

Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 5/4/2015 (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 (May-Oct)	N/A	N/A	2.35	Very Wet	2.27	Very Wet	3.29	Very Wet
Multi Seasonal (May-Apr)	N/A	N/A	3.00	Wet	4.00	Wet	5.62	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:](#)

3005 cfs 14-day running average for Lake Okeechobee Net Inflow through 5/3/2015. According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Wet.

- **1.07** for Palmer Index on 5/2/2015.

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 5/4/2015

Lake Okeechobee Stage: **13.77 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		16.57	
Operational Band	High sub-band	15.96	
	Intermediate sub-band	15.23	
	Low sub-band	13.30	← 13.77
Base Flow sub-band		12.60	
Beneficial Use sub-band		10.90	
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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LORS2008 Implementation on 5/4/2015 (ENSO Neutral Condition):

Water Supply Department Technical Input

Water Supply Outlook:

District wide, Raindar rainfall 1.47 inches for the week ending 5/4/2015. Lake stage on 5/4/2015 is 13.77 ft, up 0.01 ft from last week.

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

The LORS2008 tributary [indices](#) are classified as **Wet**. The PDSI indicates dry 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	Base Flow Sub-Band	M
	Palmer Index for LOK Tributary Conditions	-1.07 (Dry)	M
	CPC Precipitation Outlook	1 month: Normal	L
		3 months: Above Normal	L
	LOK Seasonal Net Inflow Forecast	3.29 ft (Normal to Extremely Wet)	L
	AMO warm/El Nino		
	LOK Multi-Seasonal Net Inflow Forecast	5.62 ft (Wet)	L
AMO warm/El Nino			
WCAs	WCA 1: Site 1-7, Site 1-8T, & Site 1-9 Average	Above Line 1 (15.98 ft)	L
	WCA 2A: Site 2-17 HW	Above Line1 (11.77 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64 and 65)	Above Line 1 (9.06 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

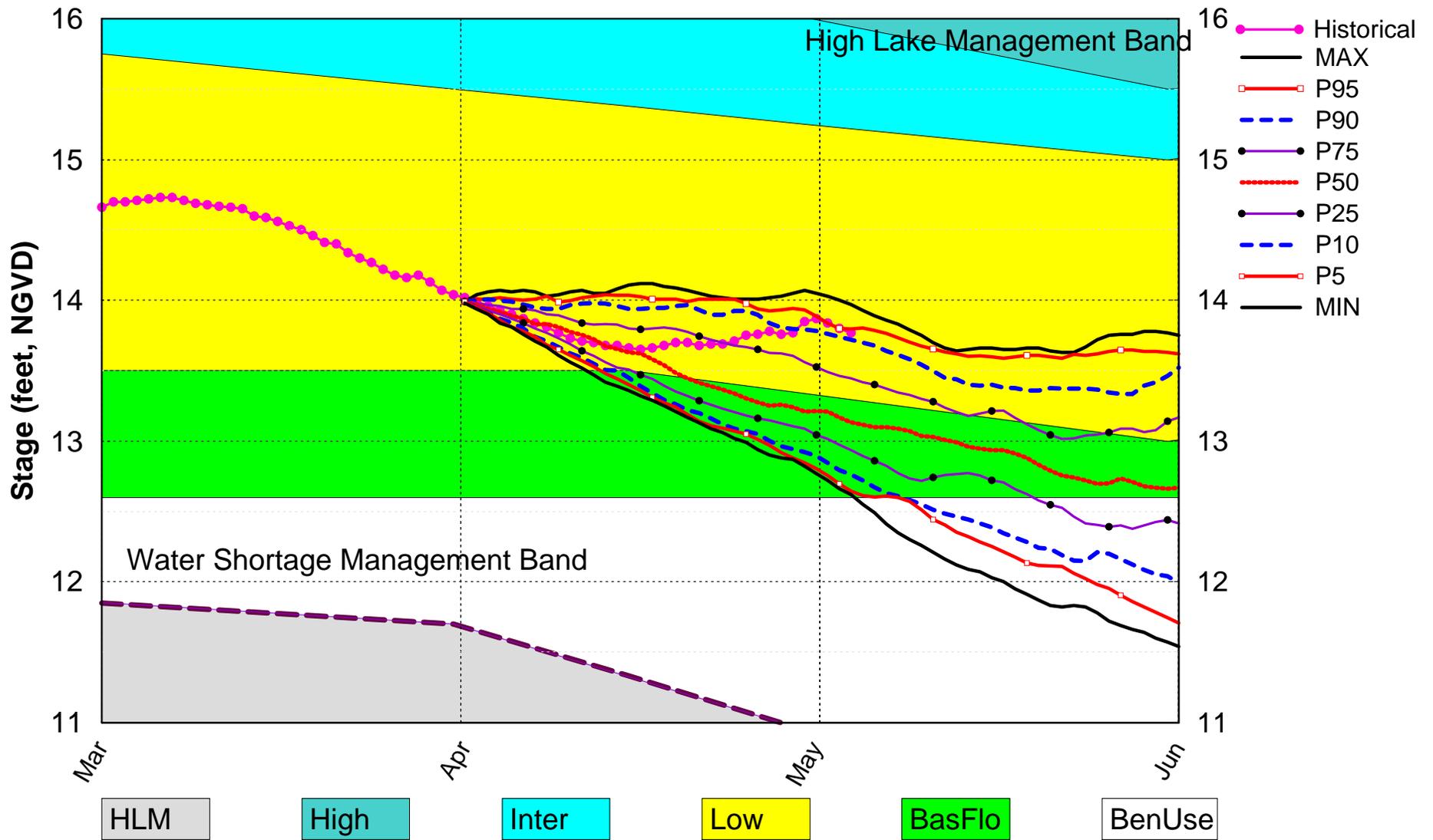
Note: The water supply risk classification based on the Palmer index, as well as the LOK seasonal and multi-seasonal net inflow forecasts use slightly different classification intervals than those used by the 2008-LORS for classifying the tributary hydrologic condition (THC).

