

# Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 10/5/2015 (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 (Oct-Mar)	N/A	N/A	1.20	Normal	2.14	Very Wet	2.82	Very Wet
Multi Seasonal (Nov-Oct)	N/A	N/A	3.10	Wet	3.99	Wet	5.96	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:](#)

**7041 cfs** 14-day running average for Lake Okeechobee Net Inflow through 10/5/2015. According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Very Wet.

**0.87** for Palmer Index on 10/4/2015.

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 10/5/2015

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		16.80	
Operational Band	High sub-band	16.43	
	Intermediate sub-band	15.95	
	Low sub-band	14.50	← 14.78
Base Flow sub-band		12.99	
Beneficial Use sub-band		12.98	
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 10/5/2015 (ENSO Neutral Condition):**

**Water Supply Department Technical Input**

**Water Supply Outlook:**

District wide, Raindar rainfall 0.87 inches for the week ending 10/5/2015. Lake stage on 10/5/2015 is 14.78 ft, up 0.16 ft from last week.

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

**Water Supply Risk Evaluation**

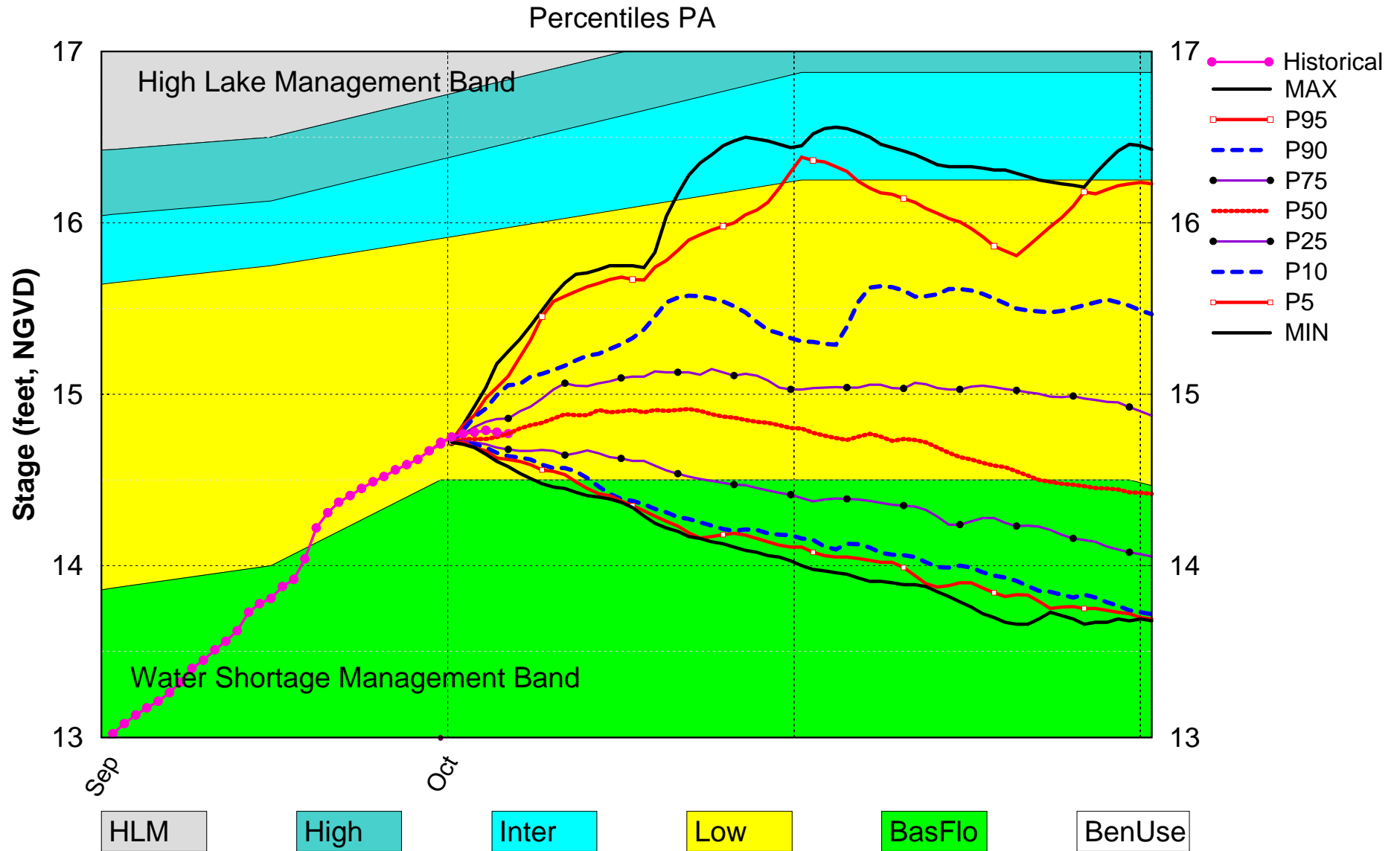
Area	Indicator	Value	Color Coded Scoring Scheme
LOK	Projected LOK Stage for the next two months	Low Sub-Band	L
	Palmer Index for LOK Tributary Conditions	0.87 (Normal)	L
	CPC Precipitation Outlook	1 month: Normal	L
		3 months: Above Normal	L
	LOK Seasonal Net Inflow Forecast	2.14 ft (Normal to Extremely Wet)	L
	AMO warm/EI Nino		
	LOK Multi-Seasonal Net Inflow Forecast	3.99 ft (Wet)	L
AMO warm/EI Nino			
WCAs	WCA 1: Site 1-8C	(16.86 ft)	L
	WCA 2A: Site 2-17 HW	(13.16 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64 and 65)	(10.23 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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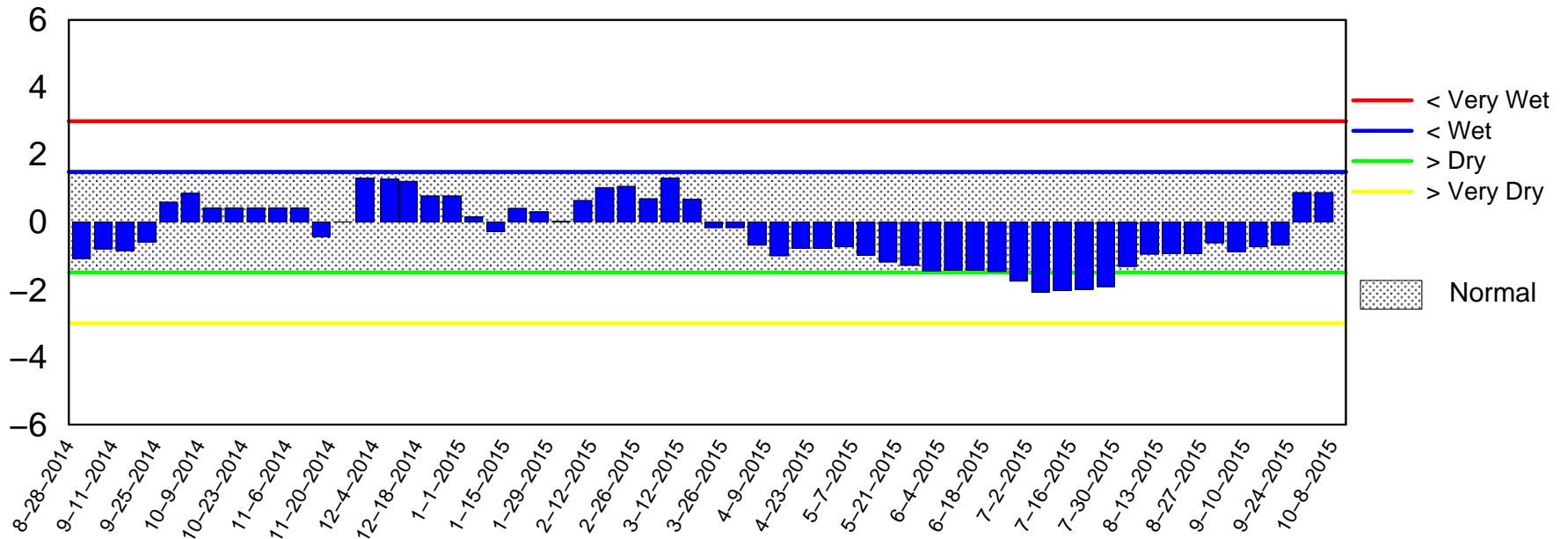
# Lake Okeechobee SFWMM Oct 2015 Dynamic Position Analysis



