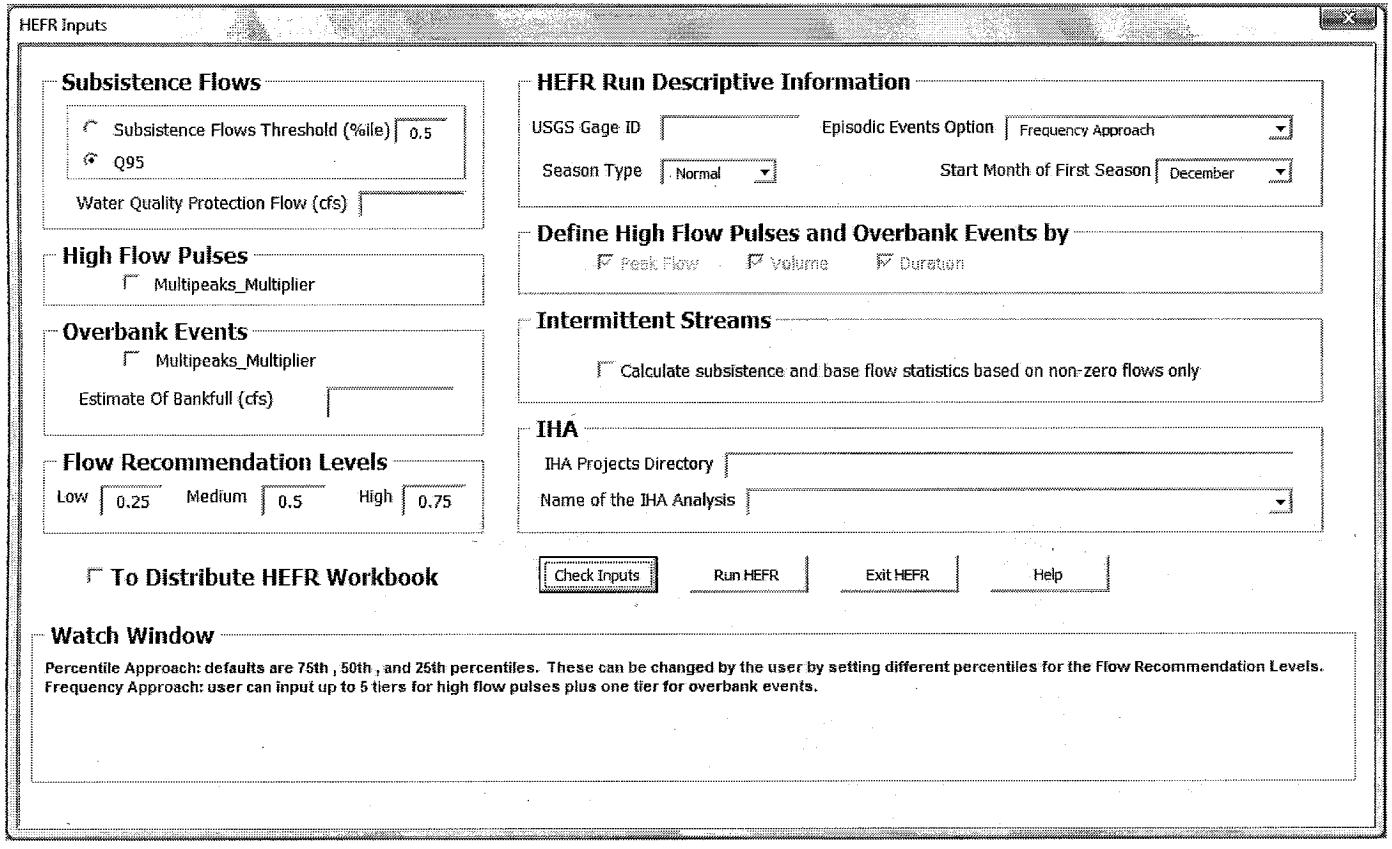
	HDF Name	Entire Begin	Entire End	Pre Begin	Pre End	Post Begin	Post End	0.75 high flow	0.1 extreme low	NWF Overbank
Ballinger	08126380 Colorado Rv nr Ballinger	1908	2009	1908	1967	1970	2009	83	0.1	4,900
San Saba	08147000 Colorado Rv nr San Saba	1924	2009	1924	1989	1970	2009	615	44	43,500
Llano	08151500 Llano Rv at Llano	1940	2009	1940	2009	1970	2009	275	36	19,150
Johnson City	08153500 Pedernales Rv nr Johnson City	1940	2009	1940	2009	1970	2009	131	3	11,350
Columbus	08161000 Colorado Rv at Columbus	1917	2009	1917	1936	1970	2009	3380	321	46,900
Edna	08164000 Lavaca Rv nr Edna	1939	2009	1939	2009	1970	2009	100	6.9	6,400
Inez	08164600 Garcitas Ck nr Inez	1971	2009	1971	2009	1971	2009	10	0.08	3,700



From Jóe Trungale, June 1, 2010

Colorado River @ Ballinger Pre, 1908-1967

Overbank Flows	Qp: 4,900 cfs with Average Frequency 1 per year Regressed Volume is 8,740 to 30,274 (19,507) Regressed Duration is 2 to 11 (4)											
High Flow Pulses	Qp: 107 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 13,380 (2,068) Regressed Duration is 1 to			Qp: 6,080 cfs with Average Frequency 1 per season Regressed Volume is 9,257 to 28,833 (19,045) Regressed Duration is 2 to Qp: 3,240 cfs with Average Frequency 2 per season Regressed Volume is 1,076 to 20,648 (10,862) Regressed Duration is 1 to			Qp: 4,410 cfs with Average Frequency 1 per season Regressed Volume is 5,984 to 27,117 (16,551) Regressed Duration is 2 to Qp: 2,200 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 19,672 (9,107) Regressed Duration is 2 to			Qp: 4,420 cfs with Average Frequency 1 per season Regressed Volume is 7,608 to 27,245 (17,427) Regressed Duration is 2 to Qp: 2,000 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 18,274 (8,454) Regressed Duration is 1 to		
Base Flows (cfs)	28	26	19	22	30	41	48	38	40	39	38	33
	(32.5%)	(27.2%)	(30.0%)	(28.4%)	(39.9%)	(63.1%)	(59.4%)	(47.0%)	(41.8%)	(52.8%)	(47.4%)	(36.3%)
	12	11	9.9	9.2	9.9	17	26	16	16	15	16	16
	(54.0%)	(53.2%)	(51.8%)	(47.9%)	(55.4%)	(74.0%)	(72.2%)	(61.2%)	(54.9%)	(66.6%)	(64.4%)	(57.4%)
	4.8	3.6	4.5	3.4	2.4	4.1	9.8	3.3	2.9	3.8	4.4	6.1
	(75.4%)	(73.8%)	(74.6%)	(68.3%)	(71.9%)	(84.5%)	(83.8%)	(72.8%)	(68.0%)	(79.9%)	(76.8%)	(75.8%)
Subsistence Flows (cfs)	0.4	0.3	0.2	0	0	0.2	0.41	0	0	0	0	0.3
	(96.2%)	(95.3%)	(95.8%)	(100.0%)	(100.0%)	(95.3%)	(95.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(95.2%)
	Dec	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**
	Winter			**Spring**			**Summer**			**Fall**		

From Joe Trungale, June 1, 2010

Colorado River @ Ballinger Post, 1970-2009

Overbank Flows	Qp: 3,250 cfs with Average Frequency 1 per 2 years Regressed Volume is 11,166 to 35,681 (23,424) Regressed Duration is 2 to 16 (6)											
High Flow Pulses				Qp: 196 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 16,424 (137) Regressed Duration is 1 to			Qp: 249 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 12,828 (2,639) Regressed Duration is 1 to Qp: 98 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 11,596 (1,403) Regressed Duration is 1 to			Qp: 296 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 9,526 (1,321) Regressed Duration is 1 to		
Base Flows (cfs)	24 (29.8%) 12 (53.4%) 5.8 (76.8%)	23 (30.2%) 12 (55.1%) 6.4 (77.0%)	21 (31.9%) 11 (55.5%) 5.6 (77.6%)	21 (33.9%) 10 (55.8%) 4.4 (77.1%)	18 (34.7%) 7.9 (55.6%) 2.5 (77.7%)	24 (35.6%) 11 (55.7%) 3.1 (75.9%)	19 (38.8%) 8.2 (57.5%) 2.1 (76.4%)	13 (30.4%) 4.5 (49.3%) 1.5 (69.2%)	17 (31.3%) 5.9 (50.8%) 1.8 (70.4%)	16 (34.8%) 9 (53.6%) 3.8 (73.5%)	19 (34.4%) 11 (56.6%) 5.9 (74.9%)	23 (31.2%) 12 (53.8%) 6.1 (75.9%)
Subsistence Flows (cfs)	0.79 (95.0%)	2.8 (95.2%)	1.4 (95.8%)	0.76 (95.0%)	0.58 (95.1%)	0.33 (95.2%)	0.1 (95.2%)	0 (100.0%)	0 (100.0%)	0.07 (95.0%)	0.4 (95.0%)	0.58 (95.0%)
	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
	Winter			Spring			Summer			Fall		

