

Upper Rio Grande BBEST Environmental Flows Recommendations Report

Errata

Page 3-17, Table 3.3-1: The Period of Record for Devils River near Juno should be:
1/1/1926 to 2/28/1949 and
3/1/1963 to 12/31/1972

Page 3-50, Figure 3.5-11: Date in title of graph should be 2011, not 2010

Page 3-57, Figure 3.7-2: Caption should include "From TCEQ station 13265, TCEQ TDS standard = 15,000 mg/L".

Page 3-59, Figure 3.7-4: Caption should include "From TCEQ station 13257, TCEQ TDS standard = 15,000 mg/L".

Page 3-60, Figure 3.7-5: Caption should include "From TCEQ station 13109, TCEQ TDS standard = 4,000 mg/L".

Page 3-62, Figure 3.7-7: Caption should include "From TCEQ station 13240, TCEQ TDS standard = 4,000 mg/L".

Page 3-90, Figures 3.8-1 and 3.8-2: Captions should include "From TCEQ station 13237".

Page 4-1 to 4-13, Tables 4.1-1, 3, 6, 7, 8, 9, 10, 11, 12, and 13 should be replaced with the following:

Table 4.1-1. Environmental Flow Regime recommendations, Alamito Creek

Overbank Flows	Qp: 2,469 cfs with Average Frequency 1 per 5 years Regressed Volume is 9,996 Regressed Duration is 6											
	Qp: 1,459 cfs with Average Frequency 1 per 2 years Regressed Volume is 5,763 Regressed Duration is 6											
High Flow Pulses	Qp: 915 cfs with Average Frequency 1 per year Regressed Volume is 3,535 Regressed Duration is 5											
	Qp: 2 cfs with Average Frequency 1 per 2 seasons Volume is 1,448 Duration is 4				Qp: 484 cfs with Average Frequency 1 per 2 seasons Volume is 1,448 Duration is 4				Qp: 1,250 cfs with Average Frequency 1 per 2 seasons Volume is 5,175 Duration is 6			
					Qp: 226 cfs with Average Frequency 1 per season Volume is 648 Duration is 4				Qp: 675 cfs with Average Frequency 1 per season Volume is 2,700 Duration is 6			
Base Flows (cfs)	1.8 (49.5%)				1.8 (36.9%)				1.8 (49.4%)			
Subsistence Flows (cfs)	0.71 (97.8%)				0.71 (87.0%)				0.71 (87.8%)			
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
	Winter				Spring				Monsoon			

Flow Levels	High (75th %ile)
	Medium (50th %ile)
	Low (25th %ile)
	Subsistence

- Notes:
1. Period of record: 1/1/1932 to 12/31/2009
 2. Subsistence and base flows calculated using non-zero flows only.

Table 4.1-3. Environmental Flow Regime recommendations, Terlingua Creek

Overbank Flows	Qp: 5,933 cfs with Average Frequency 1 per 5 years Volume is 18,999 Duration is 7											
	Qp: 3,673 cfs with Average Frequency 1 per 2 years Volume is 11,913 Duration is 7											
High Flow Pulses	Qp: 2,370 cfs with Average Frequency 1 per year Regressed Volume is 7,760 Regressed Duration is 6											
	Qp: 49 cfs with Average Frequency 1 per 2 seasons Volume is 241 Duration is 5				Qp: 1,621 cfs with Average Frequency 1 per 2 seasons Volume is 5,261 Duration is 5				Qp: 3,002 cfs with Average Frequency 1 per 2 seasons Volume is 9,961 Duration is 7			
	Qp: 6 cfs with Average Frequency 1 per season Volume is 111 Duration is 4				Qp: 950 cfs with Average Frequency 1 per season Volume is 3,079 Duration is 5				Qp: 2,041 cfs with Average Frequency 1 per season Volume is 6,890 Duration is 7			
					Qp: 389 cfs with Average Frequency 2 per season Volume is 1,261 Duration is 4				Qp: 1,130 cfs with Average Frequency 2 per season Volume is 3,899 Duration is 6			
	Base Flows (cfs)											
2.8 (47.0%)				2.8 (42.3%)				2.8 (66.1%)				
Subsistence Flows (cfs)												
1.4 (96.2%)				1.1 (96.7%)				1.1 (97.7%)				
Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
Winter				Spring				Monsoon				

Flow Levels	High (75th %ile)
	Medium (50th %ile)
	Low (25th %ile)
	Subsistence

Notes:
 1. Period of record: 1/1/1932 to 12/31/2009
 2. Subsistence and base flows calculated using non-zero flows only.

