

Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 4/24/2017 (ENSO Neutral Condition)

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 Neutral years³ and a sub-sampling of warm years of the Atlantic Multi-decadal Oscillation (AMO) in combination with Neutral 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 Neutral ENSO Years ³		Sub-sampling of AMO Warm + Neutral ENSO Years ⁴	
	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition
Current (Apr-Sep)	N/A	N/A	1.44	Normal	1.73	Wet	2.53	Very Wet
Multi Seasonal (Apr-Oct)	N/A	N/A	1.99	Normal	2.31	Normal	3.33	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:](#)

-3054 cfs 14-day running average for Lake Okeechobee Net Inflow through 4/24/2017. According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Dry.

-3.41 for Palmer Index on 4/23/2017.

According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Very Dry.

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

[LORS2008 Classification Tables:](#)

Lake Okeechobee Stage on 4/24/2017

Lake Okeechobee Stage: **11.78 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		16.78	
Operational Band	High sub-band	16.12	
	Intermediate sub-band	15.31	
	Low sub-band	13.41	
Base Flow sub-band		12.60	
Beneficial Use sub-band		11.12	← 11.78
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: No releases to the Estuaries.

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 4/24/2017 (ENSO Neutral Condition):

Status for week ending 4/24/2017:

District wide, Raindar rainfall was 1.16 inches for the week. Lake stage on 4/24/2017 was 11.78 ft, down 0.18 ft from last week.

