

Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 5/1/2017 (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 (May-Oct)	N/A	N/A	2.30	Very Wet	2.63	Very Wet	3.48	Very Wet
Multi Seasonal (May-Apr)	N/A	N/A	2.76	Wet	3.73	Wet	4.12	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:](#)

-2006 cfs 14-day running average for Lake Okeechobee Net Inflow through 5/1/2017. According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Dry.

-3.63 for Palmer Index on 4/30/2017.

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 5/1/2017

Lake Okeechobee Stage: **11.61 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		16.64	
Operational Band	High sub-band	16.01	
	Intermediate sub-band	15.25	
	Low sub-band	13.34	
Base Flow sub-band		12.60	
Beneficial Use sub-band		10.95	← 11.61
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 5/1/2017 (ENSO Neutral Condition):

Status for week ending 5/1/2017:

District wide, Raindar rainfall was 0.03 inches for the week. Lake stage on 5/1/2017 was 11.61 ft, down 0.17 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

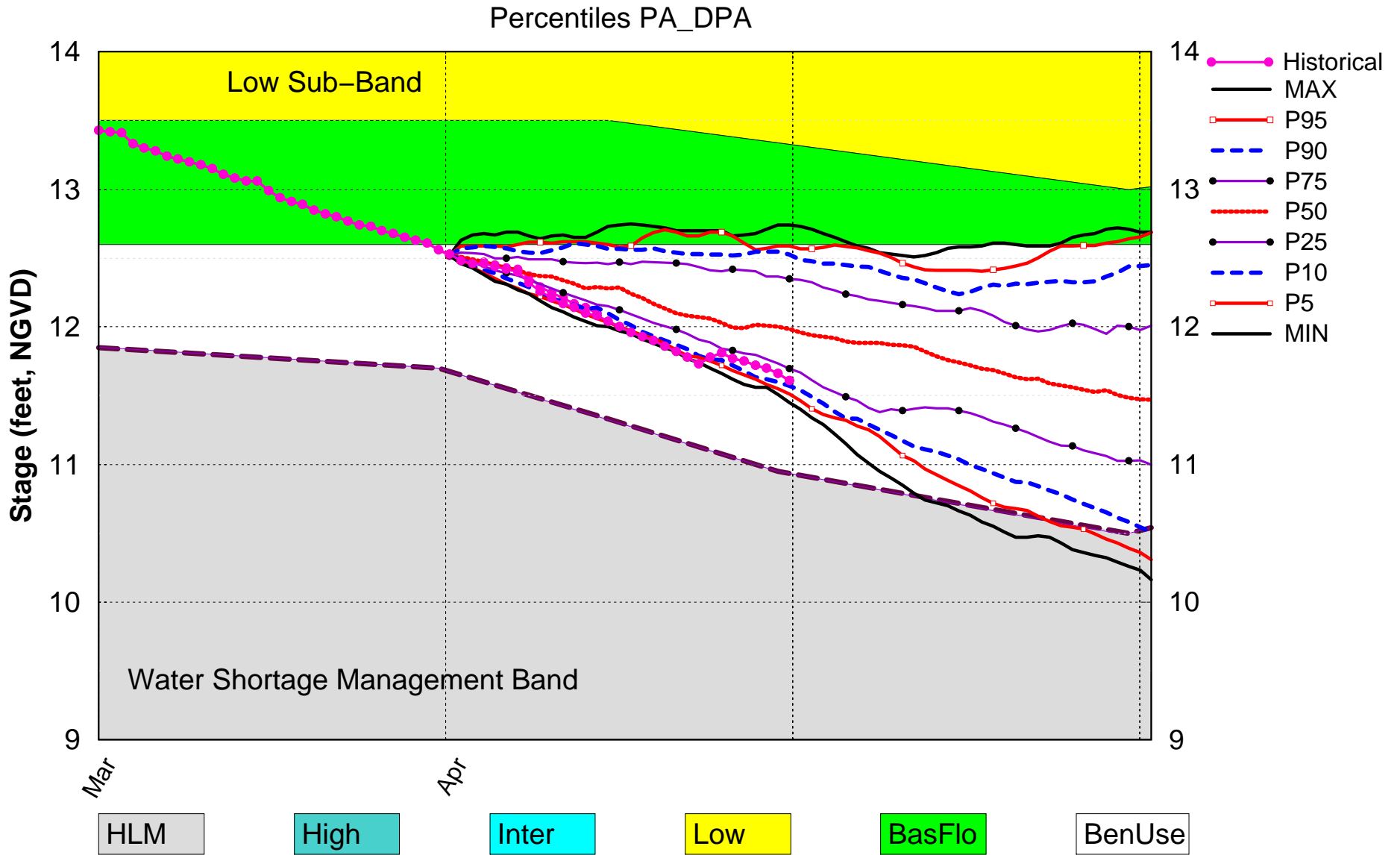
Area	Indicator	Value	Color Coded Scoring Scheme
LOK	Projected LOK Stage for the next two months	Beneficial Use Sub-Band	H
	Palmer Index for LOK Tributary Conditions	-3.63 (Extremely Dry)	H
	CPC Precipitation Outlook	1 month: Normal	L
		3 months: Normal	L
	LOK Seasonal Net Inflow Outlook	2.63 ft (Normal)	L
	ENSO La Nina Years		
	LOK Multi-Seasonal Net Inflow Outlook	3.73 ft (Wet)	L
ENSO La Nina Years			
WCAs	WCA 1: Site 1-7, Site 1-8T, & Site 1-9 Average	Above Line 1 (15.86 ft)	L
	WCA 2A: Site 2-17 HW	Above Line 1 (11.70 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64 and 65)	Above Line 1 (8.76 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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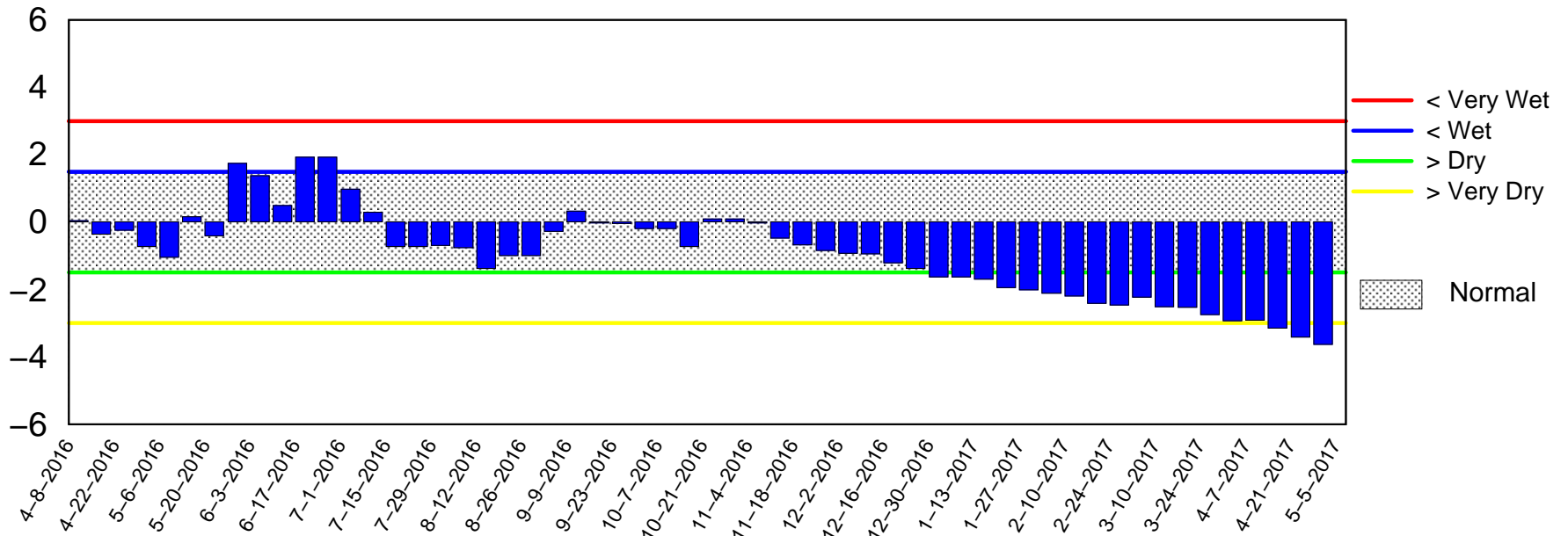
Lake Okeechobee SFWMM Apr 2017 Dynamic Position Analysis



