

Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 7/27/2015 (Developing El Nino 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 El Nino years³ and a sub-sampling of warm years of the Atlantic Multi-decadal Oscillation (AMO) in combination with ENSO El Nino 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 ENSO El Nino Years ³		Sub-sampling of AMO Warm + ENSO El Nino Years ⁴	
	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition
Current (Jul-Dec)	N/A	N/A	2.36	Very Wet	2.44	Very Wet	1.05	Normal
Multi Seasonal (Jul-Apr)	N/A	N/A	2.68	Wet	3.74	Wet	1.91	Normal

*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:](#)

1644 cfs 14-day running average for Lake Okeechobee Net Inflow through 7/26/2015. According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Normal.

-1.91 for Palmer Index on 7/25/2015.

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

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

[LORS2008 Classification Tables:](#)

Lake Okeechobee Stage on 7/27/2015

Lake Okeechobee Stage: **12.13 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		16.26	
Operational Band	High sub-band	15.83	
	Intermediate sub-band	15.39	
	Low sub-band	13.52	
Base Flow sub-band		12.60	
Beneficial Use sub-band		11.65	← 12.13
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: No Releases to the Estuaries

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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LORS2008 Implementation on 7/27/2015 (ENSO Neutral Condition):

Water Supply Department Technical Input

Water Supply Outlook:

District wide, Raindar rainfall 1.98 inches for the week ending 7/27/2015. Lake stage on 7/27/2015 is 12.13 ft, up 0.14 ft from last week.

The updated July 2015 SFWMM Dynamic Position Analysis [percentile graph](#) and [tracking chart](#) for Lake Okeechobee show that the lake stage is in the Beneficial Use Operational Sub-Band.

The LORS2008 tributary [indices](#) are classified as **Normal**. The PDSI indicates dry condition and the LONIN is Normal. 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	Beneficial Use Sub-Band	M
	Palmer Index for LOK Tributary Conditions	-1.91 (Dry)	M
	CPC Precipitation Outlook	1 month: Below Normal	M
		3 months: Normal	L
	LOK Seasonal Net Inflow Forecast	2.44 ft (Normal to Extremely Wet)	L
	AMO warm/El Nino		
	LOK Multi-Seasonal Net Inflow Forecast	3.74 ft (Wet)	L
AMO warm/El Nino			
WCAs	WCA 1: Site 1-8C	Between Line 1 & 2 (14.99 ft)	M
	WCA 2A: Site 2-17 HW	Above Line 1 (11.88 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64 and 65)	Between Line 1 & 2 (8.75 ft)	M
LEC	Service Area 1	50% or more of USGS wells are within the lowest 10% to 30% of past water elevations and not more than 25% are in the lowest 10% of past water elevations	M
	Service Area 2	50% or more of USGS wells are within the lowest 10% to 30% of past water elevations and more than 25% are in the lowest 10% of past water elevations	H
	Service Area 3	50% or more of USGS wells are within the lowest 10% to 30% of past water elevations and more than 25% are in the lowest 10% of past water elevations	H