From Joe Trungale, June 1, 2010

Colorado River @ Ballinger (Entire HEFR v 7.1), 1908-2009

Overbank Flows	Qp: 4,900 cfs with Frequency 1 per year Volume is 8,592 to 30,814 (19,703) Duration is 2 to 11 (4)											
High Flow Pulses				Qp: 3,820 cfs with Frequency 1 per season Volume is 1,350 to 23,917 (12,634) Duration is 2 to 10 (4) Qp: 1,180 cfs with Frequency 2 per season Volume is #N/A to 17,289 (6,003) Duration is 1 to 8 (3)			Qp: 3,180 cfs with Frequency 1 per season Volume is 1,845 to 22,927 (12,386) Duration is 2 to 11 (4) Qp: 1,060 cfs with Frequency 2 per season Volume is #N/A to 16,144 (5,603) Duration is 1 to 9 (3)			Qp: 2,760 cfs with Frequency 1 per season Volume is 1,653 to 20,818 (11,235) Duration is 1 to 10 (4) Qp: 806 cfs with Frequency 2 per season Volume is #N/A to 13,578 (3,993) Duration is 1 to 8 (3)		
Base Flows (cfs)	26 (31.3%)	24 (28.7%)	20 (31.2%)	22 (30.7%)	24 (37.8%)	33 (52.1%)	35 (51.3%)	28 (40.0%)	27 (37.6%)	27 (44.7%)	29 (41.7%)	28 (34.7%)
	12 (53.9%)	12 (51.8%)	10 (54.0%)	10 (50.9%)	10 (55.9%)	13 (67.3%)	15 (66.5%)	9 (55.7%)	9 (53.2%)	11 (61.6%)	13 (59.9%)	14 (56.2%)
	6 (76.0%)	5 (75.0%)	6 (75.1%)	4 (72.1%)	3 (74.2%)	4 (81.5%)	5 (80.8%)	2 (71.3%)	2 (69.4%)	4 (77.6%)	6 (76.0%)	6 (76.3%)
Subsistence Flows (cfs)	0 (100.0%	0 (100.0%	0 (100.0%	0 (100.0%	0 (100.0%	0 (100.0%	0 (100.0%	0 (100.0%	0 (100.0%	0 (100.0%	0 (100.0%	0 (100.0%
	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
	Winter			Spring			Summer			Fall		

From Joe Trungale, June 1, 2010

San Saba (Entire), 1924-2009

Overbank Flows	Qp: 43,500 cfs with Average Frequency 1 per 2 years Regressed Volume is 307,664 to 494,185 (400,924) Regressed Duration is 11 to 52 (24)											
High Flow Pulses	Qp: 964 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 76,568 (6,334) Regressed Duration is 1 to			Qp: 6,310 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 188,594 (72,102) Regressed Duration is 3 to Qp: 1,450 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 113,008 (#N/A) Regressed Duration is 1 to			Qp: 3,820 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 78,627 (30,036) Regressed Duration is 3 to Qp: 1,100 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 53,253 (4,650) Regressed Duration is 1 to			Qp: 5,330 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 139,938 (43,988) Regressed Duration is 2 to Qp: 934 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 107,308 (11,309) Regressed Duration is 1 to		
Base Flows (cfs)	272 (34.4%)	301 (34.8%)	307 (38.1%)	310 (38.2%)	284 (40.5%)	363 (62.1%)	368 (57.7%)	339 (37.4%)	281 (33.2%)	291 (44.1%)	308 (45.9%)	304 (36.6%)
	181 (55.1%)	202 (55.6%)	202 (58.4%)	189 (56.8%)	177 (58.2%)	222 (73.7%)	224 (70.2%)	198 (52.4%)	148 (49.0%)	173 (58.4%)	172 (61.2%)	187 (57.0%)
	120 (76.3%)	128 (76.7%)	128 (78.0%)	122 (75.6%)	108 (75.9%)	133 (85.3%)	138 (82.7%)	104 (67.3%)	87 (64.5%)	98 (73.2%)	100 (76.4%)	113 (76.7%)
Subsistence Flows (cfs)	55 (95.1%)	54 (95.4%)	66 (95.2%)	37 (95.0%)	38 (95.0%)	64 (95.2%)	48 (95.1%)	9 (95.0%)	9.4 (95.0%)	19 (95.0%)	31 (95.1%)	55 (95.1%)
	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
	Winter			Spring			Summer			Fall		

From Joe Trungale, June 1, 2010

Llano (Entire, ~~Pre~~), 1940-2009

Overbank Flows	Qp: 18,200 cfs with Average Frequency 1 per 2 years Regressed Volume is 58,633 to 144,296 (101,464) Regressed Duration is 4 to 30 (11)											
High Flow Pulses	Qp: 400 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 37,608 (3,360) Regressed Duration is 1 to			Qp: 1,240 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 43,872 (9,878) Regressed Duration is 2 to Qp: 370 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 31,620 (#N/A) Regressed Duration is 1 to			Qp: 791 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 57,633 (6,723) Regressed Duration is 1 to Qp: 299 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 54,168 (3,251) Regressed Duration is 1 to			Qp: 1,190 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 54,495 (11,958) Regressed Duration is 1 to Qp: 355 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 50,502 (7,959) Regressed Duration is 1 to		
Base Flows (cfs)	191 (41.6%)	194 (42.5%)	193 (44.9%)	189 (46.4%)	189 (44.1%)	187 (51.0%)	168 (43.3%)	139 (34.7%)	148 (31.2%)	165 (40.8%)	184 (41.3%)	198 (42.6%)
	152 (60.2%)	148 (61.2%)	152 (62.2%)	142 (63.5%)	135 (61.0%)	138 (66.4%)	114 (59.0%)	96 (49.9%)	98 (46.9%)	112 (56.8%)	133 (58.4%)	144 (60.3%)
	105 (78.5%)	110 (80.4%)	108 (79.7%)	99 (80.5%)	97 (78.1%)	97 (81.9%)	78 (74.7%)	66 (65.4%)	64 (62.9%)	80 (72.7%)	90 (76.5%)	97 (77.8%)
Subsistence Flows (cfs)	44 (95.6%)	49 (95.0%)	45 (95.1%)	44 (95.1%)	36 (95.0%)	48 (95.2%)	20 (95.1%)	4.5 (95.0%)	1.1 (95.1%)	15 (95.0%)	28 (95.1%)	37 (95.2%)
	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
	Winter			Spring			Summer			Fall		

From Joe Trungale, June 1, 2010

Llano (Post 1970-2009)

Overbank Flows	Qp: 19,150 cfs with Average Frequency 1 per 2 years Regressed Volume is 57,934 to 154,205 (106,069) Regressed Duration is 4 to 34 (11)											
High Flow Pulses	Qp: 335 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 37,250 (2,616) Regressed Duration is 1 to			Qp: 944 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 35,339 (7,567) Regressed Duration is 2 to Qp: 354 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 26,979 (#N/A) Regressed Duration is 1 to			Qp: 775 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 77,610 (8,903) Regressed Duration is 1 to			Qp: 1,190 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 55,582 (12,345) Regressed Duration is 1 to Qp: 352 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 51,790 (8,544) Regressed Duration is 1 to		
Base Flows (cfs)	205 (47.3%)	211 (46.4%)	206 (48.4%)	201 (51.6%)	197 (46.8%)	192 (53.7%)	175 (48.3%)	135 (39.6%)	158 (35.5%)	174 (46.5%)	206 (43.3%)	207 (49.3%)
	168 (65.1%)	172 (64.4%)	172 (65.5%)	166 (67.7%)	149 (64.4%)	146 (68.5%)	128 (65.2%)	96 (56.5%)	103 (53.5%)	121 (62.7%)	150 (62.3%)	169 (66.3%)
	139 (82.8%)	136 (81.9%)	132 (82.5%)	134 (83.8%)	112 (82.0%)	103 (83.2%)	89 (81.3%)	71 (73.4%)	69 (71.6%)	92 (78.9%)	107 (81.2%)	126 (83.2%)
Subsistence Flows (cfs)	97 (95.1%)	105 (95.2%)	98 (96.0%)	94 (95.5%)	77 (95.3%)	62 (95.2%)	51 (95.1%)	23 (95.0%)	24 (95.2%)	35 (95.1%)	74 (95.1%)	90 (95.1%)
	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
	Winter			Spring			Summer			Fall		

From Joe Trungale, June 1, 2010

Pedernales @ Johnson City (Entire), 1940-2009

Overbank Flows	Qp: 10,900 cfs with Average Frequency 1 per 2 years Regressed Volume is 15,863 to 62,292 (39,078) Regressed Duration is 3 to 26 (9)											
High Flow Pulses	Qp: 218 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 28,525 (4,102) Regressed Duration is 1 to			Qp: 1,220 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 36,193 (9,809) Regressed Duration is 2 to Qp: 277 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 28,072 (1,682) Regressed Duration is 1 to			Qp: 876 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 28,951 (5,789) Regressed Duration is 1 to Qp: 156 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 25,951 (2,782) Regressed Duration is 1 to			Qp: 890 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 13,365 (4,907) Regressed Duration is 1 to Qp: 218 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 11,922 (3,463) Regressed Duration is 1 to		
Base Flows (cfs)	71 (42.2%)	80 (44.9%)	80 (48.0%)	78 (49.5%)	82 (53.8%)	94 (53.6%)	73 (47.1%)	56 (34.5%)	48 (26.4%)	57 (31.0%)	58 (36.9%)	68 (39.5%)
	43 (61.3%)	43 (63.1%)	48 (64.9%)	47 (66.3%)	45 (68.1%)	60 (68.0%)	41 (62.7%)	30 (49.9%)	26 (42.5%)	29 (50.1%)	31 (56.4%)	42 (58.3%)
	21 (79.9%)	21 (80.9%)	26 (82.1%)	25 (82.4%)	24 (83.0%)	25 (82.7%)	18 (78.1%)	14 (65.6%)	11 (58.4%)	14 (69.2%)	17 (74.7%)	19 (78.0%)
Subsistence Flows (cfs)	6.6 (95.2%)	8 (95.4%)	10 (95.2%)	7.3 (95.1%)	5 (95.0%)	6.5 (95.0%)	1.9 (95.0%)	0 (100.0%)	0 (100.0%)	0 (100.0%)	1.6 (95.1%)	4.8 (95.2%)
	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
	Winter			Spring			Summer			Fall		