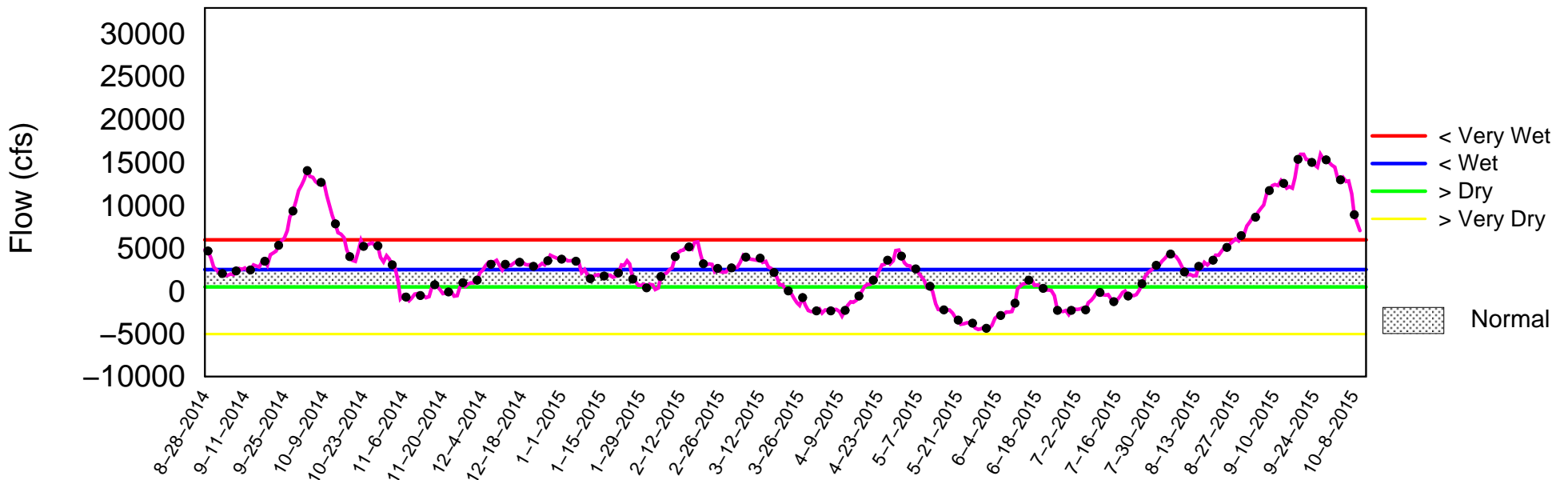
(See assumptions on the Position Analysis Results website)

