

Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 11/13/2017 (Developing 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 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 (Nov-Apr)	N/A	N/A	1.25	Normal	1.08	Normal	0.91	Normal
Multi Seasonal (Nov-Oct)	N/A	N/A	3.69	Wet	3.77	Wet	3.37	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:](#)

2715 cfs 14-day running average for Lake Okeechobee Net Inflow through 11/13/2017. According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Wet.

3.00 for Palmer Index on 11/11/2017.

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

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

[LORS2008 Classification Tables:](#)

Lake Okeechobee Stage on 11/13/2017

Lake Okeechobee Stage: **16.68 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	16.88	
	Intermediate sub-band	16.25	← 16.68
	Low sub-band	14.50	
Base Flow sub-band		12.82	
Beneficial Use sub-band		12.64	
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-77 Up to 4000 cfs & 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](#)**
- **[Environmental Conditions for Systems Operations](#)**

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LORS2008 Implementation on 11/13/2017 (ENSO Neutral Condition):

Status for week ending 11/13/2017:

District wide, Raindar rainfall was 0.51 inches for the week. Lake stage on 11/13/2017 was 16.68 ft, down 0.26 ft from last week.

The updated November 2017 SFWMM Dynamic Position Analysis [percentile graph](#) for Lake Okeechobee show that the current lake stage is in the Intermediate Operational Sub-Band.

The 2008 LORS Tributary Hydrologic Condition (THC) tributary is classified as **Very Wet**. The PDSI indicates Very Wet condition and the LONIN is Wet. The THC classification is based on the wetter of the two [indices](#).