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

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

Water Supply Risk Evaluation

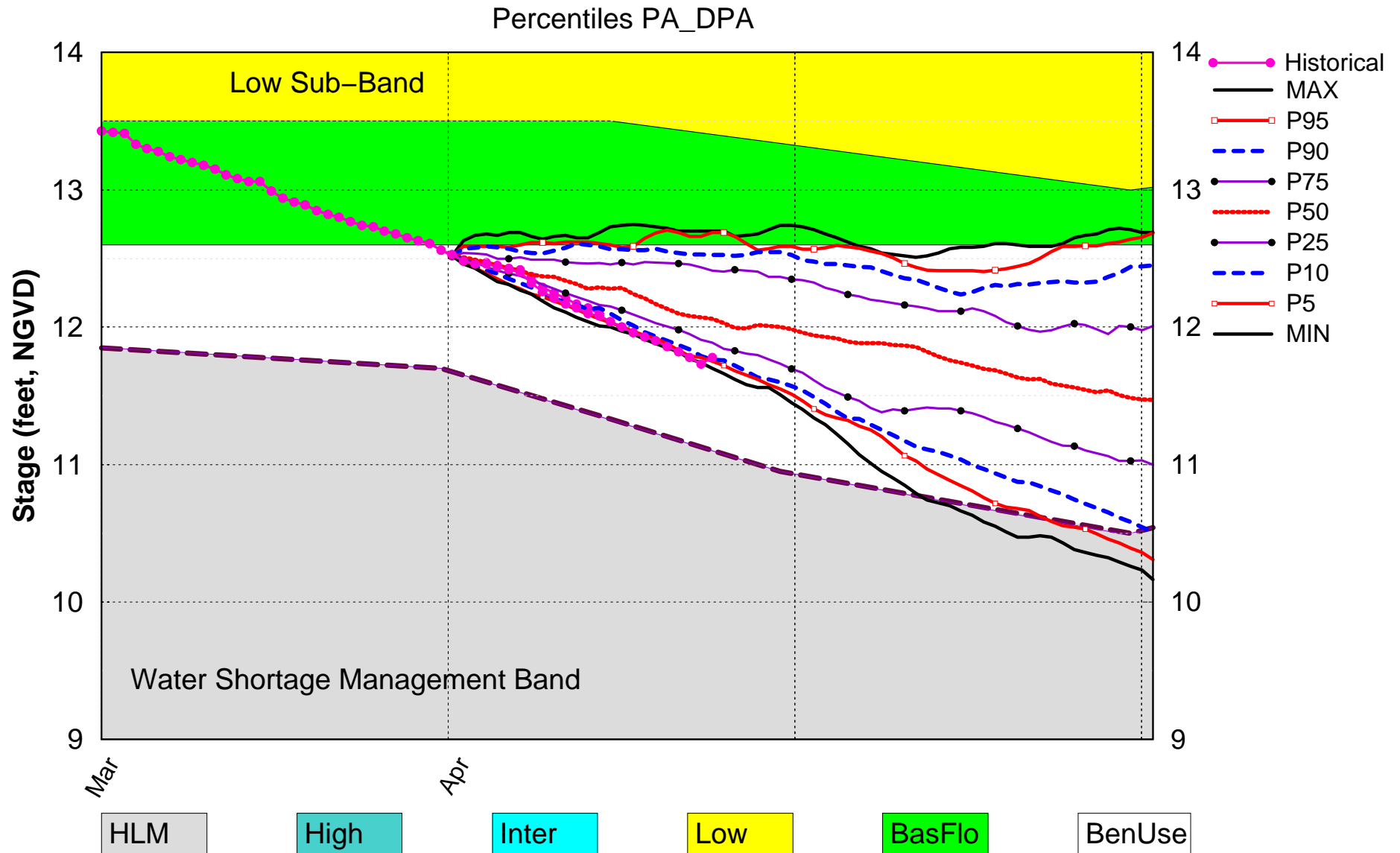
Area	Indicator	Value	Color Coded Scoring Scheme
LOK	Projected LOK Stage for the next two months	Beneficial Use Sub-Band	H
	Palmer Index for LOK Tributary Conditions	-3.41 (Extremely Dry)	H
	CPC Precipitation Outlook	1 month: Normal	L
		3 months: Normal	L
	LOK Seasonal Net Inflow Outlook	1.73 ft (Normal)	L
	ENSO La Nina Years		L
	LOK Multi-Seasonal Net Inflow Outlook	2.31 ft (Normal)	M
	ENSO La Nina Years		
WCAs	WCA 1: Site 1-7, Site 1-8T, & Site 1-9 Average	Above Line 1 (16.05 ft)	L
	WCA 2A: Site 2-17 HW	Above Line 1 (11.73 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64 and 65)	Above Line 1 (8.90 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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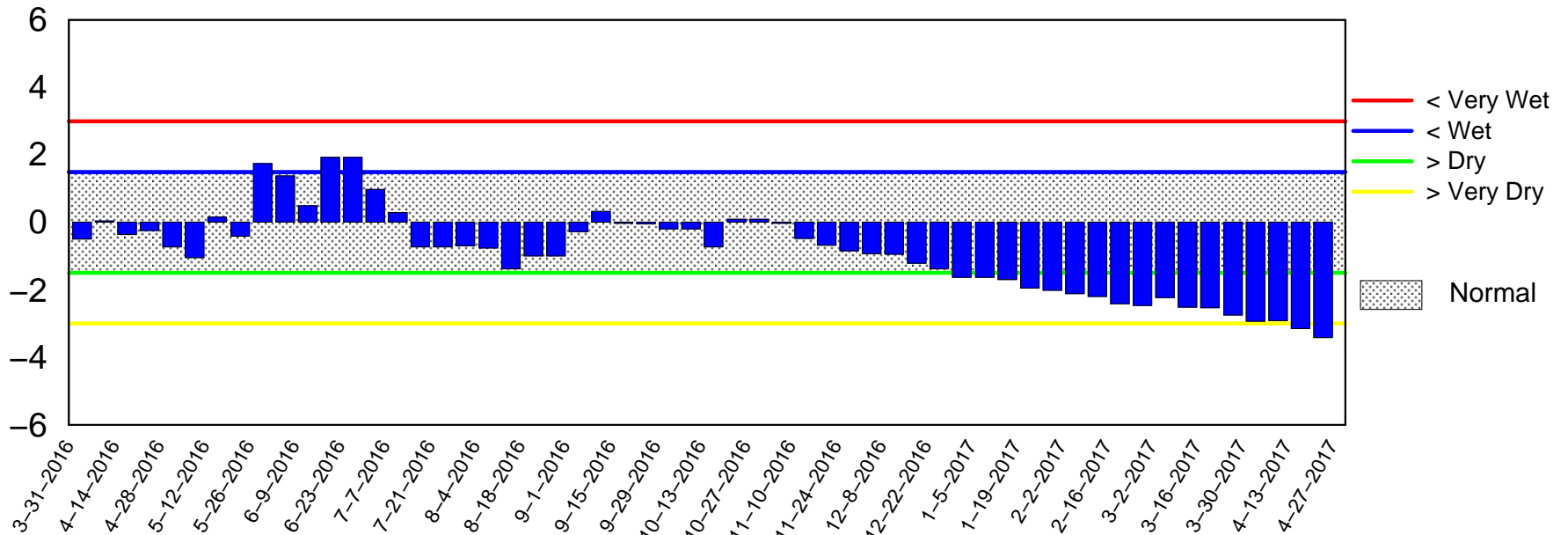
Lake Okeechobee SFWMM Apr 2017 Dynamic Position Analysis



