



SCCF
SANIBEL-CAPTIVA
CONSERVATION FOUNDATION



CONSERVANCY
of Southwest Florida
OUR WATER, LAND, WILDLIFE, FUTURE.

November 2, 2021

Colonel James Booth, District Commander
U.S. Army Corps of Engineers, Jacksonville District
Jacksonville, FL 32207

Letter submitted electronically

Subject: LOSOM Iteration 3 – Phase 2 Batch Analysis

Dear Colonel Booth:

On behalf of the Sanibel-Captiva Conservation Foundation and Conservancy of Southwest Florida, we want to personally thank you for your leadership and the hard work and dedication that you and your staff have invested in ensuring that the Lake Okeechobee System Operating Manual (LOSOM) is balanced for the entire water management system and to the benefit of all stakeholders.

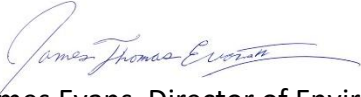
We have had an opportunity to evaluate the eight model runs presented at the Oct. 26 PDT meeting. We are pleased to see that these modeling runs generally represent plans that would equitably distribute benefits and impacts across the different parts of the water management system. Attached please find Dr. Paul Julian's evaluation of the model runs and their performance on the Caloosahatchee estuary and other parts of the system. Out of the eight runs evaluated, the two runs that perform best for the Caloosahatchee are 262200 and 279349 —with 279349 being the better of the two. We would encourage you to explore these runs further and consider them as strong candidates for the final plan.

During the PDT meeting, the St. Lucie stakeholders put forward four additional model runs for the Corps and stakeholders to consider (121211, 128556, 142495, 273238). Based on our evaluation of those runs (starting on slide 17), each of them would increase the frequency of high-volume damaging discharges >6,500 cfs to the Caloosahatchee and increase the frequency that lake stages are >17 feet. As a result, we cannot support any of those runs over the eight put forward by your staff.

In addition, we just received another model run (158755) from the east coast stakeholders for us to consider in our evaluation. Based on our assessment, this plan would increase damaging high-volume discharges >6,500 cfs to the Caloosahatchee by 46.6%, compared to NA25, and would increase the Lake Okeechobee total stage envelope penalty by 44.3%, compared to NA25 (slides 24 and 25). Based on this performance, we would not support this model run over the eight runs selected by the Corps. We would consider this to be a loss in performance for the Caloosahatchee and further potential loss of performance for the Lake.

Again, we want to thank you for your leadership and for working towards a balanced plan that will benefit all stakeholders. We look forward to working with you and your staff in finalizing model selection and developing the operations plan.

Sincerely,



James Evans, Director of Environmental Policy
Sanibel-Captiva Conservation Foundation



Nicole Johnson, Director of Environmental Policy
Conservancy of Southwest Florida



Dr. Paul Julian, Ph.D., Hydrological Modeler
Sanibel-Captiva Conservation Foundation & Conservancy of Southwest Florida

Lake Okeechobee System Operating Manual

Iteration 3 - Phase 2 Batch Analysis

Sanibel-Captiva Conservation Foundation

Conservancy of Southwest Florida

DRAFT - October 22, 2021

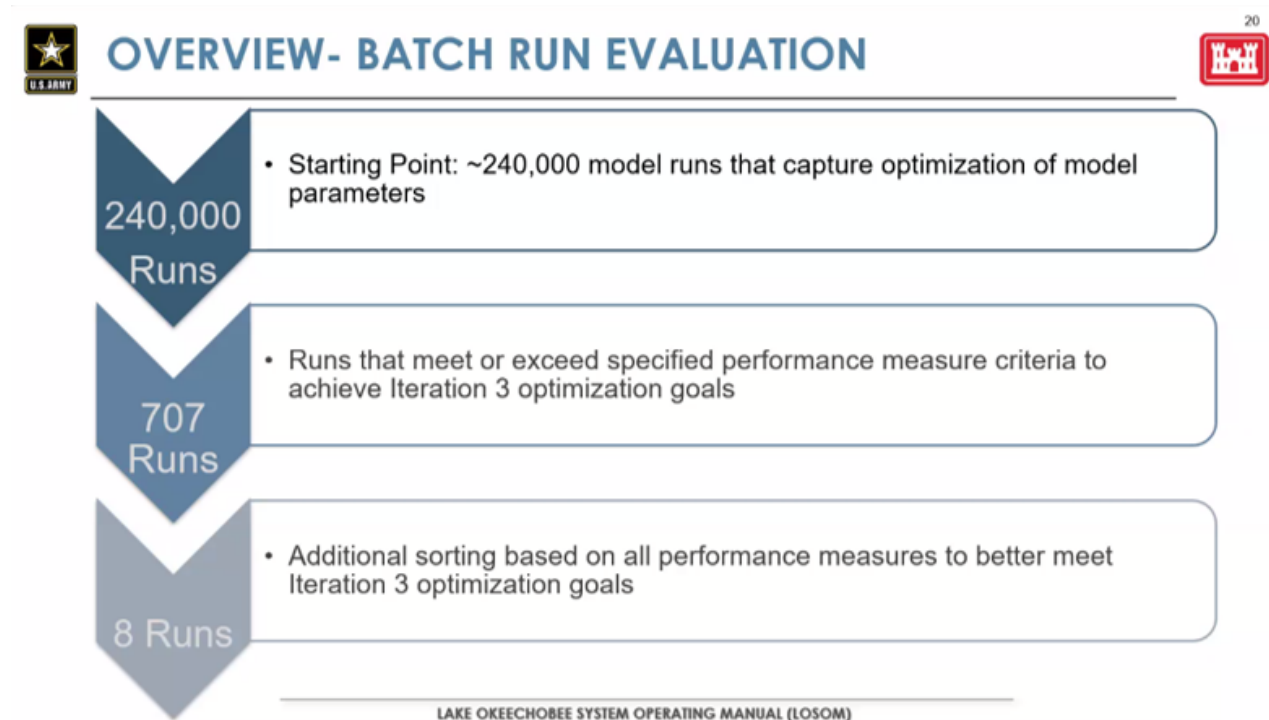
(Updated: November 02, 2021)



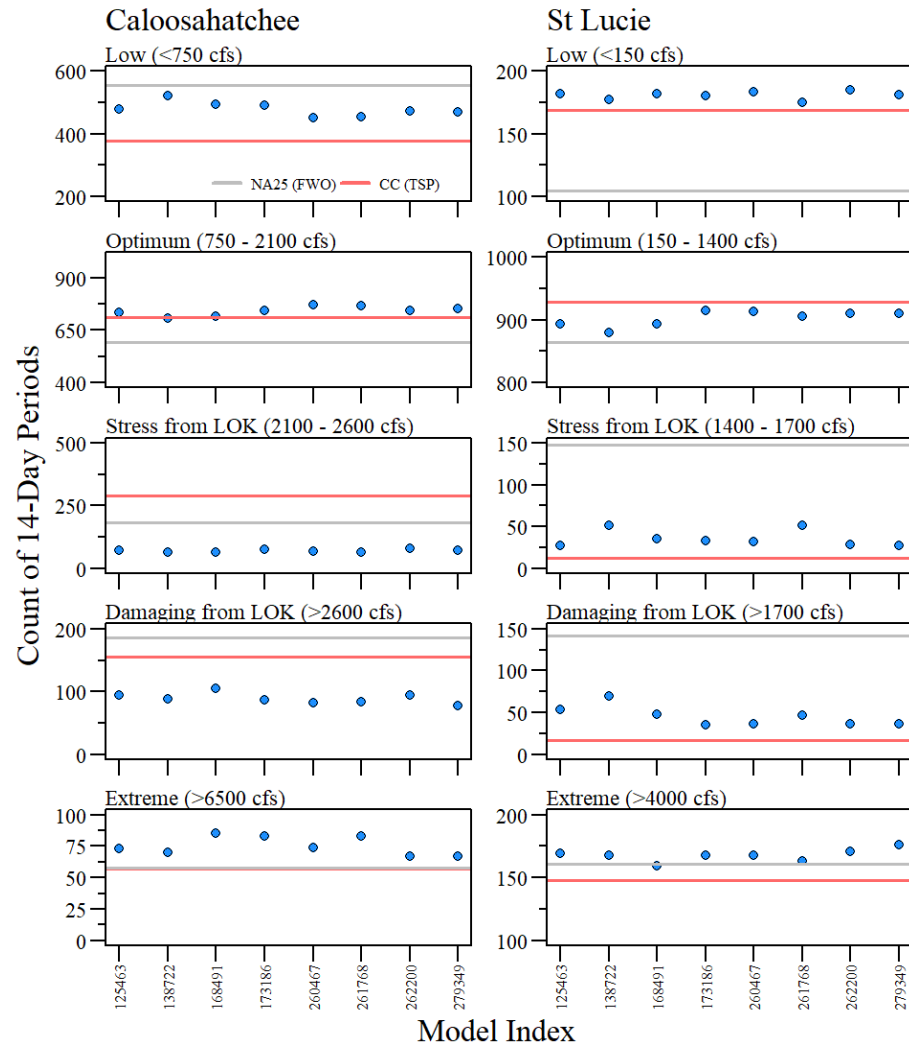
Use cursor keys for navigation, press "O" for a slide Overview