Water Supply Risk Evaluation

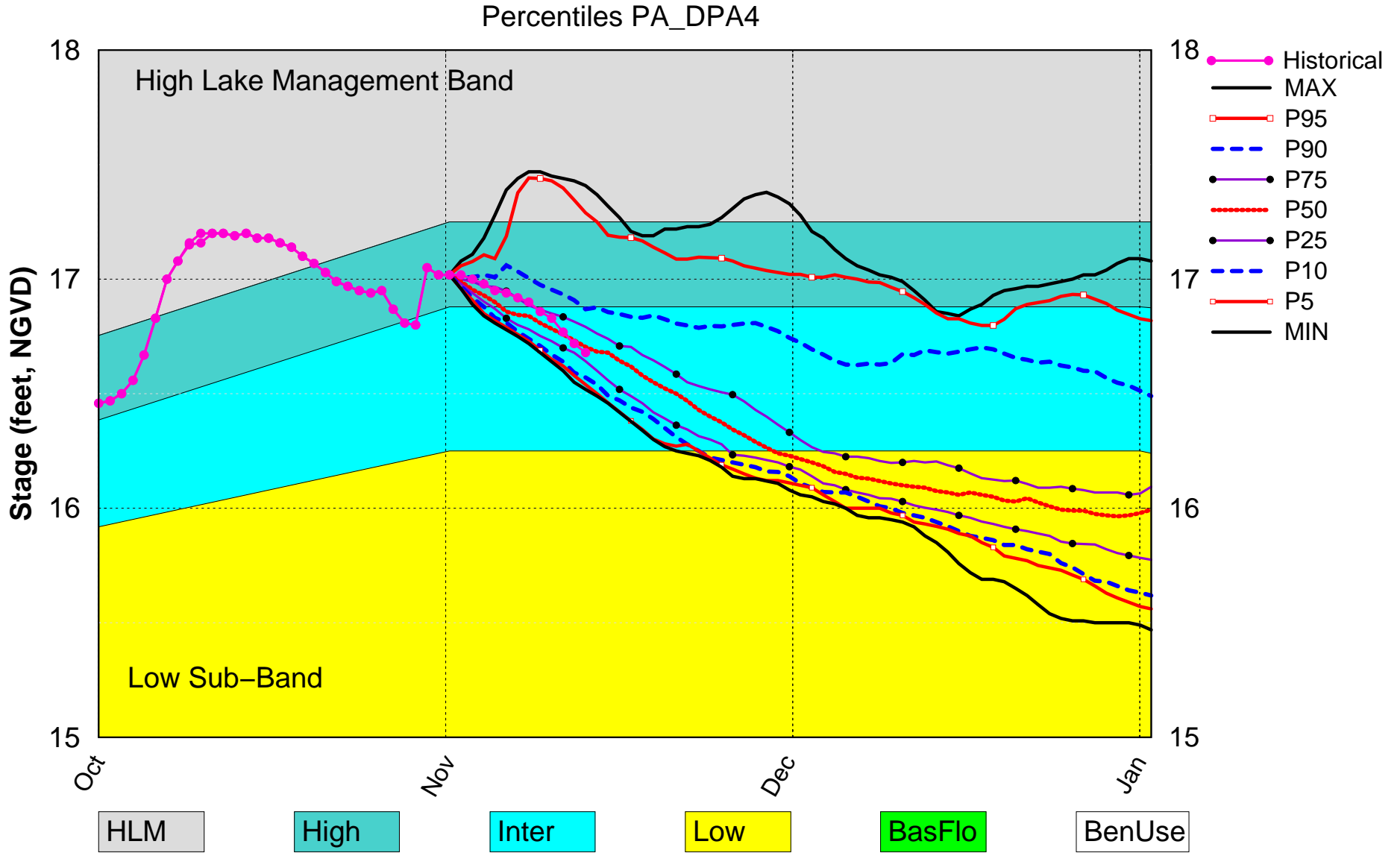
Area	Indicator	Value	Color Coded Scoring Scheme
LOK	Projected LOK Stage for the next two months	Low Sub Band	M
	Palmer Index for LOK Tributary Conditions	3.00 (Normal)	L
	CPC Precipitation Outlook	1 month: Below Normal	M
		3 months: Below Normal	M
	LOK Seasonal Net Inflow Outlook	1.08 ft (Normal)	M
	ENSO La Nina Years		
	LOK Multi-Seasonal Net Inflow Outlook	3.77 ft (Normal)	L
ENSO La Nina Years			
WCAs	WCA 1: Site 1-7, Site 1-8T, & Site 1-9 Average	Above Line 1 (17.56 ft)	L
	WCA 2A: Site 2-17 HW	Above Line 1 (13.80 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64 and 65)	Above Line 1 (12.06 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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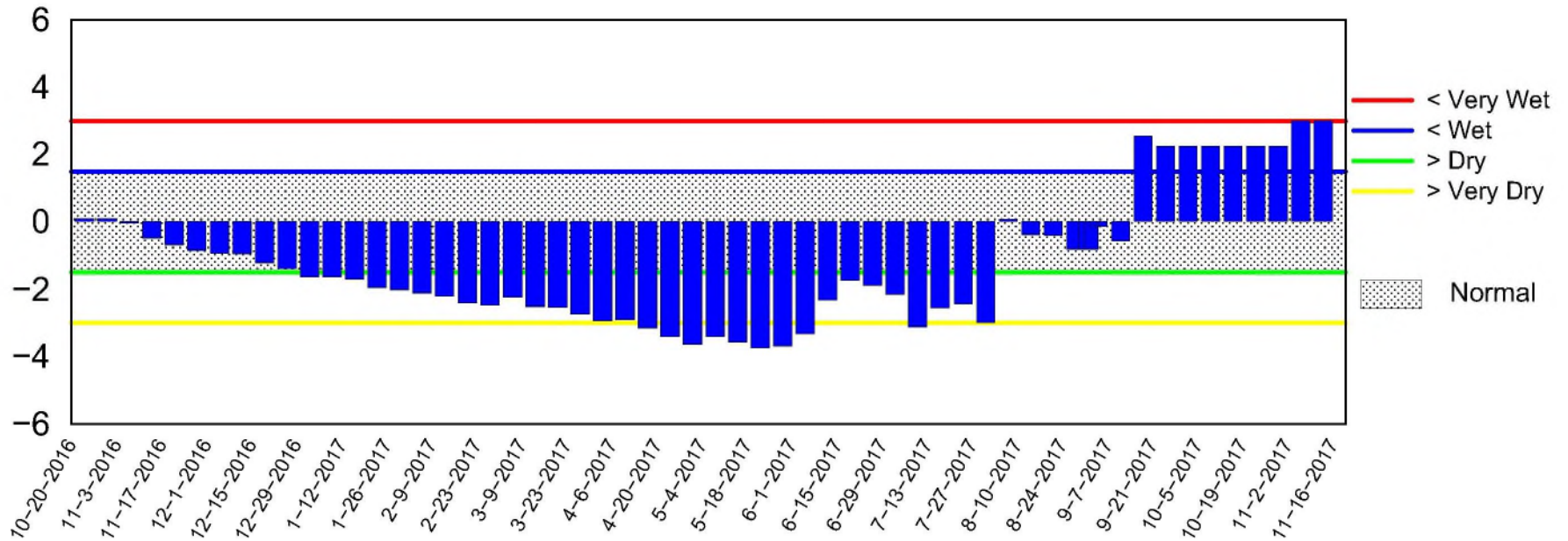
Lake Okeechobee SFWMM Nov 2017 Position Analysis