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Lake Okeechobee SFWMM April 2015 Position Analysis

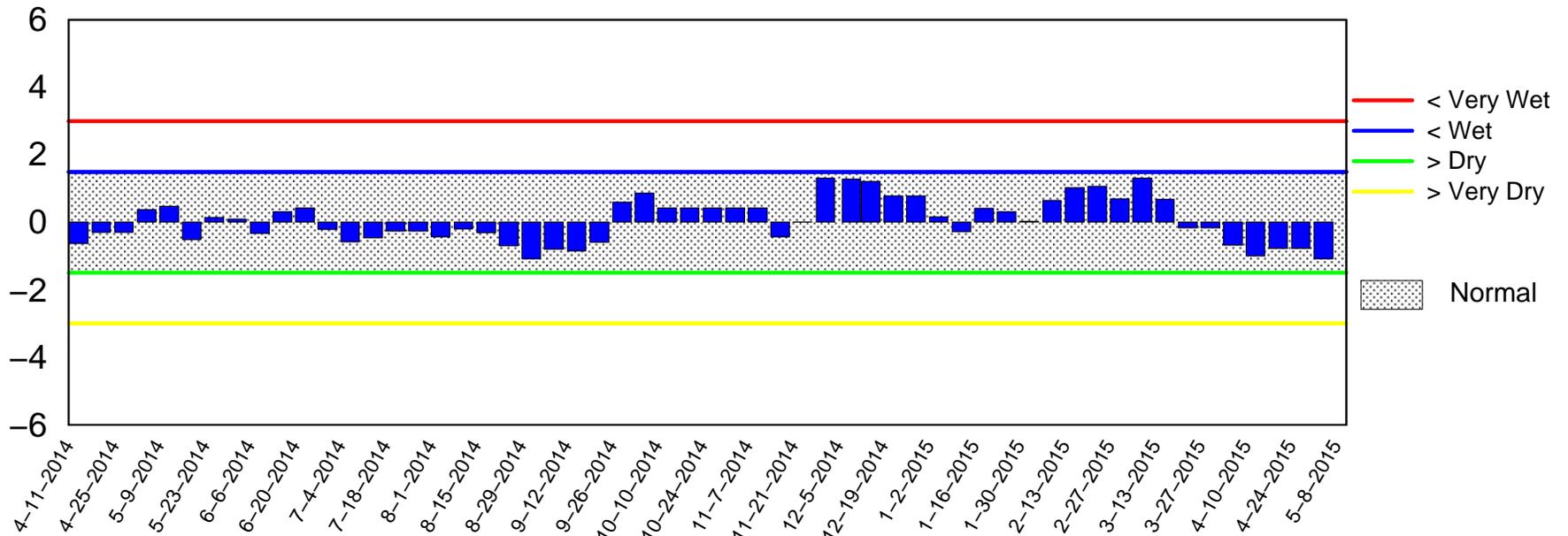
Percentiles PA_APR15DPA



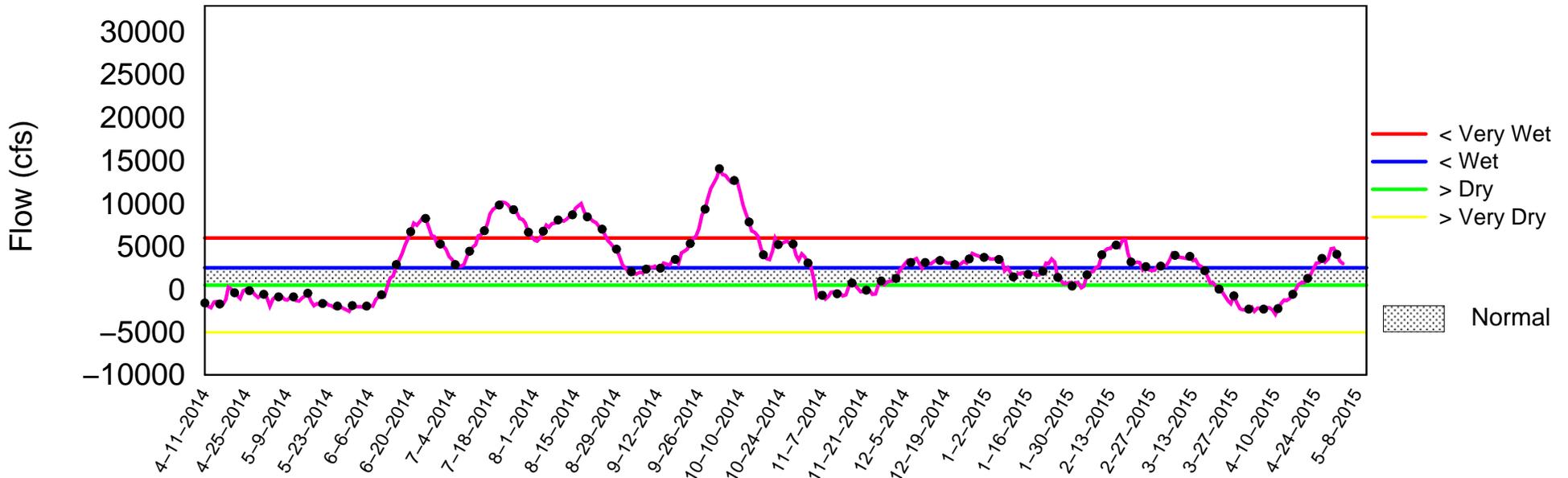
(See assumptions on the Position Analysis Results website)

Tributary Basin Condition Indicators as of May 4 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

