

# Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 7/4/2016 (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 (Jul-Dec)	N/A	N/A	2.34	Very Wet	2.93	Very Wet	3.83	Very Wet
Multi Seasonal (Jul-Apr)	N/A	N/A	2.47	Normal	3.11	Wet	4.02	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:](#)

**6353 cfs** 14-day running average for Lake Okeechobee Net Inflow through 7/3/2016. According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Very Wet.

**0.97** for Palmer Index on 7/2/2016. According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Normal.

The wetter of the two conditions above is **Very Wet**.

[LORS2008 Classification Tables:](#)

[Lake Okeechobee Stage on 7/4/2016](#)

Lake Okeechobee Stage: **14.93 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		16.16	
Operational Band	High sub-band	15.70	
	Intermediate sub-band	15.24	
	Low sub-band	13.32	← 14.93
Base Flow sub-band		12.60	
Beneficial Use sub-band		11.20	
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-77 up to 4000 cfs and S-80 up to 1800 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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**[Back to U.S. Army Corps of Engineers LORSS Homepage](#)**

## LORS2008 Implementation on 7/4/2016 (ENSO Neutral Condition):

### Status for week ending 7/5/2016:

District wide, Raindar rainfall was 1.75 inches for the week. Lake stage on 7/4/2016 was 14.93 ft, up 0.04 ft from last week.

The updated June 2016 SFWMM Dynamic Position Analysis [percentile graph](#) and [tracking chart](#) for Lake Okeechobee show that the current lake stage is in the Low Operational Sub-Band.

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

### Water Supply Risk Evaluation

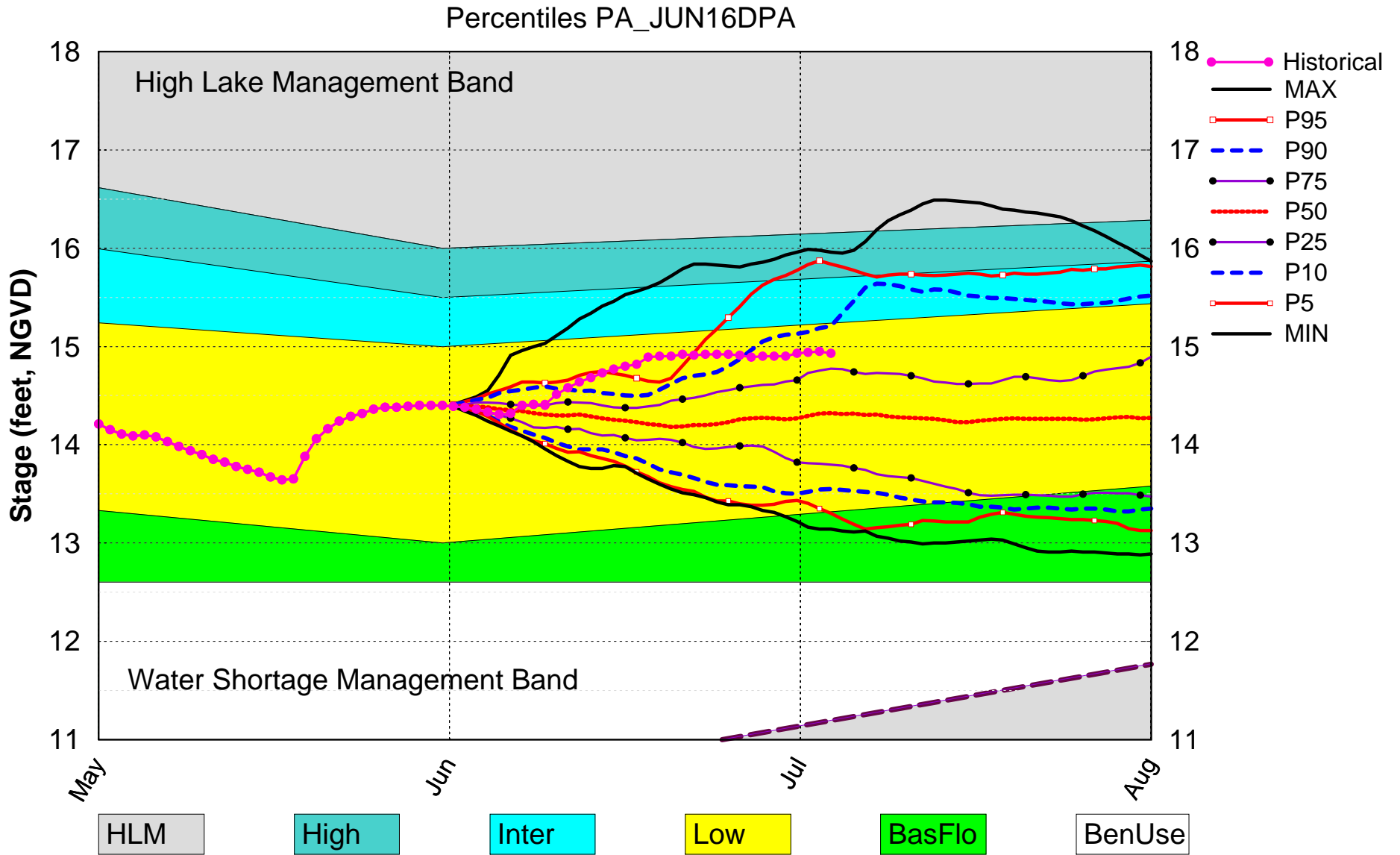
Area	Indicator	Value	Color Coded Scoring Scheme
LOK	Projected LOK Stage for the next two months	Low Sub-Band	L
	Palmer Index for LOK Tributary Conditions	0.97 (Normal)	L
	CPC Precipitation Outlook	1 month: Above Normal	L
		3 months: Above Normal	L
	LOK Seasonal Net Inflow Forecast	2.93 ft (Normal to Extremely Wet)	L
	ENSO Neutral Years		
	LOK Multi-Seasonal Net Inflow Forecast	3.11 ft (Normal)	M
ENSO Neutral Years			
WCAs	WCA 1: Site 1-7, Site 1-8T, & Site 1-9 Average	Above Line 1 (16.13 ft)	L
	WCA 2A: Site 2-17 HW	Above Line1 (12.03 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64 and 65)	Above Line 1 (9.90 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 forecasts use slightly different classification intervals than those used by the 2008-LORS.

