

COLORADO/LAVACA BBEST OVERIEW

22 Locations will have Flow Recommendations

- 21 Instream Flow
- 1 Bay and Estuary

INSTREAM FLOW RECOMMENDATIONS

LSWP Habitat Team Recommendations (in entirety) Accepted for

- Colorado near Bastrop
- Colorado at Columbus
- Colorado at Wharton
- Site Specific Study accepted for portion of Colorado near San Saba Site

All other Sites Use Recommendations Developed by BBEST

BAY AND ESTUARY RECOMMENDATIONS

- MBHE Team (part of LSWP Analysis) Recommendation Accepted for Matagorda Bay (Uses Colorado near Bay City Gage).
- Lavaca Bay Recommendation Developed by BBEST Members (Uses sites that are also Instream Flow Locations)

ENVIRONMENTAL FLOW REQUIREMENTS FOR COLORADO RIVER NEAR SAN SABA (LOMETA STUDY FOR SUB): WAM PERIOD = 1940-1998																								
		1	2	3	4	5	6	7	9	10	11	13	14	15	17	18	19	21	22	23	NON-PULSE FLOW FREQ			
MONTH		NON-PULSE FLOWS						HIGH FLOW PULSE AND OVERBANK FLOWS												NON-PULSE FLOW FREQ				
								1ST Pulse Frequency (once per season)			2ND Pulse Frequency (twice per season)			3RD Pulse Frequency (once per year)			4TH Pulse Frequency (once per 2 years)			YELLOW SHADE=RECOMMENDED FREQ; OTHER COLOR = HISTORICAL FREQUENCIES. ALL STATED FREQUENCIES ULTIMATELY DEPENDANT ON HYDRO CONDITION (NOT YET DECIDED UPON BY BBEST)				
Month #	Month	SEASON	HIGH Base Flow (cfs)	MED Base Flow (cfs)	LOW Base Flow (cfs)	Subsistence (cfs)	MAGNITUDE (CFS)	DURATION (DAYS)	VOLUME (AF)	MAGNITUDE (CFS)	DURATION (DAYS)	VOLUME (AF)	MAGNITUDE (CFS)	DURATION (DAYS)	VOLUME (AF)	MAGNITUDE (CFS)	DURATION (DAYS)	VOLUME (AF)	HIGH Base Flow (%)	MED Base Flow (%)	LOW Base Flow (%)	Subsistence Flow (%)		
1	Jan	1	210.0	148.0	99.0	50.0	1,640	15	11,066	522	9	3,119	18,900	23	129,062	30,400	28	222,160	43.0%	61.2%	78.8%	100.0%		
2	Feb	1	210.0	148.0	99.0	50.0	1,640	15	11,066	522	9	3,119	18,900	23	129,062	30,400	28	222,160	43.0%	61.2%	78.8%	100.0%		
3	Mar	2	355.8	190.0	115.0	50.0	11,200	13	70,171	5,830	9	31,252	18,900	23	129,062	30,400	28	222,160	42.2%	59.6%	77.1%	100.0%		
4	Apr	2	355.8	190.0	115.0	50.0	11,200	13	70,171	5,830	9	31,252	18,900	23	129,062	30,400	28	222,160	42.2%	59.6%	77.1%	100.0%		
5	May	2	355.8	190.0	115.0	50.0	11,200	13	70,171	5,830	9	31,252	18,900	23	129,062	30,400	28	222,160	42.2%	59.6%	77.1%	100.0%		
6	June	2	355.8	190.0	115.0	50.0	11,200	13	70,171	5,830	9	31,252	18,900	23	129,062	30,400	28	222,160	42.2%	59.6%	77.1%	100.0%		
7	Jul	3	198.0	117.0	72.0	30.0	1,430	7	6,502	511	4	1,925	18,900	23	129,062	30,400	28	222,160	37.6%	50.2%	62.8%	100.0%		
8	Aug	3	198.0	117.0	72.0	30.0	1,430	7	6,502	511	4	1,925	18,900	23	129,062	30,400	28	222,160	37.6%	50.2%	62.8%	100.0%		
9	Sept	4	226.0	143.0	91.0	30.0	3,760	12	19,226	887	6	3,533	18,900	23	129,062	30,400	28	222,160	40.4%	55.8%	71.4%	100.0%		
10	Oct	4	226.0	143.0	91.0	30.0	3,760	12	19,226	887	6	3,533	18,900	23	129,062	30,400	28	222,160	40.4%	55.8%	71.4%	100.0%		
11	Nov	1	210.0	148.0	99.0	50.0	1,640	15	11,066	522	9	3,119	18,900	23	129,062	30,400	28	222,160	43.0%	61.2%	78.8%	100.0%		
12	Dec	1	210.0	148.0	99.0	50.0	1,640	15	11,066	522	9	3,119	18,900	23	129,062	30,400	28	222,160	43.0%	61.2%	78.8%	100.0%		
							59 PULSES			118 PULSES			59 PULSES			29.5 PULSES								

