11.99	14.89 (Official Elv)

Bottom of High Lake Mngmt= 16.08 Top of Water Short Mngmt= 10.83
Currently in Operational Management Band

Simulated Average LORS2008 [1965-2000] 12.02
Difference from Average LORS2008 2.08

17JUN (1965-2007) Period of Record Average 13.19
Difference from POR Average 0.91

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ÷ 8.04'
++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ÷ 6.24'
Bridge Clearance = 49.61'

---

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

L001	L005	L006	LZ40	S4	S352	S308	S133
14.11	14.20	14.13	14.05	14.04	14.25	14.03	14.01

*Combination Okeechobee Avg-Daily Lake Average = 14.10 (*See Note)

Okeechobee Inflows (cfs):

S65E	0	S65EX1	2234	Fisheating Cr	2028
S154	35	S191	172	S135 Pumps	0
S84	346	S133 Pumps	0	S2 Pumps	0
S84X	742	S127 Pumps	0	S3 Pumps	0
S71	191	S129 Pumps	0	S4 Pumps	0
S72	70	S131 Pumps	0	C5	0

Total Inflows: 5817

Okeechobee Outflows (cfs):

S135 Culverts	0	S354	83	S77	3980
S127 Culverts	0	S351	0	S308	1396
S129 Culverts	0	S352	0		
S131 Culverts	0	L8 Canal Pt	-137		

Total Outflows: 5323

****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 0.26 S308 0.24
  Average Pan Evap x 0.75 Pan Coefficient = 0.19" = 0.02'

Lake Average Precipitation using NEXRAD: = 0.05" = 0.00'

Evaporation - Precipitation: = 0.14" = 0.01'
Evaporation - Precipitation using Lake Area of 730 square miles
  is equal to 2699 cfs out of the lake.
Lake Okeechobee (Change in Storage) Flow is -6504 cfs or -12900 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:	13.46	13.91	0	0	0	0	0	0	(cfs)		
S193:											
S191:	18.32	13.94	172	0.0	0.0	0.5					
S135 Pumps:	13.39	14.00	0	0	0	0	0		(cfs)		
S135 Culverts:			0	0.0	0.0						
North West Shore											
S65E:	21.15	13.93	0	0.0	-0.0	0.0	0.0	-0.0	0.0		
S65EX1:	21.15	13.93	2234								
S127 Pumps:	13.49	14.09	0	0	0	0	0	0	(cfs)		
S127 Culvert:			0	0.0							
S129 Pumps:	12.96	14.15	0	0	0	0			(cfs)		
S129 Culvert:			0	0.0							
S131 Pumps:	12.86	14.22	0	0	0				(cfs)		
S131 Culvert:			0								
Fisheating Creek nr Palmdale		33.95	2028								
nr Lakeport C5:	-NR-	-NR-	0	-NR-	-NR-	-NR-					
South Shore											
S4 Pumps:	11.55	14.04	0	0	0	0			(cfs)		
S169:	14.11	11.55	0	0.0	0.0	0.0					
S310:	14.04		-94								

S3 Pumps:	10.03	14.12	0	0	0	0				(cfs)
S354:	14.12	10.03	83	1.0	1.0					
S2 Pumps:	10.04	14.13	0	0	0	0	0			(cfs)
S351:	14.13	10.04	0	0.0	0.0	0.0				
S352:	14.27	9.65	0	0.0	0.0					
C10A:	-NR-	14.36		8.0	8.0	8.0	0.0	0.0		
L8 Canal PT		14.20	-137							

S351 and S352 Temporary Pumps/S354 Spillway

S351:	10.04	14.13	0	-NR--NR--NR--NR--NR--NR-
S352:	9.65	14.27	0	-NR--NR--NR--NR-
S354:	10.03	14.12	83	-NR--NR--NR--NR-

Caloosahatchee River (S77, S78, S79)

