

Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 7/11/2016 (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 (Jul-Dec)	N/A	N/A	2.35	Very Wet	3.03	Very Wet	3.92	Very Wet
Multi Seasonal (Jul-Apr)	N/A	N/A	2.47	Normal	3.21	Wet	4.11	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:](#)

3647 cfs 14-day running average for Lake Okeechobee Net Inflow through 7/10/2016. According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Wet.

0.29 for Palmer Index on 7/9/2016.

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

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

[LORS2008 Classification Tables:](#)

Lake Okeechobee Stage on 7/11/2016

Lake Okeechobee Stage: **14.78 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		16.19	
Operational Band	High sub-band	15.74	
	Intermediate sub-band	15.28	
	Low sub-band	13.37	← 14.82
Base Flow sub-band		12.60	
Beneficial Use sub-band		11.32	
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](#)

[Back to Lake Okeechobee Operations Main Page](#)

[Back to U.S. Army Corps of Engineers LORSS Homepage](#)

LORS2008 Implementation on 7/11/2016 (ENSO Neutral Condition):

Status for week ending 7/12/2016:

District wide, Raindar rainfall was 0.40 inches for the week. Lake stage on 7/11/2016 was 14.82 ft, down 0.11 ft from last week.

The updated July 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 **Wet**. The PDSI indicates normal condition and the LONIN is Wet. The classification is based on the wetter of the two.

Water Supply Risk Evaluation

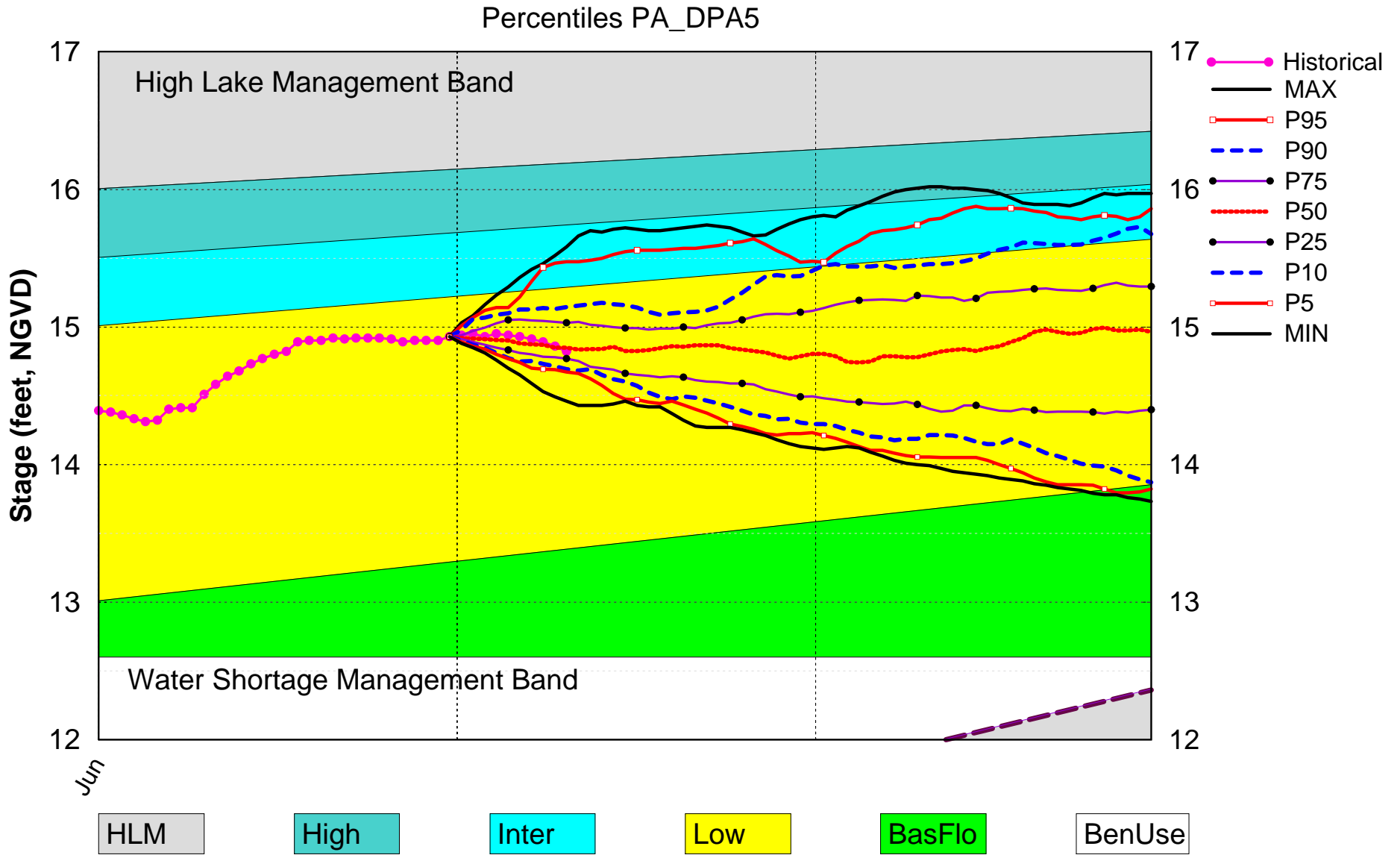
Area	Indicator	Value	Color Coded Scoring Scheme
LOK	Projected LOK Stage for the next two months	Low Sub-Band	L
	Palmer Index for LOK Tributary Conditions	0.29 (Normal)	L
	CPC Precipitation Outlook	1 month: Above Normal	L
		3 months: Above Normal	L
	LOK Seasonal Net Inflow Forecast ENSO Neutral Years	3.03 ft (Normal to Extremely Wet)	L
	LOK Multi-Seasonal Net Inflow Forecast ENSO Neutral Years	3.21 ft (Normal)	L
			L
WCAs	WCA 1: Site 1-7, Site 1-8T, & Site 1-9 Average	Above Line 1 (15.72 ft)	L
	WCA 2A: Site 2-17 HW	Above Line1 (11.94 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64 and 65)	Above Line 1 (9.80 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.