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PERCENT OF MONTHS NON PULSE FLOWS MET AND NUMBER OF PULSES MET OVER WAM PERIOD OF RECORD USING => TCEQ RUN3															
WINTER	1	51%	71%	85%	96%	32	78								
SPRING	2	51%	74%	87%	96%	42	78								
SUMMER	3	57%	73%	82%	93%	71	165	34				17			
FALL	4	47%	63%	76%	92%	64	133								

PERCENT OF MONTHS NON PULSE FLOWS MET AND NUMBER OF PULSES MET OVER WAM PERIOD OF RECORD USING => TCEQ RUN8															
WINTER	1	45%	64%	84%	96%	30	70								
SPRING	2	47%	68%	84%	95%	43	86								
SUMMER	3	51%	67%	79%	91%	68	143	31				17			
FALL	4	40%	56%	71%	91%	64	126								

PERCENT OF MONTHS NON PULSE FLOWS MET AND NUMBER OF PULSES MET OVER WAM PERIOD OF RECORD USING => REGK RUN3															
WINTER	1	38%	57%	79%	93%	29	64								
SPRING	2	38%	58%	76%	92%	32	62								
SUMMER	3	32%	50%	65%	83%	37	96	22				12			
FALL	4	34%	47%	61%	87%	55	113								

ENVIRONMENTAL FLOW REQUIREMENTS FOR COLORADO RIVER NEAR COLUMBUS (LSWP RECOMMENDATION ACCEPTED): WAM PERIOD = 1940-1998																						
		1	2	3	4	5	6	7	9	10	11	13	14	15	17	18	19	21	22	23		
MONTH	NON-PULSE FLOWS						HIGH FLOW PULSE AND OVERBANK FLOWS												YELLOW SHADE=RECOMMENDED FREQ; OTHER COLOR = HISTORICAL FREQUENCIES. ALL STATED FREQUENCIES ULTIMATELY DEPENDANT ON HYDRO CONDITION (NOT YET DECIDED UPON BY BBEST)			
	1ST Pulse Frequency (once per season)	2ND Pulse Frequency (twice per season)	3RD Pulse Frequency (once per year)	4TH Pulse Frequency (once per 2 years)	Subsistence Flow (cfs)	MAGNITUDE (CFS)	DURATION (DAYS)	VOLUME (AF)	MAGNITUDE (CFS)	DURATION (DAYS)	VOLUME (AF)	MAGNITUDE (CFS)	DURATION (DAYS)	VOLUME (AF)	MAGNITUDE (CFS)	DURATION (DAYS)	VOLUME (AF)	HIGH Base Flow (%)				
Month #	Month	SEASON	HIGH Base Flow (cfs)	MED Base Flow (cfs)															LOW Base Flow (cfs)			
1	Jan	1	838.0	N/A	487.0	340.0	12,200	12	81,041	4,800	6	22,586	48,500	16	354,666	55,900	17	421,949	60.0%	N/A	80.0%	100.0%
2	Feb	1	906.0	N/A	590.0	375.0	12,200	12	81,041	4,800	6	22,586	48,500	16	354,666	55,900	17	421,949	60.0%	N/A	80.0%	100.0%
3	Mar	2	1,036.0	N/A	525.0	375.0	37,900	12	251,028	23,800	10	138,623	48,500	16	354,666	55,900	17	421,949	60.0%	N/A	80.0%	100.0%
4	Apr	2	1,011.0	N/A	554.0	299.0	37,900	12	251,028	23,800	10	138,623	48,500	16	354,666	55,900	17	421,949	60.0%	N/A	80.0%	100.0%
5	May	2	1,397.0	N/A	966.0	425.0	37,900	12	251,028	23,800	10	138,623	48,500	16	354,666	55,900	17	421,949	60.0%	N/A	80.0%	100.0%
6	June	2	1,512.0	N/A	967.0	534.0	37,900	12	251,028	23,800	10	138,623	48,500	16	354,666	55,900	17	421,949	60.0%	N/A	80.0%	100.0%
7	Jul	3	906.0	N/A	570.0	342.0	5,580	9	30,293	2,030	5	8,110	48,500	16	354,666	55,900	17	421,949	60.0%	N/A	80.0%	100.0%
8	Aug	3	522.0	N/A	310.0	190.0	5,580	9	30,293	2,030	5	8,110	48,500	16	354,666	55,900	17	421,949	60.0%	N/A	80.0%	100.0%
9	Sept	4	617.0	N/A	405.0	279.0	38,800	13	240,985	11,700	9	57,999	48,500	16	354,666	55,900	17	421,949	60.0%	N/A	80.0%	100.0%
10	Oct	4	749.0	N/A	356.0	190.0	38,800	13	240,985	11,700	9	57,999	48,500	16	354,666	55,900	17	421,949	60.0%	N/A	80.0%	100.0%
11	Nov	4	764.0	N/A	480.0	202.0	38,800	13	240,985	11,700	9	57,999	48,500	16	354,666	55,900	17	421,949	60.0%	N/A	80.0%	100.0%
12	Dec	1	746.0	N/A	464.0	301.0	12,200	12	81,041	4,800	6	22,586	48,500	16	354,666	55,900	17	421,949	60.0%	N/A	80.0%	100.0%
							59 PULSES			118 PULSES			59 PULSES			29.5 PULSES						

