

Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 8/8/2016 (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 (Aug-Jan)	N/A	N/A	1.80	Wet	2.65	Very Wet	3.19	Very Wet
Multi Seasonal (Aug-Apr)	N/A	N/A	1.88	Normal	2.68	Wet	3.26	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:](#)

1540 cfs 14-day running average for Lake Okeechobee Net Inflow through 8/8/2016. According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Normal.

-0.76 for Palmer Index on 8/6/2016.

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

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

[LORS2008 Classification Tables:](#)

Lake Okeechobee Stage on 8/8/2016

Lake Okeechobee Stage: **14.61 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		16.32	
Operational Band	High sub-band	15.90	
	Intermediate sub-band	15.48	
	Low sub-band	13.64	← 14.61
Base Flow sub-band		12.60	
Beneficial Use sub-band		11.89	
Water Shortage Management Band			

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

Release Guidance Flow Chart Outcome: Up to Maximum Releases to the WCAs if Desirable or with Minimum Everglades Impacts

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

Release Guidance Flow Chart Outcome: S-79 up to 3000 cfs and S-80 up to 1170 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 8/8/2016 (ENSO Neutral Condition):

Status for week ending 8/8/2016:

District wide, Raindar rainfall was 2.19 inches for the week. Lake stage on 8/8/2016 was 14.61 ft, down 0.02 ft from last week.

The updated August 2016 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 **Normal**. The PDSI indicates normal condition and the LONIN is Normal. The classification is based on the wetter of the two.

Water Supply Risk Evaluation

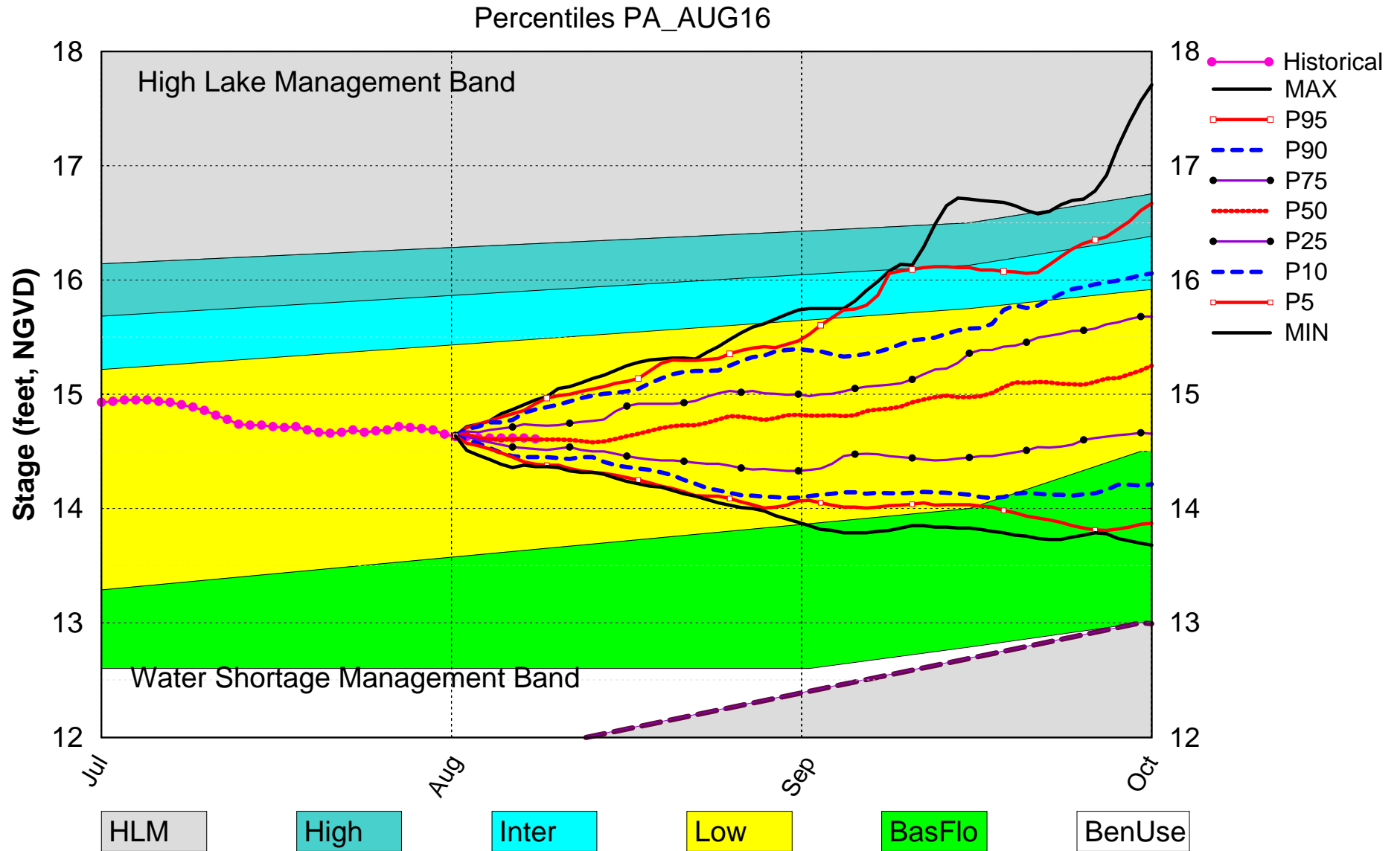
Area	Indicator	Value	Color Coded Scoring Scheme
LOK	Projected LOK Stage for the next two months	Low Sub-Band	L
	Palmer Index for LOK Tributary Conditions	-0.76 (Normal)	L
	CPC Precipitation Outlook	1 month: Normal	L
		3 months: Above Normal	L
	LOK Seasonal Net Inflow Forecast ENSO Neutral Years	2.65 ft (Normal to Extremely Wet)	L
	LOK Multi-Seasonal Net Inflow Forecast ENSO Neutral Years	2.68 ft (Normal)	M
WCAs	WCA 1: Site 1-7, Site 1-8T, & Site 1-9 Average	Above Line 1 (16.10 ft)	L
	WCA 2A: Site 2-17 HW	Above Line1 (12.30 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64 and 65)	Above Line 1 (9.97 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 forecasts use slightly different classification intervals than those used by the 2008-LORS.