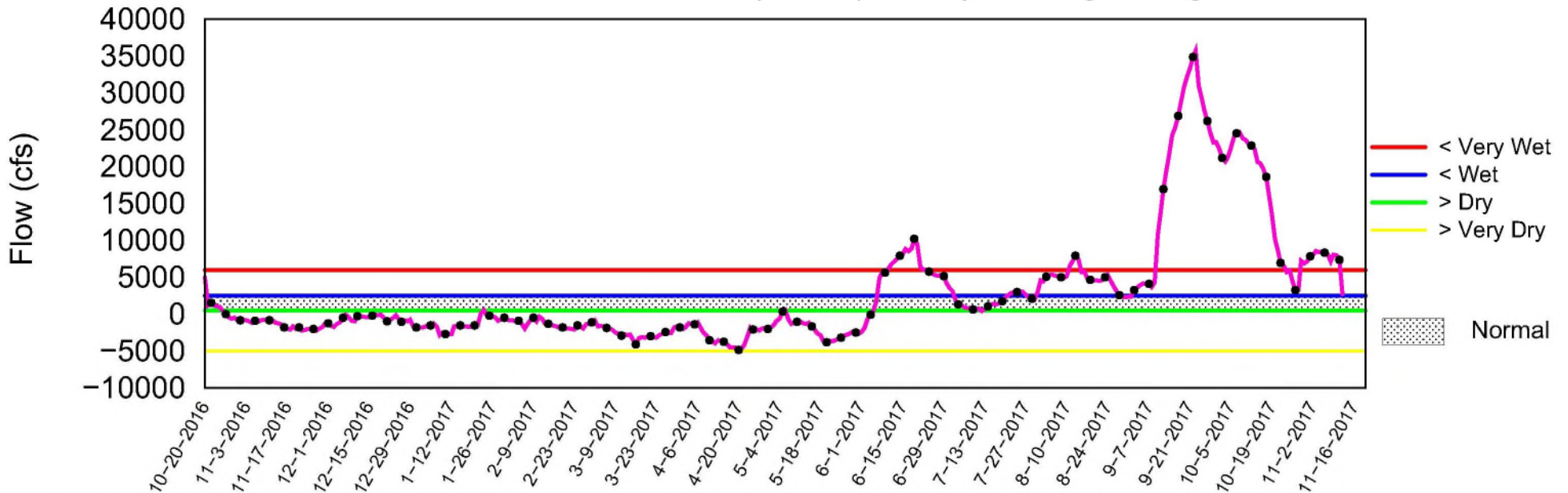
(See assumptions on the Position Analysis Results website)