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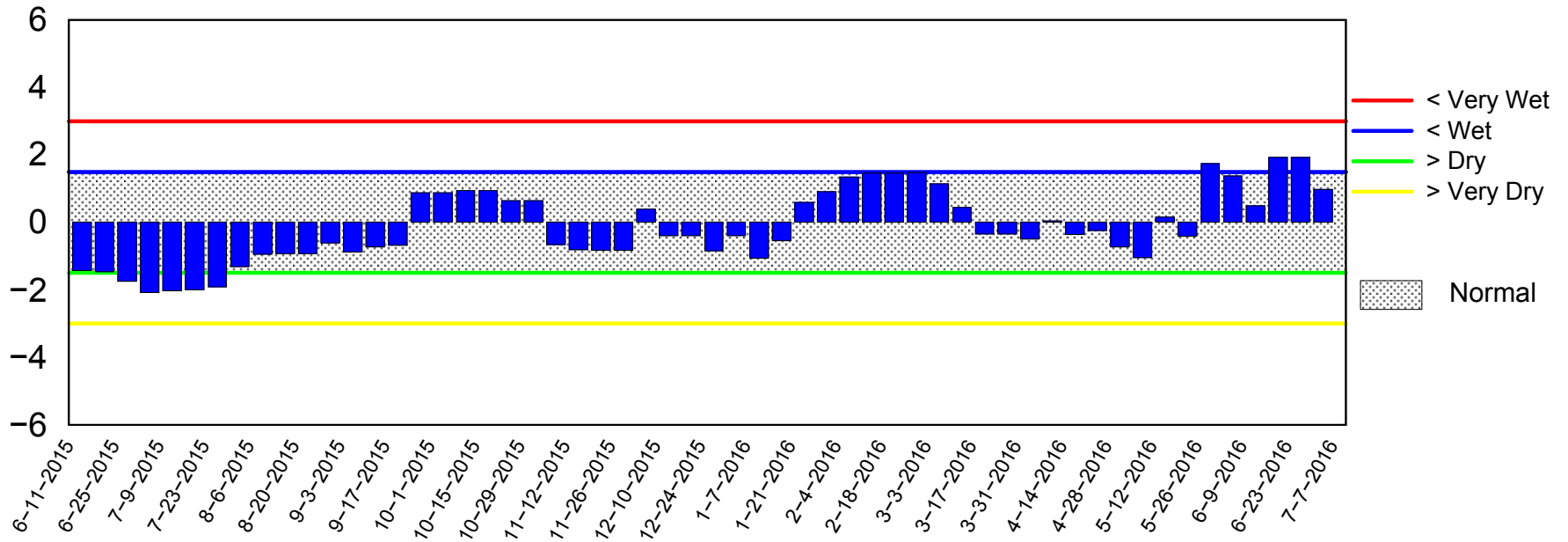
# Lake Okeechobee SFWMM June 2016 Dynamic Position Analysis