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PERCENT OF MONTHS NON PULSE FLOWS MET AND NUMBER OF PULSES MET OVER WAM PERIOD OF RECORD USING => TCEQ RUN3											
WINTER	1	40%	NA	60%	75%	24	77				
SPRING	2	62%	NA	87%	96%	14	27	14		9	
SUMMER	3	97%	NA	100%	100%	10	122				
FALL	4	58%	NA	77%	96%	8	24				

PERCENT OF MONTHS NON PULSE FLOWS MET AND NUMBER OF PULSES MET OVER WAM PERIOD OF RECORD USING => TCEQ RUN8											
WINTER	1	49%	NA	65%	84%	31	96				
SPRING	2	61%	NA	87%	96%	18	34	22		15	
SUMMER	3	97%	NA	100%	100%	9	83				
FALL	4	61%	NA	82%	98%	10	38				

PERCENT OF MONTHS NON PULSE FLOWS MET AND NUMBER OF PULSES MET OVER WAM PERIOD OF RECORD USING => REGK RUN3											
WINTER	1	39%	NA	58%	73%	24	78				
SPRING	2	49%	NA	72%	90%	14	28	14		10	
SUMMER	3	47%	NA	75%	97%	7	49				
FALL	4	46%	NA	67%	91%	8	26				