# Tributary Basin Condition Indicators as of October 5 2015

## Palmer Index



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



Tue Oct 6 10:27:25 2015

# 2008 LORS

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

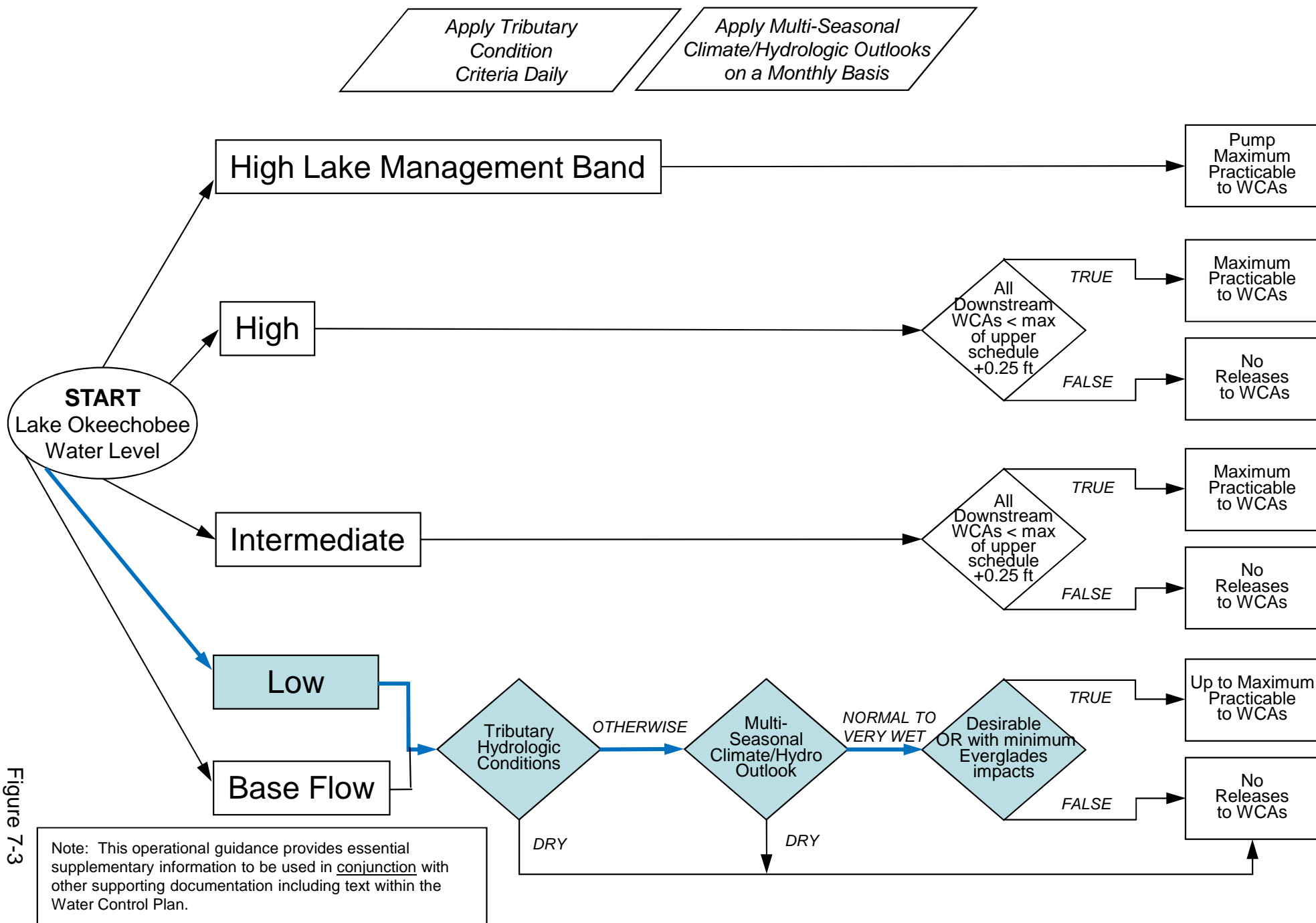


Figure 7-3

# 2008 LORS FORECAST

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

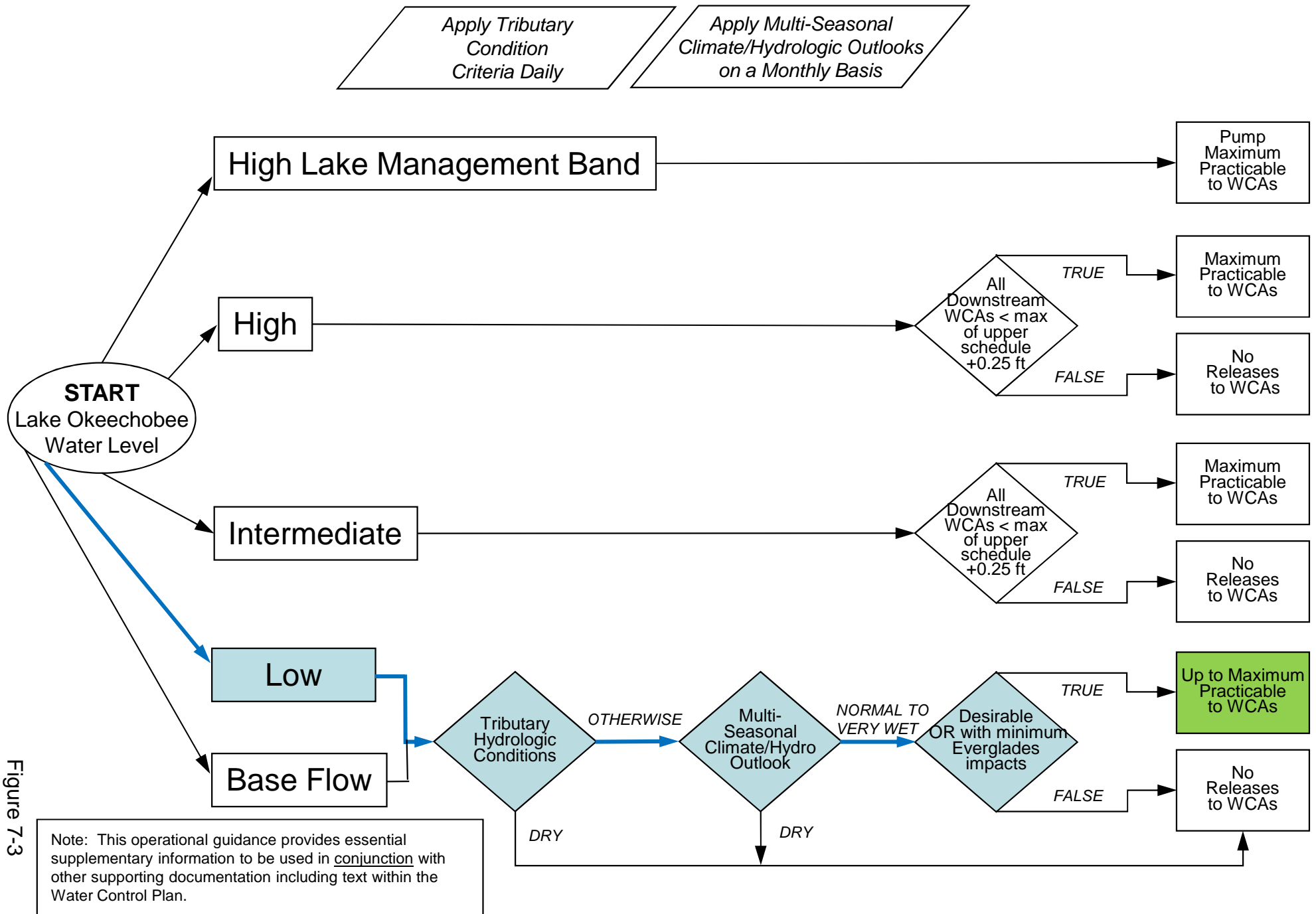


Figure 7-3



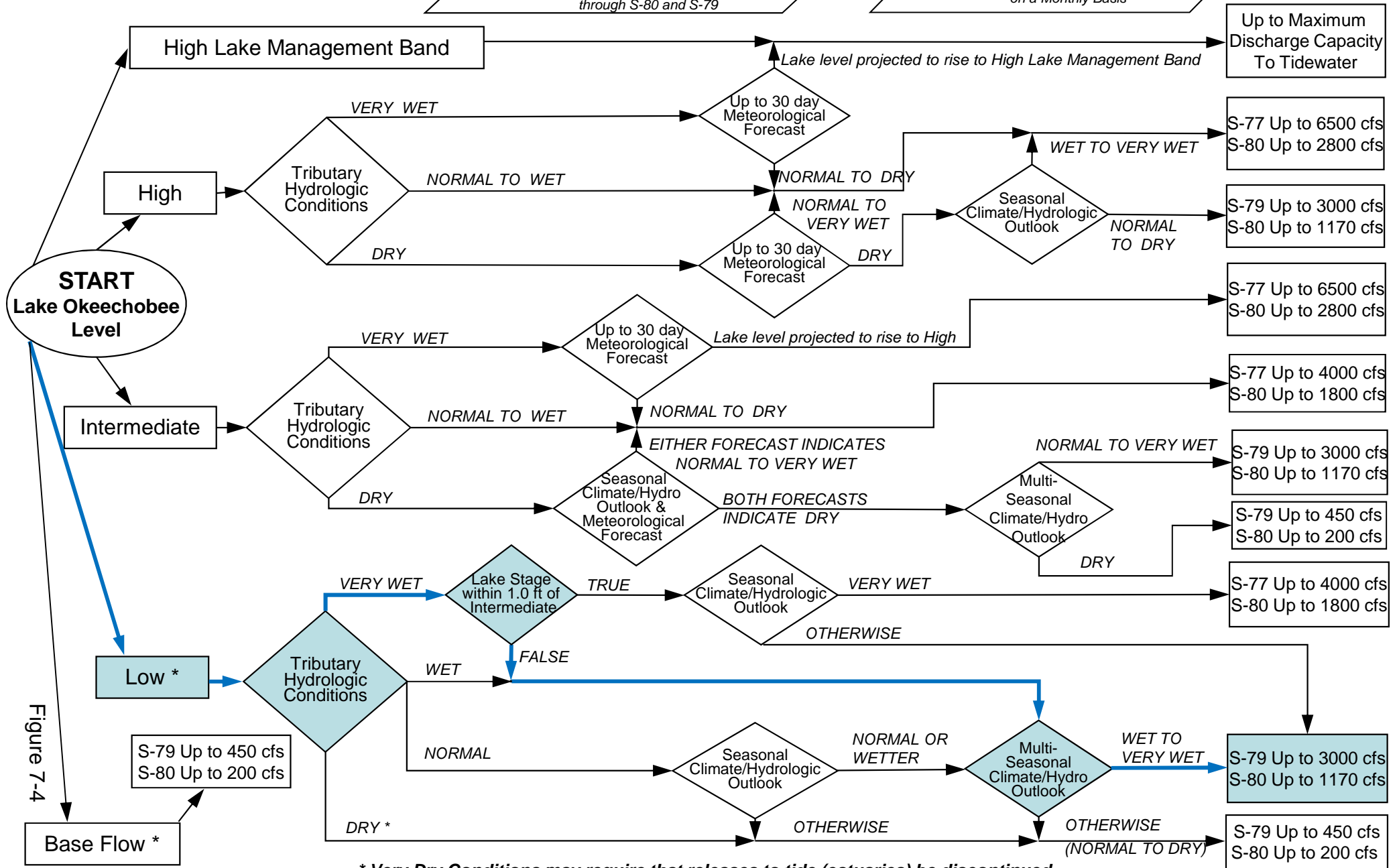
# 2008 LORS

## 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

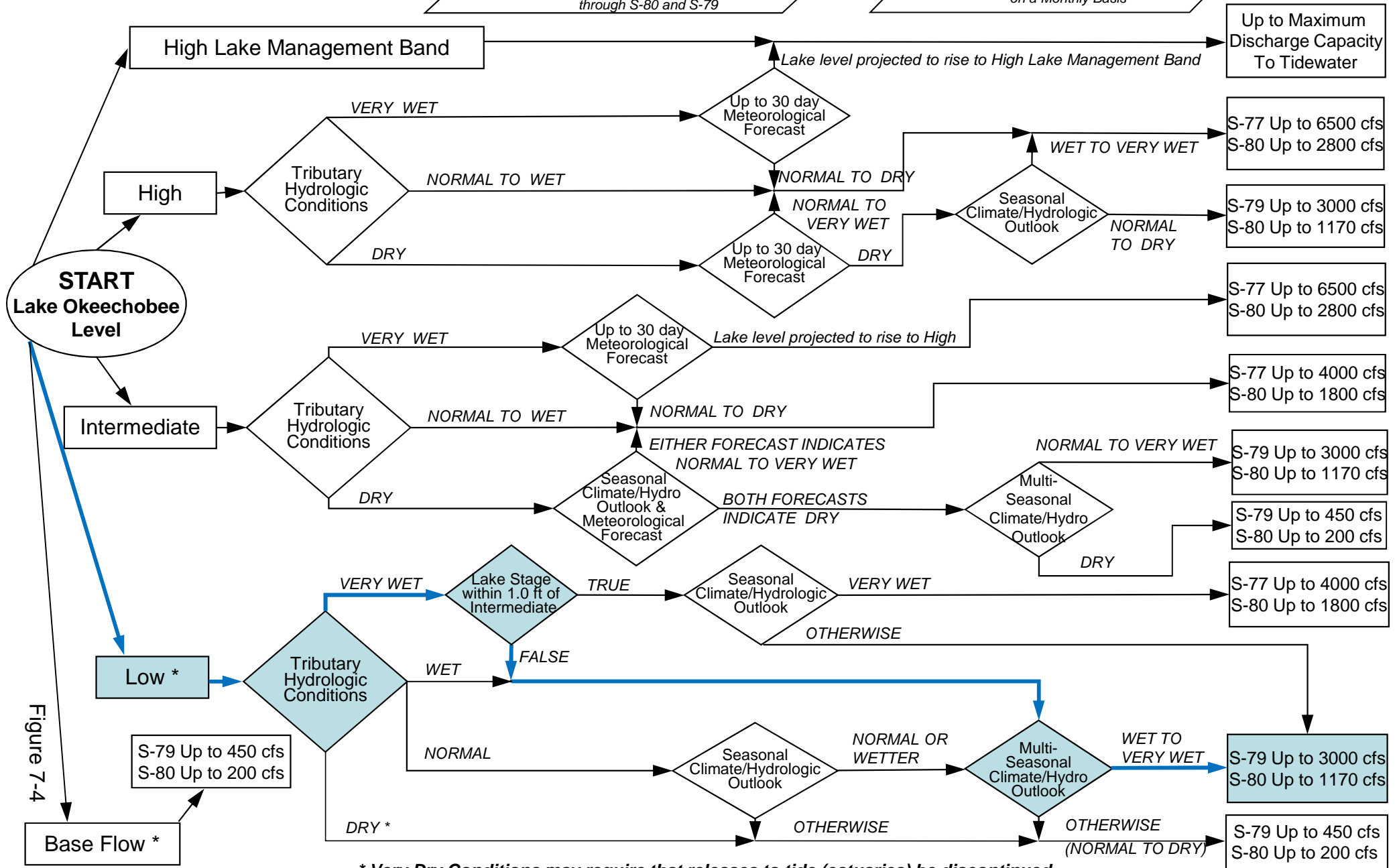
# 2008 LORS FORECAST

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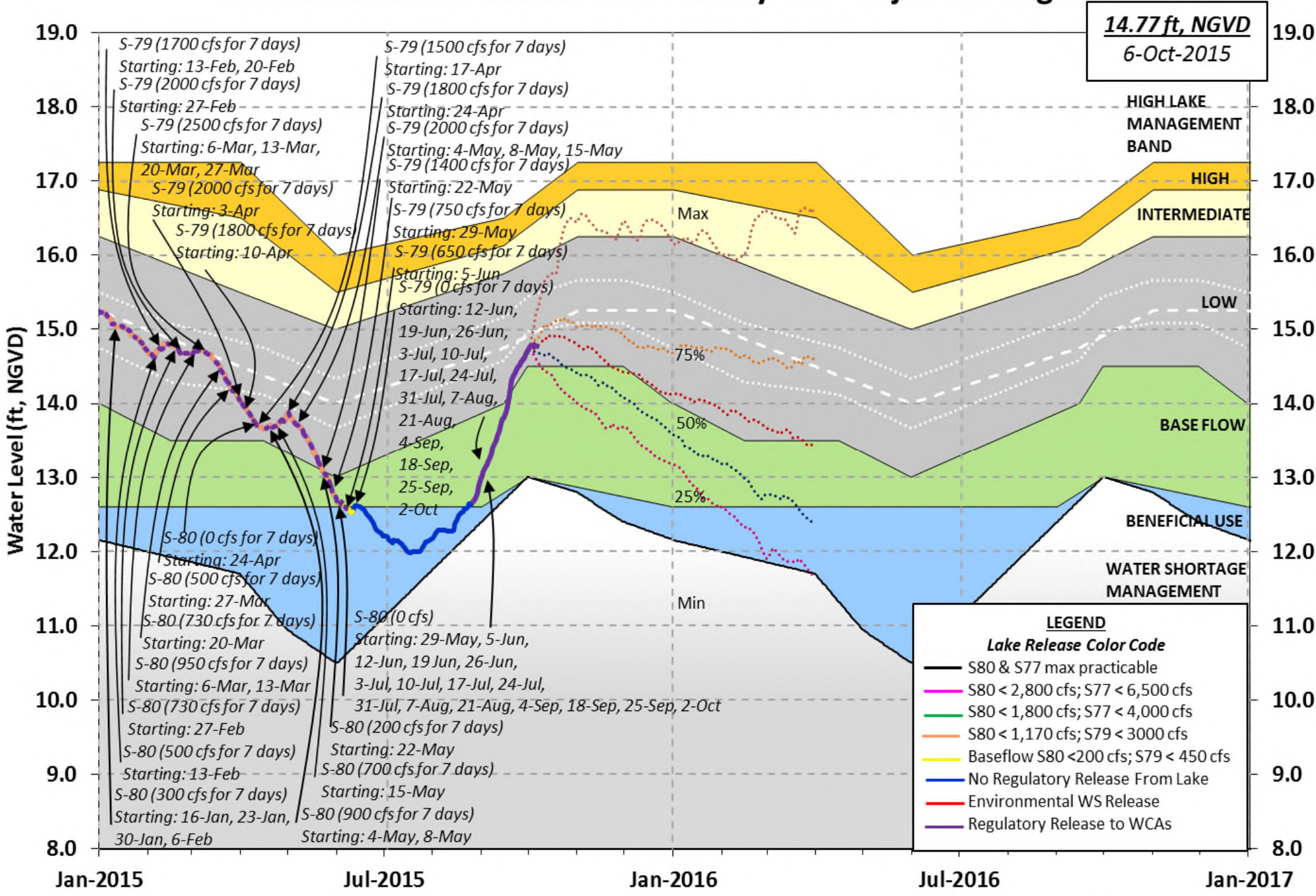
Apply Meteorological Forecasts on a Weekly Basis; apply Seasonal and Multi-Seasonal Climate/Hydrologic Outlooks on a Monthly Basis