From Joe Trungale, June 1, 2010

Colorado River @ Columbus (Pre), 1917-1936

Overbank Flows	Qp: 46,900 cfs with Average Frequency 1 per 2 years Regressed Volume is 238,591 to 629,918 (434,255) Regressed Duration is 3 to 22 (9)											
High Flow Pulses	Qp: 10,900 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 216,328 (91,097) Qp: 3,850 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 131,665 (5,592) Regressed Duration is 1 to			Qp: 32,000 cfs with Average Frequency 1 per season Regressed Volume is 62,221 to 442,184 (252,203) Qp: 13,600 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 295,670 (105,778)			Qp: 11,500 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 349,935 (119,954) Qp: 4,060 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 241,734 (11,199) Regressed Duration is 1 to			Qp: 41,300 cfs with Average Frequency 1 per season Regressed Volume is 101,652 to 477,952 Qp: 13,100 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 270,622 (82,770)		
Base Flows (cfs)	1325	1360	1395	1860	1830	2230	2310	1630	1340	1640	1703	1630
	(38.1%)	(37.1%)	(39.8%)	(38.7%)	(46.5%)	(61.5%)	(54.3%)	(36.5%)	(25.8%)	(41.0%)	(43.9%)	(40.7%)
	882	869	884	1130	1080	1410	1630	989	812	827	1025	1030
	(56.3%)	(57.3%)	(59.1%)	(56.8%)	(62.2%)	(73.9%)	(69.7%)	(56.3%)	(41.8%)	(57.8%)	(58.1%)	(57.7%)
	590	501	590	615	618	956	984	633	489	520	607	610
	(76.1%)	(77.6%)	(79.5%)	(74.8%)	(77.3%)	(85.8%)	(84.8%)	(76.3%)	(57.7%)	(75.2%)	(72.7%)	(75.0%)
Subsistence Flows (cfs)	285	340	369	296	299	498	536	331	125	278	187	196
	(95.2%)	(95.5%)	(95.0%)	(95.3%)	(95.0%)	(95.0%)	(95.0%)	(95.0%)	(95.2%)	(95.2%)	(95.5%)	(95.0%)
	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
	Winter			Spring			Summer			Fall		

Colorado River @ Columbus (Post), 1970-2009

Overbank Flows	Qp: 46,900 cfs with Average Frequency 1 per 2 years Regressed Volume is 293,218 to 753,220 (523,219) Regressed Duration is 4 to 27 (11)											
High Flow Pulses	Qp: 8,740 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 291,510 (85,411) Regressed Duration is 2 to Qp: 3,820 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 191,323 (#N/A) Regressed Duration is 1 to			Qp: 11,000 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 311,798 (151,081) Qp: 4,690 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 169,880 (8,938) Regressed Duration is 1 to			Qp: 4,310 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 353,213 (#N/A) Regressed Duration is 1 to			Qp: 8,630 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 189,916 (55,802) Regressed Duration is 1 to Qp: 3,700 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 145,735 (11,384) Regressed Duration is 1 to		
Base Flows (cfs)	1215	1660	1180	1505	1860	2260	2490	2200	2010	1910	1250	973
	(32.6%)	(34.9%)	(36.0%)	(42.0%)	(41.1%)	(45.2%)	(49.1%)	(40.2%)	(29.0%)	(30.7%)	(34.4%)	(32.5%)
	635	864	726	880	1440	1920	2210	1880	1650	1550	928	588
	(50.3%)	(53.2%)	(54.8%)	(59.3%)	(60.7%)	(63.6%)	(66.0%)	(59.9%)	(52.5%)	(54.3%)	(55.2%)	(50.3%)
	457	524	498	597	1080	1640	1930	1530	1330	1280	625	461
	(68.0%)	(71.6%)	(73.6%)	(76.5%)	(80.6%)	(82.2%)	(83.3%)	(80.0%)	(76.5%)	(77.5%)	(76.0%)	(68.2%)
Subsistence Flows (cfs)	246	266	285	292	754	1310	1561	1220	991	985	366	253
	(95.0%)	(95.0%)	(95.0%)	(95.1%)	(95.0%)	(95.2%)	(95.0%)	(95.2%)	(95.0%)	(95.0%)	(95.1%)	(95.0%)
	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
	Winter			Spring			Summer			Fall		

Columbus (Entire HEFR v 7.1)

Overbank Flows	Qp: 46,900 cfs with Frequency 1 per 2 years Volume is 236,231 to 738,447 (487,339) Duration is 4 to 22 (9)											
High Flow Pulses	Qp: 9,030 cfs with Frequency 1 per season Volume is #N/A to 268,277 (86,800) Duration is 2 to 8 (4) Qp: 4,050 cfs with Frequency 2 per season Volume is #N/A to 173,868 (#N/A) Duration is 1 to 4 (2)			Qp: 14,600 cfs with Frequency 1 per season Volume is #N/A to 411,376 (146,427) Duration is 2 to 12 (5) Qp: 5,210 cfs with Frequency 2 per season Volume is #N/A to 300,478 (35,358) Duration is 1 to 6 (2)			Qp: 6,060 cfs with Frequency 1 per season Volume is #N/A to 400,745 (58,258) Duration is 1 to 8 (3)			Qp: 13,400 cfs with Frequency 1 per season Volume is #N/A to 262,787 (82,761) Duration is 1 to 8 (3)		
Base Flows (cfs)	1500 (34.0%)	1700 (35.6%)	1670 (37.9%)	1710 (39.8%)	1810 (43.2%)	2290 (49.1%)	2450 (49.0%)	2160 (40.1%)	2010 (30.2%)	1920 (32.9%)	1480 (35.7%)	1480 (35.6%)
	852 (51.8%)	960 (53.8%)	907 (56.0%)	972 (57.2%)	1310 (61.6%)	1820 (66.2%)	2100 (66.1%)	1810 (60.5%)	1620 (51.9%)	1480 (54.7%)	975 (54.9%)	800 (52.9%)
	523 (69.6%)	552 (71.8%)	570 (74.2%)	615 (74.6%)	910 (79.6%)	1440 (83.0%)	1750 (83.2%)	1370 (79.5%)	1240 (73.0%)	1100 (76.6%)	618 (74.4%)	505 (70.3%)
Subsistence Flows (cfs)	249 (93.9%)	246 (95.0%)	258 (96.2%)	270 (96.0%)	285 (98.9%)	304 (99.8%)	N/A	258 (99.6%)	225 (97.2%)	271 (99.1%)	254 (96.9%)	258 (93.9%)
	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
	Winter			Spring			Summer			Fall		