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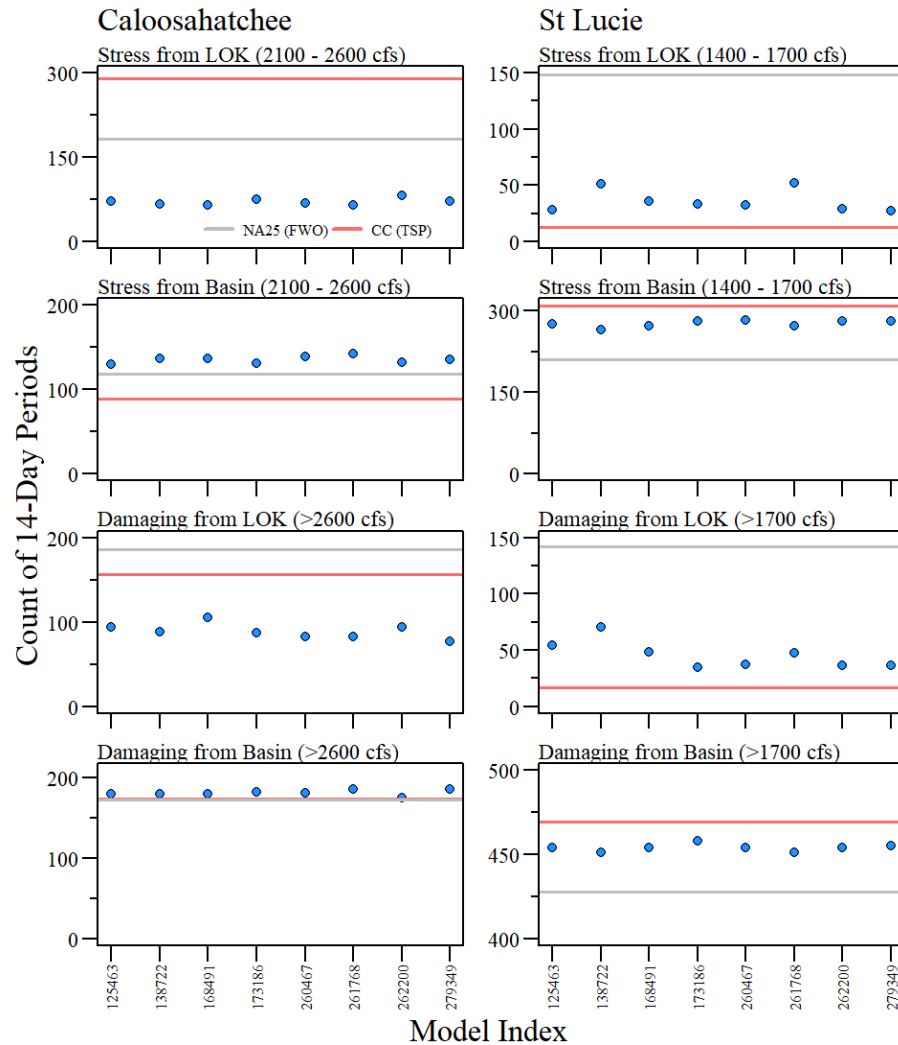
Evaluation of model runs presented to PDT by USACE 2021-10-26