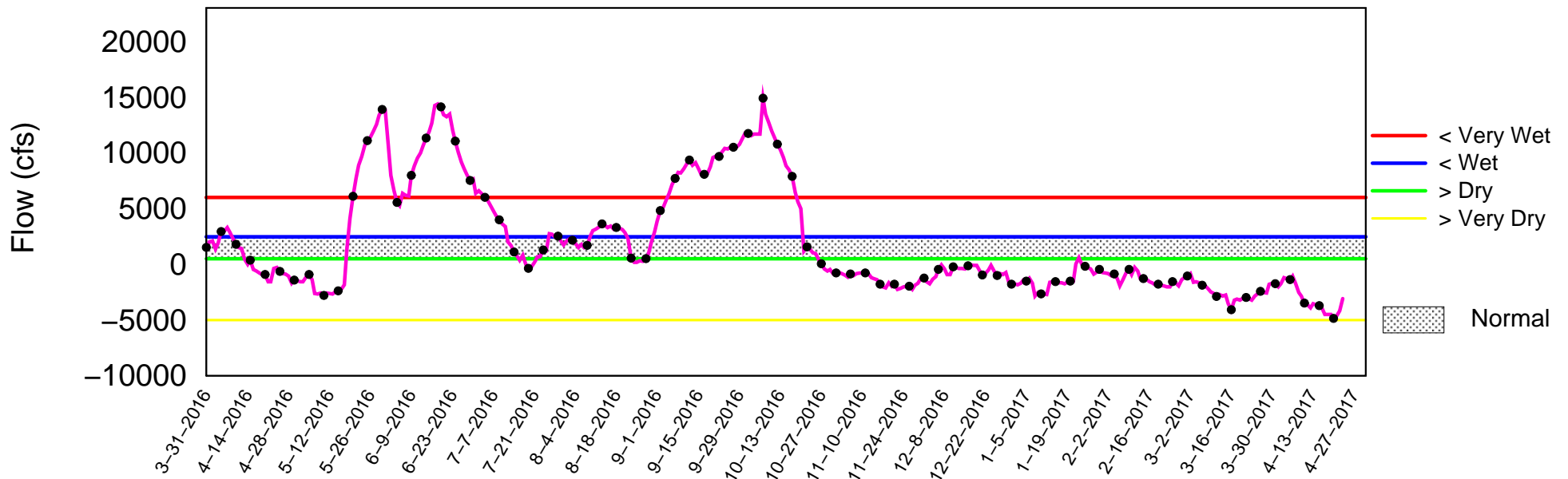
(See assumptions on the Position Analysis Results website)

