

## Dynamic Position Analysis for September 1, 2018

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### SFWMM Model Simulation of 41 years ( 1965-2005 )

#### Modeling Assumptions

#### Discussion of UPA Results

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  - [Spaghetti Plot](#)
  - [All ENSO Years](#)
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- Upper Kissimmee Stage and Flow
  - [Lake Kissimmee Stage at S65](#)
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# **September 1, 2018**

## **Dynamic Position Analysis**

### **Using Hybrid LOWSM**

### **Modeling Assumptions**

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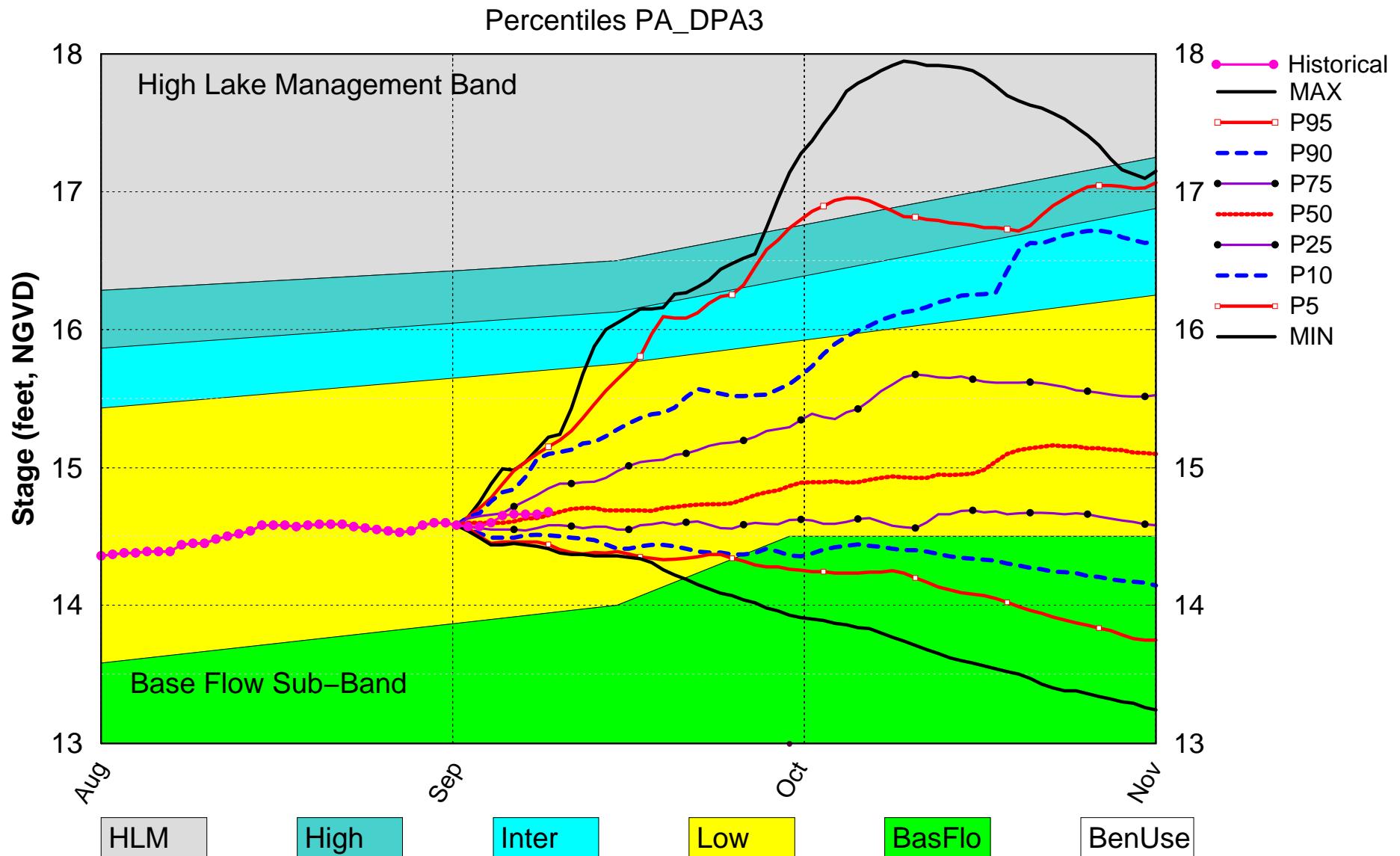
- September 1, 2018 DPA is based on regular Position Analysis applying V6.7.4 of the SFWMM, and assuming the current Lake Okeechobee Net Inflow Outlook (LONINO) for each year simulated. It is based on historical climatic conditions spanning the period 1965-2005
- The model is reinitialized August 1<sup>st</sup> of each year
- The Lake Okeechobee operations follow the Lake Okeechobee Regulation Schedule (LORS2008). Modeling assumptions consistent with modeling performed for LORS-2008 Supplemental, Environmental Impact Statement (SEIS).
- LOK Temporary Forward Pump operations will be in place, whenever necessary, to improve water supply deliveries from the Lake under low Lake stages.
- STAs reflect current operational conditions
- Lake Okeechobee Water Shortage Management (LOWSM) is included in the simulation which reflects the currently approved 40E-21 and 40E-22 water shortage rules.
- Water supply restrictions simulated for the urban areas reflect current District water shortage management policies.
- Wet and Dry years selected by examining all years and choosing the wettest or driest years in both near and far-term.
- ENSO-neutral conditions are present. There is ~60% chance of El Niño in fall (September – November), increasing to ~70% during winter 2018-19.

Lake Okeechobee Water Shortage Triggering Line										
01/01	03/31	04/30	05/30	05/31	09/30	10/01	10/31	11/30	12/31	
12.15	11.70	10.95	10.50	10.50	13.00	13.00	12.80	12.40	12.16	

- S-65E inflows entering Lake Okeechobee in the SFWMM simulation were obtained by adding S-65 flows, obtained from the UK-OPS simulation in a PA mode, and local runoff contribution from the Lower Kissimmee, computed as the difference of S65E and S65 historical flows for the period 1965-2005. Runoff contribution on any given day of the current PA month is adjusted based on a correlation function of Palmer Drought Index, rainfall and historical flows.
- Back pumping of excess runoff from the EAA into Lake Okeechobee takes place only under flood control conditions (Interim Action Plan).
- Operations for structures in the SDCS are more consistent with Increment 1.1/1.2
- Temporary deviation of operations:
  1. L-29 Canal constraint of 8.3
  2. WCA2A Schedule
  3. S-357 discharging to C-111SD Northern Detention Area
- Information for the initial conditions can be viewed [here](#). Initial stages for specified canals are shown [here](#) and gages are shown [here](#).
- Please view the [Documentation for the SFWMM](#).

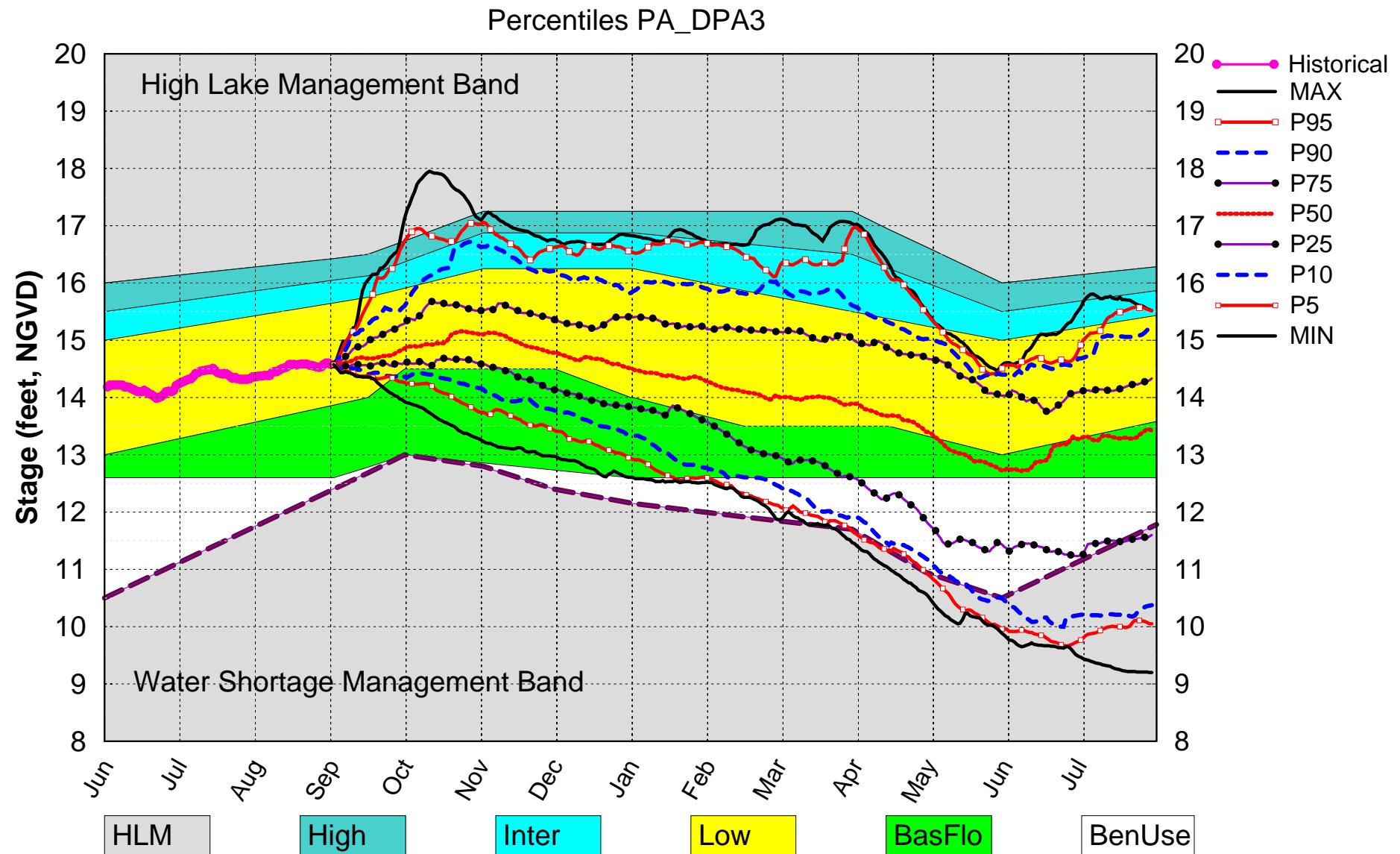
[\*\*Back to Operational Planning Main Page\*\*](#)

# Lake Okeechobee SFWMM Sep 2018 Position Analysis



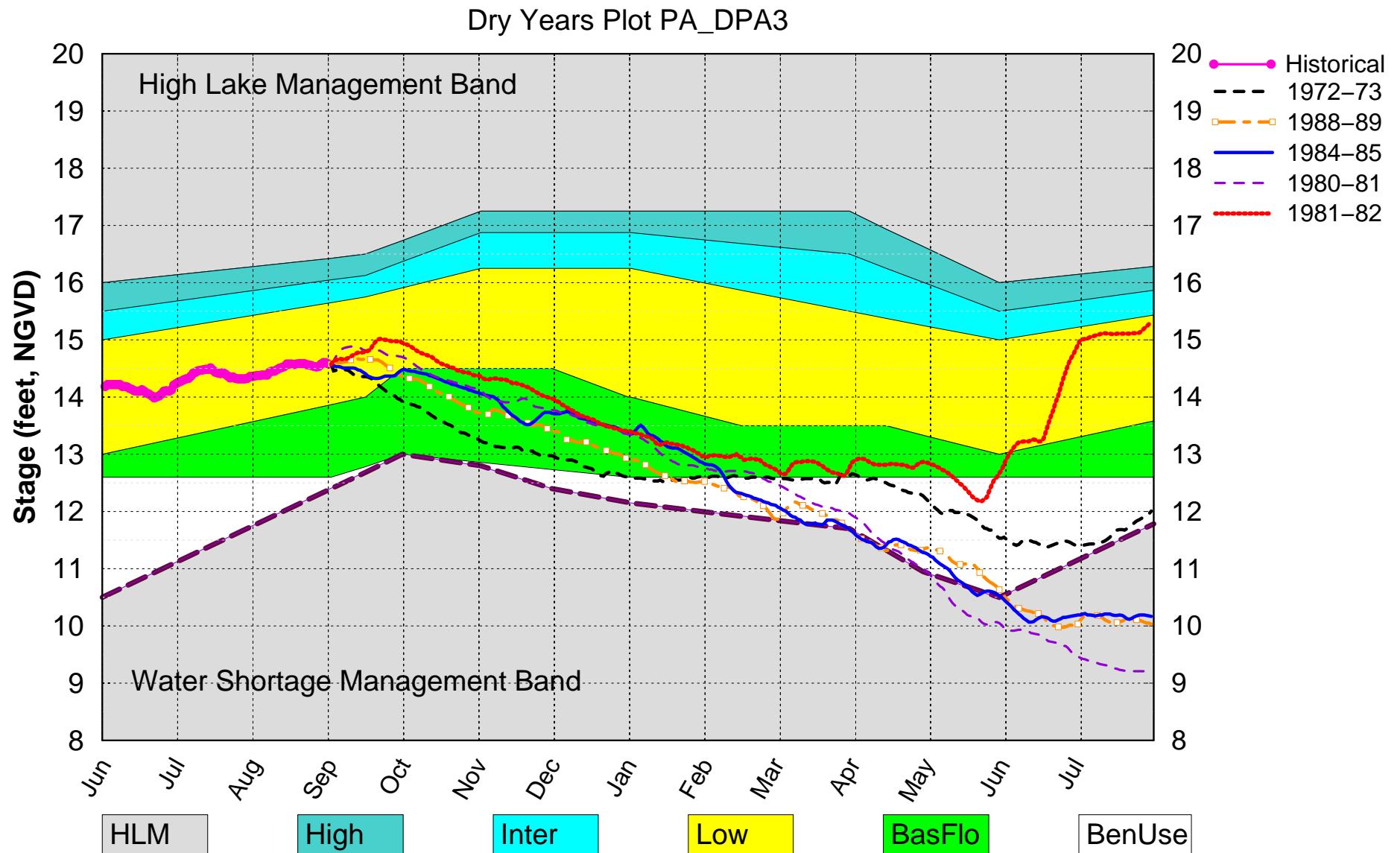
(See assumptions on the Position Analysis Results website)

# Lake Okeechobee SFWMM Sep 2018 Position Analysis



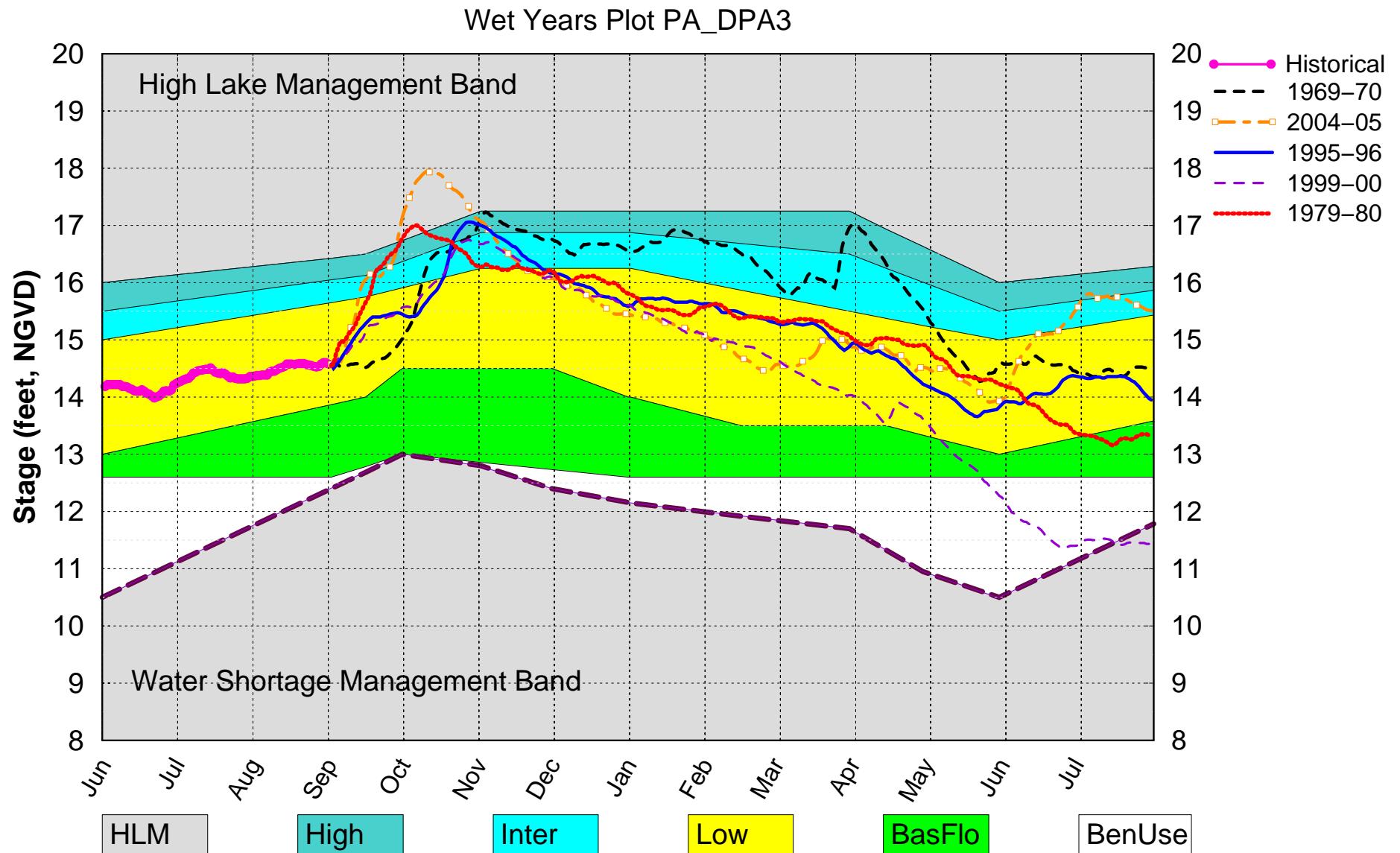
(See assumptions on the Position Analysis Results website)