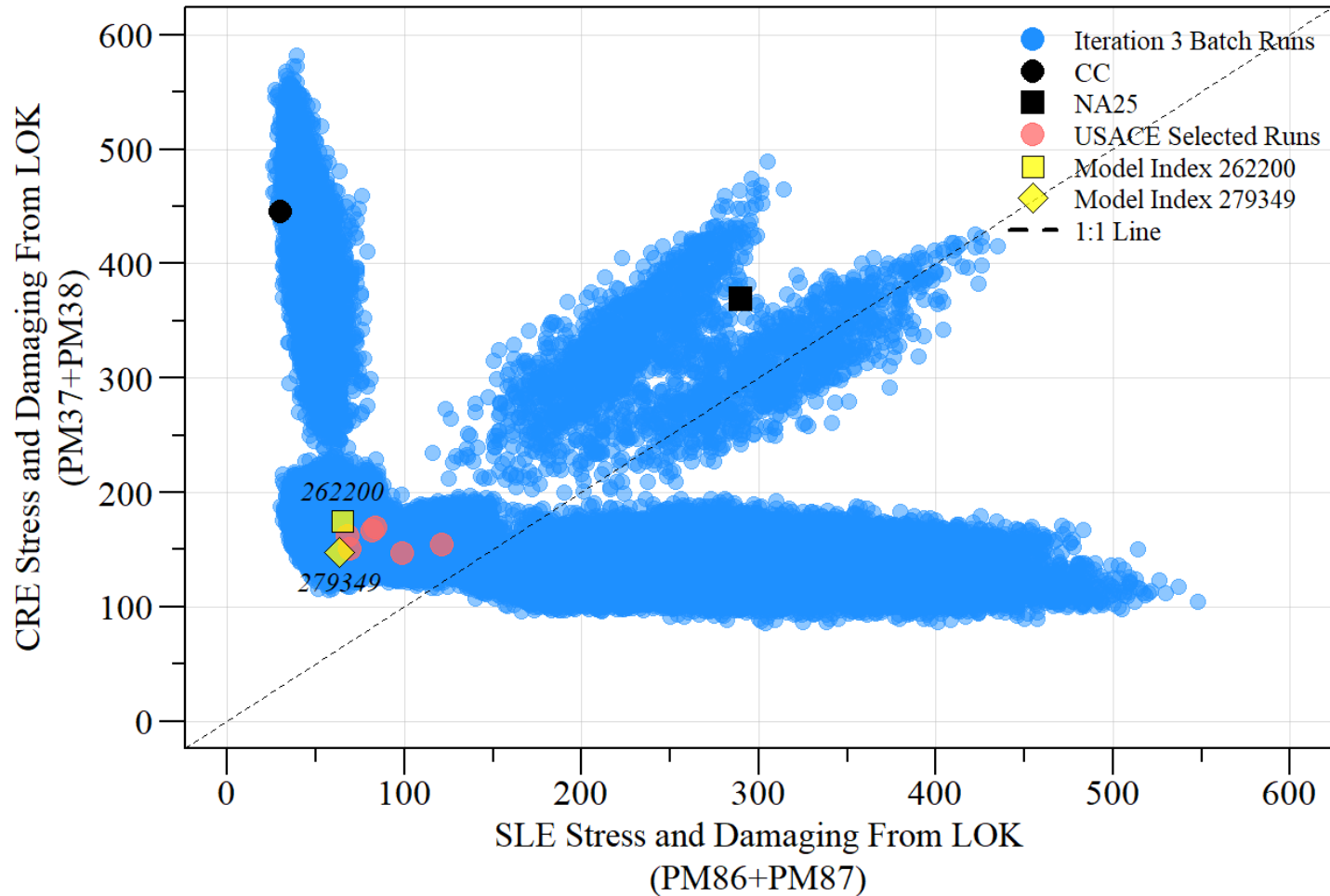
Iteration 3 - Phase 2



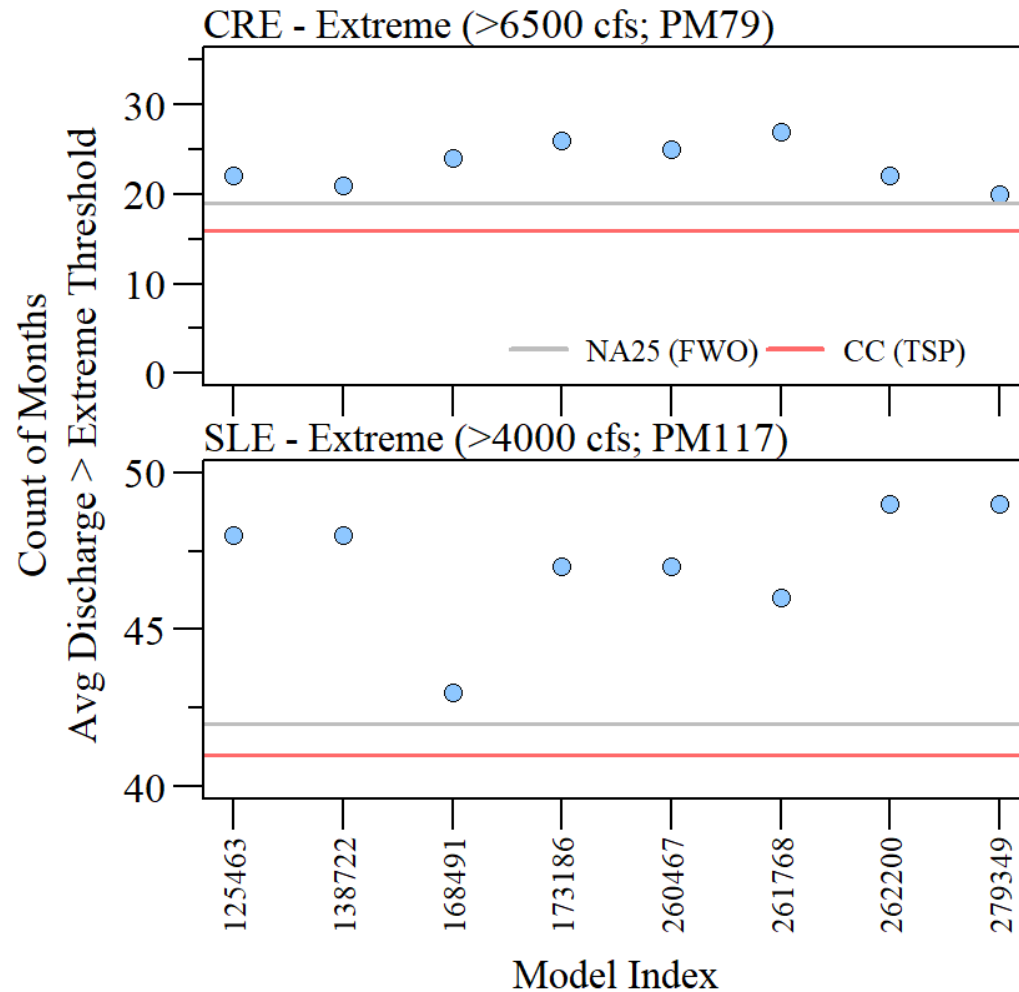
Iteration 3 - Phase 2



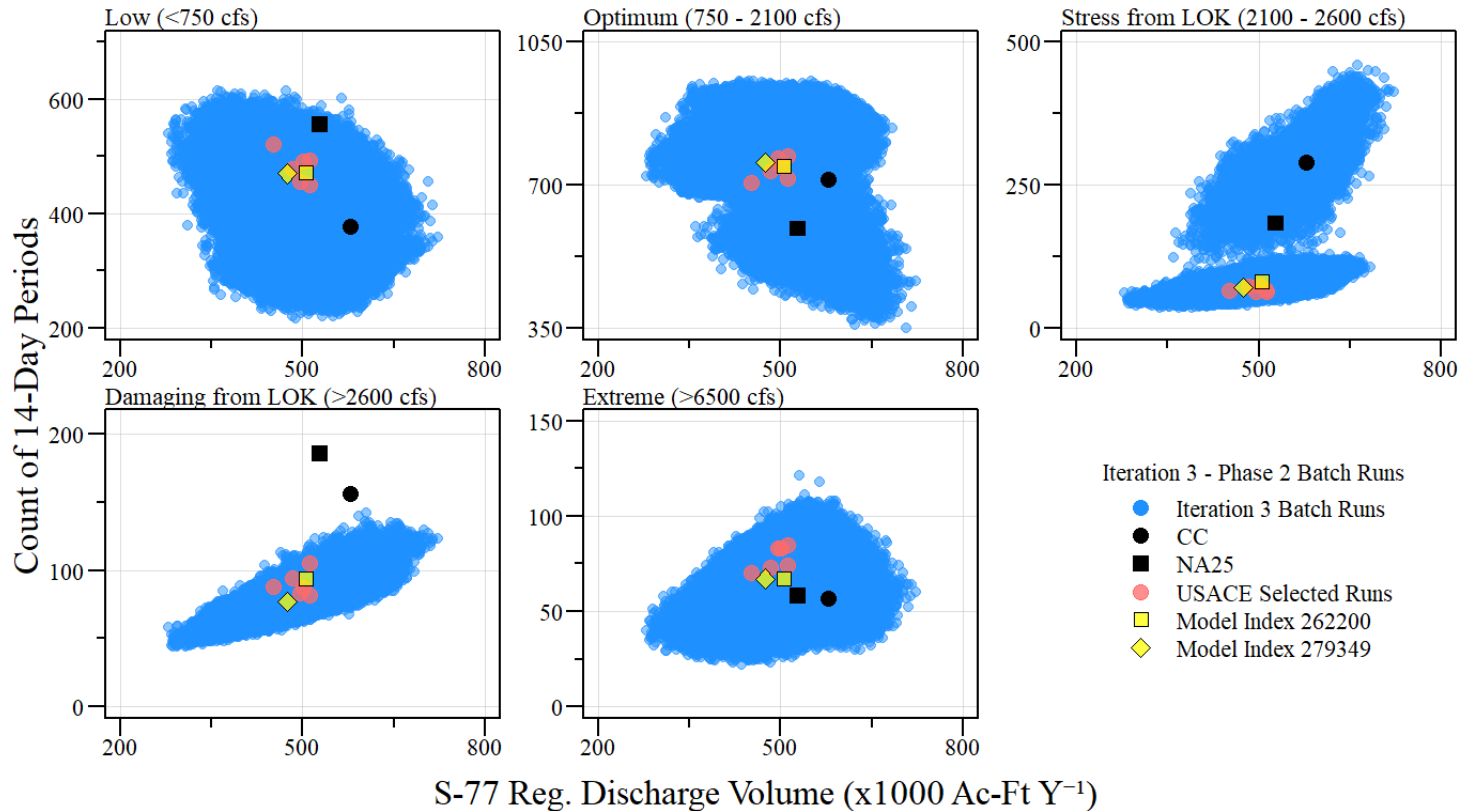
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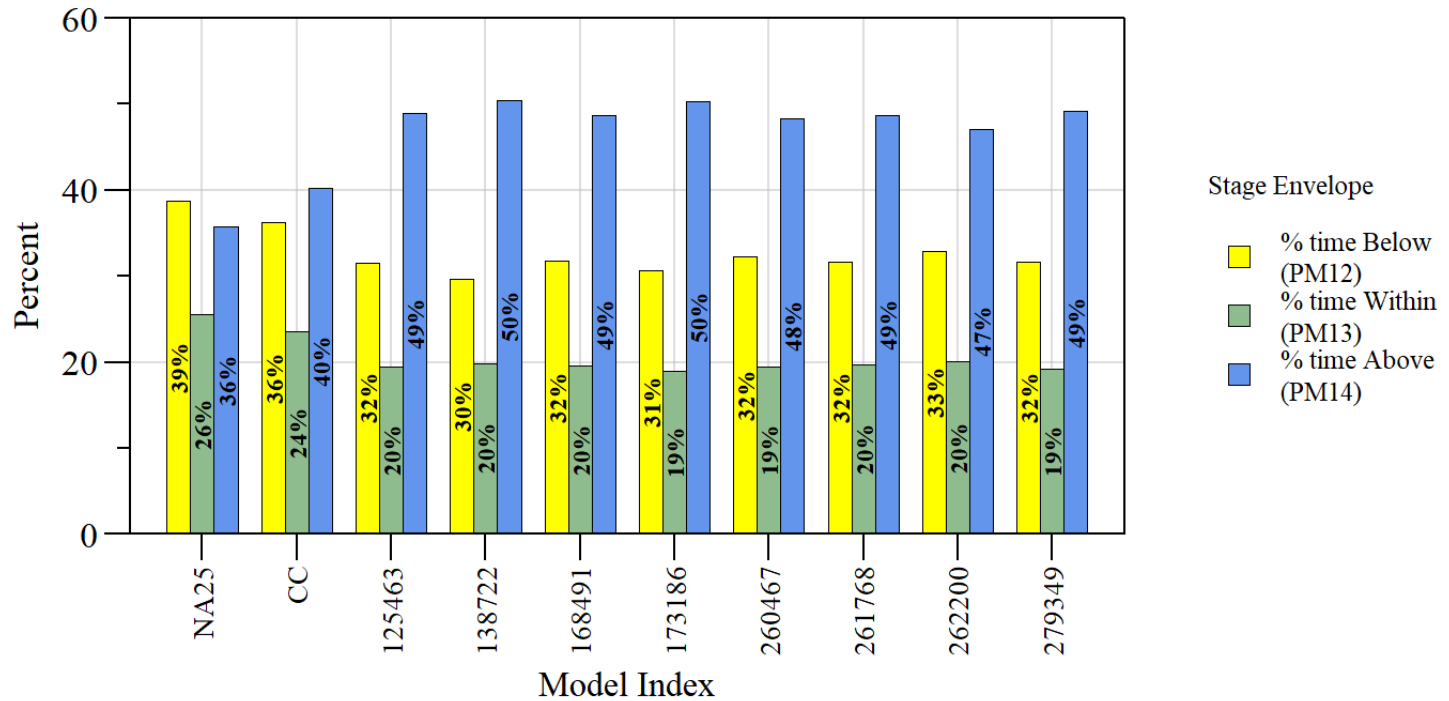
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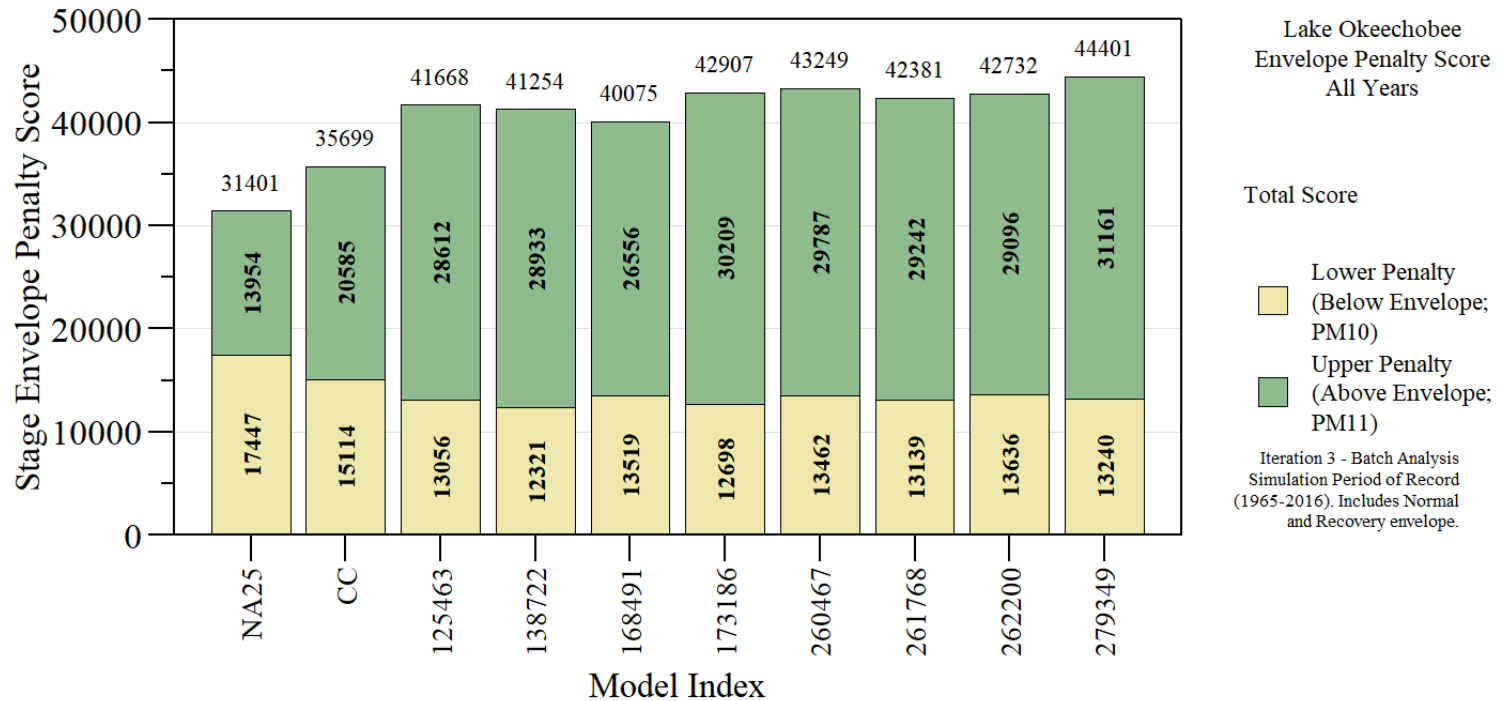