Tributary Basin Condition Indicators as of April 24 2017

Palmer Index

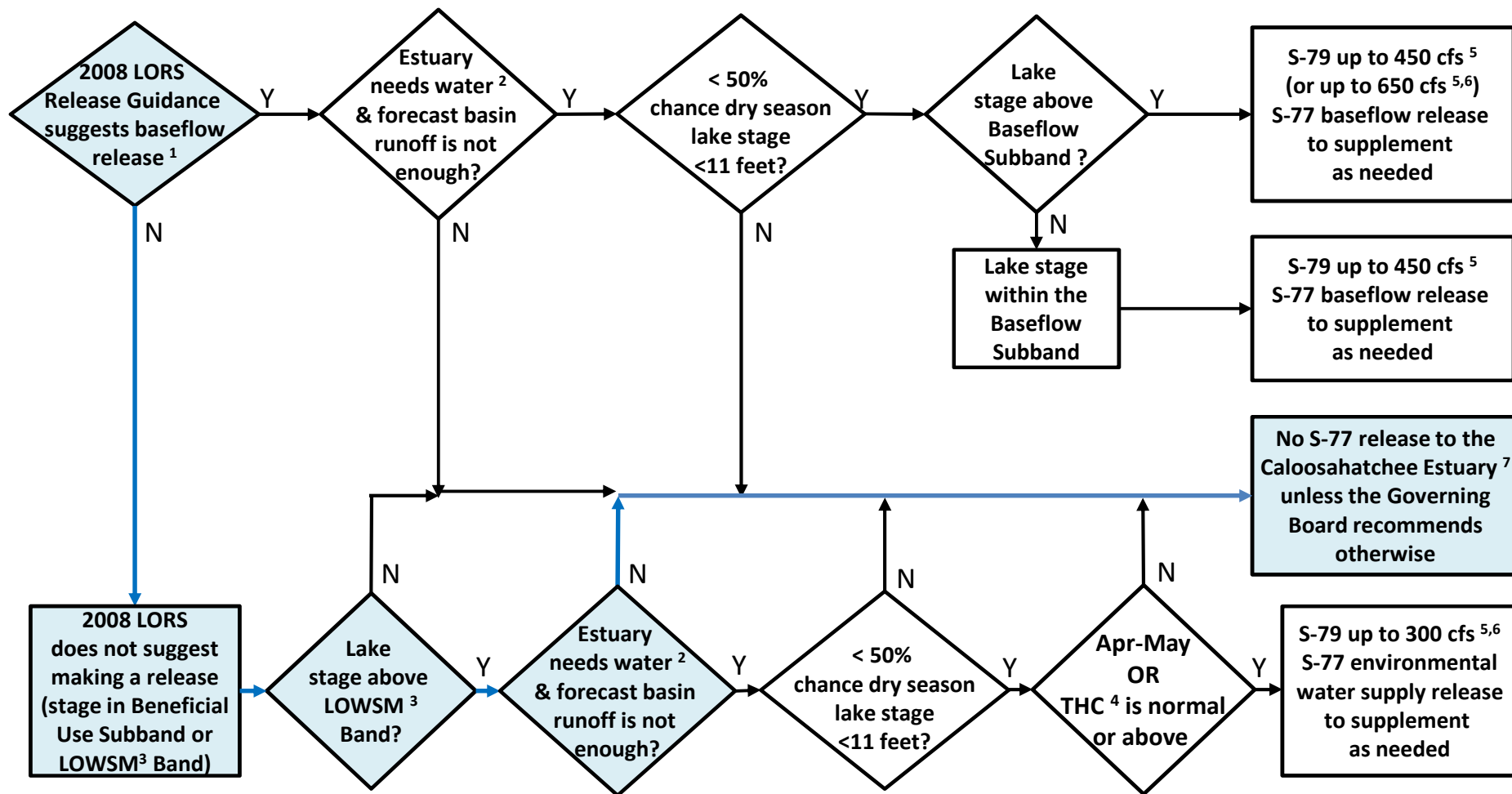


Lake Okeechobee Net Inflow (LONIN) 14-day Running Average



Mon Apr 24 17:51:56 EDT 2017

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.

