

# Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 2/27/2017 (ENSO Neutral Condition)

## Lake Okeechobee Net Inflow Outlook:

The Lake Okeechobee Net Inflow Outlook has been computed using 4 methods: Croley's method<sup>1</sup>, the SFWMD empirical method<sup>2</sup>, a sub-sampling of Neutral years<sup>3</sup> and a sub-sampling of warm years of the Atlantic Multi-decadal Oscillation (AMO) in combination with Neutral ENSO years<sup>4</sup>. 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 <sup>1*</sup>		SFWMD Empirical Method <sup>2</sup>		Sub-sampling of Neutral ENSO Years <sup>3</sup>		Sub-sampling of AMO Warm + Neutral ENSO Years <sup>4</sup>	
	Value (ft)	<a href="#">Condition</a>	Value (ft)	<a href="#">Condition</a>	Value (ft)	<a href="#">Condition</a>	Value (ft)	<a href="#">Condition</a>
Current (Feb-Jul)	N/A	N/A	0.52	Dry	0.60	Dry	0.84	Normal
Multi Seasonal (Feb-Oct)	N/A	N/A	2.17	Normal	2.77	Wet	3.57	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.

### [Tributary Hydrologic Conditions Graph:](#)

**-1923 cfs** 14-day running average for Lake Okeechobee Net Inflow through 2/26/2017. According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Dry.

**-2.46** for Palmer Index on 2/25/2017.

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 2/27/2017

Lake Okeechobee Stage: **13.46 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		17.25	
Operational Band	High sub-band	16.64	
	Intermediate sub-band	15.78	
	Low sub-band	13.50	
Base Flow sub-band		12.60	← 13.46
Beneficial Use sub-band		11.87	
Water Shortage Management Band			

### [Part C of LORS2008: Discharge to WCA's](#)

Release Guidance Flow Chart Outcome: No releases to the WCAs.

### [Part D of LORS2008: Discharge to Tidewater](#)

Release Guidance Flow Chart Outcome: S-79 up to 450 cfs and S-80 up to 200 cfs

### Technical Input Summaries from:

- [Lake Okeechobee Division](#)
- [Coastal Ecosystems](#)
- [Everglades Ecosystems Division](#)
- [Water Supply Department](#)
- [Water Resource Management Release Recommendation](#)
- [Kissimmee Watershed Environmental Conditions](#)
- [Operations Department](#)

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## **LORS2008 Implementation on 2/27/2017 (ENSO Neutral Condition):**

### **Status for week ending 2/27/2017:**

District wide, Raindar rainfall was 0.85 inches for the week. Lake stage on 2/27/2017 was 13.46 ft, down 0.05 ft from last week.

The updated February 2017 SFWMM Dynamic Position Analysis [percentile graph](#) for Lake Okeechobee show that the current lake stage is in the Low Operational Sub-Band.

The LORS2008 tributary [indices](#) are classified as **Dry**. The PDSI indicates dry condition and the LONIN is Dry. The classification is based on the wetter of the two.