From Joe Trungale, June 1, 2010

Lavaca River @ Edna (Entire), 1939-2009

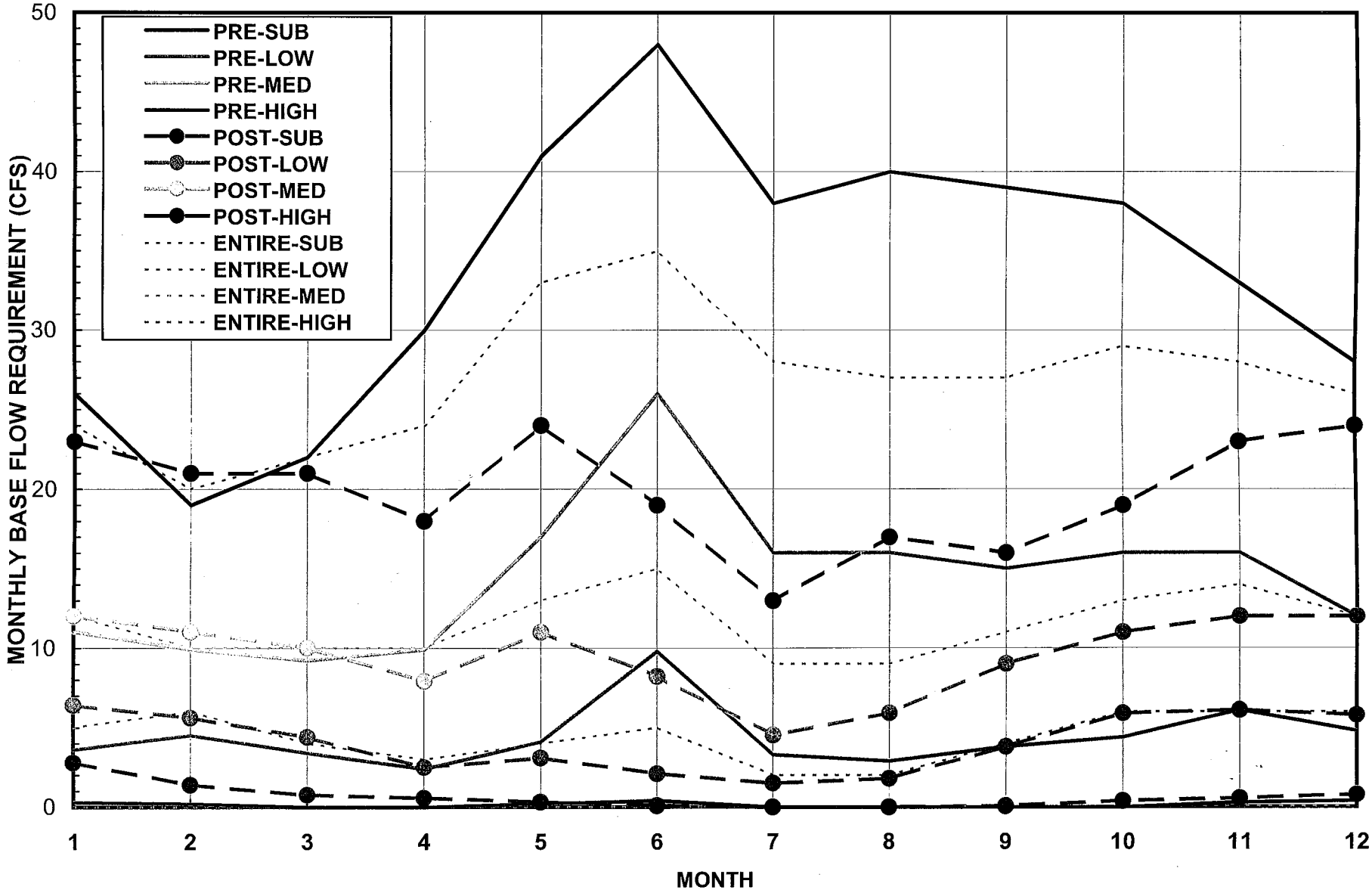
Overbank Flows	Qp: 6,400 cfs with Average Frequency 1 per 2 years Regressed Volume is 16,373 to 48,529 (32,451) Regressed Duration is 2 to 18 (7)											
High Flow Pulses	Qp: 3,380 cfs with Average Frequency 1 per season Regressed Volume is 4,157 to 36,151 (20,154) Regressed Duration is 2 to			Qp: 5,890 cfs with Average Frequency 1 per season Regressed Volume is 14,475 to 43,215 (28,845) Regressed Duration is 2 to			Qp: 2,960 cfs with Average Frequency 1 per season Regressed Volume is 2,155 to 29,498 (15,826) Regressed Duration is 2 to			Qp: 4,540 cfs with Average Frequency 1 per season Regressed Volume is 4,618 to 43,300 (23,959) Regressed Duration is 2 to		
	Qp: 468 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 19,850 (3,839) Regressed Duration is 1 to			Qp: 2,600 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 28,356 (13,987) Regressed Duration is 2 to			Qp: 263 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 16,109 (2,430) Regressed Duration is 1 to			Qp: 811 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 23,882 (4,537) Regressed Duration is 1 to		
Base Flows (cfs)	56	66	69	67	69	62	64	55	50	48	48	52
	(49.3%)	(52.9%)	(57.4%)	(56.4%)	(53.2%)	(58.1%)	(55.4%)	(45.2%)	(29.0%)	(39.7%)	(40.9%)	(45.1%)
	35	41	42	43	46	41	39	31	30	31	27	32
	(64.2%)	(68.5%)	(71.4%)	(71.4%)	(69.1%)	(71.4%)	(68.5%)	(62.2%)	(47.3%)	(55.1%)	(56.8%)	(60.4%)
	20	22	27	24	27	23	22	17	17	18	18	18
	(78.9%)	(82.6%)	(85.5%)	(85.6%)	(83.3%)	(84.7%)	(81.7%)	(78.0%)	(65.4%)	(71.2%)	(72.7%)	(74.8%)
Subsistence Flows (cfs)	4	9.4	12	12	13	11	5.7	3.6	0.62	1.6	1.2	0.57
	(95.1%)	(95.0%)	(95.2%)	(95.8%)	(95.4%)	(95.4%)	(95.1%)	(95.0%)	(95.0%)	(95.1%)	(95.1%)	(95.0%)
	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
	Winter			Spring			Summer			Fall		