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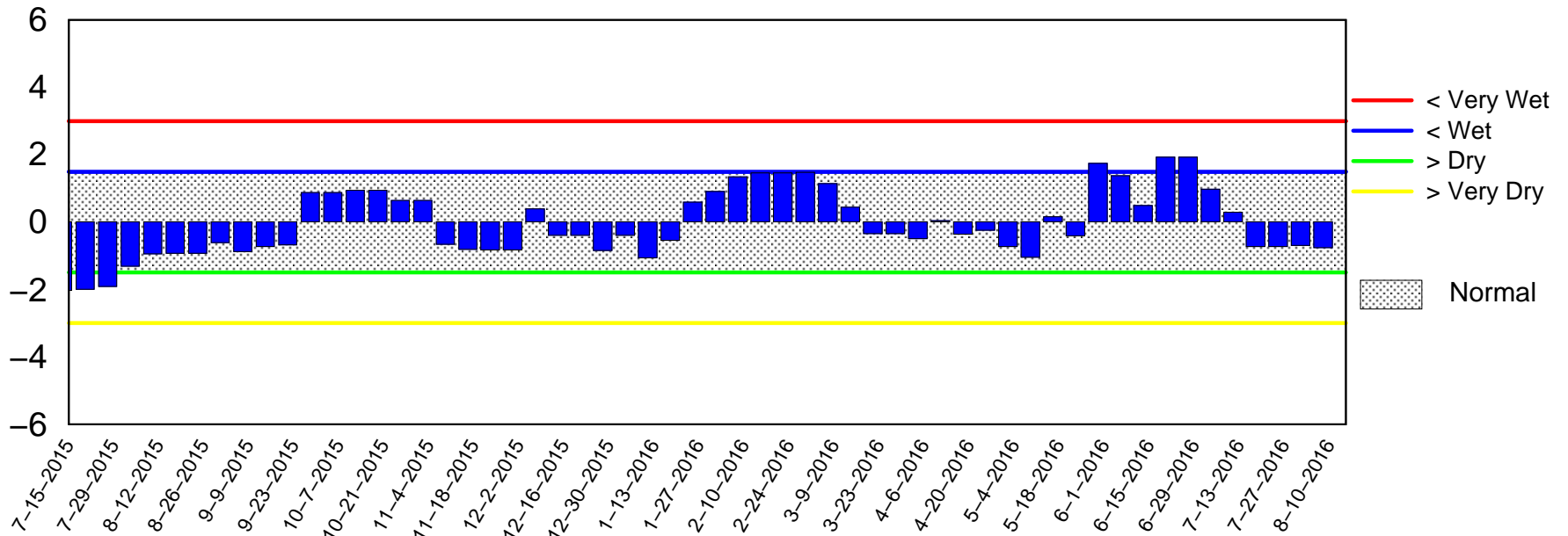
Lake Okeechobee SFWMM August 2016 Dynamic Position Analysis



