

Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 2/17/2013 (ENSO Neutral 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 Neutral 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 (Feb-Jul)	0.92	Normal	0.72	Dry	0.43	Dry	1.16	Normal
Multi Seasonal (Feb-Oct)	2.83	Wet	2.46	Normal	2.61	Wet	3.93	Wet

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:](#)

1857 cfs 14-day running average for Lake Okeechobee Net Inflow through 2/16/2014. According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Normal.

0.03 for Palmer Index on 2/15/2014.

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

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

[LORS2008 Classification Tables:](#)

Lake Okeechobee Stage on 2/17/2014

Lake Okeechobee Stage: **14.01 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	16.68	
	Intermediate sub-band	15.86	
	Low sub-band	13.50	← 14.01
Base Flow sub-band		12.60	
Beneficial Use sub-band		11.95	
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 2/17/2014 (ENSO Neutral Condition):

Water Supply Department Technical Input

Water Supply Outlook:

District wide, Raindar rainfall 0.71 inches for the week ending **2/18/2014**. Lake stage on 2/17/2013 is 14.01 ft, the same as last week.

The updated February 2014 SFWMM 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 **Normal**. The PDSI indicates normal condition and the LONIN is normal. The classification is based on the wetter of the two.

Water Supply Risk Evaluation

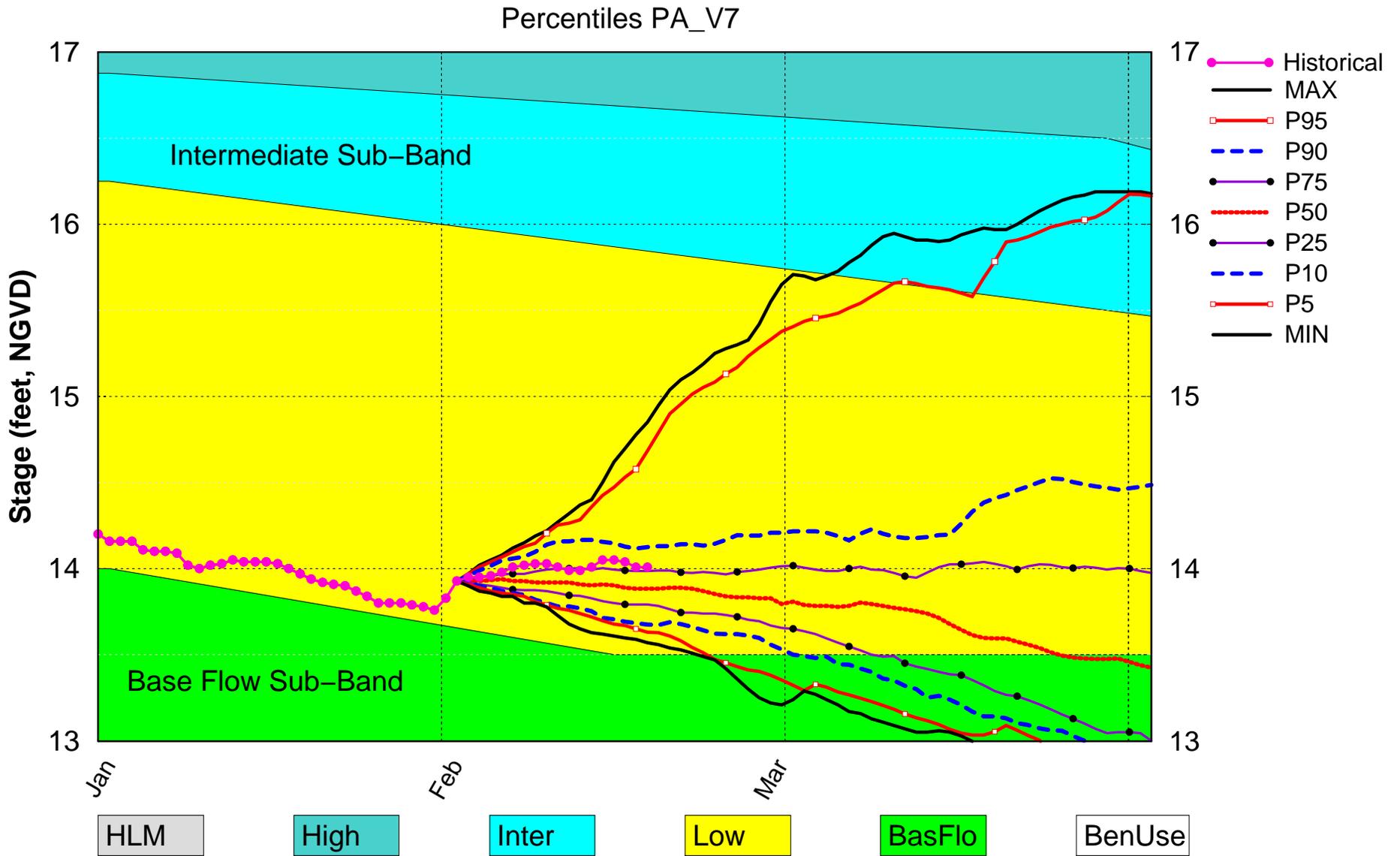
Area	Indicator	Value	Color Coded Scoring Scheme
LOK	Projected LOK Stage for the next two months	Low Flow Sub-Band	M
	Palmer Index for LOK Tributary Conditions	0.03 (Normal to Extremely Wet)	L
	CPC Precipitation Outlook	1 month: Below Normal	M
		3 months: Below Normal	M
	LOK Seasonal Net Inflow Forecast	1.16 ft (Normal to Extremely Wet)	L
	AMO warm/ENSO Neutral		
	LOK Multi-Seasonal Net Inflow Forecast	3.93 ft (Wet)	L
AMO warm/ENSO Neutral			
WCAs	WCA 1: Site 1-7 & Site 1-8T Average	Above Line 1 (16.61 ft)	L
	WCA 2A: Site 2-17 HW	Above Line 1 (12.52 ft)	L
	WCA-3A: 3 Station Average (Site 63, 64 and 65)	Above Line 1 (9.79 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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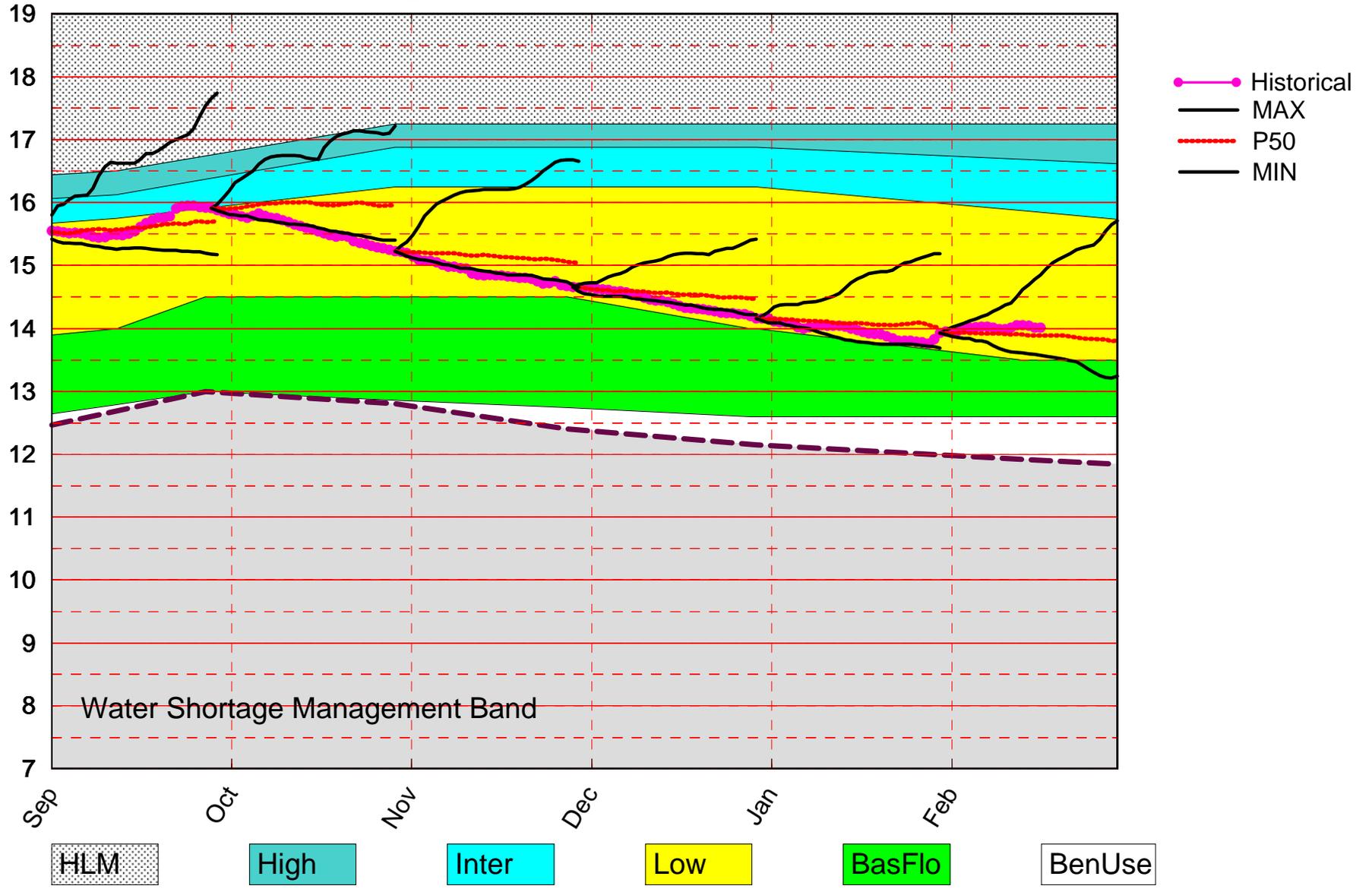
Lake Okeechobee SFWMM February 2014 Position Analysis



(See assumptions on the Position Analysis Results website)

