

# Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 12/7/2015 (Developing El Nino 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 El Nino years<sup>3</sup> and a sub-sampling of cold years of the Atlantic Multi-decadal Oscillation (AMO) in combination with ENSO El Nino 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 ENSO El Nino Years <sup>3</sup>		Sub-sampling of AMO Warm + ENSO El Nino 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 (Dec-May)	N/A	N/A	0.82	Normal	1.78	Wet	2.18	Very Wet
Multi Seasonal (Dec-Oct)	N/A	N/A	3.16	Wet	3.98	Wet	6.04	Very 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:](#)

**3542 cfs** 14-day running average for Lake Okeechobee Net Inflow through 12/7/2015. According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Wet.

**0.39** for Palmer Index on 12/6/2015.

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 12/7/2015

Lake Okeechobee Stage: **14.70 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	
	Low sub-band	14.40	← 14.70
Base Flow sub-band		12.71	
Beneficial Use sub-band		12.35	
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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**[Back to U.S. Army Corps of Engineers LORSS Homepage](#)**

## LORS2008 Implementation on 12/7/2015 (ENSO Neutral Condition):

### Water Supply Department Technical Input

#### Water Supply Outlook:

District wide, Raindar rainfall 2.62 inches for the week ending 12/8/2015. Lake stage on 12/7/2015 is 14.70 ft, up 0.22 ft from last week.

The updated December 2015 SFWMM Dynamic Position Analysis [percentile graph](#) and [tracking chart](#) for Lake Okeechobee show that the 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

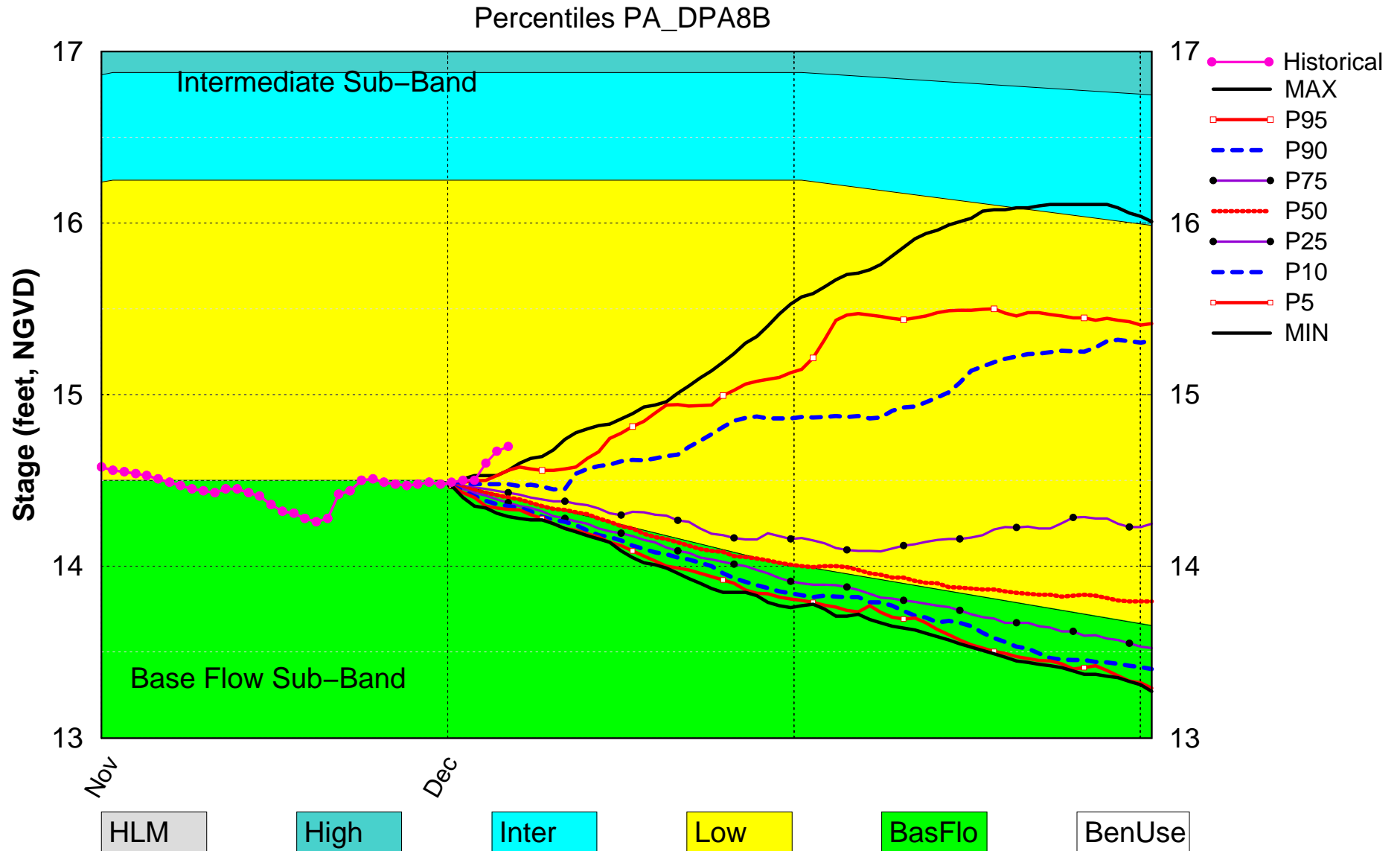
Area	Indicator	Value	Color Coded Scoring Scheme
LOK	Projected LOK Stage for the next two months	Low Sub-Band	M
	Palmer Index for LOK Tributary Conditions	0.39 (Normal)	L
	CPC Precipitation Outlook	1 month: Above Normal	L
		3 months: Above Normal	L
	LOK Seasonal Net Inflow Forecast	1.78 ft (Normal to Extremely Wet)	L
	AMO warm/EI Nino		
	LOK Multi-Seasonal Net Inflow Forecast	3.98 ft (Wet)	L
AMO warm/EI Nino			
WCAs	WCA 1: Site 1-7,1-8T, & 1-9	(17.36 ft)	L
	WCA 2A: Site 2-17 HW	(12.78 ft)	L
	WCA-3A: 3 Station Average (Site 63 and 65)	(10.56 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 for classifying the tributary hydrologic condition (THC).