ENVIRONMENTAL FLOW REQUIREMENTS FOR LAVACA RIVER NEAR EDNA: WAM PERIOD = 1940-1996																																					
1		2		3		4		5		6		7		9		10		11		13		14		15		17		18		19		21		22		23	
MONTH		NON-PULSE FLOWS						HIGH FLOW PULSE AND OVERBANK FLOWS												YELLOW SHADE=RECOMMENDED FREQ; OTHER COLOR = HISTORICAL FREQUENCIES. ALL STATED FREQUENCIES ULTIMATELY DEPENDANT ON HYDRO CONDITION (NOT YET DECIDED UPON BY BBEST)																	
								1ST Pulse Frequency (once per season)			2ND Pulse Frequency (twice per season)			3RD Pulse Frequency (once per year)			4TH Pulse Frequency (once per 2 years)																				
Month #	Month	SEASON	HIGH Base Flow (cfs)	MED Base Flow (cfs)	LOW Base Flow (cfs)	Subsistence Flow (cfs)	MAGNITUDE (CFS)	DURATION (DAYS)	VOLUME (AF)	MAGNITUDE (CFS)	DURATION (DAYS)	VOLUME (AF)	MAGNITUDE (CFS)	DURATION (DAYS)	VOLUME (AF)	MAGNITUDE (CFS)	DURATION (DAYS)	VOLUME (AF)	HIGH Base Flow (%)	MED Base Flow (%)	LOW Base Flow (%)	Subsistence Flow (%)															
1	Jan	1	90.0	52.0	29.0	8.5	4,500	10	18,439	2,010	8	8,014	11,400	10	46,114	15,700	11	64,085	42.6%	59.9%	77.5%	95.1%															
2	Feb	1	90.0	52.0	29.0	8.5	4,500	10	18,439	2,010	8	8,014	11,400	10	46,114	15,700	11	64,085	42.6%	59.9%	77.5%	95.1%															
3	Mar	2	97.0	58.0	31.0	10.0	6,770	8	26,602	4,630	8	17,828	11,400	10	46,114	15,700	11	64,085	43.0%	61.0%	78.5%	95.4%															
4	Apr	2	97.0	58.0	31.0	10.0	6,770	8	26,602	4,630	8	17,828	11,400	10	46,114	15,700	11	64,085	43.0%	61.0%	78.5%	95.4%															
5	May	2	97.0	58.0	31.0	10.0	6,770	8	26,602	4,630	8	17,828	11,400	10	46,114	15,700	11	64,085	43.0%	61.0%	78.5%	95.4%															
6	June	2	97.0	58.0	31.0	10.0	6,770	8	26,602	4,630	8	17,828	11,400	10	46,114	15,700	11	64,085	43.0%	61.0%	78.5%	95.4%															
7	Jul	3	48.0	31.0	19.0	1.3	421	9	1,795	88	6	369	11,400	10	46,114	15,700	11	64,085	39.8%	54.3%	69.1%	95.1%															
8	Aug	3	48.0	31.0	19.0	1.3	421	9	1,795	88	6	369	11,400	10	46,114	15,700	11	64,085	39.8%	54.3%	69.1%	95.1%															
9	Sept	4	58.0	34.0	20.0	1.2	4,590	9	18,044	1,640	7	6,132	11,400	10	46,114	15,700	11	64,085	38.4%	53.7%	70.2%	95.0%															
10	Oct	4	58.0	34.0	20.0	1.2	4,590	9	18,044	1,640	7	6,132	11,400	10	46,114	15,700	11	64,085	38.4%	53.7%	70.2%	95.0%															
11	Nov	4	58.0	34.0	20.0	1.2	4,590	9	18,044	1,640	7	6,132	11,400	10	46,114	15,700	11	64,085	38.4%	53.7%	70.2%	95.0%															
12	Dec	1	90.0	52.0	29.0	8.5	4,500	10	18,439	2,010	8	8,014	11,400	10	46,114	15,700	11	64,085	42.6%	59.9%	77.5%	95.1%															
							57 PULSES			114 PULSES			57 PULSES			28.5 PULSES																					

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PERCENT OF MONTHS NON PULSE FLOWS MET AND NUMBER OF PULSES MET OVER WAM PERIOD OF RECORD USING => TCEQ RUN3

SEASON	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
WINTER	1	39%	56%	74%	93%	33	59																		
SPRING	2	41%	58%	76%	94%	47	65																		
SUMMER	3	35%	50%	66%	93%	36	76																		
FALL	4	34%	49%	66%	92%	29	51																		

PERCENT OF MONTHS NON PULSE FLOWS MET AND NUMBER OF PULSES MET OVER WAM PERIOD OF RECORD USING => TCEQ RUN8

SEASON	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
WINTER	1	40%	57%	75%	94%	33	61																		
SPRING	2	41%	59%	76%	94%	47	65																		
SUMMER	3	33%	47%	63%	95%	35	72																		
FALL	4	35%	50%	67%	95%	29	51																		

