

Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 12/19/2016 (ENSO La Nina 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 La Nina 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 La Nina ENSO Years ³		Sub-sampling of AMO Warm + La Nina ENSO Years ⁴	
	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition
Current (Dec-May)	N/A	N/A	-0.12	Dry	-0.25	Dry	-0.43	Dry
Multi Seasonal (Dec-Oct)	N/A	N/A	2.43	Normal	2.77	Wet	2.07	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:](#)

197 cfs 14-day running average for Lake Okeechobee Net Inflow through 12/18/2016. According to the classification in [Tributary Hydrologic Conditions](#) table, this condition is Dry.

-1.20 for Palmer Index on 12/17/2016.

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 12/19/2016

Lake Okeechobee Stage: **14.53 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	14.21	← 14.53
Base Flow sub-band		12.66	
Beneficial Use sub-band		12.26	
Water Shortage Management Band			

[Part C of LORS2008: Discharge to WCA's](#)

Release Guidance Flow Chart Outcome: Up to maximum practicable releases to the WCAs if desirable or with minimum everglades impacts; otherwise no releases.

[Part D of LORS2008: Discharge to Tidewater](#)

Release Guidance Flow Chart Outcome: S-79 up to 450 cfs and S-80 up to 200 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 12/19/2016 (ENSO La Nina Condition):

Status for week ending 12/19/2016:

District wide, Raindar rainfall was 0.00 inches for the week. Lake stage on 12/20/2016 was 14.54 ft, down 0.07 ft from last week.

The updated December 2016 SFWMM Dynamic Position Analysis [percentile graph](#) for Lake Okeechobee show that the current 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 Dry. The classification is based on the wetter of the two.

Water Supply Risk Evaluation

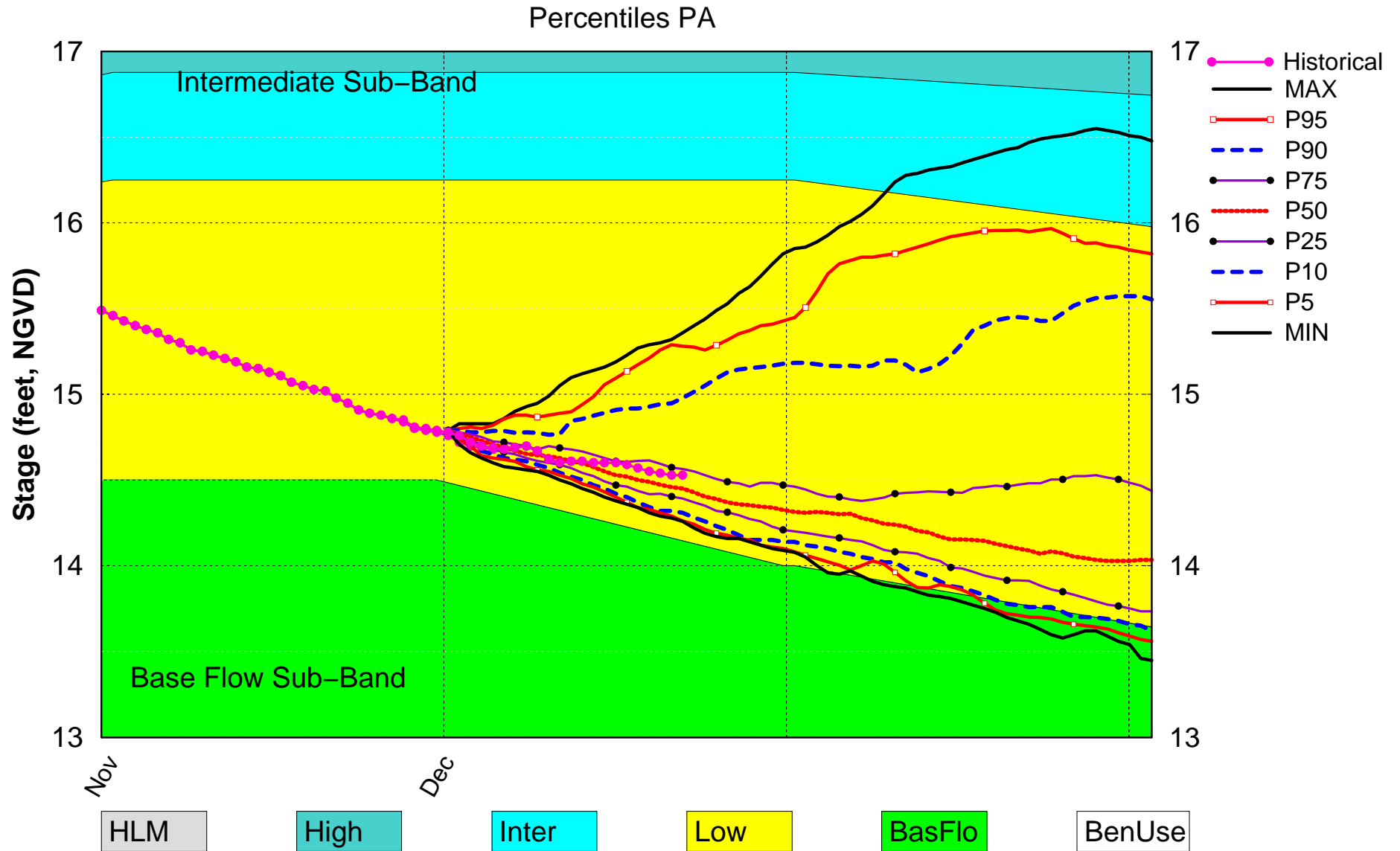
Area	Indicator	Value	Color Coded Scoring Scheme
LOK	Projected LOK Stage for the next two months	Low Sub-Band	L
	Palmer Index for LOK Tributary Conditions	-1.20 (Dry)	M
	CPC Precipitation Outlook	1 month: Below Normal	M
		3 months: Below Normal	M
	LOK Seasonal Net Inflow Outlook ENSO La Nina Years	-0.25 ft (Extremely Dry)	H
	LOK Multi-Seasonal Net Inflow Outlook ENSO La Nina Years	2.77 ft (Normal)	M
	ENSO La Nina Years		
WCAs	WCA 1: Site 1-7, Site 1-8T, & Site 1-9 Average	Above Line 1 (N/A ft)	L
	WCA 2A: Site 2-17 HW	Above Line1 (N/A ft)	L
	WCA-3A: 3 Station Average (Site 63, 64 and 65)	Above Line 1 (N/A 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 outlooks use slightly different classification intervals than those used by the 2008-LORS.