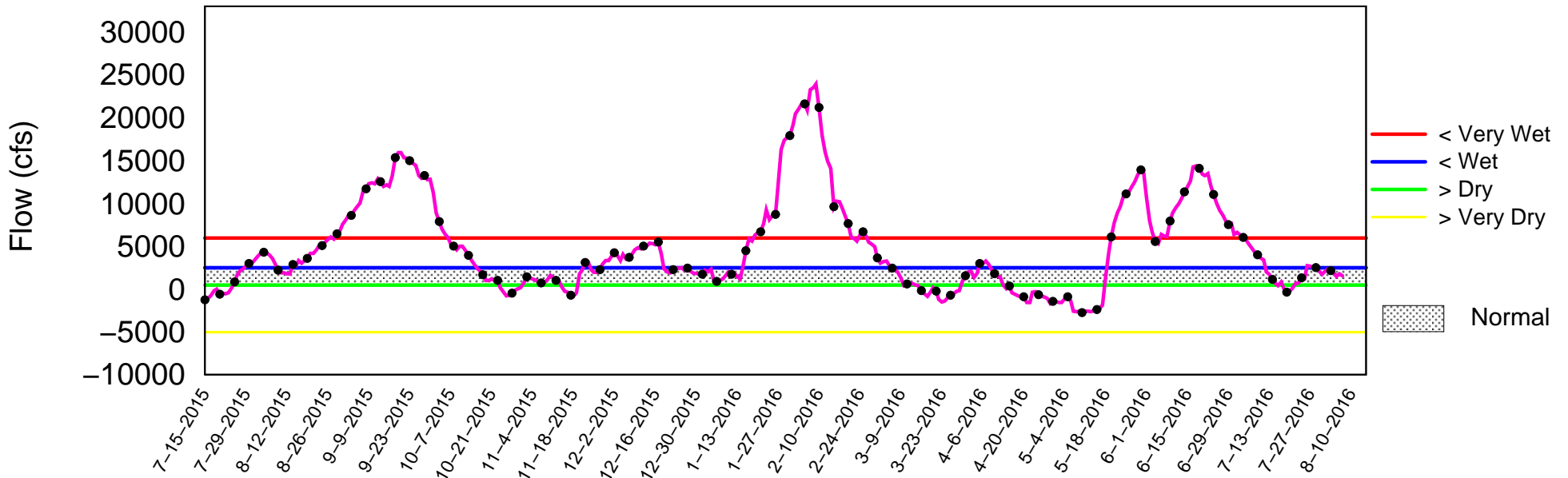
(See assumptions on the Position Analysis Results website)