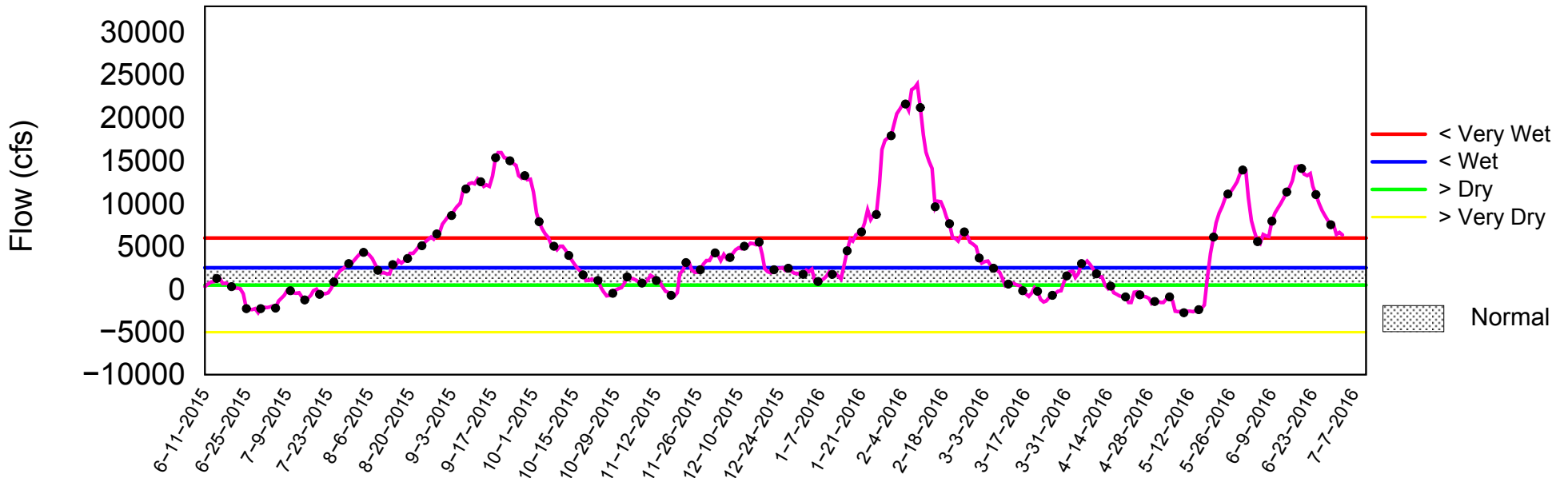
(See assumptions on the Position Analysis Results website)