[Back to Lake Okeechobee Operations Main Page](#)

[Back to U.S. Army Corps of Engineers LORSS Homepage](#)

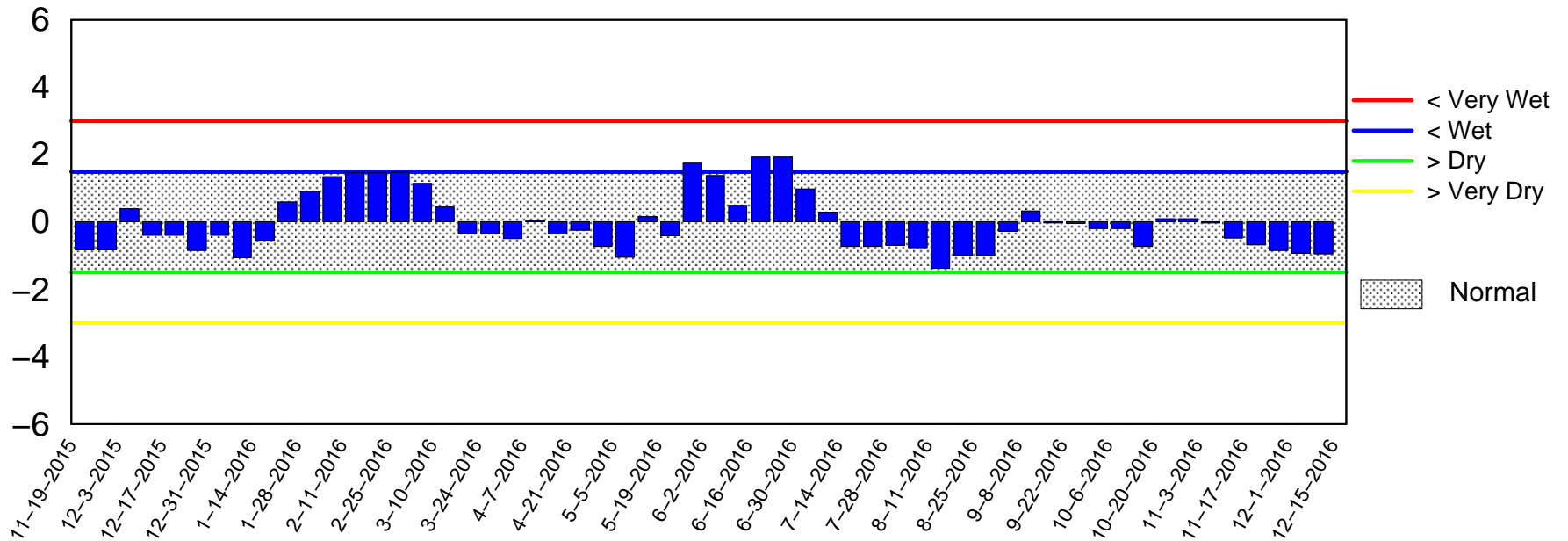
Lake Okeechobee SFWMM Dec 2016 Dynamic Position Analysis



