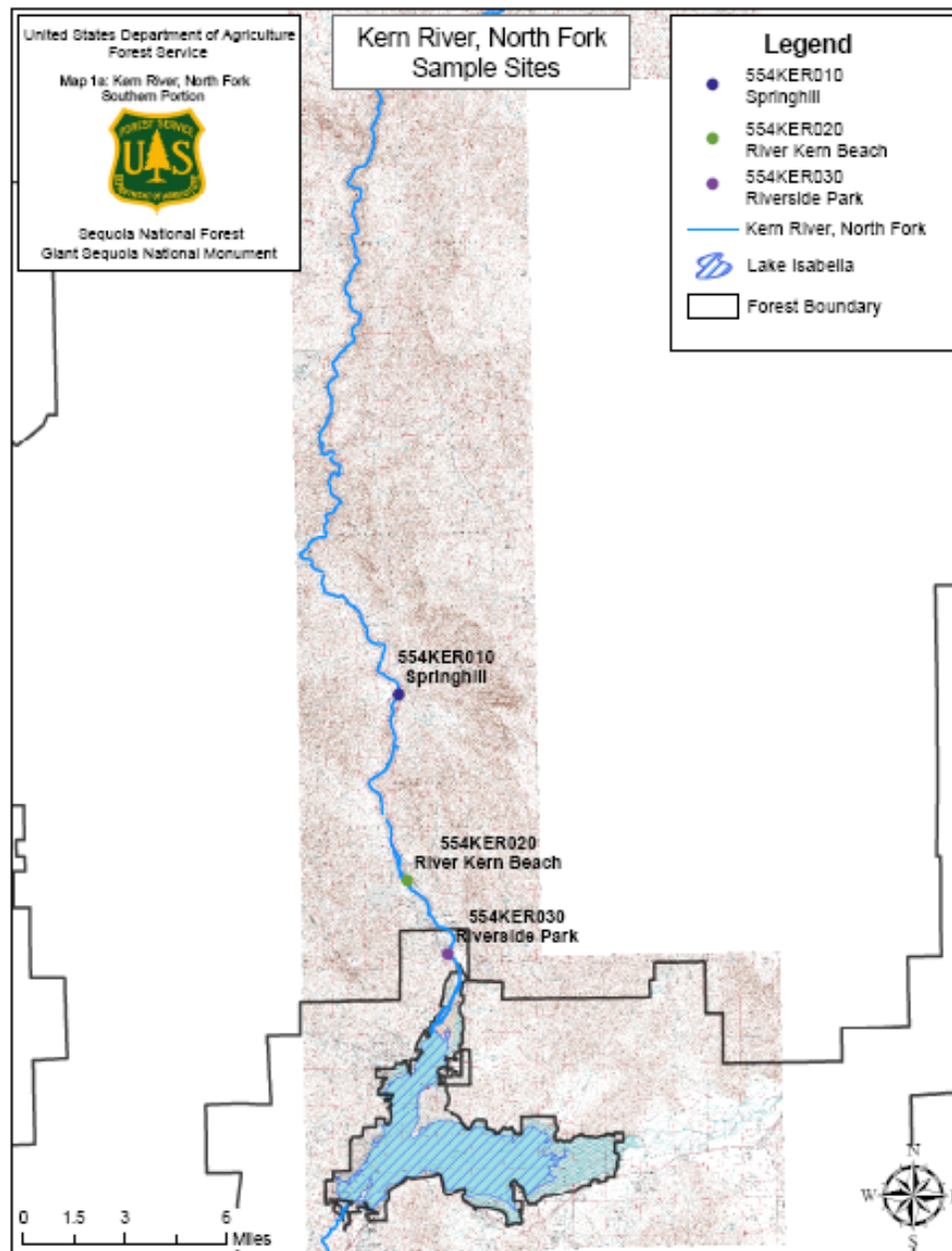


Enclosure 1

Data Provided by Board for Proposed 303(d) Streams Most Sampling between 3/2002 and 5/2004 Upper Kern River, Lake Isabella, Lower Kern River, Deer Creek, and Hume Lake

Upper Kern River Sampling Data and Map

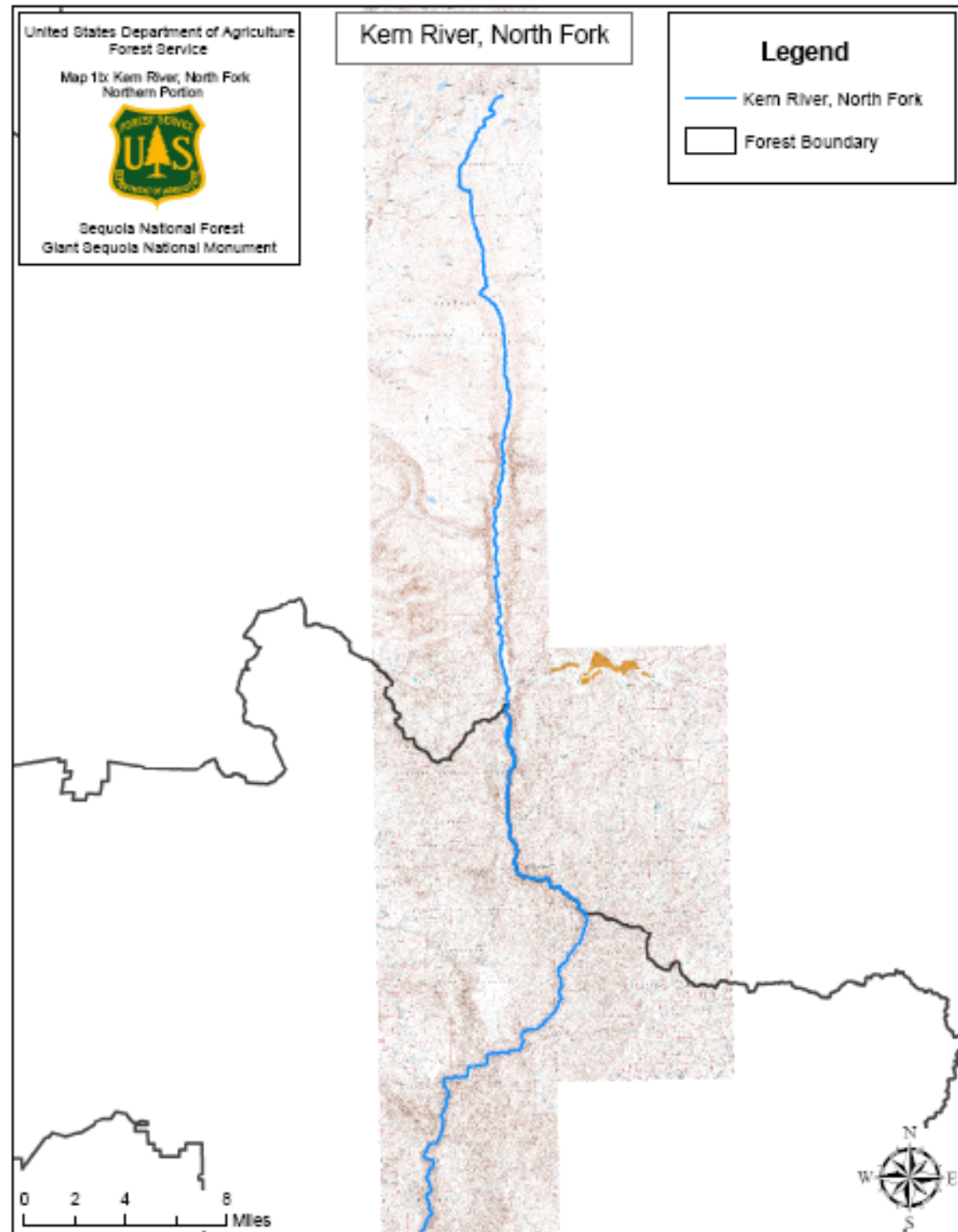
North Fk Kern Sampling Sites/Station Code	Sampling Dates	Data Range (pH)
Springhill	3/27/2002	8.5
	6/20/2002	8.4
	9/17/2002	8.6
	12/11/2002	8.5
	3/3/2003	8.3
	6/26/2003	8.5
	11/3/2003	8.3
	2/3/2004	8.5
	5/25/2004	7.93
Kern River	3/27/2002	8.3
	6/19/2002	8.4
	9/17/2002	8.6
	12/11/2002	7.9
	3/3/2003	8.7
	6/26/2003	8.2
	11/3/2003	8.3
	2/3/2004	8.55
	5/25/2004	7.83
Riverside Park	3/27/2002	8.4
	6/19/2002	8.3
	9/17/2002	8.5
	12/11/2002	8.1
	3/3/2003	8.7
	6/26/2003	8.1
	11/3/2003	8.3
	2/3/2004	8.6
	5/25/2004	7.78



