

Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 1/9/2016 (ENSO La Nina 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 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)	Condition	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition
Current (Jan-Jun)	N/A	N/A	0.34	Dry	0.27	Dry	0.25	Dry
Multi Seasonal (Jan-Oct)	N/A	N/A	2.51	Wet	2.93	Wet	2.20	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.

[Tributary Hydrologic Conditions Graph:](#)

-2812 cfs 14-day running average for Lake Okeechobee Net Inflow through 1/8/2017. According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Dry.

-1.63 for Palmer Index on 1/7/2017.

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 1/8/2017

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		17.25	
Operational Band	High sub-band	16.85	
	Intermediate sub-band	16.19	
	Low sub-band	13.92	← 14.10
Base Flow sub-band		12.60	
Beneficial Use sub-band		12.11	
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 1/9/2017 (ENSO La Nina Condition):

Status for week ending 1/9/2017:

District wide, Raindar rainfall was 0.00 inches for the week. Lake stage on 1/9/2017 was 14.10 ft, down 0.16 ft from last week.

The updated January 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

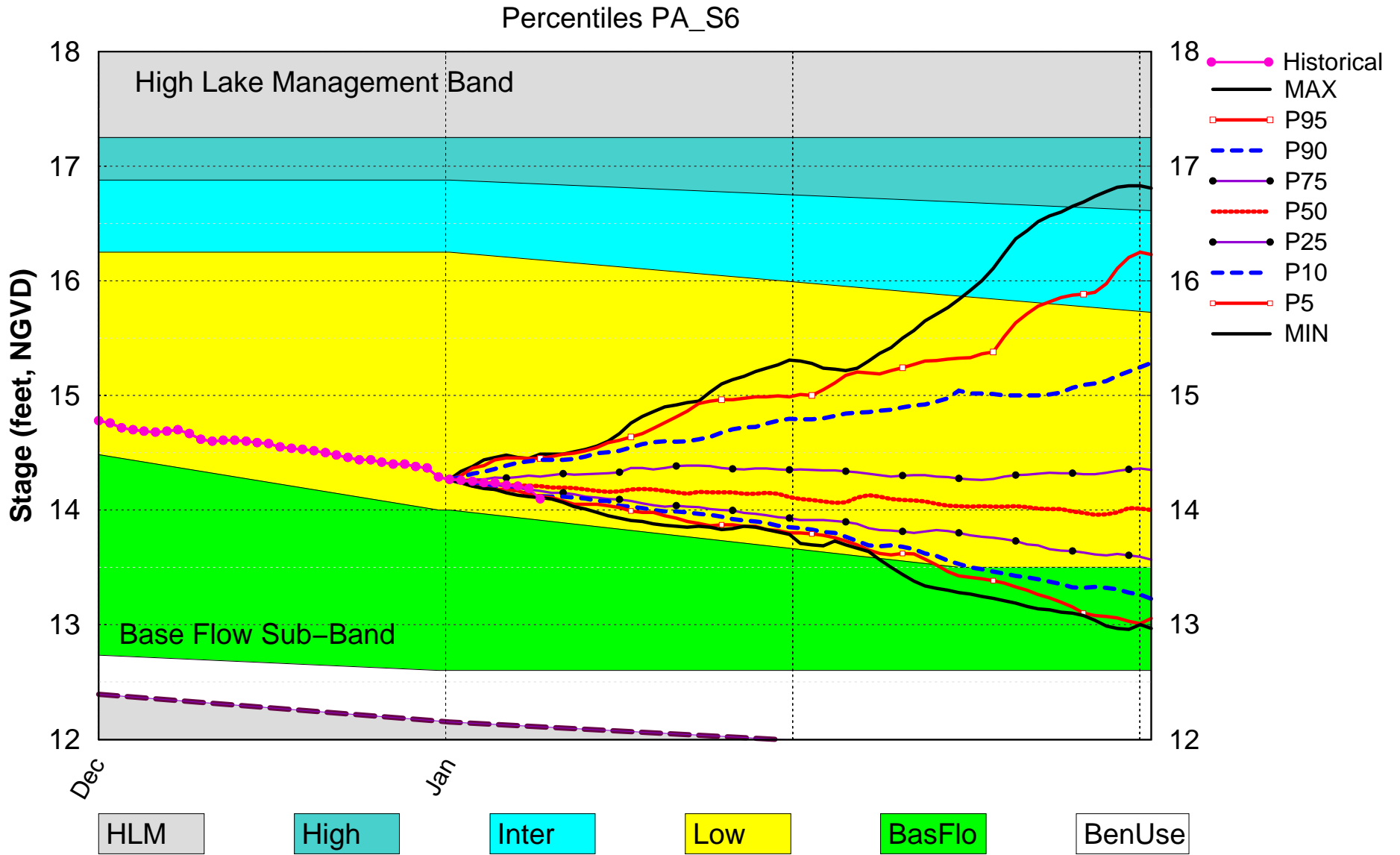
Area	Indicator	Value	Color Coded Scoring Scheme
LOK	Projected LOK Stage for the next two months	Low Sub-Band	L
	Palmer Index for LOK Tributary Conditions	-1.63 (Dry)	M
	CPC Precipitation Outlook	1 month: Below Normal	M
		3 months: Below Normal	M
	LOK Seasonal Net Inflow Outlook	0.27 ft (Dry)	M
	ENSO La Nina Years		
	LOK Multi-Seasonal Net Inflow Outlook	2.93 ft (Normal)	M
ENSO La Nina Years			
WCAs	WCA 1: Site 1-7, Site 1-8T, & Site 1-9 Average	Above Line 1 (16.54 ft)	L
	WCA 2A: Site 2-17 HW	Above Line1 (12.11 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64 and 65)	Above Line 1 (9.81 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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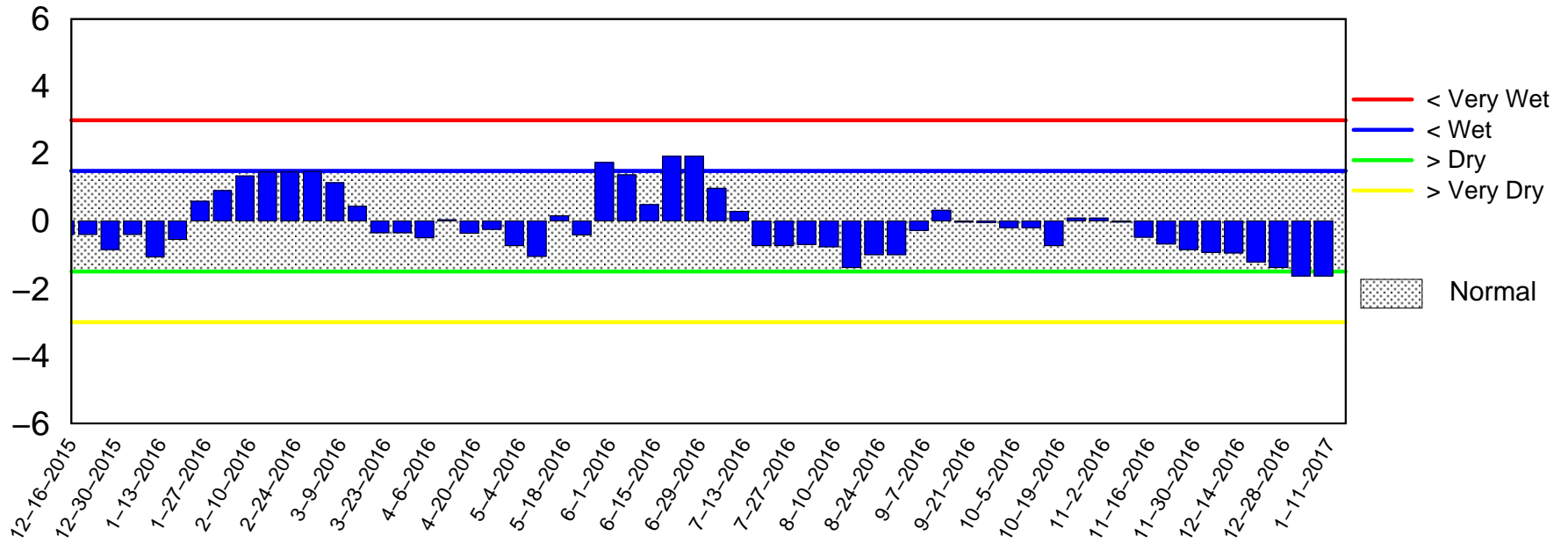
Lake Okeechobee SFWMM Jan 2017 Dynamic Position Analysis