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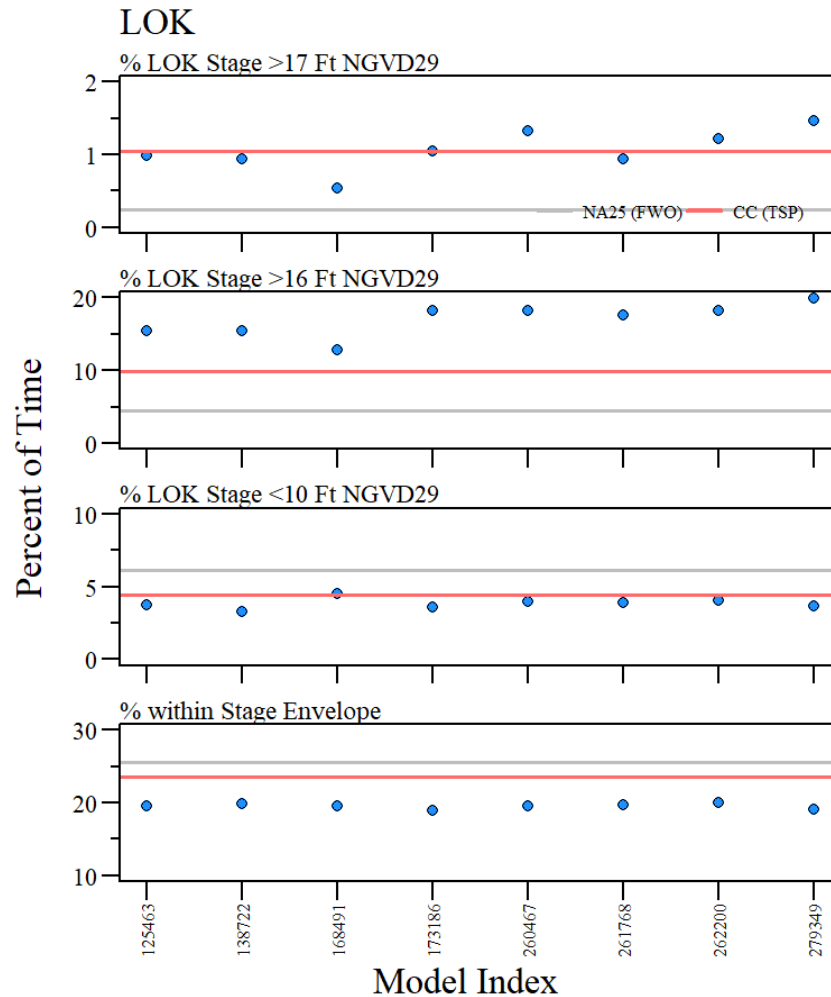
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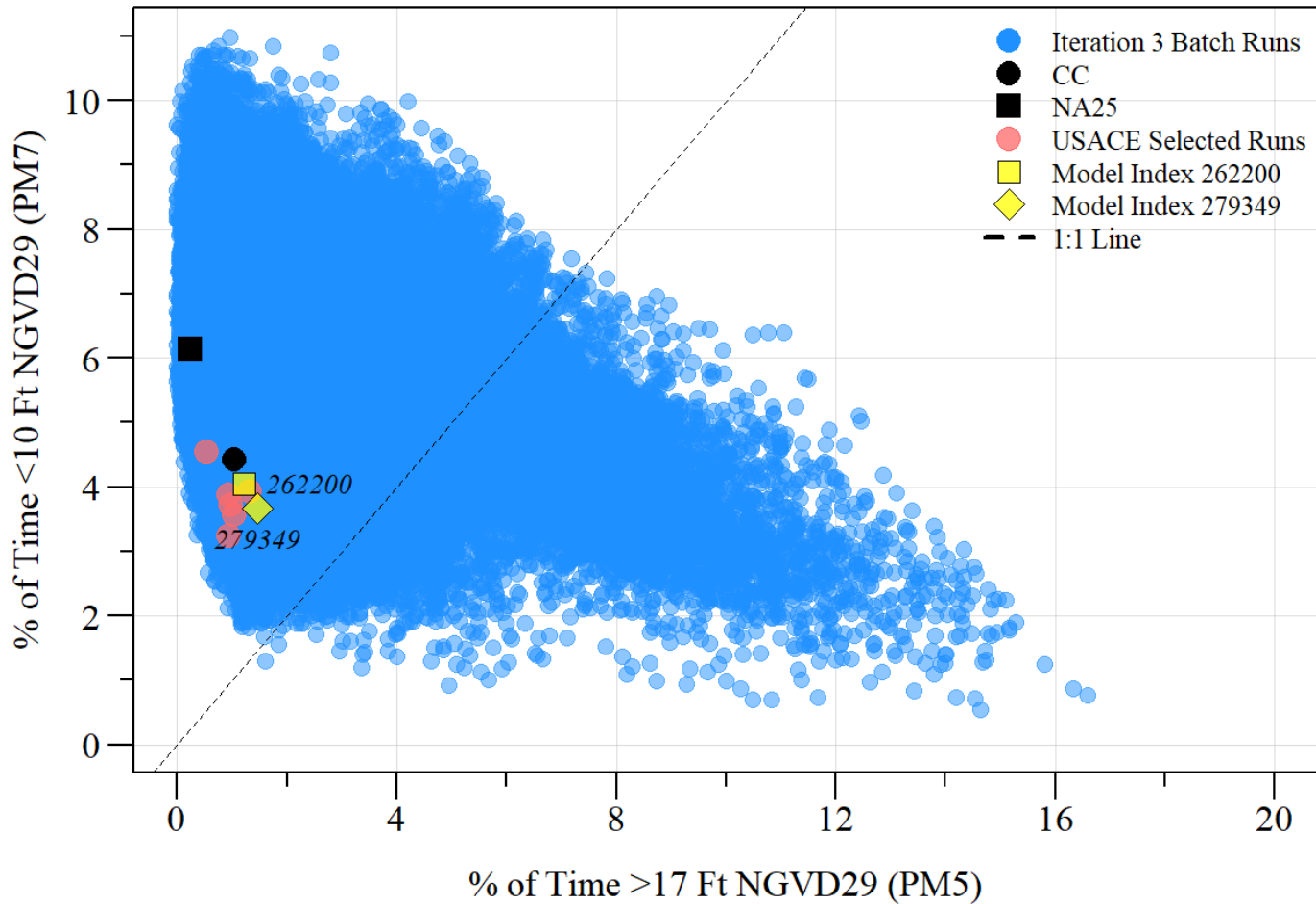
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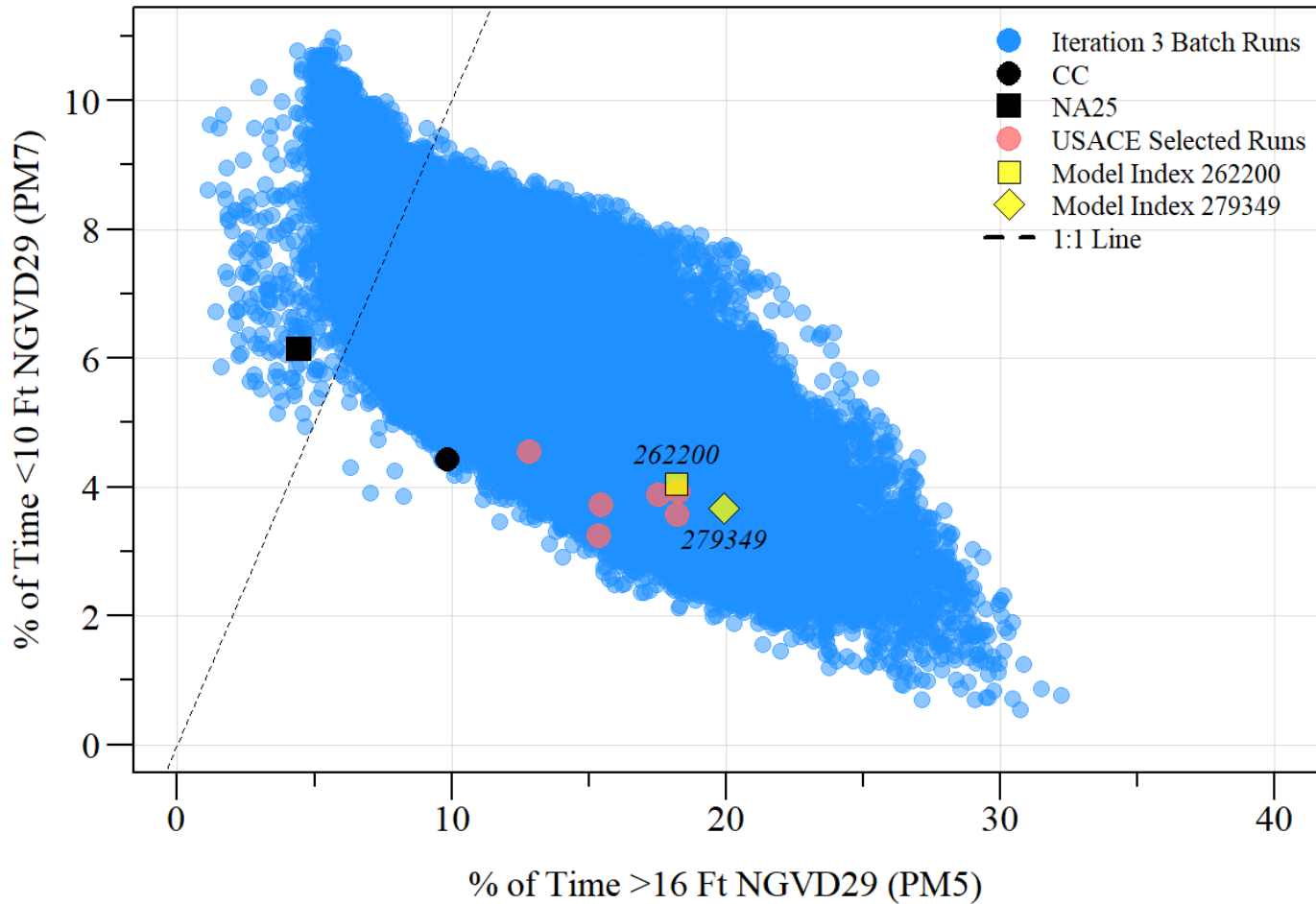
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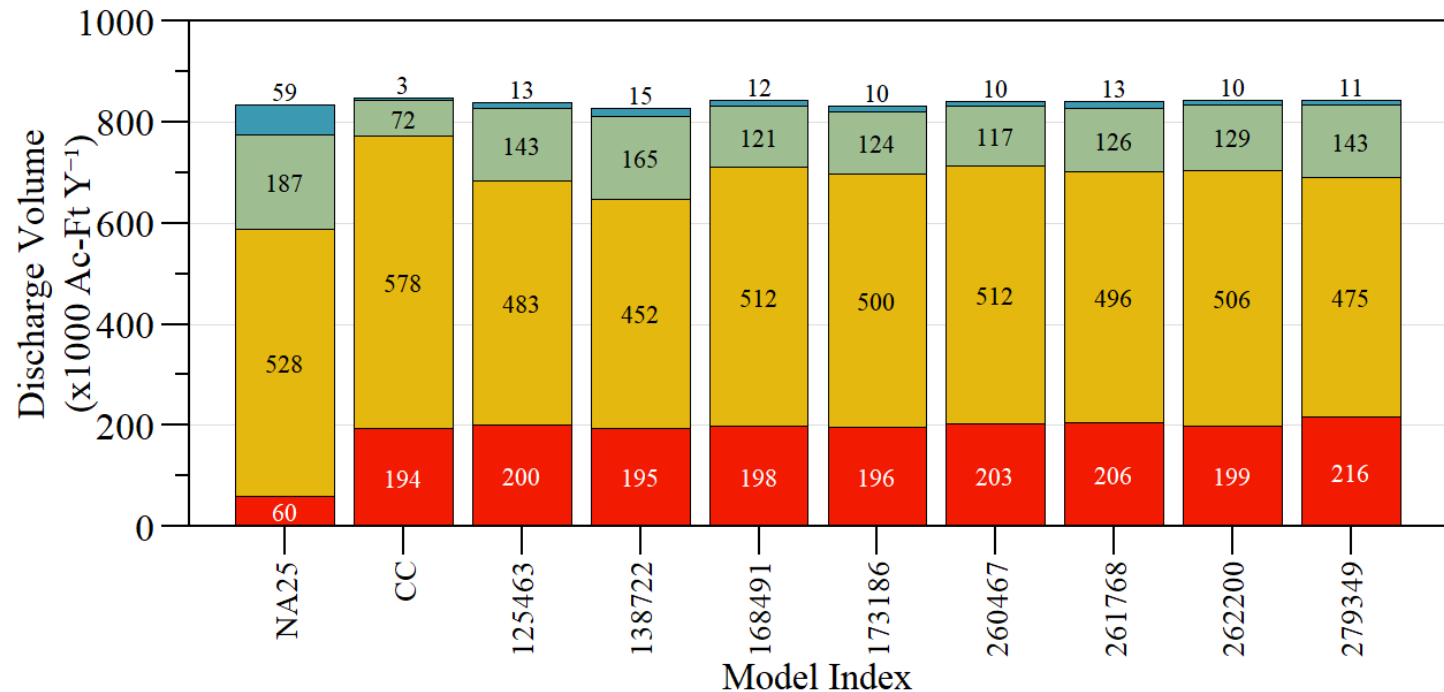
Iteration 3 - Phase 2