# Tributary Basin Condition Indicators as of July 4 2016

## Palmer Index



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



# 2008 LORS

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

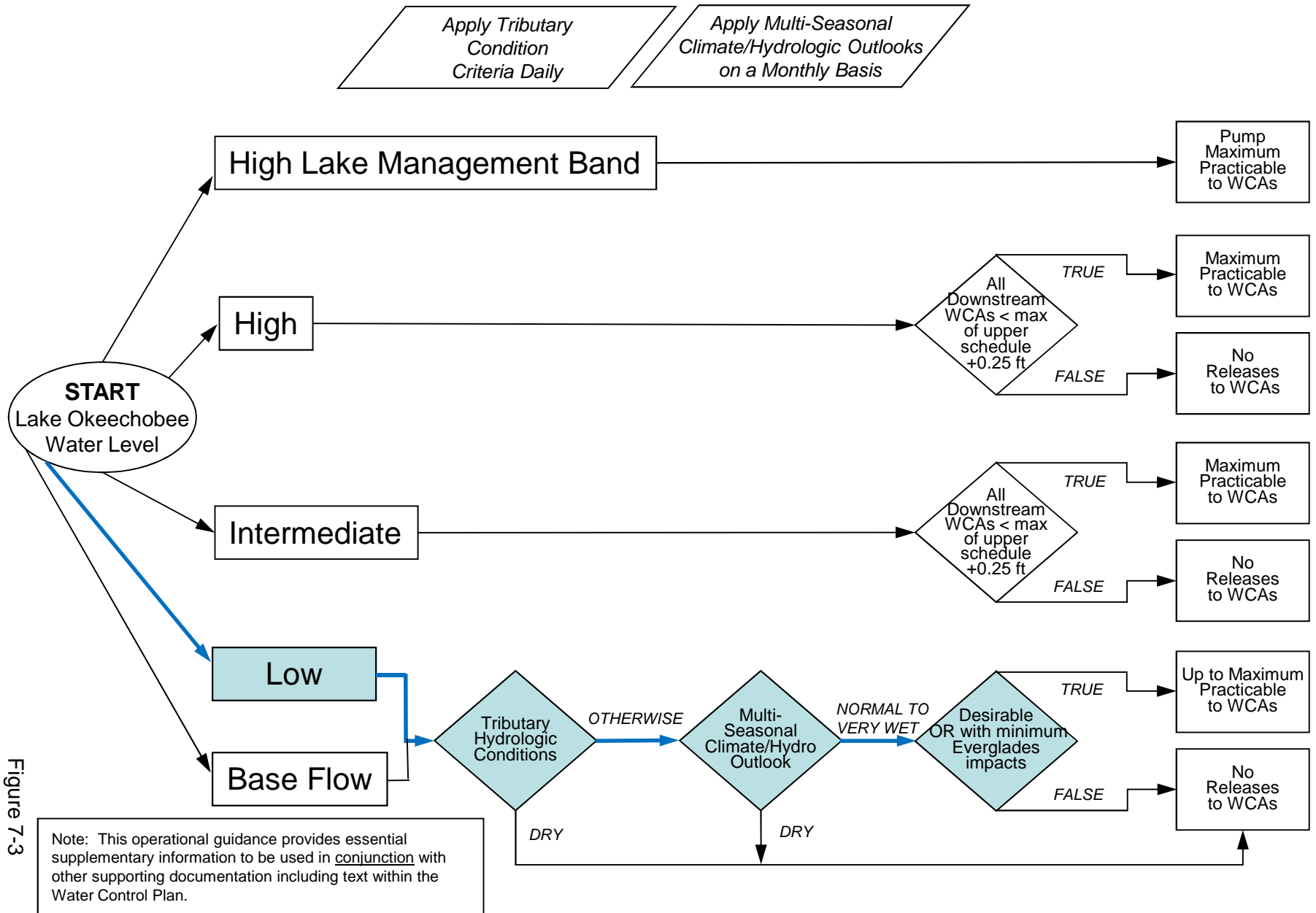


Figure 7-3

# 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

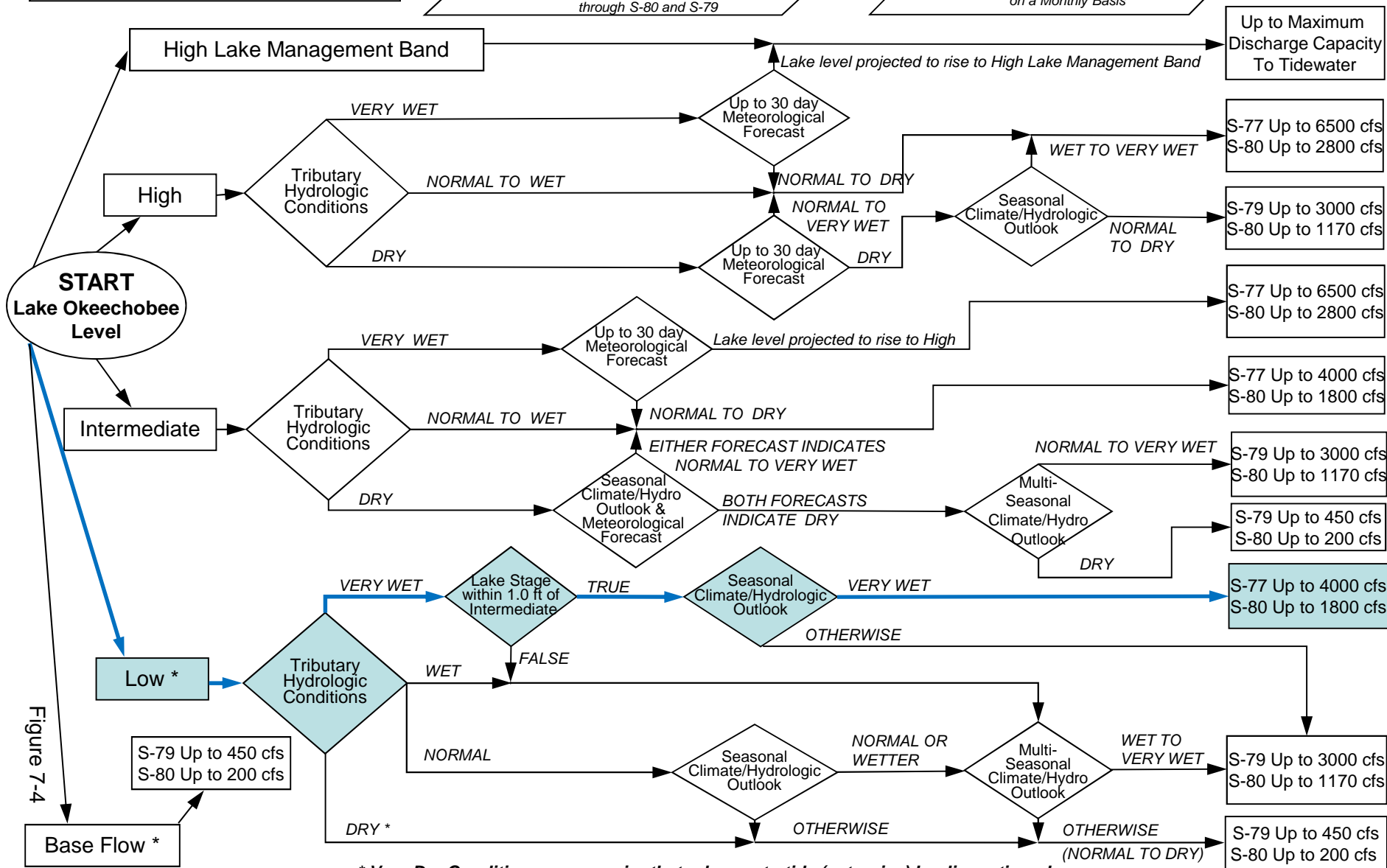