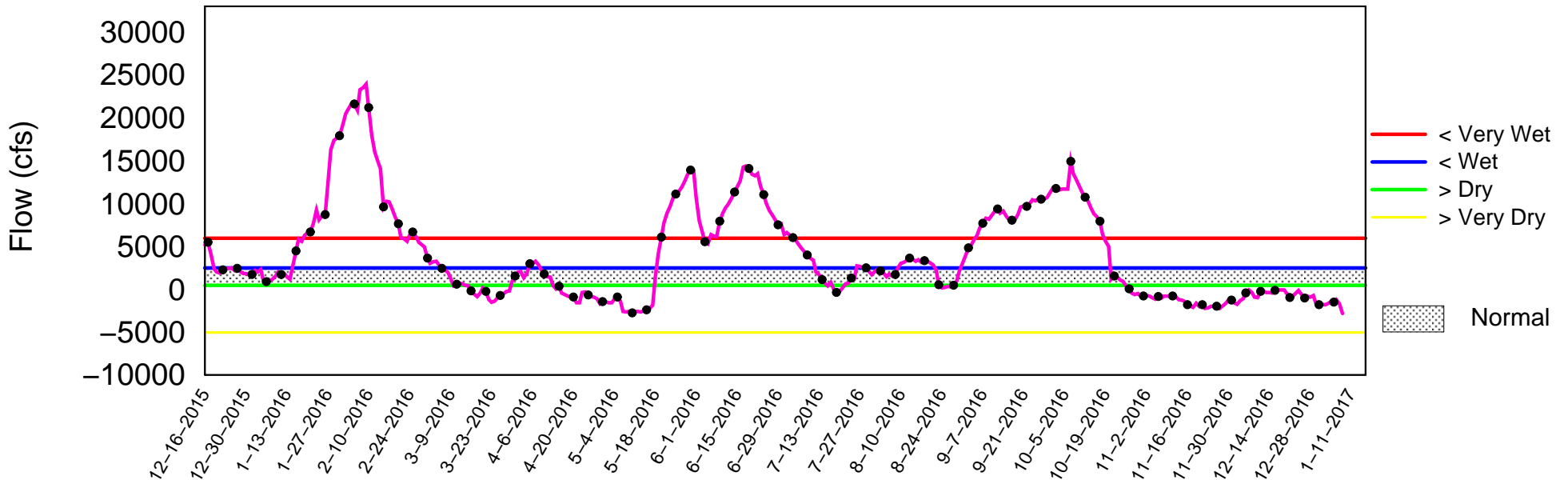
(See assumptions on the Position Analysis Results website)