# Lake Okeechobee SFWMM Sep 2018 Position Analysis



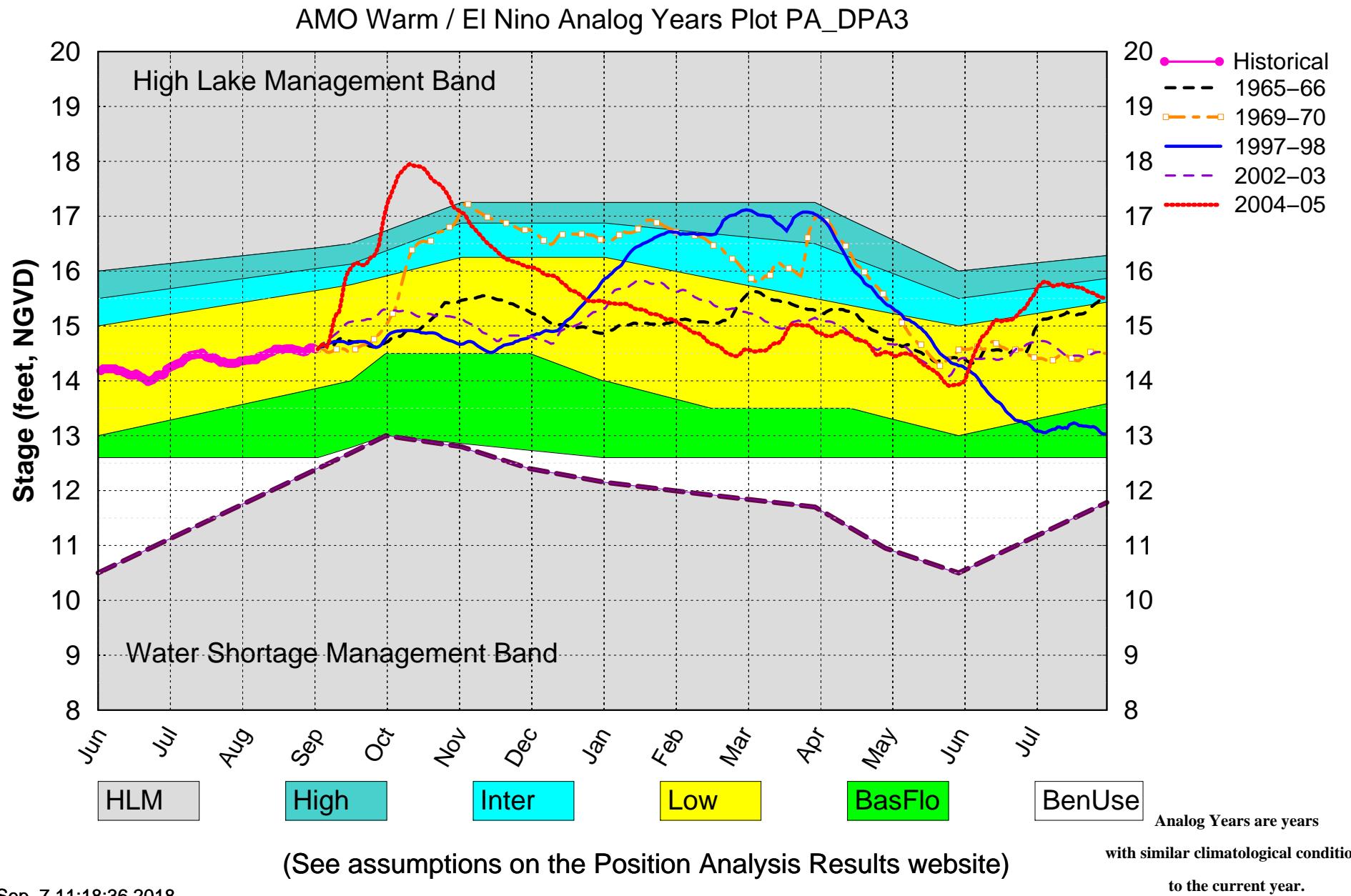
(See assumptions on the Position Analysis Results website)

# Lake Okeechobee SFWMM Sep 2018 Position Analysis



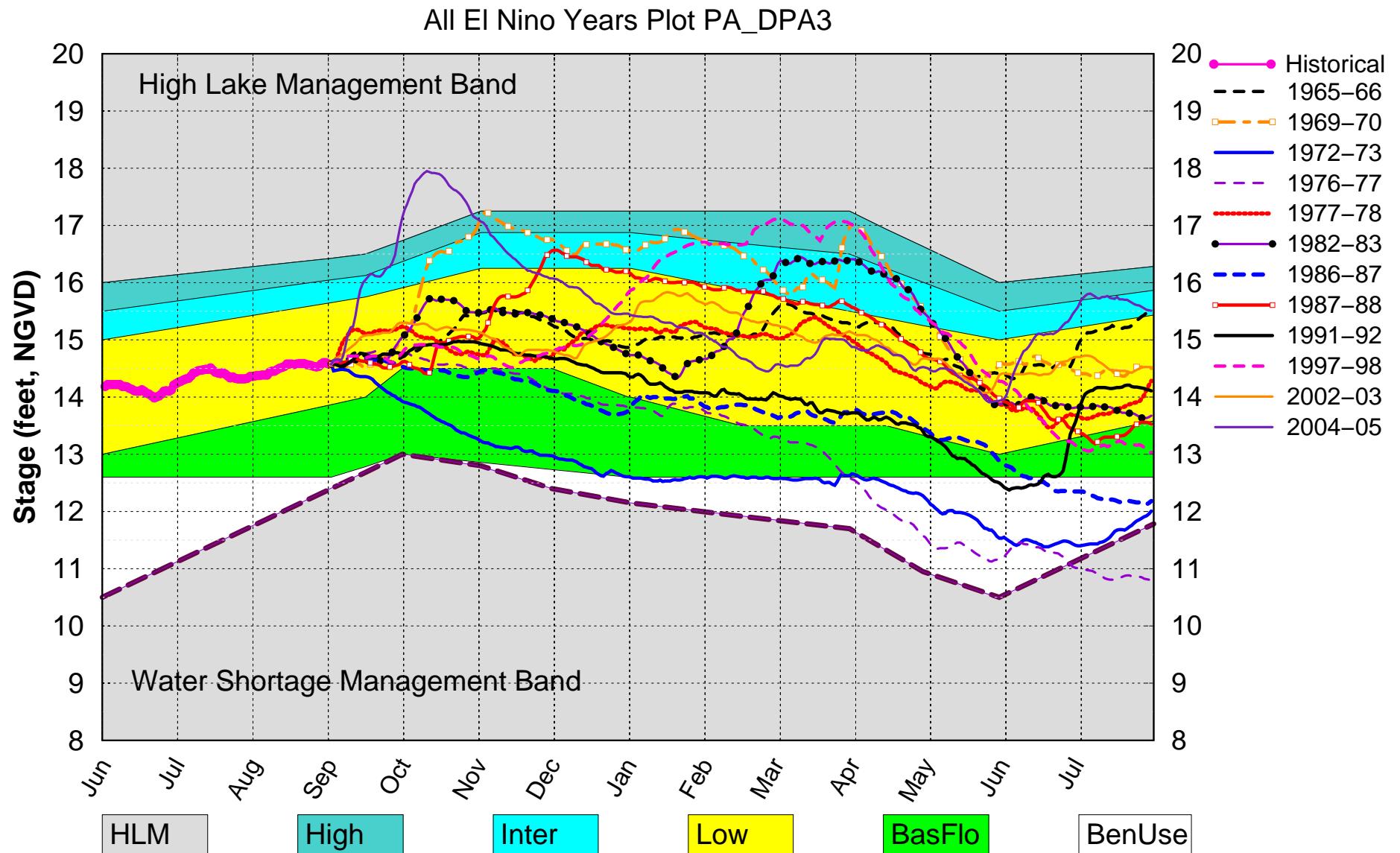
(See assumptions on the Position Analysis Results website)

# Lake Okeechobee SFWMM Sep 2018 Position Analysis





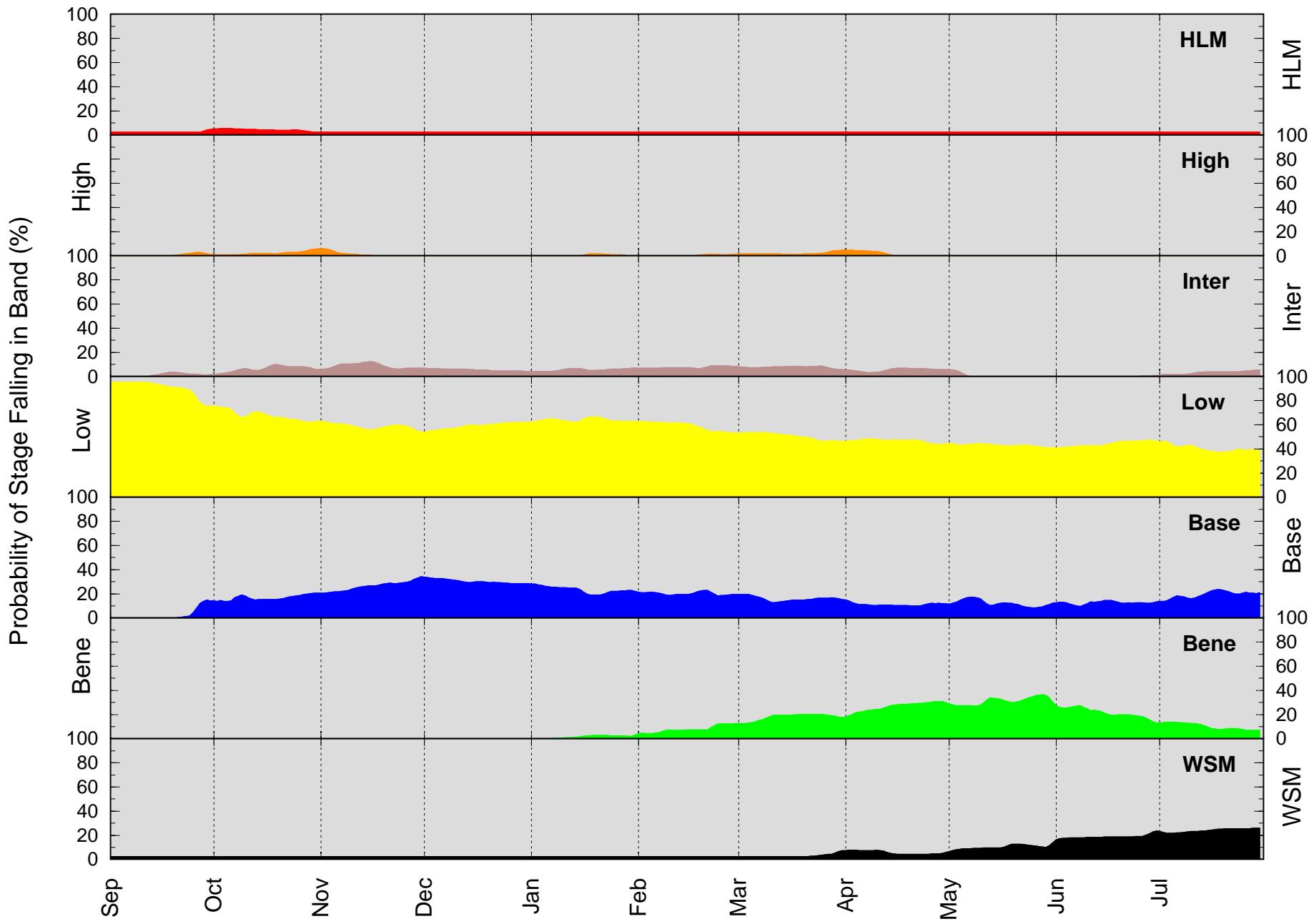
# Lake Okeechobee SFWMM Sep 2018 Position Analysis



(See assumptions on the Position Analysis Results website)

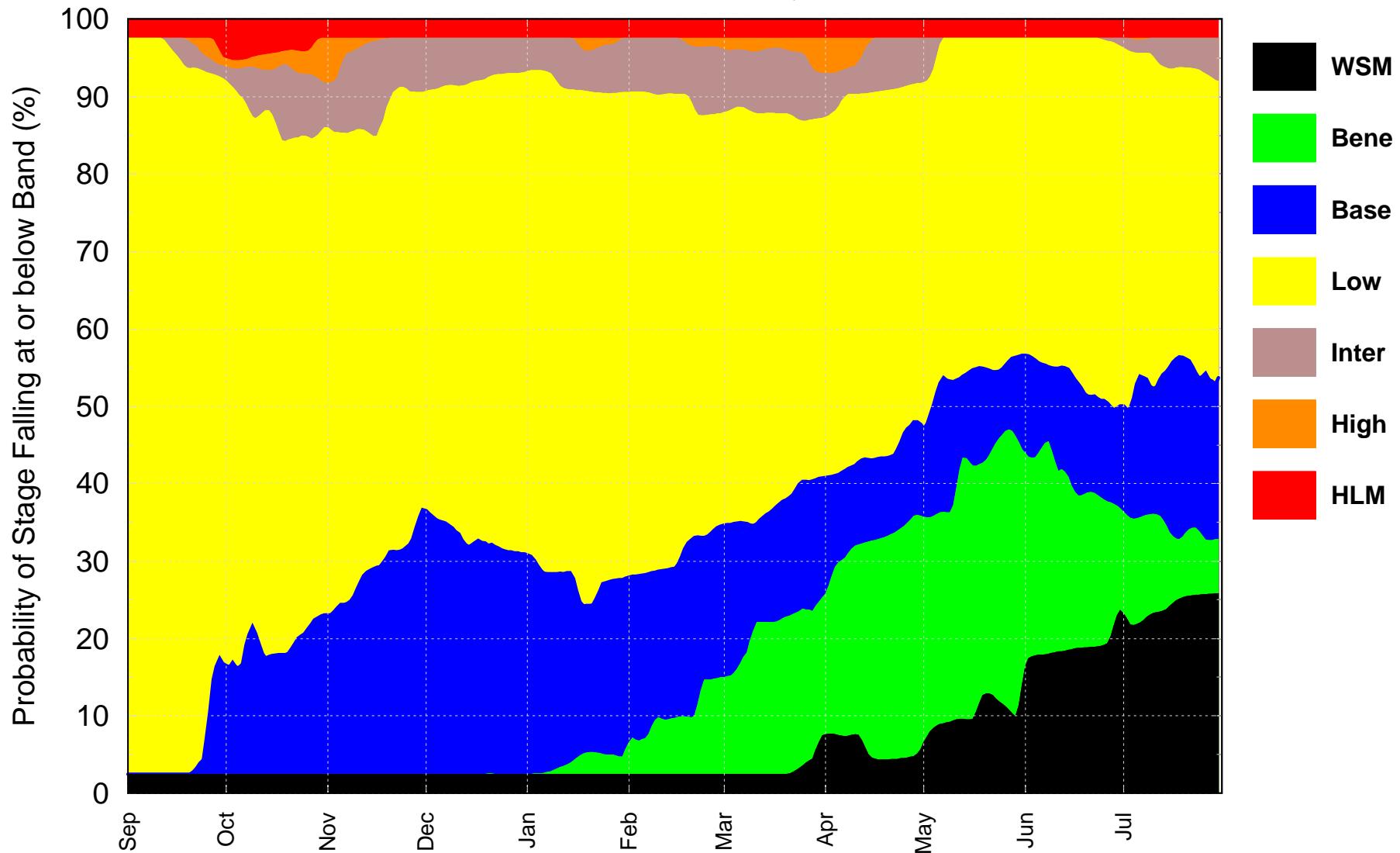
# Lake Okeechobee – Band Probabilities

'(See assumptions on the Position Analysis Results website)'