Tributary Basin Condition Indicators as of November 13 2017

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

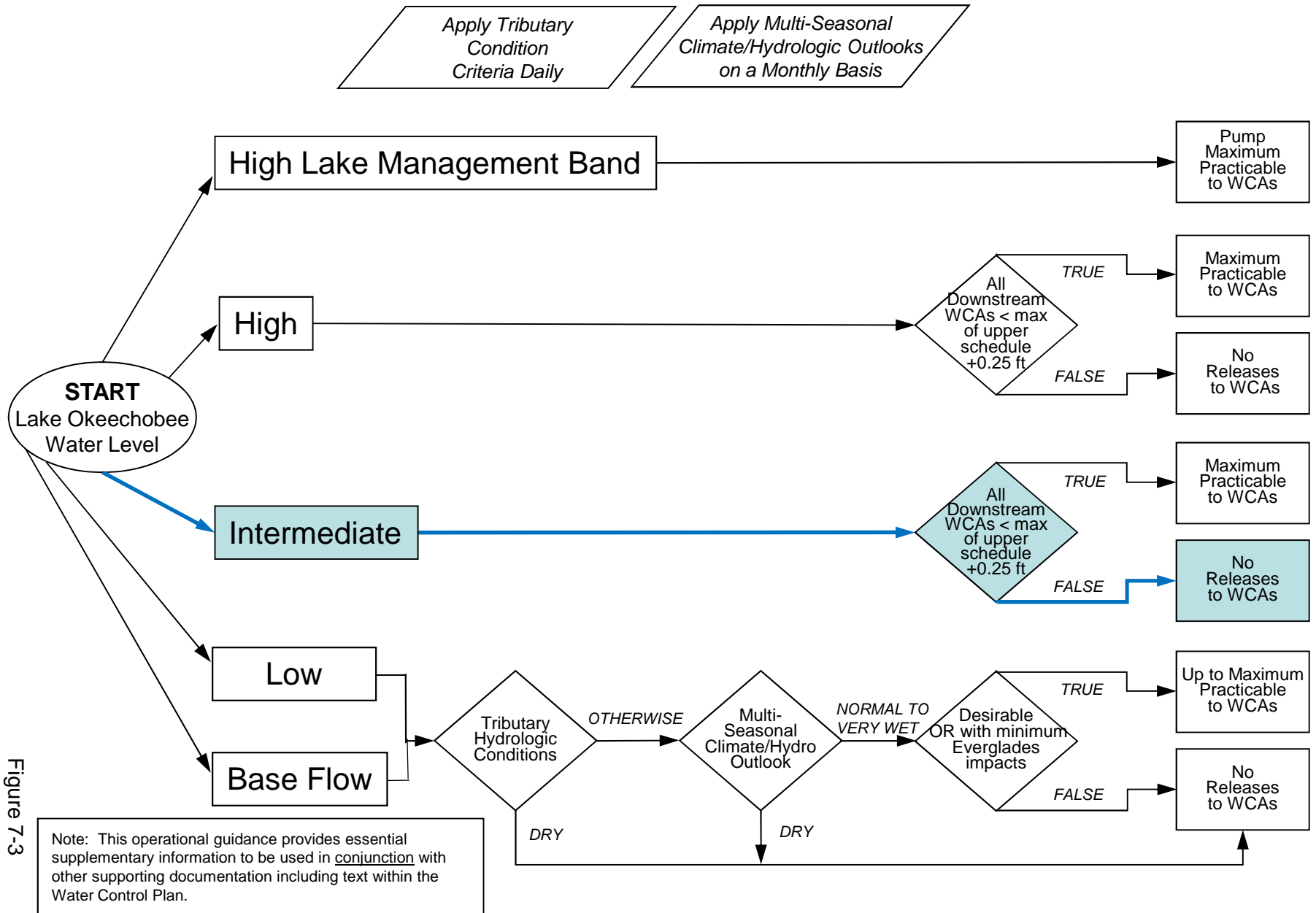