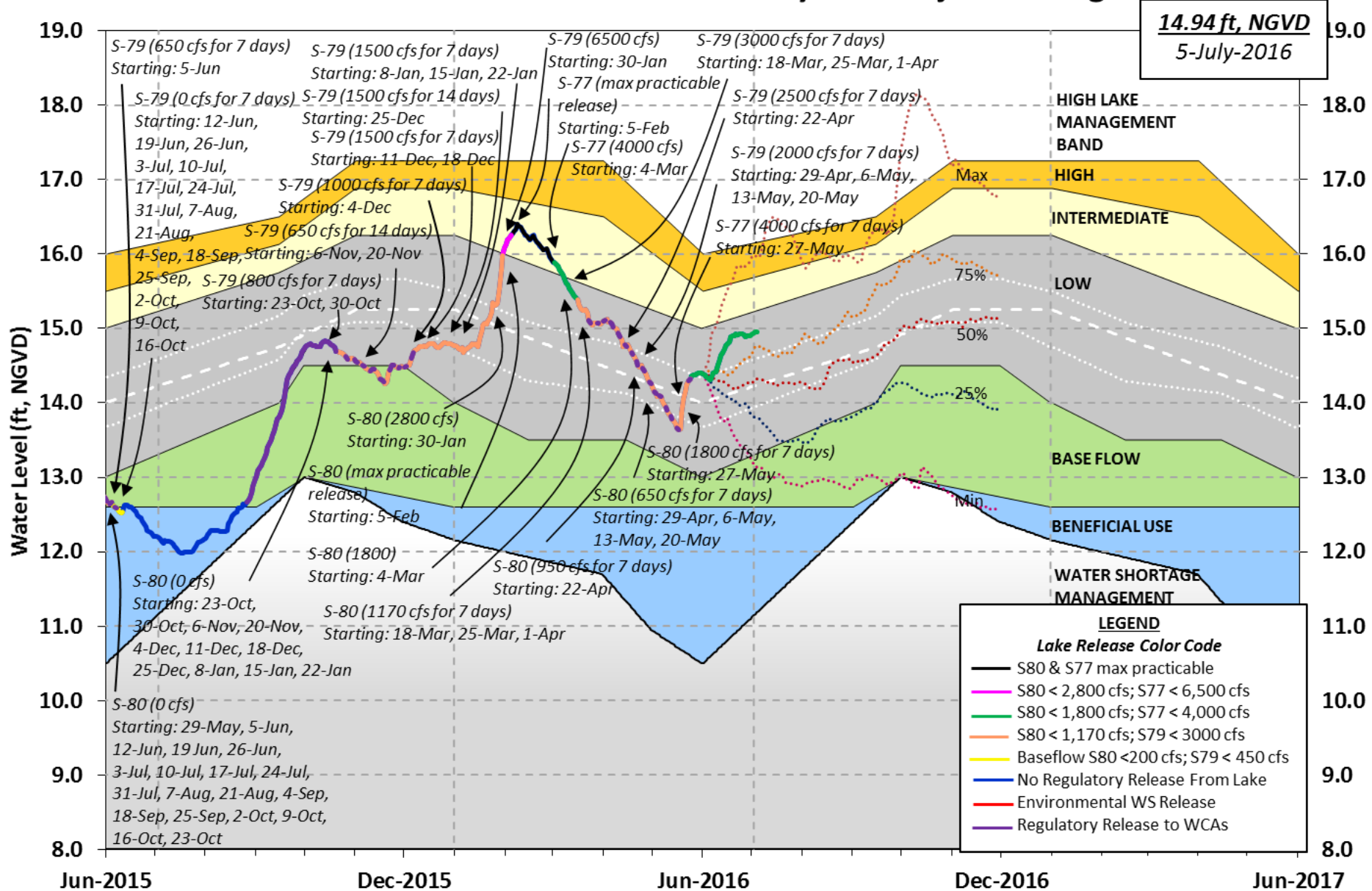


Figure 7-4



# Lake Okeechobee Water Level History and Projected Stages





Total Outflows: 4734

\*\*\*\*S77 Structure outflow is being used to compute Total Outflow.  
 \*\*\*\*S308 Structure outflow is being used to compute Total Outflow.

