

## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow January 8, 2019 to January 14, 2019** **0 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount 0 cfs  
Regulatory Discharge 0 cfs  
Potential Regulatory Discharge 0 cfs

**-----Data Summary -----**

	December 29, 2018	to	January 4, 2019
WCA-3A Stage (end of week)	9.40		ft-NGVD
Angel's	5.23		ft-NGVD
G-3273	6.03		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	0.04	0.91
S-140		0.90
ENP		M
This Week's Avg	0.04	0.90
Pre-Project Avg	0.27	0.75

**----- Regulatory Discharge Calculation -----**

<b>WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		0 cfs
Distance to Bottom of Current Zone	N/A	feet
Distance to Top of Current Zone		0.58 feet

**-----Potential Regulatory Discharge Considering Upstream Water Levels-----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.18	17.06	0	
WCA-2A	12.00	11.44	40,960	
Others			0	
Total Storage Adjustment			40,960	0.10
WCA-3A	9.40			
Adjusted WCA-3A	9.50			

<b>Adjusted WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Potential regulatory discharge		0 cfs
Distance to Bottom of Current Zone		-0.08 feet
Distance to Top of Current Zone		0.48 feet

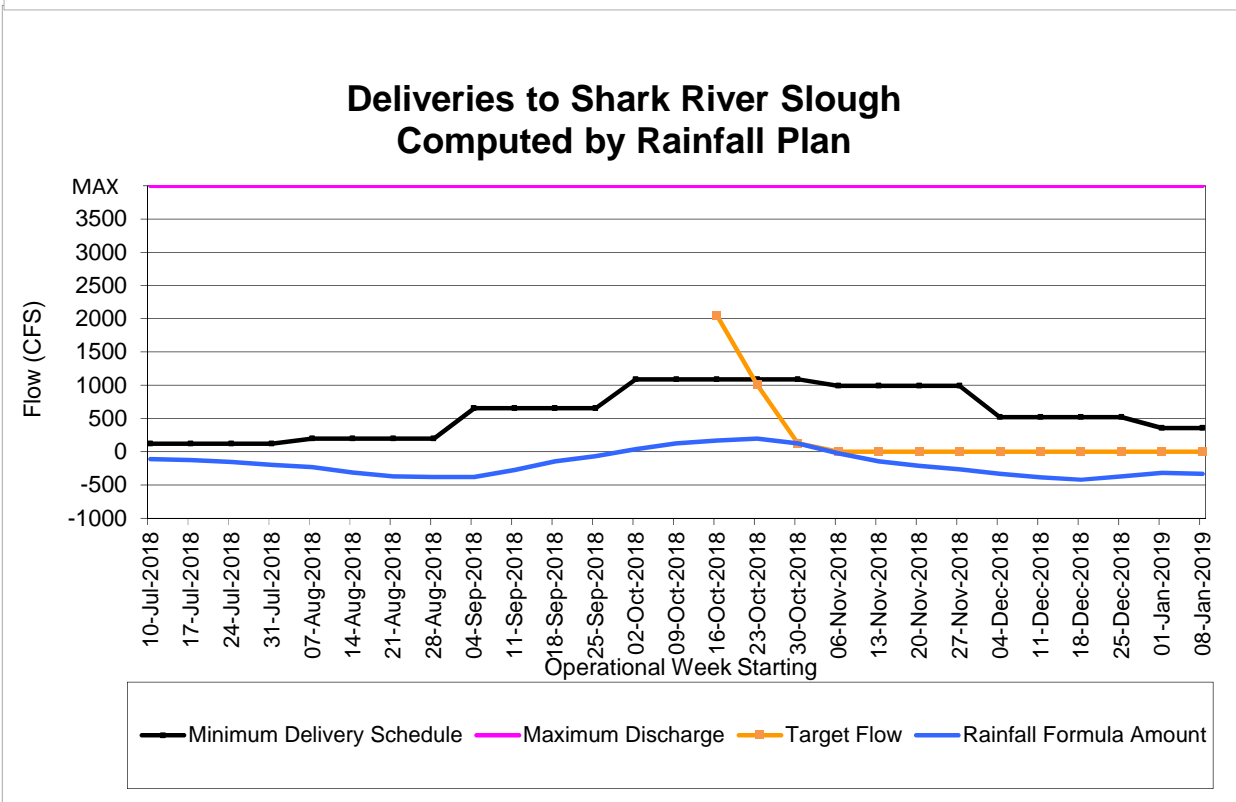
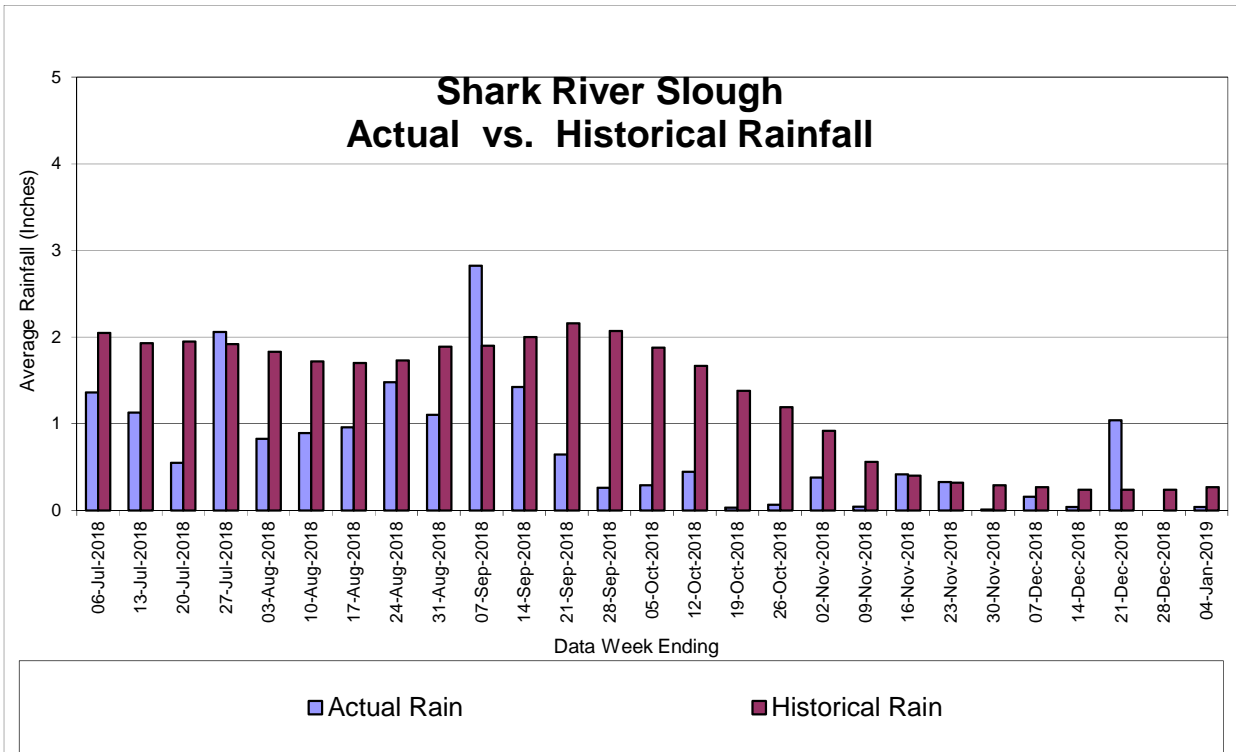
**-----Statistical Parameters -----**

Rainfall Formula Amount	-333 cfs
Last Week's Rainfall Formula	-318 cfs
Pre-project Mean Discharge	247 cfs

Rainfall Excess Terms	RL1 -0.68	RL2 -0.22	RL3	-1.90
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**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow January 15, 2019 to January 21, 2019** **0 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount 0 cfs  
 Regulatory Discharge 0 cfs  
 Potential Regulatory Discharge 0 cfs

**----Data Summary ----**

	January 5, 2019	to	January 11, 2019
WCA-3A Stage (end of week)	9.30		ft-NGVD
Angel's	5.04		ft-NGVD
G-3273	5.88		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	0.04	0.99
S-140		0.90
ENP		M
This Week's Avg	0.04	0.94
Pre-Project Avg	0.25	0.77

**---- Regulatory Discharge Calculation ----**

<b>WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		0 cfs
Distance to Bottom of Current Zone	N/A	feet
Distance to Top of Current Zone		0.64 feet

**----Potential Regulatory Discharge Considering Upstream Water Levels----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.11	17.02	0	
WCA-2A	11.81	11.32	30,220	
Others			0	
Total Storage Adjustment			30,220	0.07
WCA-3A	9.30			
Adjusted WCA-3A	9.37			

<b>Adjusted WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Potential regulatory discharge		0 cfs
Distance to Bottom of Current Zone		-0.08 feet
Distance to Top of Current Zone		0.56 feet

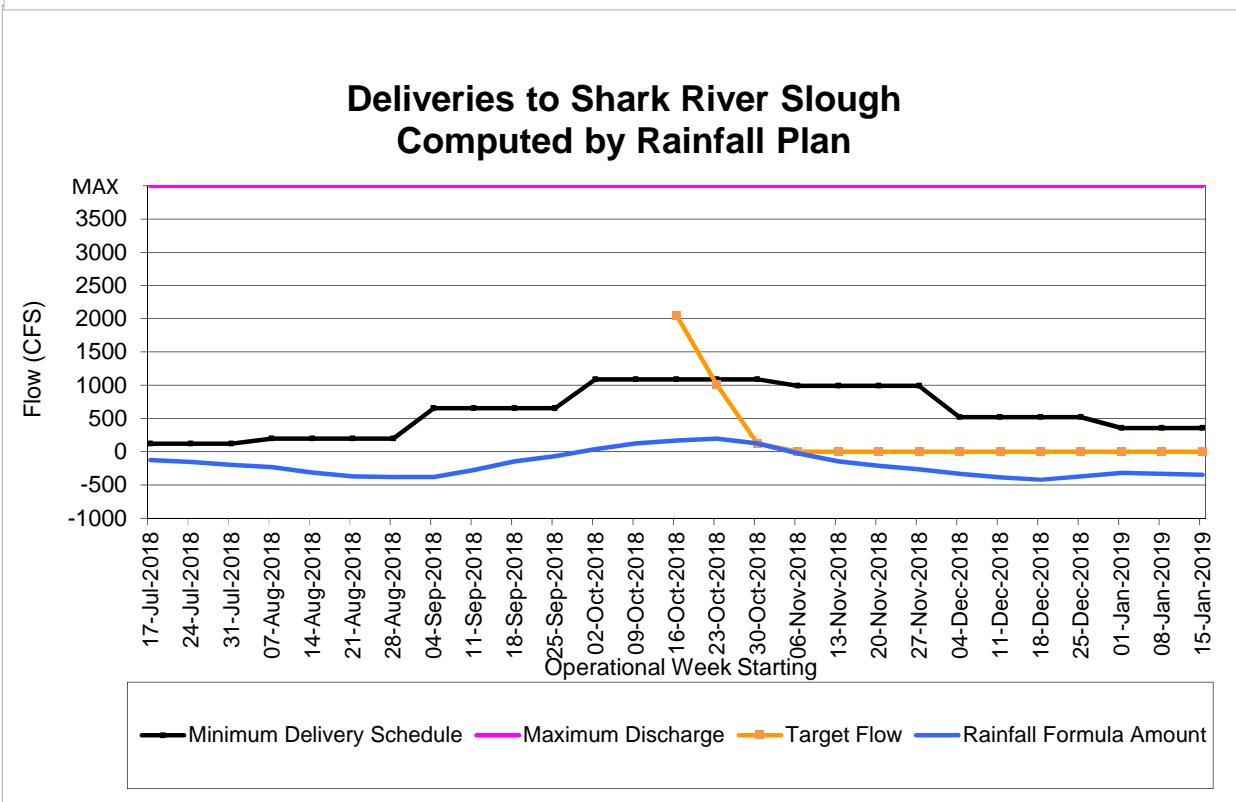
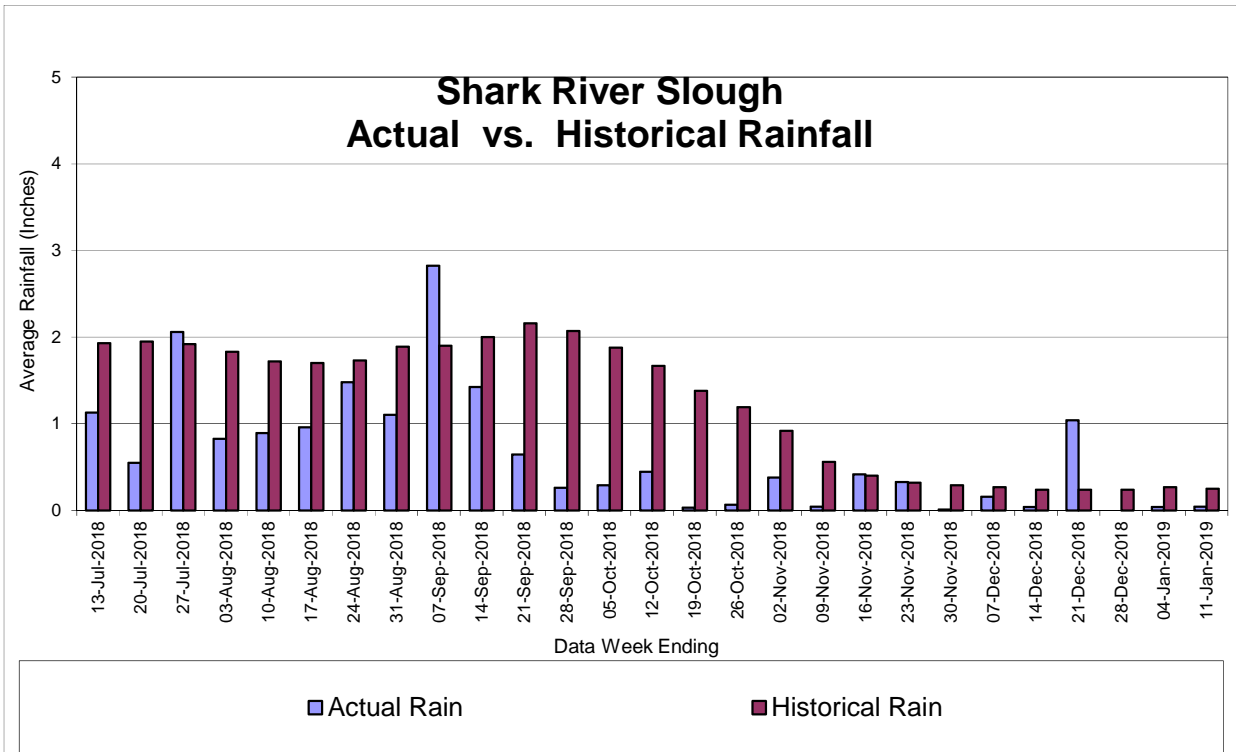
**----Statistical Parameters ----**

Rainfall Formula Amount	-346 cfs
Last Week's Rainfall Formula	-333 cfs
Pre-project Mean Discharge	216 cfs

Rainfall Excess Terms	RL1 -0.70	RL2 -0.14	RL3	-1.51
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**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow January 22, 2019 to January 28, 2019** **0 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount 0 cfs  
Regulatory Discharge 0 cfs  
Potential Regulatory Discharge 0 cfs

**----Data Summary ----**

	January 12, 2019	to	January 18, 2019
WCA-3A Stage (end of week)	9.22		ft-NGVD
Angel's	4.89		ft-NGVD
G-3273	5.66		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	0.00	0.97
S-140		0.85
ENP		M
This Week's Avg	0.00	0.91
Pre-Project Avg	0.35	0.81

**---- Regulatory Discharge Calculation ----**

<b>WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		0 cfs
Distance to Bottom of Current Zone	N/A	feet
Distance to Top of Current Zone		0.67 feet

**----Potential Regulatory Discharge Considering Upstream Water Levels----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.04	16.97	0	
WCA-2A	11.72	11.21	27,480	
Others			0	
Total Storage Adjustment			27,480	0.08
WCA-3A	9.22			
Adjusted WCA-3A	9.30			

<b>Adjusted WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Potential regulatory discharge		0 cfs
Distance to Bottom of Current Zone		-0.08 feet
Distance to Top of Current Zone		0.59 feet

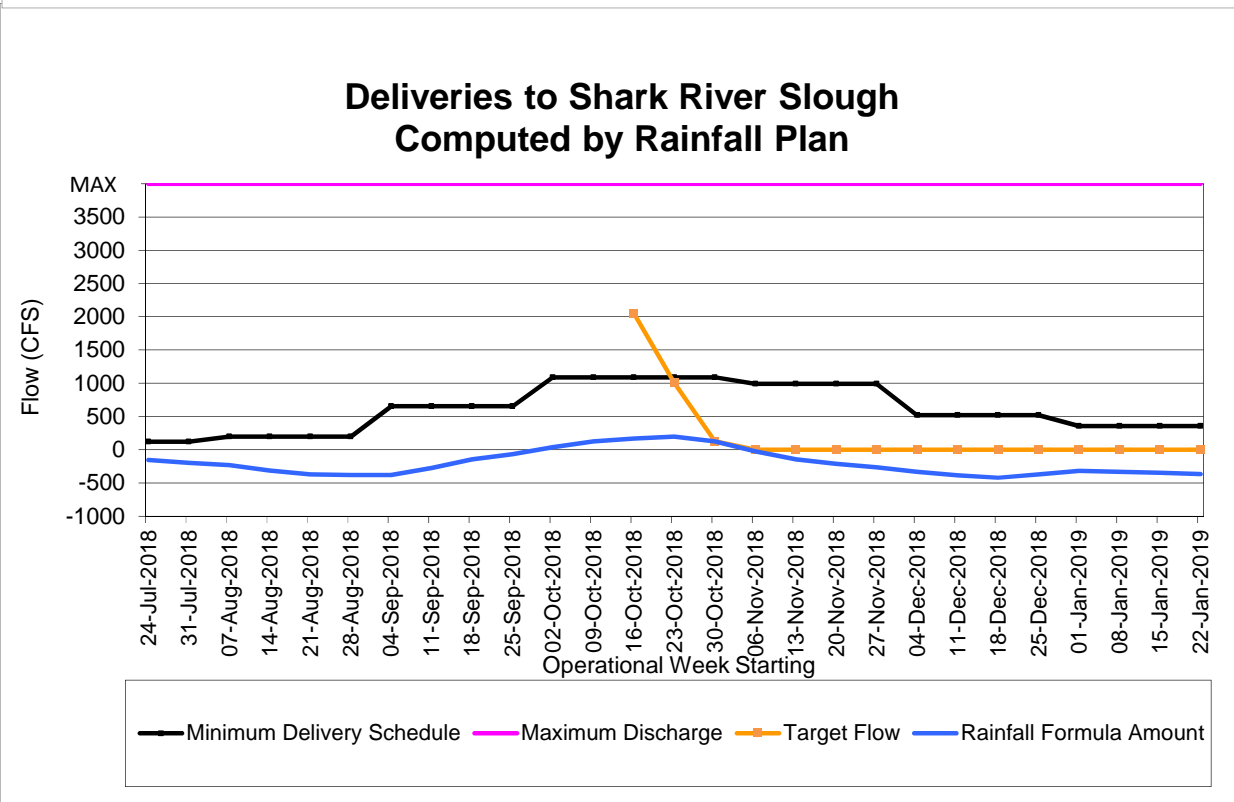
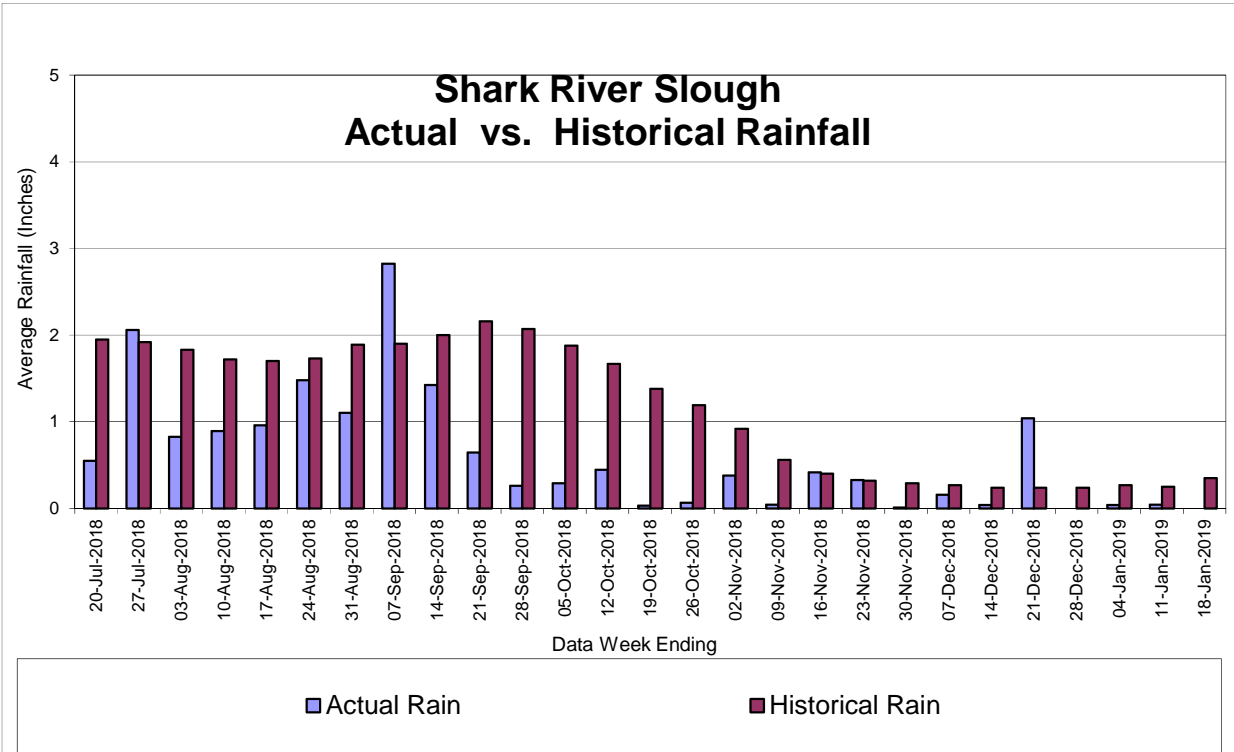
**----Statistical Parameters ----**

Rainfall Formula Amount	-364 cfs
Last Week's Rainfall Formula	-346 cfs
Pre-project Mean Discharge	186 cfs

Rainfall Excess Terms	RL1 -0.77	RL2 -0.23	RL3	-1.08
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**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow January 29, 2019 to February 4, 2019** **0 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount 0 cfs  
Regulatory Discharge 0 cfs  
Potential Regulatory Discharge 0 cfs

**----Data Summary ----**

	January 19, 2019	to	January 25, 2019
WCA-3A Stage (end of week)	9.23		ft-NGVD
Angel's	5.09		ft-NGVD
G-3273	5.68		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	0.92	1.03
S-140		0.85
ENP		M
This Week's Avg	0.92	0.94
Pre-Project Avg	0.33	0.83

**---- Regulatory Discharge Calculation ----**

<b>WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		0 cfs
Distance to Bottom of Current Zone	N/A	feet
Distance to Top of Current Zone		0.62 feet

**----Potential Regulatory Discharge Considering Upstream Water Levels----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.02	16.90	0	
WCA-2A	11.68	11.10	30,310	
Others			0	
Total Storage Adjustment			30,310	0.09
WCA-3A	9.23			
Adjusted WCA-3A	9.32			

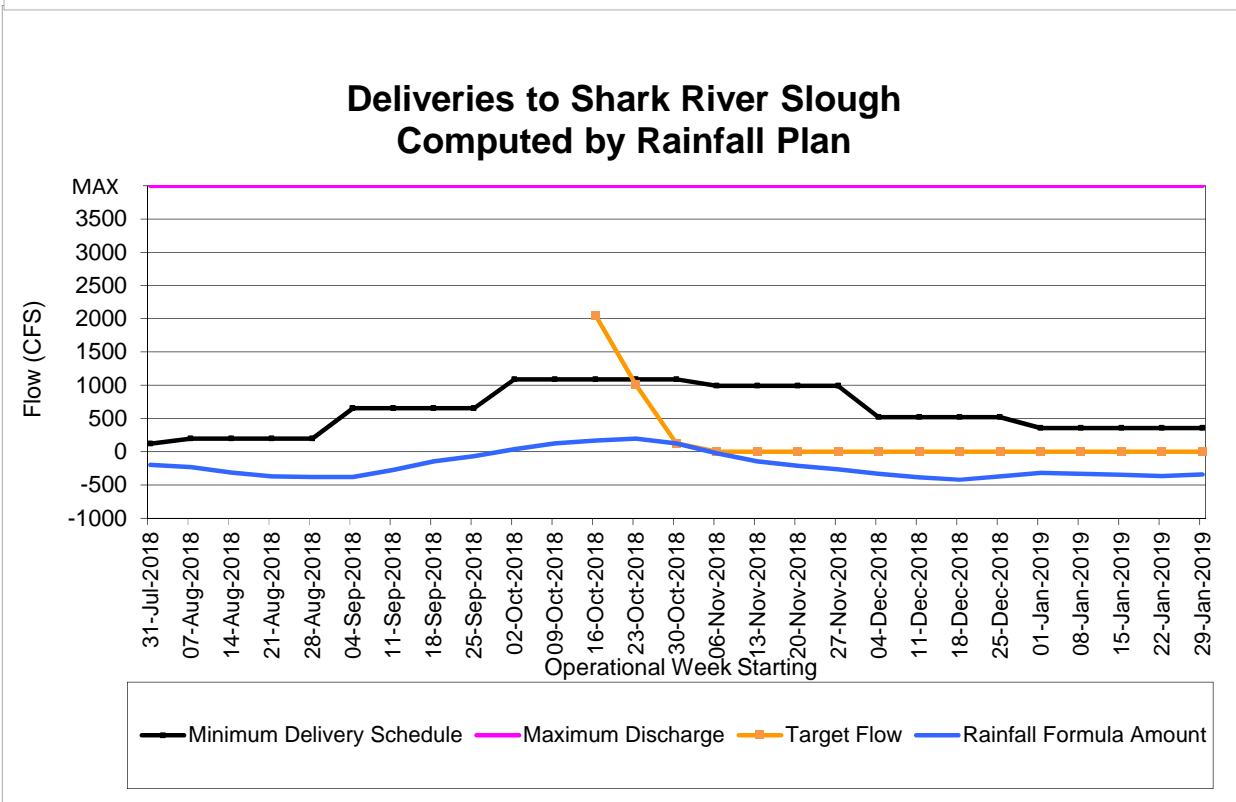
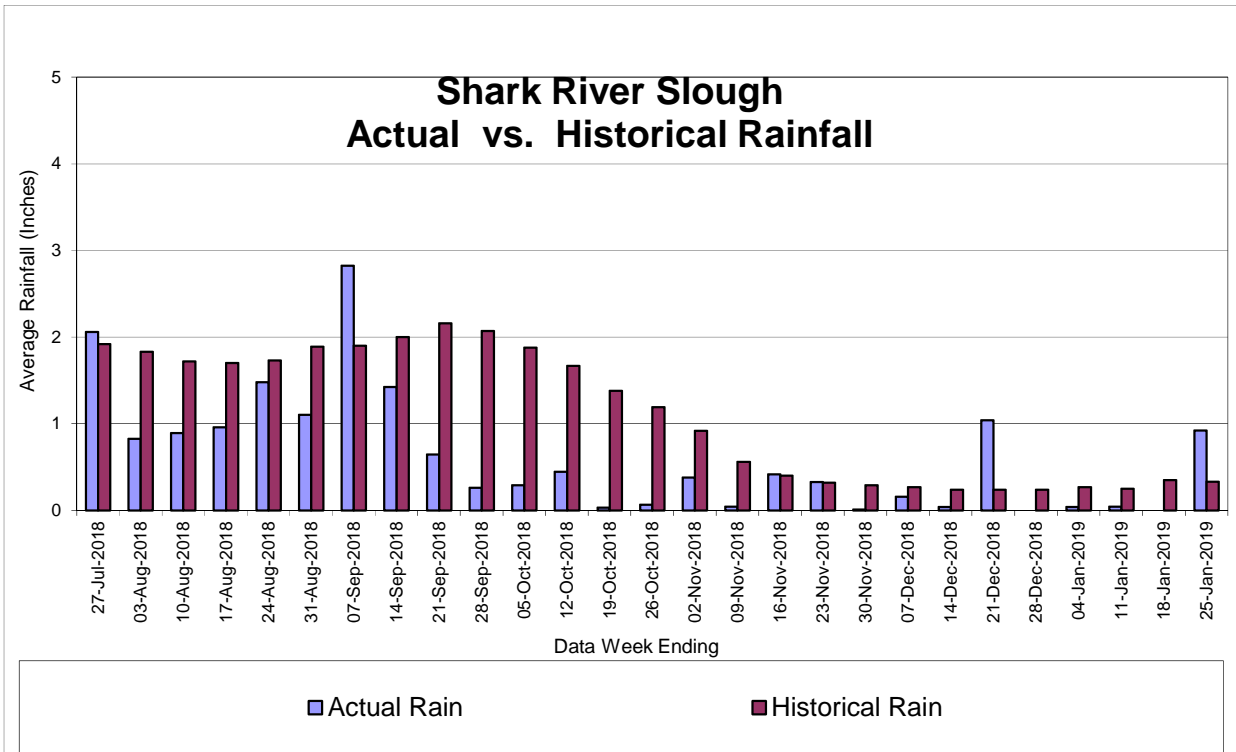
<b>Adjusted WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Potential regulatory discharge		0 cfs
Distance to Bottom of Current Zone		-0.08 feet
Distance to Top of Current Zone		0.53 feet

**----Statistical Parameters ----**

Rainfall Formula Amount		-341 cfs
Last Week's Rainfall Formula		-364 cfs
Pre-project Mean Discharge		153 cfs
Rainfall Excess Terms		
RL1 0.08	RL2 -0.32	RL3 -1.12

**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**





## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow February 5, 2019 to February 11, 2019 0 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount 0 cfs  
Regulatory Discharge 0 cfs  
Potential Regulatory Discharge 0 cfs

**----Data Summary ----**

	January 26, 2019	to	February 1, 2019
WCA-3A Stage (end of week)	9.55		ft-NGVD
Angel's	5.34		ft-NGVD
G-3273	5.99		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	3.80	0.90
S-140		1.00
ENP		M
This Week's Avg	3.80	0.95
Pre-Project Avg	0.35	0.88

**---- Regulatory Discharge Calculation ----**

<b>WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		0 cfs
Distance to Bottom of Current Zone	N/A	feet
Distance to Top of Current Zone		0.25 feet

**----Potential Regulatory Discharge Considering Upstream Water Levels----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.47	16.82	0	
WCA-2A	12.12	11.00	67,200	
Others			0	
Total Storage Adjustment			67,200	0.15
WCA-3A	9.55			
Adjusted WCA-3A	9.70			

<b>Adjusted WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Potential regulatory discharge		0 cfs
Distance to Bottom of Current Zone		-0.08 feet
Distance to Top of Current Zone		0.10 feet

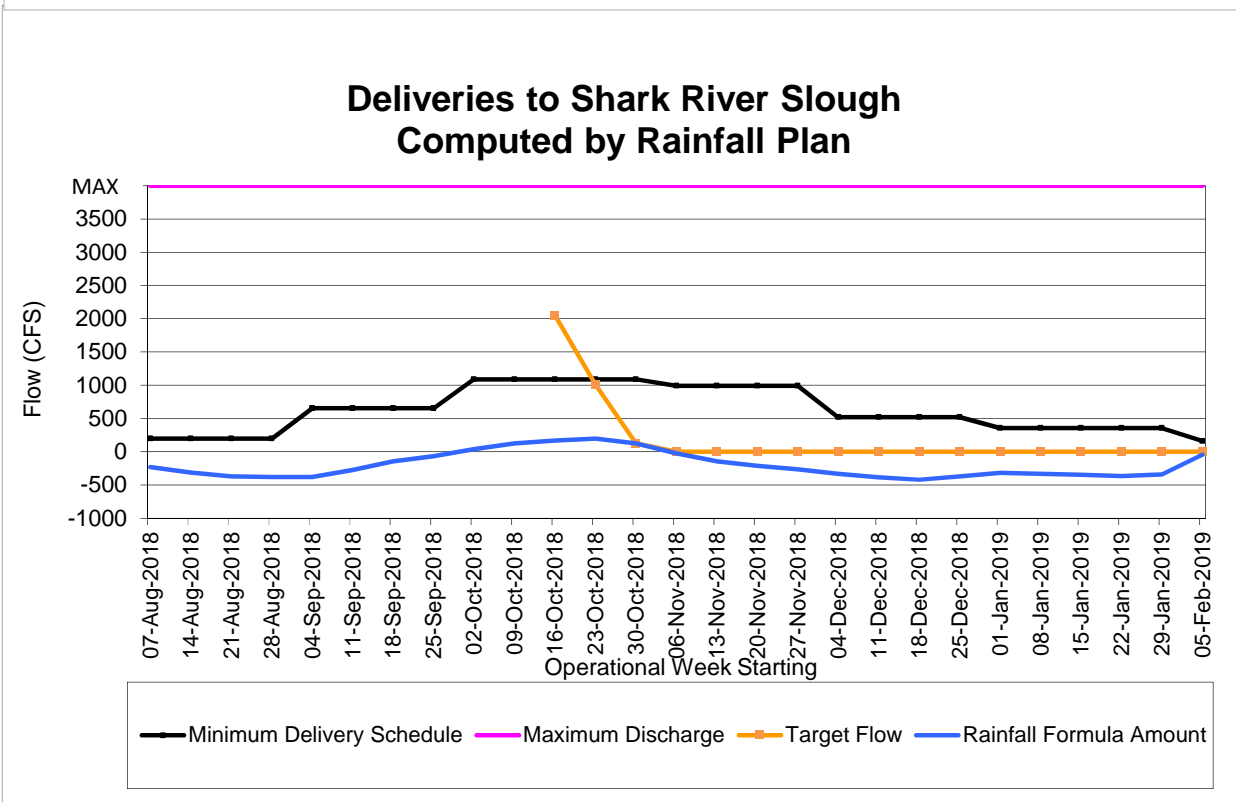
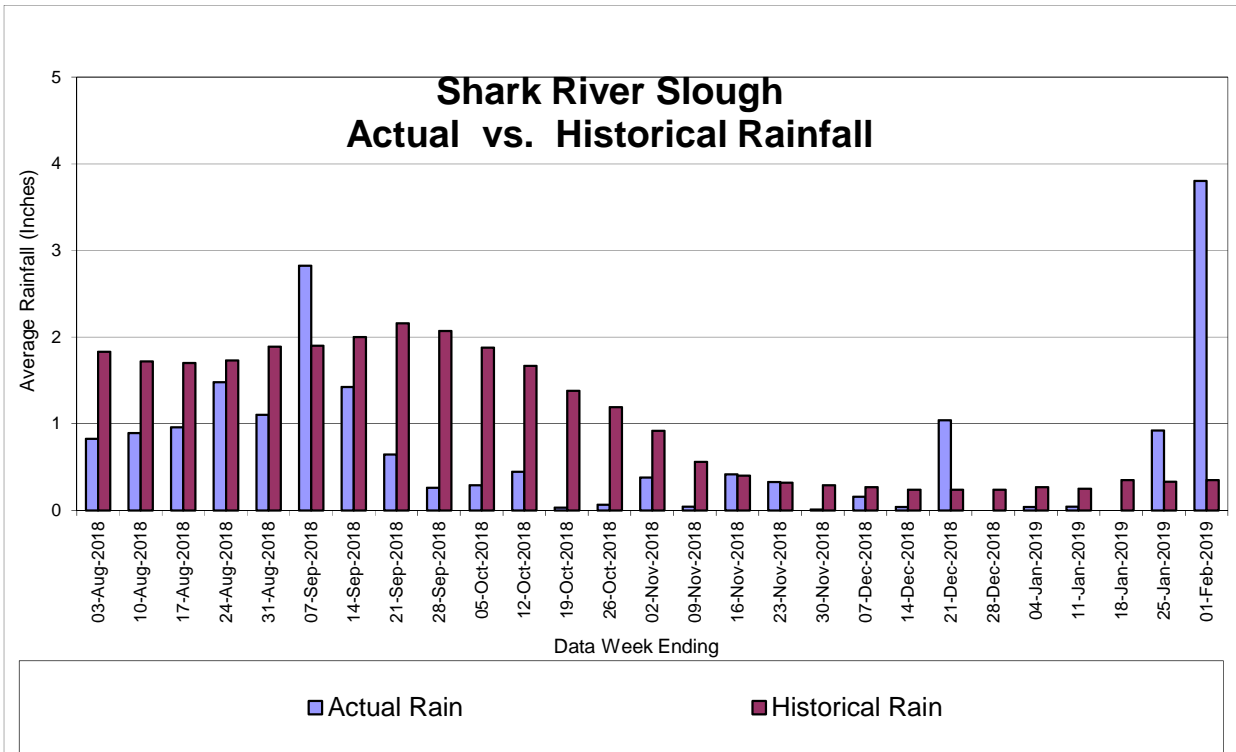
**----Statistical Parameters ----**

Rainfall Formula Amount	-42 cfs
Last Week's Rainfall Formula	-341 cfs
Pre-project Mean Discharge	130 cfs

Rainfall Excess Terms	RL1 3.90	RL2 -1.46	RL3	-0.22
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**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow February 12, 2019**

**to February 18, 2019**

**Adjusted  
347 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount	181 cfs
<input type="checkbox"/> Regulatory Discharge	0 cfs
<input checked="" type="checkbox"/> Potential Regulatory Discharge	166 cfs

<b>-----Data Summary -----</b>	<b>February 2, 2019</b>	<b>to</b>	<b>February 8, 2019</b>
WCA-3A Stage (end of week)	9.58		ft-NGVD
Angel's	5.06		ft-NGVD
G-3273	5.74		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	0.23	0.90
S-140		1.13
ENP		M
This Week's Avg	0.23	1.01
Pre-Project Avg	0.35	0.94

**----- Regulatory Discharge Calculation -----**

<b>WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		0 cfs
Distance to Bottom of Current Zone	N/A	feet
Distance to Top of Current Zone		0.18 feet

**-----Potential Regulatory Discharge Considering Upstream Water Levels-----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.58	16.75	0	
WCA-2A	12.58	11.00	109,300	
Others			0	
Total Storage Adjustment			109,300	0.24
WCA-3A	9.58			
Adjusted WCA-3A	9.82			

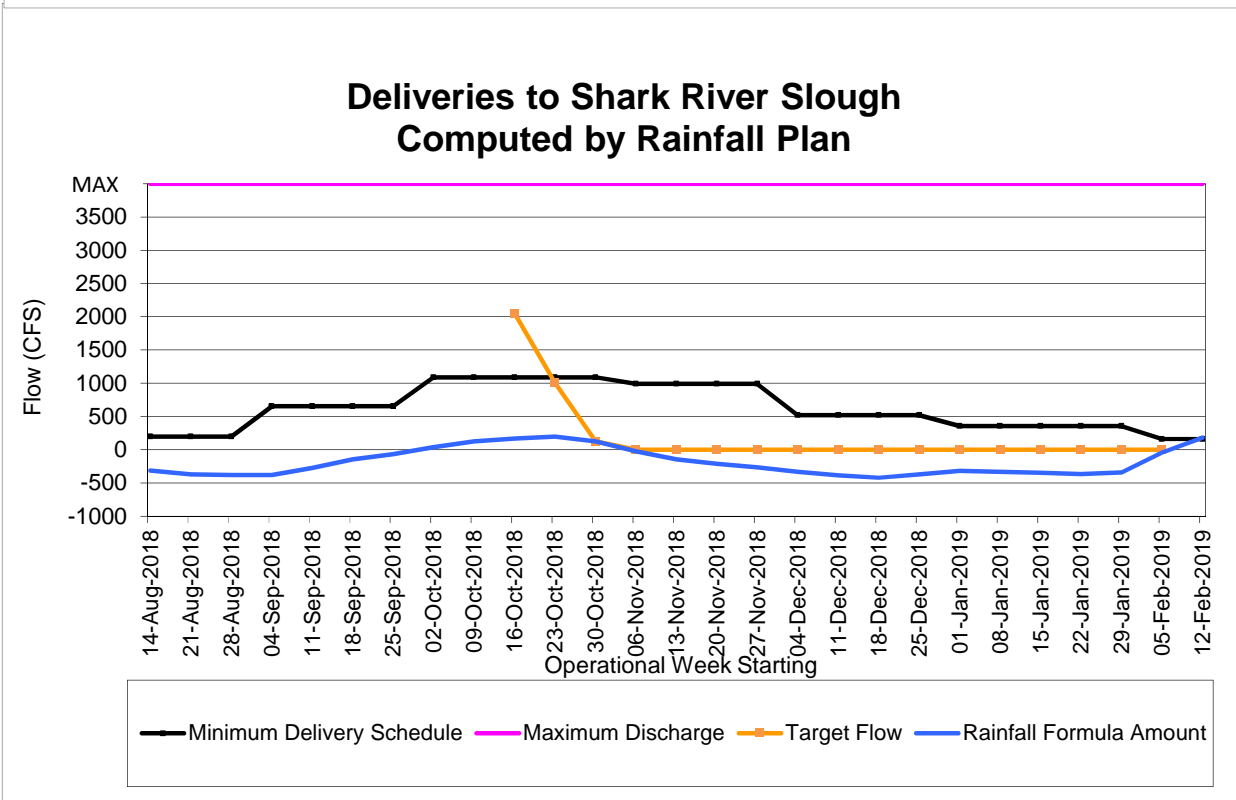
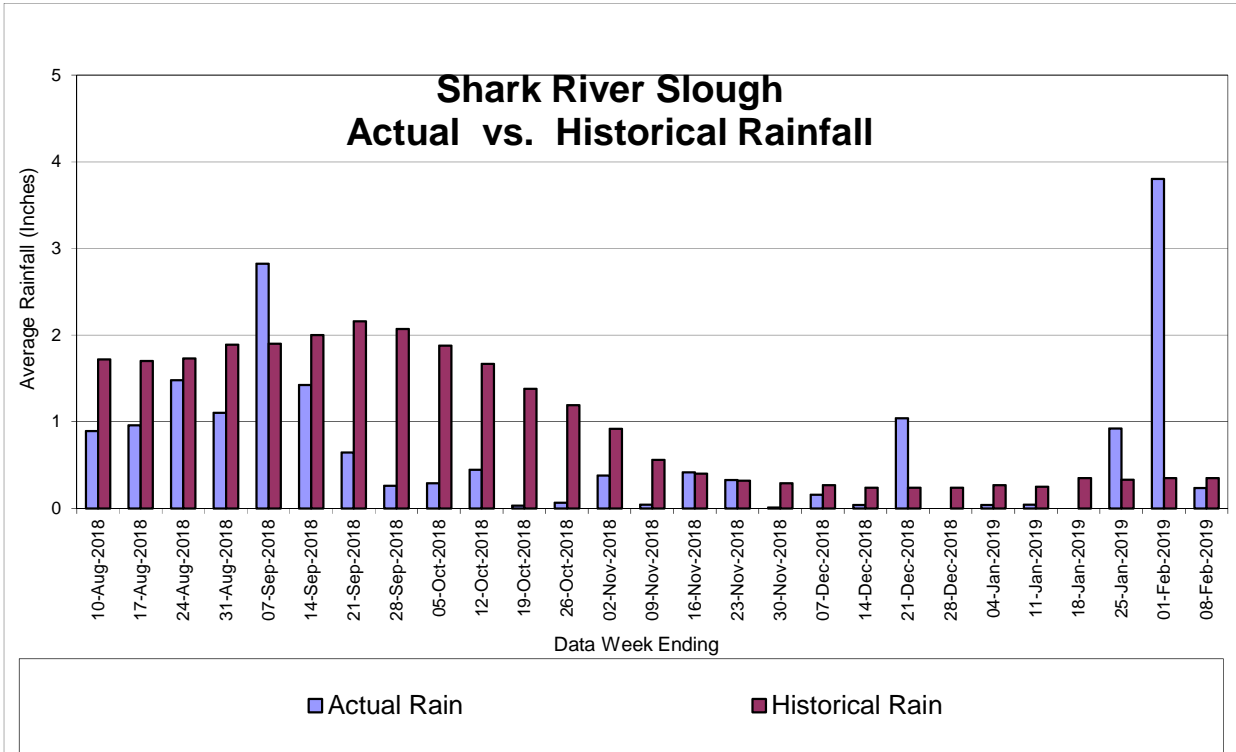
<b>Adjusted WCA-3A is in Zone E1</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Potential regulatory discharge		166 cfs
Distance to Bottom of Current Zone		-0.07 feet
Distance to Top of Current Zone		0.42 feet

**-----Statistical Parameters -----**

Rainfall Formula Amount		181 cfs
Last Week's Rainfall Formula		-42 cfs
Pre-project Mean Discharge		110 cfs
Rainfall Excess Terms		
RL1 3.22	RL2 -0.62	RL3 -0.14

**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow February 19, 2019**

**to February 25, 2019**

**Adjusted  
880 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount	235 cfs
□ Regulatory Discharge	117 cfs
☑ Potential Regulatory Discharge	645 cfs

<b>-----Data Summary -----</b>	<b>February 9, 2019</b>	<b>to</b>	<b>February 15, 2019</b>
WCA-3A Stage (end of week)	9.76		ft-NGVD
Angel's	5.39		ft-NGVD
G-3273	6.03		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	1.39	1.05
S-140		1.25
ENP		M
This Week's Avg	1.39	1.15
Pre-Project Avg	0.35	1.01

**----- Regulatory Discharge Calculation -----**

<b>WCA-3A is in Zone E1</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		117 cfs
Distance to Bottom of Current Zone		-0.05 feet
Distance to Top of Current Zone		0.43 feet

**-----Potential Regulatory Discharge Considering Upstream Water Levels-----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.61	16.67	0	
WCA-2A	12.45	11.00	94,500	
Others			0	
Total Storage Adjustment			94,500	0.21
WCA-3A	9.76			
Adjusted WCA-3A	9.97			

<b>Adjusted WCA-3A is in Zone E1</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Potential regulatory discharge		645 cfs
Distance to Bottom of Current Zone		-0.26 feet
Distance to Top of Current Zone		0.22 feet

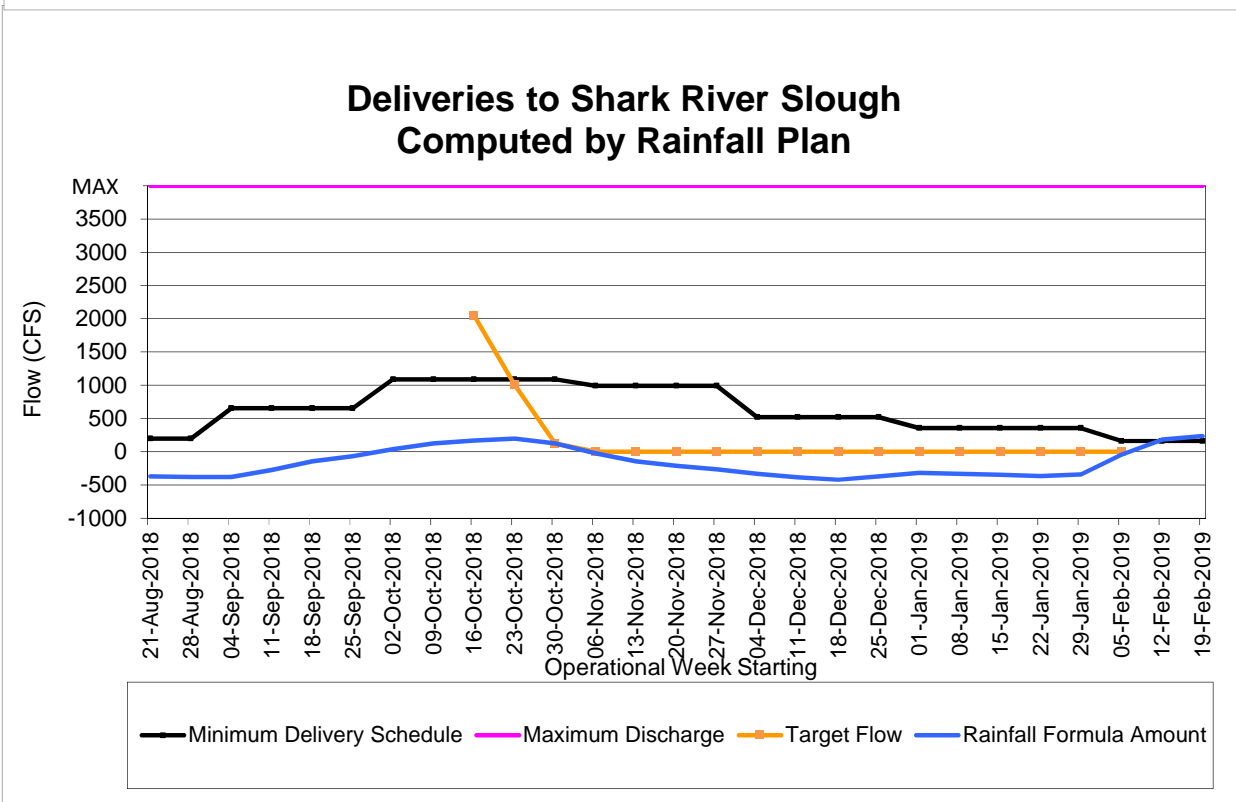
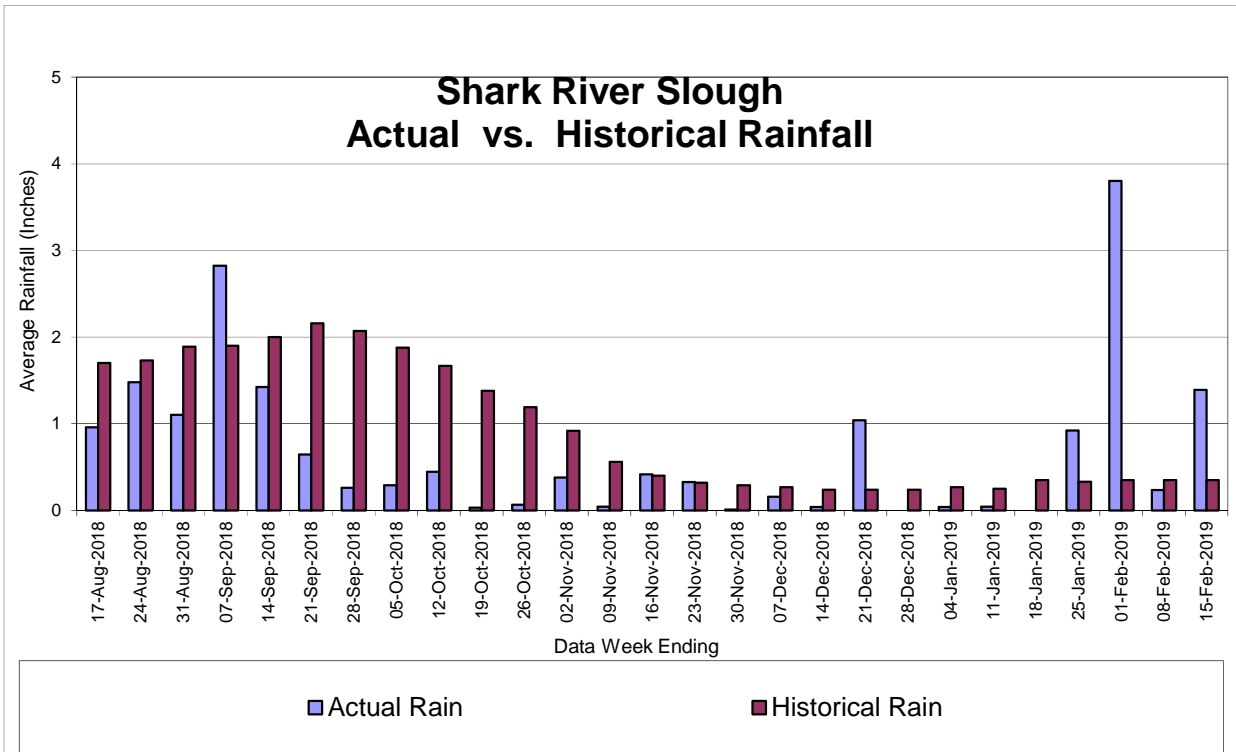
**-----Statistical Parameters -----**

