

G-3273 Relaxation and S-356 Field Test Quarterly Meeting Increment 1 Operations

Water Management Section
Jacksonville District
U.S. Army Corps of Engineers
January 27, 2016



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Today and Tomorrow*

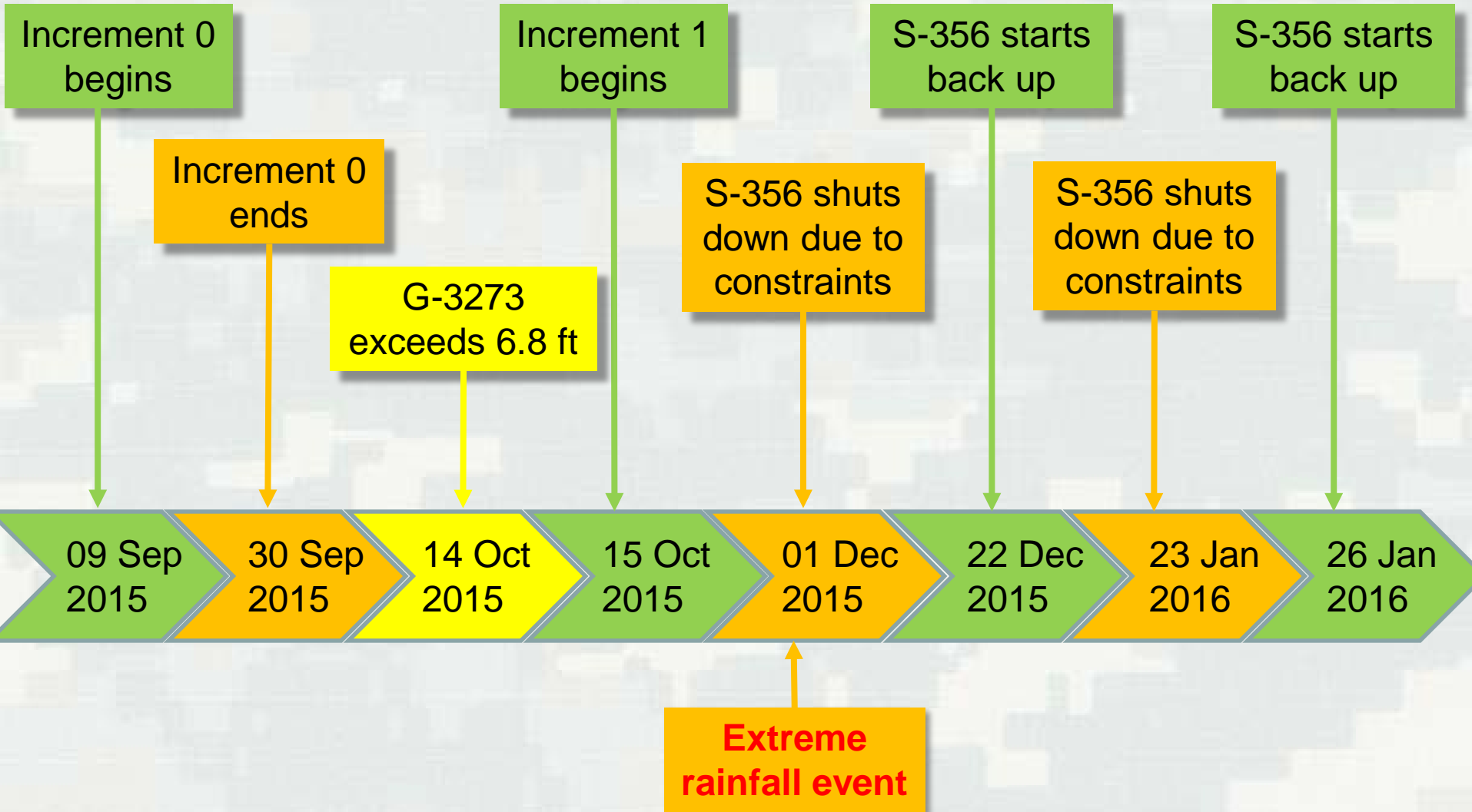




Field Test Timeline



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Increment 1



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- G-3273 exceeded 6.8 ft-NGVD on 14 October 2015
- Increment 1 began 15 October 2015
- S-356 was off due to constraints during:
 - 01 December 2015 through 21 December 2015
 - 23 January 2016 through 25 January 2016





S-356 Pumping Video



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U.S. ARMY

Extreme Rainfall Event Operations



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- S-333 and S-356 discharges were suspended while the L-29 canal was above its 7.5 ft-NGVD constraint.
- South Dade Conveyance System (SDCS) went to ERTP pre-storm drawdown operations.
- S-197 was opened.



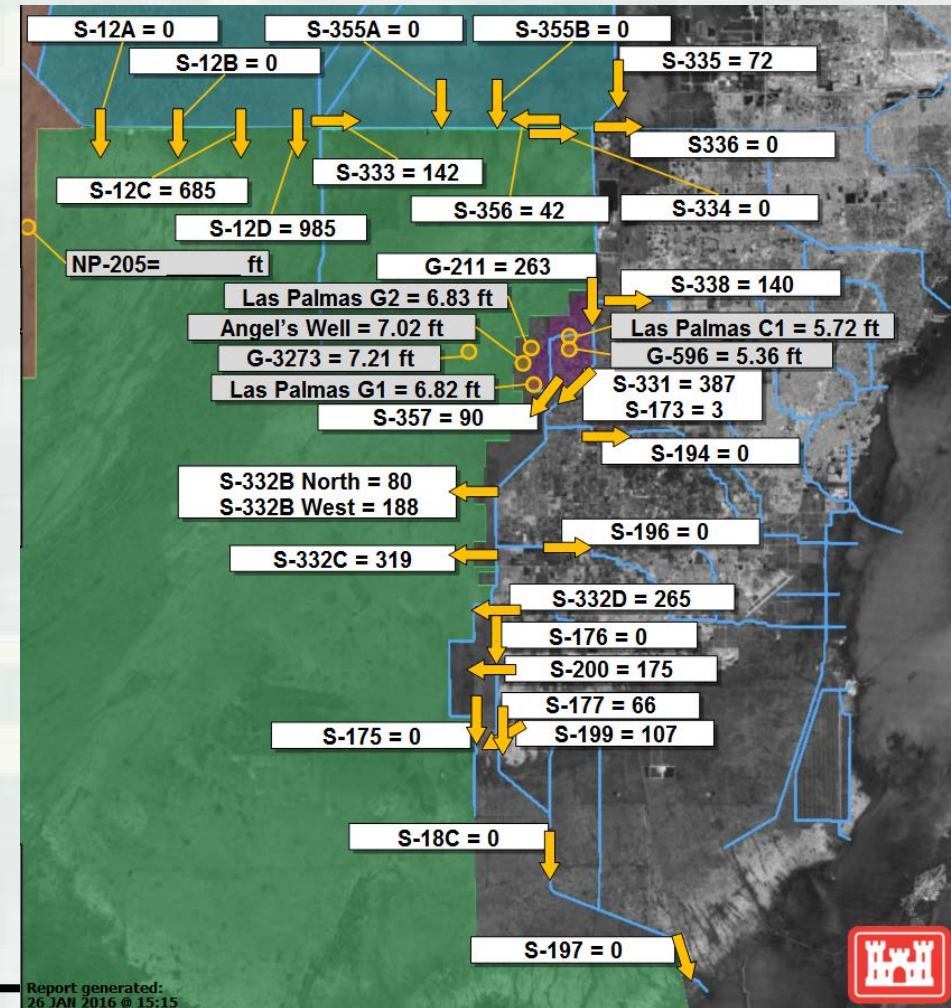
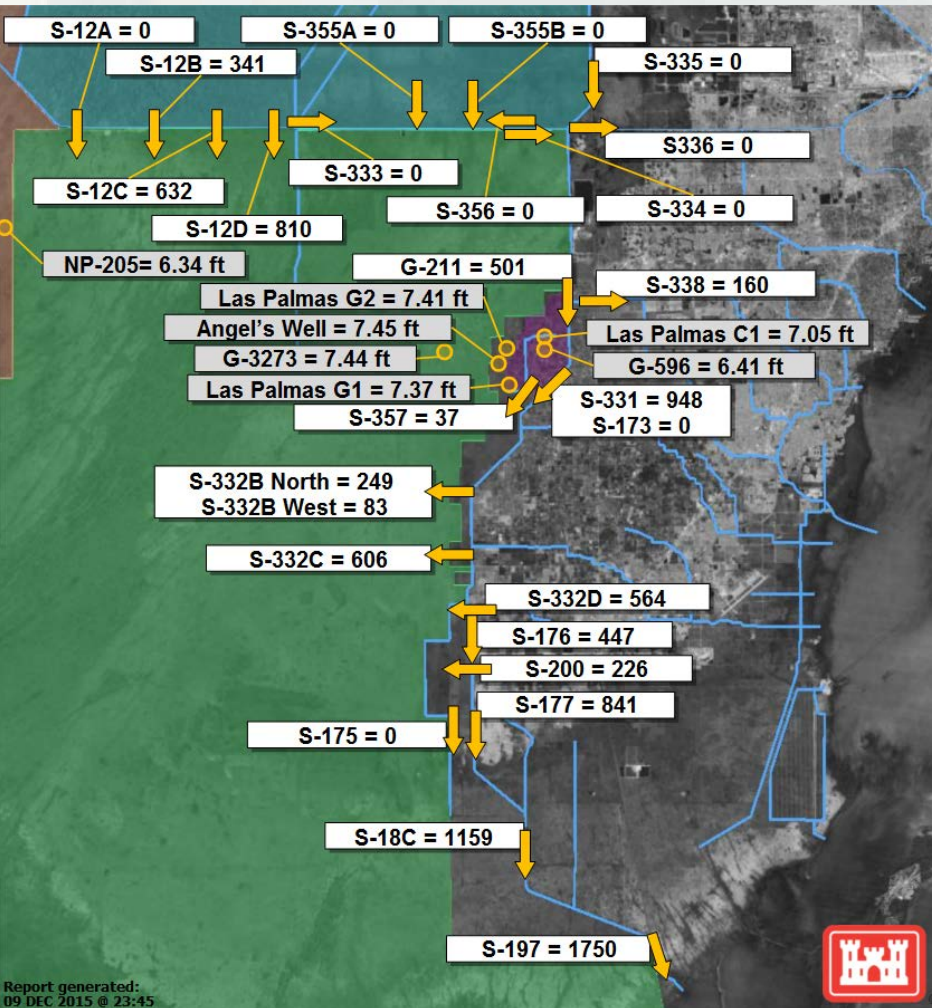
December Extreme Rainfall Event compared to 26 Jan 2016



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09 December 2015

26 January 2016



Report generated: 09 DEC 2015 @ 23:45

Report generated: 26 JAN 2016 @ 15:15

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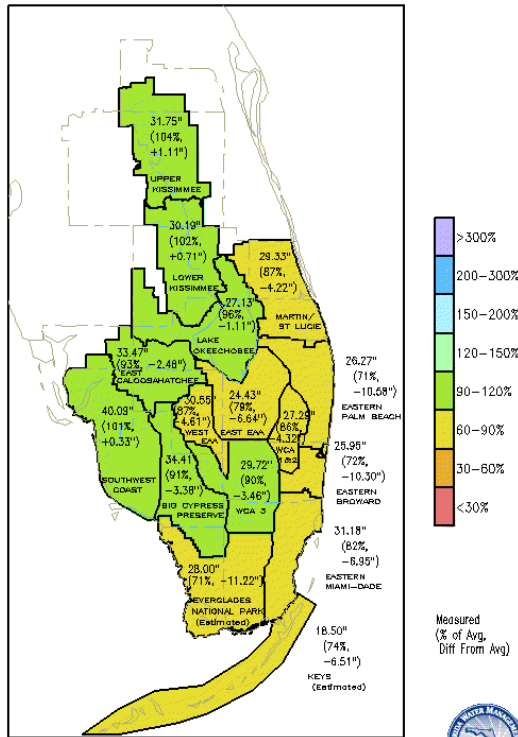
Seasonal Rainfall Maps



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Previous Wet Season

SFWM Rainfall
02-jun-2015 to 01-nov-2015



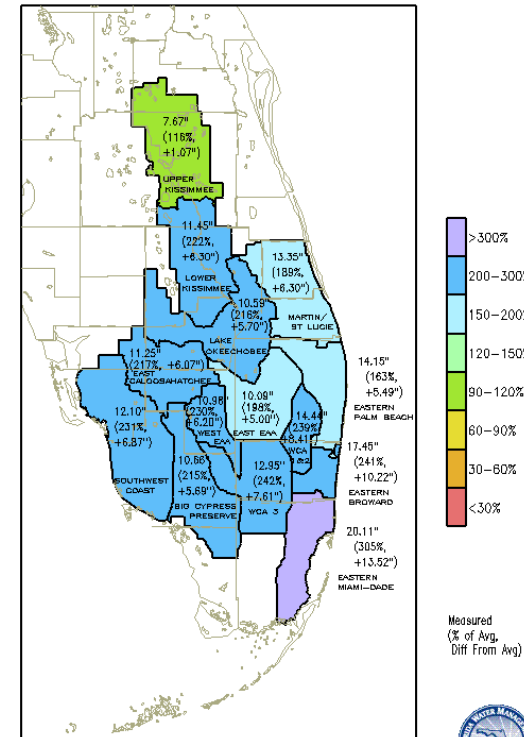
DISTRICT-WIDE: 30.99" (92%, -2.69")

GRADS: COLA/ICES

C-111: 82% (31.18")

Current Dry Season

SFWM Rainfall
02-NOV-2015 to 26-JAN-2016



DISTRICT-WIDE: 12.06" (211%, +6.35")

GRADS: COLA/ICES

C-111: 305% (20.11")



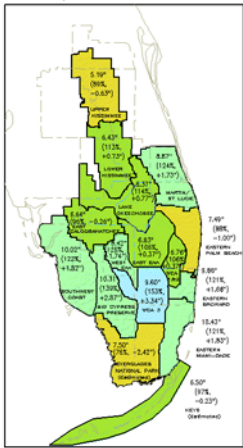
Monthly Rainfall Maps



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Sep 2015

SFWMD Rainfall
02-sep-2015 to 01-oct-2015

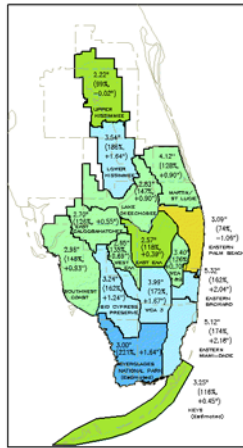


DISTRICT-WIDE: 8.01" (117%, +1.18")

C-111: 121%

Nov 2015

SFWMD Rainfall
02-nov-2015 to 01-dec-2015

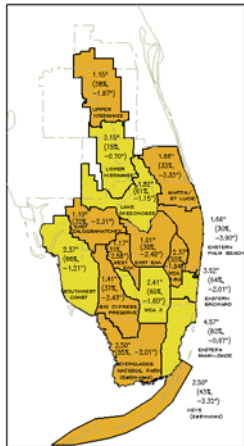


DISTRICT-WIDE: 3.29" (139%, +0.93")

C-111: 174%

Oct 2015

SFWMD Rainfall
02-oct-2015 to 01-nov-2015

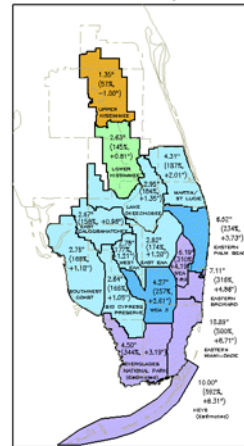


DISTRICT-WIDE: 1.94" (51%, -1.84")

C-111: 82%

Dec 2015

SFWMD Rainfall
02-dec-2015 to 01-jan-2016

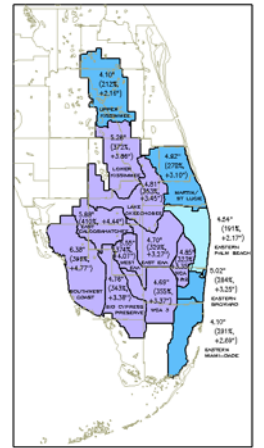


DISTRICT-WIDE: 3.75" (199%, +1.87")

C-111: 500%

Jan 2016

SFWMD Rainfall
02-JAN-2016 to 26-JAN-2016



DISTRICT-WIDE: 5.02" (323%, +3.46")