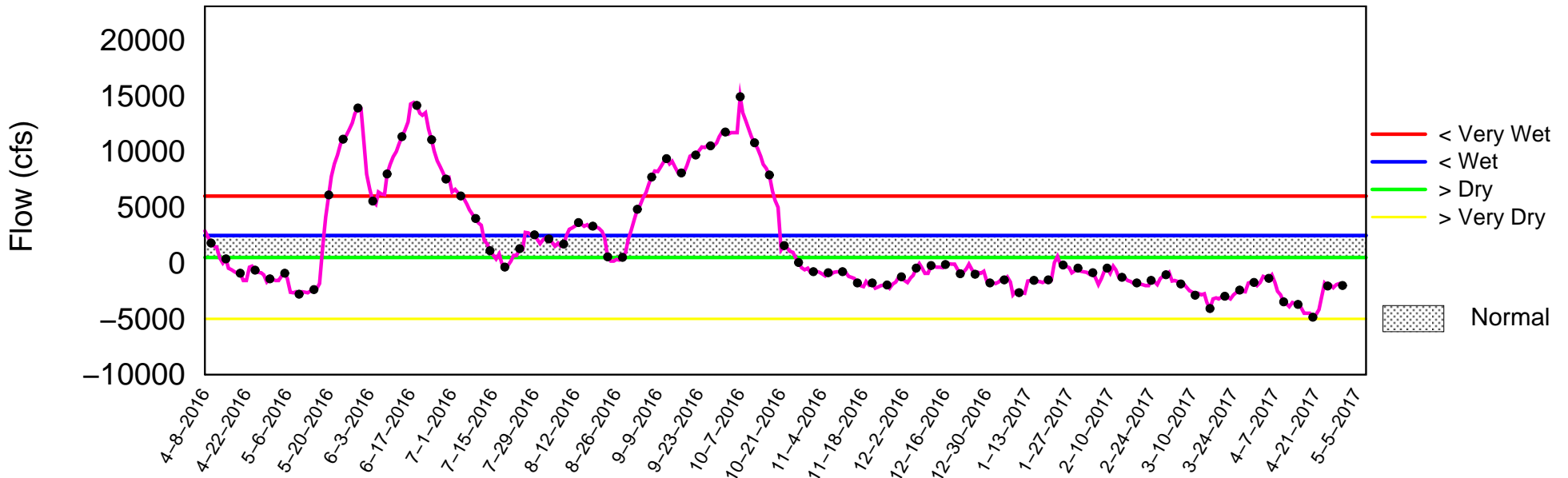
(See assumptions on the Position Analysis Results website)