Map of North Fork Kern showing extension of proposed water segment upstream from data points on above map.

Fire Date	NAME	SIZE
6/2/2002	ROCKY	500
6/15/2002	BOREL	3,430
7/21/2002	MC NALLY	150,696
6/26/2003	SAWMILL	536
7/30/2003	CHINA	509
7/31/2003	COONEY	1,850
9/3/2003	HOOKE	2,241
9/3/2003	ALBANITA	2,242
8/21/2003	WEST KERN	4,458
6/16/2004	CRAG	861
7/22/2004	CAMP	691
	TOTAL	168,014

Fires Effecting Water Quality in the North Fork, Lower Kern and Lake Isabella



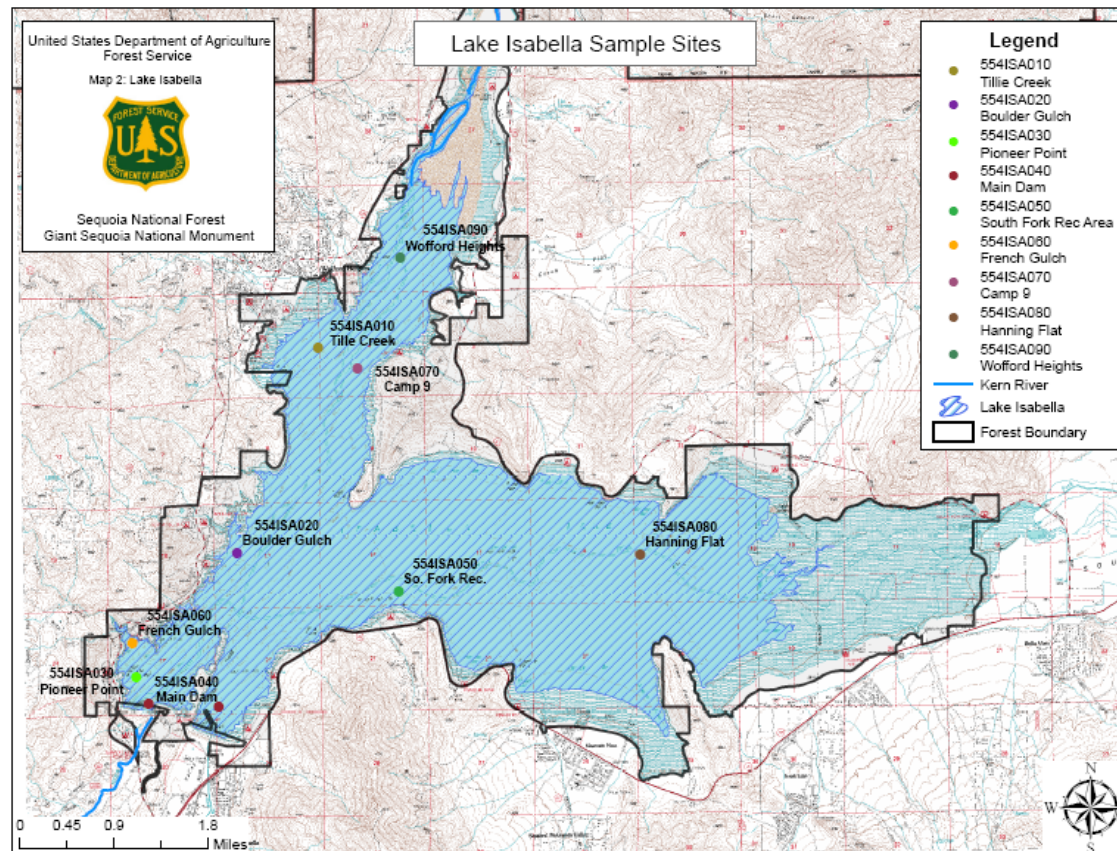
Lake Isabella Sampling Data and Map

Lake Isabella Sampling Sites/Station Code	Sampling Date	Data Range (pH)	Data Range DO (mg/L)
Tillie Creek 554ISA010	3/28/2002	8.4	9.83
	6/20/2002	8.5	8.28
	9/17/2002	8.3	8.17
	12/11/2002	7.8	5.49
	3/3/2003	8.3	11.46
	6/25/2003	9	9.45
	11/3/2003	8.4	N/A
	2/3/2004	8.8	11.22
Boulder Gulch 554ISA020	5/25/2004	8.55	9.65
	3/28/2002	8.2	10.17
	6/19/2002	8.5	8.41
	9/17/2002	8.3	7.81
	12/11/2002	7.4	5.24
	3/3/2003	8.1	11.37

Pioneer Point 554ISA030	6/25/2003	8.7	8.6
	11/3/2003	8	N/A
	2/3/2004	9	11.3
	5/25/2004	8.52	9.51
Main Dam 554ISA040	12/11/2002	7.4	4.46
	3/28/2002	8.5	9.59
	6/19/2002	8.4	8.55
	9/17/2002	8.3	6.03
	12/11/2002	7.7	4.72
	3/3/2003	8.3	10.36
	6/25/2003	8.5	8.14
	11/3/2003	7.9	N/A
	2/3/2004	8.95	11.75
	5/25/2004	8.3	9.42
South Fork Rec Area 554ISA050	3/28/2002	8.4	10.27
	6/19/2002	8.5	8.5
	9/17/2002	8.3	7.85

French Gulch 554ISA060	12/11/2002	8.1	5.21
	3/3/2003	8.9	11.39
	6/25/2003	8.2	8.31
	11/3/2003	8.5	N/A
	2/3/2004	9.1	11.2
	5/25/2004	8.77	9.21
	3/28/2002	8.4	10.05
	6/19/2002	N/A	8.66
	9/17/2002	8.3	6.53
	12/11/2002	7.5	4.2
Camp 9 554ISA070	3/3/2003	8.1	10.63
	6/25/2003	8.5	8.85
	11/3/2003	7.9	N/A
	2/3/2004	9.1	12.44
	5/25/2004	8.48	9.44
	3/28/2002	8.9	10.11
	6/20/2002	8.1	8.54
	9/17/2002	8.1	7.95
	3/3/2003	8.2	11.55

Hanning Flat 554ISA080	6/25/2003	9	9.85
	11/3/2003	8.5	N/A
	2/3/2004	9.1	11.45
	5/25/2004	8.55	9.47
	6/19/2002	8.4	6.91
	9/17/2002	8.3	7.95
	12/11/2002	8.2	5.91
	3/3/2003	8.8	11.31
	6/25/2003	9.2	9.5
Wofford Heights 554ISA090	11/3/2003	10.2	N/A
	2/3/2004	8.7	10.88
	5/25/2004	8.77	9.5
	6/20/2002	8.3	7.05
Wofford Heights 554ISA090	3/3/2003	8.4	10.6
	6/25/2003	9.1	10.74