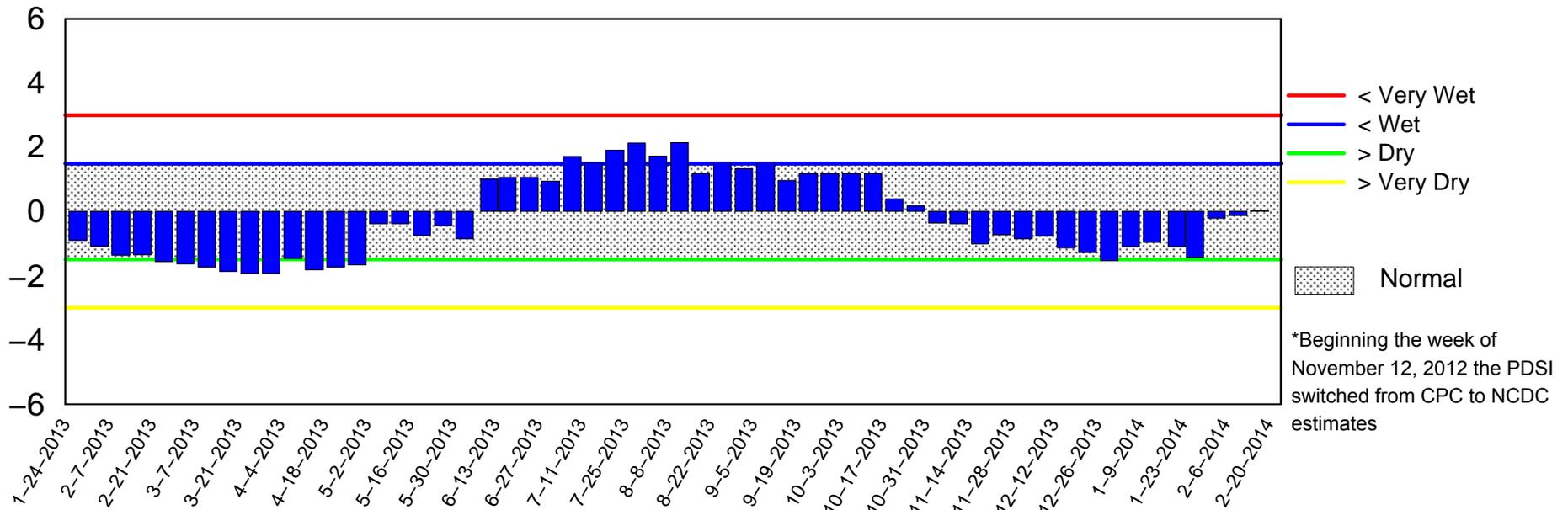
Lake Okeechobee Position Analysis Comparisons Sep 2013 – Feb 2014

Initialization Stages (15.55; 15.91; 15.23; 14.66; 14.16; 13.93 feet)