Tributary Basin Condition Indicators as of May 1 2017

Palmer Index

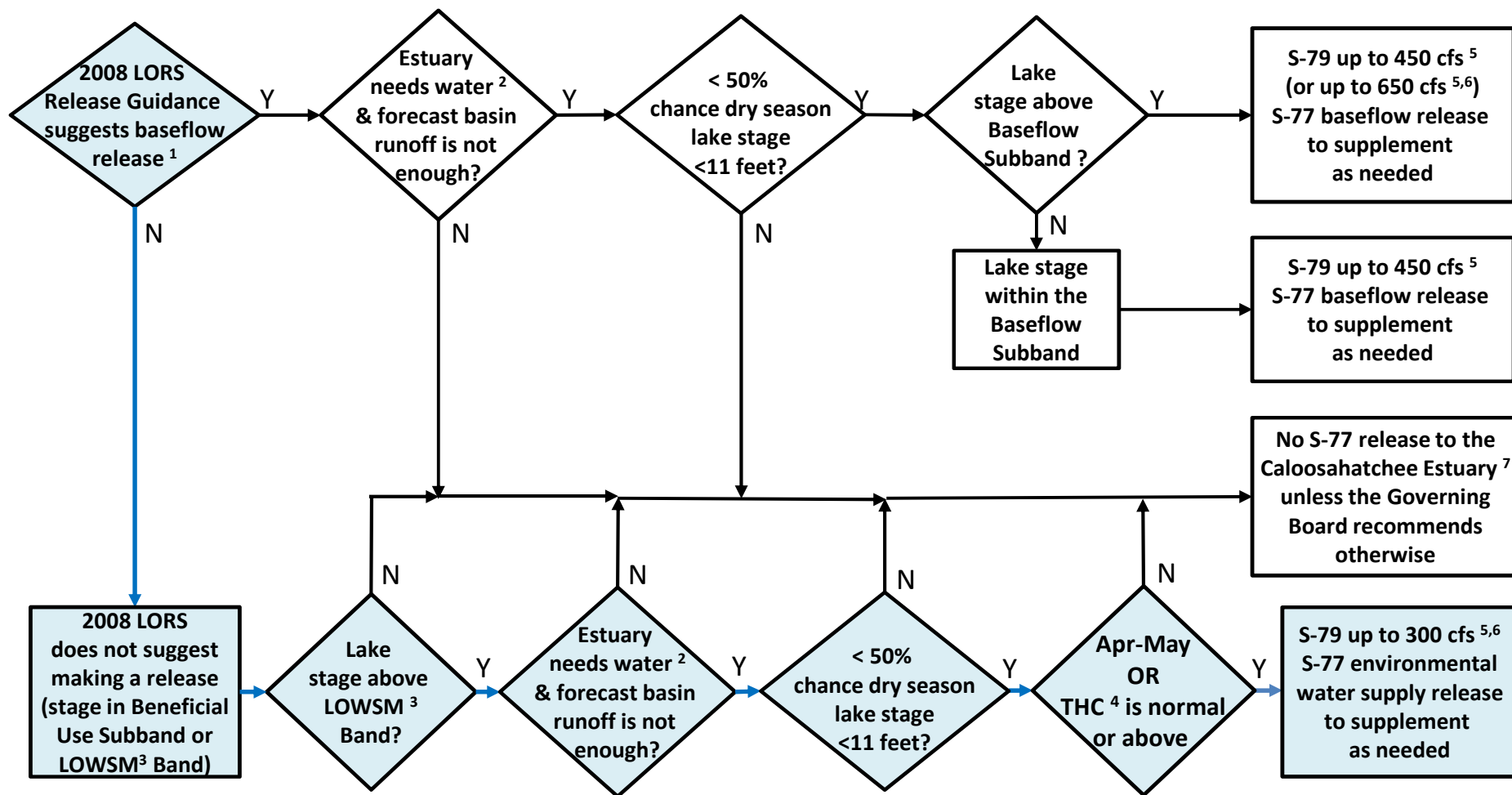


Lake Okeechobee Net Inflow (LONIN) 14-day Running Average



Mon May 01 12:02:16 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.