### **Water Supply Risk Evaluation**

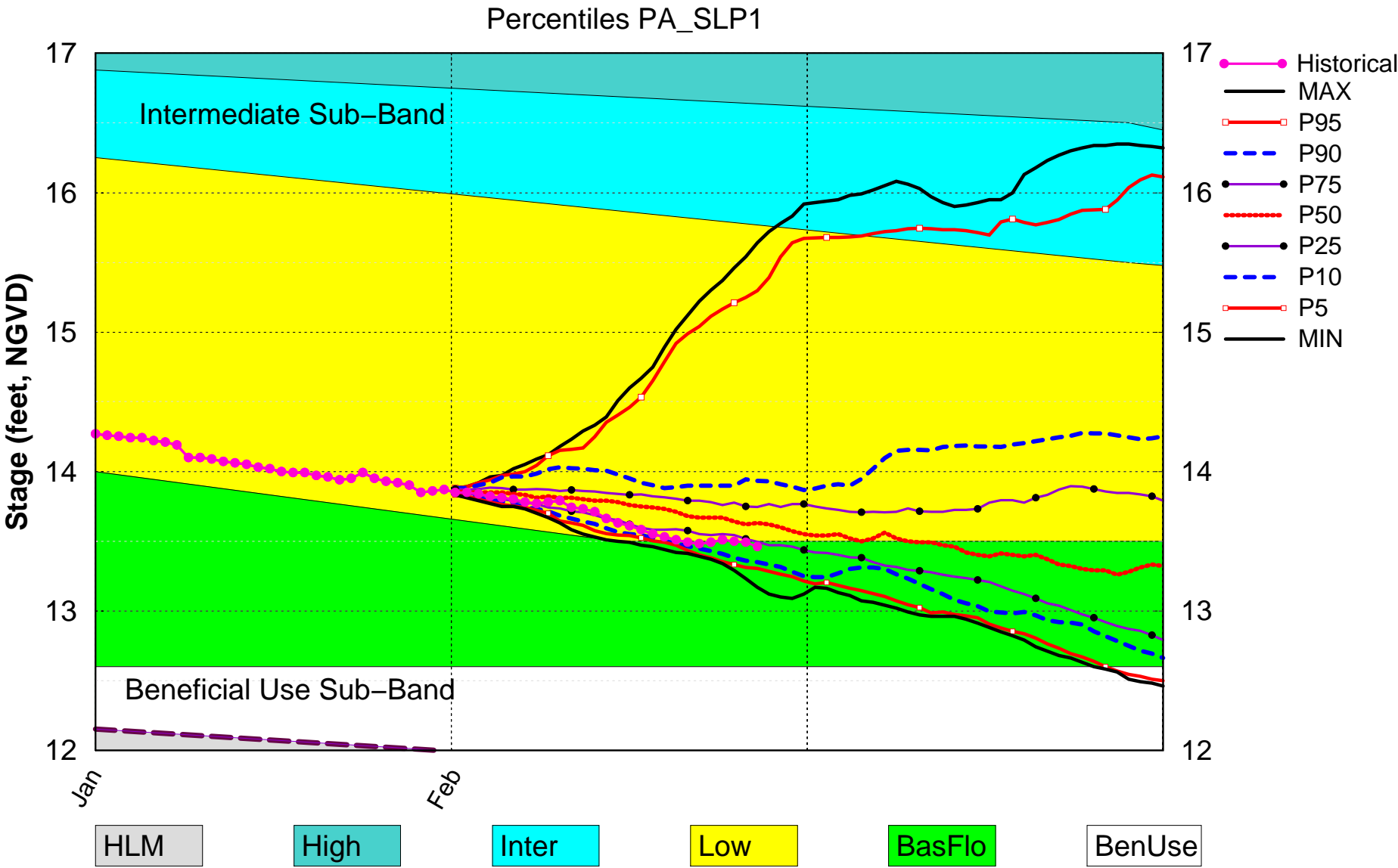
Area	Indicator	Value	Color Coded Scoring Scheme
LOK	Projected LOK Stage for the next two months	Base Flow Sub-Band	M
	Palmer Index for LOK Tributary Conditions	-2.46 (Extremely Dry)	H
	CPC Precipitation Outlook	1 month: Normal	L
		3 months: Normal	L
	LOK Seasonal Net Inflow Outlook ENSO La Nina Years	0.60 ft (Dry)	M
	LOK Multi-Seasonal Net Inflow Outlook ENSO La Nina Years	2.77 ft (Normal)	M
WCAs	WCA 1: Site 1-7, Site 1-8T, & Site 1-9 Average	Above Line 1 (16.37 ft)	L
	WCA 2A: Site 2-17 HW	Above Line1 (11.74 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64 and 65)	Above Line 1 (9.45 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.

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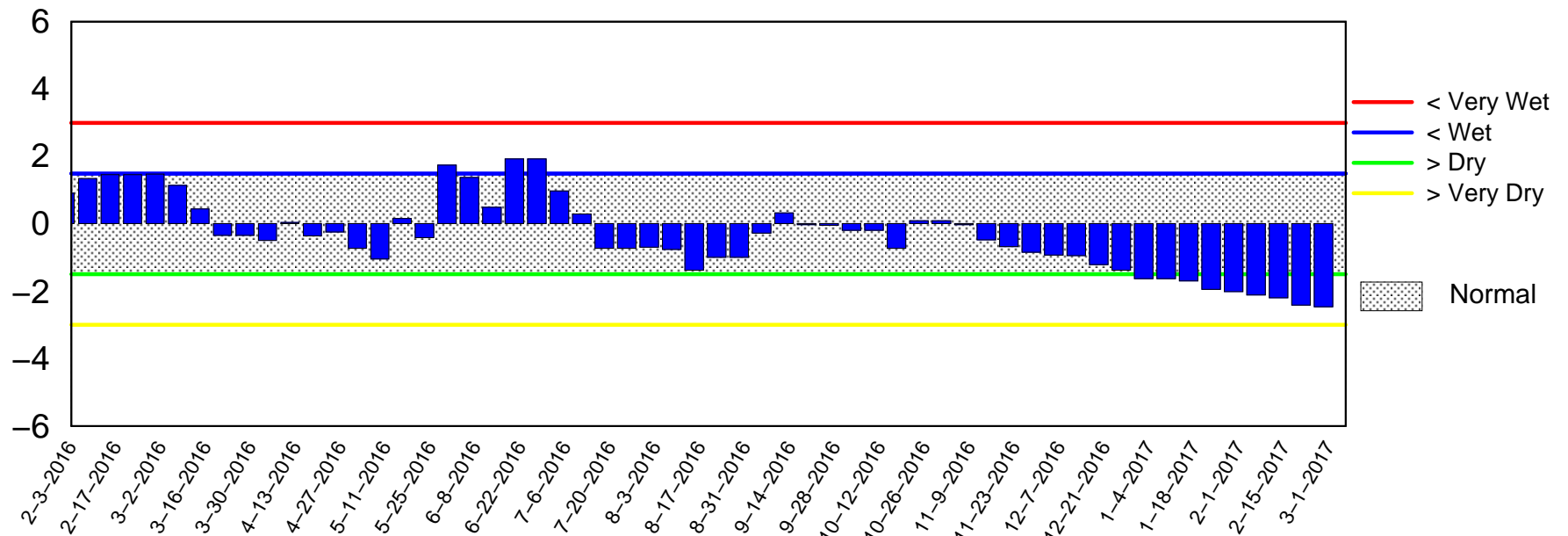
# Lake Okeechobee SFWMM February 2017 Dynamic Position Analysis