Tributary Basin Condition Indicators as of August 8 2016

Palmer Index



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



Mon Aug 08 11:35:20 EDT 2016

2008 LORS

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

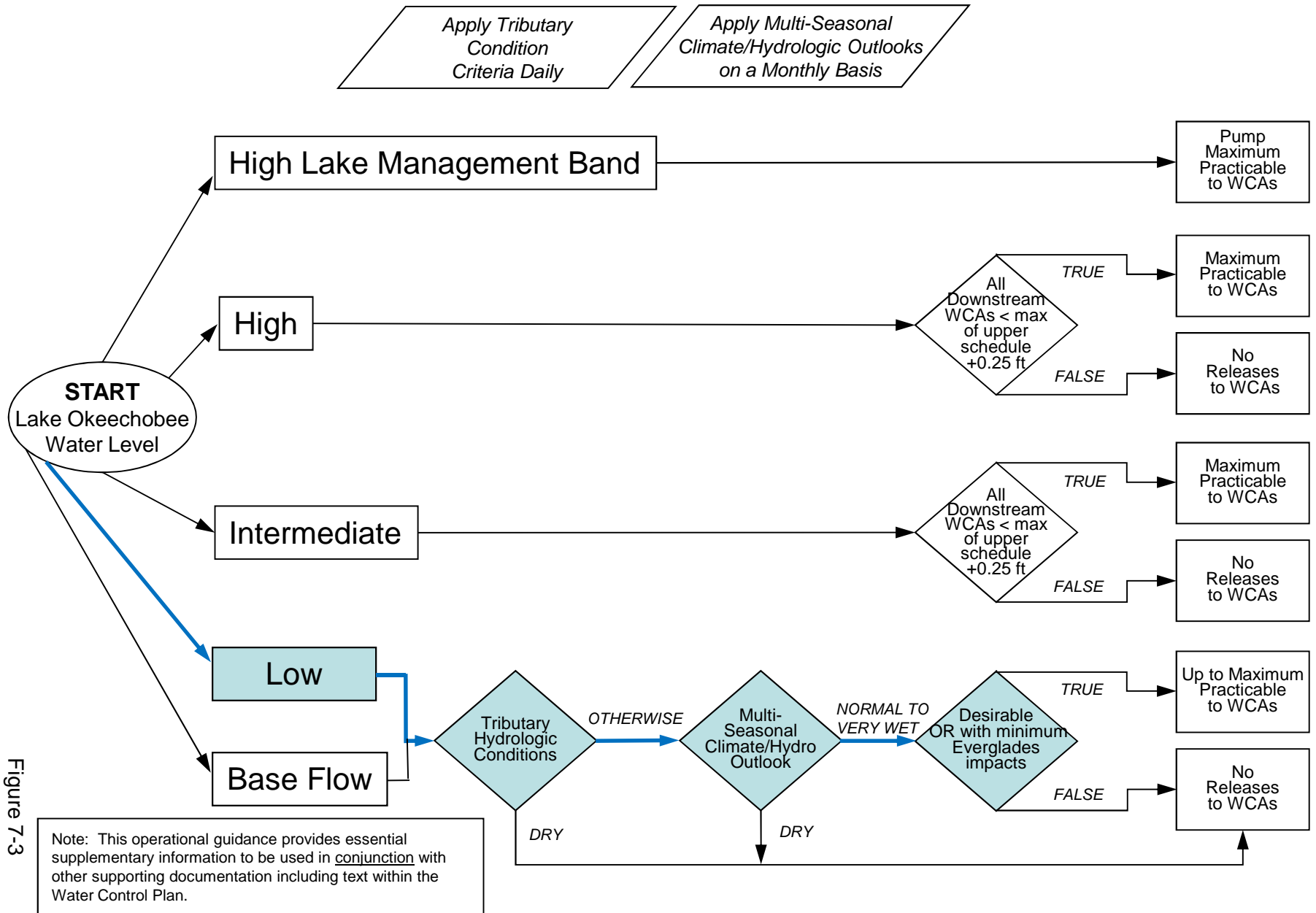


Figure 7-3

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

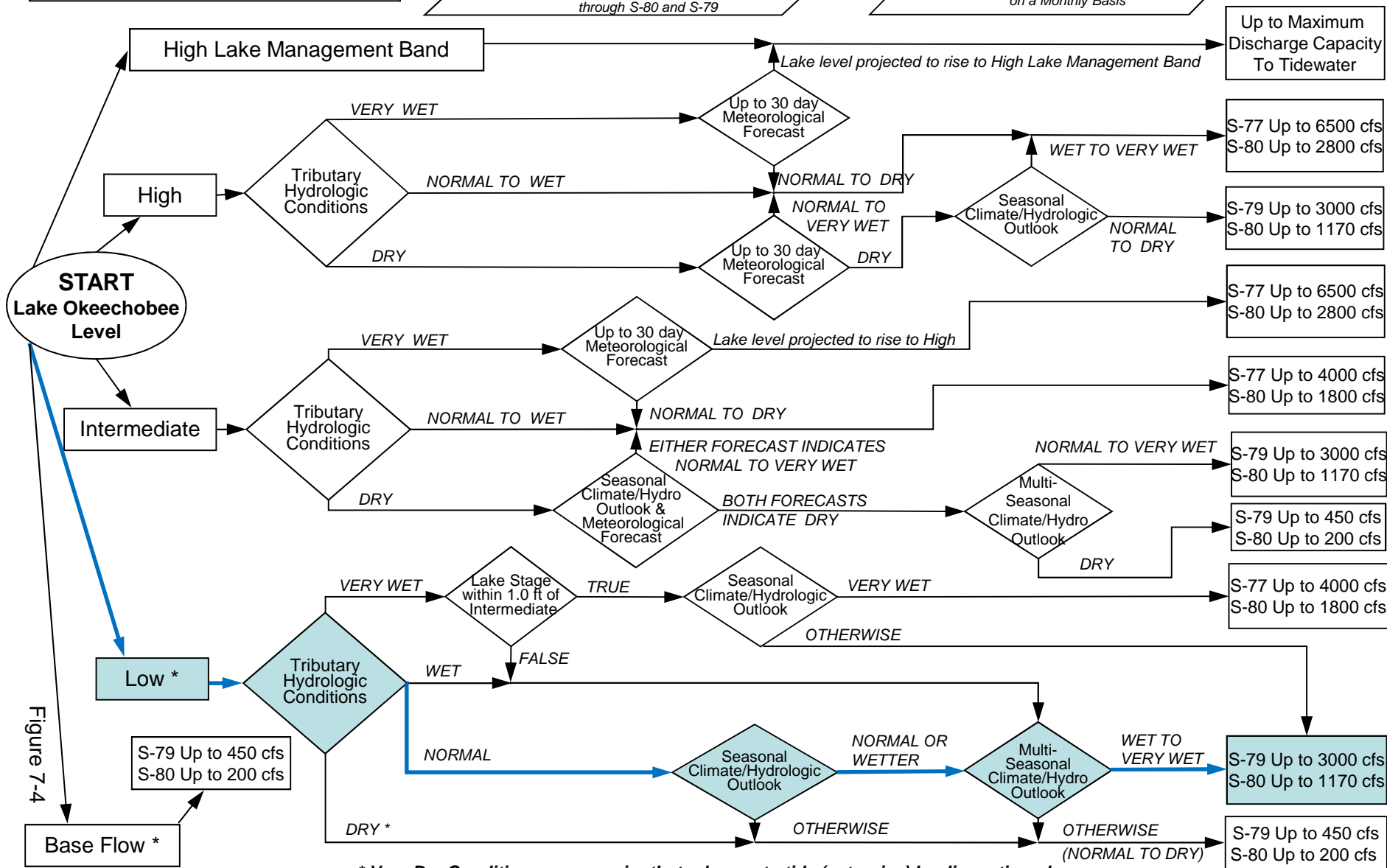
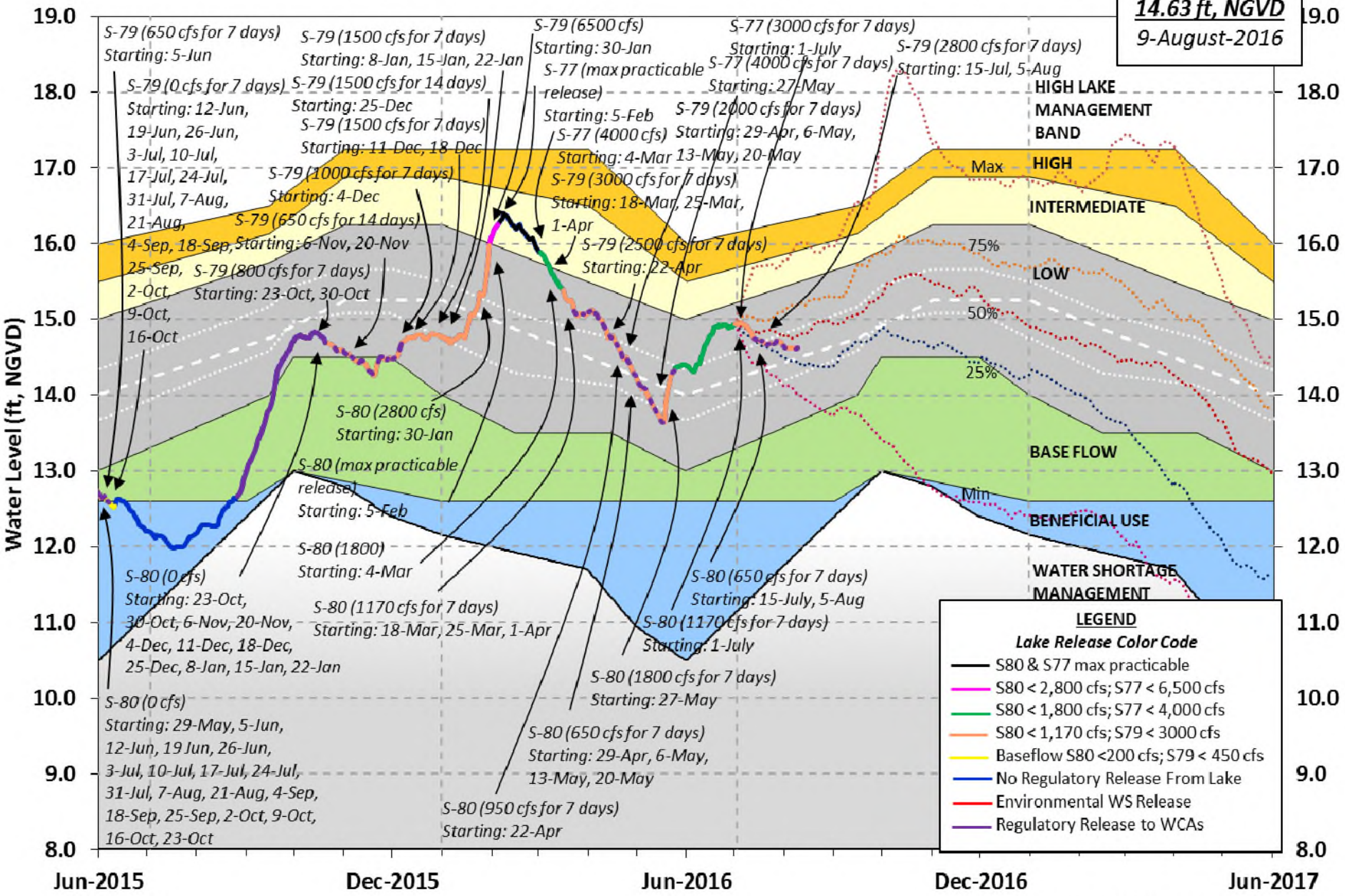