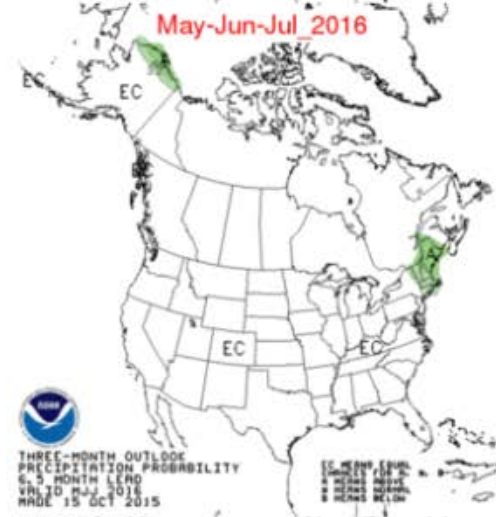
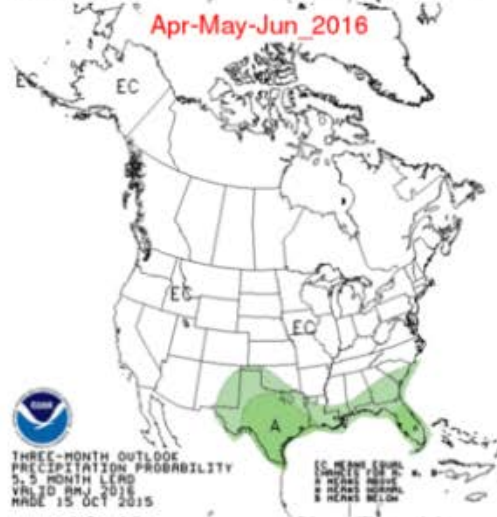
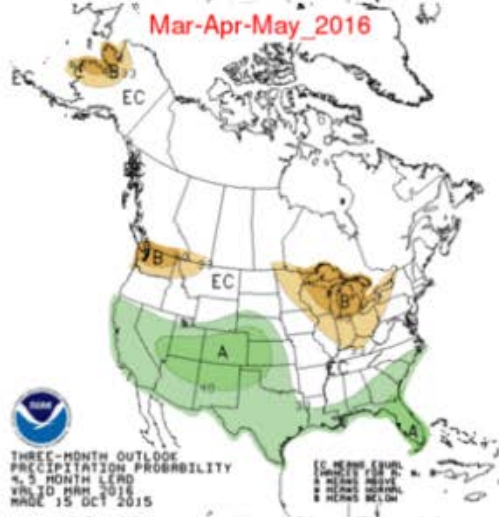
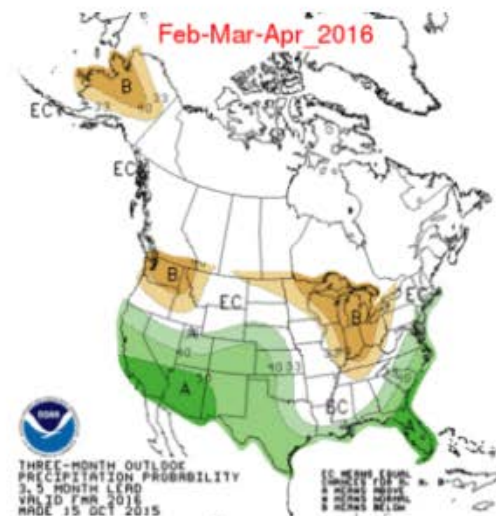
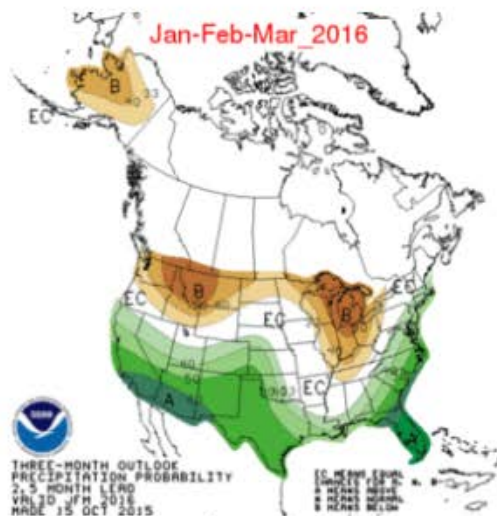
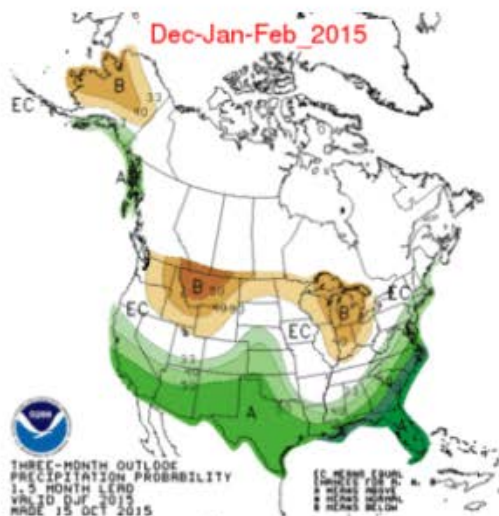
C-111: 291%



NOAA's Long Range Precipitation Probability Outlook from December



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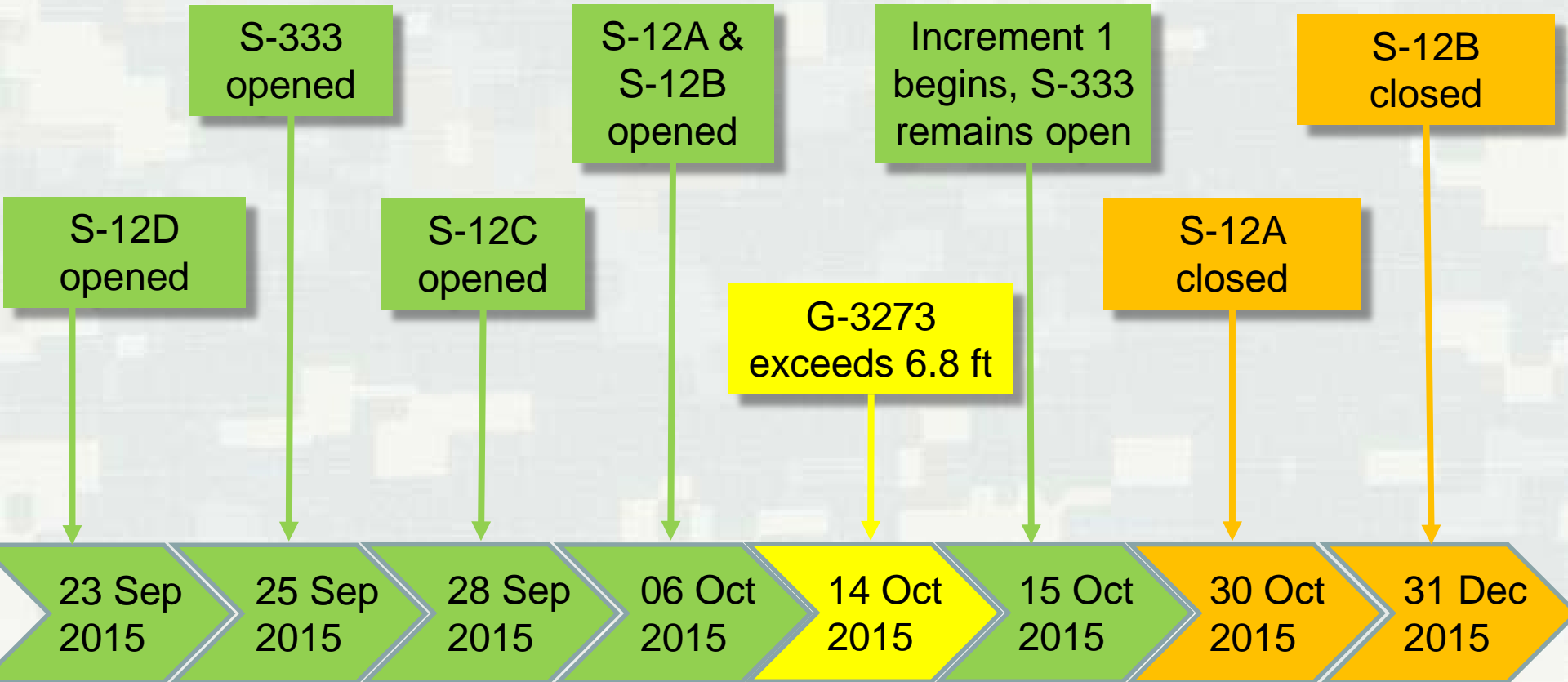
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WCA-3A Timeline



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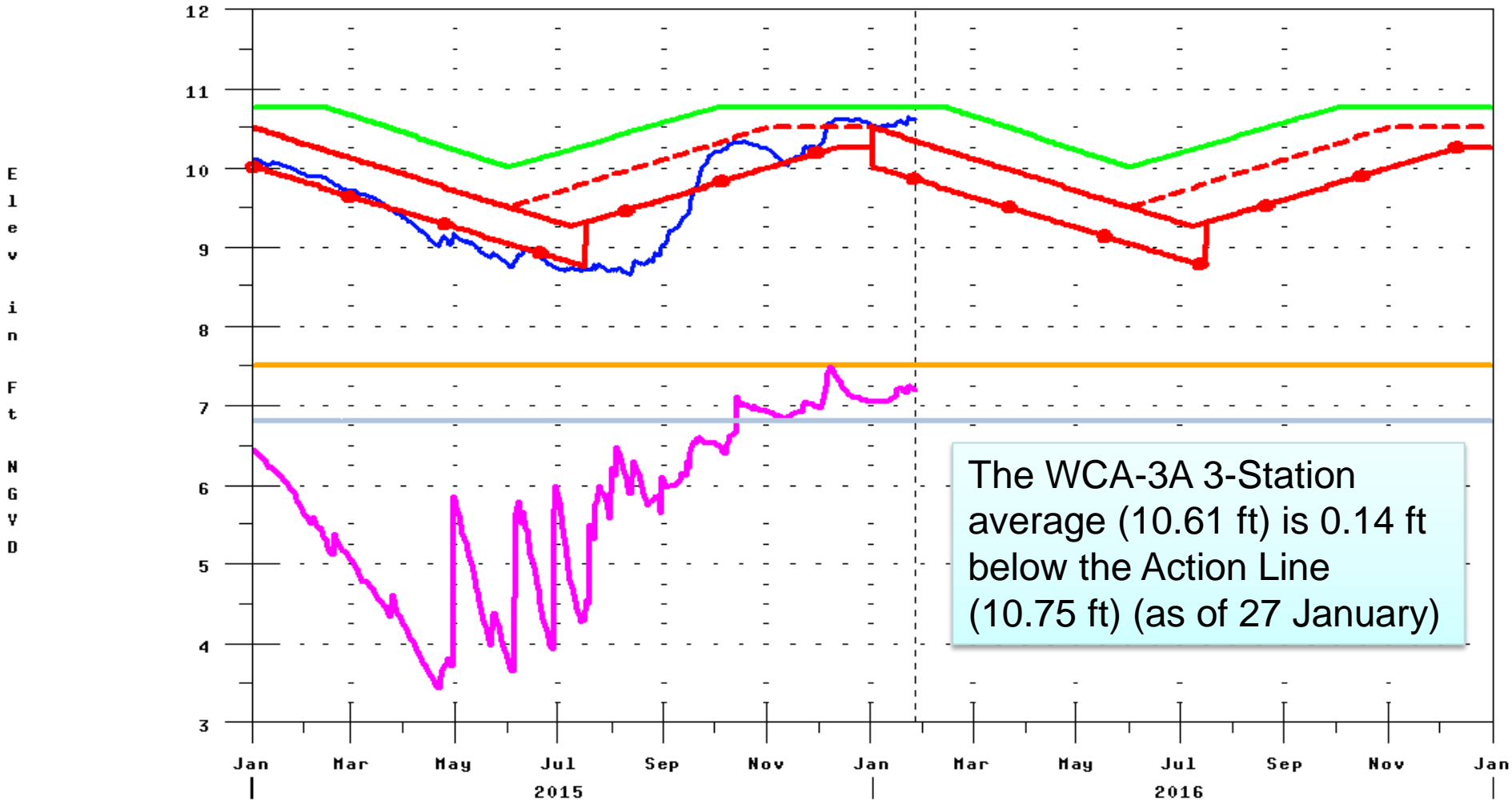




WCA-3A with Field Test Action Line



Water Conservation Area #3A with G-3273/S-356 Field Test Action Line



The WCA-3A 3-Station average (10.61 ft) is 0.14 ft below the Action Line (10.75 ft) (as of 27 January)

- -
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- | | |
|---|--|
| <ul style="list-style-type: none"> Avg Stage (Site 63, 64, 65) Bottom of Zone A Zone C Regulation Top of Zone D Top of Zone E | <ul style="list-style-type: none"> Bottom of Zone E1 Floor Increment 1 Action Line G3273 Stage G3273 Constraint (6.8 ft) |
|---|--|

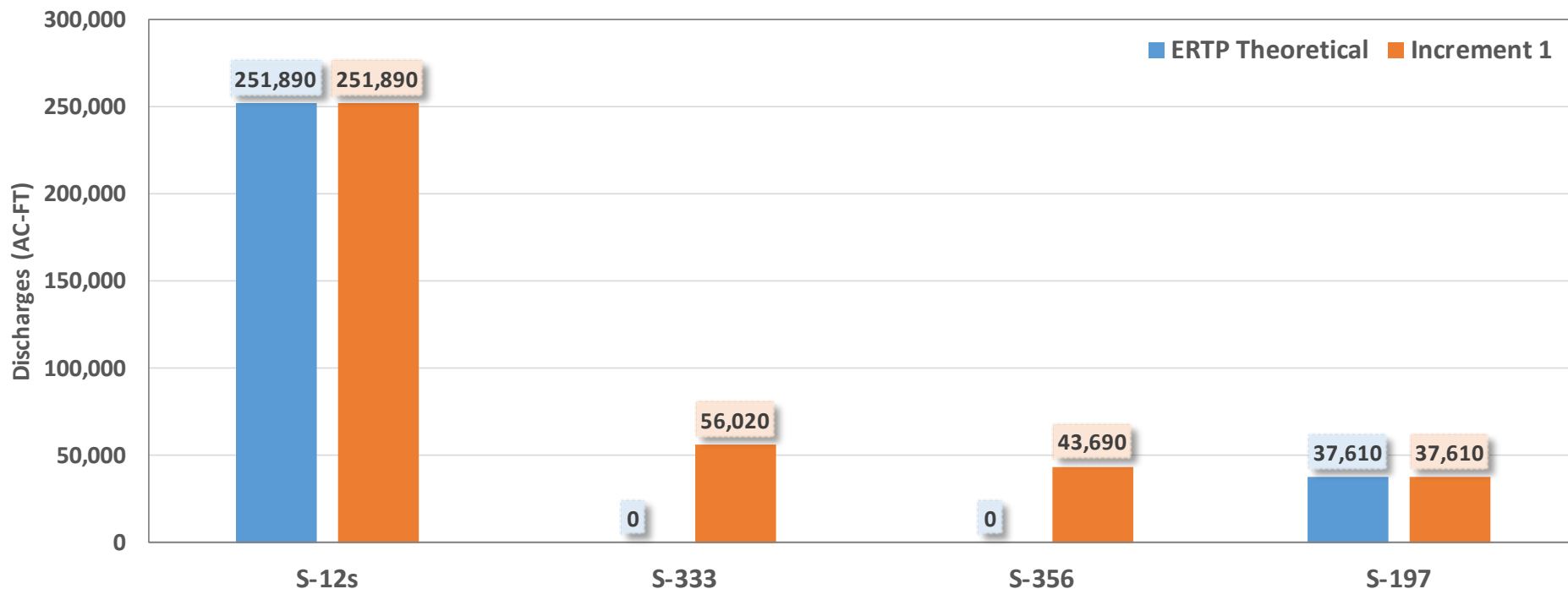


S-12s, S-333, S-356, S-197 Discharges ERTP vs Increment 1 (15 Oct 2015 – 22 Jan 2016)



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Structure	ERTP Theoretical Discharges AC-FT	Increment 1 Discharges AC-FT	Net Effect on WCA-3A AC-FT Depth (ft)
S-12s	251,890	251,890	0 0
S-333	0	56,020	-56,020 -0.11
S-356	0	43,690	0 0
S-197	37,610	37,610	0 0



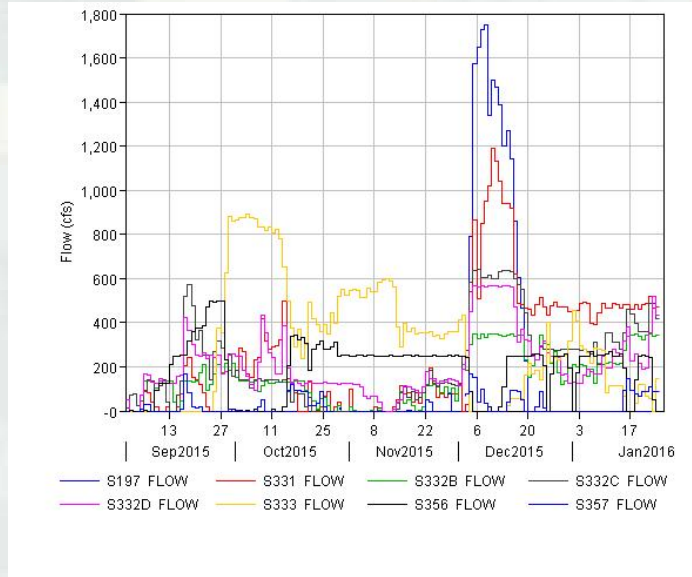


Structure Flows and Volumes (01 Sep 2015 – 22 Jan 2016)