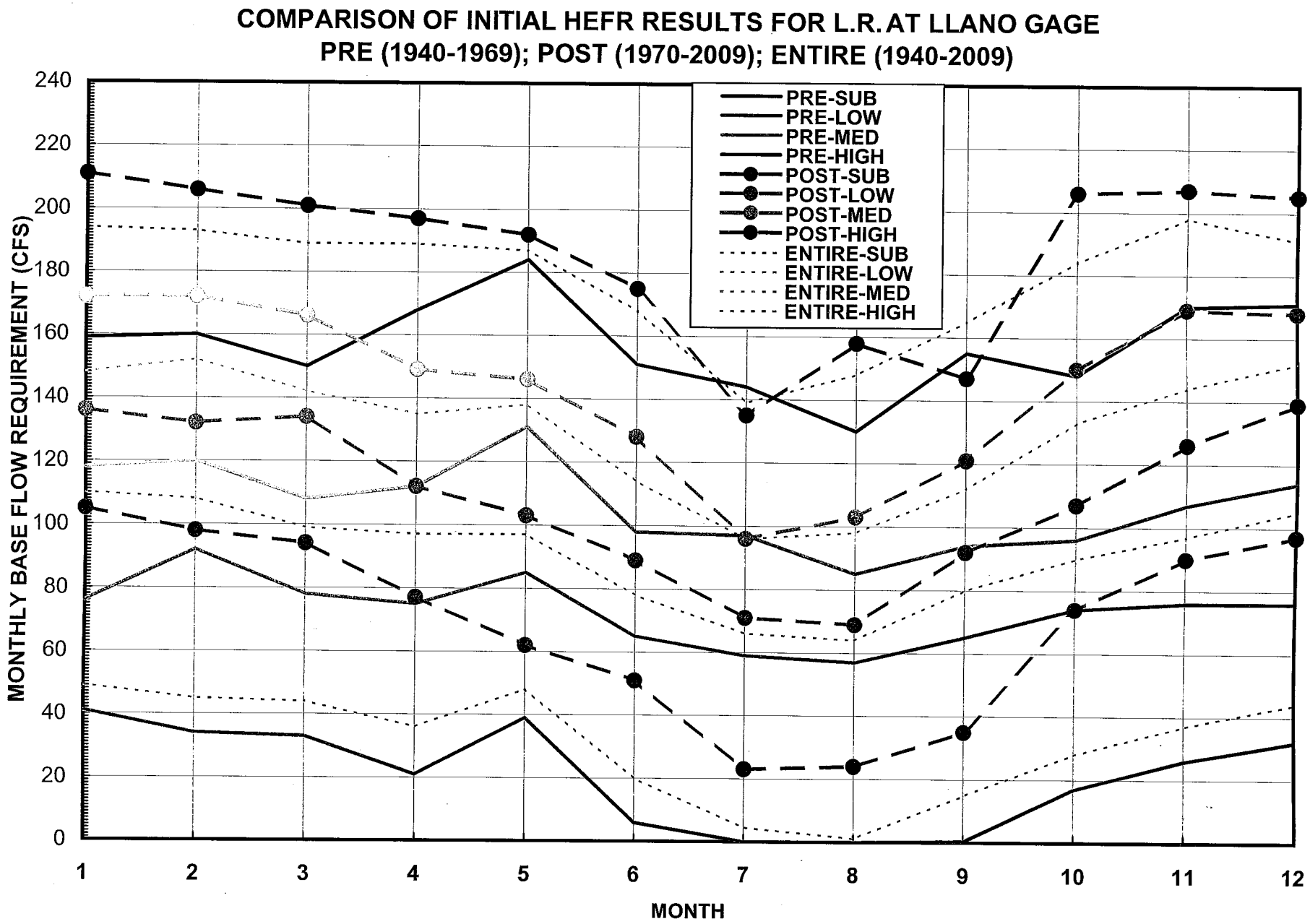
From Joe Trungale, June 1, 2010

Garcitas Creek @ Inez (Entire), 1971-2009

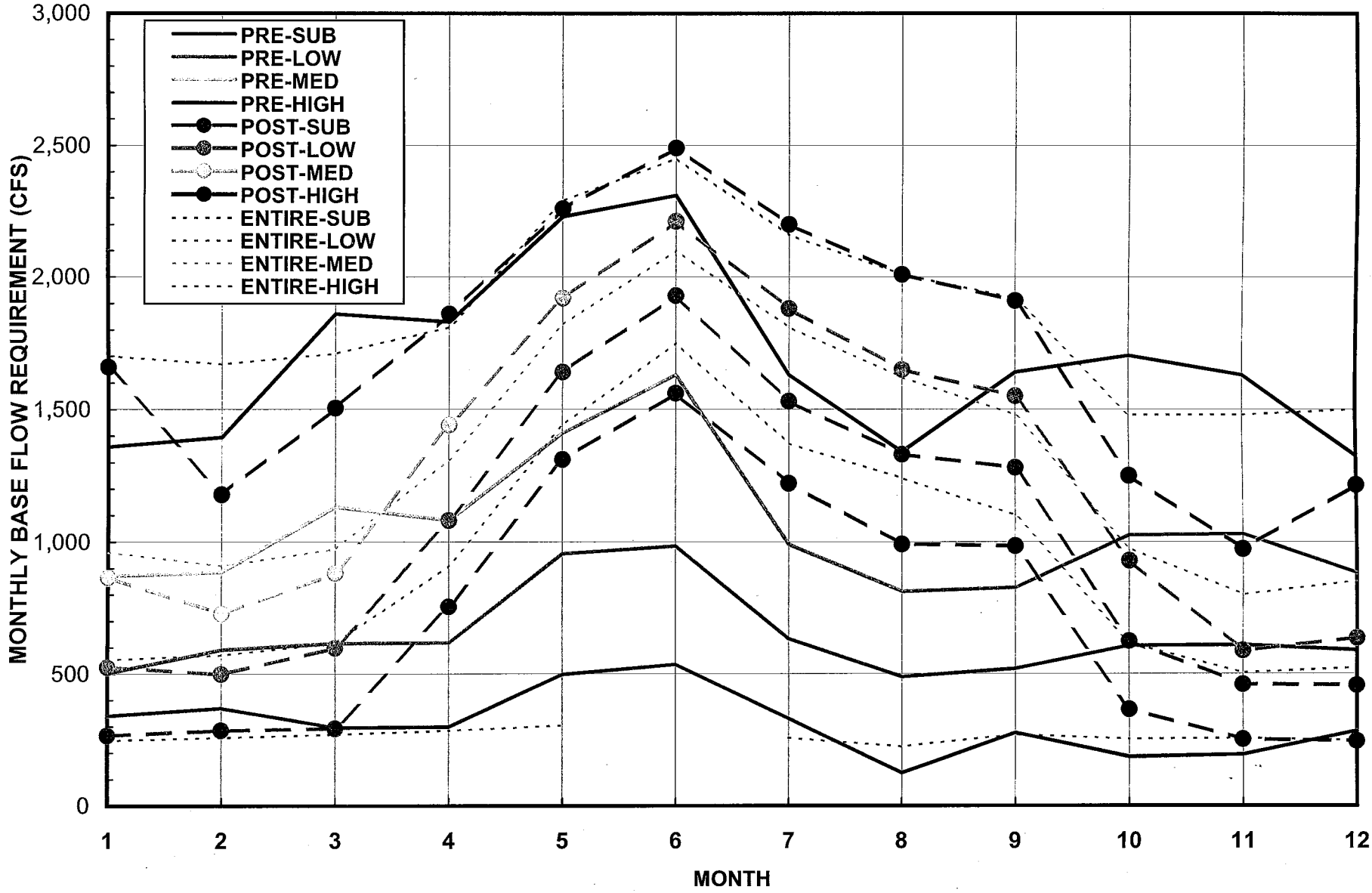
Overbank Flows	Qp: 3,700 cfs with Average Frequency 1 per 2 years Regressed Volume is 11,292 to 19,997 (15,645) Regressed Duration is 5 to 34 (13)											
High Flow Pulses	Qp: 240 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 6,152 (1,400) Regressed Duration is 4 to			Qp: 756 cfs with Average Frequency 1 per season Regressed Volume is 209 to 7,822 (4,016) Regressed Duration is 3 to			Qp: 110 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 4,958 (511) Regressed Duration is 2 to			Qp: 556 cfs with Average Frequency 1 per season Regressed Volume is #N/A to 6,765 (2,736) Regressed Duration is 2 to		
	Qp: 14 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 4,557 (#N/A) Regressed Duration is 1 to			Qp: 48 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 4,534 (721) Regressed Duration is 1 to			Qp: 13 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 4,294 (#N/A) Regressed Duration is 1 to			Qp: 49 cfs with Average Frequency 2 per season Regressed Volume is #N/A to 4,911 (879) Regressed Duration is 1 to		
Base Flows (cfs)	4.3	4.9	4.2	4.6	4	4	4.3	4.2	2.8	3.2	4.3	4.8
	(42.3%)	(50.5%)	(46.6%)	(43.3%)	(42.6%)	(47.7%)	(47.5%)	(38.1%)	(27.8%)	(41.3%)	(42.1%)	(41.8%)
	2.9	3.1	2.8	2.5	2.3	2.1	2.2	2	1.8	1.8	1.9	2.9
	(59.6%)	(65.9%)	(64.4%)	(62.5%)	(61.6%)	(63.7%)	(60.1%)	(54.8%)	(46.8%)	(57.2%)	(58.7%)	(59.8%)
	1.3	1.8	1.6	1.2	1.1	0.94	0.83	0.81	0.83	0.88	0.93	1.4
	(77.8%)	(81.8%)	(81.0%)	(82.4%)	(80.9%)	(78.6%)	(72.2%)	(70.8%)	(65.2%)	(72.8%)	(74.8%)	(76.3%)
Subsistence Flows (cfs)	0.06	0.48	0.37	0.4	0.33	0.05	0	0	0	0	0	0.01
	(95.0%)	(95.1%)	(95.0%)	(95.1%)	(95.0%)	(95.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(95.2%)
	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
	Winter			Spring			Summer			Fall		

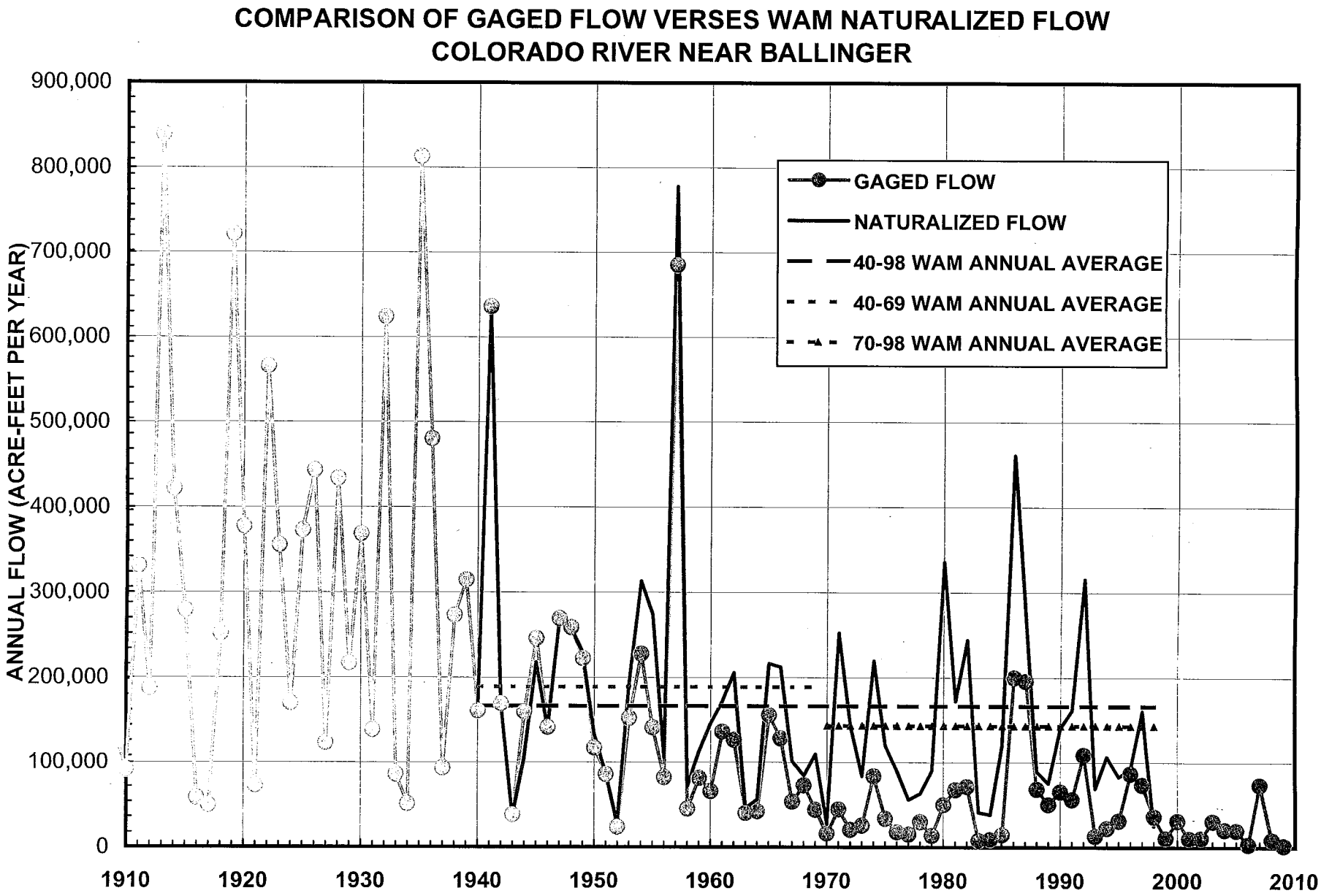
COMPARISON OF INITIAL HEFR RESULTS FOR C.R. NEAR BALLINGER GAGE
PRE (1908-1967[SPENCE]); POST (1970-2009); ENTIRE (1908-2009)