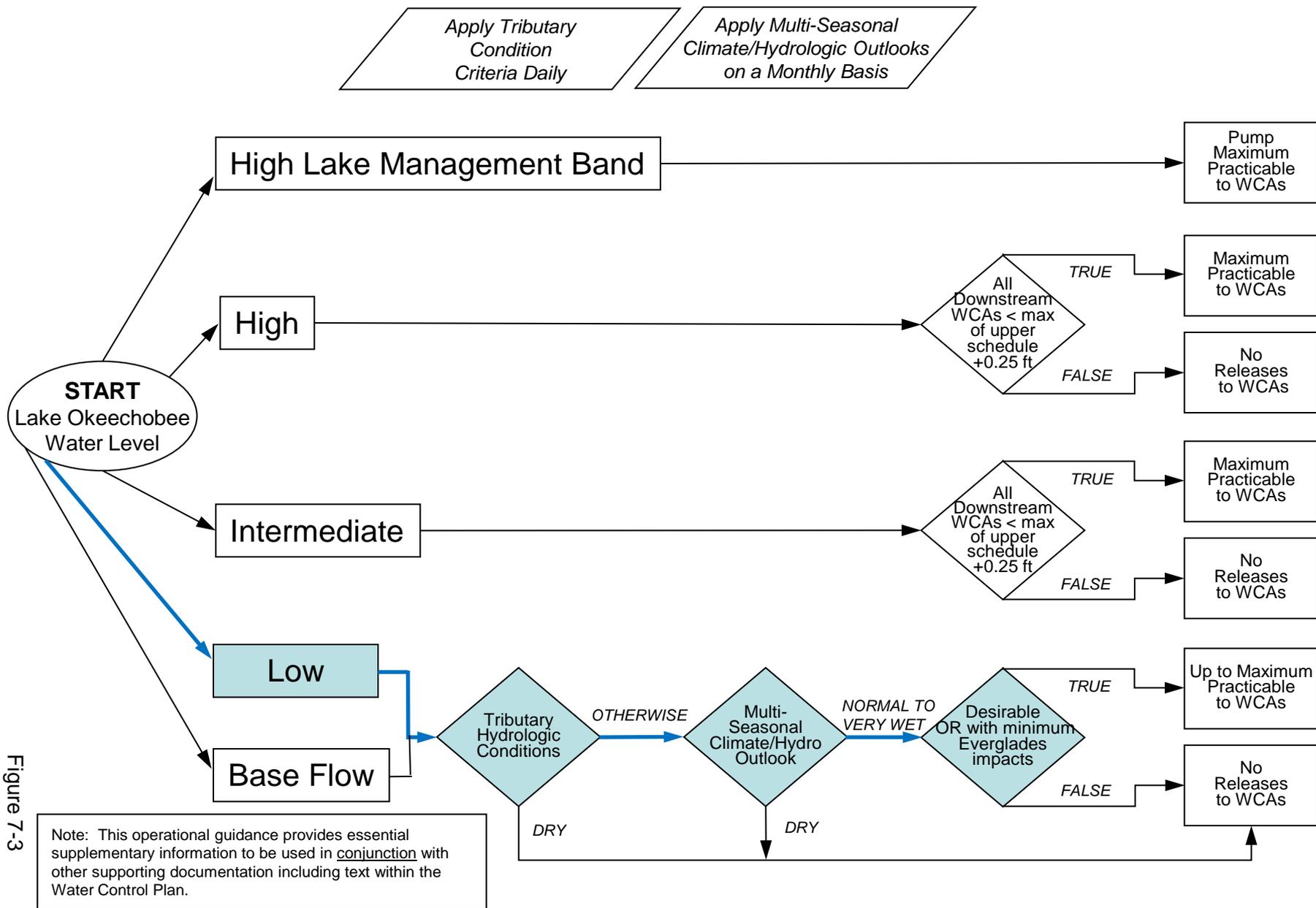


Figure 7-3

2008 LORS

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

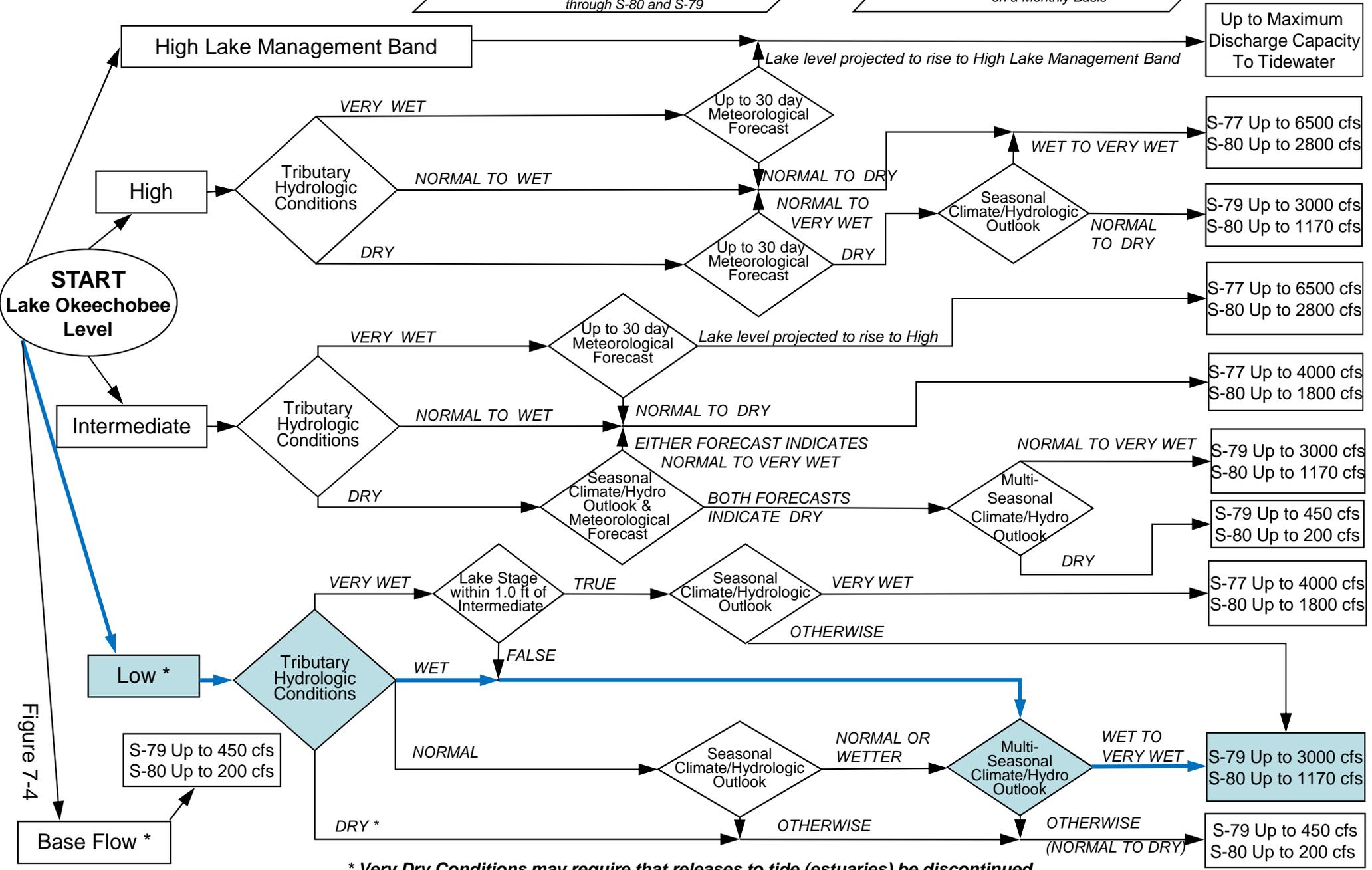
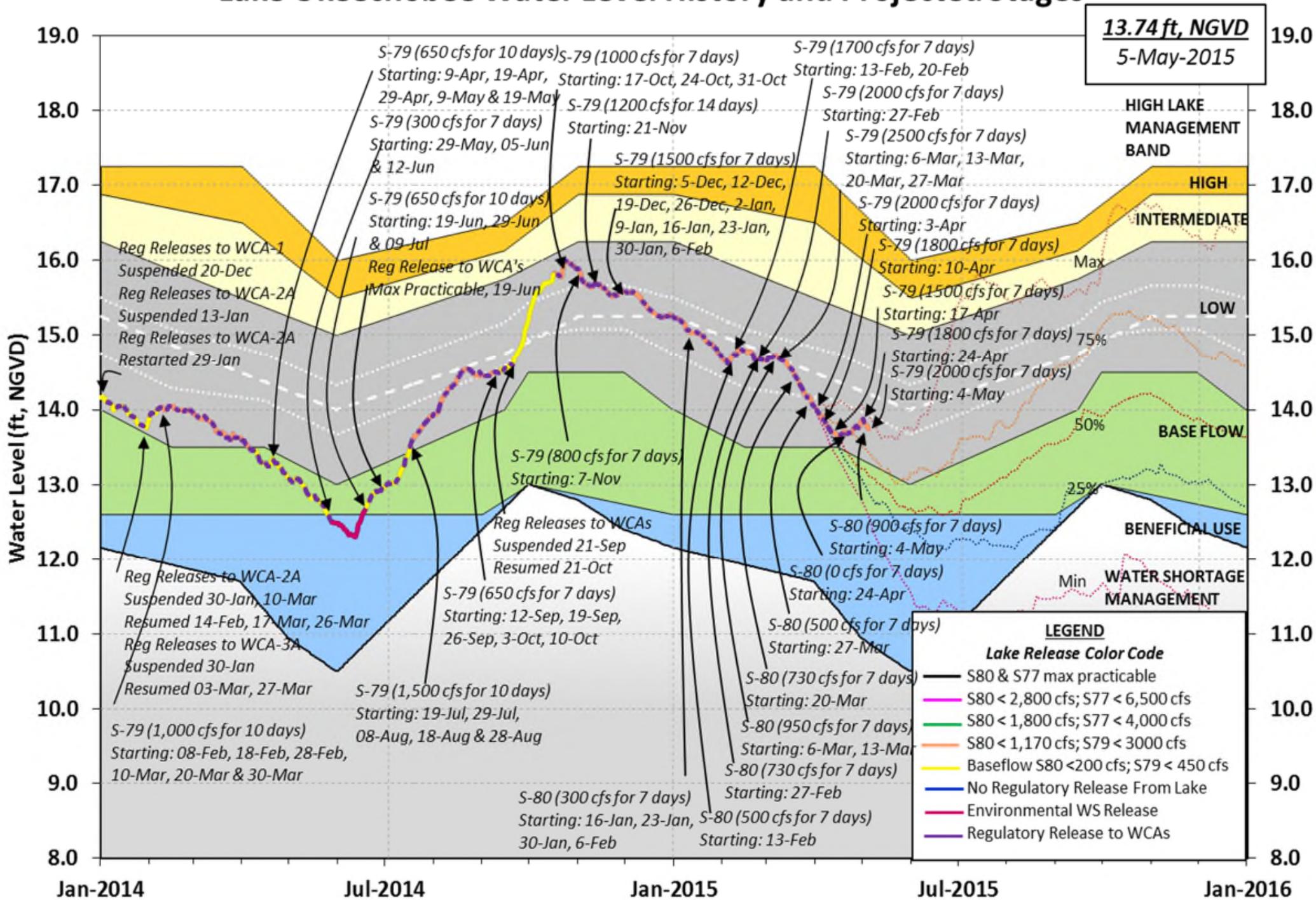


Figure 7-4

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

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 03 MAY 2015

Okeechobee Lake Regulation	Elevation	Last Year	2YRS Ago
	(ft-NGVD)	(ft-NGVD)	(ft-NGVD)
*Okeechobee Lake Elevation	13.77	13.06	13.59 (Official Elv)
Bottom of High Lake Mngmt= 16.59 Top of Water Short Mngmt= 10.91			
Currently in Operational Management Band			

Simulated Average LORS2008 [1965-2000]	12.33
Difference from Average LORS2008	1.44

03MAY (1965-2007) Period of Record Average	13.55
Difference from POR Average	0.22

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

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ÷ 7.71'