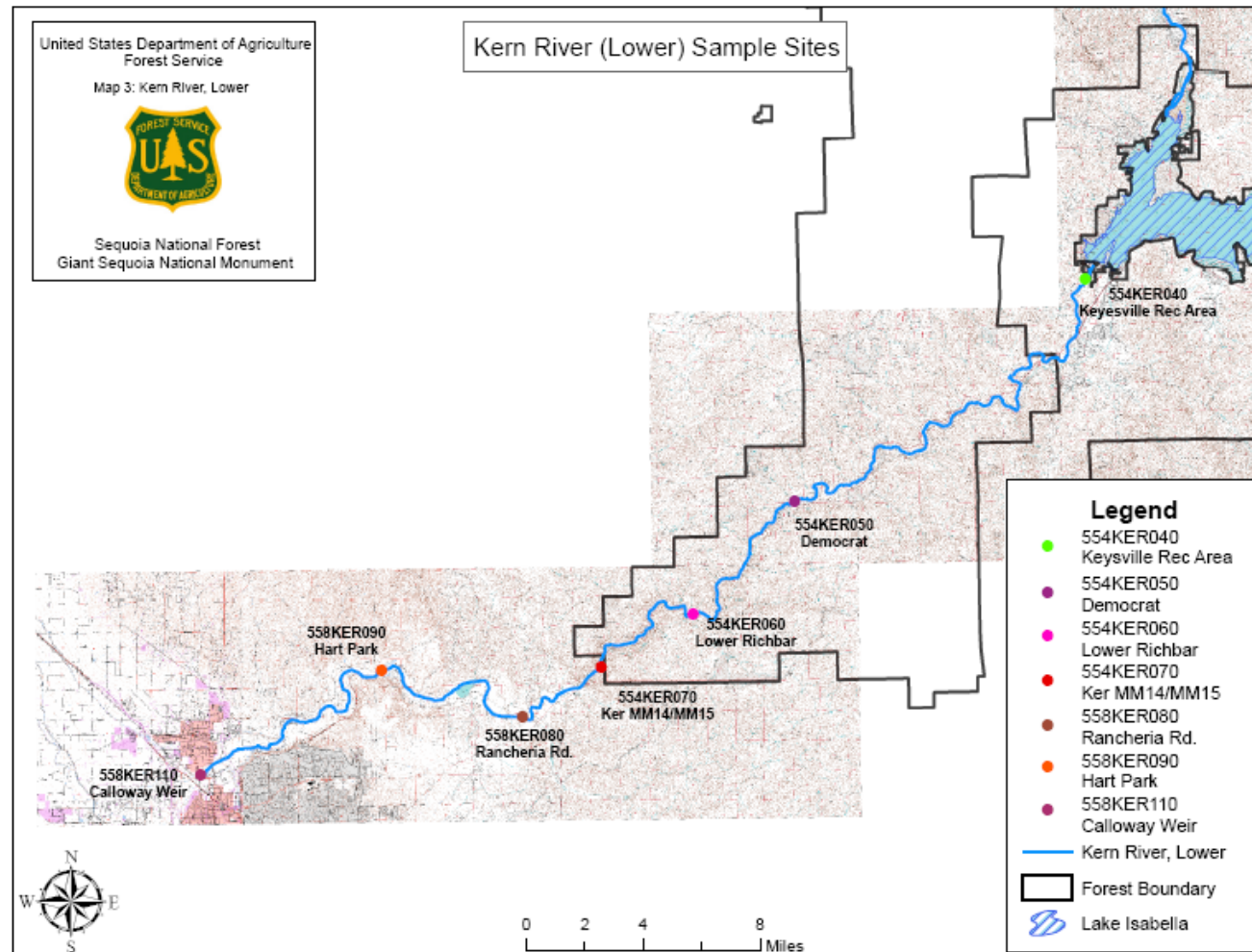
Lower Kern River Sampling Data and Map

Lower Kern River Sampling Sites/Station Code	Sampling Date	Data Range (pH)
Rancheria Rd. 558KER080	3/27/2002	8.3
	6/20/2002	8.5
	9/18/2002	8.5
	12/12/2002	8.1
	3/4/2003	8.5
	6/26/2003	8.5
	11/4/2003	8.1
	2/4/2004	8.62
Hart Park 558KER090	5/26/2004	8.44
	3/27/2002	8.5
	6/20/2002	8.5
	9/18/2002	8.6

Calloway Weir 558KER110	12/12/2002	7.9
	3/4/2003	8.7
	11/4/2003	8.4
	2/4/2004	8.75
	5/26/2004	8.66
Keyesville Rec Area 554KER040	3/27/2002	8.8
	12/12/2002	8.5
	3/4/2003	8.6
	5/26/2004	7.91
	3/27/2002	8.5
	6/19/2002	8.5
	9/17/2002	8.1
	12/11/2002	7.8
Lower Richbar 554KER060	3/4/2003	8.5
	6/26/2003	7.6
	11/4/2003	8.4

Democrat 554KER050	2/4/2004	7.94
	5/26/2004	8.14
	3/27/2002	8.4
	6/20/2002	8.5
	9/18/2002	8.4
	12/12/2002	8.5
	3/4/2003	8.1
	6/26/2003	8.4
	11/4/2003	8.4
	2/4/2004	8.08
Lower Richbar 554KER060	5/26/2004	8.26
	3/27/2002	8.4
	6/20/2002	8.4
	9/18/2002	8.4
	12/12/2002	7.9
	3/4/2003	8.3

Ker MM14/MM15 554KER070	6/26/2003	8.4
	11/4/2003	8.4
	2/4/2004	8.67
	5/26/2004	8.37
	3/27/2002	8.5
	6/20/2002	8.5
	9/18/2002	8.5
	12/12/2002	8
	3/4/2003	8.7
	6/26/2003	8.4
	11/4/2003	8.3
	2/4/2004	8.54
	5/26/2004	8.4