Rainfall Formula Amount	235 cfs
Last Week's Rainfall Formula	181 cfs
Pre-project Mean Discharge	88 cfs

Rainfall Excess Terms	RL1 0.75	RL2 3.13	RL3	-0.23
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**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow February 26, 2019**

**to March 4, 2019**

**Adjusted  
966 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount	264 cfs
<input type="checkbox"/> Regulatory Discharge	254 cfs
<input checked="" type="checkbox"/> Potential Regulatory Discharge	702 cfs

<b>-----Data Summary -----</b>	<b>February 16, 2019</b>	<b>to</b>	<b>February 22, 2019</b>
WCA-3A Stage (end of week)	9.77		ft-NGVD
Angel's	5.06		ft-NGVD
G-3273	5.72		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	0.05	1.25
S-140		1.33
ENP		M
This Week's Avg	0.05	1.29
Pre-Project Avg	0.38	1.08

**----- Regulatory Discharge Calculation -----**

<b>WCA-3A is in Zone E1</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		254 cfs
Distance to Bottom of Current Zone		-0.10 feet
Distance to Top of Current Zone		0.38 feet

**-----Potential Regulatory Discharge Considering Upstream Water Levels-----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.51	16.60	0	
WCA-2A	12.26	11.00	80,250	
Others			0	
Total Storage Adjustment			80,250	0.18
WCA-3A	9.77			
Adjusted WCA-3A	9.95			

<b>Adjusted WCA-3A is in Zone E1</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Potential regulatory discharge		702 cfs
Distance to Bottom of Current Zone		-0.28 feet
Distance to Top of Current Zone		0.20 feet

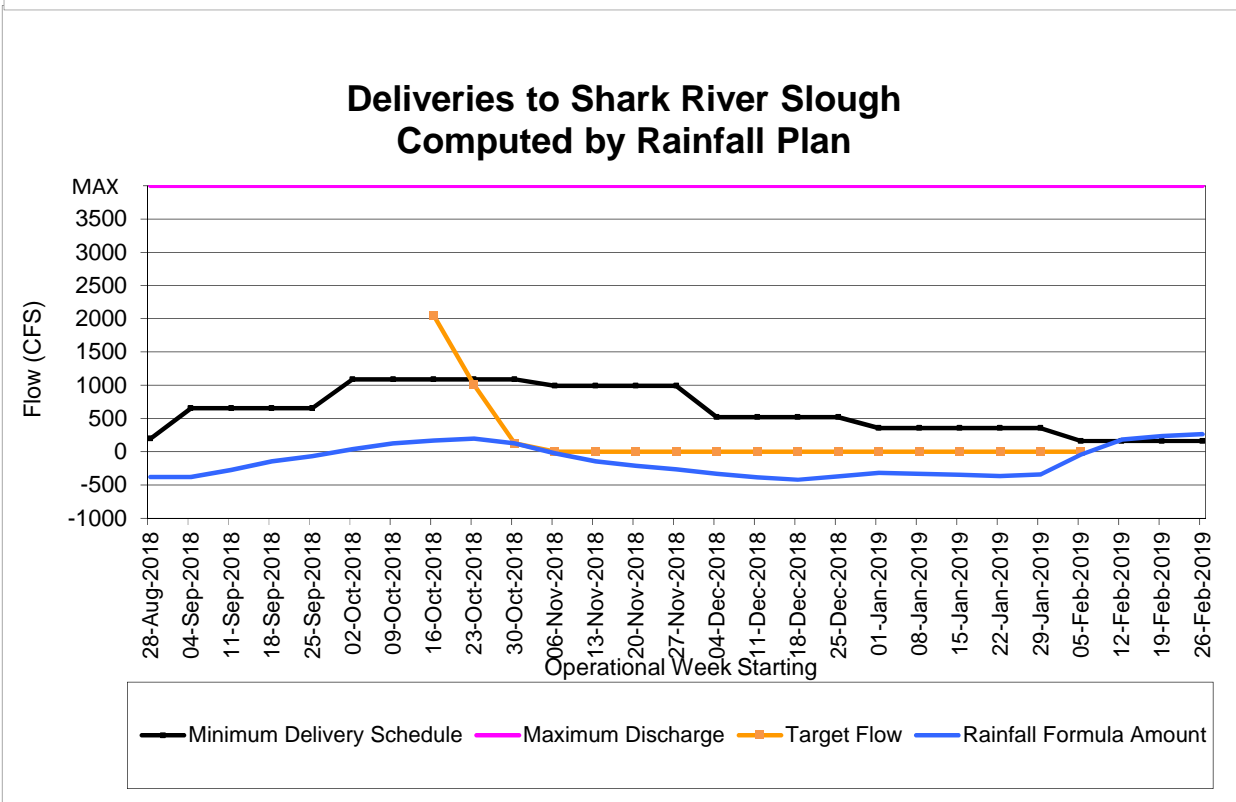
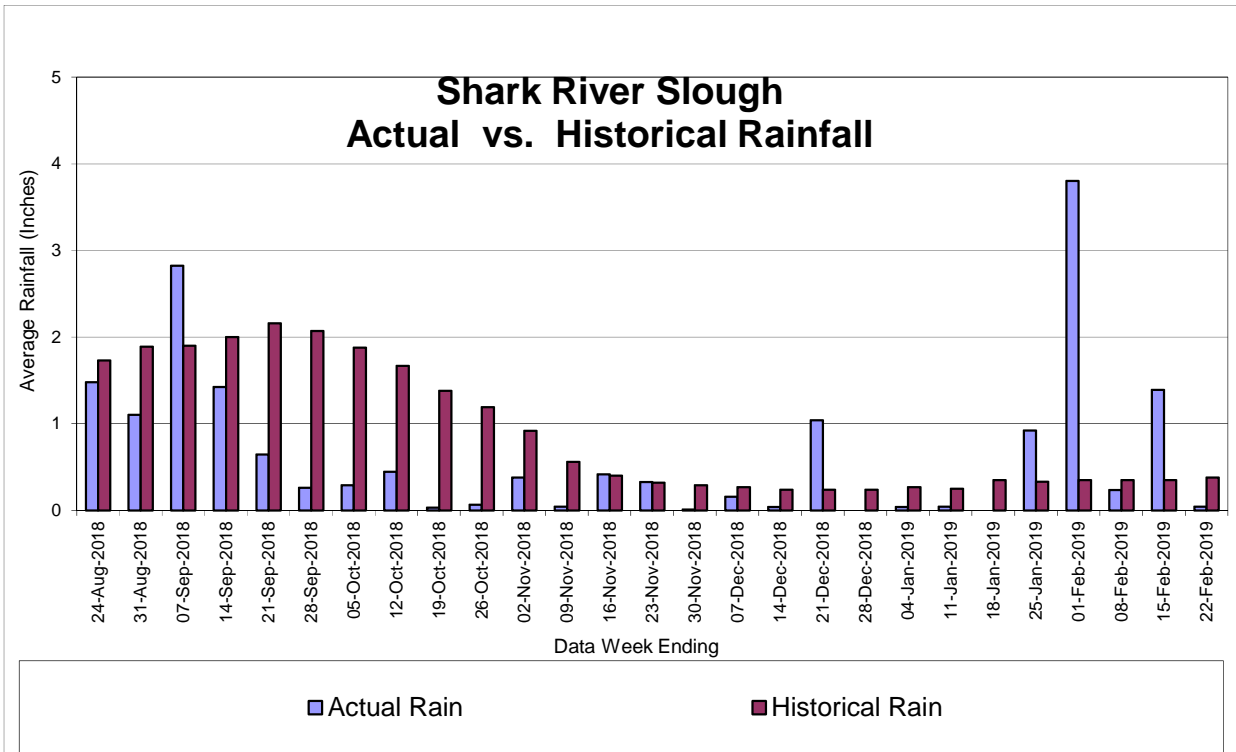
**-----Statistical Parameters -----**

Rainfall Formula Amount	264 cfs
Last Week's Rainfall Formula	235 cfs
Pre-project Mean Discharge	69 cfs

Rainfall Excess Terms	RL1 0.42	RL2 3.30	RL3	-0.32
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**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**





## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow March 5, 2019**

**to March 11, 2019**

**Adjusted  
995 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount	229 cfs
□ Regulatory Discharge	241 cfs
☑ Potential Regulatory Discharge	767 cfs

<b>-----Data Summary -----</b>	<b>February 23, 2019</b>	<b>to</b>	<b>March 1, 2019</b>
WCA-3A Stage (end of week)	9.72		ft-NGVD
Angel's	5.12		ft-NGVD
G-3273	5.74		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	0.32	1.51
S-140		1.40
ENP		M
This Week's Avg	0.32	1.45
Pre-Project Avg	0.40	1.15

**----- Regulatory Discharge Calculation -----**

<b>WCA-3A is in Zone E1</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		241 cfs
Distance to Bottom of Current Zone		-0.10 feet
Distance to Top of Current Zone		0.38 feet

**-----Potential Regulatory Discharge Considering Upstream Water Levels-----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.64	16.52	14,000	
WCA-2A	12.26	11.00	80,250	
Others			0	
Total Storage Adjustment			94,250	0.21
WCA-3A	9.72			
Adjusted WCA-3A	9.93			

<b>Adjusted WCA-3A is in Zone E1</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Potential regulatory discharge		767 cfs
Distance to Bottom of Current Zone		-0.31 feet
Distance to Top of Current Zone		0.17 feet

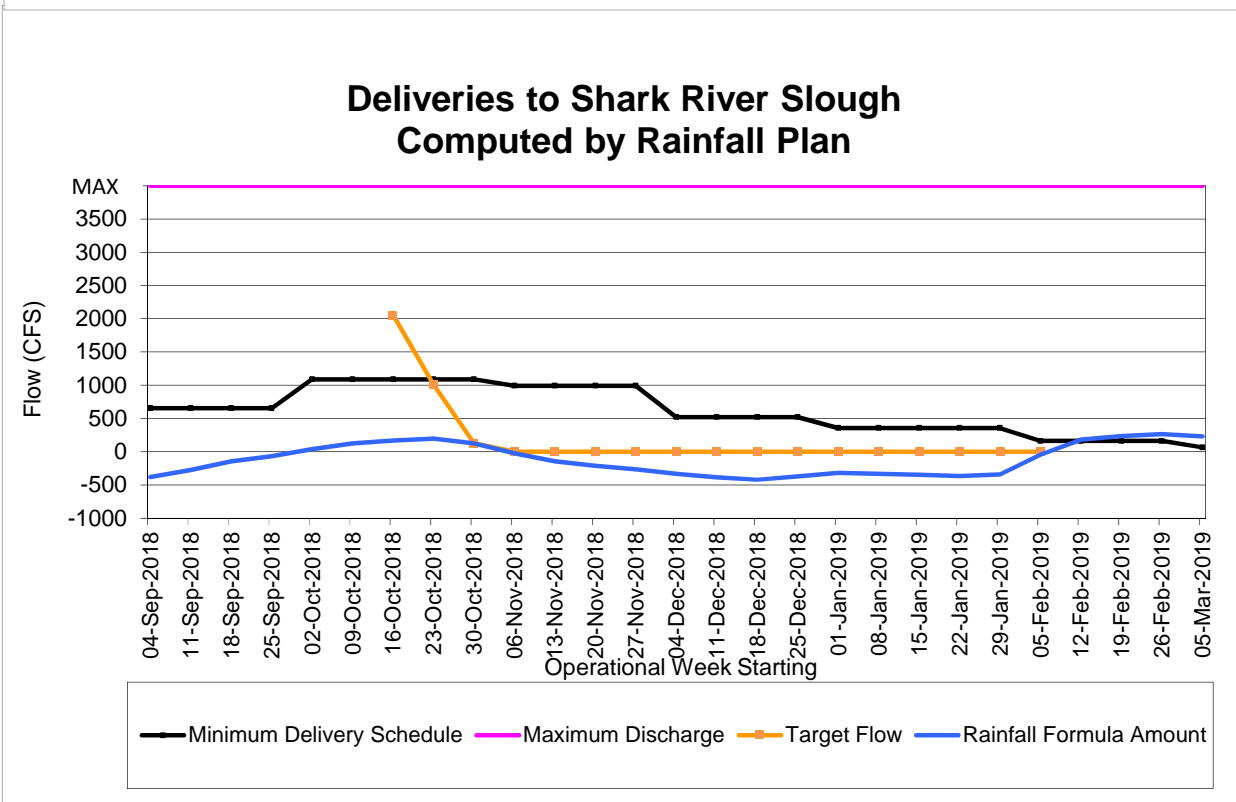
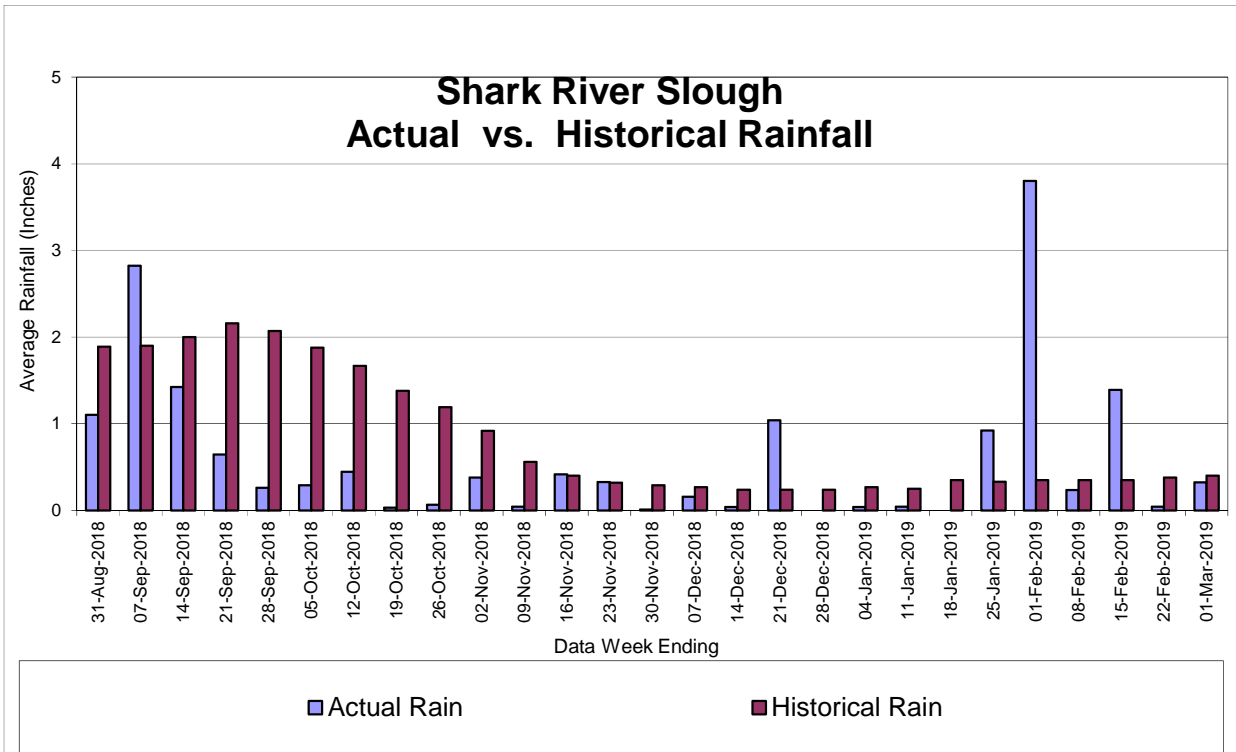
**-----Statistical Parameters -----**

Rainfall Formula Amount	229 cfs
Last Week's Rainfall Formula	264 cfs
Pre-project Mean Discharge	50 cfs

Rainfall Excess Terms	RL1 -0.82	RL2 4.65	RL3 -1.46
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**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow March 12, 2019 to March 18, 2019 268 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount 191 cfs  
Regulatory Discharge 77 cfs  
Potential Regulatory Discharge 527 cfs

**----Data Summary ----**

	March 2, 2019	to	March 8, 2019
WCA-3A Stage (end of week)	9.61		ft-NGVD
Angel's	4.95		ft-NGVD
G-3273	5.42		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	0.12	1.50
S-140		1.54
ENP		M
This Week's Avg	0.12	1.52
Pre-Project Avg	0.33	1.22

**---- Regulatory Discharge Calculation ----**

<b>WCA-3A is in Zone E1</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		77 cfs
Distance to Bottom of Current Zone		-0.03 feet
Distance to Top of Current Zone		0.44 feet

**----Potential Regulatory Discharge Considering Upstream Water Levels----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.53	16.45	13,400	
WCA-2A	12.15	11.00	67,200	
Others			0	
Total Storage Adjustment			80,600	0.18
WCA-3A	9.61			
Adjusted WCA-3A	9.79			

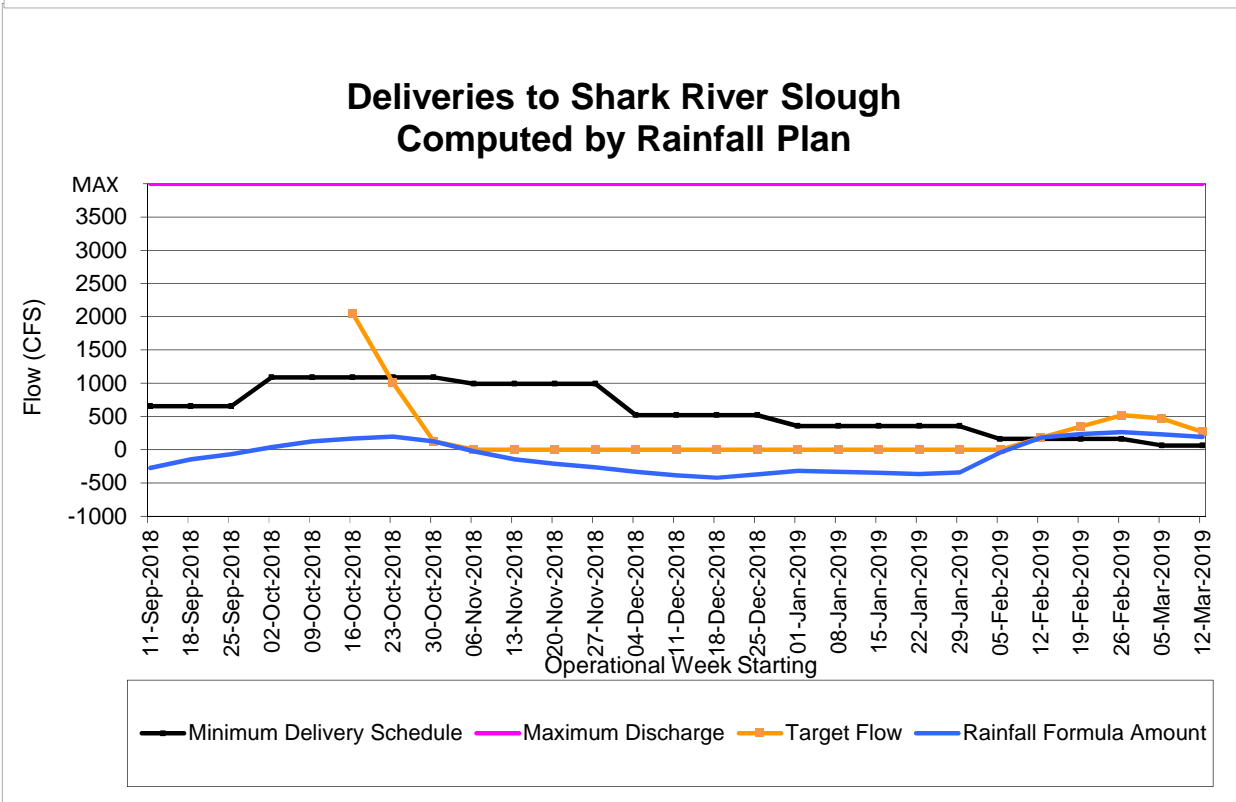
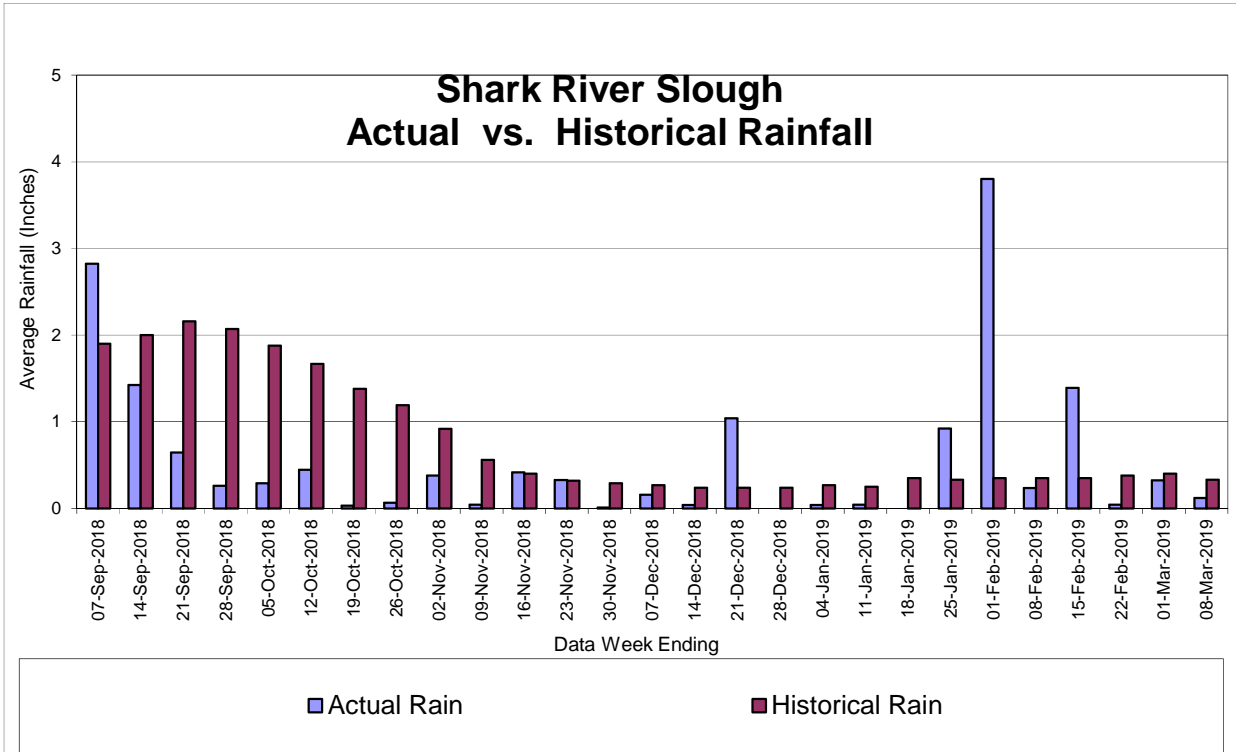
<b>Adjusted WCA-3A is in Zone E1</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Potential regulatory discharge		527 cfs
Distance to Bottom of Current Zone		-0.21 feet
Distance to Top of Current Zone		0.26 feet

**----Statistical Parameters ----**

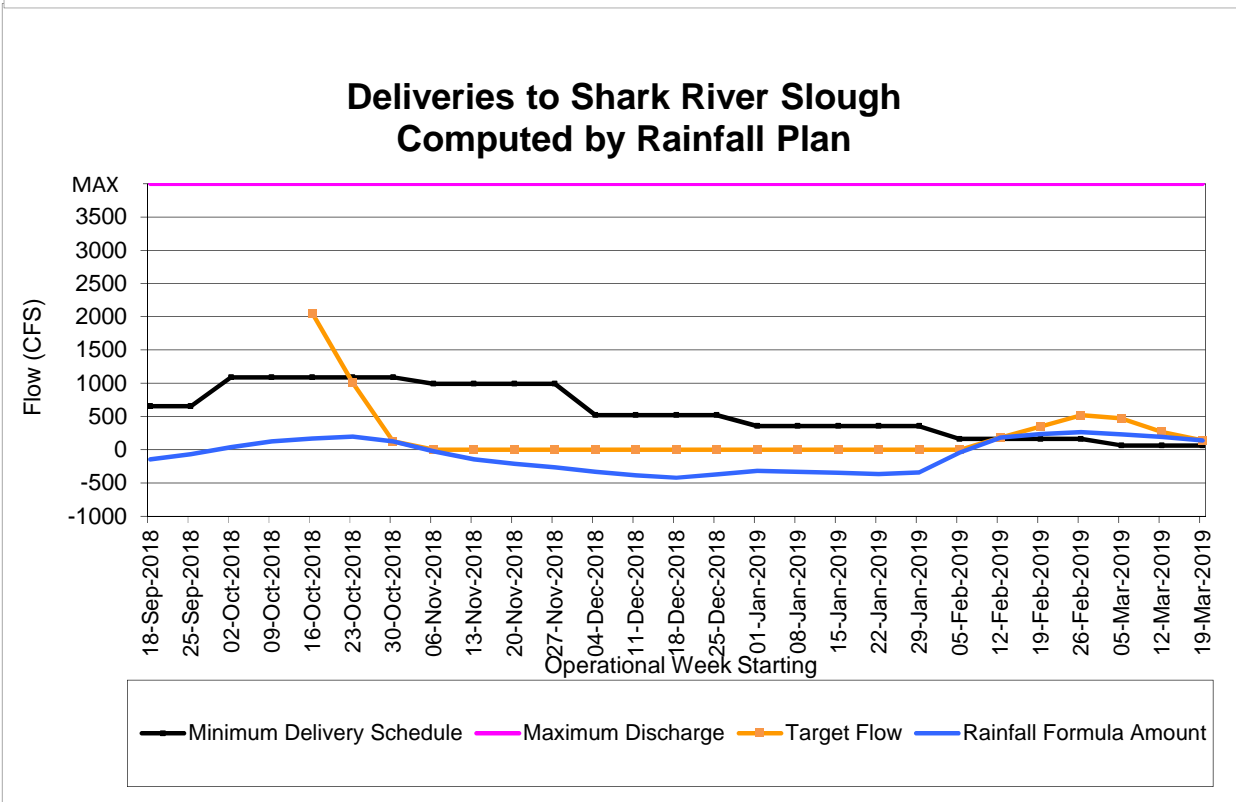
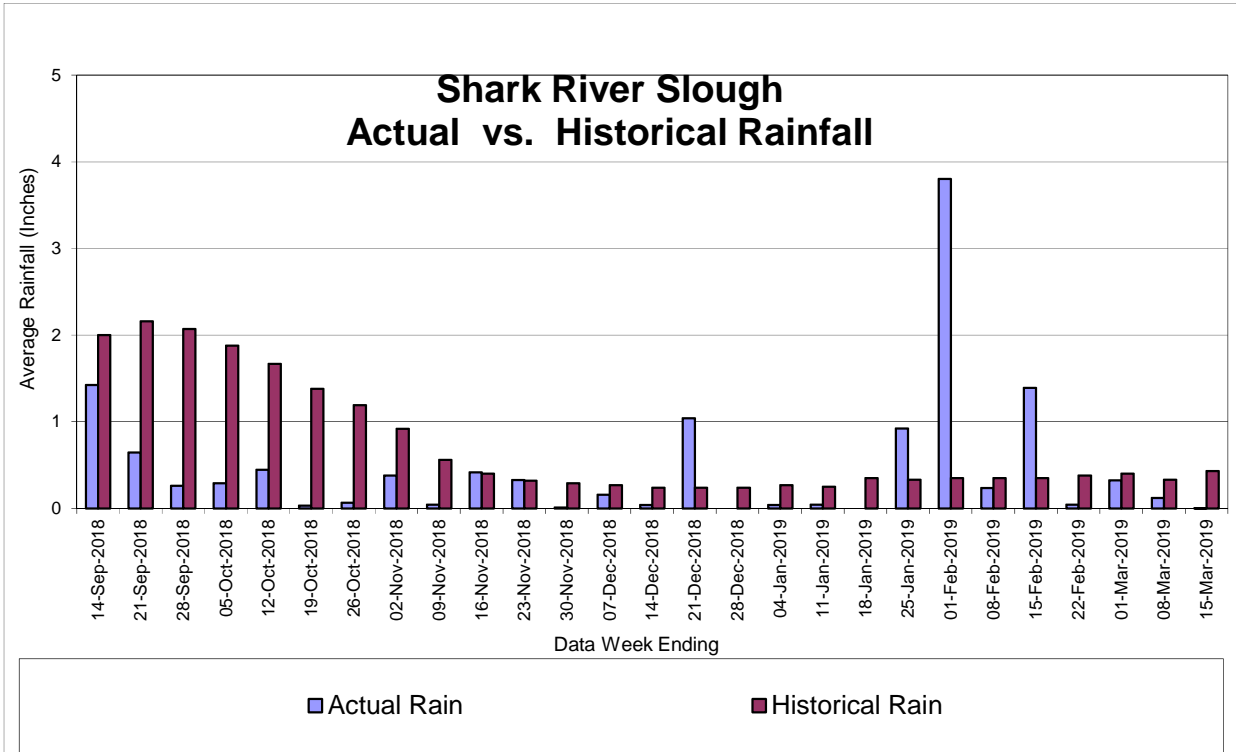
Rainfall Formula Amount		191 cfs
Last Week's Rainfall Formula		229 cfs
Pre-project Mean Discharge		35 cfs
Rainfall Excess Terms		
RL1 -0.77	RL2 3.65	RL3 -0.62

**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**







## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow March 26, 2019 to April 1, 2019 404 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

	Rainfall Formula Amount	179 cfs
	<input checked="" type="checkbox"/> Regulatory Discharge	226 cfs
	<input type="checkbox"/> Potential Regulatory Discharge	761 cfs

<b>----Data Summary ----</b>	<b>March 16, 2019</b>	<b>to</b>	<b>March 22, 2019</b>
WCA-3A Stage (end of week)	9.58		ft-NGVD
Angel's	5.21		ft-NGVD
G-3273	5.76		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	1.46	1.45
S-140		1.67
ENP		M
This Week's Avg	1.46	1.56
Pre-Project Avg	0.43	1.36

**---- Regulatory Discharge Calculation ----**

<b>WCA-3A is in Zone E1</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		226 cfs
Distance to Bottom of Current Zone		-0.09 feet
Distance to Top of Current Zone		0.38 feet

**----Potential Regulatory Discharge Considering Upstream Water Levels----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.40	16.30	20,100	
WCA-2A	12.24	11.00	75,900	
Others			0	
Total Storage Adjustment			96,000	0.21
WCA-3A	9.58			
Adjusted WCA-3A	9.79			

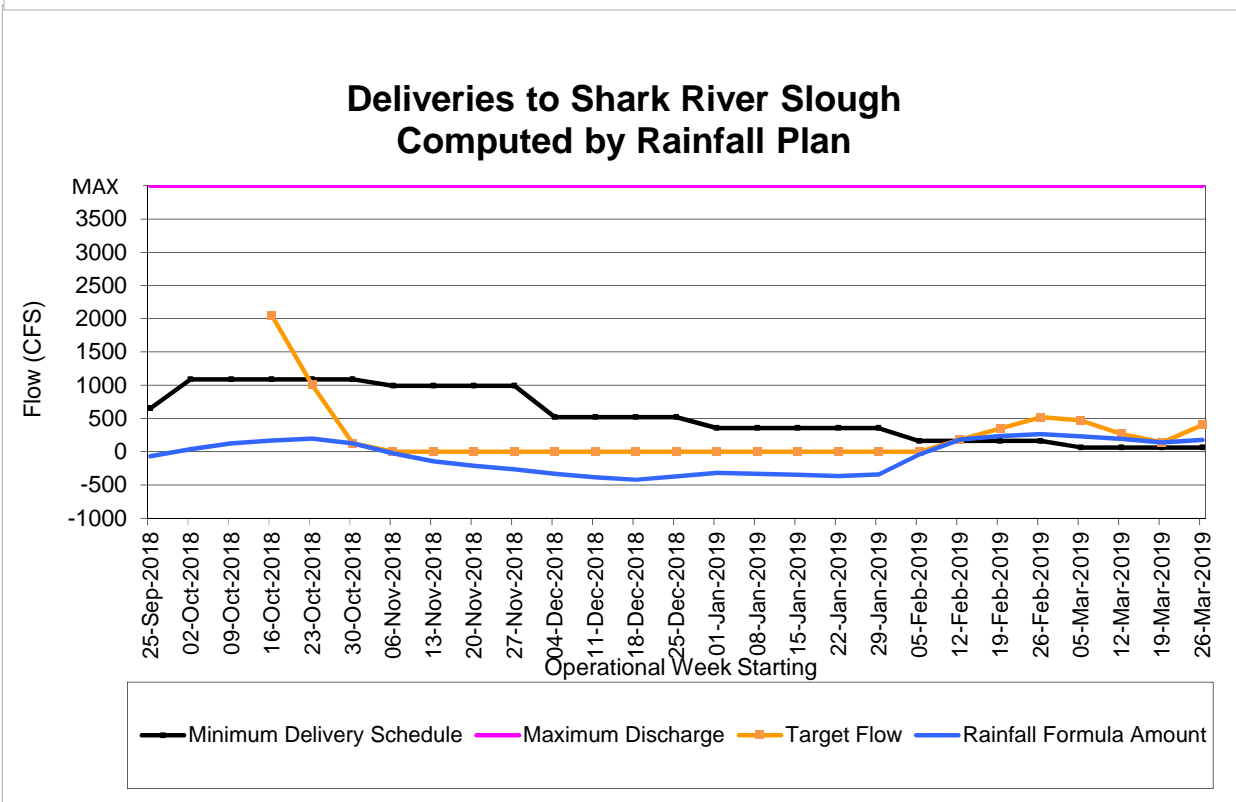
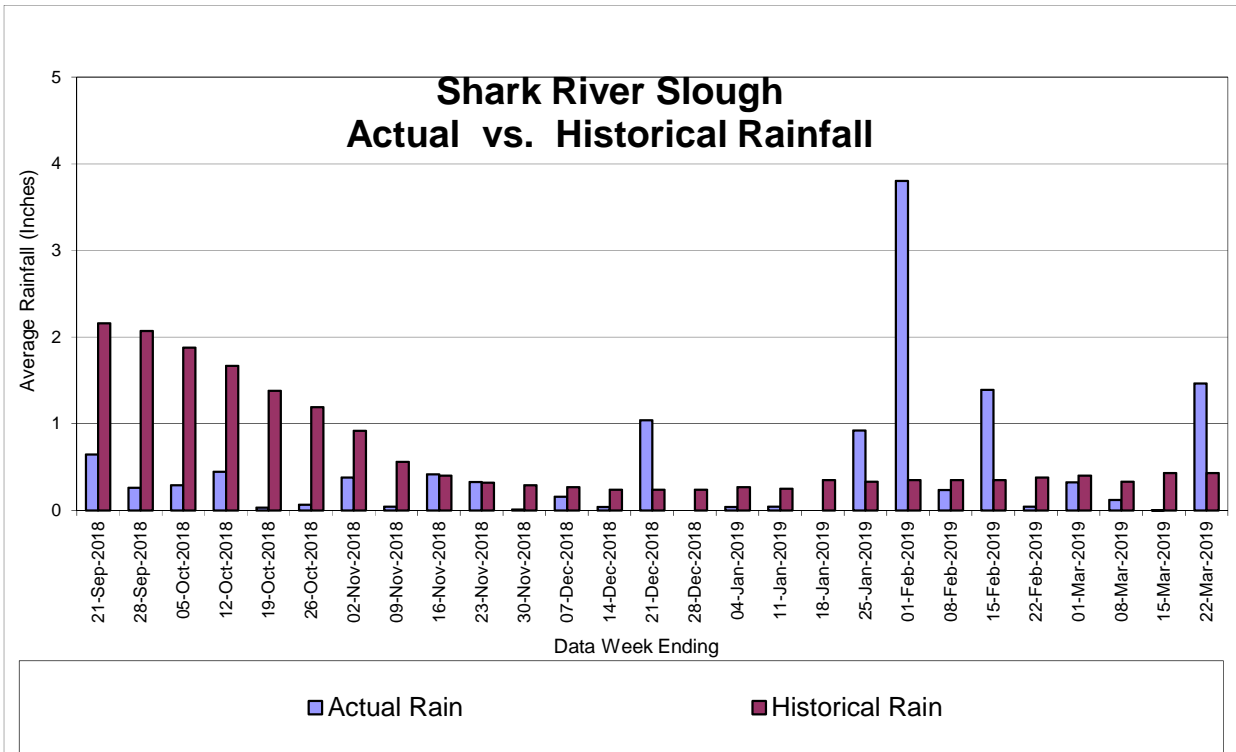
<b>Adjusted WCA-3A is in Zone E1</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Potential regulatory discharge		761 cfs
Distance to Bottom of Current Zone		-0.30 feet
Distance to Top of Current Zone		0.16 feet

**----Statistical Parameters ----**

Rainfall Formula Amount		179 cfs	
Last Week's Rainfall Formula		140 cfs	
Pre-project Mean Discharge		26 cfs	
Rainfall Excess Terms	RL1 0.26	RL2 -0.34	RL3 3.30

**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**





## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow April 2, 2019** to **April 8, 2019** **275 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount 188 cfs  
Regulatory Discharge 87 cfs  
Potential Regulatory Discharge 586 cfs

**----Data Summary ----**

	<b>March 23, 2019</b>	to	<b>March 29, 2019</b>
WCA-3A Stage (end of week)	9.48		ft-NGVD
Angel's	5.06		ft-NGVD
G-3273	5.60		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	0.00	3.13
S-140		1.68
ENP		M
This Week's Avg	0.00	2.41
Pre-Project Avg	0.54	1.41

**---- Regulatory Discharge Calculation ----**

<b>WCA-3A is in Zone E1</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		87 cfs
Distance to Bottom of Current Zone		-0.03 feet
Distance to Top of Current Zone		0.43 feet

**----Potential Regulatory Discharge Considering Upstream Water Levels----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.27	16.22	6,300	
WCA-2A	12.21	11.00	75,900	
Others			0	
Total Storage Adjustment			82,200	0.20
WCA-3A	9.48			
Adjusted WCA-3A	9.68			

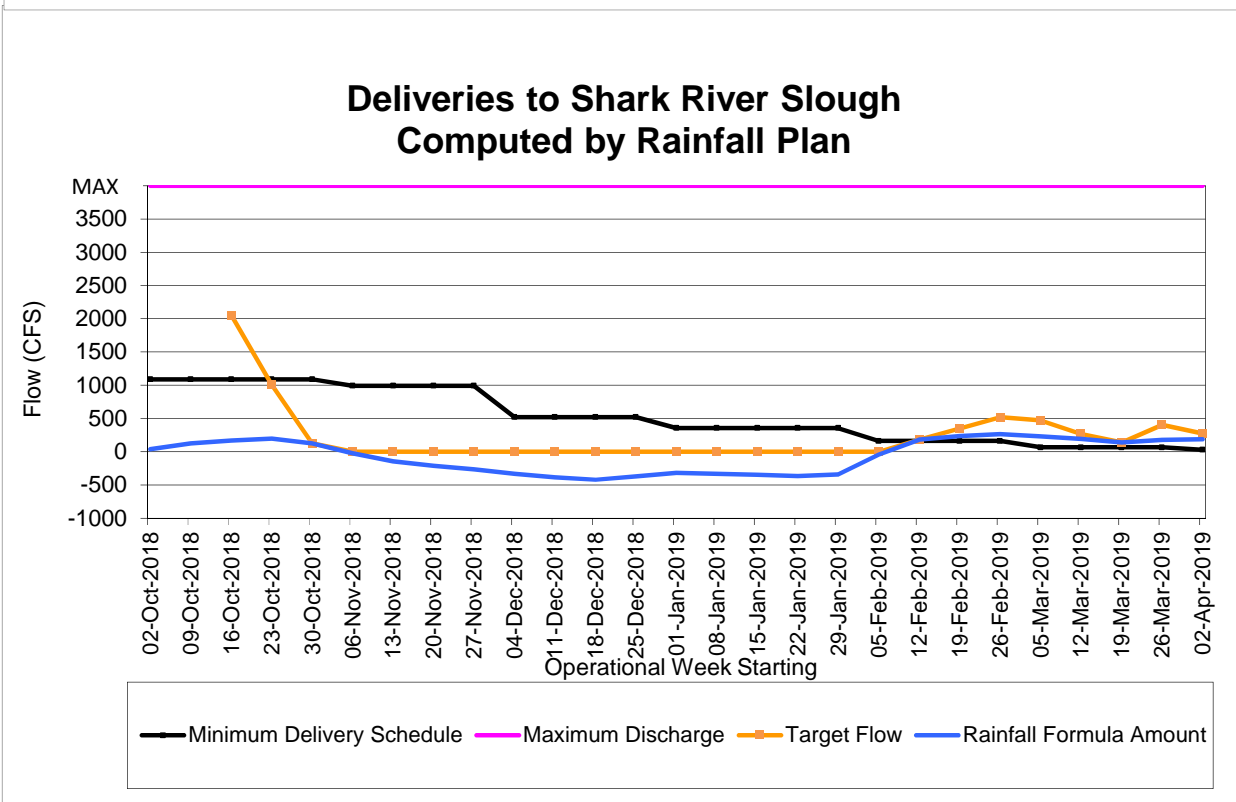
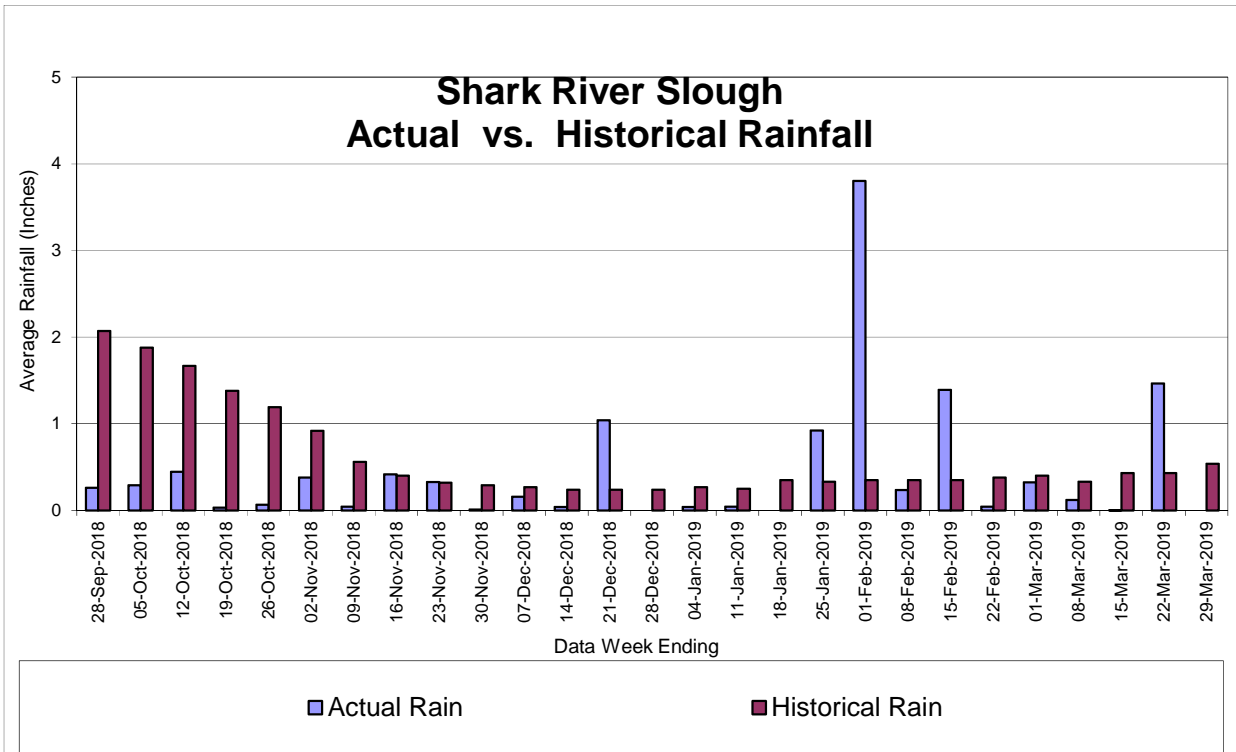
<b>Adjusted WCA-3A is in Zone E1</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Potential regulatory discharge		586 cfs
Distance to Bottom of Current Zone		-0.23 feet
Distance to Top of Current Zone		0.23 feet