++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ÷ 5.91'

Bridge Clearance = 50.02'

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

L001	L005	L006	LZ40	S4	S352	S308	S133
13.59	13.98	13.80	13.75	13.93	13.85	13.60	13.66

*Combination Okeechobee Avg-Daily Lake Average = 13.77
 (*See Note)

Okeechobee Inflows (cfs):

S65E	3120	S191	0	Fisheating Cr	331
S154	0	S133 Pumps	0	S135 Pumps	0
S84	191	S127 Pumps	112	S2 Pumps	0
S71	0	S129 Pumps	0	S3 Pumps	0
S72	216	S131 Pumps	0	S4 Pumps	0
C5	41				
Total Inflows:	4011				

Okeechobee Outflows (cfs):

S135 Culverts (Used)	-NR-	S354	352	S77	2451
S127 Culverts (USED)	0	S351	314	S77Below	2367 (NOT USED)

C5: 14.03 13.86 41 3.2 3.1 3.2

South Shore

S4 Pumps: 11.13 13.99 0 0 0 0 (cfs)
 S169: 14.02 11.15 0 0.0 0.0 0.0
 S310: 13.95 11 (cfs)
 S3 Pumps: 10.91 13.96 0 0 0 0 (cfs)
 S354: 13.96 10.91 352 0.0 0.0
 S2 Pumps: 10.41 13.80 0 0 0 0 0 (cfs)
 S351: 13.80 10.41 314 0.2 0.2 0.6
 S352: 13.76 10.99 406 1.2 1.1
 C10A: -NR- 13.73 8.5 8.5 8.5 8.5 8.5
 L8 Canal PT 13.57 194

S351 and S352 Temporary Pumps/S354 Spillway

S351: 10.41 13.80 314 -NR--NR--NR--NR--NR--NR--
 S352: 10.99 13.76 406 -NR--NR--NR--NR--
 S354: 10.91 13.96 352 -NR--NR--NR--NR--

Caloosahatchee River (S77, S78, S79)

S47B: 12.97 11.08 0.0 0.0
 S47D: 11.15 11.15 21 4.8
 S77:
 Spillway and Sector Flow:
 13.66 11.23 2444 3.5 4.0 4.0 0.0
 Flow Due to Lockages+: 7
 S77 Below USGS Flow Gage 2367
 S78:
 Spillway and Sector Flow:
 11.00 3.06 2417 2.0 3.5 1.0 1.0
 Flow Due to Lockages+: 21
 S79:
 Spillway and Sector Flow:
 3.13 0.35 2793 1.0 1.0 1.0 2.0 1.0 1.0 1.0
 1.0
 Flow Due to Lockages+: 14
 Percent of flow from S77 88%
 Chloride (ppm) 78

St. Lucie Canal (S308, S80)

S308:
 Spillway and Sector Flow:
 13.52 13.48 0 0.0 0.0 0.0 0.0
 Flow Due to Lockages+: -0
 S308 Below USGS Flow Gage 57
 S153: 18.73 13.19 -NR- 0.0 -NR-
 S80:
 Spillway and Sector Flow:
 13.52 2.03 0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Flow Due to Lockages+: 23
 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.

	1-Day	3-Day	7-Day	----- Wind ---	
Daily Precipitation Totals				Direction	
Speed	(inches)	(inches)	(inches)	(Degø)	
(mph)					
S133 Pump Station:	0.00	0.00	2.64		
S193:	-NR-	0.00	0.00	-NR-	-NR-
Okeechobee Field Station:	-NR-	0.00	0.00		
S135 Pump Station:	0.00	0.00	2.31		
S127 Pump Station:	0.00	0.00	0.65		
S129 Pump Station:	0.00	0.00	0.96		
S131 Pump Station:	0.00	0.00	0.68		
S77:	0.00	0.00	1.13	95	2
S78:	0.00	0.00	0.02	72	3
S79:	0.00	0.00	0.22	139	6
S4 Pump Station:	-NR-	0.00	0.00		
Clewiston Field Station:	-NR-	0.00	0.00		
S3 Pump Station:	0.00	0.00	0.57		
S2 Pump Station:	0.00	0.00	0.51		
S308:	0.00	0.00	0.70	50	2
S80:	0.00	0.00	0.00	102	3
Okeechobee Average	0.00	0.00	0.78		
(Sites S78, S79 and S80 not included)					