Okeechobee Pan Evaporation (inches):  
 S77 0.22 S308 0.23  
 Average Pan Evap x 0.75 Pan Coefficient = 0.17" = 0.01'

Lake Average Precipitation using NEXRAD: = 0.01" = 0.00'

Evaporation - Precipitation: = 0.16" = 0.01'  
 Evaporation - Precipitation using Lake Area of 730 square miles  
 is equal to 3116 cfs out of the lake.  
 Lake Okeechobee (Change in Storage) Flow is -NR- cfs or -NR- AC-FT

Note: Headwater, tailwater, and stage values below are instantaneous values unless otherwise specified.

---	Headwater Tailwater		Disch	----- Gate Positions -----						
	Elevation	Elevation		#1	#2	#3	#4	#5	#6	#7
#8	(ft-msl)	(ft-msl)	(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
	(I) see note at bottom									
North East Shore										
S133 Pumps: _____	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-	(cfs)
S193: _____										
S191: _____	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-				
S135 Pumps: _____	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-			(cfs)
S135 Culverts:			-NR-	-NR-						
North West Shore										
S65E: _____	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-	
S127 Pumps: _____	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-	(cfs)
S127 Culvert:			-NR-	-NR-						
S129 Pumps: _____	-NR-	-NR-	-NR-	-NR-	-NR-					(cfs)
S129 Culvert:			-NR-	-NR-						
S131 Pumps: _____	-NR-	-NR-	-NR-	-NR-						(cfs)
S131 Culvert:			-NR-							
Fisheating Creek										
nr Palmdale	32.43		698							
nr Lakeport										
C5: _____	-NR-	-NR-	-NR-	-NR-	-NR-					
South Shore										
S4 Pumps: _____	-NR-	-NR-	-NR-	-NR-	-NR-					(cfs)

S169:		-NR-	-NR-	-NR-	-NR-	-NR-			
S310:	14.82		-63						
S3 Pumps:		-NR-	-NR-	-NR-	-NR-	-NR-			(cfs)
S354:	-NR-		-NR-	-NR-	-NR-				
S2 Pumps:		-NR-	-NR-	-NR-	-NR-	-NR-	-NR-		(cfs)
S351:	-NR-		-NR-	-NR-	-NR-	-NR-			
S352:		-NR-	-NR-	-NR-	-NR-				
C10A:	-NR-	-NR-		0.0	0.0	8.0	0.0	0.0	
L8 Canal PT		14.70	334						

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S351 and S352 Temporary Pumps/S354 Spillway

S351:		-NR-	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-
S352:	-NR-		-NR-	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-
S354:		-NR-	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-

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Caloosahatchee River (S77, S78, S79)

S47B:		-NR-		-NR-	-NR-				
S47D:		-NR-	-NR-	-NR-					

S77:

Spillway and Sector Flow:									
	14.76	10.92	2485	3.0	3.0	3.0	3.0		
Flow Due to Lockages+:			9						

S77 Below USGS Flow Gage 2485

S78:

Spillway and Sector Flow:									
	10.83	7.75	2415	3.0	0.0	3.0	3.0		
Flow Due to Lockages+:			6						

S79:

Spillway and Sector Flow:										
	2.97	0.89	6144	2.0	3.0	3.0	3.0	3.0	3.0	3.0

2.0

Flow Due to Lockages+:			8						
Percent of flow from S77			96%						
Chloride (ppm)			42						

St. Lucie Canal (S308, S80)

S308:

Spillway and Sector Flow:									
	14.87	14.62	1915	5.0	4.0	4.0	5.0		
Flow Due to Lockages+:			1						

S308 Below USGS Flow Gage 1915

S153:		-NR-	-NR-	-NR-	-NR-				
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S80:

Spillway and Sector Flow:										
	-NR-	-NR-	-NR-	1.5	1.5	1.5	0.0	1.5	1.5	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) 4849

Speedy Point Bottom Salinity (mg/ml) 7175

+ 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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Daily Precipitation Totals	1-Day	3-Day	7-Day	----- Wind ---	
Speed	(inches)	(inches)	(inches)	Direction	
(mph)				(Degø)	
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:	0.07	0.61	2.04	211	0
S78:	0.29	0.49	1.67	340	1
S79:	0.32	0.32	1.02	150	1
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:	*****	*****	*****	113	2
S80:	0.00	0.96	2.15	-NR-	-NR-
Okeechobee Average	*****	4880.51	*****		
(Sites S78, S79 and S80 not included)					
-----					
Oke Nexrad Basin Avg	0.01	0.22	1.34		
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Okeechobee Lake Elevations	03 JUL 2016	-NR-	Difference from
03JUL16			
03JUL16 -1 Day =	02 JUL 2016	14.95	-NR-
03JUL16 -2 Days =	01 JUL 2016	14.94	-NR-
03JUL16 -3 Days =	30 JUN 2016	14.93	-NR-
03JUL16 -4 Days =	29 JUN 2016	14.90	-NR-
03JUL16 -5 Days =	28 JUN 2016	14.90	-NR-
03JUL16 -6 Days =	27 JUN 2016	14.90	-NR-
03JUL16 -7 Days =	26 JUN 2016	14.89	-NR-
03JUL16 -30 Days =	03 JUN 2016	14.33	-NR-
03JUL16 -1 Year =	03 JUL 2015	12.16	-NR-
03JUL16 -2 Year =	03 JUL 2014	13.01	-NR-