\* 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 04 OCT 2015

Okeechobee Lake Regulation	Elevation	Last Year	2YRS Ago
	(ft-NGVD)	(ft-NGVD)	(ft-NGVD)
*Okeechobee Lake Elevation	14.78	15.57	15.81 (Official Elv)
Bottom of High Lake Mngmt=	16.80	Top of Water Short Mngmt=	12.98
Currently in Operational Management Band			
Simulated Average LORS2008 [1965-2000]	13.82		
Difference from Average LORS2008	0.95		
04OCT (1965-2007) Period of Record Average	14.94		
Difference from POR Average	-0.16		

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ÷ 8.72'  
 ++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ÷ 6.92'  
 Bridge Clearance = 49.32'

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

L001	L005	L006	LZ40	S4	S352	S308	S133
14.65	14.76	14.85	14.76	14.74	14.97	14.75	14.76

\*Combination Okeechobee Avg-Daily Lake Average = 14.78  
 (\*See Note)

Okeechobee Inflows (cfs):

S65E	3460	C5	0	Fisheating Cr	1326
S154	52	S191	53	S135 Pumps	0
S84	0	S133 Pumps	0	S2 Pumps	0
S84X	128	S127 Pumps	0	S3 Pumps	0
S71	345	S129 Pumps	0	S4 Pumps	0
S72	211	S131 Pumps	0		
Total Inflows:	5575				

Okeechobee Outflows (cfs):

S135 Culverts (Used)	-NR-	S354	801	S77	30
S127 Culverts (USED)	0	S351	1016	S77Below	-3 (NOT USED)



C5: 14.59 14.71 0 0.0 0.0 0.0

South Shore

S4 Pumps: 11.08 14.72 0 0 0 0 (cfs)  
 S169: 14.70 11.06 0 0.0 0.0 0.0  
 S310: 14.73 19  
 S3 Pumps: 10.62 14.77 0 0 0 0 (cfs)  
 S354: 14.77 10.62 801 1.5 1.6  
 S2 Pumps: 10.50 14.64 0 0 0 0 (cfs)  
 S351: 14.64 10.50 1016 2.4 2.4 2.4  
 S352: 14.96 10.99 808 1.3 1.6  
 C10A: -NR- 14.89 0.0 8.5 8.5 8.5 8.5  
 L8 Canal PT 14.73 259

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S351 and S352 Temporary Pumps/S354 Spillway

S351: 10.50 14.64 1016 -NR--NR--NR--NR--NR--NR-  
 S352: 10.99 14.96 808 -NR--NR--NR--NR--  
 S354: 10.62 14.77 801 -NR--NR--NR--NR-

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Caloosahatchee River (S77, S78, S79)

S47B: 13.08 10.94 0.5 0.5  
 S47D: 11.01 11.01 -0 5.0  
 S77:  
 Spillway and Sector Flow:  
 14.51 11.06 22 0.0 0.0 0.0 0.0  
 Flow Due to Lockages+: 8  
 S77 Below USGS Flow Gage -3  
 S78:  
 Spillway and Sector Flow:  
 10.87 3.03 45 0.0 0.0 0.0 0.0  
 Flow Due to Lockages+: 9  
 S79:  
 Spillway and Sector Flow:  
 3.17 2.40 671 0.0 0.0 0.0 1.0 1.0 0.0 0.0  
 0.0  
 Flow Due to Lockages+: 4  
 Percent of flow from S77 3%  
 Chloride (ppm) 47