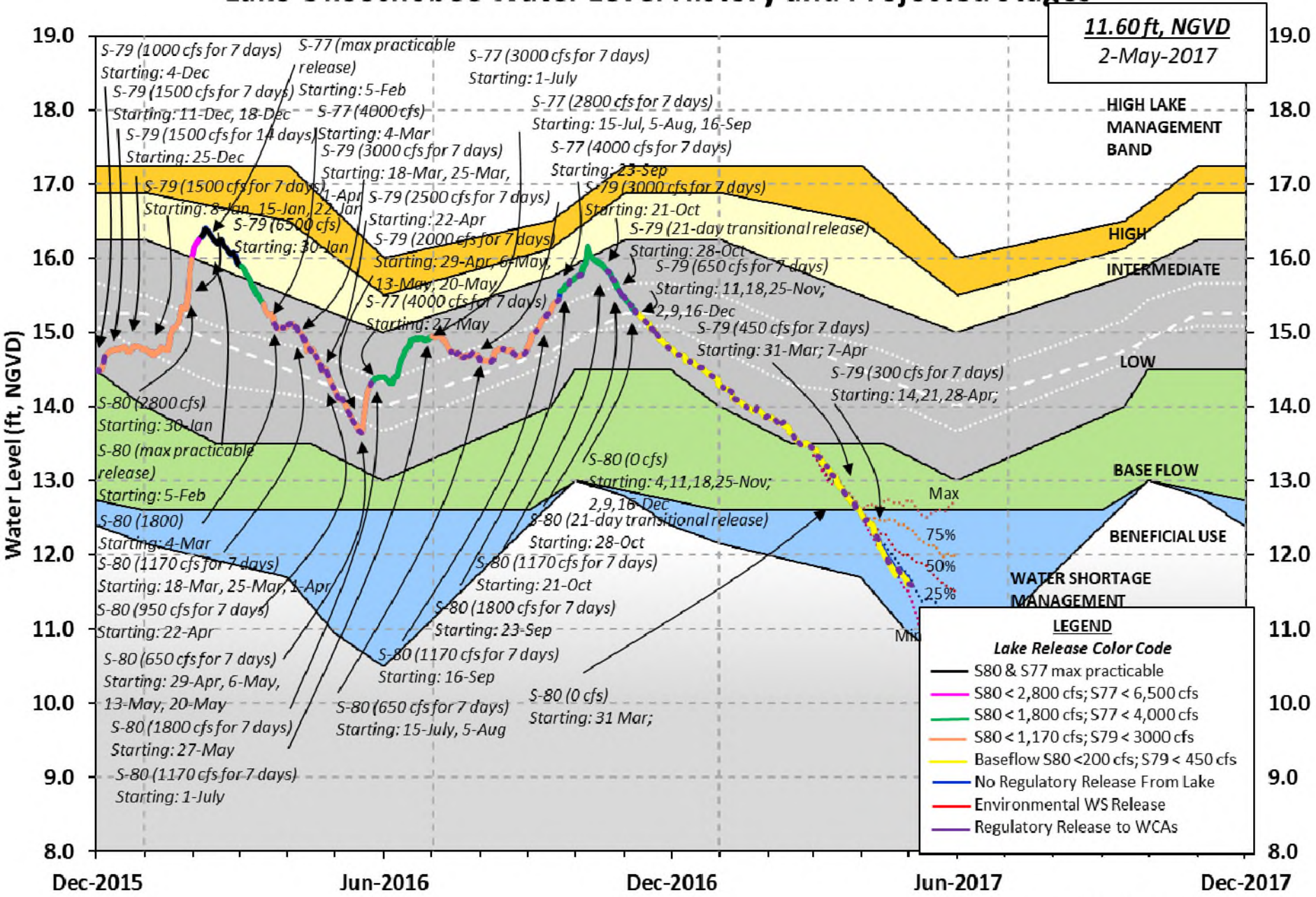
⁴Tributary Hydrologic Condition (THC) is based on classification of Lake Okeechobee Net Inflow and Palmer Index.

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



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 30 APR 2017

Okeechobee Lake Regulation	Elevation	Last Year	2YRS Ago
	(ft-NGVD)	(ft-NGVD)	(ft-NGVD)
*Okeechobee Lake Elevation	11.61	14.21	13.87 (Official Elv)
Bottom of High Lake Mngmt=	16.66	Top of Water Short Mngmt=	10.95
Currently in Operational Management Band			

Simulated Average LORS2008 [1965-2000] 12.41
 Difference from Average LORS2008 -0.80

30APR (1965-2007) Period of Record Average 13.63
 Difference from POR Average -2.02

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ÷
 5.55'
 ++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ÷
 3.75'
 Bridge Clearance = 52.34'

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

L001	L005	L006	LZ40	S4	S352	S308	S133
11.54	11.85	11.59	11.56	11.66	11.57	11.43	11.68

*Combination Okeechobee Avg-Daily Lake Average = 11.61
 (*See Note)

Okeechobee Inflows (cfs):

S65E	0	S65EX1	214	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:	214				

Okeechobee Outflows (cfs):

S135 Culverts	0	S354	481	S77	1146
S127 Culverts	0	S351	972	S308	315
S129 Culverts	0	S352	100		
S131 Culverts	0	L8 Canal Pt	-123		
Total Outflows:	2890				