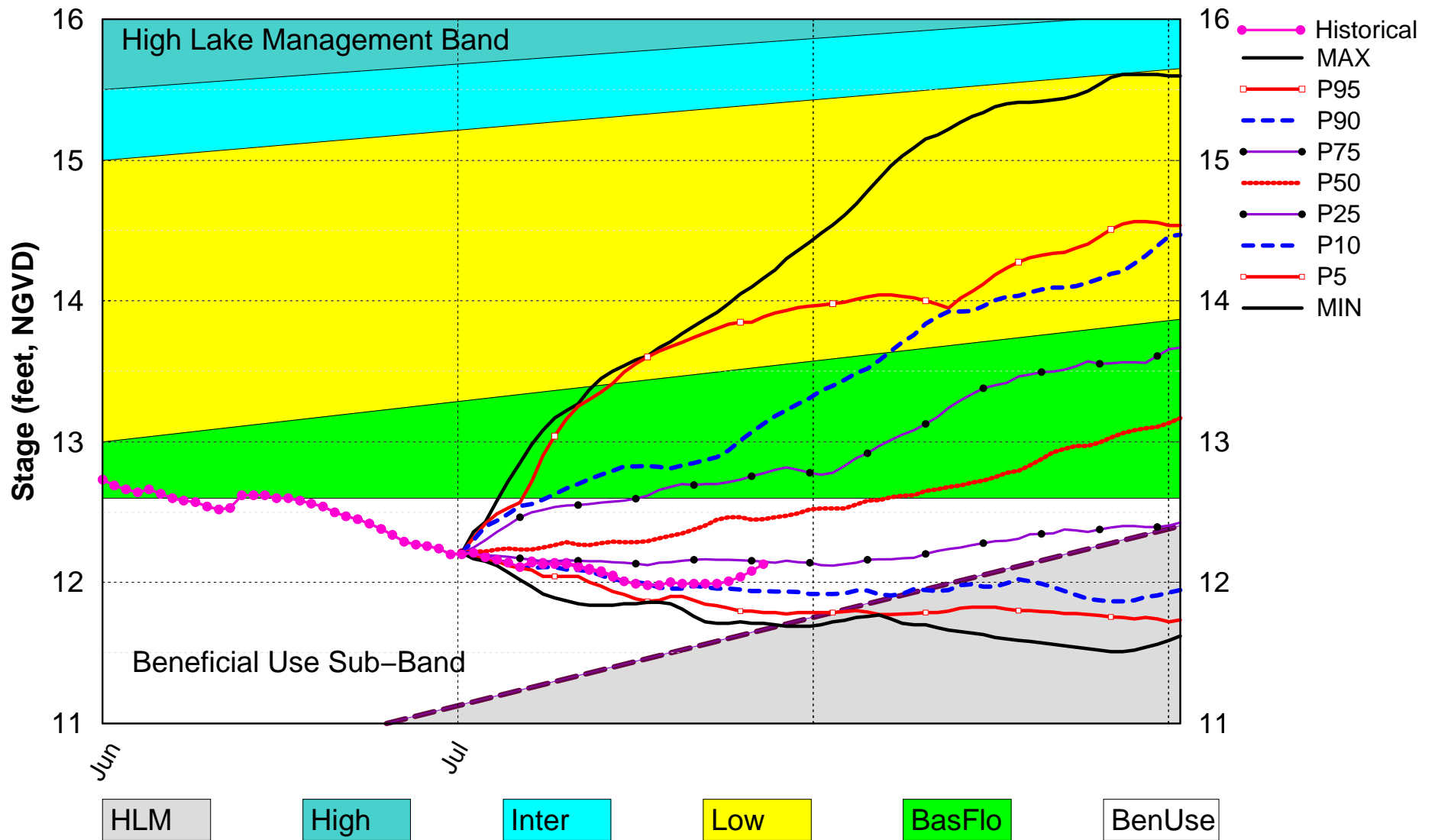
Note: The water supply risk classification based on the Palmer index, as well as the LOK seasonal and multi-seasonal net inflow forecasts use slightly different classification intervals than those used by the 2008-LORS for classifying the tributary hydrologic condition (THC).

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Lake Okeechobee SFWMM July 2015 Position Analysis