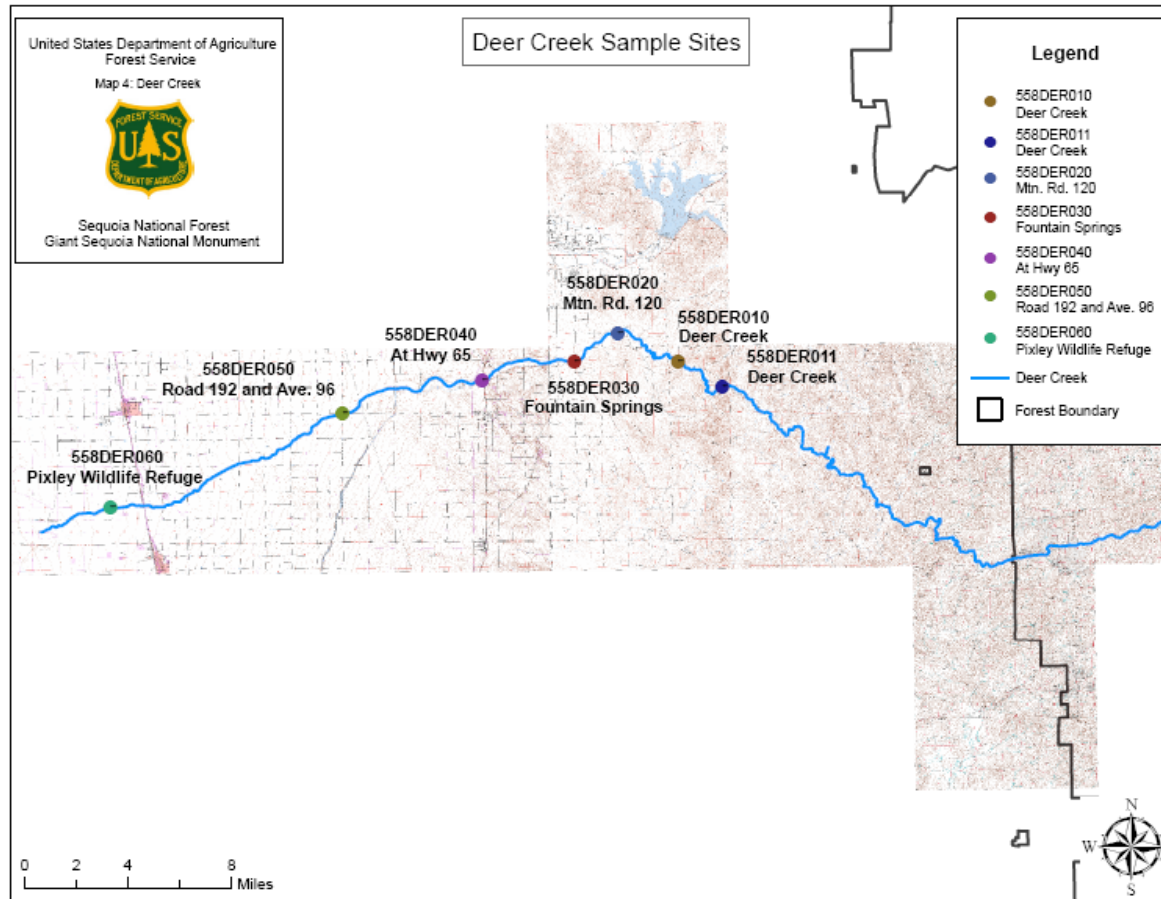


Deer Creek Sampling Data and Map

Deer Creek Sampling Sites/Station Code	Sampling Date	Data Range (pH)
Deer Creek 558DER011	6/24/2003	8.2
	5/19/2004	8
	6/16/2004	7.37
Deer Creek 558DER010	2/3/2005	7.37
	5/10/2005	7.84
	6/28/2005	8.28
	7/26/2005	7.83
	8/30/2005	7.6
	10/19/2005	7.57
	1/3/2006	7.96
	2/14/2006	8.51
	3/13/2006	8.72
	4/25/2006	8.2
	6/26/2006	7.82

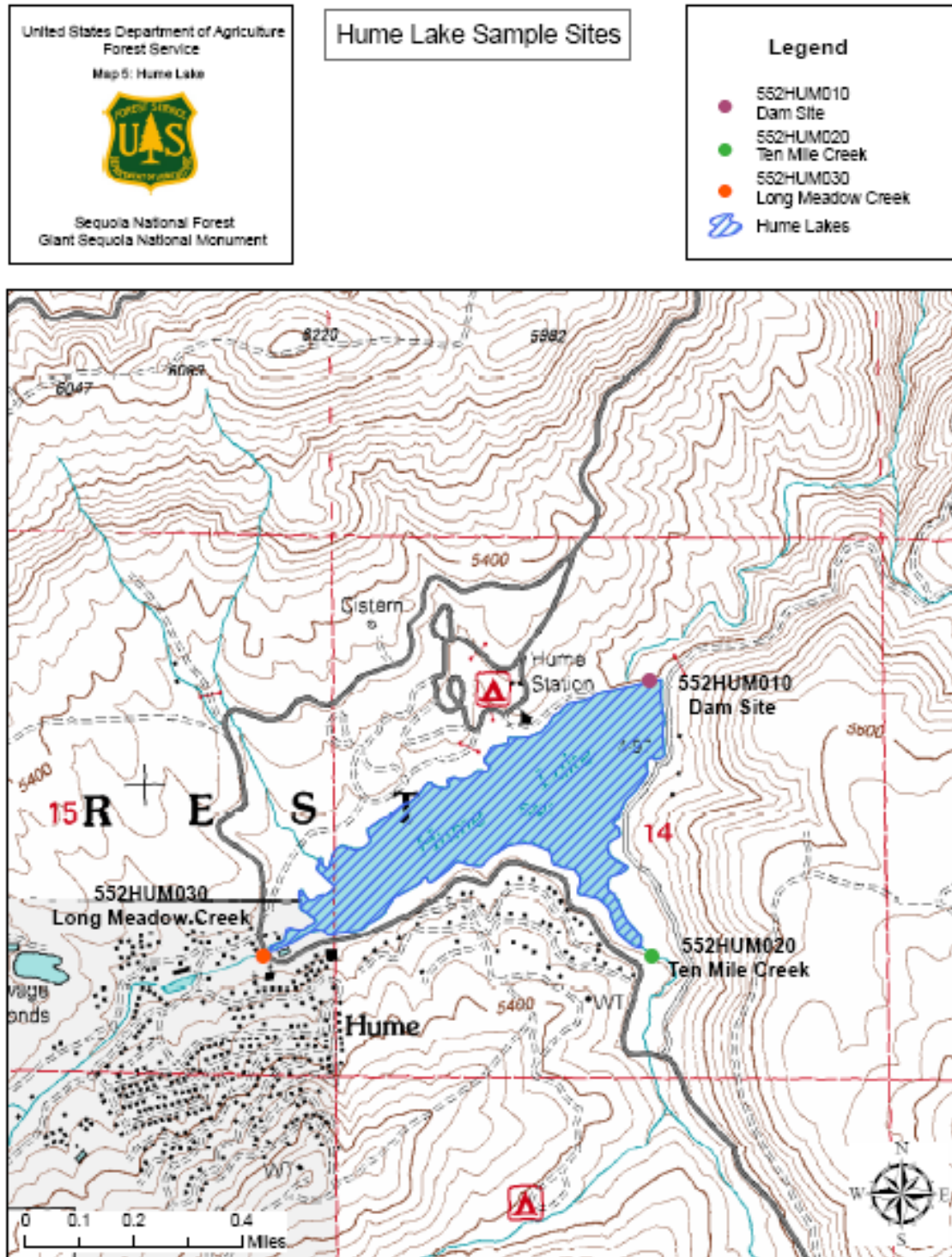
	7/24/2006	7.56
	8/21/2006	7.72
	10/23/2006	8.15
Deer Creek – Mtn Rd 120 558DER020	6/24/2003	8.4
	5/19/2004	8.3
Deer Creek – Fountain Springs 558DER030	6/24/2003	8.6
Deer Creek at Hwy 65 558DER040	2/3/2005	8.14
	5/10/2005	7.76
	6/28/2005	8.26
	1/3/2006	8.2
	2/14/2006	8.71
	3/13/2006	8.55
	4/25/2006	8.15
Deer Creek; Road 192 and Ave. 96	6/28/2005	8.19
	7/26/2005	7.48

558DER050	8/30/2005	8.08
	2/14/2006	8.36
	3/13/2006	8.79
	4/25/2006	8.35
	6/26/2006	7.92
	7/24/2006	7.2
	8/21/2006	7.66
Deer Creek at Pixley Wildlife Refuge 558DER060	6/28/2005	8.79
	7/26/2005	6.85
	8/30/2005	8.05
	2/14/2006	8.06
	3/13/2006	8.53
	4/25/2006	8.35
	6/26/2006	8.2
	7/24/2006	7.6
	8/21/2006	7.71



