Fa 3199

1993-1998

REF 90523

1998 Summer Steelhead Trout and Spring Chinook Salmon Census
Happy Camp and Ukonom Ranger Districts
Klamath National Forest
Siskiyou County, California

(Clear, Dillon, Elk, Grider, Walker, and Wooley Creeks)

Enclosed are the results of the 1998 summer steelhead trout (Oncorhynchus mykiss) and spring chinook salmon (O. tschawytscha) holding surveys of Clear, Dillon, Elk, Grider, Walker, and Wooley Creeks. No census was conducted on Indian Creek this year due to unresolved issues concerning government surveys on privately owned parts of the Indian Creek stream channel. Surveys were conducted by personnel from the Klamath National Forest - Happy Camp and Ukonom Fisheries Departments, the California Department of Fish and Game, and volunteers from the Salmon River Restoration Council (Sue Mauer, Will Harling, Peter Caffretta, and Nat Pennington). Most streams were surveyed in their entirety in one day in order to avoid double-counting or missing fish that might be moving within the stream systems. Fish counts were made by teams of at least two divers who snorkeled established stream reaches in a downstream direction looking for adult steelhead and salmon, primarily in pools and other deep water habitats. All counts were made by direct underwater observation using snorkeling gear and dive mask. 'Half-pounder' steelhead trout (14-18 inches FL) were classified and tallied separately from adult steelhead (> 18 inches FL); and grilse chinook salmon (≤ 15 inches FL) from adult chinook salmon (>15 inches FL). Viewing conditions on all surveyed streams was good to excellent during the surveys.

There were two particularly interesting observations made during this years' survey. An adult spring chinook was seen way up Elk Creek, upstream of the Bear Creek confluence. Usually if spring chinook are seen at all in Elk Creek they are seen very close to the mouth. Also, an adult steelhead was seen above the surveyed index reach on North Fork Dillon Creek, which indicates that the range of summer steelhead holding extends some distance upstream of the index reach that is annually surveyed.

Low numbers of adult summer steelhead and half-pounders were observed in all surveyed streams, continuing the trend of decreasing stock numbers that has been observed over the entire mid-Klamath and Salmon River systems within the last six to eleven years. Numbers of both adult summer steelhead and spring chinook salmon were the lowest or nearly the lowest on record for all surveyed streams. Comparing 1998 fish numbers to average numbers of fish counted in similar surveys in past years, both the number of adult summer steelhead and half-pounders combined, and the number of adult spring chinook and grilse combined, continued to decline. No adult salmon or steelhead were observed in Grider or Walker Creeks.

For the last six to eight years census data has been collected in a manner that allows stream reach comparisons of numbers of half-pounders versus adult summer steelhead, and grilse versus adult spring chinook. Surveys conducted before about 1990 did not make a distinction between different forms or size-classes of steelhead and salmon. Also, earlier surveys were inconsistent between years in terms of the stream reaches that were surveyed, timing of surveys, and other methods.

Enclosed are summary sheets reporting the number of adult summer steelhead and spring

chinook that were counted in each surveyed stream in 1998 and in previous years. There are two summary sheets each for Clear, Dillon, Elk, and Wooley Creeks. The first pages display survey results showing the number of summer steelhead adults and half-pounders, and the number of spring chinook adults and grilse, that were counted within each reach and in total, for each stream. The second summary pages include information on population numbers from earlier surveys that in most cases cannot be directly compared to the more recent summaries on the first pages because of one or more of the aforementioned inconsistencies in past data collection methods. The second pages provide the most up to date summary of the population trend record for each stream. On the second summary pages there is no discrimination between summer steelhead adults and half-pounders, or spring chinook adults and grilse, instead combining these sub-categories so that comparisons can be made across more years.

Several averages are calculated from the information on the second summary pages. The average number of adult summer steelhead and spring chinook was calculated for: (1) the entire period of record, including all years (which may include years that may *not* be comparable in terms of survey timing and extent); and the entire period of record including only those years that are comparable in terms of survey timing and extent: (2) not including 1998; and (3) including the 1998 survey. The averages calculated using the entire period of record probably underestimate the true population for each stream because not all stream reaches and holding habitat was surveyed in many of the earlier surveys. On the other hand it is possible that mid- to late-September surveys falsely elevates the averages by including in the counts fall fish that could be entering the stream starting in late August. The averages calculated using only the records for years that have comparable survey data in terms of survey timing and extent are more useful for tracking population trends because there is less ambiguity and uncertainty associated with these data - the surveys were repeatable and most of the known range of fish holding was surveyed.

