Appendices

Appendix A. Interstitial gravel sampling results, lower FR (July 2002 – March 2004)

Interstitial							Surface						
Station Name	Date	Temp (°F)	DO (mg/L)	pH	EC (umhos /cm)	Total NH3 (mg/L)	Station Name	Date	Temp (°F)	DO (mg/L)	pH	EC (umhos /cm)	Total NH3 (mg/L)
FR US Hatchery	7/3/02	59.5	9.8	7.3	86	<0.02							
FR US Hatchery	7/24/02	58.8	9.7	7.4	90	<0.1	FR US Hatchery	7/24/02	66.7	10.0	7.3	87	<0.02
FR US Hatchery	8/22/02	61.9	8.9	7.2	92	<0.1	FR US Hatchery	8/21/02	66.4	9.3	7.2	88	<0.02
FR US Hatchery	9/6/02	55.6	10.1	7.3	92	<0.1							
FR US Hatchery	9/27/02	55.9	10.5	7.2	93	<0.1	FR US Hatchery	9/25/02	64.2	10.2	7.3	89	<0.1
FR US Hatchery	10/14/02	55.9	11.4	7.2	96	<0.1							
FR US Hatchery	10/25/02	57.4	10.3	7.3	100	-	FR US Hatchery	10/22/02	59.5	10.2	7.2	97	<0.1
FR US Hatchery	11/18/02	55.9	10.7	7.4	100	<0.082	FR US Hatchery	11/14/02	52.0	10.5	7.3	102	<0.1
FR US Hatchery	12/13/02	54.1	9.8	7.3	104	<0.082	FR US Hatchery	12/11/02	50.9	10.5	7.5	104	<0.082
FR US Hatchery	12/31/02	49.1	10.5	7.1	85	<0.082							
FR US Hatchery	1/23/03	48.6	10.5	7.1	88	<0.1	FR US Hatchery	1/14/03	48.4	12.4	7.2	86	<0.082
FR US Hatchery	2/28/03	50.2	10.8	7.5	84	<0.1	FR US Hatchery	2/20/03	56.3	12.1	7.5	86	<0.1
FR US Hatchery	3/25/03	55.2	7.3	7.1	82	<0.1	FR US Hatchery	3/19/03	-	11.8	7.3	76	<0.1
FR US Hatchery	4/21/03	54.0	11.0	7.3	79	<0.1	FR US Hatchery	4/17/03	65.8	9.8	7.5	78	<0.1
FR US Hatchery	5/9/03	51.8	9.7	7.3	82	<0.1	FR US Hatchery	5/15/03	68.4	11.7	7.3	79	<0.1
FR US Hatchery	5/22/03	54.1	10.2	7.5	79	<0.1	FR US Hatchery	5/15/03	68.4	11.7	7.3	79	<0.1
FR US Hatchery	6/5/03	56.5	10.3	7.3	79	<0.1							
FR US Hatchery	6/19/03	59.9	10.0	7.3	72	<0.1	FR US Hatchery	6/17/03	63.7	10.1	7.3	74	<0.01
FR US Hatchery	7/11/03	58.3	8.4	7.2	76	<0.1	FR US Hatchery	7/8/03	69.6	9.8	7.3	79	<0.1
FR US Hatchery	8/15/03	56.3	10.4	7.3	78	<0.1	FR US Hatchery	8/11/03	62.2	10.3	7.3	77	<0.1
FR US Hatchery	9/4/03	54.7	10.5	7.2	77	<0.1							
FR US Hatchery	9/19/03	54.0	10.2	7.2	76		FR US Hatchery	9/17/03	60.4	11.0	7.4	76	<0.1
FR US Hatchery	10/3/03	52.5	10.2	7.3	82	<0.1							
FR US Hatchery	10/17/03	52.0	10.4	7.2	79	<0.1	FR US Hatchery	10/27/03	54.0	10.1	7.3	84	<0.1
FR US Hatchery	11/14/03	52.9	10.7	7.2	82	<0.1	FR US Hatchery	11/17/03	-	11.7	7.3	86	<0.1
FR US Hatchery	12/4/03	51.8	11.2	7.1	93								
FR US Hatchery	12/18/03	48.0	11.0	7.3	86	<0.1	FR US Hatchery	12/15/03	48.2	11.8	7.3	84	<0.1
FR US Hatchery	12/30/03	46.9	11.2	7.3	81								
FR US Hatchery	1/15/04	45.9	11.9	7.5	87		FR US Hatchery	1/15/04	45.9	12.3	7.7	87	

Interstitial							Surface						
Station Name	**Date**	**Temp (^oF)**	**DO (mg/L)**	**pH**	**EC (umhos /cm)**	**Total NH3 (mg/L)**	**Station Name**	**Date**	**Temp (^oF)**	**DO (mg/L)**	**pH**	**EC (umhos /cm)**	**Total NH3 (mg/L)**
FR US Hatchery	1/15/04	45.9	11.9	7.5	87	<0.1	FR US Hatchery	1/15/04	45.9	12.3	7.5	87	<0.1
FR US Hatchery	2/16/04	47.1	9.8	7.1	83	<0.1	FR US Hatchery	2/16/04	46.8	12.1	7.3	82	<0.1
FR US Hatchery	3/12/04	48.9	11.4	7.2	104	<0.1	FR US Hatchery	3/12/04	48.6	11.4	7.2	86	<0.1
FR A Spawning Channel	7/3/02	54.7	10.5	7.5	85	<0.02							
FR A Spawning Channel	7/24/02	59.7	10.2	7.4	90	<0.1	FR US Hatchery	7/24/02	66.7	10.0	7.3	87	<0.02
							FR DS Hatchery	7/24/02	62.4	10.3	7.3	90	<0.02
FR A Spawning Channel	8/22/02	63.0	9.4	7.2	92	<0.1	FR US Hatchery	8/21/02	66.4	9.3	7.2	88	<0.02
							FR DS Hatchery	8/21/02	62.4	9.5	7.0	93	<0.02
FR A Spawning Channel	9/6/02	56.1	10.3	7.2	92	<0.1							
FR A Spawning Channel	9/27/02	57.2	10.8	7.4	93	<0.1	FR US Hatchery	9/25/02	64.2	10.2	7.3	89	<0.1
							FR DS Hatchery	9/25/02	55.4	10.3	7.2	95	<0.1
FR A Spawning Channel	10/14/02	60.3	9.9	7.4	96	<0.082							
FR A Spawning Channel	10/25/02	58.6	10.6	7.4	100	<0.082	FR US Hatchery	10/22/02	59.5	10.2	7.2	97	<0.1
							FR DS Hatchery	10/22/02	56.3	8.7	6.8	102	**0.20**
FR A Spawning Channel	11/18/02	56.7	10.9	7.5	100	<0.082	FR US Hatchery	11/14/02	52.0	10.5	7.3	102	<0.1
							FR DS Hatchery	11/14/02	57.9	10.0	7.1	107	<0.1
FR A Spawning Channel	12/13/02	54.3	9.4	7.5	105	<0.082	FR US Hatchery	12/11/02	50.9	10.5	7.5	104	<0.1
							FR DS Hatchery	12/11/02	55.6	10.5	7.4	108	<0.1
FR A Spawning Channel	12/31/02	49.3	11.0	7.1	85	<0.082							
FR A Spawning Channel	1/23/03	50.0	11.6	7.1	87	<0.082	FR US Hatchery	1/14/03	48.4	12.4	7.2	86	<0.082
							FR DS Hatchery	1/14/03	49.3	11.3	7.2	95	<0.082
FR A Spawning Channel	2/28/03	51.4	10.6	7.5	88	<0.1	FR US Hatchery	2/20/03	56.3	12.1	7.5	86	<0.1
							FR DS Hatchery	2/20/03	50.0	11.9	7.3	89	<0.1
FR A Spawning Channel	3/25/03	54.7	11.8	7.5	79	<0.1	FR US Hatchery	3/19/03	-	11.8	7.3	76	<0.1
							FR DS Hatchery	3/19/03	51.3	11.5	7.3	82	<0.1
FR A Spawning Channel	4/21/03	54.0	9.5	7.3	77	<0.1	FR US Hatchery	4/17/03	65.8	9.8	7.5	78	<0.1
							FR DS Hatchery	4/17/03	55.9	11.2	7.2	108	<0.1
FR A Spawning Channel	5/9/03	53.8	11.0	7.5	89	<0.1	FR US Hatchery	5/15/03	68.4	11.7	7.3	79	<0.1
							FR DS Hatchery	5/15/03	54.9	11.2	7.3	87	<0.1
FR A Spawning Channel	5/22/03	55.2	11.6	7.5	77	<0.1	FR US Hatchery	5/15/03	68.4	11.7	7.3	79	<0.1
							FR DS Hatchery	5/15/03	54.9	11.2	7.3	87	<0.1
FR A Spawning Channel	6/5/03	59.5	12.3	7.5	78	<0.1							

Interstitial							Surface						
Station Name	**Date**	**Temp (^oF)**	**DO (mg/L)**	**pH**	**EC (umhos /cm)**	**Total NH3 (mg/L)**	**Station Name**	**Date**	**Temp (^oF)**	**DO (mg/L)**	**pH**	**EC (umhos /cm)**	**Total NH3 (mg/L)**
FR A Spawning Channel	6/19/03	62.2	10.6	7.5	72	<0.1	FR US Hatchery	6/17/03	63.7	10.1	7.3	74	<0.1
							FR DS Hatchery	6/17/03	58.8	10.2	7.3	76	<0.1
FR A Spawning Channel	7/11/03	60.4	10.5	7.9	76	<0.1	FR US Hatchery	7/8/03	69.6	9.8	7.3	79	<0.1
							FR DS Hatchery	7/8/03	61.3	10.0	7.1	151	<0.1
FR A Spawning Channel	8/15/03	57.6	10.6	7.4	78	<0.1	FR US Hatchery	8/11/03	62.2	10.3	7.3	77	<0.1
							FR DS Hatchery	8/11/03	62.8	10.5	7.3	79	<0.1
FR A Spawning Channel	9/4/03	57.2	10.2	7.3	76	<0.1							
FR A Spawning Channel	9/19/03	56.3	11.3	7.2	77	<0.1	FR US Hatchery	9/17/03	60.4	11.0	7.4	76	<0.1
							FR DS Hatchery	9/17/03	57.9	10.3	7.1	82	<0.1
FR A Spawning Channel	10/3/03	52.7	10.3	7.3	82	<0.02							
FR A Spawning Channel	10/17/03	53.2	11.2	7.3	78	<0.1	FR US Hatchery	10/27/03	54.0	10.1	7.3	84	<0.1
							FR DS Hatchery	10/27/03	54.9	5.4	7.2	100	<0.1
FR A Spawning Channel	11/14/03	54.0	11.0	7.5	83	<0.01	FR US Hatchery	11/17/03	-	11.7	7.3	86	<0.1
							FR DS Hatchery	11/17/03	53.8	11.5	7.3	-	<0.1
FR A Spawning Channel	12/4/03	51.8	11.0	7.1	92	<0.1							
FR A Spawning Channel	12/18/03	48.0	11.4	7.3	86	<0.1	FR US Hatchery	12/15/03	48.2	11.8	7.3	84	<0.1
							FR DS Hatchery	12/15/03	51.6	11.4	7.3	96	<0.1
FR A Spawning Channel	12/30/03	46.9	12.4	7.3	80	<0.1							
FR A Spawning Channel - I	1/15/04	46.4	11.9	7.1	87	<0.1	FR A Spawning Channel - S	1/15/04	46.0	11.6	7.1	86	
FR A Spawning Channel - I	1/15/04	46.4	11.9	7.1	87	<0.1	FR A Spawning Channel - S	2/16/04	46.9	7.6	7.3	87	<0.1
FR A Spawning Channel - I	2/16/04	46.9	7.6	7.3	87	<0.1	FR A Spawning Channel - S	3/12/04	48.7	9.9	7.3	83	<0.1
FR A Auditorium Riffle	7/3/02	59.9	9.7	7.5	85	<0.01							
FR A Auditorium Riffle	7/24/02	59.2	10.1	7.2	92	**0.02**	FR US Hatchery	7/24/02	66.7	10.0	7.3	87	<0.02
							FR DS Hatchery	7/24/02	62.4	10.3	7.3	90	<0.02
FR A Auditorium Riffle	8/22/02	63.0	9.4	7.2	91	<0.02	FR US Hatchery	8/21/02	66.4	9.3	7.2	88	<0.02
							FR DS Hatchery	8/21/02	62.4	9.5	7.0	93	<0.02
FR A Auditorium Riffle	9/6/02	55.8	10.5	7.2	92	<0.1							
FR A Auditorium Riffle	9/27/02	56.5	11.0	7.4	93	<0.1	FR US Hatchery	9/25/02	64.2	10.2	7.3	89	<0.1
							FR DS Hatchery	9/25/02	55.4	10.3	7.2	95	<0.1
FR A Auditorium Riffle	10/14/02	58.6	10.2	7.3	96	<0.082							
FR A Auditorium Riffle	10/25/02	58.5	10.7	7.4	100	<0.082	FR US Hatchery	10/22/02	59.5	10.2	7.2	97	<0.1
							FR DS Hatchery	10/22/02	56.3	8.7	6.8	102	**0.20**

Interstitial							Surface						
Station Name	Date	Temp (°F)	DO (mg/L)	pH	EC (umhos /cm)	Total NH3 (mg/L)	Station Name	Date	Temp (°F)	DO (mg/L)	pH	EC (umhos /cm)	Total NH3 (mg/L)
FR A Auditorium Riffle	11/18/02	55.9	10.8	7.4	101	<0.082	FR US Hatchery	11/14/02	52.0	10.5	7.3	102	<0.1
							FR DS Hatchery	11/14/02	57.9	10.0	7.1	107	<0.1
FR A Auditorium Riffle	12/13/02	54.3	9.6	7.7	108	<0.082	FR US Hatchery	12/11/02	50.9	10.5	7.5	104	<0.1
							FR DS Hatchery	12/11/02	55.6	10.5	7.4	108	<0.1
FR A Auditorium Riffle	12/31/02	49.3	11.0	7.1	85	<0.082							
FR A Auditorium Riffle	1/23/03	49.6	11.1	7.1	87	<0.082	FR US Hatchery	1/14/03	48.4	12.4	7.2	86	<0.082
							FR DS Hatchery	1/14/03	49.3	11.3	7.2	95	<0.082
FR A Auditorium Riffle	2/28/03	50.2	10.2	7.5	86	<0.082	FR US Hatchery	2/20/03	56.3	12.1	7.5	86	<0.1
							FR DS Hatchery	2/20/03	50.0	11.9	7.3	89	<0.1
FR A Auditorium Riffle	3/25/03	54.1	11.6	7.5	77	<0.1	FR US Hatchery	3/19/03	-	11.8	7.3	76	<0.1
							FR DS Hatchery	3/19/03	51.3	11.5	7.3	82	<0.1
FR A Auditorium Riffle	4/21/03	54.0	9.6	7.3	78	<0.1	FR US Hatchery	4/17/03	65.8	9.8	7.5	78	<0.1
							FR DS Hatchery	4/17/03	55.9	11.2	7.2	108	<0.1
FR A Auditorium Riffle	5/9/03	52.3	11.1	7.5	89	<0.1	FR US Hatchery	5/15/03	68.4	11.7	7.3	79	<0.1
							FR DS Hatchery	5/15/03	54.9	11.2	7.3	87	<0.1
FR A Auditorium Riffle	5/22/03	54.9	11.0	7.5	79	<0.1	FR US Hatchery	5/15/03	68.4	11.7	7.3	79	<0.1
							FR DS Hatchery	5/15/03	54.9	11.2	7.3	87	<0.1
FR A Auditorium Riffle	6/5/03	59.7	10.1	7.5	78	<0.1							
FR A Auditorium Riffle	6/19/03	60.8	10.2	7.3	72	<0.1	FR US Hatchery	6/17/03	63.7	10.1	7.3	74	<0.1
							FR DS Hatchery	6/17/03	58.8	10.2	7.3	76	<0.1
FR A Auditorium Riffle	7/11/03	58.8	10.3	7.7	76	<0.1	FR US Hatchery	7/8/03	69.6	9.8	7.3	79	<0.1
							FR DS Hatchery	7/8/03	61.3	10.0	7.1	151	<0.1
FR A Auditorium Riffle	8/15/03	57.2	10.4	7.4	79	<0.1	FR US Hatchery	8/11/03	62.2	10.3	7.3	77	<0.1
							FR DS Hatchery	8/11/03	62.8	10.5	7.3	79	<0.1
FR A Auditorium Riffle	9/4/03	54.7	10.5	7.3	76	<0.1							
FR A Auditorium Riffle	9/19/03	52.7	10.2	7.3	76	<0.1	FR US Hatchery	9/17/03	60.4	11.0	7.4	76	<0.1
							FR DS Hatchery	9/17/03	57.9	10.3	7.1	82	<0.1
FR A Auditorium Riffle	10/3/03	52.9	9.9	7.3	82	<0.1							
FR A Auditorium Riffle	10/17/03	53.2	10.5	7.3	78.1	**0.67**	FR US Hatchery	10/27/03	54.0	10.1	7.3	84	<0.1
							FR DS Hatchery	10/27/03	54.9	5.4	7.2	100	<0.1
FR A Auditorium Riffle	11/14/03	54.3	10	7.5	83	<0.1	FR US Hatchery	11/17/03	-	11.7	7.3	86	<0.1
							FR DS Hatchery	11/17/03	54.0	11.5	7.3	-	<0.1
FR A Auditorium Riffle	12/04/03	51.4	11.9	7.1	92	<0.1							

