

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Turlock Irrigation District)
)
 and) Project No. 2299
)
Modesto Irrigation District)

2007 LOWER TUOLUMNE RIVER ANNUAL REPORT

Report 2007-7

2007 Rainbow Trout Data Summary Report

Prepared by

Tim Ford
Turlock and Modesto Irrigation Districts

and

Steve Kiriara
Stillwater Sciences
Berkeley, CA

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2007 Rainbow Trout Data Summary Report

Introduction

Another native salmonid species, rainbow trout (*Oncorhynchus mykiss*), is now commonly present in the lower Tuolumne River, apparently as a result of flow increases since the 1996 FERC Order amending Article 37 of the Don Pedro Project License 2299. There has also been increased interest for several years in the status of that species as a result of the listing of the California Central Valley steelhead (*O. mykiss*) under the Federal Endangered Species Act, initially in 1998 and again in 2006. Consequently, data summaries have been periodically developed of the available records for rainbow trout to better document such information similar to that done for the fall run Chinook salmon (*Oncorhynchus tshawytscha*).

This report is an updated compilation of rainbow trout records in the lower Tuolumne River that includes 2005 through 2007. Previous rainbow trout data summaries were made by the Districts' through 2003 in their submittals of October 9 and December 1, 2003 to FERC and through 2004 in their 2005 Ten Year Summary Report to FERC, which included *O. mykiss* habitat maps. The Districts also filed with FERC on May 20, 2004 the results of the Districts' 2004 documentation of rainbow trout in their upper canals near La Grange Dam and the 1995 USFWS Instream Flow Incremental Methodology Report that addressed rainbow trout habitat in the lower Tuolumne River.

Data Sources

The additional rainbow trout data records for 2005-2007 are from the Districts' seine, snorkel, and rotary screw trap (RST) monitoring. All those records are also contained within the respective annual reports for those sampling programs. More details, such as sampling effort, are available in those annual reports. Data prior to 2005 were mostly from similar field sampling, but include a few incidental records from other methods.

The California Department of Fish and Game (CDFG) has not provided the Districts with any additional records since the prior compilation through 2004 that was in the 2005 Ten Year Summary Report. Still missing from that compilation is some "method" information and other details for certain records. That CDFG data summary is again provided in Appendix A along with a figure of forklength by date.

Data Presentation

Table 1 contains the basic date, location, and method records chronologically with the number and sizes (or size range) of rainbow trout. Tables 2 and 3 identify the locations sampled by year and the number of rainbow trout recorded (or their absence) for seining and snorkeling, respectively. Figures 1-11 present results from seining, Figure 12 from screw trapping, and Figures 13-25 from snorkeling.

Table 1. Rainbow trout observations in the Tuolumne River (TID/MID)

Method	River	Location	River Mile	Date	#	Fork Length (mm) [1]
Snorkel	Tuol	R5	48.0	08/01/82	2	350
Seine (DFG)	Tuol	OLGB	50.5	04/15/83	1	39
Seine (DFG)	Tuol	OLGB	50.5	05/06/83	1	60
Seine (DFG)	Tuol	OLGB	50.5	06/09/83	1	41
Seine (DFG)	Tuol	OLGB	50.5	02/16/84	4	?
Seine (DFG)	Tuol	OLGB	50.5	03/01/84	2	?
Stranding	Tuol	R4B	48.4	03/16/84	4	25-30
Snorkel (spring)	Tuol	R4B-5	48.0-48.4	04/11/84	12	150-300
Snorkel	Tuol	RA3	51.6	08/10/84	27	100-200
Snorkel	Tuol	RA7	50.7	08/10/84	26	?
Snorkel (spring)	Tuol	RA3	51.6	03/21/85	2	300,350
Seine	Tuol	R4B	48.4	04/23/86	1	37
Seine	Tuol	OLGB	50.5	05/12/86	1	29
Seine	Tuol	OLGB	50.5	05/19/86	1	26
Seine	Tuol	OLGB	50.5	05/30/86	1	29
Seine	Tuol	R4B	48.4	05/30/86	1	30
Seine	Tuol	OLGB	50.5	06/11/86	2	36,54
Seine	Tuol	R4B	48.4	06/11/86	2	74,67
Seine	Tuol	R4B	48.4	06/19/86	1	80
Seine	Tuol	OLGB	50.5	06/26/86	5	46,66,79,58,67
Snorkel	Tuol	R4B	48.4	07/01/86	5	40-80
Snorkel	Tuol	RA3	51.6	08/14/86	6	5(100-160), (350)
Snorkel	Tuol	RA7	50.7	08/14/86	13	70-150
Snorkel	Tuol	R2	49.9	08/14/86	25	<175
Snorkel	Tuol	R4B	48.4	08/14/86	10	<175
Snorkel	Tuol	R5	48.0	08/14/86	10	<175
Seine	Tuol	R4B	48.4	02/26/87	1	28
Seine	Tuol	R4B	48.4	03/04/87	1	33
Seine	Tuol	OLGB	50.5	03/26/87	1	26
Mark-Recap.	Tuol	R4A	48.8	05/14/87	1	88
Seine	Tuol	R5	48.0	05/20/87	2	59,32
Seine	Tuol	OLGB	50.5	05/20/87	3	31,30,29
Stranding	Tuol	RA4	51.6	06/01/87	7	29-35
Stranding	Tuol	R5	48.0	06/02/87	5	62-92
Seine	Tuol	OLGB	50.5	06/03/87	2	33,37
Seine	Tuol	OLGB	50.5	05/16/88	1	34
Electro	Tuol	R2	49.9	05/30/90	1	73
Snorkel	Tuol	RA3	51.6	06/09/92	1	150
Snorkel (late fall)	Tuol	RA7	50.7	11/30/95	1	250
Snorkel (late fall)	Tuol	R5	48.0	11/30/95	2	220,250
Snorkel	Tuol	R7	46.9	07/03/96	4	90-110
Seine	Tuol	TRR	42.2	03/12/97	1	35
Snorkel	Tuol	RA3	51.6	06/25/97	4	200,250,250,300
Snorkel	Tuol	RA7	50.7	06/25/97	2	250,400
Snorkel	Tuol	R2	49.9	06/25/97	2	250
Seine	Tuol	R4B	48.4	04/22/98	1	28
RST 7/11	Tuol	7/11	38.5	01/21/99	1	198
Seine	Tuol	TRR	42.2	02/24/99	1	25
RST 7/11	Tuol	7/11	38.5	04/01/99	1	45
Seine	Tuol	R5	48.0	04/08/99	1	27
Seine	Tuol	OLGB	50.5	05/19/99	3	32,43,46
Snorkel	Tuol	RA7	50.7	06/15/99	14	70-110
Snorkel	Tuol	R3B	49.1	06/15/99	31	70-100
Snorkel	Tuol	R5	48.0	06/15/99	10	4(75-100), 6(220-300)
Snorkel	Tuol	R7	46.9	06/16/99	15	75-130
Snorkel	Tuol	R23B-C	42.3-42.4	06/16/99	9	80-130
Seine	Tuol	TRR	42.2	03/21/00	1	26
Angling	Tuol	R3B, R13B	49.1, 45.5	04/12/00	2	385,355
Seine	Tuol	R5	48.0	05/17/00	3	48,56,63
Snorkel	Tuol	RA7	50.7	06/05/00	14	50-120
Snorkel	Tuol	R1A	50.4	06/05/00	3	60,70,80
Snorkel	Tuol	R3B	49.1	06/05/00	14	11(70-110), 200,225,250
Snorkel	Tuol	R5	48.0	06/05/00	19	14(50-110), 5(200-350)
Snorkel	Tuol	R7	46.9	06/21/00	52	47(45-100), 5(225-350)
Snorkel	Tuol	R12	45.8	06/06/00	5	250-350
Snorkel	Tuol	R13A	45.6	06/06/00	20	19(60-110), 200
Snorkel	Tuol	R17A2	44.4	06/06/00	14	75-120
Snorkel	Tuol	R21	42.9	06/06/00	27	25(70-110), 225,250
Snorkel	Tuol	R23C	42.3	06/06/00	4	70,80,90,225
Snorkel	Tuol	R26	40.9	06/07/00	4	150-225
Snorkel	Tuol	R27	40.3	06/07/00	2	275,325
Snorkel	Tuol	R31	38.1	06/07/00	2	200,325

[1] estimated total length for snorkel data

Table 1. Rainbow trout observations in the Tuolumne River (TID/MID)

Method	River	Location	River Mile	Date	#	Fork Length (mm) [1]
Seine	Tuol	OLGB	50.5	03/20/01	1	26
Seine	Tuol	R5	48.0	03/20/01	1	32
Seine	Tuol	TRR	42.2	03/20/01	2	48,51
Seine	Tuol	R5	48.0	05/15/01	41	(36-77)
Snorkel	Tuol	RA7	50.7	06/18/01	7	70-95
Snorkel	Tuol	R2	49.9	06/18/01	3	75,80,90
Snorkel	Tuol	R3B	49.1	06/18/01	8	4(120-160), 4(180-200)
Snorkel	Tuol	R5	48.0	06/18/01	4	80,140,160,280
Snorkel	Tuol	R7	46.9	06/19/01	4	90,90,100,150
Snorkel	Tuol	R13B	45.5	06/19/01	3	90,130,160
Snorkel	Tuol	R21	42.9	06/19/01	2	120,150
Snorkel	Tuol	RA7	50.7	09/18/01	3	160,270,300
Snorkel	Tuol	R2	49.9	09/18/01	3	225,280,330
Snorkel	Tuol	R3B	49.1	09/18/01	1	280
Snorkel	Tuol	R5	48.0	09/18/01	2	275,300
Snorkel	Tuol	R21	42.9	09/19/01	3	190,225,275
Seine	Tuol	OLGB	50.5	04/23/02	2	32,32
Seine	Tuol	R5	48.0	05/07/02	1	28
Snorkel	Tuol	RA7	50.7	06/11/02	5	70-80
Snorkel	Tuol	R2	49.9	06/11/02	1	225
Snorkel	Tuol	R3B	49.1	06/11/02	11	60-120
Snorkel	Tuol	R5	48.0	06/12/02	3	160,300,380
Snorkel	Tuol	R7	46.9	06/12/02	5	100, 4(140-160)
Snorkel	Tuol	R13B	45.5	06/12/02	2	120,140
Snorkel	Tuol	R21	42.9	06/12/02	1	125
Snorkel	Tuol	RA7	50.7	09/24/02	1	400
Snorkel	Tuol	R2	49.9	09/24/02	4	300,330,420,480
Snorkel	Tuol	R3B	49.1	09/24/02	1	200
Snorkel	Tuol	R7	46.9	09/25/02	2	150,225
Snorkel	Tuol	R13B	45.5	09/25/02	4	110,160,200,220
Seine	Tuol	TRR	42.3	04/01/03	1	29
Snorkel	Tuol	RA7	50.7	06/18/03	66	65(45-140), (350)
Snorkel	Tuol	R2	49.9	06/18/03	8	5(120-130), 300,325,420
Snorkel	Tuol	R3B	49.1	06/18/03	5	110-150
Snorkel	Tuol	R5	48.0	06/18/03	6	5(90-120), 370
Snorkel	Tuol	R7	46.9	06/19/03	14	13(80-125), 375
Snorkel	Tuol	R13B	45.5	06/19/03	1	390
Snorkel	Tuol	R23C	42.3	06/19/03	1	90
Snorkel	Tuol	RA7	50.7	09/17/03	16	15(45-60), 210
Snorkel	Tuol	R2	49.9	09/17/03	2	200,350
Snorkel	Tuol	R3B	49.1	09/17/03	21	16(60-80), 180,200,220,325,475
Snorkel	Tuol	R5	48.0	09/17/03	10	9(60-70), 325
Snorkel	Tuol	R7	46.9	09/18/03	9	125-225
Snorkel	Tuol	R13B	45.5	09/18/03	6	60, 190,210,225,300,330
Snorkel	Tuol	R21	42.9	09/18/03	6	5(190-225), 320
Snorkel	Tuol	R23C	42.3	09/18/03	1	210
Seine	Tuol	OLGB	50.5	03/16/04	1	29
Seine	Tuol	TRR	42.3	03/16/04	1	29
Seine	Tuol	TRR	42.3	03/30/04	2	31,32
Seine	Tuol	R5	48.0	04/14/04	2	31,38
Seine	Tuol	R5	48.0	05/25/04	1	64
Snorkel	Tuol	RA7	50.7	06/16/04	12	11(50-80), 420
Snorkel	Tuol	R2	49.9	06/16/04	23	20(80-130), 180,320,400
Snorkel	Tuol	R3B	49.1	06/16/04	22	21(80-130), 480
Snorkel	Tuol	R5	48.0	06/16/04	11	9(90-130), 300,370
Snorkel	Tuol	R7	46.9	06/17/04	13	110-140
Snorkel	Tuol	R13B	45.5	06/17/04	5	110-125
Snorkel	Tuol	R21	42.9	06/17/04	5	110-130
Snorkel	Tuol	RA3/A4	51.6	08/03/04	5	170-275
Snorkel	Tuol	RA7	50.7	08/03/04	6	120-200
Snorkel	Tuol	R1A	50.5	08/03/04	4	300-425
Snorkel	Tuol	R2	49.9	08/03/04	2	290,320
Snorkel	Tuol	R3B	49.1	08/04/04	5	140,150,160,350,525
Snorkel	Tuol	R4B	48.4	08/04/04	8	7(90-200),350
Snorkel	Tuol	R5	48.0	08/04/04	15	60, 14(150-225)
Snorkel	Tuol	R7	46.9	08/04/04	5	140-160
Snorkel	Tuol	R10	46.2	08/05/04	3	340,400,450
Snorkel	Tuol	R13B	45.5	08/05/04	13	100-210
Snorkel	Tuol	R21	42.9	08/05/04	9	100-170
Snorkel	Tuol	R23C	42.3	08/05/04	1	200
Snorkel	Tuol	RA7	50.7	09/15/04	11	40-110
Snorkel	Tuol	R2	49.9	09/15/04	7	100, 6(200-380)
Snorkel	Tuol	R3B	49.1	09/15/04	7	4(60-110), 360,400,425
Snorkel	Tuol	R5	48.0	09/15/04	6	45, 5(140-360)
Snorkel	Tuol	R7	46.9	09/16/04	2	180,300
Snorkel	Tuol	R21	42.9	09/16/04	7	4(160-180), 3(280-310)

[1] estimated total length for snorkel data

Table 1. Rainbow trout observations in the Tuolumne River (TID/MID)