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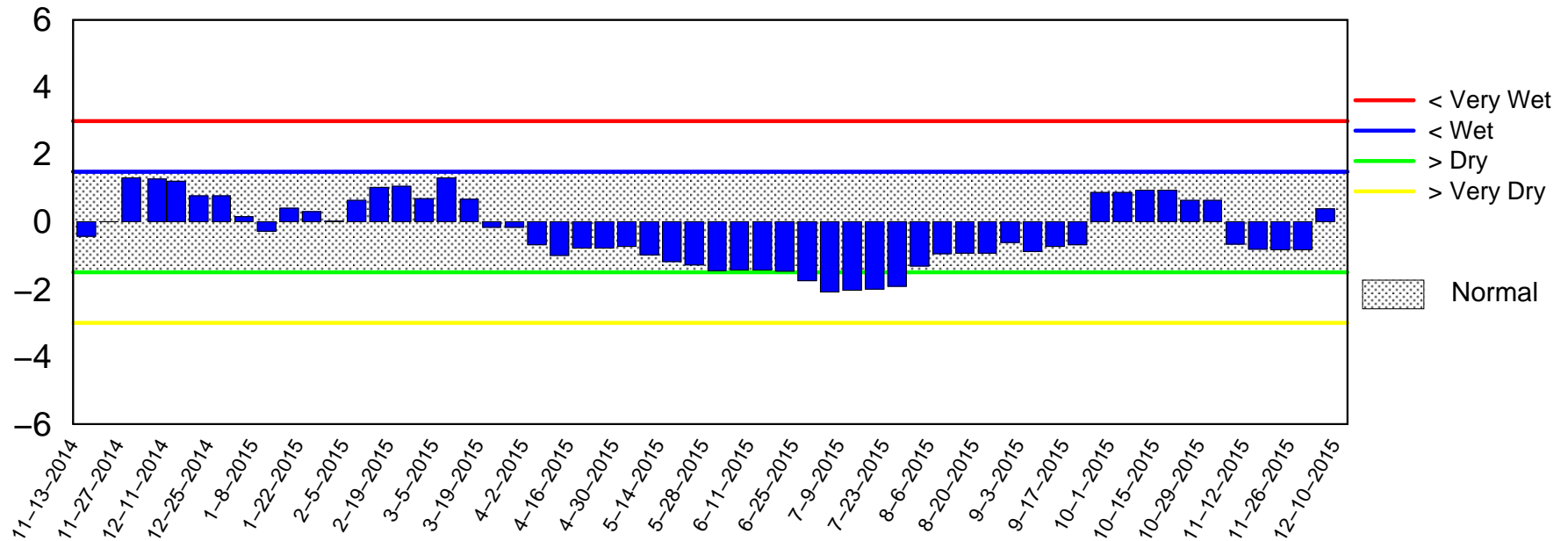
# Lake Okeechobee SFWMM Dec 2015 Dynamic Position Analysis



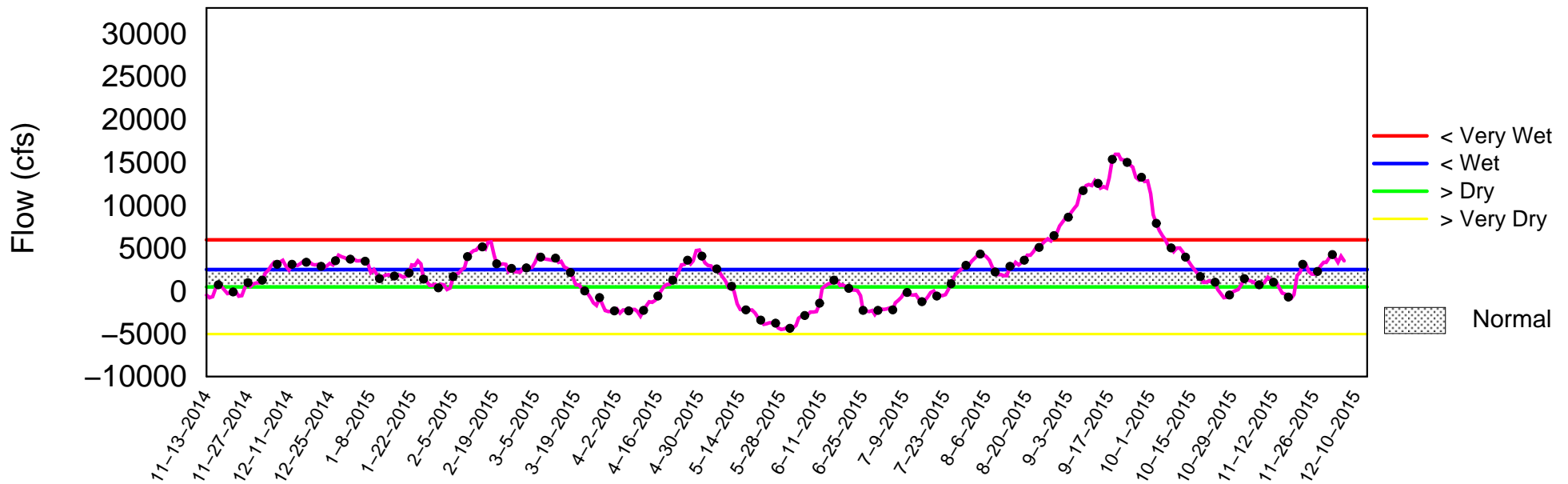
(See assumptions on the Position Analysis Results website)