# Lake Okeechobee – Probabilities for Operational Bands

'(See assumptions on the Position Analysis Results website)'

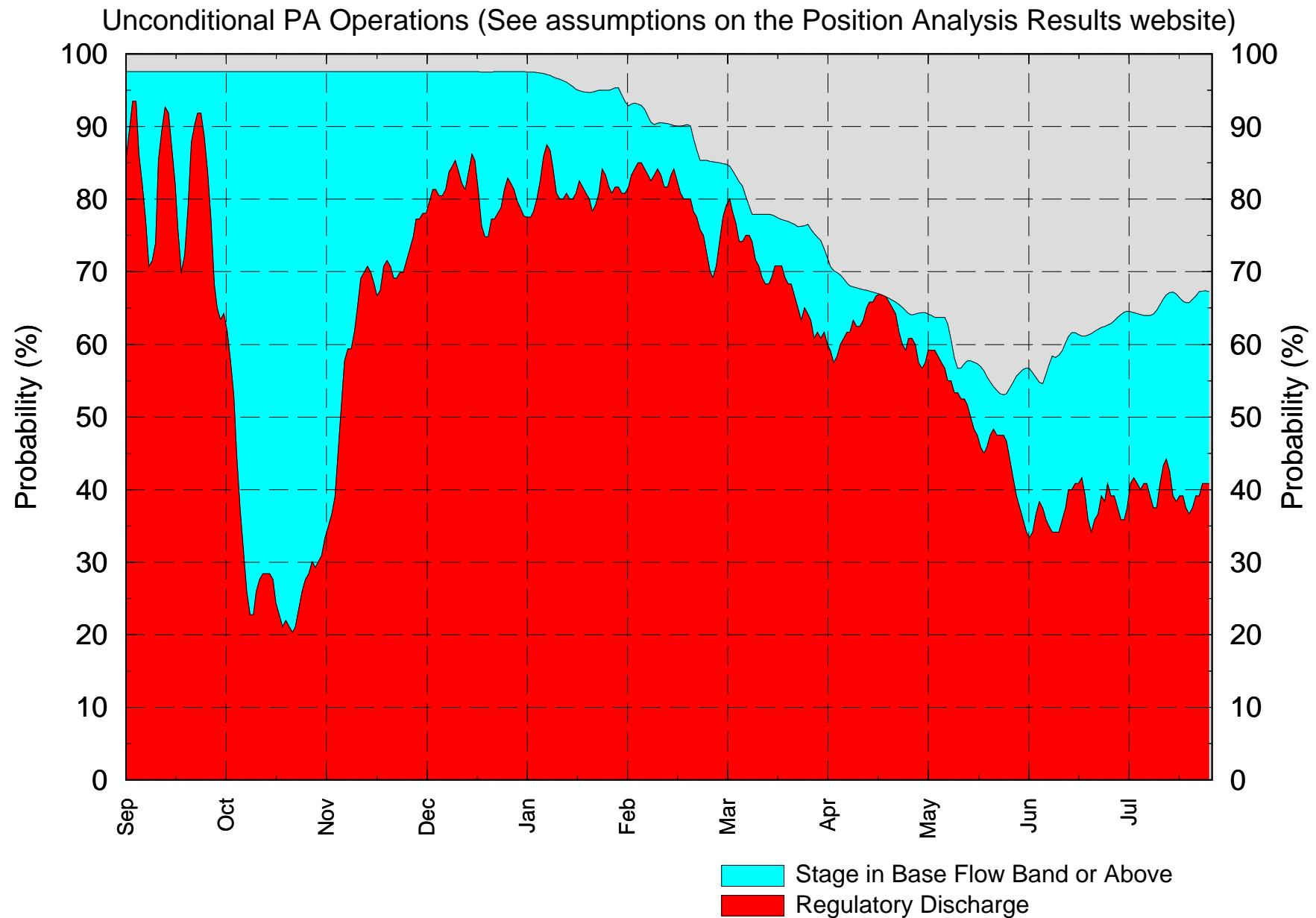


The width for each band gives the probability of stage falling in that band, as defined by the operational schedules.

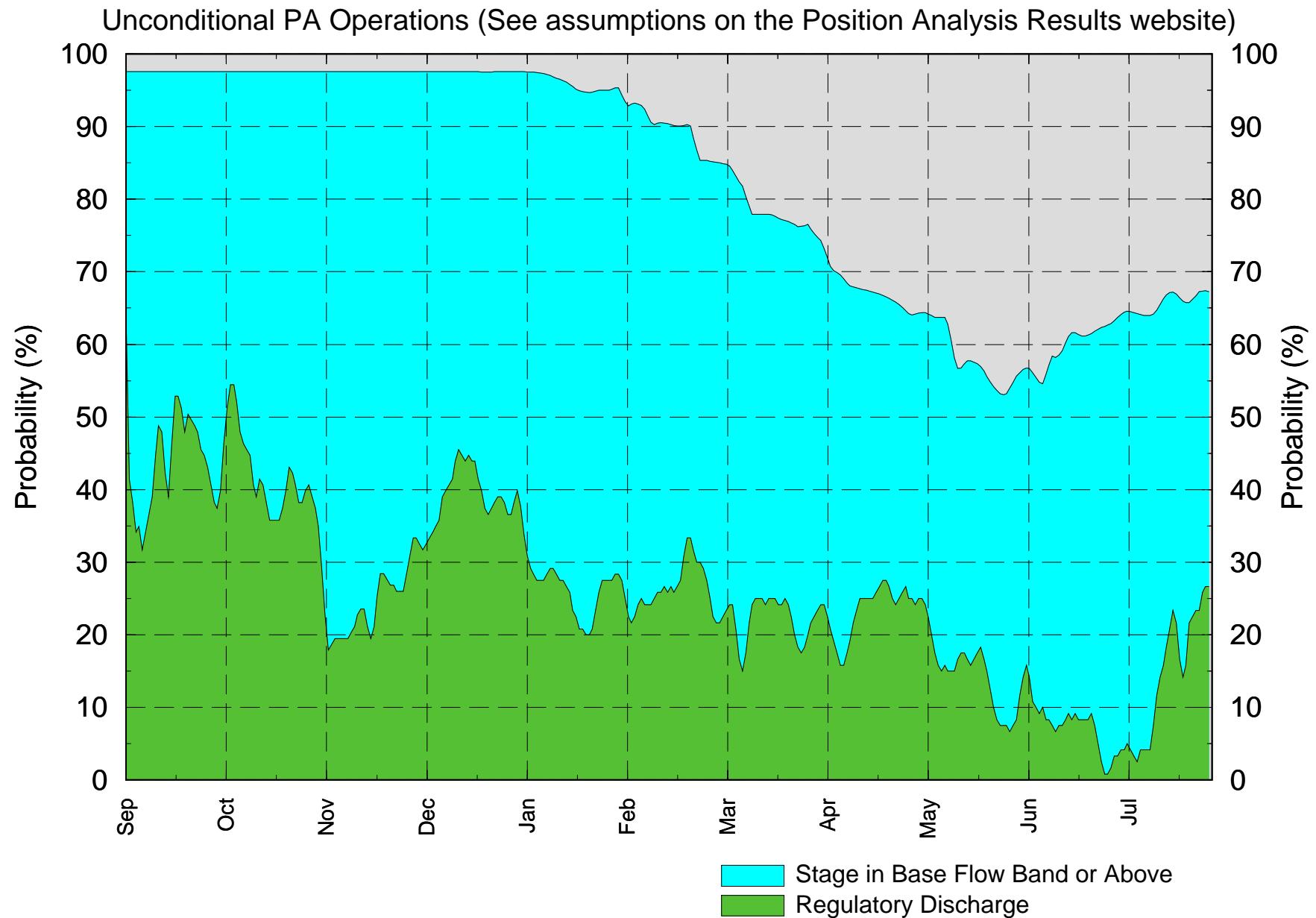
Lake Okeechobee Band Probabilities (%) at the Begining of Each Month  
 '(See assumptions on the Position Analysis Results website)'  
 Initial Stage 14.37 ft. for 08/01/2018

Date	HLM	High	Inter	Low	Base	Bene	WSM
2018 08 01	2.4	0.0	0.0	95.1	0.0	0.0	2.4
2018 09 01	2.4	0.0	0.0	95.1	0.0	0.0	2.4
2018 10 01	5.1	1.1	1.8	75.5	14.1	0.0	2.4
2018 11 01	2.4	5.8	5.8	62.9	20.6	0.0	2.4
2018 12 01	2.4	0.0	6.9	54.2	34.1	0.0	2.4
2019 01 01	2.4	0.0	4.3	62.4	28.3	0.0	2.4
2019 02 01	2.4	0.0	7.0	62.6	21.4	4.1	2.4
2019 03 01	2.4	1.4	8.4	53.3	19.6	12.5	2.4
2019 04 01	2.4	4.6	5.8	46.5	15.5	17.8	7.5
2019 05 01	2.4	-0.0	5.8	44.1	11.8	30.1	5.7
2019 06 01	2.4	-0.0	-0.0	41.0	12.2	30.6	13.8
2019 07 01	2.4	-0.0	1.1	46.4	13.3	13.1	23.6

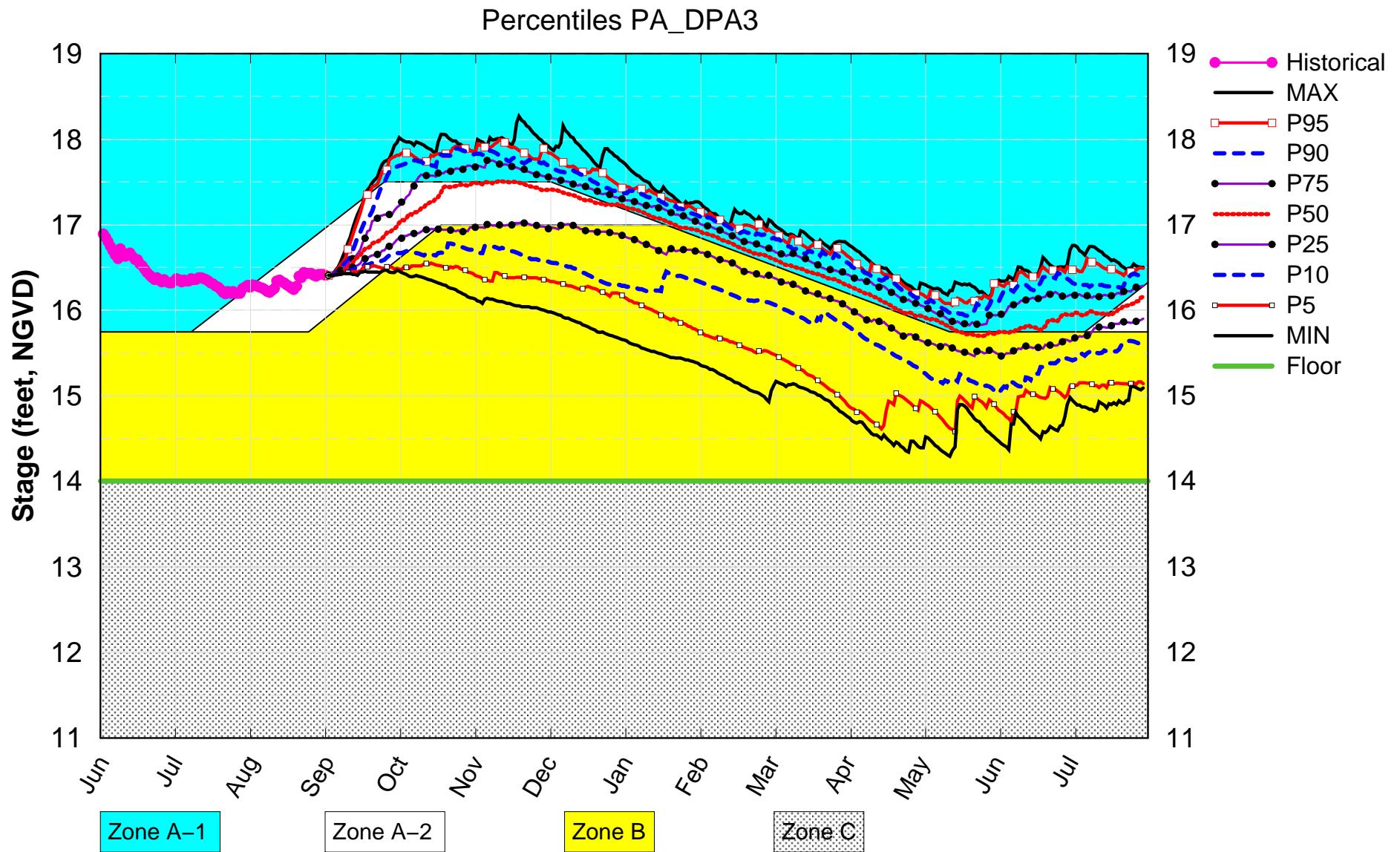
# Lake Okeechobee – LORS2008 Releases to the Estuaries