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Station	Date/Time	S317 FLOW	S331 FLOW	S332B FLOW	S332C FLOW	S332D FLOW	S333 FLOW	S338 FLOW	S356 FLOW	S357 FLOW
S31	24 Sep 15, 24:00	0.0	25.0	33.20	0.00	124.20	308.00	238.00	0.00	91.93
S32	25 Sep 15, 24:00	0.0	56.0	53.74	36.22	123.80	252.00	276.00	0.00	83.33
S33	26 Sep 15, 24:00	0.0	36.0	24.10	0.00	124.17	246.00	311.00	0.00	0.00
S34	27 Sep 15, 24:00	0.0	6.0	0.60	0.00	124.30	443.00	399.00	0.00	0.00
S35	28 Sep 15, 24:00	0.0	20.0	0.00	0.00	124.17	371.00	332.00	0.00	0.00
S36	29 Sep 15, 24:00	0.0	41.0	22.44	0.00	124.60	177.00	236.00	0.00	4.38
S37	30 Sep 15, 24:00	0.0	6.0	0.00	0.00	125.53	373.00	275.00	0.00	0.00
S38	01 Oct 15, 24:00	0.0	6.0	0.60	0.00	124.46	124.00	241.00	0.00	0.00
S39	02 Oct 15, 24:00	0.0	36.0	34.44	0.00	124.40	148.00	292.00	0.00	0.00
S40	03 Oct 15, 24:00	0.0	6.0	3.46	0.00	123.79	303.00	352.00	0.00	0.00
S41	04 Oct 15, 24:00	0.0	6.0	3.81	0.00	123.73	148.00	262.00	0.00	0.00
S42	05 Oct 15, 24:00	0.0	6.0	0.60	0.00	127.05	113.00	334.00	0.00	0.00
S43	06 Oct 15, 24:00	0.0	6.0	0.60	0.00	68.00	116.00	282.00	0.00	0.00
S44	07 Oct 15, 24:00	0.0	6.0	3.80	0.00	128.79	384.00	343.00	0.00	0.00
S45	08 Oct 15, 24:00	0.0	6.0	5.37	0.00	68.00	139.00	283.00	0.00	0.00
S46	09 Oct 15, 24:00	0.0	18.0	7.80	0.00	69.00	143.00	292.00	0.00	0.00
S47	10 Oct 15, 24:00	0.0	6.0	3.46	33.20	35.47	185.00	282.00	0.00	0.00
S48	11 Oct 15, 24:00	0.0	6.0	0.60	0.00	0.00	103.00	282.00	0.00	0.00
S49	12 Oct 15, 24:00	0.0	6.0	0.60	0.00	0.00	415.00	282.00	0.00	0.00
S50	13 Oct 15, 24:00	0.0	36.0	33.30	0.00	6.00	163.00	256.00	0.00	0.00
S51	14 Oct 15, 24:00	0.0	33.0	34.30	3.75	-5.00	303.00	256.00	0.00	0.00
S52	15 Oct 15, 24:00	0.0	114.0	88.41	81.20	31.00	200.00	256.00	0.00	0.00
S53	16 Oct 15, 24:00	0.0	26.0	34.30	209.07	145.30	315.00	256.00	0.00	0.00
S54	17 Oct 15, 24:00	0.0	31.0	51.57	61.00	203.27	300.00	255.00	0.00	0.00
S55	18 Oct 15, 24:00	0.0	41.0	24.15	90.00	60.17	170.00	256.00	0.00	0.00
S56	19 Oct 15, 24:00	0.0	31.0	3.80	30.00	0.00	250.00	255.00	0.00	0.00
S57	20 Oct 15, 24:00	0.0	35.0	0.90	64.00	33.00	215.00	256.00	0.00	0.00
S58	21 Oct 15, 24:00	0.0	31.0	30.70	60.71	109.00	215.00	256.00	0.00	0.00
S59	22 Oct 15, 24:00	0.0	122.0	122.14	127.00	129.17	206.00	256.00	0.00	0.00
S60	23 Oct 15, 24:00	0.0	187.0	137.87	260.32	146.11	31.00	256.00	0.00	39.74
S61	24 Oct 15, 24:00	0.0	137.0	118.33	237.91	118.51	242.00	256.00	0.00	0.00
S62	25 Oct 15, 24:00	0.0	86.0	143.60	111.14	126.43	211.00	256.00	0.00	0.00
S63	26 Oct 15, 24:00	0.0	66.0	79.33	60.50	61.83	118.00	256.00	0.00	0.00
S64	27 Oct 15, 24:00	0.0	51.0	133.89	136.00	148.36	149.00	256.00	0.00	61.74
S65	28 Oct 15, 24:00	0.0	61.0	82.81	28.12	148.14	261.00	256.00	0.00	75.12
S66	29 Oct 15, 24:00	0.0	26.0	202.06	174.13	141.31	141.00	256.00	0.00	0.00
S67	30 Oct 15, 24:00	0.0	61.0	64.52	16.26	111.11	41.00	256.00	0.00	0.00
S68	31 Oct 15, 24:00	0.0	111.0	111.93	261.23	111.11	144.00	256.00	0.00	0.00
S69	01 Nov 15, 24:00	0.0	61.0	207.84	246.00	151.17	436.00	256.00	0.00	64.51
S70	02 Nov 15, 24:00	0.0	71.0	384.89	240.33	201.60	241.00	256.00	0.00	75.36
S71	03 Nov 15, 24:00	0.0	340.0	330.33	688.86	401.47	0.00	88.00	256.00	0.00
S72	04 Nov 15, 24:00	0.0	524.0	542.96	636.36	603.69	0.00	7.00	132.00	17.11
S73	05 Nov 15, 24:00	1.546.8	624.0	126.79	436.36	563.88	0.00	0.00	0.00	60.11
S74	06 Nov 15, 24:00	1.792.0	749.00	604.00	604.00	604.00	0.00	0.00	0.00	17.21
S75	07 Nov 15, 24:00	1.911.8	120.30	604.00	604.00	604.00	0.00	0.00	0.00	37.64
S76	08 Nov 15, 24:00	1.937.0	283.60	434.31	666.29	0.00	0.00	31.00	0.00	0.00
S77	09 Nov 15, 24:00	1.946.8	146.17	650.75	666.00	0.00	0.00	0.00	0.00	0.00
S78	10 Nov 15, 24:00	1.963.0	380.50	650.75	666.12	0.00	0.00	0.00	0.00	0.00
S79	11 Nov 15, 24:00	1.978.0	746.30	436.13	666.13	0.00	0.00	0.00	0.00	0.00
S80	12 Nov 15, 24:00	1.992.0	239.2	540.60	436.06	563.27	0.00	306.00	0.00	0.00
S81	13 Nov 15, 24:00	1.997.0	132.72	539.00	436.06	563.27	0.00	0.00	0.00	0.00
S82	14 Nov 15, 24:00	1.997.0	541.83	539.00	436.06	563.27	0.00	0.00	0.00	0.00
S83	15 Nov 15, 24:00	1.997.0	251.2	546.33	436.89	663.54	185.00	306.00	0.00	60.77
S84	16 Nov 15, 24:00	1.997.0	663.07	413.72	532.81	532.81	532.81	288.00	0.00	61.17
S85	17 Nov 15, 24:00	1.997.0	666.4	442.83	570.12	335.12	555.00	306.00	0.00	60.16
S86	18 Nov 15, 24:00	1.997.0	669.1	291.67	549.90	271.93	550.00	306.00	0.00	60.16
S87	19 Nov 15, 24:00	2.000.0	669.3	233.17	549.90	271.93	551.00	306.00	0.00	60.16
S88	20 Nov 15, 24:00	2.000.0	669.3	233.17	549.90	271.93	551.00	306.00	0.00	60.16
S89	21 Nov 15, 24:00	2.000.0	669.3	233.17	549.90	271.93	551.00	306.00	0.00	60.16
S90	22 Nov 15, 24:00	2.000.0	669.3	233.17	549.90	271.93	551.00	306.00	0.00	60.16

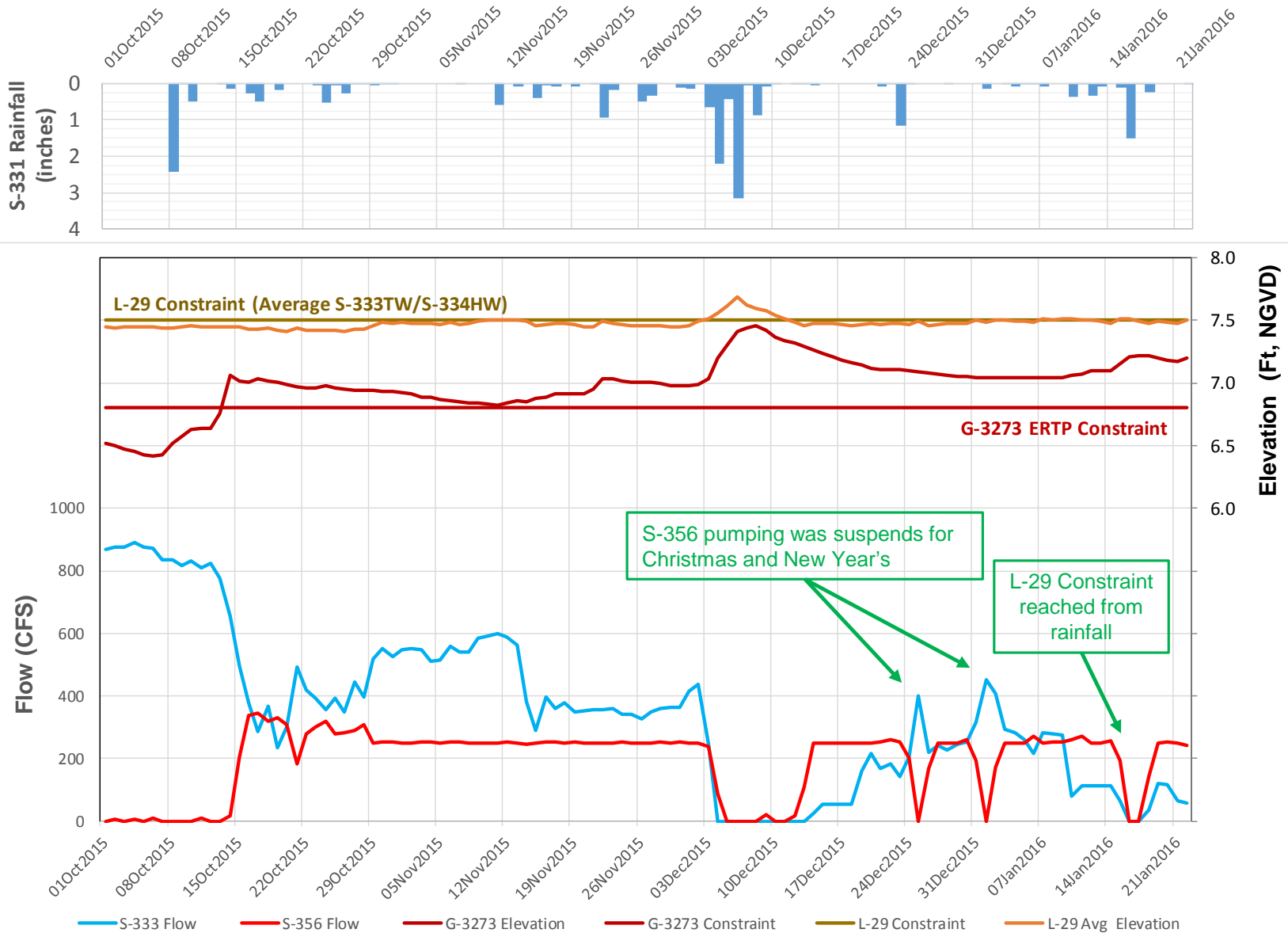


AC-FT	S12s	S197	S331	S332B	S332C	S332D	S333	S338	S356	S357
Sep 2015	7,890	-	3,880	6,860	11,130	10,660	6,310	-	12,330	760
Oct 2015	86,140	-	9,080	5,700	4,820	10,870	36,780	160	9,690	2,020
Nov 2015	34,390	-	3,250	2,340	3,410	5,500	26,310	670	14,980	480
Dec 2015	100,340	37,610	37,150	16,830	26,970	22,930	8,590	6,200	10,050	2,230
Jan 2016	67,480	-	20,480	10,830	14,280	9,540	7,440	7,880	9,070	1,520
Increment 0	7,890	-	3,460	5,980	9,940	9,500	6,310	-	12,310	620
Increment 1	251,890	37,610	62,160	32,120	45,600	42,360	56,020	14,890	43,690	5,770

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L-29, Flows, Elevations and Rainfall

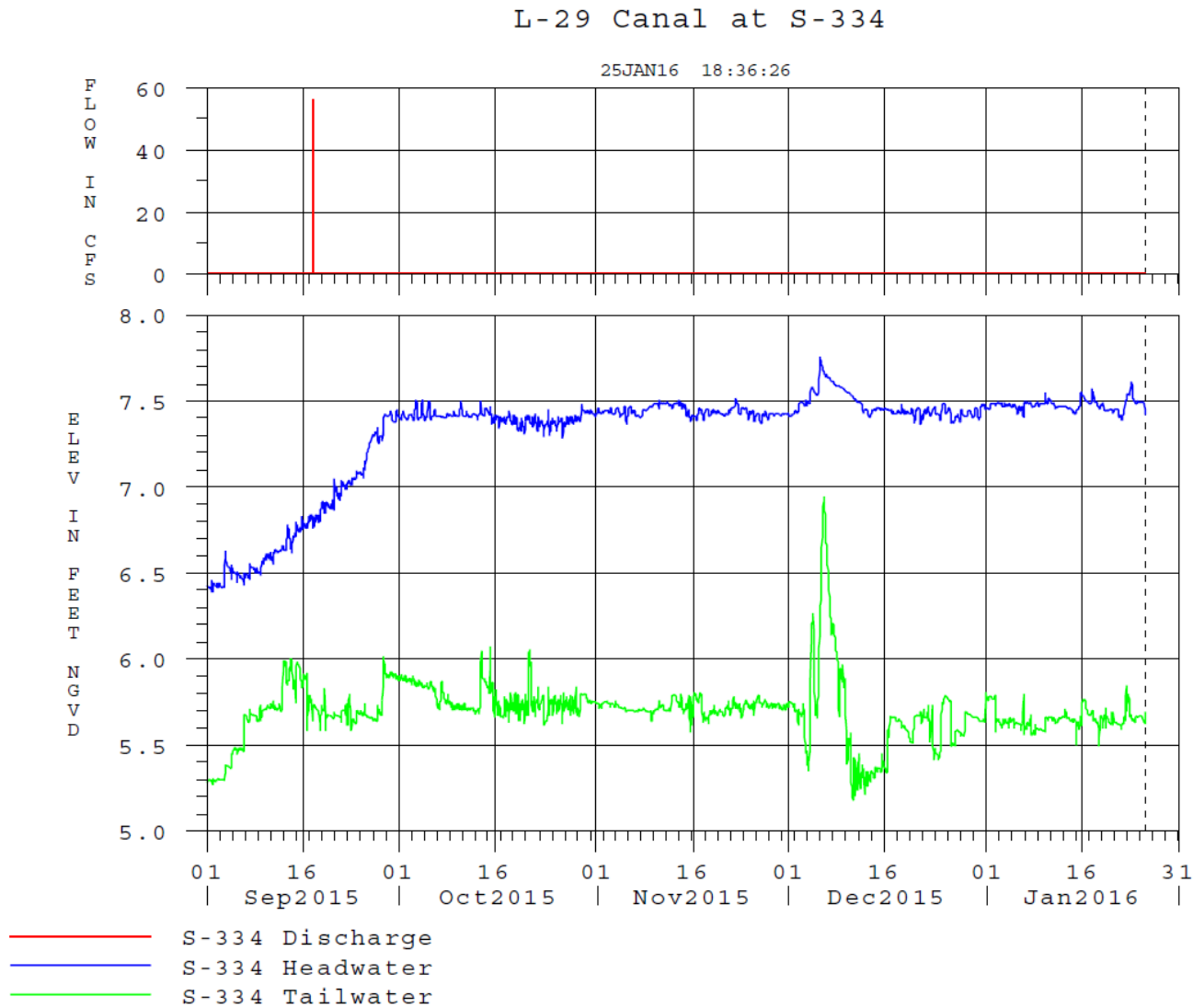




L-29 Canal at S-334

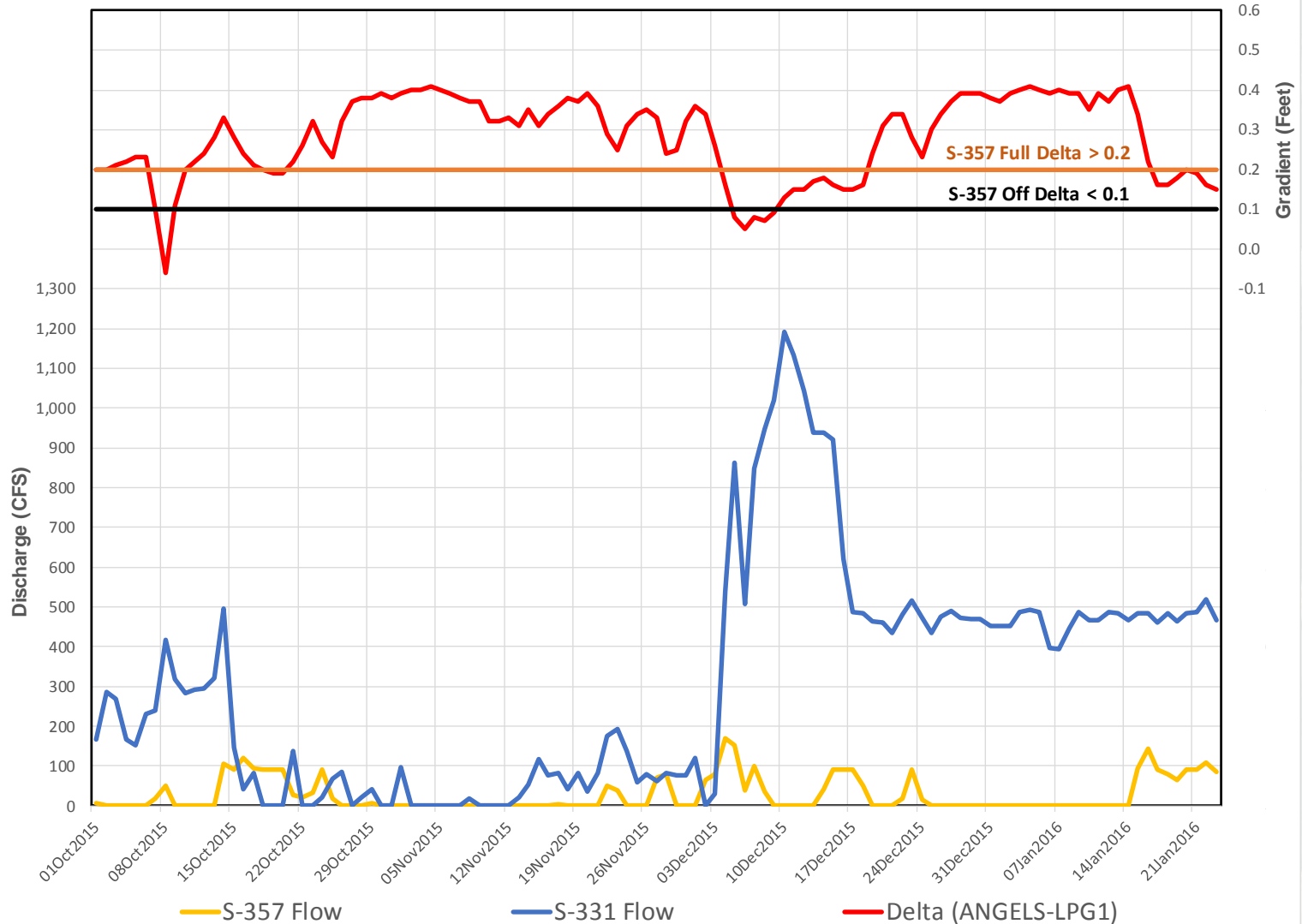


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8.5 SMA – S-357 with Angels Well vs. LPG-1 Delta (daily data)