ENVIRONMENTAL FLOW REQUIREMENTS FOR TRES PALACIOS NEAR MIDFIELD: WAM PERIOD = 1940-1996																							
MONTH		NON-PULSE FLOWS					HIGH FLOW PULSE AND OVERBANK FLOWS												YELLOW SHADE=RECOMMENDED FREQ; OTHER COLOR = HISTORICAL FREQUENCIES. ALL STATED FREQUENCIES ULTIMATELY DEPENDANT ON HYDRO CONDITION (NOT YET DECIDED UPON BY BBEST)				
Month #	Month	SEASON	HIGH Base Flow (cfs)	MED Base Flow (cfs)	LOW Base Flow (cfs)	Subsistence Flow (cfs)	MAGNITUDE (CFS)	DURATION (DAYS)	VOLUME (AF)	MAGNITUDE (CFS)	DURATION (DAYS)	VOLUME (AF)	MAGNITUDE (CFS)	DURATION (DAYS)	VOLUME (AF)	MAGNITUDE (CFS)	DURATION (DAYS)	VOLUME (AF)	HIGH Base Flow (%)	MED Base Flow (%)	LOW Base Flow (%)	Subsistence Flow (%)	
1	Jan	1	17.4	11.5	7.6	2.0	1,250	9	4,903	648	8	2,523	3,490	10	13,750	4,630	11	18,216	41.8%	58.5%	75.0%	95.4%	
2	Feb	1	17.4	11.5	7.6	2.0	1,250	9	4,903	648	8	2,523	3,490	10	13,750	4,630	11	18,216	41.8%	58.5%	75.0%	95.4%	
3	Mar	2	22.0	14.0	9.0	2.5	1,890	8	7,067	1,171	8	4,421	3,490	10	13,750	4,630	11	18,216	42.7%	60.8%	77.2%	95.5%	
4	Apr	2	22.0	14.0	9.0	2.5	1,890	8	7,067	1,171	8	4,421	3,490	10	13,750	4,630	11	18,216	42.7%	60.8%	77.2%	95.5%	
5	May	2	22.0	14.0	9.0	2.5	1,890	8	7,067	1,171	8	4,421	3,490	10	13,750	4,630	11	18,216	42.7%	60.8%	77.2%	95.5%	
6	June	2	22.0	14.0	9.0	2.5	1,890	8	7,067	1,171	8	4,421	3,490	10	13,750	4,630	11	18,216	42.7%	60.8%	77.2%	95.5%	
7	Jul	3	22.2	14.0	7.0	0.7	279	9	1,320	75	7	357	3,490	10	13,750	4,630	11	18,216	40.5%	57.1%	71.1%	95.1%	
8	Aug	3	22.2	14.0	7.0	0.7	279	9	1,320	75	7	357	3,490	10	13,750	4,630	11	18,216	40.5%	57.1%	71.1%	95.1%	
9	Sept	4	19.0	12.0	6.9	0.8	1,880	10	7,652	799	8	3,173	3,490	10	13,750	4,630	11	18,216	41.4%	56.7%	71.2%	95.0%	
10	Oct	4	19.0	12.0	6.9	0.8	1,880	10	7,652	799	8	3,173	3,490	10	13,750	4,630	11	18,216	41.4%	56.7%	71.2%	95.0%	
11	Nov	4	19.0	12.0	6.9	0.8	1,880	10	7,652	799	8	3,173	3,490	10	13,750	4,630	11	18,216	41.4%	56.7%	71.2%	95.0%	
12	Dec	1	17.4	11.5	7.6	2.0	1,250	9	4,903	648	8	2,523	3,490	10	13,750	4,630	11	18,216	41.8%	58.5%	75.0%	95.4%	
							57 PULSES			114 PULSES			57 PULSES			28.5 PULSES							

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PERCENT OF MONTHS NON PULSE FLOWS MET AND NUMBER OF PULSES MET OVER WAM PERIOD OF RECORD USING => TCEQ RUN3

SEASON	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
WINTER	1	55%	66%	75%	93%	46	73																	
SPRING	2	46%	60%	71%	91%	40	62																	
SUMMER	3	19%	26%	38%	74%	21	59																	
FALL	4	44%	52%	62%	88%	22	53																	

PERCENT OF MONTHS NON PULSE FLOWS MET AND NUMBER OF PULSES MET OVER WAM PERIOD OF RECORD USING => TCEQ RUN8

SEASON	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
WINTER	1	55%	66%	75%	93%	46	73																	
SPRING	2	46%	60%	71%	91%	40	62																	
SUMMER	3	19%	26%	38%	74%	21	59																	
FALL	4	44%	52%	62%	88%	22	53																	