# Lake Okeechobee – LORS2008 Releases to the WCA's

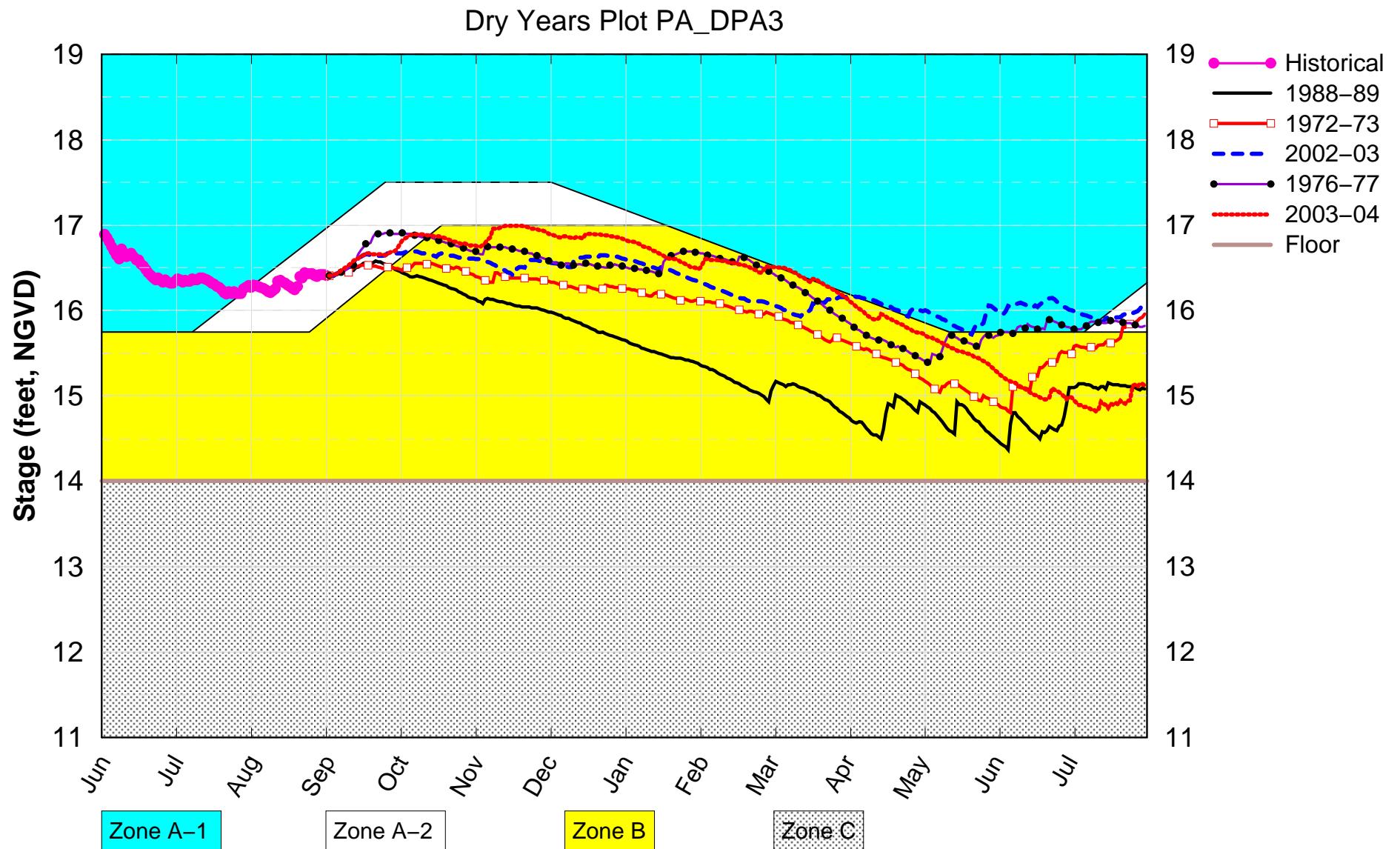


# WCA1 SFWMM Sep 2018 Position Analysis



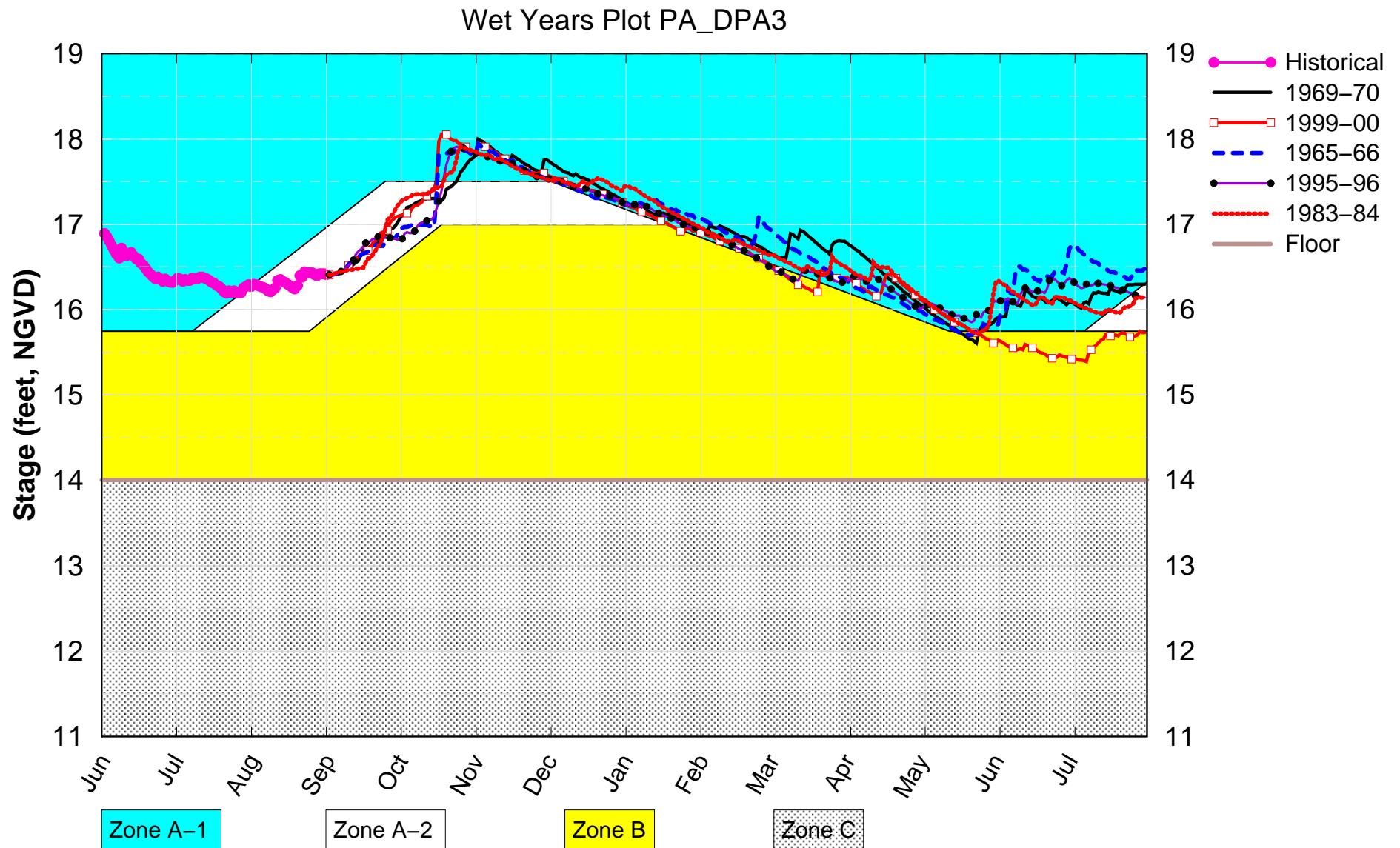
(See assumptions on the Position Analysis Results website)

# WCA1 SFWMM Sep 2018 Position Analysis



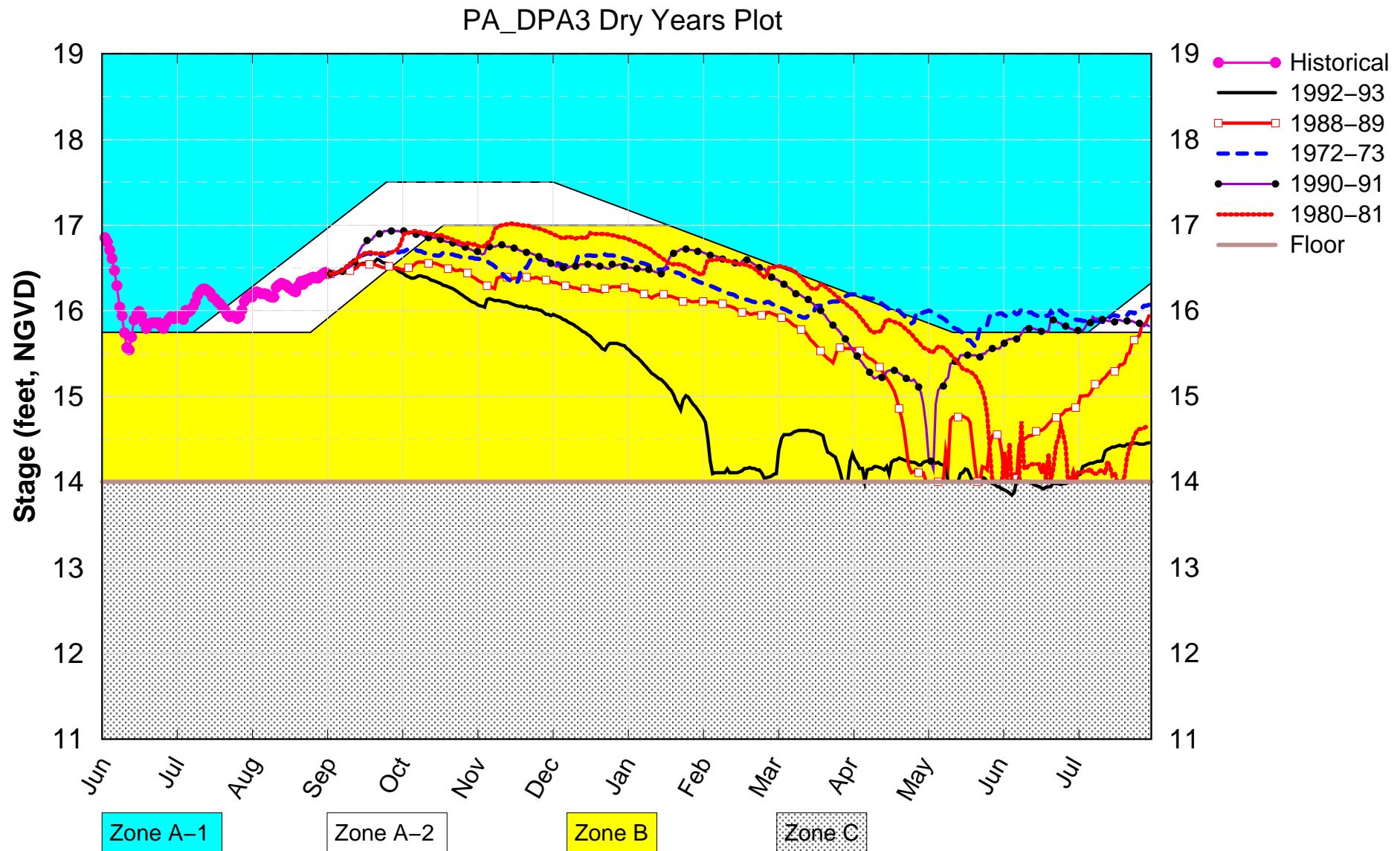
(See assumptions on the Position Analysis Results website)

# WCA1 SFWMM Sep 2018 Position Analysis



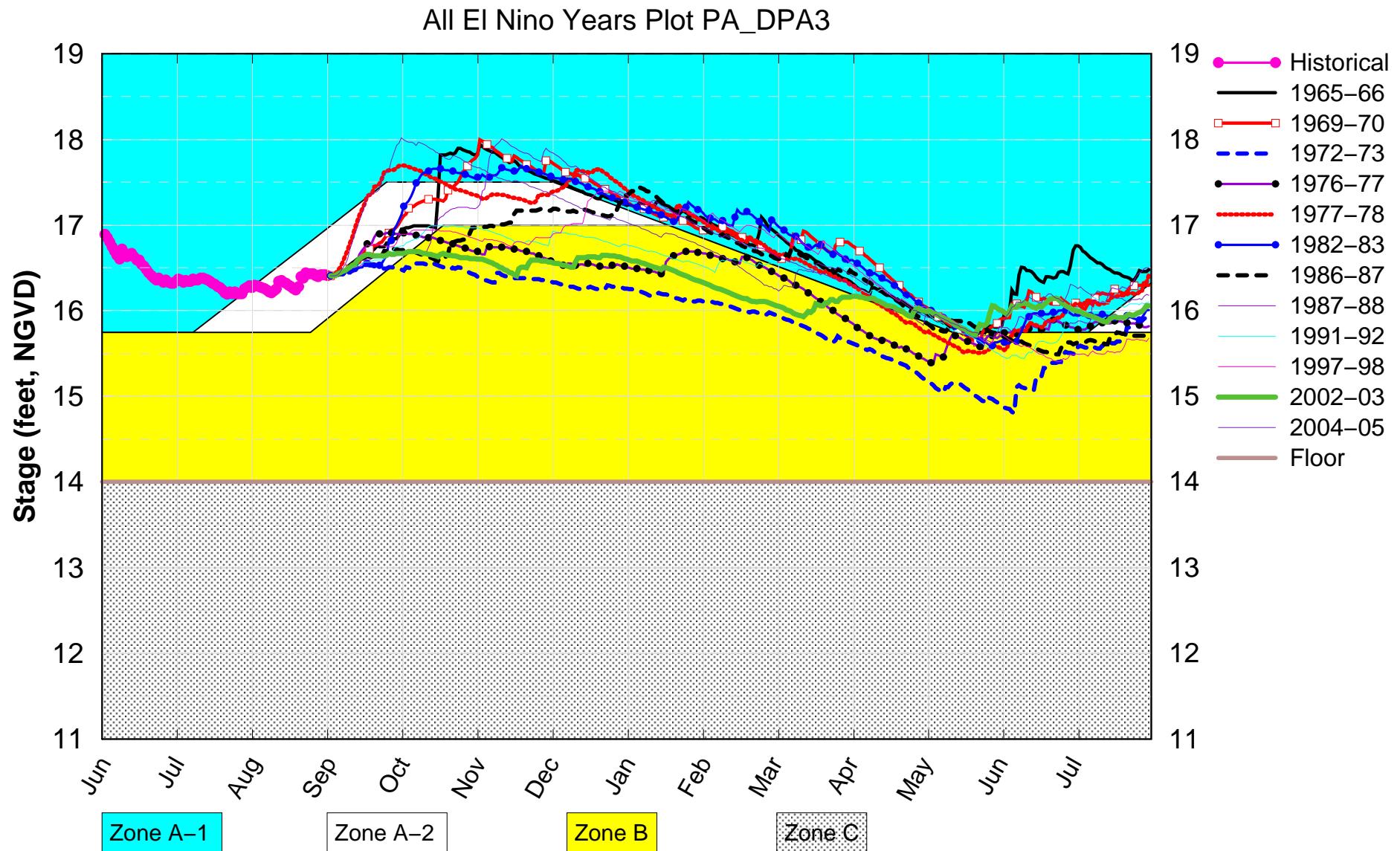
(See assumptions on the Position Analysis Results website)

# CA1 Canal SFWMM Sep 2018 Position Analysis



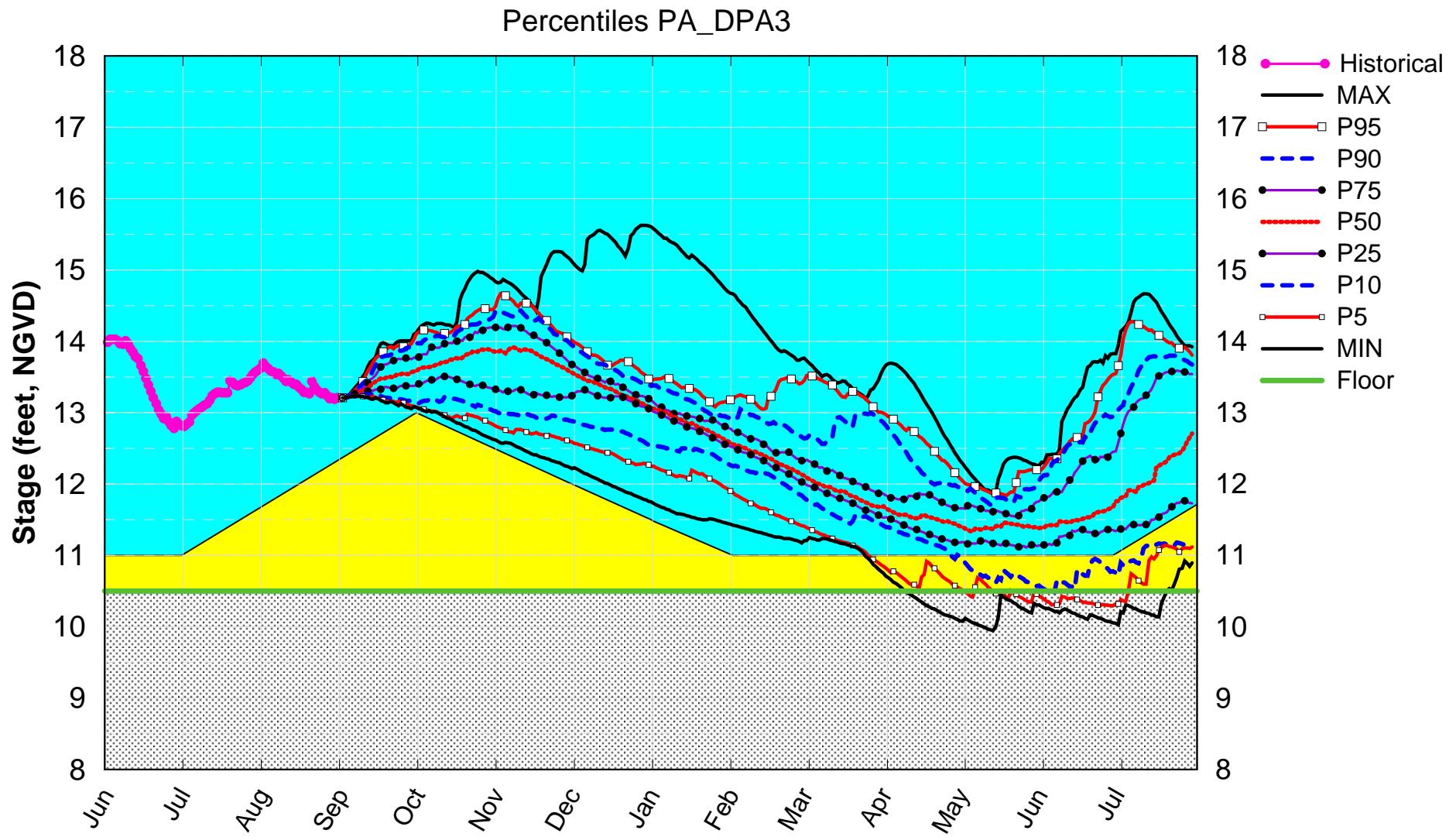
(See assumptions on the Position Analysis Results website)