**----Statistical Parameters ----**

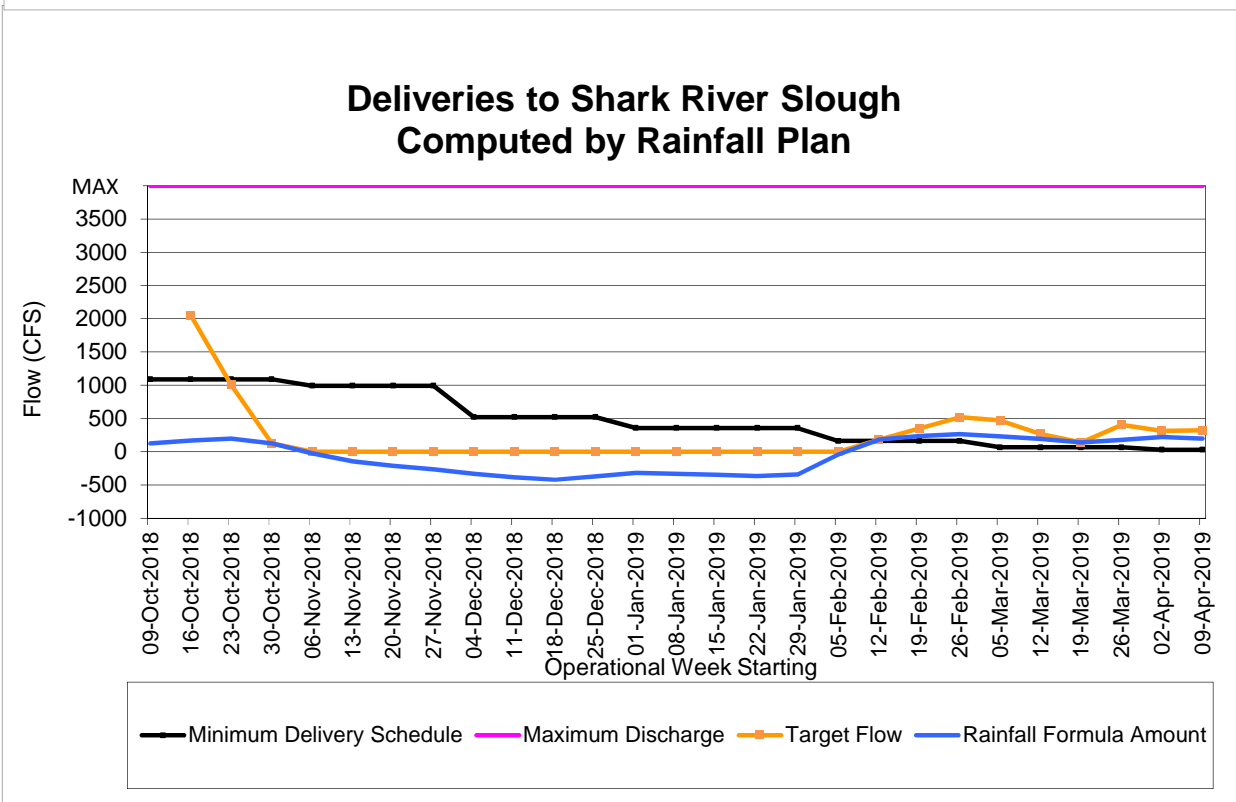
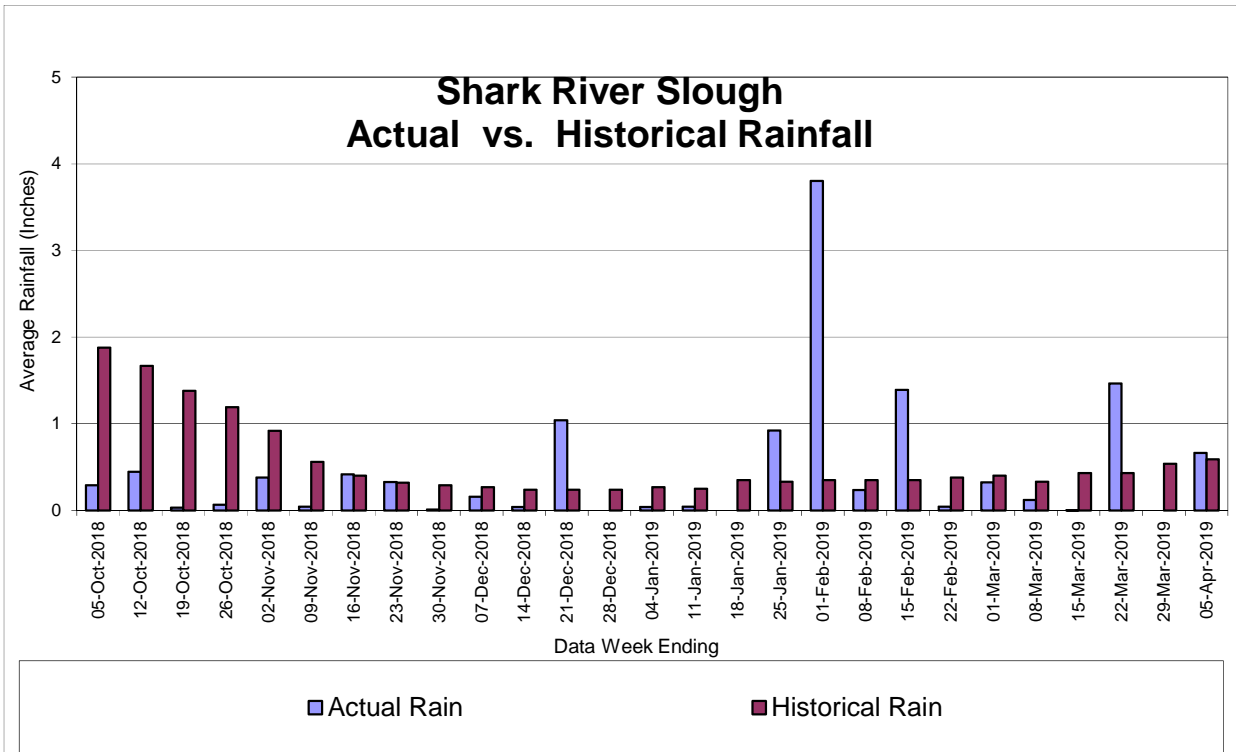
Rainfall Formula Amount		188 cfs	
Last Week's Rainfall Formula		179 cfs	
Pre-project Mean Discharge		31 cfs	
Rainfall Excess Terms	RL1 -0.46	RL2 -1.88	RL3 4.65

**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

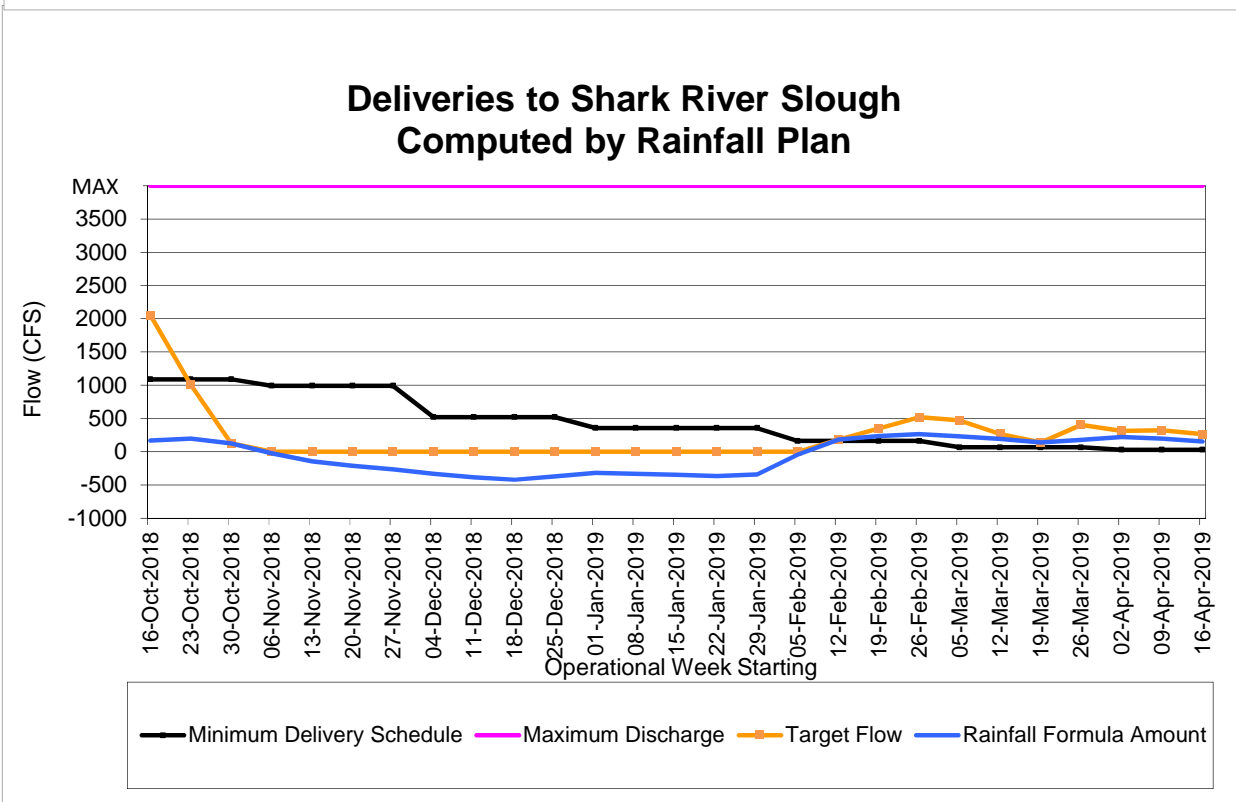
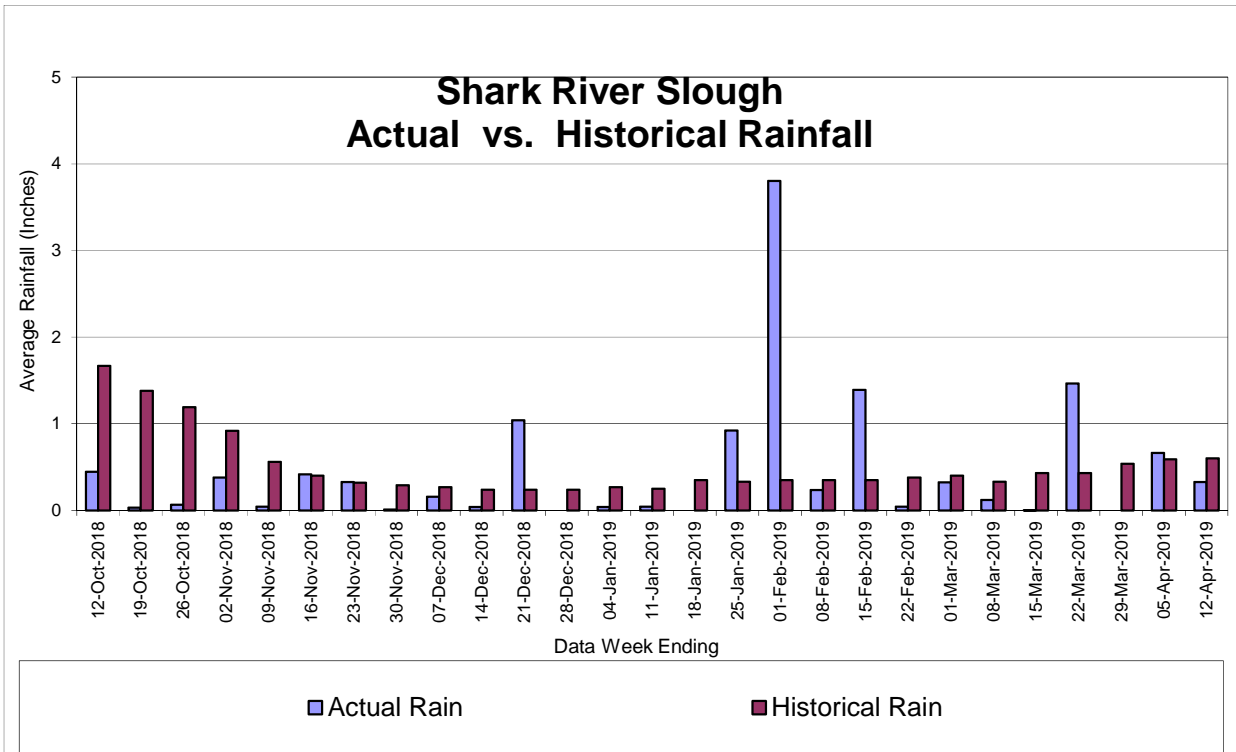
**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



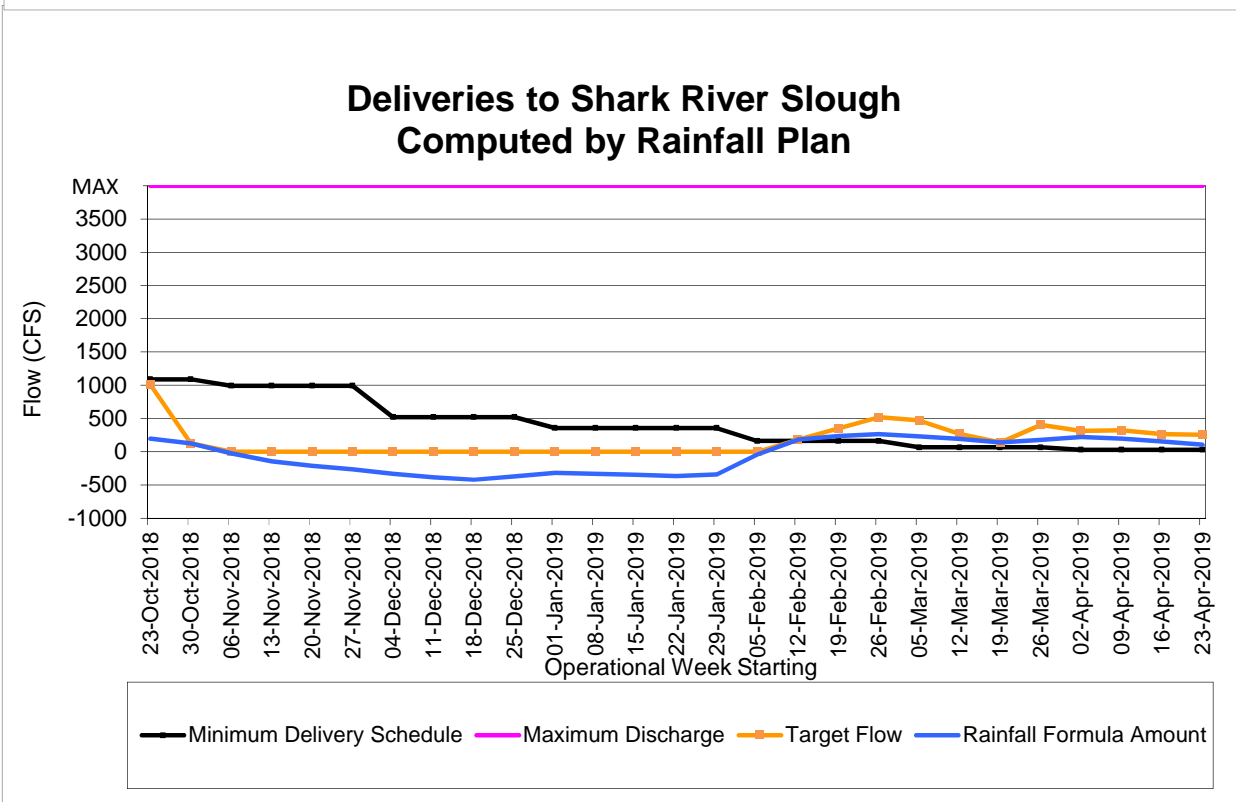
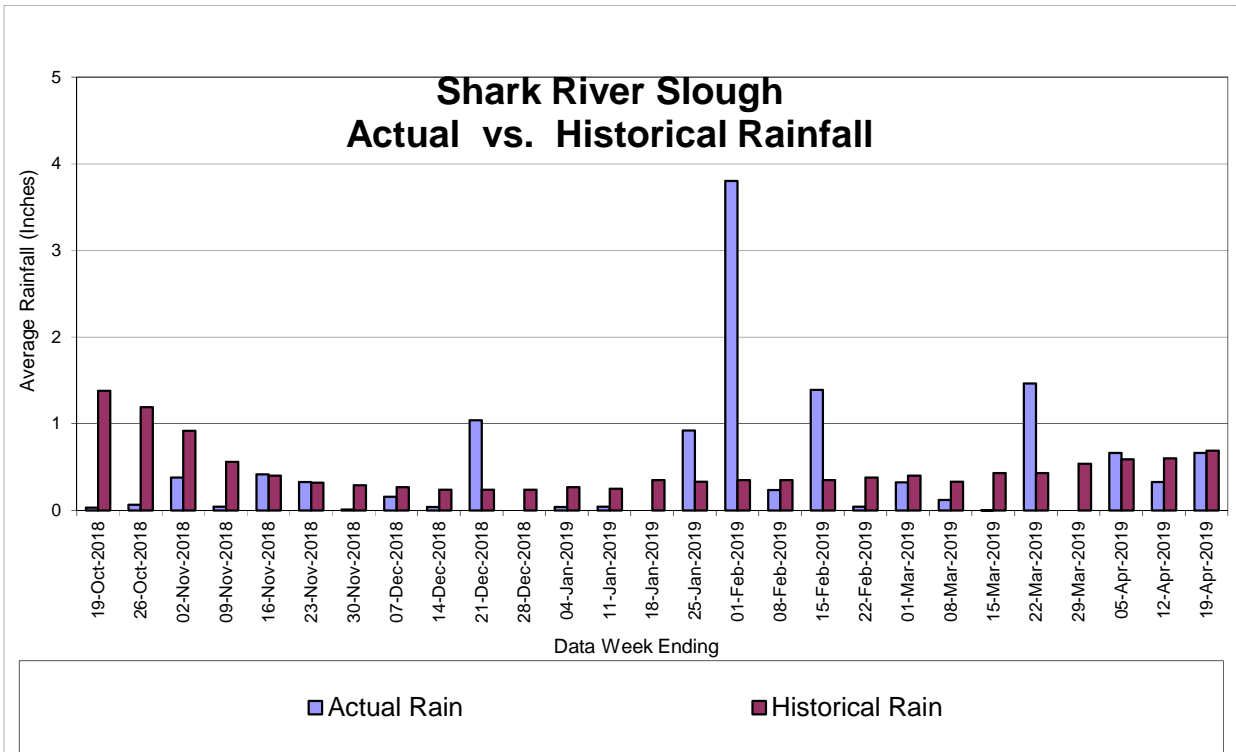






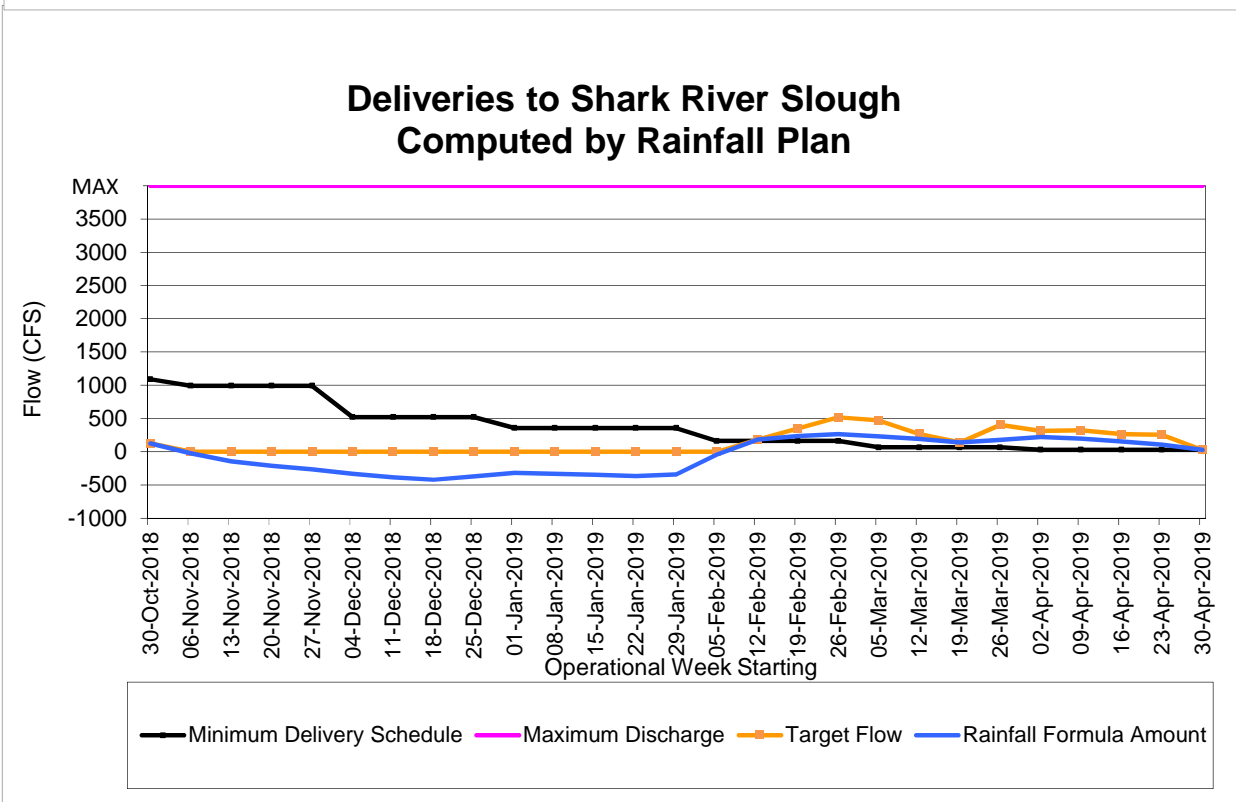
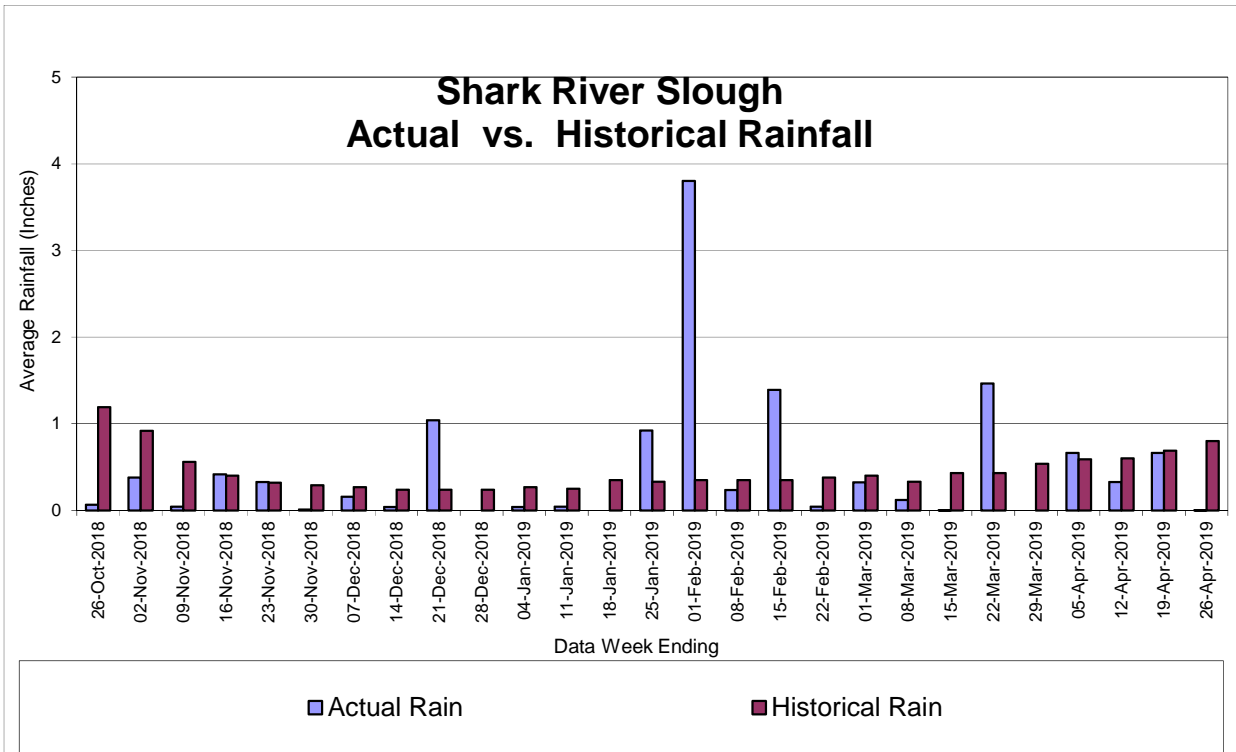




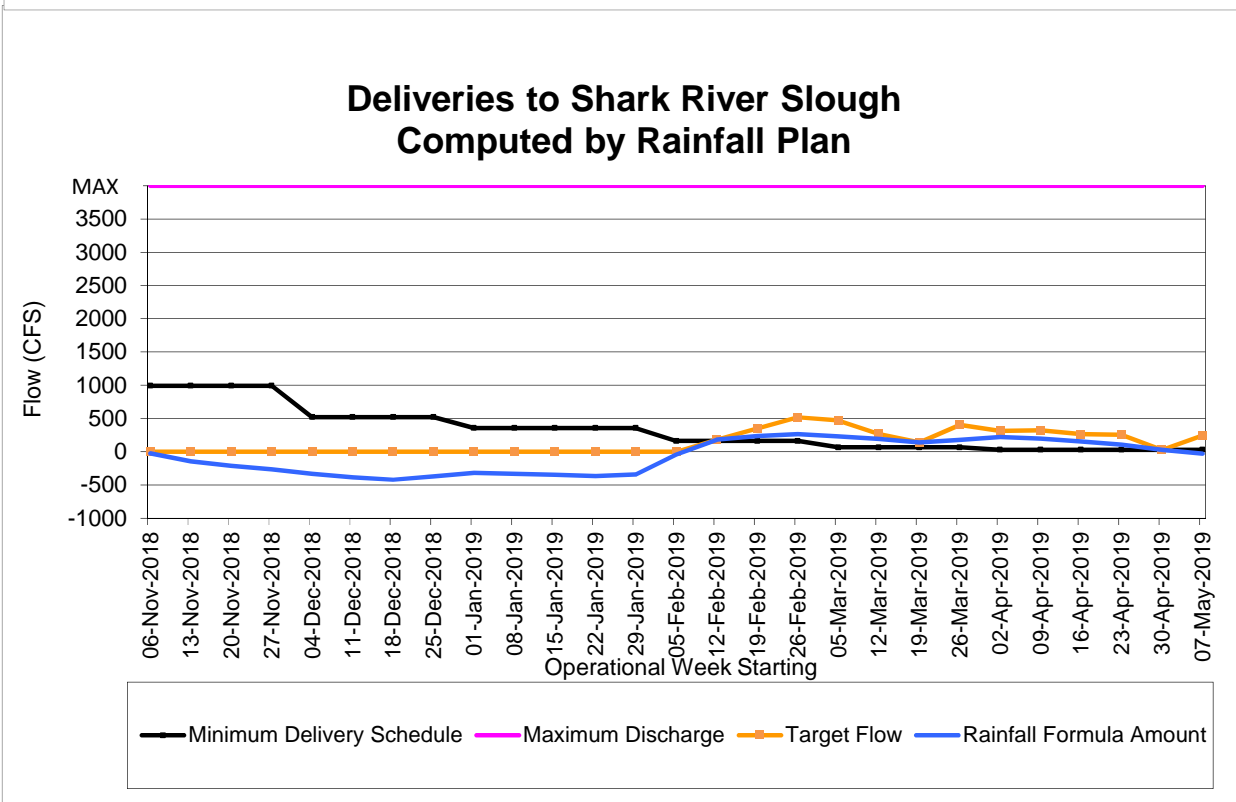
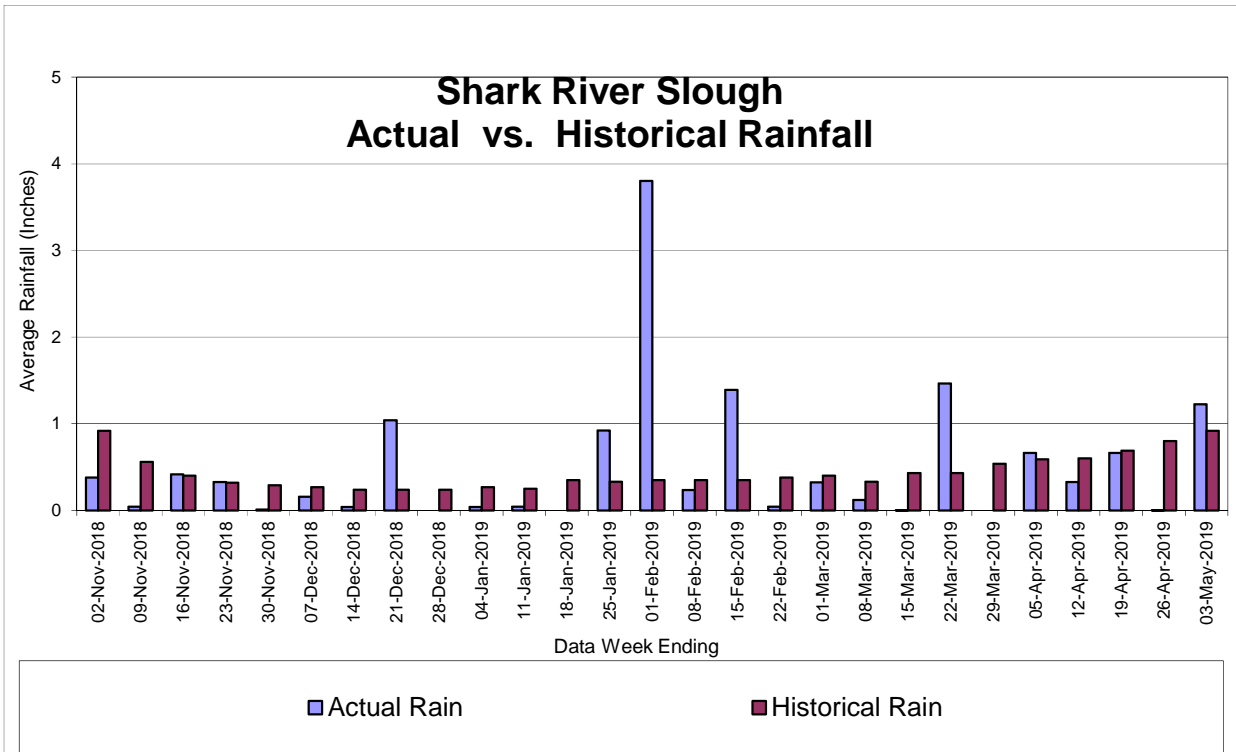












## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow May 14, 2019**

**to May 20, 2019**

**505 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount	23 cfs
<input checked="" type="checkbox"/> Regulatory Discharge	482 cfs
<input type="checkbox"/> Potential Regulatory Discharge	989 cfs

<b>-----Data Summary -----</b>	<b>May 4, 2019</b>	<b>to</b>	<b>May 10, 2019</b>	
WCA-3A Stage (end of week)	9.37		ft-NGVD	
Angel's	4.97		ft-NGVD	
G-3273	5.34		ft-NGVD	

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	1.98	1.70
S-140		2.13
ENP		M
This Week's Avg	1.98	1.92
Pre-Project Avg	1.08	1.61

**----- Regulatory Discharge Calculation -----**

<b>WCA-3A is in Zone E1</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		482 cfs
Distance to Bottom of Current Zone		-0.19 feet
Distance to Top of Current Zone		0.26 feet

**-----Potential Regulatory Discharge Considering Upstream Water Levels-----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.11	15.77	44,600	
WCA-2A	11.80	11.00	39,000	
Others			0	
Total Storage Adjustment			83,600	0.20
WCA-3A	9.37			
Adjusted WCA-3A	9.57			

<b>Adjusted WCA-3A is in Zone E1</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Potential regulatory discharge		989 cfs
Distance to Bottom of Current Zone		-0.40 feet
Distance to Top of Current Zone		0.06 feet

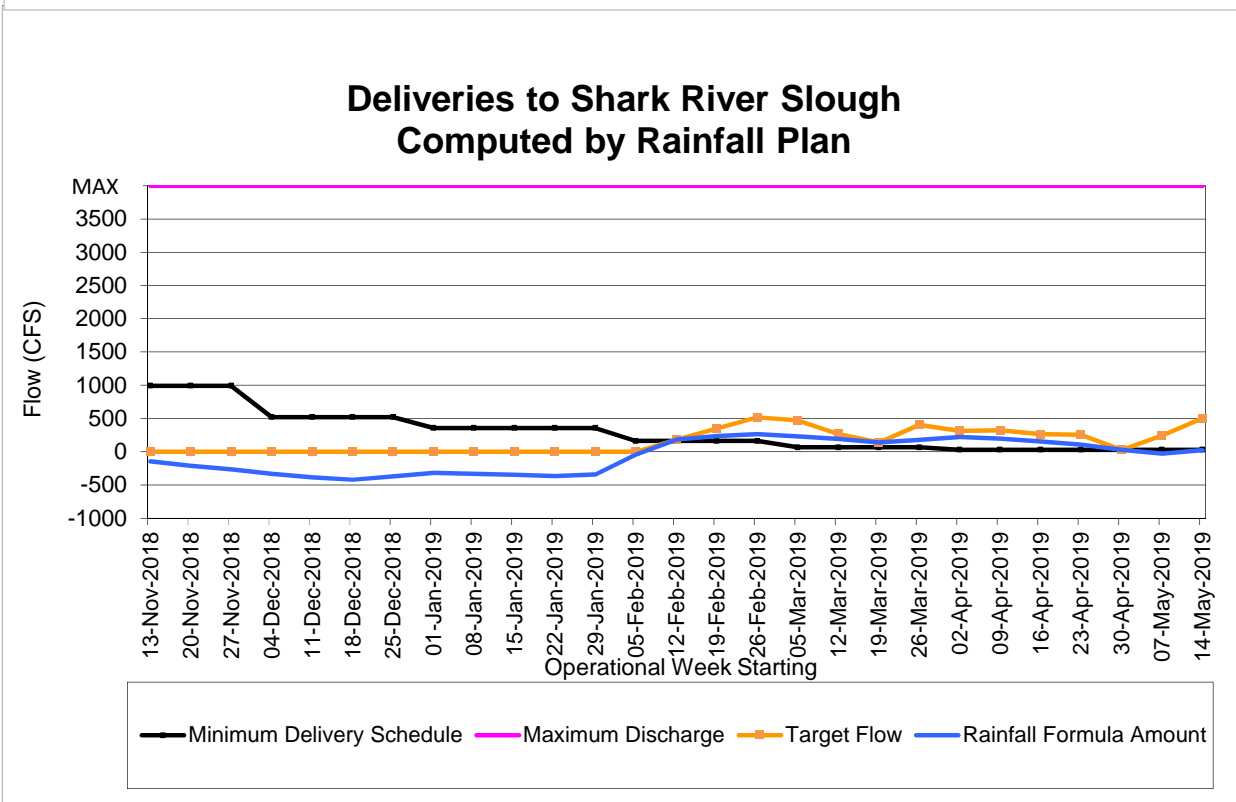
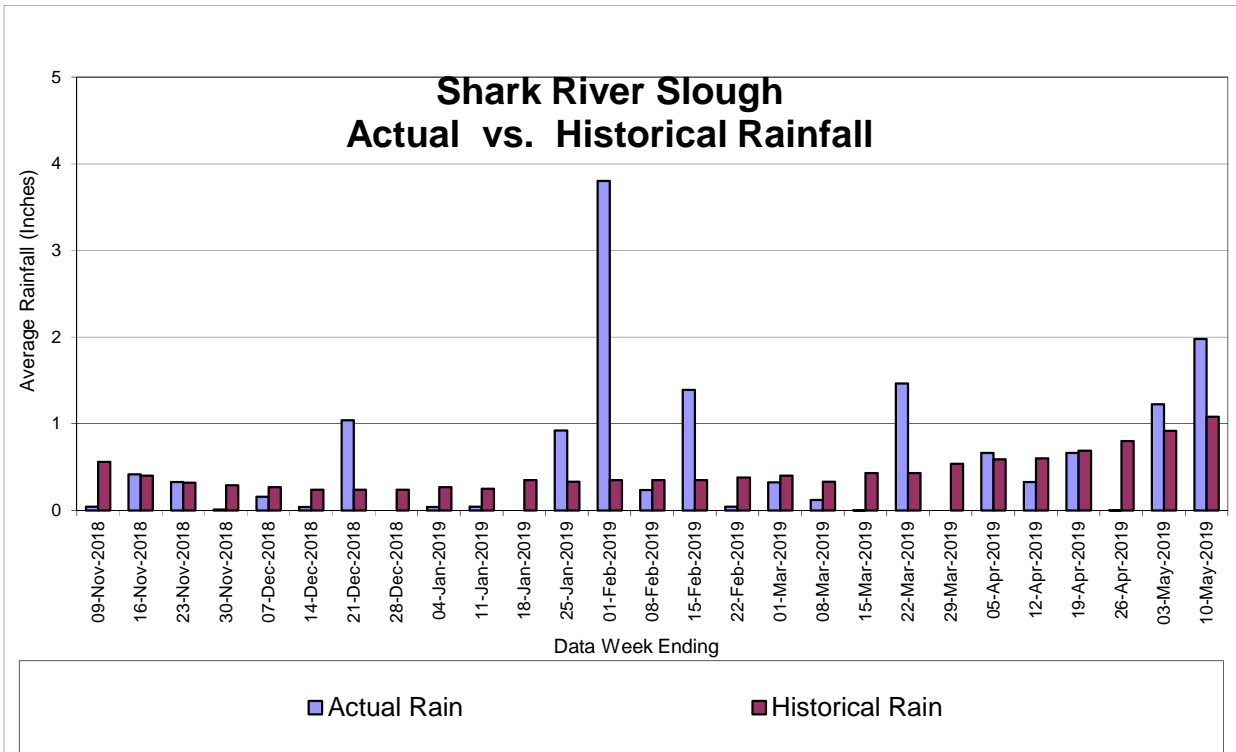
**-----Statistical Parameters -----**

Rainfall Formula Amount	23 cfs
Last Week's Rainfall Formula	-30 cfs
Pre-project Mean Discharge	13 cfs

Rainfall Excess Terms	RL1 0.74	RL2 -1.80	RL3 -0.90
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**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow May 14, 2019**

**to May 20, 2019**

**Adjusted  
1012 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount	23 cfs
<input type="checkbox"/> Regulatory Discharge	482 cfs
<input checked="" type="checkbox"/> Potential Regulatory Discharge	989 cfs

<b>-----Data Summary -----</b>	<b>May 4, 2019</b>	<b>to</b>	<b>May 10, 2019</b>
WCA-3A Stage (end of week)	9.37		ft-NGVD
Angel's	4.97		ft-NGVD
G-3273	5.34		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	1.98	1.70
S-140		2.13
ENP		M
This Week's Avg	1.98	1.92
Pre-Project Avg	1.08	1.61

**----- Regulatory Discharge Calculation -----**

<b>WCA-3A is in Zone E1</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		482 cfs
Distance to Bottom of Current Zone		-0.19 feet
Distance to Top of Current Zone		0.26 feet

**-----Potential Regulatory Discharge Considering Upstream Water Levels-----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.11	15.77	44,600	
WCA-2A	11.80	11.00	39,000	
Others			0	
Total Storage Adjustment			83,600	0.20
WCA-3A	9.37			
Adjusted WCA-3A	9.57			

<b>Adjusted WCA-3A is in Zone E1</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Potential regulatory discharge		989 cfs
Distance to Bottom of Current Zone		-0.40 feet
Distance to Top of Current Zone		0.06 feet

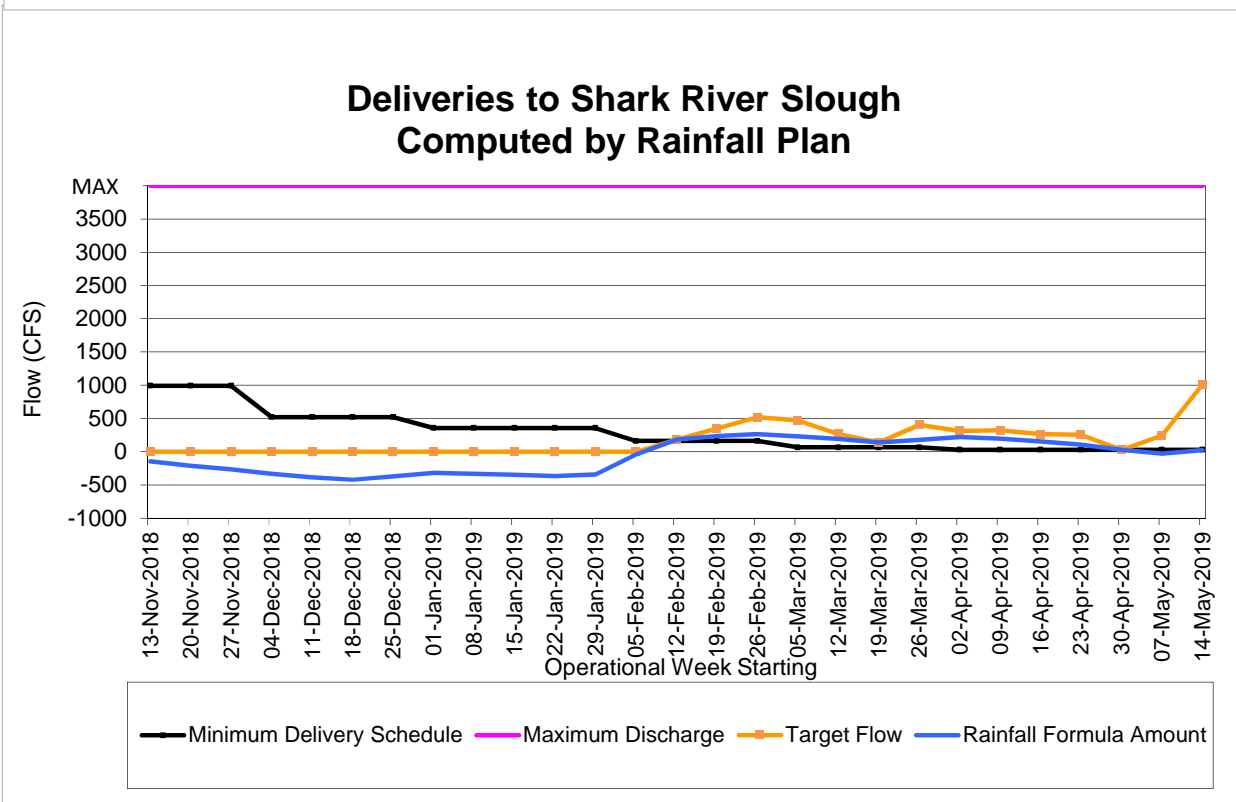
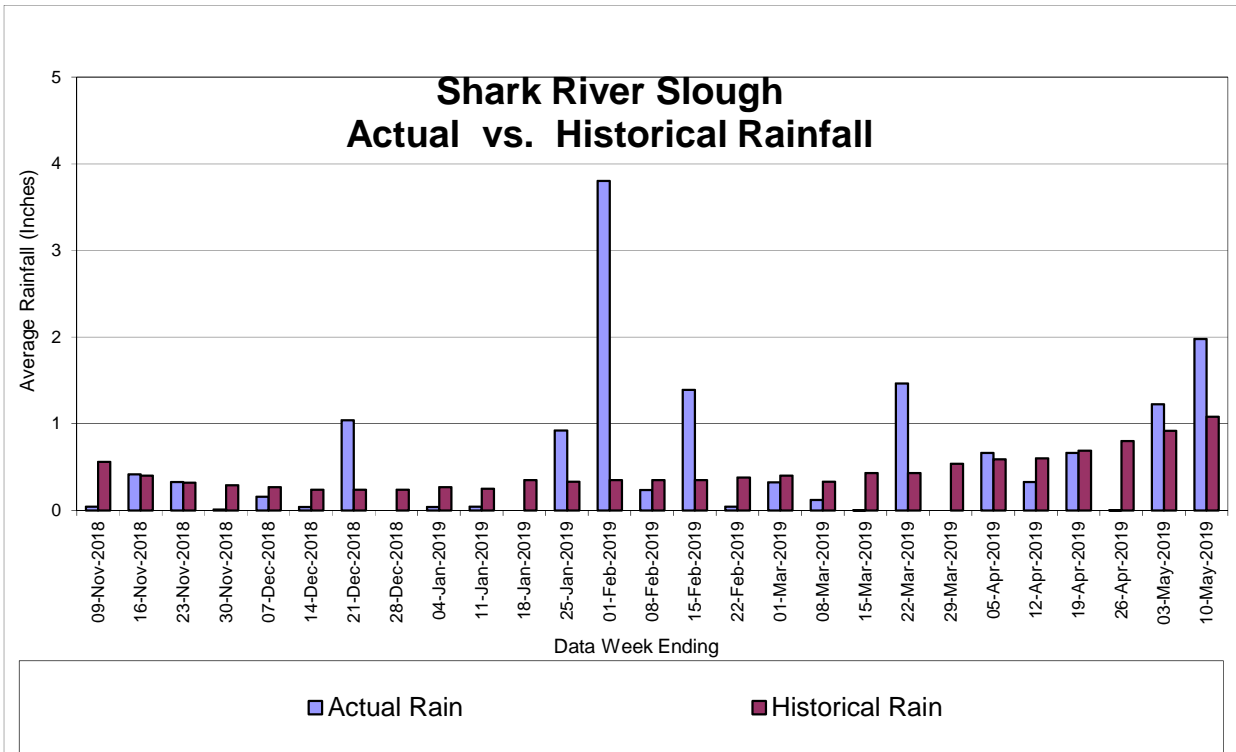
**-----Statistical Parameters -----**

Rainfall Formula Amount	23 cfs
Last Week's Rainfall Formula	-30 cfs
Pre-project Mean Discharge	13 cfs

Rainfall Excess Terms	RL1 0.74	RL2 -1.80	RL3	-0.90
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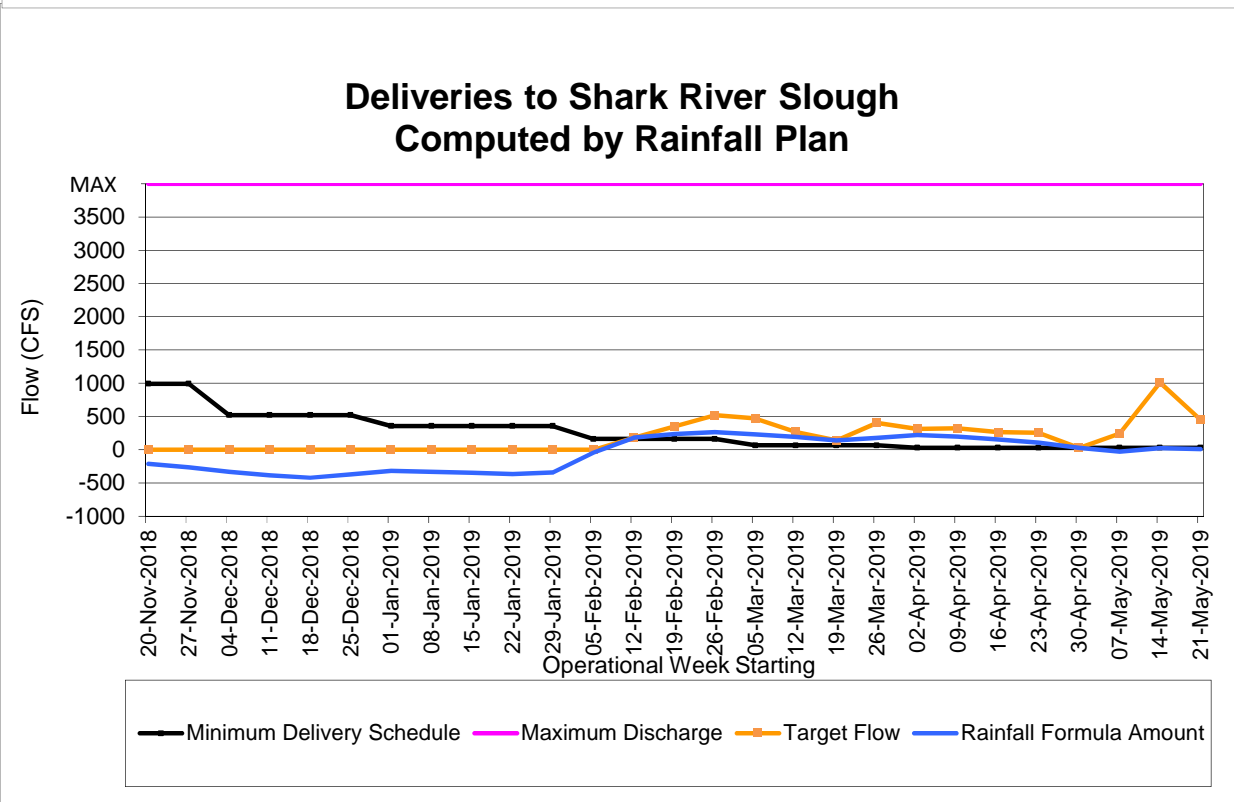
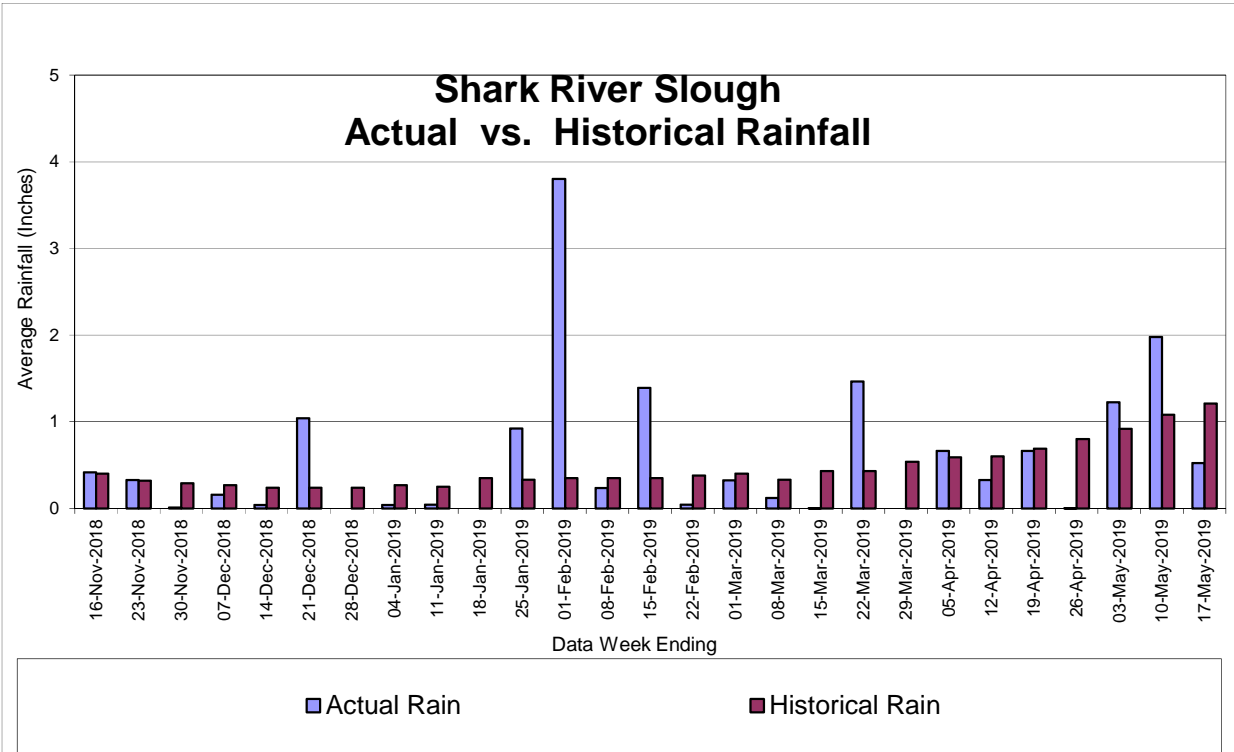
**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**









## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow May 28, 2019**

**to June 3, 2019**

**155 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount 0 cfs  
Regulatory Discharge 155 cfs  
Potential Regulatory Discharge 691 cfs

**-----Data Summary -----**

	May 18, 2019	to	May 24, 2019
WCA-3A Stage (end of week)	9.15		ft-NGVD
Angel's	4.34		ft-NGVD
G-3273	4.52		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	0.44	1.84
S-140		1.95
ENP		M
This Week's Avg	0.44	1.89
Pre-Project Avg	1.43	1.61