S47B:	13.17	11.21		0.5	0.5							
S47D:	11.21	11.20	3	6.5								
S77:												
Spillway and Sector Flow:												
	13.48	11.19	******	5.0	5.0	5.0	5.0					
Flow Due to Lockages+:			4									
S77 Below USGS Flow Gage			4490									
S78:												
Spillway and Sector Flow:												
	10.78	3.34	4826	4.0	4.0	4.0	4.0					
Flow Due to Lockages+:			20									
S79:												
Spillway and Sector Flow:												
	3.11	1.46	6990	3.0	3.0	3.0	4.0	4.0	4.0	3.0	3.0	
Flow Due to Lockages+:			8									
Percent of flow from S77			57%									
Chloride		(ppm)	54									

St. Lucie Canal (S308, S80)

S308:												
Spillway and Sector Flow:												
	14.09	13.89	******	4.5	4.5	4.5	4.5					
Flow Due to Lockages+:			0									
S308 Below USGS Flow Gage			1459									
S153:	18.90	13.71	100	0.0	0.0							
S80:												
Spillway and Sector Flow:												
	13.19	0.72	1812	2.0	1.5	0.0	0.0	0.0	0.0	1.5		
Flow Due to Lockages+:			20									
Percent of flow from S308			77%									

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

Speedy Point Top Salinity (mg/ml) 3151
Speedy Point Bottom Salinity (mg/ml) 5162

+ 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.

Daily Precipitation Totals	1-Day (inches)	3-Day (inches)	7-Day (inches)	Wind Direction (Degø)	Wind 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:	1.72	2.11	3.02	159	4
S78:	13.08	13.84	16.89	99	4
S79:	-32.39	-31.06	-28.96	190	0
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:	0.73	0.78	0.78	127	1
S80:	0.00	0.00	0.00	346	1
Okeechobee Average (Sites S78, S79 and S80 not included)	1.23	0.22	0.29		
Oke Nexrad Basin Avg	0.05	0.86	1.04		

Okeechobee Lake Elevations	17 JUN 2018	14.10	Difference from 17JUN18
17JUN18 -1 Day =	16 JUN 2018	14.13	0.03
17JUN18 -2 Days =	15 JUN 2018	14.10	0.00
17JUN18 -3 Days =	14 JUN 2018	14.10	0.00
17JUN18 -4 Days =	13 JUN 2018	14.11	0.01
17JUN18 -5 Days =	12 JUN 2018	14.14	0.04
17JUN18 -6 Days =	11 JUN 2018	14.15	0.05
17JUN18 -7 Days =	10 JUN 2018	14.18	0.08
17JUN18 -30 Days =	18 MAY 2018	13.38	-0.72
17JUN18 -1 Year =	17 JUN 2017	11.99	-2.11
17JUN18 -2 Year =	17 JUN 2016	14.89	0.79

Long Term Mean 30day Avearge ET for Lake Alfred (Inches) = 4.93

Lake Okeechobee Net Inflow (LONIN)

		Average Flow over the previous 14 days			Avg-Daily Flow
17JUN18	Today =	17 JUN 2018	3694	MON	-1048
17JUN18	-1 Day =	16 JUN 2018	4131	SUN	12141
17JUN18	-2 Days =	15 JUN 2018	4065	SAT	6414
17JUN18	-3 Days =	14 JUN 2018	4547	FRI	3829
17JUN18	-4 Days =	13 JUN 2018	5195	THU	-899
17JUN18	-5 Days =	12 JUN 2018	6016	WED	3487
17JUN18	-6 Days =	11 JUN 2018	5918	TUE	-1016
17JUN18	-7 Days =	10 JUN 2018	7805	MON	3416
17JUN18	-8 Days =	09 JUN 2018	8923	SUN	5596
17JUN18	-9 Days =	08 JUN 2018	9430	SAT	-935
17JUN18	-10 Days =	07 JUN 2018	10102	FRI	5308
17JUN18	-11 Days =	06 JUN 2018	10328	THU	5460
17JUN18	-12 Days =	05 JUN 2018	10694	WED	4776
17JUN18	-13 Days =	04 JUN 2018	11109	TUE	5192