# WCA1 SFWMM Sep 2018 Position Analysis



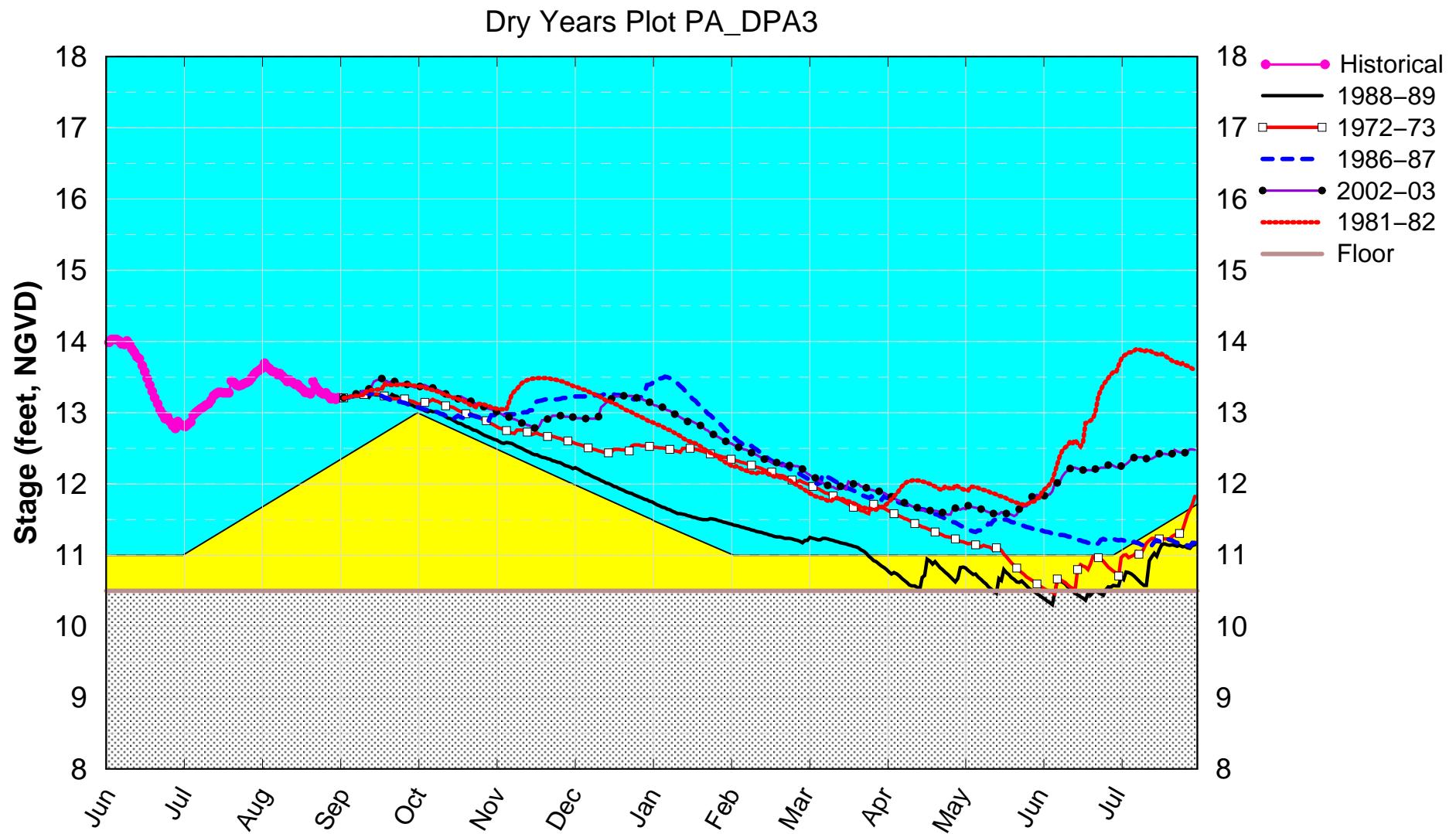
(See assumptions on the Position Analysis Results website)

# WCA2A SFWMM Sep 2018 Position Analysis



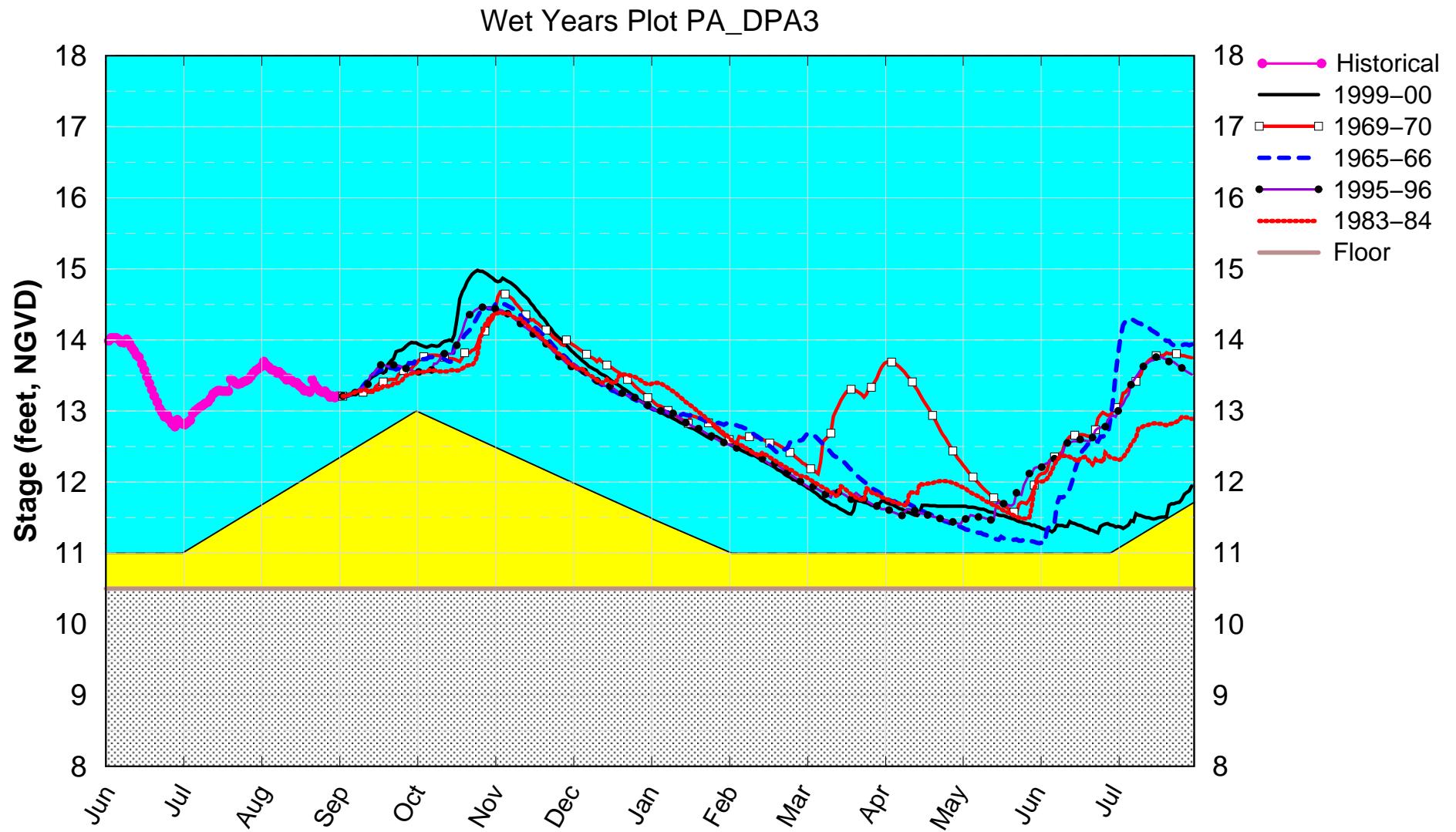
(See assumptions on the Position Analysis Results website)

# WCA2A SFWMM Sep 2018 Position Analysis



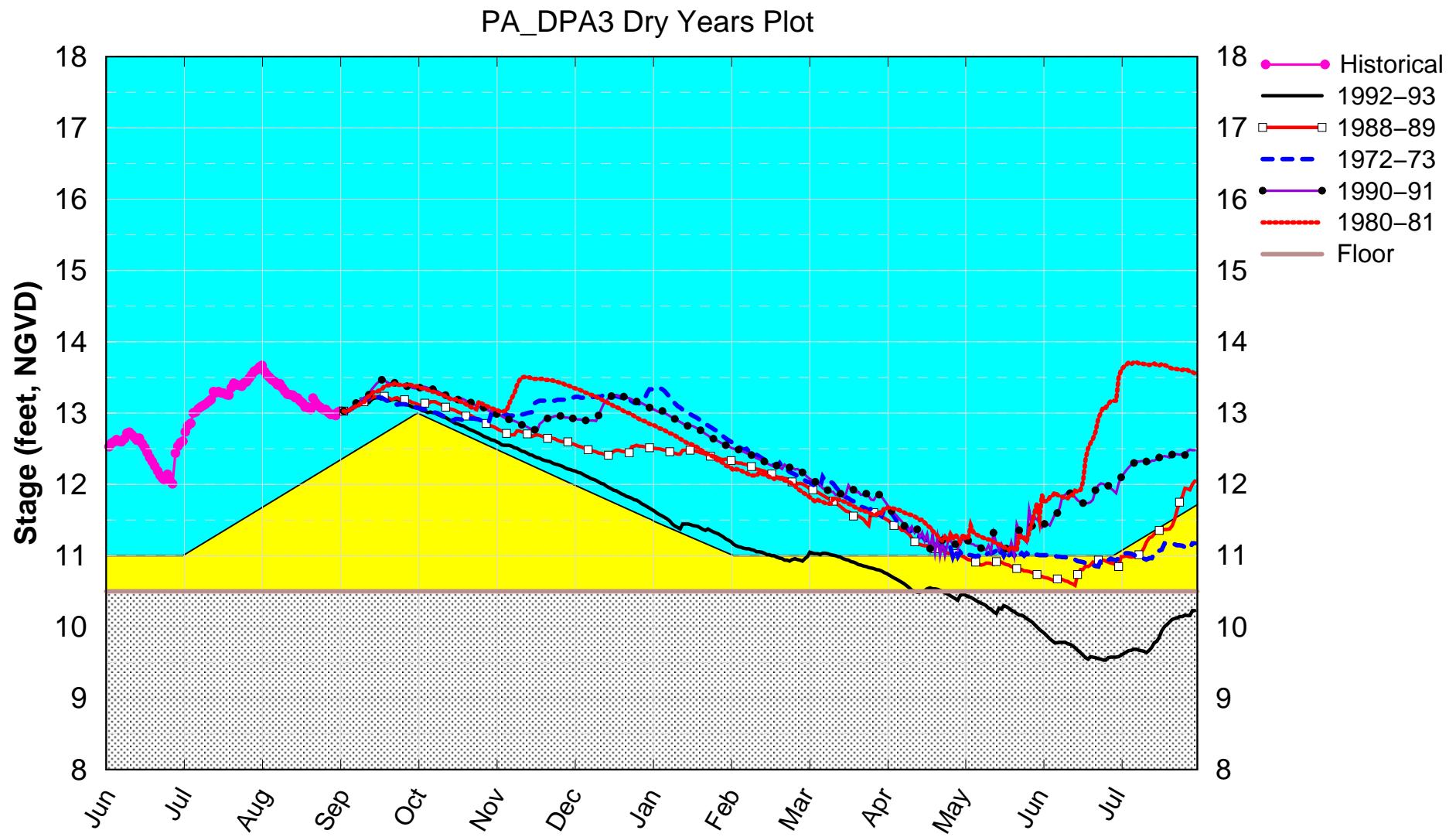
(See assumptions on the Position Analysis Results website)

# WCA2A SFWMM Sep 2018 Position Analysis



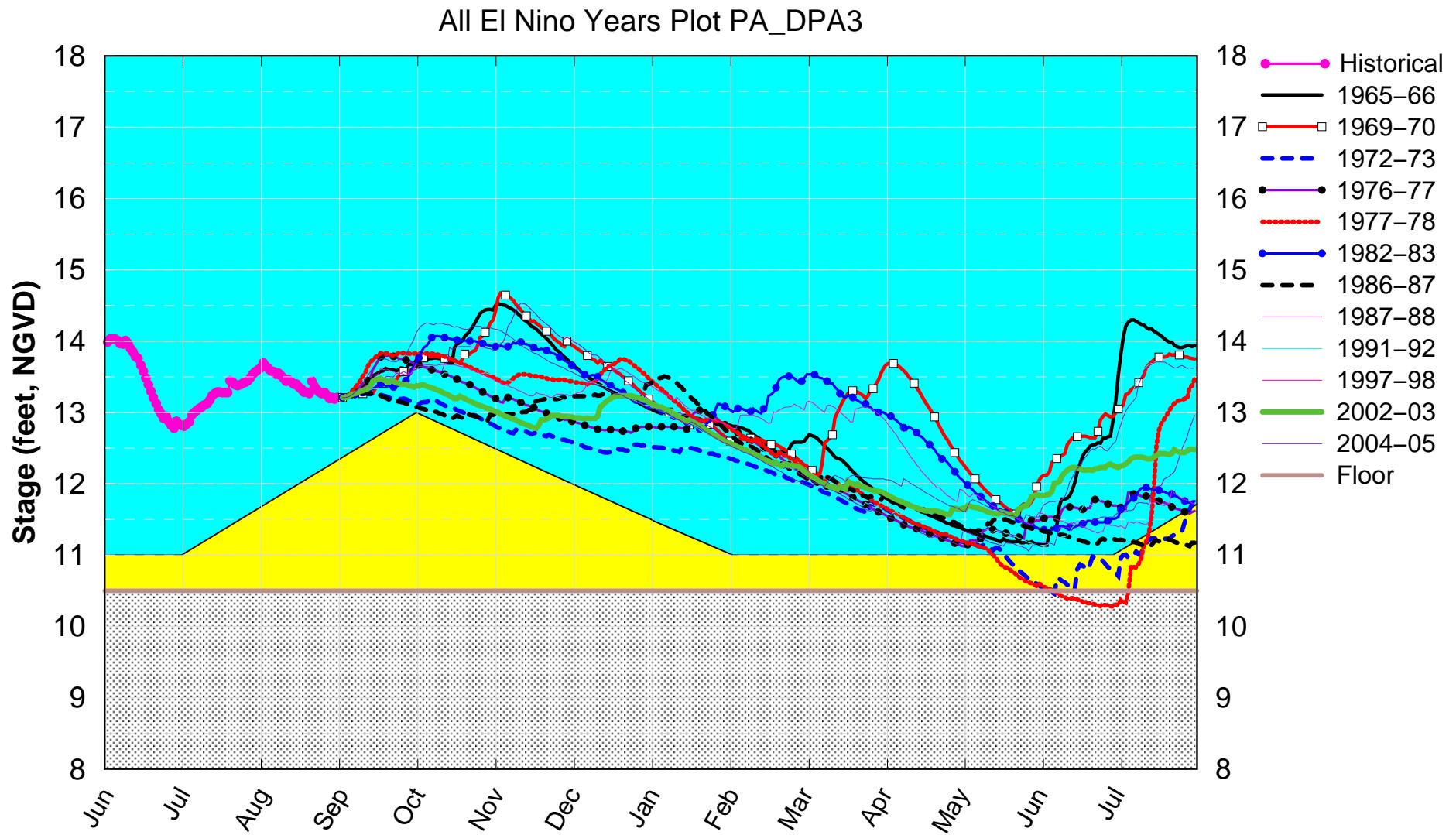
(See assumptions on the Position Analysis Results website)

