5.5.1.3 POPULATION COUNTS OF ADULT STEELHEAD AT LOS PADRES AND SAN CLEMENTE DAMS

Old Carmel Dam – Upstream migrating adult steelhead must pass into and through the Carmel Lagoon and move approximately 18.3 miles to reach the first of three dams on the Carmel River. Old Carmel Dam, built in 1881-1883 was originally fitted with a fish ladder to provide fish passage. No records exist of fish passing this dam, which served as a water supply for the Pacific Improvement Company holdings in Carmel and Monterey until 1920.

San Clemente Dam – On reaching San Clemente Dam, adult upstream migrants must climb a 65½-foot high ladder and pass through the existing San Clemente Reservoir. San Clemente Dam, built in 1920 by the Del Monte Properties Company (DMPC), originally served as the primary storage and diversion facility for water supplied to the Monterey Peninsula area by DMPC and its successor California-American Water Company. The original plans for San Clemente Dam show the ladder much as it exists today, except that the original design included a series of screened water outlets on the three uppermost bays. A few modifications to the fish ladder have been made over the years, including extension of the lowermost bay to counteract the down-cutting of coarse sediment and water surface below the dam, the addition of submerged orifices at the top of the ladder to help control flow through the ladder, and the addition of an automatic fish counter in 1992 to record the total number of steelhead passing the dam.

The first systematic counts of adult steelhead in the Carmel River are reported to have begun in 1962 at San Clemente Dam by personnel from California-American Water Company's predecessor California Telephone and Telegraph Company. Prior to that time, isolated counts of migrating fish were made, but no records exist, except for a report of the first attempted count by the California Department of Fish and Game personnel in 1954. As reported, a trap was operated during the period from February 23 to March 12 with a total count of 162 fish. Additional isolated counts of fish may have been made at San Clemente Dam, but several searches of Cal-Am archives and CDFG records have failed to turn up any additional information. Cal-Am made daily counts at SCD for the 1962 to 1973 period by turning off the ladder flow twice each day and tallying up fish visible in the ladder. Counts made in this fashion are a good annual index of the abundance of fish that historically migrated past San Clemente Dam, but do not represent a true measure of the total number of steelhead passing the dam. In 1974 and 1975 the California Department of Fish and Game Cal-Am installed an automated counter that recorded the total number of migrants. No counts were made during the 1976-1989 period, except for a special 1984 study commissioned by the MPWMD, which included counting fish passing the dam, as well as numbers of fish caught in the river downstream of San Clemente Dam. Beginning in 1990, the MPWMD reinitiated the visual counts at San Clemente Dam, and in 1992 constructed an automated counter, which has been in continuous operation since that time. Typically, the counter is installed in November of each migration season, prior arrival of adults from the ocean, and operates through the following May 31 of each migration season.

Monthly Counts – A summary of monthly and annual counts at San Clemente Dam is provided in the **Table 5.5.1.3-A** and **Figure 5.5.1.3-A**, respectively.

Daily Counts – Detailed daily counts from the MPWMD fish counter are provided in **Appendix 5.5.1.3**, in tabular and graphical form. The data includes daily flow estimates at the MPWMD Sleepy Hollow Weir gaging station below the dam, or at the San Clemente Dam spillway.

Los Padres Dam – Los Padres Dam, built in 1949, is 148 feet high and originally held 3,030 AF. Since that time, approximately ½ of the original capacity has been lost to sedimentation with the current capacity at 1, 569 AF.

When it was built, the dam had no fish passage facilities, except for a trap located at the base of the dam. Data from the early trapping program, prior to 1982 are sketchy, at best, with records available for isolated years. A summary of the annual counts is provided in **Table 5.5.1.3-A** and **Figure 5.5.1.3-B**. The original trapping station below Los Padres Dam was replaced in 1981, and the replacement was operated for the next 18 years, until 2000, when a new trap was constructed along the left bank of the plunge pool below the dam. Since 2000, Cal-Am has operated both traps below the dam. Daily trapping records at Los Padres Dam are provided in **Appendix 5.5.1.3** with 1995-1999 counts in Adobe Portable Document Format (*.pdf), and the last five years (2000-2004) in EXCEL spreadsheet format (*.xls).