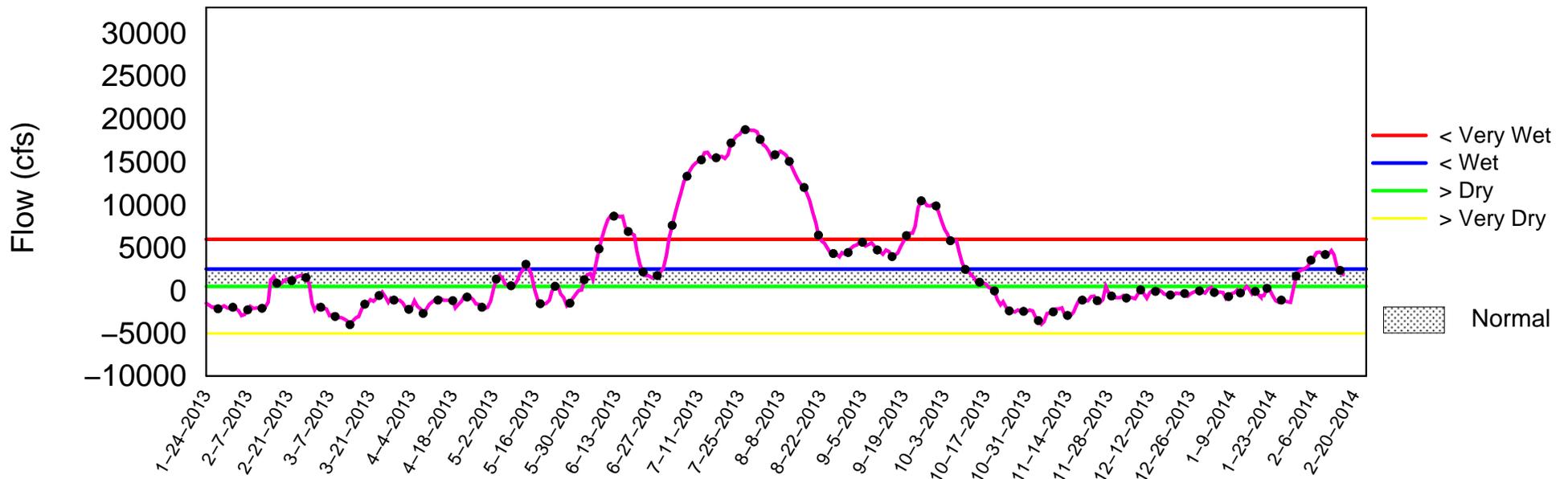


Tributary Basin Condition Indicators as of February 17 2014

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

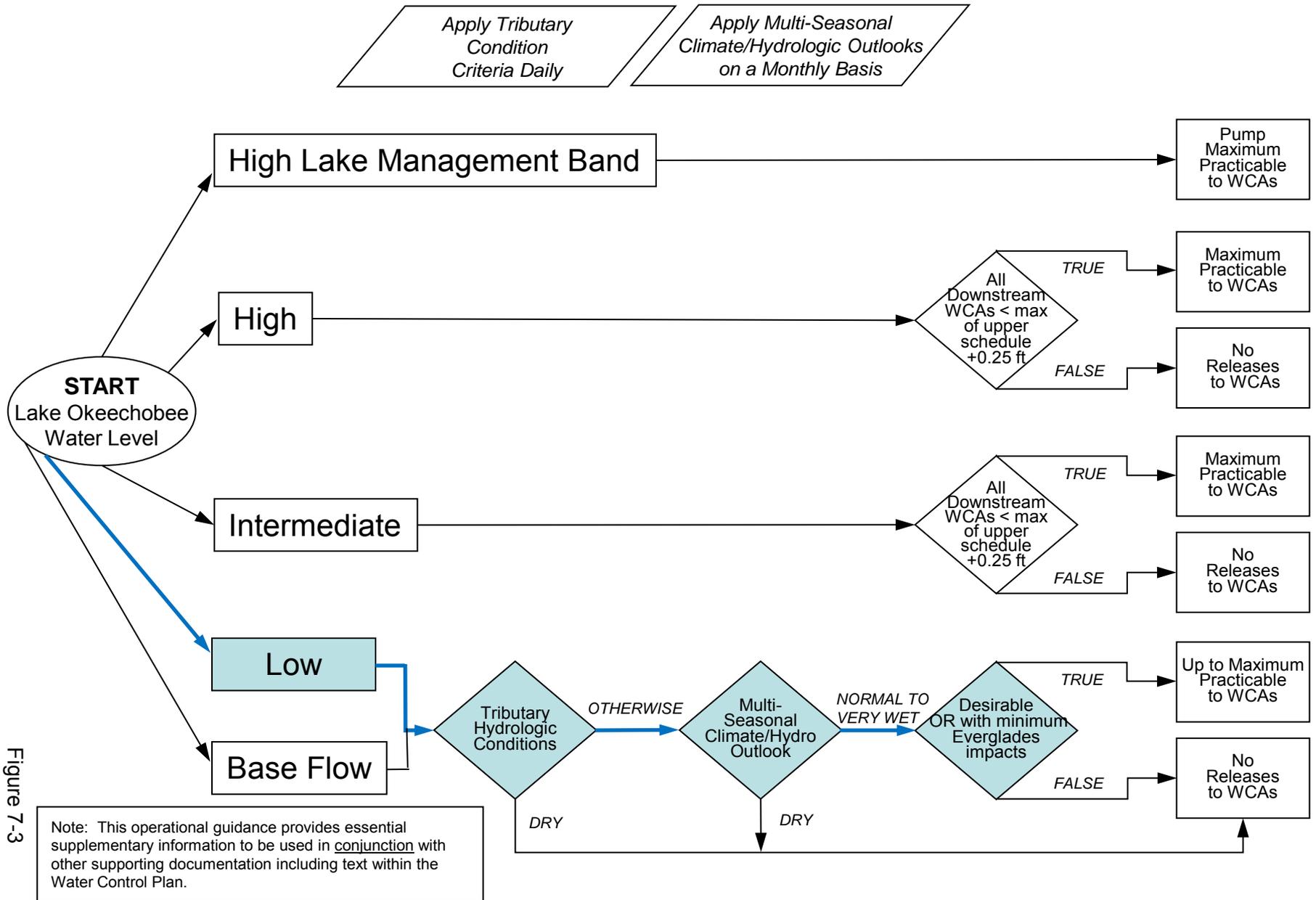


Figure 7-3

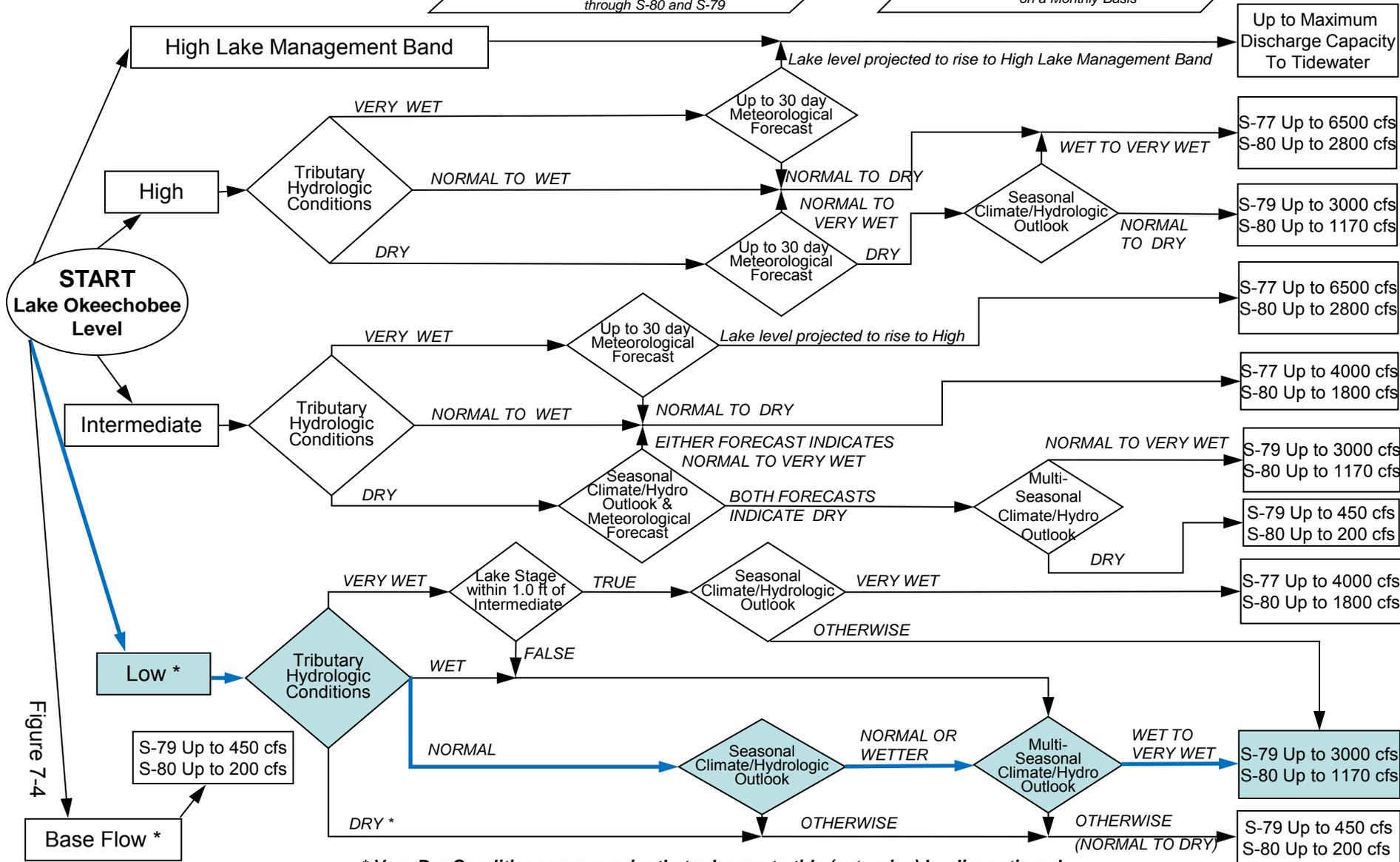
2008 LORS

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

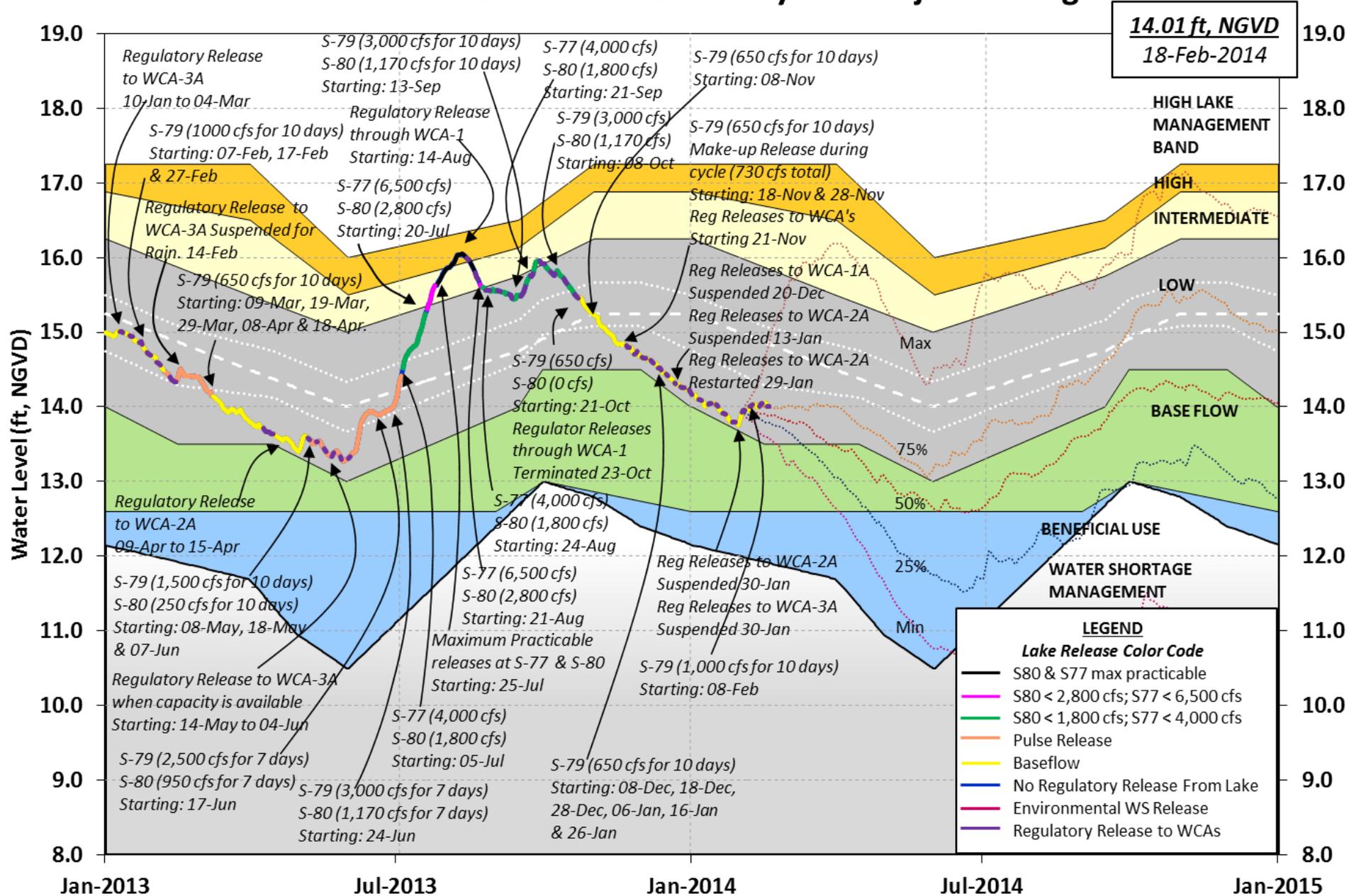
Apply Meteorological Forecasts on a Weekly Basis; apply Seasonal and Multi-Seasonal Climate/Hydrologic Outlooks on a Monthly Basis



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

Figure 7-4

Lake Okeechobee Water Level History and Projected Stages



S131 Culverts L8 Canal Pt 178 S308Below -173 (NOT USED)

Total Outflows: No Report Due To Missing S77 or S308 Discharge Data

****S77 Structure outflow is being used to compute Total Outflow.
 ****S308 Structure outflow is being used to compute Total Outflow.