**----- Regulatory Discharge Calculation -----**

<b>WCA-3A is in Zone E1</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		155 cfs
Distance to Bottom of Current Zone		-0.06 feet
Distance to Top of Current Zone		0.39 feet

**-----Potential Regulatory Discharge Considering Upstream Water Levels-----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	15.98	15.75	25,600	
WCA-2A	11.92	11.00	50,700	
Others			0	
Total Storage Adjustment			76,300	0.21
WCA-3A	9.15			
Adjusted WCA-3A	9.36			

<b>Adjusted WCA-3A is in Zone E1</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Potential regulatory discharge		691 cfs
Distance to Bottom of Current Zone		-0.28 feet
Distance to Top of Current Zone		0.17 feet

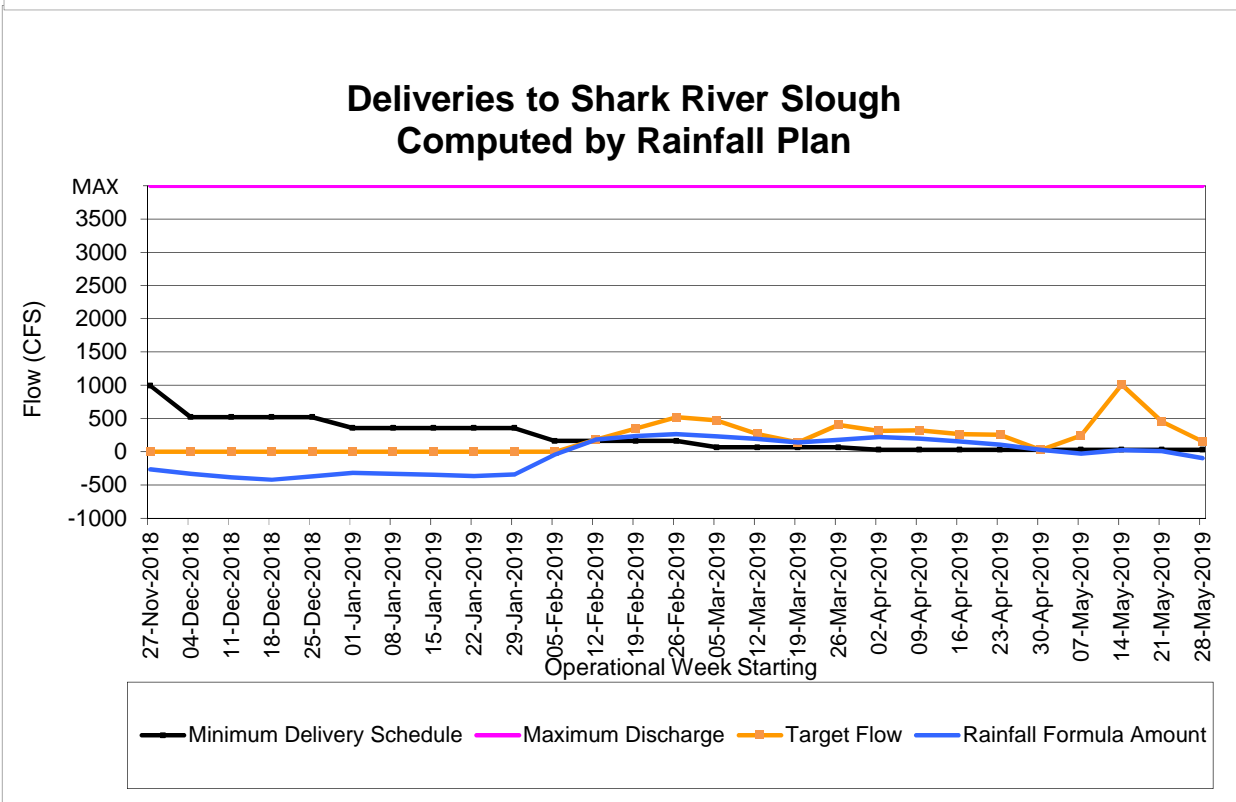
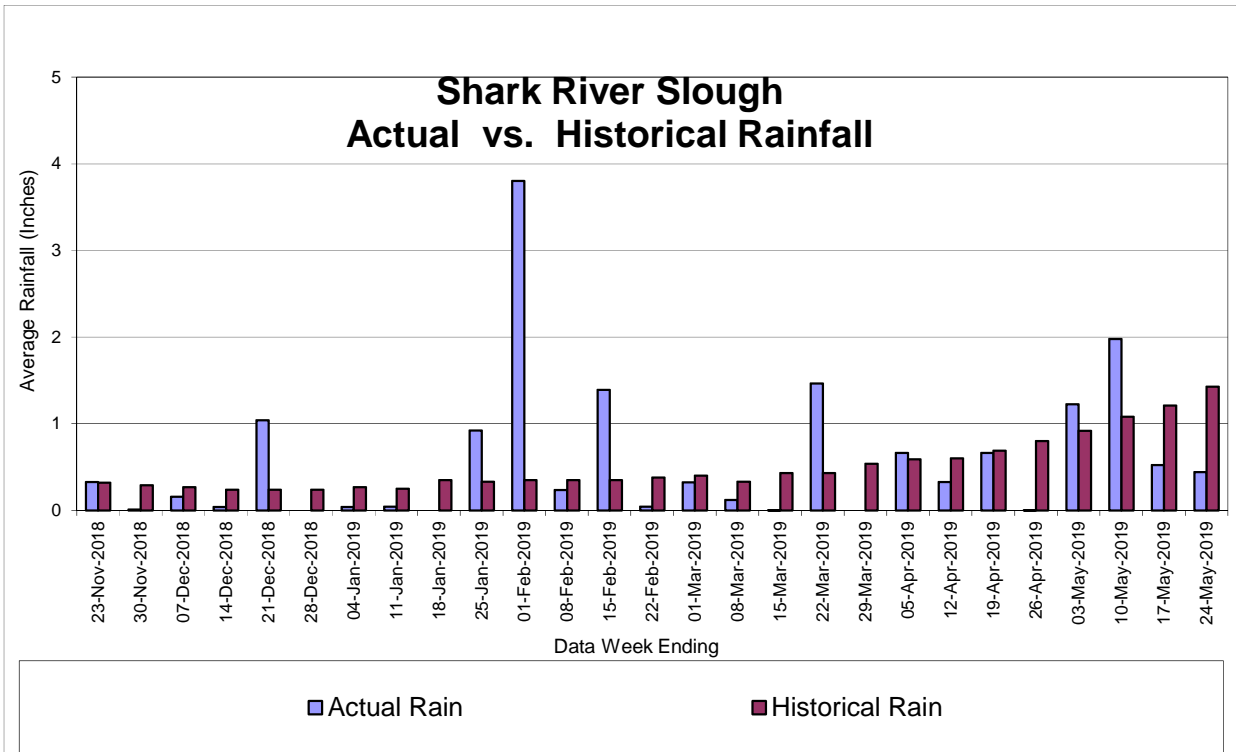
**-----Statistical Parameters -----**

Rainfall Formula Amount	-96 cfs
Last Week's Rainfall Formula	8 cfs
Pre-project Mean Discharge	17 cfs

Rainfall Excess Terms	RL1 -2.10	RL2 -0.54	RL3 -0.36
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**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow June 4, 2019 to June 10, 2019 0 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount 0 cfs  
Regulatory Discharge 0 cfs  
Potential Regulatory Discharge 285 cfs

**----Data Summary ----**

	May 25, 2019	to	May 31, 2019
WCA-3A Stage (end of week)	8.98		ft-NGVD
Angel's	4.11		ft-NGVD
G-3273	4.23		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	0.06	2.43
S-140		1.85
ENP		M
This Week's Avg	0.06	2.14
Pre-Project Avg	1.57	1.61

**---- Regulatory Discharge Calculation ----**

<b>WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		0 cfs
Distance to Bottom of Current Zone	N/A	feet
Distance to Top of Current Zone		0.06 feet

**----Potential Regulatory Discharge Considering Upstream Water Levels----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	15.81	15.75	6,400	
WCA-2A	11.89	11.00	46,800	
Others			0	
Total Storage Adjustment			53,200	0.18
WCA-3A	8.98			
Adjusted WCA-3A	9.16			

<b>Adjusted WCA-3A is in Zone E1</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Potential regulatory discharge		285 cfs
Distance to Bottom of Current Zone		-0.11 feet
Distance to Top of Current Zone		0.34 feet

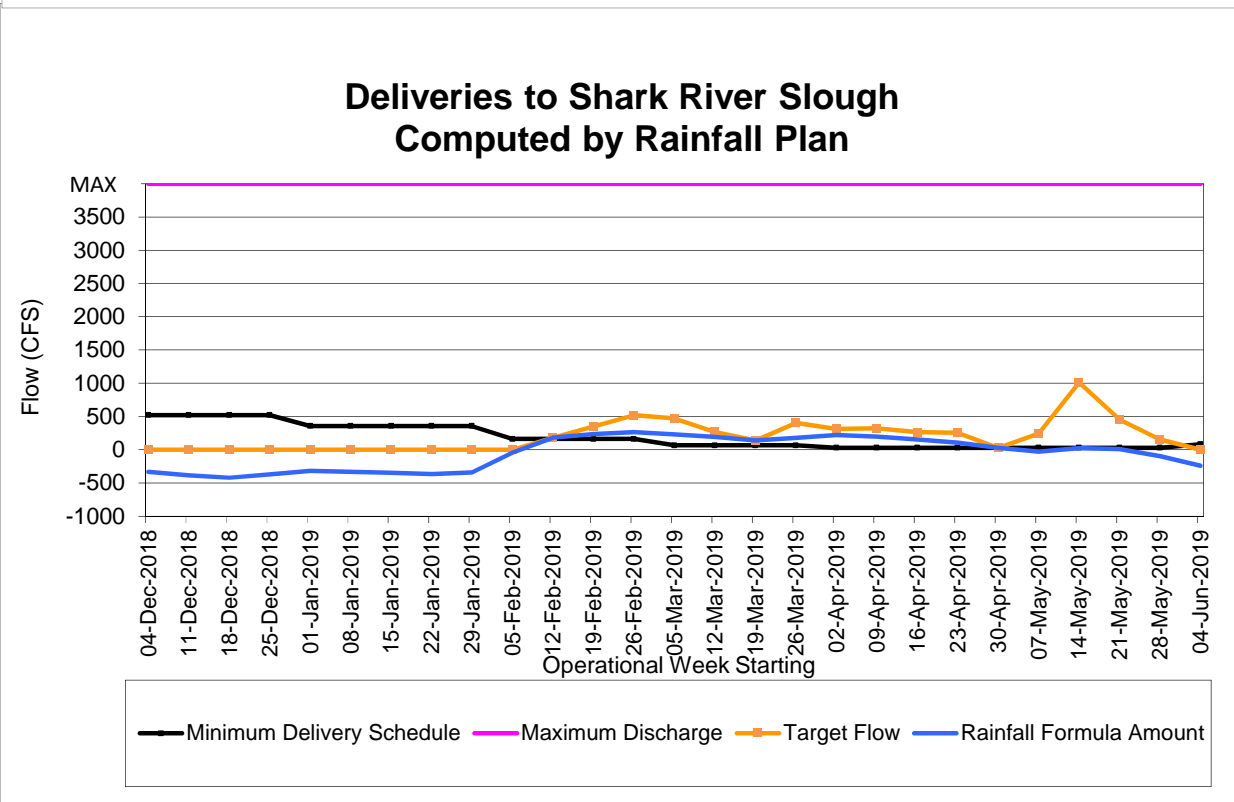
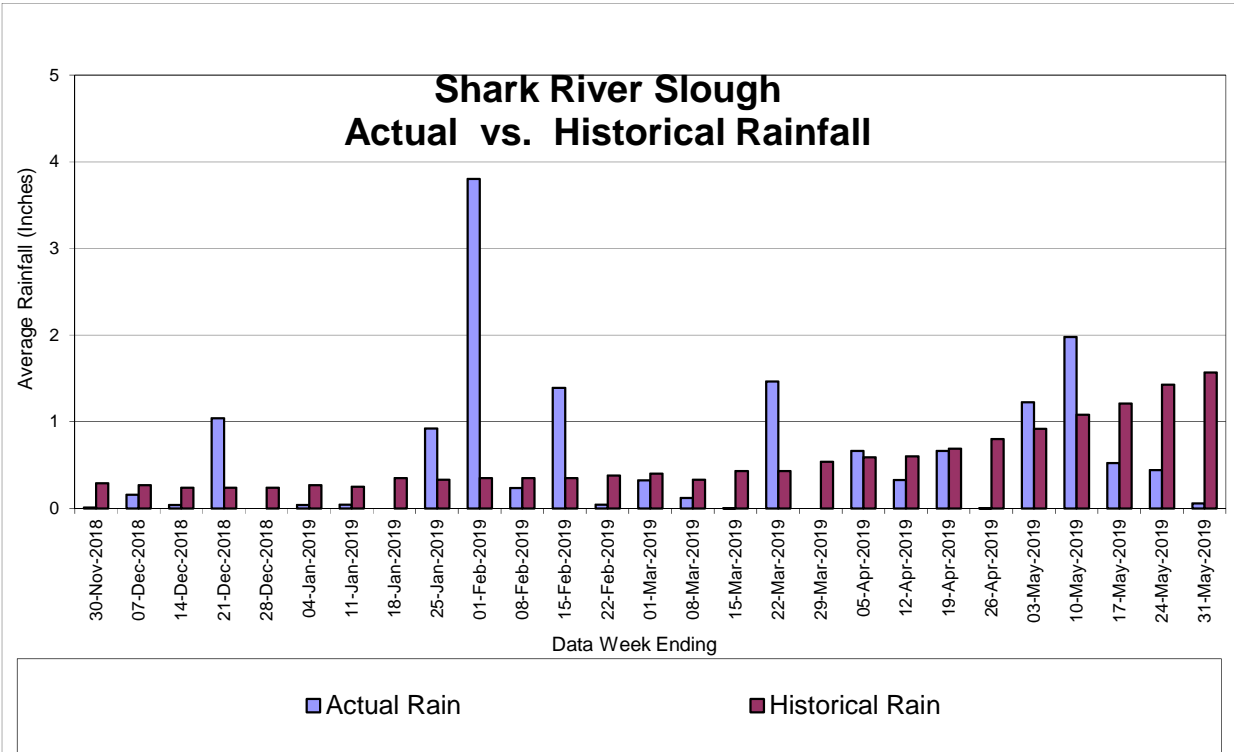
**----Statistical Parameters ----**

Rainfall Formula Amount	-240 cfs
Last Week's Rainfall Formula	-96 cfs
Pre-project Mean Discharge	27 cfs

Rainfall Excess Terms	RL1 -3.15	RL2 -1.18	RL3	-1.48
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**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow June 11, 2019**

**to June 17, 2019**

**Adjusted  
665 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount	0 cfs
<input type="checkbox"/> Regulatory Discharge	103 cfs
<input checked="" type="checkbox"/> Potential Regulatory Discharge	665 cfs

<b>----Data Summary ----</b>	<b>June 1, 2019</b>	<b>to</b>	<b>June 7, 2019</b>
WCA-3A Stage (end of week)	9.04		ft-NGVD
Angel's	4.84		ft-NGVD
G-3273	5.00		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	0.94	2.03
S-140		1.72
ENP		M
This Week's Avg	0.94	1.88
Pre-Project Avg	1.67	1.59

**---- Regulatory Discharge Calculation ----**

<b>WCA-3A is in Zone E1</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		103 cfs
Distance to Bottom of Current Zone		-0.04 feet
Distance to Top of Current Zone		0.51 feet

**----Potential Regulatory Discharge Considering Upstream Water Levels----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	15.85	15.75	12,800	
WCA-2A	11.96	11.00	54,600	
Others			0	
Total Storage Adjustment			67,400	0.22
WCA-3A	9.04			
Adjusted WCA-3A	9.26			

<b>Adjusted WCA-3A is in Zone E1</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Potential regulatory discharge		665 cfs
Distance to Bottom of Current Zone		-0.27 feet
Distance to Top of Current Zone		0.28 feet

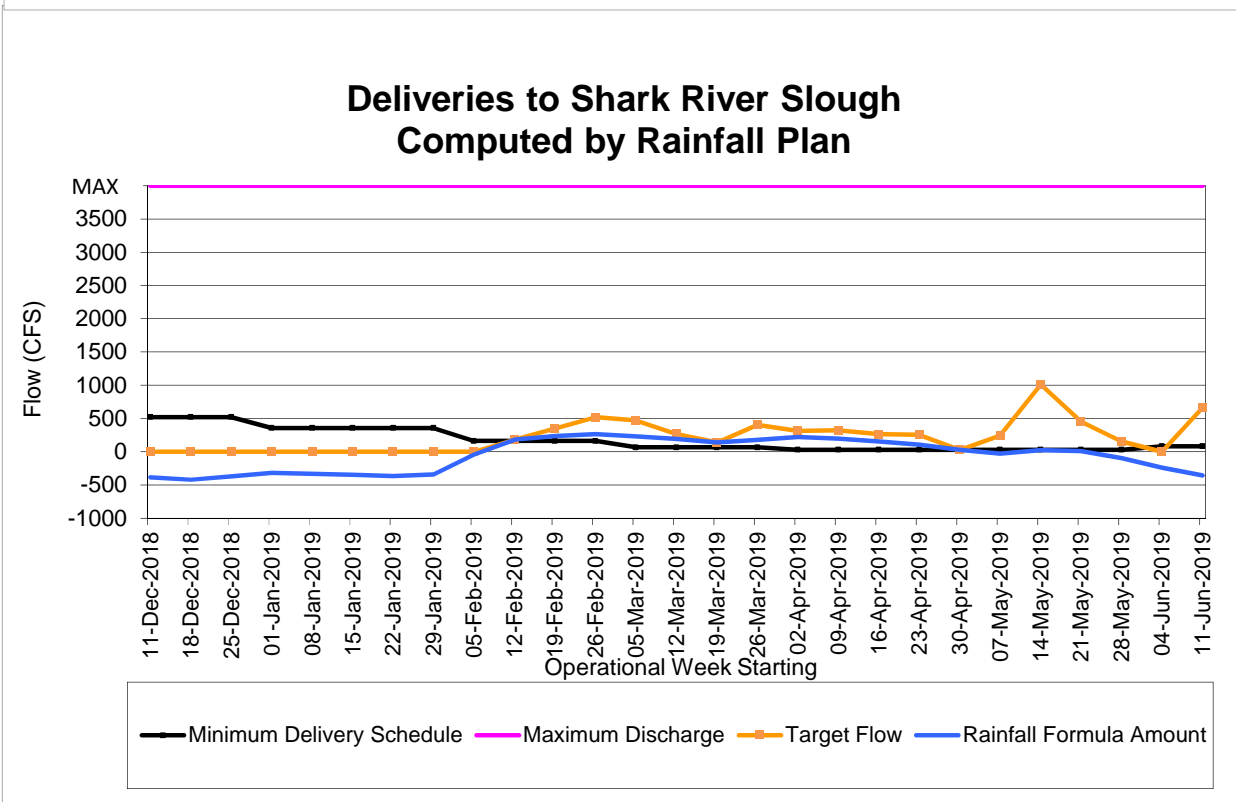
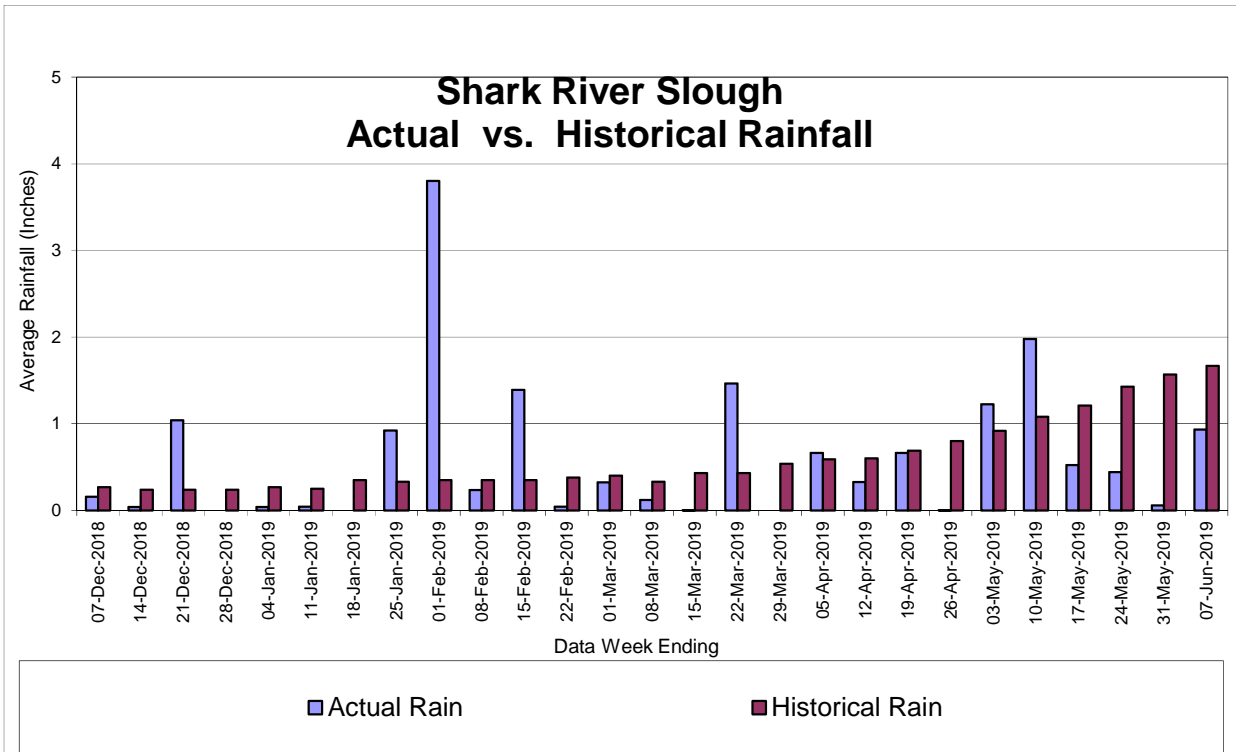
**----Statistical Parameters ----**

Rainfall Formula Amount	-354 cfs
Last Week's Rainfall Formula	-240 cfs
Pre-project Mean Discharge	40 cfs

Rainfall Excess Terms	RL1 -2.90	RL2 -1.36	RL3	-1.80
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**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**





## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow June 18, 2019**

**to June 24, 2019**

**Adjusted  
1429 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount	0 cfs
<input type="checkbox"/> Regulatory Discharge	865 cfs
<input checked="" type="checkbox"/> Potential Regulatory Discharge	1429 cfs

<b>-----Data Summary -----</b>	<b>June 8, 2019</b>	<b>to</b>	<b>June 14, 2019</b>
WCA-3A Stage (end of week)	9.30		ft-NGVD
Angel's	6.14		ft-NGVD
G-3273	6.44		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	2.12	1.82
S-140		1.70
ENP		M
This Week's Avg	2.12	1.76
Pre-Project Avg	1.83	1.55

**----- Regulatory Discharge Calculation -----**

<b>WCA-3A is in Zone E1</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		865 cfs
Distance to Bottom of Current Zone		-0.35 feet
Distance to Top of Current Zone		0.29 feet

**-----Potential Regulatory Discharge Considering Upstream Water Levels-----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.10	15.75	38,300	
WCA-2A	11.97	11.00	54,600	
Others			0	
Total Storage Adjustment			92,900	0.23
WCA-3A	9.30			
Adjusted WCA-3A	9.53			

<b>Adjusted WCA-3A is in Zone D</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Potential regulatory discharge		1429 cfs
Distance to Bottom of Current Zone		-0.57 feet
Distance to Top of Current Zone		0.07 feet

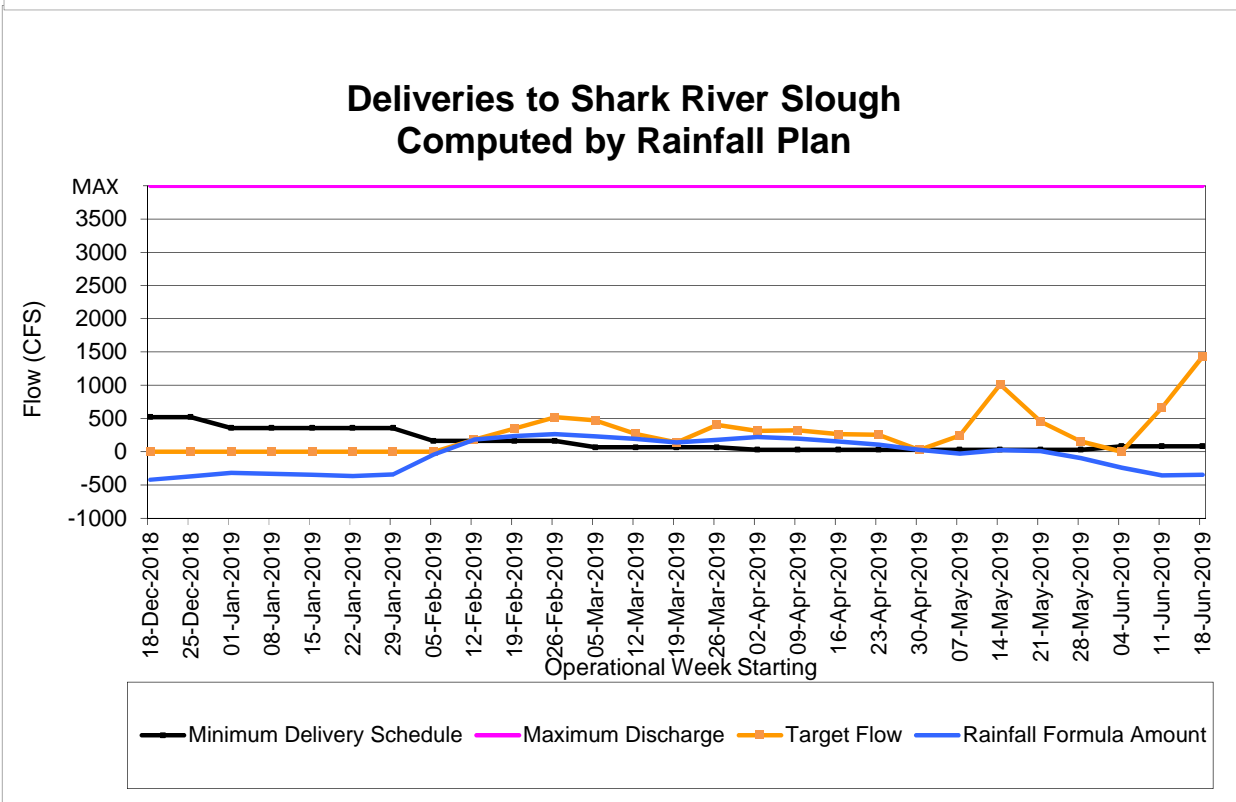
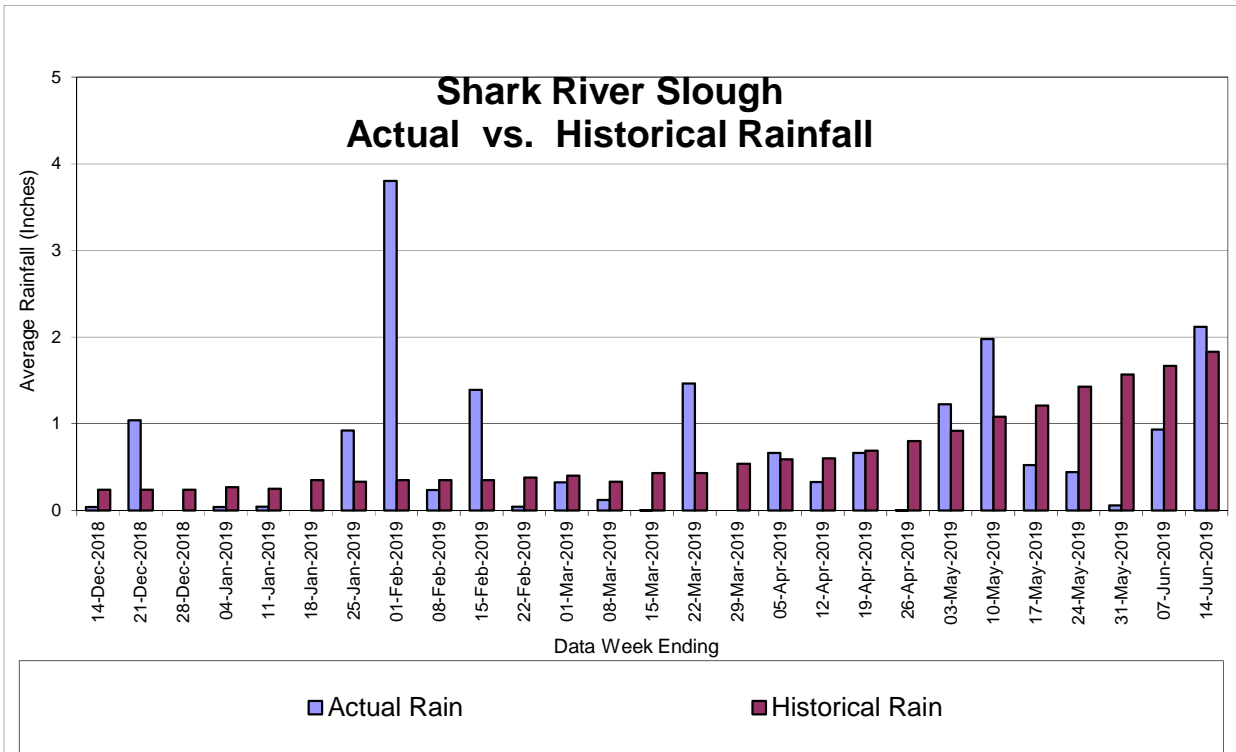
**-----Statistical Parameters -----**

Rainfall Formula Amount	-347 cfs
Last Week's Rainfall Formula	-354 cfs
Pre-project Mean Discharge	54 cfs

Rainfall Excess Terms	RL1 -0.84	RL2 -3.39	RL3 -1.62
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**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow June 25, 2019**

**to July 1, 2019**

**Adjusted  
MAX cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount	0 cfs
<input type="checkbox"/> Regulatory Discharge	1426 cfs
<input checked="" type="checkbox"/> Potential Regulatory Discharge	MAX cfs

<b>-----Data Summary-----</b>	<b>June 15, 2019</b>	<b>to</b>	<b>June 21, 2019</b>
WCA-3A Stage (end of week)	9.48		ft-NGVD
Angel's	6.01		ft-NGVD
G-3273	6.65		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	2.48	1.97
S-140		1.73
ENP		M
This Week's Avg	2.48	1.85
Pre-Project Avg	1.98	1.51

**----- Regulatory Discharge Calculation -----**

<b>WCA-3A is in Zone D</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		1426 cfs
Distance to Bottom of Current Zone		-0.57 feet
Distance to Top of Current Zone		0.16 feet

**-----Potential Regulatory Discharge Considering Upstream Water Levels-----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.32	15.75	70,200	
WCA-2A	12.34	11.00	85,000	
Others			0	
Total Storage Adjustment			155,200	0.38
WCA-3A	9.48			
Adjusted WCA-3A	9.86			

<b>Adjusted WCA-3A is in Zone A</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>MAX</b>
Potential regulatory discharge	MAX	cfs
Distance to Bottom of Current Zone		-0.22 feet
Distance to Top of Current Zone	N/A	feet

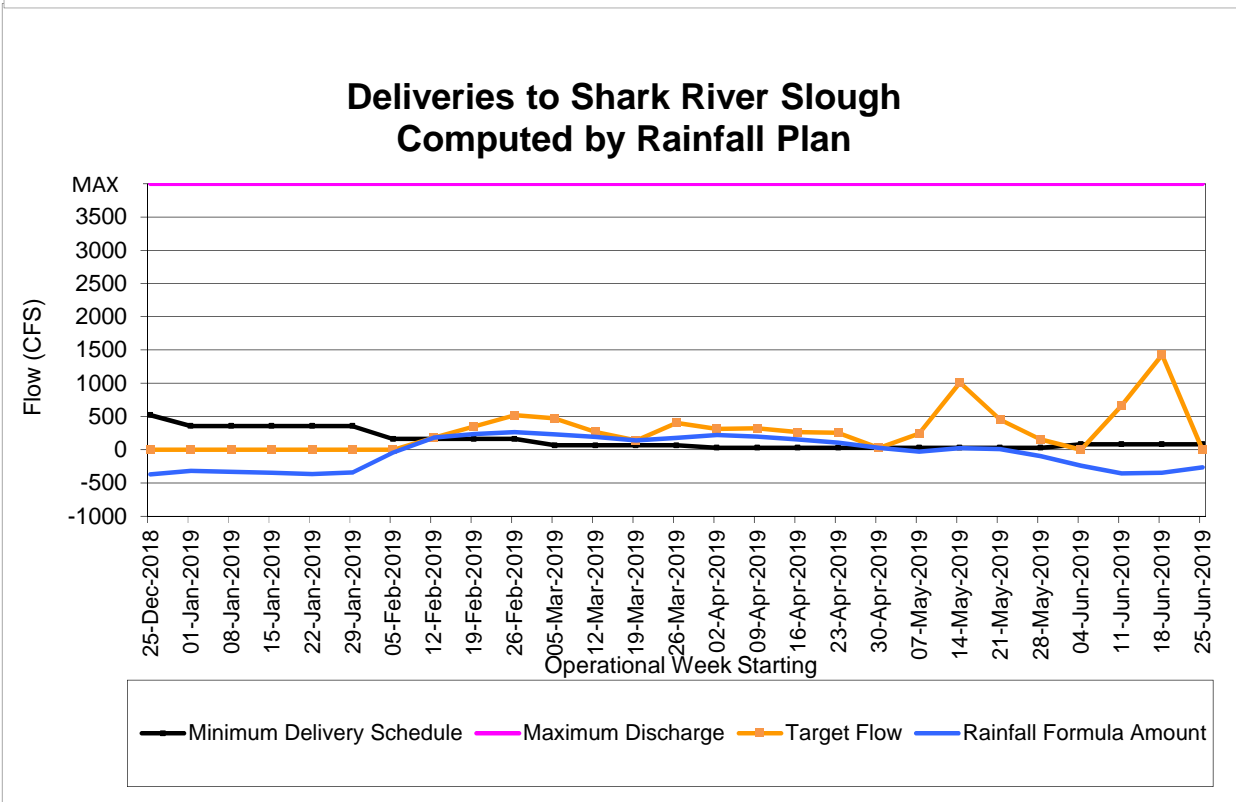
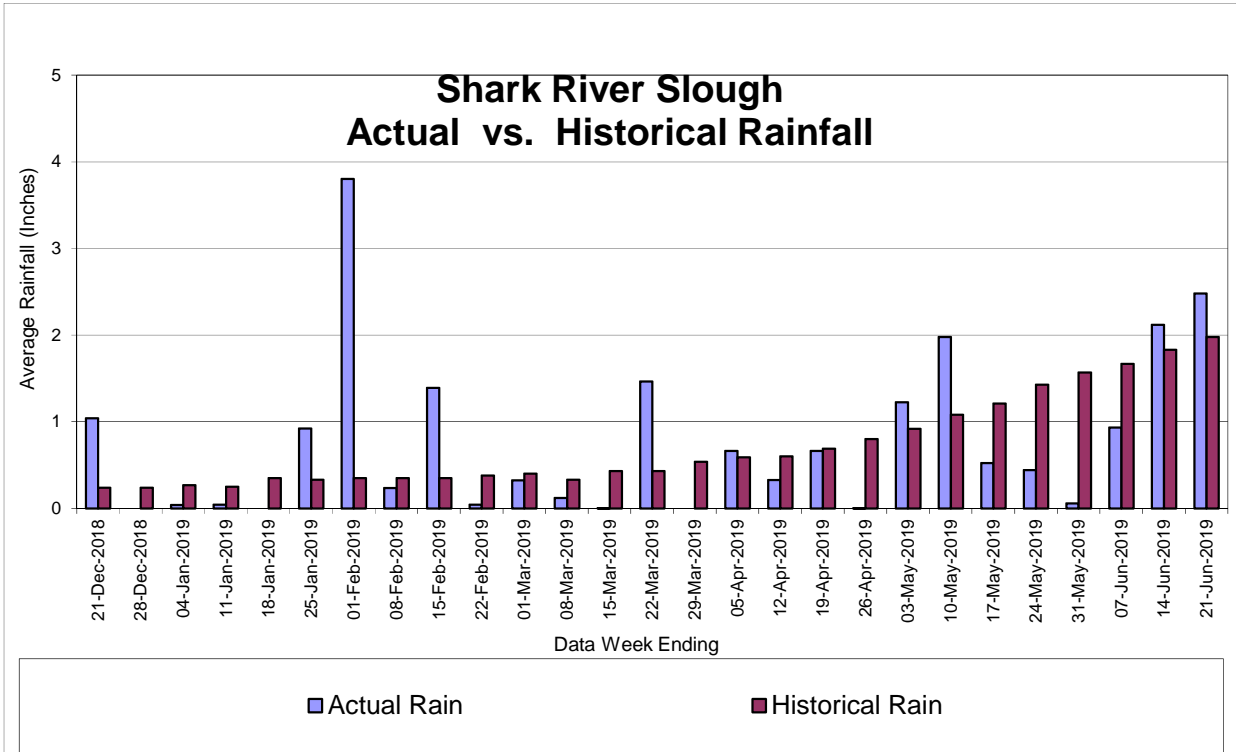
**-----Statistical Parameters -----**

Rainfall Formula Amount	-264 cfs
Last Week's Rainfall Formula	-347 cfs
Pre-project Mean Discharge	75 cfs

Rainfall Excess Terms	RL1 0.35	RL2 -5.01	RL3	-0.54
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**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow July 2, 2019**

**to July 8, 2019**

**Adjusted  
MAX cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount	0 cfs
<input type="checkbox"/> Regulatory Discharge	1538 cfs
<input checked="" type="checkbox"/> Potential Regulatory Discharge	MAX cfs

<b>----Data Summary ----</b>	<b>June 22, 2019</b>	<b>to</b>	<b>June 28, 2019</b>
WCA-3A Stage (end of week)	9.48		ft-NGVD
Angel's	5.87		ft-NGVD
G-3273	6.62		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	0.62	2.50
S-140		1.61
ENP		M
This Week's Avg	0.62	2.06
Pre-Project Avg	2.10	1.49

**---- Regulatory Discharge Calculation ----**

<b>WCA-3A is in Zone D</b>	<b>Discharge Coeff. (cfs/ft) = 2500</b>
Regulatory discharge is	1538 cfs
Distance to Bottom of Current Zone	-0.62 feet
Distance to Top of Current Zone	0.20 feet

**----Potential Regulatory Discharge Considering Upstream Water Levels----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.16	15.75	50,900	
WCA-2A	12.42	11.00	94,500	
Others			0	
Total Storage Adjustment			145,400	0.35
WCA-3A	9.48			
Adjusted WCA-3A	9.83			

<b>Adjusted WCA-3A is in Zone A</b>	<b>Discharge Coeff. (cfs/ft) = MAX</b>
Potential regulatory discharge	MAX cfs
Distance to Bottom of Current Zone	-0.15 feet
Distance to Top of Current Zone	N/A feet

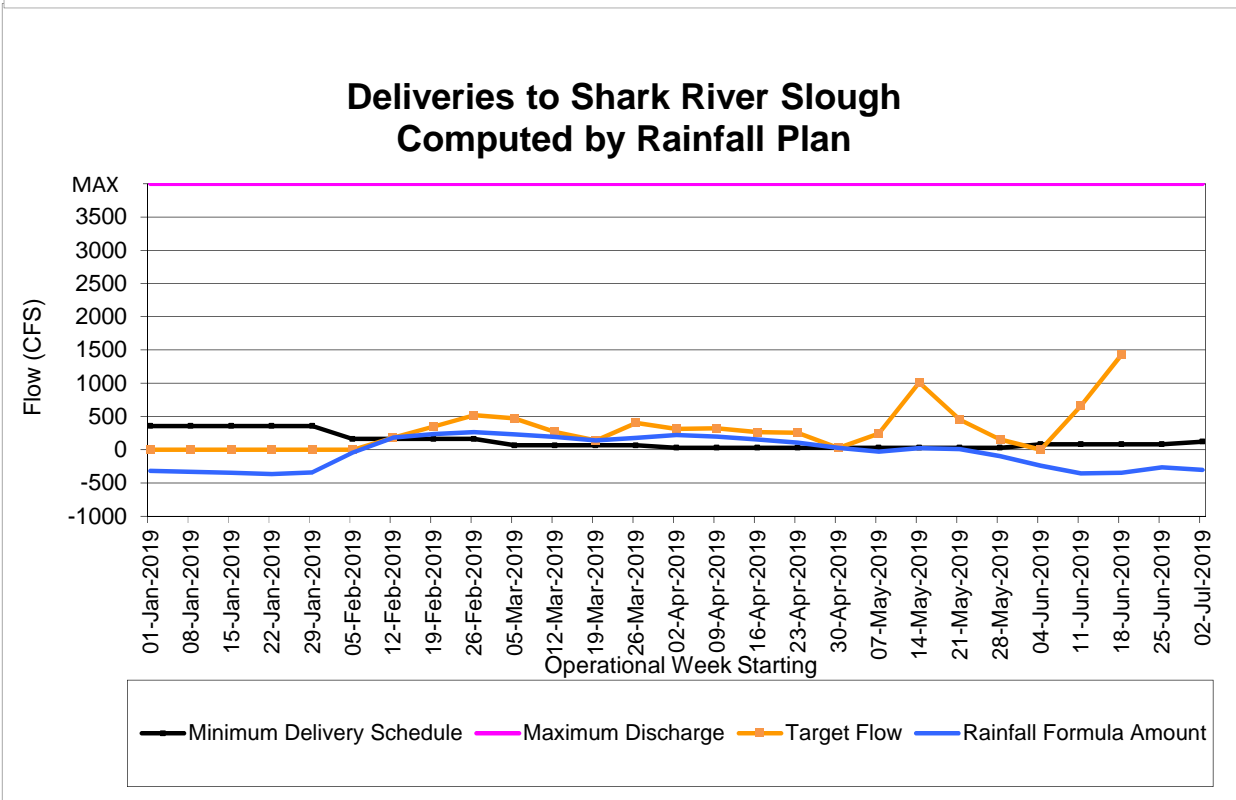
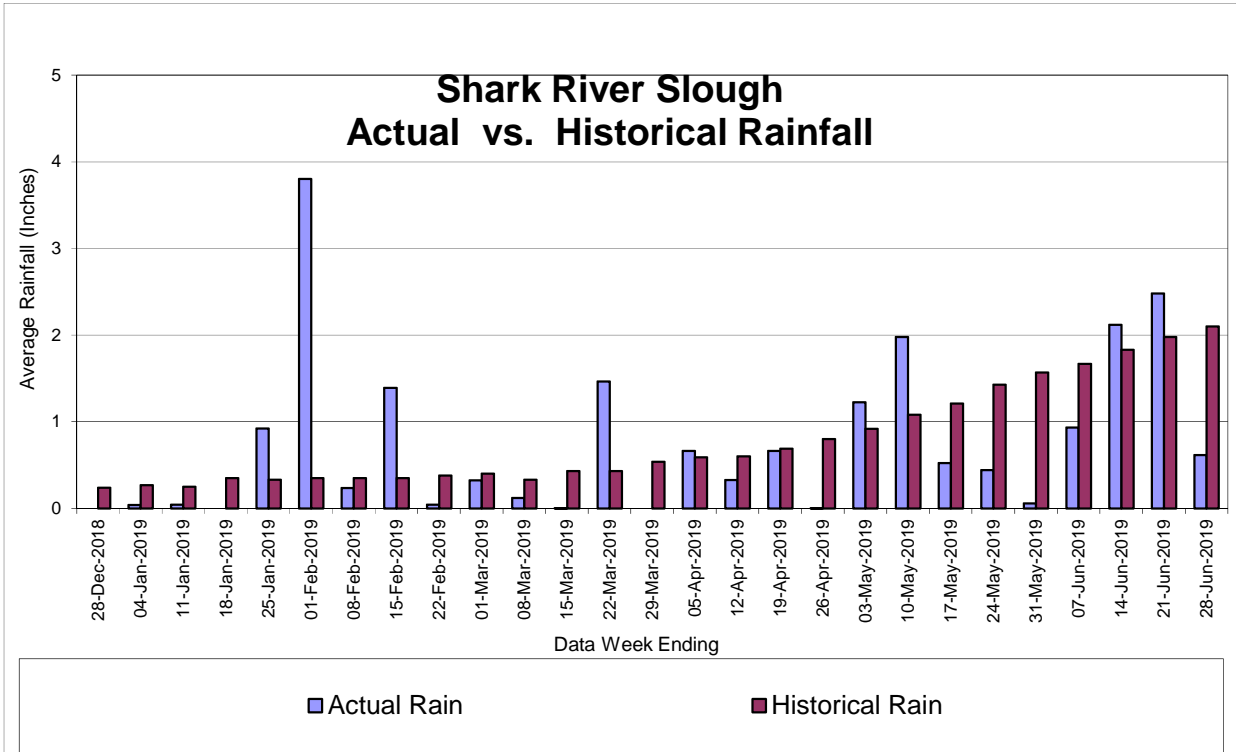
**----Statistical Parameters ----**

Rainfall Formula Amount	-304 cfs
Last Week's Rainfall Formula	-264 cfs
Pre-project Mean Discharge	94 cfs

Rainfall Excess Terms	RL1 -1.71	RL2 -4.00	RL3 -1.18
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**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow July 9, 2019**

**to July 15, 2019**

**Adjusted  
MAX cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount	0 cfs
<input type="checkbox"/> Regulatory Discharge	3649 cfs
<input checked="" type="checkbox"/> Potential Regulatory Discharge	MAX cfs

<b>-----Data Summary -----</b>	<b>June 29, 2019</b>	<b>to</b>	<b>July 5, 2019</b>
WCA-3A Stage (end of week)	9.55		ft-NGVD
Angel's	6.10		ft-NGVD
G-3273	6.91		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	1.32	1.65
S-140		1.64
ENP		M
This Week's Avg	1.32	1.65
Pre-Project Avg	2.05	1.45

**----- Regulatory Discharge Calculation -----**

<b>WCA-3A is in Zone D</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>5000</b>
Regulatory discharge is		3649 cfs
Distance to Bottom of Current Zone		-0.73 feet
Distance to Top of Current Zone		0.18 feet

**-----Potential Regulatory Discharge Considering Upstream Water Levels-----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.18	15.75	50,900	
WCA-2A	12.37	11.11	85,650	
Others			0	
Total Storage Adjustment			136,550	0.30
WCA-3A	9.55			
Adjusted WCA-3A	9.85			

<b>Adjusted WCA-3A is in Zone A</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>MAX</b>
Potential regulatory discharge	MAX	cfs
Distance to Bottom of Current Zone		-0.13 feet
Distance to Top of Current Zone	N/A	feet