S169:	11.71	11.69	105	5.0	5.0	5.0			
S310:	11.65		156						
S3 Pumps:	11.14	11.59	0	0	0	0			(cfs)
S354:	11.59	11.14	481	2.8	3.0				
S2 Pumps:	11.11	11.55	0	0	0	0	0		(cfs)
S351:	11.55	11.11	972	4.6	4.6	4.6			
S352:	11.52	10.53	100	0.1	0.2				
C10A:	-NR-	11.61		0.0	8.0	8.0	8.0	8.0	8.0
L8 Canal PT		11.44	-123						

S351 and S352 Temporary Pumps/S354 Spillway

S351:	11.11	11.55	972	-NR--NR--NR--NR--NR--NR-
S352:	10.53	11.52	100	-NR--NR--NR--NR-
S354:	11.14	11.59	481	-NR--NR--NR--NR-

Caloosahatchee River (S77, S78, S79)

S47B:	12.65	10.93		0.0	0.0
S47D:	10.90	10.89	34	6.2	

S77:

Spillway and Sector Flow:							
	11.85	10.92	*****	0.0	3.0	3.0	0.0
Flow Due to Lockages+:			2				

S77 Below USGS Flow Gage 1116

S78:

Spillway and Sector Flow:							
	10.80	3.02	662	0.0	0.0	0.0	1.5
Flow Due to Lockages+:			16				

S79:

Spillway and Sector Flow:										
	3.19	1.50	666	0.0	0.0	0.5	1.0	0.5	0.0	0.0

0.0

Flow Due to Lockages+:			10
Percent of flow from S77			172%
Chloride (ppm)			89

St. Lucie Canal (S308, S80)

S308:

Spillway and Sector Flow:							
	11.39	11.16	315.00	0.0	0.0	0.0	0.0
Flow Due to Lockages+:			0				

S308 Below USGS Flow Gage 371

S153:	18.49	10.97	0	0.0	0.0
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S80:

Spillway and Sector Flow:									
	11.25	0.06	0	0.0	0.0	0.0	0.0	0.0	0.0
Flow Due to Lockages+:			19						
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.

Daily Precipitation Totals Speed (mph)	1-Day (inches)	3-Day (inches)	7-Day (inches)	Direction (Degø)	Wind ---
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	0.20	150	6
S78:	0.00	0.00	0.00	102	5
S79:	0.00	0.00	0.00	199	8
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	0.00	84	7
S80:	0.00	0.96	0.96	108	6
Okeechobee Average (Sites S78, S79 and S80 not included)	0.00	0.00	0.02		
Oke Nexrad Basin Avg	-NR-	0.00	0.02		

Okeechobee Lake Elevations	30 APR 2017	11.61	Difference from
30APR17			
30APR17 -1 Day =	29 APR 2017	11.66	0.05
30APR17 -2 Days =	28 APR 2017	11.70	0.09
30APR17 -3 Days =	27 APR 2017	11.72	0.11
30APR17 -4 Days =	26 APR 2017	11.75	0.14
30APR17 -5 Days =	25 APR 2017	11.77	0.16
30APR17 -6 Days =	24 APR 2017	11.81	0.20
30APR17 -7 Days =	23 APR 2017	11.78	0.17
30APR17 -30 Days =	31 MAR 2017	12.53	0.92
30APR17 -1 Year =	30 APR 2016	14.21	2.60
30APR17 -2 Year =	30 APR 2015	13.87	2.26

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
30APR17	Today =	30 APR 2017	-1763	MON	-5812
30APR17	-1 Day =	29 APR 2017	-1611	SUN	-3825
30APR17	-2 Days =	28 APR 2017	-1655	SAT	-1036
30APR17	-3 Days =	27 APR 2017	-1945	FRI	-3974
30APR17	-4 Days =	26 APR 2017	-1711	THU	-2558
30APR17	-5 Days =	25 APR 2017	-1822	WED	-5711
30APR17	-6 Days =	24 APR 2017	-1520	TUE	5980
30APR17	-7 Days =	23 APR 2017	-2204	MON	10738
30APR17	-8 Days =	22 APR 2017	-3425	SUN	-5861
30APR17	-9 Days =	21 APR 2017	-3614	SAT	-3567
30APR17	-10 Days =	20 APR 2017	-4249	FRI	-3612
30APR17	-11 Days =	19 APR 2017	-4129	THU	-3133
30APR17	-12 Days =	18 APR 2017	-4015	WED	-1091
30APR17	-13 Days =	17 APR 2017	-4051	TUE	-1225