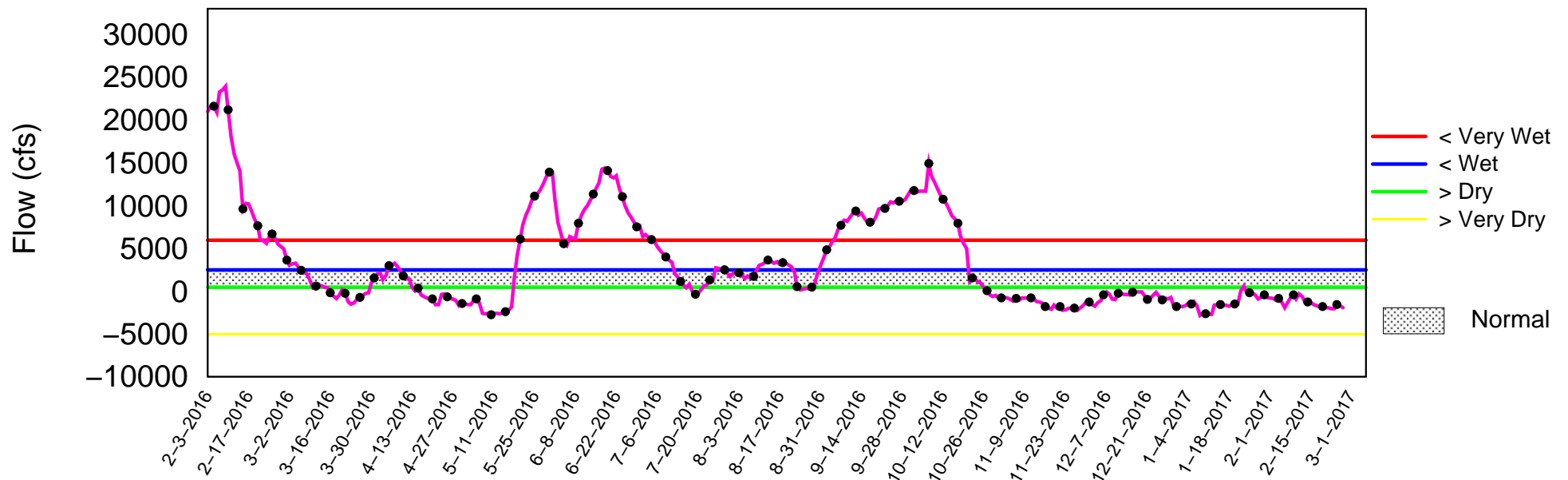
(See assumptions on the Position Analysis Results website)