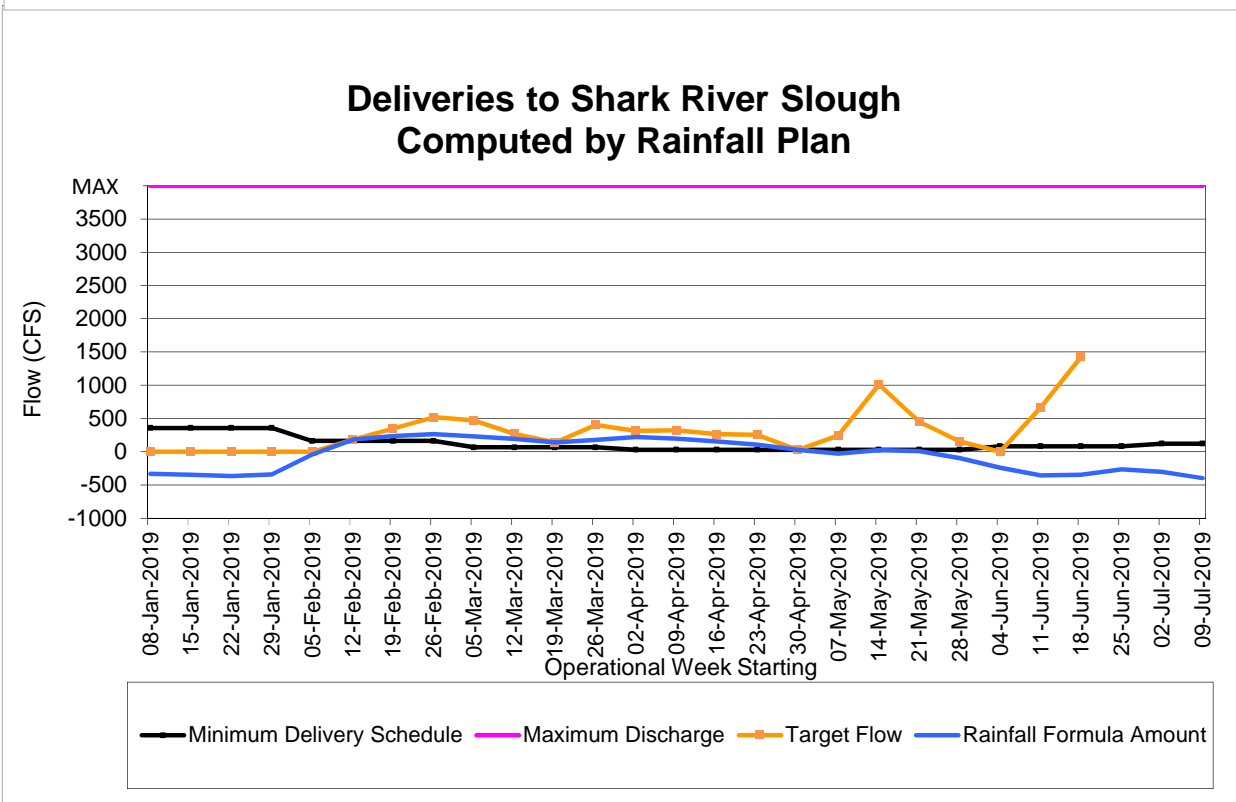
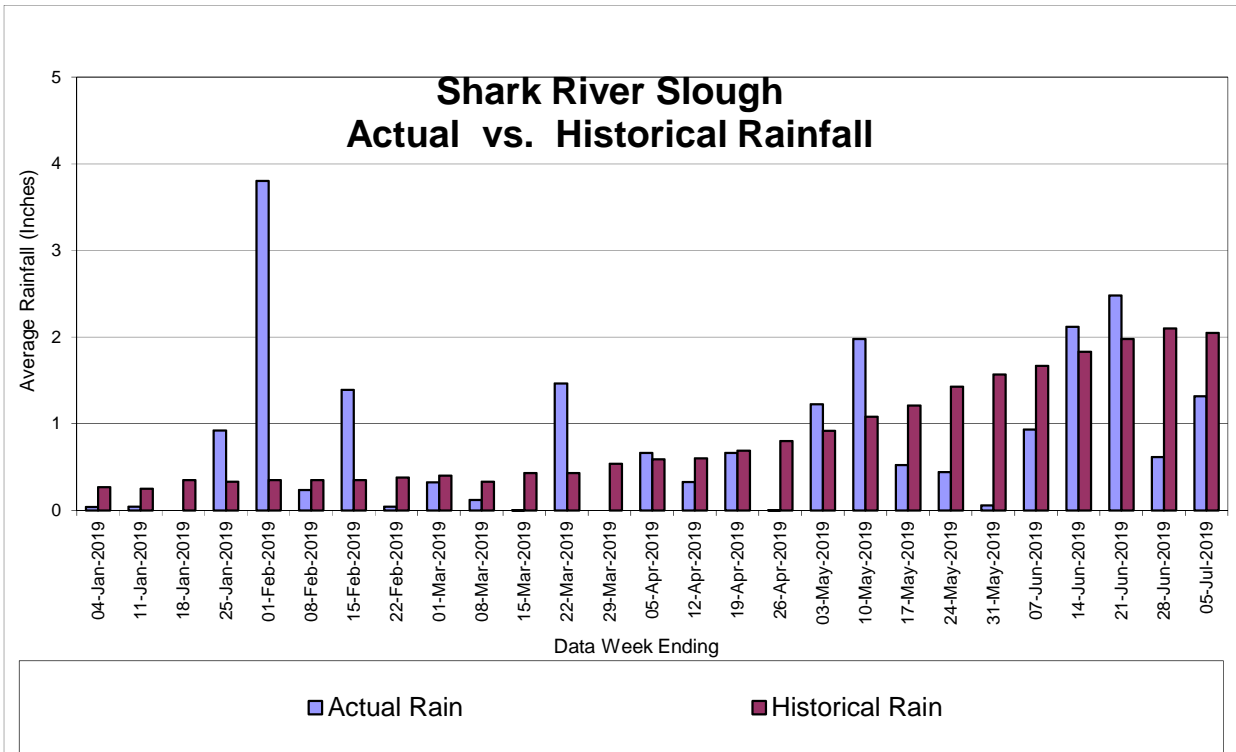
**-----Statistical Parameters -----**

Rainfall Formula Amount	-396 cfs
Last Week's Rainfall Formula	-304 cfs
Pre-project Mean Discharge	111 cfs

Rainfall Excess Terms	RL1 -2.82	RL2 -2.56	RL3 -1.36
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**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**





## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow July 16, 2019**

**to July 22, 2019**

**4022 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount                    0 cfs  
Regulatory Discharge                    4022 cfs  
Potential Regulatory Discharge                    MAX cfs

**----Data Summary ----**

	July 6, 2019	to	July 12, 2019
WCA-3A Stage (end of week)	9.58		ft-NGVD
Angel's	6.78		ft-NGVD
G-3273	7.25		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	1.81	1.83
S-140		1.68
ENP		M
This Week's Avg	1.81	1.75
Pre-Project Avg	1.93	1.45

**---- Regulatory Discharge Calculation ----**

<b>WCA-3A is in Zone D</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>5000</b>
Regulatory discharge is		4022 cfs
Distance to Bottom of Current Zone		-0.80 feet
Distance to Top of Current Zone		0.19 feet

**----Potential Regulatory Discharge Considering Upstream Water Levels----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.34	15.81	63,800	
WCA-2A	12.23	11.26	65,650	
Others			0	
Total Storage Adjustment			129,450	0.29
WCA-3A	9.58			
Adjusted WCA-3A	9.87			

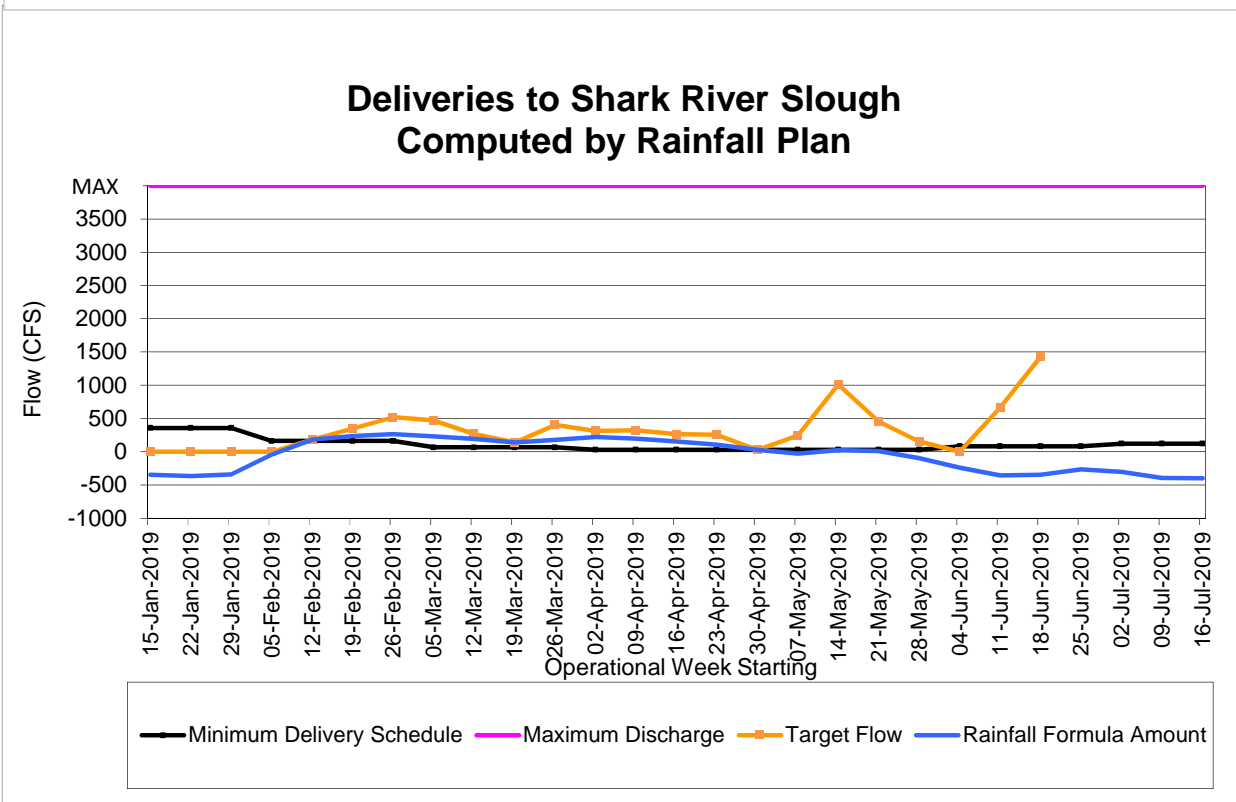
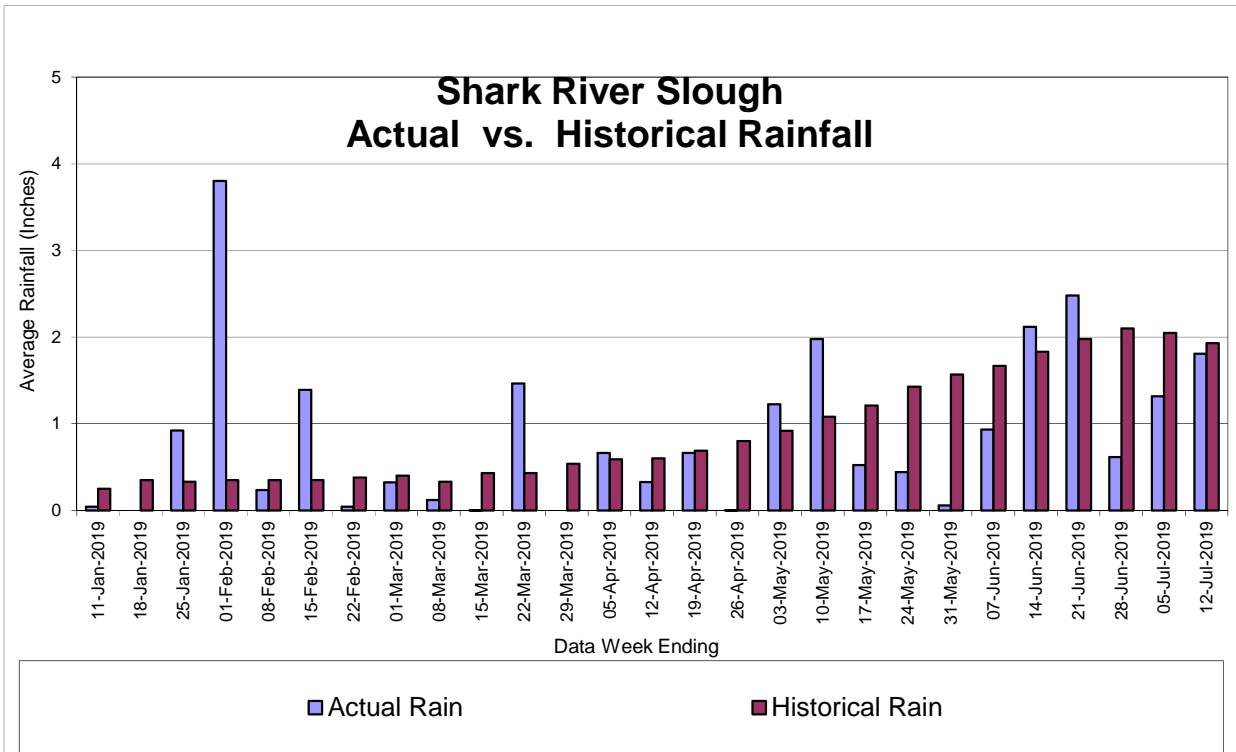
<b>Adjusted WCA-3A is in Zone A</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>MAX</b>
Potential regulatory discharge	MAX	cfs
Distance to Bottom of Current Zone		-0.09 feet
Distance to Top of Current Zone	N/A	feet

**----Statistical Parameters ----**

Rainfall Formula Amount		-397 cfs
Last Week's Rainfall Formula		-396 cfs
Pre-project Mean Discharge		128 cfs
Rainfall Excess Terms		
RL1 -1.25	RL2 -2.56	RL3 -3.39

**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow July 23, 2019**

**to July 29, 2019**

**Adjusted  
2086 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount	0 cfs
<input type="checkbox"/> Regulatory Discharge	787 cfs
<input checked="" type="checkbox"/> Potential Regulatory Discharge	2086 cfs

<b>-----Data Summary -----</b>	<b>July 13, 2019</b>	<b>to</b>	<b>July 19, 2019</b>
WCA-3A Stage (end of week)	9.49		ft-NGVD
Angel's	6.70		ft-NGVD
G-3273	7.19		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	0.56	1.91
S-140		1.63
ENP		M
This Week's Avg	0.56	1.77
Pre-Project Avg	1.95	1.43

**----- Regulatory Discharge Calculation -----**

<b>WCA-3A is in Zone D</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>5000</b>
Regulatory discharge is		787 cfs
Distance to Bottom of Current Zone		-0.16 feet
Distance to Top of Current Zone		0.33 feet

**-----Potential Regulatory Discharge Considering Upstream Water Levels-----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.30	15.89	57,400	
WCA-2A	12.12	11.41	49,660	
Others			0	
Total Storage Adjustment			107,060	0.26
WCA-3A	9.49			
Adjusted WCA-3A	9.75			

<b>Adjusted WCA-3A is in Zone D</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>5000</b>
Potential regulatory discharge		2086 cfs
Distance to Bottom of Current Zone		-0.42 feet
Distance to Top of Current Zone		0.07 feet

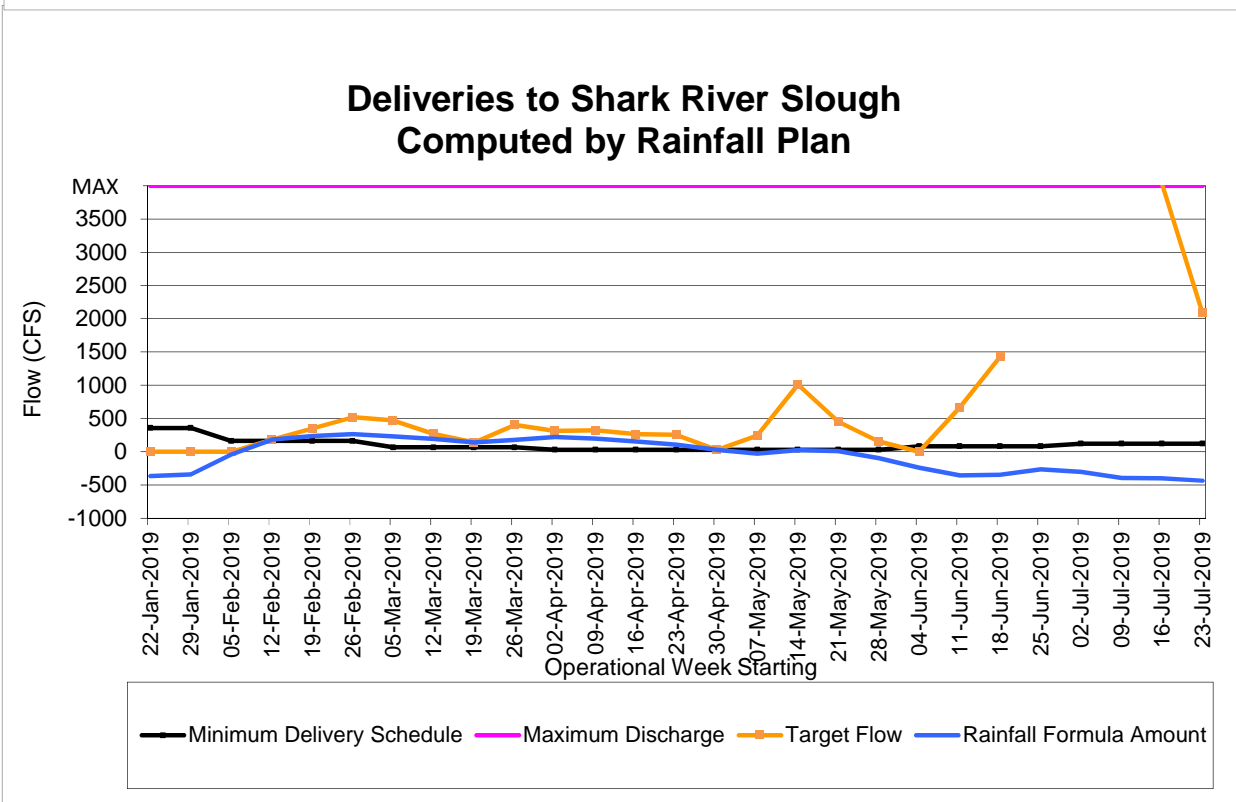
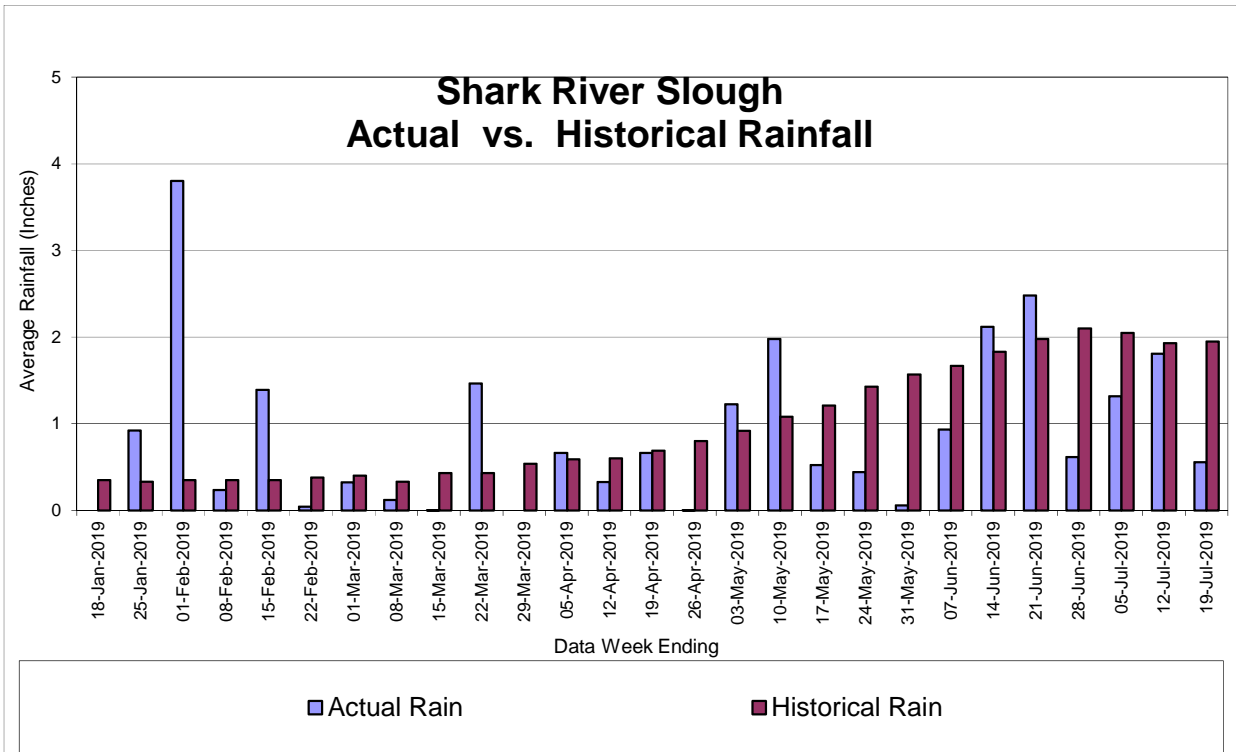
**-----Statistical Parameters -----**

Rainfall Formula Amount	-435 cfs
Last Week's Rainfall Formula	-397 cfs
Pre-project Mean Discharge	148 cfs

Rainfall Excess Terms	RL1 -2.03	RL2 -2.48	RL3 -5.01
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**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow July 30, 2019**

**to August 5, 2019**

**Adjusted  
2027 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount	0 cfs
<input type="checkbox"/> Regulatory Discharge	1114 cfs
<input checked="" type="checkbox"/> Potential Regulatory Discharge	2027 cfs

<b>-----Data Summary -----</b>	<b>July 20, 2019</b>	<b>to</b>	<b>July 26, 2019</b>
WCA-3A Stage (end of week)	9.60		ft-NGVD
Angel's	6.87		ft-NGVD
G-3273	7.31		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	1.88	1.62
S-140		1.67
ENP		M
This Week's Avg	1.88	1.65
Pre-Project Avg	1.92	1.42

**----- Regulatory Discharge Calculation -----**

<b>WCA-3A is in Zone D</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>5000</b>
Regulatory discharge is		1114 cfs
Distance to Bottom of Current Zone		-0.22 feet
Distance to Top of Current Zone		0.27 feet

**-----Potential Regulatory Discharge Considering Upstream Water Levels-----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.32	15.97	44,600	
WCA-2A	12.06	11.56	37,130	
Others			0	
Total Storage Adjustment			81,730	0.18
WCA-3A	9.60			
Adjusted WCA-3A	9.78			

<b>Adjusted WCA-3A is in Zone D</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>5000</b>
Potential regulatory discharge		2027 cfs
Distance to Bottom of Current Zone		-0.41 feet
Distance to Top of Current Zone		0.08 feet

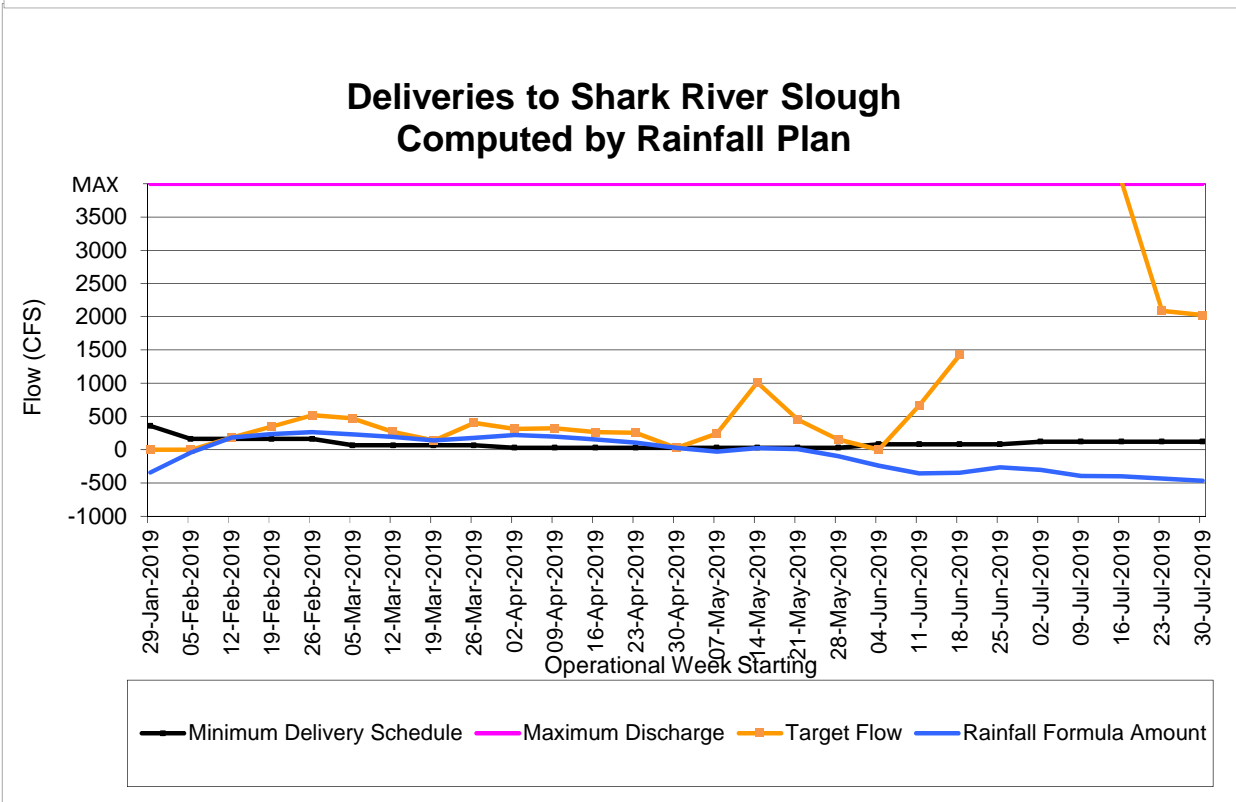
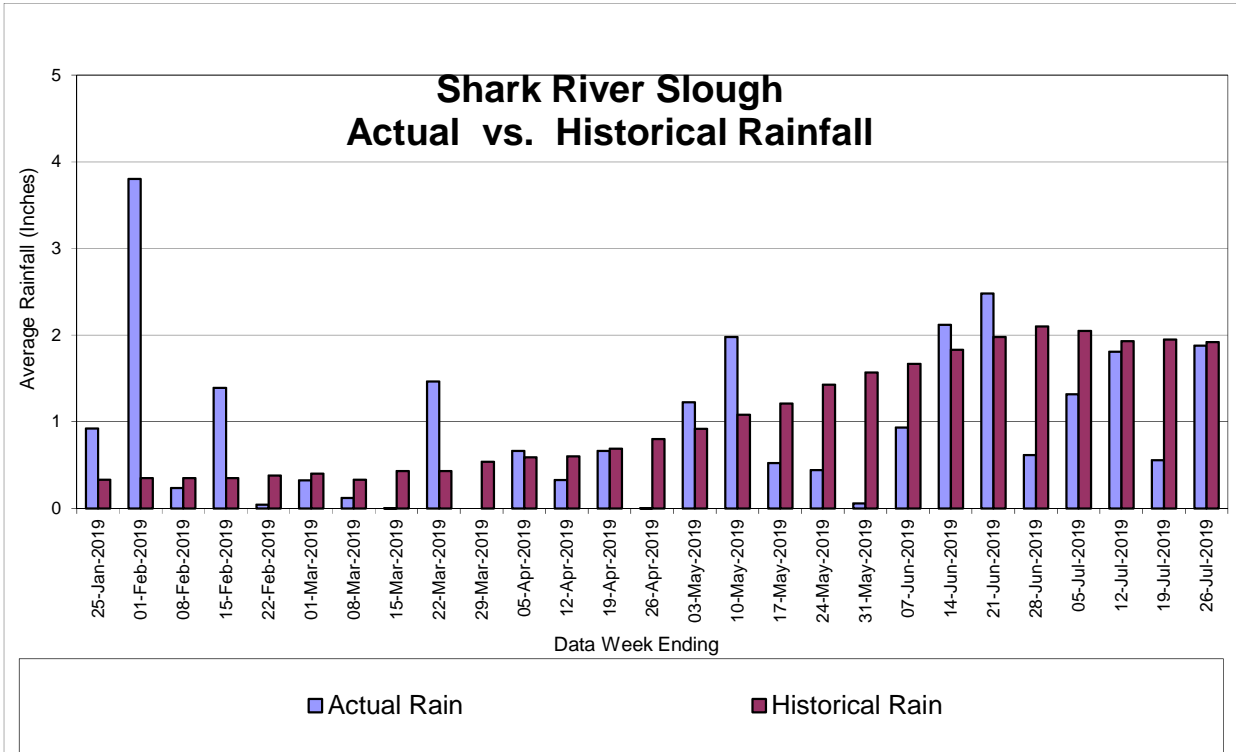
**-----Statistical Parameters -----**

Rainfall Formula Amount	-465 cfs
Last Week's Rainfall Formula	-435 cfs
Pre-project Mean Discharge	162 cfs

Rainfall Excess Terms	RL1 -1.89	RL2 -2.96	RL3 -4.00
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**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow August 6, 2019**

**to August 12, 2019**

**Adjusted  
1700 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount	0 cfs
<input type="checkbox"/> Regulatory Discharge	992 cfs
<input checked="" type="checkbox"/> Potential Regulatory Discharge	1700 cfs

<b>-----Data Summary -----</b>	<b>July 27, 2019</b>	<b>to</b>	<b>August 2, 2019</b>
WCA-3A Stage (end of week)	9.62		ft-NGVD
Angel's	6.94		ft-NGVD
G-3273	7.36		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	2.12	1.51
S-140		1.67
ENP		M
This Week's Avg	2.12	1.59
Pre-Project Avg	1.83	1.42

**----- Regulatory Discharge Calculation -----**

<b>WCA-3A is in Zone D</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>5000</b>
Regulatory discharge is		992 cfs
Distance to Bottom of Current Zone		-0.20 feet
Distance to Top of Current Zone		0.29 feet

**-----Potential Regulatory Discharge Considering Upstream Water Levels-----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.33	16.05	31,900	
WCA-2A	12.12	11.72	31,520	
Others			0	
Total Storage Adjustment			63,420	0.14
WCA-3A	9.62			
Adjusted WCA-3A	9.76			

<b>Adjusted WCA-3A is in Zone D</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>5000</b>
Potential regulatory discharge		1700 cfs
Distance to Bottom of Current Zone		-0.34 feet
Distance to Top of Current Zone		0.15 feet

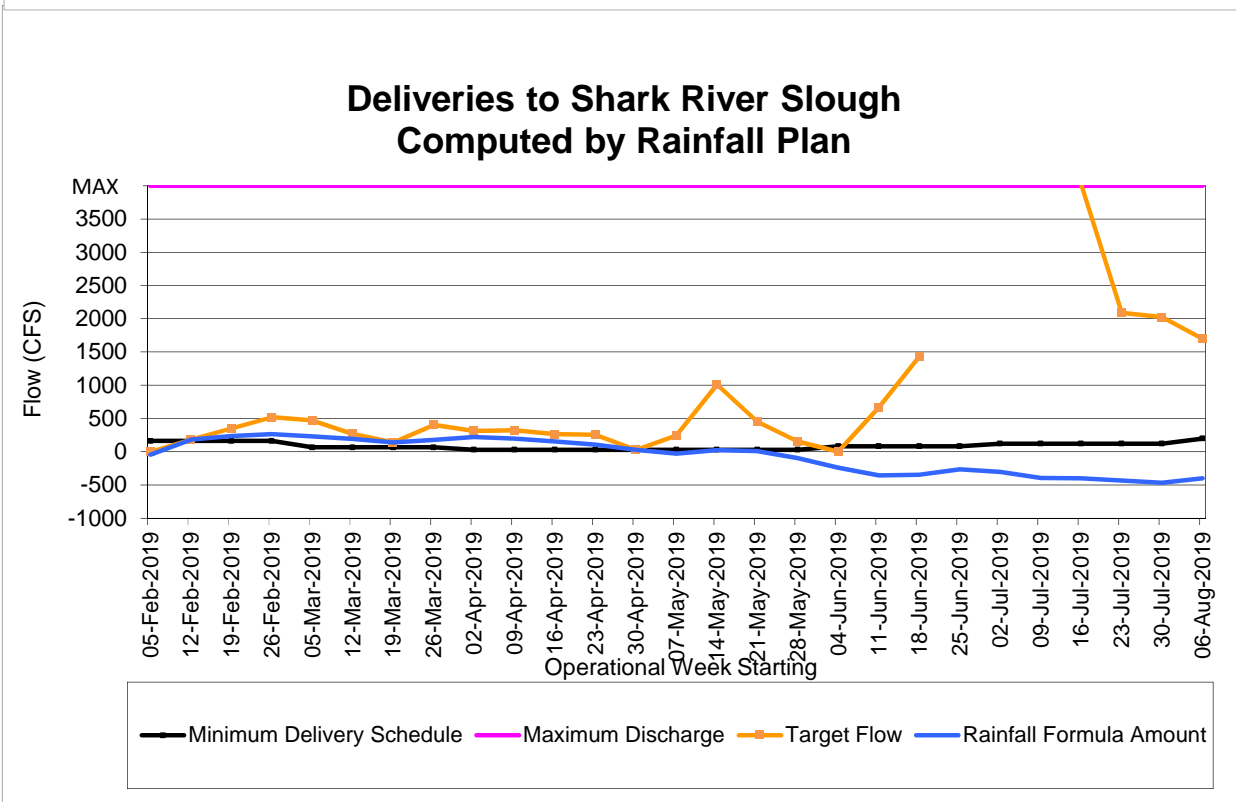
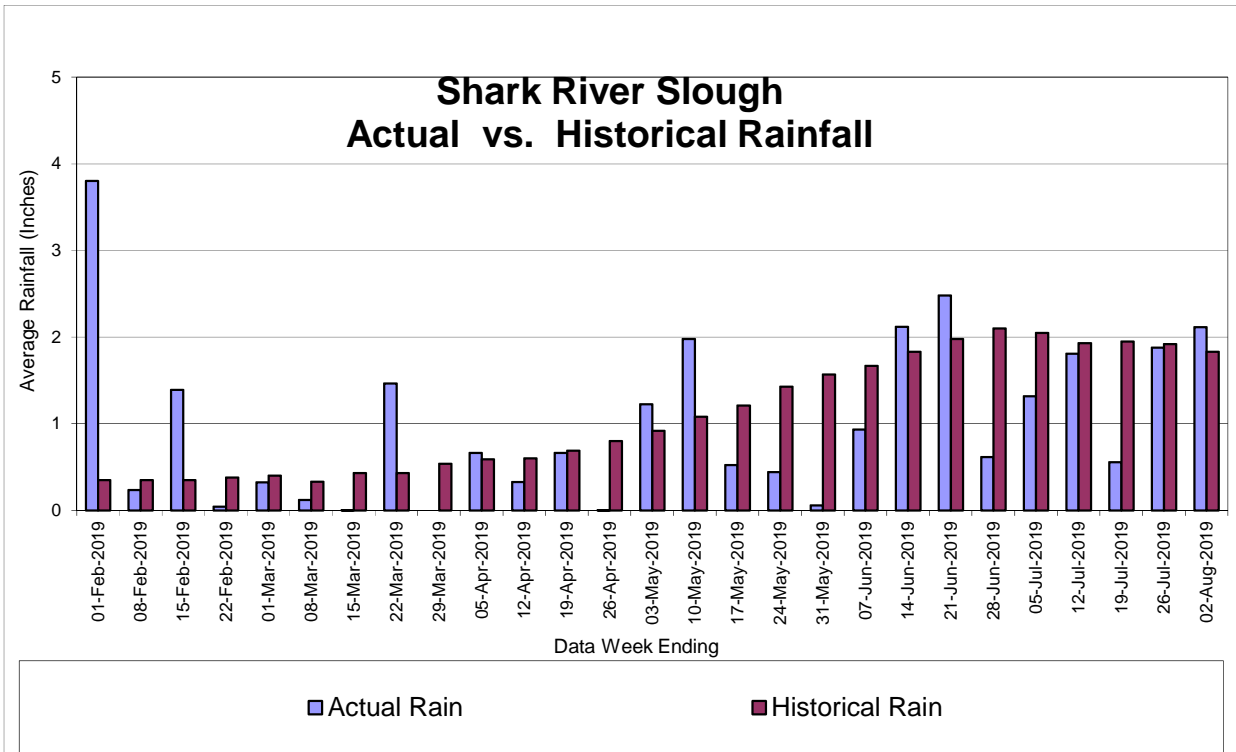
**-----Statistical Parameters -----**

Rainfall Formula Amount	-398 cfs
Last Week's Rainfall Formula	-465 cfs
Pre-project Mean Discharge	175 cfs

Rainfall Excess Terms	RL1 -0.07	RL2 -4.85	RL3 -2.56
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**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**





## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow August 13, 2019**

**to August 19, 2019**

**Adjusted  
MAX cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount                    0 cfs  
 Regulatory Discharge                2069 cfs  
 Potential Regulatory Discharge        MAX cfs

**-----Data Summary -----**

	<b>August 3, 2019</b>	<b>to</b>	<b>August 9, 2019</b>
WCA-3A Stage (end of week)	9.88		ft-NGVD
Angel's	7.28		ft-NGVD
G-3273	7.55		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	2.08	1.31
S-140		1.61
ENP		M
This Week's Avg	2.08	1.46
Pre-Project Avg	1.72	1.42

**----- Regulatory Discharge Calculation -----**

<b>WCA-3A is in Zone D</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>5000</b>
Regulatory discharge is		2069 cfs
Distance to Bottom of Current Zone		-0.41 feet
Distance to Top of Current Zone		0.08 feet

**-----Potential Regulatory Discharge Considering Upstream Water Levels-----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.59	16.14	59,400	
WCA-2A	12.32	11.87	38,200	
Others			0	
Total Storage Adjustment			97,600	0.19
WCA-3A	9.88			
Adjusted WCA-3A	10.07			

<b>Adjusted WCA-3A is in Zone A</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>MAX</b>
Potential regulatory discharge		MAX cfs
Distance to Bottom of Current Zone		-0.11 feet
Distance to Top of Current Zone		N/A feet

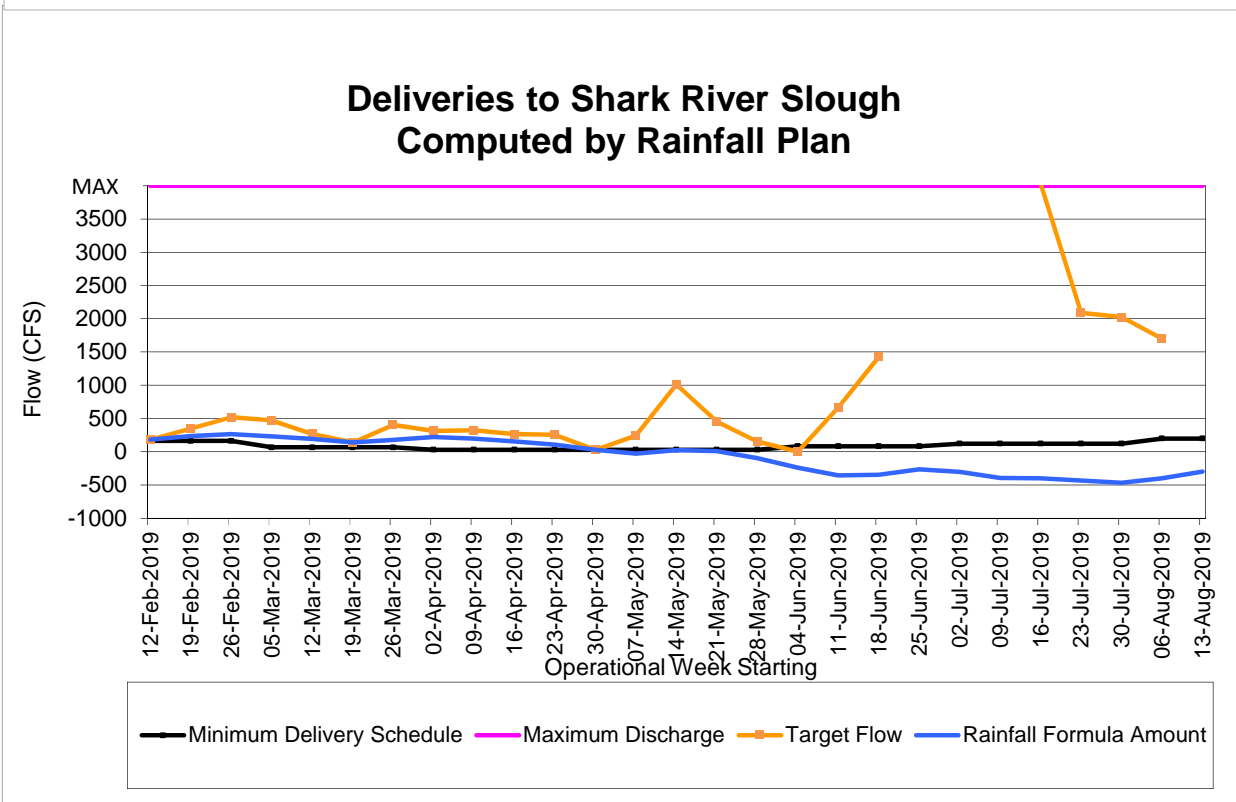
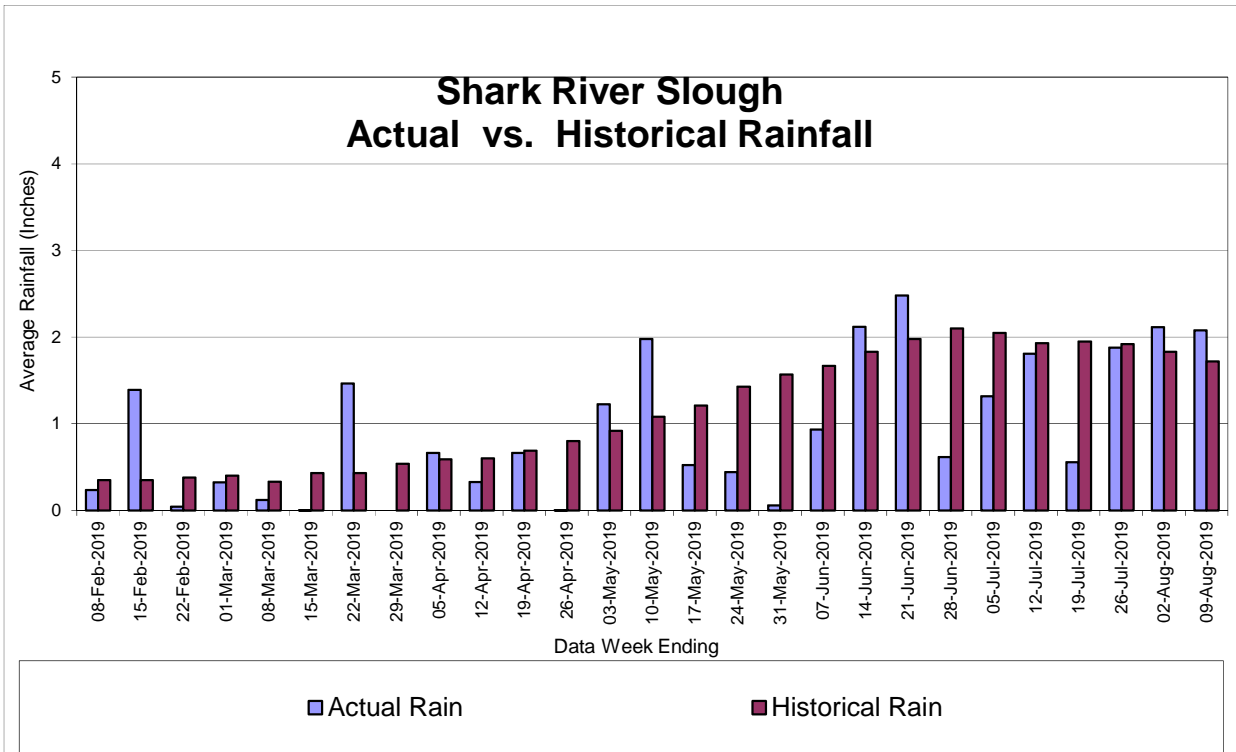
**-----Statistical Parameters -----**

Rainfall Formula Amount	-300 cfs
Last Week's Rainfall Formula	-398 cfs
Pre-project Mean Discharge	185 cfs

Rainfall Excess Terms	RL1 0.48	RL2 -3.14	RL3 -2.56
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**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow August 20, 2019**

**to August 26, 2019**

**MAX cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount 0 cfs  
Regulatory Discharge MAX cfs  
Potential Regulatory Discharge MAX cfs

**----Data Summary ----**

	August 10, 2019	to	August 16, 2019
WCA-3A Stage (end of week)	10.21		ft-NGVD
Angel's	7.33		ft-NGVD
G-3273	7.60		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	2.22	1.83
S-140		1.67
ENP		M
This Week's Avg	2.22	1.75
Pre-Project Avg	1.70	1.39

**---- Regulatory Discharge Calculation ----**

	Discharge Coeff. (cfs/ft) =	
<b>WCA-3A is in Zone A</b>		<b>MAX</b>
Regulatory discharge is	MAX	cfs
Distance to Bottom of Current Zone		-0.21 feet
Distance to Top of Current Zone	N/A	feet

**----Potential Regulatory Discharge Considering Upstream Water Levels----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.75	16.22	74,800	
WCA-2A	12.85	12.02	77,500	
Others			0	
Total Storage Adjustment			152,300	0.35
WCA-3A	10.21			
Adjusted WCA-3A	10.56			

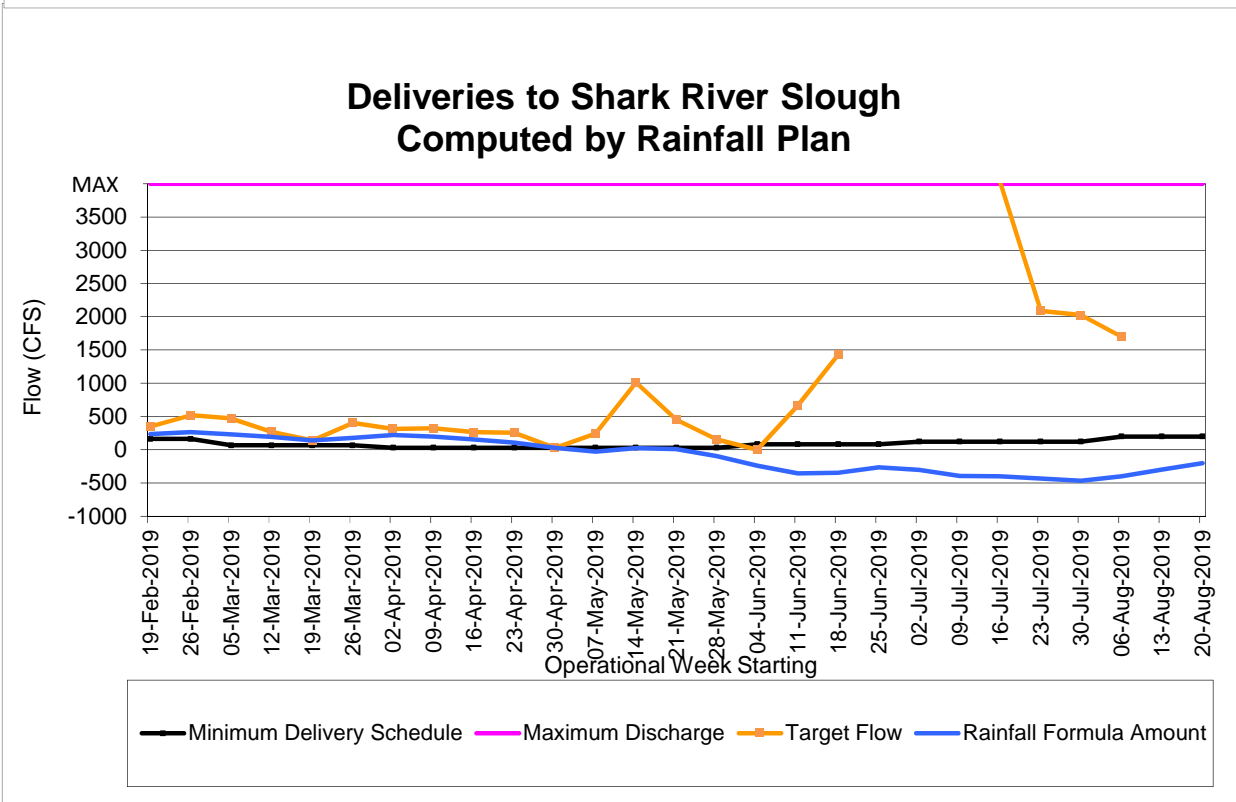
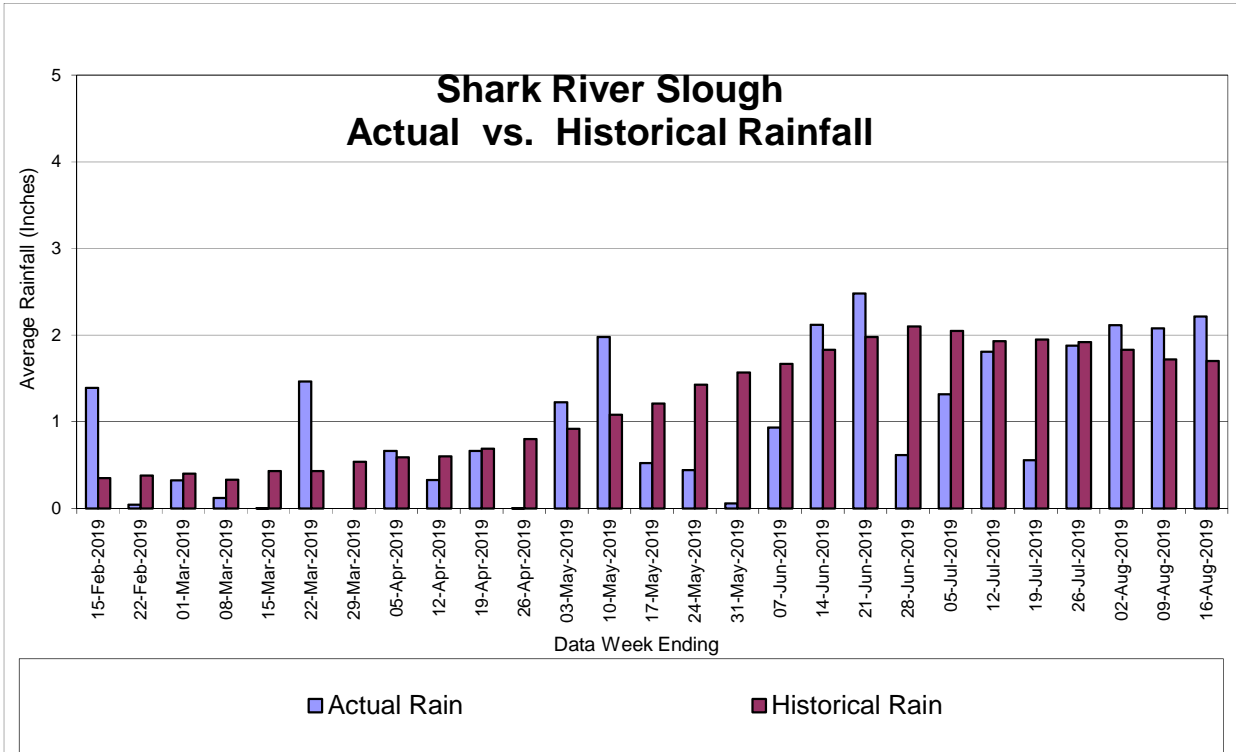
	Discharge Coeff. (cfs/ft) =	
<b>Adjusted WCA-3A is in Zone A</b>		<b>MAX</b>
Potential regulatory discharge	MAX	cfs
Distance to Bottom of Current Zone		-0.55 feet
Distance to Top of Current Zone	N/A	feet