[Back to Lake Okeechobee Operations Main Page](#)

[Back to U.S. Army Corps of Engineers LORSS Homepage](#)

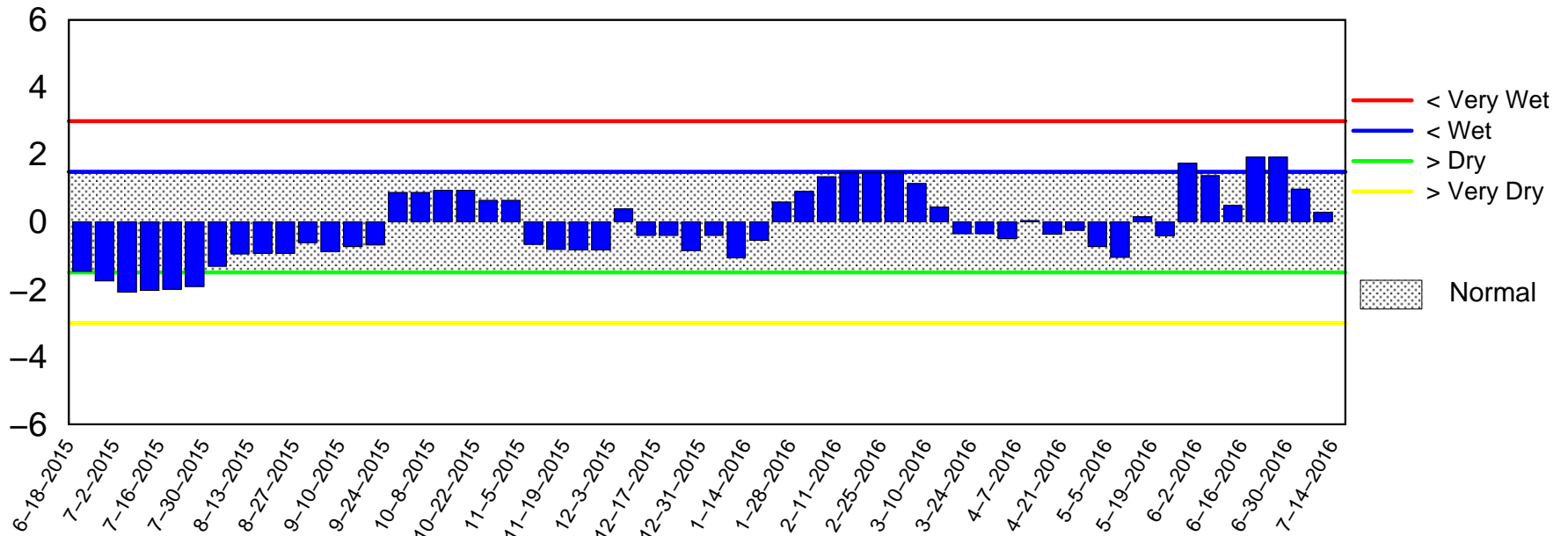
Lake Okeechobee SFWMM July 2016 Position Analysis