Interstitial							Surface						
Station Name	**Date**	**Temp (^oF)**	**DO (mg/L)**	**pH**	**EC (umhos /cm)**	**Total NH3 (mg/L)**	**Station Name**	**Date**	**Temp (^oF)**	**DO (mg/L)**	**pH**	**EC (umhos /cm)**	**Total NH3 (mg/L)**
FR A Auditorium Riffle	12/18/03	48.0	11	7.3	86	<0.1	FR US Hatchery	12/15/03	48.2	11.8	7.3	84	<0.1
							FR DS Hatchery	12/15/03	51.6	11.4	7.3	96	<0.1
FR A Auditorium Riffle	12/30/03	46.8	9.5	7.3	80	<0.1							
FR A Auditorium Riffle - I	1/15/04	46.2	11.9	7.1	87	<0.1	FR A Auditorium Riffle - S	1/15/04	45.9	12.3	7.1	87	<0.1
FR A Auditorium Riffle - I	2/16/04	46.9	11.6	7.2	82	<0.1	FR A Auditorium Riffle - S	2/16/04	46.6	11.8	7.2	82	<0.1
FR A Auditorium Riffle - I	3/12/04	49.1	11.4	7.3	84	<0.1	FR A Auditorium Riffle - S	3/12/04	47.8	12.0	7.3	83	<0.1
FR DS Hwy 162	7/3/02	66.4	8.1	7.2	89	-							
FR DS Hwy 162	7/24/02	61.3	-	7.2	92	<0.02	FR DS Hwy 162	7/24/02	61.2	10.5	7.4	88	<0.02
FR DS Hwy 162	8/22/02	64.4	9.4	7.2	92	0.2	FR DS Hwy 162	8/21/02	58.8	8.9	7.2	92	<0.02
FR DS Hwy 162	9/6/02	57.4	10.1	7.2	94	<0.1							
FR DS Hwy 162	9/27/02	58.6	11.5	7.5	93	<0.1	FR DS Hwy 162	9/25/02	53.1	9.1	7.2	96	<0.1
FR DS Hwy 162	10/14/02	60.3	8.7	7.4	98	<0.1							
FR DS Hwy 162	10/25/02	58.3	10.3	7.2	100	<0.1	FR DS Hwy 162	10/22/03	54.3	8.4	7.3	97	**0.1**
FR DS Hwy 162	11/18/02	56.8	10.8	7.4	103	-	FR DS Hwy 162	11/14/02	56.5	10.7	7.2	103	<0.1
FR DS Hwy 162	12/13/02	54.0	9.5	7.4	108	<0.082	FR DS Hwy 162	12/11/02	53.1	9.6	7.3	109	<0.1
FR DS Hwy 162	12/31/02	49.6	10.5	7.1	97	<0.082							
FR DS Hwy 162	1/23/03	50.7	8.8	7	93	<0.082	FR DS Hwy 162	1/14/03	48.7	10.4	7.1	99	<0.082
FR DS Hwy 162	2/28/03	53.6	12.4	7.5	92	<0.1	FR DS Hwy 162	2/20/03	46.4	10.7	7.3	98	<0.1
FR DS Hwy 162	3/25/03	54.7	10.4	7.3	88	<0.1	FR DS Hwy 162	3/19/03	49.5	9.8	7.3	90	<0.1
FR DS Hwy 162	4/21/03	54.9	10.1	7.3	81	<0.1	FR DS Hwy 162	4/17/03	53.4	10.4	7.4	89	<0.1
FR DS Hwy 162	5/9/03	56.8	11.5	7.5	87	<0.1	FR DS Hwy 162	5/15/03	52.2	10.8	7.5	87	<0.1
FR DS Hwy 162	5/22/03	58.6	7.4	7.2	86	<0.1	FR DS Hwy 162	5/15/03	52.2	10.8	7.5	87	<0.1
FR DS Hwy 162	6/5/03	59.5	8.9	7.3	78	<0.1							
FR DS Hwy 162	6/19/03	62.4	7.3	7.3	79	<0.1	FR DS Hwy 162	6/17/03	58.1	9.5	7.5	79	<0.1
FR DS Hwy 162	7/11/03	65.5	9.0	7.5	79	<0.1	FR DS Hwy 162	7/8/03	59.2	8.8	7.3	80	<0.1
FR DS Hwy 162	8/15/03	59.0	10.0	7.4	80	<0.1	FR DS Hwy 162	8/11/03	58.6	9.0	7.2	83	<0.1
FR DS Hwy 162	9/4/03	58.5	9.1	7.2	79	<0.1							
FR DS Hwy 162	9/19/03	55.8	8.5	7.2	80	<0.1	FR DS Hwy 162	9/17/03	55.2	9.6	7.3	82	<0.1
FR DS Hwy 162	10/3/03	52.2	10.2	7.2	81	<0.1							
FR DS Hwy 162	10/17/03	52.2	10.2	7.2	81	<0.1	FR DS Hwy 162	10/27/03	53.6	11.3	7.3	83	
FR DS Hwy 162	11/14/03	53.6	9.4	7.2	86	<0.01	FR DS Hwy 162	11/17/03	53.2	10.4	7.2	89	
FR DS Hwy 162	12/04/03	51.8	9.5	7.1	92	0.28							

Interstitial							Surface						
Station Name	Date	Temp (°F)	DO (mg/L)	pH	EC (umhos /cm)	Total NH3 (mg/L)	Station Name	Date	Temp (°F)	DO (mg/L)	pH	EC (umhos /cm)	Total NH3 (mg/L)
FR DS Hwy 162	12/18/03	47.8	9.9	7.3	89	<0.1	FR DS Hwy 162	12/15/03	48.0	11.7	7.2	93	
FR DS Hwy 162	12/30/03	48.0	10.8	7.3	89	<0.1							
FR DS Hwy 162 - I	1/15/04	46.9	11.5	7.0	95	<0.1	FR DS Hwy 162 - S	1/15/04	46.8	12.0	7.1	96	<0.1
FR DS Hwy 162 - I	2/16/04	47.5	11.7	7.3	170	<0.1	FR DS Hwy 162 - S	2/16/04	46.9	11.1	7.3	163	<0.1
FR DS Hwy 162 - I	3/12/04	49.6	9.8	7.1	94	<0.1	FR DS Hwy 162 - S	3/12/04	50.4	11.1	7.2	105	<0.1
FR A Robinson Riffle	7/24/02	63.9	9.9	7.4	93	<0.02	FR A Robinson Riffle	7/24/02	60.6	10.5	7.2	87	<0.02
FR A Robinson Riffle	8/22/02	**64.8**	9.4	7.4	93	**0.1**	FR A Robinson Riffle	8/21/02	60.6	10.0	7.2	93	<0.02
FR A Robinson Riffle	9/6/02	58.6	10.8	7.4	95	<0.1							
FR A Robinson Riffle	9/27/02	60.1	7.6	7.5	96	<0.1	FR A Robinson Riffle	9/25/02	54.9	9.0	7.2	93	<0.1
FR A Robinson Riffle	10/14/02	60.6	10.7	7.5	99	<0.1							
FR A Robinson Riffle	10/25/02	58.8	11.0	7.6	102	<0.1	FR A Robinson Riffle	10/22/02	55.6	10.1	7.3	97	<0.1
FR A Robinson Riffle	11/18/02	55.0	10.5	7.4	104	-	FR A Robinson Riffle	11/14/02	58.1	11.9	8.1	103	<0.1
FR A Robinson Riffle	12/13/02	53.8	9.8	7.4	122	<0.082	FR A Robinson Riffle	12/11/02	54.5	11.9	8.0	102	<0.1
FR A Robinson Riffle	12/31/02	51.1	-	7.1	103	<0.082							
FR A Robinson Riffle	1/23/03	50.5	11.1	7.1	96	<0.082	FR A Robinson Riffle	1/14/03	49.8	7.6	7.5	114	<0.082
FR A Robinson Riffle	2/28/03	53.6	13.0	7.9	96	<0.1	FR A Robinson Riffle	2/20/03	46.9	10.5	7.1	103	<0.1
FR A Robinson Riffle	3/25/03	52.7	12.2	7.7	86	<0.1	FR A Robinson Riffle	3/19/03	50.2	11.2	7.5	95	<0.1
FR A Robinson Riffle	4/21/03	54.0	11.5	7.3	84	<0.1	FR A Robinson Riffle	4/17/03	59.0	11.4	7.9	91	<0.1
FR A Robinson Riffle	5/9/03	55.4	11.0	7.5	92	<0.1	FR A Robinson Riffle	5/15/03	57.7	11.4	8.0	89	<0.1
FR A Robinson Riffle	5/22/03	58.3	10.5	7.3	87	<0.1	FR A Robinson Riffle	5/15/03	57.7	11.4	8.0	89	<0.1
FR A Robinson Riffle	6/5/03	61.9	10.2	7.3	86	<0.1	FR A Robinson Riffle	5/15/03	62.6	10.8	8.1	85	<0.1
FR A Robinson Riffle	6/19/03	64.2	10.6	7.5	78	<0.1	FR A Robinson Riffle	6/17/03	60.6	12.1	8.0	87	<0.1
FR A Robinson Riffle	7/11/03	**67.5**	9.4	7.5	82	<0.1	FR A Robinson Riffle	7/8/03	60.8	10.5	7.5	82	<0.1
FR A Robinson Riffle	8/15/03	61.0	10.3	7.5	81	<0.1	FR A Robinson Riffle	8/11/03	60.4	9.2	7.3	81	<0.1
FR A Robinson Riffle	9/4/03	60.4	9.7	7.3	81	<0.1							
FR A Robinson Riffle	9/19/03	57.6	10.7	7.3	80	<0.1	FR A Robinson Riffle	9/17/03	60.8	9.4	7.2	84	<0.1
FR A Robinson Riffle	10/3/03	55.9	10.9	7.3	85	<0.1							
FR A Robinson Riffle	10/17/03	54.0	11.2	7.3	81	<0.1	FR A Robinson Riffle	10/27/03	53.6	10.4	7.2	-	
FR A Robinson Riffle	11/14/03	53.8	10.1	7.3	87	<0.1	FR A Robinson Riffle	11/17/03	54.0	11.1	7.4	80	**0.02**
FR A Robinson Riffle	12/04/03	52.0	11.6	7.2	92	<0.1							
FR A Robinson Riffle	12/18/03	47.8	11.4	7.3	89		FR A Robinson Riffle	12/15/03	48.7	13.0	7.3	90	<0.1
FR A Robinson Riffle	12/30/03	48.2	11.0	7.3	91								

Interstitial							Surface						
Station Name	**Date**	**Temp (^oF)**	**DO (mg/L)**	**pH**	**EC (umhos /cm)**	**Total NH3 (mg/L)**	**Station Name**	**Date**	**Temp (^oF)**	**DO (mg/L)**	**pH**	**EC (umhos /cm)**	**Total NH3 (mg/L)**
FR A Robinson Riffle	1/15/04	46.9	12.6	7.5	96	<0.1	FR A Robinson Riffle	1/15/04	46.6	12.2	7.5	96	<0.1
FR A Robinson Riffle - I	1/15/04	46.9	12.6	7.5	96	<0.1	FR A Robinson Riffle - S	1/15/04	46.6	12.2	7.5	96	<0.1
FR A Robinson Riffle - I	2/18/04	50.0	9.5	7.3	81	<0.1	FR A Robinson Riffle - S	2/18/04	50.2	9.9	7.3	83	<0.1
FR A Robinson Riffle - I	3/12/04	51.6	12.2	7.3	101	<0.1	FR A Robinson Riffle - S	3/12/04	50.5	11.8	7.3	103	<0.1
FR US SCOR Outlet	4/21/03	NT	9.5	7.3	86	<0.1	FR DS SCOR Outlet	4/17/03	58.6	10.4	7.4	99	**0.19**
FR US SCOR Outlet	5/9/03	61.0	8.0	7.3	86	<0.1	FR DS SCOR Outlet	5/15/03	62.6	10.8	8.1	85	<0.1
FR US SCOR Outlet	5/22/03	**66.9**	10.2	7.5	80	<0.1	FR DS SCOR Outlet	5/15/03	62.6	10.8	8.1	85	<0.1
FR US SCOR Outlet	6/5/03	**66.4**	-	7.2	118	0.16							
FR US SCOR Outlet	6/19/03	**68.0**	6.3	7.2	76	<0.1	FR DS SCOR Outlet	6/17/03	65.7	10.0	7.9	81	<0.1
FR US SCOR Outlet	7/11/03	**67.3**	6.6	7.3	518	<0.1	FR DS SCOR Outlet	7/8/03	62.4	10.3	7.3	76	<0.1
FR US SCOR Outlet	8/15/03	**66.9**	-	6.8	190	0.3	FR DS SCOR Outlet	8/11/03	65.5	9.8	7.4	83	<0.1
FR US SCOR Outlet	9/4/03	63.3	**3.4**	6.9	90	<0.1							
FR US SCOR Outlet	9/19/03	63.0	**0.6**	6.9	109	0.51	FR DS SCOR Outlet	9/17/03	60.8	9.5	7.3	-	<0.1
FR US SCOR Outlet	10/3/03	61.9	**1.5**	6.9	117	0.21							
FR US SCOR Outlet	10/17/03	59.0	10.9	6.9	102	<0.1	FR DS SCOR Outlet	10/27/03	58.8	10.8	7.4	81	<0.1
FR US SCOR Outlet	11/14/03	54.3	9.0	7.5	84	<0.1	FR DS SCOR Outlet	11/17/03	53.6	11.0	7.5	88	<0.1
FR US SCOR Outlet	12/04/03	52.5	11.0	7	111	<0.1							
FR US SCOR Outlet	12/18/03	55.2	11.2	7.2	123	0.4	FR DS SCOR Outlet	12/15/03	49.8	12.3	7.3	93	
FR US SCOR Outlet	12/30/03	48.9	10.7	7.3	95	<0.1							
FR US SCOR Outlet - I	1/15/04	50.0	1.5	7.1	105	<0.1	FR US SCOR Outlet - S	1/15/04	48.2	12.7	7.2	99	<0.1
FR US SCOR Outlet - I	2/16/04	49.5	0.5	7.3	122	<0.1	FR US SCOR Outlet - S	2/16/04	48.9	11.6	7.3	95	<0.1
FR US SCOR Outlet - I	3/12/04	53.6	1.1	7.0	99	<0.1	FR US SCOR Outlet - S	3/12/04	53.8	11.3	7.5	128	<0.1
FR DS SCOR Outlet	7/3/02	67.6	9.9	7.8	88	-							
FR DS SCOR Outlet	7/24/02	66.6	9.1	7.3	93	<0.02	FR DS SCOR Outlet	7/24/02	65.5	9.9	7.4	91	<0 .02
FR DS SCOR Outlet	8/22/02	65.7	5.6	7.1	93	<0.1	FR DS SCOR Outlet	8/21/02	63.5	10.2	7.3	62	<0 .02
FR DS SCOR Outlet	9/6/02	62.8	7.1	7.2	98	<0.1							
FR DS SCOR Outlet	9/27/02	61.5	8.8	7.5	95	<0.1	FR DS SCOR Outlet	9/25/02	61.2	10.0	7.3	92	<0.1
FR DS SCOR Outlet	10/14/02	63.5	10.1	7.6	101	0.1							
FR DS SCOR Outlet	10/25/02	61.0	7.9	7.4	103	<0.1	FR DS SCOR Outlet	10/22/02	59.0	10.0	7.7	95	<0.1
FR DS SCOR Outlet	11/18/02	56.1	7.9	7.3	106	-	FR DS SCOR Outlet	11/14/02	56.5	10.6	7.4	104	<0.1
FR DS SCOR Outlet	12/13/02	53.4	10.5	7.3	107	<0.082	FR DS SCOR Outlet	12/11/02	53.1		7.3	118	**0.12**

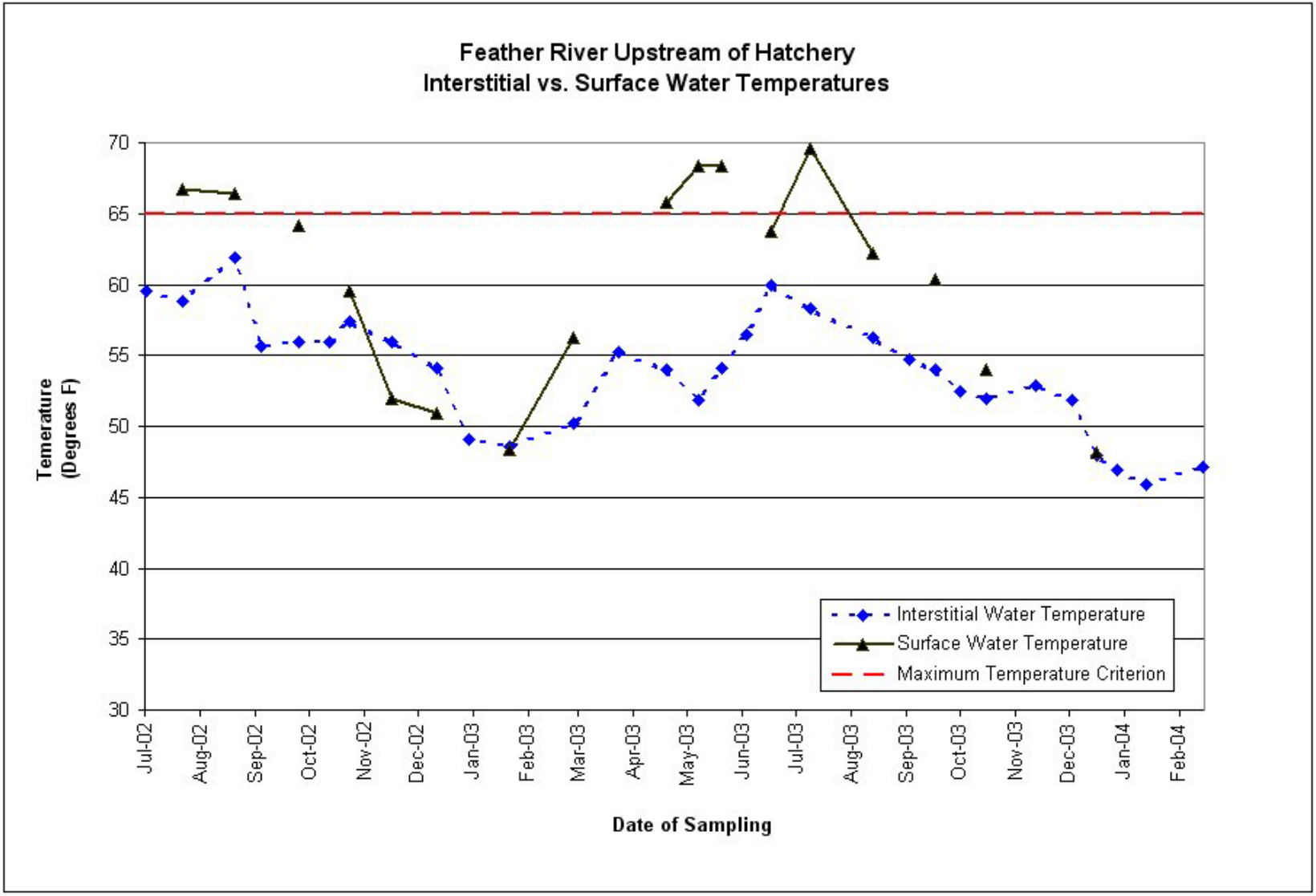
Interstitial							Surface						
Station Name	**Date**	**Temp (^oF)**	**DO (mg/L)**	**pH**	**EC (umhos /cm)**	**Total NH3 (mg/L)**	**Station Name**	**Date**	**Temp (^oF)**	**DO (mg/L)**	**pH**	**EC (umhos /cm)**	**Total NH3 (mg/L)**
FR DS SCOR Outlet	12/31/02	50.4	10.0	7.2	102	<0.082							
FR DS SCOR Outlet	1/23/03	52.0	9.6	7.1	107	<0.082	FR DS SCOR Outlet	1/14/03	50.4	10.9	7.1	100	<0.082
FR DS SCOR Outlet	2/28/03	53.2	11.4	7.4	98	**0.28**	FR DS SCOR Outlet	2/20/03	47.5	11.5	7.5	84	<0.1
FR DS SCOR Outlet	3/25/03	59.0	10.8	7.5	93	<0.1	FR DS SCOR Outlet	3/19/03	54.3	10.8	7.4	92	<0.1
FR DS SCOR Outlet	4/21/03	54.0	10.3	7.3	94	**0.29**	FR DS SCOR Outlet	4/17/03	58.6	10.4	7.4	99	**0.19**
FR DS SCOR Outlet	5/9/03	60.8	8.6	7.3	91	<0.1	FR DS SCOR Outlet	5/15/03	62.6	10.8	8.1	85	<0.1
FR DS SCOR Outlet	5/22/03	65.1	9.8	7.5	83	<0.1	FR DS SCOR Outlet	5/15/03	62.6	10.8	8.1	85	<0.1
FR DS SCOR Outlet	6/5/03	66.2	8.3	7.3	83	<0.1							
FR DS SCOR Outlet	6/19/03	68.5	9.1	7.3	81	<0.1	FR DS SCOR Outlet	6/17/03	65.7	10.0	7.9	81	<0.1
FR DS SCOR Outlet	7/11/03	67.3	**1.7**	7.1	122	<0.1	FR DS SCOR Outlet	7/8/03	62.4	10.3	7.3	76	<0.1
FR DS SCOR Outlet	8/15/03	65.7	5.7	7.1	82	<0.1	FR DS SCOR Outlet	8/11/03	65.5	9.8	7.4	83	<0.1
FR DS SCOR Outlet	9/4/03	63.0	7.7	7.2	79	<0.1							
FR DS SCOR Outlet	9/19/03	62.8	7.4	7.1	80	<0.1	FR DS SCOR Outlet	9/17/03	60.8	9.5	7.3	-	<0.1
FR DS SCOR Outlet	10/3/03	61.7	10.1	7.4	82	<0.1							
FR DS SCOR Outlet	10/17/03	56.7	10.9	6.9	102	<0.1	FR DS SCOR Outlet	10/27/03	58.8	10.8	7.4	81	<0.1
FR DS SCOR Outlet	11/14/03	54.3	9.0	7.5	84	<0.1	FR DS SCOR Outlet	11/17/03	53.6	11.0	7.5	88	<0.1
FR DS SCOR Outlet	12/04/03	52.5	11.0	7	111	<0.1							
FR DS SCOR Outlet	12/18/03	55.2	11.2	7.2	123	<0.1	FR DS SCOR Outlet	12/15/03	49.8	12.3	7.3	93	<0.1
FR DS SCOR Outlet	12/30/03	48.9	10.7	7.3	95	<0.1							
FR DS SCOR Outlet - I	1/15/04	48.7	7.0	7.4	102	<0.1	FR DS SCOR Outlet - S	1/15/04	48.2	12.5	7.5	96	<0.1
FR DS SCOR Outlet - I	2/16/04	49.3	9.3	7.3	93	<0.1	FR DS SCOR Outlet - S	2/16/04	49.3	9.3	7.3	93	<0.1
FR DS SCOR Outlet - I	3/12/04	53.6	8.8	7.3	94	<0.1	FR DS SCOR Outlet - S	3/12/04	54.7	11.9	7.4	95	<0.1
FR DS SCOR OL Island	2/28/03	52.5	12.0	7.7	97	<0.1	FR DS SCOR Outlet	2/20/03					<0.1
FR DS SCOR OL Island	3/25/03	57.6	10.6	7.5	89	<0.1	FR DS SCOR Outlet	3/19/03	54.3	10.8	7.4	92	<0.1
FR DS SCOR OL Island	4/21/03	54.0	10.3	7.3	87	**0.1**	FR DS SCOR Outlet	4/17/03	58.6	10.4	7.4	99	**0.19**
FR DS SCOR OL Island	5/9/03	65.1	10.2	7.4	94	<0.1	FR DS SCOR Outlet	5/15/03	62.6	10.8	8.1	85	<0.1
FR DS SCOR OL Island	6/5/03	66.6	10.5	7.7	81	<0.1	FR DS SCOR Outlet	5/15/03	62.6	10.8	8.1	85	<0.1
FR DS SCOR OL Island	6/19/03	67.3	10.3	7.5	76	<0.1	FR DS SCOR Outlet	6/17/03	65.7	10.0	7.9	81	<0.1
FR DS SCOR OL Island	10/17/03	59.5	10.6	7.4	83	<0.1							
FR DS SCOR OL Island	10/31/03	55.2	10.4	7.3	82	<0.1	FR DS SCOR Outlet	10/27/03	58.8	10.8	7.4	81	<0.1
FR DS SCOR OL Island	11/14/03	54.7	10.2	7.5	83	<0.1	FR DS SCOR Outlet	11/17/03	53.6	11.0	7.5	88	<0.1
FR DS SCOR OL Island	12/18/03	49.5	11.6	7.5	88		FR DS SCOR Outlet	12/15/03	49.8	12.3	7.3	93	<0.1