Tributary Basin Condition Indicators as of January 9 2017

Palmer Index



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



Mon Jan 09 15:14:16 EST 2017

2008 LORS

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

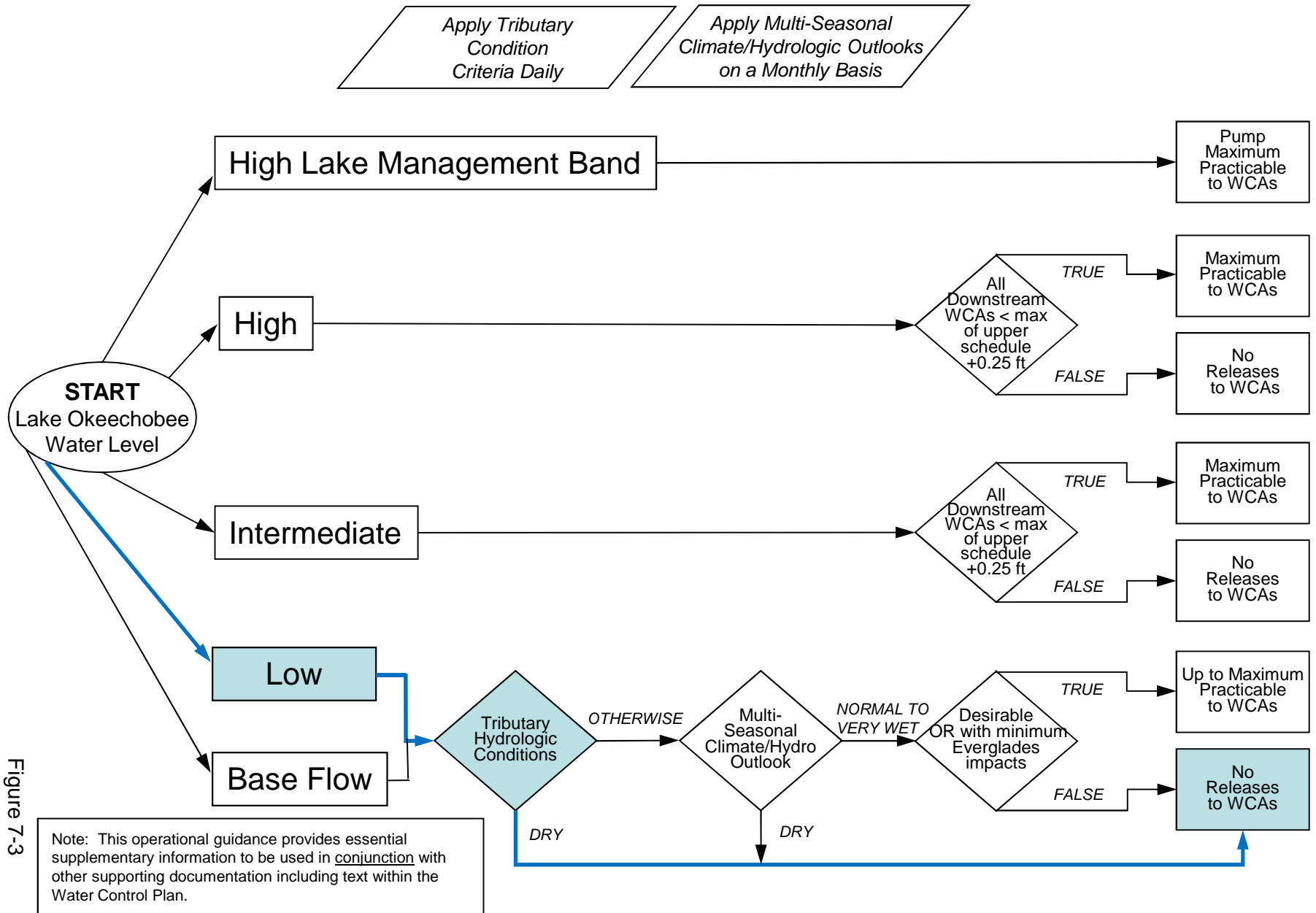


Figure 7-3

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

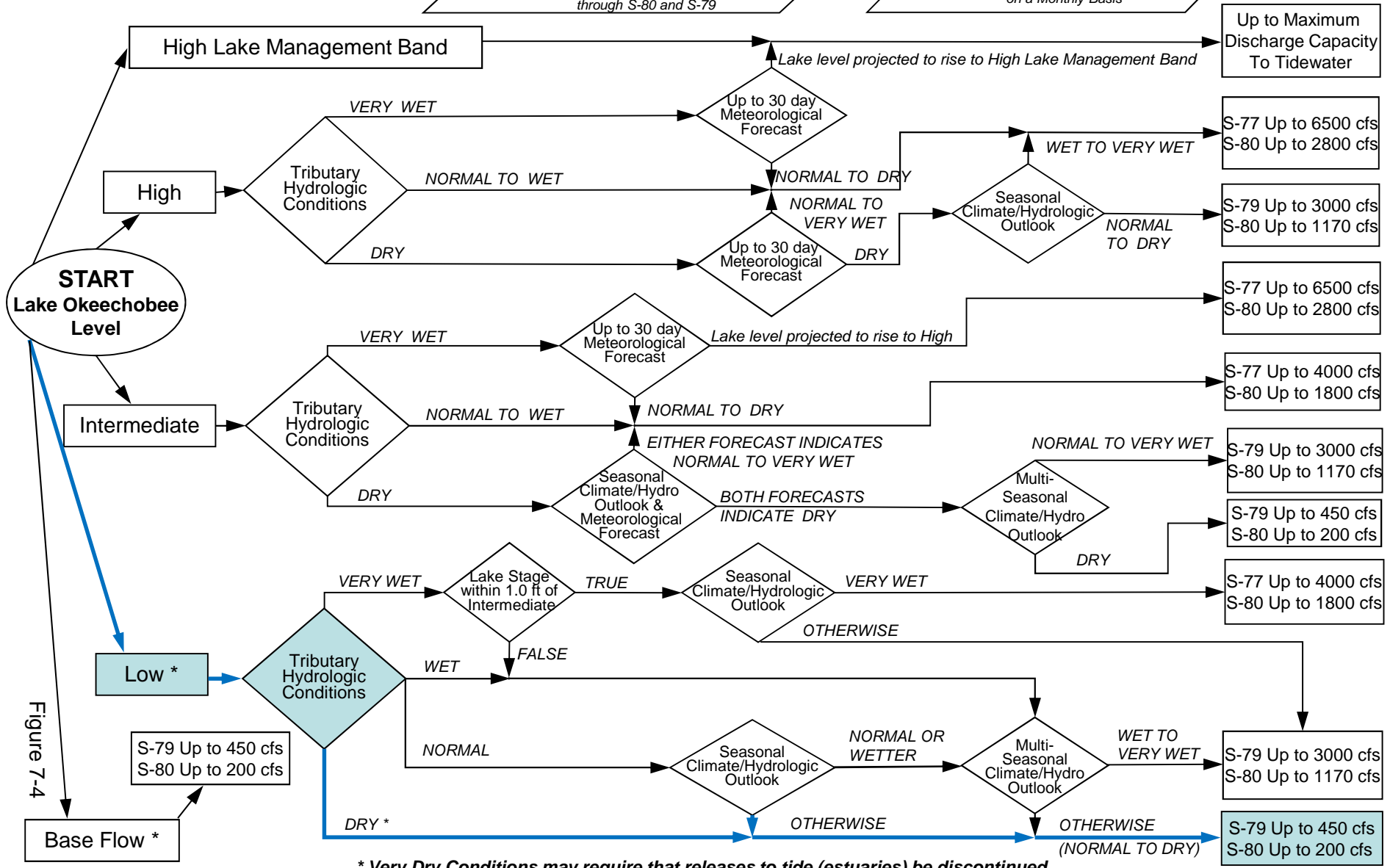
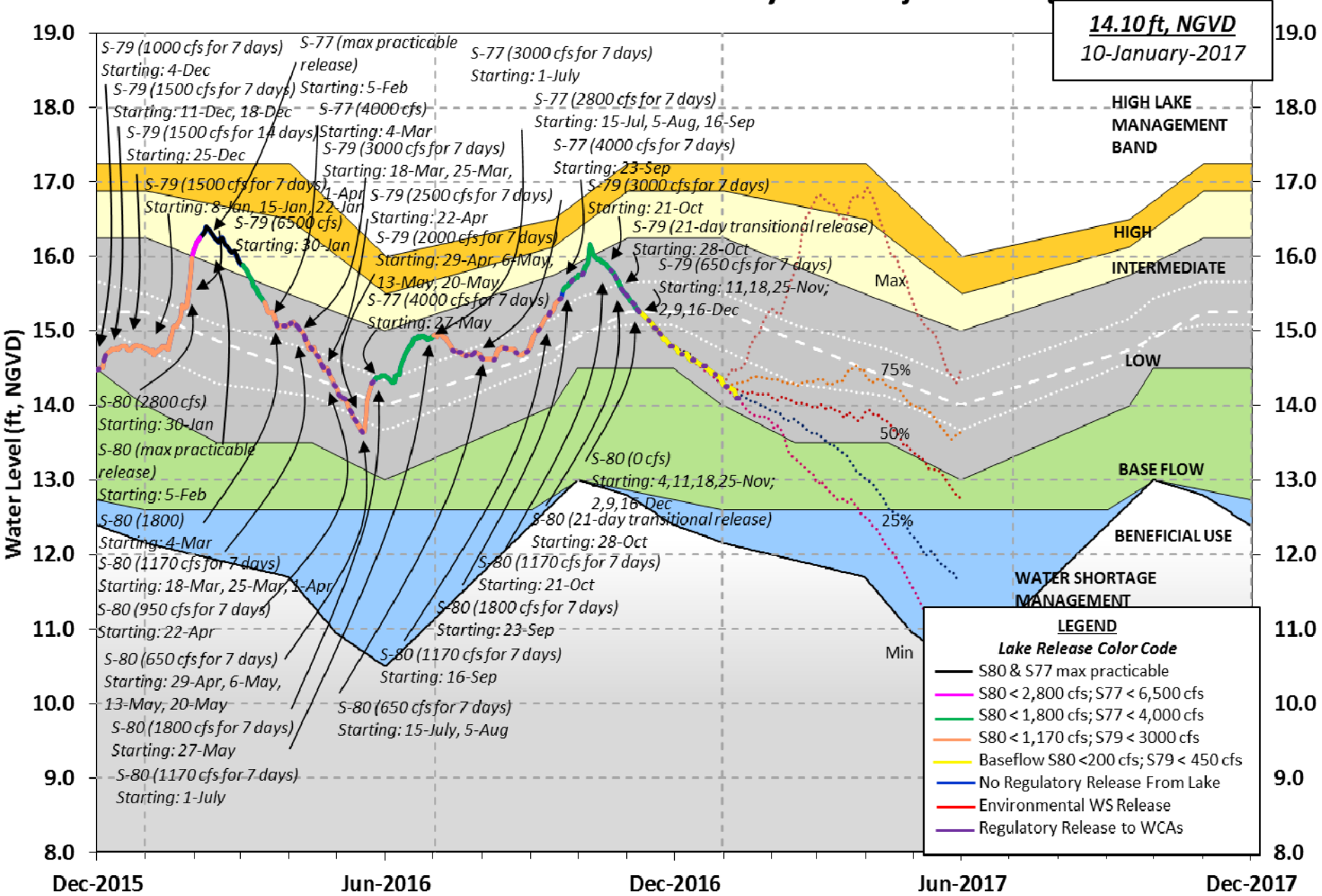


Figure 7-4

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

Lake Okeechobee Water Level History and Projected Stages

14.10 ft, NGVD
10-January-2017



LEGEND

Lake Release Color Code

- S80 & S77 max practicable
- S80 < 2,800 cfs; S77 < 6,500 cfs
- S80 < 1,800 cfs; S77 < 4,000 cfs
- S80 < 1,170 cfs; S79 < 3000 cfs
- Baseflow S80 < 200 cfs; S79 < 450 cfs
- No Regulatory Release From Lake
- Environmental WS Release
- Regulatory Release to WCAs