**----Statistical Parameters ----**

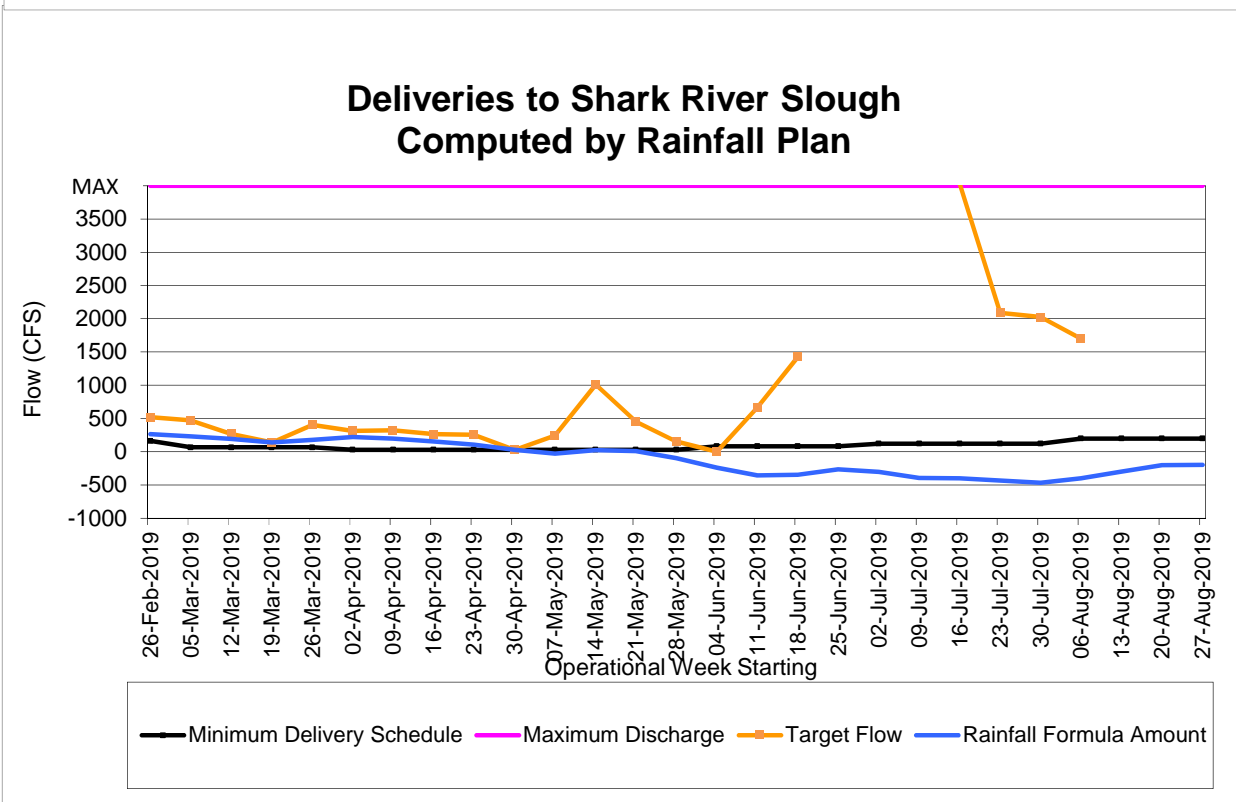
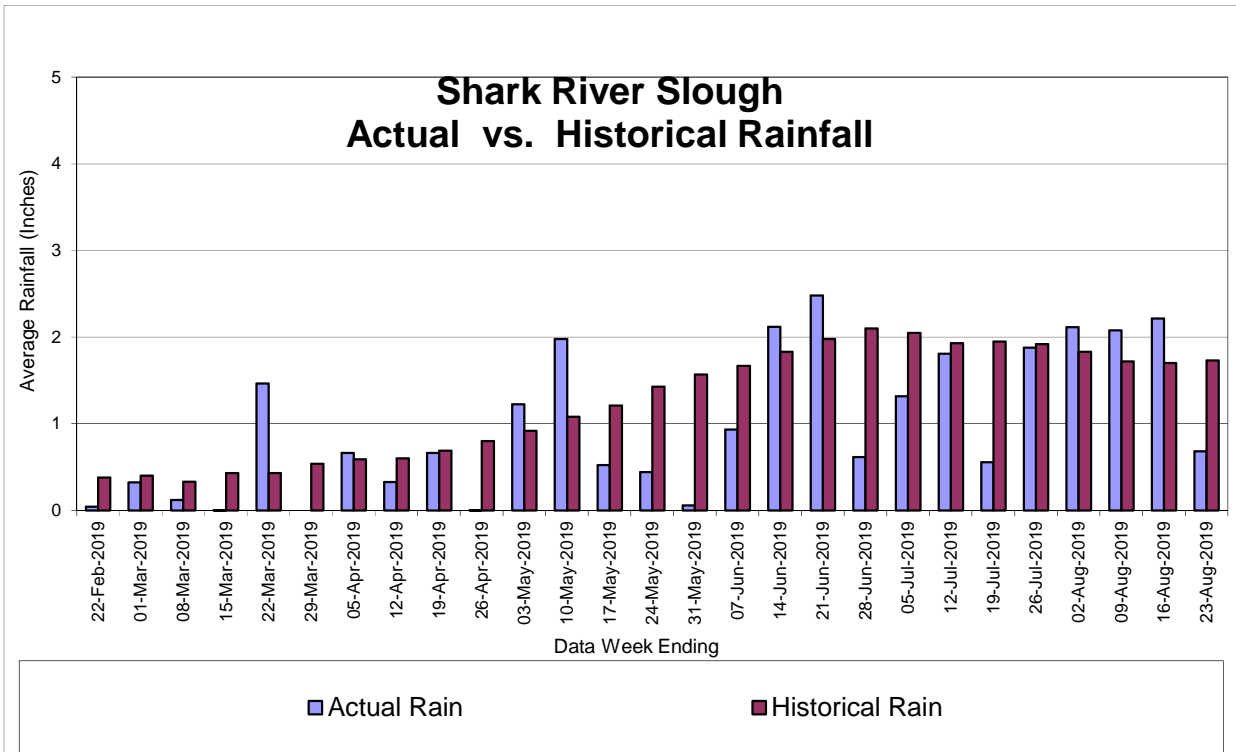
Rainfall Formula Amount		-201 cfs
Last Week's Rainfall Formula		-300 cfs
Pre-project Mean Discharge		199 cfs
Rainfall Excess Terms		
RL1 0.56	RL2 -2.10	RL3 -2.48

**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**







## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow September 3, 2019**                      **to**                      **September 9, 2019**                      **MAX cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount                      0 cfs  
Regulatory Discharge                      MAX cfs  
Potential Regulatory Discharge                      MAX cfs

**----Data Summary ----**

	August 24, 2019	to	August 30, 2019
WCA-3A Stage (end of week)	10.48		ft-NGVD
Angel's	6.93		ft-NGVD
G-3273	7.48		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	0.96	1.46
S-140		1.52
ENP		M
This Week's Avg	0.96	1.49
Pre-Project Avg	1.89	1.36

**---- Regulatory Discharge Calculation ----**

<b>WCA-3A is in Zone A</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>MAX</b>
Regulatory discharge is	MAX	cfs
Distance to Bottom of Current Zone		-0.39 feet
Distance to Top of Current Zone	N/A	feet

**----Potential Regulatory Discharge Considering Upstream Water Levels----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.65	16.44	27,400	
WCA-2A	12.96	12.33	67,500	
Others			0	
Total Storage Adjustment			94,900	0.23
WCA-3A	10.48			
Adjusted WCA-3A	10.71			

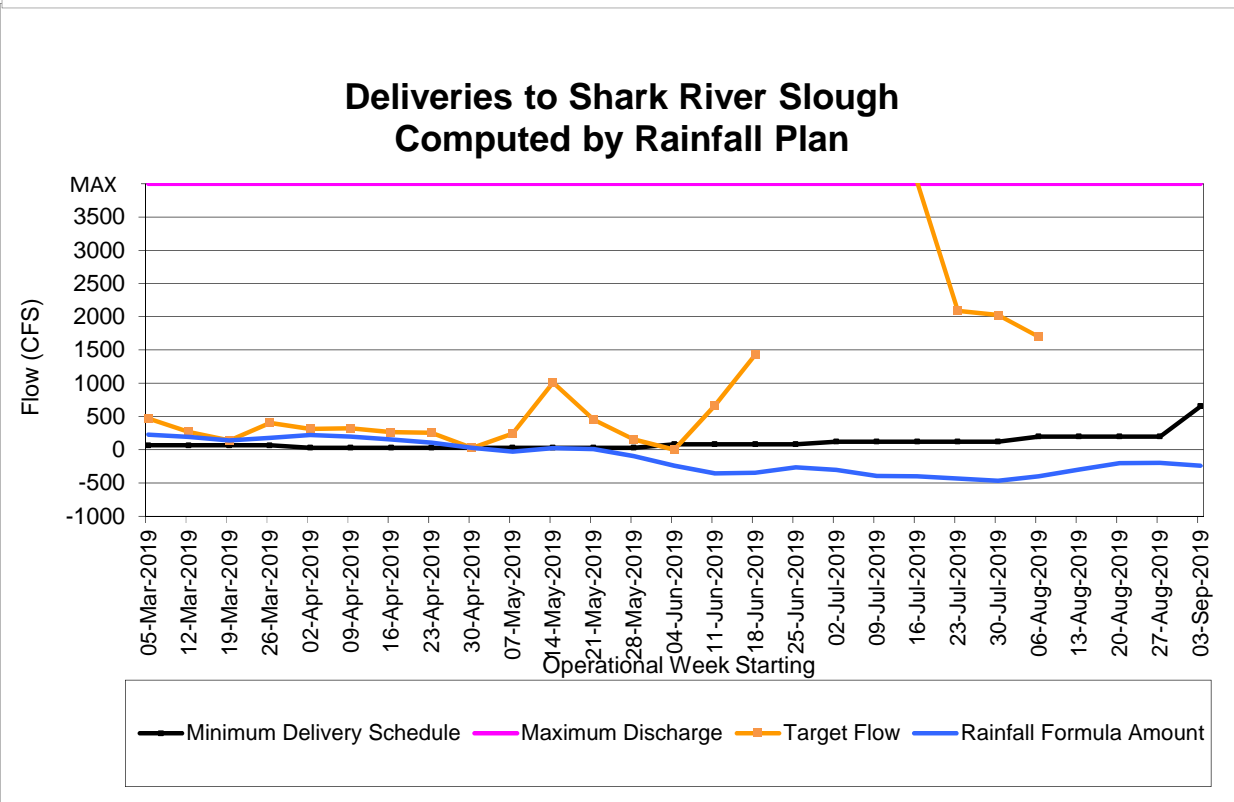
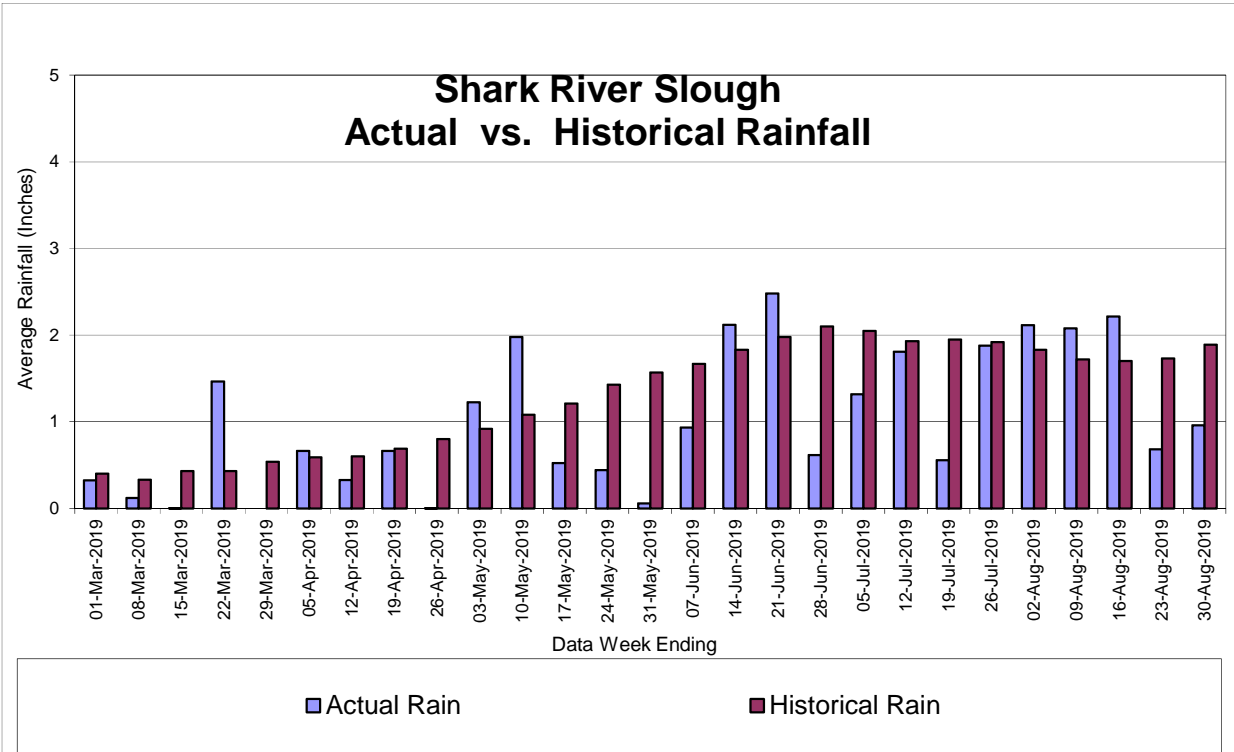
<b>Adjusted WCA-3A is in Zone A</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>MAX</b>
Potential regulatory discharge	MAX	cfs
Distance to Bottom of Current Zone		-0.61 feet
Distance to Top of Current Zone	N/A	feet

**----Statistical Parameters ----**

Rainfall Formula Amount		-241 cfs
Last Week's Rainfall Formula		-196 cfs
Pre-project Mean Discharge		257 cfs
Rainfall Excess Terms		
RL1 -2.33	RL2 0.49	RL3 -4.85

**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**





## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow September 10, 2019**                      **to**                      **September 16, 2019**                      **MAX cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount                      0 cfs  
Regulatory Discharge                      MAX cfs  
Potential Regulatory Discharge                      MAX cfs

**-----Data Summary -----**

	August 31, 2019	to	September 6, 2019
WCA-3A Stage (end of week)	10.59		ft-NGVD
Angel's	6.77		ft-NGVD
G-3273	7.42		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	0.57	1.73
S-140		1.54
ENP		M
This Week's Avg	0.57	1.63
Pre-Project Avg	1.90	1.34

**----- Regulatory Discharge Calculation -----**

<b>WCA-3A is in Zone A</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>MAX</b>
Regulatory discharge is	MAX	cfs
Distance to Bottom of Current Zone		-0.45 feet
Distance to Top of Current Zone	N/A	feet

**-----Potential Regulatory Discharge Considering Upstream Water Levels-----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.56	16.61	0	
WCA-2A	13.22	12.48	80,350	
Others			0	
Total Storage Adjustment			80,350	0.19
WCA-3A	10.59			
Adjusted WCA-3A	10.78			

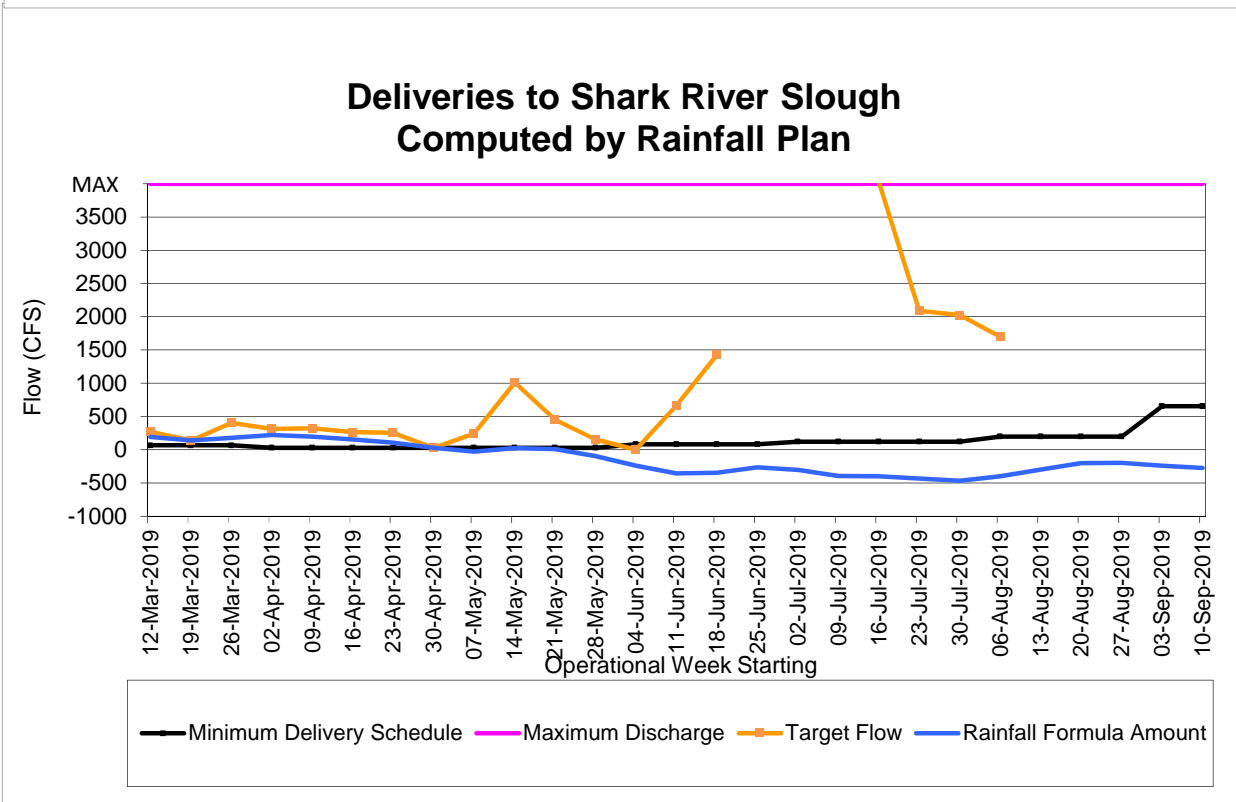
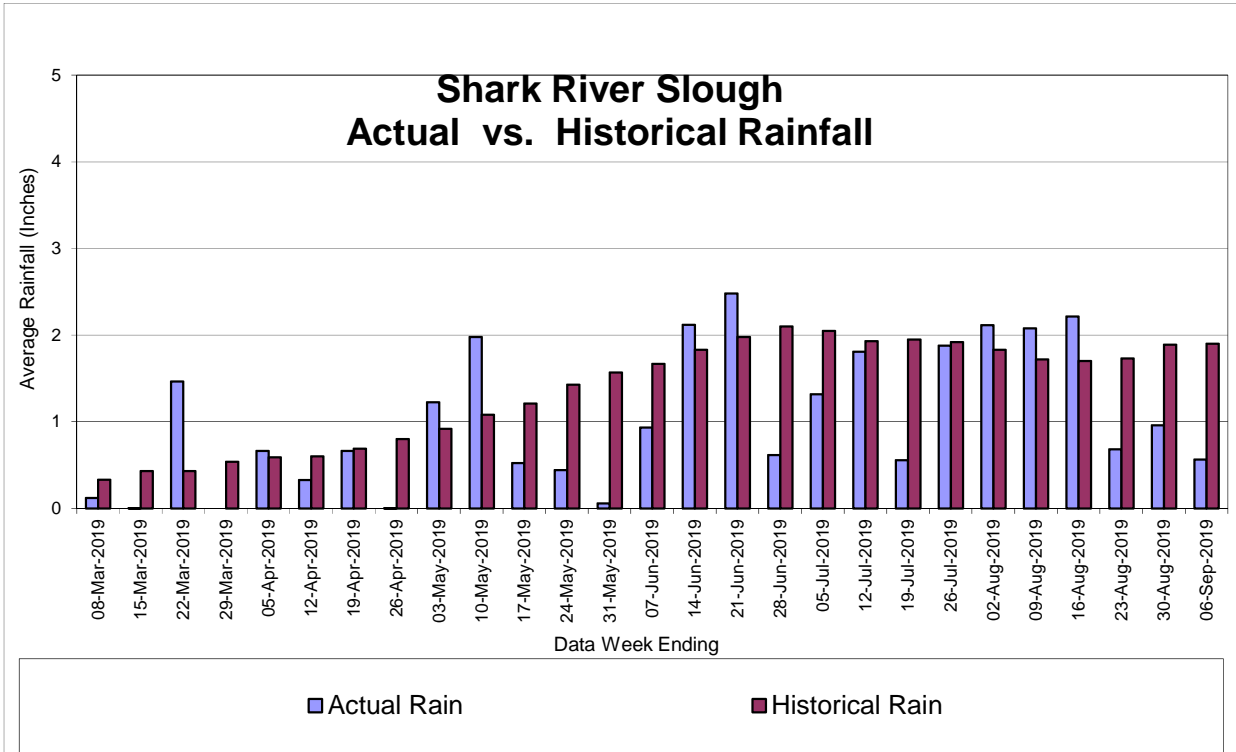
<b>Adjusted WCA-3A is in Zone A</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>MAX</b>
Potential regulatory discharge	MAX	cfs
Distance to Bottom of Current Zone		-0.64 feet
Distance to Top of Current Zone	N/A	feet

**-----Statistical Parameters -----**

Rainfall Formula Amount	-277 cfs
Last Week's Rainfall Formula	-241 cfs
Pre-project Mean Discharge	310 cfs
Rainfall Excess Terms	
RL1 -2.60	RL2 -0.59
RL3	-3.14

**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow September 17, 2019**

**to**

**September 23, 2019**

**MAX cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount  
Regulatory Discharge  
Potential Regulatory Discharge

0 cfs  
 MAX cfs  
 MAX cfs

**-----Data Summary -----**  
**September 7, 2019** to **September 13, 2019**  
 WCA-3A Stage (end of week) 10.57 ft-NGVD  
 Angel's 6.82 ft-NGVD  
 G-3273 7.39 ft-NGVD

Station	Rainfall (in)	Pan Evaporation (in)
NEXRAD Rain for WCA-3A and S7 evaporation	0.47	2.00
S-140		1.46
ENP		M
This Week's Avg	0.47	1.73
Pre-Project Avg	2.00	1.31

**----- Regulatory Discharge Calculation -----**

<b>WCA-3A is in Zone A</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>MAX</b>
Regulatory discharge is	MAX	cfs
Distance to Bottom of Current Zone		-0.38 feet
Distance to Top of Current Zone	N/A	feet

**-----Potential Regulatory Discharge Considering Upstream Water Levels-----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.56	16.78	0	
WCA-2A	12.75	12.63	15,900	
Others			0	
Total Storage Adjustment			15,900	0.04
WCA-3A	10.57			
Adjusted WCA-3A	10.61			

<b>Adjusted WCA-3A is in Zone A</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>MAX</b>
Potential regulatory discharge	MAX	cfs
Distance to Bottom of Current Zone		-0.42 feet
Distance to Top of Current Zone	N/A	feet

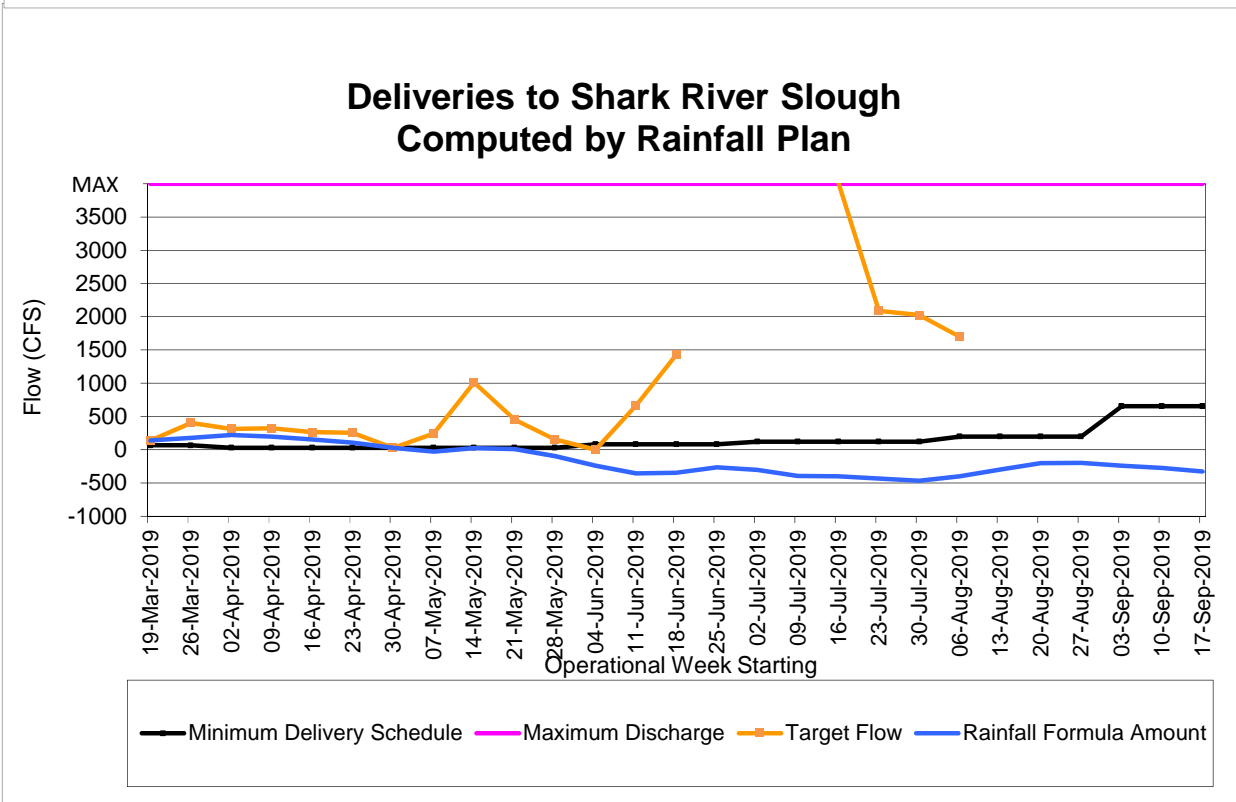
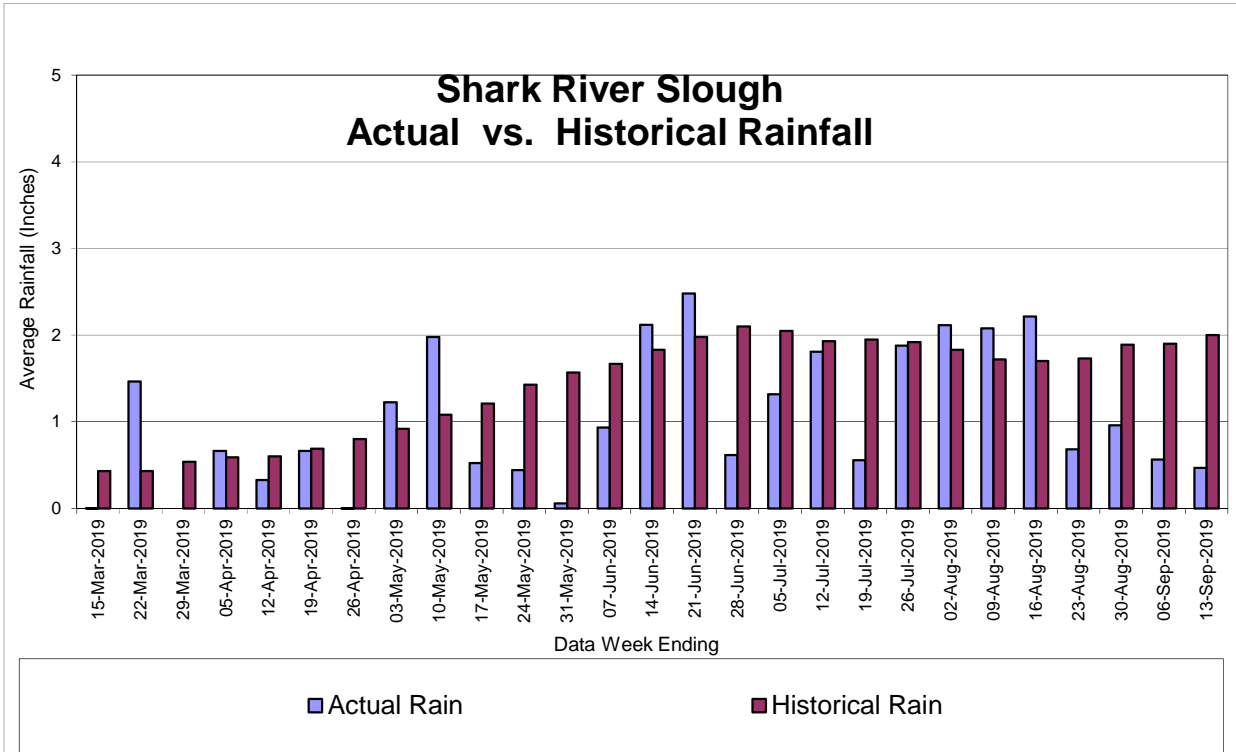
**-----Statistical Parameters -----**

Rainfall Formula Amount	-327 cfs
Last Week's Rainfall Formula	-277 cfs
Pre-project Mean Discharge	385 cfs

Rainfall Excess Terms	RL1 -3.44	RL2 -1.78	RL3	-2.10
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**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow September 24, 2019 to September 30, 2019** **MAX cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount 0 cfs  
Regulatory Discharge MAX cfs  
Potential Regulatory Discharge MAX cfs

**----Data Summary ----**

	September 14, 2019	to	September 20, 2019
WCA-3A Stage (end of week)	10.45		ft-NGVD
Angel's	6.69		ft-NGVD
G-3273	7.39		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	0.45	2.09
S-140		1.49
ENP		M
This Week's Avg	0.45	1.79
Pre-Project Avg	2.16	1.27

**---- Regulatory Discharge Calculation ----**

	Discharge Coeff. (cfs/ft) =	
<b>WCA-3A is in Zone A</b>	<b>MAX</b>	<b>MAX</b>
Regulatory discharge is	MAX	cfs
Distance to Bottom of Current Zone		-0.22 feet
Distance to Top of Current Zone	N/A	feet

**----Potential Regulatory Discharge Considering Upstream Water Levels----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.49	16.94	0	
WCA-2A	12.48	12.78	-31,250	
Others			0	
Total Storage Adjustment			0	0.00
WCA-3A	10.45			
Adjusted WCA-3A	10.45			

	Discharge Coeff. (cfs/ft) =	
<b>Adjusted WCA-3A is in Zone A</b>	<b>MAX</b>	<b>MAX</b>
Potential regulatory discharge	MAX	cfs
Distance to Bottom of Current Zone		-0.22 feet
Distance to Top of Current Zone	N/A	feet

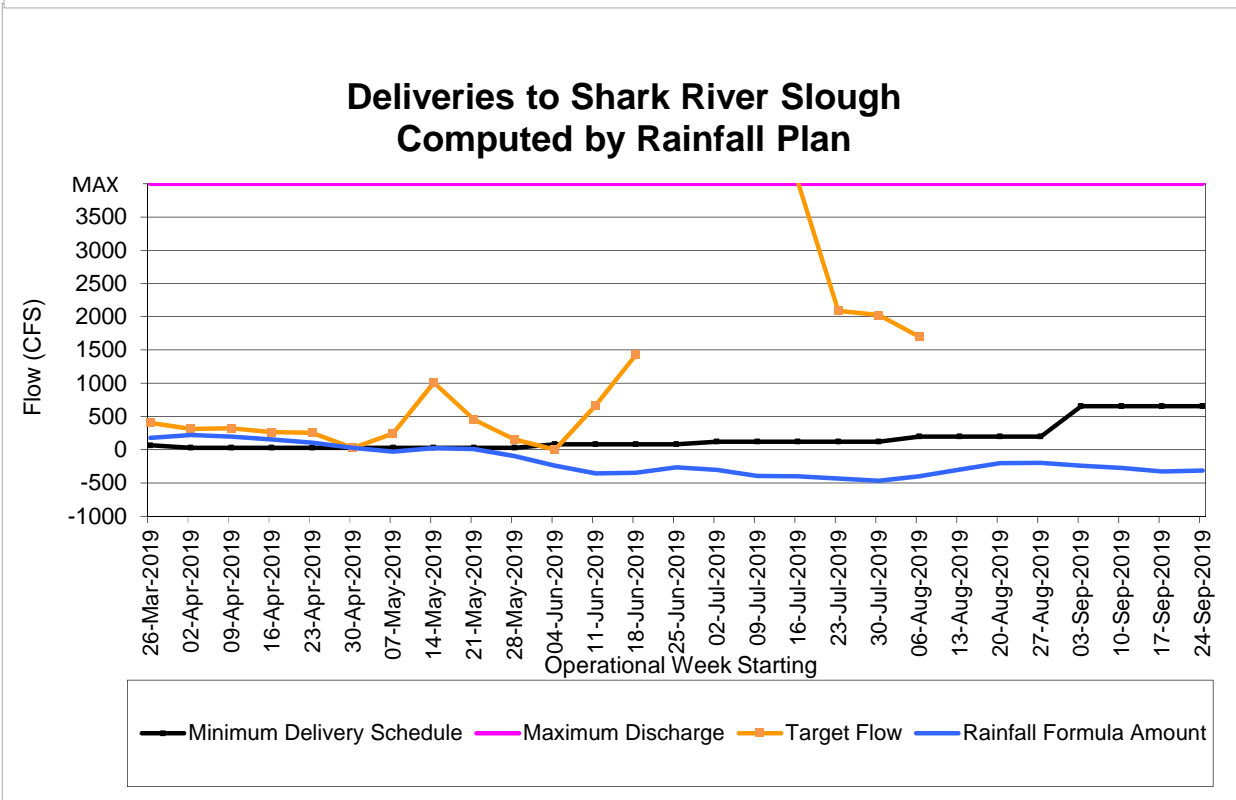
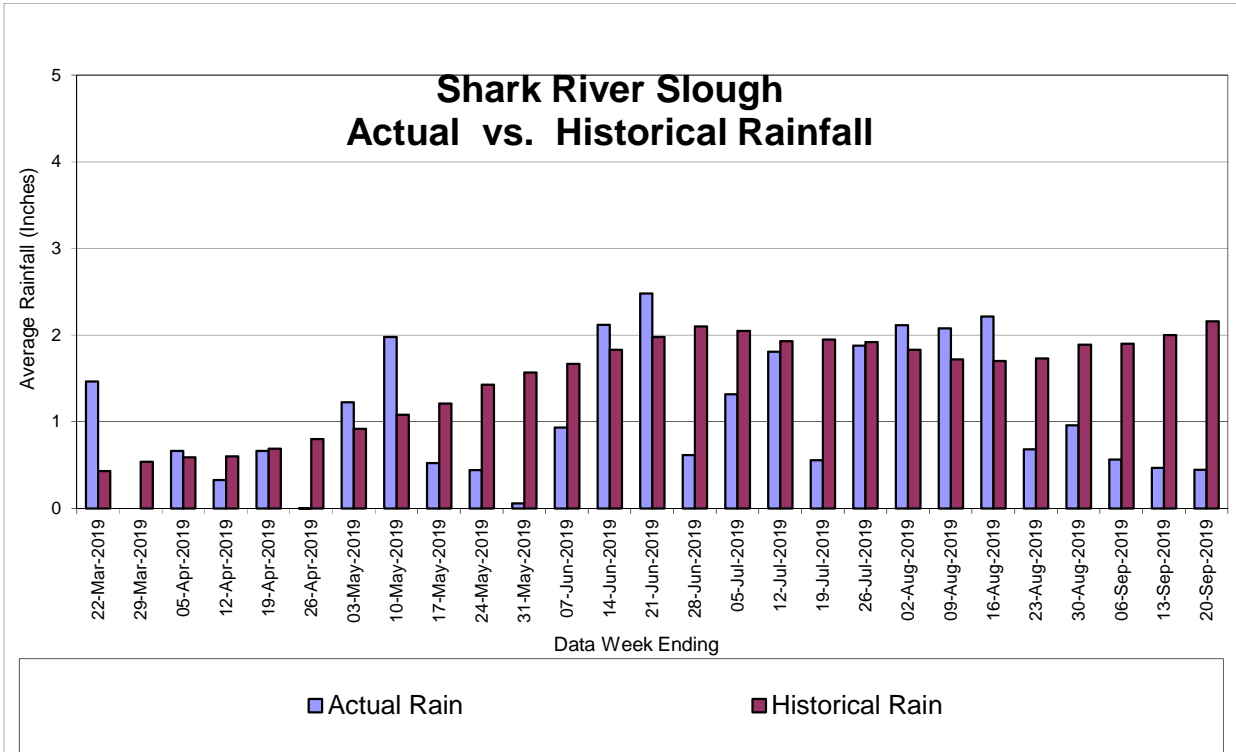
**----Statistical Parameters ----**

Rainfall Formula Amount	-314 cfs
Last Week's Rainfall Formula	-327 cfs
Pre-project Mean Discharge	540 cfs

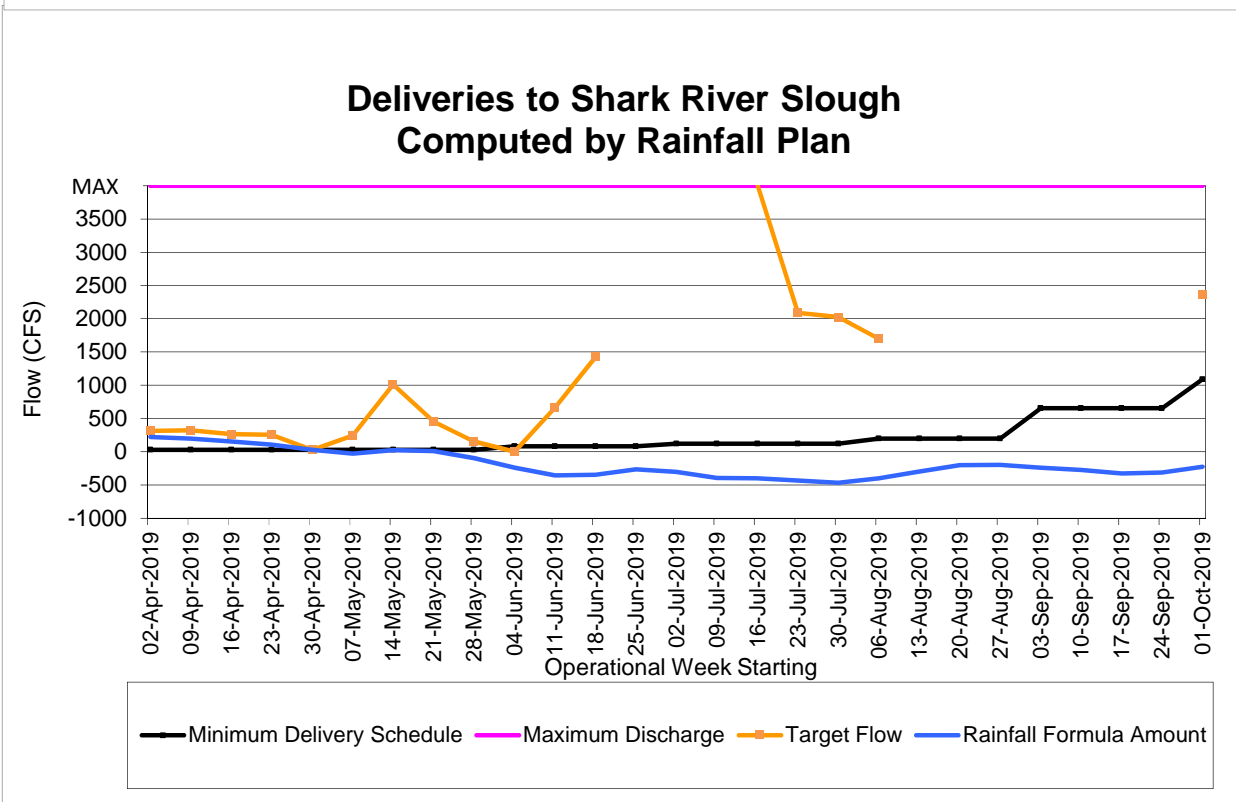
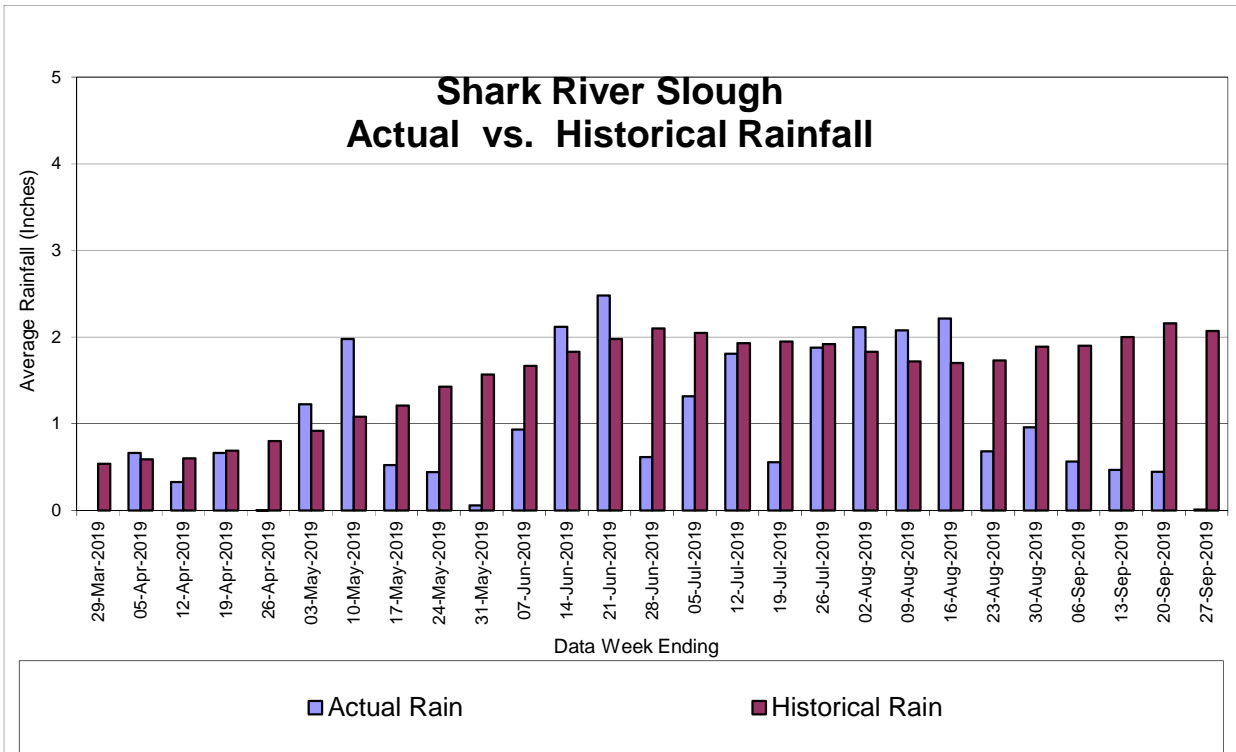
Rainfall Excess Terms	RL1 -4.00	RL2 -3.67	RL3	-1.41
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**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**

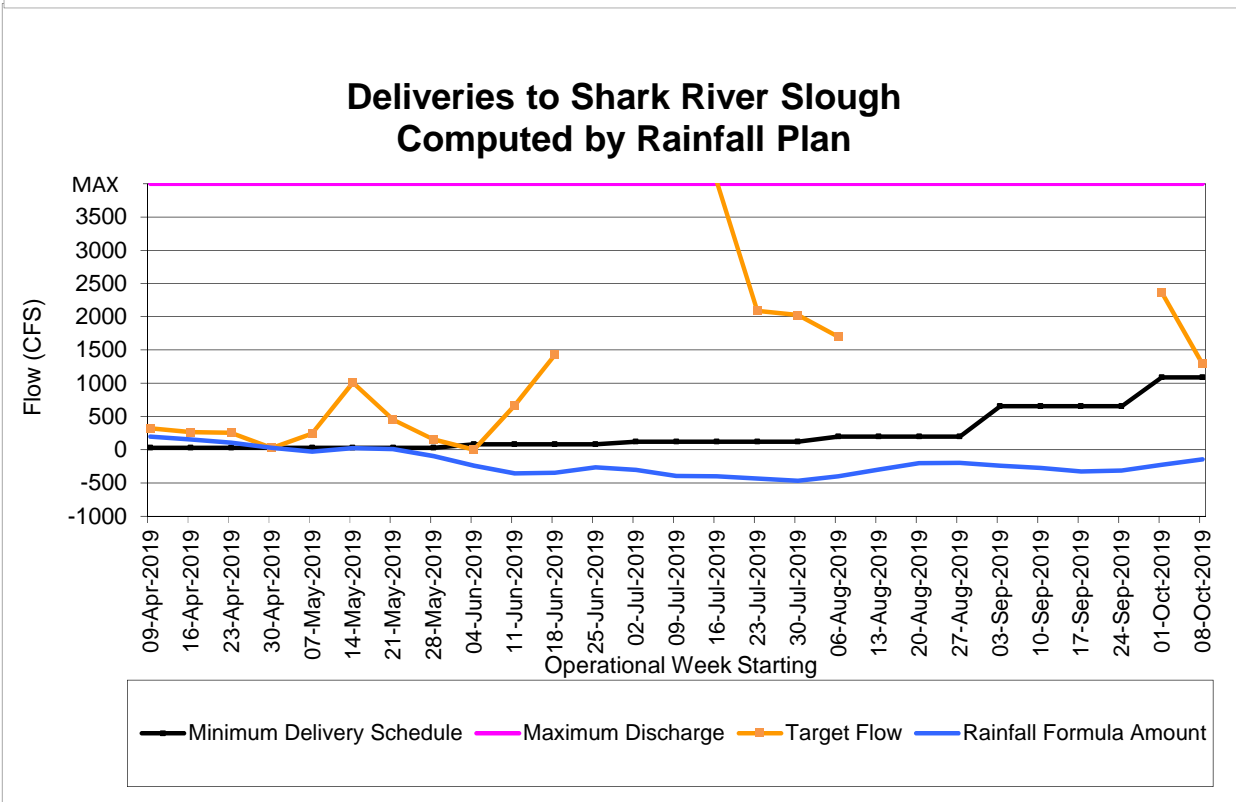
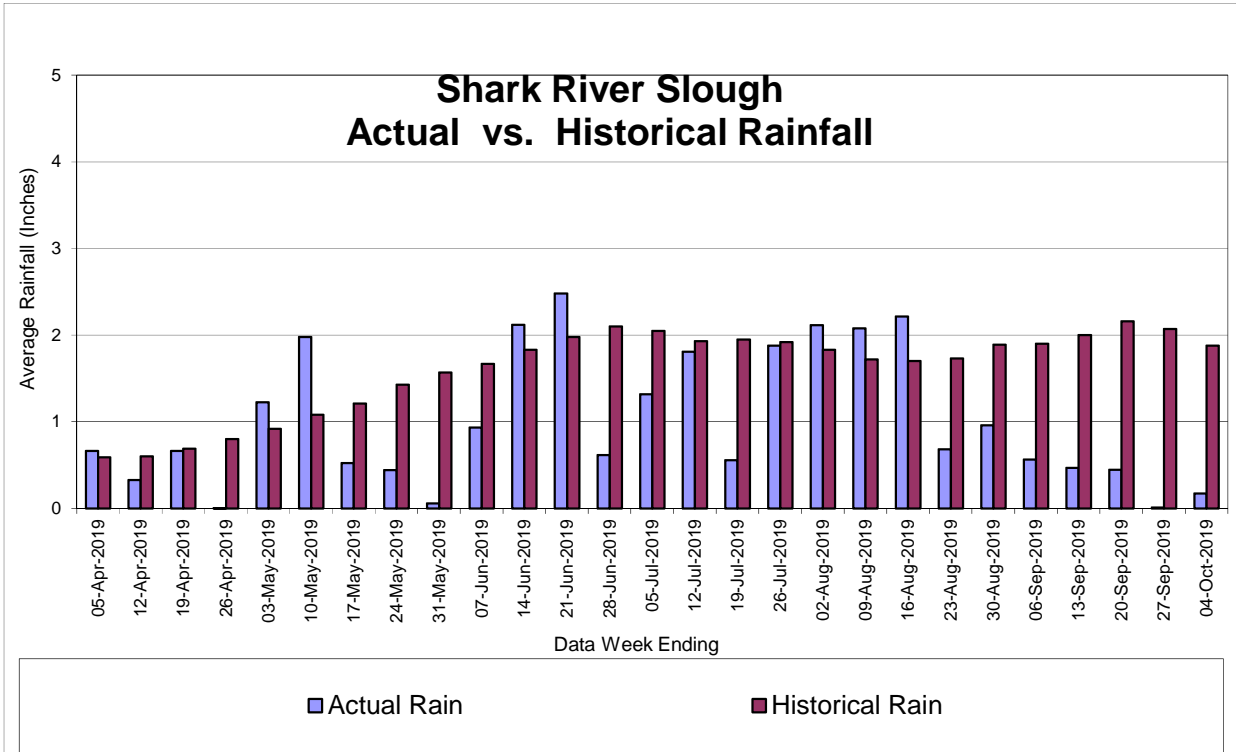












## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow October 15, 2019**                      to                      **October 21, 2019**                      **1738 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount                      21 cfs  
Regulatory Discharge                      1717 cfs  
Potential Regulatory Discharge                      1717 cfs

**-----Data Summary -----**

	<b>October 5, 2019</b>	to	<b>October 11, 2019</b>
WCA-3A Stage (end of week)	10.21		ft-NGVD
Angel's	7.51		ft-NGVD
G-3273	7.64		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	2.32	1.36
S-140		1.43
ENP		M
This Week's Avg	2.32	1.40
Pre-Project Avg	1.67	1.16