Oke Nexrad Basin Avg	-NR-	0.00	0.00		

Okeechobee Lake Elevations	03 MAY 2015	13.77	Difference from
	03MAY15		03MAY15
03MAY15 -1 Day =	02 MAY 2015	13.80	0.03
03MAY15 -2 Days =	01 MAY 2015	13.84	0.07
03MAY15 -3 Days =	30 APR 2015	13.87	0.10
03MAY15 -4 Days =	29 APR 2015	13.85	0.08
03MAY15 -5 Days =	28 APR 2015	13.77	0.00
03MAY15 -6 Days =	27 APR 2015	13.76	-0.01
03MAY15 -7 Days =	26 APR 2015	13.78	0.01
03MAY15 -30 Days =	03 APR 2015	13.93	0.16
03MAY15 -1 Year =	03 MAY 2014	13.06	-0.71
03MAY15 -2 Year =	03 MAY 2013	13.59	-0.18

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
03MAY15	Today =	03 MAY 2015	2146	MON	-2642
03MAY15	-1 Day =	02 MAY 2015	2582	SUN	-4839
03MAY15	-2 Days =	01 MAY 2015	3553	SAT	-3795
03MAY15	-3 Days =	30 APR 2015	4427	FRI	5548
03MAY15	-4 Days =	29 APR 2015	4375	THU	18150
03MAY15	-5 Days =	28 APR 2015	2862	WED	4048
03MAY15	-6 Days =	27 APR 2015	2410	TUE	-2445
03MAY15	-7 Days =	26 APR 2015	2930	MON	6062
03MAY15	-8 Days =	25 APR 2015	2340	SUN	3547
03MAY15	-9 Days =	24 APR 2015	2219	SAT	-NR-
03MAY15	-10 Days =	23 APR 2015	2065	FRI	-NR-
03MAY15	-11 Days =	22 APR 2015	1580	THU	1059
03MAY15	-12 Days =	21 APR 2015	1188	WED	4067
03MAY15	-13 Days =	20 APR 2015	748	TUE	-3005

S65E

		Average Flow over previous 14 days			Avg-Daily Flow
03MAY15	Today=	03 MAY 2015	3424	MON	3120
03MAY15	-1 Day =	02 MAY 2015	3302	SUN	3077
03MAY15	-2 Days =	01 MAY 2015	3168	SAT	3229
03MAY15	-3 Days =	30 APR 2015	3016	FRI	3303
03MAY15	-4 Days =	29 APR 2015	2877	THU	4574
03MAY15	-5 Days =	28 APR 2015	2627	WED	4795
03MAY15	-6 Days =	27 APR 2015	2343	TUE	4376
03MAY15	-7 Days =	26 APR 2015	2094	MON	4168
03MAY15	-8 Days =	25 APR 2015	1845	SUN	3703
03MAY15	-9 Days =	24 APR 2015	1635	SAT	-NR-
03MAY15	-10 Days =	23 APR 2015	1600	FRI	-NR-
03MAY15	-11 Days =	22 APR 2015	1570	THU	2320
03MAY15	-12 Days =	21 APR 2015	1512	WED	2469
03MAY15	-13 Days =	20 APR 2015	1432	TUE	1951

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)
03 MAY 2015	2764	4861	4694	2760	4835	5567
02 MAY 2015	2971	4605	4326	3029	4656	6052
01 MAY 2015	1745	-NA-	2211	1996	2832	4197
30 APR 2015	693	-NA-	813	815	1547	3566
29 APR 2015	874	-NA-	1411	1178	2239	2592
28 APR 2015	1173	1971	1964	1701	2901	3170
27 APR 2015	1049	-NA-	1401	1247	2519	3698
26 APR 2015	1190	-NA-	1625	1430	2715	4538

25 APR 2015	1430	2431	2285	2193	3737	4951
24 APR 2015	1282	2019	2121	1710	3039	3713
23 APR 2015	311	437	517	635	1412	2075
22 APR 2015	0	-NA-	748	637	2164	3169
21 APR 2015	1146	1787	1826	1668	3648	5174
20 APR 2015	444	712	983	1644	3795	5250

	S-310	S-351	S-352	S-354	L8 Canal Pt
	Discharge	Discharge	Discharge	Discharge	Discharge
	(ALL DAY)				
DATE	(AC-FT)	(AC-FT)	(AC-FT)	(AC-FT)	(AC-FT)
03 MAY 2015	22	623	805	698	385
02 MAY 2015	21	597	900	690	416
01 MAY 2015	16	599	876	672	432
30 APR 2015	35	44	539	395	455
29 APR 2015	-9	0	418	30	391
28 APR 2015	-16	466	652	389	361
27 APR 2015	-13	395	656	424	425
26 APR 2015	-67	557	26	347	473
25 APR 2015	-89	0	0	0	417
24 APR 2015	-88	-NR-	-NR-	-NR-	338
23 APR 2015	-96	-NR-	-NR-	-NR-	382
22 APR 2015	-198	69	129	694	294
21 APR 2015	-220	615	932	236	301
20 APR 2015	-253	1069	280	0	384