Method	River	Location	River Mile	Date	#	Fork Length (mm) [1]
Seine	Tuol	OLGB	50.5	03/16/05	1	27
RST	Tuol	GRAYSON	5.2	05/14/05	1	33
Snorkel	Tuol	RA7	50.7	09/20/05	10	4(110-180), 6(350-500)
Snorkel	Tuol	R2	49.9	09/20/05	7	(225-420)
Snorkel	Tuol	R3B	49.1	09/20/05	6	(180-460)
Snorkel	Tuol	R5	48.0	09/20/05	36	30(110-200) 6(230-480)
Snorkel	Tuol	R7	46.9	09/21/05	2	160,260
Snorkel	Tuol	R13B	45.5	09/21/05	46	10(70-150) 36(160-260)
Snorkel	Tuol	R21	42.9	09/21/05	15	3(120-130) 12(175-250)
Snorkel	Tuol	R23C	42.3	09/21/05	14	120,130, 12(160-225)
Snorkel	Tuol	R31	38.0	09/22/05	1	300
Snorkel	Tuol	R35A	37.1	09/22/05	2	120,130
Seine	Tuol	TRR	42.2	02/01/06	1	29
RST	Tuol	WATERFORD	29.8	02/16/06	1	280
Seine	Tuol	TRR	42.2	03/01/06	3	25,26,26
Seine	Tuol	R4B	48.4	03/29/06	2	27,29
RST	Tuol	WATERFORD	29.8	04/02/06	1	249
RST	Tuol	WATERFORD	29.8	04/05/06	1	270
Seine	Tuol	OLGB	50.5	05/03/06	2	38,45
RST	Tuol	WATERFORD	33.5	06/02/06	1	81
RST	Tuol	WATERFORD	33.5	06/04/06	1	66
RST	Tuol	WATERFORD	33.5	06/10/06	2	80,90
RST	Tuol	WATERFORD	33.5	06/12/06	1	79
Snorkel	Tuol	RA7	50.7	09/19/06	115	102(100-180) 13(200-420)
Snorkel	Tuol	R2	49.9	09/19/06	15	(250-400)
Snorkel	Tuol	R3B	49.1	09/19/06	66	39(100-160) 27(180-525)
Snorkel	Tuol	R5	48.0	09/19/06	54	20(100-150) 34(160-450)
Snorkel	Tuol	R7	46.9	09/20/06	106	76(50-150) 30(170-440)
Snorkel	Tuol	R13B	45.5	09/20/06	103	82(50-160) 21(180-300)
Snorkel	Tuol	R21	42.9	09/20/06	32	14(100-160) 18(180-420)
Snorkel	Tuol	R23C	42.3	09/20/06	27	10(100-150) 17(160-220)
Snorkel	Tuol	R31	38.0	09/21/06	21	(60-160)
Snorkel	Tuol	R36A	36.7	09/21/06	4	(60-70)
RST	Tuol	WATERFORD	29.8	02/01/07	1	-
RST	Tuol	WATERFORD	29.8	02/20/07	1	195
Seine	Tuol	TRR	42.2	02/28/07	1	31
Seine	Tuol	R5	48.0	04/11/07	3	25,27,37
Seine	Tuol	TRR	42.2	04/11/07	7	(24-38)
RST	Tuol	WATERFORD	29.8	04/22/07	1	64
RST	Tuol	WATERFORD	29.8	04/23/07	1	43
Seine	Tuol	TRR	42.2	04/25/07	5	21,22,24,31,36
RST	Tuol	WATERFORD	29.8	04/27/07	1	310
RST	Tuol	WATERFORD	29.8	05/02/07	1	35
RST	Tuol	WATERFORD	29.8	05/03/07	1	320
Seine	Tuol	R5	48.0	05/09/07	3	27,27,37
Seine	Tuol	TRR	42.2	05/09/07	1	35
RST	Tuol	WATERFORD	29.8	05/15/07	1	360
RST	Tuol	WATERFORD	29.8	05/18/07	1	77
Seine	Tuol	R5	48.0	05/23/07	2	44,50
RST	Tuol	WATERFORD	29.8	06/05/07	1	325
Snorkel	Tuol	RA7	50.7	06/26/07	106	101(60-110) 5(240-480)
Snorkel	Tuol	R2	49.9	06/26/07	34	26(70-100) 8(230-420)
Snorkel	Tuol	R3B	49.1	06/26/07	45	36(60-120) 9(260-440)
Snorkel	Tuol	R5	48.0	06/26/07	92	79(50-150) 13(250-480)
Snorkel	Tuol	R7	46.9	06/27/07	22	16(80-125) 6(280-380)
Snorkel	Tuol	R13B	45.5	06/27/07	15	15(70-140)
Snorkel	Tuol	R21	42.9	06/27/07	10	10(80-160)
Snorkel	Tuol	R23C	42.3	06/27/07	5	4(120-140) (350)
Snorkel	Tuol	R31	38.0	07/03/07	12	12(90-160)
Snorkel	Tuol	R41A	35.3	07/03/07	2	(160,180)
Snorkel	Tuol	RA7	50.7	09/18/07	75	70(40-160) 5(250-380)
Snorkel	Tuol	R2	49.9	09/18/07	16	7(100-140) 9(220-480)
Snorkel	Tuol	R3B	49.1	09/18/07	12	4(100-130) 8(290-500)
Snorkel	Tuol	R5	48.0	09/18/07	10	3(120-160) 7(300-450)
Snorkel	Tuol	R7	46.9	09/19/07	7	7(280-420)
Snorkel	Tuol	R13B	45.5	09/19/07	57	57(100-170)
Snorkel	Tuol	R21	42.9	09/19/07	10	9(110-170) (320)
Snorkel	Tuol	R23C	42.3	09/19/07	7	7(120-150)
Snorkel	Tuol	R31	38.0	09/20/07	4	4(280-360)

[1] estimated total length for snorkel data

Table 2. 1983 to 2007 Tuolumne River seining locations with number of O. mykiss caught

Site	Location	River Mile	1983 [1]	1984 [1]	1985 [1]	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
1	Old La Grange Bridge	50.5	3	8	X	10	6	1	X	X	X	X	X			X	X	X	3	X	1	2	X	1	1	2	X	
2	Riffle 4B	48.4				5	2	X	X	X	X				X	X	X	1								2		
3	Riffle 5	47.9					2	X	X	X	X	X	X						1	3	42	1	X	3	X		8	
4	Tuolumne River Resort	42.4						X	X	X	X	X	X	X	X	X	1	X	1	1	2	X	1	3	X	4	14	
5	Turlock Lake State Rec. Area	42.0	X	X	X	X	X																					
6	Reed Gravel	34.0				X	X	X	X	X	X																	
7	Hickman Bridge	31.6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8	Charles Road	24.9					X	X	X	X	X	X	X				X	X	X	X	X	X	X	X	X	X	X	X
9	Legion Park	17.2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10	Riverdale Park / Venn	12.3 / 7.4					X	X	X	X	X								X	X	X	X	X	X	X	X	X	
11	McCleskey Ranch	6.0				X	X	X	X	X	X	X	X	X														
12	Shiloh Bridge	3.4	X	X	X	X	X	X	X	X	X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	

[1] CDFG seining

Table 3. Tuolumne River snorkel survey locations (1982-2007) with number of *O. mykiss* observed, otherwise none were seen.

	1982	1984		1985	1986		1987			(1) 1988		(1) 1989		(1) 1990		1991		1992		1993			
	AUG	APR	AUG	MAR	JUL	AUG	JAN	APR	OCT	MAY	SEP	MAY	SEP	JUN	SEP	JUN	SEP	JUN	SEP	MAY	JUN	JUL	OCT
LOCATIONS																							
Riffle A3/A4 (RM 51.6)			27	2		6			X	X	X	X	X	X	X	X	X	1	X	X	X	X	X
Riffle A7 (RM 50.7)			26			13			X			X	X							X	X	X	X
Riffle 1A (RM 50.4)									X											X	X		X
Riffle 2 (RM 49.9)	X		X			25	X	X		X	X	X	X	X	X	X	X	X	X	X	X		X
Riffle 3B (RM 49.1)																							
Riffle 4B (RM 48.4)	X	12		X	5	10																	X
Riffle 5B (RM 48.0)	2	X	X	X		10	X	X		X	X	X	X	X	X	X	X	X	X	X	X		X
Riffle 7 (RM 46.9)																							
Riffle 9 (RM 46.4)										X	X	X	X	X	X	X	X	X	X	X	X		X
Riffle 12 (RM 45.8)																							
Riffle 13A-B (RM 45.6)																							X
Riffle 17A2 (RM 44.4)																							
Riffle 21 (RM 42.9)																							
Riffle 23B-C (RM 42.3)										X	X	X	X	X	X	X	X	X	X	X	X		X
Riffle 24 (RM 42.0)					X																		X
Riffle 26 (RM 40.9)																							
Riffle 27(RM 40.3)																							
Riffle 30B (RM 38.5)																							
Riffle 31 (RM 38.1)																							
Riffle 33 (RM 37.8)										X	X	X	X	X	X								
Riffle 35A (RM 37.0)																							
Riffle 36A (RM 36.7)																							X
Riffle 37 (RM 36.2)									X														X
Riffle 39-40 (RM 35.4)										X	X	X	X	X	X	X	X	X	X	X	X		X
Riffle 41A (RM 35.3)																							
Riffle 46 (RM 34.0)					X		X																
Riffle 52B (RM 32.2)										X	X												
Riffle 57-58 (RM 31.5)		X		X								X	X	X	X	X	X	X	X	X	X		X
Charles (RM 24.9)										X	X	X	X	X	X	X	X	X	X	X	X		X
Total <i>O.mykiss</i>	2	12	53	2	5	64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(1) Some limited additional snorkeling was conducted during the summer flow study period in these years (no *O. mykiss* were seen)

Table 3. Tuolumne River snorkel survey locations (1982-2007) with number of *O. mykiss* observed, otherwise none were seen.

	1994			1995	1996	1997	1999	2000	2001		2002		2003		2004			2005	2006	2007		
	MAY	JUL	OCT	NOV	JUL	JUN	JUN	JUN	JUN	SEP	JUN	SEP	JUN	SEP	JUN	AUG	SEP	SEP	SEP	JUN	SEP	
LOCATIONS																						
Riffle A3/A4 (RM 51.6)		X	X	X		4									5							
Riffle A7 (RM 50.7)	X			1	X	2	14	14	7	3	5	1	66	16	12	6	11	10	115	106	75	
Riffle 1A (RM 50.4)					51			3							4							
Riffle 2 (RM 49.9)		X	X		91	2	X		3	3	1	4	8	2	23	2	7	7	15	34	16	
Riffle 3B (RM 49.1)					138	X	31	14	8	1	11	1	5	21	22	5	7	6	66	45	12	
Riffle 4B (RM 48.4)					55										8							
Riffle 5B (RM 48.0)	X	X	X	2	45	X	10	19	4	2	3	X	6	10	11	15	6	36	54	92	10	
Riffle 7 (RM 46.9)					4	X	15	52	4	X	5	2	14	9	13	5	2	2	106	22	7	
Riffle 9 (RM 46.4)		X	X												3							
Riffle 12 (RM 45.8)								5														
Riffle 13A-B (RM 45.6)								20	3	X	2	4	1	6	5	13	X	46	103	15	57	
Riffle 17A2 (RM 44.4)								14														
Riffle 21 (RM 42.9)					X			27	2	3	1	X	X	6	5	9	7	15	32	10	10	
Riffle 23B-C (RM 42.3)	X					X	9	4	X	X	X	X	1	1	X	1	X	14	27	5	7	
Riffle 24 (RM 42.0)				X																		
Riffle 26 (RM 40.9)								4														
Riffle 27 (RM 40.3)								2														
Riffle 30B (RM 38.5)							X				X	X										
Riffle 31 (RM 38.1)								2	X	X			X	X	X	X	X	1	21	12	4	
Riffle 33 (RM 37.8)																						
Riffle 35A (RM 37.0)					X			X			X	X	X	X	X	X	X	2		X	X	
Riffle 36A (RM 36.7)	X				X	X	X												4			
Riffle 37 (RM 36.2)								X	X	X												
Riffle 39-40 (RM 35.4)		X	X																			
Riffle 41A (RM 35.3)								X	X	X	X	X	X	X	X	X	X	X	X	2	X	
Riffle 46 (RM 34.0)								X														
Riffle 52B (RM 32.2)								X														
Riffle 57-58 (RM 31.5)	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	
Charles (RM 24.9)			X																			
Total <i>O.mykiss</i>	0	0	0	3	384	8	79	180	31	12	28	12	101	71	91	76	40	139	543	343	198	

Data in bold type (JUL96, RA7 to R5B) was collected by CDFG using different survey methods that are not comparable

Figure 1. Locations where *O.mykiss* were caught during the 1983 to 2007 Tuolumne River seining surveys

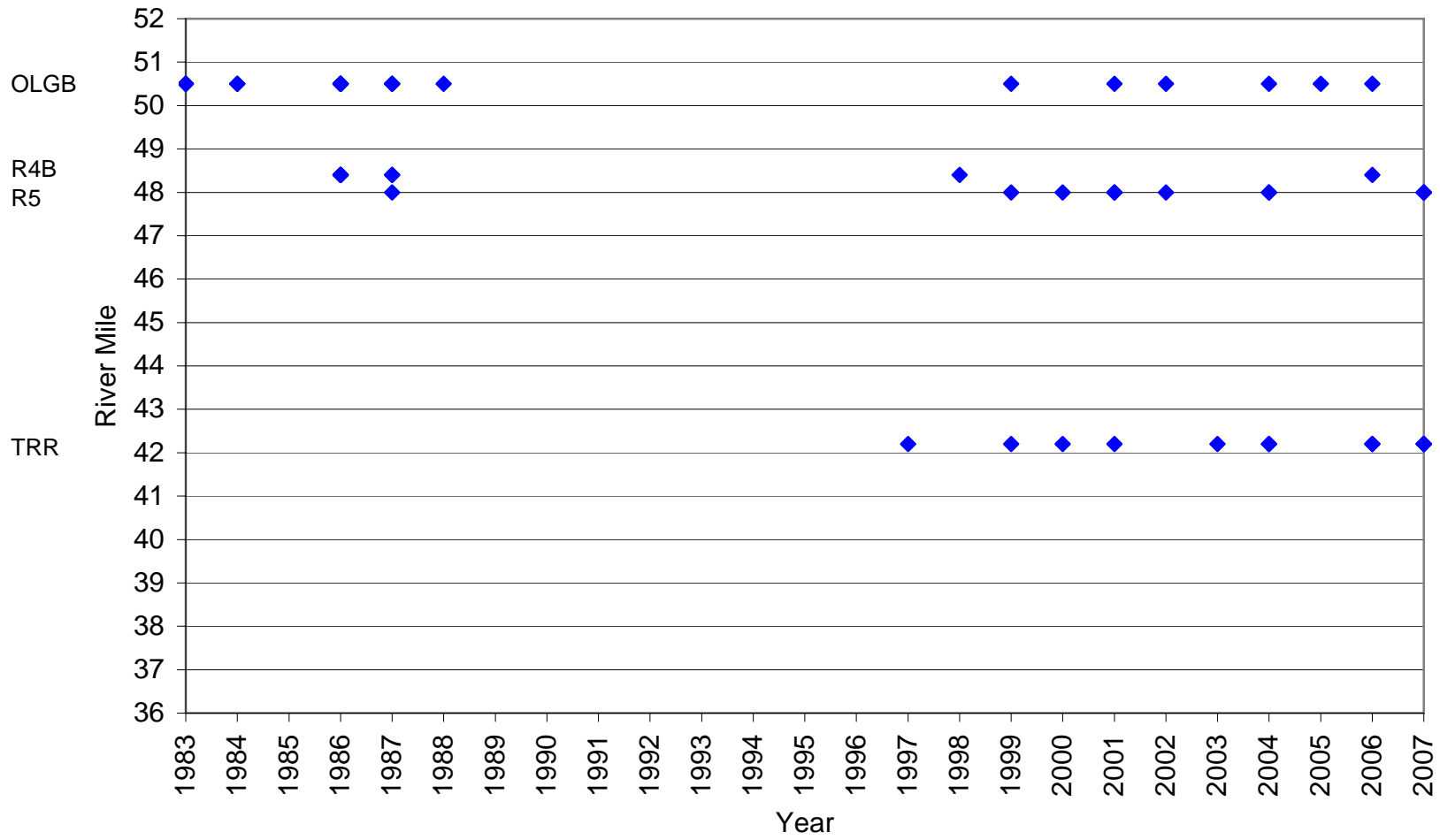


Figure 2. Dates and locations when *O.mykiss* were caught during the 1983 to 2007 Tuolumne River seining surveys

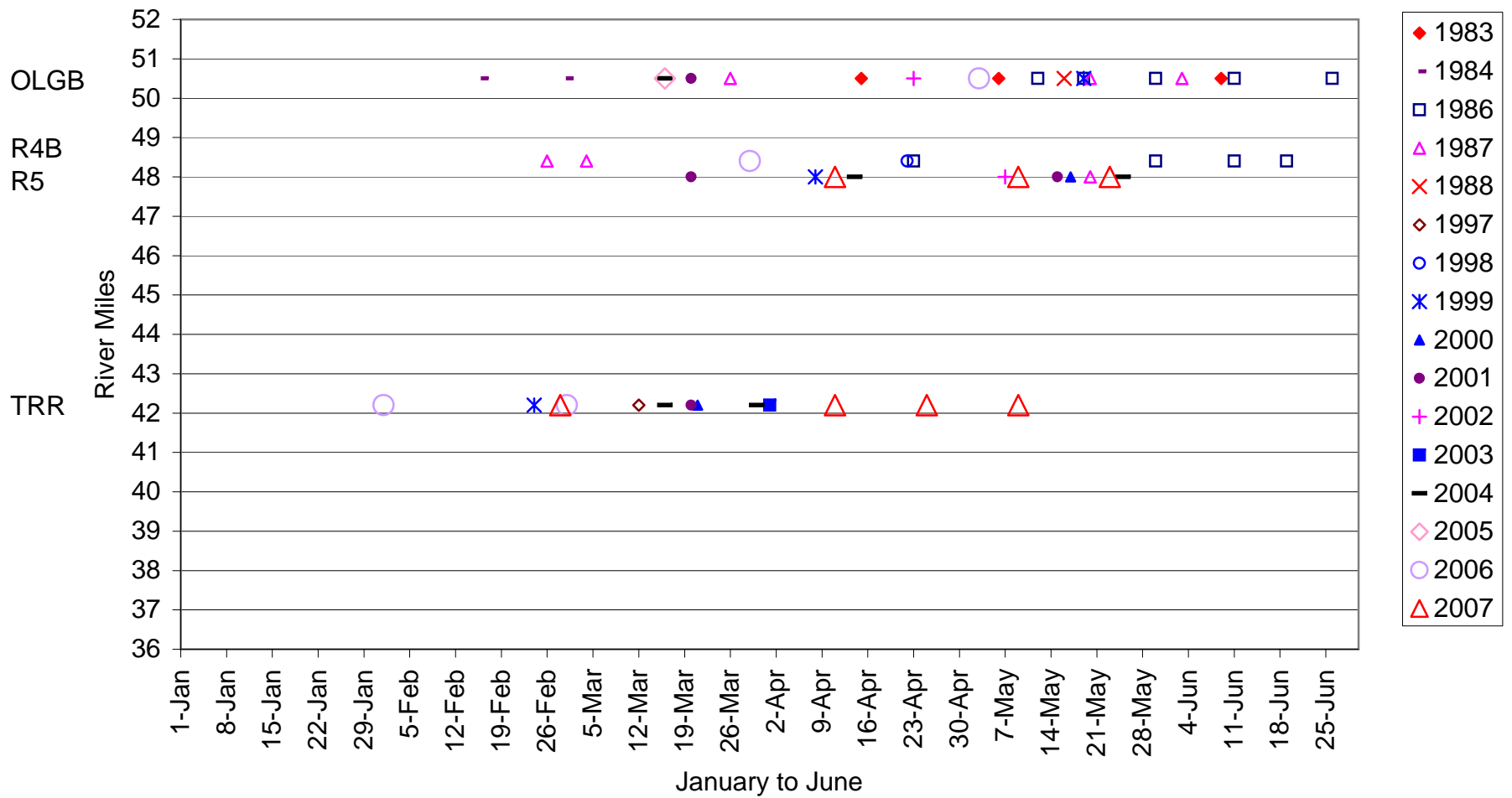


Figure 3. All measured *O.mykiss* caught from Old La Grange Bridge (RM 50.5) to Tuolumne River Resort (RM 42.2) during the 1983 to 2007 Tuolumne River seining surveys