Figure 7-4

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

Lake Okeechobee Water Level History and Projected Stages

14.63 ft, NGVD
9-August-2016



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

Data Ending 2400 hours 07 AUG 2016

Okeechobee Lake Regulation	Elevation	Last Year	2YRS Ago
	(ft-NGVD)	(ft-NGVD)	(ft-NGVD)
*Okeechobee Lake Elevation	14.61	12.29	14.20 (Official Elv)
Bottom of High Lake Mngmt= 16.32 Top of Water Short Mngmt= 11.88			
Currently in Operational Management Band			
Simulated Average LORS2008 [1965-2000]		12.81	
Difference from Average LORS2008		1.80	
07AUG (1965-2007) Period of Record Average		13.87	
Difference from POR Average		0.74	

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ÷ 8.55'
 ++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ÷ 6.75'
 Bridge Clearance = 49.11'

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

L001	L005	L006	LZ40	S4	S352	S308	S133
14.58	14.64	14.54	14.57	14.51	14.72	14.58	14.73

*Combination Okeechobee Avg-Daily Lake Average = 14.61
 (*See Note)

Okeechobee Inflows (cfs):

S65E	1115	C5	-136	Fisheating Cr	355
S154	0	S191	0	S135 Pumps	245
S84	0	S133 Pumps	0	S2 Pumps	0
S84X	599	S127 Pumps	0	S3 Pumps	0
S71	0	S129 Pumps	0	S4 Pumps	0
S72	138	S131 Pumps	0		
Total Inflows:	2317				

Okeechobee Outflows (cfs):

S135 Culverts	-NR-	S354	0	S77	(Not Used)
S127 Culverts	0	S351	0	S77Below	1660
(USED)					
S129 Culverts	0	S352	78	S308	(Not Used)

South Shore

S4 Pumps:	10.97	14.52	0	0	0	0				(cfs)
S169:	14.64	10.96	0	0.0	0.0	0.0				
S310:	14.27		12							
S3 Pumps:	10.94	14.60	0	0	0	0				(cfs)
S354:	14.60	10.94	0	0.0	0.0					
S2 Pumps:	10.23	14.66	0	0	0	0	0			(cfs)
S351:	14.66	10.23	0	0.0	0.0	0.0				
S352:	14.87	10.52	78	0.0	0.0					
C10A:	-NR-	14.66		0.0	0.0	8.0	0.0	0.0		
L8 Canal PT		14.50	-NR-							

S351 and S352 Temporary Pumps/S354 Spillway

S351:	10.23	14.66	0	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-
S352:	10.52	14.87	78	-NR-	-NR-	-NR-	-NR-		
S354:	10.94	14.60	0	-NR-	-NR-	-NR-	-NR-		

Caloosahatchee River (S77, S78, S79)

S47B:	14.44	10.65		0.0	0.5				
S47D:	10.75	10.74	73	6.0					
S77:									
Spillway and Sector Flow:									
14.61	10.81	1660	0.0	3.0	3.0	0.0			
Flow Due to Lockages+:		2							
S77 Below USGS Flow Gage		1660							
S78:									
Spillway and Sector Flow:									
10.85	2.83	1651	0.0	0.0	1.5	2.5			
Flow Due to Lockages+:		3							
S79:									
Spillway and Sector Flow:									
2.90	1.58	3758	2.0	2.0	2.0	2.0	2.0	2.0	2.0
2.0									
Flow Due to Lockages+:		3							
Percent of flow from S77		41%							
Chloride (ppm)		40							

St. Lucie Canal (S308, S80)

S308:									
Spillway and Sector Flow:									
14.58	14.39	1128	3.0	2.7	2.7	3.0			
Flow Due to Lockages+:		0							
S308 Below USGS Flow Gage		1128							
S153:	18.84	14.19	48	0.6	0.0				
S80:									
Spillway and Sector Flow:									
14.29	0.30	-NR-	0.4	0.4	0.4	0.0	0.4	0.3	0.0
Flow Due to Lockages+:		-NR-							
Percent of flow from S308		-NR-%							

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:	0.18	0.22	0.43	170	1
S78:	0.27	0.27	0.73	179	3
S79:	0.00	0.00	0.00	232	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:	*****	*****	*****	190	6
S80:	-NR-	0.00	1.97	200	3
Okeechobee Average	*****	5174.86	*****		
(Sites S78, S79 and S80 not included)					