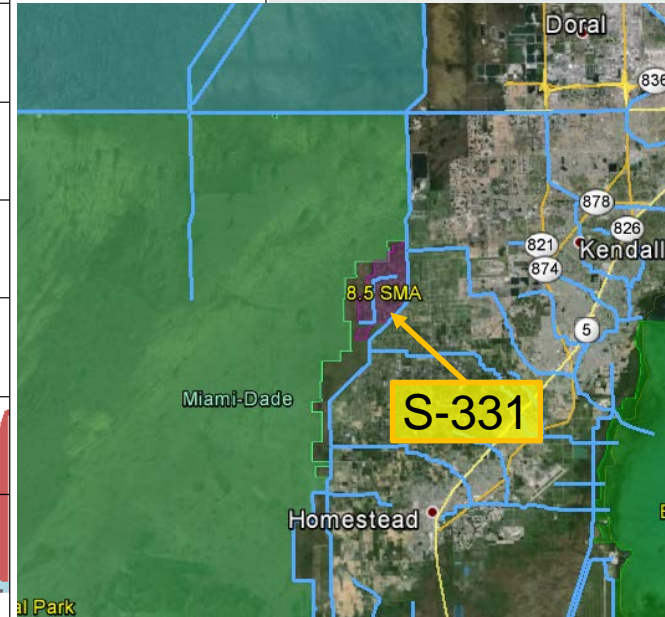
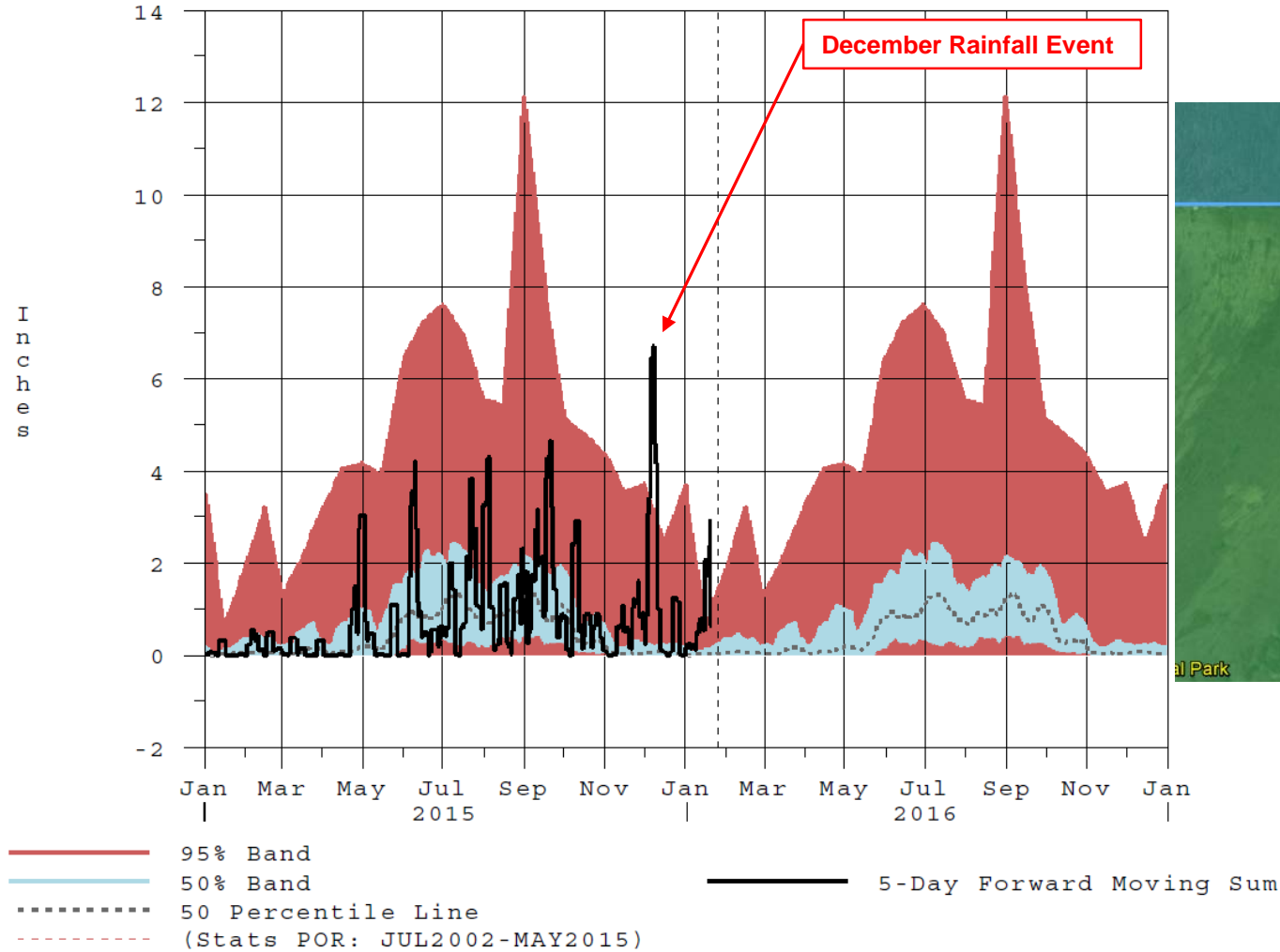
S-331 Rainfall (5-Day Forward Moving Sum)



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S331 Rain 5-Day Forward Moving Sum Exceedance Bands for Available Data

25JAN16 15:18:51



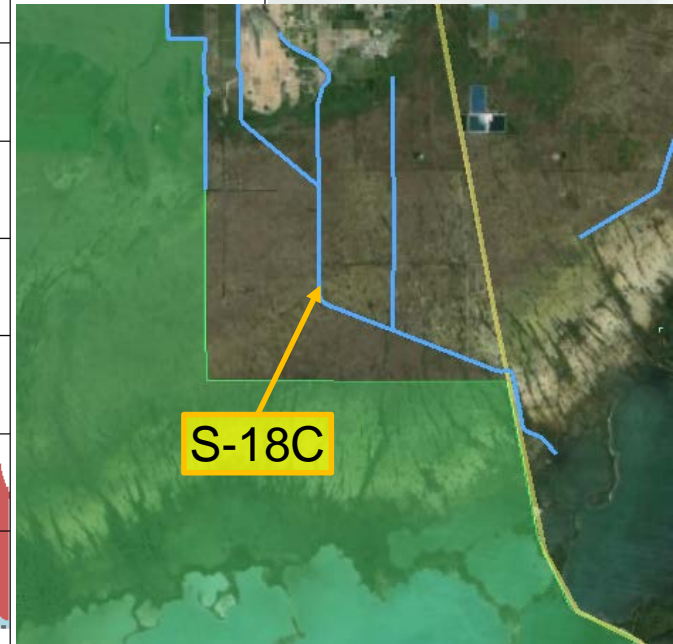
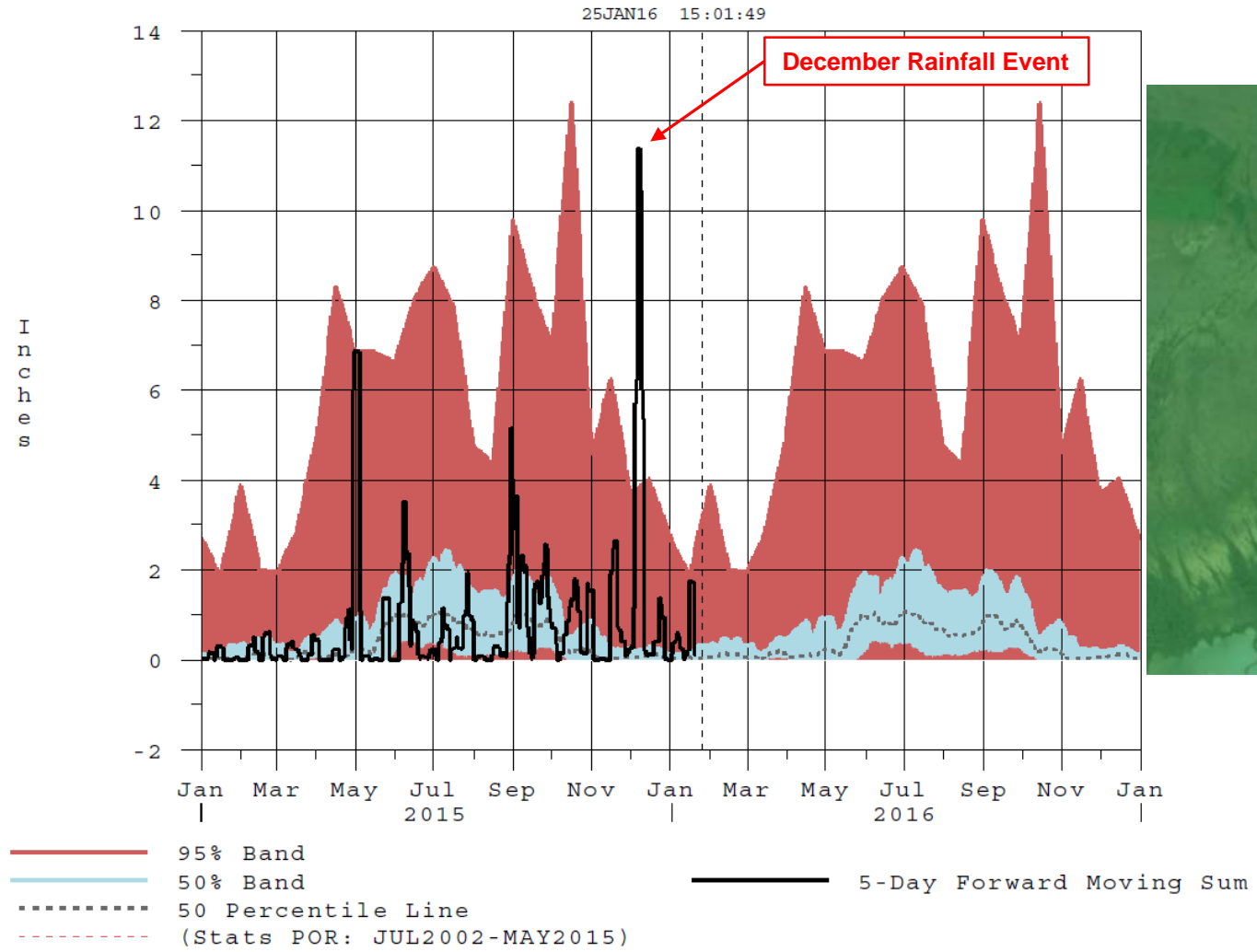


S-18C Rainfall (5-Day Forward Moving Sum)



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S18C Rain 5-Day Forward Moving Sum Exceedance Bands for Available Data





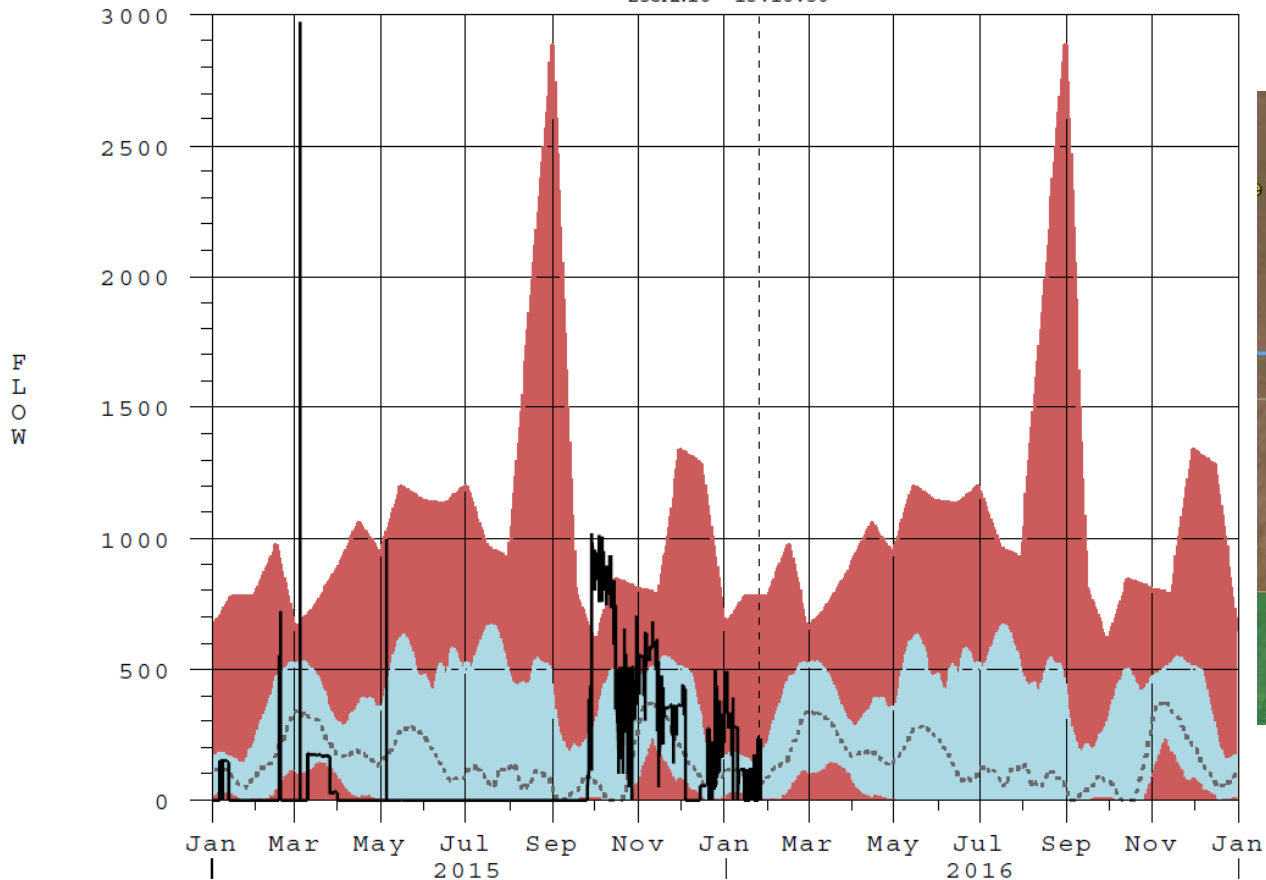
S-333 Flows



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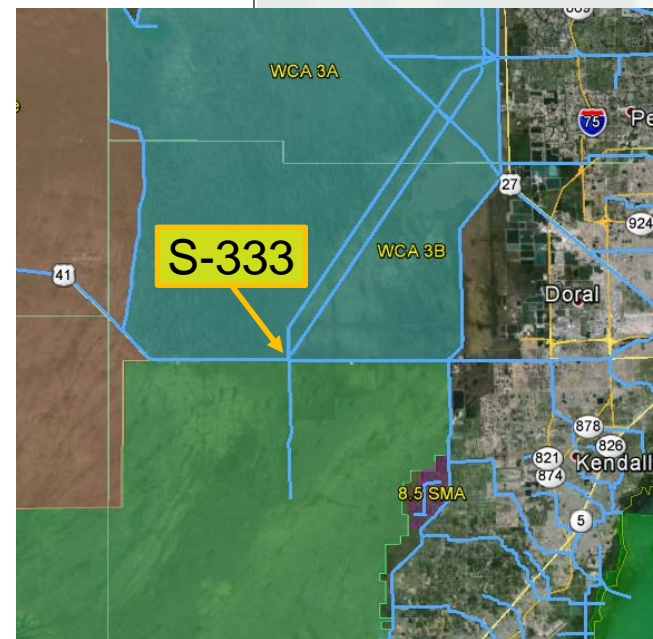
S333 FLOW Exceedance Bands for Available Data

25JAN16 15:18:56



- 95% Band (Daily Data)
- 50% Band (Daily Data)
- 50 Percentile Line (Daily Data)
- (Stats POR: JUL2002-MAY2015)

Stages in FT-NGVD, Flows in CFS
S333 FLOW (Hourly Data)





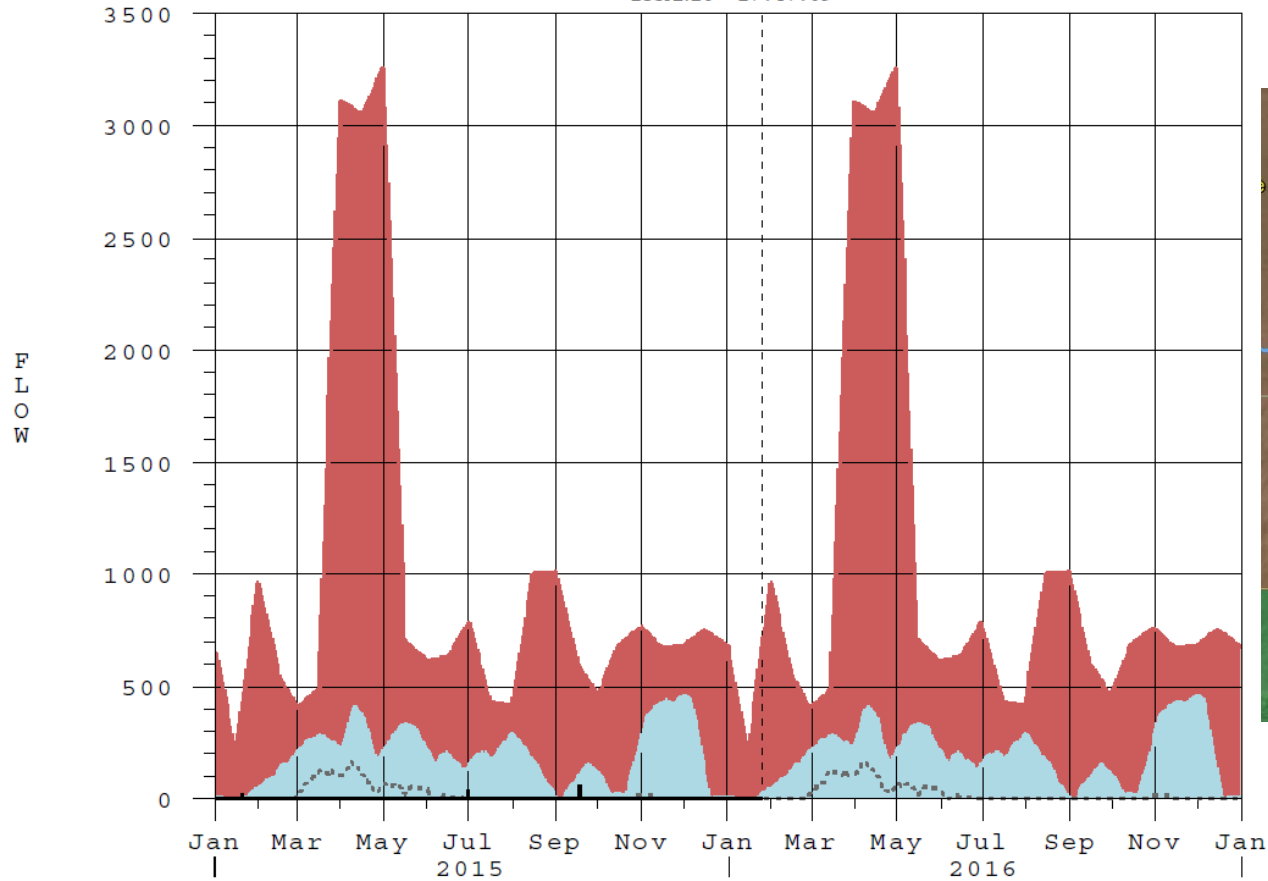
S-334 Flows



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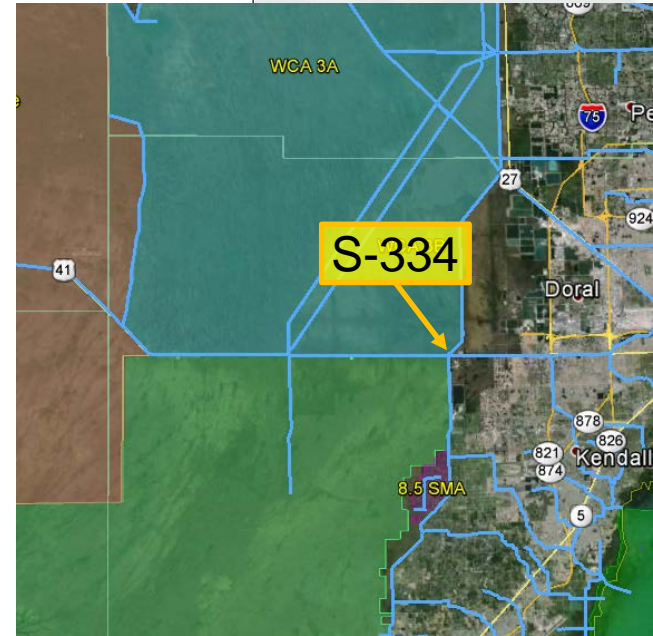
S334 FLOW Exceedance Bands for Available Data

25JAN16 17:47:09



- 95% Band (Daily Data)
- 50% Band (Daily Data)
- - - 50 Percentile Line (Daily Data)
- - - (Stats POR: JUL2002-MAY2015)

Stages in FT-NGVD, Flows in CFS
S334 FLOW (Hourly Data)