**----- Regulatory Discharge Calculation -----**

<b>WCA-3A is in Zone D</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>5000</b>
Regulatory discharge is		1717 cfs
Distance to Bottom of Current Zone		-0.34 feet
Distance to Top of Current Zone		0.16 feet

**-----Potential Regulatory Discharge Considering Upstream Water Levels-----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.53	17.20	0	
WCA-2A	12.77	12.82	-5,500	
Others			0	
Total Storage Adjustment			0	0.00
WCA-3A	10.21			
Adjusted WCA-3A	10.21			

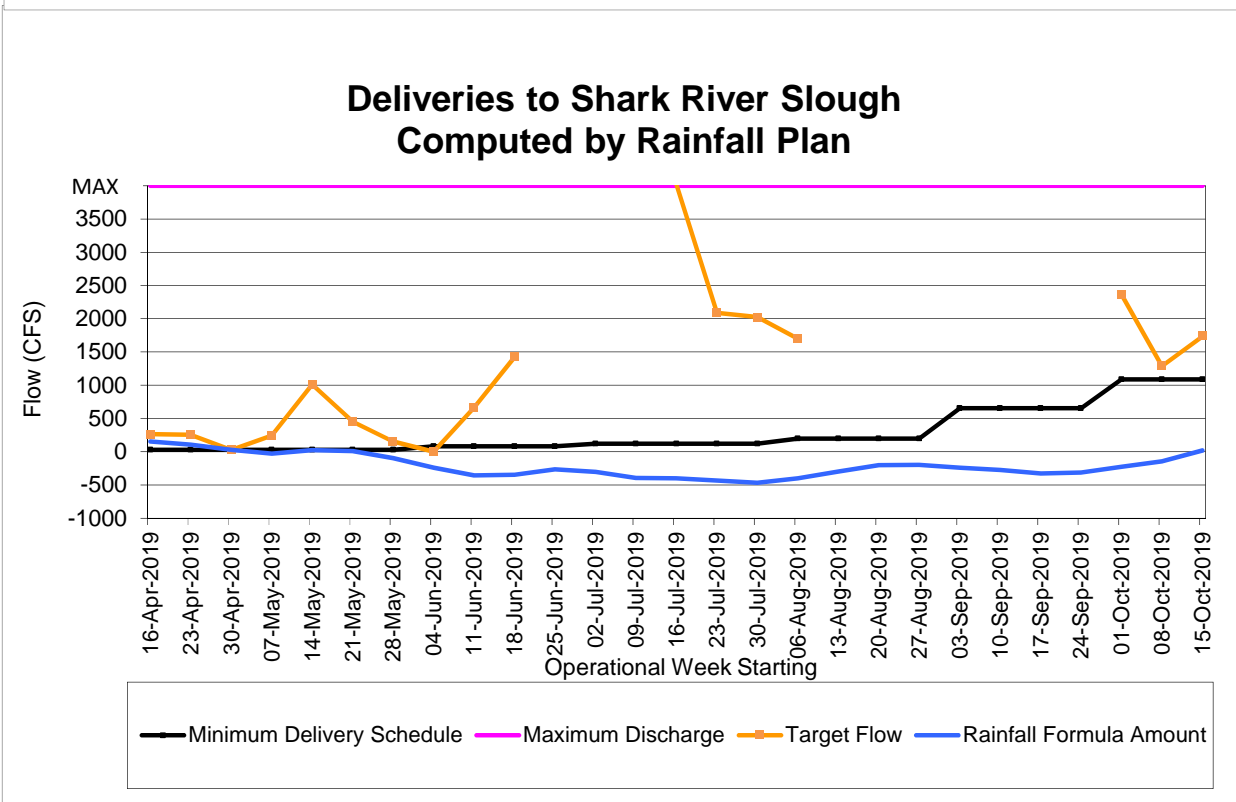
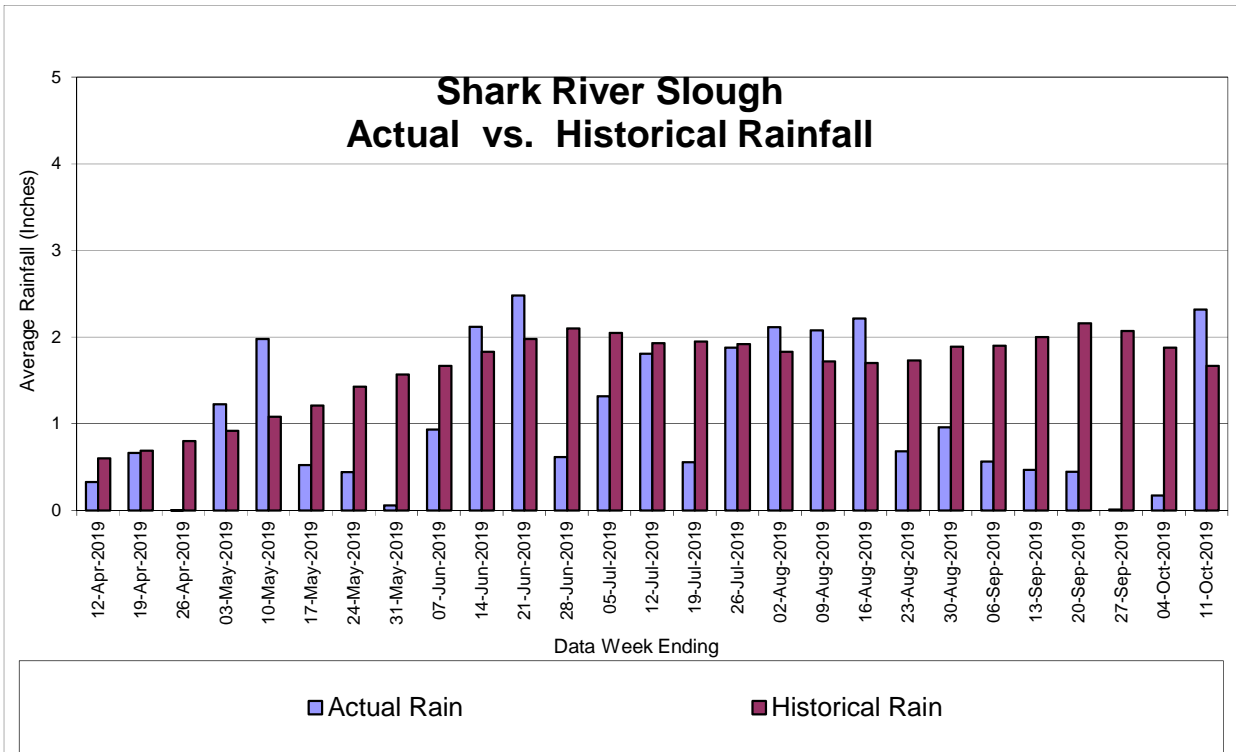
<b>Adjusted WCA-3A is in Zone D</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>5000</b>
Potential regulatory discharge		1717 cfs
Distance to Bottom of Current Zone		-0.34 feet
Distance to Top of Current Zone		0.16 feet

**-----Statistical Parameters -----**

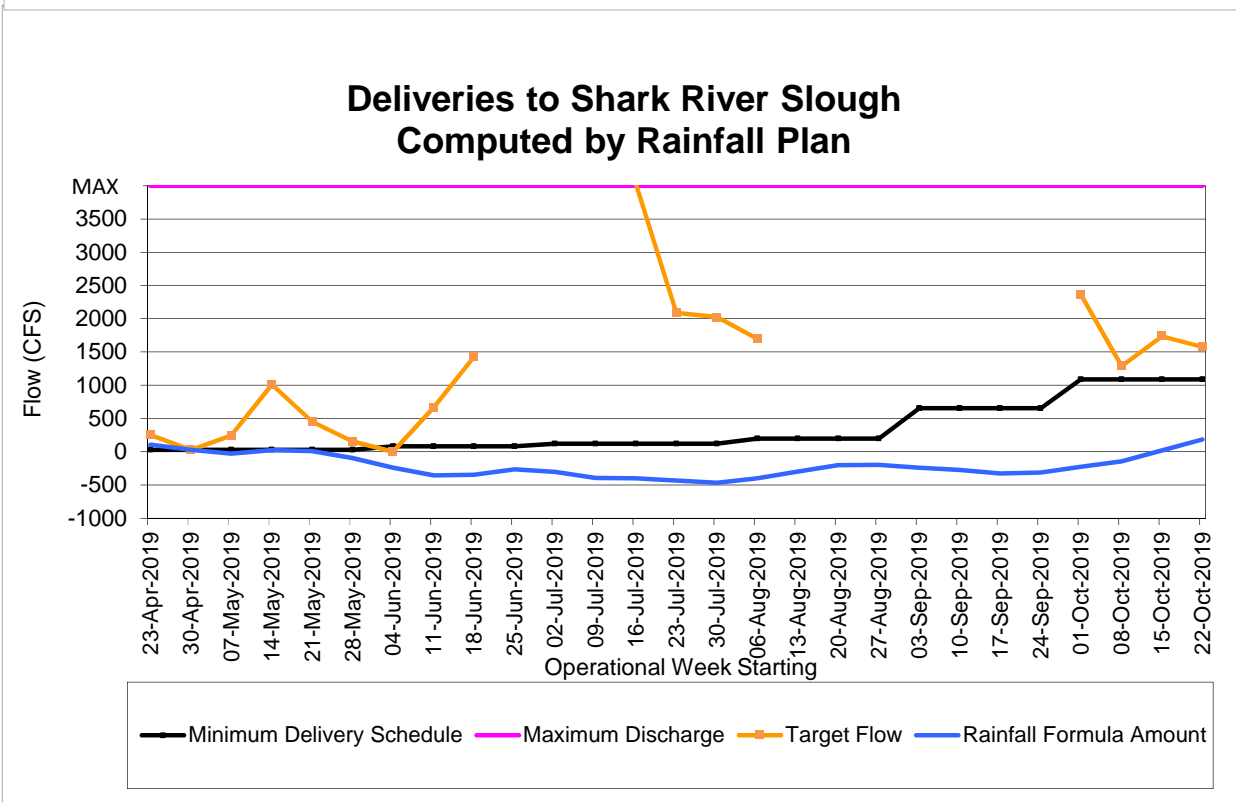
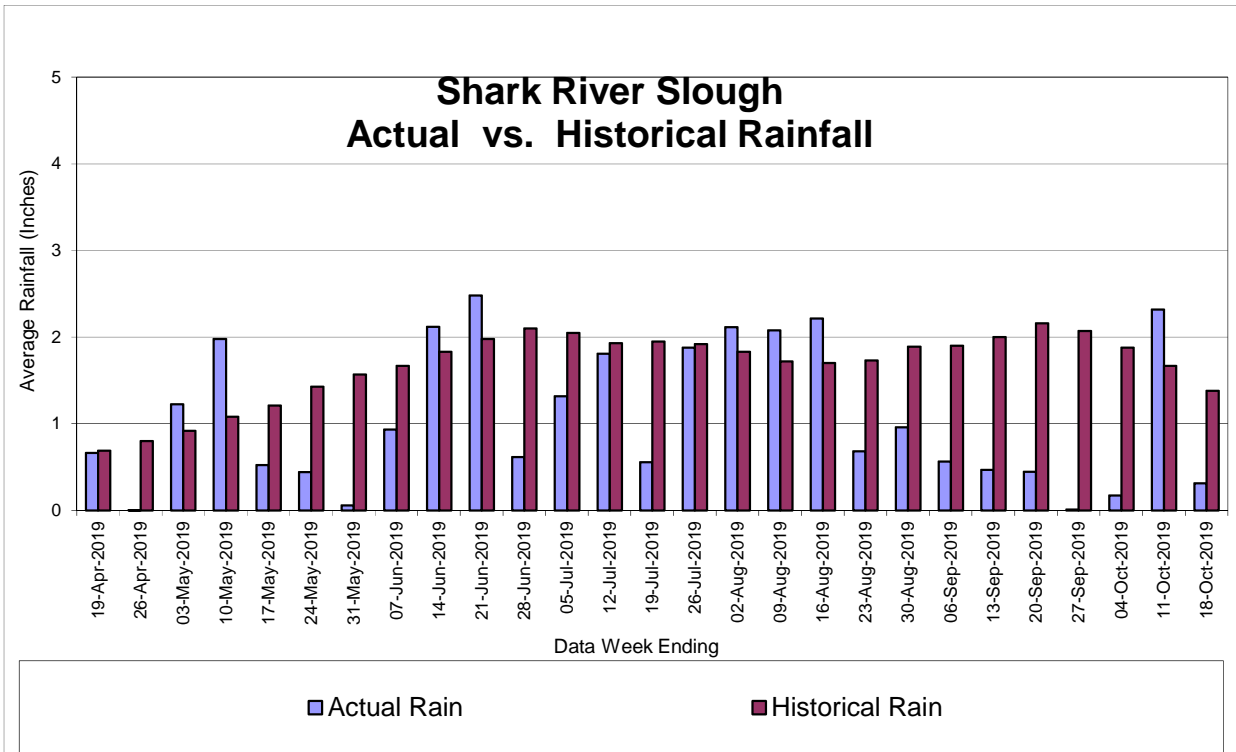
Rainfall Formula Amount		21 cfs
Last Week's Rainfall Formula		-142 cfs
Pre-project Mean Discharge		1130 cfs
Rainfall Excess Terms		
RL1 -1.48	RL2 -7.94	RL3 -1.78

**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**







## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow October 29, 2019**

**to November 4, 2019**

**538 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount	165 cfs
<input checked="" type="checkbox"/> Regulatory Discharge	372 cfs
<input type="checkbox"/> Potential Regulatory Discharge	794 cfs

<b>-----Data Summary -----</b>	<b>October 19, 2019</b>	<b>to</b>	<b>October 25, 2019</b>	
WCA-3A Stage (end of week)	10.03		ft-NGVD	
Angel's	6.72		ft-NGVD	
G-3273	7.29		ft-NGVD	

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	0.51	1.24
S-140		1.35
ENP		M
This Week's Avg	0.51	1.30
Pre-Project Avg	1.19	1.06

**----- Regulatory Discharge Calculation -----**

<b>WCA-3A is in Zone D</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>5000</b>
Regulatory discharge is		372 cfs
Distance to Bottom of Current Zone		-0.07 feet
Distance to Top of Current Zone		0.43 feet

**-----Potential Regulatory Discharge Considering Upstream Water Levels-----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.52	17.25	0	
WCA-2A	12.98	12.59	43,200	
Others			0	
Total Storage Adjustment			43,200	0.08
WCA-3A	10.03			
Adjusted WCA-3A	10.11			

<b>Adjusted WCA-3A is in Zone D</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>5000</b>
Potential regulatory discharge		794 cfs
Distance to Bottom of Current Zone		-0.16 feet
Distance to Top of Current Zone		0.35 feet

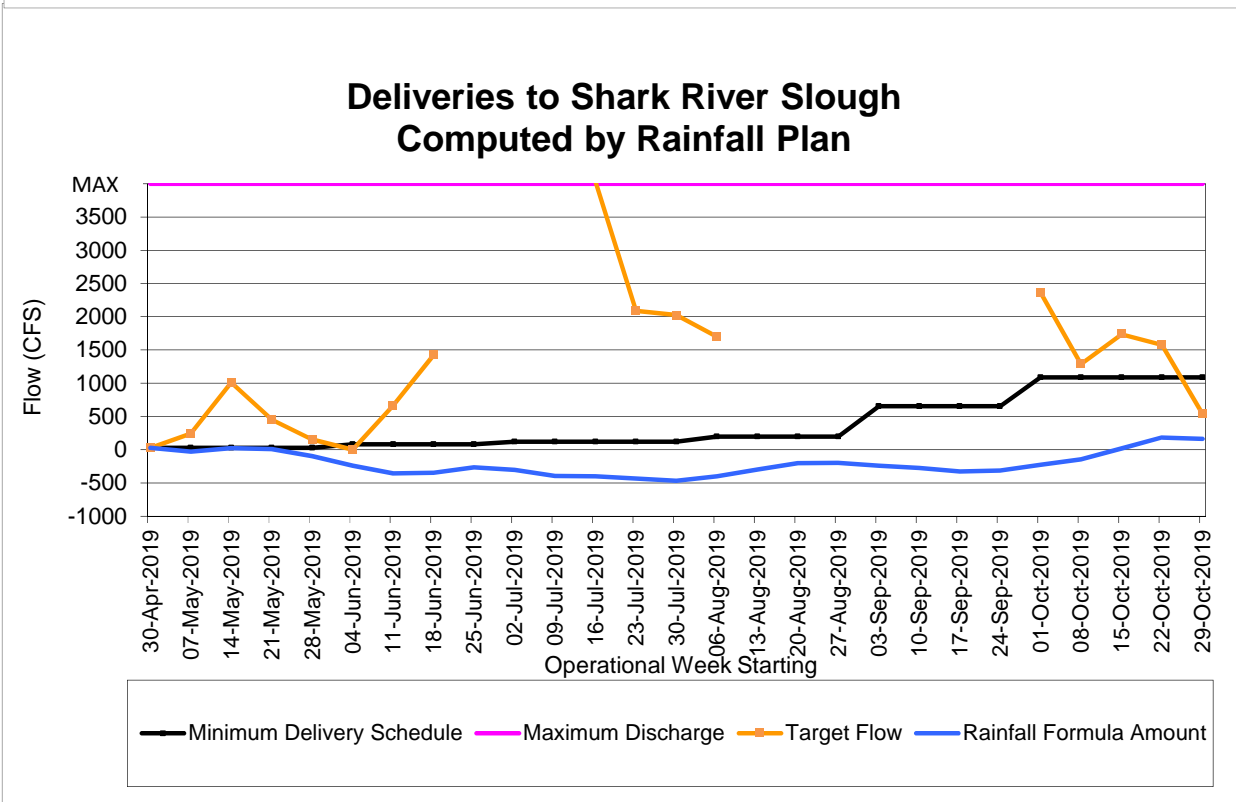
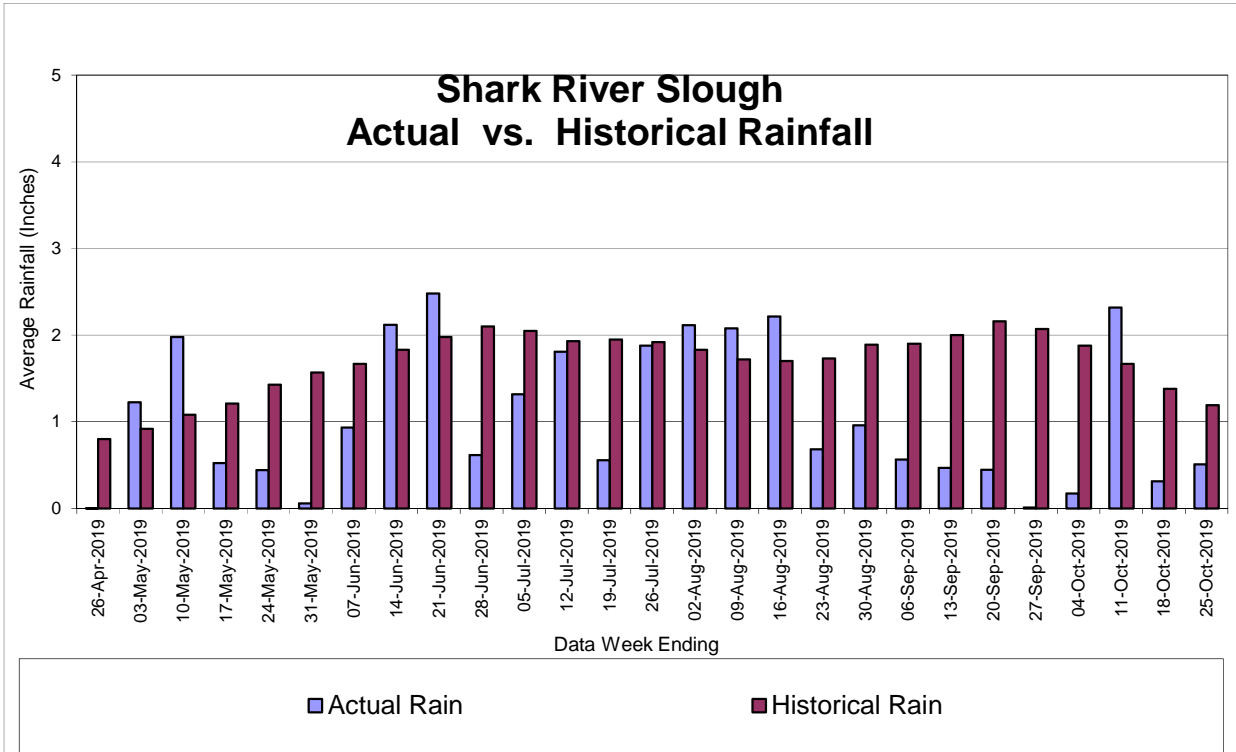
**-----Statistical Parameters -----**

Rainfall Formula Amount	165 cfs
Last Week's Rainfall Formula	185 cfs
Pre-project Mean Discharge	1220 cfs

Rainfall Excess Terms	RL1 -2.07	RL2 -5.98	RL3 -5.77
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**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**





## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow November 5, 2019**                      **to**                      **November 11, 2019**                      **41 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount                      41 cfs  
Regulatory Discharge                      0 cfs  
Potential Regulatory Discharge                      185 cfs

**-----Data Summary -----**

	<b>October 26, 2019</b>	<b>to</b>	<b>November 1, 2019</b>
WCA-3A Stage (end of week)	9.93		ft-NGVD
Angel's	6.80		ft-NGVD
G-3273	7.36		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	0.32	1.23
S-140		1.31
ENP		M
This Week's Avg	0.32	1.27
Pre-Project Avg	0.92	1.02

**----- Regulatory Discharge Calculation -----**

<b>WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		0 cfs
Distance to Bottom of Current Zone	N/A	feet
Distance to Top of Current Zone		0.07 feet

**-----Potential Regulatory Discharge Considering Upstream Water Levels-----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.67	17.25	0	
WCA-2A	12.95	12.48	53,250	
Others			0	
Total Storage Adjustment			53,250	0.10
WCA-3A	9.93			
Adjusted WCA-3A	10.04			

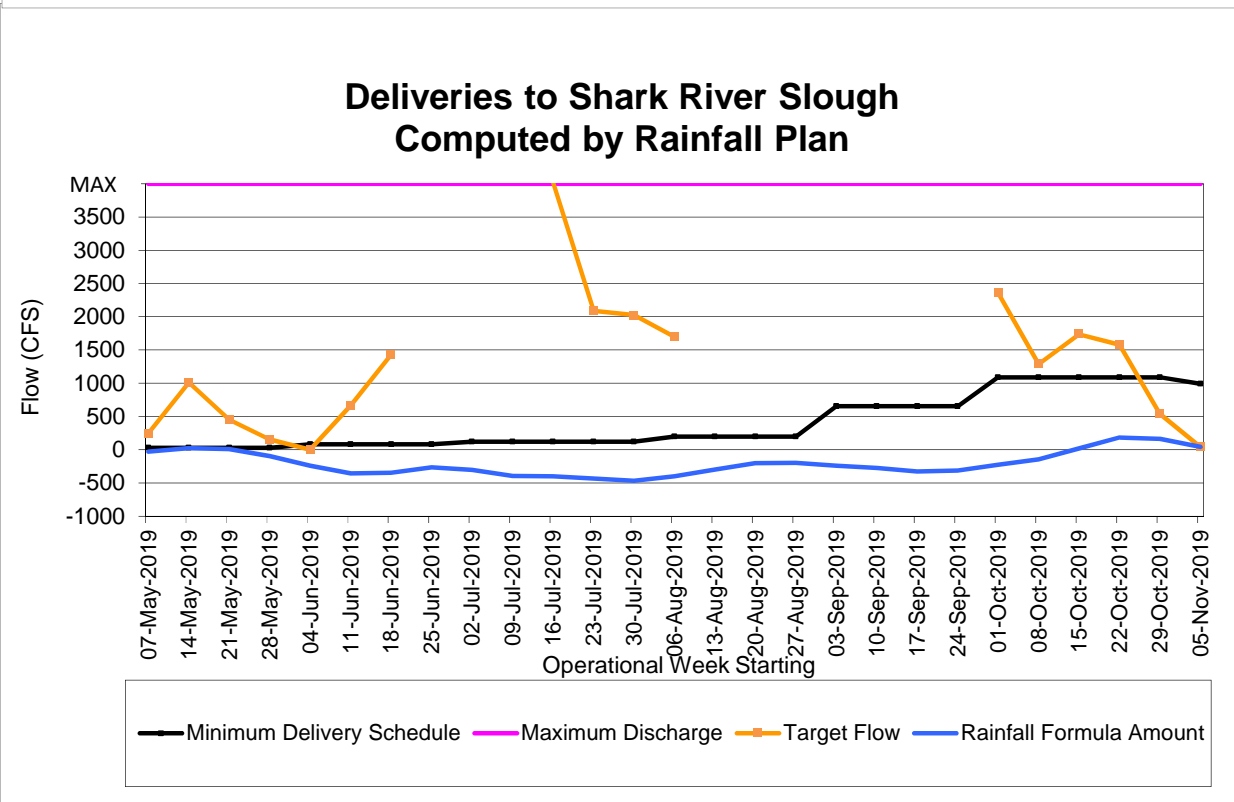
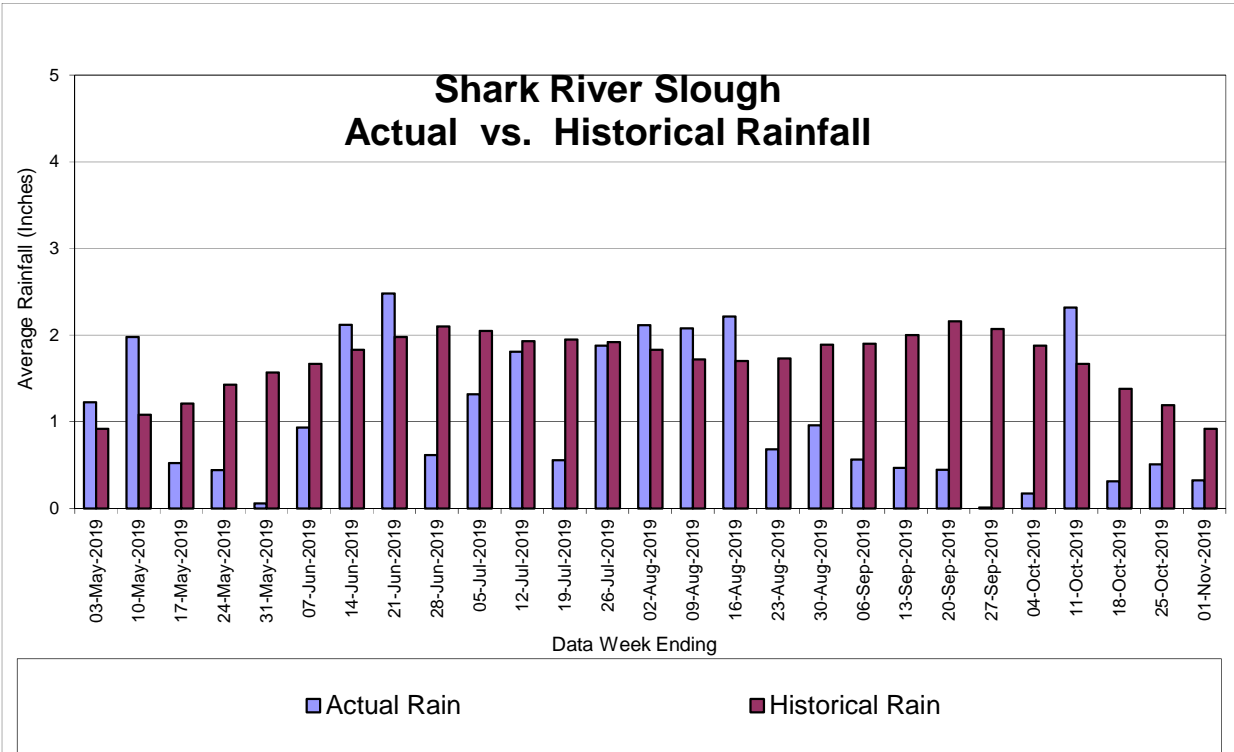
<b>Adjusted WCA-3A is in Zone D</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>5000</b>
Potential regulatory discharge		185 cfs
Distance to Bottom of Current Zone		-0.04 feet
Distance to Top of Current Zone		0.46 feet

**-----Statistical Parameters -----**

Rainfall Formula Amount		41 cfs
Last Week's Rainfall Formula		165 cfs
Pre-project Mean Discharge		1084 cfs
Rainfall Excess Terms		
RL1 -1.66	RL2 -5.05	RL3 -6.60

**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow November 12, 2019**                      to                      **November 18, 2019**                      **0 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount                      0 cfs  
Regulatory Discharge                      0 cfs  
Potential Regulatory Discharge                      0 cfs

**-----Data Summary -----**

	<b>November 2, 2019</b>	to	<b>November 8, 2019</b>
WCA-3A Stage (end of week)	9.87		ft-NGVD
Angel's	6.66		ft-NGVD
G-3273	7.30		ft-NGVD

Station	Rainfall (in)	Pan Evaporation (in)
NEXRAD Rain for WCA-3A and S7 evaporation	0.18	1.05
S-140		1.20
ENP		M
This Week's Avg	0.18	1.12
Pre-Project Avg	0.56	0.97

**----- Regulatory Discharge Calculation -----**

<b>WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		0 cfs
Distance to Bottom of Current Zone	N/A	feet
Distance to Top of Current Zone		0.17 feet

**-----Potential Regulatory Discharge Considering Upstream Water Levels-----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.69	17.25	0	
WCA-2A	12.81	12.37	46,250	
Others			0	
Total Storage Adjustment			46,250	0.09
WCA-3A	9.87			
Adjusted WCA-3A	9.96			

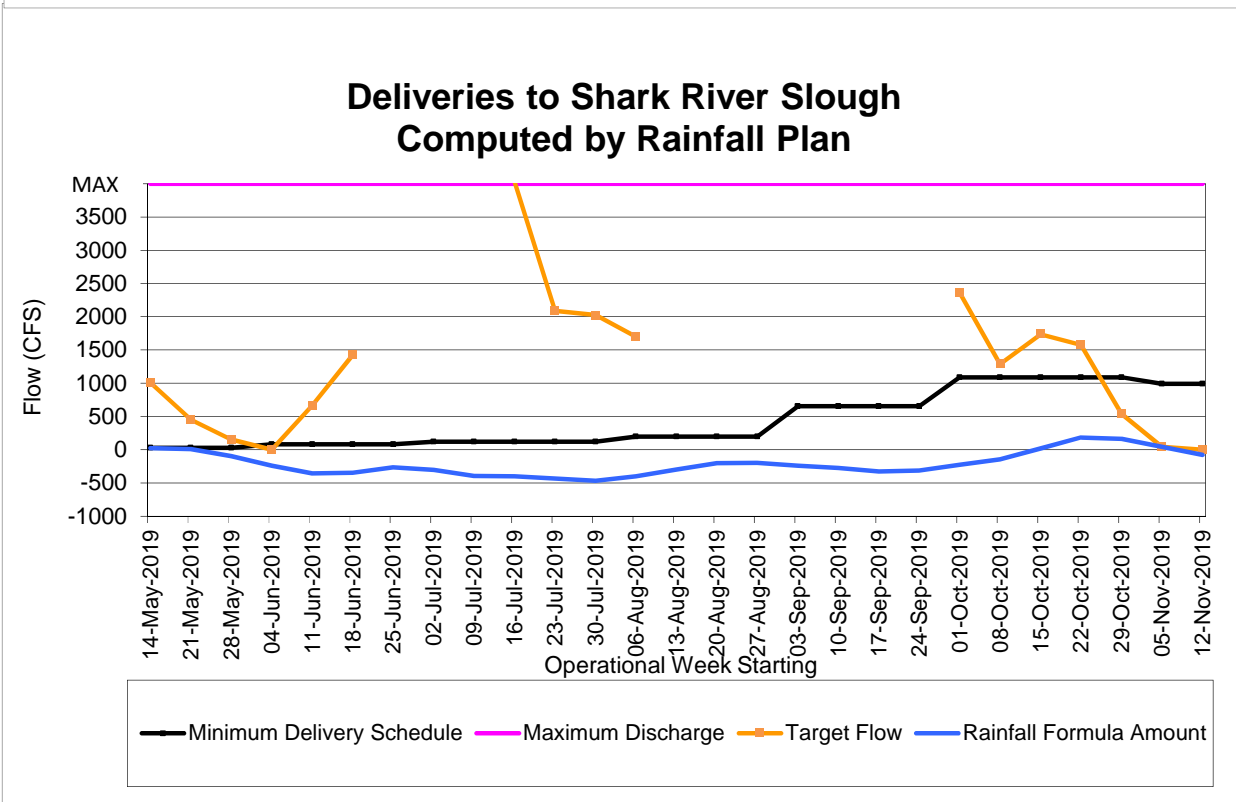
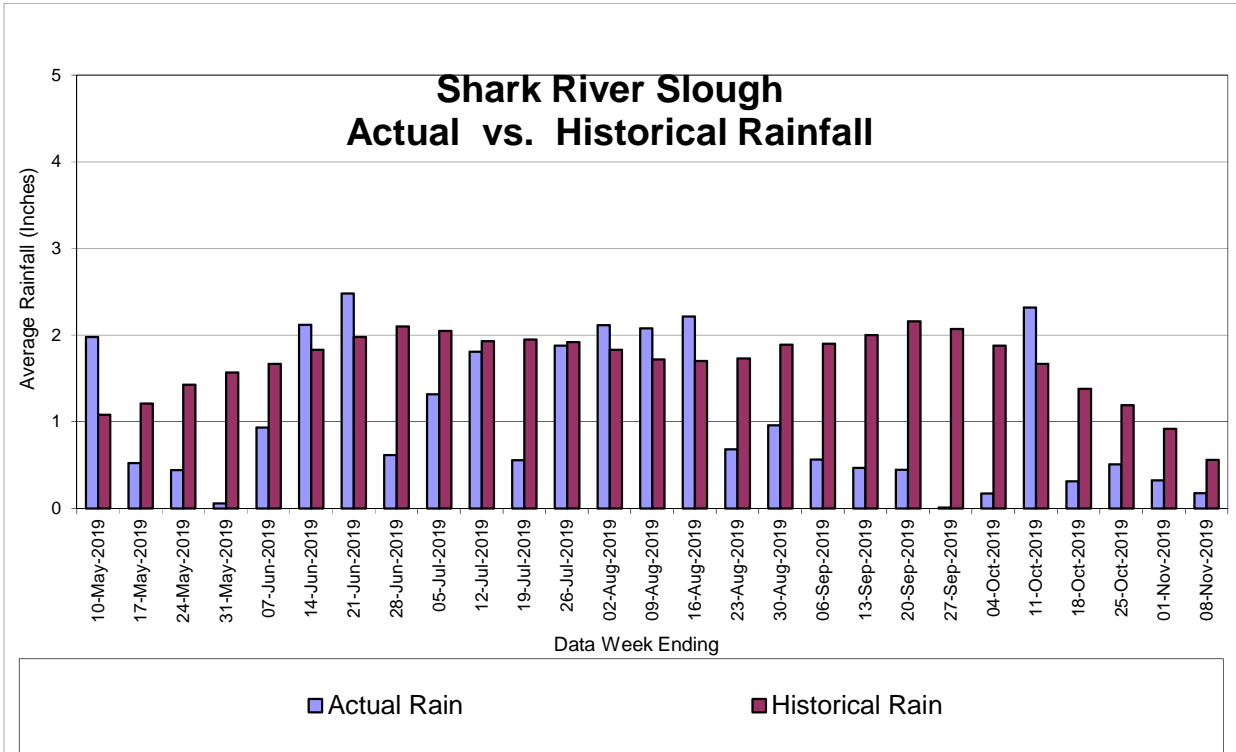
<b>Adjusted WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Potential regulatory discharge		0 cfs
Distance to Bottom of Current Zone		-0.04 feet
Distance to Top of Current Zone		0.08 feet

**-----Statistical Parameters -----**

Rainfall Formula Amount		-78 cfs
Last Week's Rainfall Formula		41 cfs
Pre-project Mean Discharge		937 cfs
Rainfall Excess Terms	RL1 -1.30	RL2 -3.55
		RL3 -7.94

**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow November 19, 2019**                      **to**                      **November 25, 2019**                      **0 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount                      0 cfs  
Regulatory Discharge                      0 cfs  
Potential Regulatory Discharge                      0 cfs

**-----Data Summary -----**

	<b>November 9, 2019</b>	<b>to</b>	<b>November 15, 2019</b>
WCA-3A Stage (end of week)	9.88		ft-NGVD
Angel's	6.62		ft-NGVD
G-3273	7.22		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	0.46	0.93
S-140		1.16
ENP		M
This Week's Avg	0.46	1.05
Pre-Project Avg	0.40	0.91

**----- Regulatory Discharge Calculation -----**

<b>WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		0 cfs
Distance to Bottom of Current Zone	N/A	feet
Distance to Top of Current Zone		0.21 feet

**-----Potential Regulatory Discharge Considering Upstream Water Levels-----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.80	17.25	0	
WCA-2A	12.71	12.25	44,950	
Others			0	
Total Storage Adjustment			44,950	0.09
WCA-3A	9.88			
Adjusted WCA-3A	9.97			

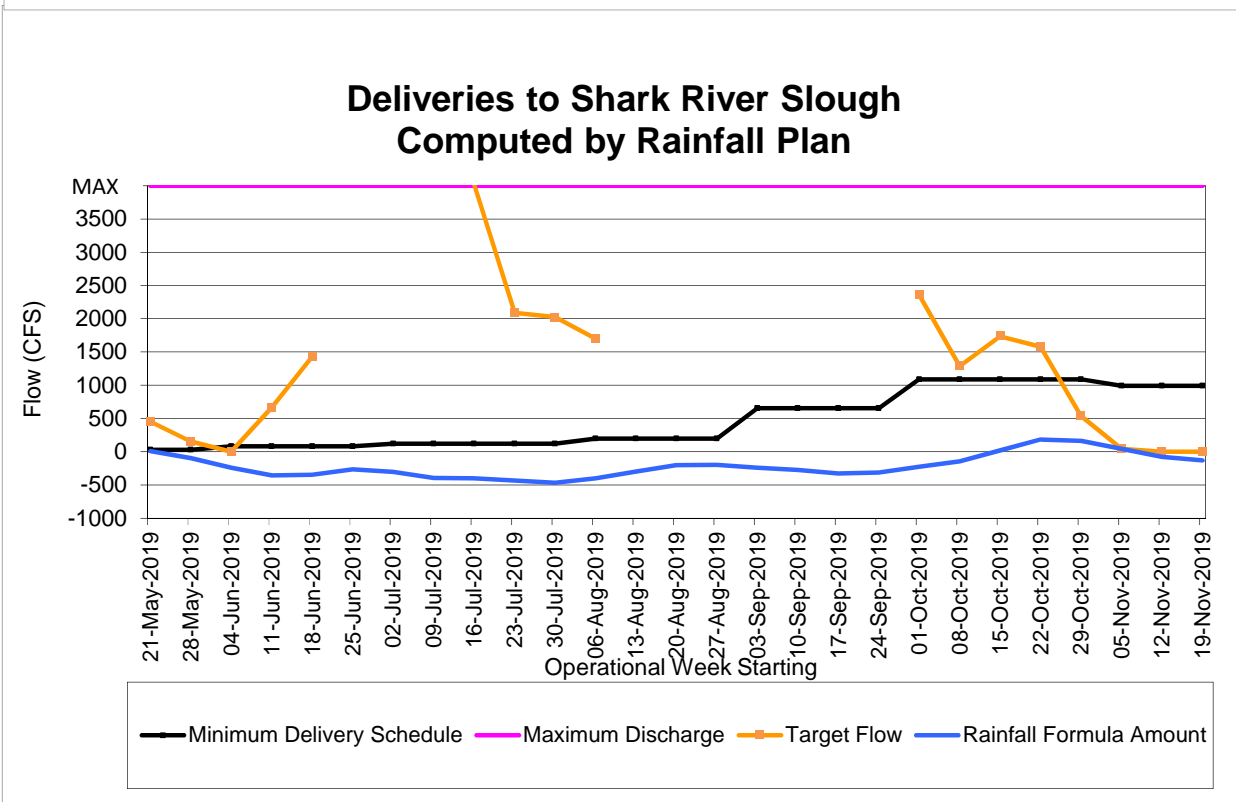
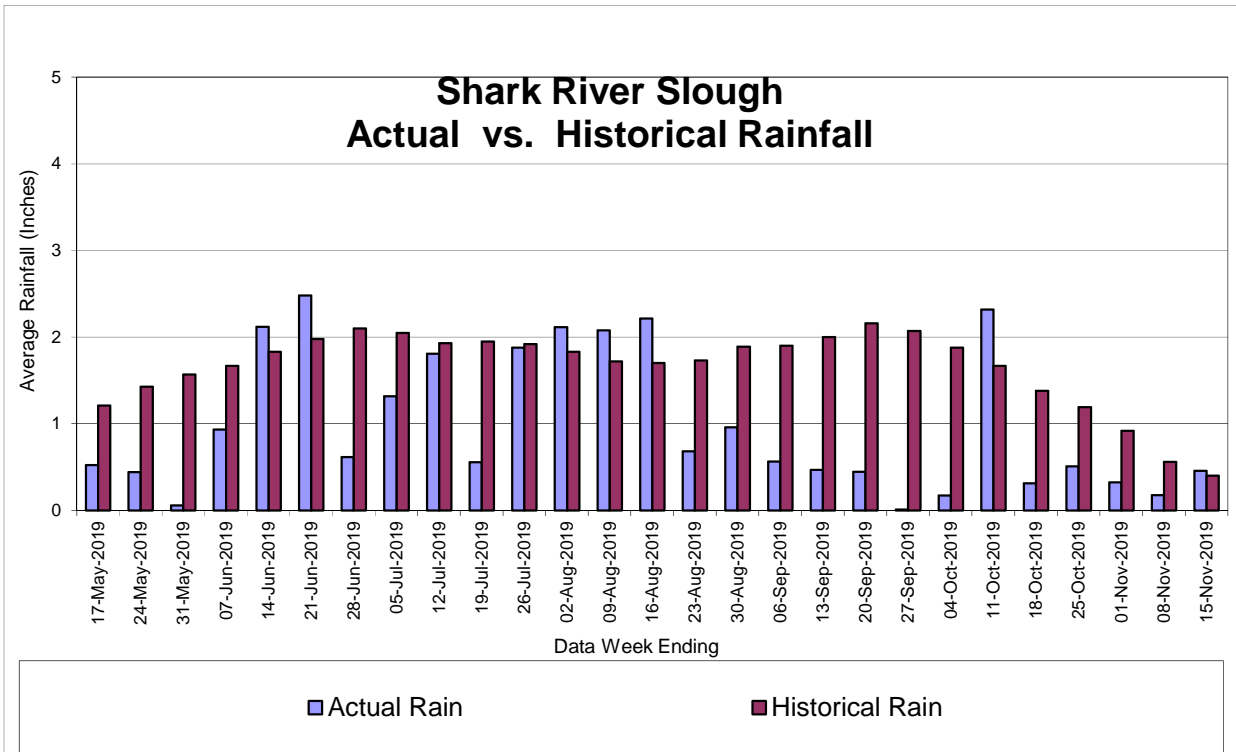
<b>Adjusted WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Potential regulatory discharge		0 cfs
Distance to Bottom of Current Zone		-0.04 feet
Distance to Top of Current Zone		0.12 feet

**-----Statistical Parameters -----**

Rainfall Formula Amount	-129 cfs
Last Week's Rainfall Formula	-78 cfs
Pre-project Mean Discharge	820 cfs
Rainfall Excess Terms	
RL1 -0.56	RL2 -2.40
	RL3 -8.31

**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow November 26, 2019 to December 2, 2019 0 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount 0 cfs  
Regulatory Discharge 0 cfs  
Potential Regulatory Discharge 0 cfs

**----Data Summary ----**

	November 16, 2019	to	November 22, 2019
WCA-3A Stage (end of week)	9.79		ft-NGVD
Angel's	6.42		ft-NGVD
G-3273	7.06		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	0.00	0.78
S-140		1.00
ENP		M
This Week's Avg	0.00	0.89
Pre-Project Avg	0.32	0.87

**---- Regulatory Discharge Calculation ----**

<b>WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		0 cfs
Distance to Bottom of Current Zone	N/A	feet
Distance to Top of Current Zone		0.34 feet

**----Potential Regulatory Discharge Considering Upstream Water Levels----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.70	17.25	0	
WCA-2A	12.63	12.14	47,400	
Others			0	
Total Storage Adjustment			47,400	0.11
WCA-3A	9.79			
Adjusted WCA-3A	9.90			

<b>Adjusted WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Potential regulatory discharge		0 cfs
Distance to Bottom of Current Zone		-0.04 feet
Distance to Top of Current Zone		0.24 feet

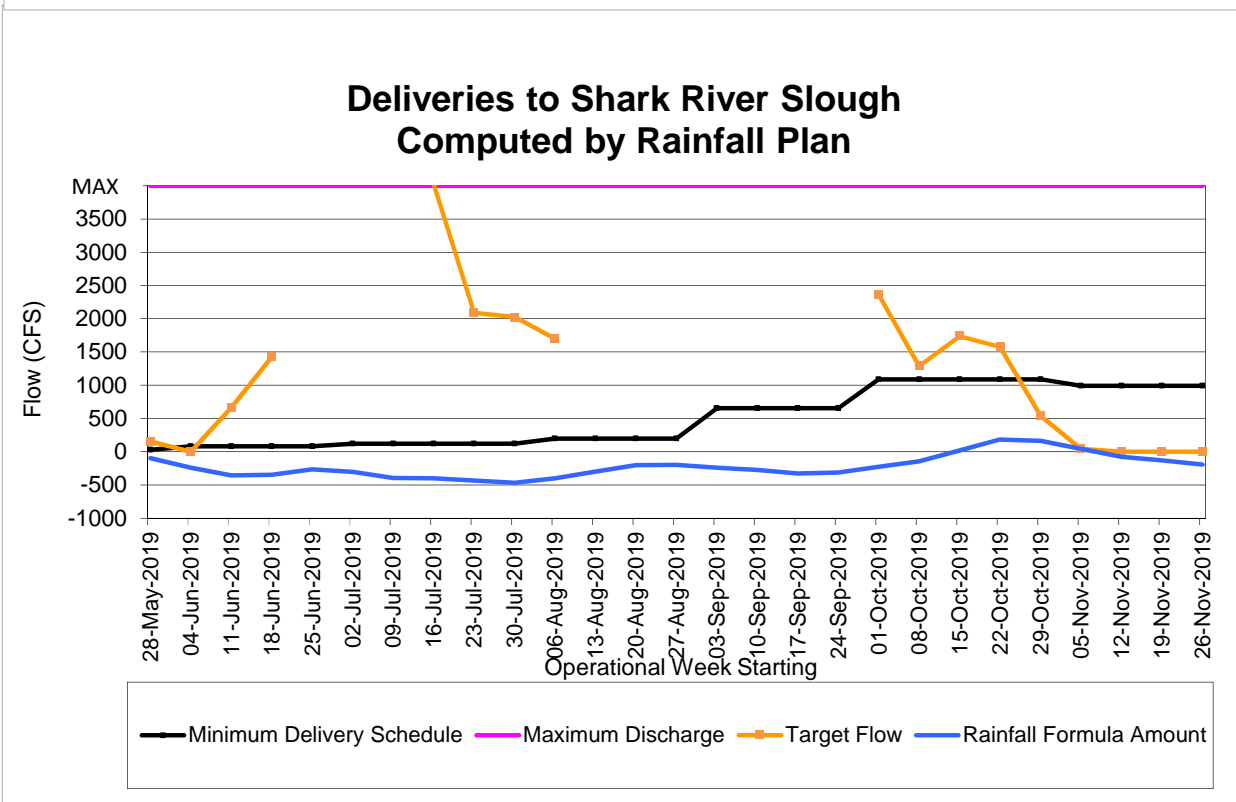
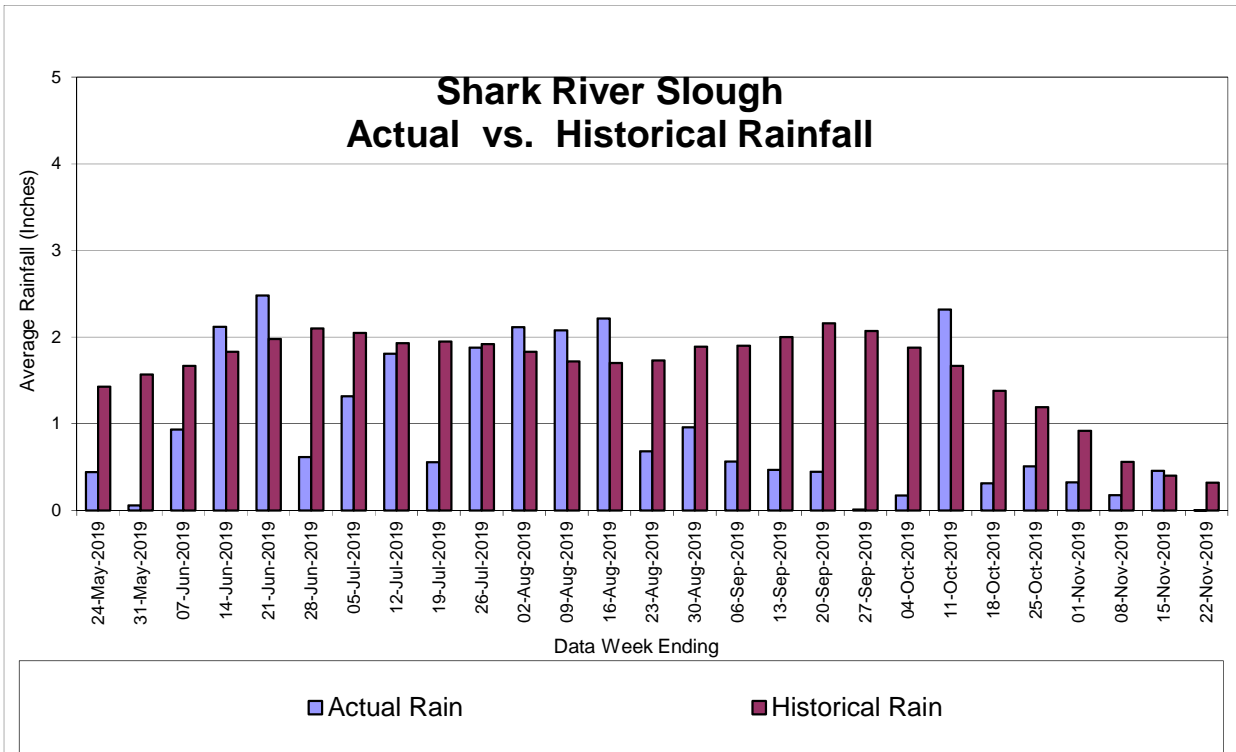
**----Statistical Parameters ----**