# Tributary Basin Condition Indicators as of February 27 2017

## Palmer Index



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



Mon Feb 27 11:52:30 EST 2017

# 2008 LORS

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

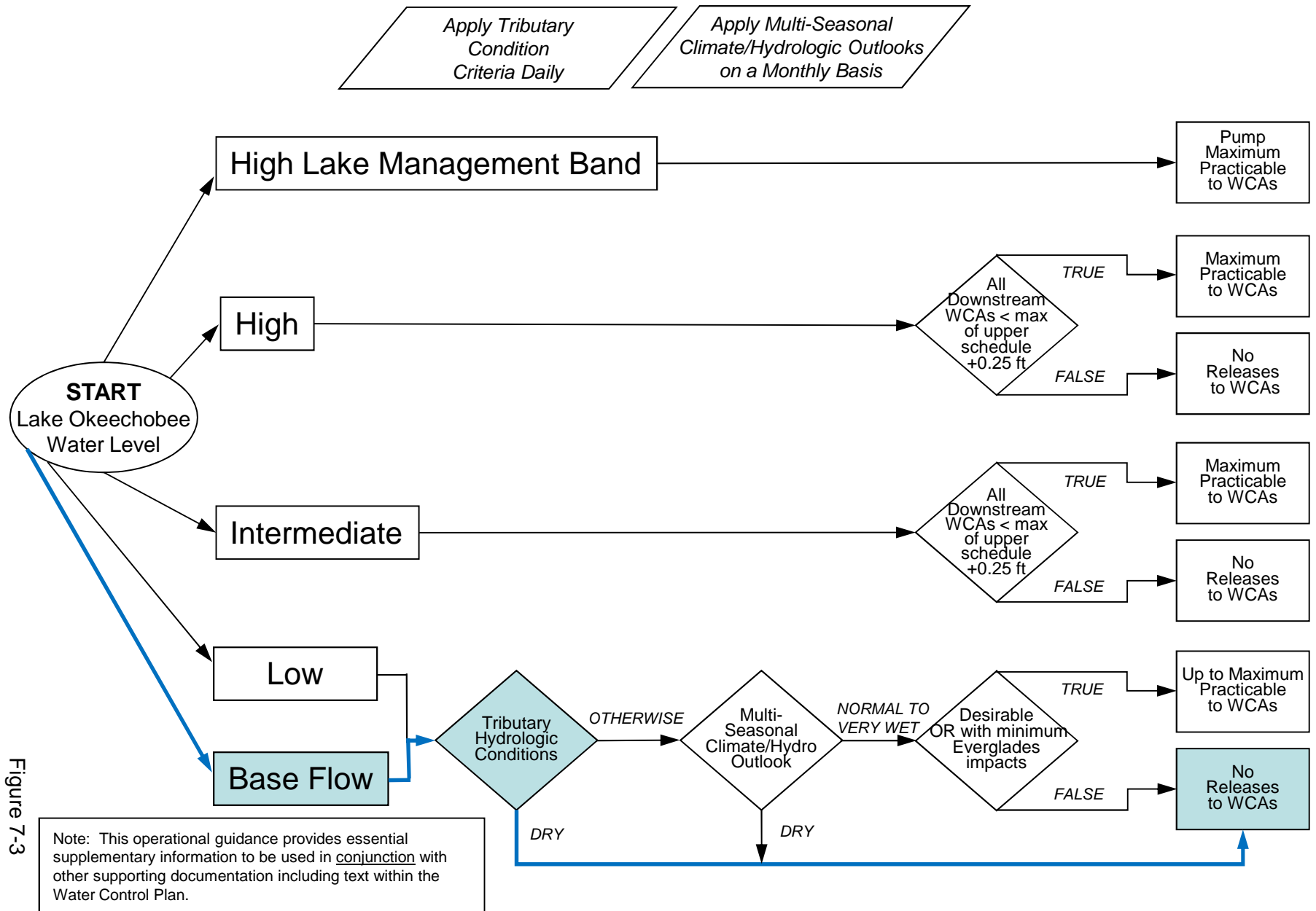


Figure 7-3