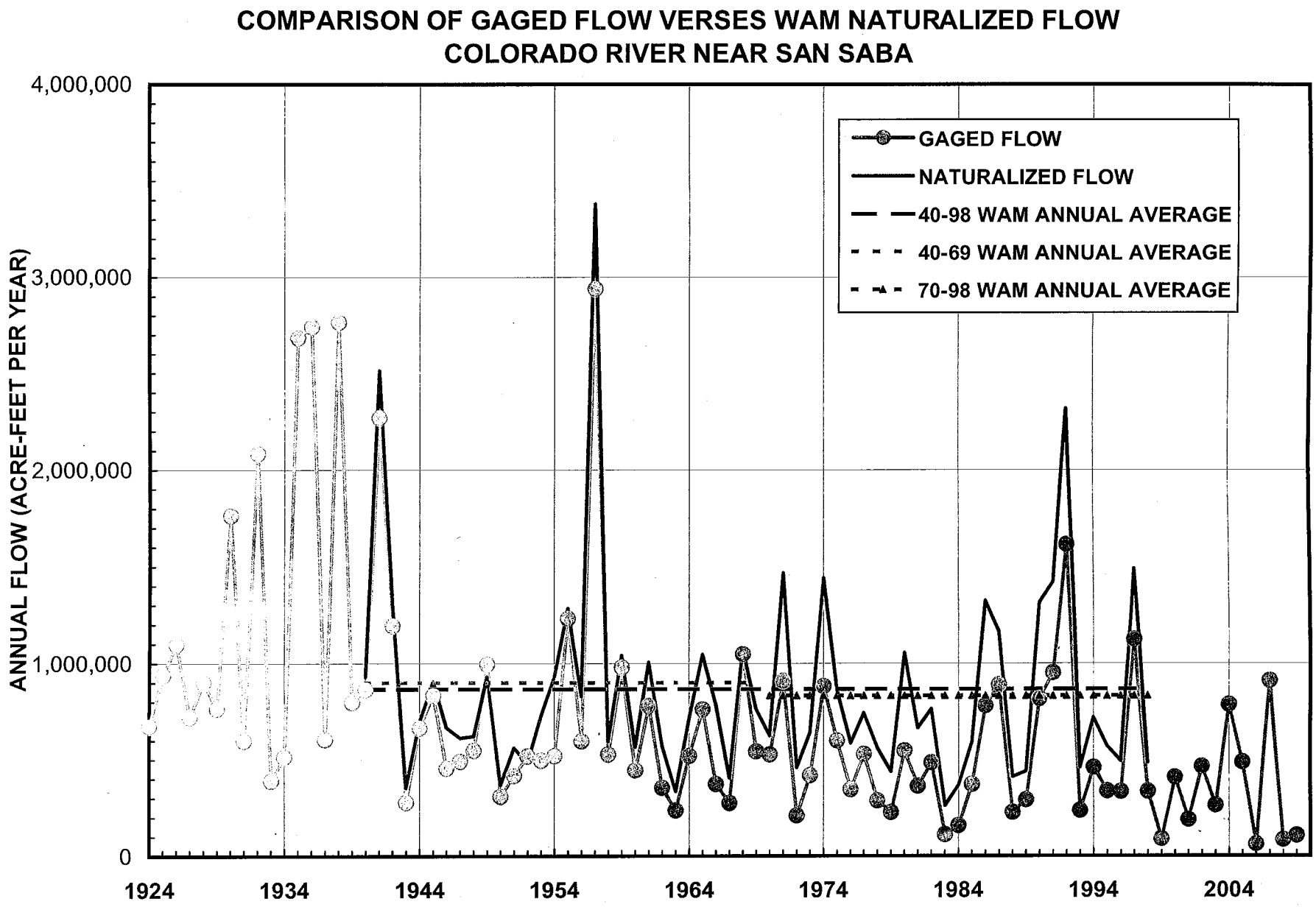


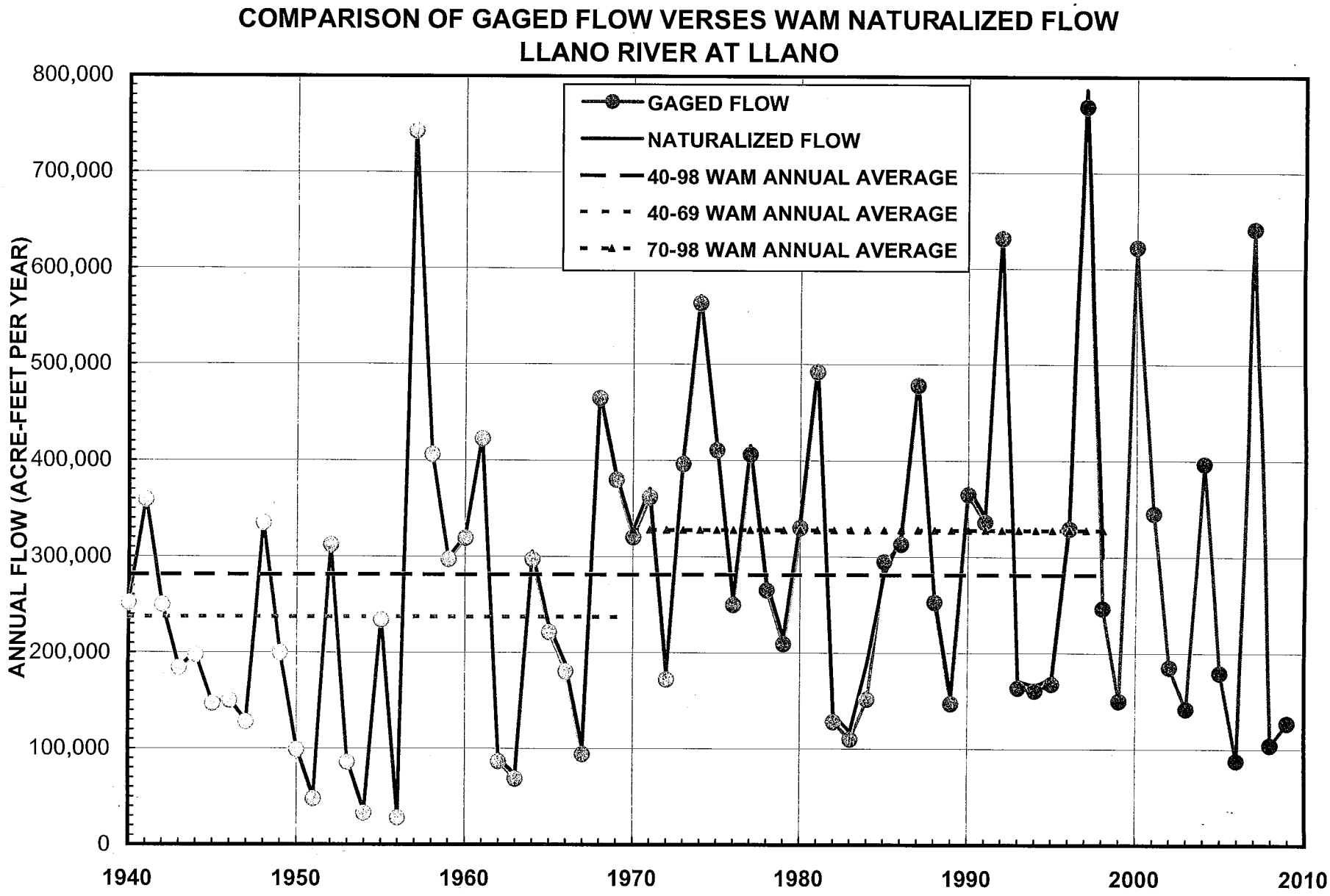

COMPARISON OF INITIAL HEFR RESULTS FOR L.R. AT LLANO GAGE
PRE (1940-1969); POST (1970-2009); ENTIRE (1940-2009)
PRE-SUB
PRE-LOW
PRE-MED
PRE-HIGH
POST-SUB
POST-LOW
POST-MED
POST-HIGH
ENTIRE-SUB
ENTIRE-LOW
ENTIRE-MED
ENTIRE-HIGH
MONTHLY BASE FLOW REQUIREMENT (CFS)
0
20
40
60
80
100
120
140
160
180
200
220
240
1
2
3
4
5
6
7
8
9
10
11
12
MONTH

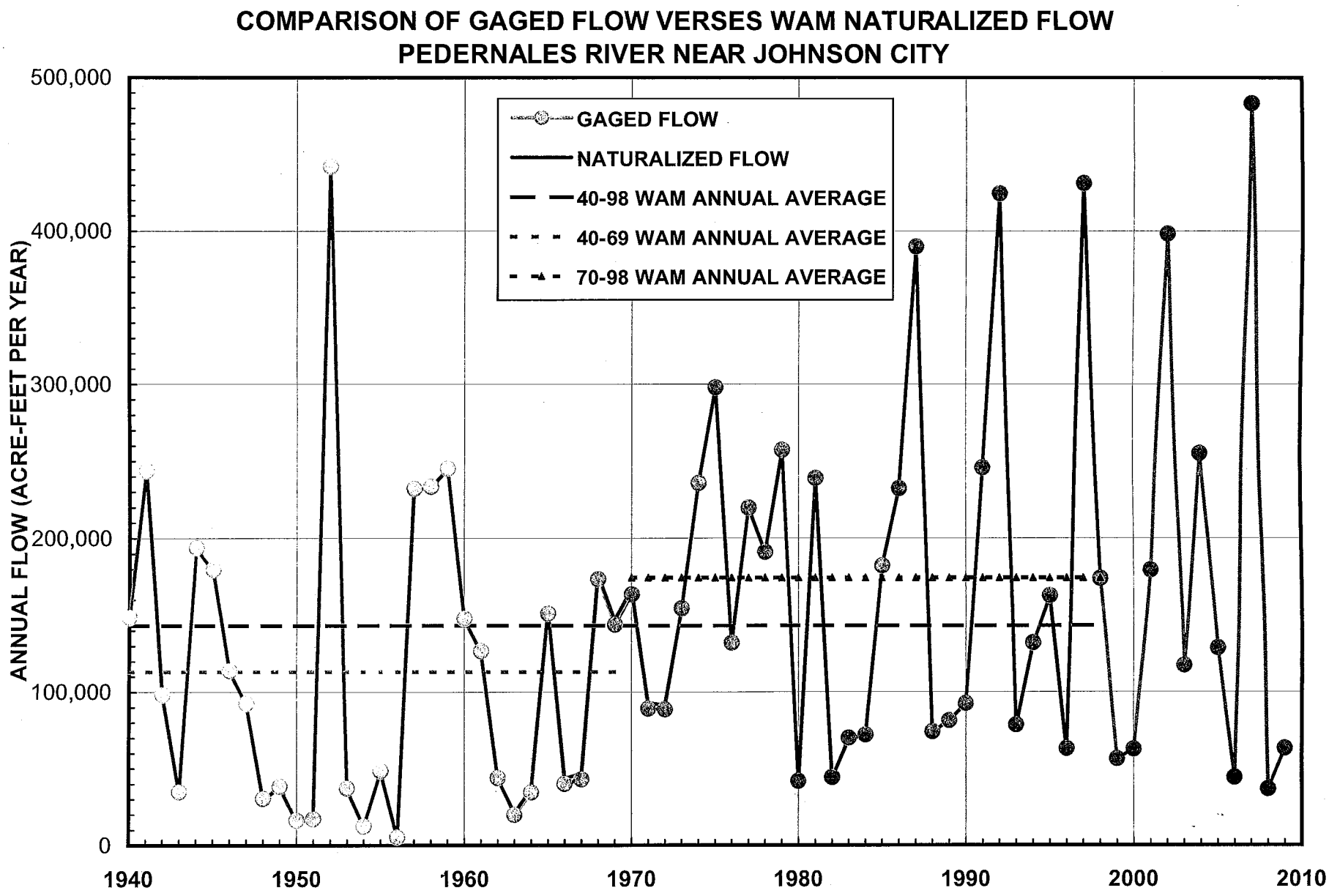
COMPARISON OF INITIAL HEFR RESULTS FOR C.R. AT COLUMBUS GAGE
PRE (1917-1936[HIGHLAND LAKES]); POST (1970-2009); ENTIRE (1917-2009)