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

Data Ending 2400 hours 08 JAN 2017

Okeechobee Lake Regulation	Elevation	Last Year	2YRS Ago
	(ft-NGVD)	(ft-NGVD)	(ft-NGVD)
*Okeechobee Lake Elevation	14.10	14.74	15.07 (Official Elv)
Bottom of High Lake Mngmt= 17.25 Top of Water Short Mngmt= 12.11			
Currently in Operational Management Band			

Simulated Average LORS2008 [1965-2000]	13.60
Difference from Average LORS2008	0.50

08JAN (1965-2007) Period of Record Average	14.73
Difference from POR Average	-0.63

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 = 49.34'

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

L001	L005	L006	LZ40	S4	S352	S308	S133
13.36	13.94	14.51	14.26	14.73	14.64	14.06	13.28

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

Okeechobee Inflows (cfs):

S65E	333	C5	-85	Fisheating Cr	2
S154	0	S191	0	S135 Pumps	0
S84	0	S133 Pumps	0	S2 Pumps	0
S84X	141	S127 Pumps	0	S3 Pumps	0
S71	0	S129 Pumps	0	S4 Pumps	0
S72	71	S131 Pumps	0		
Total Inflows:	462				

Okeechobee Outflows (cfs):

S135 Culverts	0	S354	221	S77	567
S127 Culverts	0	S351	43	S77Below	508
S129 Culverts	0	S352	103	S308	-0
S131 Culverts	0	L8 Canal Pt	285	S308Below	-49
Total Outflows:	1218				

S310:	14.70		36						
S3 Pumps:	10.97	15.03	0	0	0	0			(cfs)
S354:	15.03	10.97	221	0.6	0.6				
S2 Pumps:	10.69	15.02	0	0	0	0	0		(cfs)
S351:	15.02	10.69	43	0.0	0.1	0.0			
S352:	14.40	10.84	103	0.1	0.1				
C10A:	-NR-	14.22		0.0	8.0	8.0	8.0	8.0	
L8 Canal PT		14.07	285						

S351 and S352 Temporary Pumps/S354 Spillway

S351:	10.69	15.02	43	-NR--NR--NR--NR--NR--NR-
S352:	10.84	14.40	103	-NR--NR--NR--NR-
S354:	10.97	15.03	221	-NR--NR--NR--NR-

Caloosahatchee River (S77, S78, S79)

S47B:	13.10	10.96		0.0	0.0
S47D:	11.02	11.00	90	6.0	

S77:

Spillway and Sector Flow:							
	14.29	11.12	562	0.0	0.0	2.5	0.0
Flow Due to Lockages+:			5				

S77 Below USGS Flow Gage 508

S78:

Spillway and Sector Flow:							
	10.88	3.05	580	0.5	0.0	0.0	1.2
Flow Due to Lockages+:			9				

S79:

Spillway and Sector Flow:									
	2.96	0.18	621	0.0	0.0	0.0	0.0	0.0	0.5

0.0

Flow Due to Lockages+:	10
Percent of flow from S77	90%
Chloride (ppm)	60

St. Lucie Canal (S308, S80)

S308:

Spillway and Sector Flow:							
	13.96	14.16	0	0.0	0.0	0.0	0.0
Flow Due to Lockages+:			-0				

S308 Below USGS Flow Gage -49

S153:	18.65	13.95	0	0.0	0.0
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S80:

Spillway and Sector Flow:									
	-NR-	-NR-	0	0.0	0.0	0.0	0.0	0.0	0.0

Flow Due to Lockages+:	-NR-
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:	0.00	0.15	0.23	40	4
S78:	0.00	0.16	0.23	1	5
S79:	0.00	0.28	0.44	338	5
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	0.01	60	5
S80:	0.00	0.00	0.00	-NR-	-NR-
Okeechobee Average	0.00	0.01	0.02		
(Sites S78, S79 and S80 not included)					

Oke Nexrad Basin Avg	0.00	0.09	0.23		

Okeechobee Lake Elevations	08 JAN 2017	14.10	Difference from
08JAN17			08JAN17
08JAN17 -1 Day =	07 JAN 2017	14.19	0.09
08JAN17 -2 Days =	06 JAN 2017	14.21	0.11
08JAN17 -3 Days =	05 JAN 2017	14.22	0.12
08JAN17 -4 Days =	04 JAN 2017	14.24	0.14
08JAN17 -5 Days =	03 JAN 2017	14.24	0.14
08JAN17 -6 Days =	02 JAN 2017	14.25	0.15
08JAN17 -7 Days =	01 JAN 2017	14.26	0.16
08JAN17 -30 Days =	09 DEC 2016	14.62	0.52
08JAN17 -1 Year =	08 JAN 2016	14.74	0.64
08JAN17 -2 Year =	08 JAN 2015	15.07	0.97