Rainfall Formula Amount	-192 cfs
Last Week's Rainfall Formula	-129 cfs
Pre-project Mean Discharge	689 cfs

Rainfall Excess Terms	RL1 -0.39	RL2 -3.37	RL3	-5.98
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**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**





## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow December 3, 2019 to December 9, 2019 0 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount 0 cfs  
Regulatory Discharge 0 cfs  
Potential Regulatory Discharge 0 cfs

**----Data Summary ----**

	November 23, 2019	to	November 29, 2019
WCA-3A Stage (end of week)	9.73		ft-NGVD
Angel's	6.22		ft-NGVD
G-3273	6.91		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	0.01	0.84
S-140		0.96
ENP		M
This Week's Avg	0.01	0.90
Pre-Project Avg	0.29	0.82

**---- Regulatory Discharge Calculation ----**

<b>WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		0 cfs
Distance to Bottom of Current Zone	N/A	feet
Distance to Top of Current Zone		0.45 feet

**----Potential Regulatory Discharge Considering Upstream Water Levels----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.64	17.25	0	
WCA-2A	12.44	12.02	36,000	
Others			0	
Total Storage Adjustment			36,000	0.08
WCA-3A	9.73			
Adjusted WCA-3A	9.81			

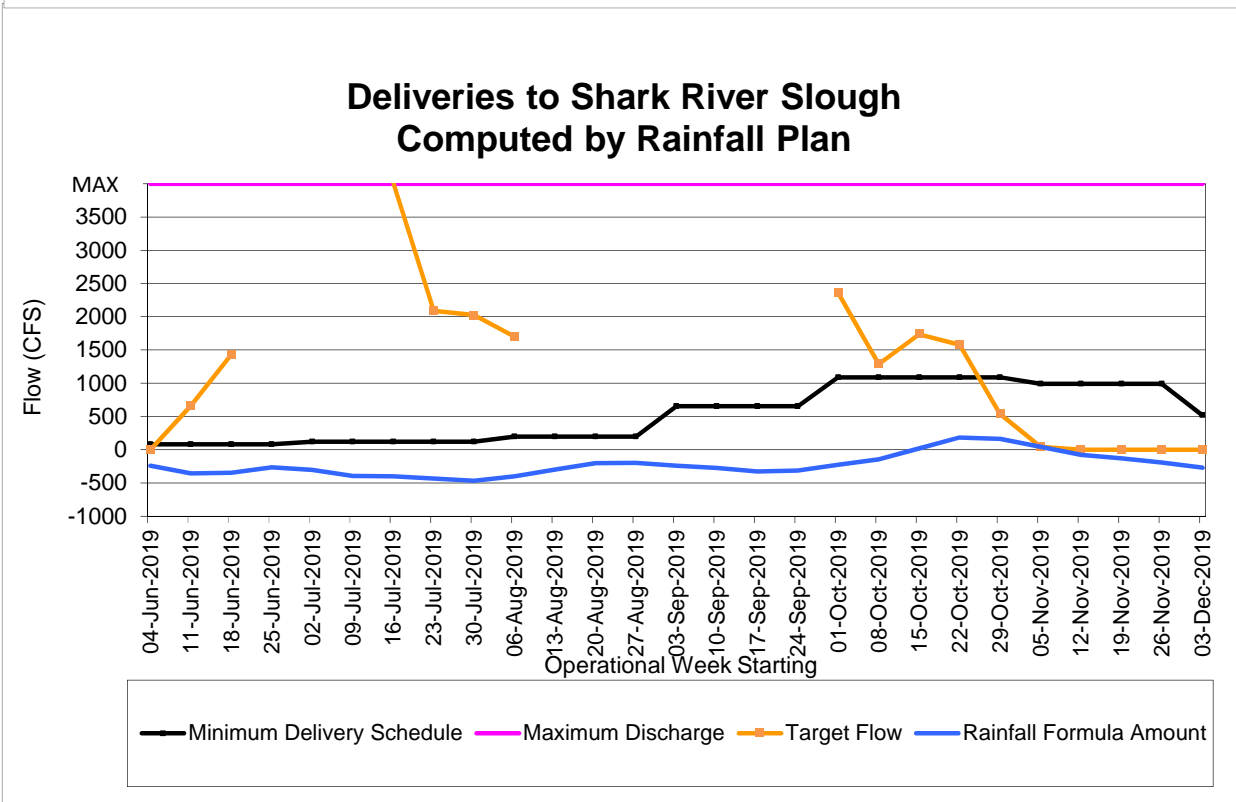
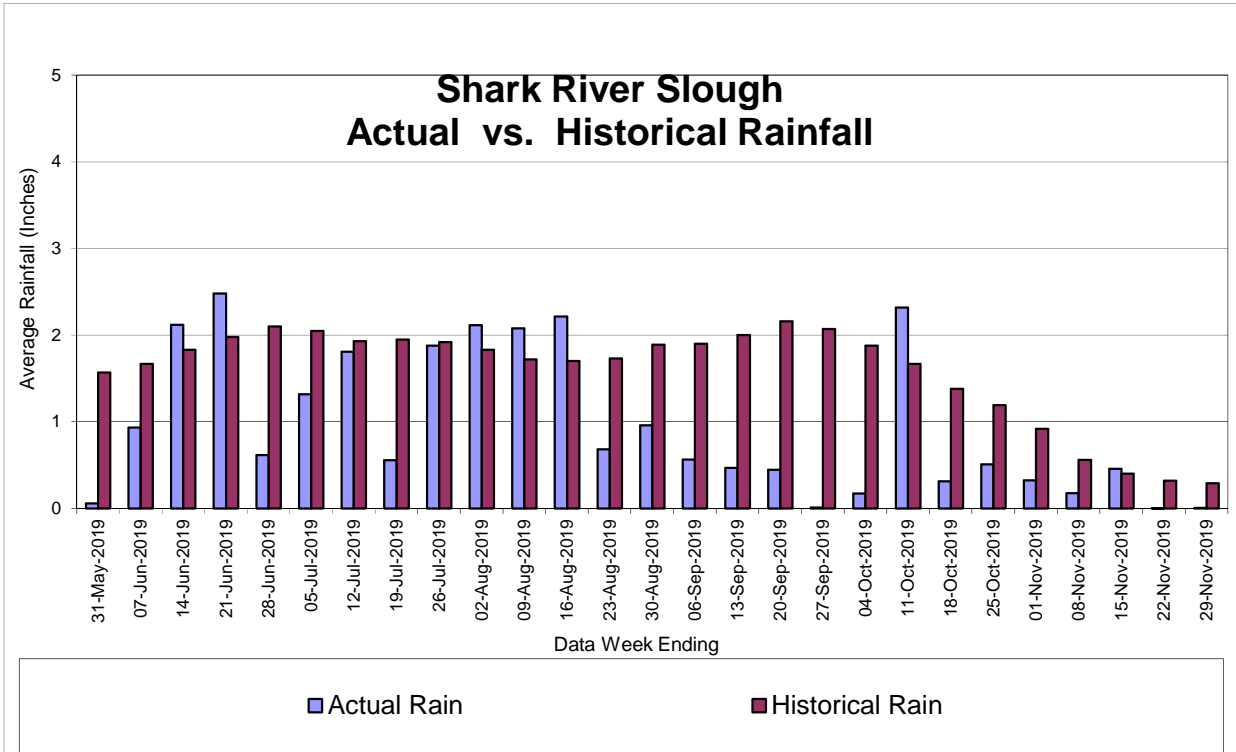
<b>Adjusted WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Potential regulatory discharge		0 cfs
Distance to Bottom of Current Zone		-0.04 feet
Distance to Top of Current Zone		0.37 feet

**----Statistical Parameters ----**

Rainfall Formula Amount	-268 cfs
Last Week's Rainfall Formula	-192 cfs
Pre-project Mean Discharge	566 cfs
Rainfall Excess Terms	
RL1 -0.68	RL2 -2.22
RL3	-5.05

**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow December 10, 2019**                      **to**                      **December 16, 2019**                      **0 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount                      0 cfs  
Regulatory Discharge                      0 cfs  
Potential Regulatory Discharge                      0 cfs

**-----Data Summary -----**

	<b>November 30, 2019</b>	<b>to</b>	<b>December 6, 2019</b>
WCA-3A Stage (end of week)	9.65		ft-NGVD
Angel's	5.95		ft-NGVD
G-3273	6.74		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	0.03	1.02
S-140		0.89
ENP		M
This Week's Avg	0.03	0.95
Pre-Project Avg	0.27	0.80

**----- Regulatory Discharge Calculation -----**

<b>WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		0 cfs
Distance to Bottom of Current Zone	N/A	feet
Distance to Top of Current Zone		0.57 feet

**-----Potential Regulatory Discharge Considering Upstream Water Levels-----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.57	17.22	0	
WCA-2A	12.28	11.91	29,550	
Others			0	
Total Storage Adjustment			29,550	0.07
WCA-3A	9.65			
Adjusted WCA-3A	9.72			

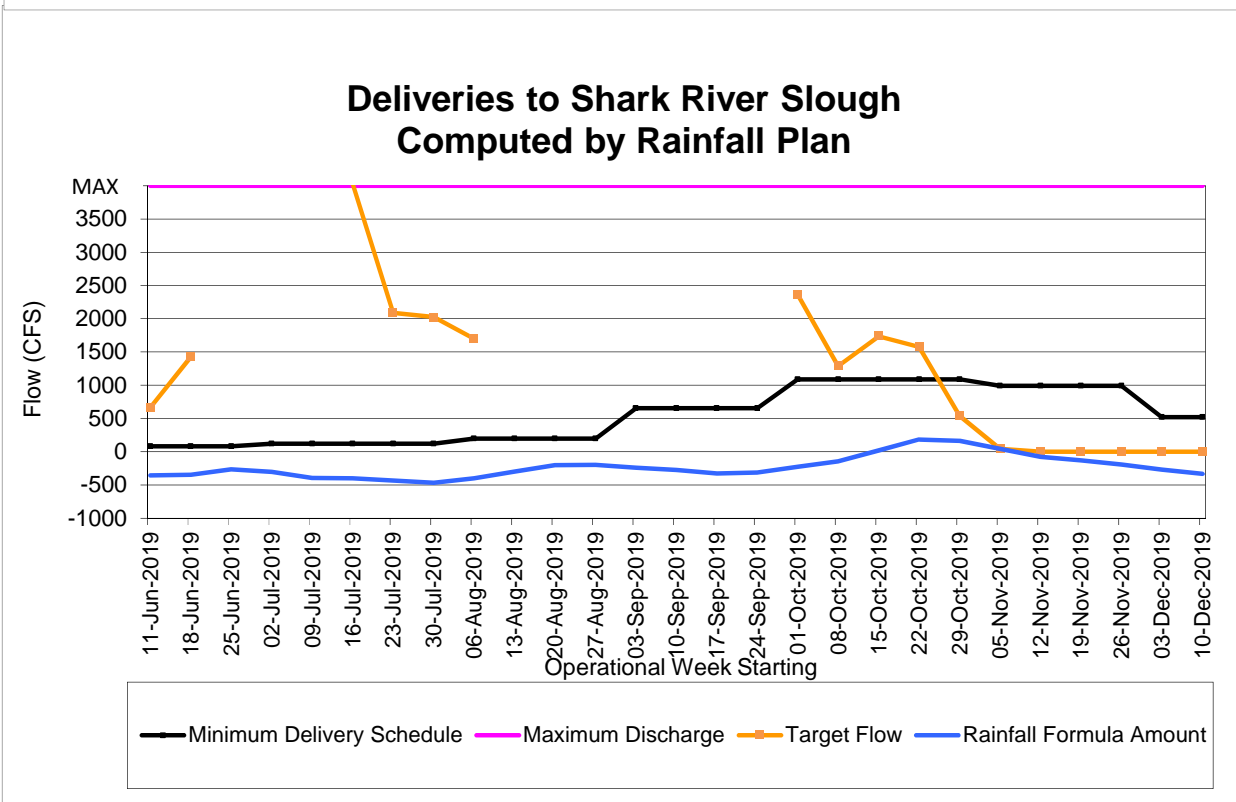
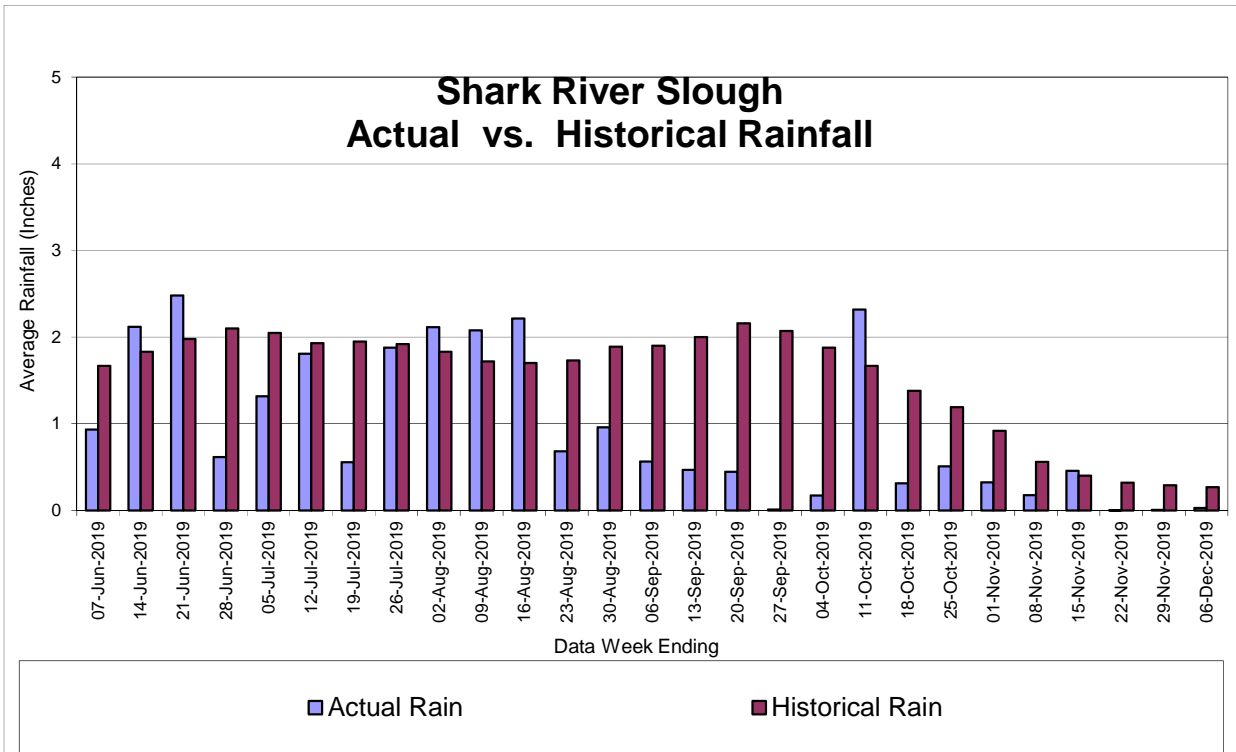
<b>Adjusted WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Potential regulatory discharge		0 cfs
Distance to Bottom of Current Zone		-0.04 feet
Distance to Top of Current Zone		0.51 feet

**-----Statistical Parameters -----**

Rainfall Formula Amount		-331 cfs
Last Week's Rainfall Formula		-268 cfs
Pre-project Mean Discharge		462 cfs
Rainfall Excess Terms		
RL1 -0.71	RL2 -1.69	RL3 -3.55

**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

**Target Flow December 17, 2019 to December 23, 2019** **0 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount 0 cfs  
Regulatory Discharge 0 cfs  
Potential Regulatory Discharge 0 cfs

**-----Data Summary -----**

	<b>December 7, 2019</b>	<b>to</b>	<b>December 13, 2019</b>
WCA-3A Stage (end of week)	9.61		ft-NGVD
Angel's	5.91		ft-NGVD
G-3273	6.61		ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	0.45	1.01
S-140		0.84
ENP		M
This Week's Avg	0.45	0.92
Pre-Project Avg	0.24	0.78

**----- Regulatory Discharge Calculation -----**

<b>WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		0 cfs
Distance to Bottom of Current Zone	N/A	feet
Distance to Top of Current Zone		0.64 feet

**-----Potential Regulatory Discharge Considering Upstream Water Levels-----**

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.60	17.18		0
WCA-2A	12.28	11.80	41,250	
Others			0	
Total Storage Adjustment			41,250	0.09
WCA-3A	9.61			
Adjusted WCA-3A	9.70			

<b>Adjusted WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Potential regulatory discharge		0 cfs
Distance to Bottom of Current Zone		-0.04 feet
Distance to Top of Current Zone		0.55 feet

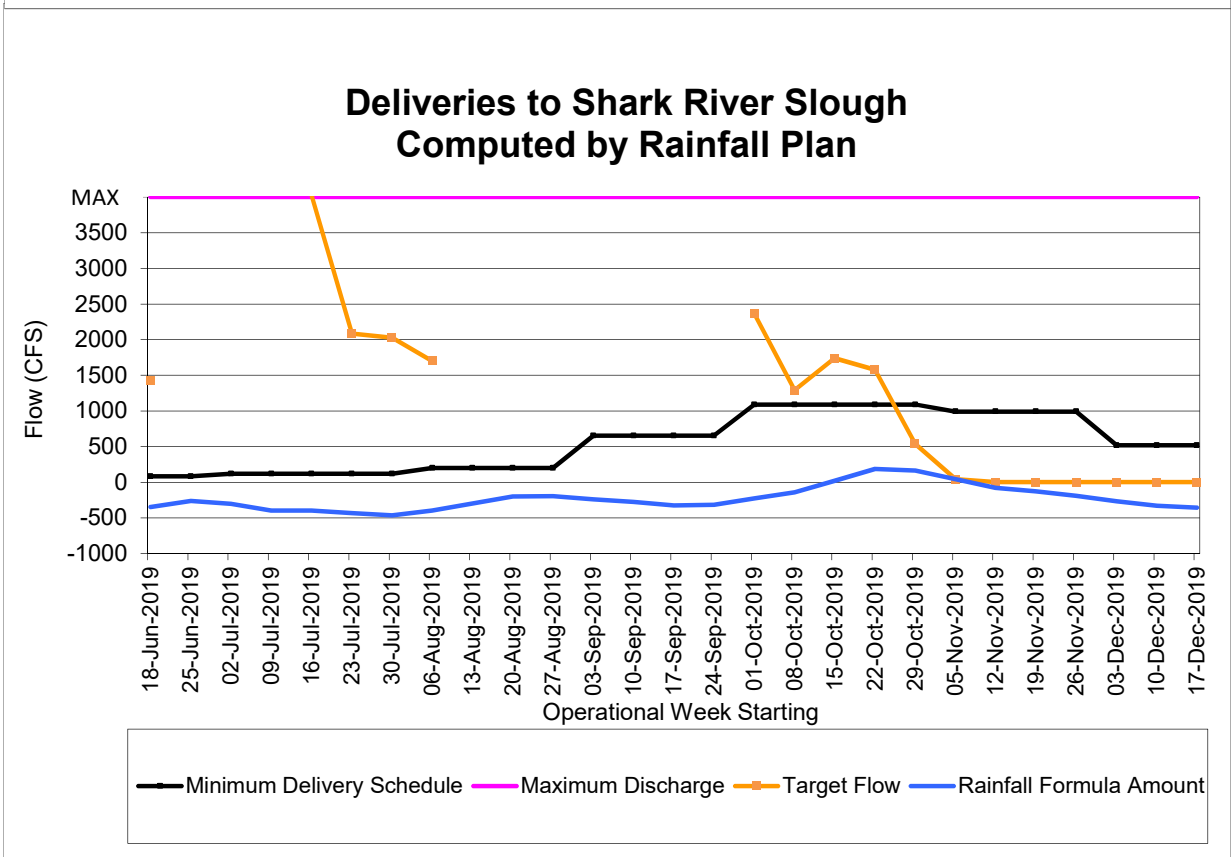
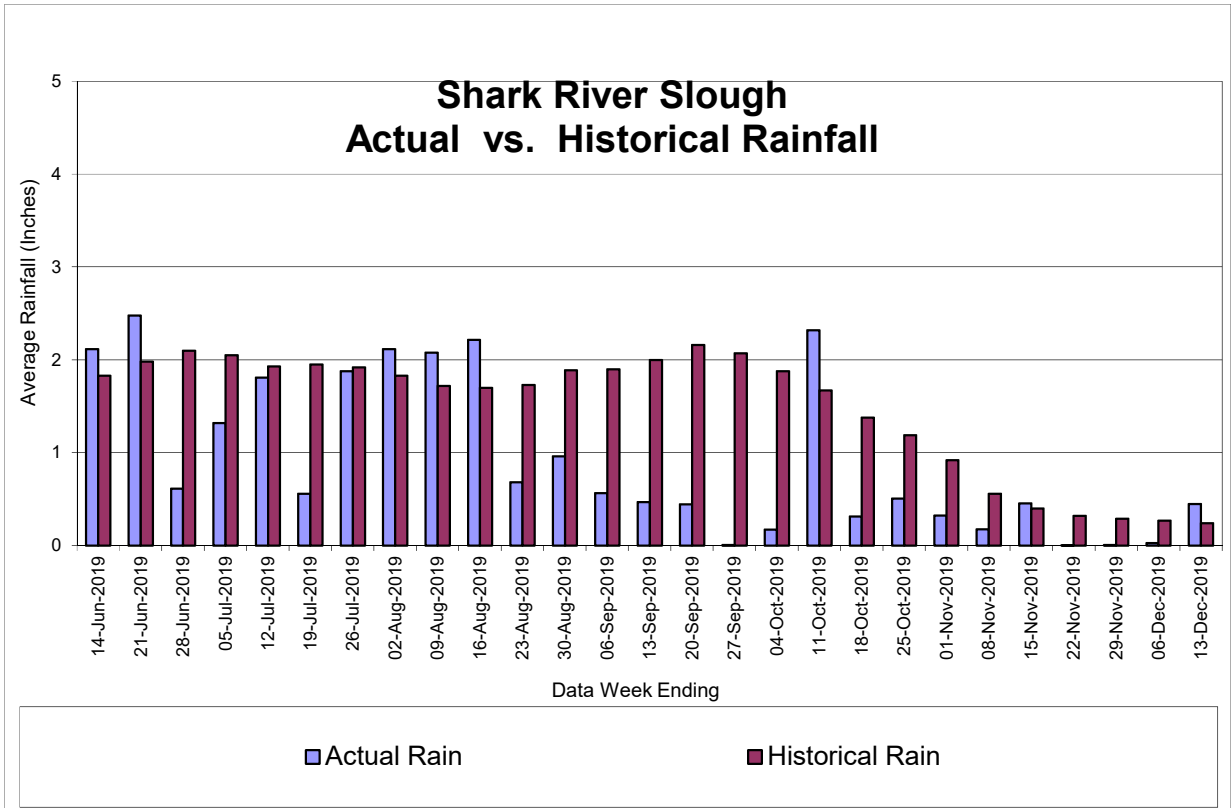
**-----Statistical Parameters -----**

Rainfall Formula Amount	-358 cfs
Last Week's Rainfall Formula	-331 cfs
Pre-project Mean Discharge	376 cfs

Rainfall Excess Terms	RL1 -0.27	RL2 -1.24	RL3	-2.40
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**COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing**

**\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.**



## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

Target Flow December 24, 2019                      to                      December 30, 2019                      **0 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount                      0 cfs  
Regulatory Discharge                      0 cfs  
Potential Regulatory Discharge                      0 cfs

-----Data Summary -----                      December 14, 2019                      to                      December 20, 2019

WCA-3A Stage (end of week)	9.56	ft-NGVD
Angel's	5.75	ft-NGVD
G-3273	6.48	ft-NGVD

Station	Rainfall (in)	Pan Evaporation (in)
NEXRAD Rain for WCA-3A and S7 evaporation	0.24	0.75
S-140		0.84
ENP		M
This Week's Avg	0.24	0.80
Pre-Project Avg	0.24	0.76

----- Regulatory Discharge Calculation -----

<b>WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Regulatory discharge is		0 cfs
Distance to Bottom of Current Zone	N/A	feet
Distance to Top of Current Zone		0.69 feet

-----Potential Regulatory Discharge Considering Upstream Water Levels-----

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.56	17.14	0	
WCA-2A	12.26	11.68	47,890	
Others			0	
Total Storage Adjustment			47,890	0.11
WCA-3A	9.56			
Adjusted WCA-3A	9.67			

<b>Adjusted WCA-3A is in Zone E</b>	<b>Discharge Coeff. (cfs/ft) =</b>	<b>2500</b>
Potential regulatory discharge		0 cfs
Distance to Bottom of Current Zone		-0.04 feet
Distance to Top of Current Zone		0.58 feet

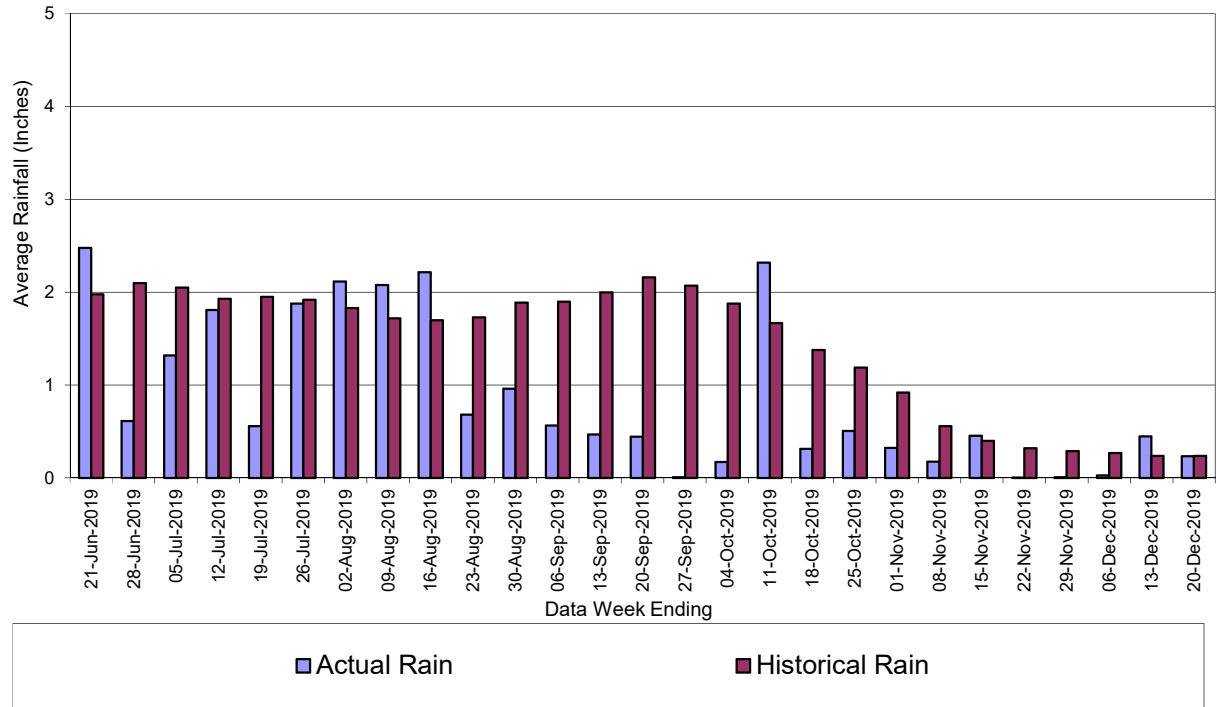
-----Statistical Parameters -----

Rainfall Formula Amount		-341 cfs
Last Week's Rainfall Formula		-358 cfs
Pre-project Mean Discharge		321 cfs
Rainfall Excess Terms		
RL1 0.06	RL2 -1.10	RL3 -3.37

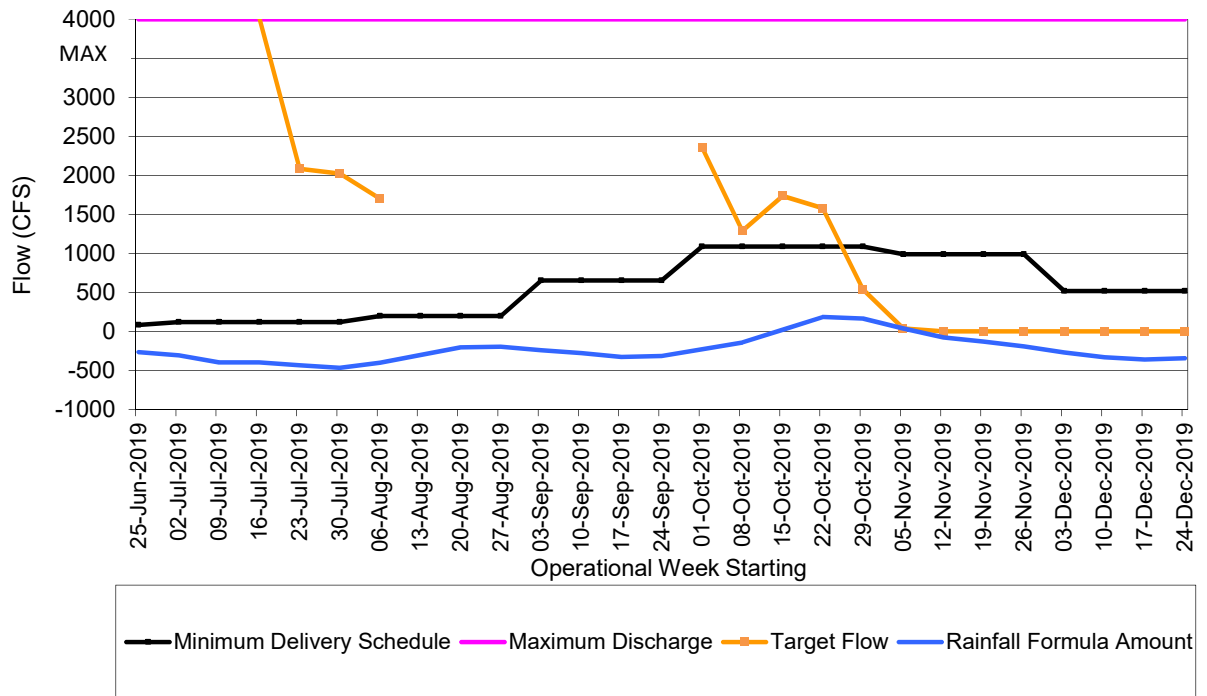
COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing

\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.

## Shark River Slough Actual vs. Historical Rainfall



## Deliveries to Shark River Slough Computed by Rainfall Plan





## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

Target Flow December 31, 2019 to January 6, 2020 0 cfs

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount 0 cfs  
Regulatory Discharge 0 cfs  
Potential Regulatory Discharge 0 cfs

-----Data Summary -----  
 December 21, 2019 to December 27, 2019

WCA-3A Stage (end of week)	9.64	ft-NGVD
Angel's	6.01	ft-NGVD
G-3273	6.68	ft-NGVD

Station	Rainfall (in)	Pan Evaporation (in)
NEXRAD Rain for WCA-3A and S7 evaporation	1.11	0.63
S-140		0.90
ENP		M
This Week's Avg	1.11	0.76
Pre-Project Avg	0.24	0.75

----- Regulatory Discharge Calculation -----

**WCA-3A is in Zone E** **Discharge Coeff. (cfs/ft) = 2500**

Regulatory discharge is		0 cfs
Distance to Bottom of Current Zone	N/A	feet
Distance to Top of Current Zone		0.61 feet

-----Potential Regulatory Discharge Considering Upstream Water Levels-----

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.62	17.10	0	
WCA-2A	12.26	11.57	54,530	
Others			0	
Total Storage Adjustment			54,530	0.12
WCA-3A	9.64			
Adjusted WCA-3A	9.76			

**Adjusted WCA-3A is in Zone E** **Discharge Coeff. (cfs/ft) = 2500**

Potential regulatory discharge		0 cfs
Distance to Bottom of Current Zone		-0.04 feet
Distance to Top of Current Zone		0.49 feet

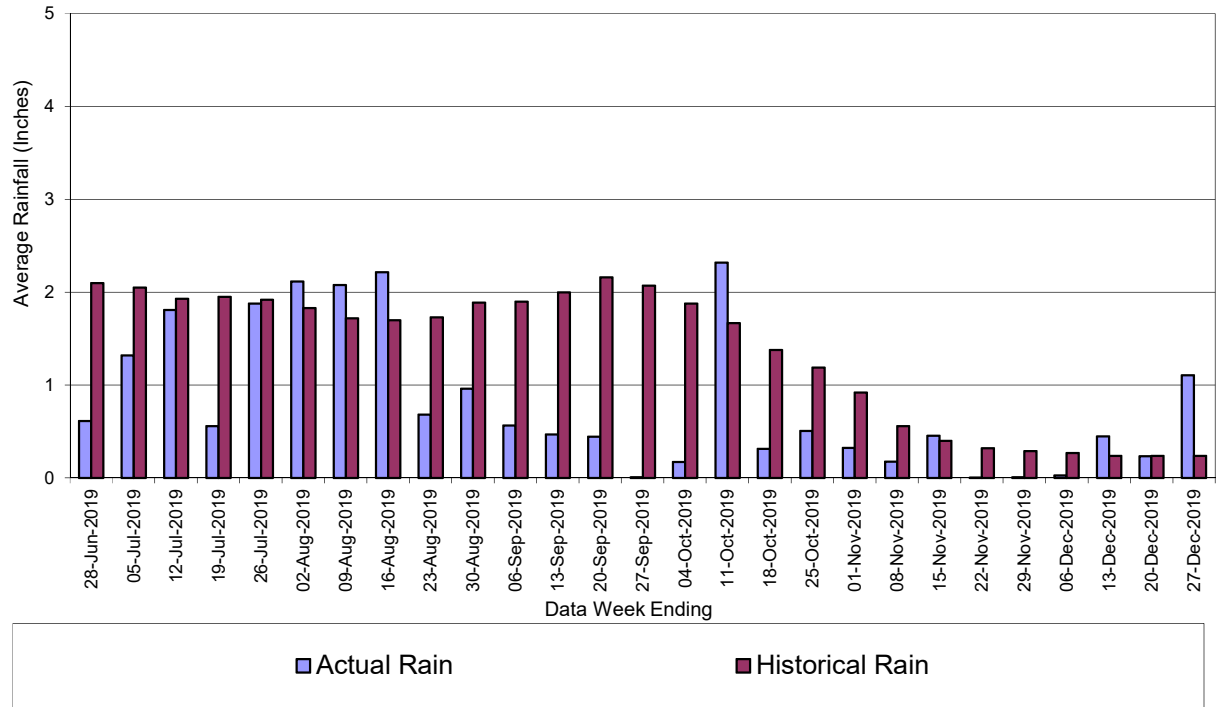
-----Statistical Parameters -----

Rainfall Formula Amount		-261 cfs	
Last Week's Rainfall Formula		-341 cfs	
Pre-project Mean Discharge		281 cfs	
Rainfall Excess Terms	RL1 0.82	RL2 -0.95	RL3 -2.22

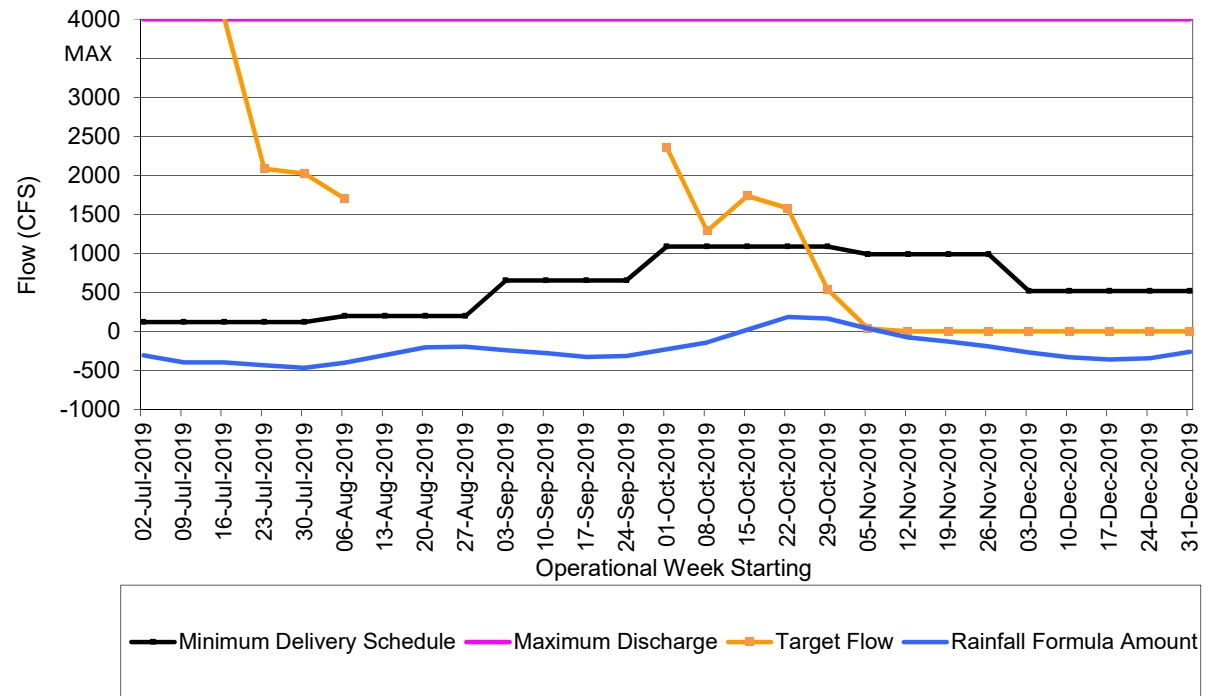
COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing

\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.

## Shark River Slough Actual vs. Historical Rainfall

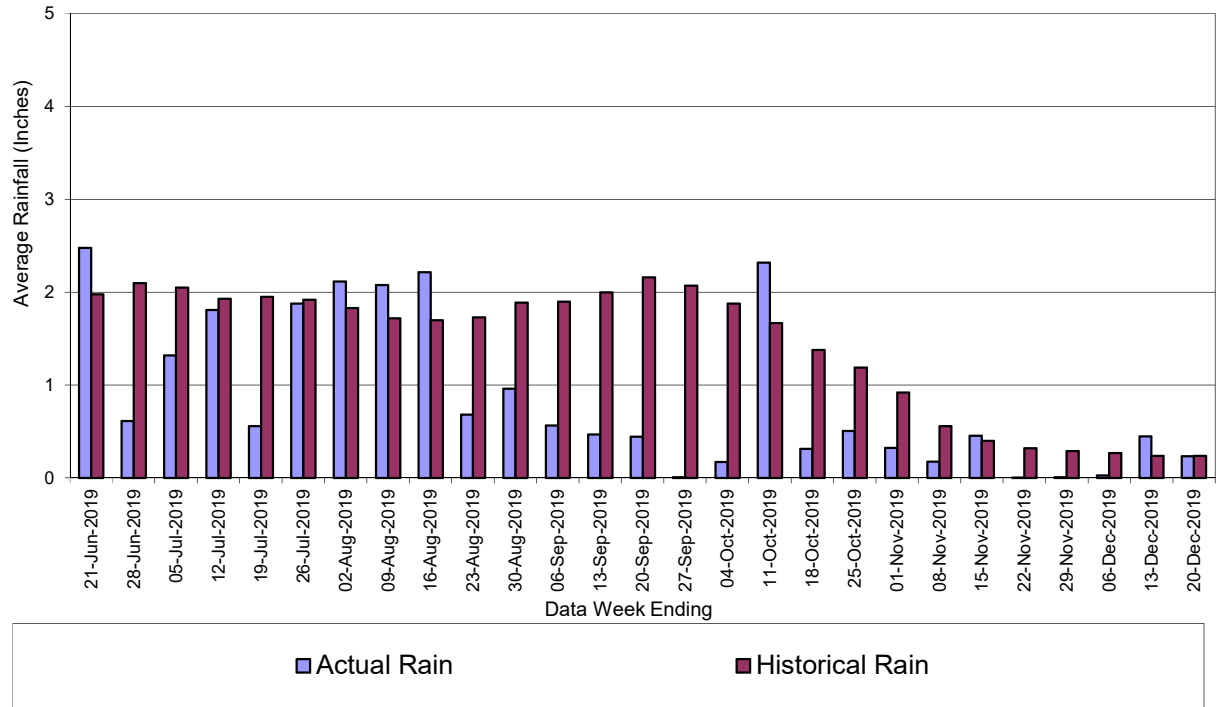


## Deliveries to Shark River Slough Computed by Rainfall Plan





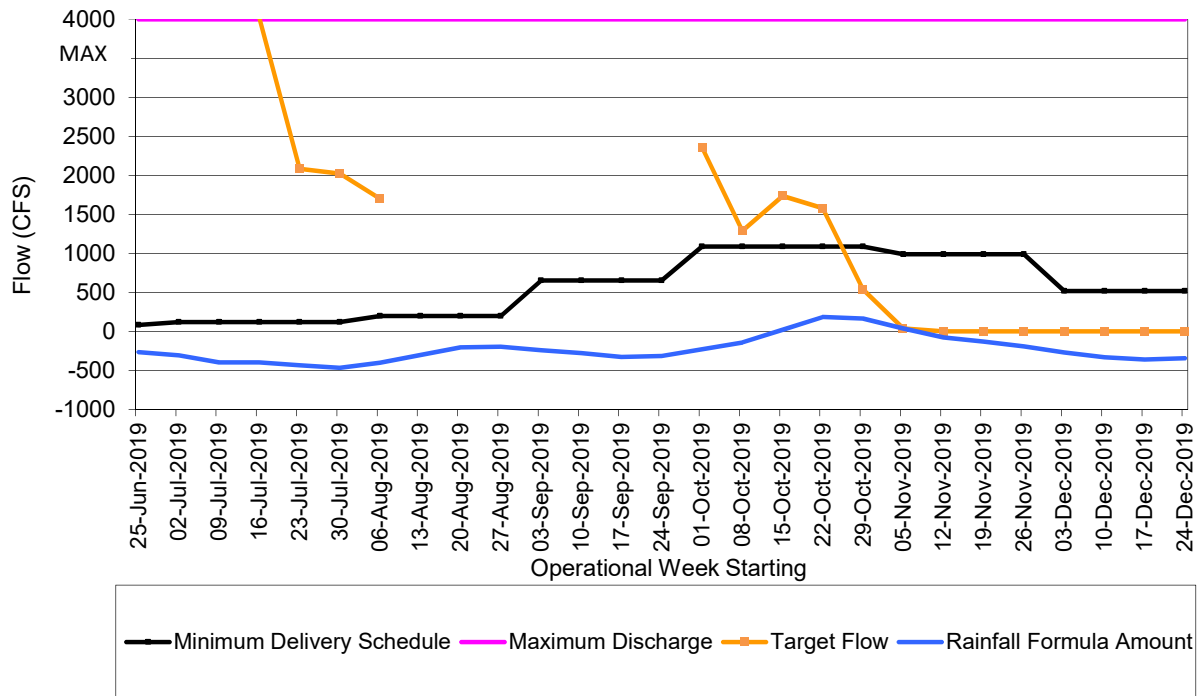
## Shark River Slough Actual vs. Historical Rainfall



Actual Rain

Historical Rain

## Deliveries to Shark River Slough Computed by Rainfall Plan



Minimum Delivery Schedule

Maximum Discharge

Target Flow

Rainfall Formula Amount

## WCA-3A RAINFALL-BASED MANAGEMENT PLAN

Target Flow December 31, 2019                      to                      January 6, 2020                      **0 cfs**

The target flow is distributed from east to west (S-333, S-12D, S-12C, S-12B, and S-12A) to keep WCA 3A releases away from sub-population A of the Cape Sable seaside sparrow

Rainfall Formula Amount                      0 cfs  
Regulatory Discharge                      0 cfs  
Potential Regulatory Discharge                      0 cfs

-----Data Summary -----                      December 21, 2019                      to                      December 27, 2019

WCA-3A Stage (end of week)                      9.64                      ft-NGVD  
 Angel's                      6.01                      ft-NGVD  
 G-3273                      6.68                      ft-NGVD

<u>Station</u>	<u>Rainfall (in)</u>	<u>Pan Evaporation (in)</u>
NEXRAD Rain for WCA-3A and S7 evaporation	1.11	0.63
S-140		0.90
ENP		M
This Week's Avg	1.11	0.76
Pre-Project Avg	0.24	0.75

----- Regulatory Discharge Calculation -----

**WCA-3A is in Zone E**                      Discharge Coeff. (cfs/ft) =                      **2500**

Regulatory discharge is                      0 cfs  
 Distance to Bottom of Current Zone                      N/A                      feet  
 Distance to Top of Current Zone                      0.61 feet

-----Potential Regulatory Discharge Considering Upstream Water Levels-----

	Stage (ft-NGVD)	Regulation Stage (ft-NGVD)	Excess Storage (ac-ft)	Depth (ft)
WCA-1	16.62	17.10	0	
WCA-2A	12.26	11.57	54,530	
Others			0	
Total Storage Adjustment			54,530	0.12
WCA-3A	9.64			
Adjusted WCA-3A	9.76			

**Adjusted WCA-3A is in Zone E**                      Discharge Coeff. (cfs/ft) =                      **2500**

Potential regulatory discharge                      0 cfs  
 Distance to Bottom of Current Zone                      -0.04 feet  
 Distance to Top of Current Zone                      0.49 feet

-----Statistical Parameters -----

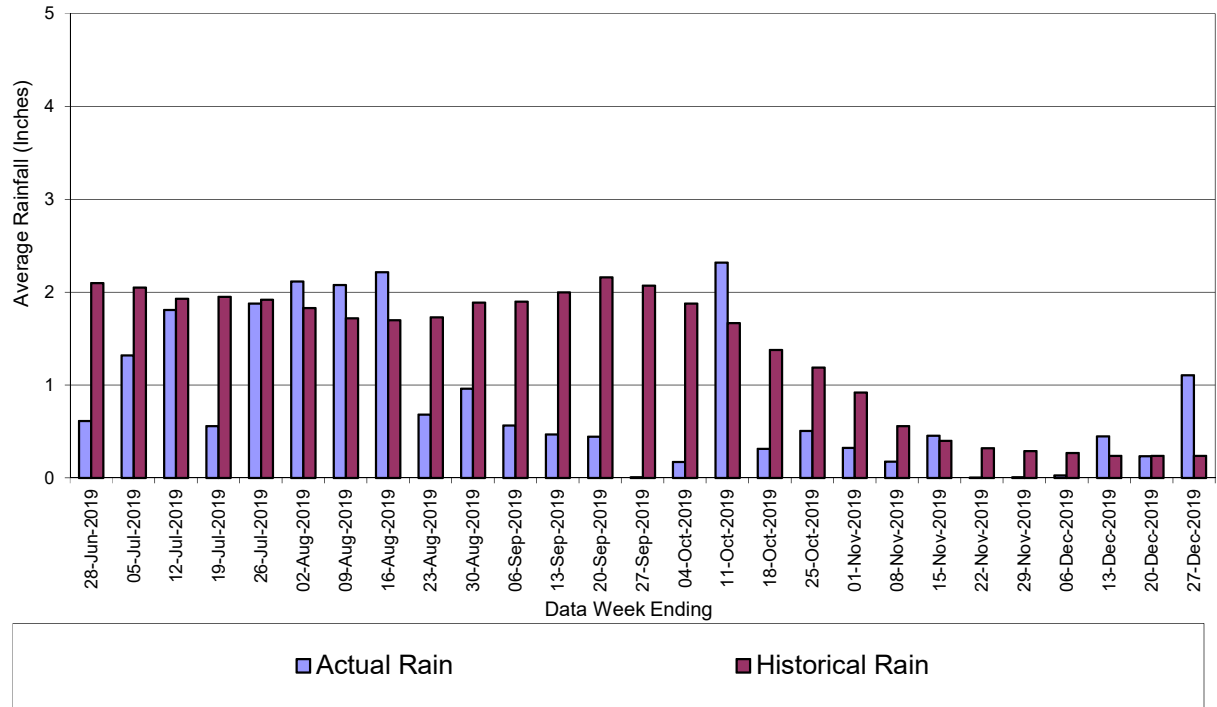
Rainfall Formula Amount                      -261 cfs  
 Last Week's Rainfall Formula                      -341 cfs  
 Pre-project Mean Discharge                      281 cfs

Rainfall Excess Terms                      RL1 0.82                      RL2 -0.95                      RL3 -2.22

COMMENT: S7 estimated evap data and S140 estimated evap data were used. ENP evap data were missing

\*NOTE: Actual discharges may vary from target discharges because of changing hydrologic conditions.

## Shark River Slough Actual vs. Historical Rainfall



## Deliveries to Shark River Slough Computed by Rainfall Plan