Iteration 3 - Phase 2



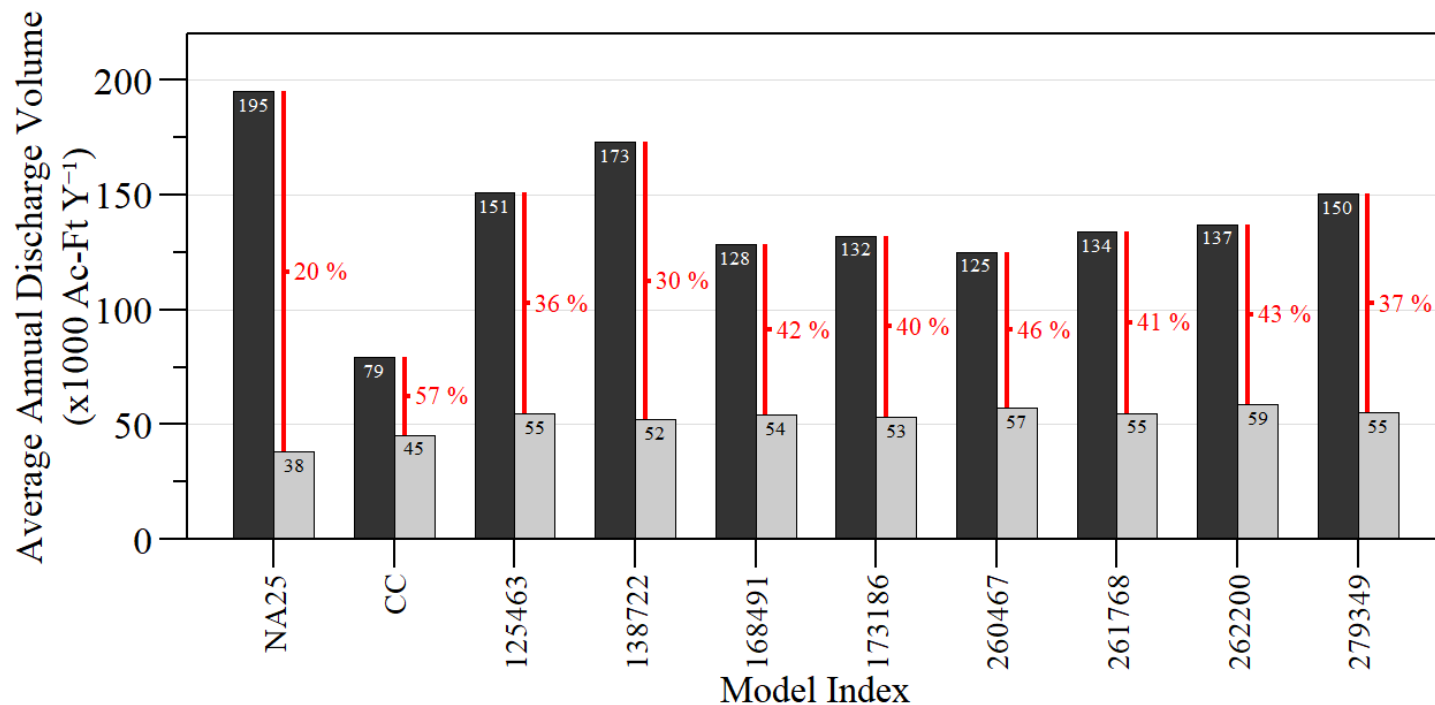
Iteration 3 - Phase 2



- Water Conservation Areas (PM21)
- Caloosahatchee River (PM40)
- St. Lucie River (PM88)
- Lake Worth Lagoon (PM118)

Iteration 3 screened batch results. Mean annual flood control releases from Lake Okeechobee for the 52 year (1965 - 2016) simulation period of record.

Iteration 3 - Phase 2



- S308 (Total Flow)
- S308 (Back Flow)

Iteration 3 screened batch results. Mean annual discharge and backflow volume at S308 for the 52 year (1965 - 2016) simulation period of record with % backflow volume identified.

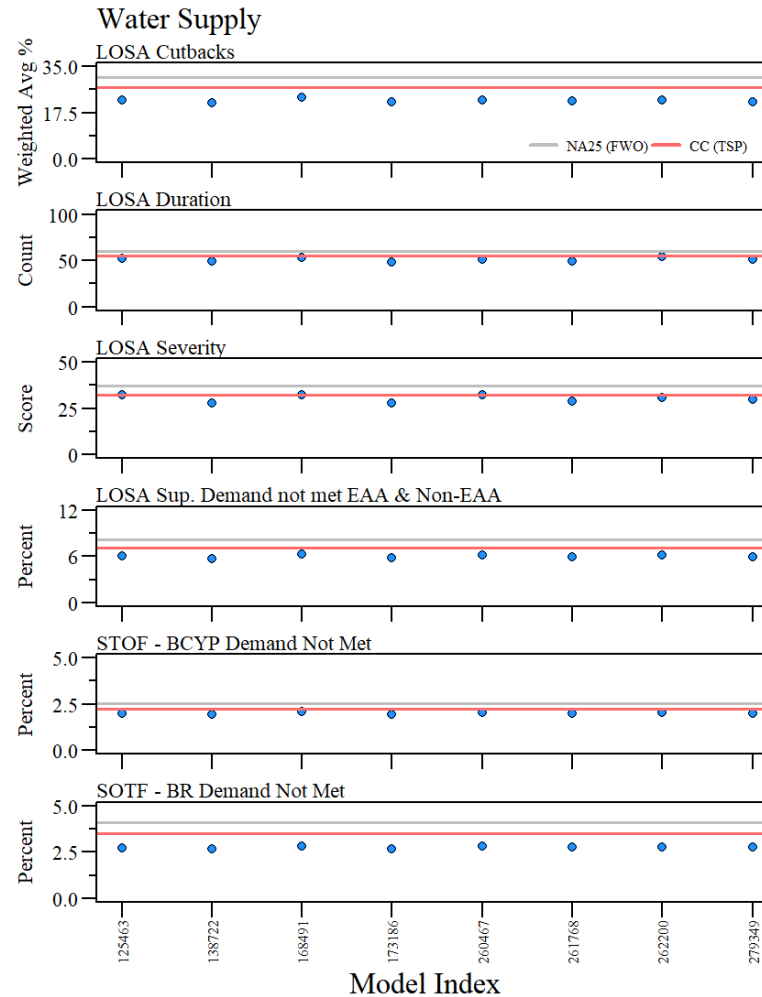
Iteration 3 - Phase 2

Performance Measure	Model Index								
	CC	125463	138722	168491	173186	260467	261768	262200	279349
CRE - Low (PM30)	-32.2	-14.0	-6.1	-11.2	-11.7	-19.1	-18.2	-15.3	-15.5
CRE - Optimum (PM31)	20.4	23.9	18.9	20.9	25.6	30.0	29.2	25.6	27.3
CRE - Stress from LOK (PM37)	57.9	-60.7	-63.9	-65.0	-59.0	-62.8	-65.0	-55.7	-61.2
CRE - Damaging from LOK (PM38)	-16.1	-49.5	-52.7	-43.5	-53.2	-55.9	-55.4	-49.5	-58.6
CRE - Extreme (PM36)	-1.7	25.9	20.7	46.6	43.1	27.6	43.1	15.5	15.5
SLE - Low (PM80)	61.0	73.3	68.6	73.3	71.4	74.3	66.7	76.2	72.4
SLE - Optimum (PM81)	7.5	3.5	1.7	3.5	5.8	5.7	4.9	5.3	5.3
SLE - Stress from LOK (PM86)	-91.2	-81.1	-65.5	-75.7	-77.7	-78.4	-64.9	-80.4	-81.8
SLE - Damaging from LOK (PM87)	-88.0	-62.0	-50.7	-66.2	-75.4	-73.9	-66.9	-74.6	-74.6
SLE - Extreme (PM85)	-8.1	5.0	4.3	-1.2	4.3	4.3	1.2	6.2	9.3
S308 Regulatory Flow (PM88)	-61.7	-23.6	-12.0	-35.6	-33.6	-37.4	-32.8	-31.0	-23.9
S77 Regulatory Flow (PM40)	9.5	-8.4	-14.3	-2.9	-5.2	-3.1	-6.1	-4.2	-10.1
CRE MFL (PM39)	0.0	-10.0	0.0	-10.0	0.0	-10.0	-10.0	-20.0	-10.0
LOK MFL (PM20)	-22.2	-22.2	-22.2	-11.1	-22.2	-11.1	-11.1	-11.1	-11.1
LOK - Total Stage Envelope Penalty (PM10+PM11)	13.7	32.7	31.4	27.6	36.6	37.7	35.0	36.1	41.4

Percent Difference relative to FWO (NA25)

“Balance is not a passive resting place—it takes work, balancing the giving and the taking...”