Figure 7-3

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

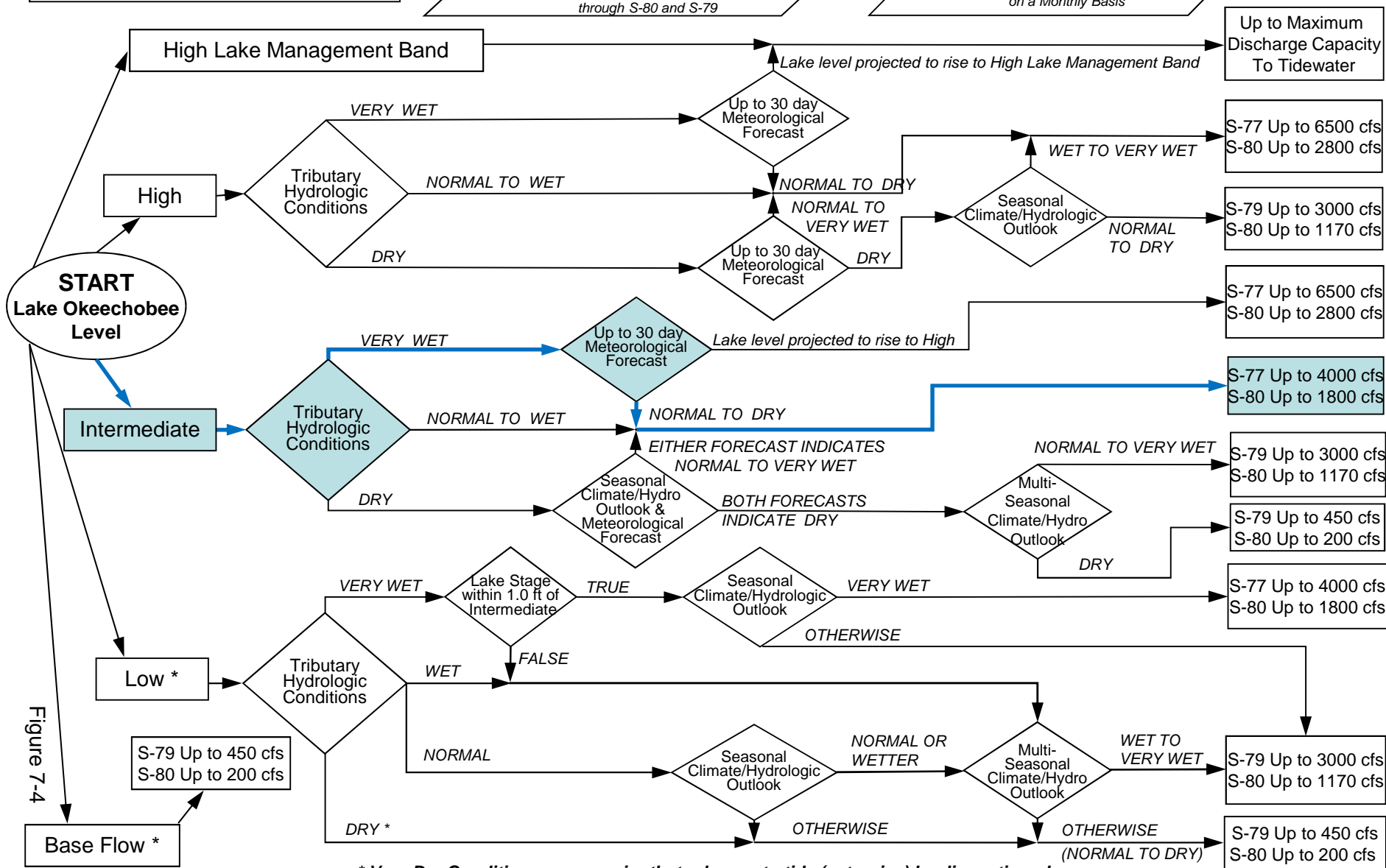
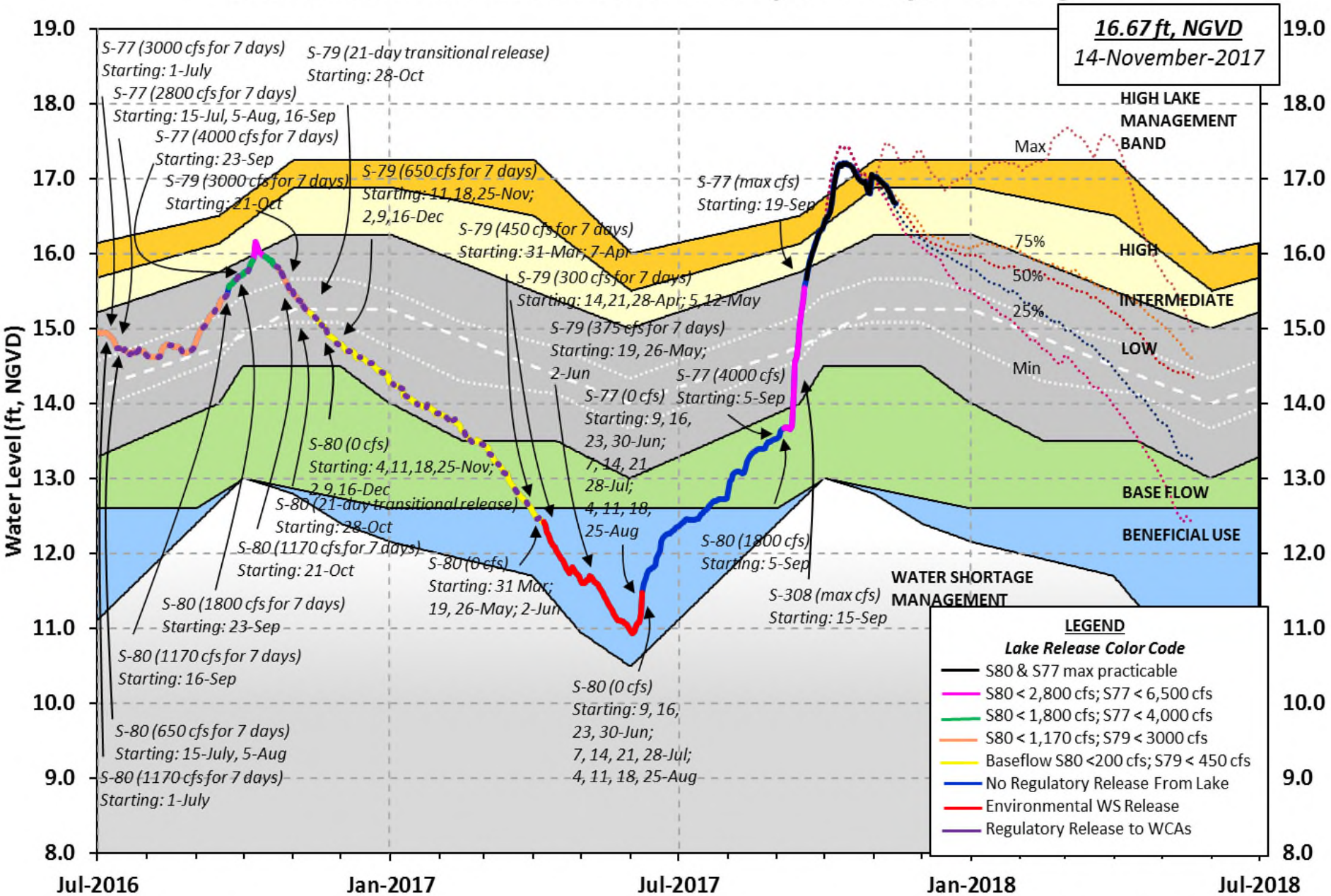