Oke Nexrad Basin Avg	0.18	0.36	0.73		

Okeechobee Lake Elevations	07 AUG 2016	14.61	Difference from
07AUG16		0	
07AUG16 -1 Day =	06 AUG 2016	14.62	0.01
07AUG16 -2 Days =	05 AUG 2016	14.62	0.01
07AUG16 -3 Days =	04 AUG 2016	14.62	0.01
07AUG16 -4 Days =	03 AUG 2016	14.62	0.01
07AUG16 -5 Days =	02 AUG 2016	14.62	0.01
07AUG16 -6 Days =	01 AUG 2016	14.63	0.02
07AUG16 -7 Days =	31 JUL 2016	14.63	0.02
07AUG16 -30 Days =	08 JUL 2016	14.89	0.28
07AUG16 -1 Year =	07 AUG 2015	12.29	-2.32
07AUG16 -2 Year =	07 AUG 2014	14.20	-0.41

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
07AUG16	Today =	07 AUG 2016	1657 MON	-NR-
07AUG16	-1 Day =	06 AUG 2016	1972 SUN	-NR-
07AUG16	-2 Days =	05 AUG 2016	1715 SAT	-NR-
07AUG16	-3 Days =	04 AUG 2016	2135 FRI	-NR-
07AUG16	-4 Days =	03 AUG 2016	2296 THU	-NR-
07AUG16	-5 Days =	02 AUG 2016	2178 WED	-788
07AUG16	-6 Days =	01 AUG 2016	2124 TUE	2152
07AUG16	-7 Days =	31 JUL 2016	1758 MON	753
07AUG16	-8 Days =	30 JUL 2016	2178 SUN	-2292
07AUG16	-9 Days =	29 JUL 2016	2522 SAT	2263
07AUG16	-10 Days =	28 JUL 2016	2505 FRI	-1490
07AUG16	-11 Days =	27 JUL 2016	2853 THU	1936
07AUG16	-12 Days =	26 JUL 2016	2776 WED	8290
07AUG16	-13 Days =	25 JUL 2016	1854 TUE	4089

S65E

Average Flow over previous 14 days				Avg-Daily Flow
07AUG16	Today=	07 AUG 2016	1212 MON	1297
07AUG16	-1 Day =	06 AUG 2016	1205 SUN	912
07AUG16	-2 Days =	05 AUG 2016	1244 SAT	1227
07AUG16	-3 Days =	04 AUG 2016	1261 FRI	1255
07AUG16	-4 Days =	03 AUG 2016	1254 THU	1028
07AUG16	-5 Days =	02 AUG 2016	1277 WED	1043
07AUG16	-6 Days =	01 AUG 2016	1296 TUE	1048
07AUG16	-7 Days =	31 JUL 2016	1320 MON	1153
07AUG16	-8 Days =	30 JUL 2016	1337 SUN	1209
07AUG16	-9 Days =	29 JUL 2016	1345 SAT	1284
07AUG16	-10 Days =	28 JUL 2016	1343 FRI	1364
07AUG16	-11 Days =	27 JUL 2016	1350 THU	1396
07AUG16	-12 Days =	26 JUL 2016	1342 WED	1320
07AUG16	-13 Days =	25 JUL 2016	1329 TUE	1428

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)
07 AUG 2016		3293	3280	7459
06 AUG 2016		2302	3508	7076
05 AUG 2016		921	1291	5645
04 AUG 2016		421	774	5487
03 AUG 2016		-63	665	6328
02 AUG 2016		-201	627	4244
01 AUG 2016		395	1261	5902
31 JUL 2016		2363	2676	7799
30 JUL 2016		4183	3873	9461
29 JUL 2016		2161	3095	6098

28 JUL 2016	1102	1763	5681
27 JUL 2016	551	1723	4936
26 JUL 2016	-4	1730	6109
25 JUL 2016	64	1753	6476

	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)
07 AUG 2016	25	0	155	0	-NR-
06 AUG 2016	-11	0	571	0	-NR-
05 AUG 2016	-109	0	93	14	-NR-
04 AUG 2016	20	2	0	0	-NR-
03 AUG 2016	53	0	256	234	-NR-
02 AUG 2016	68	0	744	399	595
01 AUG 2016	4	297	678	666	577
31 JUL 2016	59	1416	896	2017	603
30 JUL 2016	90	1596	1001	2056	602
29 JUL 2016	35	1588	964	1828	611
28 JUL 2016	-8	1293	843	1594	611
27 JUL 2016	-75	637	740	1093	601
26 JUL 2016	-263	397	759	1271	578
25 JUL 2016	-156	315	488	1307	500