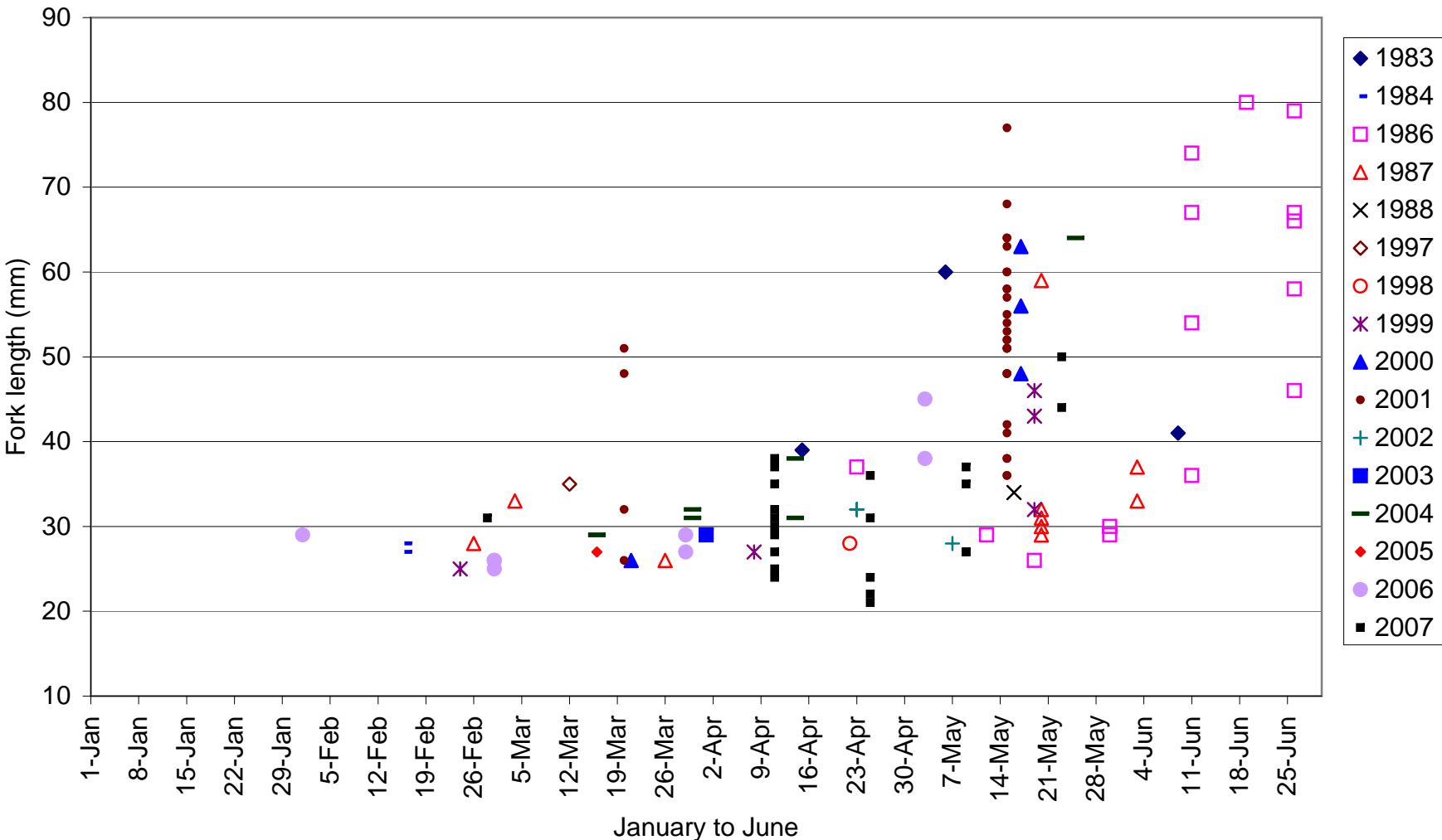


Figure 4. *O.mykiss* caught at Old La Grange Bridge (RM 50.5) during the 1983 to 2007 Tuolumne River seining surveys

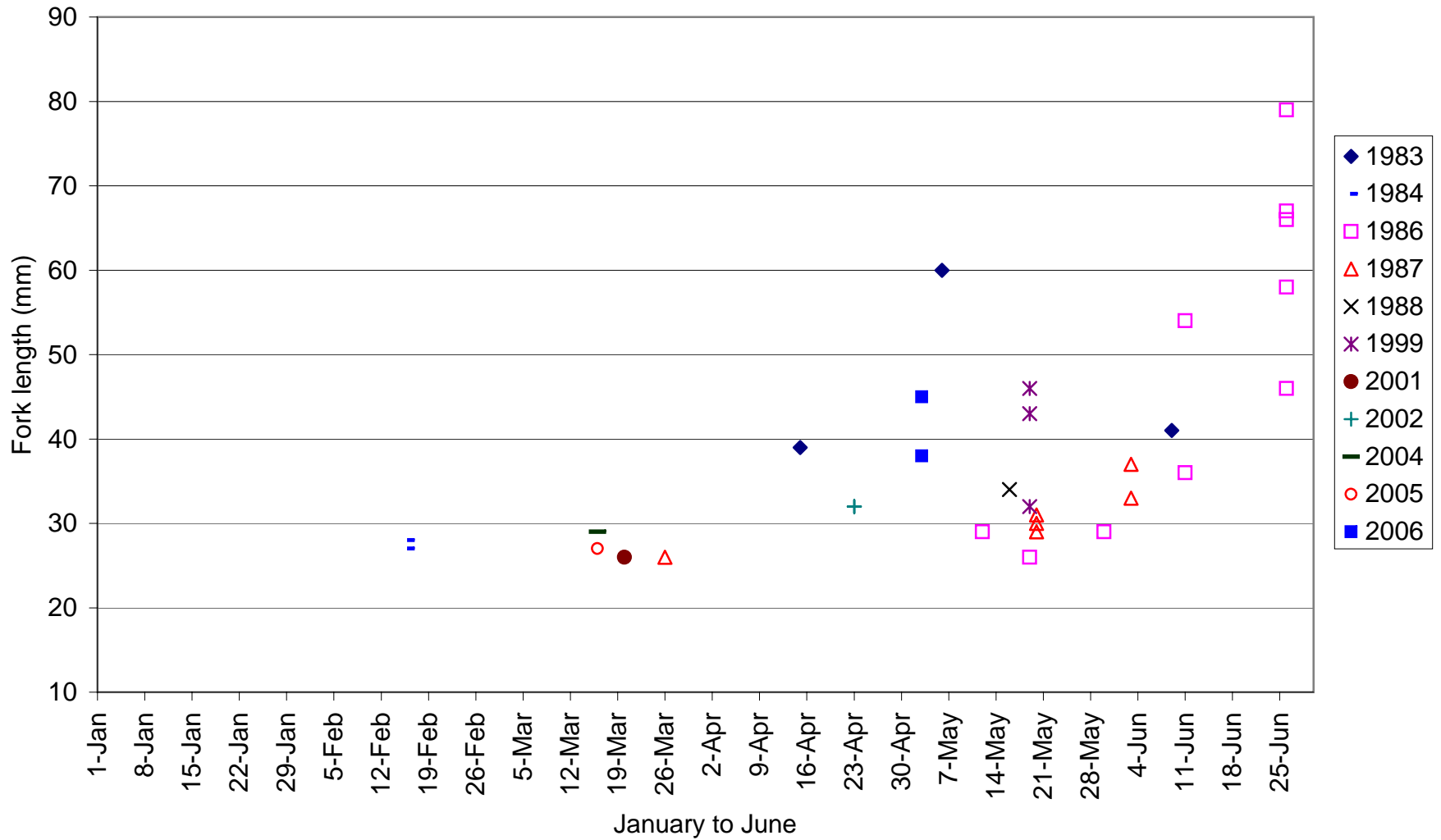


Figure 5. *O.mykiss* caught at Riffle 4B (RM 48.4) during the 1983 to 2007 Tuolumne River seining surveys

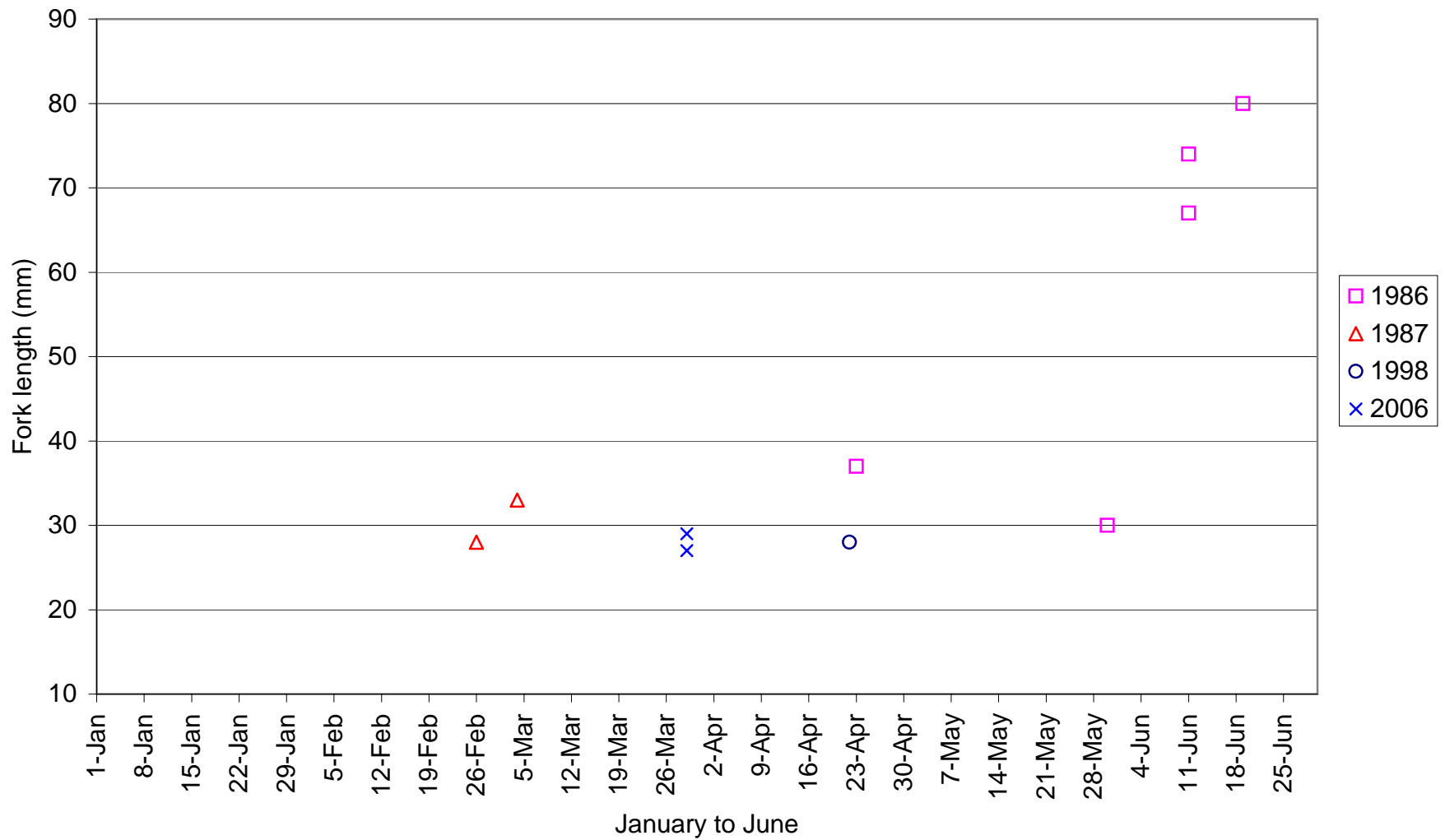


Figure 6. *O. mykiss* caught at Riffle 5 (RM 48.0) during the 1983 to 2007 Tuolumne River seining surveys

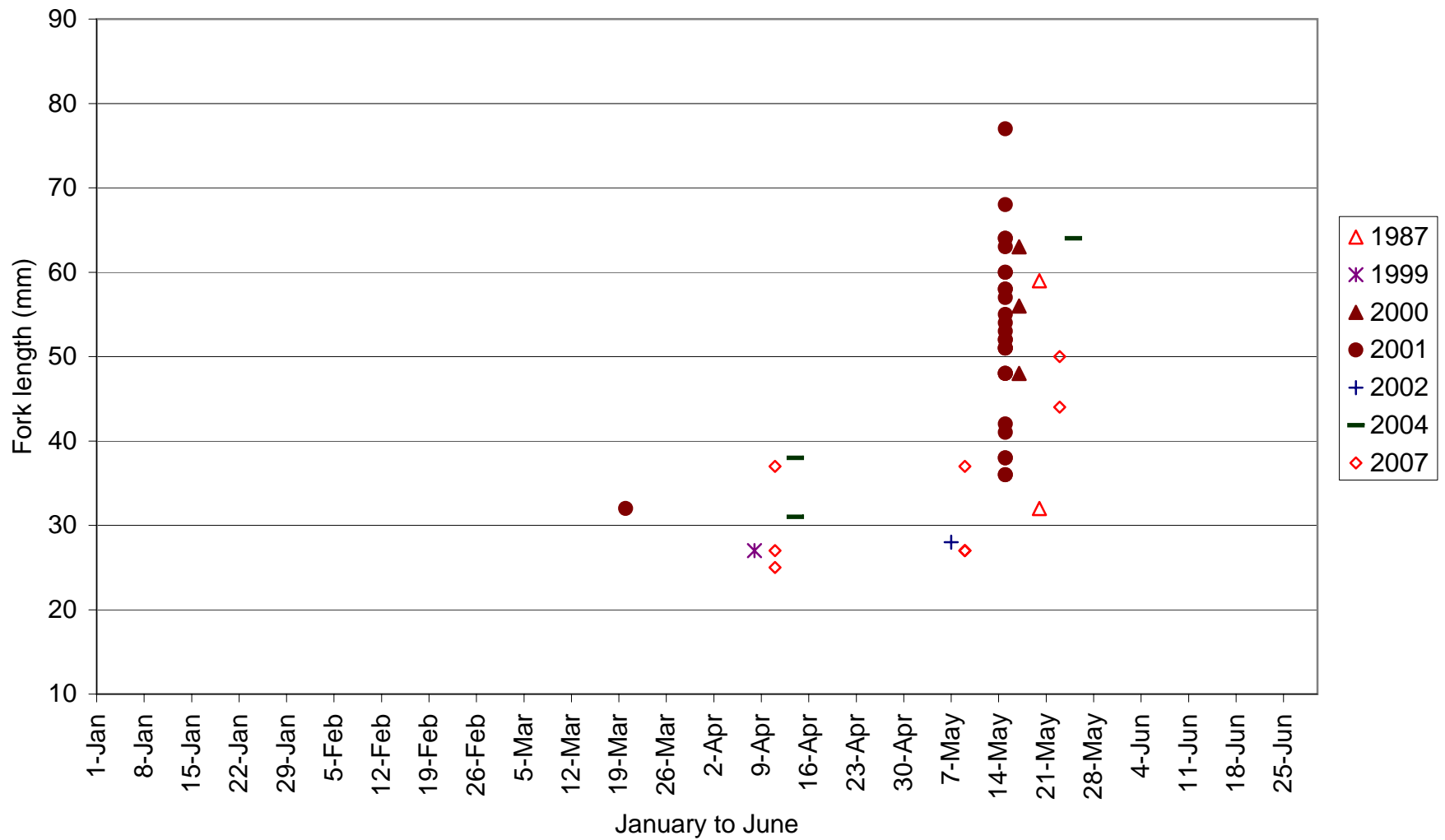


Figure 7. *O. mykiss* caught at Tuolumne River Resort (RM 42.2) during the 1983 to 2007 Tuolumne River seining surveys