# Tributary Basin Condition Indicators as of December 8 2015

## 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

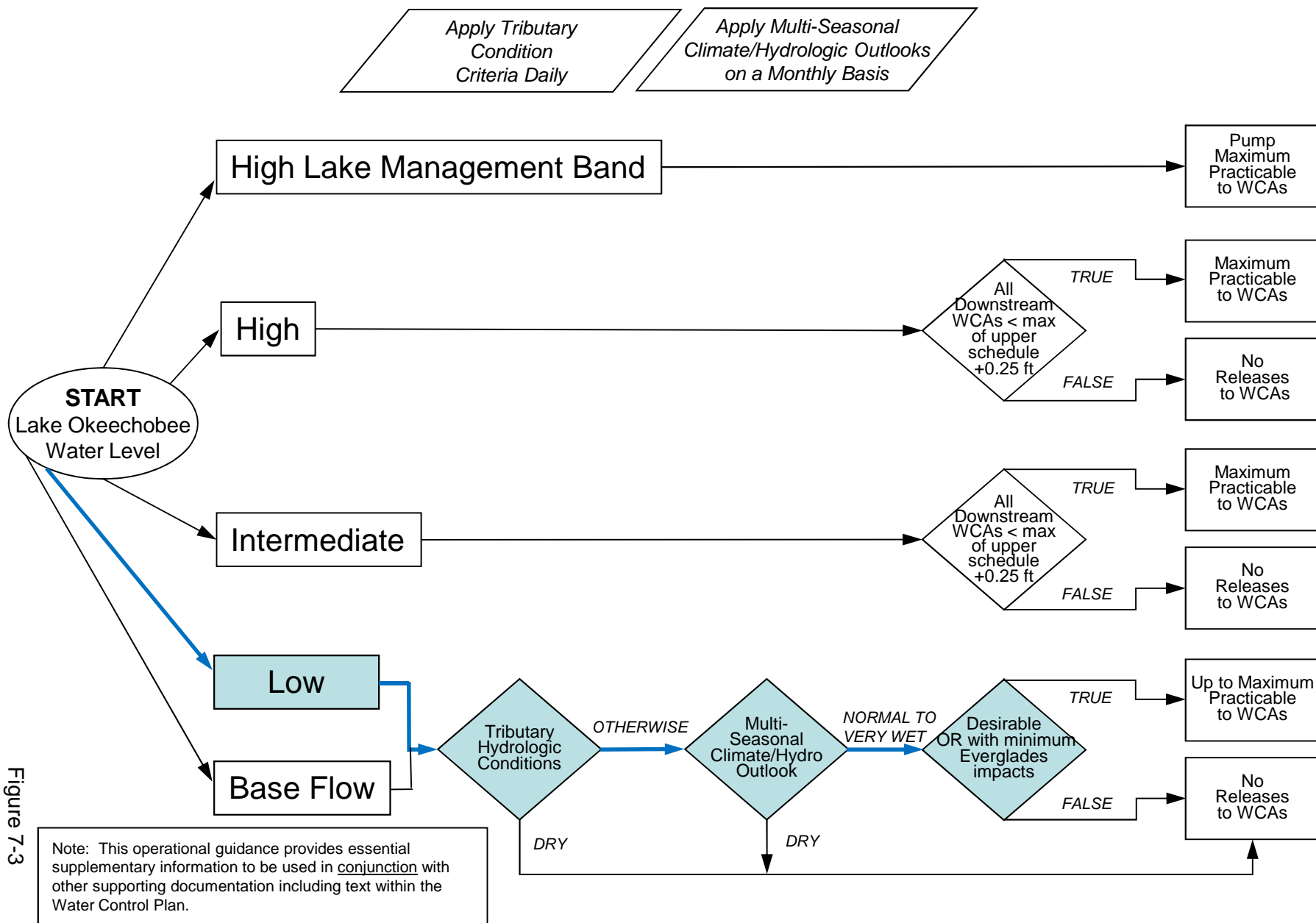


Figure 7-3

# 2008 LORS FORECAST

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

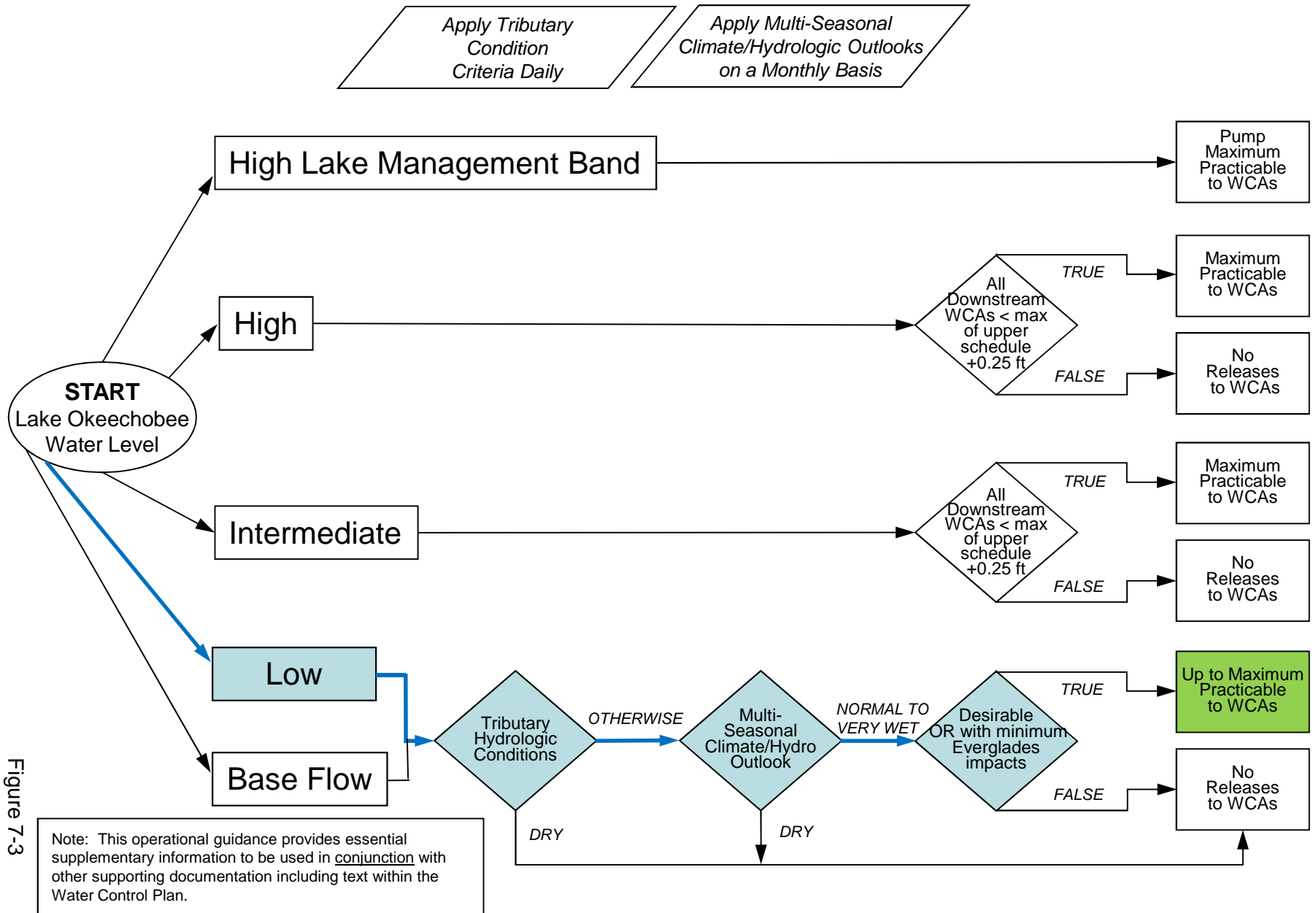


Figure 7-3



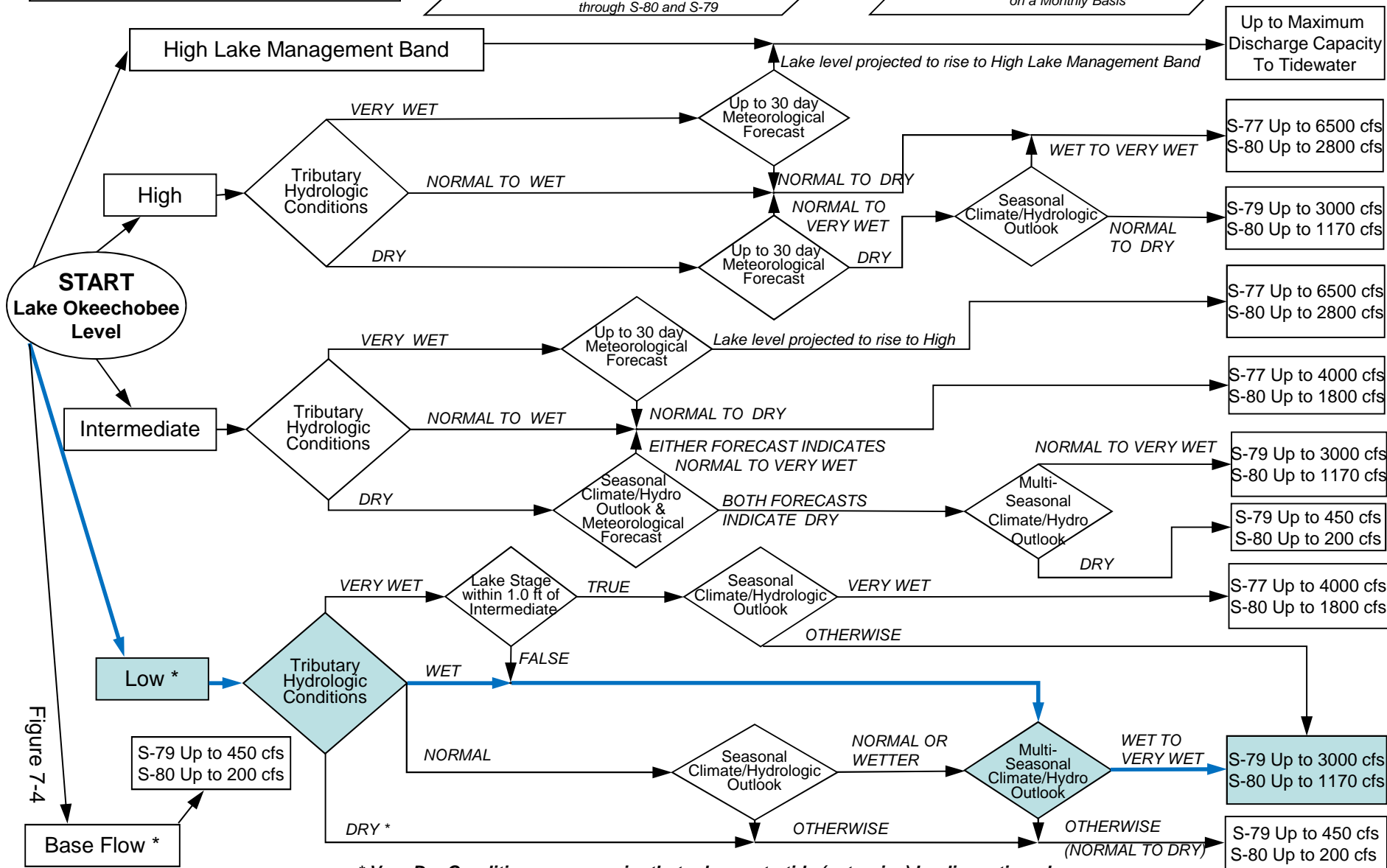
# 2008 LORS

## 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

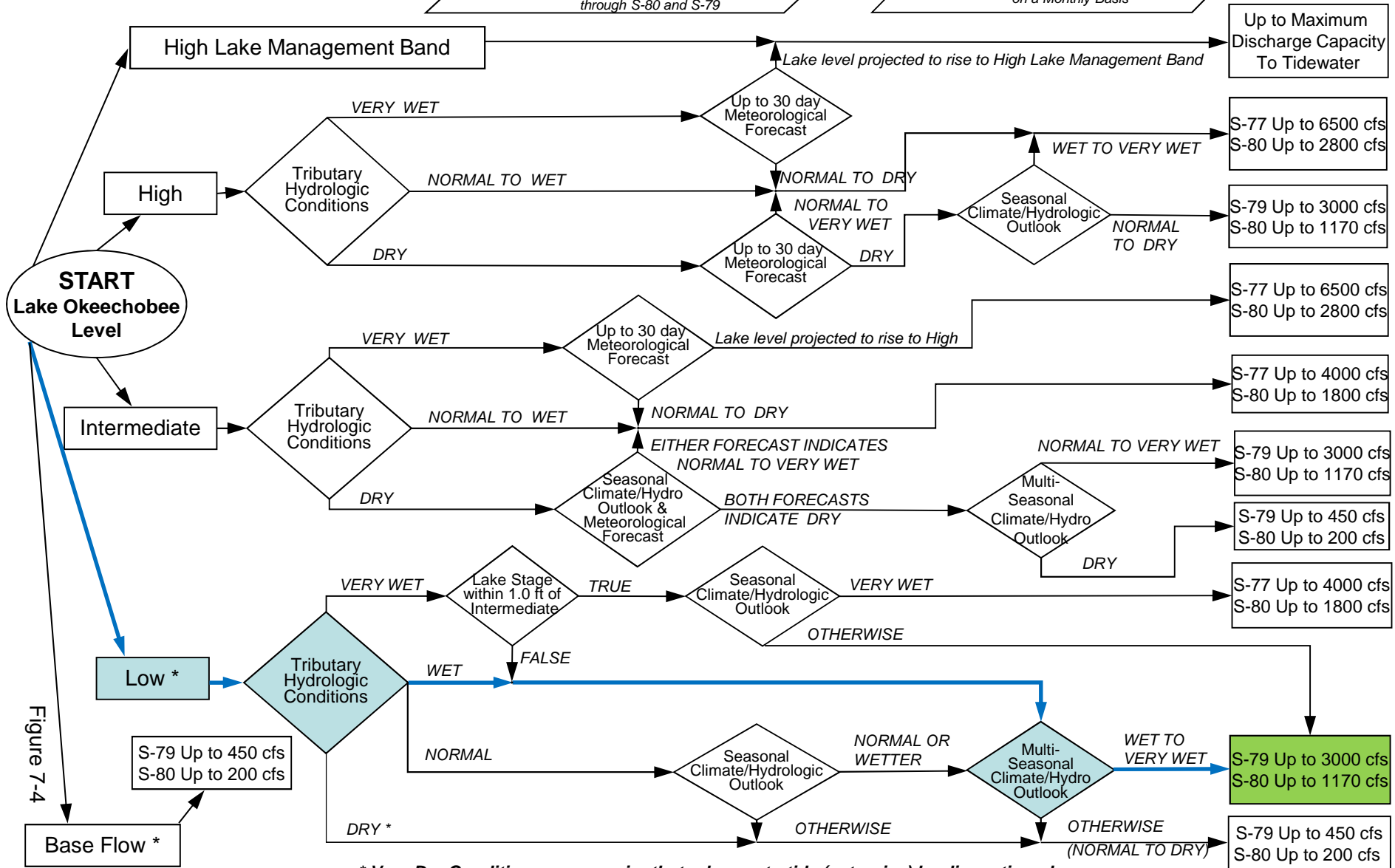
# 2008 LORS FORECAST

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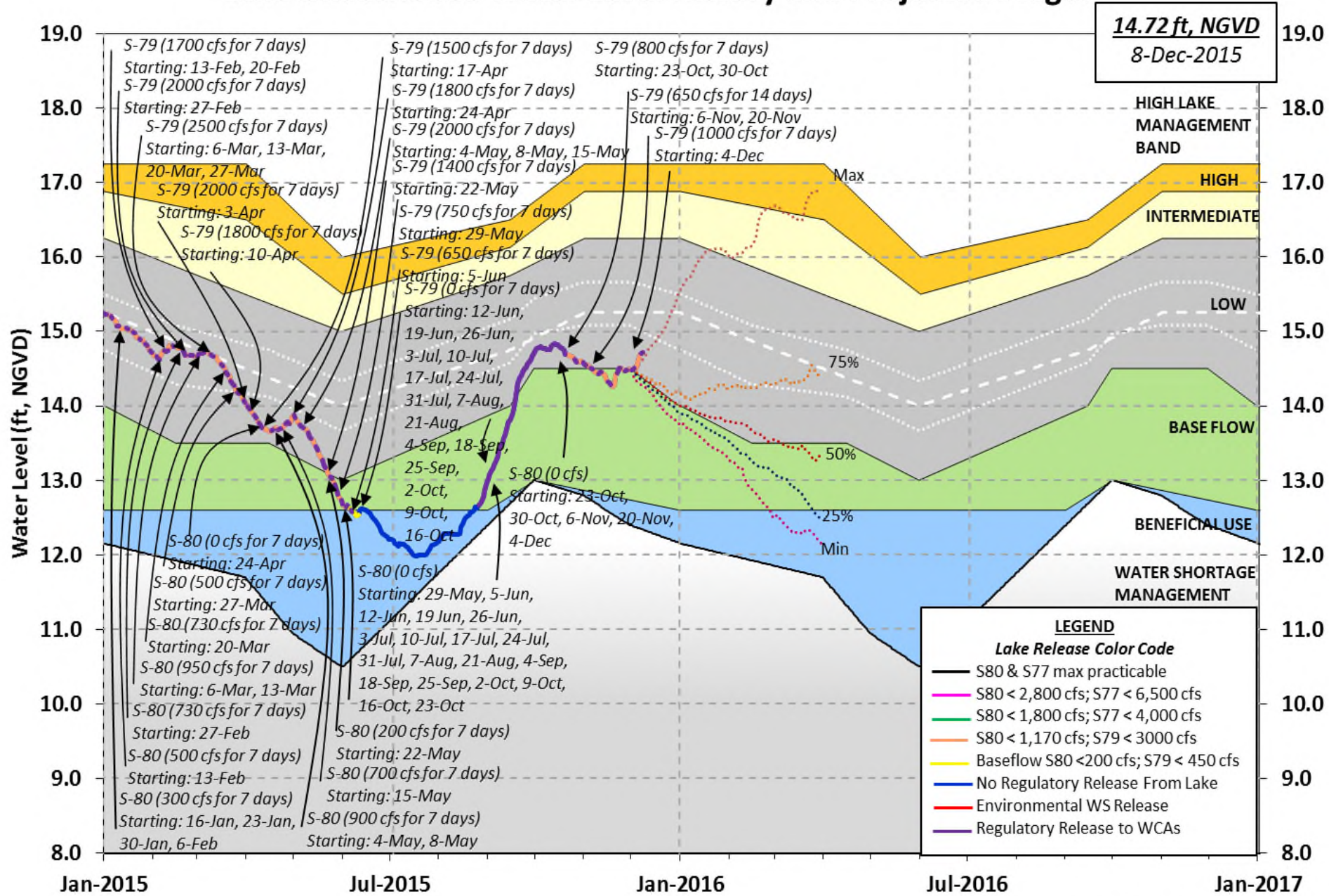
Apply Meteorological Forecasts on a Weekly Basis; apply Seasonal and Multi-Seasonal Climate/Hydrologic Outlooks on a Monthly Basis



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

Figure 7-4

# Lake Okeechobee Water Level History and Projected Stages



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

Data Ending 2400 hours    06 DEC 2015

Okeechobee Lake Regulation	Elevation	Last Year	2YRS Ago