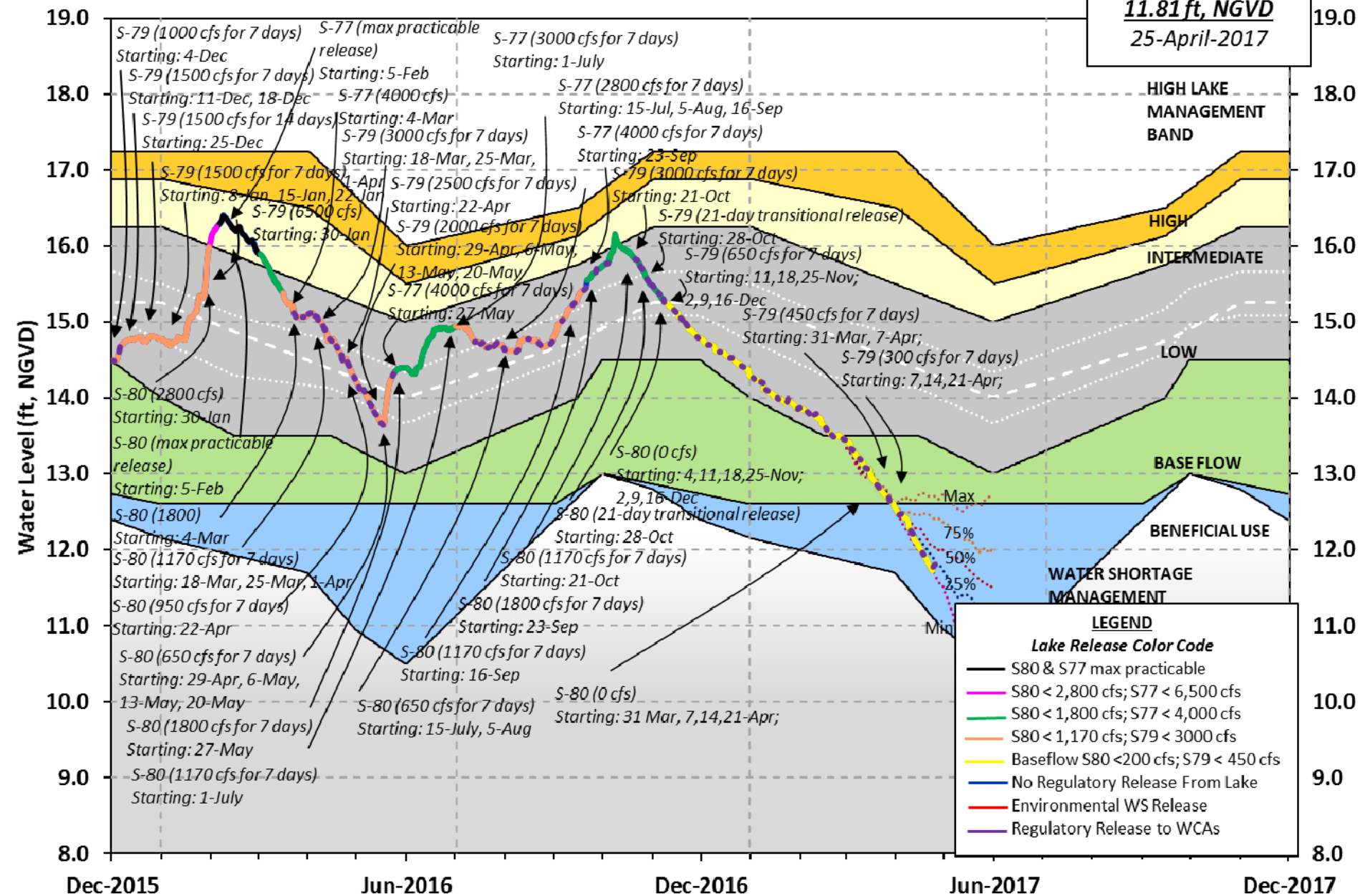
⁵Can release less than the “up to” limit if lower release is sufficient to reach or sustain desired estuary salinity; cfs = cubic feet per second.

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

11.81 ft, NGVD
25-April-2017



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 23 APR 2017

Okeechobee Lake Regulation	Elevation	Last Year	2YRS Ago
	(ft-NGVD)	(ft-NGVD)	(ft-NGVD)
*Okeechobee Lake Elevation	11.78	14.51	13.71 (Official Elv)
Bottom of High Lake Mngmt= 16.80 Top of Water Short Mngmt= 11.12			
Currently in Operational Management Band			

Simulated Average LORS2008 [1965-2000] 12.56
Difference from Average LORS2008 -0.78

23APR (1965-2007) Period of Record Average 13.78
Difference from POR Average -2.01

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ÷
5.72'

++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ÷
3.92'

Bridge Clearance = 51.76'

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

L001	L005	L006	LZ40	S4	S352	S308	S133
11.58	11.88	11.90	11.77	11.93	11.85	11.66	11.63

*Combination Okeechobee Avg-Daily Lake Average = 11.78
(*See Note)

Okeechobee Inflows (cfs):

S65E	0	S65EX1	271	Fisheating Cr	0
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:	271				

Okeechobee Outflows (cfs):

S135 Culverts	0	S354	38	S77	965
S127 Culverts	0	S351	410	S77Below	-NR-
S129 Culverts	0	S352	251	S308	624
S131 Culverts	0	L8 Canal Pt	-116	S308Below	-49
Total Outflows:	2173				

S4 Pumps: 11.24 11.93 0 0 0 0 (cfs)

S169:	11.88	11.24	0	0.0	0.0	0.0		
S310:	11.77		3					
S3 Pumps:	10.99	11.91	0	0	0	0		(cfs)
S354:	11.91	10.99	38	0.0	0.0			
S2 Pumps:	11.16	11.94	0	0	0	0	0	(cfs)
S351:	11.94	11.16	410	0.0	0.0	0.0		
S352:	11.98	11.65	251	0.0	0.0			
C10A:	-NR-	12.03		0.0	8.0	8.0	8.0	8.0
L8 Canal PT		11.95	-116					