Based on firsthand experience in these streams and review of past data, the time period encompassing the third week in July through the third week in August appears to be the optimum time to survey for adult summer steelhead and spring chinook in mid-Klamath River tributary streams. Records for surveys that were not conducted within this time period were not considered "comparable" for use in calculation of averages.

All information in this report is summarized from original survey data and/or fishery reports that are on file at the Happy Camp Ranger District and Supervisors Office of the Klamath National Forest. If you have any questions or comments, please contact me at the Happy Camp (530) 493-2243 or Orleans/Ukonom (530) 627-3291 District Offices of the Klamath National Forest.

Sincerely,

Jon B. Grunbaum
Fishery Biologist

11/4/98
Date

US Forest Service - Happy Camp Ranger District - Fisheries Department

Summer Steelhead Census 1970 ---> 1998 CLEAR CREEK

Distribution By Reach and Total Numbers: Half-Pounders

Year	Date	SlpryV to MTH (1)	10 MiBrdg to SlpryV (2)	BearVly to 10 MiBrog (3)	11.75 to BearVly (4)	WldrnsF to 11.75 (5)	TOTAL
1990	Aug 22	12	6	0	5	3	**26**
1991	July 17	7	7	1	4	4	**23**
1991	Aug 2	11	19	1	7	10	**48**
1992	July 23	32	11	6	9	12	**70**
1992	Aug 4	27	26	4	11	12	**80**
1992	Aug 17	33	21	2	6	16	**78**
1992	Sept 1	28	7	9	5	13	**62**
1993	Aug 24	12	20	10	19	53	**114**
1994	Aug 4	8	44	0	14	10	**76**
1994	Aug 18	25	39	7	8	0	**79**
1995	Aug 9	40	24	4	16	12	**96**
1996	Aug 7 *	64	8	4	1	3	**80**
1996	Aug 8	33	18	4	0	4	**59**
1997	July 31	29	23	3	2	7	**64**
1998	July 30	12	9	1	6	20	**48**

Distribution By Reach and Total Numbers: Summer Steelhead Adults

Year	Date	SlpryV to MTH (1)	10 MiBrdg to SlpryV (2)	BearVly to 10 MiBrdg (3)	11.75 to BearVly (4)	WldrnsF to 11.75 (5)	TOTAL	All STHD Total
1990	Aug 22	4	20	2	43	22	**91**	**117**
1991	July 17	2	6	0	4	4	**16**	**39**
1991	Aug 2	7	9	3	6	4	**29**	**77**
1992	July 23	13	5	2	3	7	**30**	**100**
1992	Aug 4	5	7	2	19	13	**46**	**126**
1992	Aug 17	12	1	2	7	25	**47**	**125**
1992	Sept 1	3	2	8	14	16	**43**	**105**
1993	Aug 24	14	41	0	5	4	**64**	**178**
1994	Aug 4	5	21	0	24	8	**58**	**134**
1994	Aug 18	11	30	2	6	0	**49**	**128**
1995	Aug 9	31	8	1	20	19	**79**	**175**
1996	Aug 7 *	8	9	1	2	4	**24**	**104**
1996	Aug 8	32	7	1	1	1	**42**	**101**
1997	July 31	1	10	1	7	0	**19**	**83**
1998	July 30	3	6	1	4	6	**20**	**68**

NOTE: * = This estimate (Aug 7) should be the official count for 1996. The reaches were surveyed by different crews on consecutive days to gauge observer variation. Appoximately the same total number of fish were seen both days but the ratio of half-pounders to adults differed. Based on observations of the most experienced surveyors and ratio of half-pounders to adult steelhead in other nearby Klamath tributaries in 1996, we recommend the August 7th numbers to be reported officially

Trend Record Summary -
Clear Creek spring chinook / summer steelhead holding counts:

Year	Date	Spring Chinook	Summer Steelhead (a)	Miles Surveyed
1970	**Aug 3-6, 20**	**b**	**218**	**17.5**
1971	c			
1972	**Aug 7-11**	**b**	**116**	**17.5**
1973	c			
1974	c			
1975	Sept 21-23	b	224	9.2
1976	c			
1977	c			
1978	Sept 18-22	b	1810	15.2
1979	July 9-19	b	79	13.0
1980	**Aug 17**	**b**	**241**	**17.5**
1981	Aug 17-20	b	270	8.5
1982	**Aug 10-13**	**b ***	**618**	**17.5**
1983	Sept 16 - ?	b	257	10.3
1984	Aug 21-23	b	156	13.4
1985	Aug 20-21	b	162	6.9
1986	Aug 26-28	b	428	12.5
1987	**Aug 18-20**	**b**	**524**	**17.5**
1988	**July 26-28**	**b**	**693**	**17.5**
1988	*Aug 20-21*	*b*	*162*	*5.0*
1989	Sept 11-15	b	934	17.5
1990	**Aug 22**	**b**	**117**	**17.5**
1991	*July 8-12*	*b*	*40*	*17.5*
1991	*July 17*	*b*	*39*	*17.5*
1991	**Aug 2**	**b**	*77*	**17.5**
1992	*July 23*	*b*	*100*	*17.5*
1992	**Aug 4**	**b**	**126**	**17.5**
1992	*Aug 17*	*b*	*125*	*17.5*
1992	*Sept 1*	*b*	*105*	*17.5*
1993	**Aug 24 - 25**	**b**	**178**	**17.5**
1994	**Aug 4**	**b**	**134**	**17.5**
1994	*Aug 18*	*b*	*128*	*17.5*
1995	**Aug 9**	**b**	**175**	**17.5**
1996	**Aug 7**	**b**	**104**	**17.5**
1996	*Aug 8*	*b*	*101*	*17.5*
1997	**July 31**	**b**	**83**	**17.5**
1998	**July 30**	**b**	**68**	**17.5**

Average (d) - period of record	**325**
Average (e) not incl 1998	**243**
Average (e) including 1998	**231**

Notes:

(a) = Number of summer steelhead adults and half pouncers.

(b) = Zero to a few spring chinook are counted in Clear Creek annually.

(c) = No survey this year, or data not available at time this summary prepared.

(d) = Likely an underestimation because includes years in which not all reaches were surveyed. Records that were NOT USED to calculate this average are displayed in italics.

(e) = Calculation of these averages are based on survey years that are comparable in extent and timing. Records used to calculate these averages are displayed in bold type

* = Count includes 95 adult steelhead killed by fire retardent

US Forest Service - Happy Camp/Ukonom Ranger Districts - Fisheries Departments

Summer Steelhead Census 1980 ---> 1998 DILLON CREEK

Distribution By Reach and Total Numbers: Half-Pounders

Year	Date	N.Fork to MTH (1)	JkAss to MS-Dill (2)	Vann to JkAss (3)	0.5 Mi of Copper (4)	Copper to N.Fork (5)	TOTAL
1993	Aug 2	25	14	15	4	26	84
1994		a	a	a	a	a	
1995	Aug 29	24	9	8	0	10	51
1996	Aug 29	58	13	23	0	32	126
1997	Aug 5	62	11	23	0	21	117
1998	Aug 4	58	29	5	0	19	111

Distribution By Reach and Total Numbers: Summer Steelhead Adults

Year	Date	N.Fork to MTH (1)	JkAss to MS-Dill (2)	Vann to JkAss (3)	0.5 Mi of Copper (4)	Copper to N.Fork (5)	TOTAL
1993	Aug 2	63	6	2	1	5	77
1994		a	a	a	a	a	
1995	Aug 29	6	16	26	2	23	73
1996	Aug 29	20	5	15	0	3	43
1997	Aug 5	14	4	10	3	32	63
1998	Aug 4	15	1	8	0	14	38

NOTES: a = Not surveyed in 1994 due to forest fire in Dillon watershed.