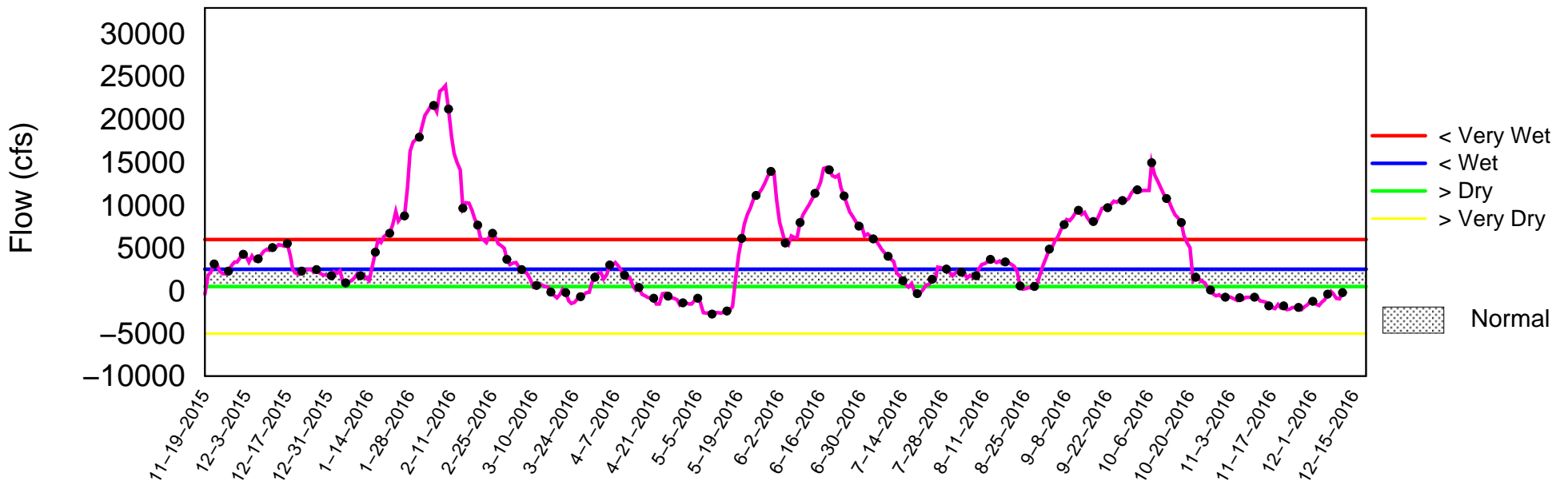
(See assumptions on the Position Analysis Results website)