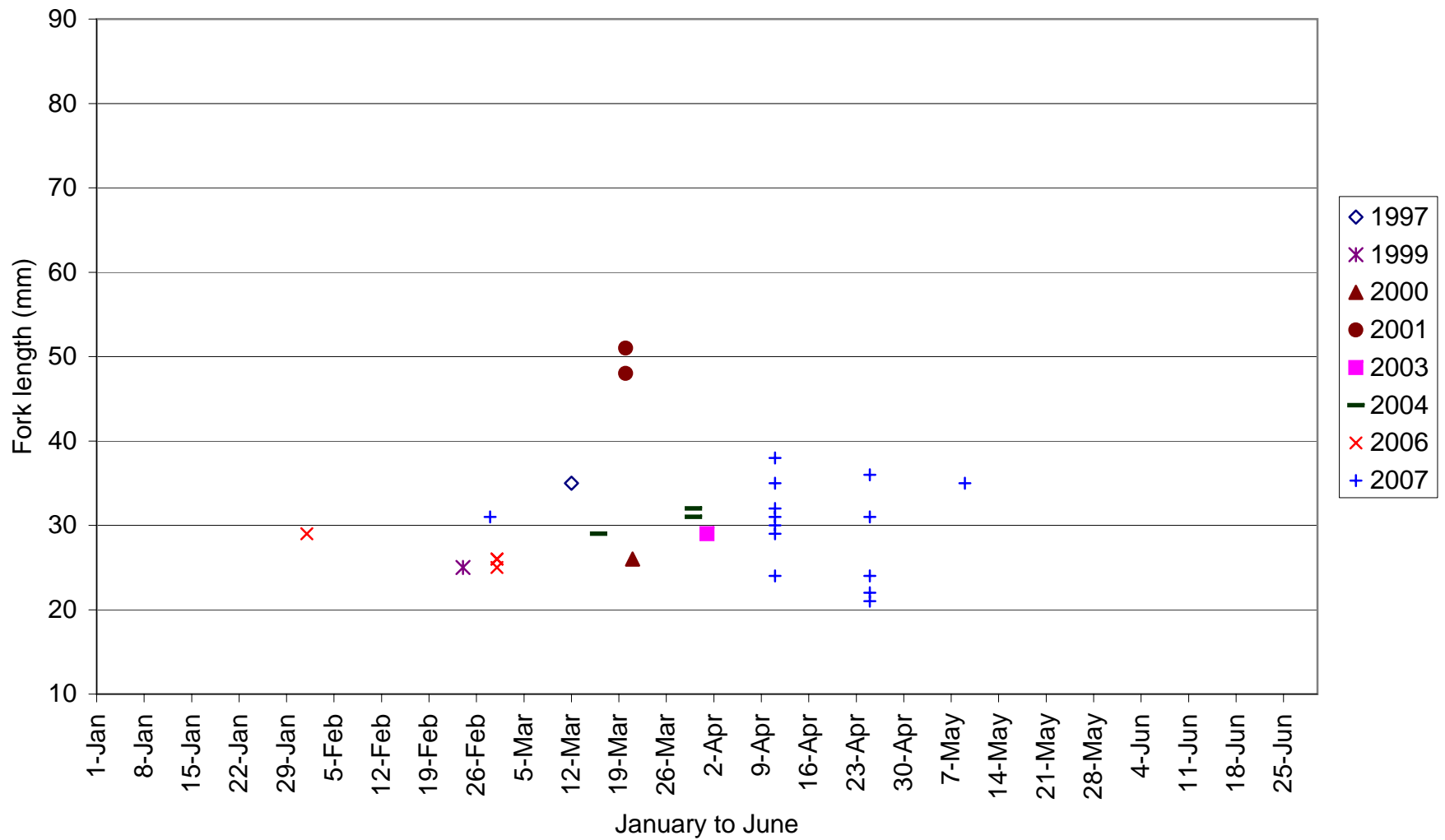


Figure 8. Number of *O.mykiss* caught at Old La Grange Bridge (RM 50.5) during the 1983 to 2007 Tuolumne River seining surveys

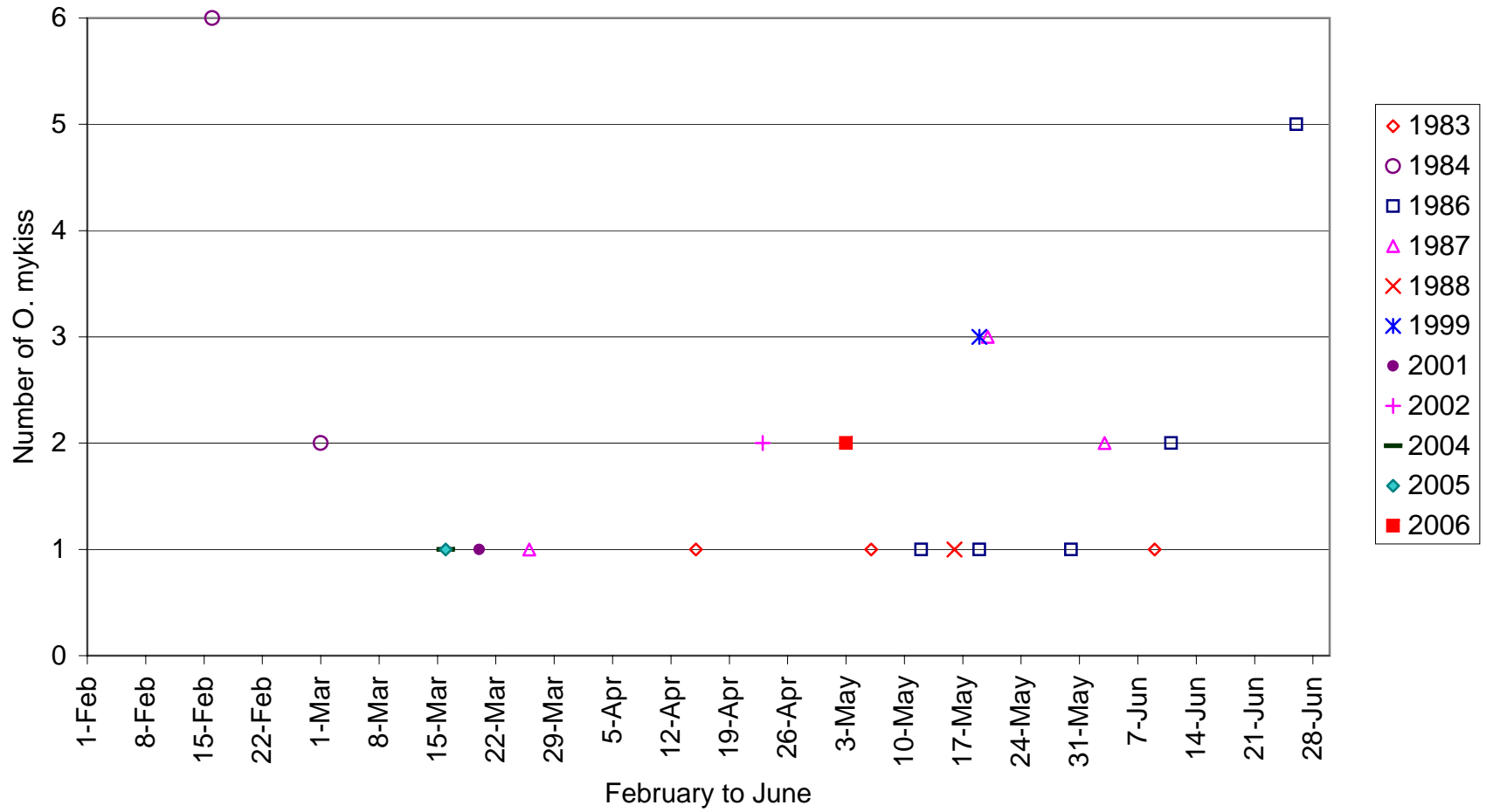


Figure 9. Number of *O.mykiss* caught at Riffle 4B (RM 48.4) during the 1983 to 2007 Tuolumne River seining surveys

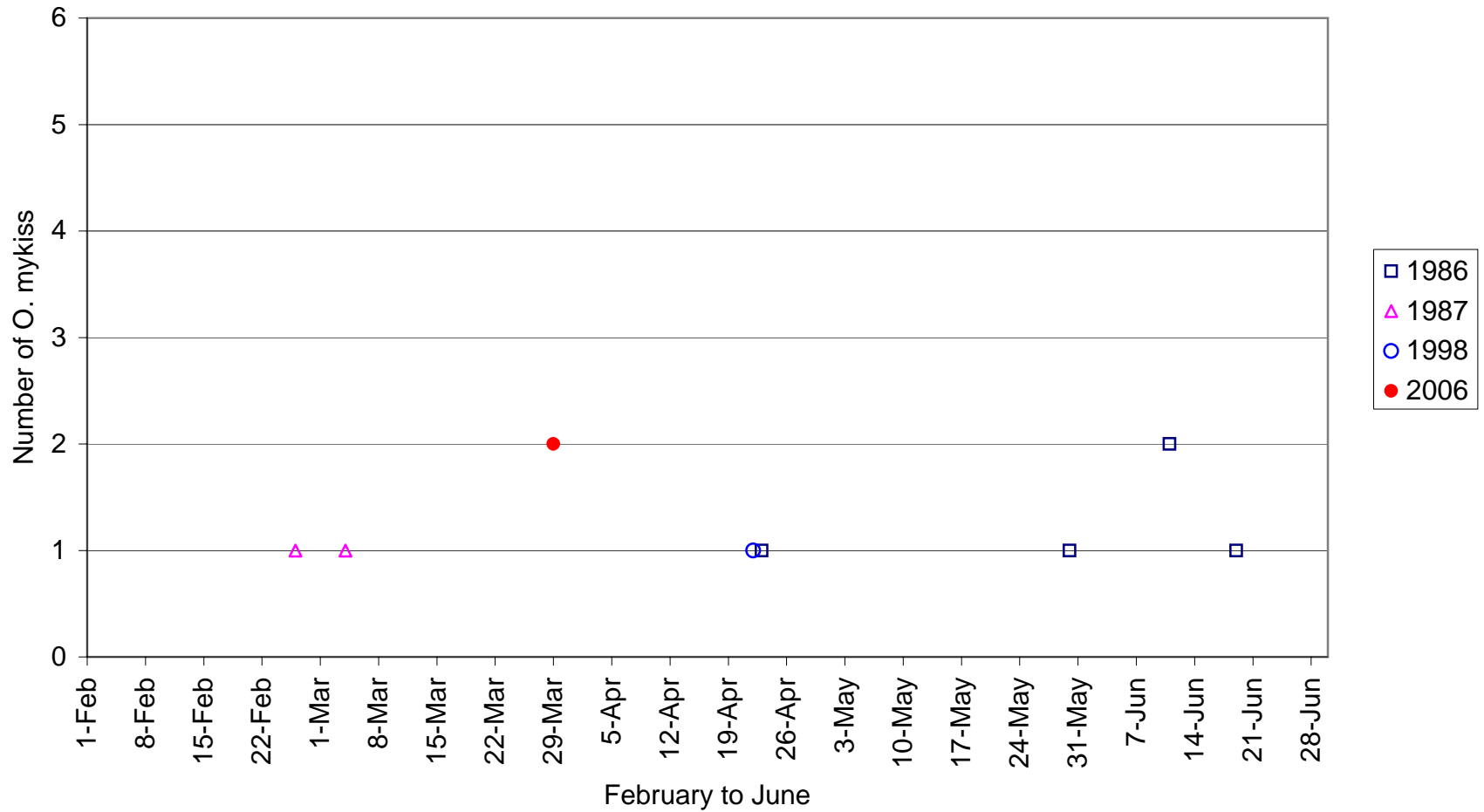


Figure 10. Number of *O. mykiss* caught at Riffle 5 (RM 47.9) during the 1983 to 2007 Tuolumne River seining surveys

(5/15/01)
41

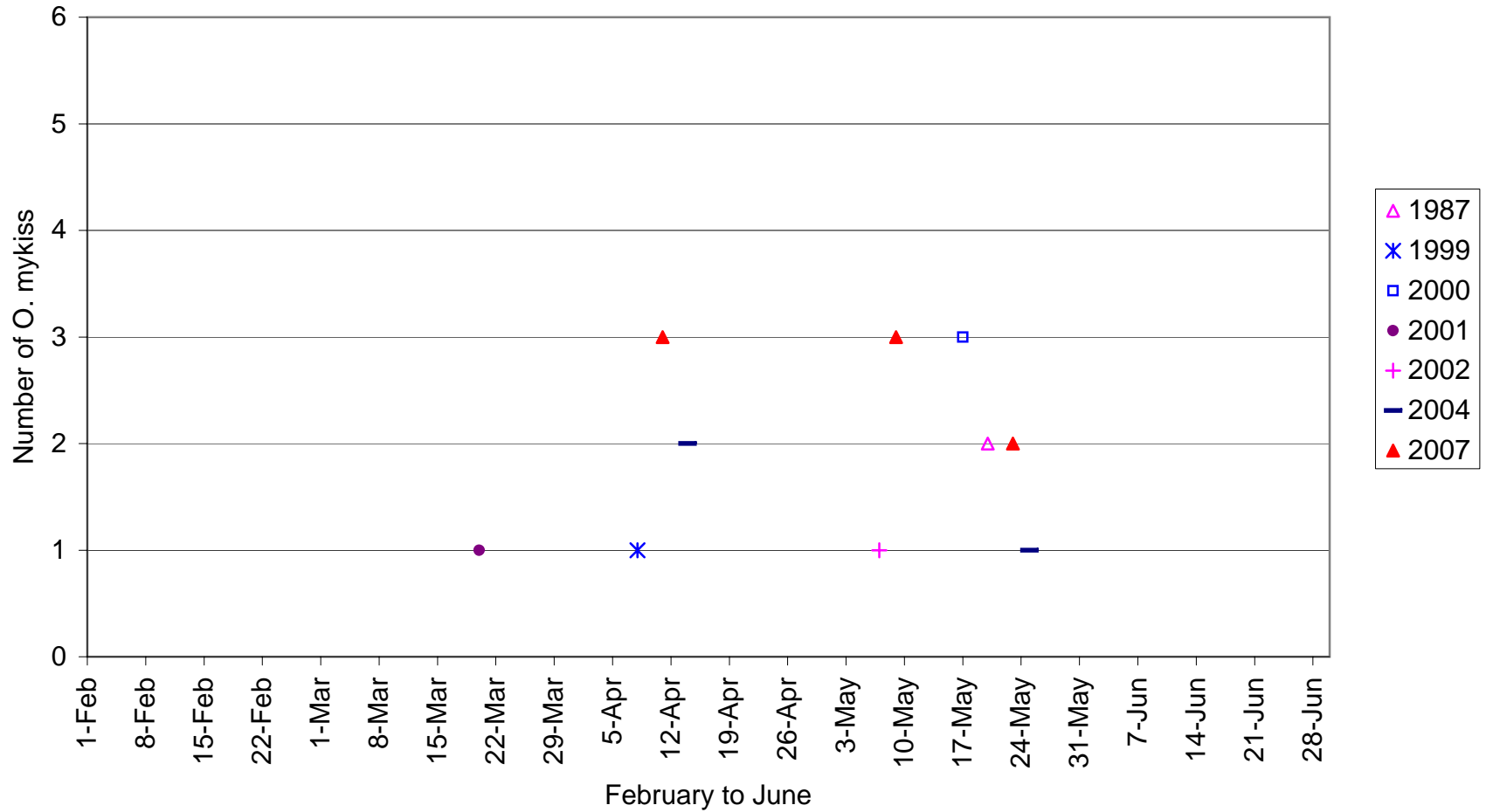


Figure 11. Number of *O.mykiss* caught at Tuolumne River Resort (RM 42.3) during the 1983 to 2007 Tuolumne River seining surveys