Table 4.1-6. Environmental Flow Regime recommendations, Pecos River near Orla

Overbank Flows	Qp: 1,770 cfs with Average Frequency 1 per 5 years Volume is 8,979 Duration is 23											
	Qp: 1,090 cfs with Average Frequency 1 per 2 years Volume is 5,617 Duration is 18											
High Flow Pulses	Qp: 619 cfs with Average Frequency 1 per year Volume is 4,687 Duration is 13											
	Qp: 109 cfs with Average Frequency 1 per 2 seasons Volume is 4,460 Duration is 6				Qp: 577 cfs with Average Frequency 1 per 2 seasons Volume is 19,077 Duration is 15				Qp: 772 cfs with Average Frequency 1 per 2 seasons Volume is #N/A Duration is 12			
	Qp: 53 cfs with Average Frequency 1 per season Volume is #N/A Duration is 4				Qp: 417 cfs with Average Frequency 1 per season Volume is 13,530 Duration is 13				Qp: 429 cfs with Average Frequency 1 per season Volume is 1,412 Duration is 9			
	Base Flows (cfs)				Base Flows (cfs)				Base Flows (cfs)			
17 (31.9%)				44 (58.5%)				69 (52.4%)				
12 (50.1%)				15 (72.0%)				33 (68.3%)				
8.8 (67.1%)				9.1 (82.6%)				12 (82.7%)				
Subsistence Flows (cfs)				Subsistence Flows (cfs)				Subsistence Flows (cfs)				
3.3 (92.1%)				3.3 (96.5%)				3.3 (96.6%)				
Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
Winter				Spring				Monsoon				

Flow Levels	High (75th %ile)
	Medium (50th %ile)
	Low (25th %ile)
	Subsistence

- Notes:
1. Period of record: 1/1/1938 to 12/31/2009
 2. Subsistence and base flows calculated using non-zero flows only.

Table 4.1-7. Environmental Flow Regime recommendations, Pecos River near Pecos

Overbank Flows	Qp: 3,620 cfs with Average Frequency 1 per 5 years Volume is 131,386 Duration is 23											
	Qp: 2,180 cfs with Average Frequency 1 per 2 years Volume is 77,538 Duration is 19											
High Flow Pulses	Qp: 1,380 cfs with Average Frequency 1 per year Volume is 46,974 Duration is 16											
	Qp: 231 cfs with Average Frequency 1 per 2 seasons Volume is 8,297 Duration is 12				Qp: 1,190 cfs with Average Frequency 1 per 2 seasons Volume is #N/A Duration is 13				Qp: 1,270 cfs with Average Frequency 1 per 2 seasons Volume is 40,068 Duration is 14			
	Qp: 231 cfs with Average Frequency 1 per season Volume is 1,581 Duration is 6				Qp: 488 cfs with Average Frequency 1 per season Volume is #N/A Duration is 9				Qp: 470 cfs with Average Frequency 1 per season Volume is 8,422 Duration is 10			
	Qp: 21 cfs with Average Frequency 2 per season Volume is #N/A Duration is 3				Qp: 255 cfs with Average Frequency 2 per season Volume is 361 Duration is 7				Qp: 224 cfs with Average Frequency 2 per season Volume is #N/A Duration is 8			
	32 (45.1%)				78 (50.7%)				104 (45.0%)			
	9.9 (65.5%)				16 (66.6%)				30 (65.5%)			
Base Flows (cfs)	5.7 (82.3%)				4.6 (82.1%)				5.2 (82.3%)			
Subsistence Flows (cfs)	0.5 (98.8%)				0.4 (98.3%)				0.4 (98.1%)			
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
	Winter				Spring				Monsoon			

Flow Levels	High (75th %ile)
	Medium (50th %ile)
	Low (25th %ile)
	Subsistence

Notes:
 1. Period of record: 1/1/1902 to 12/31/1935
 2. Subsistence and base flows calculated using non-zero flows only.