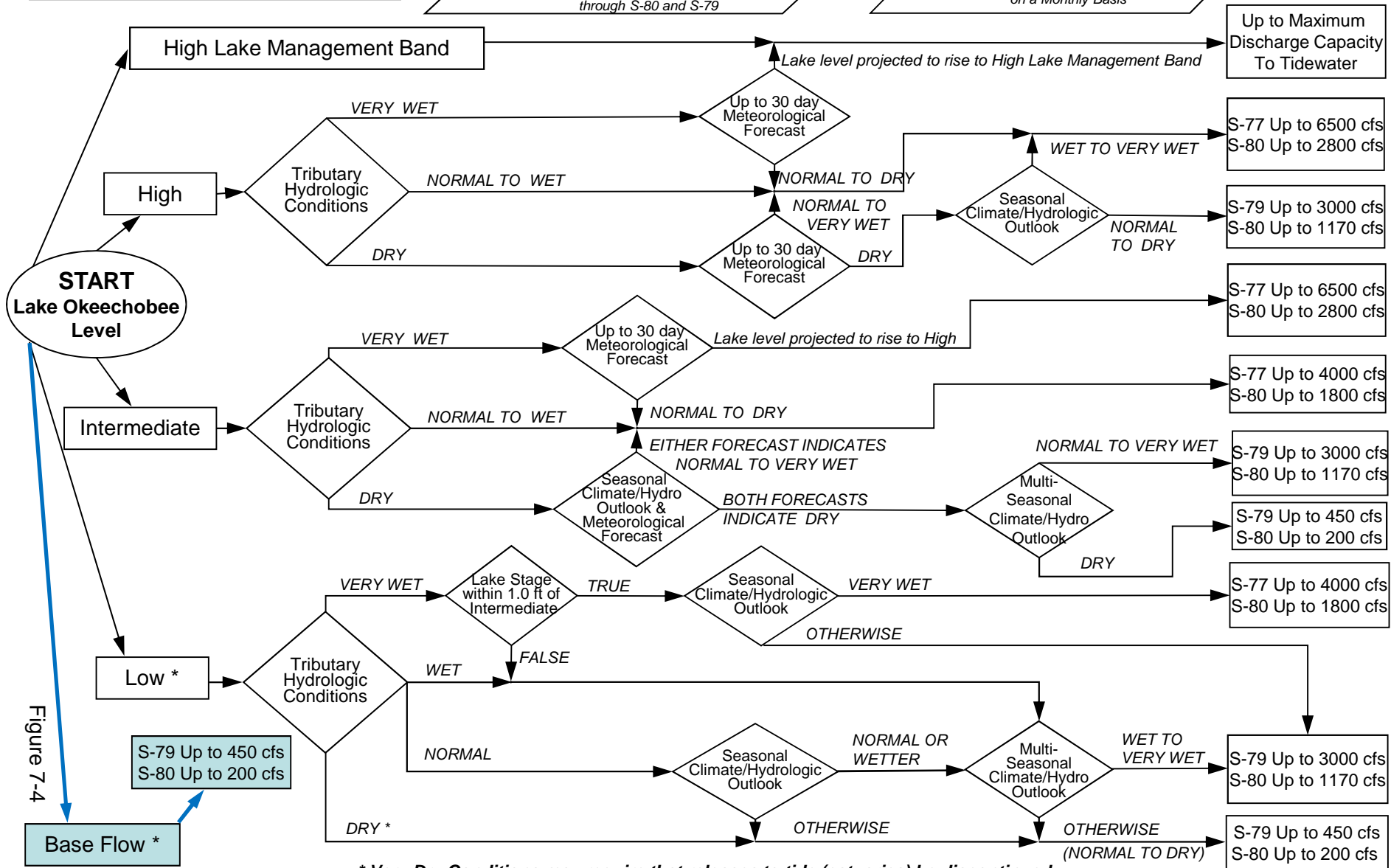
# 2008 LORS

## 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

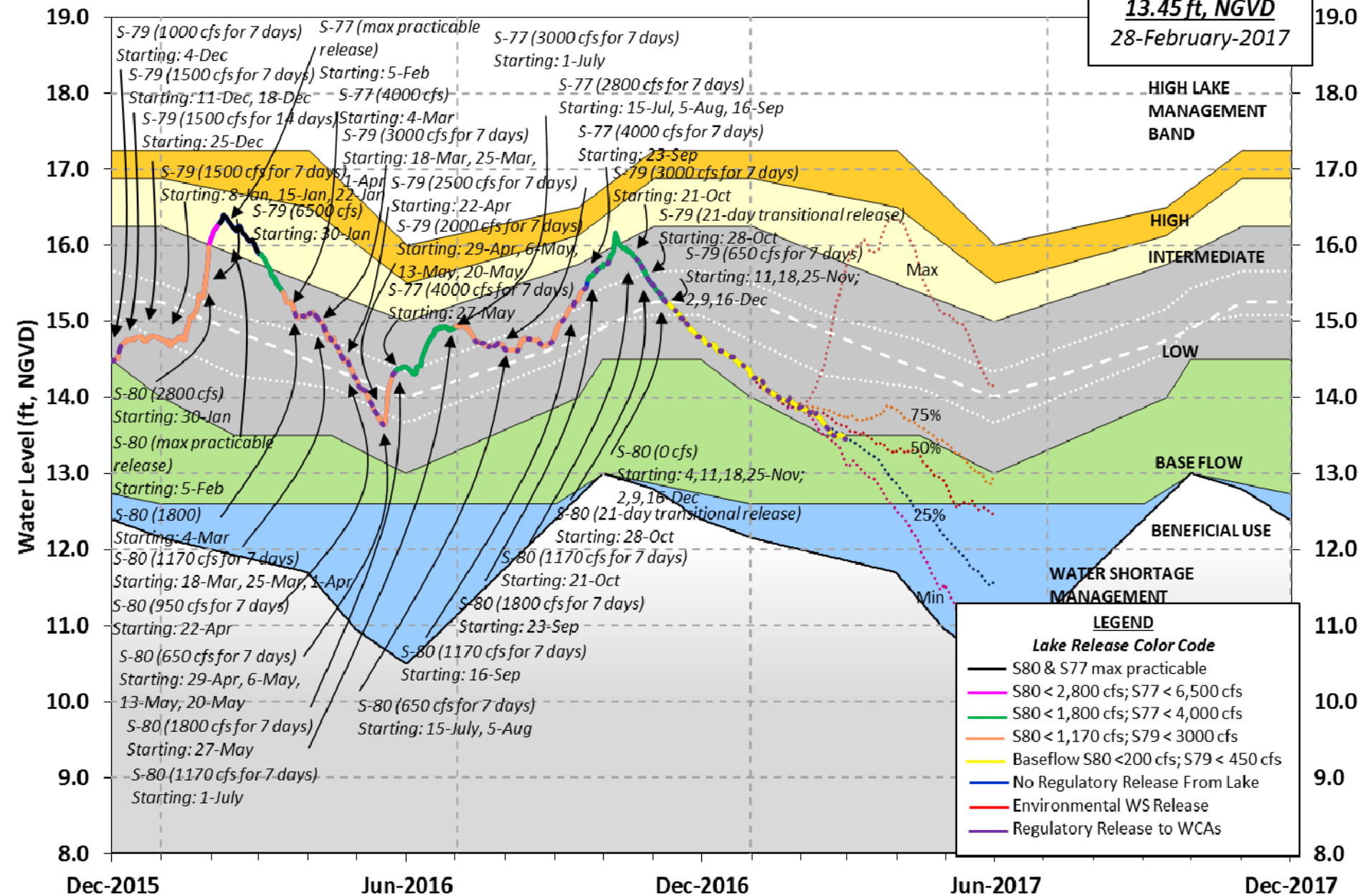
Apply Meteorological Forecasts on a Weekly Basis; apply Seasonal and Multi-Seasonal Climate/Hydrologic Outlooks on a Monthly Basis