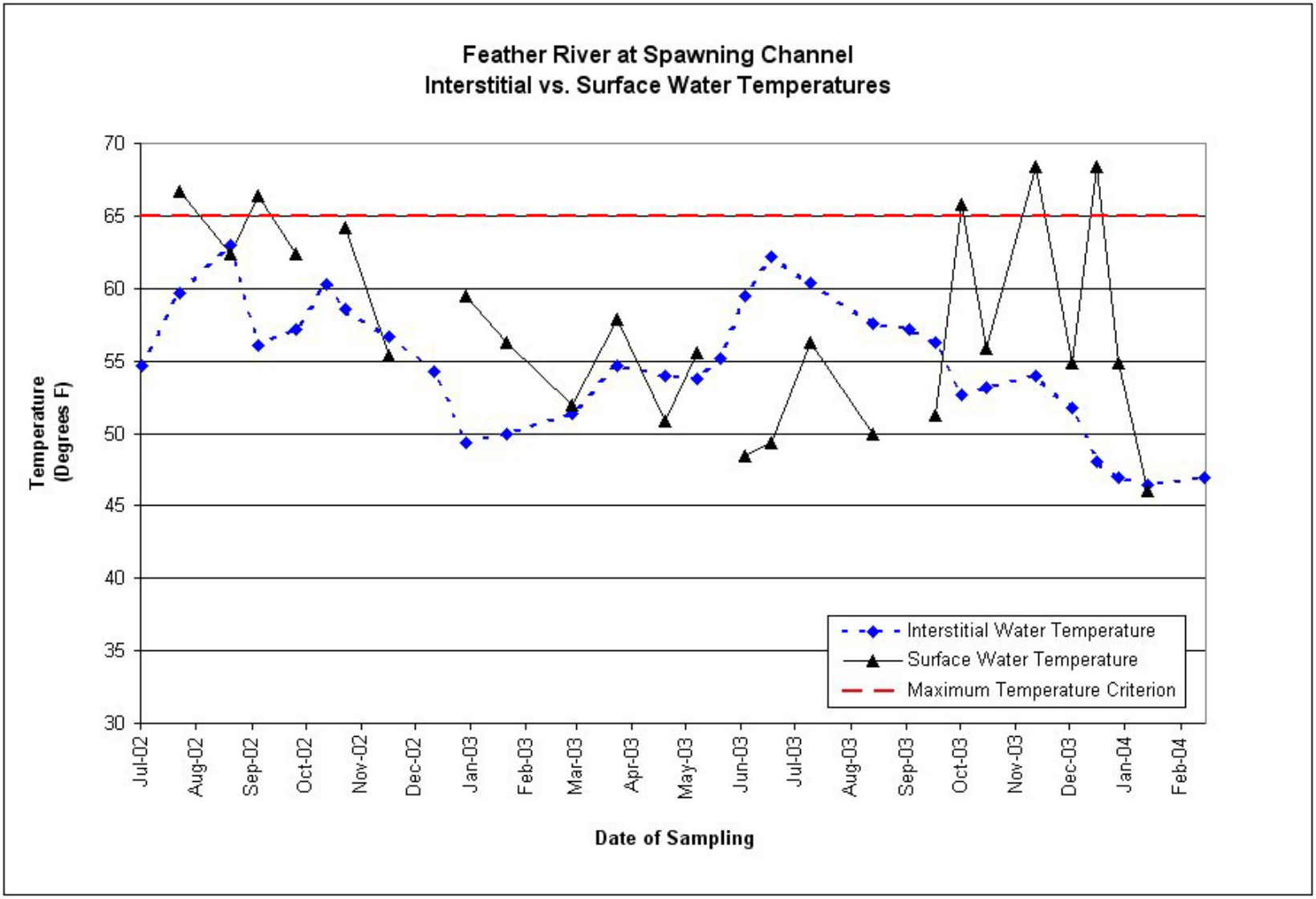
Interstitial							Surface						
Station Name	Date	Temp (°F)	DO (mg/L)	pH	EC (umhos /cm)	Total NH3 (mg/L)	Station Name	Date	Temp (°F)	DO (mg/L)	pH	EC (umhos /cm)	Total NH3 (mg/L)
FR DS SCOR A Island - I	1/15/04	48.0	12.3	8.9	92	<0.1	FR DS SCOR A Island -S	1/15/04	47.8	12.5	8.8	92	<0.1
FR DS SCOR A Island - I	2/16/04	49.1	11.9	7.3	86	<0.1	FR DS SCOR A Island -S	2/16/04	49.1	11.9	7.3	86	<0.1
FR DS SCOR A Island - I	3/12/04	55.9	11.1	7.3	90	<0.1	FR DS SCOR A Island -S	3/12/04	55.0	11.9	7.4	95	<0.1
FR US Afterbay Outlet	7/24/02	66.4	10.6	7.6	94	<0.02	FR US Afterbay Outlet	7/24/02	56.7	10.3	7.7	89	<0.02
FR US Afterbay Outlet	8/22/02	65.3	6.9	7.1	95	<0.1	FR US Afterbay Outlet	8/21/02	60.6	10.0	7.2	90	<0.02
FR US Afterbay Outlet	9/6/02	60.6	7.5	7.2	100	<0.1							
FR US Afterbay Outlet	9/27/02	59.4	9.2	7.3	95	<0.1	FR US Afterbay Outlet	9/25/02	52.9	10.4	7.5	93	<0.1
FR US Afterbay Outlet	10/14/02	61.0	10.3	7.4	100	<0.1	FR US Afterbay Outlet	10/22/02	54.9	10.2	7.2	100	<0.1
FR US Afterbay Outlet	11/18/02	56.3	9.0	7.2	103	-	FR US Afterbay Outlet	11/14/02	55.9	10.6	7.9	106	<0.1
FR US Afterbay Outlet	12/13/02	53.6	9.1	7.4	102	<0.082	FR US Afterbay Outlet	12/11/02	53.2	10.9	7.7	106	<0.1
FR US Afterbay Outlet	12/31/02	52.0	-	7.1	97	<0.082							
FR US Afterbay Outlet	1/23/03	50.5	10.8	7.1	97	<0.082	FR US Afterbay Outlet	1/14/03	47.8	11.3	7.3	101	<0.082
FR US Afterbay Outlet	2/28/03	52.5	13.0	7.9	96	<0.1	FR US Afterbay Outlet	2/20/03	47.8	13.3	7.9	96	<0.1
FR US Afterbay Outlet	3/25/03	57.0	12.6	7.9	87	<0.1	FR US Afterbay Outlet	3/19/03	49.1	12.6	7.9	87	<0.1
FR US Afterbay Outlet	4/21/03	-	11.3	7.3	86	**0.11**	FR US Afterbay Outlet	4/17/03	52.0	11.5	7.4	88	<0.1
FR US Afterbay Outlet	5/9/03	59.4	11.9	8.1	95	<0.1	FR US Afterbay Outlet	5/15/03	50.9	12.1	7.9	91	<0.1
FR US Afterbay Outlet	5/22/03	63.9	11.5	7.9	88	<0.1	FR US Afterbay Outlet	5/15/03	50.9	12.1	7.9	91	<0.1
FR US Afterbay Outlet	6/5/03	66.2	10.7	7.5	86	<0.1							
FR US Afterbay Outlet	6/19/03	67.3	10.0	7.5	79	<0.1	FR US Afterbay Outlet	6/17/03	57.2	10.3	7.4	83	<0.1
FR US Afterbay Outlet	7/11/03	70.0	6.5	7.0	81	<0.1	FR US Afterbay Outlet	7/8/03	58.5	9.1	7.3	89	<0.1
FR US Afterbay Outlet	8/15/03	62.2	9.5	7.3	80	<0.1	FR US Afterbay Outlet	8/11/03	58.3	10.5	7.5	82	<0.1
FR US Afterbay Outlet	9/4/03	62.2	1.8	7.3	95	<0.1							
FR US Afterbay Outlet	9/19/03	60.1	10.7	7.4	80	<0.1	FR US Afterbay Outlet	9/17/03	54.7	12.4	7.5	80	<0.1
FR US Afterbay Outlet	10/3/03	55.9	10.5	7.3	87	<0.1							
FR US Afterbay Outlet	10/17/03	55.9	11.1	7.3	80	<0.1	FR US Afterbay Outlet	10/27/03	52.3	8.7	7.6	83	<0.1
FR US Afterbay Outlet	10/31/03	54.0	7.5	7.3	85	<0.1	FR US Afterbay Outlet	10/27/03	52.3	8.7	7.6	83	<0.1
FR US Afterbay Outlet	11/14/03	55.4	8.6	7.5	88	<0.1	FR US Afterbay Outlet	11/17/03	52.7	12.4	7.3	-	<0.1
FR US Afterbay Outlet	12/04/03	52.2	12.0	7.1	92	<0.1							
FR US Afterbay Outlet	12/18/03	48.6	11.1	7.3	89	<0.1	FR US Afterbay Outlet	12/15/03	49.5	12.1	7.3	91	<0.1
FR US Afterbay Outlet	12/30/03	48.0	10.4	7.3	88	<0.1							
FR US Afterbay Outlet - I	1/15/04	47.5	11.0	7.5	96	<0.1	FR US Afterbay Outlet - S	1/15/04	47.1	12.7	7.5	97	<0.1
FR US Afterbay Outlet - I	2/16/04	48.4	11.5	7.2	88	<0.1	FR US Afterbay Outlet - S	2/16/04	48.0	12.9	7.3	88	<0.1

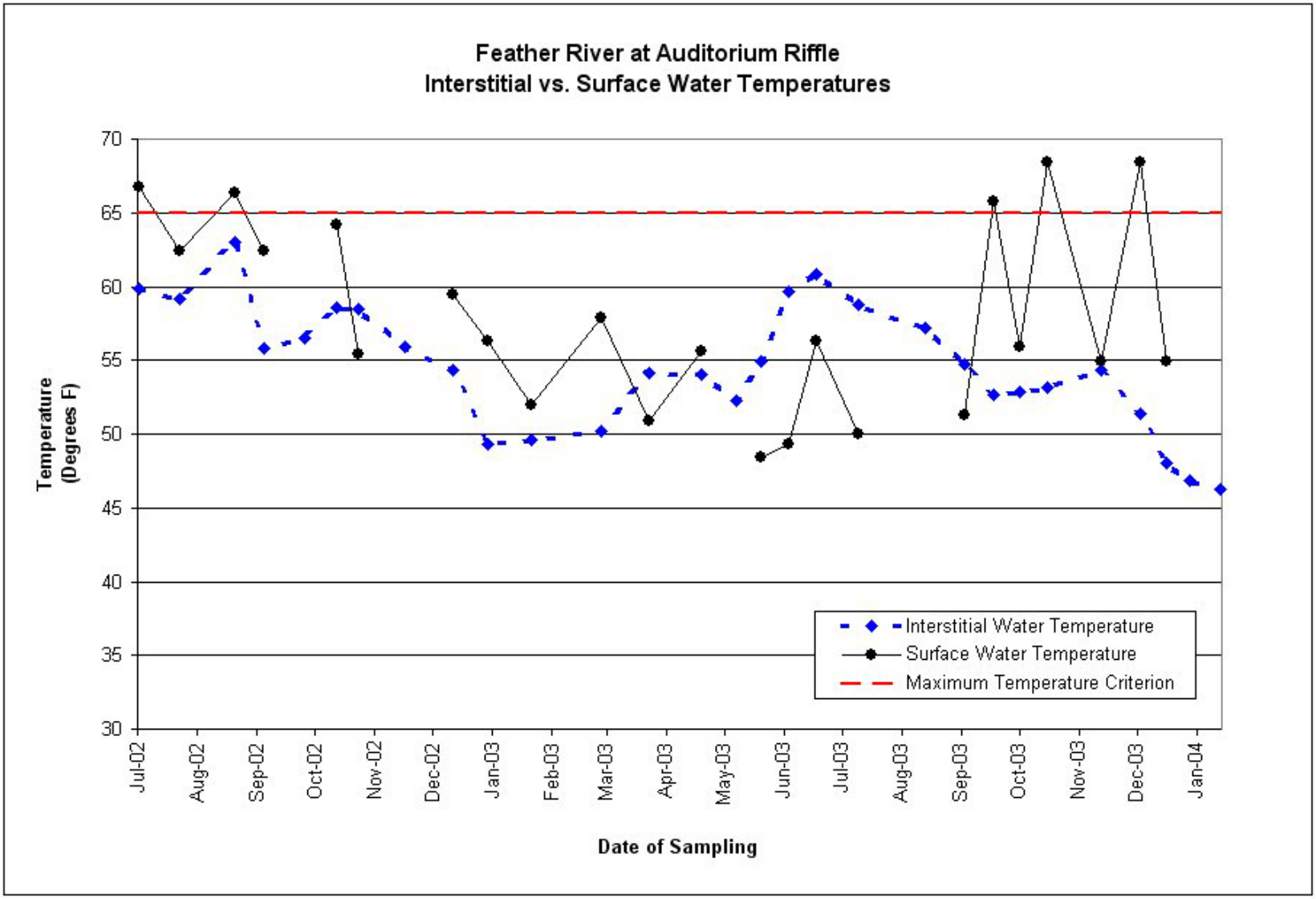
Interstitial							Surface						
Station Name	**Date**	**Temp (^oF)**	**DO (mg/L)**	**pH**	**EC (umhos /cm)**	**Total NH3 (mg/L)**	**Station Name**	**Date**	**Temp (^oF)**	**DO (mg/L)**	**pH**	**EC (umhos /cm)**	**Total NH3 (mg/L)**
FR US Afterbay Outlet - I	3/12/04	54.9	12.4	7.9	102	<0.1	FR US Afterbay Outlet - S	3/12/04	53.2	13.1	7.9	108	<0.1
FR DS Afterbay Outlet	7/24/02	67.1	9.6	7.4	91	<0.02	FR DS Afterbay Outlet	7/24/02	65.3	10.1	7.7	87	<0.02
FR DS Afterbay Outlet	8/22/02	65.5	9.7	7.3	91	<0.1	FR DS Afterbay Outlet	8/21/02	63.5	10.0	7.2	87	<0.02
FR DS Afterbay Outlet	9/6/02	62.4	5.9	7.4	107	<0.1							
FR DS Afterbay Outlet	9/27/02	59.5	10.3	7.4	94	<0.1	FR DS Afterbay Outlet	9/25/03	61.7	10.3	7.2	89	-
FR DS Afterbay Outlet	10/14/02	61.7	7.0	7.2	102	<0.1	FR DS Afterbay Outlet	10/14/02	59.9	10.2	7.3	96	**0.1**
FR DS Afterbay Outlet	11/18/02	55.8	10.6	7.2	103	-	FR DS Afterbay Outlet	11/14/02	56.1	10.6	7.9	101	<0.1
FR DS Afterbay Outlet	12/13/02	53.2	9.4	7.3	98	<0.082	FR DS Afterbay Outlet	12/11/03	53.1	10.6	7.7	104	<0.1
FR DS Afterbay Outlet	12/31/02	52.2	-	7.4	95	<0.082							
FR DS Afterbay Outlet	1/23/03	50.7	10.8	7.1	93	<0.082	FR DS Afterbay Outlet	1/14/03	50.2	11.3	7.3	93	<0.082
FR DS Afterbay Outlet	2/28/03	52.5	10.9	7.4	91	<0.1	FR DS Afterbay Outlet	2/20/03	49.3	12.3	7.5	85	<0.1
FR DS Afterbay Outlet	3/25/03	58.8	-	7.3	95	<0.1	FR DS Afterbay Outlet	3/19/03	54.7	11.6	7.9	86	<0.1
FR DS Afterbay Outlet	4/21/03	-	-	7.3	84	<0.1	FR DS Afterbay Outlet	4/17/03	58.8	10.5	7.5	86	<0.1
FR DS Afterbay Outlet	5/9/03	61.0	8.4	7.4	88	<0.1	FR DS Afterbay Outlet	5/15/03	63.1	10.8	7.6	82	<0.1
FR DS Afterbay Outlet	5/22/03	65.8	10.2	7.6	81	<0.1	FR DS Afterbay Outlet	5/15/03	63.1	10.8	7.6	82	<0.1
FR DS Afterbay Outlet	6/5/03	66.0	10.4	7.6	80	<0.1							
FR DS Afterbay Outlet	6/19/03	67.6	10.0	7.6	76	<0.1	FR DS Afterbay Outlet	6/17/03	66.9	9.7	7.7	76	<0.1
FR DS Afterbay Outlet	7/11/03	65.3	9.4	7.3	76	<0.1	FR DS Afterbay Outlet	7/8/03	64.0	10.4	7.2	76	<0.1
FR DS Afterbay Outlet	8/15/03	66.2	9.9	7.9	79	-	FR DS Afterbay Outlet	8/21/03	67.1	10.8	7.5	80	<0.1
FR DS Afterbay Outlet	9/4/03	64.4	10.0	7.3	76	<0.1							
FR DS Afterbay Outlet	9/19/03	63.0	10.1	7.5	80	<0.1	FR DS Afterbay Outlet	9/17/03	61.5	10.9	7.5	75	<0.1
FR DS Afterbay Outlet	10/3/03	61.7	-	7.4	84	<0.1							
FR DS Afterbay Outlet	10/17/03	59.4	5.7	7.6	102	**0.15**	FR DS Afterbay Outlet	10/27/03	59.0	10.5	7.5	76	<0.1
FR DS Afterbay Outlet	10/31/03	55.2	10.2	7.3	81	**0.11**	FR DS Afterbay Outlet	10/27/03	59.0	10.5	7.5	76	<0.1
FR DS Afterbay Outlet	11/14/03	54.5	9.8	7.4	81	<0.1	FR DS Afterbay Outlet	11/17/03	53.4	11.2	7.4	-	0.1
FR DS Afterbay Outlet	12/04/03	52.3	10.4	7.2	92	<0.1							
FR DS Afterbay Outlet	12/18/03	50.0	10.1	7.4	92		FR DS Afterbay Outlet	12/15/03	50.0	12.1	7.5	88	**0.12**
FR DS Afterbay Outlet	12/30/03	47.5	10.8	7.3	93								
FR nr Mile Long Pond	7/24/02	67.5	-	7.1	92	<0.02	FR nr Mile Long Pond	7/24/03	65.8	10.0	7.7	87	<0.02
FR nr Mile Long Pond	8/22/02	67.8	8.9	7.4	90	<0.1	FR nr Mile Long Pond	8/21/03	66.6	10.3	7.3	87	<0.02
FR nr Mile Long Pond	9/6/02	62.4	9.7	7.3	110	<0.1							