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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
03JUL16	Today =	03 JUL 2016	6638	MON	-NR-
03JUL16	-1 Day =	02 JUL 2016	6610	SUN	7182
03JUL16	-2 Days =	01 JUL 2016	6675	SAT	7321
03JUL16	-3 Days =	30 JUN 2016	7649	FRI	11844
03JUL16	-4 Days =	29 JUN 2016	7542	THU	5443
03JUL16	-5 Days =	28 JUN 2016	8045	WED	5801
03JUL16	-6 Days =	27 JUN 2016	8650	TUE	8190
03JUL16	-7 Days =	26 JUN 2016	9203	MON	1729
03JUL16	-8 Days =	25 JUN 2016	10047	SUN	3734
03JUL16	-9 Days =	24 JUN 2016	11042	SAT	5741
03JUL16	-10 Days =	23 JUN 2016	12018	FRI	5493
03JUL16	-11 Days =	22 JUN 2016	13500	THU	8281
03JUL16	-12 Days =	21 JUN 2016	13275	WED	4618
03JUL16	-13 Days =	20 JUN 2016	13439	TUE	10915

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S65E

		Average Flow over previous 14 days			Avg-Daily Flow
03JUL16	Today=	03 JUL 2016	4087	MON	-NR-
03JUL16	-1 Day =	02 JUL 2016	4216	SUN	2850
03JUL16	-2 Days =	01 JUL 2016	4477	SAT	3131
03JUL16	-3 Days =	30 JUN 2016	4759	FRI	3374
03JUL16	-4 Days =	29 JUN 2016	5069	THU	3394
03JUL16	-5 Days =	28 JUN 2016	5394	WED	3429
03JUL16	-6 Days =	27 JUN 2016	5736	TUE	3856
03JUL16	-7 Days =	26 JUN 2016	6087	MON	4035
03JUL16	-8 Days =	25 JUN 2016	6421	SUN	4230
03JUL16	-9 Days =	24 JUN 2016	6664	SAT	4353
03JUL16	-10 Days =	23 JUN 2016	6780	FRI	4904
03JUL16	-11 Days =	22 JUN 2016	6773	THU	4964
03JUL16	-12 Days =	21 JUN 2016	6690	WED	5164
03JUL16	-13 Days =	20 JUN 2016	6598	TUE	5448

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Lake Okeechobee Outlets Last 14 Days

DATE	S-77 Discharge (0700-2100) (AC-FT)	S-77 Discharge (ALL DAY) (AC-FT)	Below S-77 Discharge (ALL-DAY) (AC-FT)	S-78 Discharge (0700-2100) (AC-FT)	S-78 Discharge (ALL DAY) (AC-FT)	S-79 Discharge (ALL DAY) (AC-FT)
03 JUL 2016			4928	-NR-	4802	12199
02 JUL 2016			5399	-NR-	6517	10767
01 JUL 2016			6705	-NR-	7663	13935
30 JUN 2016			7027	-NR-	7594	12407
29 JUN 2016			6887	-NR-	7549	12259
28 JUN 2016			7657	-NR-	-NR-	13641
27 JUN 2016			8105	-NR-	8429	14621
26 JUN 2016			8255	-NR-	8669	13440
25 JUN 2016			8149	-NR-	9037	13320
24 JUN 2016			8014	-NR-	8841	12893
23 JUN 2016			7339	-NR-	8924	13400

22 JUN 2016		8521	-NR-	8479	14419
21 JUN 2016		9361	-NR-	7435	17019
20 JUN 2016		9371	-NR-	11305	17968

	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)
03 JUL 2016	-124	-NR-	-NR-	-NR-	662
02 JUL 2016	-149	0	0	0	694
01 JUL 2016	-142	0	0	0	550
30 JUN 2016	-124	0	0	0	433
29 JUN 2016	12	0	0	0	421
28 JUN 2016	-38	0	0	0	395
27 JUN 2016	-91	0	0	0	415
26 JUN 2016	-148	0	0	0	412
25 JUN 2016	-225	0	0	0	394
24 JUN 2016	-76	0	0	0	385
23 JUN 2016	-27	0	0	0	420
22 JUN 2016	-60	0	0	0	432
21 JUN 2016	-147	0	0	0	411
20 JUN 2016	-201	0	0	0	396

	S-308	Below S-308	S-80
	Discharge	Discharge	Discharge
	(ALL DAY)	(ALL-DAY)	(ALL-DAY)
DATE	(AC-FT)	(AC-FT)	(AC-FT)
03 JUL 2016		3798	-NR-
02 JUL 2016		3950	2860
01 JUL 2016		3064	2441
30 JUN 2016		3429	-NR-
29 JUN 2016		3485	2449
28 JUN 2016		3451	-NR-
27 JUN 2016		3422	-NR-
26 JUN 2016		3260	2450
25 JUN 2016		3059	2469
24 JUN 2016		2984	2468
23 JUN 2016		3134	-NR-
22 JUN 2016		3270	2433
21 JUN 2016		3585	2448
20 JUN 2016		3479	2431

\*\*\* NOTE: 1) Discharge from (0700-2100) is computed using Spillway and Sector Gate Discharges from 0700 hrs to 2100 hrs.