# Lake Okeechobee Water Level History and Projected Stages

**13.45 ft, NGVD**  
28-February-2017



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

Data Ending 2400 hours      26 FEB 2017

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Okeechobee Lake Regulation	Elevation	Last Year	2YRS Ago
	(ft-NGVD)	(ft-NGVD)	(ft-NGVD)
*Okeechobee Lake Elevation	13.46	16.02	14.67 (Official Elv)
Bottom of High Lake Mngmt= 17.25    Top of Water Short Mngmt= 11.87			
Currently in Operational Management Band			

Simulated Average LORS2008 [1965-2000]	13.33
Difference from Average LORS2008	0.13

26FEB (1965-2007) Period of Record Average	14.53
Difference from POR Average	-1.07

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ÷ 7.40'

++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ÷ 5.60'

Bridge Clearance = 50.26'

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

L001	L005	L006	LZ40	S4	S352	S308	S133
13.18	13.57	13.52	13.46	13.69	13.67	13.38	13.21

\*Combination Okeechobee Avg-Daily Lake Average = 13.46  
(\*See Note)

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Okeechobee Inflows (cfs):

S65E	0	S65EX1	723	Fisheating Cr	1
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	-114
Total Inflows:	610				

Okeechobee Outflows (cfs):

S135 Culverts	0	S354	90	S77	918
S127 Culverts	-2	S351	41	S77Below	1044
S129 Culverts	0	S352	0	S308	0
S131 Culverts	0	L8 Canal Pt	162	S308Below	-115
Total Outflows:	1209				



S169:	13.76	10.89	0	0.0	0.0	0.0		
S310:	13.69		12					
S3 Pumps:	10.11	13.70	0	0	0	0		(cfs)
S354:	13.70	10.11	90	0.2	0.2			
S2 Pumps:	10.28	13.62	0	0	0	0	0	(cfs)
S351:	13.62	10.28	41	0.1	0.0	0.0		
S352:	13.57	10.91	0	0.0	0.0			
C10A:	-NR-	13.49		0.0	8.0	8.0	8.0	8.0
L8 Canal PT		13.33	162					

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S351 and S352 Temporary Pumps/S354 Spillway

S351:	10.28	13.62	41	-NR--NR--NR--NR--NR--NR-
S352:	10.91	13.57	0	-NR--NR--NR--NR-
S354:	10.11	13.70	90	-NR--NR--NR--NR-

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Caloosahatchee River (S77, S78, S79)

S47B:	13.17	10.81		0.0	0.0
S47D:	10.83	10.83	21	6.1	

S77:

Spillway and Sector Flow:

13.58	10.97	912	0.5	0.0	3.5	0.5
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Flow Due to Lockages+: 6

S77 Below USGS Flow Gage 1044

S78:

Spillway and Sector Flow:

10.71	3.00	1028	0.0	0.0	2.5	0.5
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Flow Due to Lockages+: 20

S79:

Spillway and Sector Flow:

3.12	0.11	1216	0.0	0.0	1.0	1.0	1.0	1.0	0.0
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0.0

Flow Due to Lockages+: 15

Percent of flow from S77 75%

Chloride (ppm) 67

St. Lucie Canal (S308, S80)

S308:

Spillway and Sector Flow:

13.32	13.24	0	0.0	0.0	0.0	0.0
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Flow Due to Lockages+: 0

S308 Below USGS Flow Gage -115

S153:	18.79	13.04	0	0.0	0.0
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S80:

Spillway and Sector Flow:

13.23	1.30	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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Flow Due to Lockages+: 22

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.

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----- Wind ---					
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Daily Precipitation Totals	1-Day	3-Day	7-Day	Direction	
Speed	(inches)	(inches)	(inches)	(Degø)	
(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	0.65	64	2
S78:	0.00	0.00	1.23	50	2
S79:	0.00	0.00	0.54	166	4
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	0.61	270	3
S80:	0.00	0.00	0.22	84	2
Okeechobee Average	0.00	0.00	0.10		
(Sites S78, S79 and S80 not included)					
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Oke Nexrad Basin Avg	-NR-	0.00	0.00		
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Okeechobee Lake Elevations	26 FEB 2017	13.46	Difference from
26FEB17			
26FEB17 -1 Day =	25 FEB 2017	13.49	0.03
26FEB17 -2 Days =	24 FEB 2017	13.50	0.04
26FEB17 -3 Days =	23 FEB 2017	13.51	0.05
26FEB17 -4 Days =	22 FEB 2017	13.49	0.03
26FEB17 -5 Days =	21 FEB 2017	13.48	0.02
26FEB17 -6 Days =	20 FEB 2017	13.49	0.03
26FEB17 -7 Days =	19 FEB 2017	13.51	0.05
26FEB17 -30 Days =	27 JAN 2017	13.90	0.44
26FEB17 -1 Year =	26 FEB 2016	16.02	2.56
26FEB17 -2 Year =	26 FEB 2015	14.67	1.21