S65E

Average Flow over previous 14 days					Avg-Daily Flow
30APR17	Today=	30 APR 2017	0	MON	0
30APR17	-1 Day =	29 APR 2017	0	SUN	0
30APR17	-2 Days =	28 APR 2017	0	SAT	0
30APR17	-3 Days =	27 APR 2017	0	FRI	0
30APR17	-4 Days =	26 APR 2017	0	THU	0
30APR17	-5 Days =	25 APR 2017	0	WED	0
30APR17	-6 Days =	24 APR 2017	8	TUE	0
30APR17	-7 Days =	23 APR 2017	8	MON	0
30APR17	-8 Days =	22 APR 2017	8	SUN	0
30APR17	-9 Days =	21 APR 2017	8	SAT	0
30APR17	-10 Days =	20 APR 2017	8	FRI	0
30APR17	-11 Days =	19 APR 2017	8	THU	0
30APR17	-12 Days =	18 APR 2017	8	WED	0
30APR17	-13 Days =	17 APR 2017	8	TUE	0

S65EX1

Average Flow over previous 14 days					Avg-Daily Flow
30APR17	Today=	30 APR 2017	246	MON	214
30APR17	-1 Day =	29 APR 2017	247	SUN	214
30APR17	-2 Days =	28 APR 2017	253	SAT	214
30APR17	-3 Days =	27 APR 2017	261	FRI	216
30APR17	-4 Days =	26 APR 2017	265	THU	217
30APR17	-5 Days =	25 APR 2017	269	WED	233
30APR17	-6 Days =	24 APR 2017	266	TUE	271
30APR17	-7 Days =	23 APR 2017	267	MON	271
30APR17	-8 Days =	22 APR 2017	266	SUN	252
30APR17	-9 Days =	21 APR 2017	267	SAT	241
30APR17	-10 Days =	20 APR 2017	271	FRI	270
30APR17	-11 Days =	19 APR 2017	275	THU	269
30APR17	-12 Days =	18 APR 2017	278	WED	270

 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 APR 2017	2263	2214	1338	1335
29 APR 2017	2482	2665	1676	1448
28 APR 2017	1132	1263	515	276
27 APR 2017	456	603	35	13
26 APR 2017	370	98	42	108
25 APR 2017	677	536	137	1188
24 APR 2017	624	844	663	1852
23 APR 2017	1882	1857	1380	1601
22 APR 2017	1916	1530	1008	247
21 APR 2017	1019	600	28	240
20 APR 2017	950	394	32	17
19 APR 2017	1163	*****	121	137
18 APR 2017	1827	1423	464	529
17 APR 2017	2145	1896	999	813

	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)
30 APR 2017	309	1999	178	845	-243
29 APR 2017	212	1927	18	1350	-218
28 APR 2017	210	1529	0	1868	-203
27 APR 2017	195	242	0	1801	-171
26 APR 2017	160	50	0	1624	-34
25 APR 2017	73	99	436	1479	69
24 APR 2017	20	0	0	494	-260
23 APR 2017	7	773	512	59	-230
22 APR 2017	86	1862	1327	591	-90
21 APR 2017	73	2419	1372	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	-242
17 APR 2017	113	2407	1281	1354	-260

	S-308	Below S-308	S-80
	Discharge	Discharge	Discharge
	(ALL DAY)	(ALL-DAY)	(ALL-DAY)
DATE	(AC-FT)	(AC-FT)	(AC-FT)
30 APR 2017	598	735	37
29 APR 2017	550	660	53
28 APR 2017	624	583	50
27 APR 2017	622	338	37
26 APR 2017	1	269	39
25 APR 2017	542	-197	47
24 APR 2017	2058	-162	41
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