2) 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 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](http://www.sfwmd.gov)

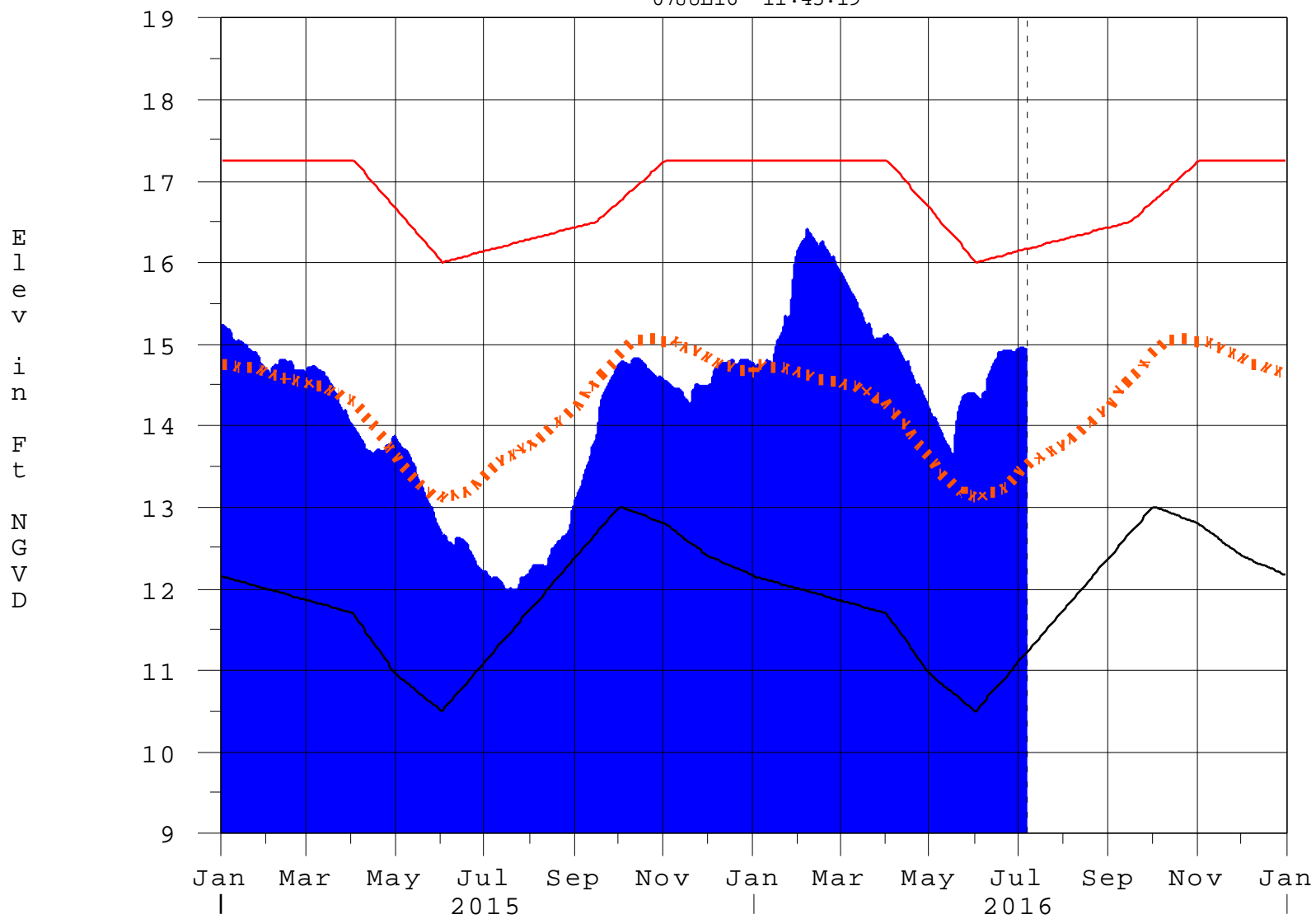
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Report Generated 04JUL2016 @ 23:38 \*\* Preliminary Data - Subject to Revision  
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# Lake Okeechobee

07JUL16 11:45:19



- 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</b> <b>[million acre-feet]</b>	<b>Equivalent Depth**</b> <b>[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\*

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

**\*\*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