Hume Lake Sampling Data and Map

Hume Lake Sampling Sites/Station Code	Sampling Date	Data Range DO (mg/L)
Hume Lake – Dam Site 552HUM010	4/26/2002	9.04
	6/13/2002	6.72
	9/25/2002	8.12
	12/5/2002	8.71
	3/13/2003	7.4
	11/13/2003	8.75
	5/26/2004	6.24
Hume Lake – Ten Mile Creek 552HUM020	10/5/2004	8.5
	4/26/2002	9.97
	6/13/2002	6.83
	9/25/2002	7.45
	12/5/2002	14.3
	3/13/2003	8.55
	11/13/2003	8.15
Hume Lake – Long Meadow Creek 552HUM030	5/26/2004	6.25
	10/5/2004	6.98
	4/26/2002	7.78
	6/13/2002	6.51
	9/25/2002	6.58
	12/5/2002	12.3
	3/13/2003	8.09
Pier b/w 020 and 030 552HUM040	11/13/2003	8.02
	5/26/2004	5.75
	10/5/2004	5.47
	10/5/2004	8.4



Enclosure 2
Stream Condition Inventory Data

Kern River Watershed Stream Condition Inventory Data 2001-2008					
Name	Location	pH	Hilsenhoff (Aquatic Insects)	Date Collected	UTM
Lower Clicks Creek	Above Junction Meadow	none		6/18/2002	B: 11S 0360115 4004820
Ant Canyon	Ant Canyon across from Ant Canyon Launching area	none	Some Organic Pollution 4.6	7/16/2002 Post Fire Study	B: 11S 0368162 3972028
Tobias Creek	Tobias Creek near Fairview	none	Possible Organic Pollution 4.36	7/15/2002 Post Fire Study	B: 11S 0364673 3975897
Rattlesnake Creek	Rattlesnake Creek Near Bonita Flat	none	Possible Organic Pollution 4.48	7/7/2003 Post Fire Study	B: 11S 0379159 3995117
Ice House Creek	Near Alta Sierra	7.5	No apparent Organic Pollution 2.66	8/25/2003	B: 11S 0361793 3954049
Fish Creek	Fish Creek near Kennedy Meadows	8	Possible Organic Pollution 3.73	9/2/2003	B: 11S 0391681 3988953
Little Poso Creek	Headwaters Little Poso Cr. Above Lackey Place	7	No apparent Organic Pollution 3.03	8/26/2003	B: 11S 0353210 3944658
Tobias Creek	Tobias Creek near Fairview	none	Some Organic Pollution 5.47	7/1/2003 Post Fire Study	B: 11S 0364673 3975897
Salmon Creek	Horse Meadow	7	Possible Organic Pollution 4.19	7/31/2003	B: 11S 0375598 39773913
Ant Canyon	Ant Canyon across from Ant Canyon Launching area	7.5		6/24/2004 Post Fire Study	B: 11S 0368162 3972028
Brush Creek	Below Cherry Hill Road	8	Some Organic Pollution 5.15	6/23/2004	B: 11S 0372117 3981242
Clear Creek	Brown Meadow	8	Possible Organic Pollution 3.92	7/14/2004	B: 11S 0372654 3927315
Clear Creek	Clear Creek @ Burton Mill	8	Possible Organic Pollution 3.79	7/14/2004	B: 11S 0372470 3929165
Tobias Creek	Tobias Creek near Fairview	7.5	Possible Organic Pollution 4.01	6/22/2004 Post Fire Study	B: 11S 0364673 3975897
Fay Creek	Long Meadow	6.5	No apparent Organic Pollution 2.66	7/6/2004	B: 11S 0379714 3966049
Rattlesnake Creek	Rattlesnake Creek Near Bonita Flat	8	Possible Organic Pollution 4.13	6/28/2004 Post Fire Study	B: 11S 0379159 3995117
Poison Creek	Near Poison Meadow	7	No apparent Organic Pollution 3.15	7/29/2004	B: 11S 0374479 3976779
Dry Meadow Creek	Off Lloyd Mdw Rd below Horse Canyon	none	Some Organic Pollution 5.47	6/30/2004	B: 11S 0364345 3985895
Kelso Creek	Piutes	7		7/13/2004	No UTM coverage
Bodfish Creek	Near Saddle Springs	6.5	Some Organic Pollution 5.00	7/7/2005	B: 11S 363192 3948816
Brush Creek	Below Cherry Hill Road	7.3	No apparent Organic Pollution 3.23	6/21/2005	B: 11S 0372117 3981242
Cannell Creek	Cannell Creek at Cannell Meadow	6.8	Some Organic Pollution 4.62	6/29/2005	B: 11S 0376875 3962140

Fay Creek	Fay Creek at Long Meadow	none		6/28/2005	B: 11S 0379714 3966049
Fish Creek	Near Kennedy MDWS	7.4	Some Organic Pollution 5.02	8/1/2005	B: 11S 0391681 3988953
Greenhorn Creek	Greenhorn Creek near Rough and Ready Mtn.	7	Some Organic Pollution 4.77	6/27/2005	B: 11S 0355753 3942445
Little Poso Creek	Headwaters Little Poso Cr. Above Lackey Place	7.7	Possible Organic Pollution 4.15	7/5/2008	B: 11S 0353210 3944658
Poison Meadow Creek	Poison Meadow	6.8	Possible Organic Pollution 4.00	6/20/2005	B: 11S 0314592 3976927
Rattlesnake Creek	Rattlesnake Creek Near Bonita Flat	7.5		7/11/2005 Post Fire Study	B: 11S 0379159 3995117
Tobias Creek	Tobias Creek near Fairview	6.5	Possible Organic Pollution 3.68	6/22/2005 Post Fire Study	B: 11S 0364673 3975897
Cow Creek	Cow Creek near Black Mtn Saddle	7.5	No apparent Organic Pollution 3.5	6/15/2006	B: 11S 0361565 3959456
Bear Creek	Bear Creek near Red Mtn	7	Some Organic Pollution 4.63	6/27/2006	B: 11S 0356837 3950742
Greenhorn Creek	Greenhorn Creek near Rough and Ready Mtn.	6.9	Some Organic Pollution 5.42	6/26/2006	B: 11S 0355753 3942445
Little Poso Creek	Headwaters Little Poso Cr. Above Lackey Place	7	Possible Organic Pollution 3.77	6/19/2006	B: 11S 0353210 3944658
Mill Creek	Mill Creek above Hwy 178	7.2	Some Organic Pollution 5.49	5/25/2006	B: 11S 0354344 3932651
Tobias Creek	Tobias Creek near Fairview	7	No apparent Organic Pollution 3.31	7/5/2006 Post Fire Study	B: 11S 0364673 3975897
Cow Creek	Cow Creek near Black Mtn Saddle	7	Some Organic Pollution 4.62	6/19/2008	B: 11S 0361565 3959456
Little Poso Creek	Headwaters Little Poso Cr. Above Lackey Place	7	Significant Organic Pollution 6.26	6/19/2007	B: 11S 0353210 3944658
Bear Creek	Bear Creek near Red Mtn	8	Significant Organic Pollution 5.70	6/2/2007	B: 11S 0341634 4007504
Osa Creek	Osa Meadow	none	Some Organic Pollution 5.34	6/26/2007	B: 11S 381975 4004850
Fish Creek	Loggy Meadow Meadow Restoration Site Hay Bale Instillation to Improve Channel Morphology.	6	Significant Organic Pollution 6.00	6/25/2007	B: 11S 0362004 4005554
Clicks Creek	GTW	6.2	Possible Organic Pollution 4.37	7/3/2007	B: 11S 0360478 4005251
Fish Creek	GTW at Trail Crossing Stock Crossing Site Needs Restoration Plan	6	Significant Organic Pollution 5.57	7/13/2007	B: 11S 0365898 4006231
Grey Meadow	At Administration Cabin	none	Significant Organic Pollution 6.44	7/12/2007	B: 11S 0364863 4007853
Willow Creek	GTW	7	Significant Organic Pollution 8.08	7/15/2007	B: 11S 0365301 4016616
Tamarack Creek	GTW	7.5	Some Organic Pollution 4.53	7/16/2007	B: 11S 0364539 4018044
Soda Springs	GTW	6.5	Some Organic Pollution 4.87	7/17/2007	B: 11S 0362786 4013918
NF Kern	Trespass Site Proposed Restoration of Bulldozed Stream Channel of Private Lands onto Public	6	Significant Organic Pollution 5.69	7/31/2007	B: 11S 0370125 3959983