*** 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

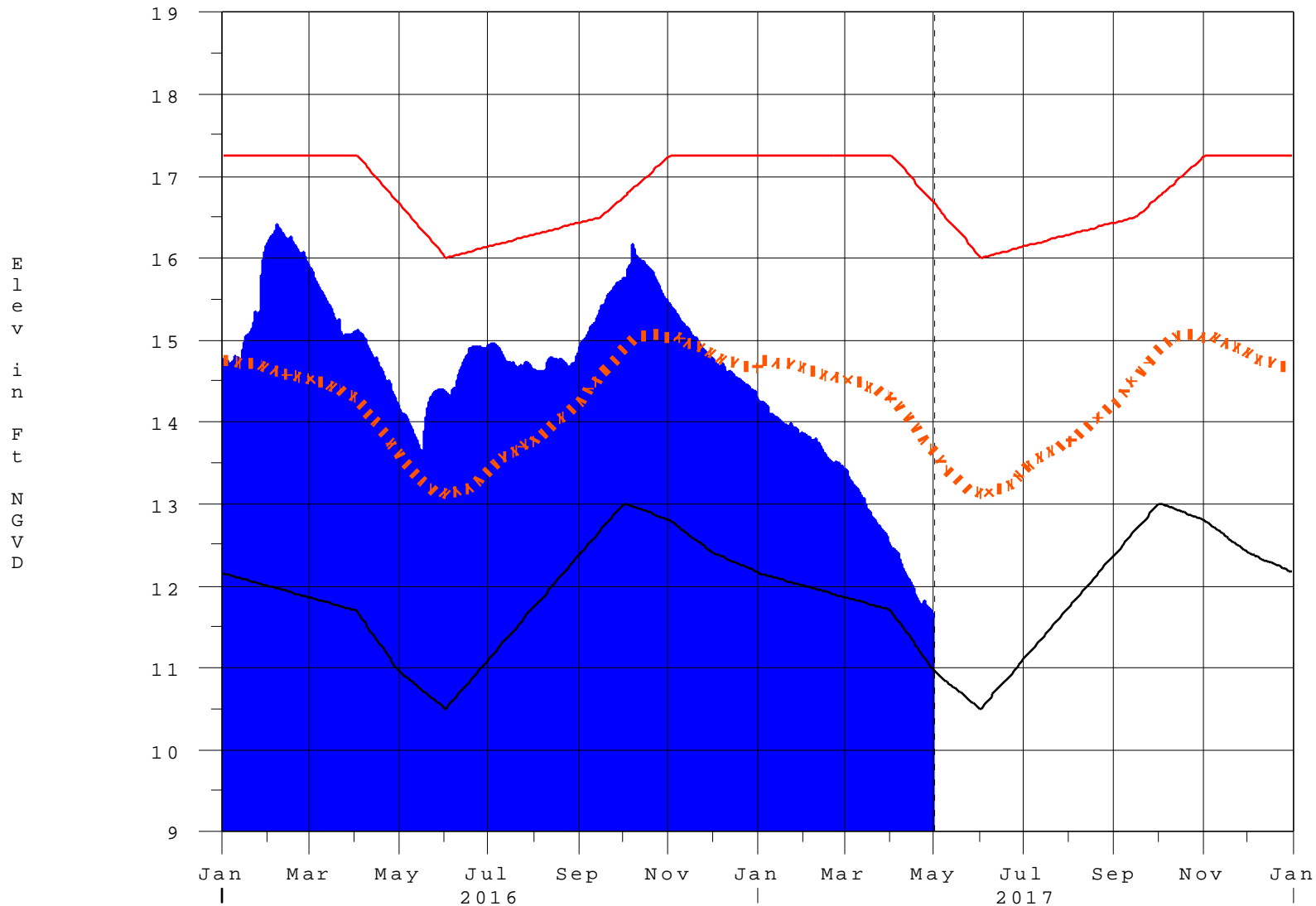
++ For more information see the Jacksonville District Navigation website at <http://www.saj.usace.army.mil/>

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

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Report Generated 01MAY2017 @ 11:15 ** Preliminary Data - Subject to Revision
**

Lake Okeechobee

01MAY17 11:17:16



- 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