	(ft-NGVD)	(ft-NGVD)	(ft-NGVD)
*Okeechobee Lake Elevation	14.70	15.57	14.61 (Official Elv)
Bottom of High Lake Mngmt=	17.25	Top of Water Short Mngmt=	12.35
Currently in Operational Management Band			
Simulated Average LORS2008 [1965-2000]		13.71	
Difference from Average LORS2008		0.99	
06DEC (1965-2007) Period of Record Average		14.77	
Difference from POR Average		-0.07	

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ÷ 8.64'  
 ++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ÷ 6.84'  
 Bridge Clearance = 49.15'

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

L001	L005	L006	LZ40	S4	S352	S308	S133
14.43	14.80	14.80	14.67	14.96	14.86	14.61	14.46

\*Combination Okeechobee Avg-Daily Lake Average = 14.70  
 (\*See Note)

Okeechobee Inflows (cfs):

S65E	1262	C5	-NR-	Fisheating Cr	467
S154	146	S191	300	S135 Pumps	162
S84	821	S133 Pumps	169	S2 Pumps	0
S84X	813	S127 Pumps	163	S3 Pumps	0
S71	1380	S129 Pumps	80	S4 Pumps	171
S72	496	S131 Pumps	62		
Total Inflows:	6492				

Okeechobee Outflows (cfs):

S135 Culverts (Used)	0	S354	0	S77	8
S127 Culverts (USED)	-NR-	S351	0	S77Below	-36 (NOT USED)



C5:	_____	-NR-	-NR-	-NR-	-NR-	-NR-						
South Shore												
S4 Pumps:	12.00	15.00	171	0	0	171						(cfs)
S169:	15.02	11.99	0	0.0	0.0	0.0						
S310:	14.96		-42									
S3 Pumps:	10.28	15.11	0	0	0	0						(cfs)
S354:	15.11	10.28	0	0.0	0.0							
S2 Pumps:	10.82	15.05	0	0	0	0	0					(cfs)
S351:	15.05	10.82	0	0.0	0.0	0.0						
S352:	14.92	9.56	0	0.0	0.0							
C10A:	-NR-	14.52		0.0	8.5	8.5	8.5	8.5				
L8 Canal PT		14.29	110									
S351 and S352 Temporary Pumps/S354 Spillway												
S351:	10.82	15.05	0	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-			
S352:	9.56	14.92	0	-NR-	-NR-	-NR-	-NR-					
S354:	10.28	15.11	0	-NR-	-NR-	-NR-	-NR-					
Caloosahatchee River (S77, S78, S79)												
S47B:	12.13	11.33		0.7	0.7							
S47D:	11.20	11.20	50	5.0								
S77:												
Spillway and Sector Flow:												
	14.74	11.24	0	0.0	0.0	0.0	0.0					
Flow Due to Lockages+:			8									
S77 Below USGS Flow Gage			-36									
S78:												
Spillway and Sector Flow:												
	11.08	2.90	930	0.5	1.0	0.5	0.5					
Flow Due to Lockages+:			17									
S79:												
Spillway and Sector Flow:												
	3.06	1.52	2311	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
0.0												
Flow Due to Lockages+:			12									
Percent of flow from S77			0%									
Chloride (ppm)			55									
St. Lucie Canal (S308, S80)												
S308:												
Spillway and Sector Flow:												
	14.63	14.35	0	0.0	0.0	0.0	0.0					
Flow Due to Lockages+:			0									
S308 Below USGS Flow Gage			-91									
S153:	18.86	14.19	59	0.5	0.0							
S80:												
Spillway and Sector Flow:												
	14.39	1.77	1177	0.5	0.5	0.5	0.0	0.5	0.2	0.0		



Flow Due to Lockages+: 23  
 Percent of flow from S308 0%

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.