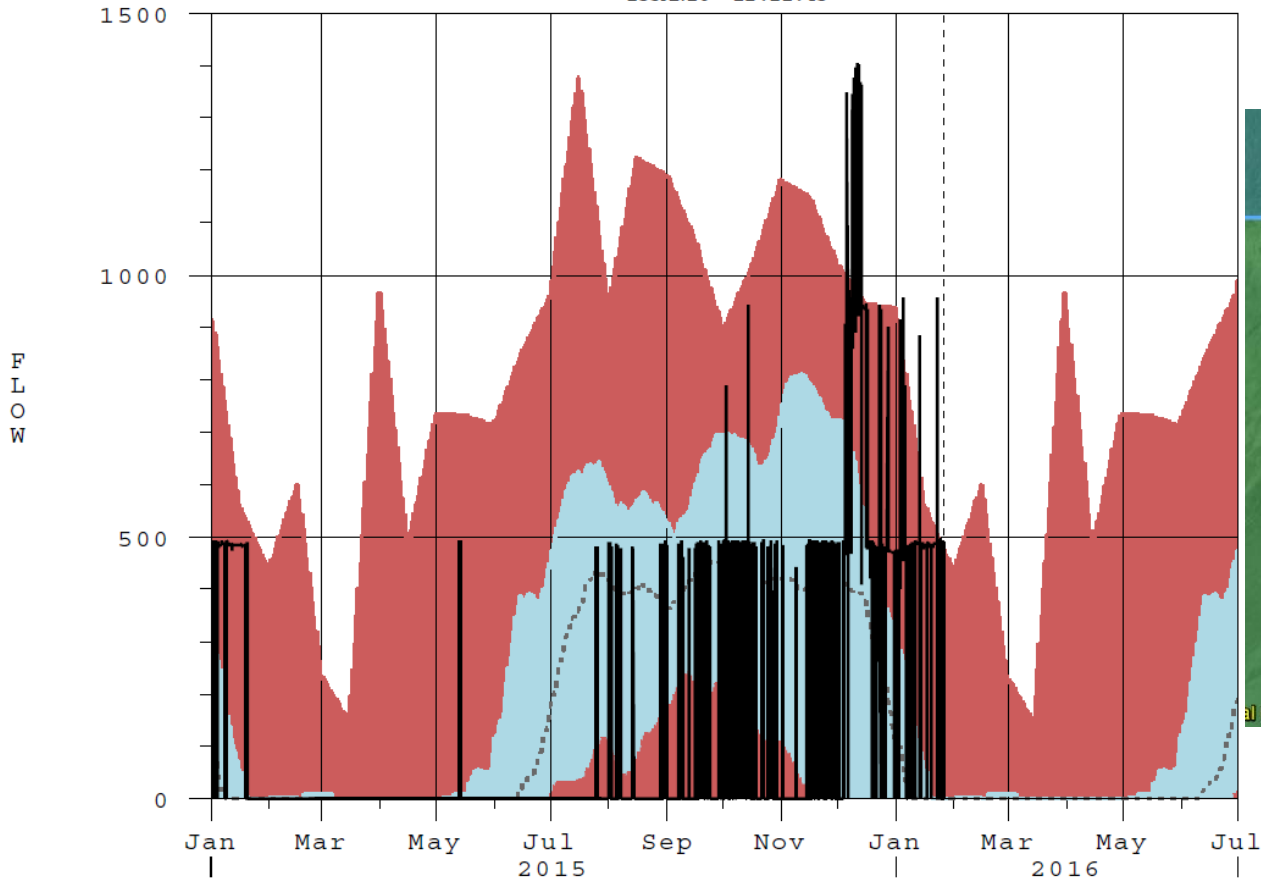
S-331 Flows



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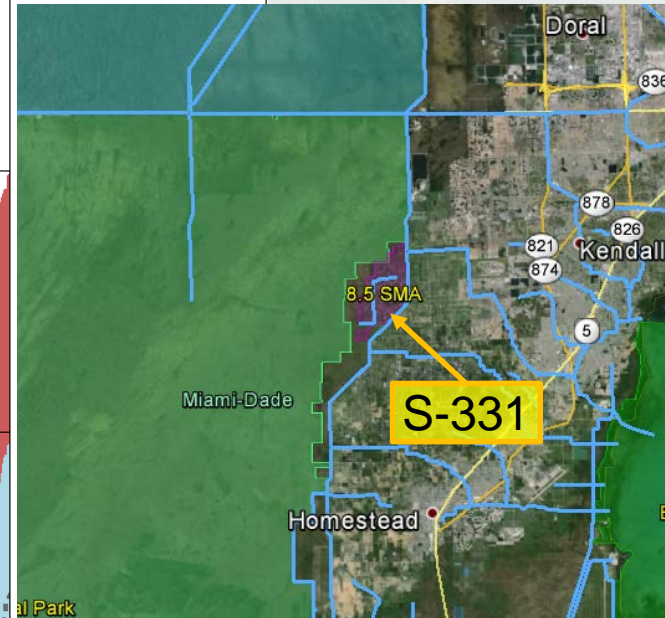
S331 FLOW Exceedance Bands for Available Data

25JAN16 22:21:45



- 95% Band (Daily Data)
- 50% Band (Daily Data)
- 50 Percentile Line (Daily Data)
- - - - (Stats POR: JUL2002-MAY2015)

Stages in FT-NGVD, Flows in CFS
S331 FLOW (Hourly Data)





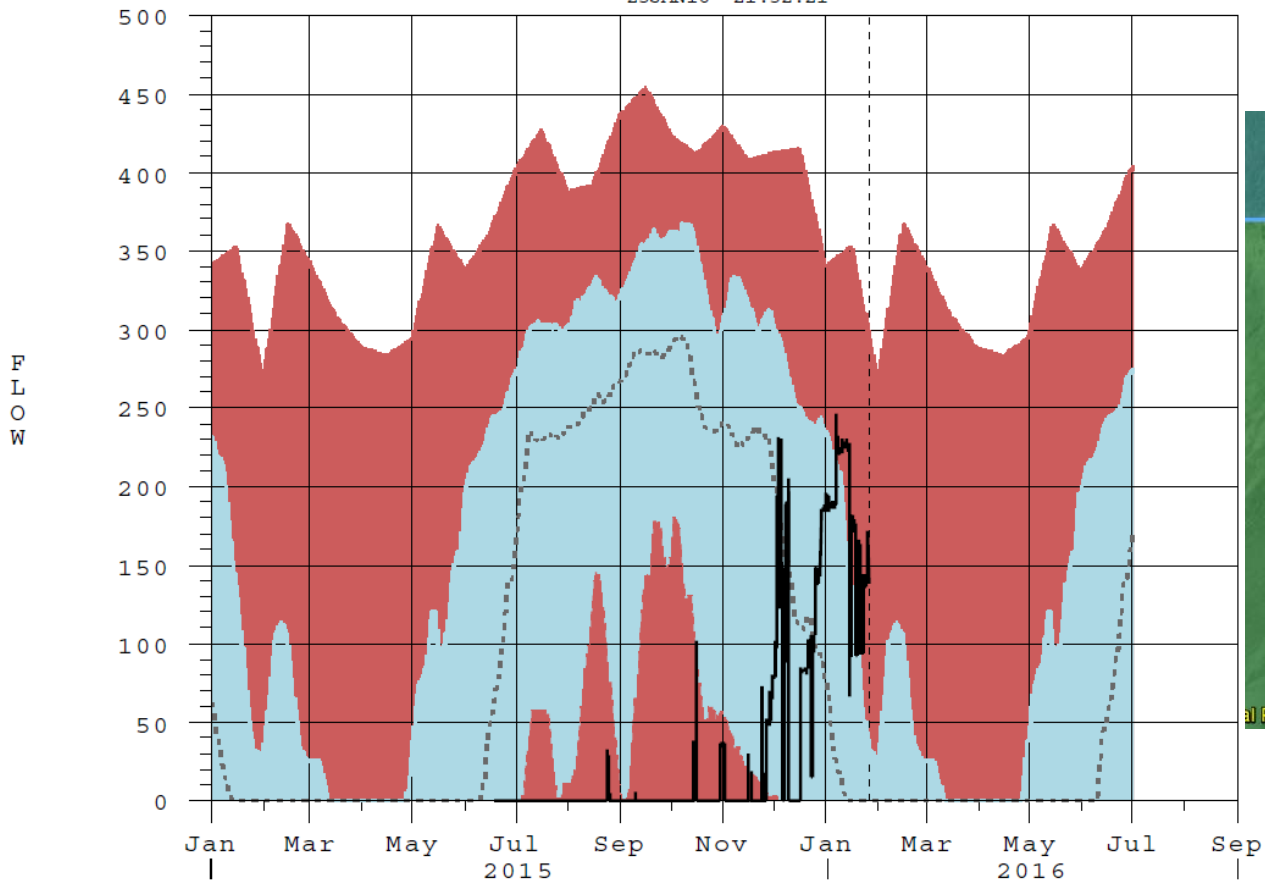
S-338 Flows



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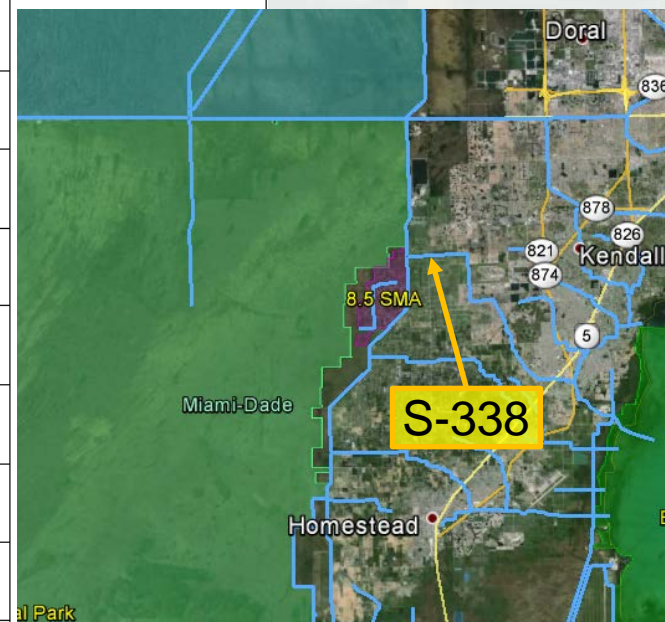
S338 FLOW Exceedance Bands for Available Data

25JAN16 21:32:21



- 95% Band (Daily Data)
- 50% Band (Daily Data)
- 50 Percentile Line (Daily Data)
- - - - (Stats POR: JUL2002-MAY2015)

Stages in FT-NGVD, Flows in CFS
S338 FLOW (Hourly Data)





C-357 (S-357 HW) Elevations

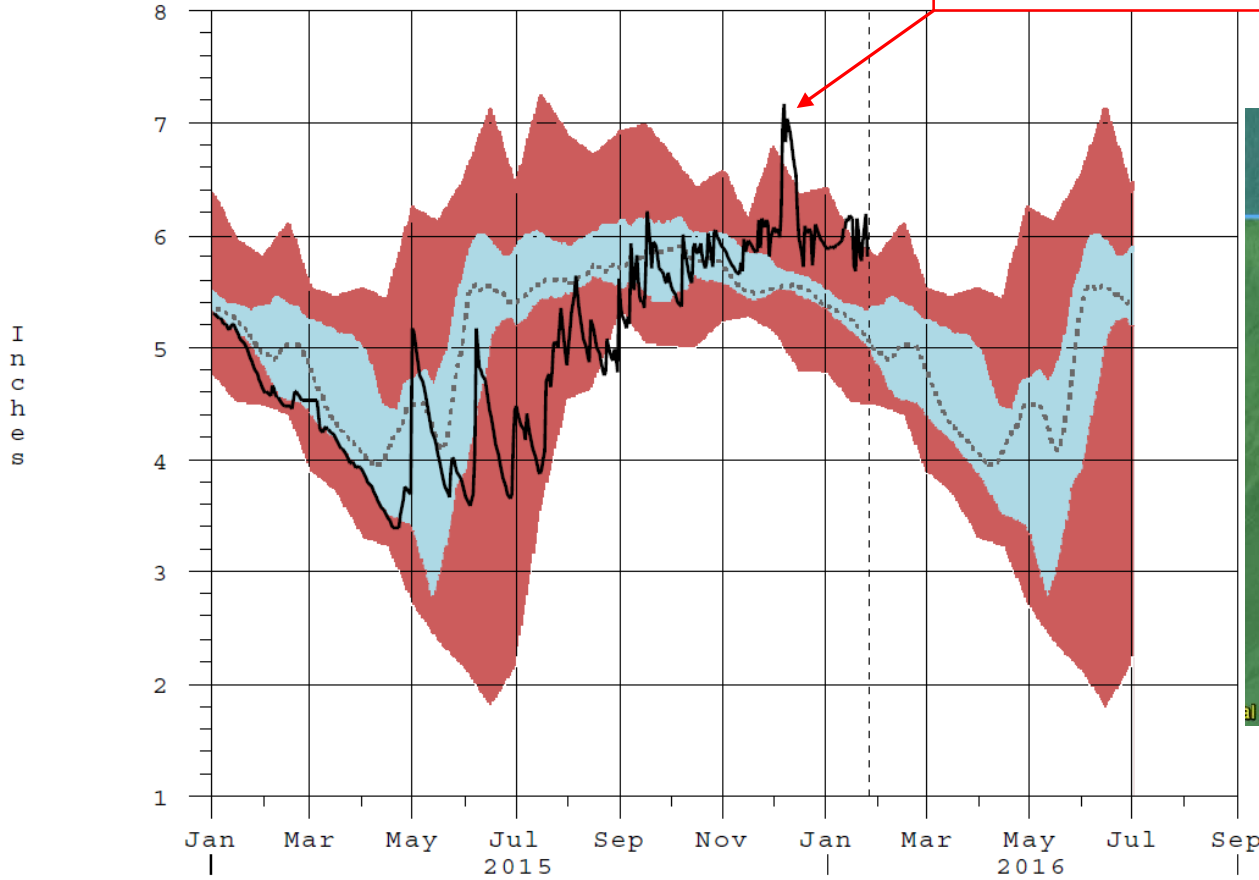


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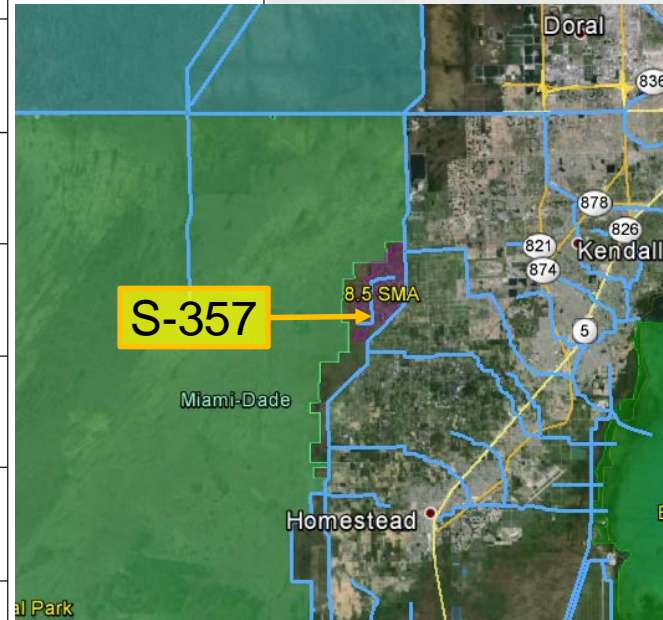
S357 Headwater Exceedance Bands for Available Data

25JAN16 19:18:56

December Rainfall Event



- 95% Band
- 50% Band
- - - 50 Percentile Line
- - - (Stats POR: APR2009-MAY2015)





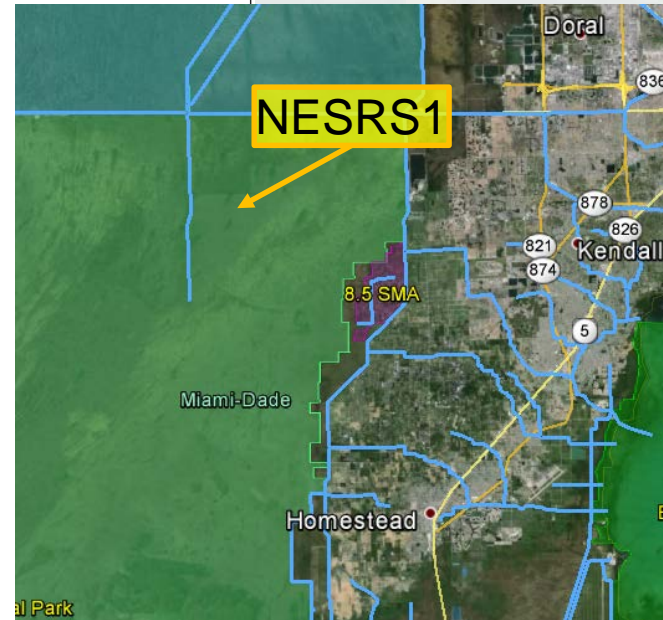
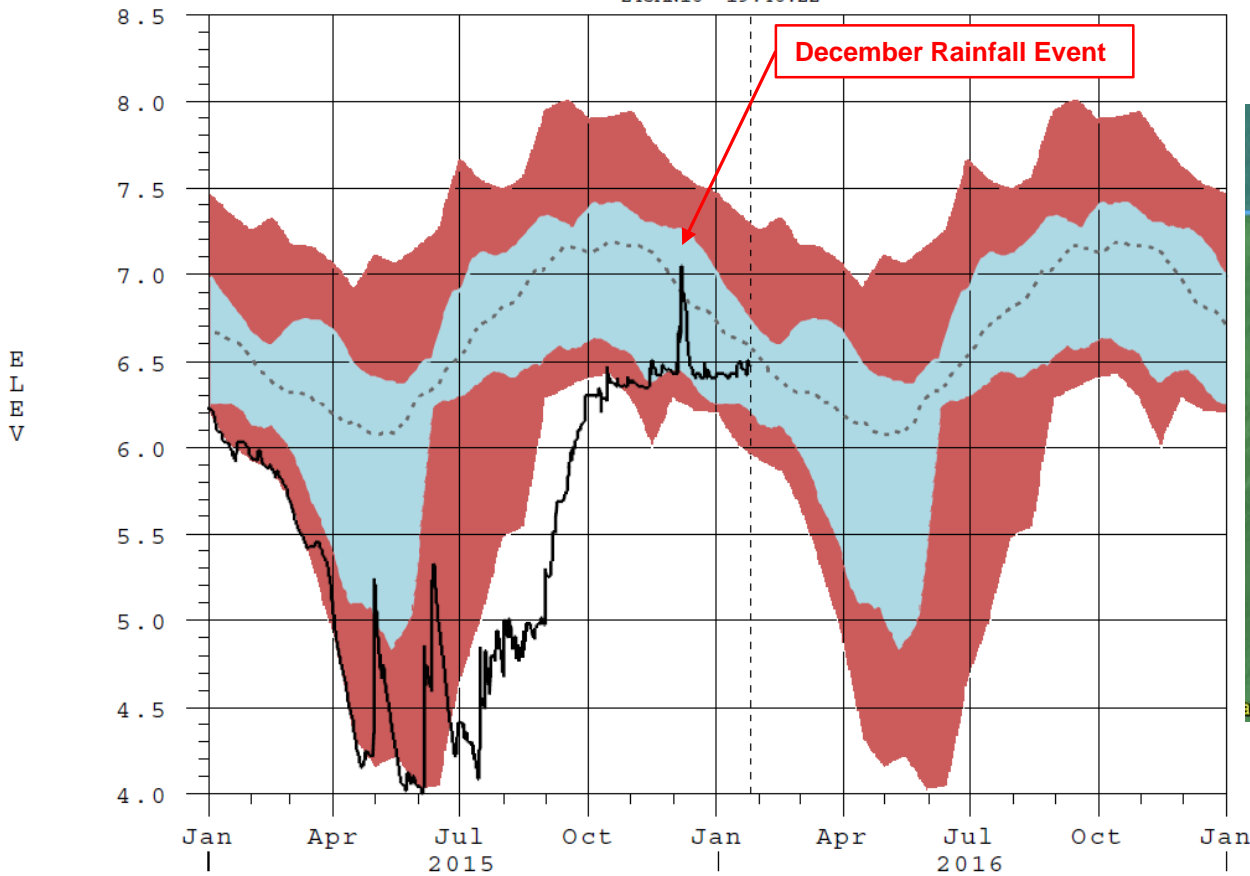
NESRS1 Elevations