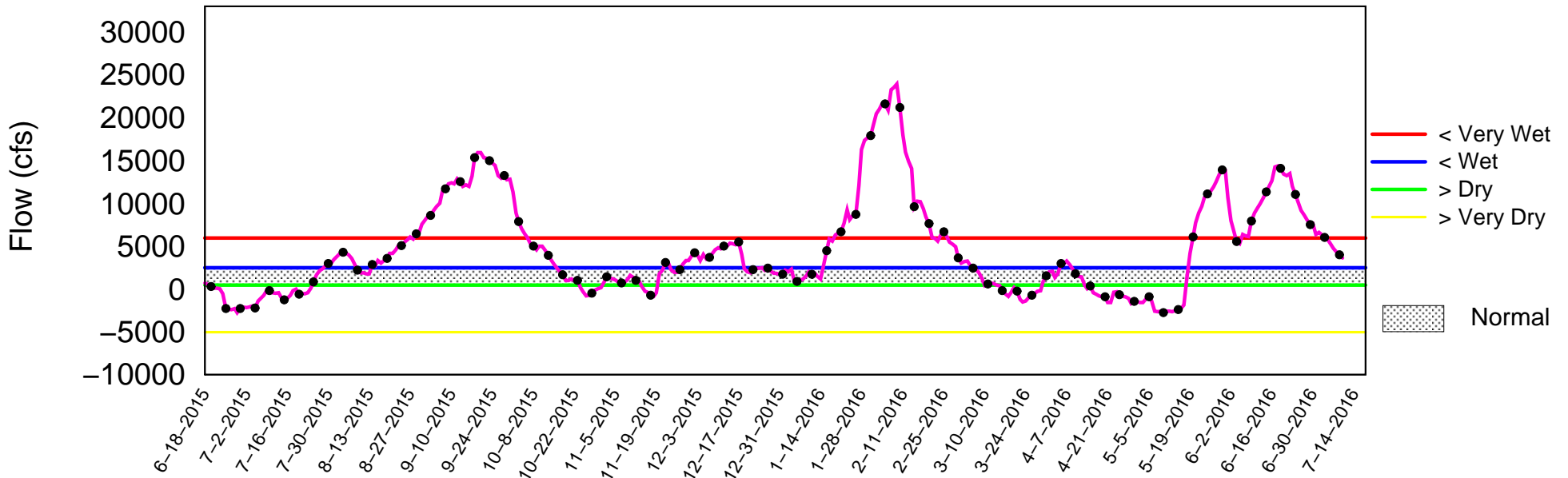
(See assumptions on the Position Analysis Results website)

Tributary Basin Condition Indicators as of July 11 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