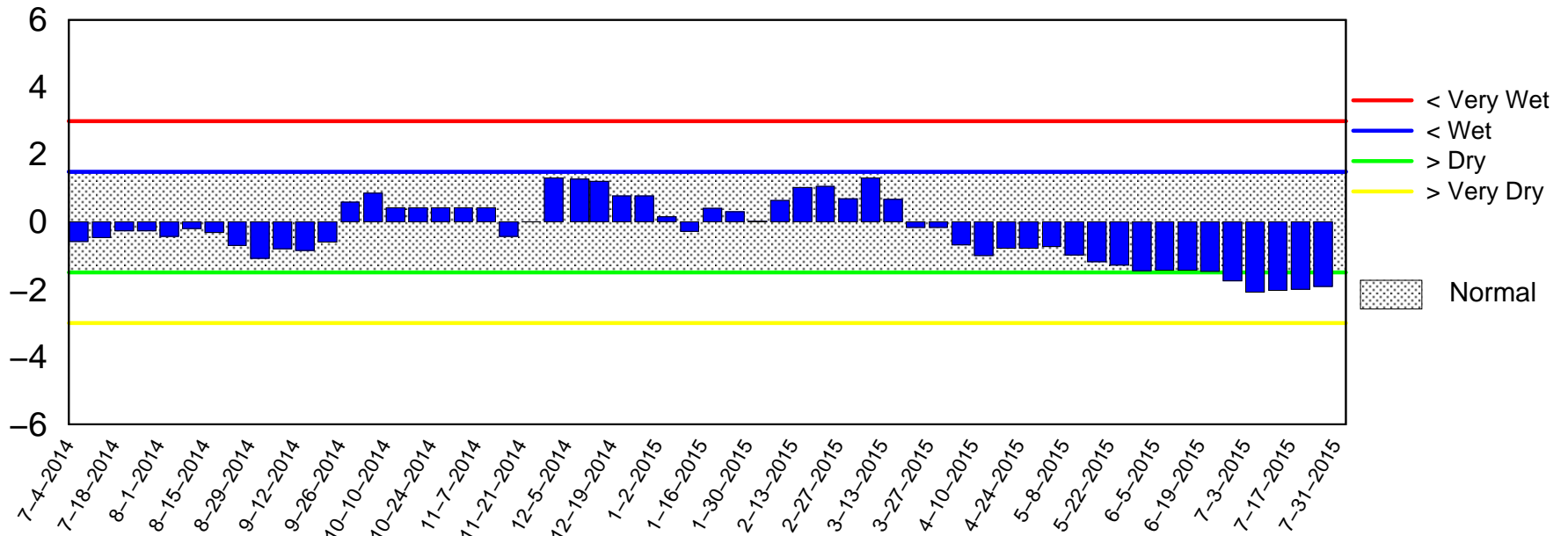
Percentiles PA_JUL15DPA



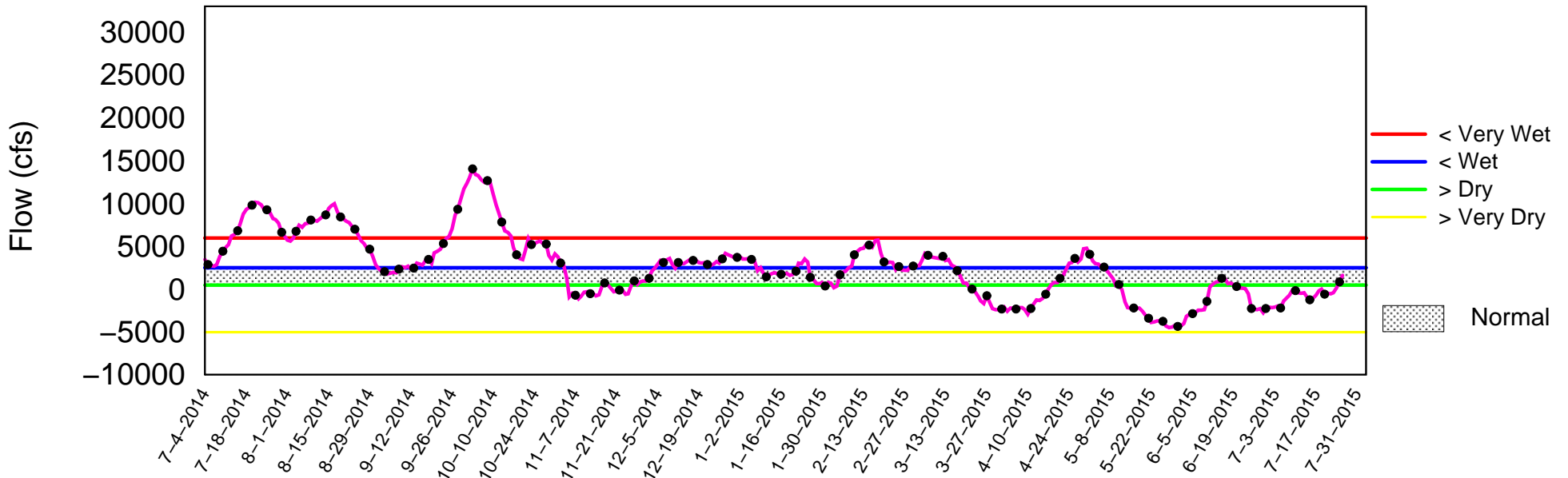
(See assumptions on the Position Analysis Results website)