Salmon Creek	At Horse Meadow	7	Some Orgaic Pollution 4.9	8/30/2007	B: 11S 0375601 3973905
French Gulf	In Piutes at French Meadow	none DRY	NA	8/1/2007	B: 11S 0377931 3925635
Tributary to Hume Lake Stream Condition Inventory Data 2002-2007					
Name	Location	pH	Hilsenhoff (Aquatic Insects)	Date Collected	UTM
Long Meadow Creek	Long Meadow above Hume Lake	NA	NA	7/1/02	11S 328309 072090
Ten Mile Creek	At Ten Mile Campground	NA	NA	7/3/02	11S 0330938 4069293
Bear Skin Creek	Near Diabetic Camp	7	Possible Organic Pollution 3.67	7/24/03	11S 0330073 4069708
Bear Skin Creek	Near Diabetic Camp	7	No Apparent Organic Pollution 2.66	7/7/04	11S 0330073 4069708
Long Meadow Creek	Long Meadow above Hume Lake	6.5	No Apparent Organic Pollution 2.94	7/6/04	11S 328309 072090
Ten Mile Creek	At Ten Mile Campground	6.8	Some Organic Pollution 4.87	7/13/05	11S 0330938 4069293
Ten Mile Creek	At Ten Mile Campground	7	Possible Organic Pollution 4.4	7/25/07	11S 0330938 4069293

Enclosure 3

Sequoia National Park pH Data Collected by USGS in 1978-1979

ID	Name	Date	pH	Habitat
SEKI0007	Kern River at Park Boundary	9/15/1978	7.08	Stream
SEKI0071	Kern River near Upper Funston Meadow	9/15/1978	7.52	Stream
SEKI0085	Kern River near Chagoopa Creek	9/15/1978	7.52	Stream
SEKI0258	Kern River near Milestone Creek	9/17/1979	7.3	Stream

Sequoia National Forest pH Data for Sites above, below, and at Lake Isabella near Kernville Collected by USGS 1960 to 1993

Kern County, California Hydrologic Unit Code 18030001 Latitude 35°45'16", Longitude 118°25'21" NAD27 Drainage area 1,009 square miles

USGS 11187000 KERN R A KERNVILLE CA		3/7/1979	8	7/19/1983	6.6	7/14/1987	8.1
Date	pH	3/21/1979	7.4	9/19/1983	7.1	9/22/1987	8.1
10/2/1974	7.5	4/12/1979	8.1	11/22/1983	7.5	11/25/1987	8
12/17/1974	7.9	5/9/1979	7.1	1/24/1984	6.9	1/14/1988	7.8
5/24/1975	7.2	6/5/1979	6.7	3/13/1984	7	3/14/1988	7.8
5/27/1975	7.2	7/11/1979	7.5	5/30/1984	6.6	5/16/1988	7.4
7/23/1975	7.6	8/16/1979	7.2	7/25/1984	7.5	7/22/1988	8.1
11/18/1975	7.8	8/22/1979	8	9/19/1984	7.4	9/20/1988	8.4
4/20/1976	7.3	9/24/1979	8.2	11/19/1984	7.4	11/18/1988	8.2
9/14/1976	7.4	10/17/1979	8.1	1/16/1985	7.5	1/13/1989	8.1
1/25/1977	7.7	11/14/1979	7.7	1/16/1985	7.6	3/15/1989	8.1
3/22/1977	7.9	12/11/1979	7.7	1/16/1985	7.6	5/17/1989	7.6
5/24/1977	7.4	1/10/1980	7.4	1/16/1985	7.7	7/14/1989	7.8
7/27/1977	8.1	2/8/1980	7.3	1/16/1985	7.6	9/28/1989	8.3
8/11/1977	7.2	3/12/1980	7.5	1/16/1985	7.4	9/28/1989	8.4
9/6/1977	8.2	3/25/1980	7.4	1/16/1985	7.7	11/17/1989	8.3
9/27/1977	7	4/10/1980	7.4	1/16/1985	7.7	1/12/1990	8.2
11/22/1977	8	5/7/1980	7.2	1/16/1985	7.6	3/20/1990	8.1
1/25/1978	7.5	6/11/1980	7.4	1/16/1985	7.7	5/15/1990	7.8
2/7/1978	7.3	7/11/1980	7.4	3/19/1985	7.7	7/10/1990	8.1
3/8/1978	7.3	8/5/1980	7.5	5/15/1985	7.8	9/18/1990	8.3
3/21/1978	7.4	9/12/1980	7.4	7/17/1985	8	11/15/1990	8
4/6/1978	6.8	11/5/1980	7.8	9/11/1985	8.1	1/9/1991	8
5/3/1978	6.8	1/28/1981	7.4	11/20/1985	7.9	3/13/1991	7.8
5/24/1978	7.2	3/25/1981	7.4	1/29/1986	8	5/15/1991	7.5
6/15/1978	5.8	5/12/1981	7.1	3/13/1986	7.5	7/25/1991	7.4
7/10/1978	7.2	7/22/1981	7	3/13/1986	7.6	9/18/1991	8.2
7/26/1978	7.2	9/22/1981	7.4	3/13/1986	7.7	11/20/1991	8.2
8/8/1978	6.8	11/3/1981	7.4	3/13/1986	7.6	1/7/1992	8
8/24/1978	7.2	1/20/1982	7.2	3/13/1986	7.6	3/11/1992	8.4
9/6/1978	6.5	3/25/1982	8	5/21/1986	7.8	5/13/1992	7.7
9/19/1978	7.4	5/10/1982	7	7/16/1986	8	7/30/1992	8.4
10/2/1978	7.5	7/20/1982	7.1	9/24/1986	7.8	9/16/1992	8.5
11/20/1978	7.5	9/23/1982	7.6	11/19/1986	8.1	11/10/1992	8.3
12/7/1978	6.6	11/24/1982	7.6	1/13/1987	7.8	1/7/1993	7.9
1/9/1979	7.4	2/8/1983	7.2	1/13/1987	7.5	3/10/1993	8.1
2/21/1979	8.2	3/17/1983	7.4	3/10/1987	8	7/14/1993	7.6
		5/12/1983	7.3	5/21/1987	7.9	9/15/1993	8.4

Kern County, California, Hydrologic Unit 18030003 Latitude 35°38'21", Longitude 118°29'02" NAD27 Drainage area: 2,074 square miles

USGS 11191000 KERN R BL ISABELLA DAM CA	
Date	pH
10/14/1960	7.4
11/3/1960	7.1
12/5/1960	7.4
1/3/1961	7
2/6/1961	7.8
3/1/1961	7.1
4/5/1961	7.4
5/1/1961	7.6
6/6/1961	7.5
7/3/1961	7.5