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					----- Wind ---	
Daily Precipitation Totals	1-Day	3-Day	7-Day	Direction		
Speed	(inches)	(inches)	(inches)	(Degø)		
(mph)						
S133 Pump Station:	0.00	0.95	2.77			
S193:	-NR-	0.00	0.00	-NR-	-NR-	
Okeechobee Field Station:	-NR-	0.00	0.00			
S135 Pump Station:	0.00	0.51	1.32			
S127 Pump Station:	0.00	0.41	3.05			
S129 Pump Station:	0.00	0.12	2.18			
S131 Pump Station:	0.00	0.08	1.76			
S77:	0.00	0.25	3.16	57	3	
S78:	7260.81	*****	*****	320	5	
S79:	0.00	0.16	2.65	112	3	
S4 Pump Station:	-NR-	0.00	0.00			
Clewiston Field Station:	-NR-	0.00	0.00			
S3 Pump Station:	0.00	0.80	1.68			
S2 Pump Station:	0.03	0.52	0.95			
S308:	*****	*****	*****	333	0	
S80:	0.96	0.96	1.10	34	4	
Okeechobee Average	3201.67	6687.36	*****			
(Sites S78, S79 and S80 not included)						
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Oke Nexrad Basin Avg	0.01	0.15	1.59			
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Okeechobee Lake Elevations	06 DEC 2015	14.70 Difference from
06DEC15		06DEC15
06DEC15 -1 Day =	05 DEC 2015	14.67 -0.03
06DEC15 -2 Days =	04 DEC 2015	14.60 -0.10
06DEC15 -3 Days =	03 DEC 2015	14.50 -0.20
06DEC15 -4 Days =	02 DEC 2015	14.50 -0.20
06DEC15 -5 Days =	01 DEC 2015	14.49 -0.21
06DEC15 -6 Days =	30 NOV 2015	14.48 -0.22
06DEC15 -7 Days =	29 NOV 2015	14.48 -0.22
06DEC15 -30 Days =	06 NOV 2015	14.47 -0.23
06DEC15 -1 Year =	06 DEC 2014	15.57 0.87
06DEC15 -2 Year =	06 DEC 2013	14.61 -0.09

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
06DEC15	Today =	06 DEC 2015	2140 MON	6463
06DEC15	-1 Day =	05 DEC 2015	2715 SUN	14984
06DEC15	-2 Days =	04 DEC 2015	1867 SAT	-NR-
06DEC15	-3 Days =	03 DEC 2015	4026 FRI	182
06DEC15	-4 Days =	02 DEC 2015	4365 THU	2900
06DEC15	-5 Days =	01 DEC 2015	3906 WED	3450
06DEC15	-6 Days =	30 NOV 2015	3298 TUE	1355
06DEC15	-7 Days =	29 NOV 2015	3227 MON	-1345
06DEC15	-8 Days =	28 NOV 2015	2854 SUN	2906
06DEC15	-9 Days =	27 NOV 2015	1991 SAT	-NR-
06DEC15	-10 Days =	26 NOV 2015	1738 FRI	-1648
06DEC15	-11 Days =	25 NOV 2015	1713 THU	-1808
06DEC15	-12 Days =	24 NOV 2015	2008 WED	-4083
06DEC15	-13 Days =	23 NOV 2015	2847 TUE	2322

S65E

Average Flow over previous 14 days				Avg-Daily Flow
06DEC15	Today=	06 DEC 2015	1109 MON	1262
06DEC15	-1 Day =	05 DEC 2015	1149 SUN	1464
06DEC15	-2 Days =	04 DEC 2015	1123 SAT	1483
06DEC15	-3 Days =	03 DEC 2015	1084 FRI	865
06DEC15	-4 Days =	02 DEC 2015	1075 THU	673
06DEC15	-5 Days =	01 DEC 2015	1106 WED	663
06DEC15	-6 Days =	30 NOV 2015	1142 TUE	1033
06DEC15	-7 Days =	29 NOV 2015	1108 MON	928
06DEC15	-8 Days =	28 NOV 2015	1082 SUN	652
06DEC15	-9 Days =	27 NOV 2015	1087 SAT	1134
06DEC15	-10 Days =	26 NOV 2015	1056 FRI	929
06DEC15	-11 Days =	25 NOV 2015	1038 THU	1322
06DEC15	-12 Days =	24 NOV 2015	1009 WED	1501
06DEC15	-13 Days =	23 NOV 2015	979 TUE	1618

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)
06 DEC 2015	0	15	-72	940	1878	4606
05 DEC 2015	0	5	-14	1493	2392	4328
04 DEC 2015	0	-NA-	6	1140	1504	5206
03 DEC 2015	4	-NA-	68	140	270	1035
02 DEC 2015	356	-NA-	714	210	550	965
01 DEC 2015	920	-NA-	1125	548	954	1604
30 NOV 2015	537	1079	1071	466	963	2015
29 NOV 2015	736	-NA-	897	661	1129	1693



28 NOV 2015	630	-NA-	598	554	971	2265
27 NOV 2015	346	-NA-	446	429	795	1154
26 NOV 2015	238	-NA-	530	144	368	1217
25 NOV 2015	237	350	347	156	455	1518
24 NOV 2015	0	9	-48	291	790	1458
23 NOV 2015	0	11	-58	452	1103	2934