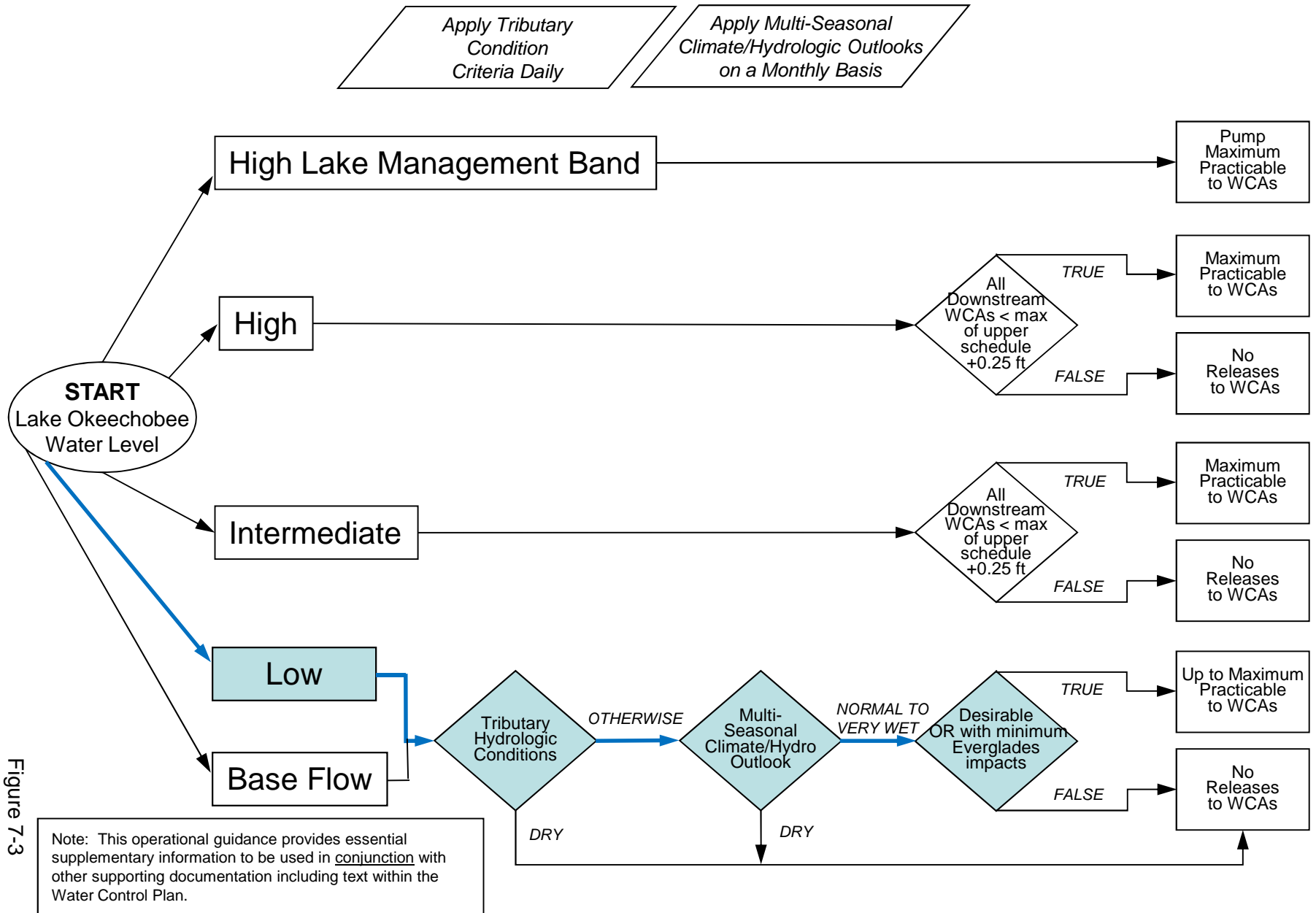


Figure 7-3

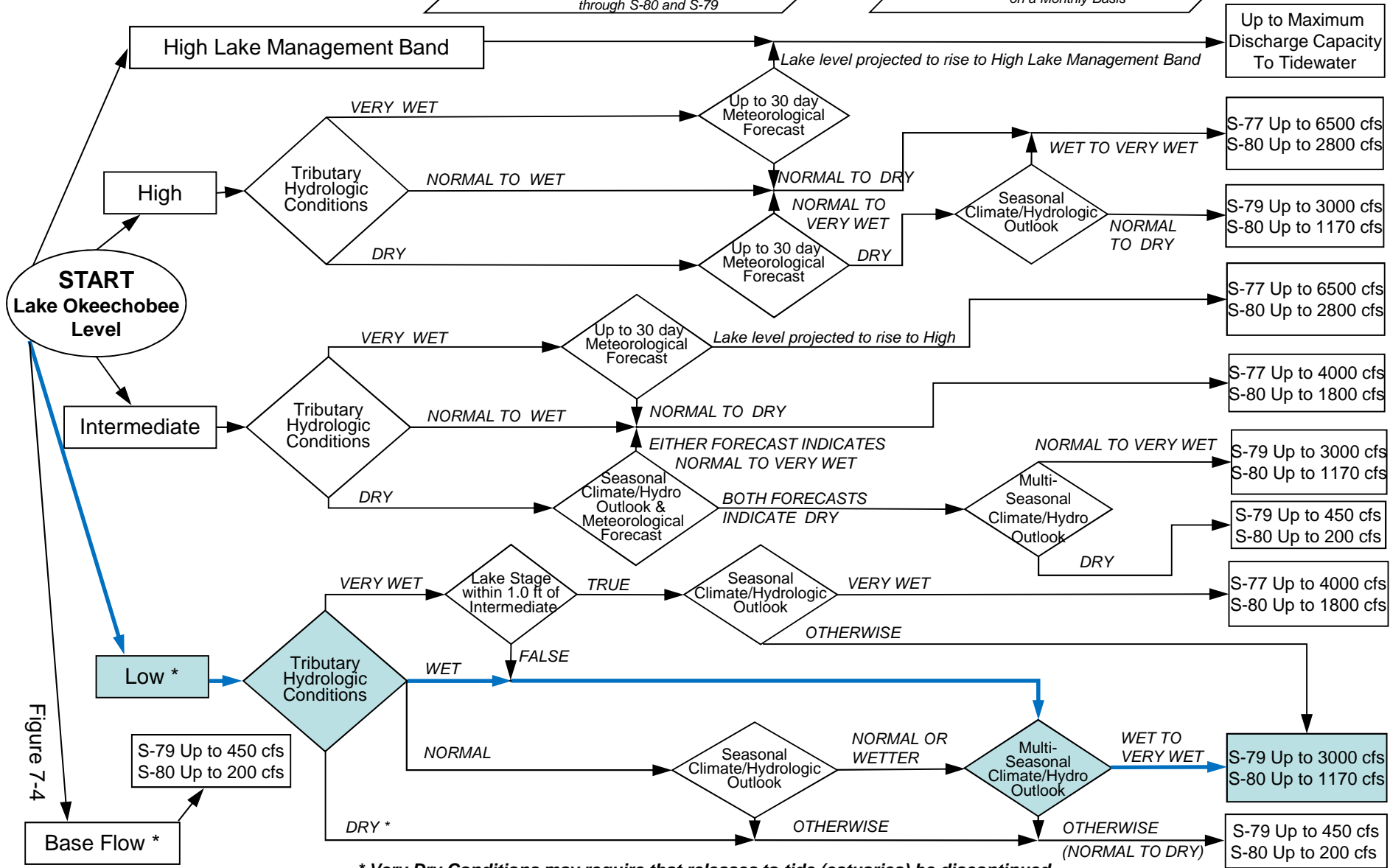
2008 LORS

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

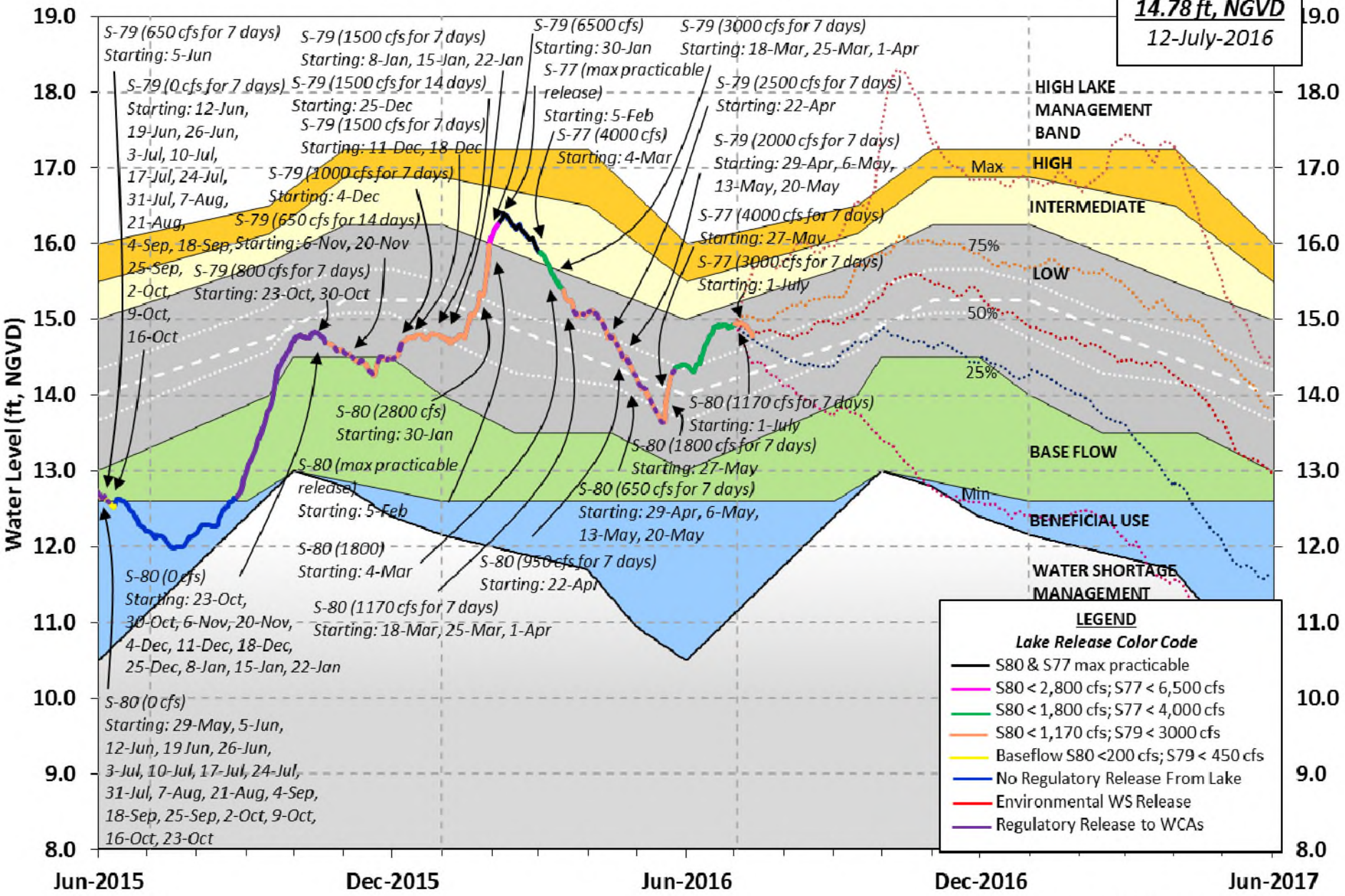


* Very Dry Conditions may require that releases to tide (estuaries) be discontinued

Figure 7-4

Lake Okeechobee Water Level History and Projected Stages

14.78 ft, NGVD
12-July-2016



South Shore

S4 Pumps:	10.91	14.71	0	0	0	0				(cfs)
S169:	14.68	10.90	0	0.0	0.0	0.0				
S310:	14.62		39							
S3 Pumps:	10.81	14.64	0	0	0	0				(cfs)
S354:	14.64	10.81	175	0.4	0.4					
S2 Pumps:	10.30	14.64	0	0	0	0	0			(cfs)
S351:	14.64	10.30	0	0.0	0.0	0.0				
S352:	14.89	10.94	287	0.2	0.5					
C10A:	-NR-	14.72		0.0	0.0	8.0	0.0	0.0		
L8 Canal PT		14.57	317							

S351 and S352 Temporary Pumps/S354 Spillway