Trend Record Summary -

Dillon Creek spring chinook / summer steelhead holding counts:

Year	Date	Spring Chinook	Summer Steelhead (a)	Miles Surveyed	
1980	**Aug 24, 31**	**b**	**236**	**14.1**	
1981	**Aug 24-26, Sep 16**	**b**	**187**	**14.0**	
1982	Aug 23 - ?	b	295	15.0	
1983	Sept 20	b	400	5.8	300-500 est spot check
1984		b	200		Spot check estimate
1985		b	162		Spot check estimate
1986	c				
1987	July 21-22	b	77	10.5	
1988	Aug 3-4	b	294	8.2	
1989	July 6-12	b	38	7.6	
1990	Sept 18-19	b	74	11.2	
1991	**Aug 13-16**	**b**	**88**	**14.1**	
1992	c				
1993	**Aug 2**	**b**	**161**	**14.1**	
1994	c				
1995	**Aug 29**	**b**	**124**	**14.1**	
1996	**Aug 29**	**b**	**169**	**14.1**	
1997	**Aug 5**	**b**	**180**	**14.1**	
1998	**Aug 4**	**b**	**149**	**14.1**	

Average (d) - period of record	**177**
Average (e) not incl 1998	**164**
Average (e) including 1998	**162**

Notes:

(a) = Number of summer steelhead adults and half pounders.

(b) = Zero to a few spring chinook are counted in Dillon Creek annually.

c = No survey this year, or data not available at time this summary prepared.

(d) = Likely an underestimation because includes years in which not all reaches were surveyed.

(e) = Calculation of these averages are based on survey years that are comparable in extent and timing. Records used to calculate these averages are displayed in bold type

US Forest Service - Happy Camp Ranger District - Fisheries Department

Summer Steelhead Census 1977 —> 1998 ELK CREEK

Distribution By Reach and Total Numbers: Half-Pounders

Year	Date	5-MiBrdg to MTH (1)	Twin to 5-MiBrdg (2)	11-MiBrdg to Twin (3)	Bear to 11-MiBrdg (4)	HmngBird to Bear (5)	TOTAL
1990	Aug 14	18	7	1	10	0	**36**
1990	Aug 28	6	3	22	9	a	**40**
1991	July 18	13	0	10	5	5	**33**
1991	Aug 1	10	10	10	10	5	**45**
1991	Aug 16	21	11	10	6	3	**51**
1992	July 21	29	1	18	5	0	**53**
1992	Aug 3	48	6	26	15	6	**101**
1992	Aug 18	21	0	19	15	6	**61**
1992	Sept 9	14	7	9	5	4	**39**
1993	Aug 5	10	10	12	4	1	**37**
1993	Aug 16	18	4	20	23	2	**67**
1994	July 18	66	17	11	1	0	**95**
1994	Aug 2	15	0	37	4	1	**57**
1995	Aug 8	18	4	4	8	0	**34**
1996	Aug 6	61	6	10	6	0	**83**
1997	Aug 14	13	2	3	6	0	**24**
1998	July 28	5	4	10	6	0	**25**

Distribution By Reach and Total Numbers: Summer Steelhead Adults

Year	Date	5-MiBrdg to MTH (1)	Twin to 5-MiBrdg (2)	11-MiBrdg to Twin (3)	Bear to 11-MiBrdg (4)	HmngBird to Bear (5)	TOTAL
1990	Aug 14	7	1	2	6	5	**21**
1990	Aug 28	9	7	12	3	a	**31**
1991	July 18	6	0	1	4	0	**11**
1991	Aug 1	4	4	1	3	1	**13**
1991	Aug 16	9	6	4	1	1	**21**
1992	July 21	7	1	8	1	1	**18**
1992	Aug 3	5	4	8	5	0	**22**
1992	Aug 18	2	0	8	1	0	**11**
1992	Sept 9	4	3	1	0	0	**8**
1993	Aug 5	0	4	20	0	0	**24**
1993	Aug 16	9	2	13	1	3	**28**
1994	July 18	8	0	7	0	0	**15**
1994	Aug 2	5	2	17	2	0	**26**
1995	Aug 8	12	5	6	3	1	**27**
1996	Aug 6	11	0	1	1	0	**13**
1997	Aug 14	4	0	0	5	0	**9**
1998	July 28	1	7	2	2	3	**15**

NOTES: a = reach not surveyed

Trend Record Summary -
Elk Creek spring chinook / summer steelhead holding counts:

Year	Date	Spring Chinook	Summer Steelhead (a)	Miles Surveyed
1977	Aug 18-19	b	22	1.4
1978	Sept 4	b	408	8.8
1979	July 3	b	0	2.5
1980	**Aug 19-21**	**b**	**90**	**16.6**
1981	**Aug 19-21**	**b**	**47**	**16.6**
1982	**July 22-28**	**b**	**249**	**16.6**
1983	c	b		
1984	Sept 10-11	b	58	11.8
1985	c	b		
1986	c	b		
1987	**July 21 - 23**	**b**	**31**	**16.6**
1988	July 14-15	b	69	9.3
1989	Aug 24	b	150	12.3
1990	Aug 14	b	57	13.8
1990	*Aug 28*	*b*	*71*	*13.8*
1991	*July 2-4*	*b*	*8*	*16.6*
1991	*July 18*	*b*	*44*	*16.6*
1991	*July 18*	*b*	*57*	*16.6*
1991	**Aug 16**	**b**	**72**	**16.6**
1992	*July 21*	*b*	*71*	*16.6*
1992	**Aug 3**	**b**	**123**	**16.6**
1992	*Aug 18*	*b*	*72*	*16.6*
1992	*Sept 9*	*b*	*47*	*16.6*
1993	**Aug 5**	**b**	**61**	**16.6**
1993	*Aug 16*	*b*	*95*	*16.6*
1994	*July 18*	*b*	*110*	*16.6*
1994	**Aug 2**	**b**	**83**	**16.6**
1995	**Aug 8**	**b**	**61**	**16.6**
1996	**Aug 6**	**b**	**96**	**16.6**
1997	**Aug 14**	**b**	**33**	**16.6**
1998	**July 28**	**b**	**40**	**16.6**

Average (d) - period of record	**92**
Average (e) not incl 1998	**86**
Average (e) including 1998	**82**

Notes:

(a) = Number of summer steelhead adults and half pounders.

(b) = Zero to a few spring chinook are counted in Elk Creek annually.

c = No survey this year, or data not available at time this summary prepared.

(d) = Includes years in which not all reaches were surveyed.
Records that were NOT USED to calculate this average are displayed in iltalics

(e) = Calculation of these averages are based on survey years that are comparable in extent and timing. Records used to calculate this average are displayed in bold type

Summer Steelhead / Spring Chinook Census 1967 ---> 1998 WOOLEY CREEK

Distribution By Reach and Total Numbers: Half-Pounders

Year	Date	Gates to Mth (1)	Bridge to Gates (2)	Hancock to Bridge (3)	N.Fork to Hancock (4)	BigElk to N.Fork (5)	TOTAL
1991	Aug 1	0	0	0	0	0	**0**
1992	Aug 13	4	9	8	0	0	**21**
1993	Aug 11	10	19	7	19	8	**63**
1994	Aug 20	11	17	5	0	0	**33**
1995	Aug 15-17	4	3	10	1	0	**18**
1996	Aug 13, 22*	1	7	8	0	5	**21**
1997	Aug 12	17	8	9	3	0	**37**
1998	Aug 11, 17**	2	5	15	5	0	**27**

Distribution By Reach and Total Numbers: Summer Steelhead Adults

Year	Date	Gates to Mth (1)	Bridge to Gates (2)	Hancock to Bridge (3)	N.Fork to Hancock (4)	BigElk to N.Fork (5)	TOTAL
1991	Aug 1	2	6	10	2	5	**25**
1992	Aug 13	3	3	0	0	11	**17**
1993	Aug 11	4	13	19	11	2	**49**
1994	Aug 20	8	5	5	3	1	**22**
1995	Aug 15-17	5	7	6	4	12	**34**
1996	Aug 13, 22*	1	6	4	0	3	**14**
1997	Aug 12	3	3	10	1	1	**18**
1998	Aug 11, 17**	1	2	8	3	0	**14**

Distribution By Reach and Total Numbers: Spring Chinook Adults {Jacks}

Year	Date	Gates to Mth (1)	Bridge to Gates (2)	Hancock to Bridge (3)	N.Fork to Hancock (4)	BigElk to N.Fork (5)	TOTAL
1991	Aug 1	1	2	1	2	1	**7**
1992	Aug 13	8	16	1	2	0	**27**
1993	Aug 11	3	7	10	0	1	**21**
1994	Aug 20	2	10	4	0	0	**16**
1995	Aug 15-17	19{2}	6{0}	5{0}	4{0}	32{0}	**66{2}**
1996	Aug13, 22*	20{1}	25{1}	25{0}	8{0}	17{1}	**95{3}**
1997	Aug 12	27{1}	10{0}	14{1}	7{2}	1{0}	**59{4}**
1998	Aug 11, 17**	1{0}	1{0}	4{0}	0{0}	0{0}	**6{0}**

NOTES: * = N.Fork to Hancock reach surveyed later (8/22) due to surveyor injury
**= Gates to Mouth reach surveyed on 8/17. All other on 8/11.