Tributary Basin Condition Indicators as of December 12 2016

Palmer Index



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



Mon Dec 12 15:35:46 EST 2016

2008 LORS

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

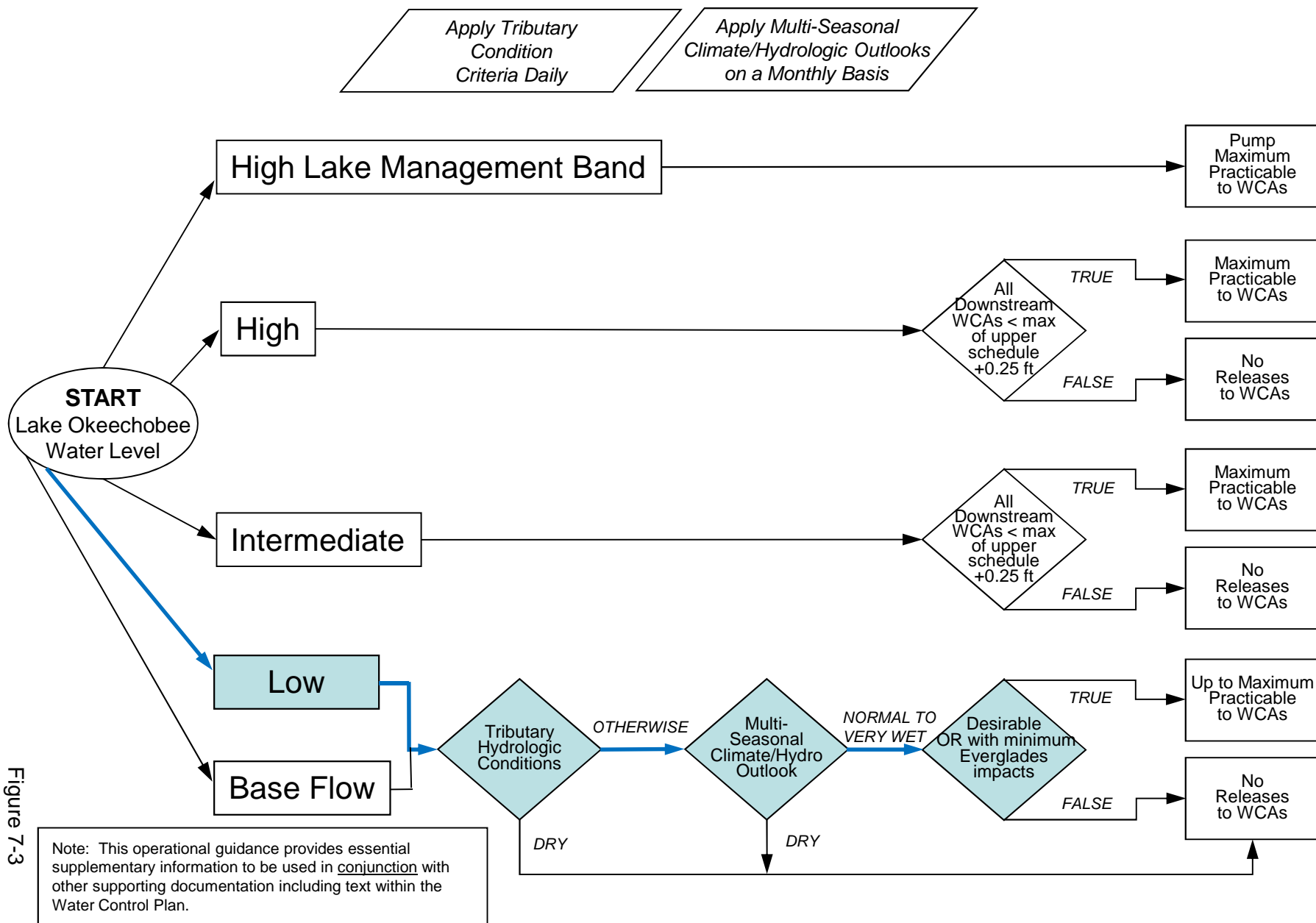


Figure 7-3

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

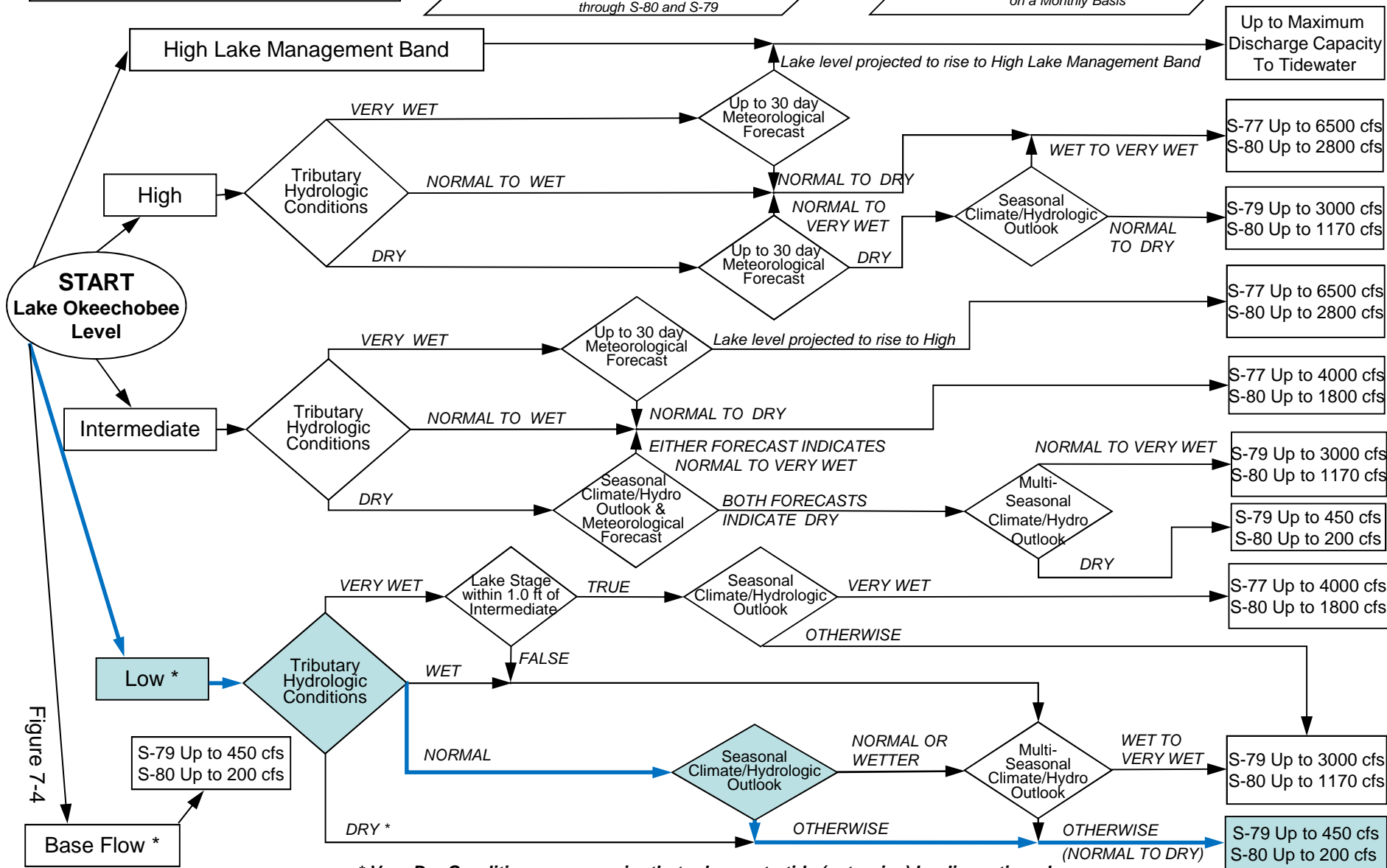
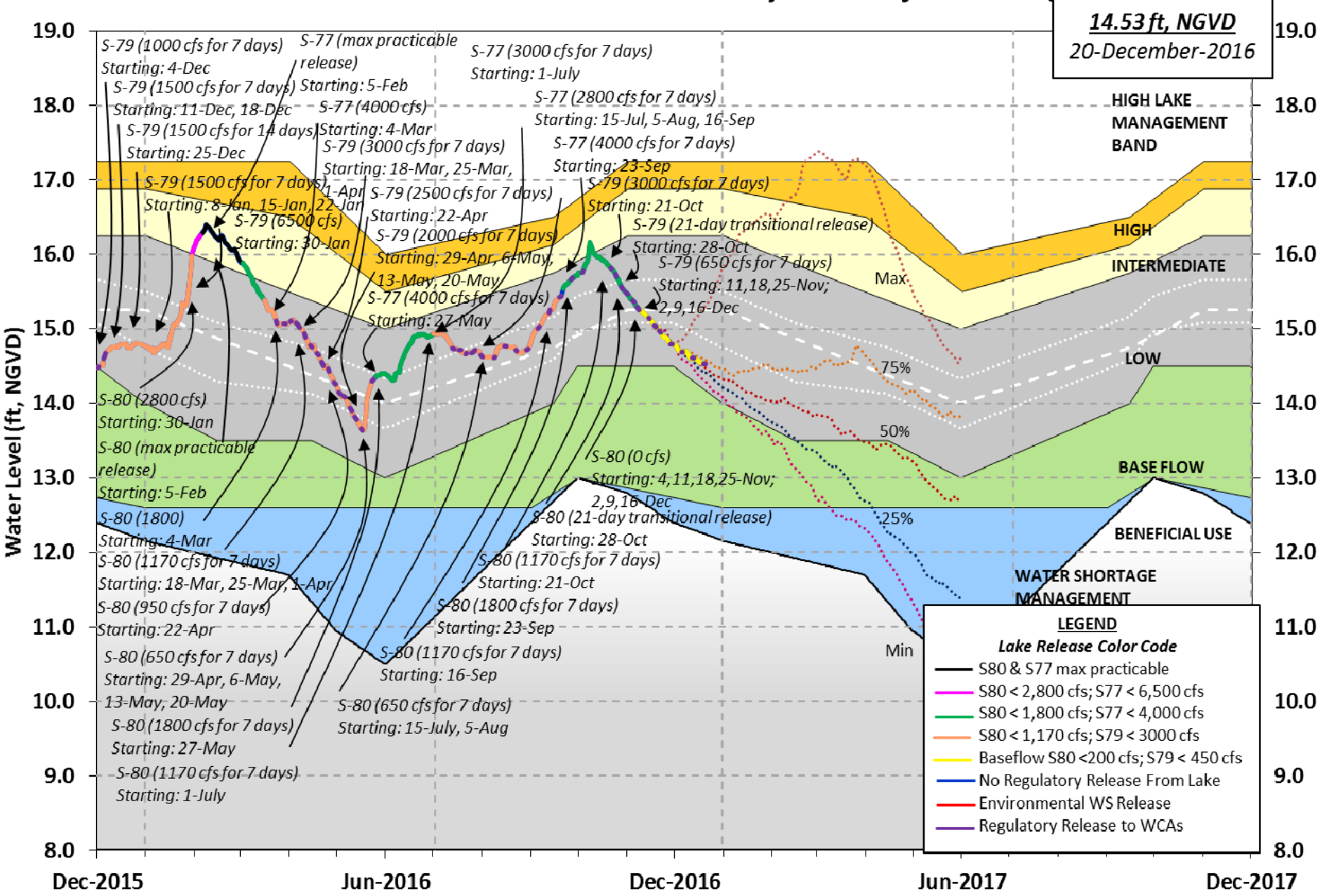