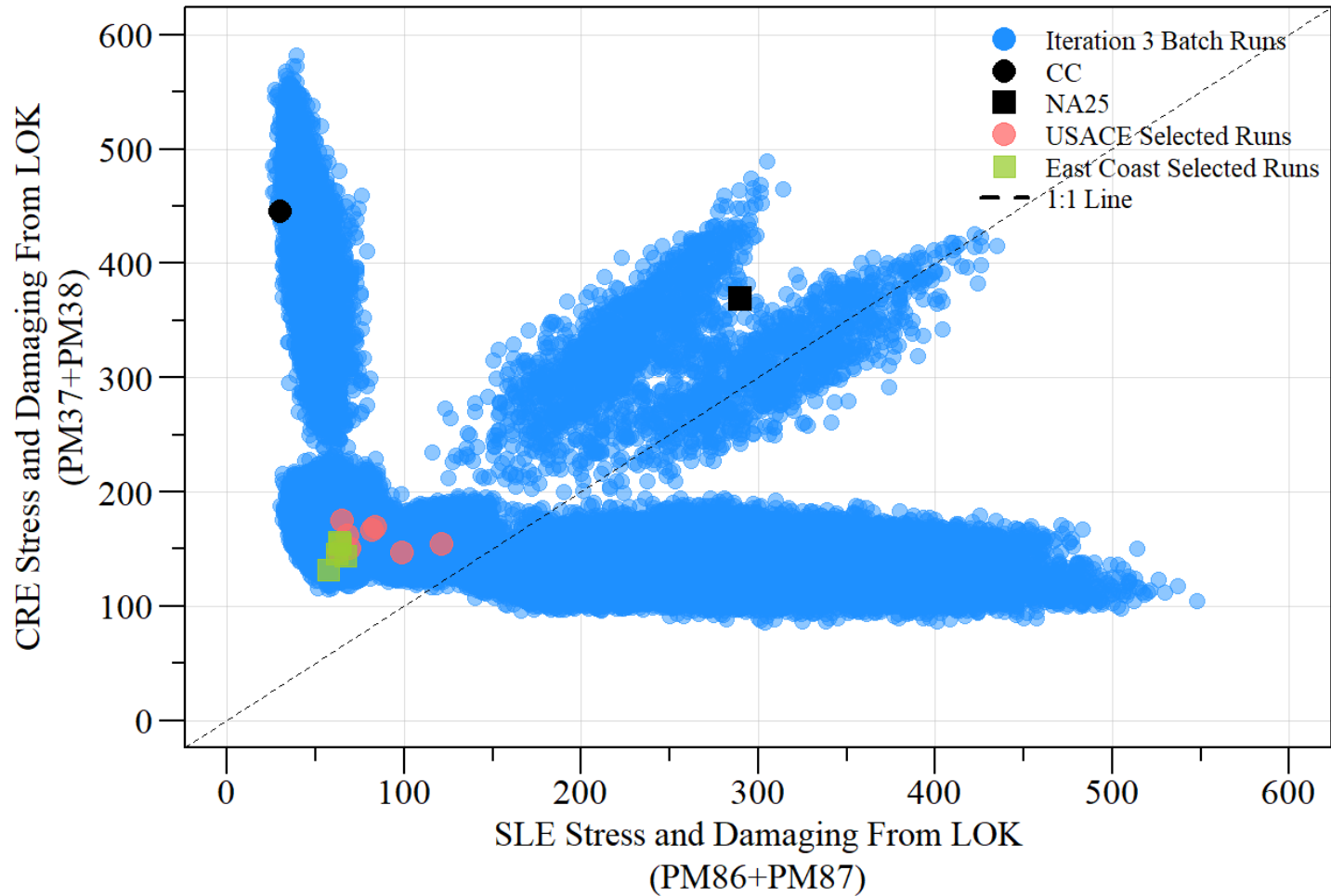
Iteration 3 - Phase 2



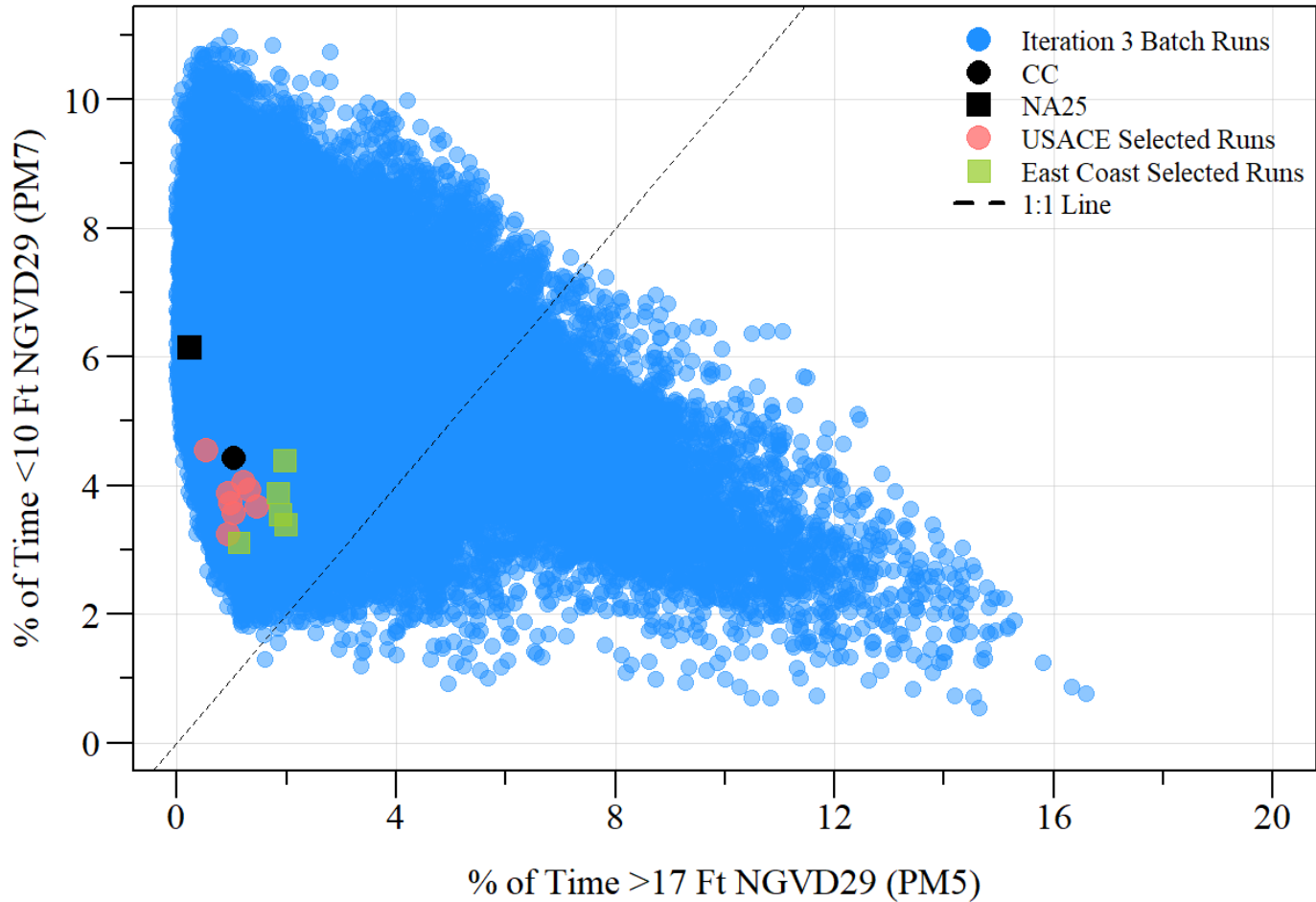
East Coast Stakeholder Selected Plans

Model Index: 273238, 121211, 142495, 128556, 158755

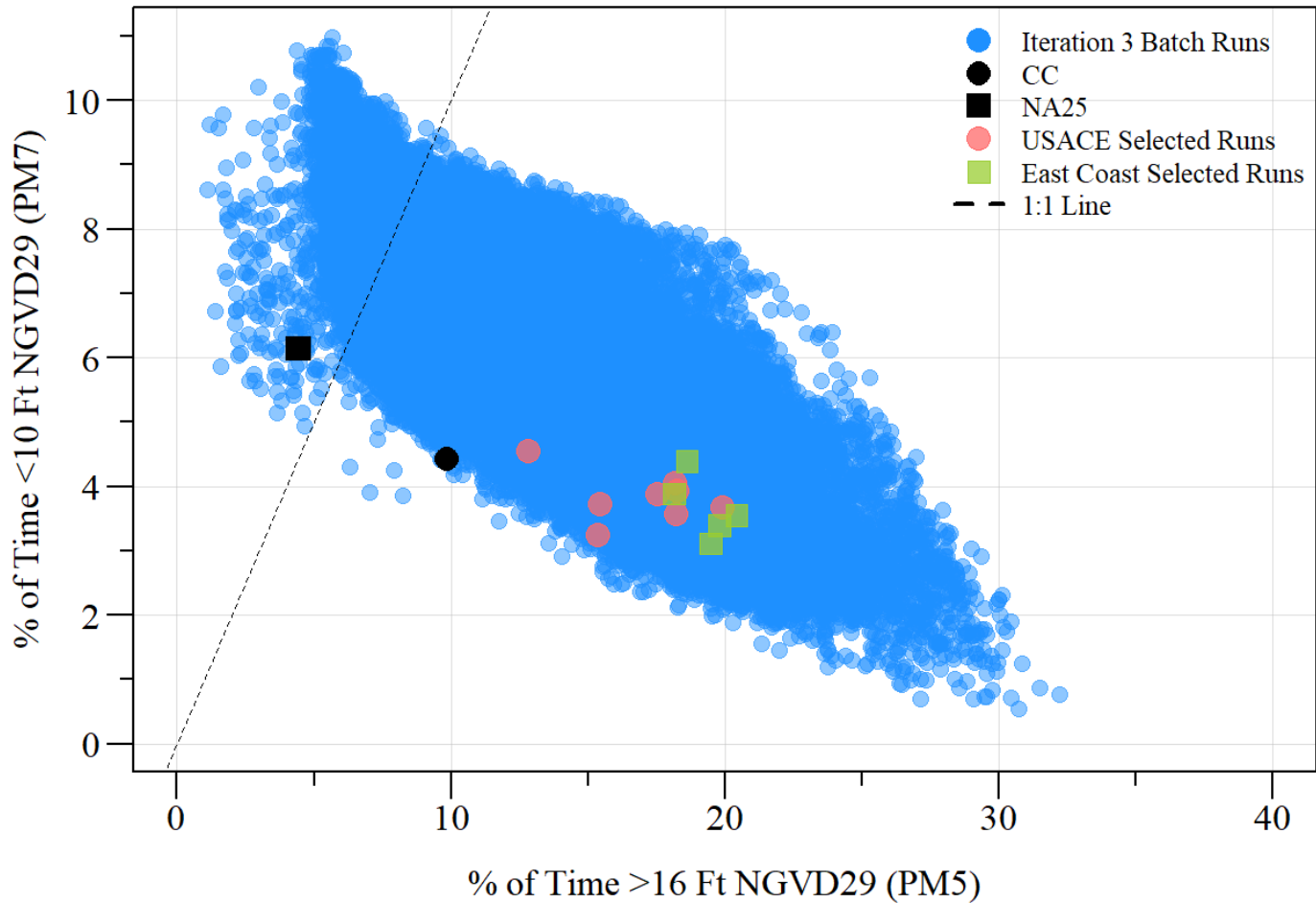