Tributary Basin Condition Indicators as of July 27 2015

Palmer Index



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



Mon Jul 27 12:37:45 EDT 2015

2008 LORS

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

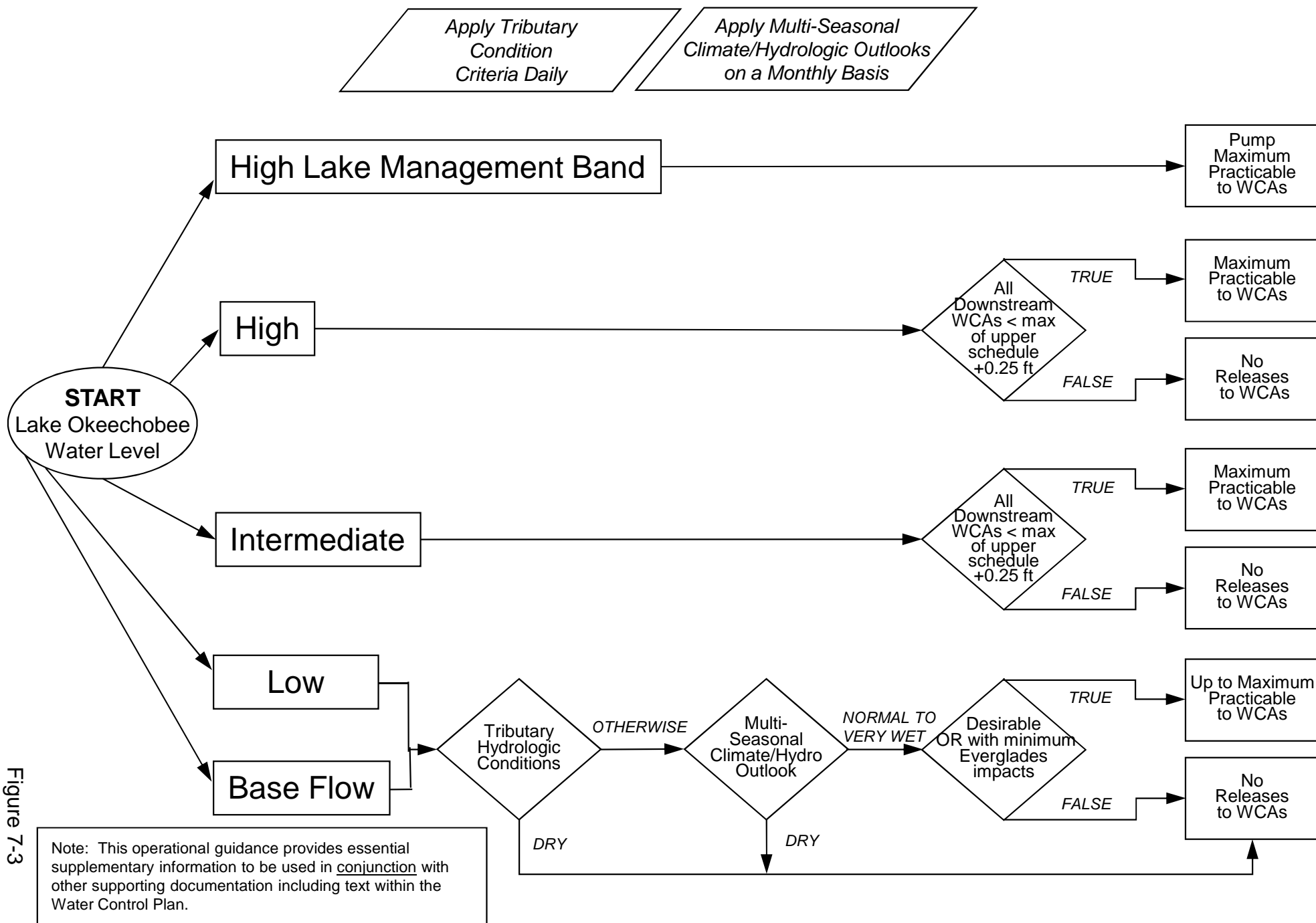


Figure 7-3