8/1/1961	7.4
9/1/1961	7.5
10/2/1961	7.6
11/1/1961	7.6
12/19/1961	8.4
1/2/1962	7.8
2/5/1962	8.1
3/2/1962	7.5
4/2/1962	7.5
5/1/1962	7.8
6/1/1962	6.8
6/15/1962	7.2
7/2/1962	7.1

8/1/1962	6.8
9/4/1962	8.1
10/1/1962	6.9
11/1/1962	7.1
12/3/1962	6.7
1/2/1963	7.4
2/4/1963	6.5
3/1/1963	7.3
4/2/1963	7.4
5/1/1963	7.3
6/6/1963	7.2
7/2/1963	7.2
10/4/1963	6.9

1/2/1964	7.2
5/1/1964	7.7
7/10/1964	7.9
9/11/1964	7.9
1/11/1965	7.6
5/7/1965	8.1
6/12/1965	7.5
9/7/1965	8
1/10/1966	7.6
5/5/1966	8.1

Tulare County, California, Hydrologic Unit 18030001 Latitude 35°56'43", Longitude 118°28'36" NAD27 Drainage area: 846 square miles

USGS 11186000 KERN R NR KERNVILLE(RIVER ONLY) CA	
Date	pH
11/3/1960	7
12/5/1960	7.3
1/3/1961	7.5
2/6/1961	7.8
3/1/1961	7.1
4/5/1961	7.2
5/1/1961	7.3
6/6/1961	7.2
7/3/1961	7.2
8/1/1961	7.4
9/1/1961	7.7
10/2/1961	7.6
11/1/1961	7.9
12/1/1961	7.7
1/2/1962	7.8
2/5/1962	7.9
3/2/1962	7.3
4/2/1962	7.5
5/1/1962	7.6

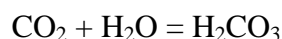
6/1/1962	6.8
7/2/1962	7.4
8/1/1962	7.2
9/4/1962	6.2
10/1/1962	7.2
11/1/1962	7.5
12/3/1962	7.4
1/2/1963	7.6
2/4/1963	6.8
3/1/1963	7.4
4/2/1963	7.4
5/1/1963	7.1
6/6/1963	6.9
7/2/1963	6.7
10/4/1963	7.3
5/1/1964	7.5
7/10/1964	7.4
9/11/1964	8.2
1/11/1965	7.8
5/7/1965	7.1
7/12/1965	7.6
9/7/1965	7.6
1/10/1966	8.1

5/5/1966	7.3
10/3/1966	8.1
1/4/1967	7.9
5/11/1967	7.5
7/25/1967	7.3
9/5/1967	7.4
1/12/1968	8.1
5/24/1968	7.5
7/8/1968	7.6
9/3/1968	7.8
1/7/1969	7.9
5/20/1969	8.2
7/7/1969	7.2
10/4/1971	8
4/3/1973	8.2
9/12/1973	8
3/21/1974	7
4/10/1974	7.4
10/2/1974	7.6
3/5/1975	7.3
7/23/1975	7.4

Enclosure 4

Geochemical Reactions Involving High pH Waters, CO₂, and Serpentinization

Chemical reactions to increase pH are as follows: pH is a function of carbon dioxide and bicarbonate. Carbon Dioxide combines with water to yield carbonic acid in the following reaction:

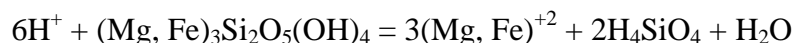


It would seem reasonable to assume that the pH of associated waters would be acidic. However carbonic acid readily dissociates in a water to yield bicarbonate as follows:



Therefore: $\text{CO}_2 + \text{H}_2\text{O} = \text{H}^+ + \text{HCO}_3^{-1}$

However the waters associated with hot springs in the area are quite alkaline with pH values >9. In the presence of serpentinization pH values of more than 8 have been reported due to simple weathering¹. In the presence of free hydronium ions which are abundant due to carbon dioxide activity, serpentine reacts to yield magnesium ions, iron ions and silica as follows:



Competing reactions between the supply of H⁺ provided by the carbon dioxide rich waters and the consumption of H⁺ by the process of serpentinization results in high pH waters which can be explained by the enrichment of bicarbonate and the deposition of Travertine (which is a solid solution between MgCO₃ and CaCO₃).

¹ Barnes and O'Neil 1969 referenced in main letter.

Enclosure 5 – Riparian Grazing Allotment Transect Monitoring Data

Plot	RMU	Method	Plotname	plotname2	Date1st	Sitetype	Root1st	Soil1st	Low1st	High1st	Moderate1st	Reread5yr	Root2nd	Soil2nd	Low2nd	High2nd	Moderate2nd	Condition1st	Condition2nd	5yrtrendveg	5yrtrendOverall
South Fork Kern flows into Lake Isabella and Lower Kern																					
SEQ0101	SEQ - BURNT COUNTRY 5135656	rooted frequency	PALOMA	SEQ0101 - PALOMA	20010710	moist meadow	23	2	0.11	0.25	0.64	SEQ0601R	23	0.02	0.2	0.31	0.49	high	high	stable	stable
SEQ0102	SEQ - BURNT COUNTRY 5135656	rooted frequency	BONITA	SEQ0102 - BONITA	20010710	wet meadow	30	0	0.1	0.45	0.45	SEQ0602R	46	0	0.15	0.39	0.46	high	high	stable	stable
SEQ0103	SEQ - BURNT COUNTRY 5135656	rooted frequency	CURLISS	SEQ0103 - CURLISS	20010711	wet meadow	17	0	0.2	0.28	0.52	SEQ0603R	23	0.48	0.09	0.26	0.65	moderate	moderate	stable	stable
SEQ0104	SEQ - BURNT COUNTRY 5135656	rooted frequency	trout creek	SEQ0104 - trout creek	20010711	moist meadow	17	4	0.41	0.22	0.37	SEQ0604R	20	0.04	0.38	0.22	0.4	moderate	high	up	up
SEQ0105		greenline	Trout Creek	SEQ0105 - Trout Creek	20010712	greenline	NA		NA	NA	NA	SEQ0605R						pnc	pnc		stable
SEQ0106		greenline	Fish Creek	SEQ0106 - Fish Creek	20010712	greenline	NA		NA	NA	NA	SEQ0606R						late seral	late seral		stable
SEQ0109	SEQ - FISH CREEK 5135655	rooted frequency	GRANITE KNOB	SEQ0109 - GRANITE KNOB	20010714	moist meadow	14	1	0.2	0.49	0.31	SEQ0609R	14	0.12	0.3	0.23	0.47	moderate	moderate	stable	stable
SEQ0110	SEQ - FISH CREEK 5135655	rooted frequency	POWELL	SEQ0110 - POWELL	20010714	moist meadow	16	2	0.24	0.27	0.49	SEQ0610R	23	0.03	0.28	0.18	0.54	moderate	high	stable	up
SEQ0111	SEQ - FISH CREEK 5135655	rooted frequency	LITTLE TROY	SEQ0111 - LITTLE TROY	20010715	dry meadow	9	0	0	0.25	0.75	SEQ0611R	9	0.07	0.28	0.71	0.01	moderate	moderate	up	stable
SEQ0112	SEQ - FISH CREEK 5135655	rooted frequency	TROUT CREEK	SEQ0112 - TROUT CREEK	20010715	moist meadow	19	5	0.47	0.45	0.09	SEQ0612R	26	0.04	0.14	0.39	0.47	moderate	high	stable	up
SEQ0114	SEQ - FISH CREEK 5135655	rooted frequency	Beck Meadow	SEQ0114 - Beck Meadow	20010728	wet meadow	18	11	0	0	1	SEQ0614R	15	0.32	0	0	1	moderate	moderate	stable	stable