	S-308	Below S-308	S-80
	Discharge	Discharge	Discharge
	(ALL DAY)	(ALL-DAY)	(ALL-DAY)
DATE	(AC-FT)	(AC-FT)	(AC-FT)
03 MAY 2015	-0	114	46
02 MAY 2015	-1	-31	58
01 MAY 2015	-1	-26	150
30 APR 2015	-1	-100	45
29 APR 2015	-1	-32	52
28 APR 2015	1	4	64
27 APR 2015	3	32	40
26 APR 2015	-NA-	0	55
25 APR 2015	-NA-	0	70
24 APR 2015	-2	-NR-	298
23 APR 2015	-2	-NR-	58
22 APR 2015	-3	103	67
21 APR 2015	-1	-259	42
20 APR 2015	0	-90	44

*** 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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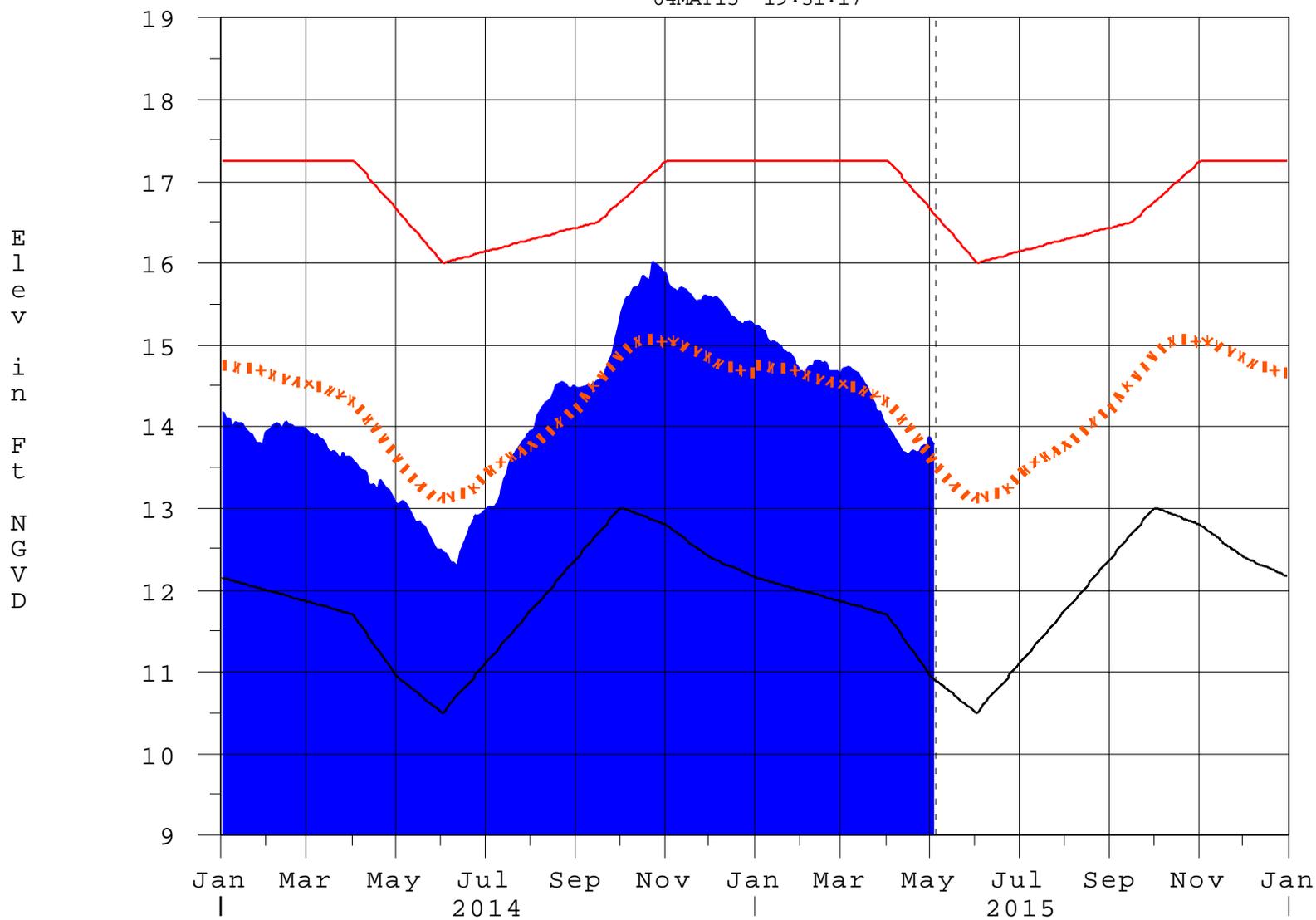
(I) - Flows preceded by "I" signify an instantaneous flow computed from the single value reported for the day

— * 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

— Report Generated 04MAY2015 @ 19:16 ** Preliminary Data - Subject to Revision
**

Lake Okeechobee

04MAY15 19:31:17



- 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