St. Lucie Canal (S308, S80)

S308:  
 Spillway and Sector Flow:  
 14.76 14.18 0 0.0 0.0 0.0 0.0  
 Flow Due to Lockages+: 2  
 S308 Below USGS Flow Gage -17  
 S153: 18.63 14.02 73 0.5 0.0  
 S80:  
 Spillway and Sector Flow:  
 14.26 1.69 180 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Flow Due to Lockages+: 21  
 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:	0.86	0.86	1.17			
S193:	-NR-	0.00	0.00	-NR-	-NR-	
Okeechobee Field Station:	-NR-	0.00	0.00			
S135 Pump Station:	0.33	0.50	0.65			
S127 Pump Station:	0.40	0.40	0.66			
S129 Pump Station:	0.73	0.75	1.20			
S131 Pump Station:	0.25	0.25	0.50			
S77:	0.07	0.07	0.39	256	1	
S78:	0.08	0.08	23.84	242	3	
S79:	0.60	0.63	1.80	250	1	
S4 Pump Station:	-NR-	0.00	0.00			
Clewiston Field Station:	-NR-	0.00	0.00			
S3 Pump Station:	0.15	0.15	0.19			
S2 Pump Station:	0.16	0.16	0.19			
S308:	0.12	0.33	0.40	237	12	
S80:	0.10	0.10	0.14	358	2	
Okeechobee Average	0.34	0.27	0.41			
(Sites S78, S79 and S80 not included)						
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Oke Nexrad Basin Avg	-NR-	0.00	0.00			
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Okeechobee Lake Elevations	04 OCT 2015	14.78	Difference from
04OCT15			04OCT15
04OCT15 -1 Day =	03 OCT 2015	14.79	0.01
04OCT15 -2 Days =	02 OCT 2015	14.78	0.00
04OCT15 -3 Days =	01 OCT 2015	14.77	-0.01
04OCT15 -4 Days =	30 SEP 2015	14.75	-0.03
04OCT15 -5 Days =	29 SEP 2015	14.71	-0.07
04OCT15 -6 Days =	28 SEP 2015	14.67	-0.11
04OCT15 -7 Days =	27 SEP 2015	14.62	-0.16
04OCT15 -30 Days =	04 SEP 2015	13.21	-1.57
04OCT15 -1 Year =	04 OCT 2014	15.57	0.79
04OCT15 -2 Year =	04 OCT 2013	15.81	1.03

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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
04OCT15	Today =	04 OCT 2015	6933	MON	788
04OCT15	-1 Day =	03 OCT 2015	7937	SUN	5278
04OCT15	-2 Days =	02 OCT 2015	9091	SAT	3882
04OCT15	-3 Days =	01 OCT 2015	11986	FRI	4829
04OCT15	-4 Days =	30 SEP 2015	13709	THU	9074
04OCT15	-5 Days =	29 SEP 2015	13671	WED	8878
04OCT15	-6 Days =	28 SEP 2015	14180	TUE	10757
04OCT15	-7 Days =	27 SEP 2015	13827	MON	6549
04OCT15	-8 Days =	26 SEP 2015	14182	SUN	6619
04OCT15	-9 Days =	25 SEP 2015	15586	SAT	8924
04OCT15	-10 Days =	24 SEP 2015	16192	FRI	-NR-
04OCT15	-11 Days =	23 SEP 2015	15725	THU	8946
04OCT15	-12 Days =	22 SEP 2015	16020	WED	-NR-
04OCT15	-13 Days =	21 SEP 2015	15588	TUE	8667

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S65E

		Average Flow over previous 14 days			Avg-Daily Flow
04OCT15	Today=	04 OCT 2015	4758	MON	3460
04OCT15	-1 Day =	03 OCT 2015	4991	SUN	3744
04OCT15	-2 Days =	02 OCT 2015	5206	SAT	3798
04OCT15	-3 Days =	01 OCT 2015	5400	FRI	4046
04OCT15	-4 Days =	30 SEP 2015	5563	THU	4445
04OCT15	-5 Days =	29 SEP 2015	5692	WED	4578
04OCT15	-6 Days =	28 SEP 2015	5812	TUE	4598
04OCT15	-7 Days =	27 SEP 2015	5898	MON	4745
04OCT15	-8 Days =	26 SEP 2015	5987	SUN	4975
04OCT15	-9 Days =	25 SEP 2015	6068	SAT	4890
04OCT15	-10 Days =	24 SEP 2015	6151	FRI	5190
04OCT15	-11 Days =	23 SEP 2015	6241	THU	5587
04OCT15	-12 Days =	22 SEP 2015	6307	WED	6166
04OCT15	-13 Days =	21 SEP 2015	6354	TUE	6392

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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)
04 OCT 2015	44	-NA-	-7	59	108	1339
03 OCT 2015	0	7	-147	82	180	3311
02 OCT 2015	0	7	-217	173	307	2148
01 OCT 2015	0	16	-241	300	536	4351
30 SEP 2015	0	6	78	380	908	4306
29 SEP 2015	0	5	48	973	1528	4765
28 SEP 2015	0	5	435	913	1626	4743
27 SEP 2015	0	3	276	1092	1697	5822



26 SEP 2015	0	12	30	751	1115	4447
25 SEP 2015	0	1	-23	294	639	5639
24 SEP 2015	0	-NR-	-129	291	652	3584
23 SEP 2015	0	-NR-	-163	292	655	6187
22 SEP 2015	0	15	18	289	1068	5693
21 SEP 2015	0	7	-233	866	2088	8159