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

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Lake Okeechobee Net Inflow (LONIN)					
Average Flow over the previous 14 days					Avg-Daily Flow
26FEB17	Today =	26 FEB 2017	-1870	MON	-4873
26FEB17	-1 Day =	25 FEB 2017	-1610	SUN	-919
26FEB17	-2 Days =	24 FEB 2017	-1488	SAT	-1213
26FEB17	-3 Days =	23 FEB 2017	-1985	FRI	4433
26FEB17	-4 Days =	22 FEB 2017	-1985	THU	2411
26FEB17	-5 Days =	21 FEB 2017	-1862	WED	-654
26FEB17	-6 Days =	20 FEB 2017	-1853	TUE	-1725
26FEB17	-7 Days =	19 FEB 2017	-1894	MON	-1796
26FEB17	-8 Days =	18 FEB 2017	-1772	SUN	-2144
26FEB17	-9 Days =	17 FEB 2017	-1607	SAT	-3514
26FEB17	-10 Days =	16 FEB 2017	-1514	FRI	-3631
26FEB17	-11 Days =	15 FEB 2017	-1304	THU	-1362
26FEB17	-12 Days =	14 FEB 2017	-1147	WED	-3432
26FEB17	-13 Days =	13 FEB 2017	-1144	TUE	-7760

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S65E					
Average Flow over previous 14 days					Avg-Daily Flow
26FEB17	Today=	26 FEB 2017	20	MON	0
26FEB17	-1 Day =	25 FEB 2017	57	SUN	0
26FEB17	-2 Days =	24 FEB 2017	93	SAT	0
26FEB17	-3 Days =	23 FEB 2017	134	FRI	0
26FEB17	-4 Days =	22 FEB 2017	175	THU	0
26FEB17	-5 Days =	21 FEB 2017	219	WED	4
26FEB17	-6 Days =	20 FEB 2017	269	TUE	0
26FEB17	-7 Days =	19 FEB 2017	324	MON	0
26FEB17	-8 Days =	18 FEB 2017	382	SUN	0
26FEB17	-9 Days =	17 FEB 2017	436	SAT	0
26FEB17	-10 Days =	16 FEB 2017	475	FRI	0
26FEB17	-11 Days =	15 FEB 2017	513	THU	0
26FEB17	-12 Days =	14 FEB 2017	547	WED	0
26FEB17	-13 Days =	13 FEB 2017	583	TUE	280

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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)
26 FEB 2017	1820	2069	2079	2441
25 FEB 2017	1027	1047	1433	2149
24 FEB 2017	177	0	727	2156
23 FEB 2017	177	218	710	903
22 FEB 2017	655	527	718	510
21 FEB 2017	1181	933	716	923
20 FEB 2017	1760	1354	1017	1575
19 FEB 2017	2816	2292	1696	2074
18 FEB 2017	2571	2472	-NR-	2149
17 FEB 2017	2079	2067	-NR-	1659
16 FEB 2017	1521	1347	686	586

15 FEB 2017	1374	1324	690	500
14 FEB 2017	1228	977	694	946
13 FEB 2017	1620	1431	1012	1647

	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)
26 FEB 2017	23	81	0	163	322
25 FEB 2017	-11	627	109	155	339
24 FEB 2017	10	2	730	833	229
23 FEB 2017	-2	0	0	212	62
22 FEB 2017	5	0	0	0	125
21 FEB 2017	15	502	377	349	401
20 FEB 2017	72	1194	882	880	396
19 FEB 2017	65	924	579	581	427
18 FEB 2017	107	583	369	190	383
17 FEB 2017	136	1799	914	466	277
16 FEB 2017	116	2005	948	843	255
15 FEB 2017	119	1549	968	1497	359
14 FEB 2017	48	1896	1019	1442	397
13 FEB 2017	36	1682	884	1124	383

	S-308	Below S-308	S-80
	Discharge	Discharge	Discharge
	(ALL DAY)	(ALL-DAY)	(ALL-DAY)
DATE	(AC-FT)	(AC-FT)	(AC-FT)
26 FEB 2017	0	-228	43
25 FEB 2017	0	-210	44
24 FEB 2017	-0	-231	54
23 FEB 2017	-0	-542	45
22 FEB 2017	0	31	48
21 FEB 2017	0	240	48
20 FEB 2017	-0	172	41
19 FEB 2017	-0	33	57
18 FEB 2017	0	149	26
17 FEB 2017	-0	107	49
16 FEB 2017	0	-46	50
15 FEB 2017	0	-140	23
14 FEB 2017	0	61	30
13 FEB 2017	0	102	31

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

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

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\* 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