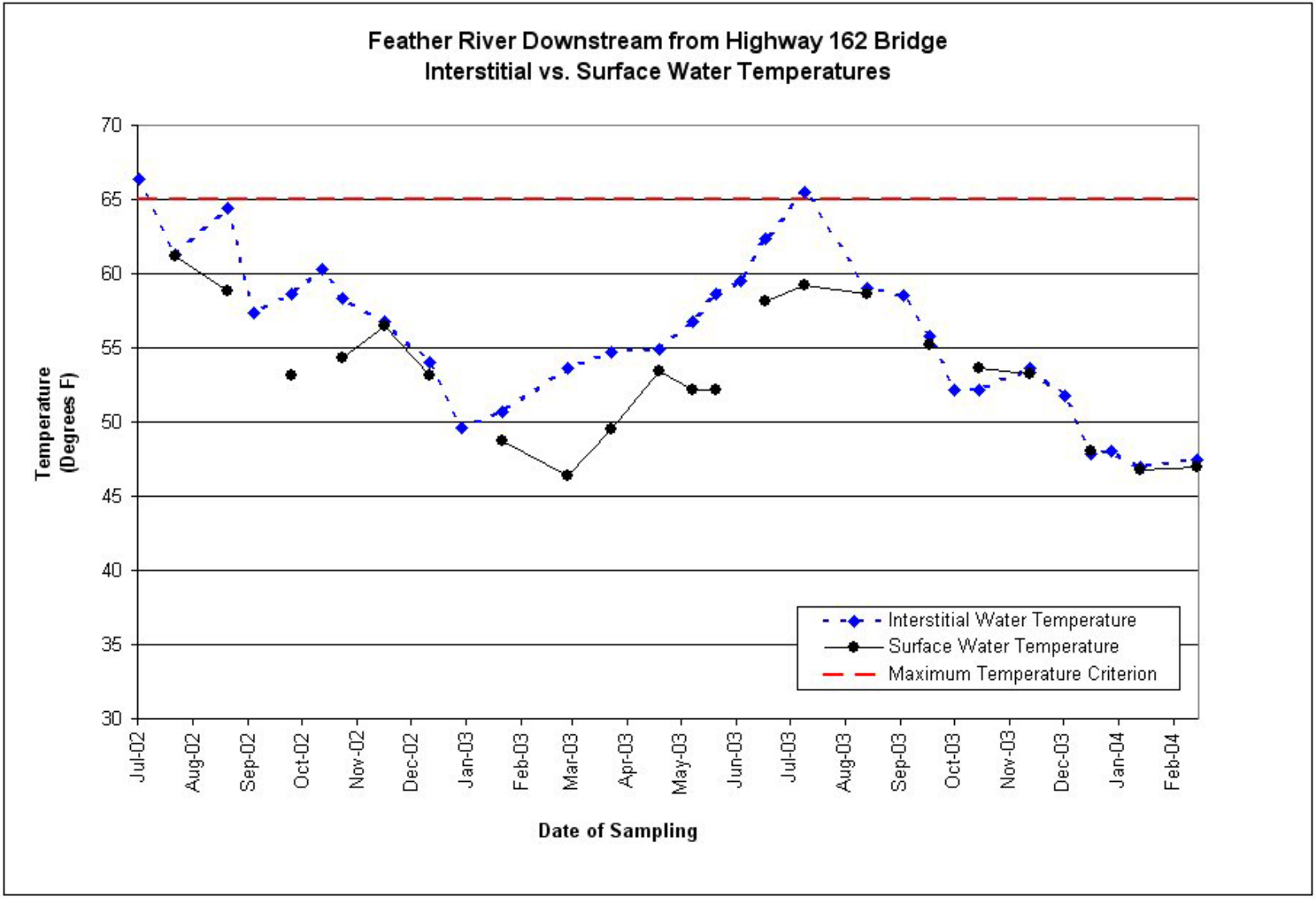
Interstitial							Surface						
Station Name	**Date**	**Temp (^oF)**	**DO (mg/L)**	**pH**	**EC (umhos /cm)**	**Total NH3 (mg/L)**	**Station Name**	**Date**	**Temp (^oF)**	**DO (mg/L)**	**pH**	**EC (umhos /cm)**	**Total NH3 (mg/L)**
FR nr Mile Long Pond	9/27/02	59.5	10.6	7.2	93	<0.1	FR nr Mile Long Pond	9/25/02	63.3	10.9	7.2	92	<0.1
FR nr Mile Long Pond	10/14/02	61.9	9.8	7.3	97	**0.1**	FR nr Mile Long Pond	10/22/02	62.1	10.4	7.4	96	<0.1
FR nr Mile Long Pond	11/18/02	55.6	10.9	7.3	102	-	FR nr Mile Long Pond	11/14/02	55.9	10.2	7.9	101	<0.1
FR nr Mile Long Pond	12/13/02	53.1	10.9	7.4	103	<0.082	FR nr Mile Long Pond	12/11/02	53.1	10.8	7.7	104	<0.1
FR nr Mile Long Pond	12/31/02	50.9	11.3	7.4	94	<0.082							
FR nr Mile Long Pond	1/23/03	53.2	11.9	7.5	91	<0.082	FR nr Mile Long Pond	1/14/03	50.2	11.7	7.3	93	
FR nr Mile Long Pond	2/28/03	51.8	12.0	7.4	88	<0.1	FR nr Mile Long Pond	2/20/03	49.5	12.6	7.5	85	<0.1
FR nr Mile Long Pond	3/25/03	63.1	12.0	8.1	85	<0.1	FR nr Mile Long Pond	3/19/03	58.1	12.0	8.3	86	<0.1
FR nr Mile Long Pond	4/21/03	-	-	7.5	87	<0.1	FR nr Mile Long Pond	4/17/03	59.7	11.8	7.9	86	<0.1
FR nr Mile Long Pond	5/9/03	61.7	10.1	7.4	88	<0.1	FR nr Mile Long Pond	5/15/03	66.6	10.8	8.2	82	<0.1
FR nr Mile Long Pond	5/22/03	67.3	6.4	7.2	84	<0.1	FR nr Mile Long Pond	5/15/03	66.6	10.8	8.2	82	<0.1
FR nr Mile Long Pond	6/5/03	67.6	10.5	7.7	81	<0.1							
FR nr Mile Long Pond	6/19/03	69.8	10.0	7.6	76	<0.1	FR nr Mile Long Pond	6/17/03	70.0	10.4	7.9	79	<0.1
FR nr Mile Long Pond	7/11/03	65.7	8.0	7.1	76	<0.1	FR nr Mile Long Pond	7/8/03	63.0	10.6	7.3	81	<0.1
FR nr Mile Long Pond	8/15/03	66.9	10.2	8.1	79	<0.1	FR nr Mile Long Pond	8/11/03	69.6	10.6	8.0	82	<0.1
FR nr Mile Long Pond	9/4/03	64.4	10.6	7.5	78	<0.1							
FR nr Mile Long Pond	9/19/03	63.3	9.5	7.3	76	<0.1	FR nr Mile Long Pond	9/17/03	64.0	11.5	7.9	80	<0.1
FR nr Mile Long Pond	10/3/03	63.3	10.4	7.5	79	<0.1							
FR nr Mile Long Pond	10/17/03	59.4	5.7	7.6	102	<0.1	FR nr Mile Long Pond	10/27/03	59.2	10.6	7.4	78	<0.1
FR nr Mile Long Pond	10/31/03	55.2	10.2	7.3	81	<0.1	FR nr Mile Long Pond	10/27/03	59.2	10.6	7.4	78	<0.1
FR nr Mile Long Pond	11/14/03	54.5	9.8	7.4	81	<0.1	FR nr Mile Long Pond	11/17/03	53.8	12.2	7.5		
FR nr Mile Long Pond	12/04/03	52.3	10.4	7.2	92	<0.1							
FR nr Mile Long Pond	12/18/03	50.0	10.1	7.4	92		FR nr Mile Long Pond	12/15/03	60.4	14.5	7.9	89	<0.1
FR nr Mile Long Pond	12/30/03	47.5	10.8	7.3	93								

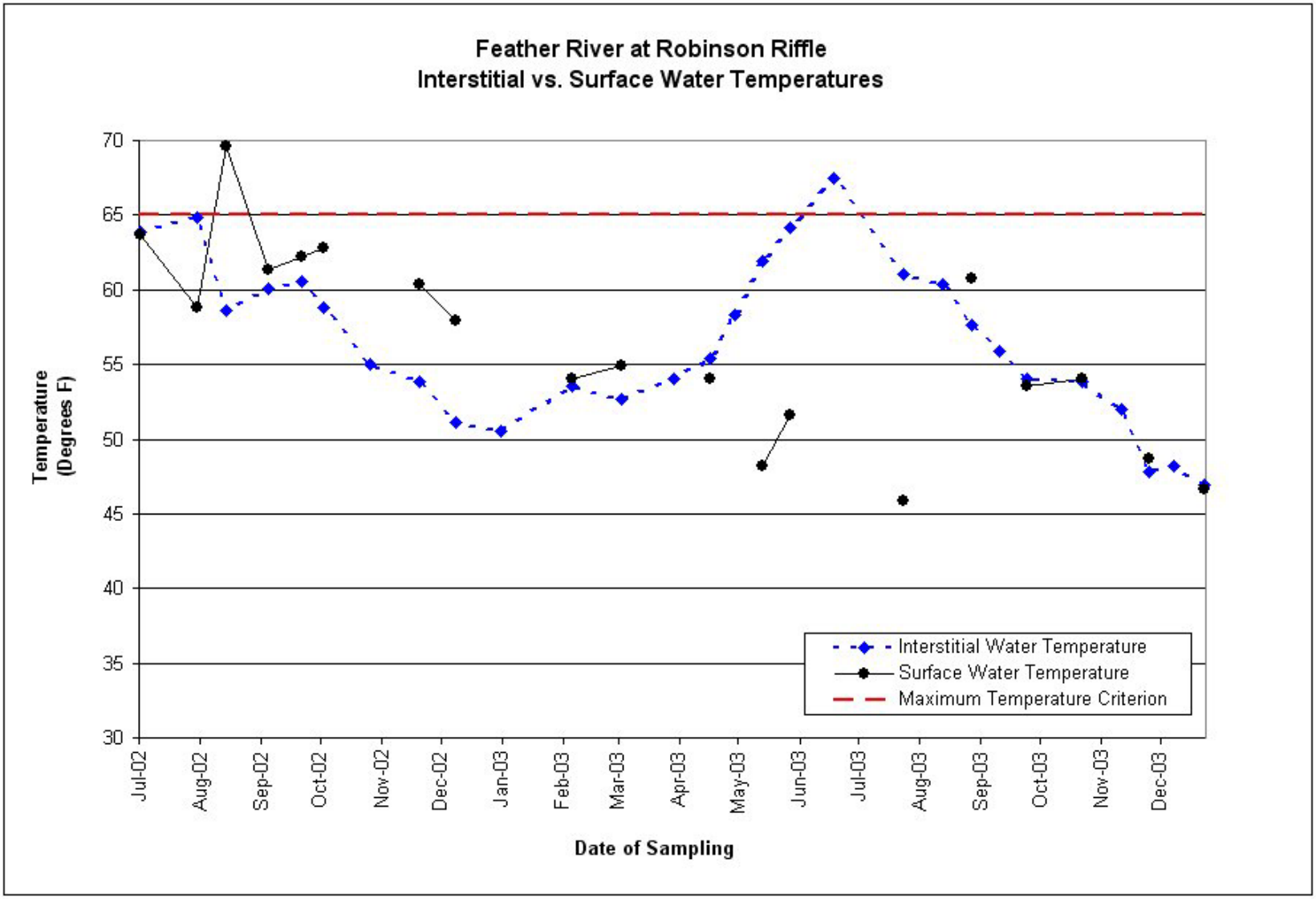
Appendix B. Comparison of interstitial and surface water temperatures at riffle water quality sites, lower FR (July 2002 to January 2004)

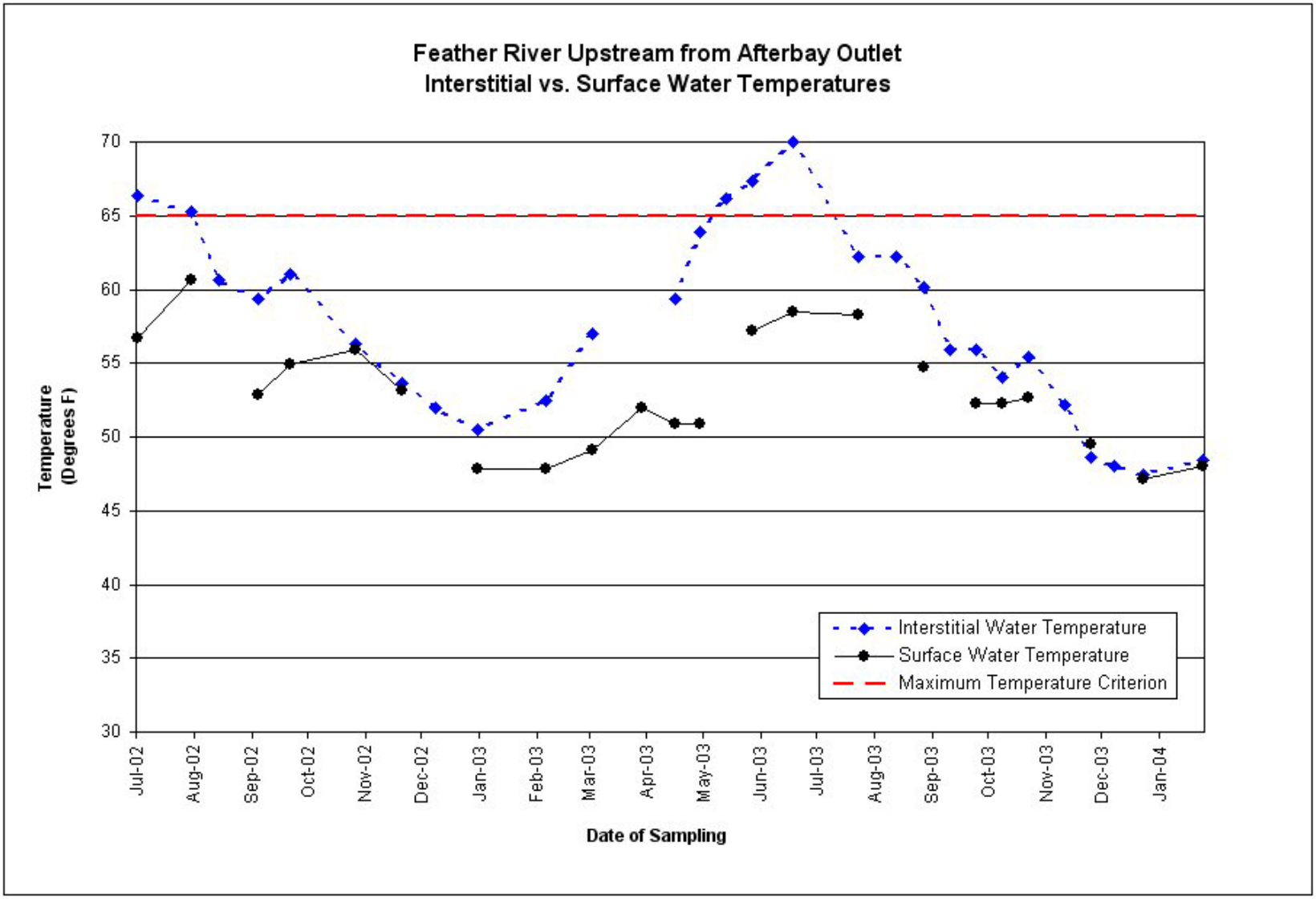

Feather River Upstream of Hatchery
Interstitial vs. Surface Water Temperatures
Temerature (Degrees F)
70
65
60
55
50
45
40
35
30
Jul-02
Aug-02
Sep-02
Oct-02
Nov-02
Dec-02
Jan-03
Feb-03
Mar-03
Apr-03
May-03
Jun-03
Jul-03
Aug-03
Sep-03
Oct-03
Nov-03
Dec-03
Jan-04
Feb-04
Date of Sampling
Interstitial Water Temperature
Surface Water Temperature
Maximum Temperature Criterion