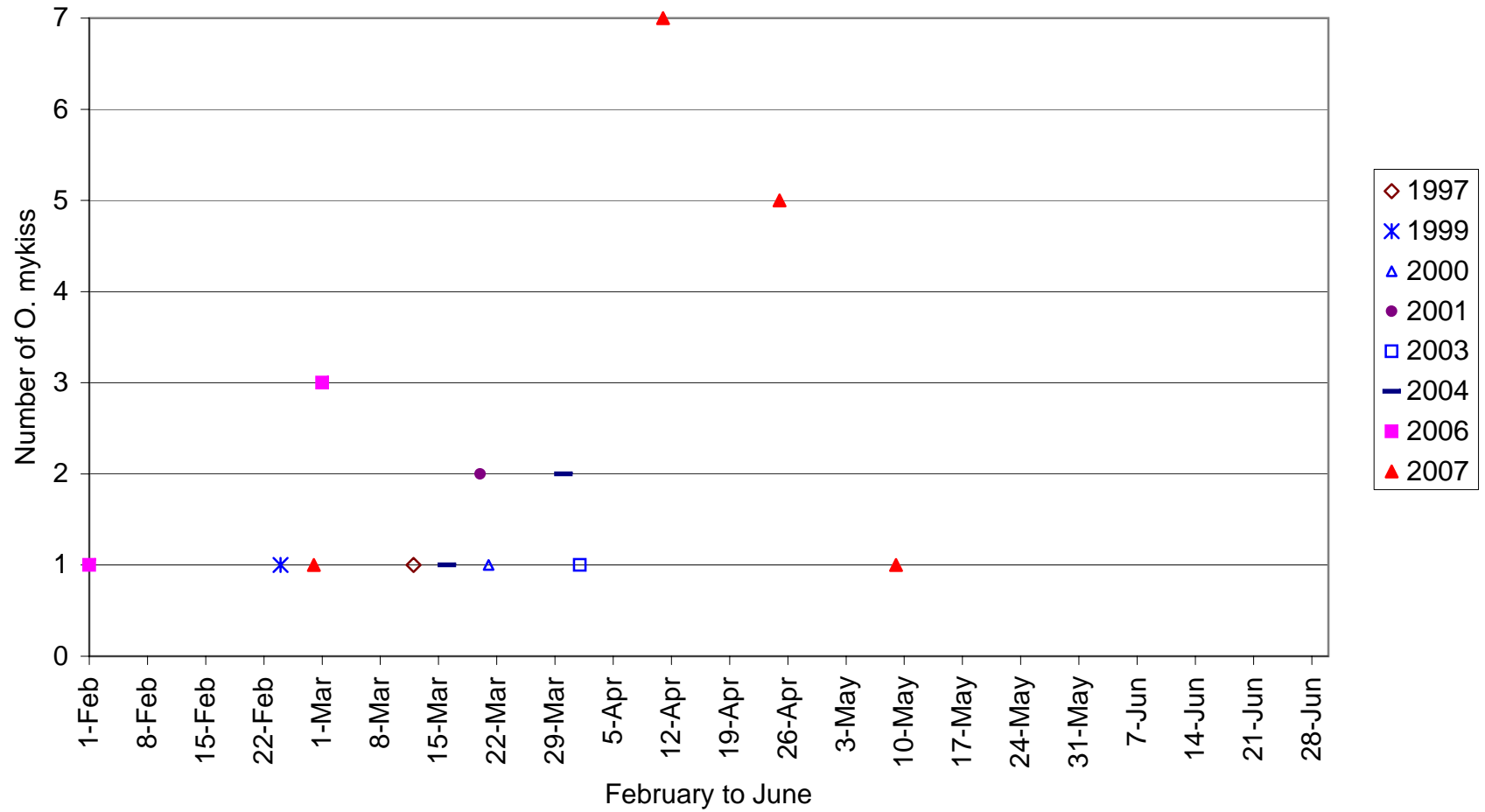


Figure 12. Tuolumne River RST capture of *O. mykiss*

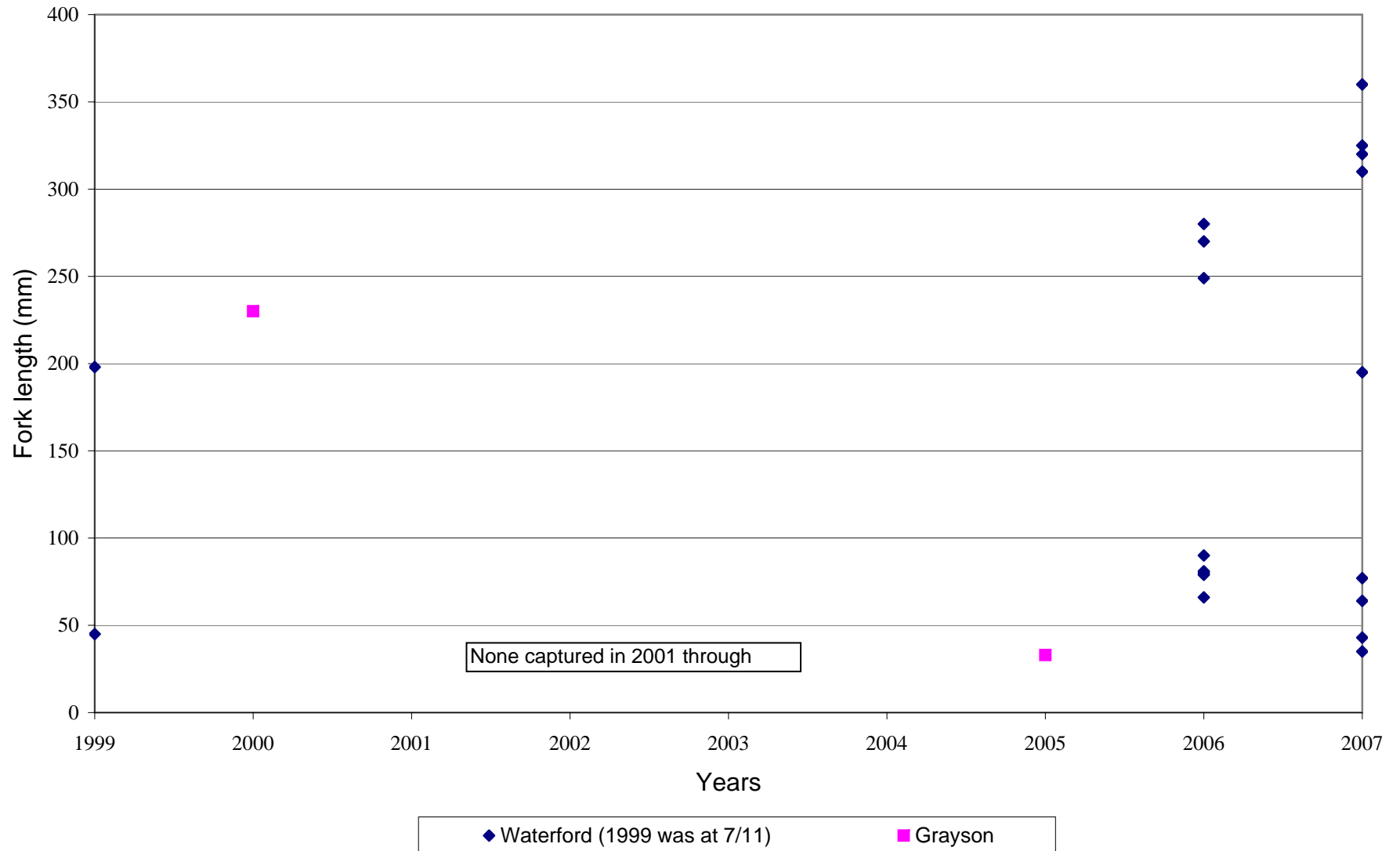


Figure 13. Locations where *O. mykiss* were observed during the 1982 to 2007 Tuolumne River snorkel surveys (June-September)

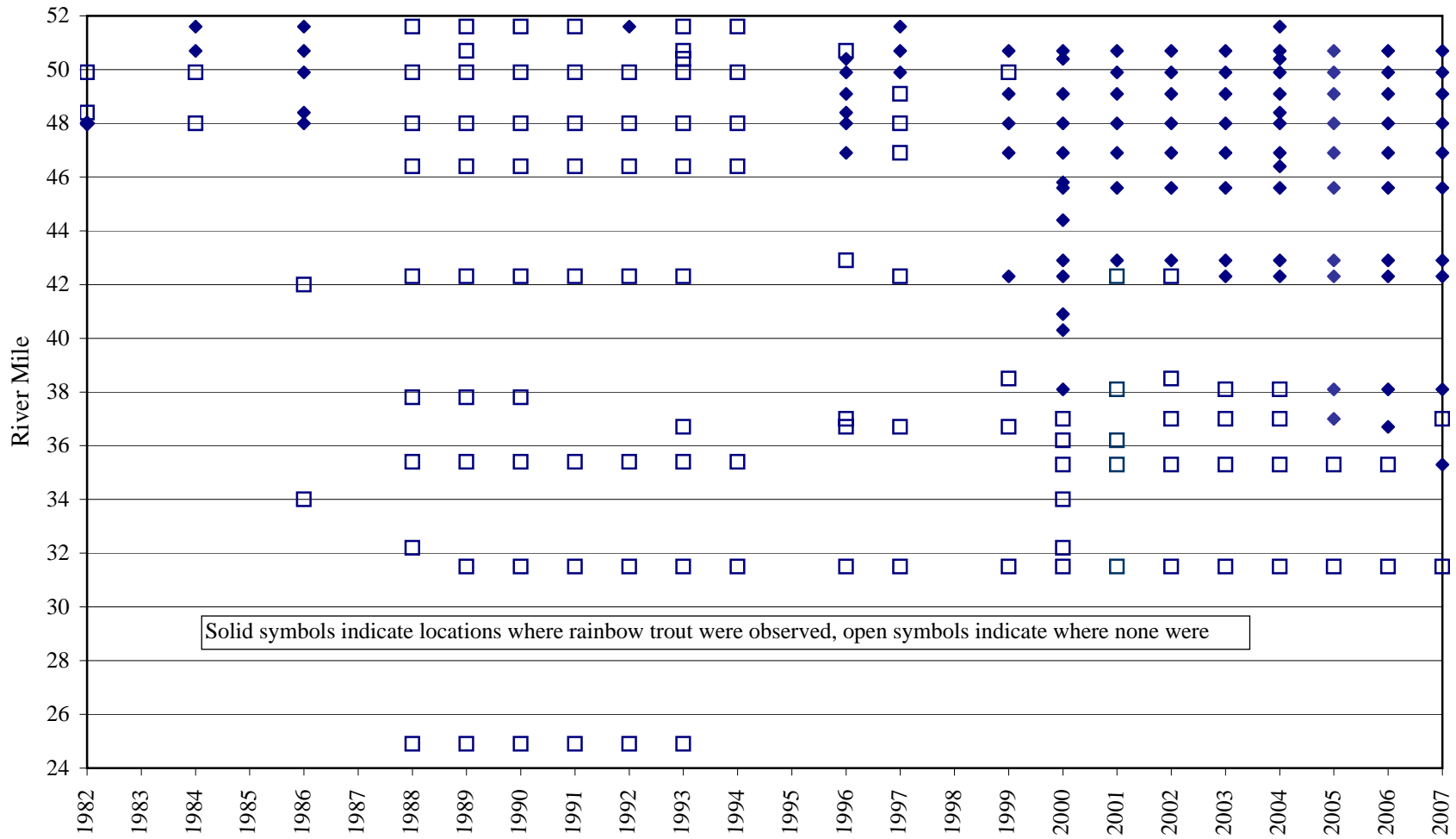


Figure 14. Dates and locations when *O.mykiss* were observed during the 1982 to 2007 Tuolumne River snorkel surveys

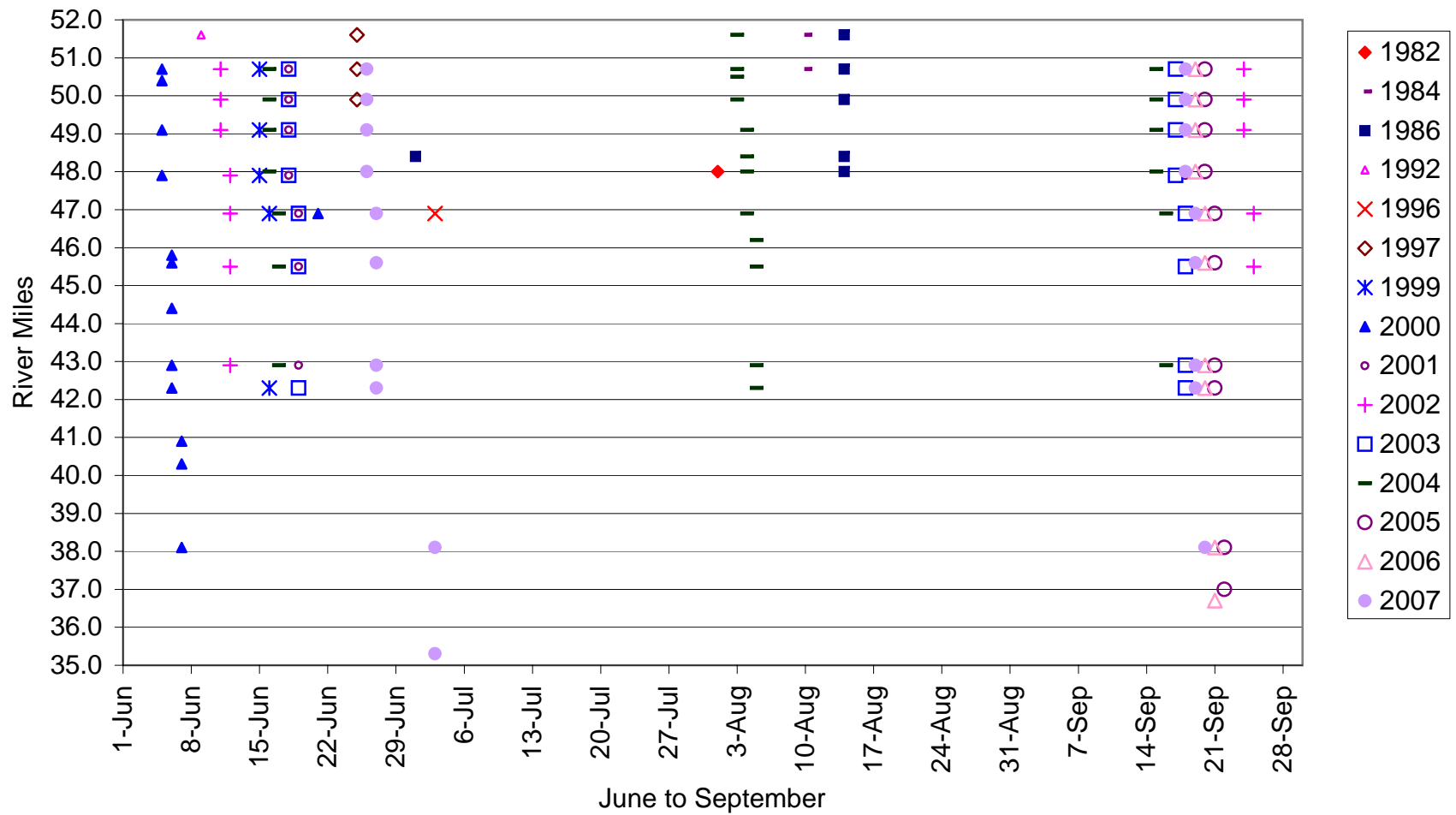


Figure 15. Estimated lengths of *O.mykiss* observed between river miles 51.6 to 49.9 (Riffle A3 to Riffle 2) during the 2002 to 2007 Tuolumne River snorkel surveys

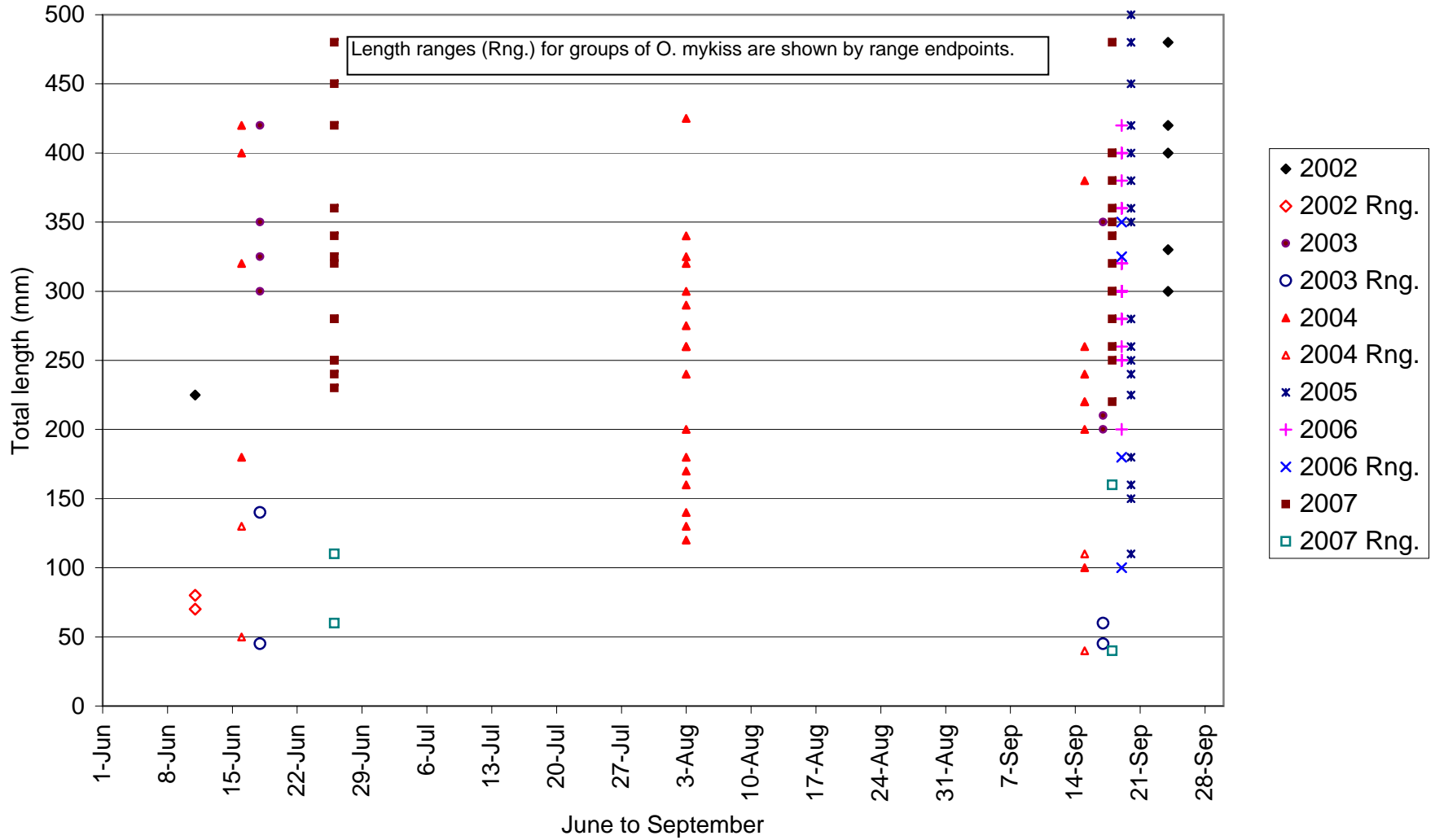


Figure 16. Estimated lengths of *O. mykiss* observed between river miles 49.1 to 48.0 (Riffle 3B to Riffle 5) during the 2002 to 2007 Tuolumne River snorkel surveys