Table 4.1-8. Environmental Flow Regime recommendations, Pecos River near Girvin

Overbank Flows	Qp: 923 cfs with Average Frequency 1 per 5 years Volume is 34,421 Duration is 35											
	Qp: 299 cfs with Average Frequency 1 per 2 years Volume is 9,895 Duration is 16											
High Flow Pulses	Qp: 161 cfs with Average Frequency 1 per year Volume is 4,511 Duration is 11											
	Qp: 47 cfs with Average Frequency 1 per 2 seasons Volume is 1,903 Duration is 11				Qp: 152 cfs with Average Frequency 1 per 2 seasons Volume is 1,756 Duration is 9				Qp: 164 cfs with Average Frequency 1 per 2 seasons Volume is 2,043 Duration is 10			
					Qp: 72 cfs with Average Frequency 1 per season Volume is 1,199 Duration is 6				Qp: 100 cfs with Average Frequency 1 per season Volume is 1,419 Duration is 7			
					Qp: 44 cfs with Average Frequency 2 per season Volume is 1,027 Duration is 4				Qp: 57 cfs with Average Frequency 2 per season Volume is 1,008 Duration is 4			
Base Flows (cfs)	32 (53.1%)				25 (45.8%)				27 (42.4%)			
	27 (70.3%)				19 (63.3%)				18 (60.1%)			
	22 (85.4%)				14 (78.7%)				13 (73.9%)			
Subsistence Flows (cfs)	8.7 (100.0%)				6.8 (95.8%)				6.3 (93.8%)			
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Winter				Spring				Monsoon				

Flow Levels	High (75th %ile)
	Medium (50th %ile)
	Low (25th %ile)
	Subsistence

Notes:
 1. Period of record: 1/1/1939 to 12/31/2011
 2. Subsistence and base flows calculated using non-zero flows only.

Table 4.1-9. Environmental Flow Regime recommendations, Independence Creek near Sheffield

Overbank Flows	Qp: 1,100 cfs with Average Frequency 1 per 5 years Volume is 5,800 Duration is 22											
	Qp: 612 cfs with Average Frequency 1 per 2 years Volume is 3,863 Duration is 18											
High Flow Pulses	Qp: 182 cfs with Average Frequency 1 per year Volume is 2,114 Duration is 11											
	Qp: 33 cfs with Average Frequency 1 per 2 seasons Volume is 2,666 Duration is 15				Qp: 100 cfs with Average Frequency 1 per 2 seasons Volume is 1,637 Duration is 8				Qp: 231 cfs with Average Frequency 1 per 2 seasons Volume is 1,777 Duration is 9			
					Qp: 42 cfs with Average Frequency 1 per season Volume is 1,115 Duration is 7				Qp: 44 cfs with Average Frequency 1 per season Volume is 1,013 Duration is 5			
Base Flows (cfs)	40				40				40			
	25				25				25			
Subsistence Flows (cfs)	18 (99.2%)				17 (96.1%)				17 (92.5%)			
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Winter				Spring				Monsoon				

Flow Levels	High (75th %ile)
	Medium (50th %ile)
	Low (25th %ile)
	Subsistence

Notes:

1. Period of record: 1/1/1975 to 2/28/1985 and 3/1/2000 to 12/31/2009
2. Subsistence and base flows calculated using non-zero flows only.

Table 4.1-10. Environmental Flow Regime recommendations, Pecos River near Brotherton Ranch

Overbank Flows	No flow recommendations											
High Flow Pulses	No flow recommendations											
Base Flows (cfs)	101				90				90			
	80				60				62			
Subsistence Flows (cfs)	39				39				39			
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
	Winter				Spring				Monsoon			

Flow Levels	High (75th %ile)
	Medium (50th %ile)
	Low (25th %ile)
	Subsistence

Notes:

1. Period of record: 1/1/2008 to 12/31/2012
2. Subsistence and base flows were not calculated using HEFR.

Table 4.1-11. Environmental Flow Regime recommendations, Pecos River near Langtry