Figure 7-4

Lake Okeechobee Water Level History and Projected Stages



S3 Pumps:	9.84	16.95	0	0	0	0			(cfs)
S354:	16.95	9.84	0	0.0	0.0				
S2 Pumps:	9.56	16.86	0	0	0	0	0		(cfs)
S351:	16.86	9.56	0	0.0	0.0	0.0			
S352:	16.77	9.65	0	0.0	0.0				
C10A:	-NR-	12.94		8.0	8.0	8.0	0.0	0.0	
L8 Canal PT		13.14	8						

S351 and S352 Temporary Pumps/S354 Spillway

S351:	9.56	16.86	0	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-
S352:	9.65	16.77	0	-NR-	-NR-	-NR-	-NR-		
S354:	9.84	16.95	0	-NR-	-NR-	-NR-	-NR-		

Caloosahatchee River (S77, S78, S79)

S47B:	13.03	11.02		0.5	0.5				
S47D:	11.09	11.08	49	6.5					

S77:

Spillway and Sector Flow:			*****	5.5	5.5	5.0	5.5		
16.51	11.35								
Flow Due to Lockages+:			10						

S77 Below USGS Flow Gage 6480

S78:

Spillway and Sector Flow:			6331	5.0	5.0	5.0	5.5		
10.61	3.28								
Flow Due to Lockages+:			14						

S79:

Spillway and Sector Flow:			7940	3.0	3.0	3.0	4.0	4.0	4.0	3.0
3.02	1.64									
3.0										
Flow Due to Lockages+:			8							
Percent of flow from S77			82%							
Chloride (ppm)			57							

St. Lucie Canal (S308, S80)

S308:

Spillway and Sector Flow:			*****	8.0	8.0	8.0	8.0		
16.47	16.18								
Flow Due to Lockages+:			0						

S308 Below USGS Flow Gage 2204

S153:	18.91	15.87	69	0.4	0.0				
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S80:

Spillway and Sector Flow:			3920	2.5	2.0	0.0	2.5	2.0	2.5	2.5
12.61	2.49									
Flow Due to Lockages+:			16							
Percent of flow from S308			56%							

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

Speedy Point Top Salinity (mg/ml) 713
 Speedy Point Bottom Salinity (mg/ml) 1655

+ 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:	0.03	0.05	0.05	29	11
S78:	0.00	0.04	0.05	59	8
S79:	0.00	0.00	0.00	187	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:	0.18	0.19	0.19	78	8
S80:	0.00	0.00	0.00	107	6
Okeechobee Average	0.11	0.02	0.02		
(Sites S78, S79 and S80 not included)					

Oke Nexrad Basin Avg	-NR-	0.03	0.05		

Okeechobee Lake Elevations	12 NOV 2017	16.68	Difference from
12NOV17			12NOV17
12NOV17 -1 Day =	11 NOV 2017	16.72	0.04
12NOV17 -2 Days =	10 NOV 2017	16.77	0.09
12NOV17 -3 Days =	09 NOV 2017	16.83	0.15
12NOV17 -4 Days =	08 NOV 2017	16.86	0.18
12NOV17 -5 Days =	07 NOV 2017	16.90	0.22
12NOV17 -6 Days =	06 NOV 2017	16.92	0.24
12NOV17 -7 Days =	05 NOV 2017	16.94	0.26
12NOV17 -30 Days =	13 OCT 2017	17.20	0.52
12NOV17 -1 Year =	12 NOV 2016	15.16	-1.52
12NOV17 -2 Year =	12 NOV 2015	14.43	-2.25

Long Term Mean 30day Avearge ET for Lake Alfred (Inches) = 2.87

Lake Okeechobee Net Inflow (LONIN)

Average Flow over the previous 14 days					Avg-Daily Flow
12NOV17	Today =	12 NOV 2017	2719	MON	-382
12NOV17	-1 Day =	11 NOV 2017	7378	SUN	-2321
12NOV17	-2 Days =	10 NOV 2017	8059	SAT	-4495
12NOV17	-3 Days =	09 NOV 2017	8103	FRI	2289
12NOV17	-4 Days =	08 NOV 2017	7324	THU	-18
12NOV17	-5 Days =	07 NOV 2017	8171	WED	3698
12NOV17	-6 Days =	06 NOV 2017	8399	TUE	3352
12NOV17	-7 Days =	05 NOV 2017	8496	MON	5535
12NOV17	-8 Days =	04 NOV 2017	8474	SUN	1189
12NOV17	-9 Days =	03 NOV 2017	8416	SAT	5475
12NOV17	-10 Days =	02 NOV 2017	8040	FRI	5137
12NOV17	-11 Days =	01 NOV 2017	7854	THU	9224
12NOV17	-12 Days =	31 OCT 2017	7217	WED	8956
12NOV17	-13 Days =	30 OCT 2017	6933	TUE	432