# L38 Canal SFWMM Sep 2018 Position Analysis



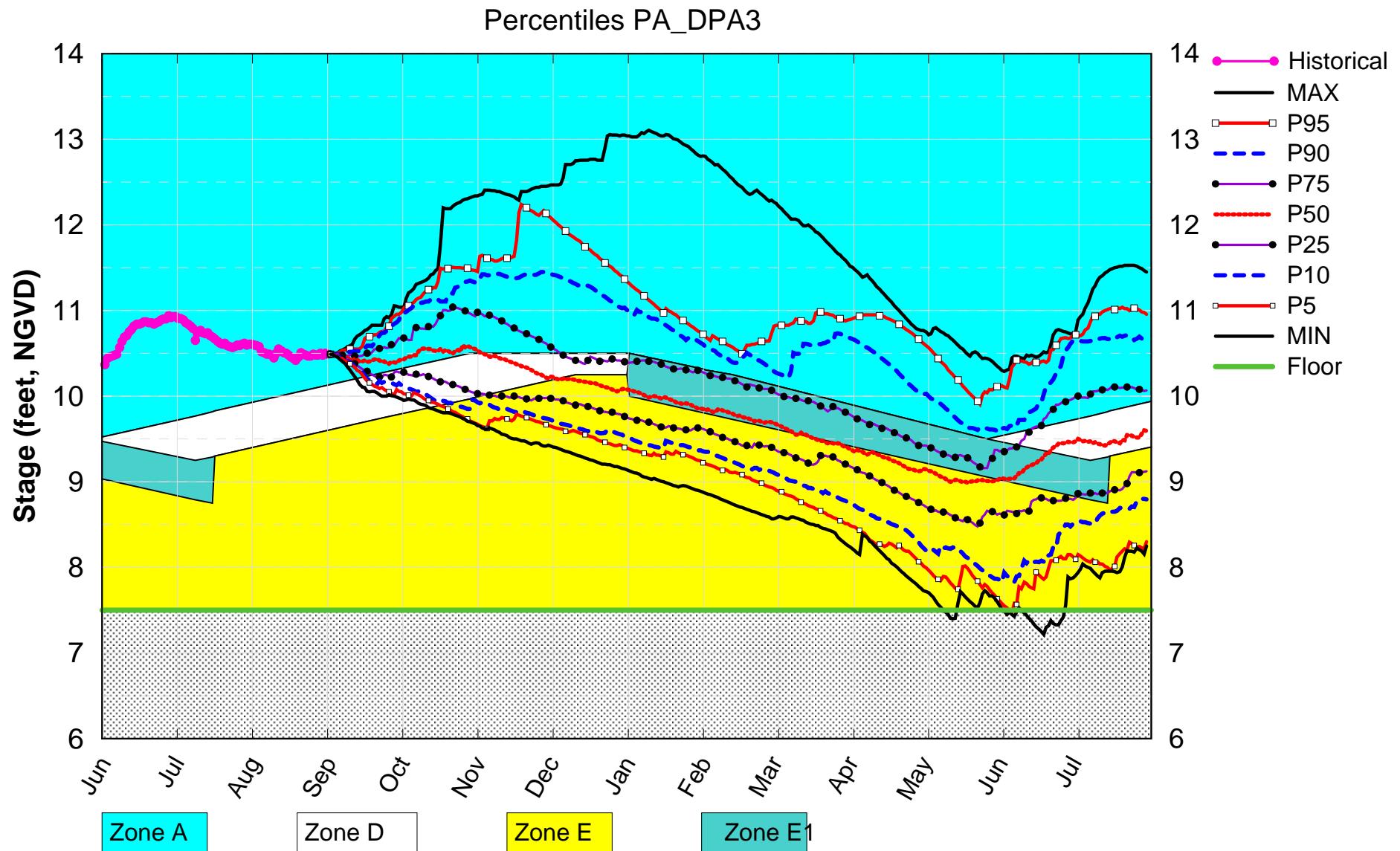
(See assumptions on the Position Analysis Results website)

# WCA2A SFWMM Sep 2018 Position Analysis



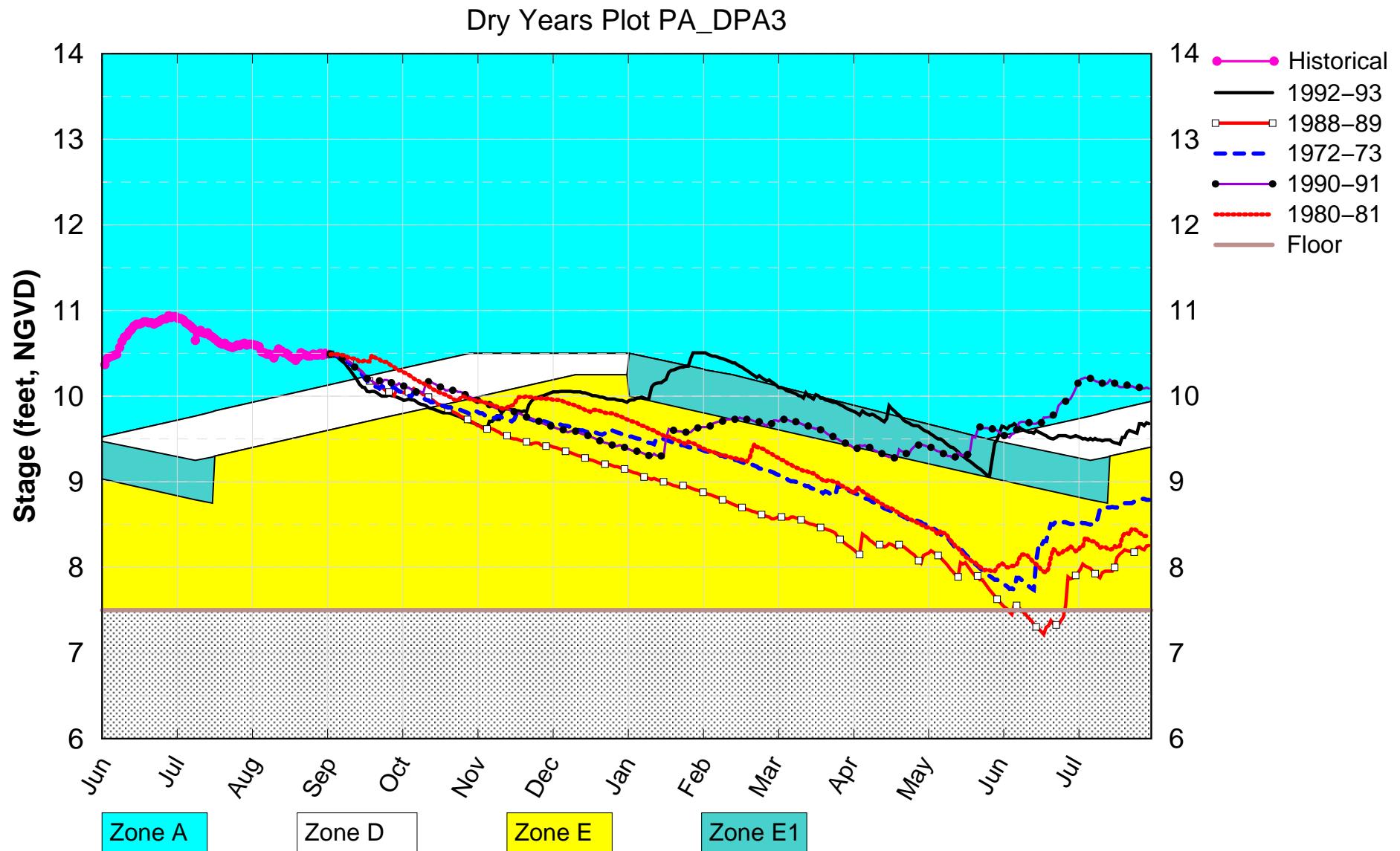
(See assumptions on the Position Analysis Results website)

# WCA3A SFWMM Sep 2018 Position Analysis



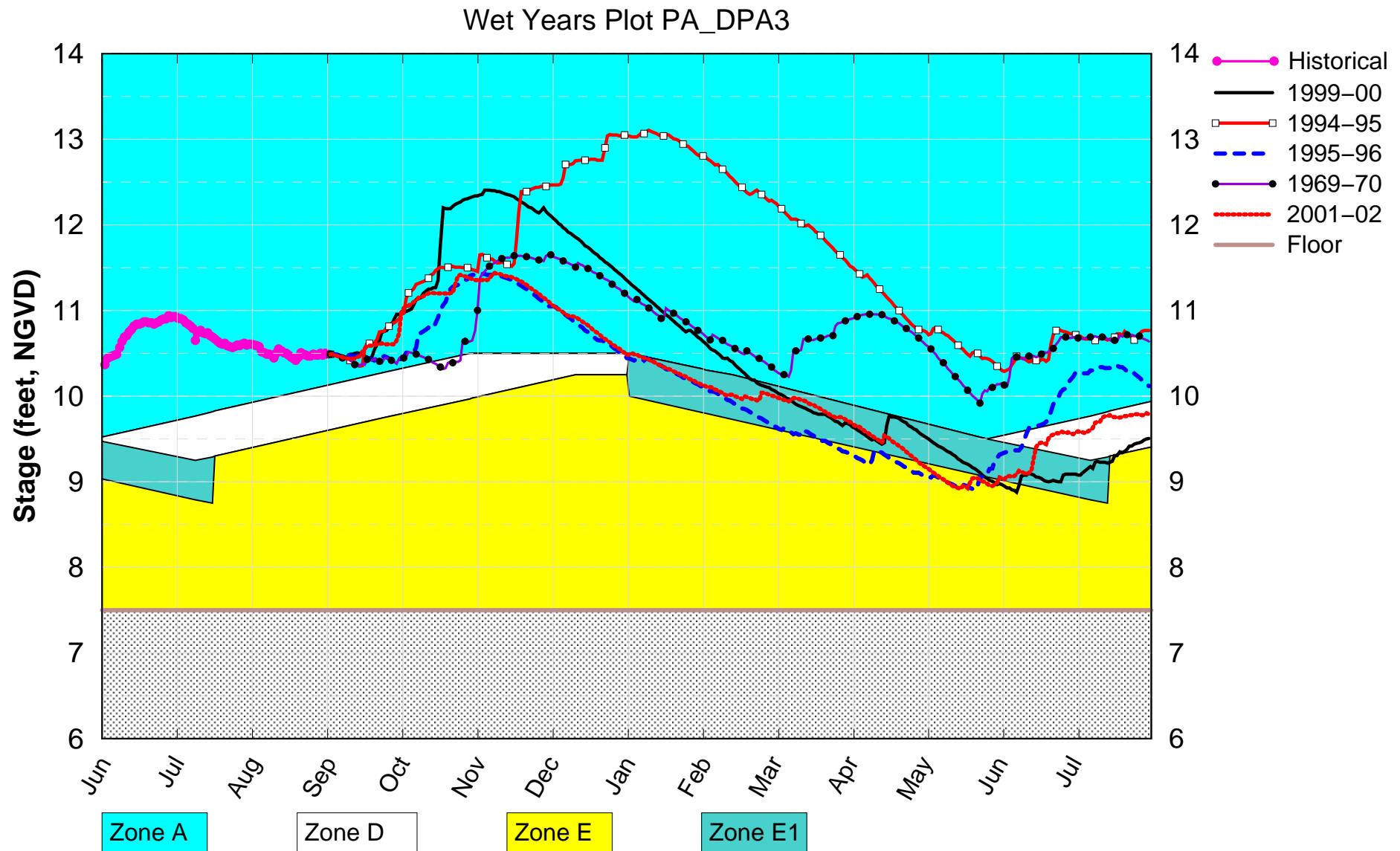
(See assumptions on the Position Analysis Results website)

# WCA3A SFWMM Sep 2018 Position Analysis



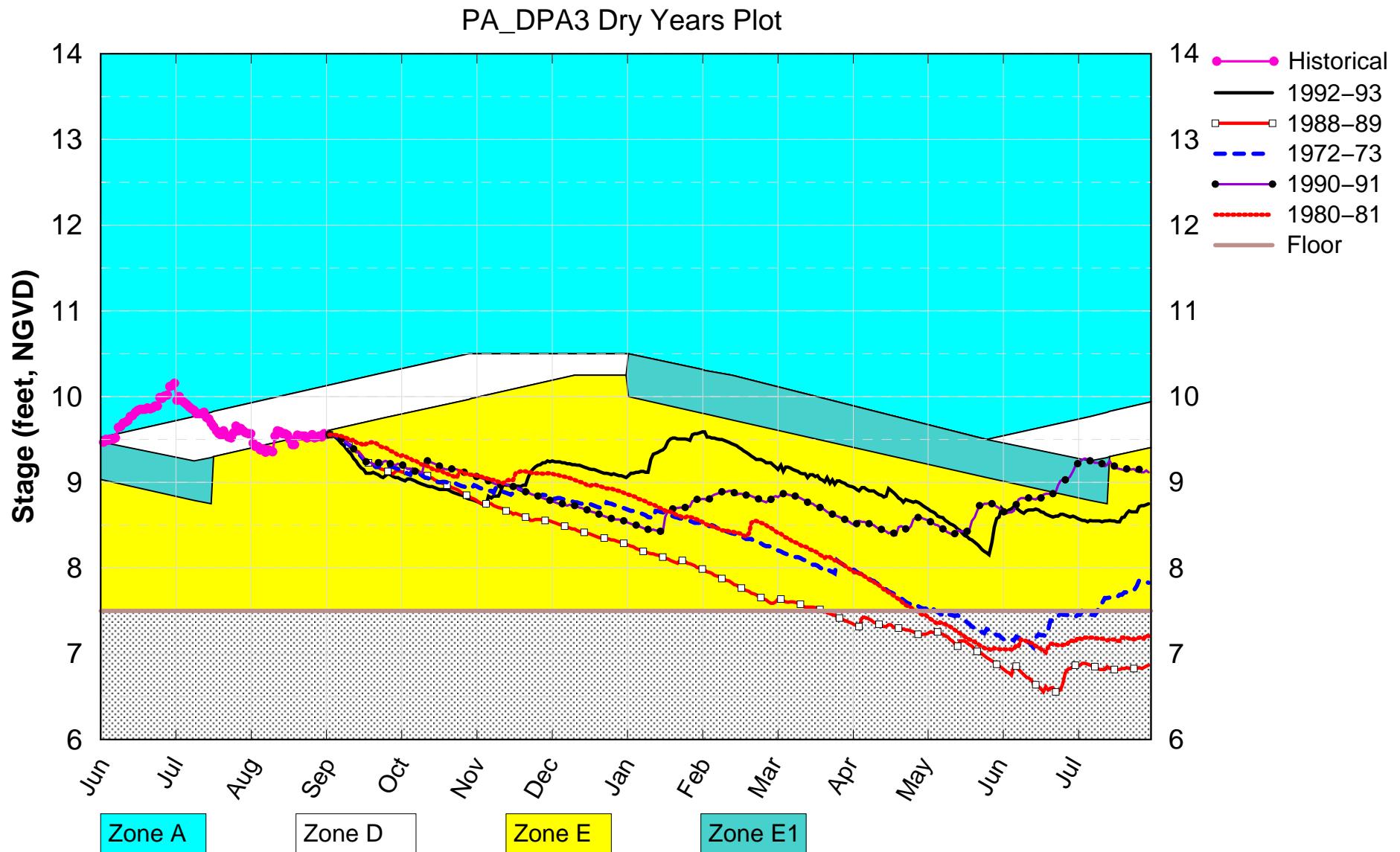
(See assumptions on the Position Analysis Results website)