Overbank Flows	Qp: 15,540 cfs with Average Frequency 1 per 5 years Volume is 63,337 Duration is 22											
	Qp: 7,593 cfs with Average Frequency 1 per 2 years Volume 35,590 Duration is 17											
High Flow Pulses	Qp: 3,991 cfs with Average Frequency 1 per year Volume is 23,372 Duration is 14											
					Qp: 2,670 cfs with Average Frequency 1 per 2 seasons Volume is 15,836 Duration is 9				Qp: 6,357 cfs with Average Frequency 1 per 2 seasons Volume is 33,460 Duration is 17			
					Qp: 569 cfs with Average Frequency 1 per season Volume is 6,871 Duration is 6				Qp: 1,441 cfs with Average Frequency 1 per season Volume is 14,961 Duration is 9			
					Qp: 252 cfs with Average Frequency 2 per season Volume is 5,468 Duration is 4				Qp: 459 cfs with Average Frequency 2 per season Volume is 11,300 Duration is 5			
Base Flows (cfs)	182 (51.8%)				158 (47.4%)				163 (47.2%)			
	154 (69.1%)				131 (65.3%)				135 (60.9%)			
	133 (85.0%)				109 (80.5%)				108 (73.7%)			
Subsistence Flows (cfs)	70 (99.9%)				76 (97.6%)				76 (93.3%)			
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
	Winter				Spring				Monsoon			

Flow Levels	High (75th %ile)
	Medium (50th %ile)
	Low (25th %ile)
	Subsistence

- Notes:
1. Period of record: 1/1/1967 to 12/31/2010
 2. Subsistence and base flows calculated using non-zero flows only.

Table 4.1-12. Environmental Flow Regime recommendations, Devils River near Juno

Overbank Flows	Qp: 39,200 cfs with Average Frequency 1 per 5 years Volume is 147,711 Duration is 17											
	Qp: 15,900 cfs with Average Frequency 1 per 2 years Volume is 72,060 Duration is 15											
High Flow Pulses	Qp: 3,570 cfs with Average Frequency 1 per year Volume is 21,870 Duration is 13											
					Qp: 2,340 cfs with Average Frequency 1 per 2 seasons Volume is 11,472 Duration is 8				Qp: 10,500 cfs with Average Frequency 1 per 2 seasons Volume is 54,533 Duration is 21			
					Qp: 387 cfs with Average Frequency 1 per season Volume is 6,313 Duration is 8				Qp: 990 cfs with Average Frequency 1 per season Volume is 13,068 Duration is 13			
Base Flows (cfs)	82 (54.2%)				125				86 (49.4%)			
	74 (67.1%)				125				77 (62.7%)			
	56 (81.6%)				59 (76.0%)				63 (76.9%)			
Subsistence Flows (cfs)	26 (97.1%)				24 (95.8%)				26 (95.3%)			
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
	Winter				Spring				Monsoon			

Flow Levels	High (75th %ile)
	Medium (50th %ile)
	Low (25th %ile)
	Subsistence

Notes:

1. Period of record: 1/1/1926 to 2/28/1949 and 3/1/1963 to 12/31/1972
2. Subsistence and base flows calculated using non-zero flows only.

Table 4.1-13. Environmental Flow Regime recommendations, Devils River at Pafford's Crossing

Overbank Flows	Qp: 34,110 cfs with Average Frequency 1 per 5 years Volume is 148,364 Duration is 22											
	Qp: 10,100 cfs with Average Frequency 1 per 2 years Volume 59,961 Duration is 16											
High Flow Pulses	Qp: 3,673 cfs with Average Frequency 1 per year Volume is 34,752 Duration is 13											
					Qp: 1,462 cfs with Average Frequency 1 per 2 seasons Volume is 21,327 Duration is 9				Qp: 6,816 cfs with Average Frequency 1 per 2 seasons Volume is 46,548 Duration is 14			
					Qp: 558 cfs with Average Frequency 1 per season Volume is 17,374 Duration is 7				Qp: 1,872 cfs with Average Frequency 1 per season Volume is 27,781 Duration is 9			
	Qp: 318 cfs with Average Frequency 2 per season Volume is 27,781 Duration is 9											
	Qp: 318 cfs with Average Frequency 2 per season Volume is 27,781 Duration is 9											
Base Flows (cfs)	243 (56.5%)			253 (41.5%)			238 (49.7%)					
	200 (69.0%)			207 (59.3%)			206 (62.9%)					
	175 (81.3%)			160 (74.5%)			166 (76.5%)					
Subsistence Flows (cfs)	84 (96.3%)			91 (94.1%)			87 (94.7%)					
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
	Winter				Spring				Monsoon			

Flow Levels	High (75th %ile)
	Medium (50th %ile)
	Low (25th %ile)
	Subsistence

- Notes:
1. Period of record: 1/1/1960 to 12/31/2009
 2. Subsistence and base flows calculated using non-zero flows only.