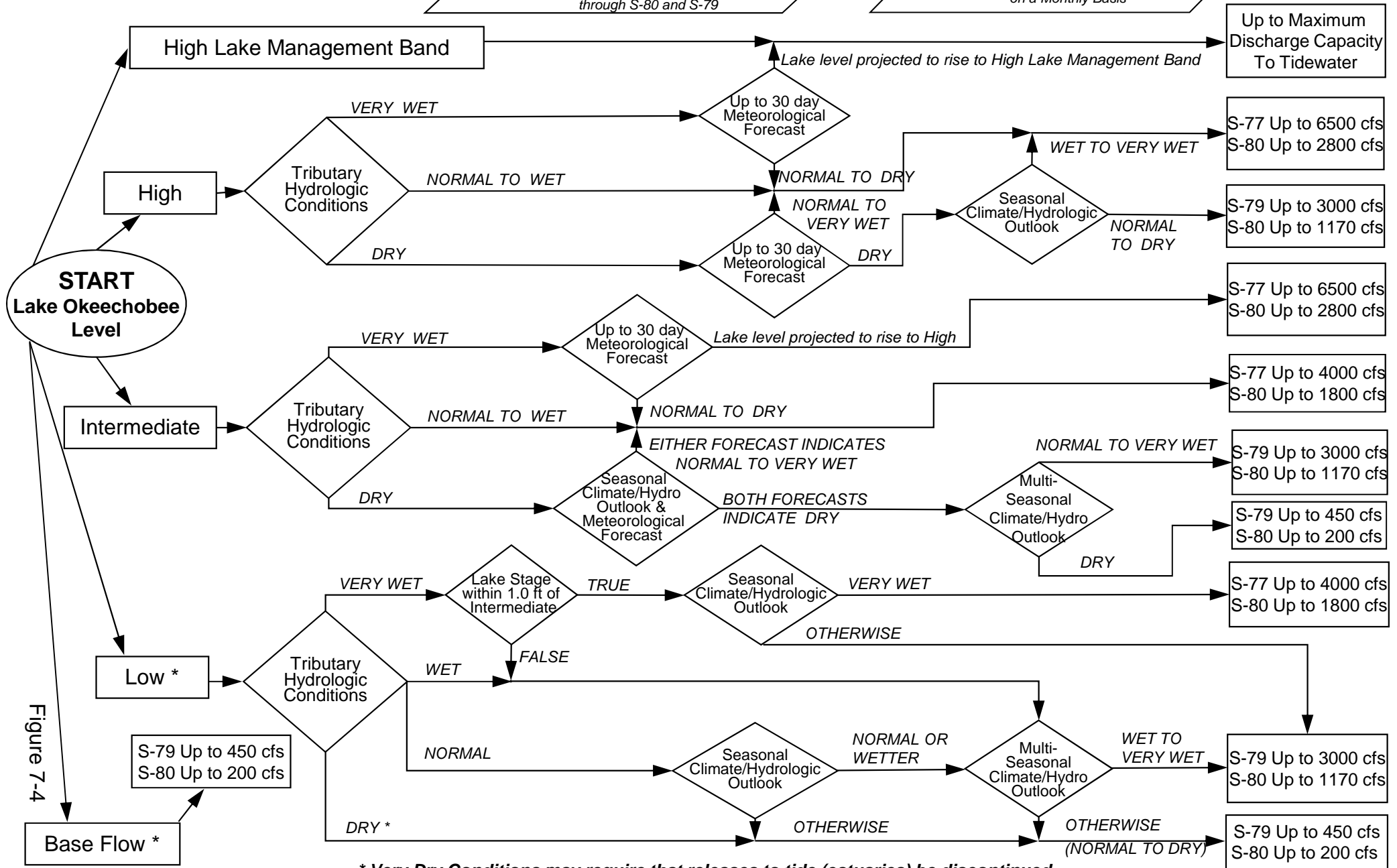
2008 LORS

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

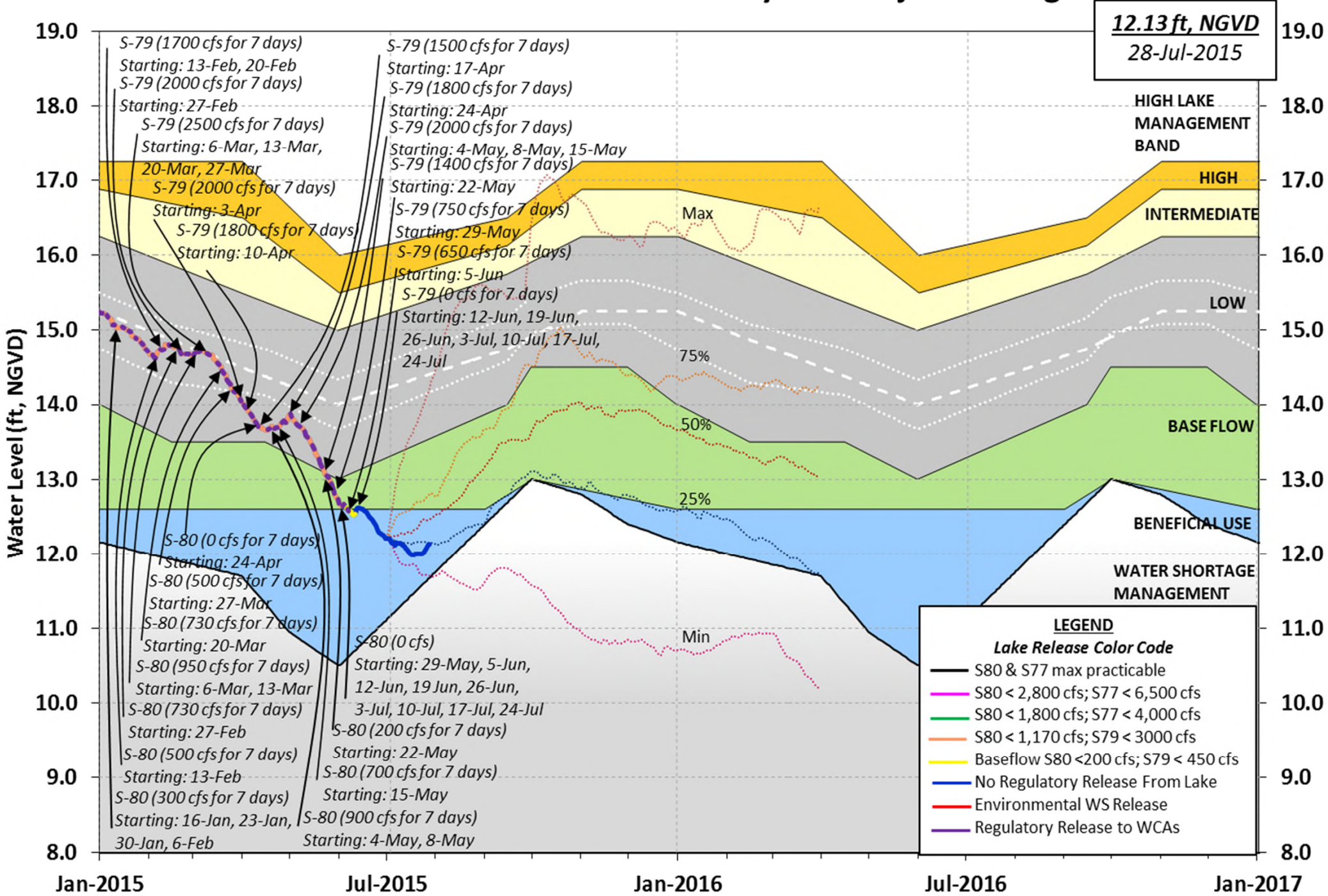
Apply Meteorological Forecasts on a Weekly Basis; apply Seasonal and Multi-Seasonal Climate/Hydrologic Outlooks on a Monthly Basis