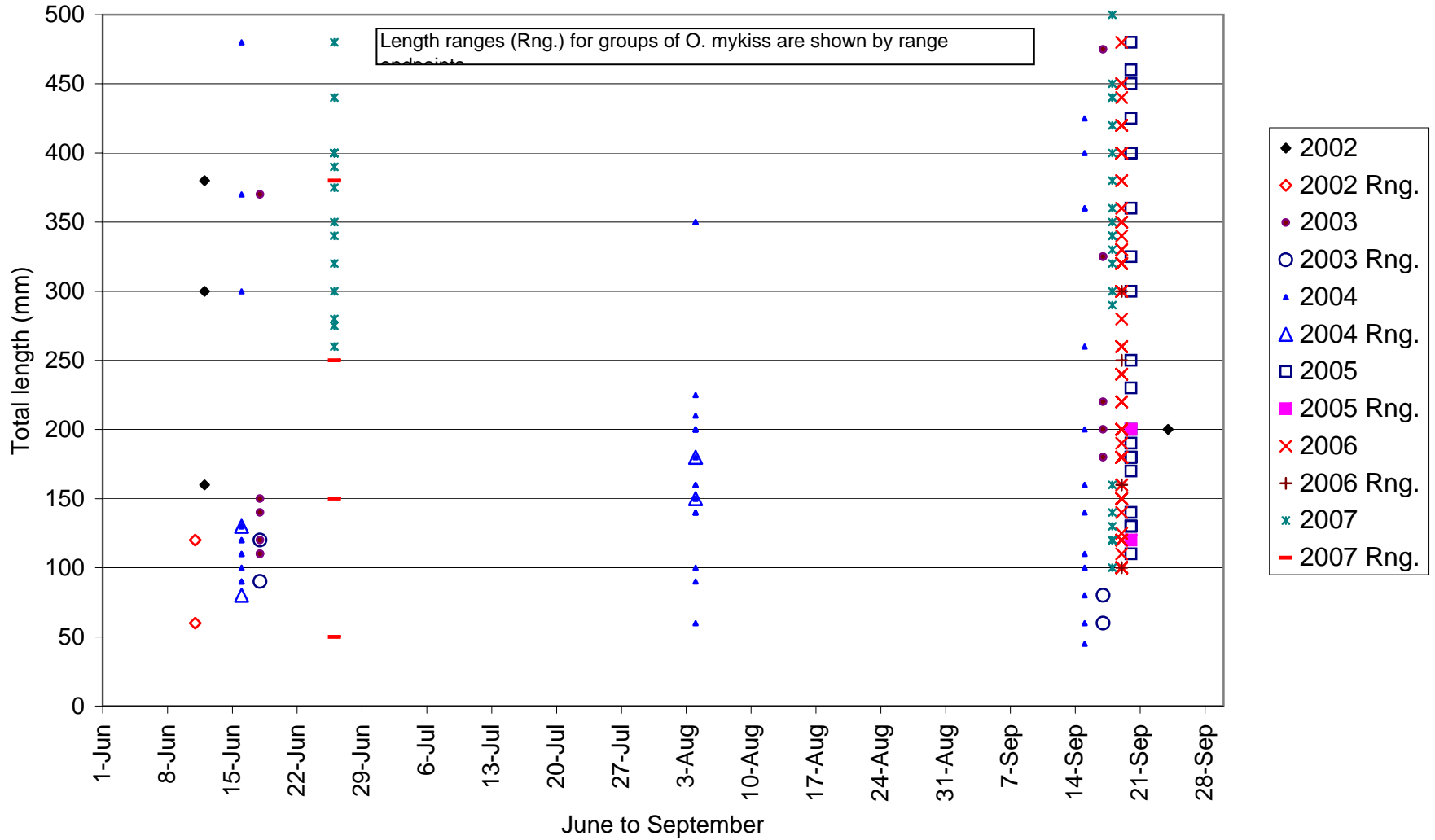


Figure 17. Estimated lengths of *O.mykiss* observed between river miles 46.9 to 45.5 (Riffle 7 to Riffle 13B) during the 2002 to 2007 Tuolumne River snorkel surveys

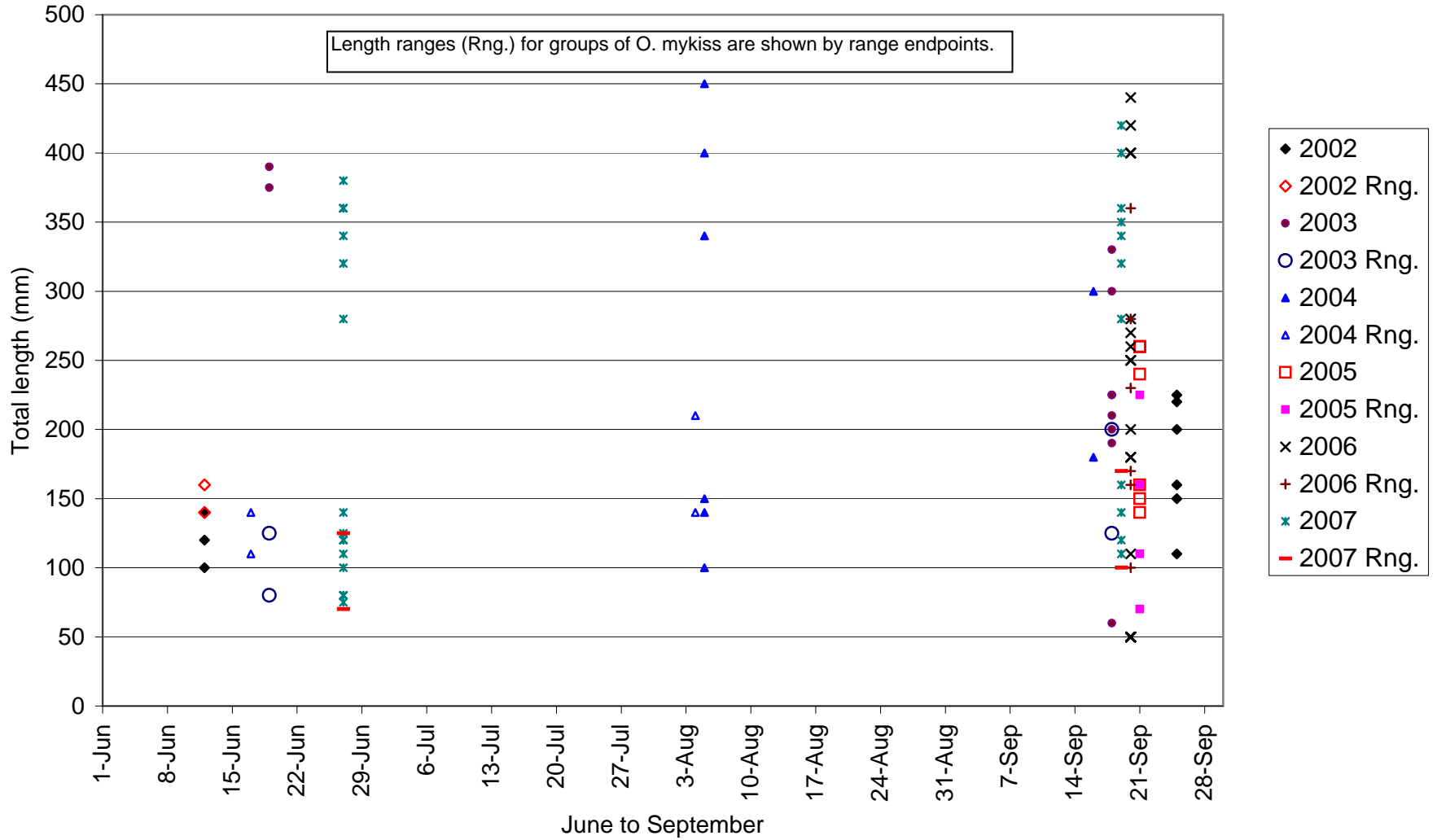


Figure 18. Estimated lengths of *O.mykiss* observed between river miles 44.4 to 42.2 (Riffle 17A to Riffle 23C) during the 2002 to 2007 Tuolumne River snorkel surveys

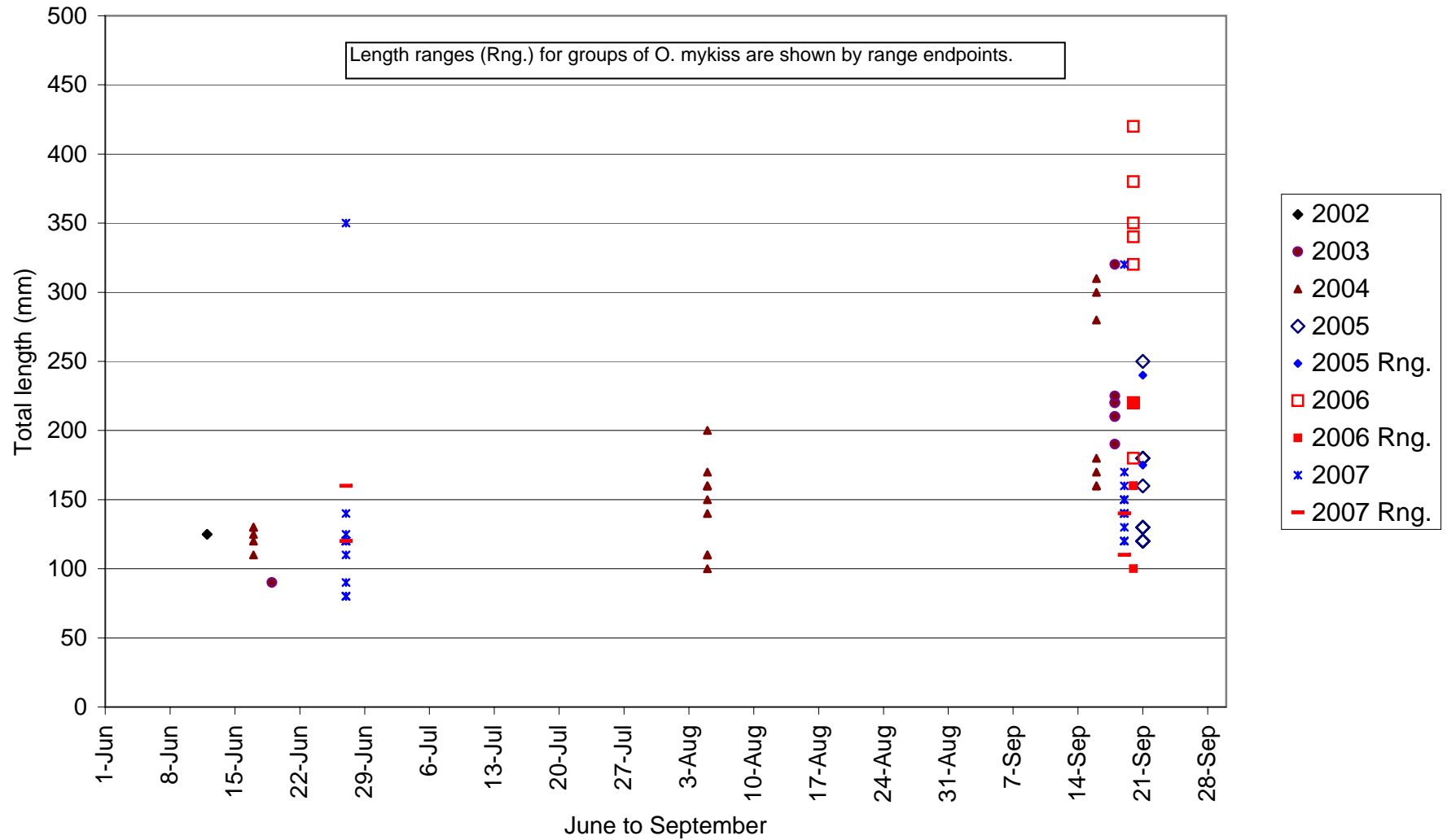


Figure 19. Estimated lengths of *O.mykiss* observed between river miles 40.9 to 35.3 (Riffle 26 to Riffle 41A) during the 2000 to 2007 Tuolumne River snorkel surveys

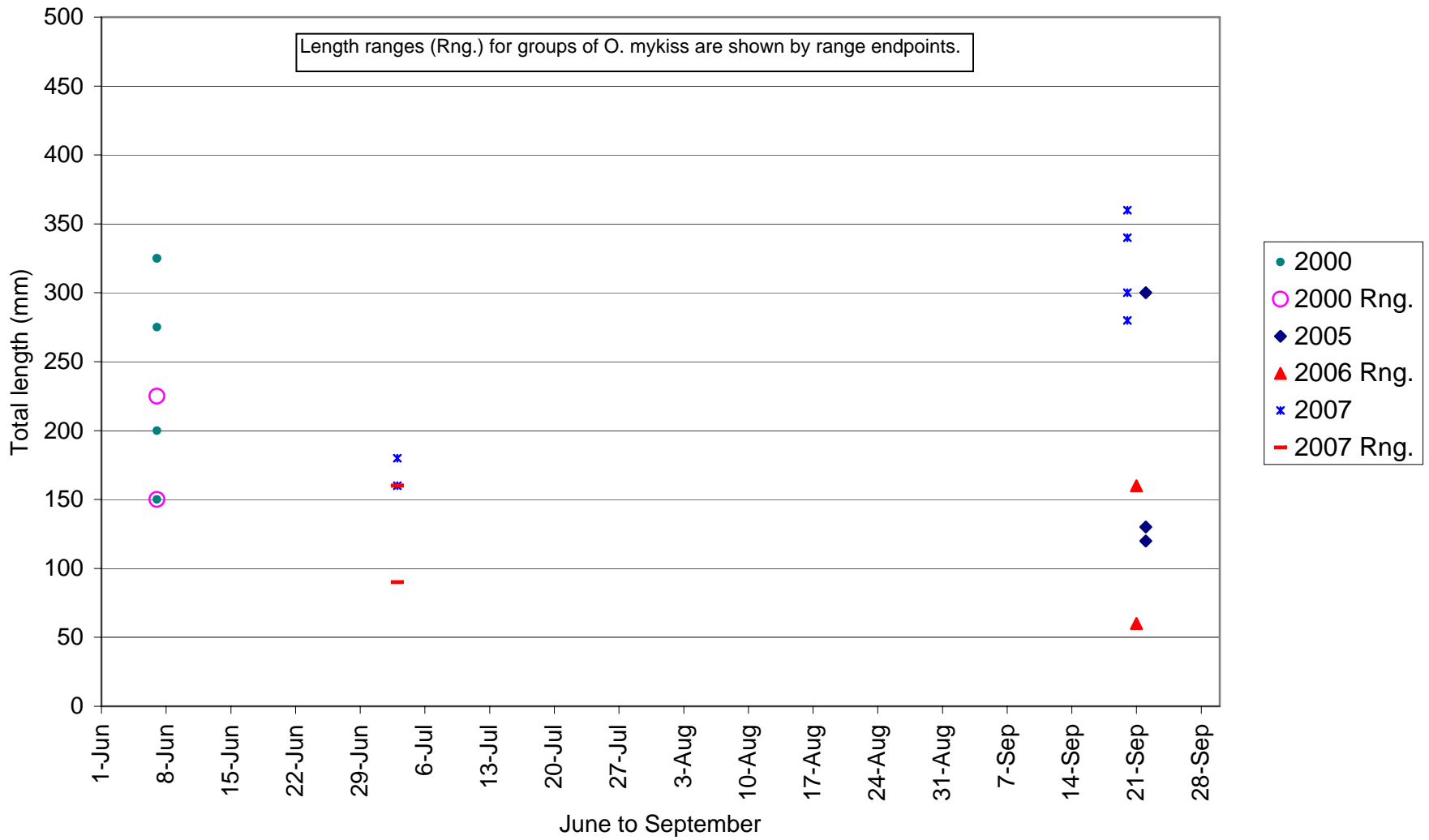


Figure 20. Number of *O. mykiss* observed, by location, during the 1986 to 2007 Tuolumne River June/July snorkel surveys