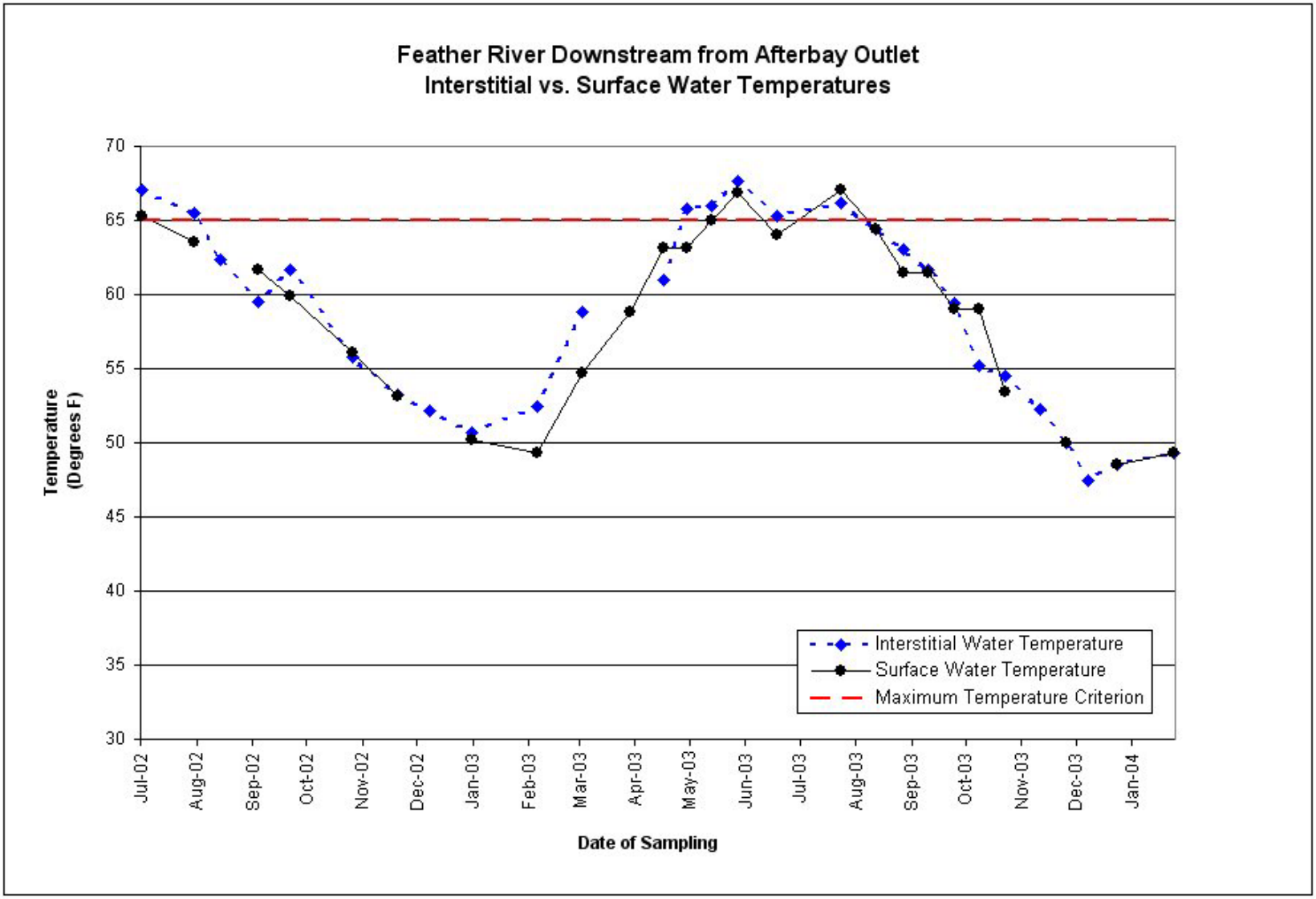

Feather River at Spawning Channel
Interstitial vs. Surface Water Temperatures
Temperature (Degrees F)
70
65
60
55
50
45
40
35
30
Jul-02
Aug-02
Sep-02
Oct-02
Nov-02
Dec-02
Jan-03
Feb-03
Mar-03
Apr-03
May-03
Jun-03
Jul-03
Aug-03
Sep-03
Oct-03
Nov-03
Dec-03
Jan-04
Feb-04
Date of Sampling
Interstitial Water Temperature
Surface Water Temperature
Maximum Temperature Criterion

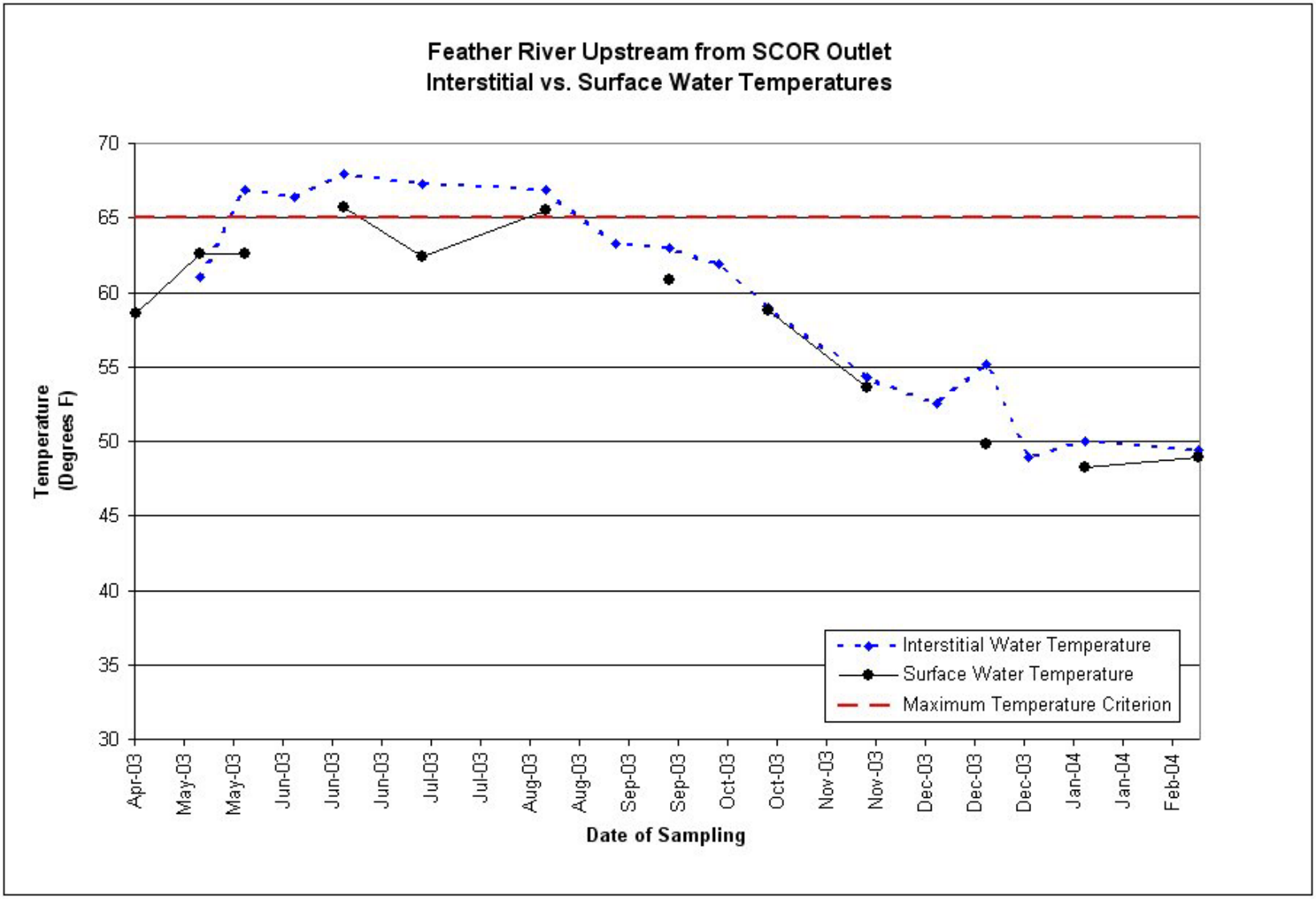

Feather River at Auditorium Riffle
Interstitial vs. Surface Water Temperatures
Temperature (Degrees F)
70
65
60
55
50
45
40
35
30
Jul-02
Aug-02
Sep-02
Oct-02
Nov-02
Dec-02
Jan-03
Feb-03
Mar-03
Apr-03
May-03
Jun-03
Jul-03
Aug-03
Sep-03
Oct-03
Nov-03
Dec-03
Jan-04
Date of Sampling
Interstitial Water Temperature
Surface Water Temperature
Maximum Temperature Criterion

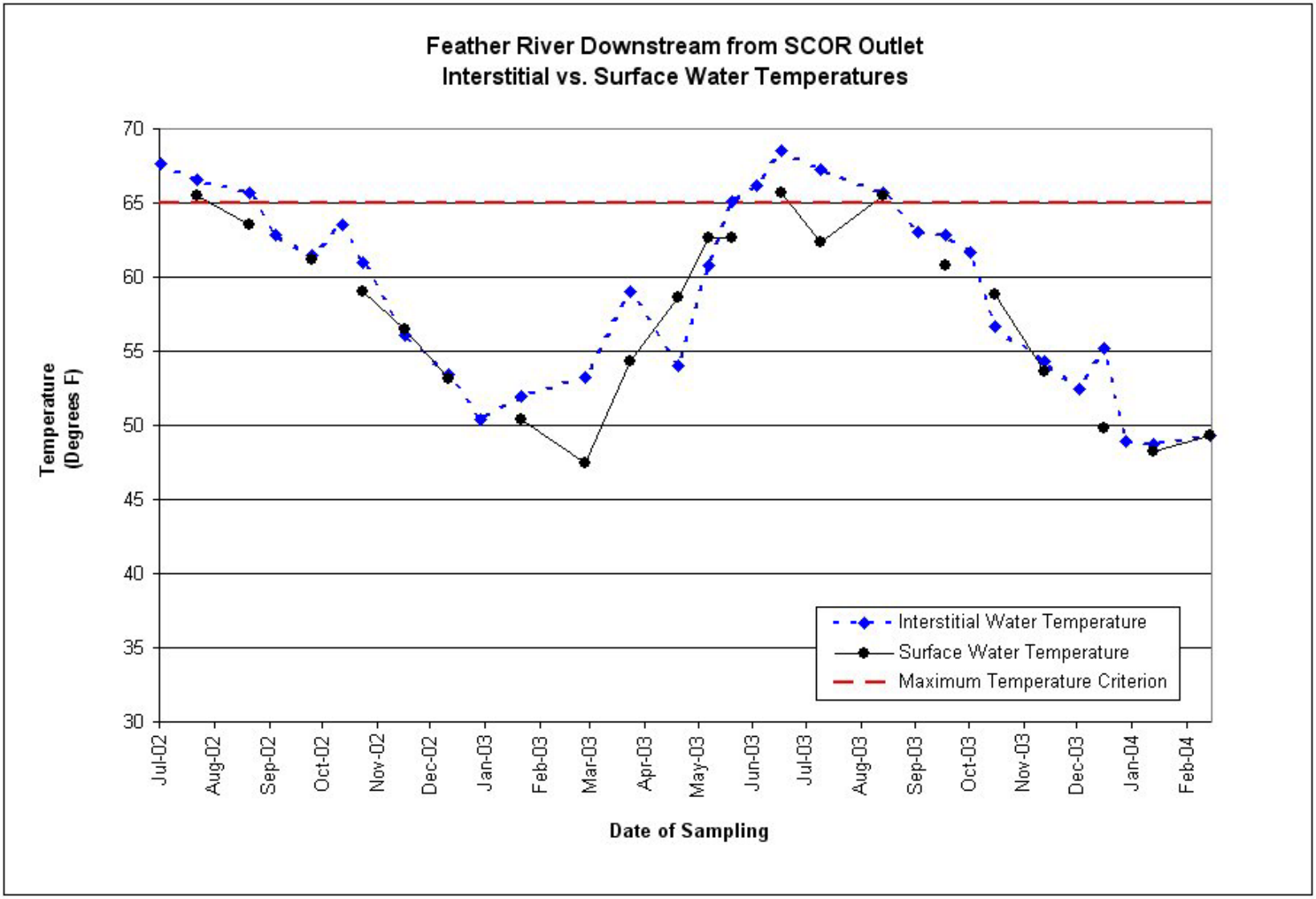

Feather River Downstream from Highway 162 Bridge
Interstitial vs. Surface Water Temperatures
Temperature (Degrees F)
70
65
60
55
50
45
40
35
30
Jul-02
Aug-02
Sep-02
Oct-02
Nov-02
Dec-02
Jan-03
Feb-03
Mar-03
Apr-03
May-03
Jun-03
Jul-03
Aug-03
Sep-03
Oct-03
Nov-03
Dec-03
Jan-04
Feb-04
Date of Sampling
Interstitial Water Temperature
Surface Water Temperature
Maximum Temperature Criterion

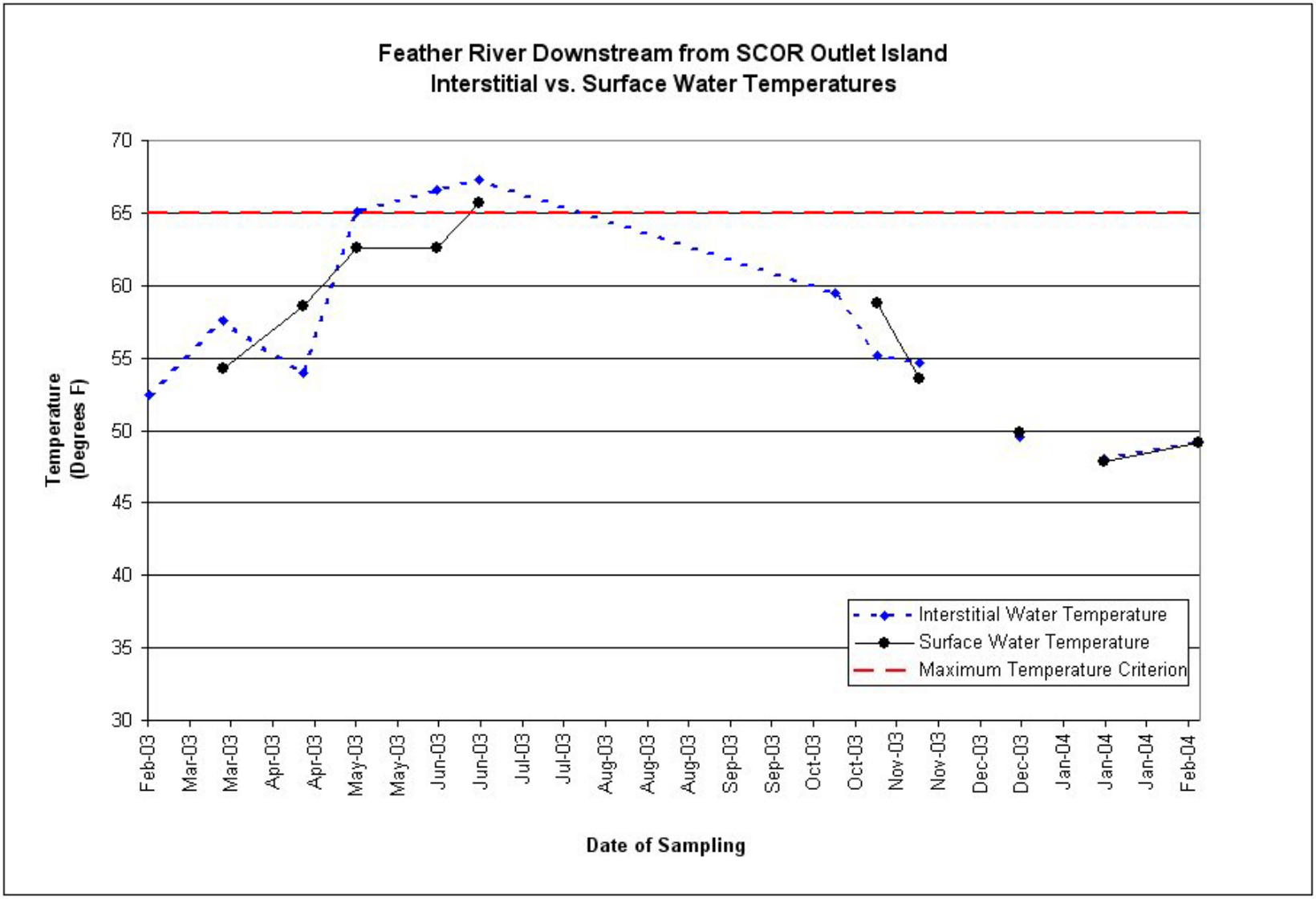

Feather River at Robinson Riffle
Interstitial vs. Surface Water Temperatures
Temperature (Degrees F)
70
65
60
55
50
45
40
35
30
Jul-02
Aug-02
Sep-02
Oct-02
Nov-02
Dec-02
Jan-03
Feb-03
Mar-03
Apr-03
May-03
Jun-03
Jul-03
Aug-03
Sep-03
Oct-03
Nov-03
Dec-03
Date of Sampling
Interstitial Water Temperature
Surface Water Temperature
Maximum Temperature Criterion

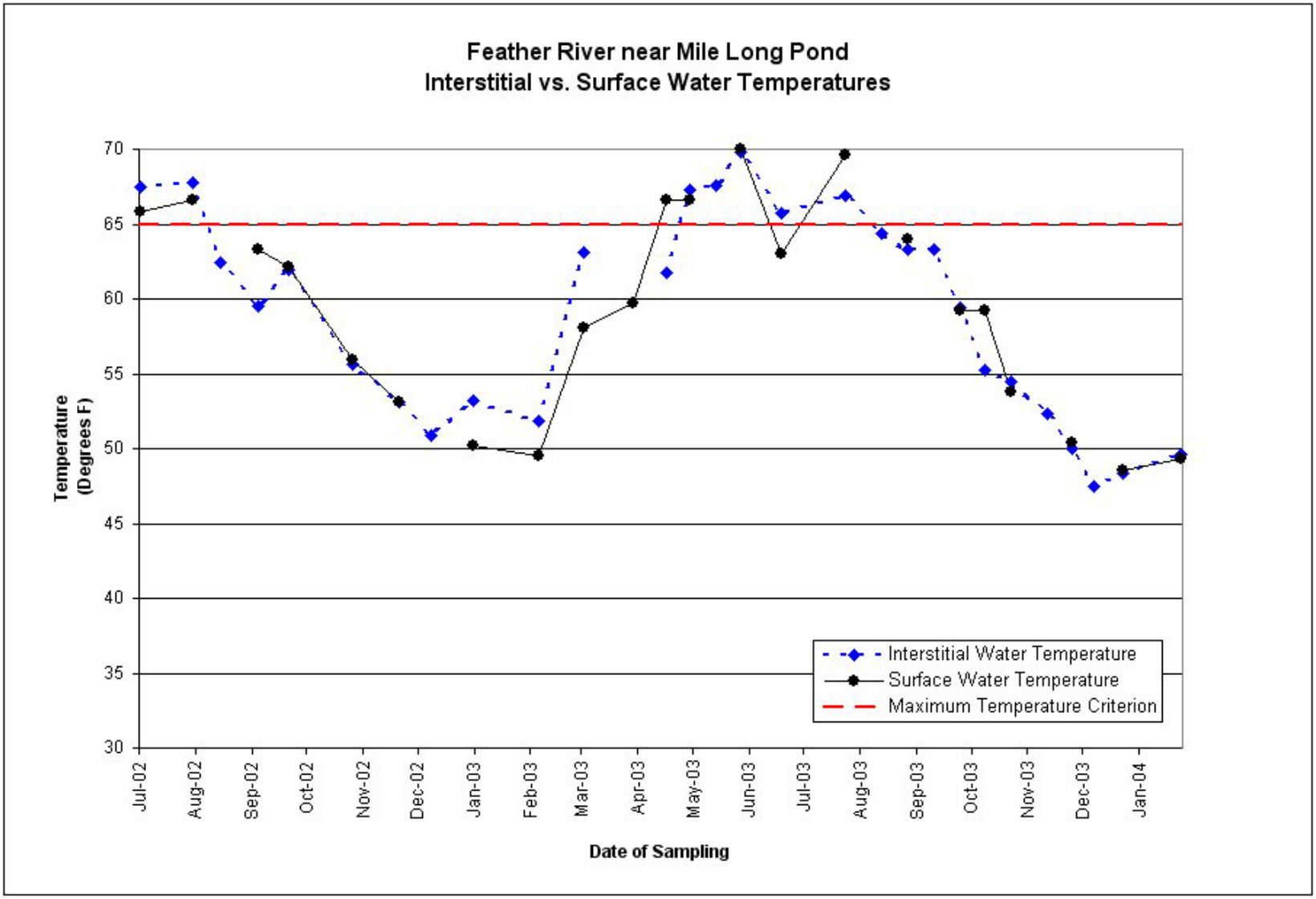

Feather River Upstream from Afterbay Outlet
Interstitial vs. Surface Water Temperatures
Temperature (Degrees F)
70
65
60
55
50
45
40
35
30
Jul-02
Aug-02
Sep-02
Oct-02
Nov-02
Dec-02
Jan-03
Feb-03
Mar-03
Apr-03
May-03
Jun-03
Jul-03
Aug-03
Sep-03
Oct-03
Nov-03
Dec-03
Jan-04
Date of Sampling
Interstitial Water Temperature
Surface Water Temperature
Maximum Temperature Criterion