S65E

		Average Flow over previous 14 days			Avg-Daily Flow
17JUN18	Today=	17 JUN 2018	2	MON	0
17JUN18	-1 Day =	16 JUN 2018	5	SUN	0
17JUN18	-2 Days =	15 JUN 2018	8	SAT	0
17JUN18	-3 Days =	14 JUN 2018	11	FRI	0
17JUN18	-4 Days =	13 JUN 2018	14	THU	0
17JUN18	-5 Days =	12 JUN 2018	17	WED	0
17JUN18	-6 Days =	11 JUN 2018	20	TUE	0
17JUN18	-7 Days =	10 JUN 2018	24	MON	0
17JUN18	-8 Days =	09 JUN 2018	27	SUN	0
17JUN18	-9 Days =	08 JUN 2018	30	SAT	0
17JUN18	-10 Days =	07 JUN 2018	33	FRI	0
17JUN18	-11 Days =	06 JUN 2018	36	THU	0
17JUN18	-12 Days =	05 JUN 2018	39	WED	0
17JUN18	-13 Days =	04 JUN 2018	42	TUE	24

S65EX1

		Average Flow over previous 14 days			Avg-Daily Flow
17JUN18	Today=	17 JUN 2018	2181	MON	2234
17JUN18	-1 Day =	16 JUN 2018	2167	SUN	2073
17JUN18	-2 Days =	15 JUN 2018	2178	SAT	2405
17JUN18	-3 Days =	14 JUN 2018	2156	FRI	2488
17JUN18	-4 Days =	13 JUN 2018	2128	THU	2201
17JUN18	-5 Days =	12 JUN 2018	2122	WED	2310
17JUN18	-6 Days =	11 JUN 2018	2093	TUE	2096
17JUN18	-7 Days =	10 JUN 2018	2076	MON	2133
17JUN18	-8 Days =	09 JUN 2018	2041	SUN	2114
17JUN18	-9 Days =	08 JUN 2018	2008	SAT	2209
17JUN18	-10 Days =	07 JUN 2018	1972	FRI	2011
17JUN18	-11 Days =	06 JUN 2018	1943	THU	2070
17JUN18	-12 Days =	05 JUN 2018	1908	WED	2073
17JUN18	-13 Days =	04 JUN 2018	1866	TUE	2113

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)
17 JUN 2018	7895	8903	9617	13878
16 JUN 2018	8034	9030	9131	13184
15 JUN 2018	8336	8726	9172	12767
14 JUN 2018	8328	8938	9656	13340
13 JUN 2018	8256	8934	9740	13623
12 JUN 2018	8402	8911	9740	14468
11 JUN 2018	8505	8907	9868	14447
10 JUN 2018	8403	9195	10306	14094
09 JUN 2018	8340	9366	10320	15519
08 JUN 2018	8141	9400	10287	15799
07 JUN 2018	7889	9217	10264	15441
06 JUN 2018	8235	8298	10716	13876
05 JUN 2018	6879	7993	9915	13251
04 JUN 2018	7927	9194	11477	15857

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)
17 JUN 2018	-187	0	0	131	-271
16 JUN 2018	-163	0	0	399	-260
15 JUN 2018	4	0	0	1321	-236
14 JUN 2018	34	0	0	567	-245
13 JUN 2018	5	0	0	0	-335
12 JUN 2018	21	0	0	0	-380
11 JUN 2018	9	0	0	0	-497
10 JUN 2018	-75	0	0	0	-604
09 JUN 2018	-97	0	0	0	-719
08 JUN 2018	-132	0	0	0	-823
07 JUN 2018	-173	0	0	0	-1050
06 JUN 2018	-221	0	0	0	-1129
05 JUN 2018	-291	0	0	0	-1282
04 JUN 2018	-354	0	0	0	-1489

DATE	S-308 Discharge (ALL DAY) (AC-FT)	Below S-308 Discharge (ALL-DAY) (AC-FT)	S-80 Discharge (ALL-DAY) (AC-FT)
17 JUN 2018	2830	2892	3631
16 JUN 2018	2641	2394	3677
15 JUN 2018	2696	2919	3624
14 JUN 2018	2870	3138	3599
13 JUN 2018	2824	3121	3607
12 JUN 2018	2855	3106	3646
11 JUN 2018	2400	2890	3617
10 JUN 2018	2665	3082	3611
09 JUN 2018	2757	3082	3611
08 JUN 2018	2723	2864	3598
07 JUN 2018	2623	2850	3620
06 JUN 2018	2541	2637	3631
05 JUN 2018	2532	2524	3642