S351:	10.30	14.64	0	-NR--NR--NR--NR--NR--NR-
S352:	10.94	14.89	287	-NR--NR--NR--NR-
S354:	10.81	14.64	175	-NR--NR--NR--NR-

Caloosahatchee River (S77, S78, S79)

S47B:	13.30	10.90		0.5	0.5					
S47D:	10.95	10.94	21	6.0						
S77:										
Spillway and Sector Flow:										
14.70	11.03	2139	3.2	3.2	3.2	3.2				
Flow Due to Lockages+:		6								
S77 Below USGS Flow Gage		2139								
S78:										
Spillway and Sector Flow:										
11.02	3.02	1738	0.0	0.0	2.5	2.5				
Flow Due to Lockages+:		10								
S79:										
Spillway and Sector Flow:										
3.05	1.35	3365	1.0	1.0	2.0	2.0	2.0	2.0	2.0	
1.0										
Flow Due to Lockages+:		7								
Percent of flow from S77		92%								
Chloride (ppm)		43								

St. Lucie Canal (S308, S80)

S308:										
Spillway and Sector Flow:										
14.72	14.32	2225	4.0	4.0	4.0	4.0				
Flow Due to Lockages+:		0								
S308 Below USGS Flow Gage		2225								
S153:	19.05	14.10	0	0.0	0.0					
S80:										
Spillway and Sector Flow:										
13.77	0.04	1892	1.1	1.1	1.1	0.0	1.1	1.1	0.0	
Flow Due to Lockages+:		21								
Percent of flow from S308		96%								

Steele Point Top Salinity (mg/ml) ****
 Steele Point Bottom Salinity (mg/ml) ****

Speedy Point Top Salinity (mg/ml) -N
 Speedy Point Bottom Salinity (mg/ml) -N

+ 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	0.00	0.75	172	2
S78:	0.09	0.36	0.37	358	3
S79:	0.00	0.00	0.47	133	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:	*****	*****	*****	107	1
S80:	0.00	0.00	0.00	0	0
Okeechobee Average	*****	4862.69	*****		
(Sites S78, S79 and S80 not included)					