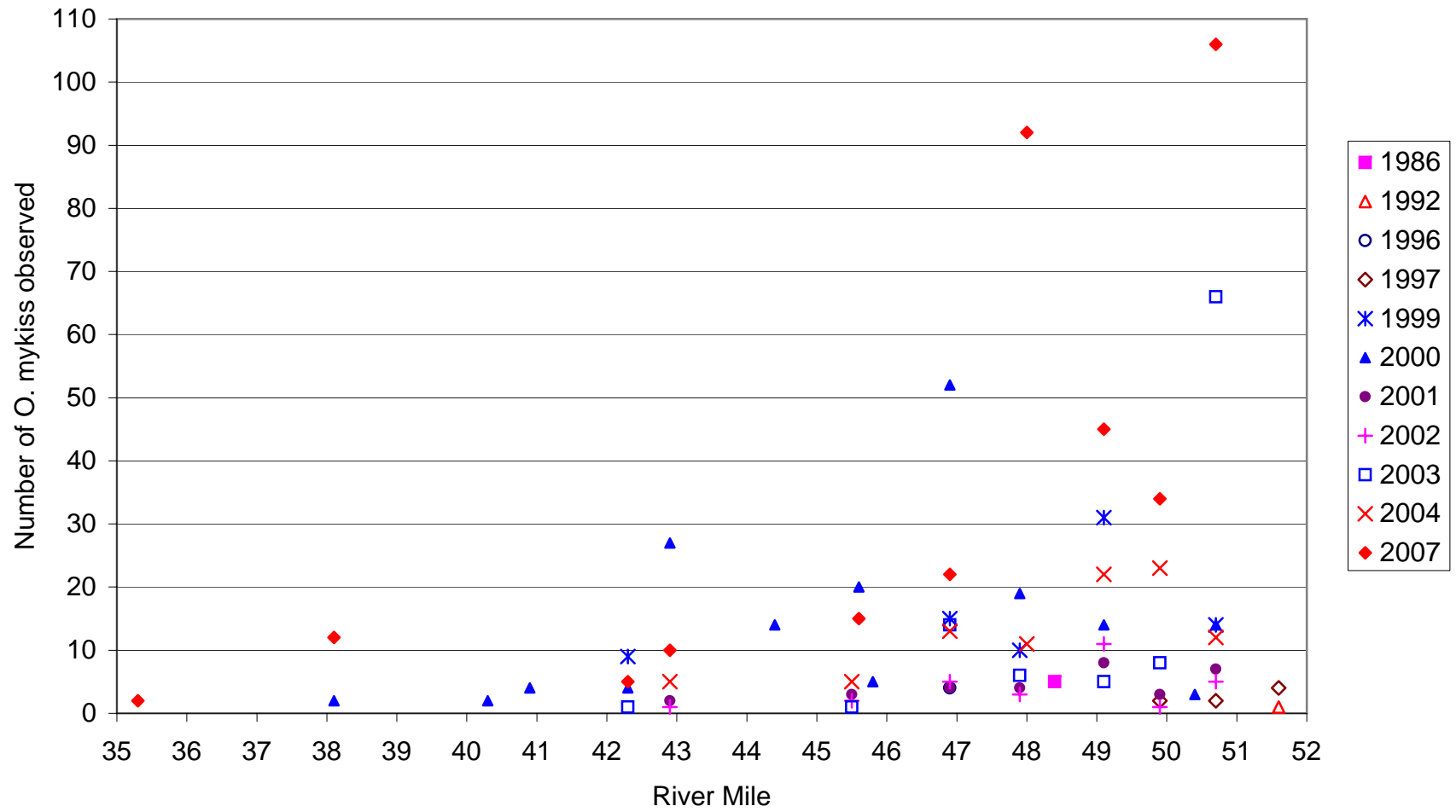


Figure 21. Number of *O. mykiss* observed, by location, during the 1982 to 2007 Tuolumne River August/September snorkel surveys

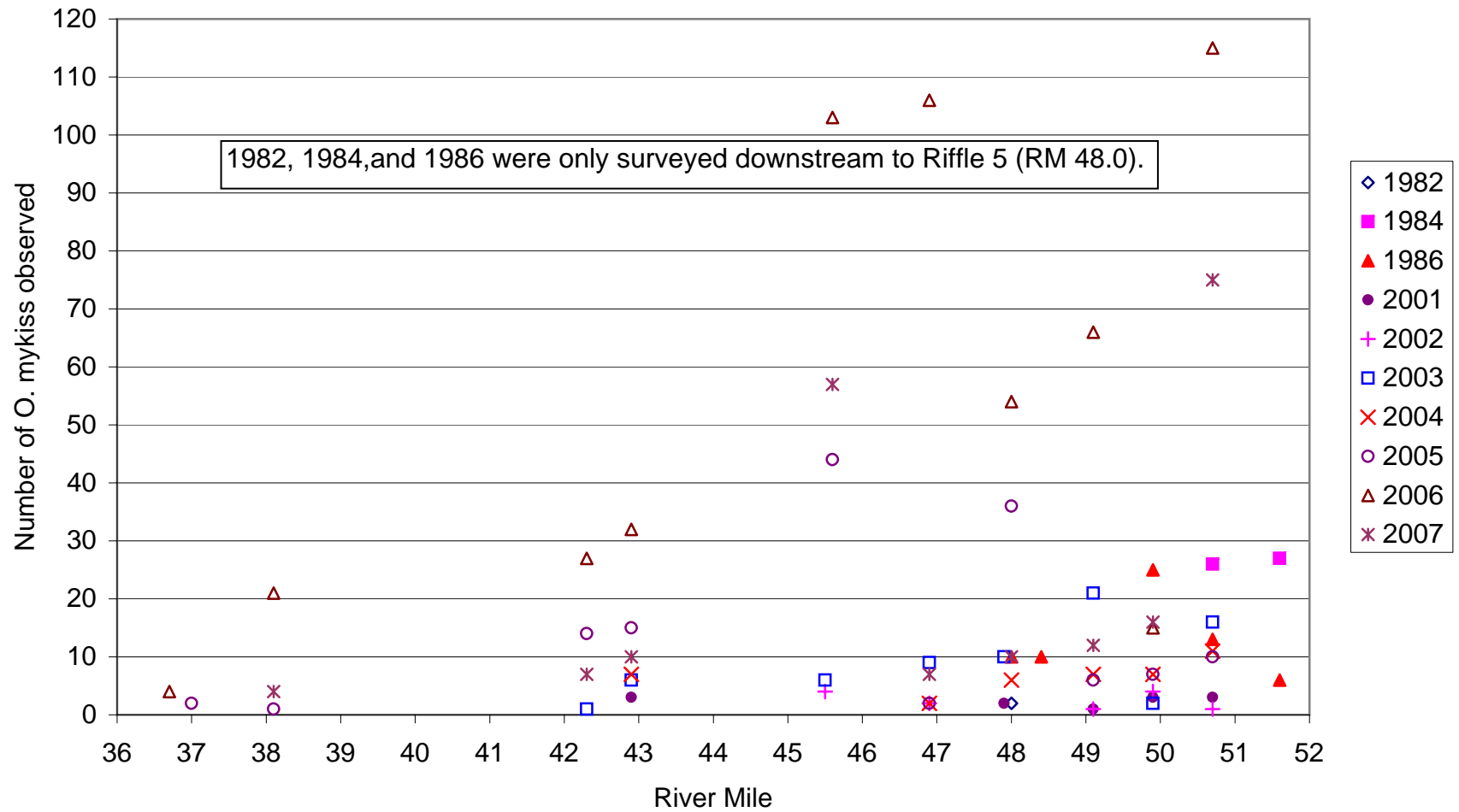


Figure 22. Water temperature at locations where *O.mykiss* were observed during the 1996 to 2007 Tuolumne River June/July snorkel surveys

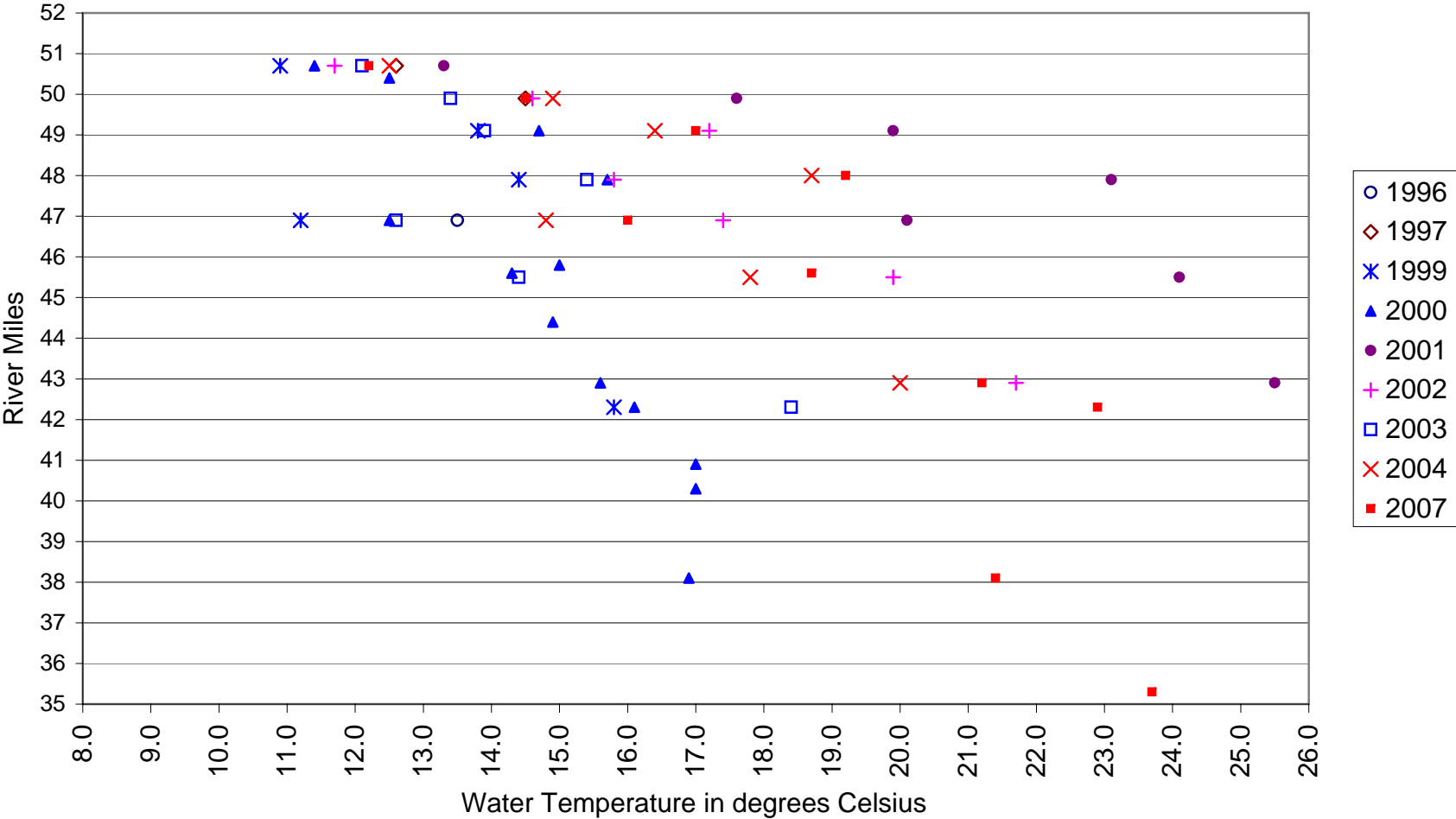


Figure 23. Water temperature at locations where *O.mykiss* were observed during the 2001 to 2007 Tuolumne River September snorkel surveys

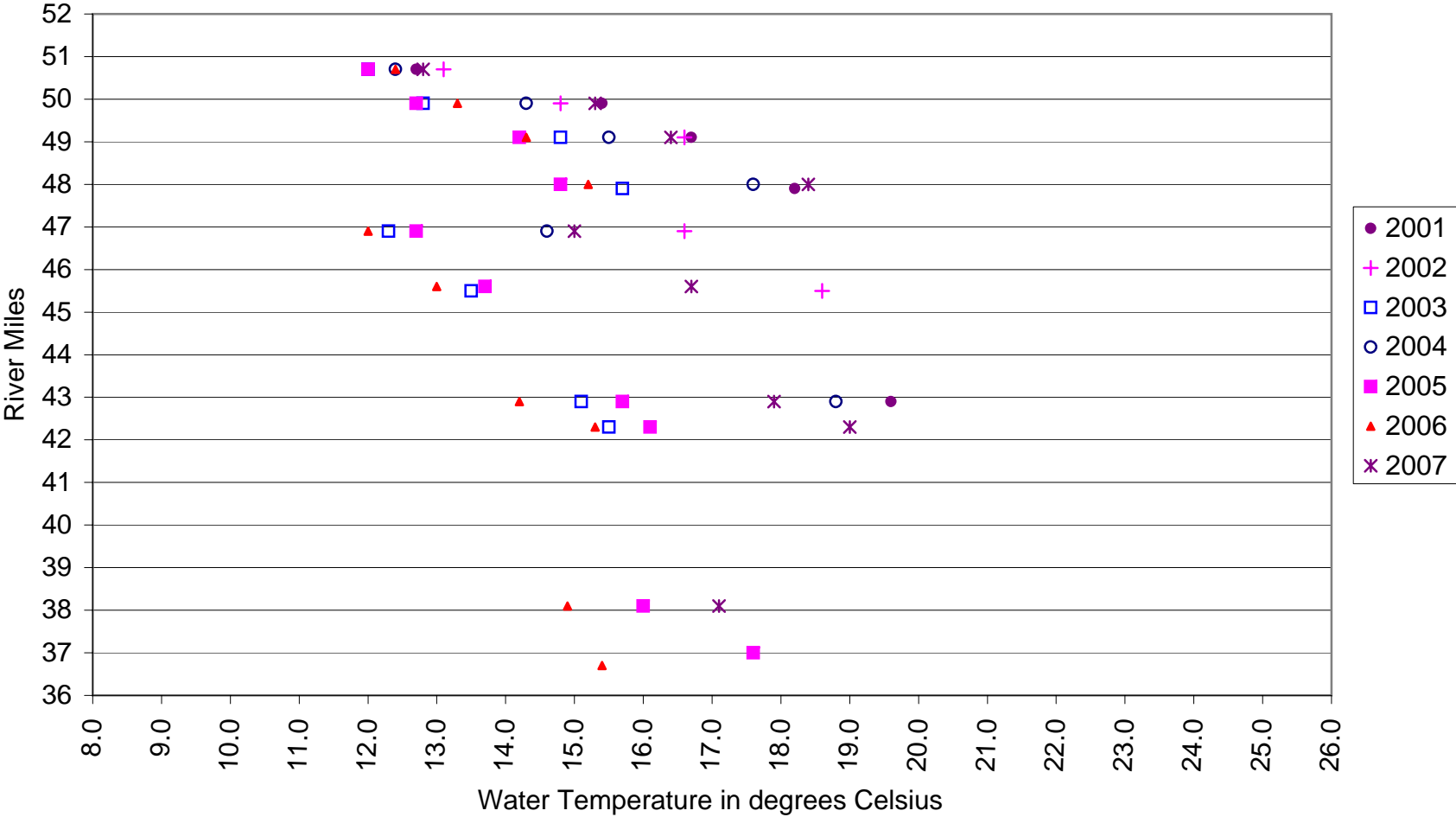


Figure 24. Density indices at locations where *O.mykiss* were observed during the 1996 to 2007 Tuolumne River June/July snorkel surveys