Iteration 3 - Phase 2



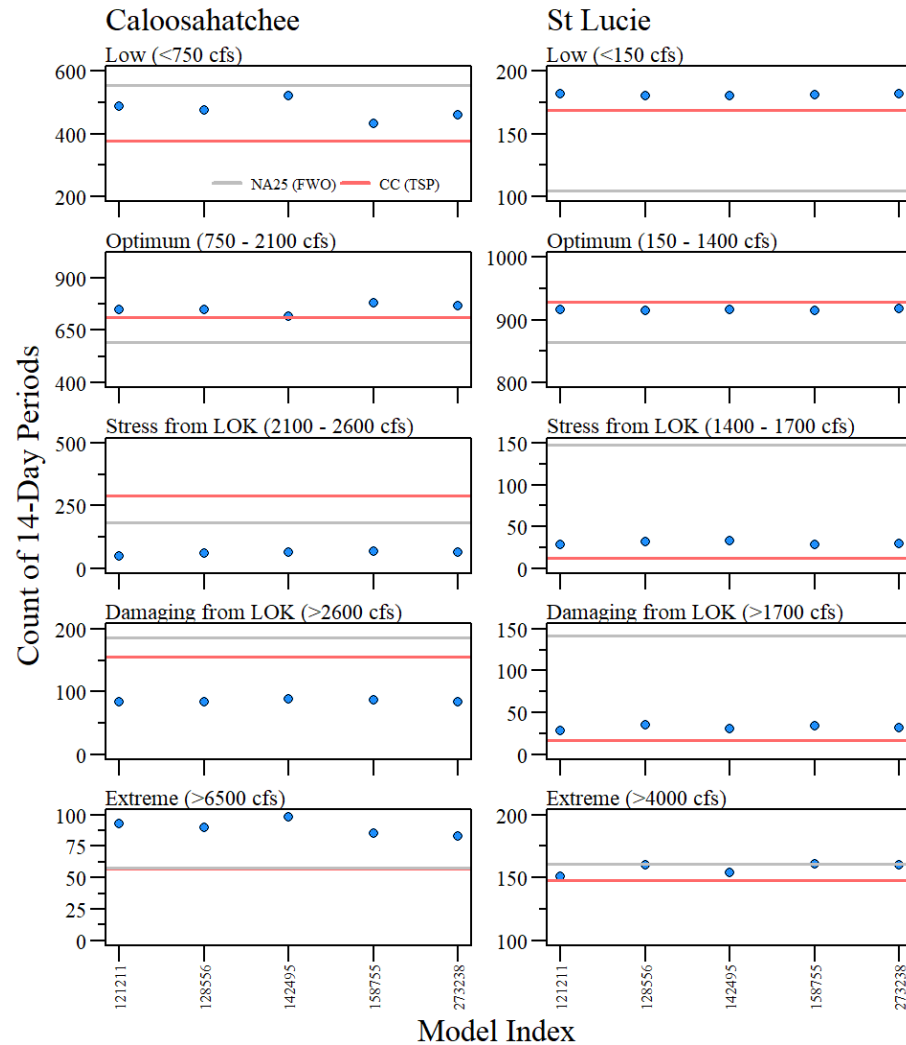
Iteration 3 - Phase 2



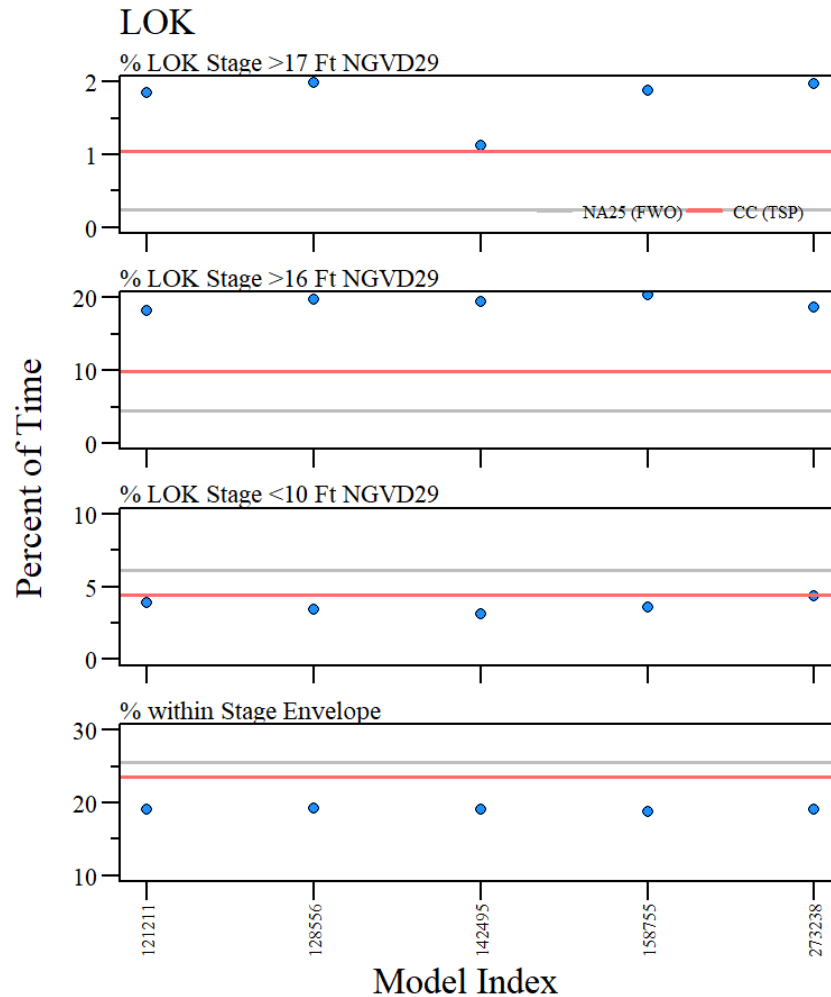
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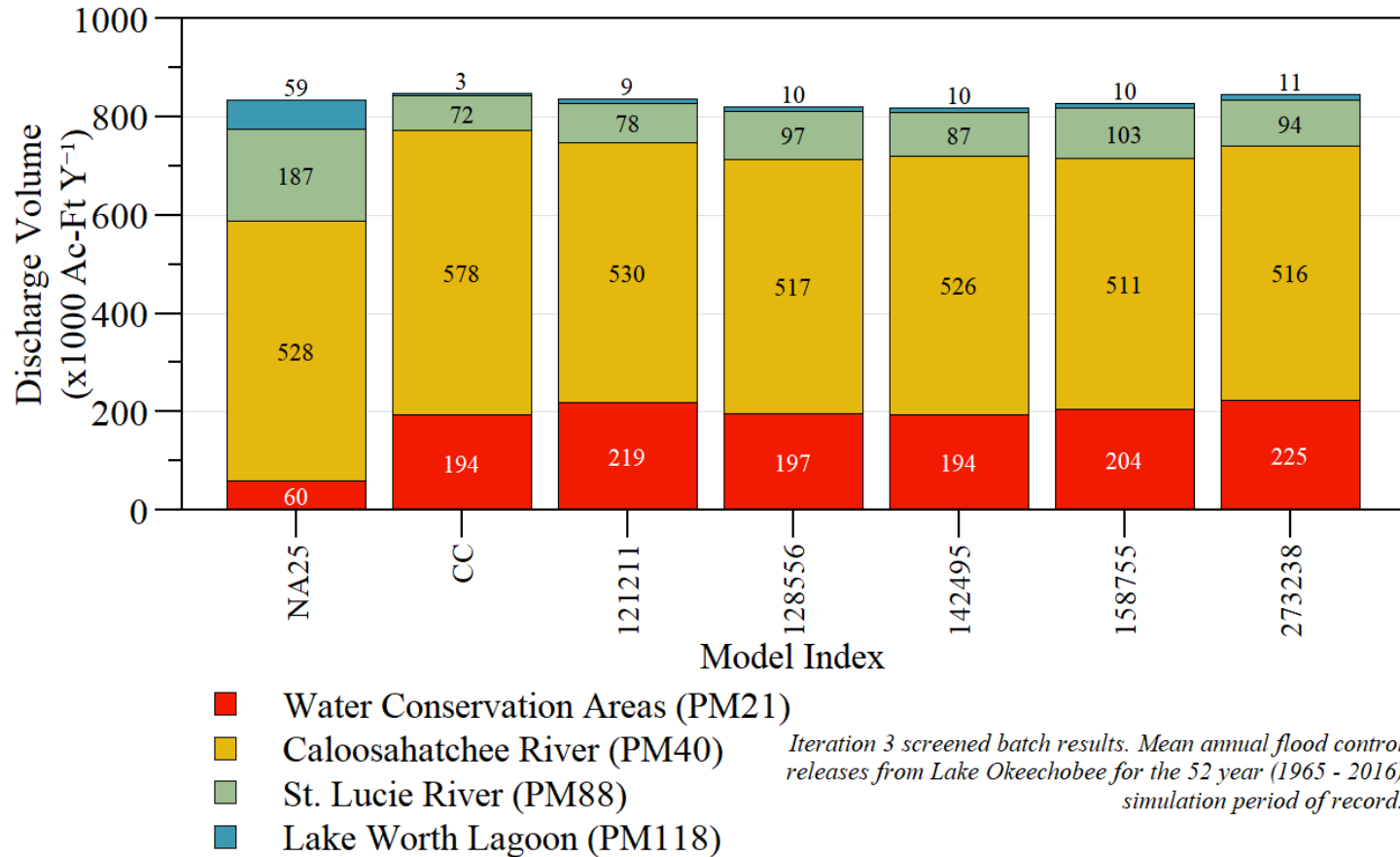
Iteration 3 - Phase 2