S351 and S352 Temporary Pumps/S354 Spillway

S351:	11.16	11.94	410	-NR--NR--NR--NR--NR--NR-
S352:	11.65	11.98	251	-NR--NR--NR--NR-
S354:	10.99	11.91	38	-NR--NR--NR--NR-

Caloosahatchee River (S77, S78, S79)

S47B:	13.28	11.05		0.0	0.0
S47D:	11.10	11.10	38	6.0	

S77:

Spillway and Sector Flow:

11.83	11.15	964	3.0	0.0	3.0	0.5
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Flow Due to Lockages+: 1

S77 Below USGS Flow Gage -NR-

S78:

Spillway and Sector Flow:

10.97	3.02	686	0.0	0.0	0.0	2.0
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Flow Due to Lockages+: 10

S79:

Spillway and Sector Flow:

3.16	1.59	793	0.0	0.0	1.0	1.0	1.0	1.0	0.0
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0.0

Flow Due to Lockages+: 6

Percent of flow from S77 122%

Chloride (ppm) 92

St. Lucie Canal (S308, S80)

S308:

Spillway and Sector Flow:

11.78	11.74	624	0.0	0.0	0.0	0.0
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Flow Due to Lockages+: 0

S308 Below USGS Flow Gage -49

S153:	18.60	11.55	0	0.0	0.0
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S80:

Spillway and Sector Flow:

11.82	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+: 18

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.

----- Wind ---					

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:	0.81	0.81	0.81	35	1
S78:	0.36	0.36	0.36	220	1
S79:	0.73	0.76	0.76	270	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:	0.83	0.87	0.90	358	3
S80:	0.02	0.03	0.03	276	1
Okeechobee Average	0.82	0.13	0.13		
(Sites S78, S79 and S80 not included)					

Oke Nexrad Basin Avg	-NR-	0.00	0.00		

Okeechobee Lake Elevations	23 APR 2017	11.78	Difference from
23APR17			
23APR17 -1 Day =	22 APR 2017	11.73	-0.05
23APR17 -2 Days =	21 APR 2017	11.78	0.00
23APR17 -3 Days =	20 APR 2017	11.82	0.04
23APR17 -4 Days =	19 APR 2017	11.86	0.08
23APR17 -5 Days =	18 APR 2017	11.90	0.12
23APR17 -6 Days =	17 APR 2017	11.93	0.15
23APR17 -7 Days =	16 APR 2017	11.96	0.18
23APR17 -30 Days =	24 MAR 2017	12.73	0.95
23APR17 -1 Year =	23 APR 2016	14.51	2.73
23APR17 -2 Year =	23 APR 2015	13.71	1.93

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
23APR17	Today =	23 APR 2017	-2624	MON	-NR-
23APR17	-1 Day =	22 APR 2017	-3066	SUN	-NR-
23APR17	-2 Days =	21 APR 2017	-3641	SAT	-NR-
23APR17	-3 Days =	20 APR 2017	-4466	FRI	-NR-
23APR17	-4 Days =	19 APR 2017	-4110	THU	-NR-
23APR17	-5 Days =	18 APR 2017	-3706	WED	-NR-
23APR17	-6 Days =	17 APR 2017	-3354	TUE	-NR-
23APR17	-7 Days =	16 APR 2017	-2887	MON	-3597
23APR17	-8 Days =	15 APR 2017	-2654	SUN	-3953
23APR17	-9 Days =	14 APR 2017	-2777	SAT	-3694
23APR17	-10 Days =	13 APR 2017	-2635	FRI	548
23APR17	-11 Days =	12 APR 2017	-3109	THU	-3192
23APR17	-12 Days =	11 APR 2017	-2866	WED	-1174
23APR17	-13 Days =	10 APR 2017	-2835	TUE	-3304