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NESRS1 ELEV Exceedance Bands for Available Data

24JAN16 19:46:22



- 95% Band (Daily Data)
- 50% Band (Daily Data)
- - - 50 Percentile Line (Daily Data)
- - - (Stats POR: JUL2002-MAY2015)
- Stages in FT-NGVD, Flows in CFS
- NESRS1 ELEV (Hourly Data)

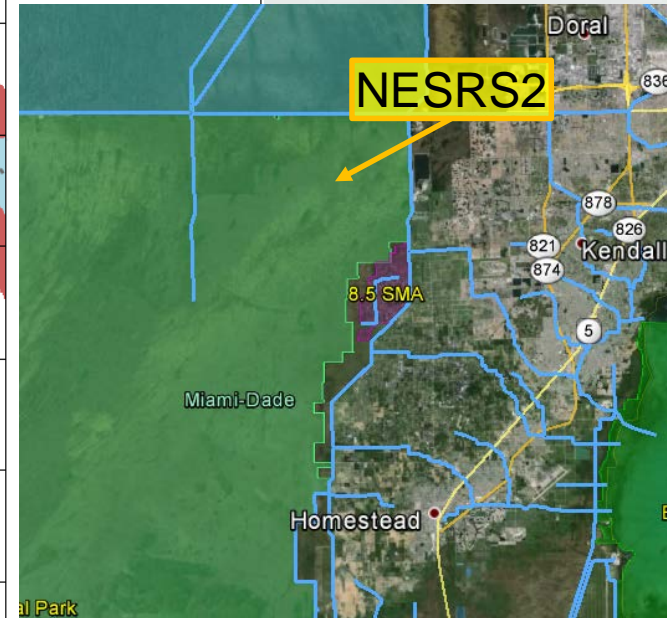
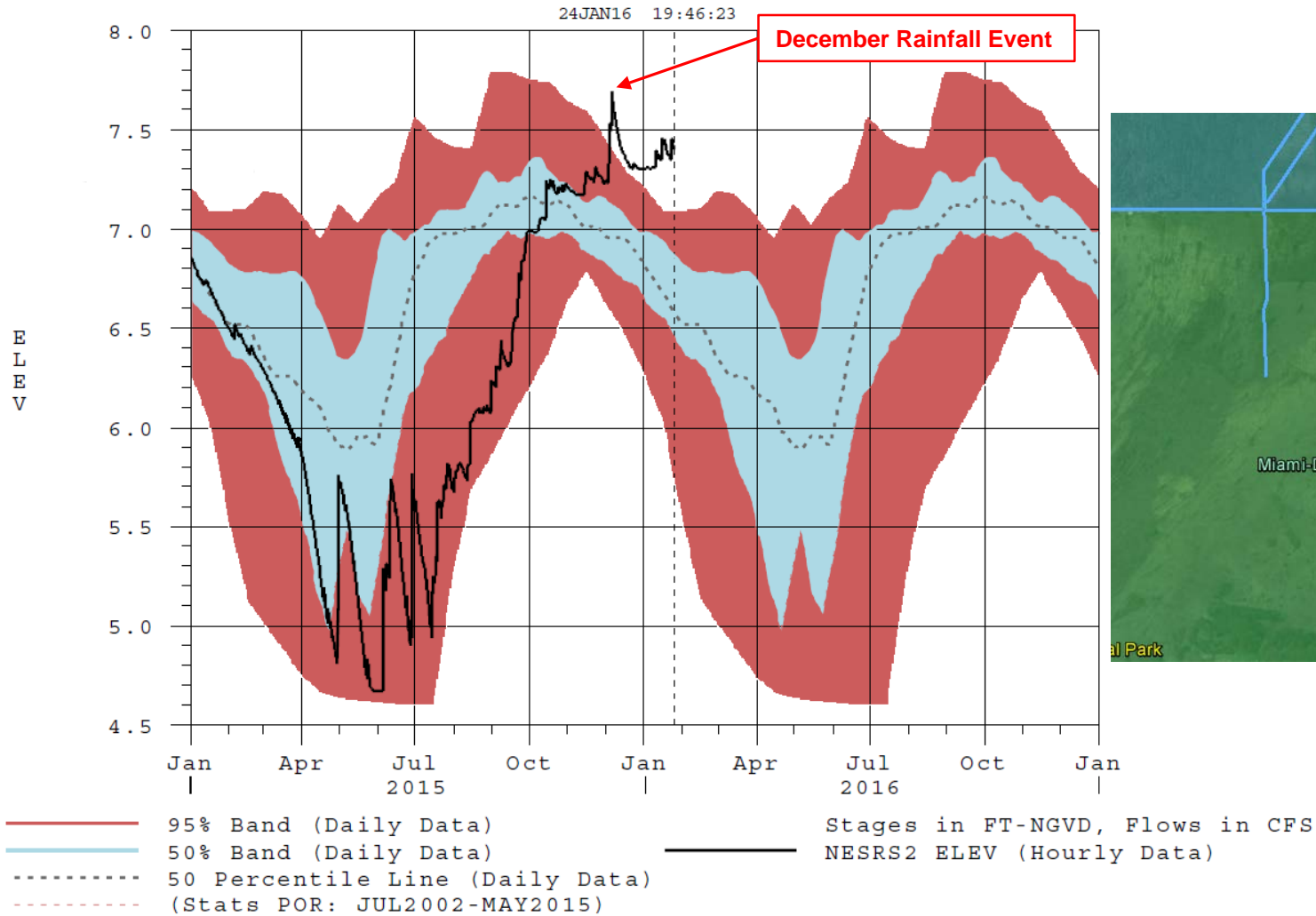


NESRS2 Elevations



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NESRS2 ELEV Exceedance Bands for Available Data



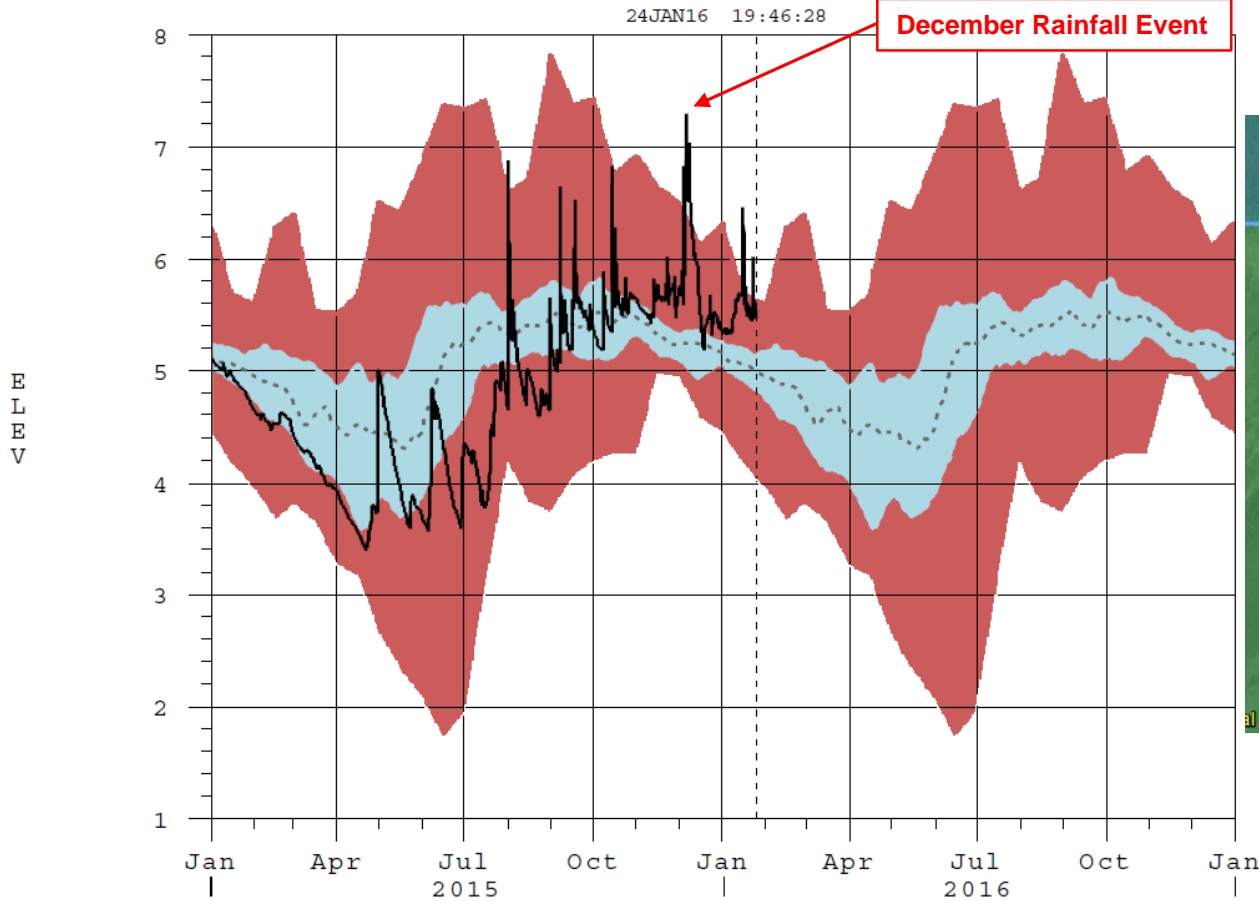


G-596 Elevations

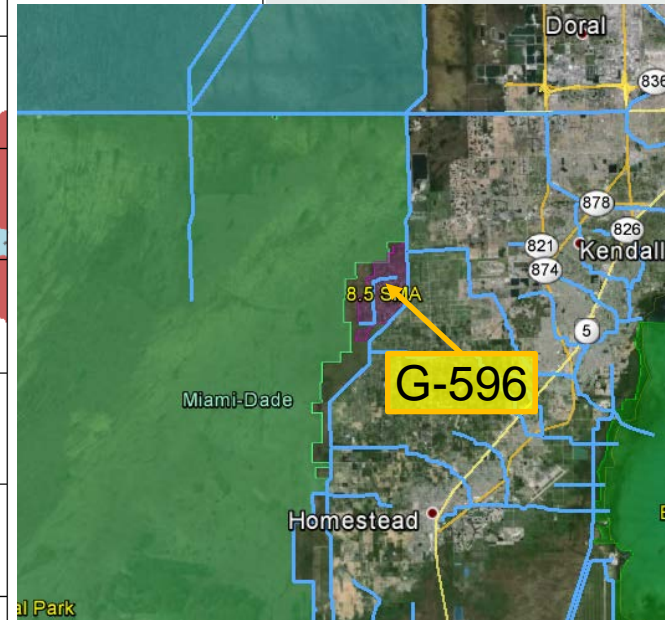


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G596 ELEV-GW Exceedance Bands for Available Data



- 95% Band (Daily Data)
- 50% Band (Daily Data)
- - - 50 Percentile Line (Daily Data)
- - - (Stats POR: JUL2002-MAY2015)
- Stages in FT-NGVD, Flows in CFS
- G596 ELEV-GW (Hourly Data)



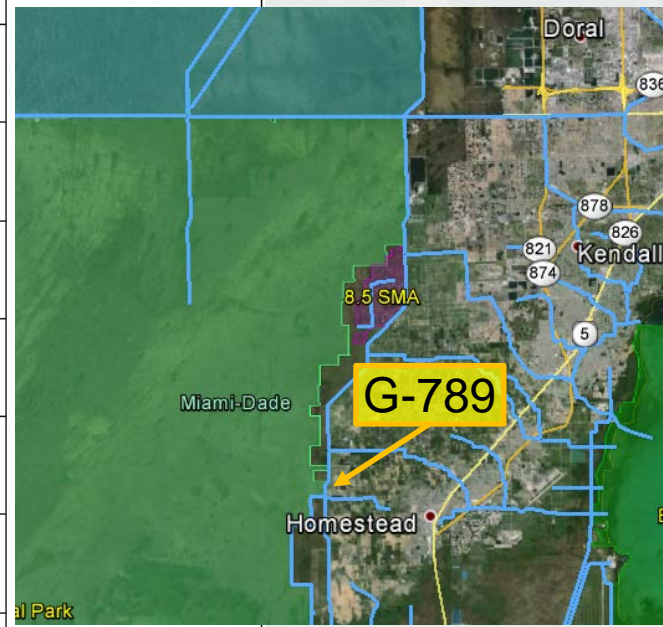
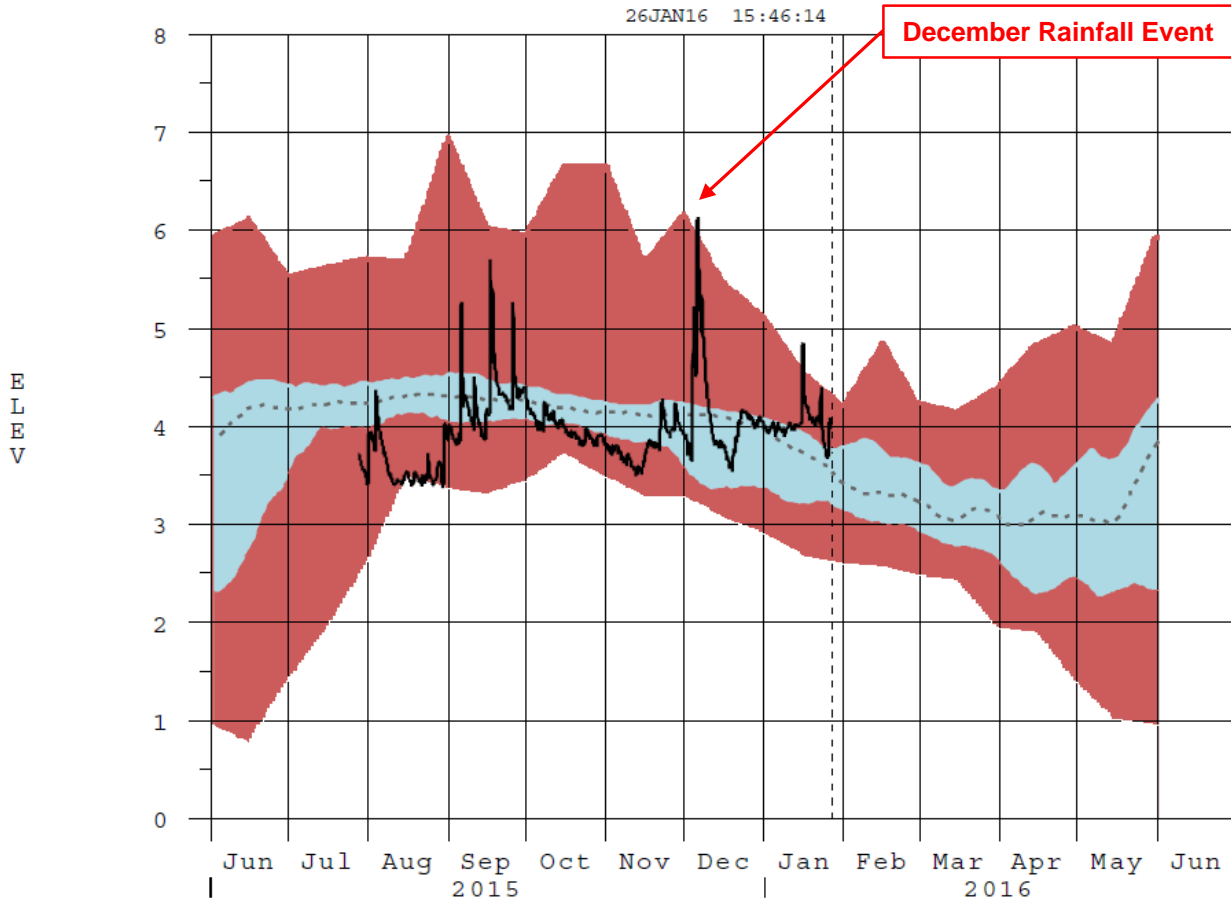


G-789 Elevations



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G789 ELEV-GW Exceedance Bands for Available Data



- 95% Band (Daily Data)
- 50% Band (Daily Data)
- - - 50 Percentile Line (Daily Data)
- - - (Stats POR: JUL2002-MAY2015)
- Stages in FT-NGVD, Flows in CFS
- G789 ELEV-GW (Hourly Data)