Oke Nexrad Basin Avg	0.01	0.04	0.05		

Okeechobee Lake Elevations	10 JUL 2016	14.82	Difference from
10JUL16			
10JUL16 -1 Day =	09 JUL 2016	14.86	0.04
10JUL16 -2 Days =	08 JUL 2016	14.89	0.07
10JUL16 -3 Days =	07 JUL 2016	14.91	0.09
10JUL16 -4 Days =	06 JUL 2016	14.93	0.11
10JUL16 -5 Days =	05 JUL 2016	14.94	0.12
10JUL16 -6 Days =	04 JUL 2016	14.95	0.13
10JUL16 -7 Days =	03 JUL 2016	14.95	0.13
10JUL16 -30 Days =	10 JUN 2016	14.58	-0.24
10JUL16 -1 Year =	10 JUL 2015	12.11	-2.71
10JUL16 -2 Year =	10 JUL 2014	13.18	-1.64

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
10JUL16	Today =	10 JUL 2016	3650	MON	-3518
10JUL16	-1 Day =	09 JUL 2016	4025	SUN	-1023
10JUL16	-2 Days =	08 JUL 2016	4365	SAT	-174
10JUL16	-3 Days =	07 JUL 2016	4787	FRI	-1461
10JUL16	-4 Days =	06 JUL 2016	5284	THU	980
10JUL16	-5 Days =	05 JUL 2016	5805	WED	1527
10JUL16	-6 Days =	04 JUL 2016	6026	TUE	4256
10JUL16	-7 Days =	03 JUL 2016	6502	MON	4734
10JUL16	-8 Days =	02 JUL 2016	6610	SUN	7182
10JUL16	-9 Days =	01 JUL 2016	6675	SAT	7321
10JUL16	-10 Days =	30 JUN 2016	7649	FRI	11844
10JUL16	-11 Days =	29 JUN 2016	7542	THU	5443
10JUL16	-12 Days =	28 JUN 2016	8045	WED	5801
10JUL16	-13 Days =	27 JUN 2016	8650	TUE	8190

S65E

		Average Flow over previous 14 days			Avg-Daily Flow
10JUL16	Today=	10 JUL 2016	2594	MON	1383
10JUL16	-1 Day =	09 JUL 2016	2783	SUN	1545
10JUL16	-2 Days =	08 JUL 2016	2975	SAT	1648
10JUL16	-3 Days =	07 JUL 2016	3168	FRI	2057
10JUL16	-4 Days =	06 JUL 2016	3372	THU	2107
10JUL16	-5 Days =	05 JUL 2016	3576	WED	2509
10JUL16	-6 Days =	04 JUL 2016	3765	TUE	2429
10JUL16	-7 Days =	03 JUL 2016	3981	MON	2620
10JUL16	-8 Days =	02 JUL 2016	4215	SUN	2844
10JUL16	-9 Days =	01 JUL 2016	4476	SAT	3128
10JUL16	-10 Days =	30 JUN 2016	4758	FRI	3369
10JUL16	-11 Days =	29 JUN 2016	5069	THU	3399
10JUL16	-12 Days =	28 JUN 2016	5393	WED	3418
10JUL16	-13 Days =	27 JUN 2016	5736	TUE	3856

Lake Okeechobee Outlets Last 14 Days

DATE	S-77	S-77	Below S-77	S-78	S-78	S-79
	Discharge (0700-2100) (AC-FT)	Discharge (ALL DAY) (AC-FT)	Discharge (ALL-DAY) (AC-FT)	Discharge (0700-2100) (AC-FT)	Discharge (ALL DAY) (AC-FT)	Discharge (ALL DAY) (AC-FT)
10 JUL 2016			4242	-NR-	3467	6686
09 JUL 2016			4172	-NR-	3421	7314
08 JUL 2016			4532	-NR-	3731	7801
07 JUL 2016			4845	-NR-	4020	8383
06 JUL 2016			4916	-NR-	3275	9337
05 JUL 2016			4831	-NR-	5698	11650
04 JUL 2016			4825	-NR-	4901	11460
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

	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)
10 JUL 2016	78	0	569	367	629
09 JUL 2016	169	0	714	561	656
08 JUL 2016	176	0	178	559	659
07 JUL 2016	89	0	0	0	655
06 JUL 2016	86	0	0	0	650
05 JUL 2016	-29	0	0	0	649
04 JUL 2016	7	0	0	0	666
03 JUL 2016	-124	0	0	0	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

	S-308	Below S-308	S-80
	Discharge	Discharge	Discharge
	(ALL DAY)	(ALL-DAY)	(ALL-DAY)
DATE	(AC-FT)	(AC-FT)	(AC-FT)
10 JUL 2016		4413	2587
09 JUL 2016		4764	2864
08 JUL 2016		2226	1634
07 JUL 2016		-64	36
06 JUL 2016		576	335
05 JUL 2016		1747	1294
04 JUL 2016		2948	2115
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-