Table 5.5.1.3-A

Historical counts of adult steelhead migrating past San Clemente Dam and of steelhead trapped and passed over Los Padres Dam, 1949-04

YEAR	MONTHLY COUNTS AT SAN CLEMENTE DAM [4]								LOS PADRES
	NOV	DEC	JAN	FEB	MAR	APR	MAY	TOTAL	Method [1]	(Annual)
1949				no data available						147
1950				"						124
1951				"						154
1952				"						86
1953				"						
1954				"				162 [3]		
1955				"						
1956				"						
1957				"						
1958				"						
1959				"						
1960				"						
1961				"						
1962				"				568	VC	558
1963				"				255	VC	8
1964		0	113	118	327	201		759	VC	
1965		203	814	152	181	0		1,350	VC	257
1966		76	319	451	69	0		915	VC	
1967		0	546	275	493	0		1,314	VC	
1968		0	0	153	93	0		246	VC	
1969		0	205	818	313	0		1,336	VC	
1970		0	206	51	105	0		362	VC	
1971		0	244	168	265	92		769	VC	6
1972		0	0	77	17	0		94	VC	0
1973		0	390	444	188	0		1,022	VC	2
1974		16	69	39	224	47		395	AC	3
1975		0	0	285	1,002	0		1,287	AC	9
1976		0	0	0	0	0		0	VC [2]	0
1977		0	0	0	0	0		0	VC	0
1978										
1979										
1980										
1981										
1982				no data available						138
1983				no data available						171
1984		1	3	24	289	63		380	AC	51
1985				no data available						27
1986				no data available						42
1987				no data available						
1988		0	0	0	0	0	0	0		0
1989		0	0	0	0	0	0	0		0
1990		0	0	0	0	0	0	0		0
1991		0	0	0	1	0	0	1	VC	0
1992		0	0	3	12	0		15	VC	5
1993		0	132	73	65	13		283	VC	26
1994		0	0	37	49	5		91	AC	4
1995		0	39	191	76	4		310	AC	30
1996		8	46	107	188	78	11	438	AC	93
1997	5	61	118	154	340	86	11	775	AC	227
1998	0	1	44	111	568	129	8	861	AC	122
1999	0	2	13	126	218	46	0	405	AC	120
2000	0	0	34	176	198	59	5	472	AC	204
2001	0	2	39	231	433	95	4	804	AC	347
2002	2	21	24	232	298	60	5	642	AC	284
2003	8	17	90	141	194	30	3	483	AC	105
2004			14	197	163	12	2	388	AC	111
Averages:										
1962-75		13	109	151	199	32	4	505	33	96
1997-04		30	279	263	195	14		780	13	190
1949-90		15	47	171	302	65	5	604	7	81

[1] Counting Method: VC, visual count; AC, automatic counter.

[2] Total counts in 1976, 1977, 1988, 1989 and 1990 assumed to be zero for sea-run fish, as no outflow from the lagoon occurred during these years, however a small number of resident-type fish may have migrated upstream past San Clemente Dam.

[3] In 1954, count at San Clemente Dam reported for 3-week long period, Feb 23 to March 12, 1954

[4] Based on Snider (1983), Dettman (1986), Alley (1994), and California Department of Fish and Game, California-American Water Company, and Monterey Peninsula Water Management District files. The 1962-73 and 1991-93 counts at San Clemente Dam are the sum of daily counts of fish made by shutting off the flow in the ladder. The 1974, 1975, 1984, and 1994-04 data are complete counts registered on an automatic counter as the fish climbed the ladder.

[5] The counts at Los Padres Dam for the 1995-2004 period exclude small, resident type steelhead, which migrated upstream after maturing in freshwater.