Figure 7-4

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

Lake Okeechobee Water Level History and Projected Stages

14.53 ft, NGVD
20-December-2016



LEGEND

Lake Release Color Code

- S80 & S77 max practicable
- S80 < 2,800 cfs; S77 < 6,500 cfs
- S80 < 1,800 cfs; S77 < 4,000 cfs
- S80 < 1,170 cfs; S79 < 3000 cfs
- Baseflow S80 < 200 cfs; S79 < 450 cfs
- No Regulatory Release From Lake
- Environmental WS Release
- Regulatory Release to WCAs

S310:	14.57		46						
S3 Pumps:	11.03	14.68	0	0	0	0			(cfs)
S354:	14.68	11.03	345	0.6	0.6				
S2 Pumps:	10.87	14.69	0	0	0	0	0		(cfs)
S351:	14.69	10.87	749	1.4	1.6	1.4			
S352:	14.78	10.84	38	0.2	0.2				
C10A:	-NR-	14.61		0.0	8.0	8.0	8.0	8.0	
L8 Canal PT		14.47	300						

S351 and S352 Temporary Pumps/S354 Spillway

S351:	10.87	14.69	749	-NR--NR--NR--NR--NR--NR-
S352:	10.84	14.78	38	-NR--NR--NR--NR-
S354:	11.03	14.68	345	-NR--NR--NR--NR-

Caloosahatchee River (S77, S78, S79)

S47B:	15.22	10.80		0.0	0.0
S47D:	10.90	10.89	10	6.0	

S77:

Spillway and Sector Flow:							
	14.59	11.02	894	0.0	0.0	3.5	0.0
Flow Due to Lockages+:			4				

S77 Below USGS Flow Gage 1063

S78:

Spillway and Sector Flow:							
	10.78	2.99	559	1.0	0.0	0.0	0.5
Flow Due to Lockages+:			14				

S79:

Spillway and Sector Flow:										
	2.98	1.76	780	0.0	0.0	0.0	1.0	1.0	0.5	0.0

0.0

Flow Due to Lockages+:	7
Percent of flow from S77	115%
Chloride (ppm)	55

St. Lucie Canal (S308, S80)

S308:

Spillway and Sector Flow:							
	14.57	14.37	0	0.0	0.0	0.0	0.0
Flow Due to Lockages+:			0				

S308 Below USGS Flow Gage 145

S153:	18.97	14.14	0	0.0	0.0
-------	-------	-------	---	-----	-----

S80:

Spillway and Sector Flow:									
	14.44	1.12	0	0.0	0.0	0.0	0.0	0.0	0.0

Flow Due to Lockages+:	19
------------------------	----

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	0.00		
S193:	-NR-	0.00	0.00	-NR-	-NR-
Okeechobee Field Station:	-NR-	0.00	0.00		
S135 Pump Station:	-NR-	0.00	0.00		
S127 Pump Station:	-NR-	0.00	0.00		
S129 Pump Station:	-NR-	0.00	0.00		
S131 Pump Station:	-NR-	0.00	0.00		
S77:	0.03	0.06	0.39	270	0
S78:	0.01	0.02	0.25	83	3
S79:	0.10	0.11	0.15	196	3
S4 Pump Station:	-NR-	0.00	0.00		
Clewiston Field Station:	-NR-	0.00	0.00		
S3 Pump Station:	-NR-	0.00	0.00		
S2 Pump Station:	-NR-	0.00	0.00		
S308:	0.00	0.05	0.20	270	0
S80:	0.00	0.06	0.42	164	8
Okeechobee Average	0.01	0.01	0.05		
(Sites S78, S79 and S80 not included)					

Oke Nexrad Basin Avg	0.11	0.17	0.60		

Okeechobee Lake Elevations	11 DEC 2016	14.61 Difference from
11DEC16		11DEC16
11DEC16 -1 Day =	10 DEC 2016	14.60 -0.01
11DEC16 -2 Days =	09 DEC 2016	14.62 0.01
11DEC16 -3 Days =	08 DEC 2016	14.67 0.06
11DEC16 -4 Days =	07 DEC 2016	14.70 0.09
11DEC16 -5 Days =	06 DEC 2016	14.69 0.08
11DEC16 -6 Days =	05 DEC 2016	14.68 0.07
11DEC16 -7 Days =	04 DEC 2016	14.69 0.08
11DEC16 -30 Days =	11 NOV 2016	15.19 0.58
11DEC16 -1 Year =	11 DEC 2015	14.76 0.15
11DEC16 -2 Year =	11 DEC 2014	15.45 0.84