Okeechobee Pan Evaporation (inches):

S77 0.11 S308 -NR-
 Average Pan Evap x 0.75 Pan Coefficient = -NR-" = -NR-'

Lake Average Precipitation using NEXRAD: = 0.00" = 0.00'

Evaporation - Precipitation: = -NR-" = -NR-'

Evaporation - Precipitation using Lake Area of 730 square miles
 is equal to -NR-

Lake Okeechobee (Change in Storage) Flow is -6353 cfs or -12600 AC-FT

Note: Headwater, tailwater, and stage values below are instantaneous values unless otherwise specified.

---	Headwater Tailwater		Disch	----- Gate Positions -----						
	Elevation	Elevation		#1	#2	#3	#4	#5	#6	#7
#8	(ft-msl)	(ft-msl)	(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
	(I) see note at bottom									
North East Shore										
S133 Pumps:	13.74	14.06	0	0	0	0	0	0	0	(cfs)
S193:										
S191:	19.47	14.03	0	0.0	0.0	0.0				
S135 Pumps:	14.06	13.91	0	0	0	0	0			(cfs)
S135 Culverts:			0	0.0	0.0					
North West Shore										
S65E:	20.99	14.07	1501	0.5	0.5	-0.1	0.0	0.5	0.6	
S127 Pumps:	13.89	14.00	0	0	0	0	0	0	0	(cfs)
S127 Culvert:			0	0.0						
S129 Pumps:	13.16	13.97	0	0	0	0				(cfs)
S129 Culvert:			0	0.1						
S131 Pumps:	13.30	14.06	0	0	0					(cfs)
S131 Culvert:										
Fisheating Creek										
nr Palmdale		29.94	54							
nr Lakeport		14.04								
C5:	14.33	14.04	0	0.0	0.0	0.0				

South Shore

S4 Pumps:	12.02	14.10	0	0	0	0					(cfs)
S169:	14.07	12.05	0	0.0	0.0	0.0					
S310:	13.98		7								
S3 Pumps:	11.10	14.09	0	0	0	0					(cfs)
S354:	14.09	11.10	0	0.0	0.0						
S2 Pumps:	10.65	14.04	0	0	0	0	0				(cfs)
S351:	14.04	10.65	0	0.0	0.0	0.0					
S352:	14.15	10.29	0	0.0	0.0						
C10A:	-NR-	14.19		10.0	10.0	8.0	10.0	10.0			
L8 Canal PT		14.07	178								

S351 and S352 Temporary Pumps/S354 Spillway

S351:	10.65	14.04	0	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-	
S352:	10.29	14.15	0	-NR-	-NR-	-NR-	-NR-			
S354:	11.10	14.09	0	-NR-	-NR-	-NR-	-NR-			

Caloosahatchee River (S77, S78, S79)

S47B:	13.03	11.35		1.5	0.0					
S47D:	11.24	11.23	24	5.0						
S77:										
Spillway and Sector Flow:										
14.10	11.26	0	0.0	0.0	0.0	0.0				
Flow Due to Lockages+:		5								
S77 Below USGS Flow Gage			-169							
S78:										
Spillway and Sector Flow:										
11.09	3.11	150	0.0	0.5	0.0	0.0				
Flow Due to Lockages+:		14								
S79:										
Spillway and Sector Flow:										
3.22	0.37	509	0.0	0.0	0.0	0.5	0.5	0.0	0.0	
0.0										
Flow Due to Lockages+:		11								
Percent of flow from S77		0%								
Chloride (ppm)		62								

St. Lucie Canal (S308, S80)

S308:										
Spillway and Sector Flow:										
13.95	14.27	0	0.0	0.0	0.0	0.0				
Flow Due to Lockages+:		-NR-								
S308 Below USGS Flow Gage			-173							
S153:	18.85	14.15	36	0.5	0.5					
S80:										
Spillway and Sector Flow:										
14.36	1.42	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Flow Due to Lockages+:		28								
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	0.74			
S193:	-NR-	0.00	0.00	-NR-	-NR-	
Okeechobee Field Station:	-NR-	0.00	0.00			
S135 Pump Station:	-NR-	0.00	0.89			
S127 Pump Station:	-NR-	0.00	0.70			
S129 Pump Station:	-NR-	0.00	0.68			
S131 Pump Station:	-NR-	0.00	0.63			
S77:	0.00	0.00	0.79	326	1	
S78:	0.00	0.01	538.37	321	1	
S79:	0.00	0.00	0.84	270	0	
S4 Pump Station:	-NR-	0.00	0.00			
Clewiston Field Station:	-NR-	0.00	0.44			
S3 Pump Station:	-NR-	0.00	0.56			
S2 Pump Station:	-NR-	0.00	0.80			
S308:	0.00	0.00	0.48	55	0	
S80:	-NR-	0.00	0.00	90	0	
Okeechobee Average	0.00	0.00	0.52			
(Sites S78, S79 and S80 not included)						