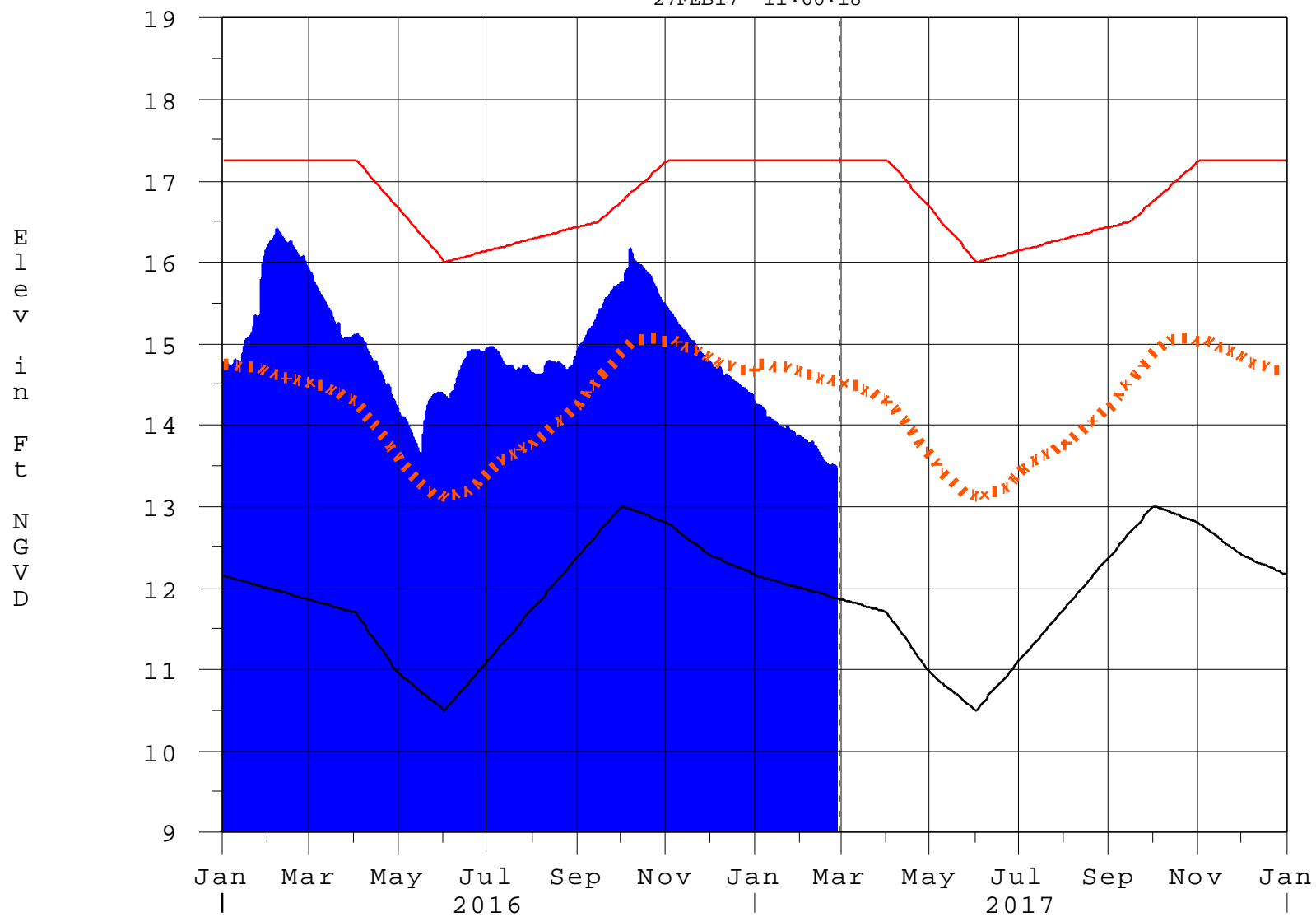
++ For more information see the Jacksonville District Navigation website at <http://www.saj.usace.army.mil/>

\$ For information regarding Lake Okeechobee Service Area water restrictions please refer to [www.sfwmd.gov](http://www.sfwmd.gov)



# Lake Okeechobee

27FEB17 11:00:18



- High Lake Management
- Okeechobee Avg Elev
- Average Elev [1965-2007]
- Water Shortage Management

# Classification Tables

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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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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\***

<b>Lake Net Inflow Prediction  [million acre-feet]</b>	<b>Equivalent Depth**  [feet]</b>	<b>Lake Okeechobee  Net Inflow  Seasonal Outlook</b>
> 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<sup>\*</sup>

<b>Lake Net Inflow Prediction</b>  <b>[million acre-feet]</b>	<b>Equivalent Depth<sup>**</sup></b>  <b>[feet]</b>	<b>Lake Okeechobee  Net Inflow  Multi-Seasonal Outlook</b>
> 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

**<sup>\*\*</sup>Volume-depth conversion based on average lake surface area of 467,000 acres**

**6-15 Day Precipitation Outlook Categories\***

<b>6-15 Day Precipitation Outlook Categories</b>	<b>WSE Decision Tree Categories</b>
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