Trend Record Summary -
Wooley Creek spring chinook / summer steelhead holding counts:

Year	Date	Spring Chinook (a)	Summer Steelhead (b)	Miles Surveyed	Comments
1967	Sept 6-7		15	4	
1968	August	29	45	17	discontinous survey
1969	July 22-23	1	3	10	
1970	July 13-16	22	20	17.9	
1971	c				
1972	July 17-20	50	45	16.2	
1973	c				
1974	c				
1975	Aug 11-13	13	124	8.2	
1976	c				
1977	Sep 13-15	3	510	10.7	
1978	Aug 8-10	2	105	10.7	
1979	Jul 29-Aug 2	19	160	10.7	
1980	Aug 10-15	43	165	15.3	
1981	Aug 3-7	8	245	16.2	
1982	Aug 2-6	3	353	17.5	
1983	**Aug 8-13**	**6**	**78**	**18.4**	
1984	**Aug 7 - ?**	**15**	**92**	**18.4**	
1985	Aug 25 - ?	13	290	16.5	
1986	c				
1987	July 27-30	1	280	15.6	
1988	July 19 - 21	81	362	10.7	
1989	Aug 15 -17	12	245	16.2	
1990	Sept 4 - 10	1	73	16.4	
1991	**Jul 29 - Aug 2**	**7**	**25**	**18.4**	
1992	**Aug 13**	**27**	**38**	**18.4**	
1993	**Aug 11**	**21**	**112**	**18.4**	
1994	**Aug 10**	**16**	**55**	**18.4**	
1995	**Aug 15-17**	**68**	**52**	**18.4**	
1996	**Aug 13, 22**	**98**	**35**	**18.4**	
1997	**Aug 12**	**63**	**55**	**18.4**	
1998	**Aug 11, 17**	**6**	**41**	**18.4**	

Average (d) - period of record --------	**24**	**134**
Average (e) not incl 1998 ----------	**36**	**60**
Average (e) including 1998 ----------	**33**	**58**

Notes:

(a) = Number of spring chinook adults and grilse.

(b) = Number of summer steelhead adults and half-pounders.

c = No survey this year, or data not available at time this summary prepared.

(d) = Likely an underestimation because includes years in which not all reaches were surveyed

(e) = Calculation of these averages are based on survey years that are comparable in extent and timing. Records used to calculate these averages are displayed in bold type

US Forest Service - Happy Camp/Ukonom Ranger Districts - Fisheries Departments

Summer Steelhead Holding Counts 1995 - 1998 MISC. CREEKS

Creek Name	Trib to	Year	Date	Reach	Adults	Half-Pounders
China	Klamath	1996	Aug 27	0.65 Mi to MTH	0	1
Grider	Klamath	1982	Aug ?	3.0 Mi to MTH	0	0
Grider	Klamath	1998	July 27	Rancheria to Bark Shanty	0	0
Independence	Klamath	1995	Aug 11	1.0 Mi to MTH	0	1
Independence	Klamath	1996	Aug 27	1.0 Mi to MTH	1	2
Independence	Klamath	1997	July 30	1.0 Mi to MTH	0	0
SF Clear	Clear	1995	Aug 16	1.0 to MTH	0	0
Rock	Klamath	1997	Aug 6	Bridge to MTH	0	0
Thompson	Klamath	1982	Aug 9, 10	6.5 to MTH	0	0
Thompson	Klamath	1995	Aug 17	1.3 to MTH	0	3
Thompson	Klamath	1996	Aug 15	1.3 to MTH	2	12
Thompson	Klamath	1997	July 30	1.3 to MTH	0	13
Ukonom	Klamath	1982	July 29	0.5 to MTH	5	0
Ukonom	Klamath	1990	Sept 12	0.5 to MTH	0	1
Ukonom	Klamath	1992	July 28	0.5 to MTH	0	1
Walker	Klamath	1998	July 27	EF Walker to MTH	0	0