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

Figure 7-4

Lake Okeechobee Water Level History and Projected Stages



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

Data Ending 2400 hours 26 JUL 2015

Okeechobee Lake Regulation	Elevation	Last Year	2YRS Ago
	(ft-NGVD)	(ft-NGVD)	(ft-NGVD)
*Okeechobee Lake Elevation	12.13	13.83	15.66 (Official Elv)
Bottom of High Lake Mngmt=	16.26	Top of Water Short Mngmt=	11.64
Currently in Operational Management Band			

Simulated Average LORS2008 [1965-2000] 12.63
 Difference from Average LORS2008 -0.50

26JUL (1965-2007) Period of Record Average 13.72
 Difference from POR Average -1.59

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ÷
 6.07'

++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ÷
 4.27'

Bridge Clearance = 51.15'

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

L001	L005	L006	LZ40	S4	S352	S308	S133
12.17	12.11	12.00	12.04	11.95	12.25	12.16	12.36

*Combination Okeechobee Avg-Daily Lake Average = 12.13
 (*See Note)

Okeechobee Inflows (cfs):

S65E	638	C5	0	Fisheating Cr	635
S154	0	S191	0	S135 Pumps	0
S84	0	S133 Pumps	0	S2 Pumps	0
S84X	621	S127 Pumps	0	S3 Pumps	0
S71	0	S129 Pumps	0	S4 Pumps	0
S72	0	S131 Pumps	0		
Total Inflows:	1894				

Okeechobee Outflows (cfs):

S135 Culverts (Used)	-NR-	S354	0	S77	0
S127 Culverts (USED)	0	S351	0	S77Below	-44 (NOT USED)

C5: 12.08 12.01 0 0.0 0.0 0.0

South Shore

S4 Pumps: 11.91 11.80 0 0 0 0 (cfs)
 S169: 11.87 11.90 -128 5.0 5.0 5.0
 S310: 11.84 -192
 S3 Pumps: 9.73 11.90 0 0 0 0 (cfs)
 S354: 11.90 9.73 0 0.0 0.0
 S2 Pumps: 10.79 11.72 0 0 0 0 0 (cfs)
 S351: 11.72 10.79 0 0.0 0.0 0.0
 S352: 12.23 10.57 269 0.0 0.0
 C10A: -NR- 12.34 8.5 8.5 8.5 8.5 8.5
 L8 Canal PT 12.15 -217

S351 and S352 Temporary Pumps/S354 Spillway

S351: 10.79 11.72 0 -NR--NR--NR--NR--NR--NR--
 S352: 10.57 12.23 269 -NR--NR--NR--NR--
 S354: 9.73 11.90 0 -NR--NR--NR--NR--

Caloosahatchee River (S77, S78, S79)

S47B: 14.56 11.31 0.0 0.0
 S47D: 11.18 11.16 -10 5.0
 S77:
 Spillway and Sector Flow:
 11.67 11.21 0 0.0 0.0 0.0 0.0
 Flow Due to Lockages+: 0
 S77 Below USGS Flow Gage -44
 S78:
 Spillway and Sector Flow:
 11.02 3.20 414 1.0 1.0 0.0 0.0
 Flow Due to Lockages+: 3
 S79:
 Spillway and Sector Flow:
 3.30 1.88 2767 2.0 2.0 2.0 1.0 2.0 2.0 2.0
 1.0
 Flow Due to Lockages+: 2
 Percent of flow from S77 0%
 Chloride (ppm) 66

St. Lucie Canal (S308, S80)

S308:
 Spillway and Sector Flow:
 12.12 12.35 0 0.0 0.0 0.0 0.0
 Flow Due to Lockages+: -0
 S308 Below USGS Flow Gage -198
 S153: 18.90 12.15 0 0.0 0.0
 S80:
 Spillway and Sector Flow:
 12.48 0.78 0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Flow Due to Lockages+: 10
 Percent of flow from S308 NA %

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.

	----- Wind ---				
Daily Precipitation Totals	1-Day	3-Day	7-Day	Direction	
Speed	(inches)	(inches)	(inches)	(Degø)	
(mph)					
S133 Pump Station:	-NR-	0.00	1.05		
S193:	-NR-	0.00	0.00	-NR-	-NR-
Okeechobee Field Station:	-NR-	0.00	0.00		
S135 Pump Station:	-NR-	0.00	0.62		
S127 Pump Station:	-NR-	0.00	1.72		
S129 Pump Station:	-NR-	0.00	0.01		
S131 Pump Station:	-NR-	0.00	0.03		
S77:	0.66	2.94	2.94	227	2
S78:	0.95	2.51	2.75	175	5
S79:	1.98	3.02	3.02	209	2
S4 Pump Station:	-NR-	0.00	0.00		
Clewiston Field Station:	-NR-	0.00	0.00		
S3 Pump Station:	-NR-	0.00	0.71		
S2 Pump Station:	-NR-	0.00	0.57		
S308:	0.13	0.95	2.09	166	13
S80:	0.22	0.41	1.85	235	3
Okeechobee Average	0.40	0.30	0.75		
(Sites S78, S79 and S80 not included)					