Oke Nexrad Basin Avg	0.00	0.00	0.53			

Okeechobee Lake Elevations	16 FEB 2014	14.01	Difference from
16FEB14			
16FEB14 -1 Day =	15 FEB 2014	14.04	0.03
16FEB14 -2 Days =	14 FEB 2014	14.05	0.04
16FEB14 -3 Days =	13 FEB 2014	14.05	0.04
16FEB14 -4 Days =	12 FEB 2014	14.01	0.00
16FEB14 -5 Days =	11 FEB 2014	13.99	-0.02
16FEB14 -6 Days =	10 FEB 2014	13.99	-0.02
16FEB14 -7 Days =	09 FEB 2014	14.01	0.00
16FEB14 -30 Days =	17 JAN 2014	13.97	-0.04
16FEB14 -1 Year =	16 FEB 2013	14.51	0.50
16FEB14 -2 Year =	16 FEB 2012	13.13	-0.88

Long Term Mean 30day Avearge ET for Lake Alfred (Inches) = 2.39

Lake Okeechobee Net Inflow (LONIN)

Average Flow over the previous 14 days				Avg-Daily Flow
16FEB14	Today =	16 FEB 2014	1045 MON	-6174
16FEB14	-1 Day =	15 FEB 2014	1674 SUN	-1842
16FEB14	-2 Days =	14 FEB 2014	2282 SAT	-NR-
16FEB14	-3 Days =	13 FEB 2014	4004 FRI	-NR-
16FEB14	-4 Days =	12 FEB 2014	4959 THU	-NR-
16FEB14	-5 Days =	11 FEB 2014	4515 WED	-NR-
16FEB14	-6 Days =	10 FEB 2014	4515 TUE	-1398
16FEB14	-7 Days =	09 FEB 2014	5008 MON	-467
16FEB14	-8 Days =	08 FEB 2014	5174 SUN	2303
16FEB14	-9 Days =	07 FEB 2014	5435 SAT	2691
16FEB14	-10 Days =	06 FEB 2014	4695 FRI	2140
16FEB14	-11 Days =	05 FEB 2014	4245 THU	6483
16FEB14	-12 Days =	04 FEB 2014	3384 WED	4413
16FEB14	-13 Days =	03 FEB 2014	3043 TUE	2298

S65E

Average Flow over previous 14 days				Avg-Daily Flow
16FEB14	Today=	16 FEB 2014	1144 MON	1501
16FEB14	-1 Day =	15 FEB 2014	1049 SUN	1377
16FEB14	-2 Days =	14 FEB 2014	957 SAT	-NR-
16FEB14	-3 Days =	13 FEB 2014	944 FRI	-NR-
16FEB14	-4 Days =	12 FEB 2014	899 THU	-NR-
16FEB14	-5 Days =	11 FEB 2014	864 WED	1364
16FEB14	-6 Days =	10 FEB 2014	787 TUE	1367
16FEB14	-7 Days =	09 FEB 2014	708 MON	1377
16FEB14	-8 Days =	08 FEB 2014	631 SUN	1302
16FEB14	-9 Days =	07 FEB 2014	562 SAT	1082
16FEB14	-10 Days =	06 FEB 2014	510 FRI	1210
16FEB14	-11 Days =	05 FEB 2014	446 THU	1193
16FEB14	-12 Days =	04 FEB 2014	382 WED	209
16FEB14	-13 Days =	03 FEB 2014	393 TUE	603

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)
16 FEB 2014	0	10	-336	176	326	1032
15 FEB 2014	20	78	-218	177	429	1497
14 FEB 2014	230	-NA-	234	478	835	1615
13 FEB 2014	448	-NA-	548	560	1128	2902
12 FEB 2014	665	1132	1111	924	1579	2298
11 FEB 2014	710	1300	1288	936	1776	2862
10 FEB 2014	1213	2078	1743	1595	2772	3871
09 FEB 2014	1681	2863	2581	1854	2979	4557
08 FEB 2014	380	781	521	1160	1847	3413
07 FEB 2014	0	4	108	819	1725	3192

06 FEB 2014	0	7	339	564	1082	2034
05 FEB 2014	0	7	-170	152	346	1109
04 FEB 2014	0	7	-260	70	242	980
03 FEB 2014	0	-NR-	-97	134	504	1539

	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)
16 FEB 2014	15	0	0	0	354
15 FEB 2014	-1	0	0	0	477
14 FEB 2014	-71	-NR-	-NR-	-NR-	433
13 FEB 2014	-123	-NR-	-NR-	-NR-	370
12 FEB 2014	5	-NR-	-NR-	-NR-	304
11 FEB 2014	2	1023	0	-NR-	377
10 FEB 2014	-4	2177	0	1019	358
09 FEB 2014	2	2302	0	1900	414
08 FEB 2014	-80	1430	0	1931	436
07 FEB 2014	-170	809	0	0	328
06 FEB 2014	-136	0	0	0	44
05 FEB 2014	-101	0	0	0	258
04 FEB 2014	-16	0	0	0	352
03 FEB 2014	-32	0	0	0	359