S65E					
Average Flow over previous 14 days					Avg-Daily Flow
23APR17	Today=	23 APR 2017	8	MON	0
23APR17	-1 Day =	22 APR 2017	8	SUN	0
23APR17	-2 Days =	21 APR 2017	8	SAT	0
23APR17	-3 Days =	20 APR 2017	8	FRI	0
23APR17	-4 Days =	19 APR 2017	8	THU	0
23APR17	-5 Days =	18 APR 2017	8	WED	0
23APR17	-6 Days =	17 APR 2017	8	TUE	0
23APR17	-7 Days =	16 APR 2017	8	MON	0
23APR17	-8 Days =	15 APR 2017	8	SUN	0
23APR17	-9 Days =	14 APR 2017	8	SAT	0
23APR17	-10 Days =	13 APR 2017	8	FRI	0
23APR17	-11 Days =	12 APR 2017	8	THU	0
23APR17	-12 Days =	11 APR 2017	8	WED	112
23APR17	-13 Days =	10 APR 2017	0	TUE	0

S65EX1					
Average Flow over previous 14 days					Avg-Daily Flow
23APR17	Today=	23 APR 2017	267	MON	271
23APR17	-1 Day =	22 APR 2017	266	SUN	252
23APR17	-2 Days =	21 APR 2017	267	SAT	241
23APR17	-3 Days =	20 APR 2017	271	FRI	270
23APR17	-4 Days =	19 APR 2017	275	THU	269
23APR17	-5 Days =	18 APR 2017	278	WED	270
23APR17	-6 Days =	17 APR 2017	281	TUE	288
23APR17	-7 Days =	16 APR 2017	282	MON	237
23APR17	-8 Days =	15 APR 2017	287	SUN	286
23APR17	-9 Days =	14 APR 2017	291	SAT	327
23APR17	-10 Days =	13 APR 2017	289	FRI	271
23APR17	-11 Days =	12 APR 2017	294	THU	273
23APR17	-12 Days =	11 APR 2017	304	WED	194

Lake Okeechobee Outlets Last 14 Days

DATE	S-77	Below S-77	S-78	S-79	
	Discharge	Discharge	Discharge	Discharge	
	(ALL DAY)	(ALL-DAY)	(ALL DAY)	(ALL DAY)	
	(AC-FT)	(AC-FT)	(AC-FT)	(AC-FT)	
23 APR 2017	1882	-NR-	1380	1601	
22 APR 2017	1916	-NR-	1008	247	
21 APR 2017	1019	-NR-	-NR-	240	
20 APR 2017	950	-NR-	32	17	
19 APR 2017	1163	-NR-	121	137	
18 APR 2017	1827	-NR-	464	529	
17 APR 2017	2145	-NR-	999	813	
16 APR 2017	2382	3164	1733	1238	
15 APR 2017	1783	3402	1049	1172	
14 APR 2017	-NR-	3622	215	277	
13 APR 2017	-NR-	3521	209	95	
12 APR 2017	-NR-	3046	342	298	
11 APR 2017	1798	3059	711	482	
10 APR 2017	1855	3112	902	835	

DATE	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)
	(AC-FT)	(AC-FT)	(AC-FT)	(AC-FT)	(AC-FT)
23 APR 2017	7	773	510	59	-230
22 APR 2017	86	1862	1327	591	-90
21 APR 2017	73	2419	1374	1616	-71
20 APR 2017	40	2477	1370	1674	-129
19 APR 2017	34	2699	1388	1816	-257
18 APR 2017	86	2737	1396	1666	-NR-
17 APR 2017	113	2407	1281	1354	-260
16 APR 2017	177	1997	1277	611	-284
15 APR 2017	151	2058	1297	781	-299
14 APR 2017	100	2330	1356	896	-123
13 APR 2017	111	2300	1412	1576	-71
12 APR 2017	158	2397	1582	1535	-3
11 APR 2017	177	2374	1565	1602	20
10 APR 2017	155	2421	1505	1454	-32

DATE	S-308	Below S-308	S-80
	Discharge	Discharge	Discharge
	(ALL DAY)	(ALL-DAY)	(ALL-DAY)
	(AC-FT)	(AC-FT)	(AC-FT)
23 APR 2017	1228	-97	36
22 APR 2017	2316	406	64
21 APR 2017	2804	592	48
20 APR 2017	3161	390	43
19 APR 2017	2035	291	35
18 APR 2017	-NR-	569	45
17 APR 2017	-NR-	572	43
16 APR 2017	4794	215	49
15 APR 2017	2714	220	48
14 APR 2017	2714	67	56