Feather River Downstream from Afterbay Outlet
Interstitial vs. Surface Water Temperatures
Temperature (Degrees F)
70
65
60
55
50
45
40
35
30
Jul-02
Aug-02
Sep-02
Oct-02
Nov-02
Dec-02
Jan-03
Feb-03
Mar-03
Apr-03
May-03
Jun-03
Jul-03
Aug-03
Sep-03
Oct-03
Nov-03
Dec-03
Jan-04
Date of Sampling
Interstitial Water Temperature
Surface Water Temperature
Maximum Temperature Criterion

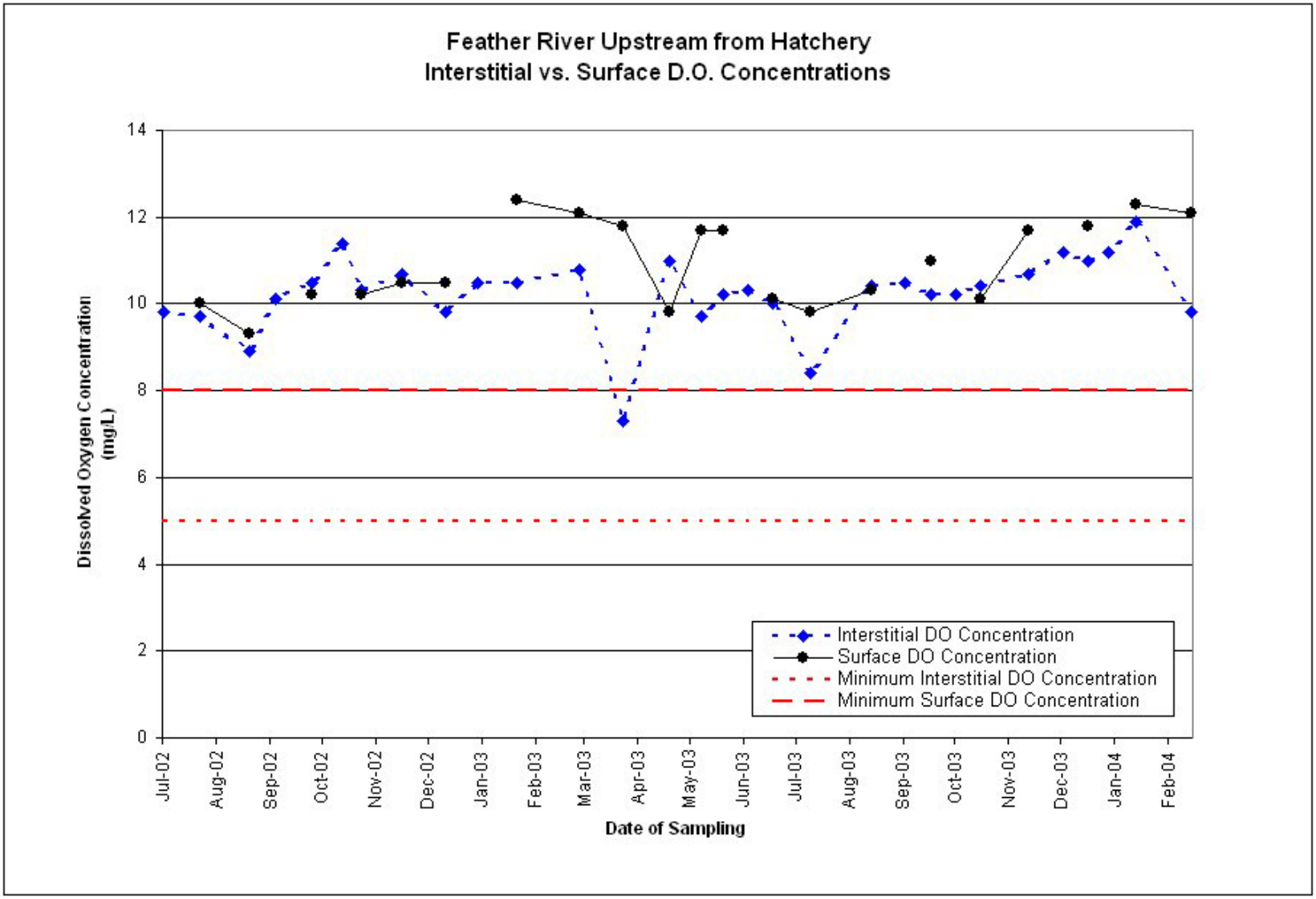

Feather River Upstream from SCOR Outlet
Interstitial vs. Surface Water Temperatures
Temperature (Degrees F)
70
65
60
55
50
45
40
35
30
Apr-03
May-03
May-03
Jun-03
Jun-03
Jun-03
Jul-03
Jul-03
Aug-03
Aug-03
Sep-03
Sep-03
Oct-03
Oct-03
Nov-03
Nov-03
Dec-03
Dec-03
Dec-03
Jan-04
Jan-04
Feb-04
Date of Sampling
Interstitial Water Temperature
Surface Water Temperature
Maximum Temperature Criterion

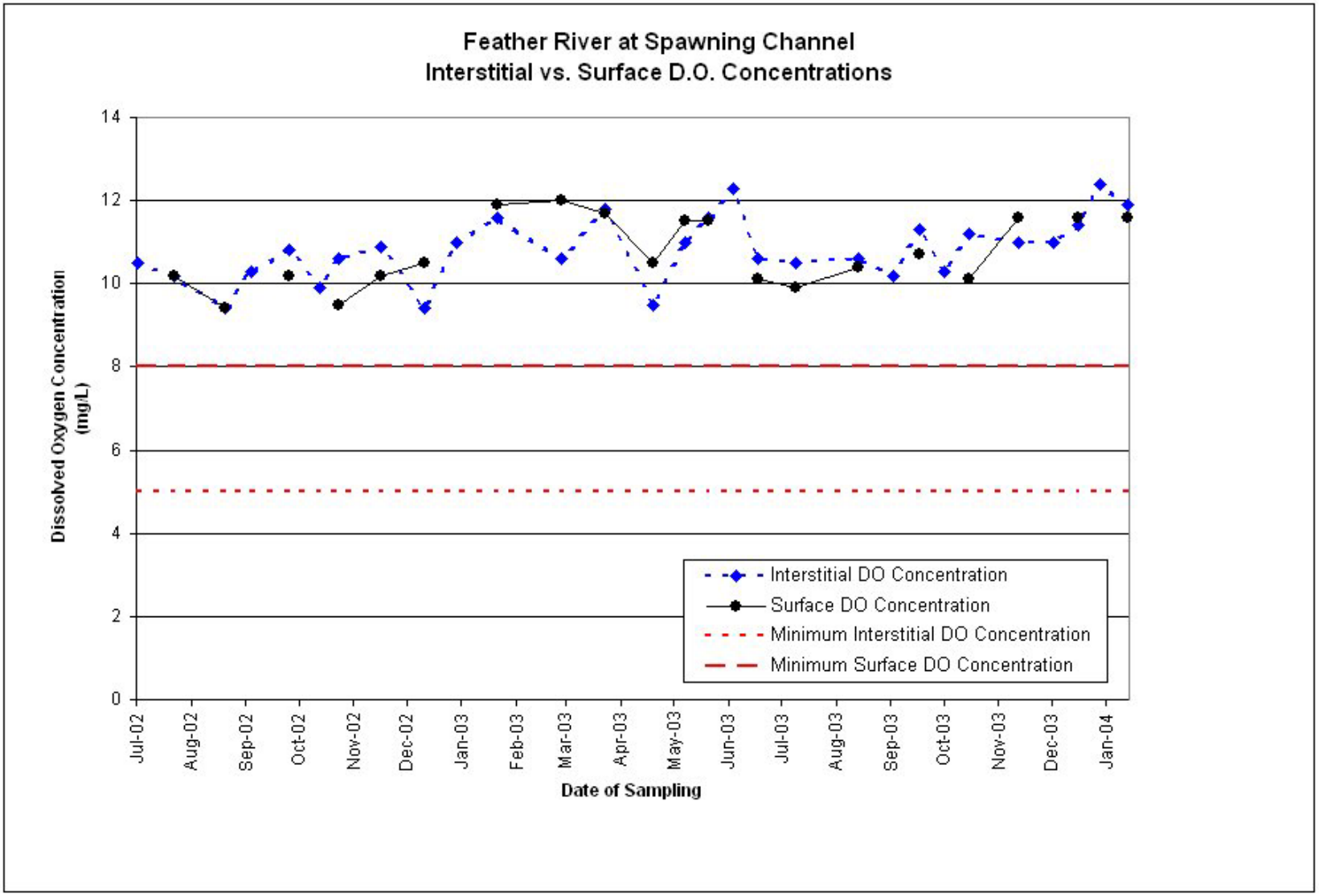

Feather River Downstream from SCOR Outlet
Interstitial vs. Surface Water Temperatures
Temperature (Degrees F)
70
65
60
55
50
45
40
35
30
Jul-02
Aug-02
Sep-02
Oct-02
Nov-02
Dec-02
Jan-03
Feb-03
Mar-03
Apr-03
May-03
Jun-03
Jul-03
Aug-03
Sep-03
Oct-03
Nov-03
Dec-03
Jan-04
Feb-04
Date of Sampling
Interstitial Water Temperature
Surface Water Temperature
Maximum Temperature Criterion

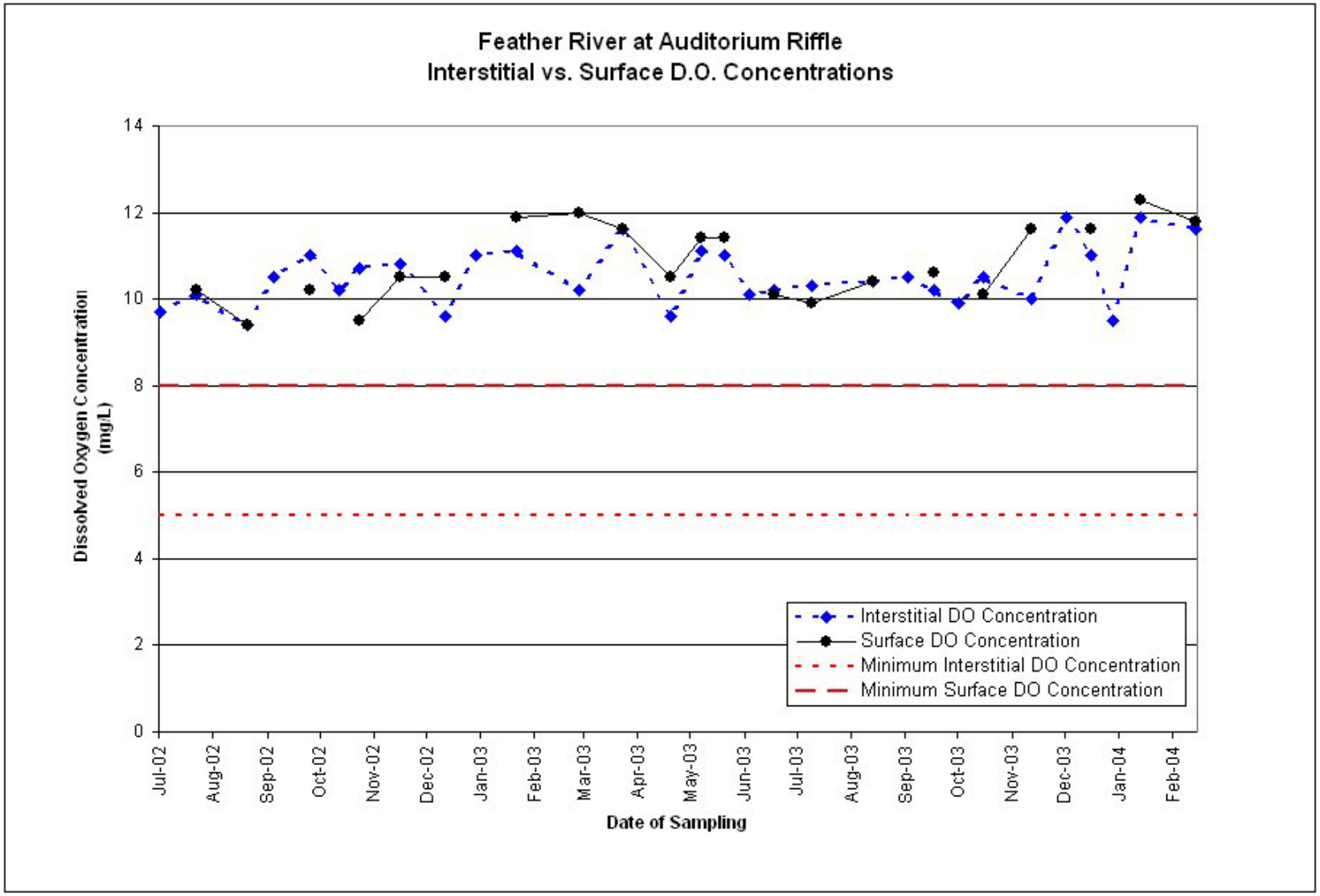

Feather River Downstream from SCOR Outlet Island
Interstitial vs. Surface Water Temperatures
Temperature (Degrees F)
70
65
60
55
50
45
40
35
30
Feb-03
Mar-03
Mar-03
Apr-03
Apr-03
May-03
May-03
Jun-03
Jun-03
Jul-03
Jul-03
Aug-03
Aug-03
Aug-03
Sep-03
Sep-03
Oct-03
Oct-03
Nov-03
Nov-03
Dec-03
Dec-03
Jan-04
Jan-04
Jan-04
Feb-04
Date of Sampling
Interstitial Water Temperature
Surface Water Temperature
Maximum Temperature Criterion

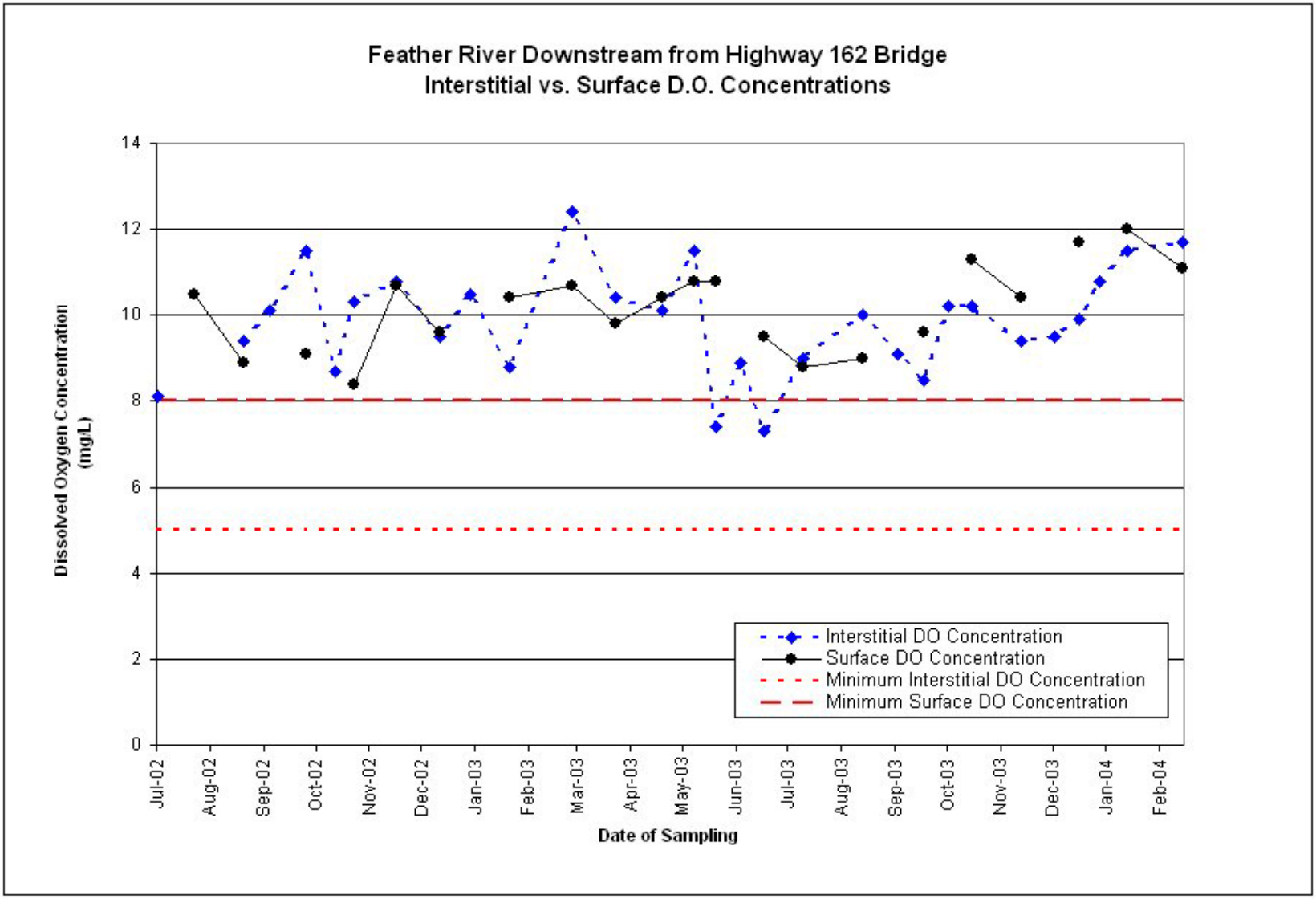

Feather River near Mile Long Pond
Interstitial vs. Surface Water Temperatures
Temperature (Degrees F)
70
65
60
55
50
45
40
35
30
Jul-02
Aug-02
Sep-02
Oct-02
Nov-02
Dec-02
Jan-03
Feb-03
Mar-03
Apr-03
May-03
Jun-03
Jul-03
Aug-03
Sep-03
Oct-03
Nov-03
Dec-03
Jan-04
Date of Sampling
Interstitial Water Temperature
Surface Water Temperature
Maximum Temperature Criterion