	S-308	Below S-308	S-80
	Discharge	Discharge	Discharge
	(ALL DAY)	(ALL-DAY)	(ALL-DAY)
DATE	(AC-FT)	(AC-FT)	(AC-FT)
16 FEB 2014	-NR-	-344	55
15 FEB 2014	-0	-308	50
14 FEB 2014	-1	-459	306
13 FEB 2014	-0	-203	-NR-
12 FEB 2014	0	-202	49
11 FEB 2014	1	-75	44
10 FEB 2014	1	68	51
09 FEB 2014	1	97	55
08 FEB 2014	1	11	70
07 FEB 2014	-0	-93	30
06 FEB 2014	-0	-135	51
05 FEB 2014	0	-154	55
04 FEB 2014	-0	-19	39
03 FEB 2014	-0	-301	249

*** 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

* 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/>

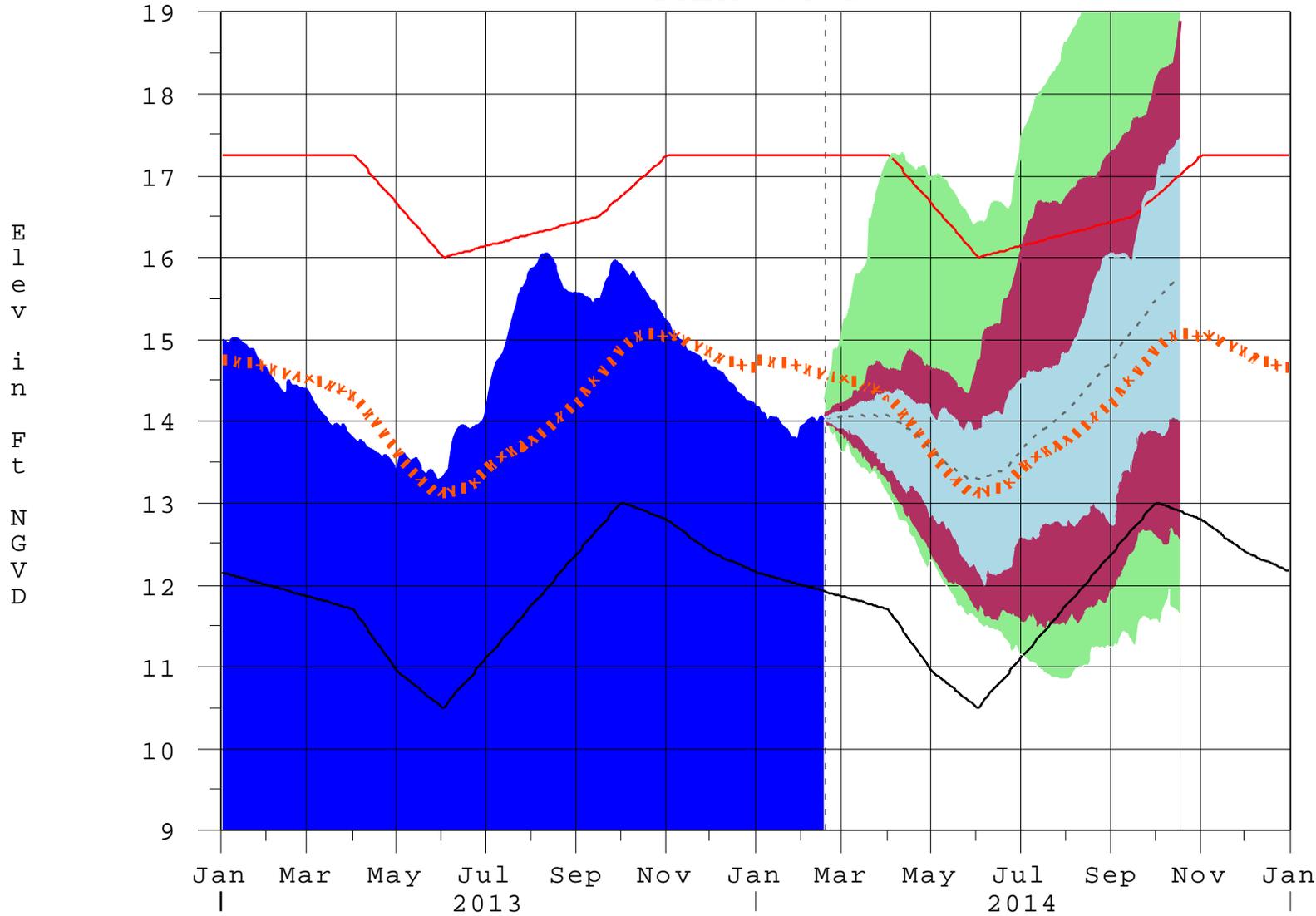
\$ For information regarding Lake Okeechobee Service Area water restrictions

please refer to www.sfwmd.gov

—
Report Generated 17FEB2014 @ 09:15 ** Preliminary Data - Subject to Revision
**

Lake Okeechobee

17FEB14 09:17:43



- | | | | |
|---|--|---|---------------------------------|
|  | High Lake Management |  | 80% Outlook Band (No S77/S308 R |
|  | Okeechobee Avg Elev |  | 50% Outlook Band (No S77/S308 R |
|  | Average Elev [1965-2007] |  | (No Releases at S77 and S308) |
|  | Water Shortage Management |  | (Outlook POR 1965-2007) |
|  | Avg Outlook Line (No S77/S308 Releases) | | |
|  | Full Outlook Band (No S77/S308 Releases) | | |

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