13 APR 2017	1072	75	47
12 APR 2017	1	306	44
11 APR 2017	605	450	38
10 APR 2017	615	252	44

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

(I) - Flows preceded 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

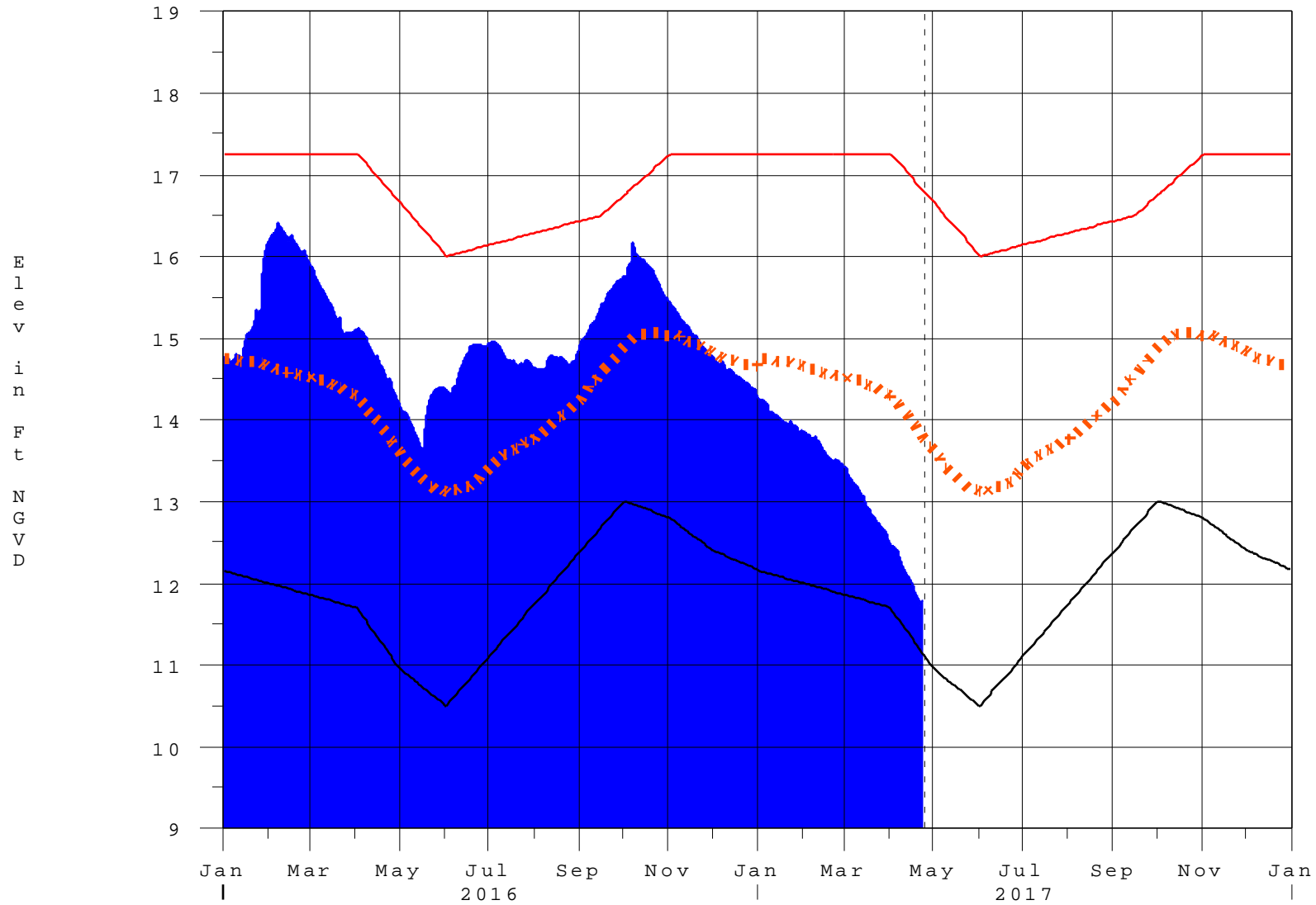
++ For more information see the Jacksonville District Navigation website at <http://www.saj.usace.army.mil/>

\$ For information regarding Lake Okeechobee Service Area water restrictions please refer to www.sfwmd.gov

Report Generated 24APR2017 @ 16:06 ** Preliminary Data - Subject to Revision **

Lake Okeechobee

24APR17 16:00:19



- 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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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