	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)
06 DEC 2015	-83	0	0	0	219
05 DEC 2015	-138	0	0	0	319
04 DEC 2015	-105	0	0	-NR-	269
03 DEC 2015	-132	0	0	0	251
02 DEC 2015	-56	0	0	0	391
01 DEC 2015	26	0	0	0	397
30 NOV 2015	62	0	0	0	390
29 NOV 2015	2	0	0	0	416
28 NOV 2015	11	0	0	0	407
27 NOV 2015	0	0	0	-NR-	402
26 NOV 2015	-0	0	0	0	388
25 NOV 2015	-5	0	0	0	372
24 NOV 2015	-96	0	0	0	401
23 NOV 2015	-204	0	0	0	405

	S-308	Below S-308	S-80
	Discharge	Discharge	Discharge
	(ALL DAY)	(ALL-DAY)	(ALL-DAY)
DATE	(AC-FT)	(AC-FT)	(AC-FT)
06 DEC 2015	0	-181	2380
05 DEC 2015	0	-102	1590
04 DEC 2015	0	-4	1059
03 DEC 2015	-92	-96	775
02 DEC 2015	-NA-	198	57
01 DEC 2015	613	632	56
30 NOV 2015	-NA-	912	43
29 NOV 2015	3	80	52
28 NOV 2015	1	74	42
27 NOV 2015	1	41	39
26 NOV 2015	1	235	17
25 NOV 2015	1	137	28
24 NOV 2015	1	186	134
23 NOV 2015	1	30	718

\*\*\* 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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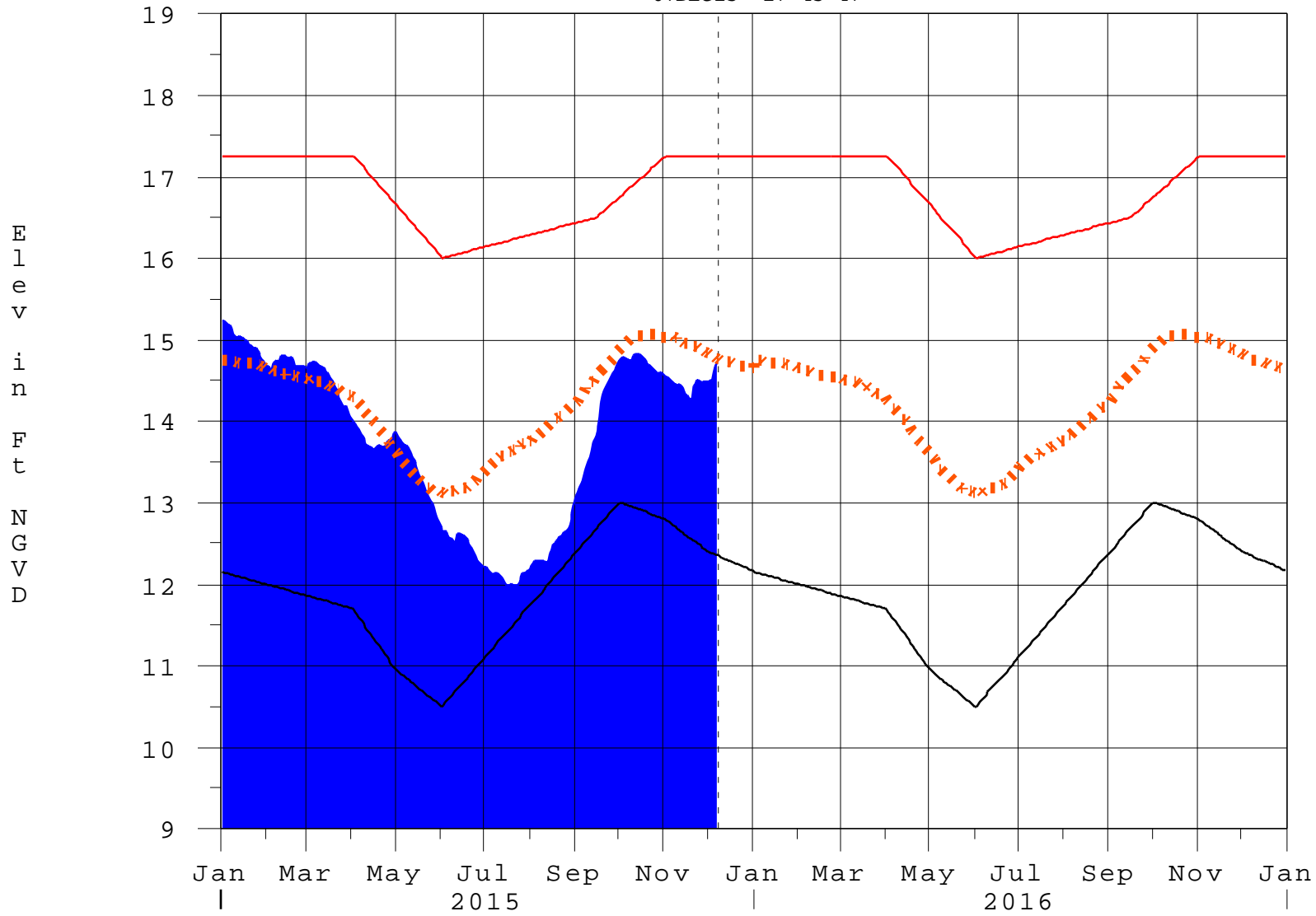
\* On 11 May 1999, Lake Okeechobee Elevation was switched from Instantaneous 2400 value to an average-daily lake average.  
On 14 Mar 2001, due to the isolation of various gages within the standard  
10 stations, the average of the interior 4 station gages was used as the Lake Okeechobee Elevation.  
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 07DEC2015 @ 17:45 \*\* Preliminary Data - Subject to Revision  
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# Lake Okeechobee

07DEC15 17:45:47



- 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 Net Inflow 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