# WCA3A SFWMM Sep 2018 Position Analysis



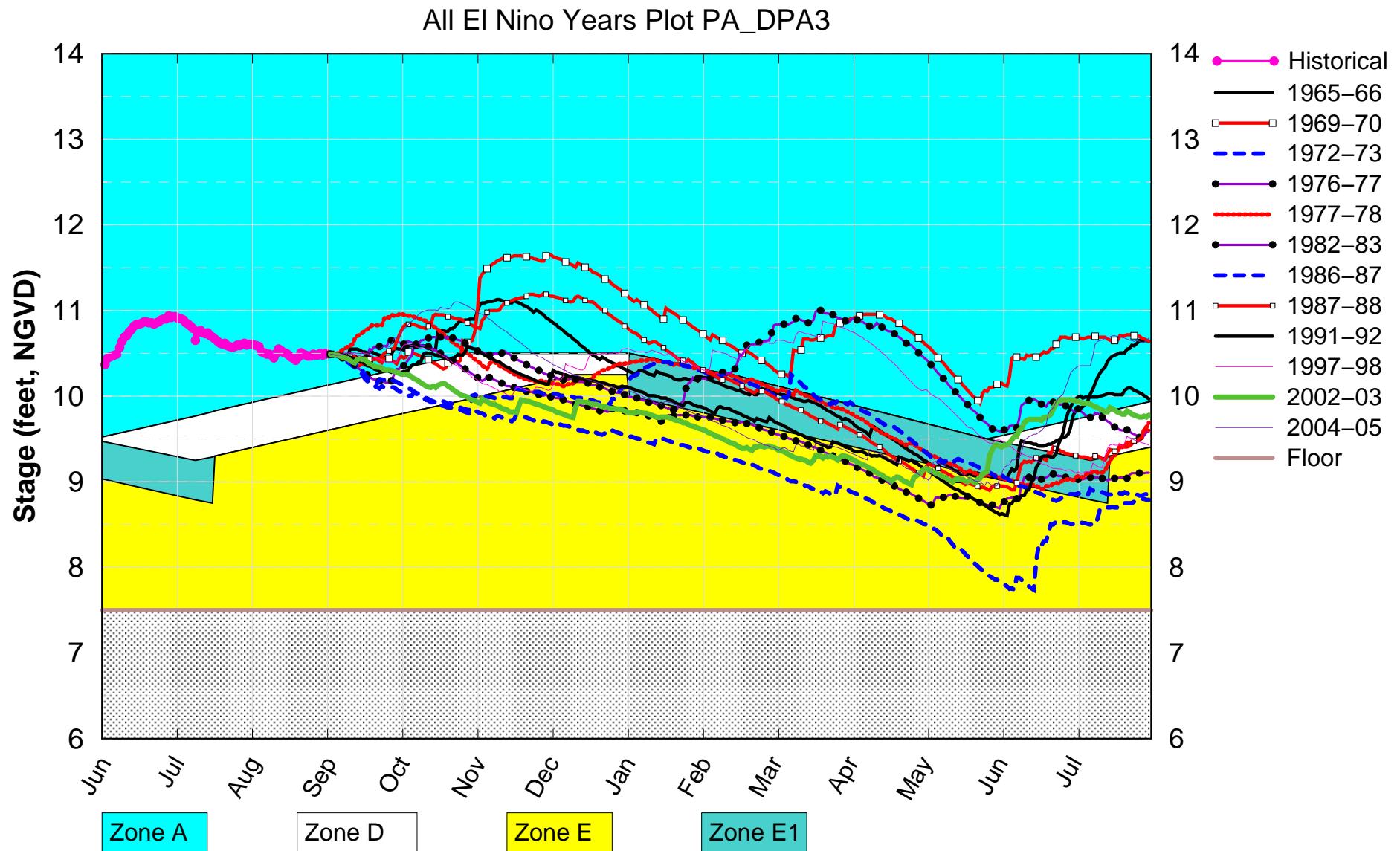
(See assumptions on the Position Analysis Results website)

# CA3 Canal SFWMM Sep 2018 Position Analysis



(See assumptions on the Position Analysis Results website)

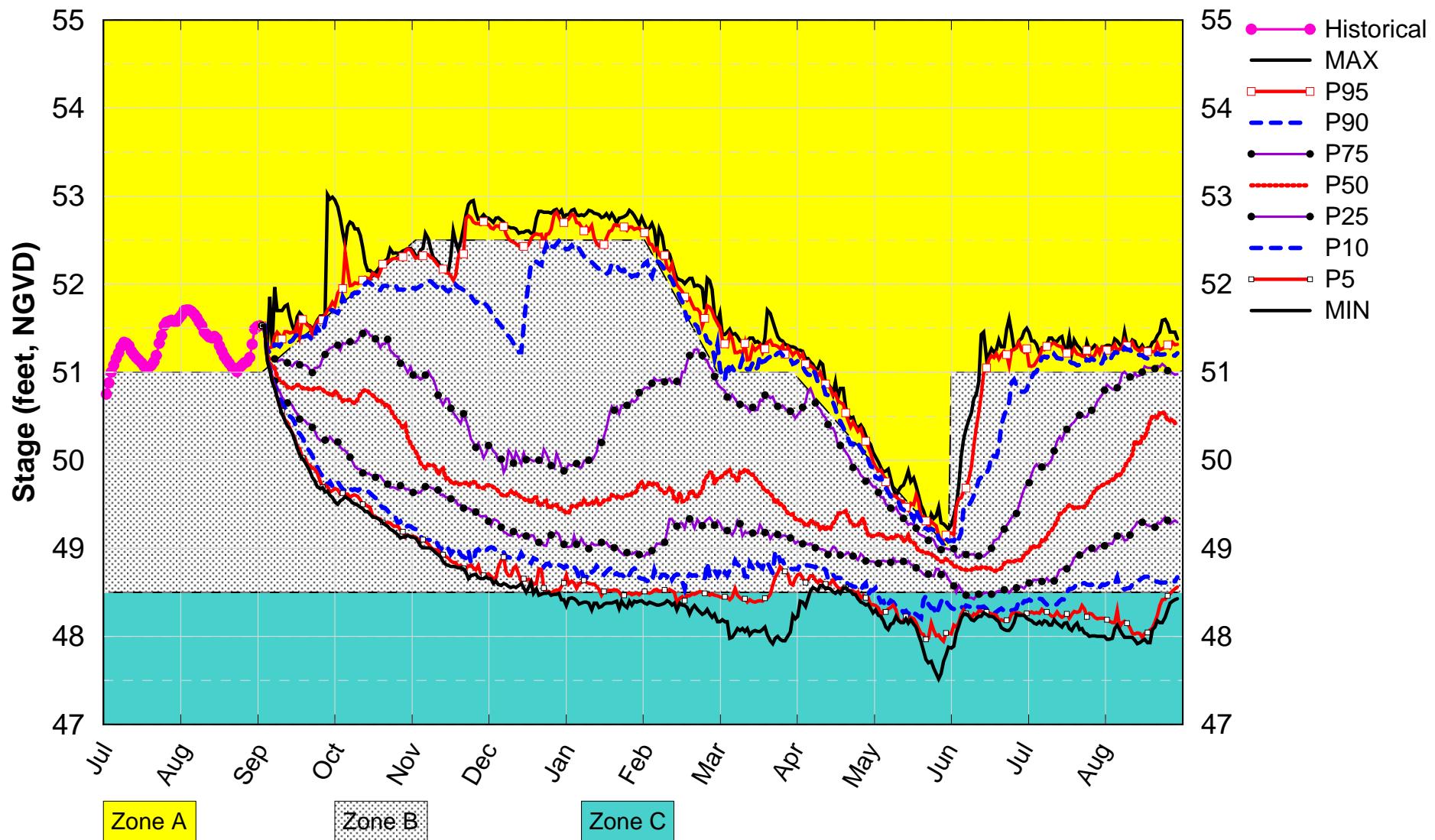
# WCA3A SFWMM Sep 2018 Position Analysis



(See assumptions on the Position Analysis Results website)

# S65 UK-OPS Sep 1 2018 Position Analysis

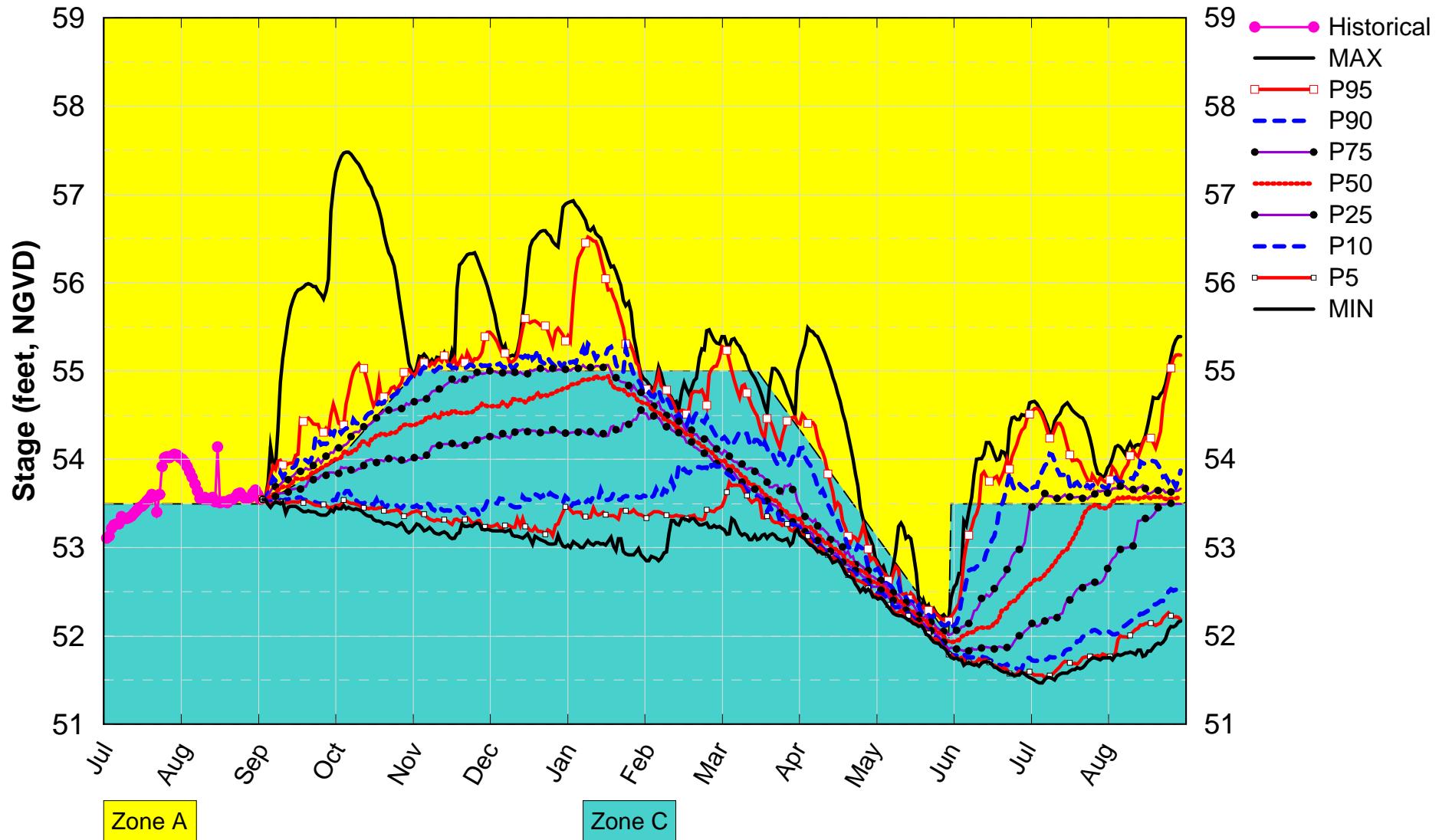
UK-OPS\_DPA3 Unconditional PA



(See assumptions on the Position Analysis Results website)

# S61 UK-OPS Sep 1 2018 Position Analysis

UK-OPS\_DPA3 Unconditional PA



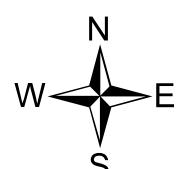
(See assumptions on the Position Analysis Results website)

For the Dynamic Position Analysis the Upper Kissimmee Operations Screening (UK-OPS) Model is used to simulate water levels and releases from Lakes Kissimmee-Cypress-Hatchineha, Tohopekaliga, and East Lake Tohopekaliga. The UK-OPS Model is used to obtain a representation of the Lake Kissimmee operations per the 2015 Wet Season Kissimmee Basin Interagency Planning Meeting. While SFWMD staff efforts continue toward improving the modeling tools for the Kissimmee basins, an intermediate solution is to use the UK-OPS Model.

AREA stage(ft)	:Canal Name	:SFWMM Name	:Location	:SFWMD sensor
WPB	:C-18	:C18	:G92-H	: 14.62
WPB	:C-17	:C17	:S44-H	: 7.00
WPB	:C-51W	:C51W	:S5AE-T	: 11.72
WPB	:C-51	:C51	:S155-H	: 7.91
WCA	:WCA-1 L-40	:CA1	:1-8C	: 16.43
FTLD	:Hillsboro Canal	:HLSB	:G56-H	: 5.41
WCA	:WCA-2A L-38	:L38	:S11B-H	: 13.02
WCA	:WCA-2A L-39	:CA2A	:S10A-T	: 13.13
FTLD	:C-14	:C14	:S37B-H	: 6.12
FTLD	:C-14E	:C14E	:S37A-H	: 3.30
FTLD	:Pompano	:POMP	:G57-H	: 4.44
FTLD	:C-12	:C12	:S33-H	: 3.76
FTLD	:C-13	:C13	:S36-H	: 4.43
FTLD	:North New River Canal	:NNRC	:G54-H	: 3.46
MIAMI	:L-33	:L33	:S30-H	: 6.17
MIAMI	:C-304	:C304	:S31-H	: 8.38
MIAMI	:C-9	:C9	:S29-H	: 1.96
MIAMI	:C-9 DEN	:C9DEN	:S29-H	: 1.96
MIAMI	:C-8	:C8	:S28-H	: 1.74
MIAMI	:C-7	:C7	:S27-H	: 1.83
MIAMI	:C-6	:C6	:S26-H	: 2.48
MIAMI	:C-2/C-4	:C4	:S25B-H	: 2.22
MIAMI	:L-30	:L30	:S335-H	: 6.85
WCA	:WCA-3A L-29	:CA3	:S333-H	: 9.56
WCA	:S-12A	:S12AD	:S12A-T	: 9.36
WCA	:S-12B	:S12BD	:S12B-T	: 9.36
WCA	:S-12C	:S12CD	:S12C-T	: 9.41
WCA	:S-12D	:S12DD	:S12D-T	: 9.48
MIAMI	:L-29	:L29	:S334-H	: 8.20
MIAMI	:C-100C	:C100C	:S119-H	: 3.49
MIAMI	:C-100	:C100	:S118-H	: 3.35
MIAMI	:C-100A	:C100A	:S123-H	: 2.87
HMST	:C-1/S-148	:S148U	:S148-H	: 3.09
HMST	:L-31N	:L31N	:S331-H	: 4.75
HMST	:C-1N	:C1N	:S149-H	: 1.93
MIAMI	:S-21	:S21	:S21-H	: 1.77
HMST	:L-31S	:L31S	:S176-H	: 4.20
MIAMI	:C-102N	:C102N	:S21A-H	: 1.62
HMST	:C-102	:C102	:S165-H	: 3.47
MIAMI	:C-103S	:C103S	:S167-H	: 3.12
HMST	:C-103N	:C103N	:S166-H	: 2.86
HMST	:C-103	:S179	:S179-H	: 2.90
HMST	:L-31W	:L31W	:S332-H	: 4.20
HMST	:C-111	:C111	:S177-H	: 3.75
HMST	:CNO	:CNO	:S179-H	: 2.90
HMST	:C-111E	:C111E	:S18C-H	: 2.54
HMST	:S-197	:S197	:S197-H	: 2.51
EAA	:L-23E	:L23E	:S8-T	: 11.81
EAA	:C-60	:C60	:S140-T	: 11.25

SFWMM	Name	col	row	STAGE	Source	Data	match	domain	match	areas
1-7		31	48	16.63	USACE		PA	CA1		
1-8T		34	47	16.29	USACE		PA	CA1		
1-9		33	46	16.32	USACE		PA	CA1		
2-17		29	40	13.21	USACE		PA	CA2		
2-159		28	43	13.60	SFWMD-ARDAMS		PA	CA2		
3-99		30	35	10.65	USACE			CA2		
3A-2		18	36	11.39	USACE		PA	CA3		
3A-3		25	37	10.99	USACE		PA	CA3		
3A-28		19	24	9.72	USACE		PA	CA3		
3A-4		21	29	10.76	USACE		PA	CA3		
3A-NW		18	40	11.99	SFWMD-ARDAMS			CA3		
3A-NE		23	40	10.77	SFWMD-ARDAMS			CA3		
3A-SW		16	30	10.59	SFWMD-ARDAMS			CA3		
3A-S		20	33	10.79	SFWMD-ARDAMS			CA3		
3-76		27	30	8.57	USACE					
3-71		24	26	8.49	USACE					
SHARK		24	23	8.30	USACE			CA3		
3BS1W		26	23	7.93	SFWMD-ARDAMS					
HOLY1		19	45	11.90	SFWMD-ARDAMS			WMA		
HOLY2		21	42	11.90	SFWMD-ARDAMS			WMA		
ROTTN		15	46	13.31	SFWMD-OPERATIONS			WMA		
ROTTS		16	43	13.34	SFWMD-OPERATIONS			WMA		
NP205		15	20	6.74	USACE			ENP		
NP201		19	21	8.36	USACE			ENP		
NP36		17	14	5.08	USACE			ENP		
NP38		16	9	2.02	USACE			ENP		
NP46		17	7	1.95	USACE			ENP		
NP67		22	7	2.80	USACE					
NP33		20	17	7.06	USACE			ENP		
NP34		13	17	3.60	USACE			ENP		
NP44		19	11	4.67	USACE			ENP		
NP206		21	15	6.67	USACE			ENP		
NESR2		25	21	7.88	USACE			ENP		
THSO		23	9	4.58	USACE					
RG2		23	15	6.48	USACE			ENP		
G3273		24	17	7.46	USACE		PA	ENP		
ANGEL		25	17	7.08	USACE		PA			
ANGEL		26	17	7.08	USACE		PA			
EVER4		25	8	2.51	USACE		PA	SA3		
E112		23	10	5.20	USACE			ENP		
G620		18	19	7.13	USACE			ENP		