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
08JAN17	Today =	08 JAN 2017	-3415	MON	-18410
08JAN17	-1 Day =	07 JAN 2017	-2076	SUN	-2377
08JAN17	-2 Days =	06 JAN 2017	-1726	SAT	-239
08JAN17	-3 Days =	05 JAN 2017	-1861	FRI	-2358
08JAN17	-4 Days =	04 JAN 2017	-1815	THU	-NR-
08JAN17	-5 Days =	03 JAN 2017	-1806	WED	-NR-
08JAN17	-6 Days =	02 JAN 2017	-1784	TUE	-139
08JAN17	-7 Days =	01 JAN 2017	-1728	MON	37
08JAN17	-8 Days =	31 DEC 2016	-1747	SUN	-2195
08JAN17	-9 Days =	30 DEC 2016	-1608	SAT	-14397
08JAN17	-10 Days =	29 DEC 2016	-920	FRI	867
08JAN17	-11 Days =	28 DEC 2016	-1058	THU	-1630
08JAN17	-12 Days =	27 DEC 2016	-1010	WED	2521
08JAN17	-13 Days =	26 DEC 2016	-1232	TUE	-2658

S65E

Average Flow over previous 14 days					Avg-Daily Flow
08JAN17	Today=	08 JAN 2017	597	MON	397
08JAN17	-1 Day =	07 JAN 2017	631	SUN	471
08JAN17	-2 Days =	06 JAN 2017	659	SAT	437
08JAN17	-3 Days =	05 JAN 2017	690	FRI	513
08JAN17	-4 Days =	04 JAN 2017	720	THU	577
08JAN17	-5 Days =	03 JAN 2017	746	WED	592
08JAN17	-6 Days =	02 JAN 2017	769	TUE	593
08JAN17	-7 Days =	01 JAN 2017	789	MON	598
08JAN17	-8 Days =	31 DEC 2016	807	SUN	609
08JAN17	-9 Days =	30 DEC 2016	824	SAT	656
08JAN17	-10 Days =	29 DEC 2016	839	FRI	661
08JAN17	-11 Days =	28 DEC 2016	857	THU	676
08JAN17	-12 Days =	27 DEC 2016	875	WED	752
08JAN17	-13 Days =	26 DEC 2016	888	TUE	830

Lake Okeechobee Outlets Last 14 Days

DATE	S-77	Below S-77	S-78	S-79
	Discharge (ALL DAY) (AC-FT)	Discharge (ALL-DAY) (AC-FT)	Discharge (ALL DAY) (AC-FT)	Discharge (ALL DAY) (AC-FT)
08 JAN 2017	1124	1007	1168	1252
07 JAN 2017	1100	1239	1142	2023
06 JAN 2017	1106	1077	918	1471
05 JAN 2017	1077	694	-NR-	659
04 JAN 2017	1346	-NR-	-NR-	1234
03 JAN 2017	1806	-NR-	1276	978
02 JAN 2017	1945	1851	1296	1447
01 JAN 2017	2233	2187	1303	1610
31 DEC 2016	1796	1710	1066	1619
30 DEC 2016	1216	1144	602	1338
29 DEC 2016	1530	1522	606	538
28 DEC 2016	1990	1229	793	625
27 DEC 2016	1930	608	936	936

26 DEC 2016 1875 868 942 1518

	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)
08 JAN 2017	72	85	204	323	564
07 JAN 2017	47	601	656	652	605
06 JAN 2017	73	752	801	567	529
05 JAN 2017	6	801	807	837	583
04 JAN 2017	-NR-	-NR-	1019	-NR-	-NR-
03 JAN 2017	-NR-	-NR-	988	-NR-	-NR-
02 JAN 2017	29	520	274	672	550
01 JAN 2017	70	543	145	658	538
31 DEC 2016	49	571	268	666	559
30 DEC 2016	167	1154	787	1323	581
29 DEC 2016	127	1237	966	1575	619
28 DEC 2016	74	1194	892	1172	622
27 DEC 2016	-10	1561	773	1093	617
26 DEC 2016	55	875	355	403	571