	S-308	Below S-308	S-80
	Discharge	Discharge	Discharge
	(ALL DAY)	(ALL-DAY)	(ALL-DAY)
DATE	(AC-FT)	(AC-FT)	(AC-FT)
07 AUG 2016		2238	-NR-
06 AUG 2016		2757	-NR-
05 AUG 2016		1285	-NR-
04 AUG 2016		33	20
03 AUG 2016		247	187
02 AUG 2016		899	609
01 AUG 2016		1653	867
31 JUL 2016		2596	1255
30 JUL 2016		2813	-NR-
29 JUL 2016		1534	710
28 JUL 2016		-100	32
27 JUL 2016		218	183
26 JUL 2016		837	587
25 JUL 2016		1236	880

*** 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/>

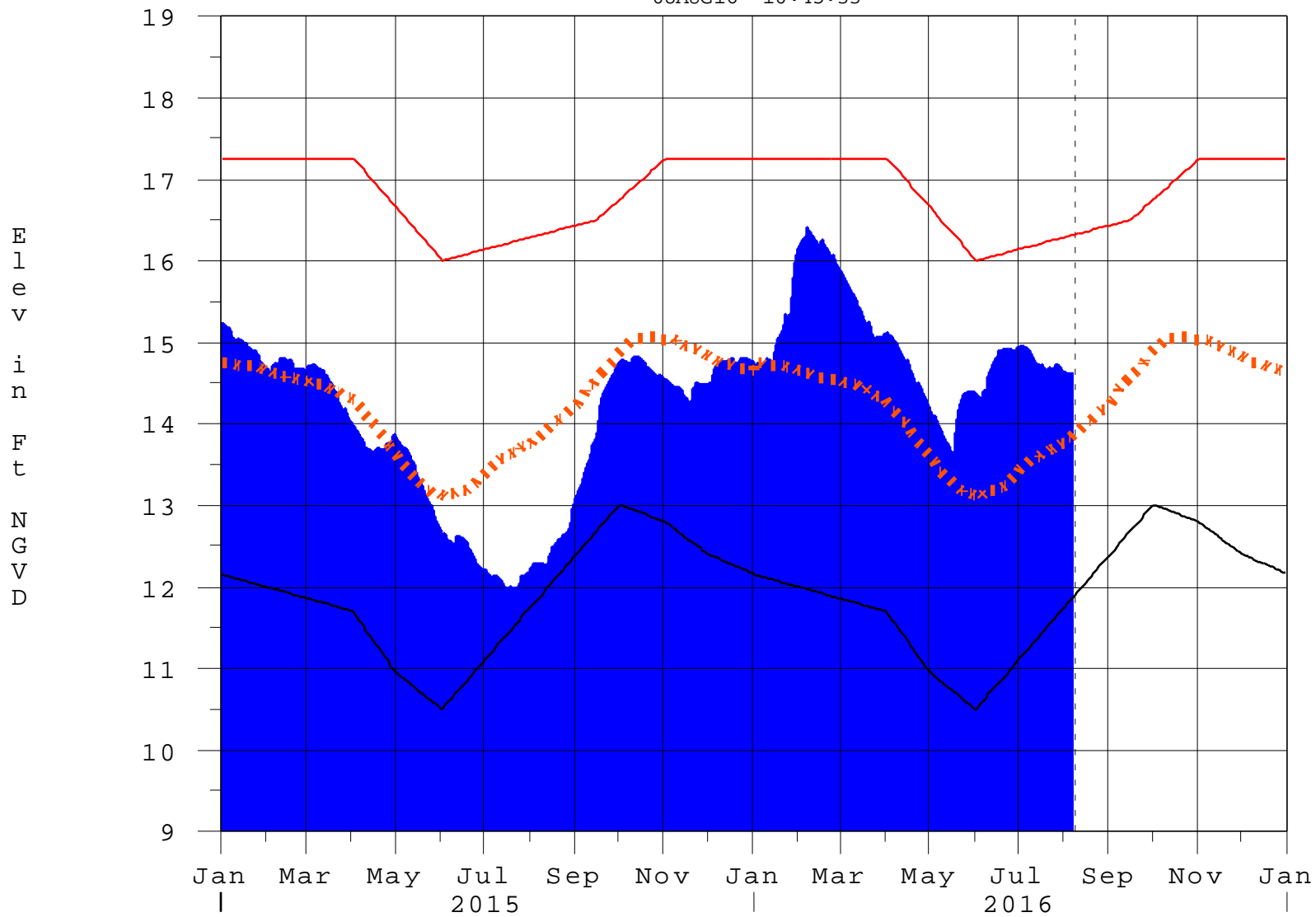
\$ For information regarding Lake Okeechobee Service Area water restrictions

please refer to www.sfwmd.gov

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Report Generated 08AUG2016 @ 10:40 ** Preliminary Data - Subject to Revision
**

Lake Okeechobee

08AUG16 10:45:33



- 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