**SFWMM DYNAMIC POSITION ANALYSIS RUN  
INITIAL STAGE VALUES SEPTEMBER 1, 2018**

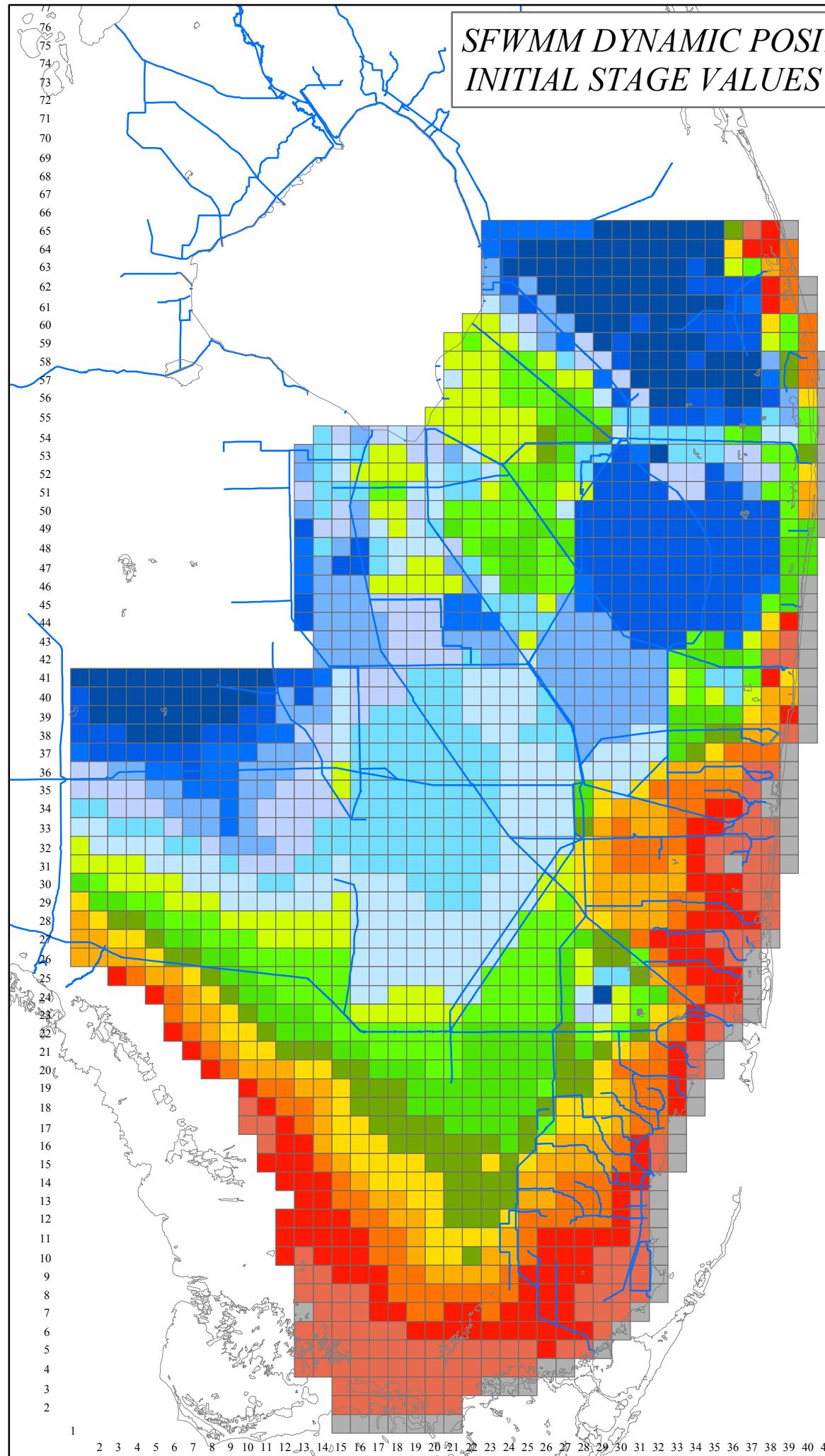


0 5 10 20  
Miles

**Stage Class  
(feet NGVD)**

**SFWMM Grid**

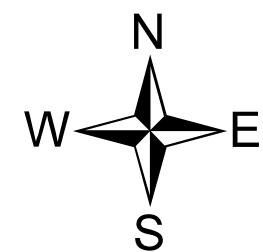
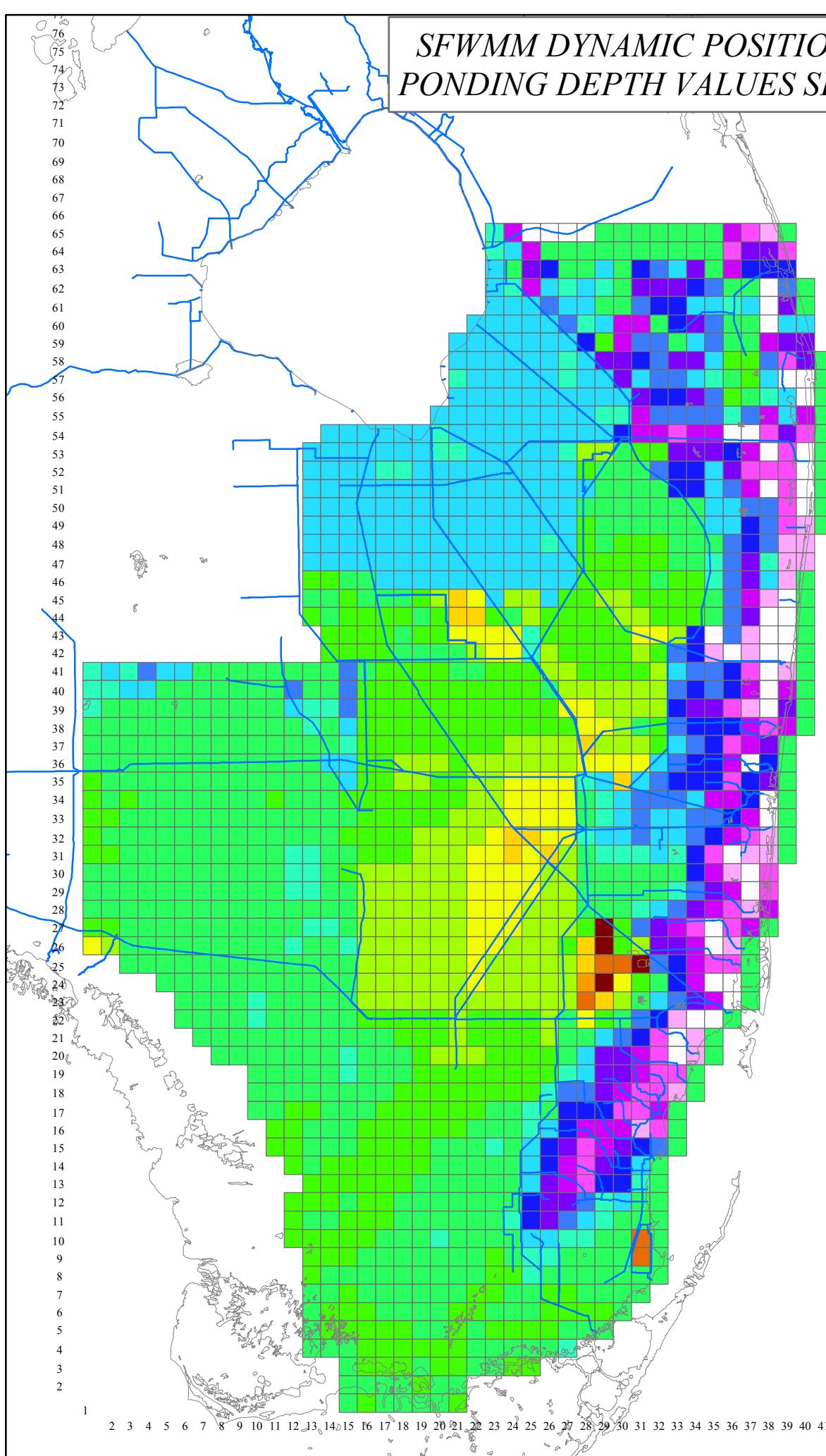
	<=1.00
	1.01 - 2.00
	2.01 - 3.00
	3.01 - 4.00
	4.01 - 5.00
	5.01 - 6.00
	6.01 - 7.00
	7.01 - 8.00
	8.01 - 9.00
	9.01 - 10.00
	10.01 - 11.00
	11.01 - 12.00
	12.01 - 13.00
	13.01 - 14.00
	14.01 - 15.00
	15.01 - 16.00
	16.01 - 17.00
	< 17.00



CREATED: 10SEP2018



**SFWMM DYNAMIC POSITION ANALYSIS RUN  
PONDING DEPTH VALUES SEPTEMBER 1, 2018**



0 5 10 20  
Miles

**Ponding Depth  
(Feet)**

<= -8.0
-7.9 - -7
-6.9 - -6
-5.9 - -5
-4.9 - -4
-3.9 - -3
-2.9 - -2
-1.9 - -1
-0.9 - 0.0
0.01 - 1.0
1.1 - 2.0
2.1 - 3.0
3.1 - 4.0
4.1 - 5.0
5.1 - 6.0
6.1 - 7.0
7.1 - 8.0
> 8.0

Lake Okeechobee Band Probabilities (%) at the Begining of Each Month  
 '(See assumptions on the Position Analysis Results website)'  
 Initial Stage 14.37 ft. for 08/01/2018

Date	HLM	High	Inter	Low	Base	Bene	WSM
2018 08 01	2.4	0.0	0.0	95.1	0.0	0.0	2.4
2018 09 01	2.4	0.0	0.0	95.1	0.0	0.0	2.4
2018 10 01	5.1	1.1	1.8	75.5	14.1	0.0	2.4
2018 11 01	2.4	5.8	5.8	62.9	20.6	0.0	2.4
2018 12 01	2.4	0.0	6.9	54.2	34.1	0.0	2.4
2019 01 01	2.4	0.0	4.3	62.4	28.3	0.0	2.4
2019 02 01	2.4	0.0	7.0	62.6	21.4	4.1	2.4
2019 03 01	2.4	1.4	8.4	53.3	19.6	12.5	2.4
2019 04 01	2.4	4.6	5.8	46.5	15.5	17.8	7.5
2019 05 01	2.4	-0.0	5.8	44.1	11.8	30.1	5.7
2019 06 01	2.4	-0.0	-0.0	41.0	12.2	30.6	13.8
2019 07 01	2.4	-0.0	1.1	46.4	13.3	13.1	23.6

















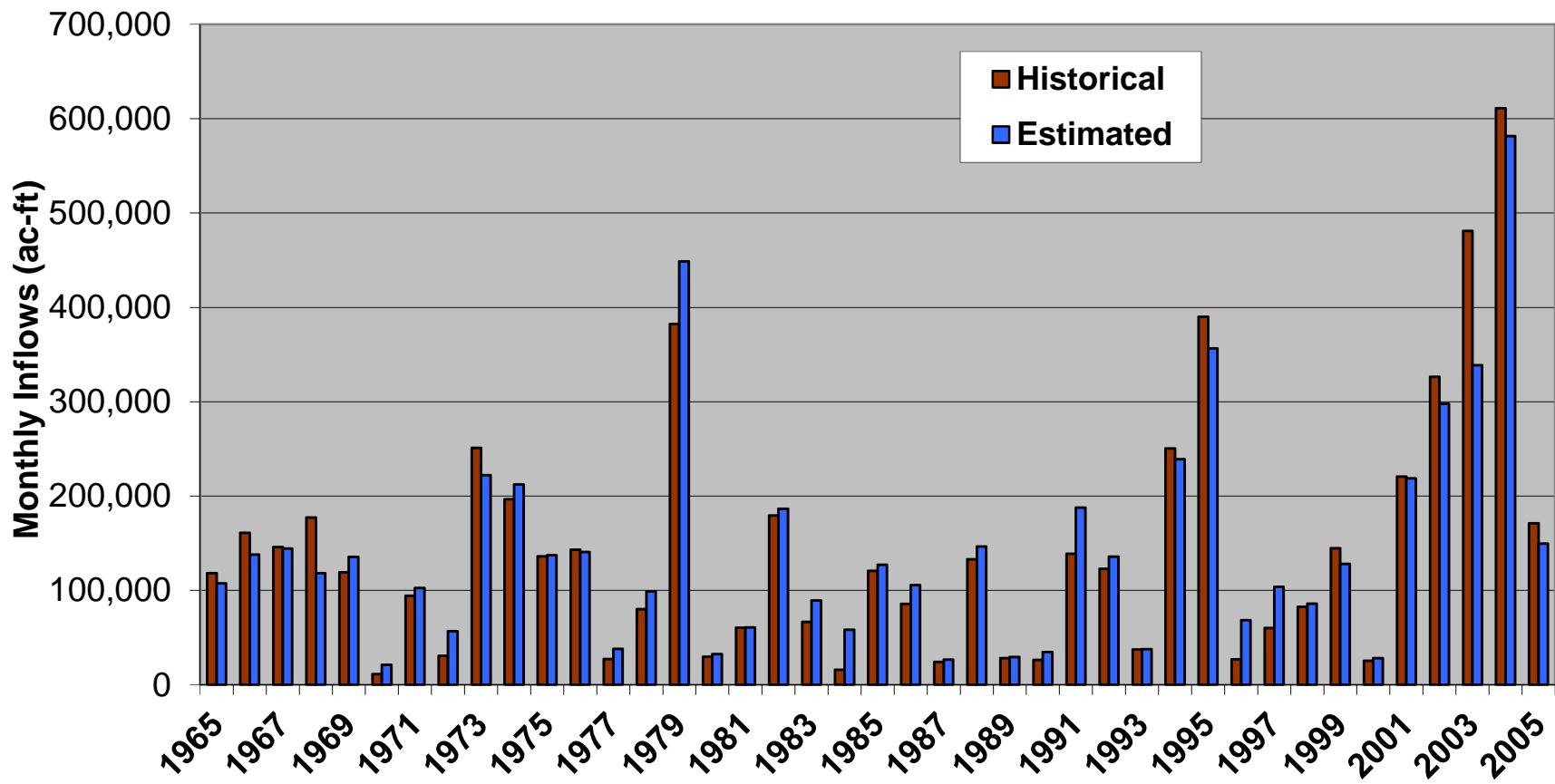




Year	Mon	SSM			Convey.			% Total		
		# Days SSM	# Days SSMwC.B.	Supplem. Volume	Cutback Volume	% SSM Cutback	Convey. Volume	Cutback Convey.	Total Cutback	% Total Cutback
2004	10	0	0	8.35	0.00	0.00	0.00	0.00	0.00	
2004	11	0	0	42.60	0.00	0.00	0.00	0.00	0.00	
2004	12	0	0	58.81	0.00	0.00	0.00	0.00	0.00	
2005	1	0	0	44.68	0.00	0.00	0.00	0.00	0.00	
2005	2	0	0	79.34	0.00	0.00	0.00	0.00	0.00	
2005	3	0	0	0.41	0.00	0.00	0.00	0.00	0.00	
2005	4	0	0	59.79	0.00	0.00	0.00	0.00	0.00	
2005	5	0	0	67.04	0.00	0.00	0.01	0.02	0.01	
2005	6	0	0	4.37	0.00	0.00	0.00	0.00	0.00	
2005	7	0	0	19.67	0.00	0.00	0.00	0.00	0.00	
2005	8	0	0	25.48	0.00	0.00	0.00	0.00	0.00	
2005	9	0	0	12.71	0.00	0.00	0.00	0.00	0.00	



**September 2018 Dynamic Position Analysis**  
**Historical and Estimated S-65E Monthly Flow**  
**for September from 1965 - 2005**



**September 15 2018 Dynamic Position Analysis**  
**Historical and Estimated S-65E Monthly Flow**  
**for October from 1965 - 2005**