	S-308	Below S-308	S-80
	Discharge	Discharge	Discharge
	(ALL DAY)	(ALL-DAY)	(ALL-DAY)
DATE	(AC-FT)	(AC-FT)	(AC-FT)
08 JAN 2017	-1	-97	-NR-
07 JAN 2017	-1	31	24
06 JAN 2017	-0	-49	43
05 JAN 2017	-0	-144	44
04 JAN 2017	0	-NR-	32
03 JAN 2017	0	-NR-	44
02 JAN 2017	-NR-	57	39
01 JAN 2017	0	200	31
31 DEC 2016	0	273	30
30 DEC 2016	-NR-	53	23
29 DEC 2016	-NR-	-275	63
28 DEC 2016	0	56	55
27 DEC 2016	450	348	50
26 DEC 2016	1	255	15

*** 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 Okeechobee elevation is determined from the 4 Int & 4 Edge stations

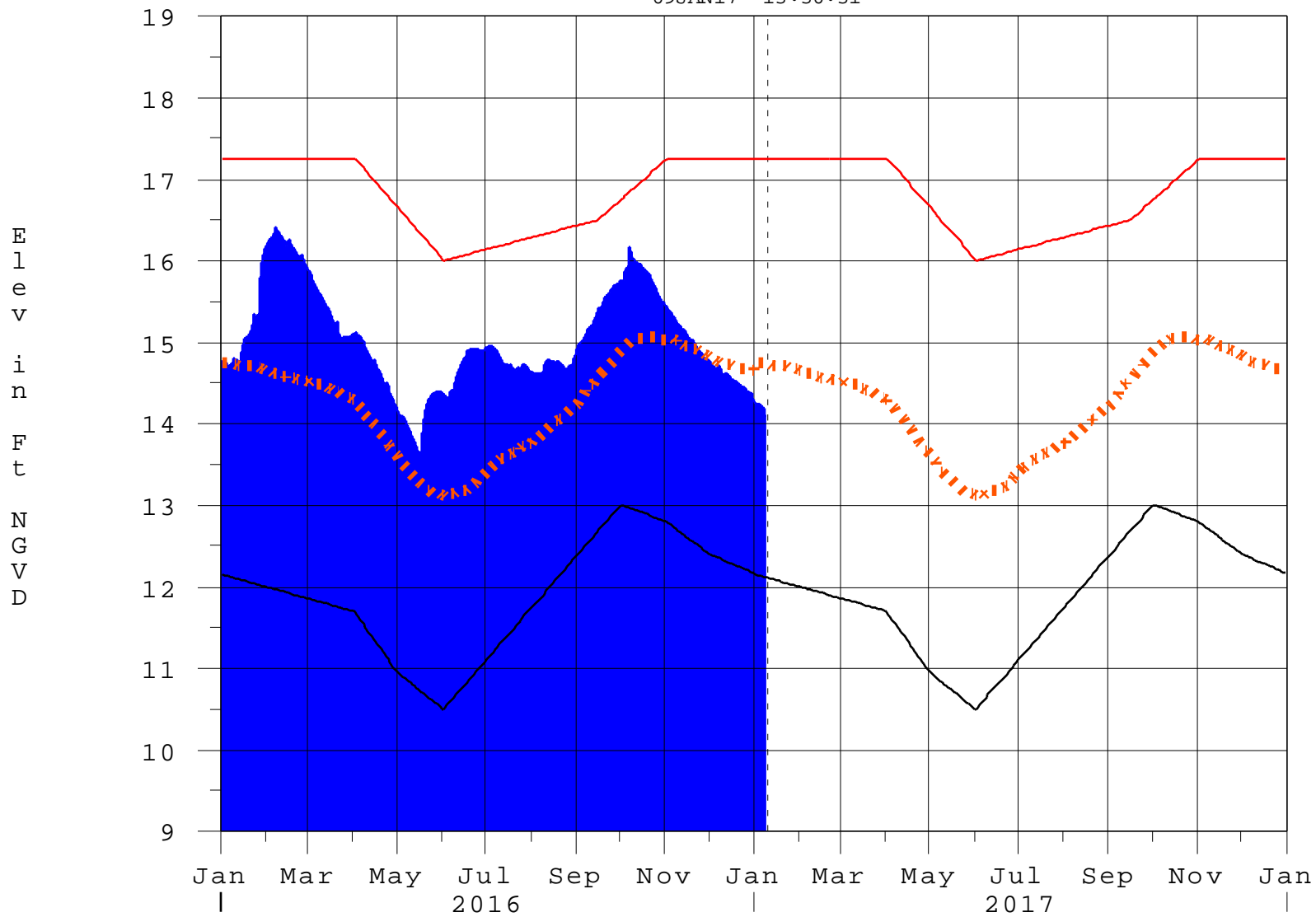
++ For more information see the Jacksonville District Navigation website at <http://www.saj.usace.army.mil/>

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

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Report Generated 09JAN2017 @ 13:39 ** Preliminary Data - Subject to Revision
**

Lake Okeechobee

09JAN17 13:30:31



- 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