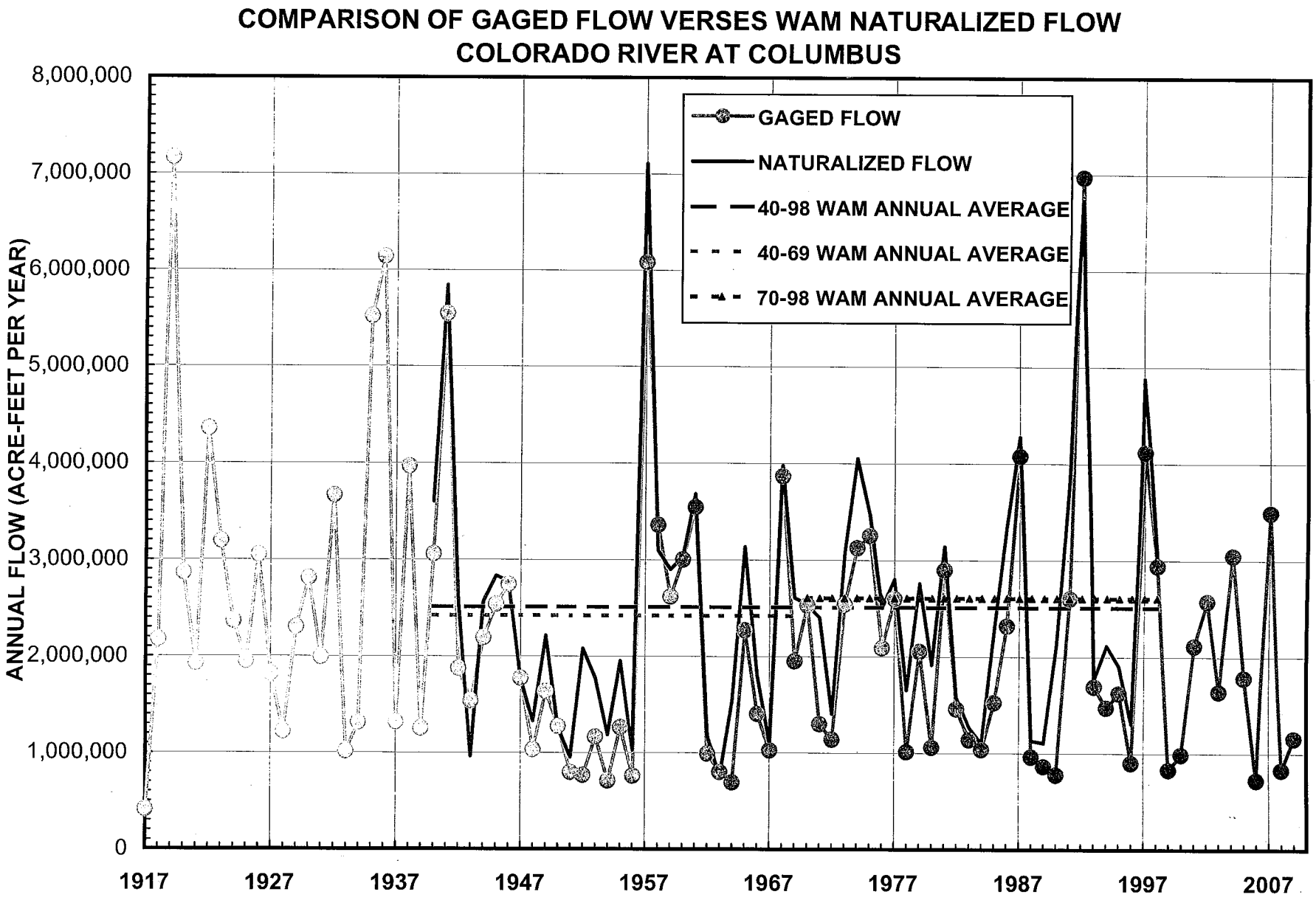


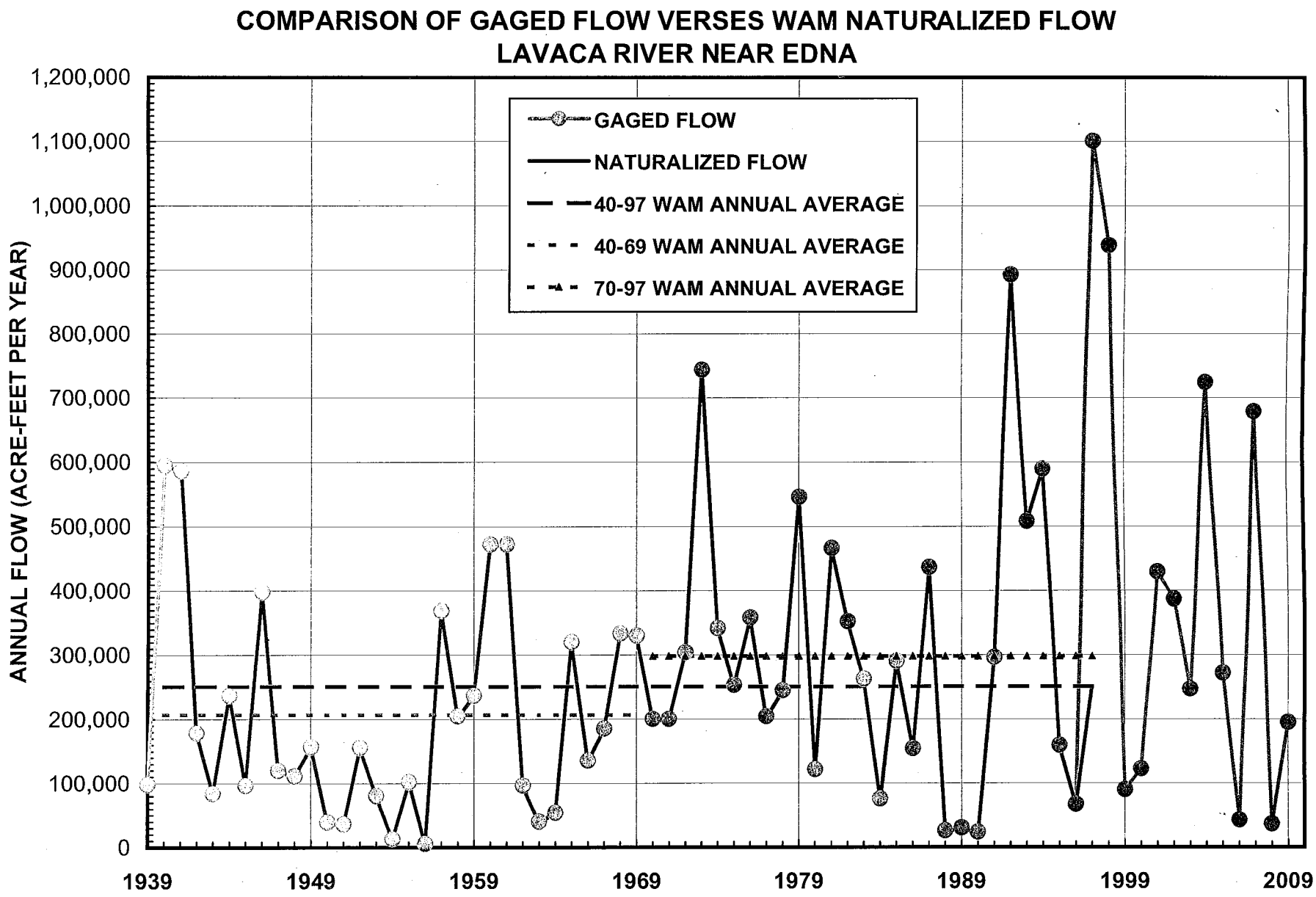

COMPARISON OF GAGED FLOW VERSES WAM NATURALIZED FLOW
COLORADO RIVER NEAR BALLINGER
ANNUAL FLOW (ACRE-FEET PER YEAR)
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
2010
GAGED FLOW
NATURALIZED FLOW
40-98 WAM ANNUAL AVERAGE
40-69 WAM ANNUAL AVERAGE
70-98 WAM ANNUAL AVERAGE