SEQ0115	SEQ - FISH CREEK 5135655	rooted frequency	Snake Creek Meadow	SEQ0115 - Snake Creek Meadow	20010728	wet meadow	24	7	0.33	0.65	0.02	SEQ0615R	22	0.13	0.23	0.26	0.51	high	moderate	down	down
SEQ0116	SEQ - FISH CREEK 5135655	rooted frequency	Bull Meadow	SEQ0116 - Bull Meadow	20010728	wet meadow	21	8	0.17	0.68	0.15	SEQ0616R	15	0.03	0.14	0.43	0.43	moderate	moderate	down	stable
SEQ0201	SEQ - PIUTE 5135445	rooted frequency	LANDER S MDW	SEQ0201 - LANDERS MDW	20020604	moist meadow	1	9	0.24	0.45	0.32		NA	NA	NA	NA	NA	moderate			
SEQ0202		greenline	Kelso Creek	SEQ0202 - Kelso Creek	20020604	greenline	NA		NA	NA	NA		NA	NA	NA	NA	NA	very early seral			
SEQ0301	SEQ - FISH CREEK 5135655	rooted frequency	CORRAL MEADOW	SEQ0301 - CORRAL MEADOW	20030730	moist meadow	7	14	0.39	0.31	0.3		NA	NA	NA	NA	NA	low			
SEQ0302	SEQ - FISH CREEK 5135655	rooted frequency	HOOKE MEADOW	SEQ0302 - HOOKER MEADOW	20030731	moist meadow	9	5	0.17	0.45	0.38		NA	NA	NA	NA	NA	moderate			
SEQ0303	SEQ - FISH CREEK 5135655	rooted frequency	ALBANITA MEADOW	SEQ0303 - ALBANITA MEADOW	20030731	moist meadow	9	10	0.36	0.28	0.36		NA	NA	NA	NA	NA	moderate			
SEQ0304	SEQ - FISH CREEK 5135655	rooted frequency	LOST MEADOW	SEQ0304 - LOST MEADOW	20030801	moist meadow	8	12	0.21	0.46	0.33		NA	NA	NA	NA	NA	low			
SEQ0305	SEQ - FISH CREEK 5135655	rooted frequency	BRODER MEADOW	SEQ0305 - BRODER MEADOW	20030802	wet meadow	12	11	0.12	0.56	0.32		NA	NA	NA	NA	NA	moderate			
SEQCA006	SEQ - BARTOLAS 5135649	rooted frequency	Rattlesnake meadow	SEQCA006 - Rattlesnake meadow	20000725	dry meadow	11	10	0.07	0.58	0.35		NA	NA	NA	NA	NA	moderate			
North Fork Kern River																					
SEQCA008	SEQ - CANNELL MEADOW 5135651	rooted frequency	Round meadow	SEQCA008 - Round meadow	20000726	dry meadow	10	8	0.13	0.31	0.56		NA	NA	NA	NA	NA	moderate			
SEQCM001	SEQ - CANNELL MEADOW 5135651	rooted frequency	Poison meadow	SEQCM001 - Poison meadow	20000826	wet meadow	17	8	0.21	0.26	0.52	SEQCM001R	15	7	0.23	0.28	0.49	moderate	moderate	stable	stable
SEQCM002	SEQ - CANNELL MEADOW 5135651	rooted frequency	Horse meadow	SEQCM002 - Horse meadow	20000721	wet meadow	13	8	0.09	0.32	0.59	SEQCM002R	17	9	0.09	0.4	0.51	moderate	moderate	stable	stable

SEQC M003	SEQ - CANNELL MEADOW 5135651	rooted frequency	Big meadow	SEQCM003 - Big meadow	200007 19	wet meadow	11	7	0.15	0.54	0.32	SEQC M003R	12	18	0.05	0.55	0.4	moderate	mod erate	stable	stable
SEQC M004	SEQ - TAYLOR/LON G MEADOW 5135662	rooted frequency	Long meadow	SEQCM004 - Long meadow	200007 20	wet meadow	10	7	0.02	0.74	0.24	SEQC M004R	11	14	0.05	0.58	0.47	moderate	mod erate	stable	stable
SEQC M005	SEQ - CANNELL MEADOW 5135651	rooted frequency	Cannel meadow	SEQCM005 - Cannel meadow	200007 20	moist meadow	10	5	0.13	0.31	0.56	SEQC M005R	14	4	0.11	0.42	0.47	moderate	mod erate	stable	stable
SEQC M007	SEQ - CANNELL MEADOW 5135651	rooted frequency	Mosquito meadow	SEQCM007 - Mosquito meadow	200007 26	wet meadow	9	8	0.06	0.24	0.7	SEQC M006R	12	10	0.23	0.21	0.64	moderate	mod erate	stable	stable
SEQTR 002	SEQ - JORDAN 5135217	rooted frequency	Lower Clicks	SEQTR002 - Lower Clicks	200007 12	wet meadow	19	10	0.12	0.2	0.68	SEQC M007R	14	4	0.1	0.35	0.65	moderate	mod erate	stable	stable
SEQ01 07	SEQ - BEACH 5135652	rooted frequency	OSA	SEQ0107 - OSA	200107 13	moist meadow	13	2	0.11	0.22	0.67	SEQ06 07R	15	0.33	0.27	0.05	0.68	moderate	mod erate	stable	stable
SEQ01 08	SEQ - BEACH 5135652	rooted frequency	COOPER SMITH	SEQ0108 - COOPERSMI TH	200107 13	wet meadow	21	0	0.01	0.21	0.78	SEQ06 08R	28	0	0.01	0.15	0.84	high	high	stable	stable
Lower Kern River																					
SEQ02 03	SEQ - BASIN 5135447	rooted frequency	BROWNS MDW	SEQ0203 - BROWNS MDW	200206 05	dry meadow	9	1	0.16	0.42	0.41		NA	NA	NA	NA	NA	moderate			
SEQ02 04	SEQ - PIUTE 5135445	rooted frequency	WELDEN MDW	SEQ0204 - WELDEN MDW	200206 05	moist meadow	15	7	0.51	0.37	0.11		NA	NA	NA	NA	NA	moderate			
SEQ02 06	SEQ - PIUTE 5135445	rooted frequency	FRENCH MDW	SEQ0206 - FRENCH MDW	200206 06	dry meadow	0	0	0	0	0		NA	NA	NA	NA	NA	moderate			
SEQ02 07	SEQ - BRECKENRID GE 5135443	rooted frequency	GOLF MDW	SEQ0207 - GOLF MDW	200206 07	dry meadow	2	29	0.8	0.08	0.13		NA	NA	NA	NA	NA	low			
SEQ02 08	SEQ - BRECKENRID GE 5135443	rooted frequency	MUNZER MDW	SEQ0208 - MUNZER MDW	200206 07	dry meadow	13	2	0.36	0.24	0.4		N A	NA	NA	NA	NA	moderate			
SEQ02 09	SEQ - BRECKENRID GE 5135443	rooted frequency	Squirrel Mdw	SEQ0209 - Squirrel Mdw	200206 08	moist meadow	12	1 0	0.48	0.41	0.11		N A	NA	NA	NA	NA	moderate			
Hume Lake Area																					
SEQ99 01	SEQ - BUCREEK ROCREEK 5135101	rooted frequency	HORSES HOE	SEQ9901 - HORSESHOE	199906 10	moist meadow	13	3	0.32	0.31	0.37	SEQ04 01R	17	8	0.3	0.28	0.42	moderate	mod erate	stable	stable

Enclosure 6

2007 Memorandum of Agreement between the USFS and
the U.S. Environmental Protection Agency