Figure 5.5.1.3-A

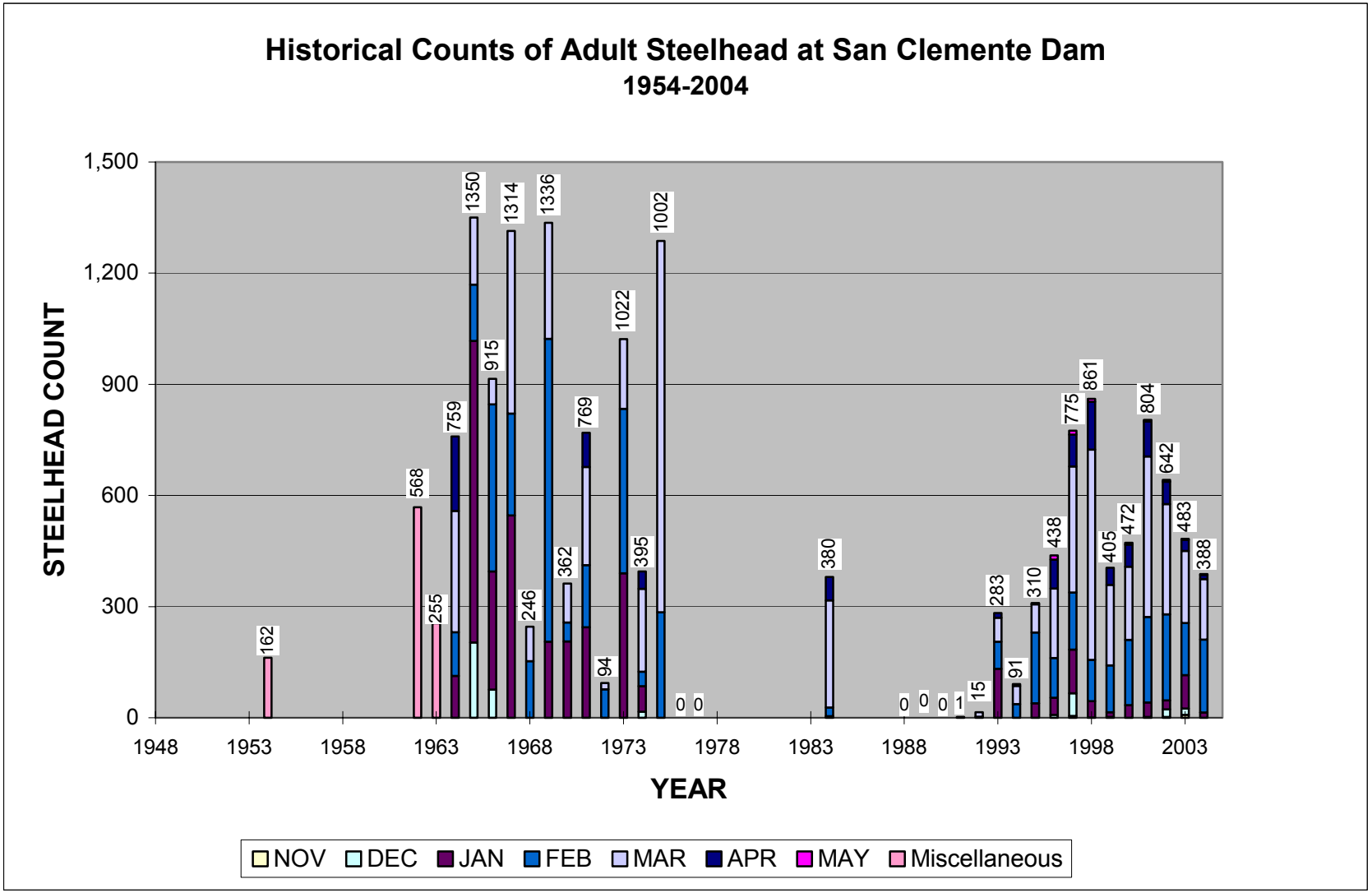

Figure 5.5.1.3-B