Oke Nexrad Basin Avg	-NR-	0.00	0.00		

Okeechobee Lake Elevations	26 JUL 2015	12.13 Difference from
26JUL15		26JUL15
26JUL15 -1 Day =	25 JUL 2015	12.08 -0.05
26JUL15 -2 Days =	24 JUL 2015	12.04 -0.09
26JUL15 -3 Days =	23 JUL 2015	12.01 -0.12
26JUL15 -4 Days =	22 JUL 2015	11.99 -0.14
26JUL15 -5 Days =	21 JUL 2015	11.99 -0.14
26JUL15 -6 Days =	20 JUL 2015	11.99 -0.14
26JUL15 -7 Days =	19 JUL 2015	11.99 -0.14
26JUL15 -30 Days =	26 JUN 2015	12.26 0.13
26JUL15 -1 Year =	26 JUL 2014	13.83 1.70
26JUL15 -2 Year =	26 JUL 2013	15.66 3.53

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
26JUL15	Today =	26 JUL 2015	2492	MON	9949
26JUL15	-1 Day =	25 JUL 2015	1497	SUN	8134
26JUL15	-2 Days =	24 JUL 2015	707	SAT	6154
26JUL15	-3 Days =	23 JUL 2015	51	FRI	4106
26JUL15	-4 Days =	22 JUL 2015	-181	THU	882
26JUL15	-5 Days =	21 JUL 2015	-137	WED	839
26JUL15	-6 Days =	20 JUL 2015	-220	TUE	-NR-
26JUL15	-7 Days =	19 JUL 2015	394	MON	-NR-
26JUL15	-8 Days =	18 JUL 2015	61	SUN	4734
26JUL15	-9 Days =	17 JUL 2015	-451	SAT	1557
26JUL15	-10 Days =	16 JUL 2015	-730	FRI	573
26JUL15	-11 Days =	15 JUL 2015	-830	THU	-897
26JUL15	-12 Days =	14 JUL 2015	-825	WED	-2713
26JUL15	-13 Days =	13 JUL 2015	-188	TUE	-3416

S65E

		Average Flow over previous 14 days			Avg-Daily Flow
26JUL15	Today=	26 JUL 2015	701	MON	638
26JUL15	-1 Day =	25 JUL 2015	736	SUN	675
26JUL15	-2 Days =	24 JUL 2015	772	SAT	769
26JUL15	-3 Days =	23 JUL 2015	802	FRI	611
26JUL15	-4 Days =	22 JUL 2015	833	THU	505
26JUL15	-5 Days =	21 JUL 2015	859	WED	572
26JUL15	-6 Days =	20 JUL 2015	874	TUE	742
26JUL15	-7 Days =	19 JUL 2015	877	MON	527
26JUL15	-8 Days =	18 JUL 2015	877	SUN	626
26JUL15	-9 Days =	17 JUL 2015	855	SAT	653
26JUL15	-10 Days =	16 JUL 2015	842	FRI	698
26JUL15	-11 Days =	15 JUL 2015	853	THU	877
26JUL15	-12 Days =	14 JUL 2015	851	WED	880
26JUL15	-13 Days =	13 JUL 2015	805	TUE	1036

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)
26 JUL 2015	0	0	-88	683	828	5490
25 JUL 2015	4	31	-98	0	16	2703
24 JUL 2015	58	101	-98	0	20	1595
23 JUL 2015	62	107	206	0	20	1180
22 JUL 2015	52	-NA-	46	0	16	1545
21 JUL 2015	0	1	-292	0	9	-NR-
20 JUL 2015	0	1	-116	0	9	3630
19 JUL 2015	0	1	-65	140	324	4629

18 JUL 2015	0	1	-88	542	626	3807
17 JUL 2015	0	1	-94	0	18	2346
16 JUL 2015	0	-NA-	-15	0	20	1516
15 JUL 2015	160	375	406	0	16	478
14 JUL 2015	194	430	629	0	4	757
13 JUL 2015	123	176	192	0	18	600

	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)
26 JUL 2015	-381	0	533	0	-431
25 JUL 2015	-436	0	504	0	-380
24 JUL 2015	-56	0	407	0	-315
23 JUL 2015	115	0	539	0	-333
22 JUL 2015	53	2	1392	290	-343
21 JUL 2015	-156	99	1412	153	-320
20 JUL 2015	-161	0	1198	-NR-	-321
19 JUL 2015	-134	65	1055	-NR-	-317
18 JUL 2015	-91	555	984	650	-329
17 JUL 2015	9	813	1069	1206	-281
16 JUL 2015	-44	1832	1140	1660	-265
15 JUL 2015	93	2530	1263	1553	-266
14 JUL 2015	392	2969	1388	1533	-313
13 JUL 2015	431	2042	1182	1525	-351