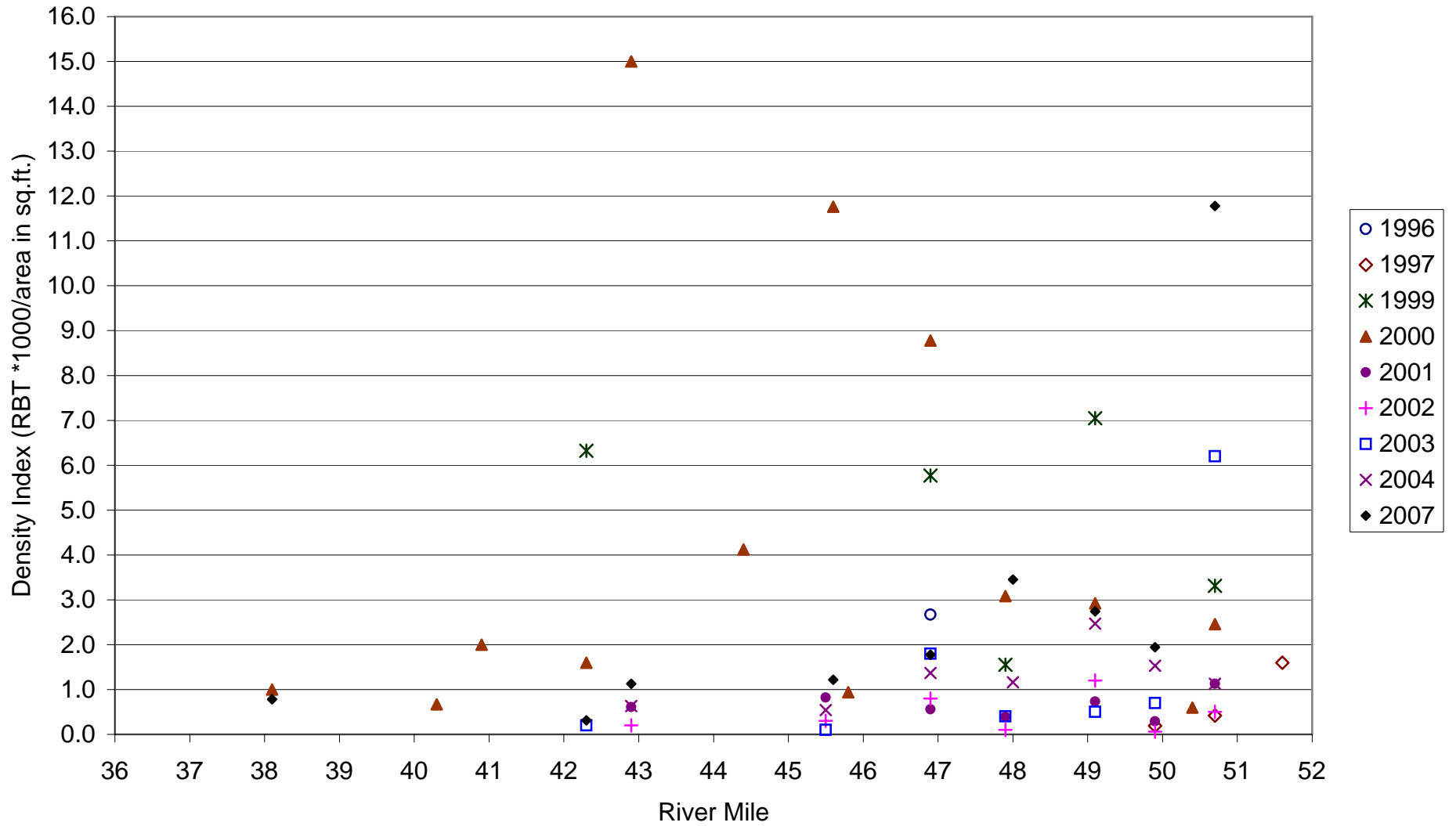
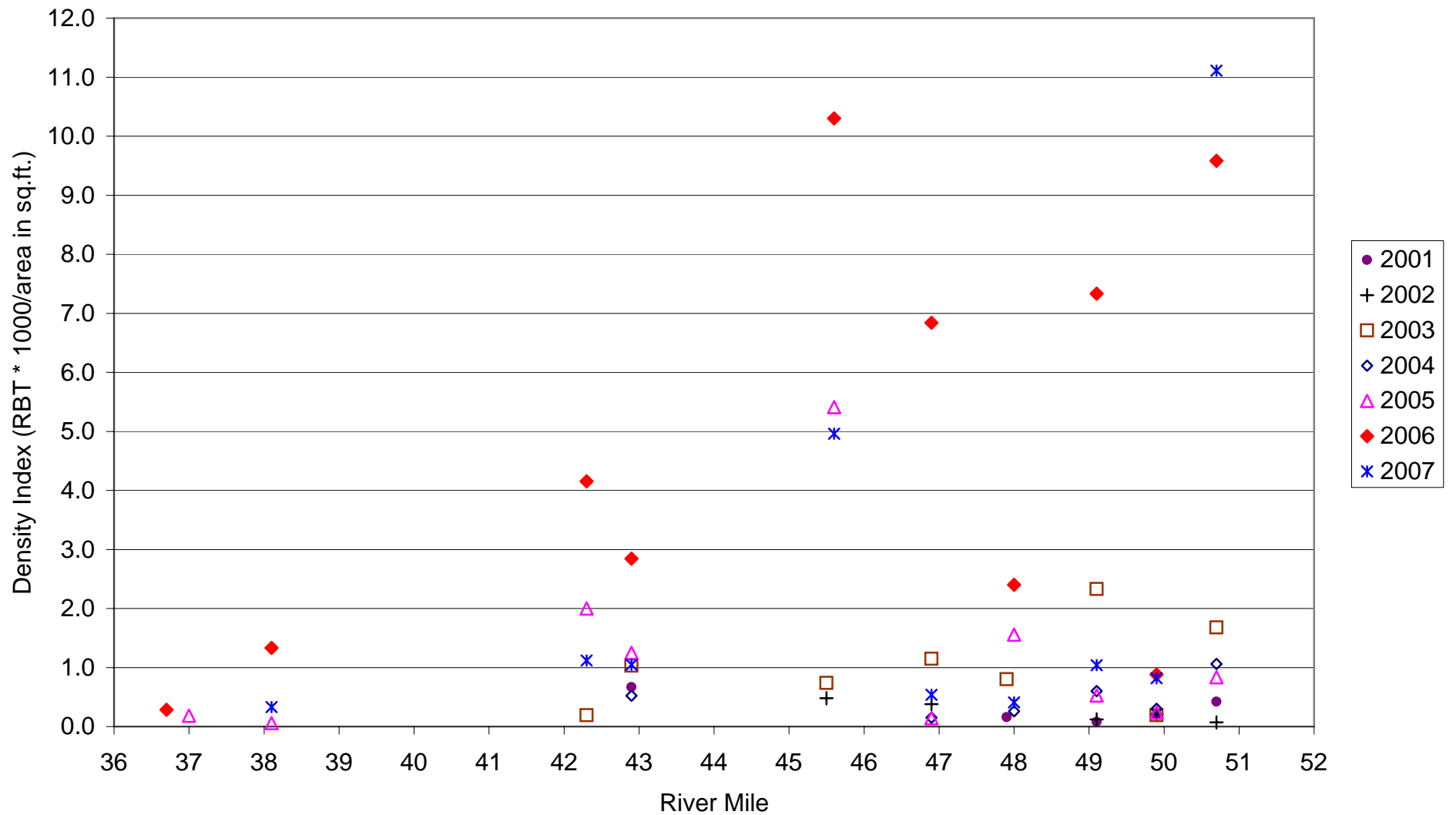


Figure 25. Density indices at locations where *O.mykiss* were observed during the 2001 to 2007 Tuolumne River September snorkel surveys



Appendix A

Table 1. CDFG Lower Tuolumne River <i>O. mykiss</i> data (compiled by TID/MID)										
Date	Location	River Mile	Method	Forklength (mm)	Life Stage	Sex	Adipose Clip	Scales	# of otoliths	DNA
30-Nov-1983			Sp. Survey(?)	440		M	N	Y		N
9-Jul-1996	R1A	50.5	Snorkel	2(no FL)						
9-Jul-1996	R1B	50.2	Snorkel	1(no FL)						
9-Jul-1996	R1C	50.0	Snorkel	48(no FL)						
9-Jul-1996	R2	49.9	Snorkel	91(no FL)						1 Yolck Fry
9-Jul-1996	R3A	49.4	Snorkel	11(no FL)						2 Fry
9-Jul-1996	R3B	49.1	Snorkel	127(no FL)						
9-Jul-1996	R4A	48.8	Snorkel	25(no FL)						3 Parr
9-Jul-1996	R4B	48.4	Snorkel	30(no FL)						
9-Jul-1996	R5A	48.0	Snorkel	20(no FL)						4 Silvery Parr
9-Jul-1996	R5B	47.9	Snorkel	25(no FL)						
21-Nov-1997	1A	50.5	Sp. Survey(?)	410			N	Y		N
24-Nov-1997	1A	50.5	Sp. Survey(?)	410			N	Y		N
24-Nov-1997			Sp. Survey(?)	410		F			1	
1-Dec-1997			Sp. Survey(?)	480		F		Y	1	
1-Dec-1997			Sp. Survey(?)	480		F	N	Y		N
12-Nov-1998	R12	45.8	Sp. Survey(?)	420			N	Y		N
25-Nov-1998			Sp. Survey(?)	360		M			2	
2-Dec-1998	R1A	50.5	Sp. Survey(?)	320			N	Y		N
2-Dec-1998			Sp. Survey(?)	340			N	Y		N
2-Dec-1998			Sp. Survey(?)	340				Y	1	
31-Aug-1999	RA5	51.3		340			N	Y		N
31-Aug-1999	RA3	51.6		360			N	Y		N
3-Dec-1999	37	36.2	Sp. Survey(?)	320				Y	2	
3-Dec-1999	22	42.8	Sp. Survey(?)	320				Y	2	
3-Dec-1999			Sp. Survey(?)	320				Y	1	
7-Dec-1999	36	36.7	Sp. Survey(?)	320				Y	2	
8-Dec-1999	Basso	47.5	Sp. Survey(?)	280			N	Y		N
8-Dec-1999	Basso	47.5	Sp. Survey(?)	430				Y	2	
20-Dec-1999	37	36.2	Sp. Survey(?)	460				Y	2	
28-Dec-1999			Sp. Survey(?)	440				Y	1	
21-Feb-2000	Grayson	5.2	Screw trap	230						
13-Nov-2000	1A	50.5	Sp. Survey(?)	349	6	F	0	Y	2	Y
15-Nov-2000	17B	44.3	Sp. Survey(?)	405	6	F	0	Y	2	Y
15-Nov-2000	12	45.9	Sp. Survey(?)	424	6	F	0	Y	2	Y
21-Nov-2000	3C	49.0	Sp. Survey(?)	410	7	F	0	Y		Y
22-Nov-2000	4B	48.4	Sp. Survey(?)	440	7	M	0	Y	1	Y
22-Nov-2000	5B	48.0	Sp. Survey(?)	446	6	M	0	Y	2	Y
28-Nov-2000	2	49.9	Sp. Survey(?)	443	7	M	1(?)	Y	1	Y
29-Nov-2000	13C	45.6	Sp. Survey(?)	430	7		0	Y	2	Y
11-Dec-2000	5A	48.0	Sp. Survey(?)	455	6	F	0	Y	2	Y
11-Dec-2000	1A	50.5	Sp. Survey(?)	473	6	M	0	Y	2	Y
13-Dec-2000	8B	46.7	Sp. Survey(?)	400	7	F	0	Y		Y
18-Dec-2000	1B	50.1	Sp. Survey(?)	355	7		0	Y	1	Y
27-Dec-2000	4B	48.4	Sp. Survey(?)	455	6	F	0	Y	1	Y
27-Dec-2000	4B	48.4	Sp. Survey(?)	501	6	F	0	Y	2	Y
28-Dec-2000	8B	46.7	Sp. Survey(?)	446	6	F	0	Y	2	Y
11-Jan-2001	5B	48.0	Angling	740	6	M	N	N		Y
15-Jan-2001	A2	51.7	Angling	280	5			N		N
17-Jan-2001				540				Y		
29-Mar-2001	Gasburg	50.2		360			N	Y		N
29-Mar-2001	Gasburg	50.2		440				Y		N
5-Apr-2001	Gasburg	50.2		430			N	Y		Y
5-Apr-2001	Gasburg	50.2		290				Y		N
11-Apr-2001	RA7	50.7		360			N	Y		N
14-Apr-2001	R1A	50.5		320			N	Y		N
14-Apr-2001	R1A	50.5		350			N	Y		N
14-Apr-2001	RA1(1A?)	50.5		380			N	Y		N
17-Apr-2001	R1A	50.5		310			N	Y		N
17-Apr-2001	R1A	50.5		370			N	Y		N

Table 1. CDFG Lower Tuolumne River <i>O. mykiss</i> data (compiled by TID/MID)											
Date	Location	River Mile	Method	Forklength (mm)	Life Stage	Sex	Adipose Clip	Scales	# of otoliths	DNA	
19-May-2001			E-fishing	29	2		0				Life stage Codes
19-May-2001			E-fishing	42	3		0				
19-May-2001			E-fishing	42	3		0				
19-May-2001			E-fishing	43	3		0				1 Yolc Fry
19-May-2001			E-fishing	44	3		0				2 Fry
19-May-2001			E-fishing	44	3		0				
19-May-2001			E-fishing	45	3		0				3 Parr
19-May-2001			E-fishing	46	3		0				
19-May-2001			E-fishing	49	3		0				4 Silvery Parr
19-May-2001			E-fishing	49	3		0				
19-May-2001			E-fishing	54	3		0				5 Smolt
19-May-2001			E-fishing	54	3		0				6 Adult
19-May-2001			E-fishing	55	3		0				7 Unknown
19-May-2001			E-fishing	56	3		0				
19-May-2001			E-fishing	56	3		0				
19-May-2001			E-fishing	57	3		0				
19-May-2001			E-fishing	57	3		0				
19-May-2001			E-fishing	58	3		0				
19-May-2001			E-fishing	59	3		0				
19-May-2001			E-fishing	60	3		0				
19-May-2001			E-fishing	60	3		0				
19-May-2001			E-fishing	60	3		0				
19-May-2001			E-fishing	62	3		0				
19-May-2001			E-fishing	62	3		0				
19-May-2001			E-fishing	63	3		0				
19-May-2001			E-fishing	65	3		0				
19-May-2001			E-fishing	66	3		0				
19-May-2001			E-fishing	66	3		0				
19-May-2001			E-fishing	66	3		0				
19-May-2001			E-fishing	67	3		0				
19-May-2001			E-fishing	67	3		0				
19-May-2001			E-fishing	68	3		0				
19-May-2001			E-fishing	71	3		0				
19-May-2001			E-fishing	71	3		0				
19-May-2001			E-fishing	72	3		0				
19-May-2001			E-fishing	72	3		0				
19-May-2001			E-fishing	73	3		0				
19-May-2001			E-fishing	73	3		0				
19-May-2001			E-fishing	74	3		0				
19-May-2001			E-fishing	80	3		0				
19-May-2001			E-fishing	83	3		0				
19-May-2001			E-fishing	86	3		0				
19-May-2001			E-fishing	87	3		0				
19-May-2001			E-fishing	91	3		0				
19-May-2001			E-fishing	92	3		0				
22-May-2001			E-fishing	42	3		0				
22-May-2001			E-fishing	46	3		0				
22-May-2001			E-fishing	47	3		0				
22-May-2001			E-fishing	48	3		0				
22-May-2001			E-fishing	49	3		0				
22-May-2001			E-fishing	55	3		0				
22-May-2001			E-fishing	59	3		0				
22-May-2001			E-fishing	63	3		0				
22-May-2001			E-fishing	68	3		0				
22-May-2001			E-fishing	72	3		0				
22-May-2001			E-fishing	86	3		0				

Table 1. CDFG Lower Tuolumne River <i>O. mykiss</i> data (compiled by TID/MID)												
Date	Location	River Mile	Method	Forklength (mm)	Life Stage	Sex	Adipose Clip	Scales	# of otoliths	DNA		
14-Jun-2001				458	6		0	Y	Y	Y	Life stage Codes	
30-Sep-2001				108	3		0					
30-Sep-2001				163	3		0					
30-Sep-2001				206	3		0					1
30-Sep-2001				213	3		0					2
30-Sep-2001				216	3		0					
30-Sep-2001				222	3		0					3
30-Sep-2001				272	3		0					
30-Sep-2001				286	3		0					4
30-Sep-2001				297	3		0					
30-Sep-2001				301	3		0					5
30-Sep-2001				310	3		0					6
30-Sep-2001				317	3		0					7
30-Sep-2001				365	3		0					
16-Oct-2001			Sp. Survey(?)	460				Y				
11-Nov-2001			Sp. Survey(?)	711	6		0					
12-Nov-2001	(12DEC?)		Sp. Survey(?)	335	7		0	Y		Y		
12-Nov-2001	(12DEC?)		Sp. Survey(?)	370	7		0	Y				
18-Dec-2001			Sp. Survey(?)	420			Y		Y	Y		
17-Jan-2002				430				Y				
25-Jan-2002				470				Y		Y		
17-Jun-2002	A7	50.7	Snorkel	8(300-400)								
3-Jul-2002	A7	50.7	Snorkel	1(no FL)								
3-Jul-2002	1A	50.5	Snorkel	2(no FL)								
3-Jul-2002	1B	50.1	Snorkel	1(no FL)								
12-Mar-2004	5B	48.0	Angling	295	6	unk		Y		Y		
12-Mar-2004	2	49.9	Angling	351	6	unk		Y		Y		
23-Mar-2004	2	49.9	Angling	355	6	unk		Y		Y		
7-Apr-2004	1B	50.1	Angling	525	6	M		Y	2	Y		
7-Apr-2004	1B	50.1	Angling	380	6	M		Y		Y		
7-Apr-2004	1B	50.1	Angling	375	6	F		Y		Y		
7-Apr-2004	2	49.9	Angling	395	6	F		Y		Y		
7-Apr-2004	2	49.9	Angling	305	6	unk		Y		Y		
7-Apr-2004	2	49.9	Angling	460	6	F		Y	2	Y		
7-Apr-2004	3C	49.0	Angling	480	6	F		Y	2	Y		
7-Apr-2004	3C	49.0	Angling	305	6	M		Y		Y		
7-Apr-2004	3C	49.0	Angling	395	6	F		Y		Y		
8-Apr-2004	7	46.9	Angling	480	6	F		Y	2	Y		
8-Apr-2004	7	46.9	Angling	350	6	F		Y		Y		
8-Apr-2004	7	46.9	Angling	350	6	unk		Y		Y		
8-Apr-2004	8A	46.7	Angling	335	6	unk		Y		Y		
8-Apr-2004	7	46.9	Angling	385	6	unk		Y		Y		
8-Apr-2004	8A	46.7	Angling	415	6	F		Y		Y		
8-Apr-2004	8B	46.7	Angling	260	6	M		Y	2	Y		
27-Apr-2004	1B	50.1	Angling	390	6	F		Y		Y		
27-Apr-2004	2	49.9	Angling	265	6	unk		Y		Y		
27-Apr-2004	3C	49.0	Angling	580	6	F		Y	2	Y		
27-Apr-2004	4C	48.2	Angling	335	6	unk		Y		Y		
28-Apr-2004	14	45.0	Angling	445	6	unk		Y		Y		
28-Apr-2004	15	44.8	Angling	356	6	unk		Y		Y		
13-May-2004	31B	38.0	Angling	406	6	unk		Y		Y		
13-May-2004	31B	38.0	Angling	406	6	unk		Y		Y		
12-Jul-2004	28A	40.2	Mort	330	6	unk		Y	2	Y		

Individual lengths of *O. mykiss* reported by the California Dept. of Fish and Game in the Tuolumne River