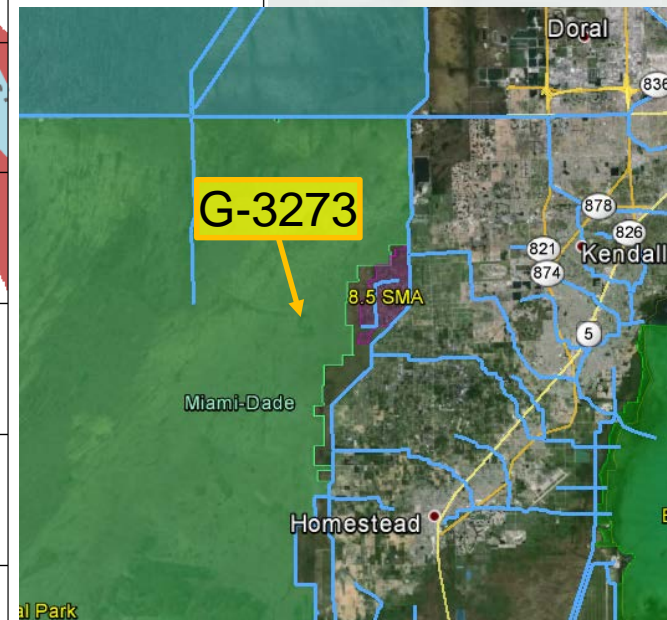
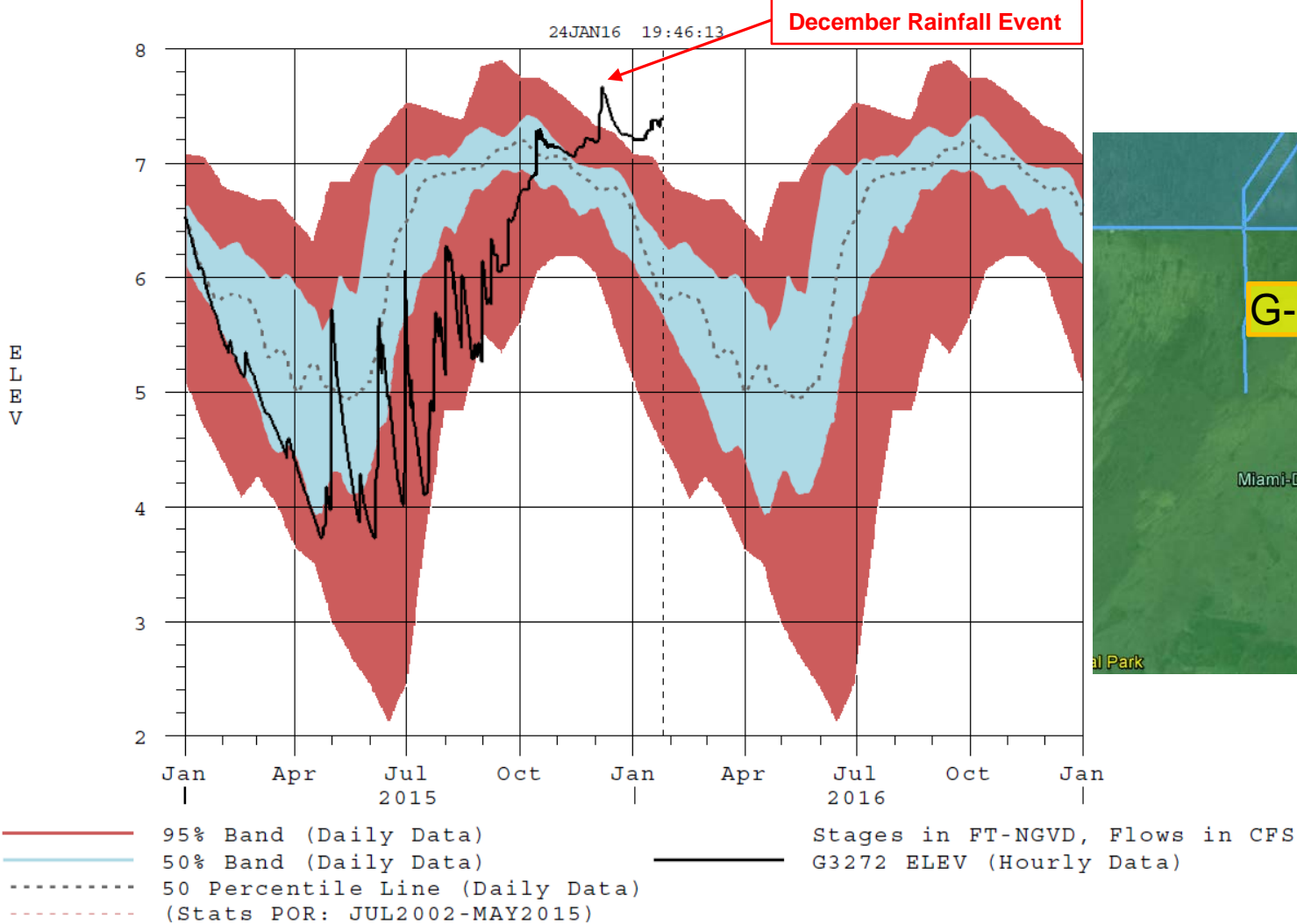


G-3273 Elevations



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G3272 ELEV Exceedance Bands for Available Data





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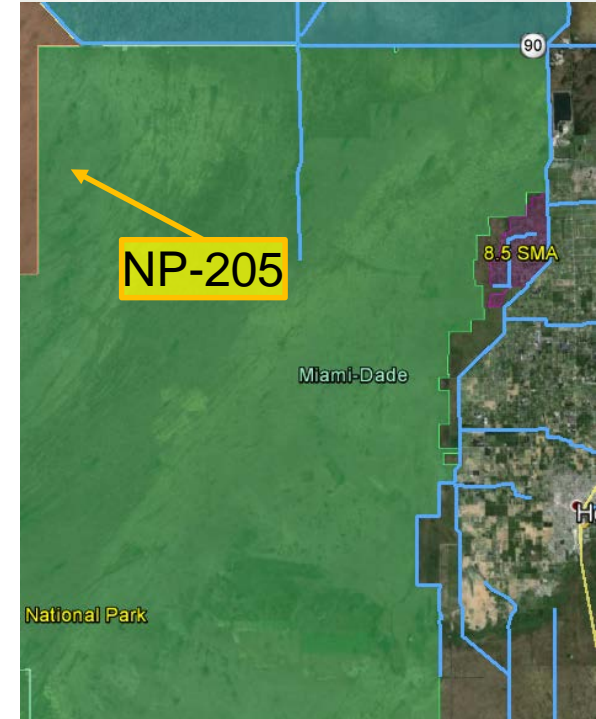
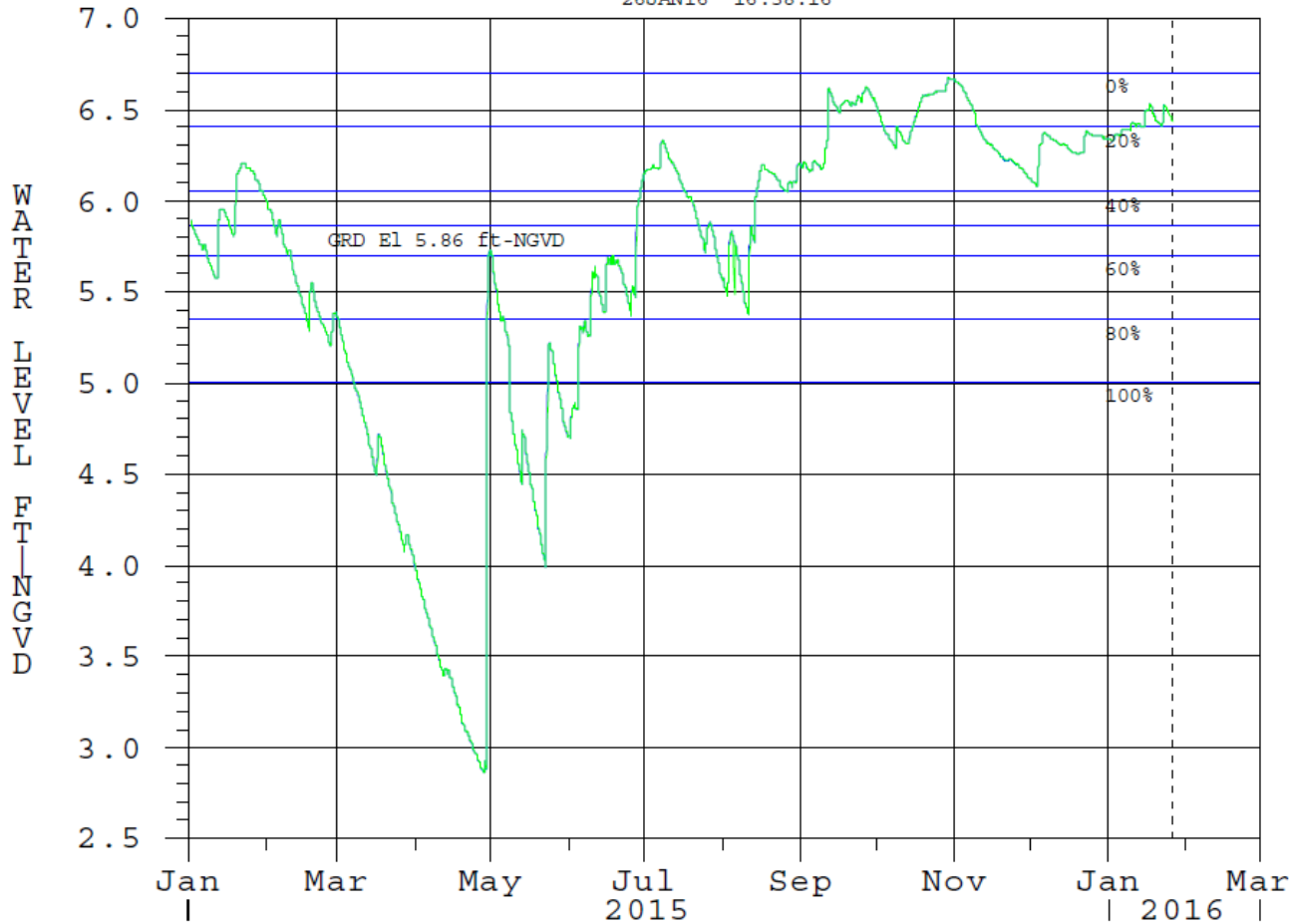
Cape Sable Seaside Sparrow Subpopulation A



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Western Marl Prairie Habitat - Subpopulation A

26JAN16 16:38:16



NP-205 Water Levels
 NP-205 Water Levels GOES



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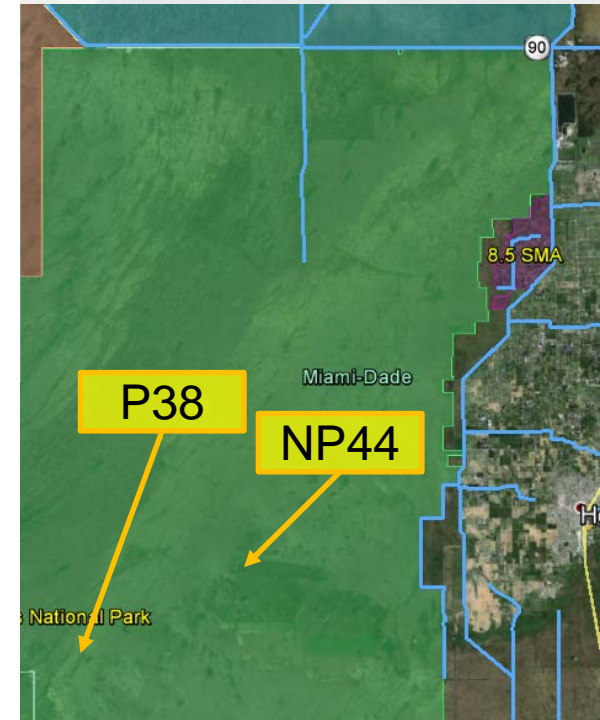
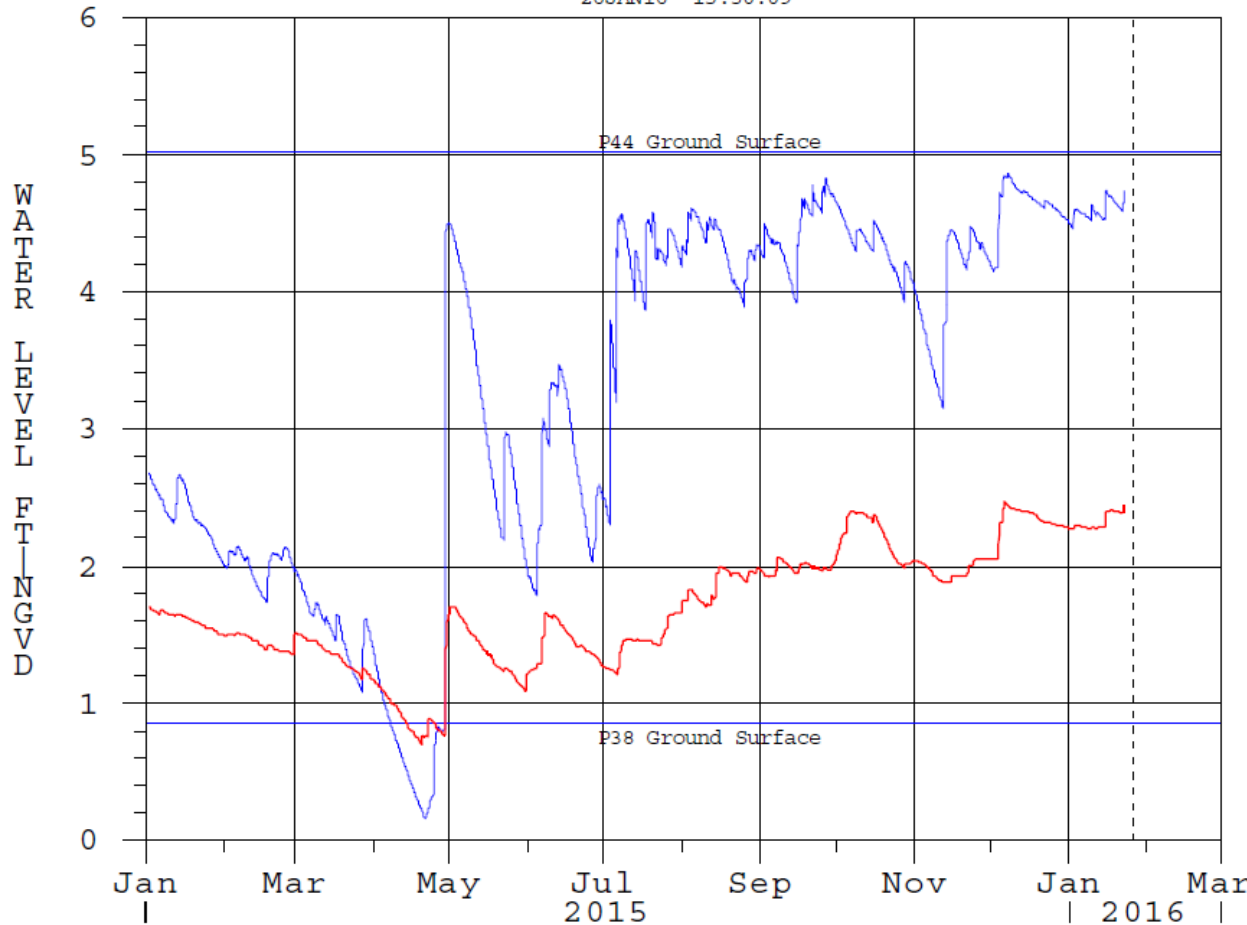
Cape Sable Seaside Sparrow Subpopulation B



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Inghram Highway - Subpopulation B

26JAN16 15:30:09



— P-44 Water Levels
 — P-38 Water Levels



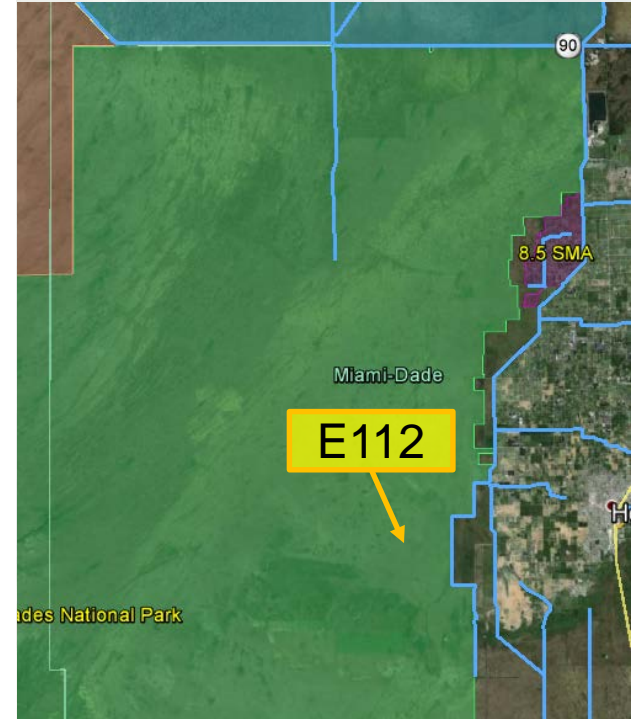
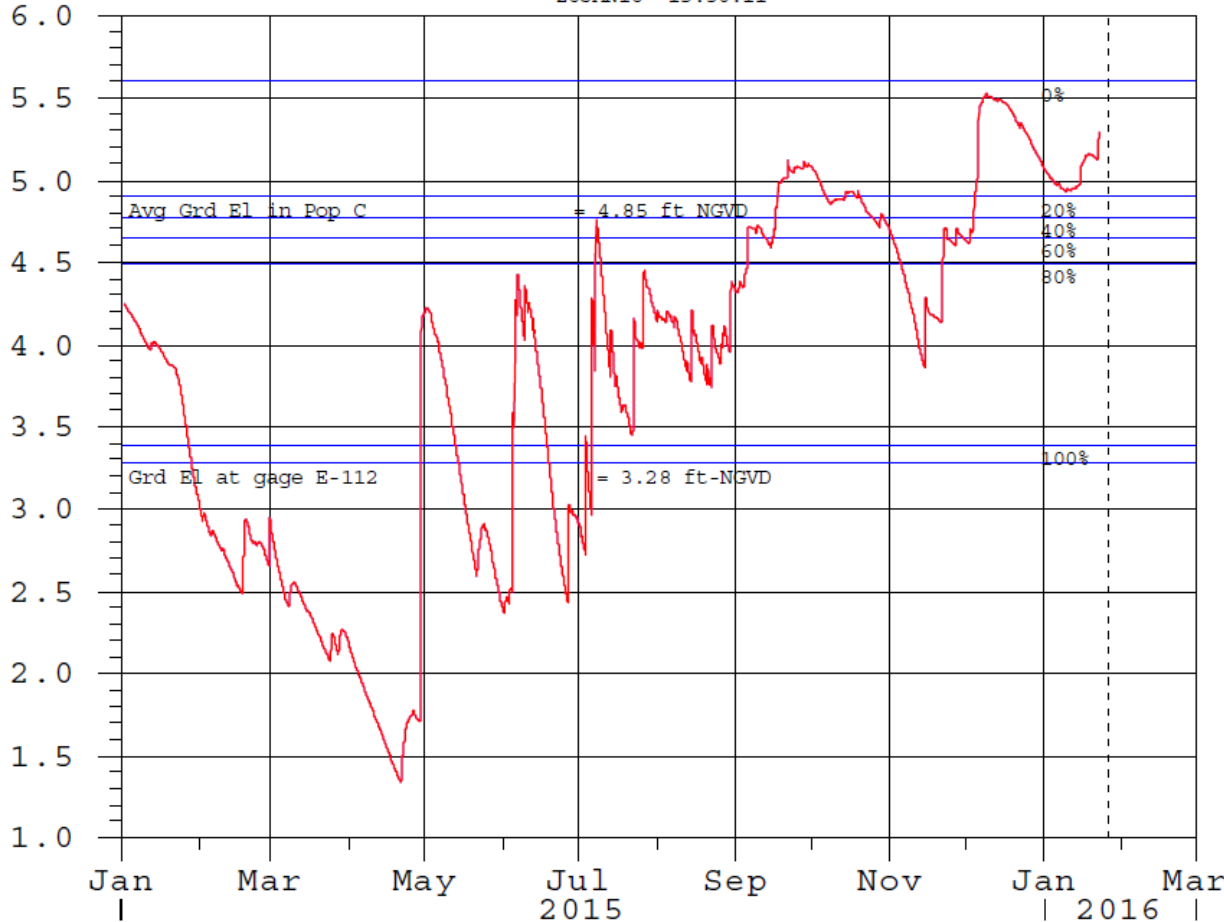
Cape Sable Seaside Sparrow Subpopulation C