	S-308	Below S-308	S-80
	Discharge	Discharge	Discharge
	(ALL DAY)	(ALL-DAY)	(ALL-DAY)
DATE	(AC-FT)	(AC-FT)	(AC-FT)
26 JUL 2015	-0	-393	20
25 JUL 2015	0	-308	20
24 JUL 2015	1	-323	23
23 JUL 2015	1	-53	33
22 JUL 2015	0	-291	16
21 JUL 2015	1	-17	23
20 JUL 2015	0	24	20
19 JUL 2015	-0	-20	17
18 JUL 2015	-1	25	21
17 JUL 2015	-1	33	14
16 JUL 2015	-3	-140	29
15 JUL 2015	-4	-247	-NR-
14 JUL 2015	-5	-221	37
13 JUL 2015	-6	-68	23

*** 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

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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

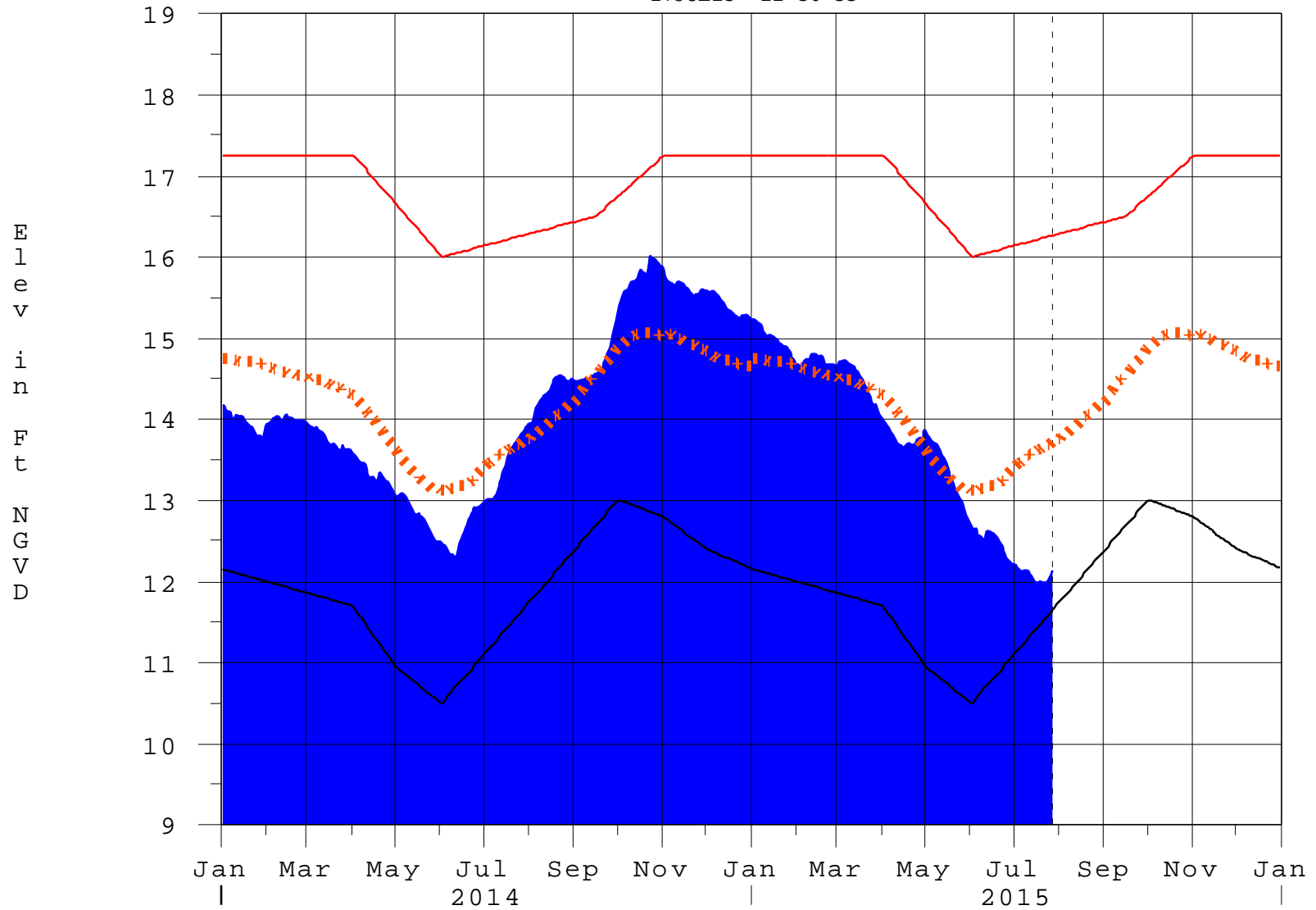
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Report Generated 27JUL2015 @ 11:15 ** Preliminary Data - Subject to Revision

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Lake Okeechobee

27JUL15 11:30:33



- 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