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
11DEC16	Today =	11 DEC 2016	-333	MON	4711
11DEC16	-1 Day =	10 DEC 2016	-1160	SUN	-1778
11DEC16	-2 Days =	09 DEC 2016	-932	SAT	-8122
11DEC16	-3 Days =	08 DEC 2016	-350	FRI	-3742
11DEC16	-4 Days =	07 DEC 2016	56	THU	4497
11DEC16	-5 Days =	06 DEC 2016	-402	WED	4551
11DEC16	-6 Days =	05 DEC 2016	-1184	TUE	517
11DEC16	-7 Days =	04 DEC 2016	-1448	MON	188
11DEC16	-8 Days =	03 DEC 2016	-1924	SUN	-1669
11DEC16	-9 Days =	02 DEC 2016	-1706	SAT	-5393
11DEC16	-10 Days =	01 DEC 2016	-1347	FRI	-NR-
11DEC16	-11 Days =	30 NOV 2016	-1356	THU	-NR-
11DEC16	-12 Days =	29 NOV 2016	-1700	WED	1086
11DEC16	-13 Days =	28 NOV 2016	-1914	TUE	1158

S65E

Average Flow over previous 14 days					Avg-Daily Flow
11DEC16	Today=	11 DEC 2016	894	MON	914
11DEC16	-1 Day =	10 DEC 2016	893	SUN	925
11DEC16	-2 Days =	09 DEC 2016	893	SAT	907
11DEC16	-3 Days =	08 DEC 2016	894	FRI	902
11DEC16	-4 Days =	07 DEC 2016	895	THU	839
11DEC16	-5 Days =	06 DEC 2016	901	WED	867
11DEC16	-6 Days =	05 DEC 2016	906	TUE	872
11DEC16	-7 Days =	04 DEC 2016	910	MON	852
11DEC16	-8 Days =	03 DEC 2016	916	SUN	894
11DEC16	-9 Days =	02 DEC 2016	917	SAT	920
11DEC16	-10 Days =	01 DEC 2016	916	FRI	907
11DEC16	-11 Days =	30 NOV 2016	917	THU	903
11DEC16	-12 Days =	29 NOV 2016	919	WED	907
11DEC16	-13 Days =	28 NOV 2016	923	TUE	909

Lake Okeechobee Outlets Last 14 Days

DATE	S-77	Below S-77	S-78	S-79
	Discharge (ALL DAY) (AC-FT)	Discharge (ALL-DAY) (AC-FT)	Discharge (ALL DAY) (AC-FT)	Discharge (ALL DAY) (AC-FT)
11 DEC 2016	1782	2109	1137	1561
10 DEC 2016	1300	2028	1631	2332
09 DEC 2016	827	1159	1292	2119
08 DEC 2016	803	1131	603	634
07 DEC 2016	1009	1053	617	726
06 DEC 2016	1277	1241	713	1049
05 DEC 2016	1873	1753	1158	1742
04 DEC 2016	2338	2816	1650	1937
03 DEC 2016	2358	2768	1556	2078
02 DEC 2016	2043	2210	1003	1514
01 DEC 2016	-NR-	841	359	473
30 NOV 2016	1188	349	373	519
29 NOV 2016	1276	1066	569	849

DATE	S-310 Discharge (ALL DAY) (AC-FT)	S-351 Discharge (ALL DAY) (AC-FT)	S-352 Discharge (ALL DAY) (AC-FT)	S-354 Discharge (ALL DAY) (AC-FT)	L8 Canal Pt Discharge (ALL DAY) (AC-FT)
28 NOV 2016	1868	2075	1131	1418	
11 DEC 2016	92	1485	75	591	595
10 DEC 2016	98	1408	212	440	617
09 DEC 2016	59	1277	754	1015	632
08 DEC 2016	42	1473	722	1212	624
07 DEC 2016	61	1184	819	1136	527
06 DEC 2016	74	1477	932	950	13
05 DEC 2016	36	1406	752	1091	223
04 DEC 2016	83	706	59	462	341
03 DEC 2016	115	1031	403	494	357
02 DEC 2016	167	1600	821	1085	385
01 DEC 2016	-NR-	1989	1198	1190	-NR-
30 NOV 2016	124	2074	1348	1116	-NR-
29 NOV 2016	59	1927	1198	1091	384
28 NOV 2016	87	1571	890	1216	393

DATE	S-308 Discharge (ALL DAY) (AC-FT)	Below S-308 Discharge (ALL-DAY) (AC-FT)	S-80 Discharge (ALL-DAY) (AC-FT)
11 DEC 2016	0	288	37
10 DEC 2016	1	167	26
09 DEC 2016	2	53	26
08 DEC 2016	2	14	46
07 DEC 2016	3	-109	62
06 DEC 2016	3	212	43
05 DEC 2016	6	-99	49
04 DEC 2016	4	187	53
03 DEC 2016	3	35	54
02 DEC 2016	4	-49	43
01 DEC 2016	202	-245	51
30 NOV 2016	4	-87	50
29 NOV 2016	680	687	22
28 NOV 2016	6	452	67