*** 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.

(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

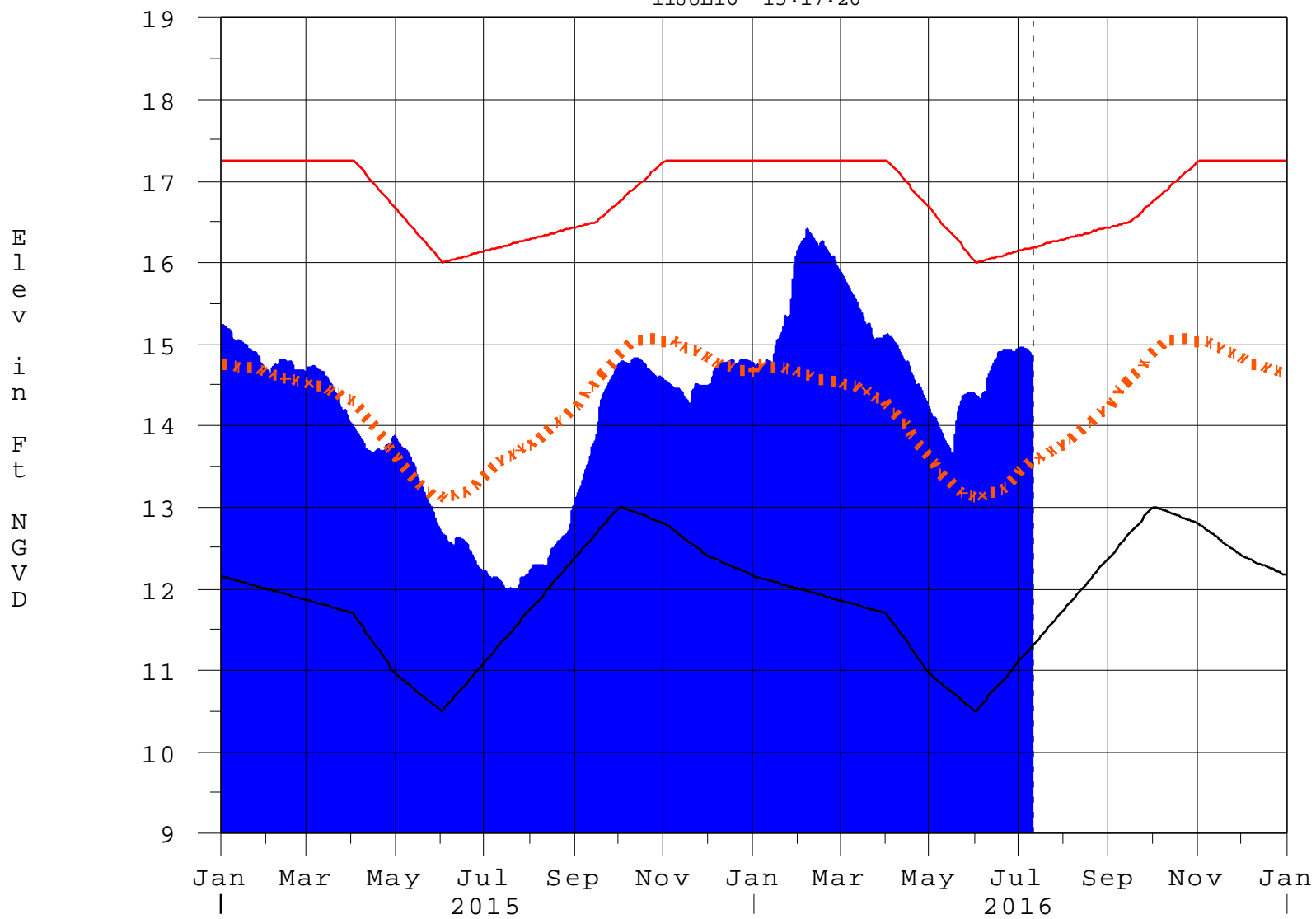
++ For more information see the Jacksonville District Navigation website at <http://www.saj.usace.army.mil/>

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

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Report Generated 11JUL2016 @ 15:15 ** Preliminary Data - Subject to Revision
**

Lake Okeechobee

11JUL16 15:17:20



- 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

[Back to Lake Okeechobee Operations Main Page](#)

[Back to U.S. Army Corps of Engineers Lake Okeechobee Operations Homepage](#)

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