Eastern Marl Prairie Habitat, Subpopulation C

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26JAN16 15:30:11



— Percent of habitat available for breeding
— E-112 Water Levels



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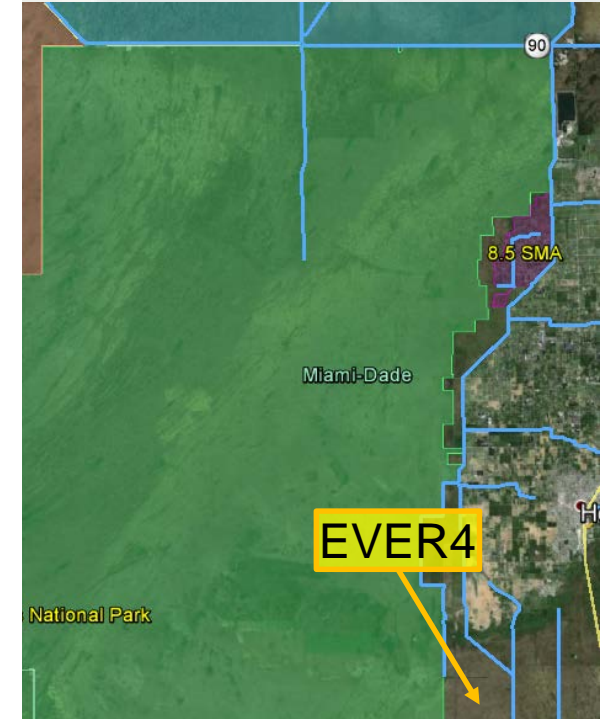
Cape Sable Seaside Sparrow Subpopulation D



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Eastern Marl Prairie Habitat, Subpopulation D

26JAN16 15:30:13



— Percent of habitat available for breeding
 — EVER4 Water Levels

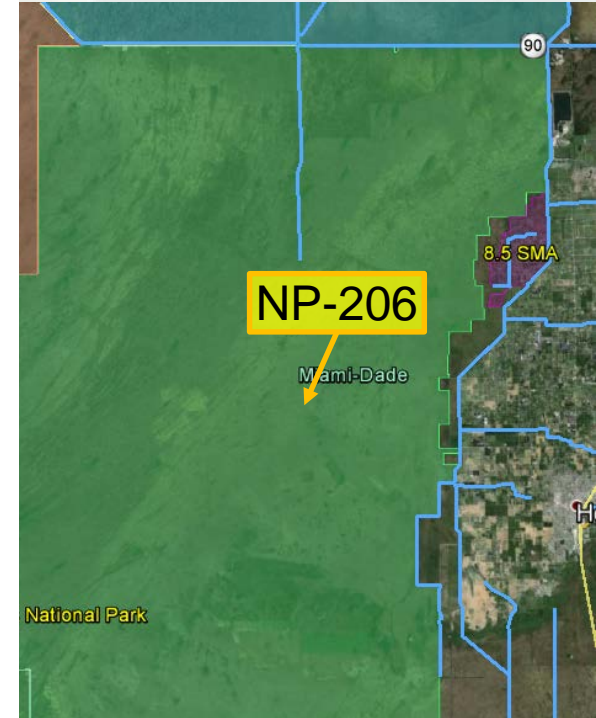
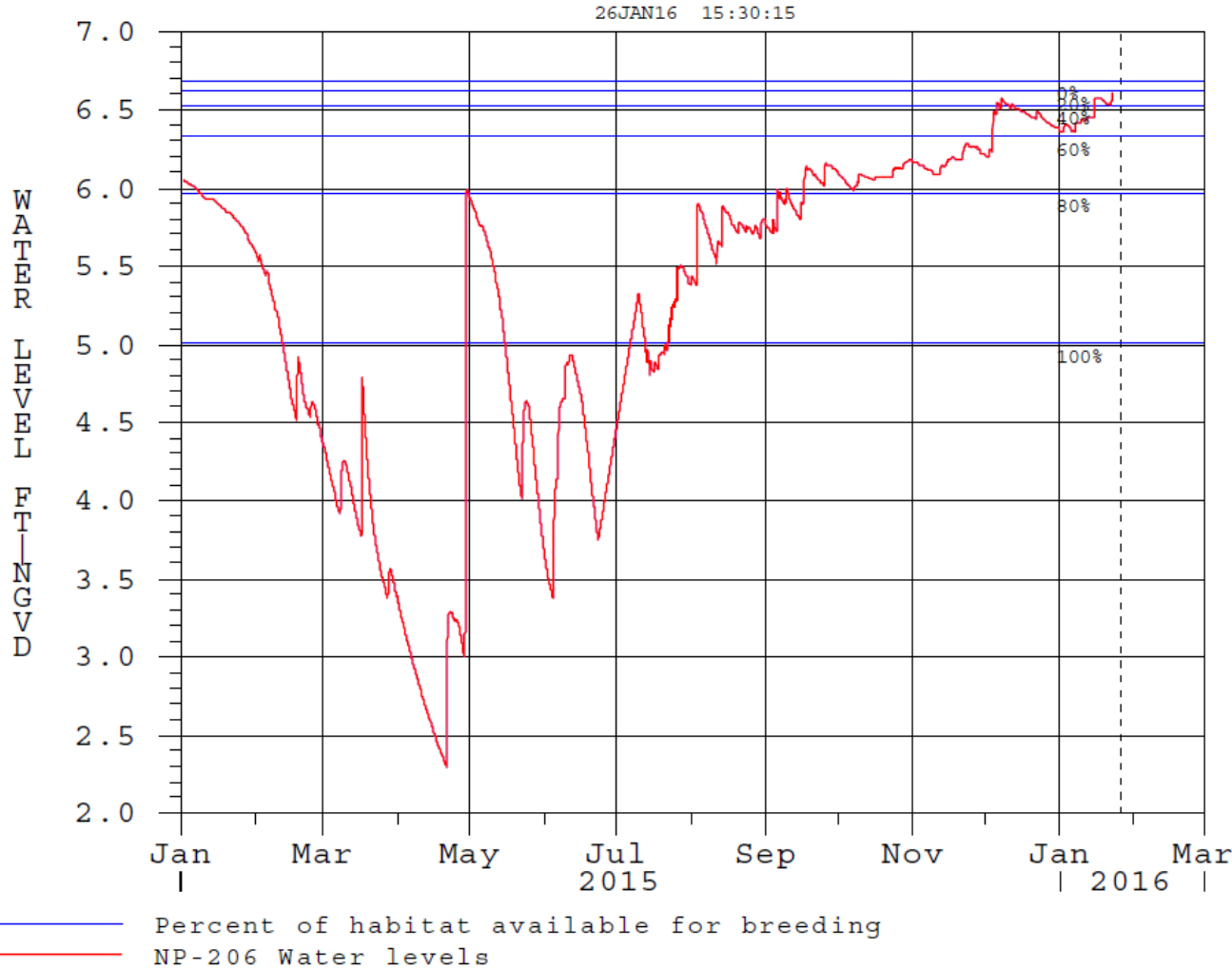


Cape Sable Seaside Sparrow Subpopulation E



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Eastern Marl Prairie Habitat, Subpopulation E





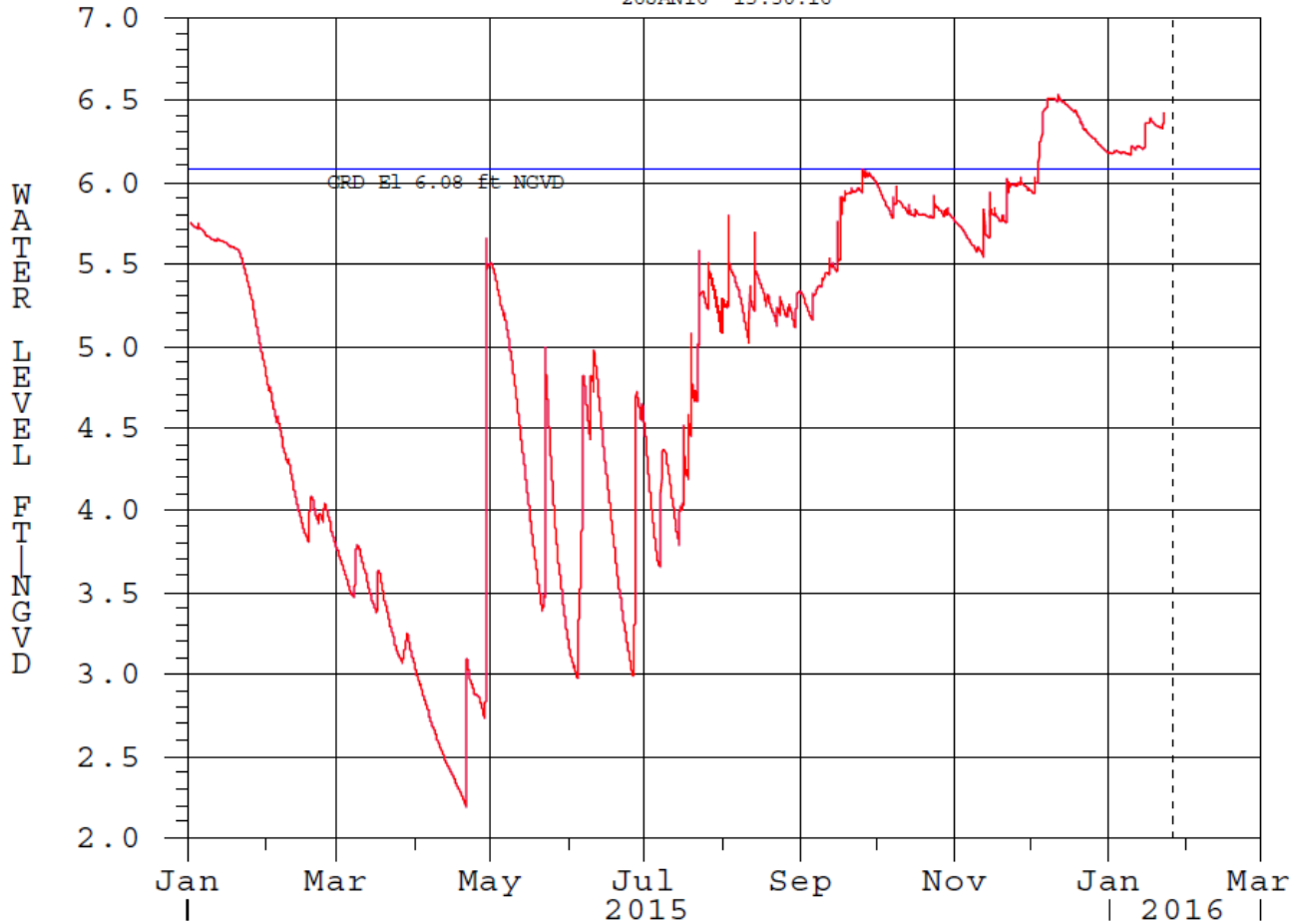
Cape Sable Seaside Sparrow Subpopulation F



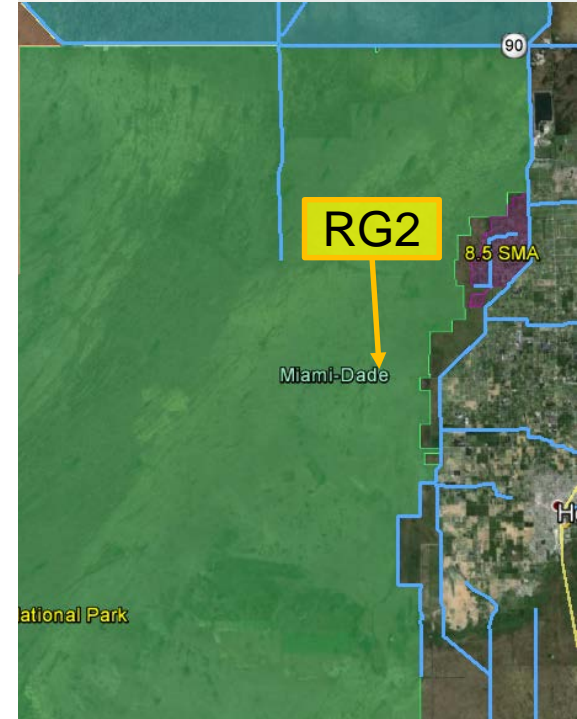
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Eastern Marl Prairie Habitat, Subpopulation F

26JAN16 15:30:16



— Percent of habitat available for breeding
— RG-2 Water level



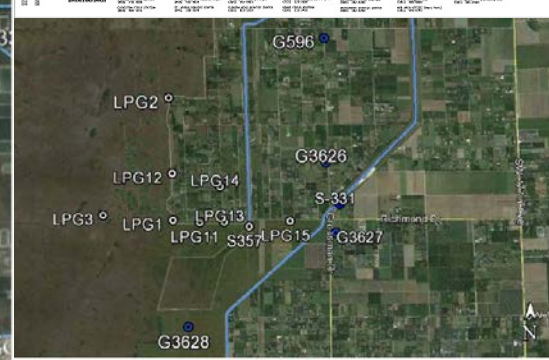
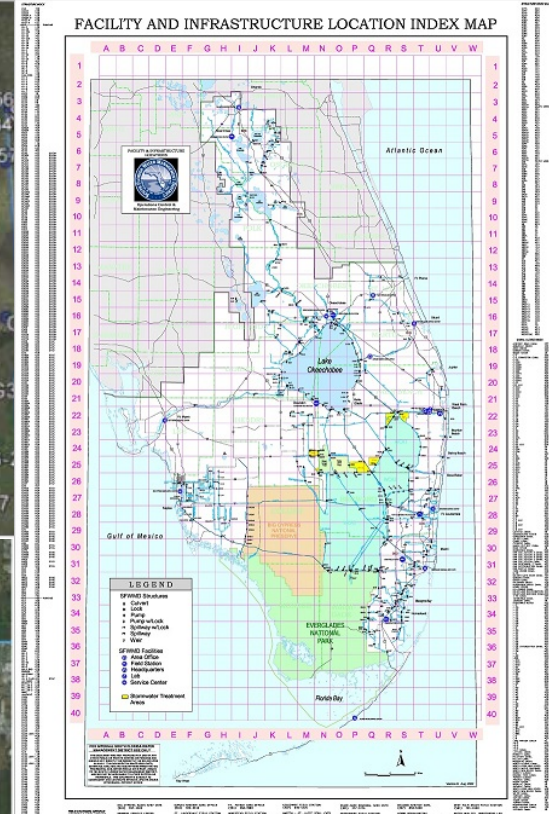
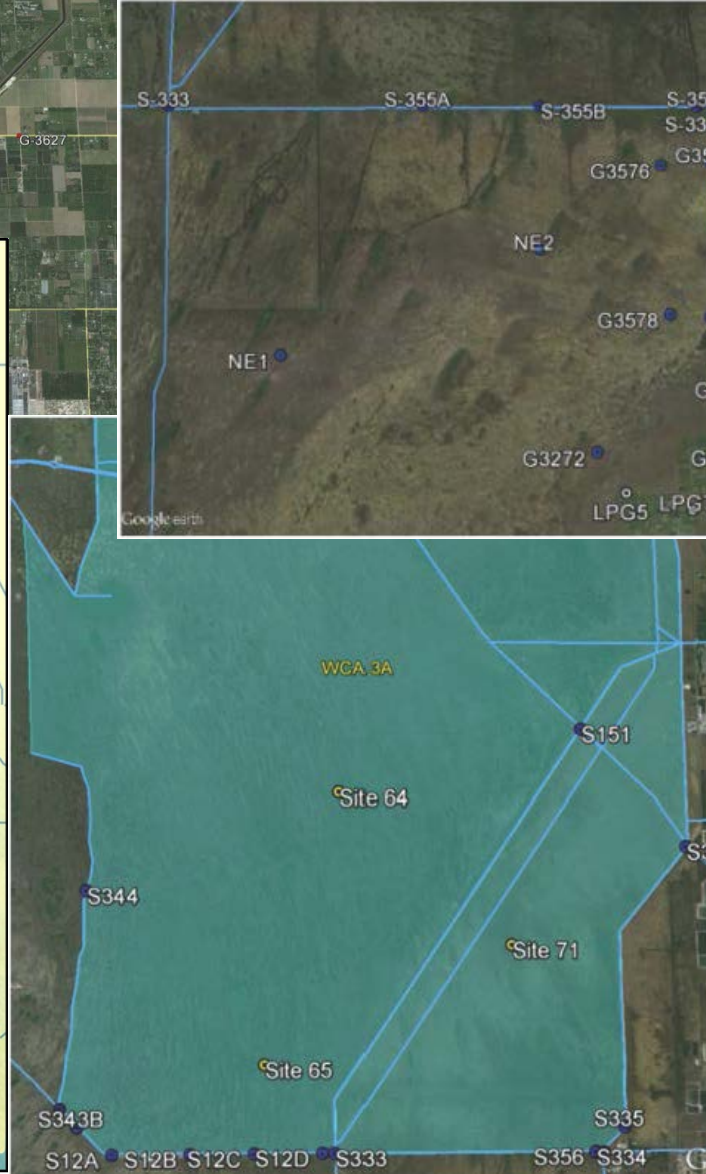


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Maps



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Additional Information



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- **Website:**

- ▶ <http://www.saj.usace.army.mil/Missions/Environmental/EcosystemRestoration/G3273andS356PumpStationFileIdTest.aspx>

- **Email:**

- ▶ dll-cesaj-mwd-ops@usace.army.mil



WCA-3A Inflow Volumes Vs. Outflow Volumes (15 Oct 2015 – 22 Jan 2016)



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Inflow Structures	Inflow Volume (AC-FT)	Outflow Structures	Outflow Volume (AC-FT)	Net Volume out of WCA-3A (AC-FT)
S-11s	262,180	S-12s	254,800	
G-404	26,570	S-333	55,920	
S-8	38,800	S-343A&B	3,310	
S-150	7,130	S-344	4,550	
		S-151	24,790	
Inflow Totals	334,680	Outflow Totals	343,320	8,640