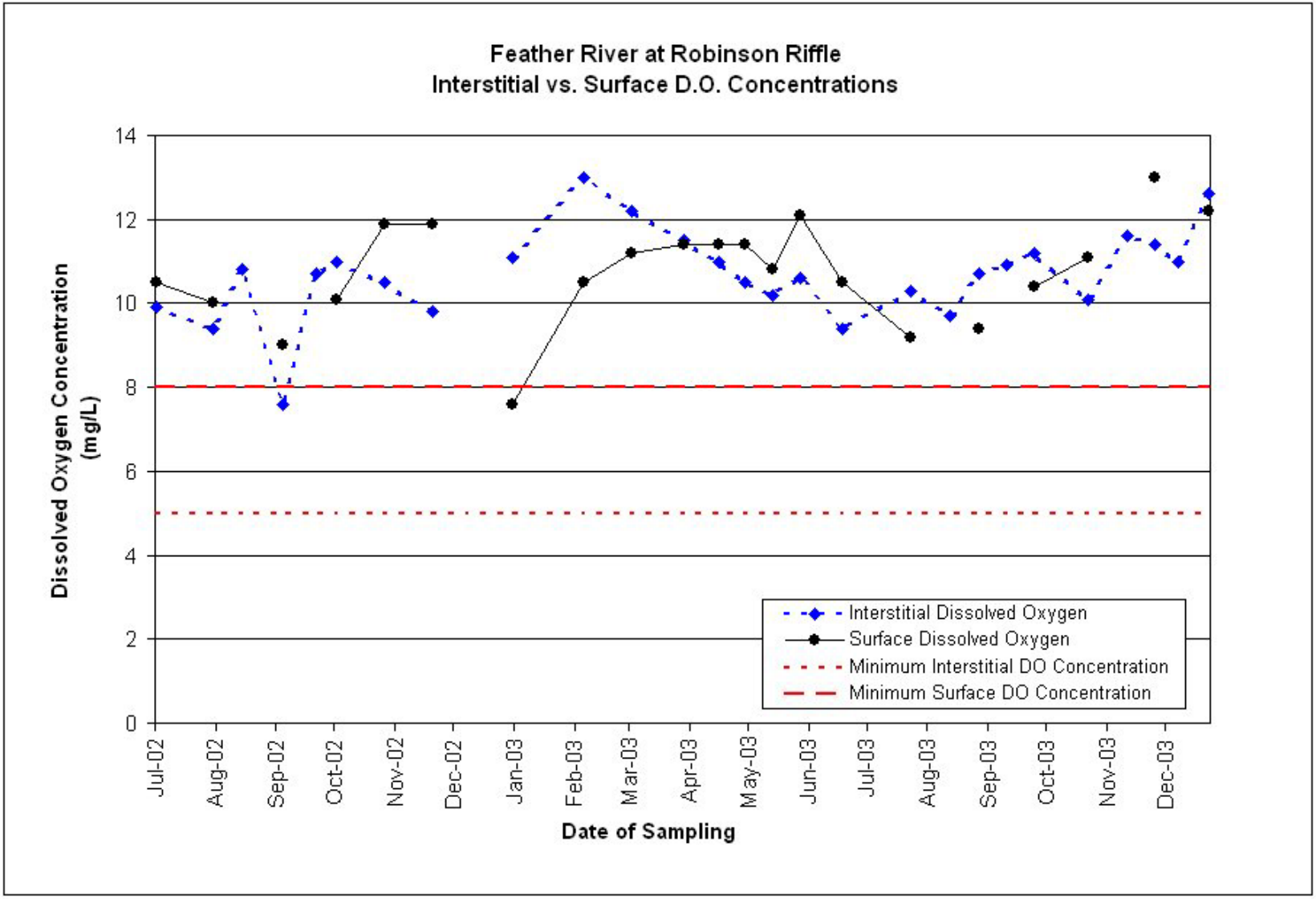
Appendix C. Comparison of interstitial and surface dissolved oxygen concentrations at riffle water quality sites, lower FR (July 2002 to January 2004)

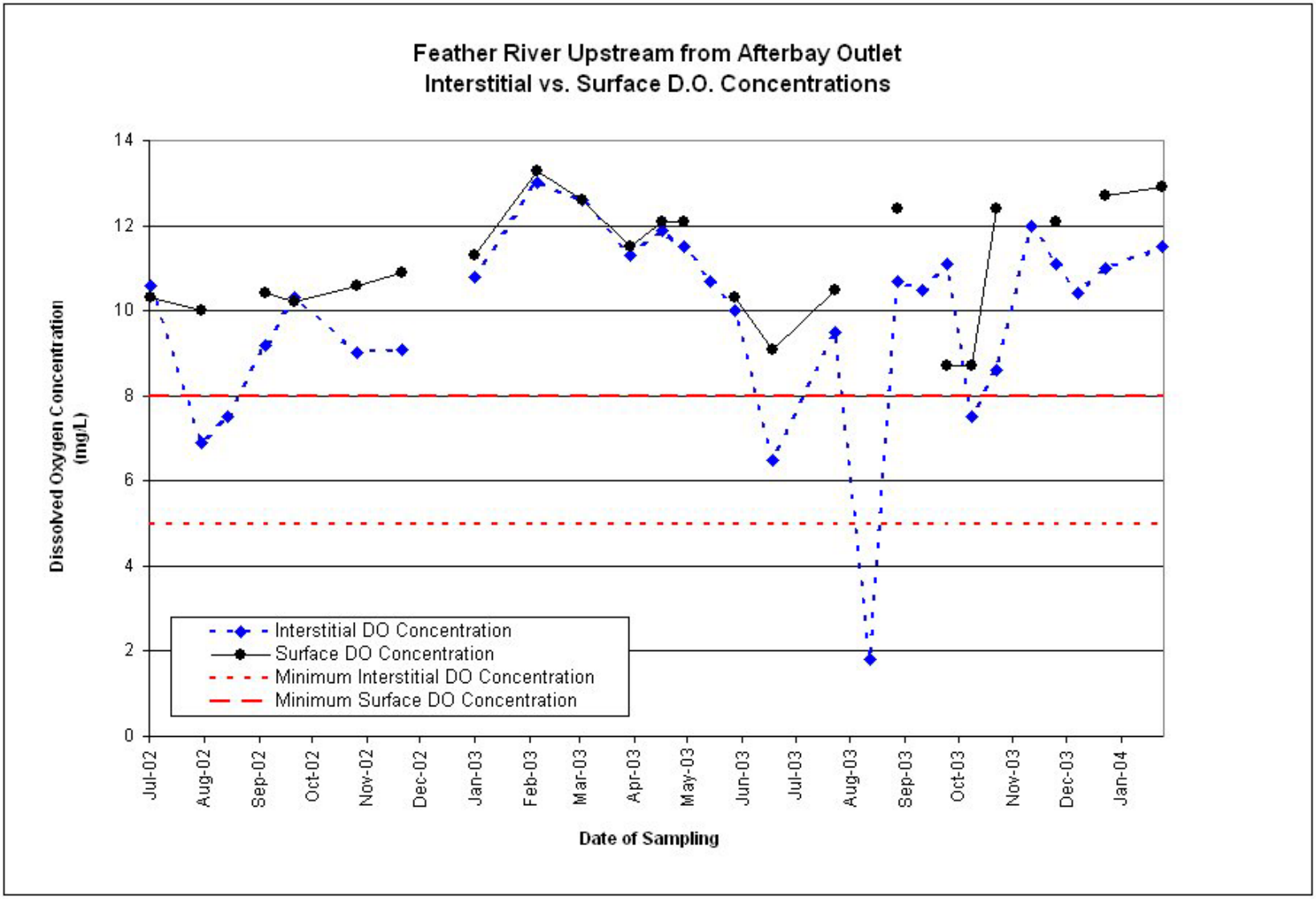

Feather River Upstream from Hatchery
Interstitial vs. Surface D.O. Concentrations
Dissolved Oxygen Concentration (mg/L)
0
2
4
6
8
10
12
14
Jul-02
Aug-02
Sep-02
Oct-02
Nov-02
Dec-02
Jan-03
Feb-03
Mar-03
Apr-03
May-03
Jun-03
Jul-03
Aug-03
Sep-03
Oct-03
Nov-03
Dec-03
Jan-04
Feb-04
Date of Sampling
Interstitial DO Concentration
Surface DO Concentration
Minimum Interstitial DO Concentration
Minimum Surface DO Concentration

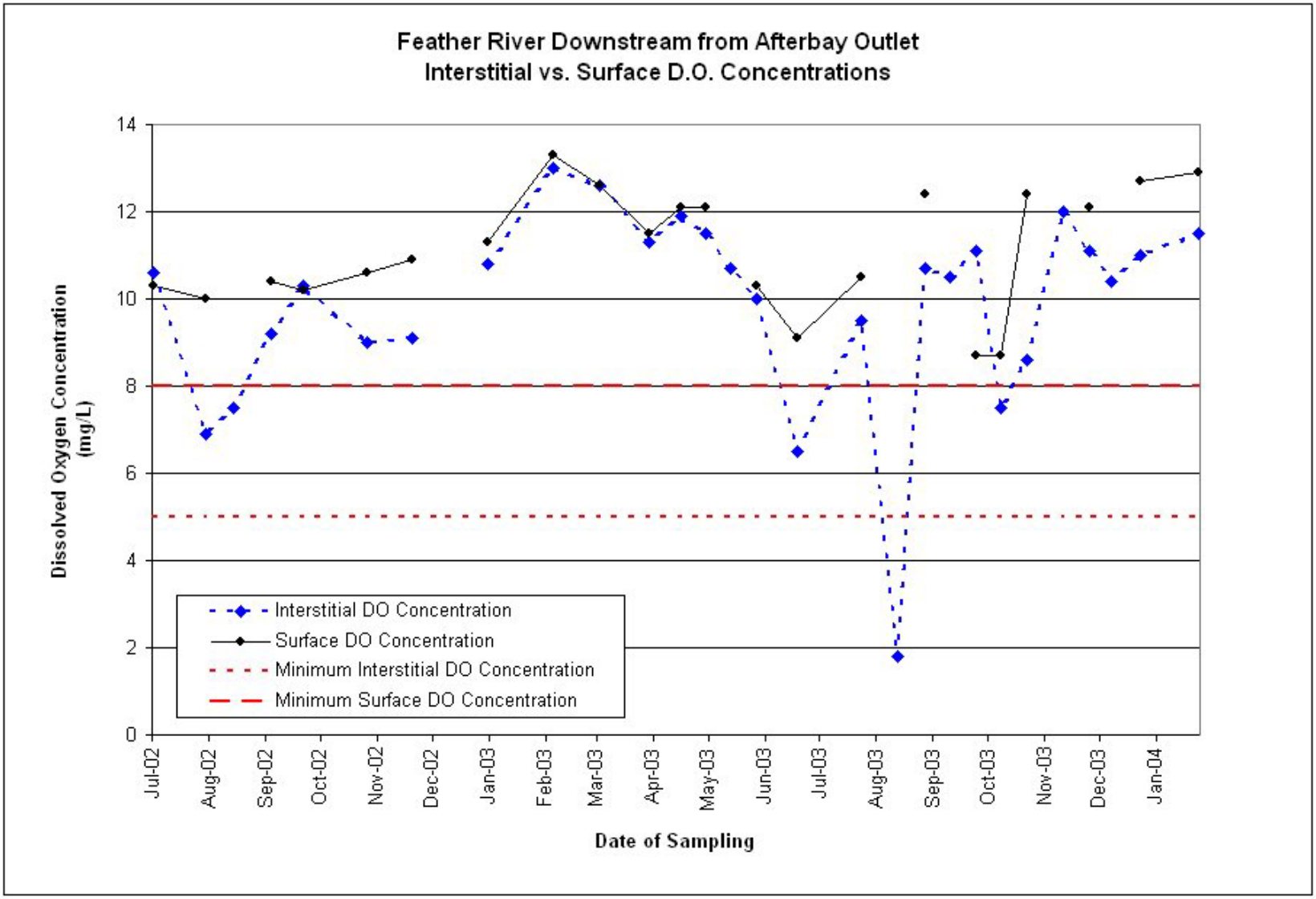

Feather River at Spawning Channel
Interstitial vs. Surface D.O. Concentrations
Dissolved Oxygen Concentration (mg/L)
14
12
10
8
6
4
2
0
Jul-02
Aug-02
Sep-02
Oct-02
Nov-02
Dec-02
Jan-03
Feb-03
Mar-03
Apr-03
May-03
Jun-03
Jul-03
Aug-03
Sep-03
Oct-03
Nov-03
Dec-03
Jan-04
Date of Sampling
Interstitial DO Concentration
Surface DO Concentration
Minimum Interstitial DO Concentration
Minimum Surface DO Concentration

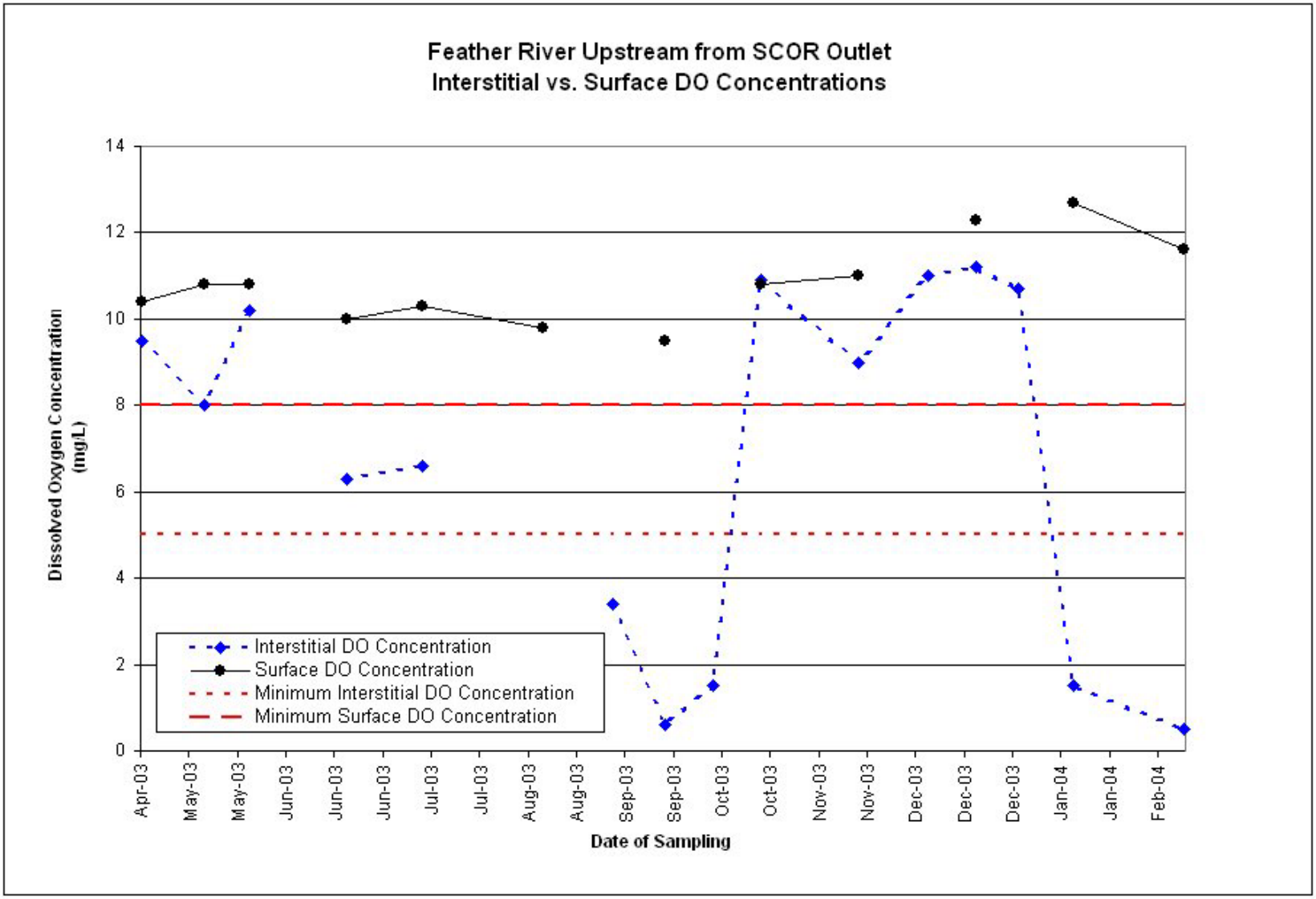

Feather River at Auditorium Riffle
Interstitial vs. Surface D.O. Concentrations
Dissolved Oxygen Concentration (mg/L)
14
12
10
8
6
4
2
0
Jul-02
Aug-02
Sep-02
Oct-02
Nov-02
Dec-02
Jan-03
Feb-03
Mar-03
Apr-03
May-03
Jun-03
Jul-03
Aug-03
Sep-03
Oct-03
Nov-03
Dec-03
Jan-04
Feb-04
Date of Sampling
Interstitial DO Concentration
Surface DO Concentration
Minimum Interstitial DO Concentration
Minimum Surface DO Concentration

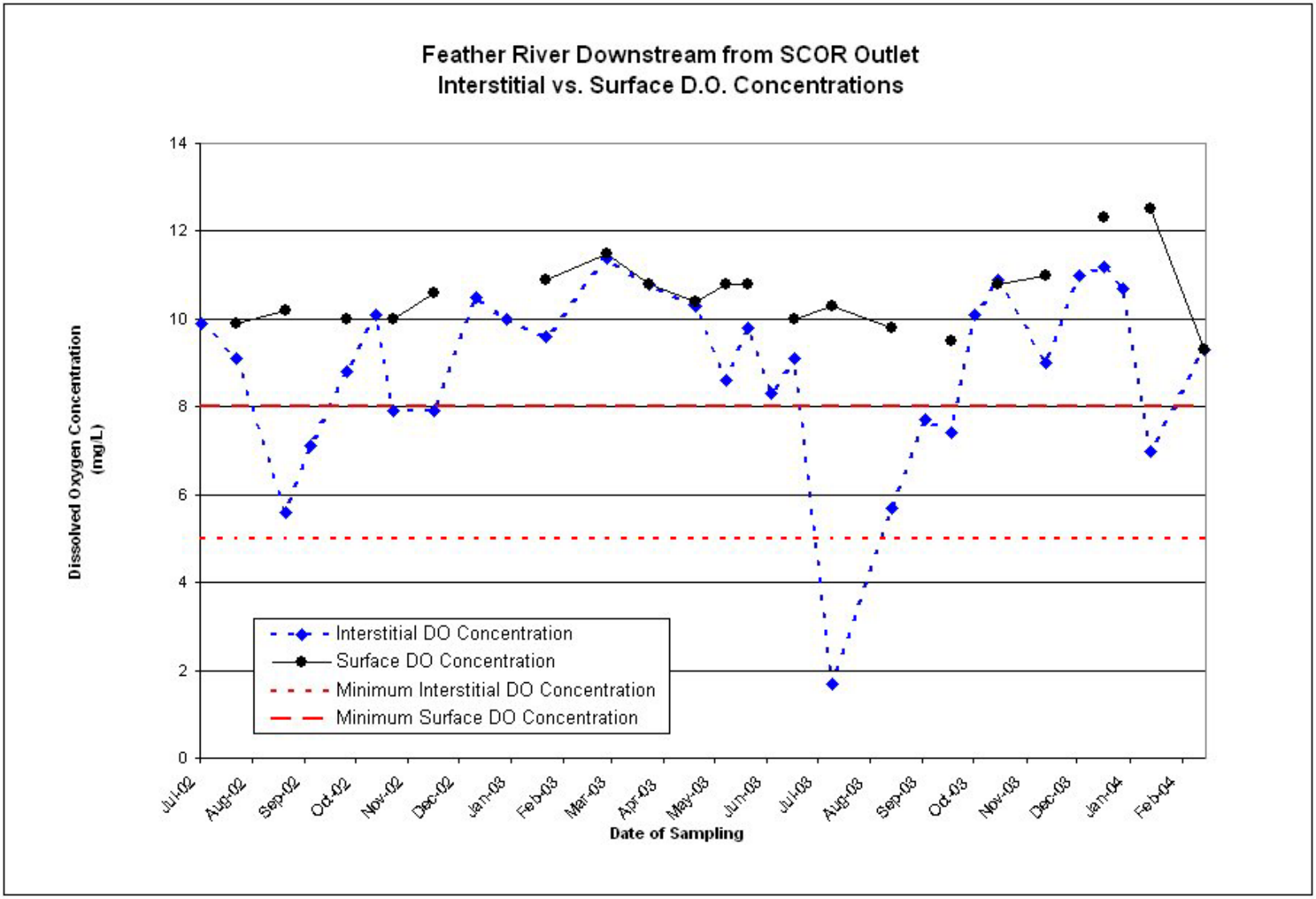

Feather River Downstream from Highway 162 Bridge
Interstitial vs. Surface D.O. Concentrations
Dissolved Oxygen Concentration (mg/L)
14
12
10
8
6
4
2
0
Jul-02
Aug-02
Sep-02
Oct-02
Nov-02
Dec-02
Jan-03
Feb-03
Mar-03
Apr-03
May-03
Jun-03
Jul-03
Aug-03
Sep-03
Oct-03
Nov-03
Dec-03
Jan-04
Feb-04
Date of Sampling
Interstitial DO Concentration
Surface DO Concentration
Minimum Interstitial DO Concentration
Minimum Surface DO Concentration