S65E Average Flow over previous 14 days					Avg-Daily Flow
12NOV17	Today=	12 NOV 2017	2341	MON	2004
12NOV17	-1 Day =	11 NOV 2017	2403	SUN	1971
12NOV17	-2 Days =	10 NOV 2017	2374	SAT	1911
12NOV17	-3 Days =	09 NOV 2017	2324	FRI	1902
12NOV17	-4 Days =	08 NOV 2017	2273	THU	1834
12NOV17	-5 Days =	07 NOV 2017	2261	WED	1811
12NOV17	-6 Days =	06 NOV 2017	2243	TUE	2031
12NOV17	-7 Days =	05 NOV 2017	2207	MON	2148
12NOV17	-8 Days =	04 NOV 2017	2161	SUN	2437
12NOV17	-9 Days =	03 NOV 2017	2096	SAT	2657
12NOV17	-10 Days =	02 NOV 2017	2024	FRI	2858
12NOV17	-11 Days =	01 NOV 2017	1951	THU	3164
12NOV17	-12 Days =	31 OCT 2017	1856	WED	3152
12NOV17	-13 Days =	30 OCT 2017	1762	TUE	2895

S65EX1 Average Flow over previous 14 days					Avg-Daily Flow
12NOV17	Today=	12 NOV 2017	1034	MON	383
12NOV17	-1 Day =	11 NOV 2017	1126	SUN	382
12NOV17	-2 Days =	10 NOV 2017	1227	SAT	594
12NOV17	-3 Days =	09 NOV 2017	1317	FRI	723
12NOV17	-4 Days =	08 NOV 2017	1396	THU	917
12NOV17	-5 Days =	07 NOV 2017	1471	WED	1066
12NOV17	-6 Days =	06 NOV 2017	1538	TUE	1111
12NOV17	-7 Days =	05 NOV 2017	1606	MON	1152
12NOV17	-8 Days =	04 NOV 2017	1691	SUN	1148
12NOV17	-9 Days =	03 NOV 2017	1796	SAT	1225
12NOV17	-10 Days =	02 NOV 2017	1906	FRI	1267
12NOV17	-11 Days =	01 NOV 2017	2018	THU	1325
12NOV17	-12 Days =	31 OCT 2017	2144	WED	1566
12NOV17	-13 Days =	30 OCT 2017	2266	TUE	1614

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)
12 NOV 2017		13095	12850	12563	15776
11 NOV 2017		12980	12813	13163	15986
10 NOV 2017		12958	12805	13021	17688
09 NOV 2017		12954	12903	13024	17632
08 NOV 2017		12779	12879	13338	17696
07 NOV 2017		11302	11121	11897	15324
06 NOV 2017		10141	10178	10978	15275
05 NOV 2017		10626	10016	11159	16443
04 NOV 2017		11826	10579	12378	16943
03 NOV 2017		13275	14177	15651	21036
02 NOV 2017		13217	14255	15750	22535
01 NOV 2017		12887	13131	15966	24143
31 OCT 2017		12575	12677	15164	24763
30 OCT 2017		11512	10632	14923	25929

		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)
12 NOV 2017		10	0	0	0	16
11 NOV 2017		23	0	0	0	18
10 NOV 2017		12	0	0	0	23
09 NOV 2017		13	0	0	0	16
08 NOV 2017		17	0	0	0	21
07 NOV 2017		10	0	0	0	27
06 NOV 2017		21	0	0	0	34
05 NOV 2017		18	0	0	0	27
04 NOV 2017		14	0	0	0	56
03 NOV 2017		19	0	0	0	52
02 NOV 2017		-1	0	0	0	44
01 NOV 2017		0	0	0	0	27
31 OCT 2017		11	0	0	0	-17
30 OCT 2017		0	0	0	0	-46

		S-308	Below S-308	S-80
		Discharge	Discharge	Discharge
		(ALL DAY)	(ALL-DAY)	(ALL-DAY)
DATE		(AC-FT)	(AC-FT)	(AC-FT)
12 NOV 2017		10896	4371	7751
11 NOV 2017		11273	5061	8216
10 NOV 2017		9755	5253	8369
09 NOV 2017		10208	5117	8383
08 NOV 2017		10667	5060	8401
07 NOV 2017		9056	5184	8291
06 NOV 2017		9884	5433	8967
05 NOV 2017		9817	5431	8591
04 NOV 2017		9990	5220	9234
03 NOV 2017		9672	5626	9782
02 NOV 2017		10262	5084	9801
01 NOV 2017		9498	5134	9814
31 OCT 2017		8294	5084	9865