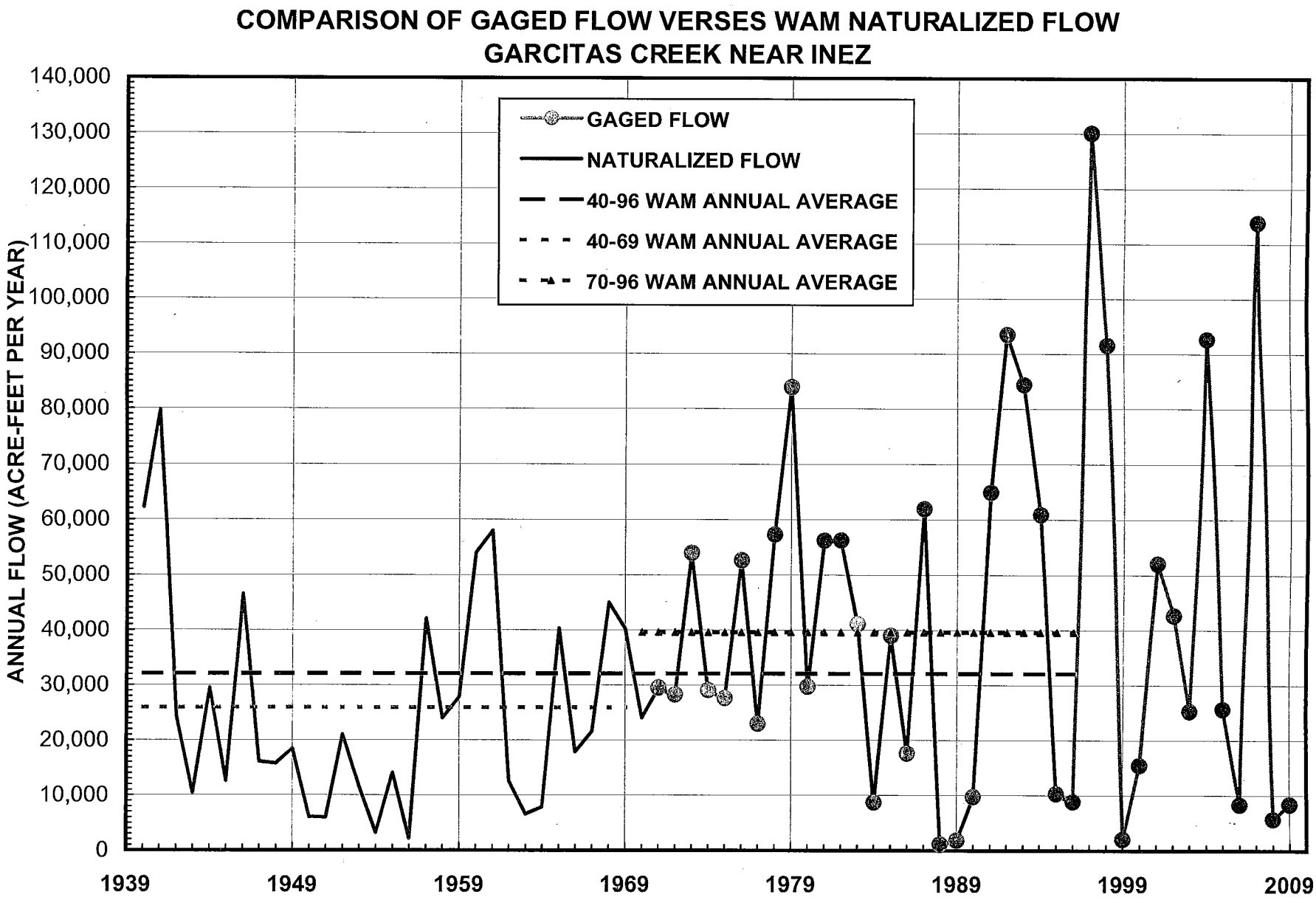

COMPARISON OF GAGED FLOW VERSES WAM NATURALIZED FLOW
COLORADO RIVER NEAR SAN SABA
ANNUAL FLOW (ACRE-FEET PER YEAR)
4,000,000
3,000,000
2,000,000
1,000,000
0
1924
1934
1944
1954
1964
1974
1984
1994
2004
GAGED FLOW
NATURALIZED FLOW
40-98 WAM ANNUAL AVERAGE
40-69 WAM ANNUAL AVERAGE
70-98 WAM ANNUAL AVERAGE


COMPARISON OF GAGED FLOW VERSES WAM NATURALIZED FLOW
LLANO RIVER AT LLANO
GAGED FLOW
NATURALIZED FLOW
40-98 WAM ANNUAL AVERAGE
40-69 WAM ANNUAL AVERAGE
70-98 WAM ANNUAL AVERAGE
ANNUAL FLOW (ACRE-FEET PER YEAR)
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
1940
1950
1960
1970
1980
1990
2000
2010


COMPARISON OF GAGED FLOW VERSES WAM NATURALIZED FLOW
PEDERNALES RIVER NEAR JOHNSON CITY
GAGED FLOW
NATURALIZED FLOW
40-98 WAM ANNUAL AVERAGE
40-69 WAM ANNUAL AVERAGE
70-98 WAM ANNUAL AVERAGE
ANNUAL FLOW (ACRE-FEET PER YEAR)
500,000
400,000
300,000
200,000
100,000
0
1940
1950
1960
1970
1980
1990
2000
2010


COMPARISON OF GAGED FLOW VERSES WAM NATURALIZED FLOW
COLORADO RIVER AT COLUMBUS
ANNUAL FLOW (ACRE-FEET PER YEAR)
8,000,000
7,000,000
6,000,000
5,000,000
4,000,000
3,000,000
2,000,000
1,000,000
0
1917
1927
1937
1947
1957
1967
1977
1987
1997
2007
GAGED FLOW
NATURALIZED FLOW
40-98 WAM ANNUAL AVERAGE
40-69 WAM ANNUAL AVERAGE
70-98 WAM ANNUAL AVERAGE


COMPARISON OF GAGED FLOW VERSES WAM NATURALIZED FLOW
LAVACA RIVER NEAR EDNA
GAGED FLOW
NATURALIZED FLOW
40-97 WAM ANNUAL AVERAGE
40-69 WAM ANNUAL AVERAGE
70-97 WAM ANNUAL AVERAGE
ANNUAL FLOW (ACRE-FEET PER YEAR)
1,200,000
1,100,000
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
1939
1949
1959
1969
1979
1989
1999
2009


COMPARISON OF GAGED FLOW VERSES WAM NATURALIZED FLOW
GARCITAS CREEK NEAR INEZ
GAGED FLOW
NATURALIZED FLOW
40-96 WAM ANNUAL AVERAGE
40-69 WAM ANNUAL AVERAGE
70-96 WAM ANNUAL AVERAGE
ANNUAL FLOW (ACRE-FEET PER YEAR)
140,000
130,000
120,000
110,000
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1939
1949
1959
1969
1979
1989
1999
2009

INITIAL LIST OF GAGING STATIONS TO BE USED IN COLORADO/LAVACA BBEST ANALYSIS

6/1/2010

GAGE IDENTIFICATION		GAGE NAME	DRAINAGE AREA	PERIOD OF AVAILABLE	MAJOR UPSTREAM RESERVOIRS	
USGS NO.	BBEST I.D.		Sq. Mi.	RECORDS	NAME	DATE BUILT
COLORADO RIVER BASIN						
08123850	1	Colorado R abv Silver	14,910	1967 - Present	Natural Dam	????
					Red Draw Dam	1985
					Mitchell Co. Res.	1993
					J.B. Thomas	1952
					Colorado City	1949
					Sulphur Draw	1992
					Champion Creek	1959
08126380	2	Colorado R nr Ballinger	16,358	1907-Present	Oak Creek	1952
					Ballinger	1947
					EV Spence	1969
08127000	3	Elm Ck at Ballinger	450	1932-2009	Old lake Winters	????-1983
					Lake Winters	1983
08128000	4	South Concho R at Christoval	413	1930-Present	None	n/a
08136500	5	Concho R at Paint Rock	6,574	1915-Present	Twinn Buttes	1963
					Nazworthy	1930
					O.C.Fisher	1951
08143600	6	Pecan Bayou nr Mullin	2,073	1967-Present	Clyde	1970
					Hords Creek	1948
					Coleman	1966
					Brownwood	1933
08144500	7	San Saba R at Menard	1,135	1915-Present	None	n/a
08145000	8	Brady Ck at Brady	1,589	1939-Present	Brady Creek	1963
08146000	9	San Saba R at San Saba	3,046	1915-Present	None	n/a
08147000	10	Colorado R nr San Saba	31,217	1915-Presenet	O.H. Ivie	1990
08150000	11	Llano R nr Junction	1,845	1915-Present	None	n/a
08150700	12	Llano R nr Mason	3,242	1968-Present	None	n/a
08151500	13	Llano R at Llano	4,197	1939-Present	None	n/a
08152900	14	Pedernales R nr Fredericksburg	369	1979-Present	None	n/a
08153500	15	Pedernales R. nr Johnson City	901	1939-Present	None	n/a
	possible	Willbarger Creek			None	n/a
08155200	16	Barton Creek nr Oak Hill	90	1978-Present	None	n/a
08158000	17	Colorado R at Austin	39,009	1899-Present	Buchanan	1938
					Inks	1938
					LBJ	1951
					Marble Falls	1952
					Travis	1942
					Austin	1941
					Town (Ladybird)	?
08159000	18	Onion Ck at Driftwood	321	1924-Present	None	n/a
08159200	19	Colorado R at Bastrop	39,979	1960-Present	Bastrop	1964
					Decker	1967
08161000	20	Colorado R at Columbus	41,640	1916-Present	Fayette	1965
08162000	21	Colorado R at Wharton	42,003	1938-Present	None	n/a
08162500	22	Colorado R nr Bay City	42,240	1948-Present	None	n/a
LAVACA RIVER BASIN						
08164503	23	West Mustang Creek nr Ganado	178	1977-Present	None	n/a
08164504	24	East Mustang Creek nr Louise	91	1996-Present	None	n/a
08164390	25	Navidad nr Edna	579	1996-Present	None	n/a
08164450	26	Sandy Creek nr Ganado	289	1977-Present	None	n/a
08164500	27	Navidad Rv nr Ganado	1,062	1940-1980	None	n/a
08164000	28	Lavaca nr Edna	817	1938-Present	None	n/a
COLORADO AND LAVACA COASTAL BASINS						
08162600	29	Tres Palacious nr Midfield	145	1970-Present	None	n/a
08164600	30	Garcitas Creek nr Inez	91	1970-Present	None	n/a
08164800	31	Placedo Creek ne Placedo	68	1970-Present	None	n/a

Gages selected for initial anaysis

Gages in question

Gages selected for later consideration