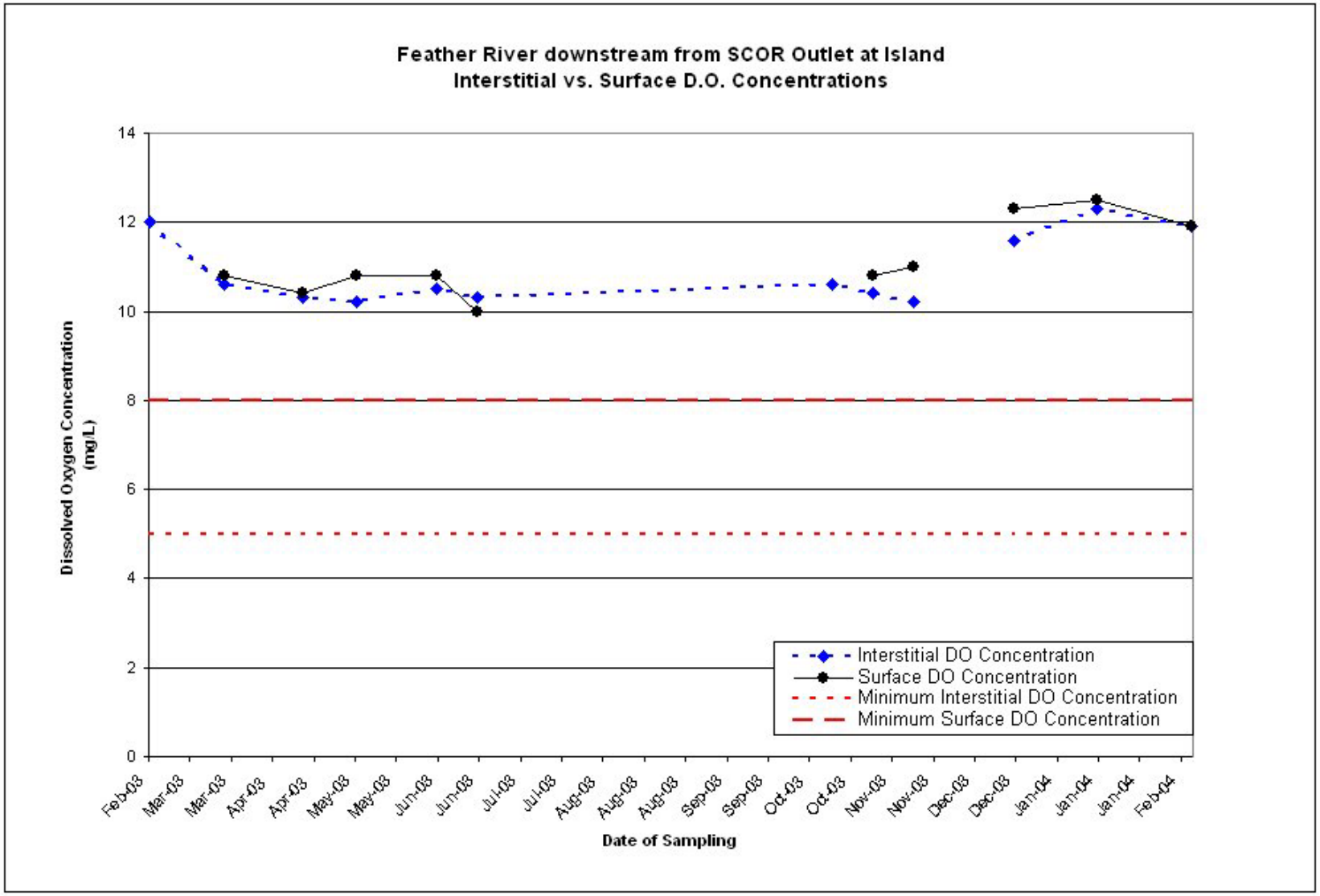

Feather River at Robinson Riffle
Interstitial vs. Surface D.O. Concentrations
Dissolved Oxygen Concentration (mg/L)
14
12
10
8
6
4
2
0
Jul-02
Aug-02
Sep-02
Oct-02
Nov-02
Dec-02
Jan-03
Feb-03
Mar-03
Apr-03
May-03
Jun-03
Jul-03
Aug-03
Sep-03
Oct-03
Nov-03
Dec-03
Date of Sampling
Interstitial Dissolved Oxygen
Surface Dissolved Oxygen
Minimum Interstitial DO Concentration
Minimum Surface DO Concentration

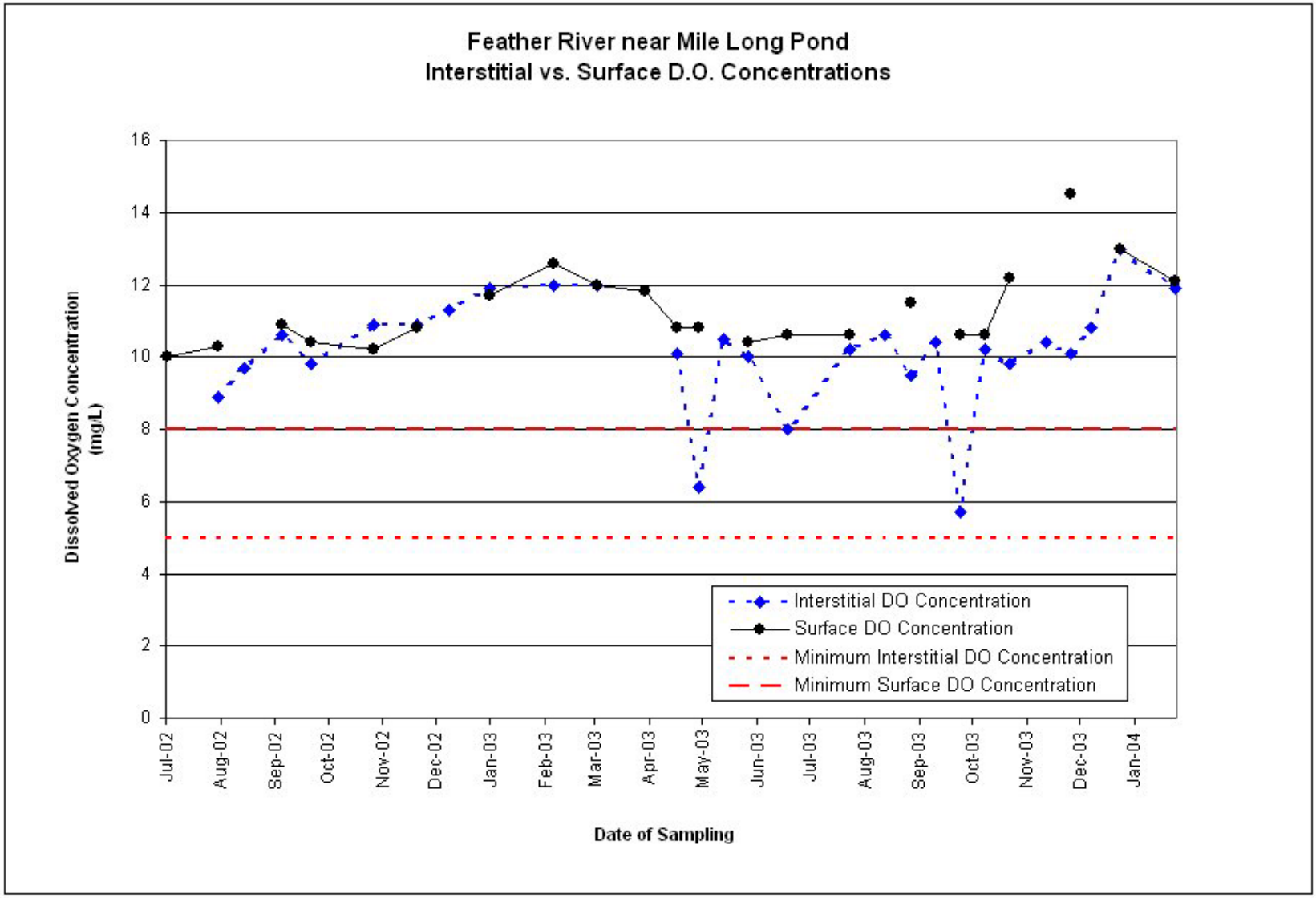

Feather River Upstream from Afterbay Outlet
Interstitial vs. Surface D.O. Concentrations
Dissolved Oxygen Concentration (mg/L)
0
2
4
6
8
10
12
14
Jul-02
Aug-02
Sep-02
Oct-02
Nov-02
Dec-02
Jan-03
Feb-03
Mar-03
Apr-03
May-03
Jun-03
Jul-03
Aug-03
Sep-03
Oct-03
Nov-03
Dec-03
Jan-04
Date of Sampling
Interstitial DO Concentration
Surface DO Concentration
Minimum Interstitial DO Concentration
Minimum Surface DO Concentration


Feather River Downstream from Afterbay Outlet
Interstitial vs. Surface D.O. Concentrations
Dissolved Oxygen Concentration (mg/L)
14
12
10
8
6
4
2
0
Jul-02
Aug-02
Sep-02
Oct-02
Nov-02
Dec-02
Jan-03
Feb-03
Mar-03
Apr-03
May-03
Jun-03
Jul-03
Aug-03
Sep-03
Oct-03
Nov-03
Dec-03
Jan-04
Date of Sampling
Interstitial DO Concentration
Surface DO Concentration
Minimum Interstitial DO Concentration
Minimum Surface DO Concentration


Feather River Upstream from SCOR Outlet
Interstitial vs. Surface DO Concentrations
Dissolved Oxygen Concentration (mg/L)
14
12
10
8
6
4
2
0
Apr-03
May-03
May-03
Jun-03
Jun-03
Jun-03
Jul-03
Jul-03
Aug-03
Aug-03
Sep-03
Sep-03
Oct-03
Oct-03
Nov-03
Nov-03
Dec-03
Dec-03
Dec-03
Jan-04
Jan-04
Feb-04
Date of Sampling
Interstitial DO Concentration
Surface DO Concentration
Minimum Interstitial DO Concentration
Minimum Surface DO Concentration


Feather River Downstream from SCOR Outlet
Interstitial vs. Surface D.O. Concentrations
Dissolved Oxygen Concentration (mg/L)
14
12
10
8
6
4
2
0
Interstitial DO Concentration
Surface DO Concentration
Minimum Interstitial DO Concentration
Minimum Surface DO Concentration
Jul-02
Aug-02
Sep-02
Oct-02
Nov-02
Dec-02
Jan-03
Feb-03
Mar-03
Apr-03
May-03
Jun-03
Jul-03
Aug-03
Sep-03
Oct-03
Nov-03
Dec-03
Jan-04
Feb-04
Date of Sampling


Feather River downstream from SCOR Outlet at Island
Interstitial vs. Surface D.O. Concentrations
Dissolved Oxygen Concentration (mg/L)
14
12
10
8
6
4
2
0
Feb-03
Mar-03
Mar-03
Apr-03
Apr-03
May-03
May-03
Jun-03
Jun-03
Jul-03
Jul-03
Aug-03
Aug-03
Aug-03
Sep-03
Sep-03
Oct-03
Oct-03
Nov-03
Nov-03
Dec-03
Dec-03
Jan-04
Jan-04
Jan-04
Feb-04
Date of Sampling
Interstitial DO Concentration
Surface DO Concentration
Minimum Interstitial DO Concentration
Minimum Surface DO Concentration


Feather River near Mile Long Pond
Interstitial vs. Surface D.O. Concentrations
Dissolved Oxygen Concentration (mg/L)
16
14
12
10
8
6
4
2
0
Jul-02
Aug-02
Sep-02
Oct-02
Nov-02
Dec-02
Jan-03
Feb-03
Mar-03
Apr-03
May-03
Jun-03
Jul-03
Aug-03
Sep-03
Oct-03
Nov-03
Dec-03
Jan-04
Date of Sampling
Interstitial DO Concentration
Surface DO Concentration
Minimum Interstitial DO Concentration
Minimum Surface DO Concentration

Appendix D USEPA dissolved oxygen criteria for freshwater aquatic life (USEPA, 2002)

	USEPA National Recommended Water Quality Criteria to Protect Freshwater Aquatic Life				
	Dissolved Oxygen (mg/L)				
	Coldwater Criteria			Warmwater Criteria	
	Early Life Stages (a,b)		Other Life Stages	Early Life Stages (b)	Other Life Stages
	Water Column	Intergravel			
30-Day Mean	Not applicable	Not applicable	6.5	Not applicable	5.5
7-Day Mean	9.5	6.5	Not applicable	6.0	Not applicable
7-Day Mean Minimum	Not applicable	Not applicable	5.0	Not applicable	4.0
1-Day Minimum	8.0	5.0	3.0	5.0	3.0

Notes:

(a) The water column concentrations are recommended to achieve the required intergravel dissolved oxygen concentrations. For species that have early life stages exposed directly to the water column, the intergravel concentrations apply.

(b) Includes all embryonic and larval stages and all juvenile forms to 30-days following hatching.

(c) For reservoir and other manipulable discharges, the application of the one day minimum criterion must limit either the frequency of occurrence of values below the acceptable 7-day mean minimum or must impose further limits on the extent of excursions below the 7-day mean minimum. For such controlled discharges, it is recommended that the occurrence of the daily minima below the acceptable 7-day mean minimum be limited to 3 weeks per year or that the acceptable one-day minimum be increased to 4.0 mg/L for coldwater fish and 3.5 mg/L for warmwater fish.

Appendix E. Water quality goals for inorganic constituents. Freshwater aquatic life – ammonia

FRESHWATER AQUATIC LIFE - AMMONIA

USEPA National Recommended Water Quality Criteria to Protect Freshwater Aquatic Life
Total Ammonia Nitrogen

	Continuous Concentration, 30-day Average (mg N/L)‡																				Maximum Concentration 1-hour Average (mg N/L)		
	Fish Early Life Stages Present										Fish Early Life Stages Absent												
	Temperature, degrees C										Temperature, degrees C												
pH	0	14	16	18	20	22	24	26	28	30	0-7	8	9	10	11	12	13	14	15 †	16 †	Salmonids Present	Salmonids Absent	pH
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46	10.8	10.1	9.51	8.92	8.36	7.84	7.35	6.89	6.46	6.06	32.6	48.8	6.5
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42	10.7	9.99	9.37	8.79	8.24	7.72	7.24	6.79	6.36	5.97	31.3	46.8	6.6
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37	10.5	9.81	9.20	8.62	8.08	7.58	7.11	6.66	6.25	5.86	29.8	44.6	6.7
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32	10.2	9.58	8.98	8.42	7.90	7.40	6.94	6.51	6.10	5.72	28.0	42.0	6.8
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33	5.93	5.56	26.2	39.2	6.9
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11	5.73	5.37	24.1	36.1	7.0
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86	5.49	5.15	21.9	32.9	7.1
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57	5.22	4.90	19.7	29.5	7.2
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87	8.24	7.73	7.25	6.79	6.37	5.97	5.60	5.25	4.92	4.61	17.5	26.2	7.3
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74	7.69	7.21	6.76	6.33	5.94	5.57	5.22	4.89	4.59	4.30	15.3	23.0	7.4
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51	4.23	3.97	13.3	19.9	7.5
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11	3.85	3.61	11.4	17.0	7.6
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70	3.47	3.25	9.64	14.4	7.7
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	8.11	12.1	7.8
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	2.71	2.54	6.77	10.1	7.9
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897	3.95	3.70	3.47	3.26	3.05	2.86	2.68	2.52	2.36	2.21	5.62	8.41	8.0
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773	3.41	3.19	2.99	2.81	2.63	2.47	2.31	2.17	2.03	1.91	4.64	6.95	8.1
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.85	1.74	1.63	3.83	5.73	8.2
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562	2.47	2.32	2.18	2.04	1.91	1.79	1.68	1.58	1.48	1.39	3.15	4.71	8.3
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475	2.09	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25	1.17	2.59	3.88	8.4
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401	1.77	1.66	1.55	1.46	1.37	1.28	1.20	1.13	1.06	0.990	2.14	3.20	8.5
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339	1.49	1.40	1.31	1.23	1.15	1.08	1.01	0.951	0.892	0.836	1.77	2.65	8.6
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287	1.26	1.18	1.11	1.04	0.976	0.915	0.858	0.805	0.754	0.707	1.47	2.20	8.7
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244	1.07	1.01	0.944	0.885	0.829	0.778	0.729	0.684	0.641	0.601	1.23	1.84	8.8
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208	0.917	0.860	0.806	0.756	0.709	0.664	0.623	0.584	0.548	0.513	1.04	1.56	8.9
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179	0.790	0.740	0.694	0.651	0.610	0.572	0.536	0.503	0.471	0.442	0.885	1.32	9.0

Notes:

† At 15 C and above, the criterion for fish early life stages absent is the same as the criterion for fish early life stages present.

‡ In addition, the highest four-day average within the 30-day period should not exceed 2.5 times the Criteria Continuous Concentration shown in the above table.

Criteria Continuous Concentration

30-day average total ammonia nitrogen (in mg N/L) ‡

when fish early life stages are present:

$$CCC = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}}\right) \times MIN\left(2.85, 1.45 \times 10^{0.028 \times (25-T)}\right)$$

when fish early life stages are absent:

$$CCC = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}}\right) \times 1.45 \times 10^{0.028 \times (25-MAX(T,7))}$$

where T = temperature in degrees C

Criteria Maximum Concentration

1-hour average total ammonia nitrogen (in mg N/L)

where salmonid fish are present:

$$CMC = \frac{0.275}{1+10^{7.204-pH}} + \frac{39.0}{1+10^{pH-7.204}}$$

where salmonid fish are not present:

$$CMC = \frac{0.411}{1+10^{7.204-pH}} + \frac{58.4}{1+10^{pH-7.204}}$$