04 JUN 2018   2356   2233   3669

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

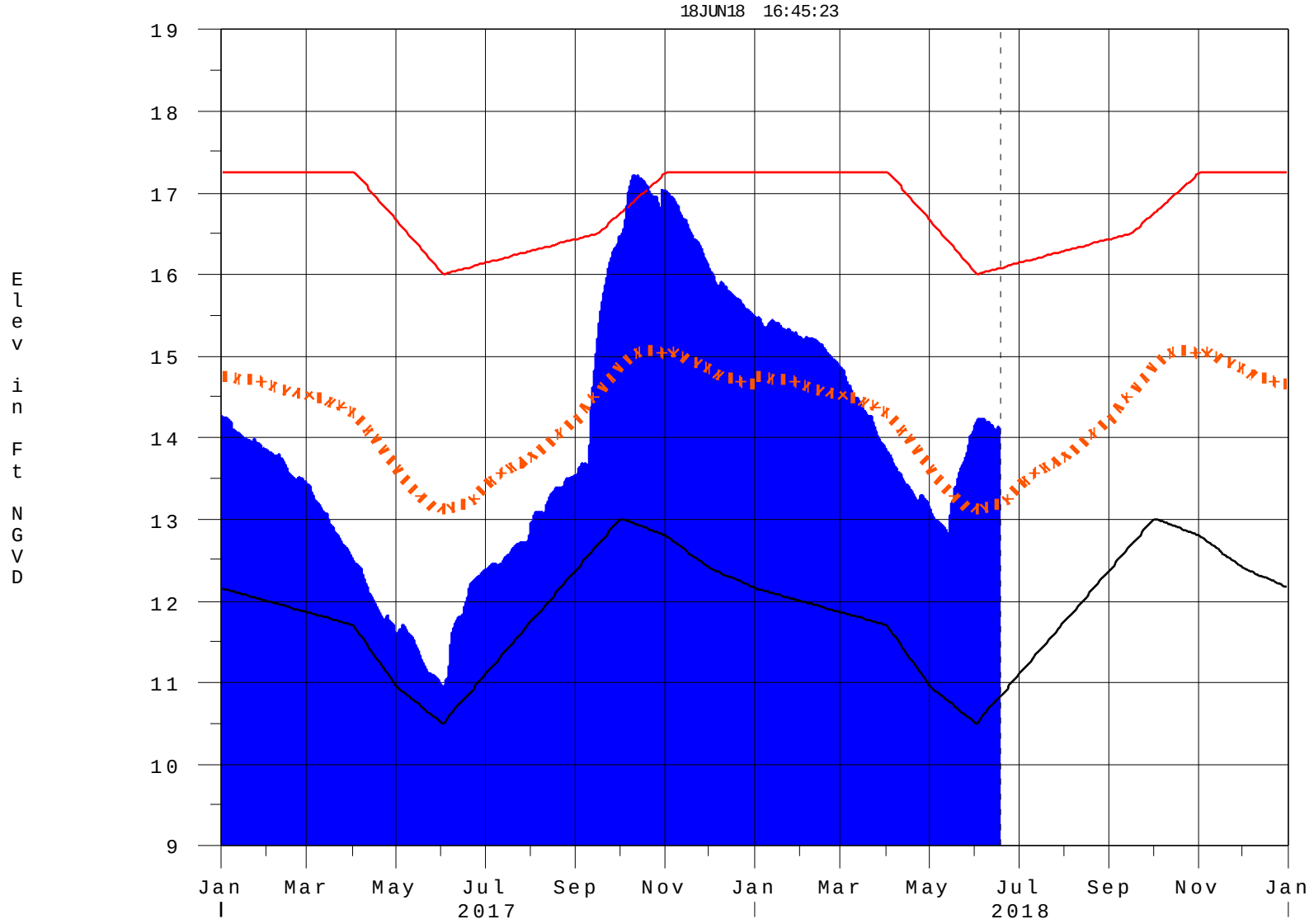
(I) - Flows preceeded by "I" signify an instantaneous
flow computed from the single value reported for the day

---

* 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 18JUN2018 @ 16:38 ** Preliminary Data - Subject to Revision **

Lake Okeechobee



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