*** NOTE: 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 Okeechobee elevation is determined from the 4 Int & 4 Edge stations

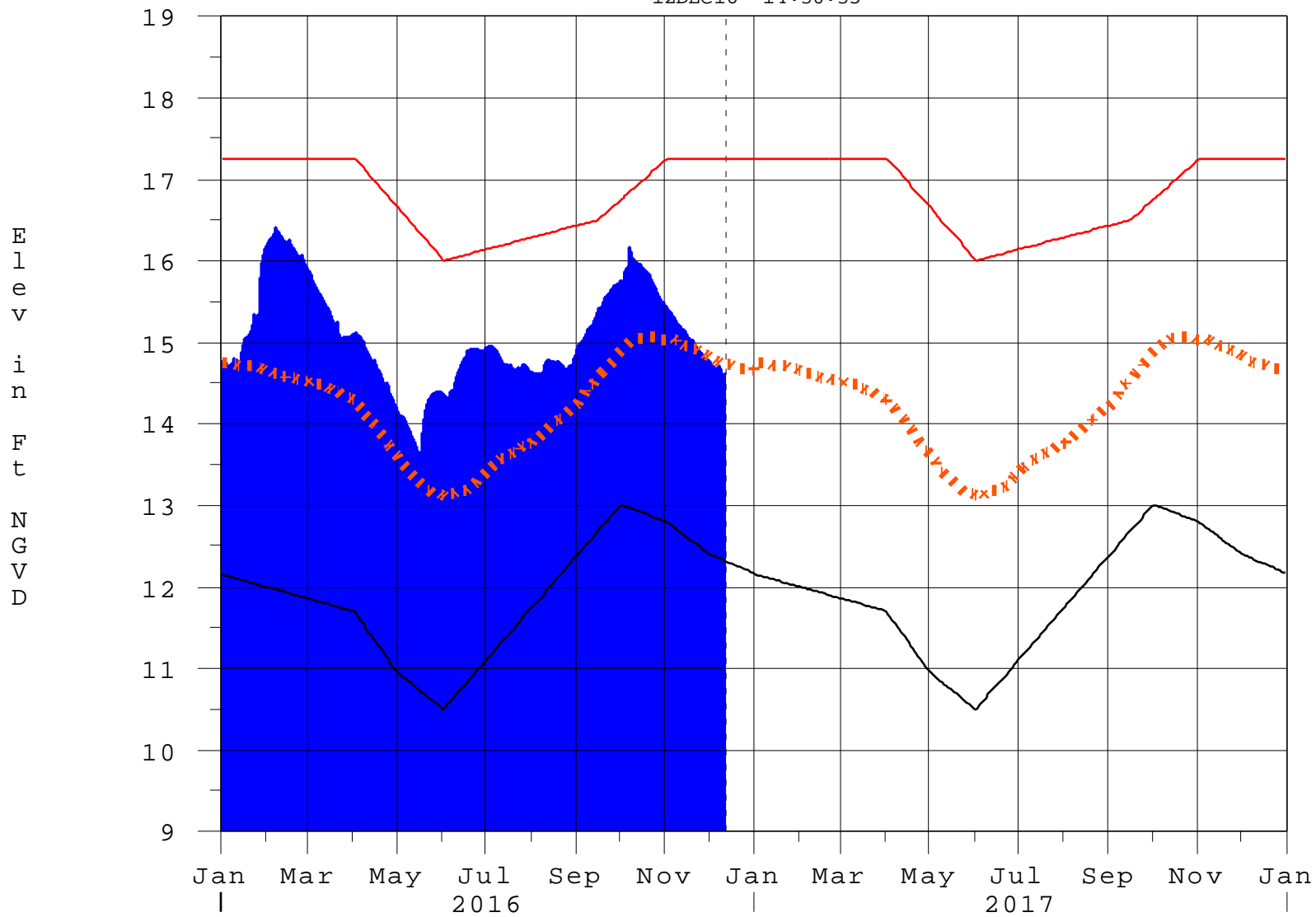
++ For more information see the Jacksonville District Navigation website at <http://www.saj.usace.army.mil/>

\$ For information regarding Lake Okeechobee Service Area water restrictions please refer to www.sfwmd.gov

—
Report Generated 12DEC2016 @ 14:15 ** Preliminary Data - Subject to Revision
**

Lake Okeechobee

12DEC16 14:30:35



- 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

[Back to Lake Okeechobee Operations Main Page](#)

[Back to U.S. Army Corps of Engineers Lake Okeechobee Operations Homepage](#)

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