30 OCT 2017 8626 4022 9984

*** 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

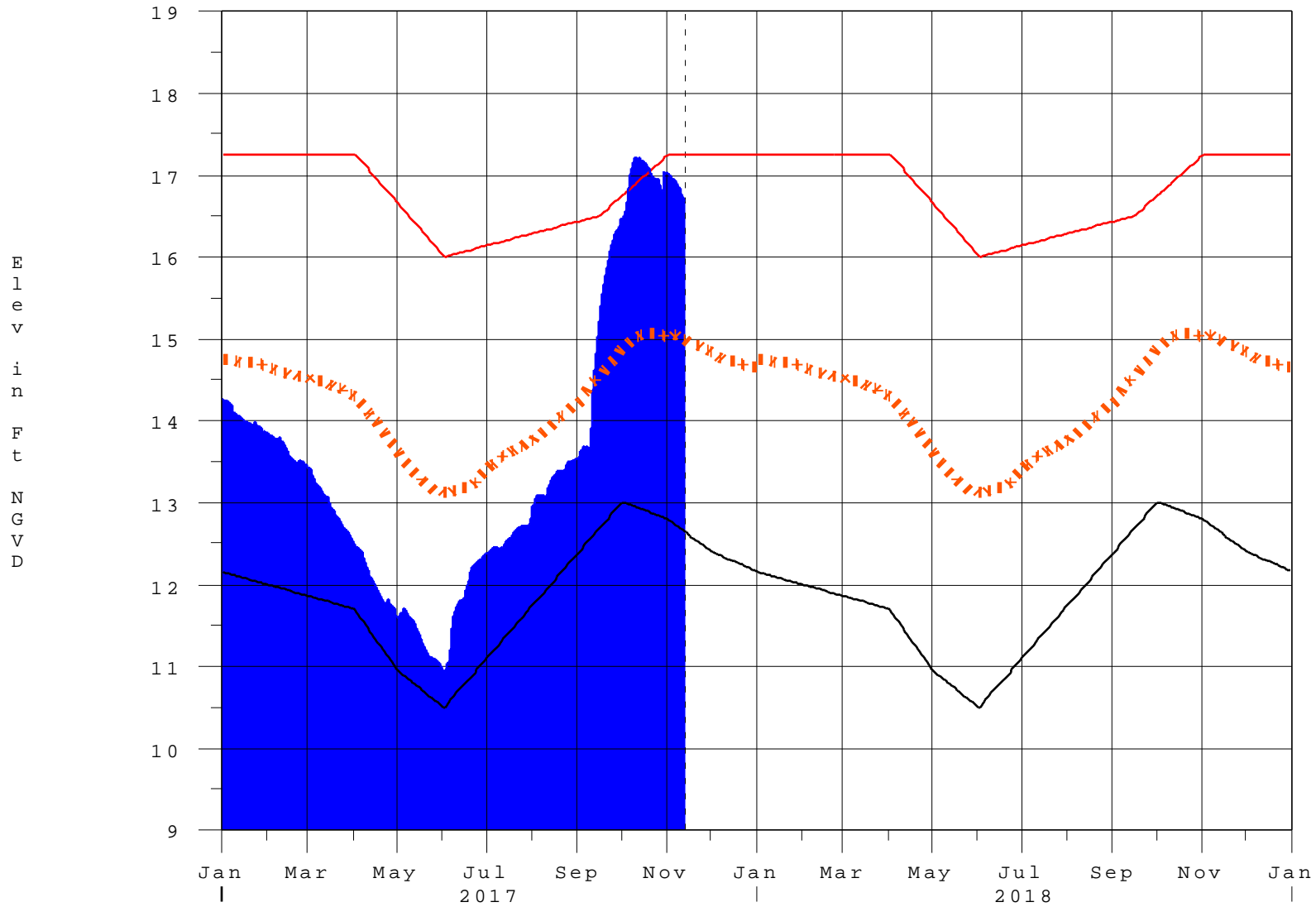
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* On 11 May 1999, Lake Okeechobee Elevation was switched from
Instantaneous 2400 value to an average-daily lake average.
On 14 Mar 2001, due to the isolation of various gages within the
standard
10 stations, the average of the interior 4 station gages 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

-
Report Generated 13NOV2017 @ 10:40 ** Preliminary Data - Subject to Revision
**

Lake Okeechobee

13NOV17 11:00:31



- 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