Iteration 3 - Phase 2



Iteration 3 - Phase 2



Iteration 3 - Phase 2

Performance Measure	Model Index					
	CC	121211	128556	142495	158755	273238
CRE - Low (PM30)	-32.2	-12.2	-14.7	-6.5	-21.9	-17.3
CRE - Optimum (PM31)	20.4	26.3	26.1	20.6	31.9	29.3
CRE - Stress from LOK (PM37)	57.9	-73.2	-67.2	-64.5	-62.3	-65.6
CRE - Damaging from LOK (PM38)	-16.1	-55.4	-54.8	-52.2	-53.2	-55.4
CRE - Extreme (PM36)	-1.7	60.3	55.2	69.0	46.6	43.1
SLE - Low (PM80)	61.0	73.3	71.4	71.4	72.4	73.3
SLE - Optimum (PM81)	7.5	6.0	5.8	6.0	5.8	6.1
SLE - Stress from LOK (PM86)	-91.2	-80.4	-78.4	-77.7	-80.4	-79.7
SLE - Damaging from LOK (PM87)	-88.0	-80.3	-75.4	-78.2	-76.1	-77.5
SLE - Extreme (PM85)	-8.1	-6.2	-0.6	-4.3	0.0	-0.6
S308 Regulatory Flow (PM88)	-61.7	-58.3	-48.1	-53.4	-44.9	-49.9
S77 Regulatory Flow (PM40)	9.5	0.4	-2.0	-0.3	-3.2	-2.3
CRE MFL (PM39)	0.0	10.0	-10.0	0.0	-10.0	0.0
LOK MFL (PM20)	-22.2	-11.1	-11.1	-22.2	-22.2	-11.1
LOK >17 Ft (PM5)	333.3	666.7	729.2	370.8	683.3	720.8
LOK >16 Ft (PM6)	122.1	309.7	346.7	339.5	361.2	320.3
LOK - Total Stage Envelope Penalty (PM10+PM11)	13.7	40.7	42.9	40.0	44.3	42.8

Percent Difference relative to FWO (NA25)

Iteration 3 - Phase 2 (USACE & East Coast)

Performance Measure	Model Index													
	CC	125463	138722	168491	173186	260467	261768	262200	279349	121211	128556	142495	158755	273238
CRE - Low (PM30)	-32.2	-14.0	-6.1	-11.2	-11.7	-19.1	-18.2	-15.3	-15.5	-12.2	-14.7	-6.5	-21.9	-17.3
CRE - Optimum (PM31)	20.4	23.9	18.9	20.9	25.6	30.0	29.2	25.6	27.3	26.3	26.1	20.6	31.9	29.3
CRE - Stress from LOK (PM37)	57.9	-60.7	-63.9	-65.0	-59.0	-62.8	-65.0	-55.7	-61.2	-73.2	-67.2	-64.5	-62.3	-65.6
CRE - Damaging from LOK (PM38)	-16.1	-49.5	-52.7	-43.5	-53.2	-55.9	-55.4	-49.5	-58.6	-55.4	-54.8	-52.2	-53.2	-55.4
CRE - Extreme (PM36)	-1.7	25.9	20.7	46.6	43.1	27.6	43.1	15.5	15.5	60.3	55.2	69.0	46.6	43.1
SLE - Low (PM80)	61.0	73.3	68.6	73.3	71.4	74.3	66.7	76.2	72.4	73.3	71.4	71.4	72.4	73.3
SLE - Optimum (PM81)	7.5	3.5	1.7	3.5	5.8	5.7	4.9	5.3	5.3	6.0	5.8	6.0	5.8	6.1
SLE - Stress from LOK (PM86)	-91.2	-81.1	-65.5	-75.7	-77.7	-78.4	-64.9	-80.4	-81.8	-80.4	-78.4	-77.7	-80.4	-79.7
SLE - Damaging from LOK (PM87)	-88.0	-62.0	-50.7	-66.2	-75.4	-73.9	-66.9	-74.6	-74.6	-80.3	-75.4	-78.2	-76.1	-77.5
SLE - Extreme (PM85)	-8.1	5.0	4.3	-1.2	4.3	4.3	1.2	6.2	9.3	-6.2	-0.6	-4.3	0.0	-0.6
S308 Regulatory Flow (PM88)	-61.7	-23.6	-12.0	-35.6	-33.6	-37.4	-32.8	-31.0	-23.9	-58.3	-48.1	-53.4	-44.9	-49.9
S77 Regulatory Flow (PM40)	9.5	-8.4	-14.3	-2.9	-5.2	-3.1	-6.1	-4.2	-10.1	0.4	-2.0	-0.3	-3.2	-2.3
CRE MFL (PM39)	0.0	-10.0	0.0	-10.0	0.0	-10.0	-10.0	-20.0	-10.0	10.0	-10.0	0.0	-10.0	0.0
LOK MFL (PM20)	-22.2	-22.2	-22.2	-11.1	-22.2	-11.1	-11.1	-11.1	-11.1	-11.1	-11.1	-22.2	-22.2	-11.1
LOK >17 Ft (PM5)	333.3	308.3	287.5	120.8	333.3	454.2	287.5	408.3	508.3	666.7	729.2	370.8	683.3	720.8
LOK >16 Ft (PM6)	122.1	248.8	247.0	189.8	311.3	312.6	296.2	310.4	349.9	309.7	346.7	339.5	361.2	320.3
LOK - Total Stage Envelope Penalty (PM10+PM11)	13.7	32.7	31.4	27.6	36.6	37.7	35.0	36.1	41.4	40.7	42.9	40.0	44.3	42.8

Percent Difference relative to FWO (NA25)

Model Index

Performance Measure	NA25	CC	125463	138722	168491	173186	260467	261768	262200	279349	121211	128556	142495	158755	273238
CRE - Low (PM30)	556.0	377.0	478.0	522.0	494.0	491.0	450.0	455.0	471.0	470.0	488.0	474.0	520.0	434.0	460.0
CRE - Optimum (PM31)	593.0	714.0	735.0	705.0	717.0	745.0	771.0	766.0	745.0	755.0	749.0	748.0	715.0	782.0	767.0
CRE - Stress from LOK (PM37)	183.0	289.0	72.0	66.0	64.0	75.0	68.0	64.0	81.0	71.0	49.0	60.0	65.0	69.0	63.0
CRE - Damaging from LOK (PM38)	186.0	156.0	94.0	88.0	105.0	87.0	82.0	83.0	94.0	77.0	83.0	84.0	89.0	87.0	83.0
CRE - Extreme (PM36)	58.0	57.0	73.0	70.0	85.0	83.0	74.0	83.0	67.0	67.0	93.0	90.0	98.0	85.0	83.0
SLE - Low (PM80)	105.0	169.0	182.0	177.0	182.0	180.0	183.0	175.0	185.0	181.0	182.0	180.0	180.0	181.0	182.0
SLE - Optimum (PM81)	864.0	929.0	894.0	879.0	894.0	914.0	913.0	906.0	910.0	910.0	916.0	914.0	916.0	914.0	917.0
SLE - Stress from LOK (PM86)	148.0	13.0	28.0	51.0	36.0	33.0	32.0	52.0	29.0	27.0	29.0	32.0	33.0	29.0	30.0
SLE - Damaging from LOK (PM87)	142.0	17.0	54.0	70.0	48.0	35.0	37.0	47.0	36.0	36.0	28.0	35.0	31.0	34.0	32.0
SLE - Extreme (PM85)	161.0	148.0	169.0	168.0	159.0	168.0	168.0	163.0	171.0	176.0	151.0	160.0	154.0	161.0	160.0
S308 Regulatory Flow (PM88)	187.4	71.7	143.1	165.0	120.7	124.4	117.4	126.0	129.4	142.6	78.1	97.3	87.3	103.3	93.9
S77 Regulatory Flow (PM40)	527.8	577.8	483.5	452.5	512.3	500.4	511.6	495.6	505.6	474.6	530.0	517.4	526.4	510.7	515.9
CRE MFL (PM39)	10.0	10.0	9.0	10.0	9.0	10.0	9.0	9.0	8.0	9.0	11.0	9.0	10.0	9.0	10.0
LOK MFL (PM20)	9.0	7.0	7.0	7.0	8.0	7.0	8.0	8.0	8.0	8.0	8.0	8.0	7.0	7.0	8.0
LOK >17 Ft (PM5)	0.2	1.0	1.0	0.9	0.5	1.0	1.3	0.9	1.2	1.5	1.8	2.0	1.1	1.9	2.0
LOK >16 Ft (PM6)	4.4	9.8	15.4	15.4	12.8	18.2	18.3	17.6	18.2	19.9	18.1	19.8	19.5	20.4	18.6
LOK - Total Stage Envelope Penalty (PM10+PM11)	31401.0	35699.0	41668.0	41254.0	40075.0	42907.0	43249.0	42381.0	42732.0	44401.0	44188.0	44887.0	43977.0	45296.0	44,839.0

Percent Difference relative to FWO (NA25)

Units: Salinity metric, 14-day peroid count; Regulatory Discharge, x1000 Ac-Ft Yr⁻¹; MFL, number of exceedances; Stage Envelope Penalty, Score.