	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)
04 OCT 2015	38	2015	1602	1588	513
03 OCT 2015	32	2304	1644	1781	538
02 OCT 2015	16	1261	835	924	479
01 OCT 2015	-29	448	254	0	475
30 SEP 2015	-56	426	333	0	438
29 SEP 2015	-63	295	103	0	411
28 SEP 2015	-185	0	0	0	336
27 SEP 2015	-258	0	0	0	390
26 SEP 2015	-275	50	0	0	479
25 SEP 2015	-196	395	0	0	505
24 SEP 2015	-45	260	0	0	436
23 SEP 2015	-23	67	0	0	476
22 SEP 2015	-69	0	0	-NR-	388
21 SEP 2015	-118	0	0	0	290

	S-308	Below S-308	S-80
	Discharge	Discharge	Discharge
	(ALL DAY)	(ALL-DAY)	(ALL-DAY)
DATE	(AC-FT)	(AC-FT)	(AC-FT)
04 OCT 2015	4	-33	398
03 OCT 2015	1	-23	-NR-
02 OCT 2015	2	27	461
01 OCT 2015	2	90	702
30 SEP 2015	1	-213	1026
29 SEP 2015	0	-334	2223
28 SEP 2015	-0	-208	1825
27 SEP 2015	0	-197	1086
26 SEP 2015	1	-170	749
25 SEP 2015	0	-6	2062
24 SEP 2015	1	28	925
23 SEP 2015	1	33	1384
22 SEP 2015	-0	63	1730
21 SEP 2015	1	52	1727

\*\*\* 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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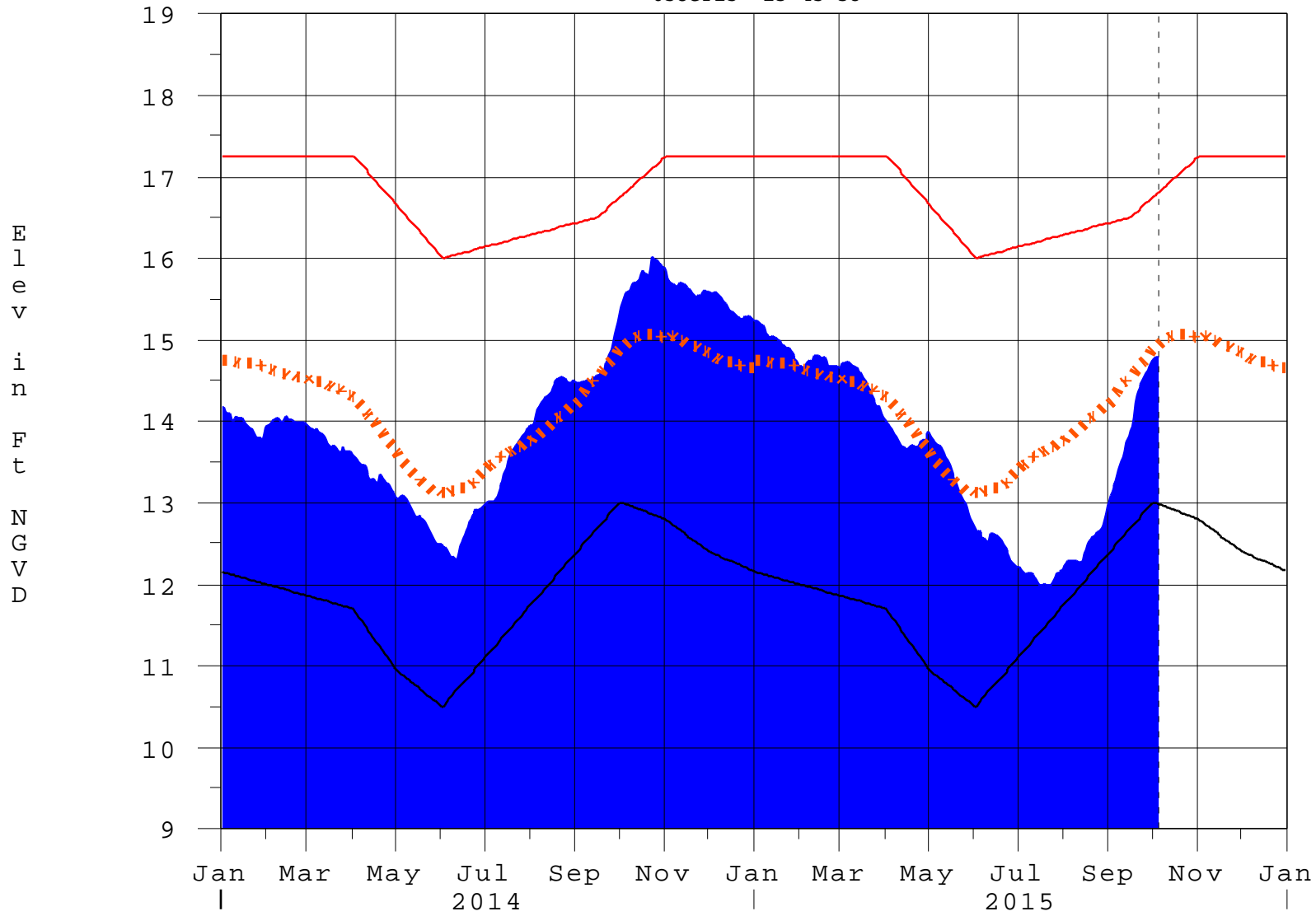
\* On 11 May 1999, Lake Okeechobee Elevation was switched from Instantaneous 2400 value to an average-daily lake average.  
On 14 Mar 2001, due to the isolation of various gages within the standard  
10 stations, the average of the interior 4 station gages was used as the Lake Okeechobee Elevation.  
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 05OCT2015 @ 14:39 \*\* Preliminary Data - Subject to Revision  
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# Lake Okeechobee

05OCT15 13:45:38



- 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